

STORMWATER MANAGEMENT PROGRAM (SWMP) PLAN



VILLAGE OF BUCHANAN
WESTCHESTER COUNTY
NEW YORK



Sept. 2004

~~Last~~ Rev. July 2024

Last Rev. ~~December 2025~~ March 2025 DRAFT

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[Appendix L Municipal Facility Inventory](#)

This document has been prepared by
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The Village of Buchanan, Westchester County, New York, in order to comply with the requirements of the United States Environmental Protection Agency (USEPA) and the New York State Department of Environmental Conservation (NYSDEC) has developed this Stormwater Management Program (SWMP) Plan for the purpose of documenting municipal efforts for the purpose of improving stormwater quality. This SWMP Plan has been prepared in accordance with NYSDEC State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems Permit No. GP-0-24-001. In accordance with said permit, this SWMP Plan shall be updated periodically, no less than annually, to reflect the latest available information and to incorporate any necessary changes. The latest SWMP Plan shall be made available on the Town website.

In accordance with the USEPA Stormwater Phase II regulations, municipal operators of municipal separate storm sewer systems (MS4s) must develop, implement, and enforce a stormwater management program designed to reduce the discharge of pollutants from their MS4 to the “maximum extent practicable”, to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act. The rule assumes the use of narrative, rather than numeric, effluent limitations requiring the implementation of BMPs for six designated minimum control measures.

The NYSDEC is the permitting authority in New York State for the Phase II regulations. The stormwater management program must include the following six (6) minimum control measures:

1. Public Outreach and Education
2. Public Involvement/Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Stormwater Runoff Control
5. Post-Construction Stormwater Management
6. Pollution Prevention/Good Housekeeping for Municipal Operations

Other Permit Requirements include:

1. Monitoring
2. Recordkeeping
3. Reporting
4. Certification

Measurable goals are required for each of the six minimum control measures. Measurable goals are described in the Phase II rule as BMP design objectives or goals that quantify the progress of program implementation and the performance of your BMPs. There are a number of different ways you can write your measurable goals. You can consider developing measurable goals based on one or more of the following general categories:

- ~~+~~ *Tracking implementation over time.* Where a BMP is continually implemented over the permit term, a measurable goal can be developed to track how often, or where, this BMP

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is implemented.

1. _____
2. *Measuring progress in implementing the BMP.* Some BMPs are developed over time, and a measurable goal can be used to track this progress until BMP implementation is completed.
3. *Tracking total numbers of BMPS implemented.* Measurable goals also can be used to track BMP implementation numerically, e.g., the number of wet detention basins in place or the number of people changing their behavior due to the receipt of educational materials.
4. *Tracking program/BMP effectiveness.* Measurable goals can be developed to evaluate BMP effectiveness, for example, by evaluating a structural BMP's effectiveness at reducing pollutant loadings, or evaluating a public education campaign's effectiveness at reaching and informing the target audience to determine whether it reduces pollutants. A measurable goal can also be a BMP design objective or a performance standard.
5. *Tracking environmental improvement.* The ultimate goal of the NPDES stormwater program is environmental improvement, which can be a measurable goal. Achievement of environmental improvement can be assessed and documented by ascertaining whether state water quality standards are being met for the receiving waterbody or by tracking trends or improvements in water quality (chemical, physical, and biological) and other indicators, such as the hydrologic or habitat condition of the waterbody or watershed.

EPA strongly recommends that measurable goals include, where appropriate, the following three components:

1. The activity, or BMP, to be completed;
2. A schedule or date of completion; and
3. A quantifiable target to measure progress toward achieving the activity or BMP.

Part I. Permit Coverage and Limitations

The Village of Buchanan ("the Village"), as an Automatically Designated Municipal Separate Storm Sewer System (MS4) Operator, is not exempt from the requirements of the New York State Department of Environmental Conservation (NYSDEC) SPDES General Permit GP-0-24-001 ("GP") as listed in GP Part I.B.1. Furthermore, the Village is not authorized to and does not permit the following discharges:

- Stormwater discharges that may adversely affect an endangered or threatened species, or its designated critical habitat;
- Stormwater discharges which adversely affect properties listed or eligible for listing in the National Register of Historic Places unless the covered entity is in compliance with requirements of the National Historic Preservation Act and has coordinated with the appropriate State Historic Preservation Office any activities necessary to avoid or minimize impacts;

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- Stormwater discharges, the permitting of which is prohibited under 40 CFR 122.4 and 6 NYCRR 750-1.3;
- The discharge of vehicle and equipment wash water from municipal facilities, including tank cleaning operations.

MS4 Name: Village of Buchanan
Mailing Address: 236 Tate Avenue, Buchanan, NY 10511
Receiving waters: Hudson River, Dickey Brook, Lake Meahagh

County and State roadways and associated drainage infrastructure are considered to be under the jurisdiction of separate MS4s and shall not be covered by this SWMP Plan unless otherwise agreed upon in written maintenance agreements with NYSDOT or Westchester County.

Part II. Obtaining Permit Coverage

An electronic Notice of Intent (NOI) has been completed and filed with NYSDEC (Appendix A). No eNOI waiver was requested. As information in the completed NOI changes, within thirty (30) days, the Village must update the information on the NOI and resubmit the completed NOI to NYSDEC.

The Village must document information from NYSDEC acknowledging previous coverage or designation in this SWMP Plan (Appendix A).

Part III. Special Conditions

The Village must take all necessary actions to ensure discharges comply with the terms and conditions of this SPDES general permit. If at any time the Village becomes aware (e.g., through self-monitoring or by notification from NYSDEC) that a discharge causes or contributes to the violation of an applicable water quality standard, the Village must implement corrective actions and the Village must document these actions in the SWMP Plan.

A list of violations and corrective actions is kept on file with the Building Department.

Part IV. Stormwater Management Program (SWMP) Requirements

IV.1. Implementation Entities

The Village in conjunction with the Village Consulting Engineer shall perform implementation of the permit. A list of entities involved with permit implementation is provided in Table 1 below.

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Table 1: Permit Requirement Implementation Entities

Name of Entity	Permit Requirement Implementation
VOB Administrator's Office	Point of Public Contact Public Information Outreach Public Participation and Involvement
VOB Highway Dept.	Illicit Discharge Detection & Elimination Pollution Prevention & Good Housekeeping Catch Basin Maintenance Sweeping
VOB Building Dept.	Construction Site Stormwater Runoff Control Post Construction Stormwater Management Code Enforcement
James J. Hahn Engineering* (Village Consulting Engineer)	Stormwater Program Coordinator SWMP Plan Annual Outfall Inspection Annual MS4 Report Staff Training SWPPP Review High Priority Construction Site Inspection

*Alternative Implementation Option; agreement on file with the Village Clerk.

The Village may utilize other entities or the resources of those entities to assist with any portion of the SWMP development, implementation, or enforcement. These entities are collectively referred to as “alternative implantation options”. If the MS4 Operator is relying upon another entity for compliance with any portion of this SPDES general permit, there must be a legally binding, written, up to date, executed agreement in place, as required by GP Part IV.A.1.a. Within thirty (30) days of signing an agreement for alternative implementation agreements option, it must be documented in the SWMP Plan. A copy of these agreements shall be kept of file with the Village Clerk.

IV.2. Organizational Information

A staffing plan/organizational chart for implementation of the SWMP is provided in Appendix B. The written staffing plan/organizational chart includes job titles and other entities and the roles and responsibilities for each corresponding to the required elements of the SWMP. It also describes how information will be communicated and coordinated among all those with identified responsibilities.

Village Administrator

The Village Administrator serves the Village as its chief administrative and budgetary officer. He manages and controls stormwater practices. He is responsible for the efficient

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and effective implementation of stormwater practices. The Administrator supervises the improvement and repairs of drains, ditches, culverts, stream and water courses as well. Publishes annual stormwater report and make it available in the Village website. Some of the duties of the Administrator include, but are not limited to, attending all meetings of the Board of Trustees; preparing Board meeting agendas and items for review by the Mayor and Trustees; making recommendations to the Mayor and Board trustees regarding all issues affecting the Village and its residents; serving as liaison between other municipalities and government agencies; representing the Village on personnel matters, including collective bargaining agreements for Village employees; adopting policy set forth by the Village Board; overseeing Village projects and improvements, such as infrastructure and parkland and waterfront improvements; assessing the adequacy of Village operations to ensure efficiency and efficacy. The Village Administrator also researches and responds to inquiries by Village residents and other parties concerning Village operations and services. The Village Administrator also carries out any all duties and responsibilities as delegated by the Mayor and Board of Trustees.

Village Clerk

The Village Clerk works with the Village Administrator. The Clerk receives all public inquiries and complaints and distributes them to the appropriate department. The Clerk retains Village records.

Village Building Inspector

The Building Department is responsible for the Enforcement of the Local Ordinances of the Village and all applicable County and State Laws. These laws regulate among others, the sediment and erosion controls implementation and stormwater practice. The Building Department will enforce these regulations, will assist in the coordination of all aspects of compliance with the stormwater discharge permit and will alert the Village Consulting Engineer for potential problems. This includes numerous sub-programs such as technical advisory, new development, public education and outreach, commercial industrial, illicit discharge, plan review, training of staff, and coordination with other departments.

Village Highway Department

The Highway Department provides general maintenance and repairs for water mains, water services, fire hydrants and water main valves. It is also responsible for repairing or replacing catch basins, as well as laterals from drains and manholes and oversees closed circuit television camera inspection of storm and sanitary pipe. It is responsible for street sweeping.

Village Wastewater Department

The Wastewater Department's primary function is to treat the Village's wastewater and is responsible for the operation and maintenance of the sanitary sewer lines that make up the

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collection system. In addition to treating wastewater, the Department monitors discharges aware of procedures.

Village Consulting Engineer

The Village Consulting Engineer is an outside consultant on contract with the Village. The Engineer is a NYS licensed professional engineer (P.E.). Responsibilities include: implement and monitor stormwater program; overseeing the implementation of the Village’s stormwater ordinance; field inspections; review of permits for engineering compliance; and review of the Village’s overall stormwater conveyance and detention systems.

The Village must designate a Stormwater Program Coordinator who oversees the development, implementation, and enforcement of the SWMP; coordinates all elements of the SWMP to ensure compliance with this SPDES general permit; and develops and submits the Annual Report. The Stormwater Program Coordinator shall be the Village Consulting Engineer.

Stormwater Program Coordinator: George E. Pommer, P.E.
Village Consulting Engineer
James J. Hahn Engineering, P.C.
1689 Route 22, Brewster, NY 10509
845-279-2220
gpommer@hahn-eng.com

IV.3. Availability of SWMP Plan

The current SWMP Plan shall be made available to the Village staff, alternative implementation entities, NYSDEC, United States Environmental Protection Agency (USEPA), and the public by posting the SWMP Plan on the Village’s website: www.buchananny.gov.

Field Code Changed

Any supporting documents referenced herein as being on file with the Village Clerk is available with the Village Clerk’s Office at 236 Tate Avenue Buchanan, NY during normal business hours or by contacting the Village Clerk at 914-737-1033.

A public meeting was held on March 4, 2025 and March 25, 2025 to discuss stormwater compliance with the MS4 Permit.

IV.4. Mapping

The MS4 Operator must develop and maintain comprehensive system mapping documented in the SWMP Plan in a readily accessible format. The Village has comprehensive drainage maps, provided in Appendix H, which is in the process of being added to a GIS map hosted by Westchester County, which will be made available on the County website. Mapping shall include the following information:

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- MS4 outfalls¹
- Interconnections² (*Any point of stormwater discharge from pipes, ditches, swales, or other points of concentrated flow, where the Village's MS4 is discharging to another MS4 or private storm sewer system*)
- Preliminary storm-sewershed boundaries³
- MS4 infrastructure⁴
 - Conveyance system
 - Type (closed pipe or open drainage);
 - Conveyance description for closed pipes (material, shape, dimensions);
 - Conveyance description for open drainage (channel/ditch lining material, shape, dimensions)⁵; and
 - Direction of flow;
 - Culvert crossings (location and dimensions)
 - Stormwater structures
 - Type (drop inlet, catch basin, or manhole); and
 - Number of connections to catch basins, and manholes
- Basemap information
 - Automatically and additionally designated areas⁶;
 - Names and location of all surface waters of the State, including⁷:
 - Waterbody classification;
 - Waterbody Inventory/Priority Waterbodies List (WI/PWL);
 - Impairment status; and
 - POC, if applicable;
 - TMDL watershed areas;
 - Land use, including: Industrial, Residential, Commercial, Open Space, and Institutional⁸;
 - Roads⁹; and
 - Topography¹⁰.

By January 2, 2027, the Village must update their comprehensive mapping in GIS to identify outfalls discharging to Lake Meahagh. Additionally, in the Lake Meahagh storm sewershed, plant nurseries, commercial lawn care facilities, and golf courses, must be identified.

IV.5. Legal Authority

¹ Information available on *Village Drainage Maps, Appendix I*

² Information available on *Village Drainage Maps, Appendix I*

³ Information available on *Village Drainage Maps, Appendix I*

⁴ Information available on *Village Drainage Maps, Appendix I*

⁵ Open channels have been identified and mapping is ongoing.

⁶ Information available on NYSDEC Stormwater Interactive Map: <https://gisservices.dec.ny.gov/gis/stormwater/>.

⁷ Information available on NYSDEC Stormwater Interactive Map: <https://gisservices.dec.ny.gov/gis/stormwater/>.

⁸ Information available on Westchester County GIS: <https://giswww.westchestergov.com/gismap/>.

⁹ Information available on Westchester County GIS: <https://giswww.westchestergov.com/gismap/>.

¹⁰ Information available on Westchester County GIS: <https://giswww.westchestergov.com/gismap/>.

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The Village, to the extent allowable by State and local law, is required to develop, implement, and maintain adequate legal authority to control pollutant discharges to implement the requirements of the SPDES general permit. This is achieved by Village Code Chapter 166 “Stormwater Management”¹¹ and Chapter 211 Article XIV “Stormwater Management and Erosion and Sediment Control”¹². The Code is reevaluated and amended from time to time. Any resolutions for amendments that have been made or will be made to the Code are kept on file with the Village Clerk.

IV.6. Enforcement Response Plan

As required by GP Part IV.E.1., the Village is required to maintain an enforcement response plan (ERP) which clearly describes the action(s) to be taken for violations that the MS4 Operator has enacted for illicit discharge, construction, and post-construction.

To ensure proper BMP performance, enforcement procedures and mechanisms should be established for the municipal fixed facilities and field programs. Enforcement actions may occur as a result of a problem found during an inspection or in response to a complaint that is received. Several different types of enforcement mechanisms and penalties can be utilized to ensure compliance. The internal enforcement procedures, directed toward Village staff, include initial verbal warnings, written warnings, and more serious disciplinary actions if verbal and written warnings do not result in appropriate action. External enforcement procedures which pertain to municipal contractors maybe undertaken primarily by the Village’s inspectors, managers, and supervisors who possess enforcement authority through established policies and procedures or ordinances. Depending on the severity of the violation, enforcement could range from the issuance of a notice of noncompliance to the loss of a contract or lease, or a fine.

Village Code Chapter 166-14 “Enforcement; penalties for offenses.” and Chapter 211-101 “Enforcement; penalties for offenses” details the process for notices of violations and penalties^{13,14}.

As mentioned in Part III of this SWMP Plan, a list of violations and corrective actions is kept on file with the Building Department.

Part V. Recordkeeping, Reporting, and SWMP Evaluation

Pursuant to GP Part V.B.1., all reporting to NYSDEC, including annual reports, interim progress certifications, and NOIs, shall be submitted electronically. No electronic submission waiver is requested.

V.1. Annual Reports

¹¹ Village Code: <https://ecode360.com/15758765#15758765https://ecode360.com/BU0230>

¹² Village Code: <https://ecode360.com/15766573#15766573>

¹³ Village Code: <https://ecode360.com/15758765#15758872https://ecode360.com/BU0230>

¹⁴ Village Code: <https://ecode360.com/15766573#15766713>

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The reporting period for the Annual Report is January 3 of the current year to January 2 of the following year (“Reporting Year”). The Annual Report must be submitted to NYSDEC by April 1 of the year following the end of the Reporting Year. Annual Reports for the past five years are provided in Appendix C. Reports more than 5 years old may be removed from the Appendix and shall be kept on file with the Village Clerk.

V.2. Interim Progress Certifications

Twice a year, the Village must submit to NYSDEC an Interim Progress Certification (IPC) that verifies the activities included in this SPDES general permit have been completed by the date specified using the form provided by NYSDEC. An IPC for the period of January 3 through June 30 of the same year must be submitted to NYSDEC by October 1 of the same year. An IPC for the period of July 1 through January 2 of the following year must be submitted to NYSDEC by April 1 of the following year along with the Annual Report. Submission of the Annual Report is not a substitute for submission of the IPC. Completed IPCs for the past five years are provided in Appendix D. IPCs more than 5 years old may be removed from the Appendix and shall be kept on file with the Village Clerk.

V.3. SWMP Evaluation

~~Once every five (5) years,~~ the Village must evaluate the SWMP for compliance with the terms and conditions of this SPDES general permit, including the effectiveness or deficiencies of components of the individual SWMP Plan, and the status of achieving the requirements outlined in this SPDES general permit. The SWMP evaluation must be documented in this SWMP Plan.

The ~~current-2024~~ extensive revisions of the SWMP Plan constitutes the 2024~~5~~ SWMP Evaluation. The next ~~final overall~~ evaluation shall be performed in 2029. Updates, additions, and revisions to the SWMP will ~~may~~ be made before the 2029 ~~final overall~~ evaluation.

Part VI. Minimum Control Measures (MCMs) for Traditional Land Use Control MS4 Operators

VI.1. MCM 1 – Public Education and Outreach Program

It is the policy of the Village to conduct a program to educate the public on the problems associated with impaired stormwater quality, the conditions which contribute to impaired water quality, and the actions which can be taken by the community both individually and as a whole to improve the quality of stormwater runoff. The Village will develop and operate programs to inform residents and businesses of the problems associated with impaired water quality through the distribution of information as discussed herein. An Annual Watershed brochure about Lake Meahagh was made available to Buchanan residents and can be found on the Village Website. Informational “Seasonal Stormwater Tips” are posted on the Village website. Each season the slide is rotated. In addition, all building permit applications include a copy of the Annual Watershed brochure. It should be

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noted that 228 building permit applications were issued in 2024 and 238 building permit applications were issued in 2025.

It is the goal of the Village to ensure that sufficient information is made available to the public on impairments to stormwater quality and what needs to be done in order for individuals and businesses to make informed decisions on how best to contribute to the overall SWMP effort.

VI.1.a. Focus Areas

By January 2, 2027, the Village must identify and document the focus areas in the SWMP Plan. The focus areas to be considered are as follows:

- Areas discharging to waters with Class AA-S, A-S, AA, A, B, SA, or SB (and mapped);
 - Hudson River & Lents Cove (Class SB)
 - Unnamed Lake on ConEdison Property (43.20-2-4) (Class B)
- Sewersheds for impaired waters (and mapped);
 - Lake Meahagh (phosphorus impaired)
- TMDL watersheds (not applicable – no TMDL watersheds in the Village);
- Areas with construction activities;
- Areas with on-site wastewater systems (not applicable – no SSTs in the Village);
- Residential, commercial, and industrial areas (mapped);
- Stormwater hotspots; and
- Areas with illicit discharges.

Thereafter, the Village must, by April 1, annually review and update the focus areas and document the update in this SWMP Plan.

VI.1.b. Target Audiences

By January 2, 2027, the Village must identify and document the applicable target audience(s) and associated pollutant generating activities that the outreach and education will address for each focus area identified in the SWMP Plan. The target audiences are as follows:

- Residents;
- Commercial: Business owners and staff;
- Institutions: Managers, staff, and students;
- Construction: Developers, contractors, and design professionals;
- Industrial: Owners and staff; and
- Village staff.

Thereafter, the Village must, by April 1, annually review and update the target audiences and document the update in this SWMP Plan.

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VI.1.c. Education & Outreach Topics

By January 2, 2027, the Village must identify and document in the SWMP Plan the education and outreach topics and how the education and outreach topics will reduce the potential for pollutants to be generated by the target audiences for the focus areas.

Thereafter, the Village must by April 1 annually review and update the education and outreach topics and document the update in this SWMP Plan.

VI.1.d. Illicit Discharge Education

What types of discharges are allowable?

Pursuant to Village Code §166-6 A.(1), the following discharges into the storm sewer system are permitted, unless the NYSDEC or the municipality has determined them to be substantial contributors of pollutants: waterline flushing or other potable water sources, landscape irrigation or lawn watering, existing diverted stream flows, rising groundwater, uncontaminated groundwater infiltration to storm drains, uncontaminated pumped groundwater, foundation or footing drains, crawl space or basement sump pumps, air-conditioning condensate, irrigation water, springs, water from individual residential car washing, natural riparian habitat or wetland flows, dechlorinated swimming pool discharges, residential street wash water, water from emergency fire-fighting activities, and any other water source not containing pollutants. Such permitted discharges shall be made in accordance with an appropriate plan for reducing pollutants.

What is an illicit discharge and why is it prohibited?

Pursuant to Village Code §166-6 A., no person shall discharge or cause to be discharged into the storm sewer system any materials other than stormwater except as permitted by Village Code §166-6 A.(1).

The environmental hazards associated with illicit discharges and improper disposal of waste.

Illicit discharges into the storm sewer system and improper disposal of waste materials can have a deleterious effect on the natural environment and the waters within the Village. The introduction of pollutants into the environment through stormwater runoff or illegal connections can degrade the environment and adversely impact the health, safety, and general welfare of the citizens of the Village.

Proper handling and disposal practices for common behaviors within the community.

All persons in the Village shall prevent illicit discharges into the storm sewershed. This shall include such items as:

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- Using phosphorus-free fertilizer on lawns.
- Dechlorinating and neutralizing pools before lower during end of season maintenance.
- Do not pour waste oils, solvents, or other chemicals into storm drains.
- Use only phosphate-free, biodegradable car wash soap.

How to report illicit discharges they may observe.

Any person observing a suspected illicit discharge should report it to the Village Clerk, refer to Organizational Chart.

VI.1.e. Distribution Method of Educational Messages

Once every five (5) years, the Village must identify and document in this SWMP Plan the methods that are used for the distribution of educational messages, such as printed materials, electronic materials, mass media, workshops or focus groups, displays in public areas, or social media.

By January 2, 2027, following the completion of identifying focus areas, target audiences, and outreach topics, the Village must deliver an educational message to each target audiences for each focus area based on the defined education and outreach topics and document the completion of this requirement in this SWMP Plan. This shall be repeated every five (5) years thereafter.

Starting no later than starting after January 2, 2027, the Village shall provide educational messages with information specific to phosphorus to the target audience in the Lake Meahagh storm sewershed and document the completion of this requirement in this SWMP Plan. This message shall be done twice a year, once between March-~~May-August~~ and once ~~between~~ September-~~November~~February.

An inventory of outreach distribution will be provided as an Appendix. Appendix H includes the following items:

- Annual Watershed Mailing (Lake Meahagh)
- Information included in building permit applications
- Informational “Seasonal Stormwater Tips” slides

VI.2. MCM 2 – Public Involvement/Participation _____

The Village is required to comply with applicable State and local public notice requirements, and to encourage public participation in developing, implementing, and reviewing SWMP. The EPA believes that an active and involved community is crucial to the success of SWMP because it allows for broader public support, shorter implementation schedules due to public and legal challenges, and increased citizen volunteers with a broader base of expertise. It is the goal of the Village that all residences and businesses have an opportunity to better understand and “buy in” to the idea that stormwater is the concern of each and every homeowner and business and that

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participating in the process of improving stormwater will have a positive impact on the overall quality of life in the Village.

Annually, the Village must provide an opportunity for public involvement and participation in the development and implementation of the SWMP. The Village must document the public involvement and participation opportunities in the SWMP Plan. Common opportunities include: citizen advisory group on stormwater management, public hearings or meetings, citizen volunteers to educate other individuals about the SWMP, coordination with other pre-existing public involvement/participation opportunities, reporting concerns about activities or behaviors observed, and stewardship activities.

Annually, the Village must inform the public of the opportunity for their involvement/participation in the development and implementation of the SWMP and how they can become involved. The Village will distribute this information through such measures as: announcement at Village meetings, public notices, printed materials, electronic materials (e.g., websites, email listservs), displays in public areas (e.g., Village Hall, library, parks), or social media.

The general public and businesses will be invited to participate in the Village's stormwater management efforts. Ways for the public to participate may include, but will not be limited to:

- Roadside cleanups
- Stream walks
- Ensuring contracted landscapers are utilizing proper methods of lawn fertilization and native plantings
- Seeding or providing ground cover to areas on one's property where erosion may be occurring

Public concerns regarding stormwater management and compliance with permit requirements shall be directed to the Village Clerk, refer to the Organizational Chart.

Annually, the Village must provide an opportunity for the public to review and comment on the publicly available SWMP Plan. The public must have the ability to ask questions and submit comments on the SWMP Plan. The SWMP Plan shall be posted to the Village website and shall presented annually to the Village Board with an opportunity for the public to comment on the document. A record of the annual adoption of the SWMP Plan shall be kept on file with the Village Clerk's office.

The Village shall include a summary of comments received on the SWMP Plan and draft Annual Report in the SWMP Plan. Within thirty (30) days of when public input is received, the MS4 Operator must update the SWMP Plan, where appropriate, based on the public input received.

VI.3. MCM 3 – Illicit Discharge Detection and Elimination (IDDE)

The objective of this MCM is to gain a thorough awareness of the Village's systems and to then determine the types and sources of illicit discharges entering the local stormwater system, and

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establish the legal, technical and education methods to eliminate these discharges. It is the policy of the Village to inspect its stormwater outfalls on an annual basis and where illicit discharges are found, determine their source and take action to terminate said discharge to the stormwater drainage system.

The Village must develop, implement, and enforce a program which systematically detects, tracks down, and eliminates illicit discharges to the MS4. This MCM is designed to manage the MS4 so it is not conveying pollutants associated with flows other than those directly attributable to stormwater runoff.

The Village's IDDE program shall follow the guidelines issued by the EPA. Refer to EPA Factsheet 2.5 "Illicit Discharge Detection and Elimination Minimum Control Measure" provided in Appendix G for additional information.

The Village Consulting Engineer provides annual training for all Highway Department staff which includes procedures for illicit discharge and elimination.

The public shall report suspected illicit discharges to the Village Clerk, refer to the Organizational Chart. The Village Clerk will notify the appropriate department (Building, Highway, or Consulting Engineer) for investigation. If necessary, a violation shall be issued by the Building Inspector. Unresolved violations would result in legal action by the Village against the violator.

Within thirty (30) days of an illicit discharge, the Village must document each report of an illicit discharge in the SWMP Plan with the following information: date of the report, location of the illicit discharge, nature of the illicit discharge, follow up actions taken or needed (including response times), and inspection outcomes and any enforcement taken.

VI.3.a. Monitoring Locations

By January 2, 2027, the Village must develop and maintain an inventory of the monitoring locations in the SWMP Plan. Monitoring locations include MS4 Outfalls, Interconnections, and Municipal facility intraconnections. The information required by GP Part VI.C.1.c.i. shall be included in the inventory. The locations shall be prioritized between high priority and low priority monitoring locations. After the initial prioritization, the Village must annually update the monitoring location prioritization in the inventory based on information gathered. A list of prioritized monitoring locations will be provided as an Appendix.

VI.3.a.1 Monitoring Locations Inspection and Sampling Program

The Village of Buchanan has developed this Monitoring Locations and Sampling Program, in accordance with the MS4 General Permit, to specify the procedures for inspecting and sampling at monitoring locations identified in the Monitoring Locations Inventory in accordance with each location's prioritization.

a. Procedures

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Perform one (1) inspection every five (5) years during dry weather for each monitoring location identified in the Monitoring Locations Inventory.

All inspections, including any sampling results, shall be documented using the Monitoring Locations Inspection and Sampling Field Sheet (provided in Appendix G of this report) or an equivalent form. All inspection sheets shall be retained by the Village Building Inspector and/or the Village Highway Department in digital format and shall be provided upon request.

All monitoring locations which had inspections which resulted in a suspect or obvious illicit discharge characterization must be sampled. The sampling requirement is based on the number and severity of physical indicators present in the flow to better inform track down procedures. If the source of the illicit discharge is clear and discernable (e.g., sewage), sampling is not necessary.

Sampling must be done with field test kits or field instrumentation that are sufficiently sensitive to detect the parameter below the sampling action level used and are not subject to 40 CFR Part 136 requirements for approved methods and certified laboratories. Refer to Chapter 12 of the Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments (Center for Watershed Protection, October 2004) for parameters, sampling action levels, and procedures. A copy of Chapter 12 is provided in Appendix K of this report.

For monitoring locations with an overall characterization as suspect illicit discharge or obvious illicit discharge or that exceed any sampling action level used, track down procedures shall be initiated in accordance with the Illicit Discharge Track Down & Elimination Program (SWMP Plan VI.3.b. – VI.3.c.).

If there is a physical indicator not related to flow, potentially indicative of intermittent or transitory discharges, the monitoring locations shall be re-inspected within thirty (30) days of initial inspection, utilizing techniques described in Chapter 12.6 or equivalent. If those same physical indicators persist, track down procedures shall be initiated in accordance with the Illicit Discharge Track Down & Elimination Program (SWMP Plan VI.3.b. – VI.3.c.).

b. Training

Prior to inspecting and sampling monitoring locations, new and existing staff shall be given training on the Village's monitoring locations inspection and sampling program and procedures.

Training on the Village's monitoring locations inspection and sampling program and procedures must be given to existing staff once every five (5) years after initial training.

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If the monitoring locations inspection and sampling program and procedures are updated, training on the updates must be given to all staff prior to inspecting and sampling monitoring locations.

A list of the names, titles, and contact information for the individuals who have training shall be retained by the Village and shall be updated annually.

c. Review and Update

Annually, by April 1, the Village must review and update the Monitoring Locations Inspection and Sampling Program and its procedures. Documentation of the completion of this requirement shall be maintained in the SWMP Plan.

~~By January 2, 2026, the Village must develop and implement a monitoring locations inspection and sampling program. The monitoring locations inspection and sampling program must be documented in this SWMP Plan. The monitoring locations inspection and sampling procedures shall be per GP Part VI.C.1.e.i. Documentation of all monitoring location inspections, including any sampling results, using the Monitoring Locations Inspection and Sampling Field Sheet (Appendix D of the GP) shall be included in this SWMP Plan. Annually, by April 1, the Village must review and update the monitoring and sampling procedures based on inspection and sampling results and document any changes to procedures in this SWMP Plan.~~

~~The training provisions must be implemented for the Village's monitoring locations inspection and sampling procedures. Staff must be trained prior conducting monitoring and sampling. Thereafter, staff shall be retrained every five years or when there are updates to procedures. The names, titles, and contact information for the individuals who have received monitoring and sampling training shall be recorded and update annually.~~

VI.3.b. Illicit Discharge Track Down Program

The Village of Buchanan has developed this illicit discharge track down program, in accordance with the MS4 General Permit, to identify the source of illicit discharges, the responsible party, and steps taken to eliminate the illicit discharges.

Once an illicit discharge has been detected the source and responsible party shall be determined by the Village Building Inspector and/or the Village Highway Department. The procedures described in Chapter 13 of the Illicit Discharges Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments (Center for Watershed Protection, October 2004) shall be followed. Chapter 13 provided a systematic approach for investigating the source of the illicit discharge. A copy of Chapter 13 is provided in Appendix K of this report.

a. Time Frames

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Within two (2) hours of discovery, the Village Building Inspector and/or the Village Highway Department must track down procedures for obvious illicit discharges of sanitary wastewater that would affect bathing areas during bathing season, shell fishing areas or public intakes and report orally or electronically to the NYSDEC Regional Water Engineer and Westchester County Department of Health.

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Within twenty-four (24) hours of discovery, the Village Building Inspector and/or Village Highway Department must initiate track down procedures for flowing MS4 monitoring locations with obvious illicit discharges.

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Within five (5) days of discovery, the Village Building Inspector and/or Village Highway Department must initiate track down procedures for suspect illicit discharges.

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b. Training

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Prior to conducting illicit discharge track downs, new and existing staff shall be given training on the Village's illicit discharge track down program procedures.

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Training on the Village's illicit discharge track down program and procedures must be given to existing staff once every five (5) years after initial training.

If the illicit discharge track down program and procedures are updated, training on the updates must be given to all staff prior to conducting illicit discharge track downs.

A list of names, titles, and contact information for the individuals who have training shall be retained by the Village and shall be updated annually.

c. Review and Update

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Annually, by April 1, the Village must review and update the illicit discharge track down program procedures. Documentation of the completion of this requirement shall be maintained in the SWMP Plan.

~~By January 2, 2026, the Village must develop and implement an illicit discharge track down program to identify the source of illicit discharges and the responsible party. The illicit discharge track down program must be documented in this SWMP Plan. The track down program shall include the procedures required by GP Part VI.C.2.a. Annually, by April 1, the Village must review and update the track down procedures and document any changes to procedures in this SWMP Plan.~~

~~The training provisions must be implemented for the Village's track down procedures. Staff must be trained prior conducting track downs. Thereafter, staff shall be retrained every five years or when there are updates to procedures. The names, titles, and contact information for the individuals who have received track down training shall be recorded and update annually.~~

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The Village Consulting Engineer provides annual training for all Highway Department and Building Department staff which includes procedures for illicit discharge track down.

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VI.3.c. Illicit Discharge Elimination Program

The Village of Buchanan has developed this illicit discharge elimination program, in accordance with the MS4 General Permit, to identify the source of illicit discharges, the responsible party, and steps taken to eliminate the illicit discharges.

Once the source and responsible party of the illicit discharges have been determined, the Village Building Inspector and/or Highway Department shall implement the following procedures to eliminate the illicit discharge. (1) Refer to the Enforcement Response Plan (SWMP Plan Part IV.6.) for provisions for escalating enforcement and tracking. (2) The Village Highway Department and/or Village Engineer shall confirm the required corrective actions have been implemented. (3) The Village Building Inspector and/or the Village Highway Department shall follow-up to verify implemented actions remain effective.

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a. Time Frames

Within twenty-four (24) hours of identification of an illicit discharge that has a reasonable likelihood of adversely affecting human health or the environment, the Village Building Inspector and/or the Village Highway Department must have the illicit discharge eliminated.

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Within five (5) days of identification of an illicit discharge that does not have a reasonable likelihood of adversely affecting human health or the environment, the Village Building Inspector and/or the Village Highway Department must have the illicit discharge eliminated.

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Where elimination of an illicit discharge within the specified timeframes is not possible, the Village Building Inspector and/or the Village Highway Department must notify the NYSDEC Regional Water Engineer.

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b. Training

Prior to conducting illicit discharge eliminations, new and existing staff shall be given training on the Village's illicit discharge elimination program procedures.

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Training on the Village's illicit discharge elimination program and procedures must be given to existing staff once every five (5) years after initial training.

If the illicit discharge elimination program and procedures are updated, training on the updates must be given to all staff prior to conducting illicit discharge eliminations.

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A list of names, titles, and contact information for the individuals who have training shall be retained by the Village and shall be updated annually.

c. Review and Update

Annually, by April 1, the Village must review and update the illicit discharge elimination program procedures. Documentation of the completion of this requirement shall be maintained in the SWMP Plan. By January 2, 2026, the Village must develop and implement an illicit discharge elimination program. The illicit discharge elimination program must be documented in this SWMP Plan. The elimination program shall include the procedures required by GP Part VI.C.3.a. Annually, by April 1, the Village must review and update the elimination program and document any changes to procedures in this SWMP Plan.

The training provisions must be implemented for the Village's elimination procedures. Staff must be trained prior conducting eliminations. Thereafter, staff shall be retrained every five years or when there are updates to procedures. The names, titles, and contact information for the individuals who have received training shall be recorded and update annually.

The Village Consulting Engineer provides annual training for all Highway Department and Building Department staff which includes procedures for illicit discharge elimination.

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VI.4. MCM 4 – Construction Site Stormwater Runoff Control

It is the policy of the Village to require all construction sites with one acre or more of disturbance to submit a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP shall be prepared in accordance with the New York State Department of Environmental Conservation State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-25-001, NYSDEC Stormwater Management Design Manual (latest edition), and the New York Standards and Specification for Erosion and Sediment Control (latest edition). Reduction of stormwater discharges from construction activity disturbing less than one acre must also be included in the Village's program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more.

The Village must develop, implement, and enforce a program to ensure construction sites are effectively controlled. This MCM is designed to prevent pollutants from construction related activities, as well as promote the proper planning and installation of post-construction SMPs.

The public shall report complaints related construction stormwater activity to the Village Clerk, refer to Organizational Chart. The Village must document reports of construction site complaints in this SWMP Plan with the following information: date of the report, location of the construction site, nature of complaint, follow up actions taken or needed, and inspection outcomes and any enforcement taken.

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VI.4.a. Construction Oversight Program

The Village has ~~must~~ developed and implements a construction oversight program specifying the information required by GP Part IV.D.3.a. Annually, by April 1, the Village must review and update the construction oversight program and document any changes to procedures in this SWMP Plan.

The Village's Construction Oversight Program shall be done by the Village Consulting Engineer in conjunction with the Building Department. The Village Consulting Engineer, as identified on the organizational chart, shall be a NYS licensed professional engineer familiar with the requirements of the Construction General Permit GP-0-25-001. All construction activities over one (1) acre of soil disturbance shall be subject to the requirements of the stormwater control program and shall require a SWPPP that includes post-construction practices. SWPPPs shall be submitted to the Village and will be forwarded to the Consulting Engineer for review. After any comments or requirements from the Consulting Engineer have been satisfactorily addressed, the Consulting Engineer shall endorse the MS4 SWPPP Acceptance Form. Prior to the start of construction, the Consulting Engineer shall meet with the owner, site contractor, and Building Inspector for a pre-construction meeting to review requirements throughout construction. Weekly inspections performed by a Qualified Inspector shall be submitted to the Consulting Engineer for review. The Consulting Engineer shall inspect construction sites at least annually. Additional inspections may be required based on a site's prioritization and/or public complaints. During inspections, the Consulting Engineer shall report corrective actions to the site contractor. Repetitive or unaddressed corrective actions may result in the Consulting Engineer recommending to the Building Inspector to issue a Notice of Violation or Stop-Work Order until the items have been satisfactorily addressed. Prior to final close-out, as-built plans and construction certifications shall be submitted to the Consulting Engineer for review. The Consulting Engineer will perform a site visit to determine conformance with the approved plans and evaluation final stabilization. Additionally, it will be verified, if required, a fully executed stormwater maintenance agreement is on file with the Village. If all items have been satisfactorily addressed, the Consulting Engineer will endorse the Notice of Termination.

Construction site inspectors and SWPPP reviewers working for the Consulting Engineer shall either be a NYS licensed professional engineer or have received four hours of NYSDEC endorsed training in proper erosion and sediment control principles from a NYSDEC endorsed entity. The Building Inspector shall maintain the same training.

~~By January 2, 2025, the Village must develop and implement a construction oversight program. The construction oversight program must be documented in this SWMP Plan specifying the information required by GP Part IV.D.3.a. Annually, by April 1, the Village must review and update the construction oversight program and document any changes to procedures in this SWMP Plan.~~

~~The training provisions must be implemented for the Village's construction oversight procedures. Staff must be trained prior conducting construction oversight. Thereafter, staff shall be retrained every five years or when there are updates to procedures. The names, titles, and contact information~~

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~~for the individuals who have received training shall be recorded and update annually. Those involved in the construction activity itself (e.g., contractor, subcontractor, qualified inspector) are required to have received four hours of NYSDEC endorsed training in proper erosion and sediment control principles from a NYSDEC endorsed entity.~~

VI.4.b. Construction Site Inventory

An inventory of all applicable construction sites is provided in Appendix E. ~~By January 2, 2025~~ All sites shall be prioritized as high or low pursuant to GP Part VI.D.5.a. Annually, ~~after the initial prioritization,~~ the Village must update the construction site prioritization in the inventory based on information gathered as part of the construction oversight program.

VI.4.c. SWPPP Review

The Village must ensure individuals, responsible for reviewing SWPPPs for acceptance, receive four hours of NYSDEC endorsed training in proper erosion and sediment control principles from a NYSDEC endorsed entity. This training must be completed every three (3) years. Individuals who meet the definition of a qualified professional (e.g. Professional Engineer) or qualified inspector are exempt from this requirement. The names, titles, and contact information for the individuals who have received training shall be recorded and updated annually.

Reviewed and accepted SWPPPs shall be added to the Construction Site Inventory.

The Village shall forward SWPPPs to the Village Consulting Engineer for review. The Consulting Engineer, as identified on the organizational chart, shall be a NYS licensed professional engineer familiar with the requirements of the Construction General Permit GP-0-25-001. Any SWPPP reviewers working for the Consulting Engineer shall either be a NYS licensed professional engineer or have received four hours of NYSDEC endorsed training in proper erosion and sediment control principles from a NYSDEC endorsed entity.

VI.4.d. Pre-Construction Meeting

Prior to commencement of construction activities, the Village must ensure a pre-construction meeting is conducted. The owner/operator, the Village representative, the trained contractors responsible for implementing the SWPPP, and the qualified inspector (if required) must attend the pre-construction meeting in order to: confirm coverage, verify trained contractors, and review construction oversight.

The date of the pre-construction meeting shall be included in the Construction Site Inventory.

VI.4.e. Construction Site Inspections and Close-Out

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The Village must ensure individuals responsible for construction site inspections have received the requisite training. The names, titles, and contact information for the individuals who have received training shall be recorded and update annually.

The Village shall annually inspect all sites with construction activity identified in the Construction Site Inventory during active construction after the pre-construction meeting or sooner if deficiencies are noted that require attention.

No later than starting after January 2, 2027, high priority construction sites located in the Lake Meahagh storm sewershed must be inspected during active construction after the pre-construction meeting. If the Village is completing the inspection, the construction site must be inspected every ninety (90) days. If the construction site's qualified inspector submits weekly inspection reports to the Village, the Village must inspect the construction site once every six (6) months or sooner if any deficiencies are noted that require attention. The Village must document the construction site inspections in this SWMP Plan.

When a project is ready to close-out, the Village must ensure a final construction site inspection is conducted and documented. Any deficiencies shall be corrected by the appropriate party to the satisfaction of the Village prior to signing the Notice of Termination. Closed-out sites shall be documented in the Construction Site Inventory.

Document all inspections using the Construction Site Inspection Report Form (GP Appendix D) or an equivalent form. The Village must include the completed Construction Site Inspection Reports in this SWMP Plan.

VI.5. MCM 5 – Post-Construction Stormwater Management

It is the policy of the Village to ensure that all post-construction stormwater management practices (SMP) are properly operated and maintained in accordance with the requirements of the applicable SPDES General Permits.

The Village must develop, implement, and enforce a program to ensure proper operation and maintenance of post-construction SMPs for new or redeveloped sites. This MCM is designed to promote the long-term performance of post-construction SMPs in removing pollutants from stormwater runoff.

Sites with required post-construction SMPs shall be included as part of the Construction Site Inventory.

VI.5.a. Post-Construction SMP Inspection & Maintenance Program

~~By January 2, 2025,~~ The Village must develop and implement a post-construction SMP inspection and maintenance program. The postconstruction SMP inspection and maintenance program must

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be documented in this SWMP Plan specifying the information required by GP Part VI.E.4.a. Annually, by April 1, the Village must review and update the post-construction SMP inspection program and document any changes to procedures in this SWMP Plan.

All privately-owned sites with NYSDEC-required SMPs must have a long-term stormwater maintenance agreement. The agreement shall include provisions for Village staff to enter onto the property to inspect SMPs. There are no Village-owned sites with SMPs that require inspections.

Post-construction SMP inspections shall use the Post-Construction SMP Inspection Checklist or an equivalent form. All completed inspections shall be documented in this SWMP Plan.

The Village shall ensure individuals responsible for post-construction SMP inspections have received the requisite training. The names, titles, and contact information for the individuals who have received training shall be recorded and update annually.

VI.6. MCM 6 – Pollution Prevention and Good Housekeeping

This MCM requires the Village to examine and subsequently alter their own actions to help ensure a reduction in the amount and type of pollution that collects on streets, parking lots, open spaces, and storage and vehicle maintenance areas, and that results from actions such as environmentally damaging land development and flood management practices or poor maintenance of storm sewer systems.

The Village must develop and implement a pollution prevention and good housekeeping program for municipal facilities and municipal operations to minimize pollutant discharges. This MCM is designed to ensure the Village's own activities do not contribute pollutants to surface waters of the State.

VI.6.a. Best Management Practices

By January 2, 2027, the Village must incorporate best management practices (BMPs) into the municipal facility program and municipal operations program to minimize the discharge of pollutants associated with municipal facilities and municipal operations, respectively. The BMPs to be considered are as follows and must be documented in this SWMP Plan: Minimize Exposure; Follow a Preventive Maintenance Program; Spill Prevention and Response Procedures; Erosion and Sediment Controls; Manage Vegetated Areas and Open Space on Municipal Property; Salt Storage Piles or Pile Containing Salt; Waste, Garbage, and Floatable Debris; and Alternative Implementation Options.

For high priority Village facilities must maintain the No Exposure Certification and document them in this SWMP Plan. The No Exposure Certification ceases to apply when activities or materials become exposed.

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VI.6.b. Municipal Facility Program

By January 2, 2027, the Village must develop and implement a municipal facility program. The municipal facility program must be documented in this SWMP Plan specifying the information required by GP VI.F.2.a.i. Annually, by April 1, the Village must review and update the municipal facility program and document any changes to procedures in this SWMP Plan.

The Village shall ensure individuals responsible for municipal facility procedures have received the requisite training. The names, titles, and contact information for the individuals who have received training shall be recorded and update annually.

The Municipal Facility Program shall include an annual review by the Highway Department of the Village-owned sites which include: Village Hall, Village Highway Garage with salt shed, Village Sewage Treatment Plant, Sewer Pump Stations (4th Street, Albany Post Road, Bleakley Avenue, Lake Drive, Valerie Court, and Westchester Avenue), Centerville Recreational Park with village pool and pavilion, Lent's Cove Park, and Village Circle. An annual inspection form has been included in Appendix G.

The Village Consulting Engineer provides annual training for all Highway Department staff which includes pollution prevention and good housekeeping of Village-owned sites.

VI.6.c. Municipal Facility Inventory and Prioritization

The ~~By January 2, 2026,~~ the Village ~~has developed~~ ~~must develop~~ and maintains an inventory of all municipal facilities in this SWMP Plan with the information required by GP Part VI.F.b.i. These facilities are listed in the Municipal Facility Inventory (Appendix L). Annually, the Village must update the inventory if new municipal facilities are added.

The ~~By January 2, 2027,~~ the Village ~~has must~~ prioritized all known municipal facilities as High Priority ~~and~~ Low Priority per GP Part VI.F.2.c.i. Annually, after the initial prioritization, the Village must update and document the municipal facility prioritization in the inventory based on information gathered as part of the municipal facility program, including cases where a No Exposure Certification ceases to apply.

The ~~By January 2, 2029,~~ the Village must develop and implement a municipal facility specific SWPPP for each High Priority municipal facility and retain a copy of the specific SWPPP on site of the facility. It shall include the information required by GP Part VI.F.2.d.i. Currently there are no High Priority facilities in the Village.

Once every five years following the most recent assessment, the Village must complete and document a comprehensive site assessment for each High Priority and Low Priority municipal facility as identified in the Municipal Facility Inventory using the Municipal Facility Assessment Form (GP Appendix D) or an equivalent form.

VI.6.d. Municipal Operations & Maintenance

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Municipal operations are: street and bridge maintenance; winter road maintenance; MS4 maintenance; open space maintenance; solid waste management; new construction and land disturbances; right-of-way maintenance; marine operations; or hydrologic habitat modification.

By January 2, 2027, the Village must develop and implement a municipal operations program. The municipal operations program must be documented in this SWMP Plan specifying the information required by GP Part VI.F.3.a.i. Annually, by April 1, the Village must review and update the municipal operations program and document any changes to procedures in this SWMP Plan.

The Village shall ensure individuals responsible for municipal operations procedures have received the requisite training. The names, titles, and contact information for the individuals who have received training shall be recorded and update annually.

The municipal operations program shall include: catch basin inspection and maintenance; and roads, bridges, parking lots, & right of way maintenance.

The Village's procedures for sweeping and/or cleaning municipal streets, bridges, parking lots, and right of ways owned/operated by the Village include:

- All Village roads, bridges, parking lots, and right of ways must be swept and/or cleaned once every five (5) years in the spring (following winter activities such as sanding). This requirement is not applicable to uncurbed roads with no catch basins.
- Annually, from April 1 through October 31, roads in business and commercial areas must be swept. This requirement is not applicable to uncurbed roads with no catch basins.
- Annually, between April 1 and October 31, all local roads within the Lake Meahagh storm sewershed shall be swept. Uncurbed local roads with no catch basins are exempt. A record of street sweeping shall be kept in this SWMP Plan.

Within six months of MS4 outfall inspection, the Village must initiate actions to repair all outfall protection and/or bank stability problems identified during the inspection. Repairs must be completed in accordance with the latest edition of the NYS Standards and Specifications for Erosion and Sediment Control and document completion of this requirement in this SWMP Plan.

The Municipal Operations Program shall be developed in accordance with the abovementioned timeframe and guidelines issued by the EPA. Refer to EPA Factsheet 2.8 "Pollution Prevention/Good Housekeeping Minimum Control Measure" provided in Appendix G. The current program includes: annual inspection of all catch basins with sumps 24-inches or greater and annual street sweeping of all roads in the Village.

The inspection of catch basins is performed by the Highway Department. A digital spreadsheet of inspections and repairs of catch basins is maintained by the Village Consulting Engineer in consultation with the Highway Department. Catch basins requiring cleaning shall, depending upon the severity and accessibility, be either hand-cleaned by the Highway Department or vacuumed by

**SWMP Plan
Buchanan, NY**

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a contractor. Catch basins requiring repair or replacement shall be performed by the Highway Department or a contractor depending on the nature of the repair requirements.

Road sweeping shall be performed by a contractor. Invoices of work performed by contractors shall be kept by the Village as a record of the work. Waste from catch basin cleaning and road sweeping shall be disposed offsite.

The program shall also include the washing of all Village equipment within the Highway Garage under cover. Wash-water is collected by a drain in the garage which discharges into the sanitary sewer system. Salt shall be kept, at all times, under cover. The salt shed cover shall be reviewed annually to ensure adequacy. Chlorine storage at the Seage Treatment Plant and Village Pool shall be kept indoors in appropriate containers. No phosphorus-containing fertilizer or pesticides shall be used by the Highway Department.

The Village Consulting Engineer provides annual training for all Highway Department staff which includes procedures for operating and maintaining Village stormwater infrastructure.

Part VII. Minimum Control Measures (MCMs) for Traditional Non-Land Use Control & Non-Traditional MS4 Operators

As the Village is neither a Traditional Non-Land Use Control Operator nor a Non-Traditional MS4 Operators, all requirements of GP Part VII. are not applicable.

Part VIII. Enhanced Requirements for Impaired Waters

VIII.1. Pollutant Specific BMPs for Phosphorus

A portion of the Village’s storm sewershed discharges into an impaired water – Lake Meahagh. In Lake Meahagh (WI/PWL No. 1301-0053), phosphorus is the pollutant of concern.

VIII.1.a Public Education & Outreach

Refer to Section VI.1. “MCM 1 – Public Education and Outreach Program” of this SWMP Plan.

VIII.1.b. Pollution Prevention and Good Housekeeping

Refer to Section VI.6. “MCM 6 – *Pollution Prevention and Good Housekeeping*” of this SWMP Plan.

VIII.2. Pollutant Specific BMPs for Silt/Sediment

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**SWMP Plan
Buchanan, NY**

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As the Village has no silt/sediment impaired waters, all requirements of GP Part VIII.B. are not applicable

VIII.3. Pollutant Specific BMPs for Pathogens

As the Village has no pathogen impaired waters, all requirements of GP Part VIII.C. are not applicable

VIII.4. Pollutant Specific BMPs for Nitrogen

As the Village has no nitrogen impaired waters, all requirements of GP Part VIII.D. are not applicable

VIII.5. Pollutant Specific BMPs for Floatables

As the Village has no floatable impaired waters, all requirements of GP Part VIII.E. are not applicable

Part IX. Watershed Improvement Strategy Requirements for TMDL Implementation

As no part of the Village is within a NYSDEC TMDL watershed, all requirements of GP Part IX. are not applicable.

[P:\Village of Buchanan\Stormwater\SWMP Plan\SWMP Plan 2026\VOB SWMP Plan 2025-12 - Draft.docx](#)[P:\Village of Buchanan\Stormwater\SWMP Plan\SWMP Plan 2025\VOB SWMP Plan 2025-03-18 DRAFT for Village Website.docx](#)

Appendix A

MS4 Notice of Intent

version 1.0

(Submission #: HQ1-44J3-882VR, version 1)

Details

Submitted 2/16/2024 (0 days ago) by Mary Head

Alternate Identifier NYR20A342

Submission ID HQ1-44J3-882VR

Status Submitted

Form Input

MS4 Operator Information

Is this NOI for an MS4 Operator continuing coverage?

Yes

Permit ID #:

NYR20A342

MS4 Operator Type

Traditional land use control

Traditional Land Use Control

Traditional land use control MS4 Operator requirements are found in Part VI of the MS4 General Permit.

Municipality Name or Legal Entity Name

Village of Buchanan

Legal Municipal/Entity Mailing address

236 Tate Avenue

Buchanan, NY 10511

Westchester

Ranking Official

Official Title	First and Last Name	Phone	Email
Other: Village Administrator	Marcus Serrano	914-737-1033	mserrano@villageofbuchanan.com

NOI Preparer

NOI Preparer Title	First and Last Name	Phone	Email
Municipal Engineer	George Pommer, P.E.	845-279-2220	gpommer@hahn-eng.com

NAICS Codes

Federal, State or Local Government - 924110
Military Bases - 928110
Highway, road or other thoroughfare system - 237310
Large Hospitals - 622110
Public Colleges and Universities - 611310
Correctional Institutions - 922140
[NAICS Code Lookup](#)

NAICS Code

924110

Is the MS4 Operator working with other MS4 Operators to implement the Stormwater Management Program?

No

Does the MS4 Operator have any facilities that need to obtain MSGP coverage under MSGP permit?

No

MS4 Location Information

MS4 Facility Name

Village of Buchanan

On the map below, place the pin at the center of the MS4 Operator. This can be either the geographic center or the population center.

Central point of the MS4 Operator

41.2620383,-73.93819429999999

Waterbody Information (1 of 2)

If the MS4 Operator discharges to multiple waterbodies, all waterbodies must be listed. Use the 'Duplicate Waterbody Information' or 'Add New Waterbody Information' buttons to add as many waterbodies as necessary.

To find the names of waterbodies, including any impaired waterbodies, use the DEC's Stormwater Interactive Map. Under the Permit Related Layers check the box for the Impaired Waterbodies for MS4GP and the box for Waterbody Inventory/Priority Waterbodies List.

[Stormwater Interactive Map](#)

Waterbody name and segment receiving MS4 Operator discharges

Lake Meahagh - 1301-0053

Is this waterbody segment listed in Appendix C (List of Impaired Waters) of the MS4 General Permit?

Yes

An MS4 discharging to a waterbody listed in Appendix C must meet the requirements of Part VIII. for the pollutant(s) of concern listed in Appendix C.

For which pollutant(s) of concern is the waterbody impaired?

Phosphorus

Is this waterbody segment listed in Table 3 (Approved TMDL Watersheds with MS4 Contribution) of the MS4 General Permit?

No

Waterbody Information (2 of 2)

If the MS4 Operator discharges to multiple waterbodies, all waterbodies must be listed. Use the 'Duplicate Waterbody Information' or 'Add New Waterbody Information' buttons to add as many waterbodies as necessary.

To find the names of waterbodies, including any impaired waterbodies, use the DEC's Stormwater Interactive Map. Under the Permit Related Layers check the box for the Impaired Waterbodies for MS4GP and the box for Waterbody Inventory/Priority Waterbodies List.

[Stormwater Interactive Map](#)

Waterbody name and segment receiving MS4 Operator discharges

Minor Tribs to East of Hudson - 1301-0133

Is this waterbody segment listed in Appendix C (List of Impaired Waters) of the MS4 General Permit?

No

Is this waterbody segment listed in Table 3 (Approved TMDL Watersheds with MS4 Contribution) of the MS4 General Permit?

No

CERTIFICATION

The MS4 Operator has read and understands the SPDES MS4 General Permit, GP-0-24-001, as it pertains to permit requirements as well as the timeframes for compliance set forth in the permit.

Yes

I am the ranking elected official or Principal Executive Officer for the MS4 Operator and will be signing the form electronically.

No

Attach completed certification form.

[ms4eNOIcertification - Village of Buchanan-signed.pdf - 02/16/2024 12:16 PM](#)

Comment

NONE PROVIDED

Attachments

Date	Attachment Name	Context	User
2/16/2024 12:16 PM	ms4eNOIcertification - Village of Buchanan-signed.pdf	Attachment	Mary Head

Status History

	User	Processing Status
2/2/2024 2:24:07 PM	Mary Head	Draft
2/16/2024 12:17:22 PM	Mary Head	Submitting
2/16/2024 12:17:31 PM	Mary Head	Submitted

Processing Steps

Step Name	Assigned To/Completed By	Date Completed
Form Submitted	Mary Head	2/16/2024 12:17:31 PM

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water

625 Broadway, Albany, New York 12233-3500

P: (518) 402-8233 | F: (518) 402-9029

www.dec.ny.gov

MS4 Operator Certification Form for eReports

**SPDES General Permit for
Stormwater Discharges From
Municipal Separate Storm Sewer Systems (GP-0-24-001)**

Instructions

Please review Part X.J. of GP-0-24-001 before signing this form. A signature by an unauthorized person will delay permit coverage.

This form must be signed by one of the following:

1. For a corporation: by a responsible corporate officer
2. For a partnership: by a general partner
3. For a sole proprietorship: by the proprietor
4. For a municipality, state, federal or other public agency: by a principal executive officer or ranking elected official

MS4 Operator Name: _____

eReport Submission Number: _____

MS4 Operator Certification

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

Name (please print or type)	Village Administrator Title	Organization
-----------------------------	--------------------------------	--------------

Signature	Date
-----------	------



NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water, Bureau of Water Permits
625 Broadway, Albany, New York 12233-3505
P: (518) 402-8111 | F: (518) 402-9029
www.dec.ny.gov

3/1/2024

Re: Acknowledgement of Notice of Intent for Coverage under SPDES General Permit for Municipal Separate Storm Sewer Systems (GP-0-24-001)

Dear Village of Buchanan,

This is to acknowledge that the New York State Department of Environmental Conservation (DEC) received a complete electronic Notice of Intent (eNOI) for the MS4 Operator:

Village of Buchanan

Pursuant to 6 NYCRR 750-1.21(d) and Part II of the SPDES MS4 GP, GP-0-24-001, Village of Buchanan is authorized to discharge stormwater under the terms and conditions of the SPDES MS4 GP, GP-0-24-001, starting on the effective date of **01/03/2024**. Village of Buchanan must comply with all requirements contained in the MS4 GP, GP-0-24-001.

The following SPDES ID No. should be included in all correspondences with the DEC:

SPDES ID No: NYR20A342

Should you have any questions regarding any aspect of the requirements in the MS4 GP, GP-0-24-001, please contact MS4GP@dec.ny.gov or (518) 402-8111.

Sincerely,



Meredith Streeter, P.E.
Chief, Central Section
Bureau of Water Permit

Appendix B

**VILLAGE OF BUCHANAN
STORMWATER MANAGEMENT PROGRAM
ORGANIZATIONAL CHART & CONTACT INFORMATION
December 19, 2025**

**NOTE: All Stormwater, Illicit Discharge Detection, and Erosion & Sediment Control related
Public Inquiries, Comments & Complaints Shall Be Sent to the Village Clerk**

Administrator's Office
Contact: Cynthia Kempster, Village Clerk
(914) 737-1033
ckempster@buchananny.gov
Responsibilities:

- All Public Inquiries, Comments, & Complaints
- Public Information Outreach
- Public Participation & Involvement

Village Consulting Engineer
Contact: George E. Pommer, P.E.
(845) 279-2220
gpommer@hahn-eng.com
Responsibilities:

- Stormwater Program Coordinator
- SWMP Plan
- Annual Outfall Inspection
- Annual MS4 Report
- Staff Training
- SWPPP Review
- High Priority Construction Site Inspection

Highway Department
Contact: Randy Hesselgrave
(914) 737-6858
highway@buchananny.gov
Responsibilities:

- Illicit Discharge Detection & Elimination
- Pollution Prevention & Good Housekeeping
- Catch Basin Maintenance
- Street Sweeping

Building Department
Contact: Brian Cook
(914) 293-8395
bcook@buchananny.gov
Responsibilities:

- Construction Site Stormwater Runoff Control
- Post-Construction SMP Review
- Code Enforcement
- Notice of Violations/Stop Work Orders

Appendix C

MS4 Municipal Compliance Certification (MCC) Form

MCC form for period ending March 9, 2020

Name of MS4

SPDES ID
N Y R 2 0 A 3 4 2

Section 3 - Partner Information

Did your MS4 work with partners/coalition to complete some or all permit requirements during this reporting period?
 Yes No

If Yes, complete information below.

Submit a separate sheet for each partner. Information provided in other formats will not be accepted. If your MS4 cooperated with a coalition, submit one sheet with the name of the coalition. It is not necessary to include a separate sheet for each MS4 in the coalition.

If No, proceed to Section 4 - Certification Statement.

Partner/Coalition Name

Partner/Coalition Name (con't.) SPDES Partner ID - If applicable
N Y R 2 0

Address

City State Zip -

eMail

Phone () -

Legally Binding Agreement in accordance with GP-0-08-002 Part IV.G.? Yes No

What tasks/responsibilities are shared with this partner (e.g. MM1 School Programs or Multiple Tasks)?

- MM1
- MM2
- MM3
- MM4
- MM5
- MM6

Additional tasks/responsibilities

- Watershed Improvement Strategy Best Management Practices* required for MS4s in impaired watersheds included in GP-0-08-002 Part IX.

MS4 Municipal Compliance Certification(MCC) Form

MCC form for period ending March 9, 2020

Name of MS4 Village of Buchanan

SPDES ID

N Y R 2 0 A 3 4 2

Section 4 - Certification Statement

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

This form must be signed by either a principal executive officer or ranking elected official, or duly authorized representative of that person as described in GP-0-08-002 Part VIJ.

First Name Marcus MI Last Name Serrano

Title (Clearly print title of individual signing report)
Village Administrator

Signature


Date 05 / 26 / 2020

Send completed form and any attachments to the DEC Central Office at:

MS4 Permit Coordinator
Division of Water
4th Floor
625 Broadway
Albany, New York 12233-3505

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2020

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID

N	Y	R	2	0	A	3	4	2
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4. Evaluating Progress Toward Measurable Goals MCM 1

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

Information is located on the website, Village Hall and Public Library.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

C. How many times was this observation measured or evaluated in this reporting period?

--	--	--	--	--

(ex.: samples/participants/events)

D. Has your MS4 made progress toward this Measurable Goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Continue to make information available to the public.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2020

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition: SPDES ID:

3. Where can the public access copies of this annual report, Stormwater Management Program SWMP) Plan and submit comments on those documents?

Enter address/contact info and select radio button to indicate which document is available and whether comments may be submitted at that location. Submit additional pages as needed.

- MS4/Coalition Office Annual Report SWMP Plan Comments

Department:

Address:

City: Zip:

Phone:

- Library Annual Report SWMP Plan Comments

Address:

City: Zip:

Phone:

- Other Annual Report SWMP Plan Comments

Address:

City: Zip:

Phone:

- Web Page URL: Annual Report SWMP Plan Comments

Please provide specific address of page where report can be accessed - not home page.

- eMail Comments

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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4.a. If this report was made available on the internet, what date was it posted?

Leave blank if this report was not posted on the internet.

0	5	/	2	7	/	2	0	2	0
---	---	---	---	---	---	---	---	---	---

4.b. For how many days was/will this report be posted?

3	6	5
---	---	---

If submitting a report for single MS4, answer 5.a.. If submitting a joint report, answer 5.b..

5.a. Was an Annual Report public meeting held in this reporting period?

Yes No

If Yes, what was the date of the meeting?

		/			/				
--	--	---	--	--	---	--	--	--	--

If No, is one planned?

Yes No

5.b. Was an Annual Report public meeting held for all MS4s contributing to this report during this reporting period?

Yes No

If No, is one planned for each?

Yes No

6. Were comments received during this reporting period?

Yes No

If Yes, attach comments, responses and changes made to SWMP in response to comments to this report.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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7. Evaluating Progress Toward Measurable Goals MCM 2

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

Information is located on the website, Village Hall and Public Library.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

None

C. How many times was this observation measured or evaluated in this reporting period?

			0
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(ex.: samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Continue to make information available to the public.
 An annual Day Event with include stormwater pamphlets.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2020

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition: Village of Buchanan

SPDES ID: N Y R 2 0 A 3 4 2

3.b. What types of illicit discharges have been found during this reporting period?

- Broken Lines From Sanitary Sewer
- Industrial Connections
- Cross Connections
- Inflow/Infiltration
- Failing Septic Systems
- Pump Station Failure
- Floor Drains Connected To Storm Sewers
- Sanitary Sewer Overflows
- Illegal Dumping
- Straight Pipe Sewer Discharges
- Other: None

Empty grid for additional information

4. How many illicit discharges/potential illegal connections have been detected during this reporting period?

0

5. How many illicit discharges have been confirmed during this reporting period?

0

6. How many illicit discharges/illegal connections have been eliminated during this reporting period?

0

7. Has the storm sewershed mapping been completed in this reporting period? Yes No
If No, approximately what percent was completed in this reporting period?

100%

8. Is the above information available in GIS? Yes No
Is this information available on the web? Yes No

If Yes, provide URL(s):

Please provide specific address of page where map(s) can be accessed - not home page.

URL

http://www.villageofbuchanan.com

URL

Empty grid for additional URLs

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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12. Evaluating Progress Toward Measurable Goals MCM 3

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

New facilities will have oil/water separator where possible discharges may occur.
Scheduled cleanings of catch basins and parking lots are performed.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

Planning, building and engineering department monitor for compliance.

C. How many times was this observation measured or evaluated in this reporting period?

			1
--	--	--	---

(ex.: samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Continue monitoring for compliance.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID

N	Y	R	2	0	A	3	4	2
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Minimum Control Measures 4 and 5.
Construction Site and Post-Construction Control

The information in this section is being reported (check one):

- On behalf of an individual MS4
- On behalf of a coalition

How many MS4s contributed to this report?

--	--	--

1a. Has each MS4 contributing to this report adopted a law, ordinance or other regulatory mechanism that provides equivalent protection to the NYS SPDES General Permit for Stormwater Discharges from Construction Activities? Yes No

1b. Has each Town, City and/or Village contributing to this report documented that the law is equivalent to a NYSDEC Sample Local Law for Stormwater Management and Erosion and Sediment Control through either an attorney certification or using the NYSDEC Gap Analysis Workbook? Yes No NT

If Yes, Towns, Cities and Villages provide date of equivalent NYS Sample Local Law.
 09/2004 03/2006 NT

2. Does your MS4/Coalition have a SWPPP review procedure in place? Yes No

3. How many Construction Stormwater Pollution Prevention Plans (SWPPPs) have been reviewed in this reporting period?

		0
--	--	---

4. Does your MS4/Coalition have a mechanism for receipt and consideration of public comments related to construction SWPPPs? Yes No NT

If Yes, how many public comments were received during this reporting period?

		0
--	--	---

5. Does your MS4/Coalition provide education and training for contractors about the local SWPPP process? Yes No

6. Identify which of the following types of enforcement actions you used during the reporting period for construction activities, indicate the number of actions, or note those for which you do not have authority:

- Notices of Violation #

--	--	--	--	--

 No Authority
- Stop Work Orders #

--	--	--	--	--

 No Authority
- Criminal Actions #

--	--	--	--	--

 No Authority
- Termination of Contracts #

--	--	--	--	--

 No Authority
- Administrative Fines #

--	--	--	--	--

 No Authority
- Civil Penalties #

--	--	--	--	--

 No Authority
- Administrative Orders #

--	--	--	--	--

 No Authority
- Enforcement Actions or Sanctions #

--	--	--	--	--

 No Authority
- Other #

--	--	--	--	--

 No Authority

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	0
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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Minimum Control Measure 4. Construction Site Stormwater Runoff Control

The information in this section is being reported (check one):

- On behalf of an individual MS4
- On behalf of a coalition

How many MS4s contributed to this report?

--	--	--

1. How many construction projects have been authorized for disturbances of one acre or more during this reporting period?

		0
--	--	---

2. How many construction projects disturbing at least one acre were active in your jurisdiction during this reporting period?

		0
--	--	---

3. What percent of active construction sites were inspected during this reporting period? NT

1	0	0
---	---	---

 %

4. What percent of active construction sites were inspected more than once? NT

1	0	0
---	---	---

 %

5. Do all inspectors working on behalf of the MS4s contributing to this report use the NYS Construction Stormwater Inspection Manual? Yes No NT

6. Does your MS4/Coalition provide public access to Stormwater Pollution Prevention Plans (SWPPPs) of construction projects that are subject to MS4 review and approval? Yes No NT

If your MS4 is Non-Traditional, are SWPPPs of construction projects made available for public review? Yes No

If Yes, use the following page to identify location(s) where SWPPPs can be accessed.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2020

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID

N	Y	R	2	0	A	3	4	2
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7. Evaluating Progress Toward Measurable Goals MCM 4

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

C. How many times was this observation measured or evaluated in this reporting period?

(ex.: samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2 0 2 0

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition:

SPDES ID

N	Y	R	2	0	A	3	4	2
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Minimum Control Measure 5. Post-Construction Stormwater Management

The information in this section is being reported (check one):

- On behalf of an individual MS4
- On behalf of a coalition

How many MS4s contributed to this report?

1. How many and what type of post-construction stormwater management practices has your MS4/Coalition inventoried, inspected and maintained in this reporting period?

	# Inventoried	# Inspections	# Times Maintained
<input checked="" type="radio"/> Alternative Practices	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> 1	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>
<input type="radio"/> Filter Systems	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>
<input checked="" type="radio"/> Infiltration Basins	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> 2	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>
<input type="radio"/> Open Channels	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>
<input type="radio"/> Ponds	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>
<input type="radio"/> Wetlands	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>
<input type="radio"/> Other	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>	<input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/> <input style="width: 20px;" type="text"/>

2. Do you use an electronic tool (e.g. GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance? Yes No

3. What types of non-structural practices have been used to implement Low Impact Development/Better Site Design/Green Infrastructure principles?

- Building Codes Municipal Comprehensive Plans
- Overlay Districts Open Space Preservation Program
- Zoning Local Law or Ordinance
- None Land Use Regulation/Zoning
- Watershed Plans Other Comprehensive Plan

Other:

P	l	a	n	n	i	n	g	B	o	a	r	d	R	e	v	i	e	w										
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MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID

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4a. Are the MS4s contributing to this report involved in a regional/watershed wide planning effort?
 Yes No

4b. Does the MS4 have a banking and credit system for stormwater management practices?
 Yes No

4c. Do the SWMP Plans for each MS4 contributing to this report include a protocol for evaluation and approval of banking and credit of alternative siting of a stormwater management practice?
 Yes No

4d. How many stormwater management practices have been implemented as part of this system in this reporting period?

		1
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5. What percent of municipal officials/MS4 staff responsible for program implementation attended training on Low Impace Development (LID), Better Site Design (BSD) and other Green Infrastructure principles in this reporting period?

	1	0
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 %

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2020

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

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6. Evaluating Progress Toward Measurable Goals MCM 5

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

None.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

None.

C. How many times was this observation measured or evaluated in this reporting period?

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(ex.: samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

None.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

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Minimum Control Measure 6. Stormwater Management for Municipal Operations

The information in this section is being reported (check one):

- On behalf of an individual MS4
- On behalf of a coalition

How many MS4s contributed to this report?

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1. Choose/list each municipal operation/facility that contributes or may potentially contribute Pollutants of Concern to the MS4 system. For each operation/facility indicate whether the operation/facility has been addressed in the MS4's/Coalition's Stormwater Management Program(SWMP) Plan and whether a self-assessment has been performed during the reporting period. A self-assessment is performed to: 1) determine the sources of pollutants potentially generated by the permittee's operations and facilities; 2) evaluate the effectiveness of existing programs and 3) identify the municipal operations and facilities that will be addressed by the pollution prevention and good housekeeping program, if it's not done already.

<u>Operation/Activity/Facility</u>	<u>Addressed in SWMP?</u>		<u>Self-Assessment Operation/Activity/Facility performed within the past 3 years?</u>	
	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
Street Maintenance.....	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Bridge Maintenance.....	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Winter Road Maintenance.....	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Salt Storage.....	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Solid Waste Management.....	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
New Municipal Construction and Land Disturbance..	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Right of Way Maintenance.....	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Marine Operations.....	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Hydrologic Habitat Modification.....	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Parks and Open Space.....	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Municipal Building.....	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Stormwater System Maintenance.....	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Vehicle and Fleet Maintenance.....	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Other.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2 0 2 0

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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2. Provide the following information about municipal operations good housekeeping programs:

- Parking Lots Swept (Number of acres X Number of times swept) # Acres 0
- Streets Swept (Number of miles X Number of times swept) # Miles 5
- Catch Basins Inspected and Cleaned Where Necessary # 3 2 5
- Post Construction Control Stormwater Management Practices Inspected and Cleaned Where Necessary # 1
- Phosphorus Applied In Chemical Fertilizer # Lbs. 0
- Nitrogen Applied In Chemical Fertilizer # Lbs. 0
- Pesticide/Herbicide Applied (Number of acres to which pesticide/herbicide was applied X Number of times applied to the nearest tenth.) # Acres 0 .

3. How many stormwater management trainings have been provided to municipal employees during this reporting period? 1

4. What was the date of the last training? 0 3 / 0 3 / 2 0 2 0

5. How many municipal employees have been trained in this reporting period? 7

6. What percent of municipal employees in relevant positions and departments receive stormwater management training? 1 0 0 %

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

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7. Evaluating Progress Toward Measurable Goals MCM 6

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

Highway Department and Building Department personnel are trained in identifying and reporting stormwater issues to the Village Engineer.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

Parking areas and roads are swept as needed.

Sediment collected from catch basins and street sweeping is used in leaf composting facility.

C. How many times was this observation measured or evaluated in this reporting period?

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(ex.: samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Buchanan is less than 2 square miles in area with a well developed drainage system. Most issues are from the natural degradation of streams causing sediment, winter sanding and illicit discharges. Water bodies are monitored daily and the recent issues are from Hurricane Irene.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2 0 2 0
 If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition Village of Buchana

SPDES ID
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Additional Watershed Improvement Strategy Best Management Practices

The information in this section is being reported (check one):

- On behalf of an individual MS4
- On behalf of a coalition

How many MS4s contributed to this report?

MS4s must answer the questions or check NA as indicated in the table below.

MS4 Description	Answer	Check NA	(POC)
NYC EOH Watershed			
Traditional Land Use	1,2,3,4,5,6,7a-d,8a,8b,9	10,11,12	Phosphorus
Traditional Non-Land Use	1,2,3,4,7a-d,8a,8b,9	5,10,11,12	Phosphorus
Non-Traditional	1,2,77a-d,8a,8b,9	3,4,5,10,11,12	Phosphorus
Onondaga Lake Watershed			
Traditional Land Use	1,6,7a-d,8a,9	2,3,4,5,8b,10,11,12	Phosphorus
Traditional Non-Land Use	1,6,7a-d,8a,9	2,3,4,5,8b,10,11,12	Phosphorus
Non-Traditional	1,6,7a-d,8a,9	2,3,4,5,8b,10,11,12	Phosphorus
Greenwood Lake Watershed			
Traditional Land Use	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Traditional Non-Land Use	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Non-Traditional	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Oyster Bay			
Traditional Land Use	1,4,7a-d,9,10,11,12	2,3,5,6,8a,8b	Pathogens
Traditional Non-Land Use	1,4,7a-d,9,10,11,12	2,3,5,6,8a,8b	Pathogens
Non-Traditional	1,4,7a-d,9	2,3,4,5,8a,8b,10,11,12	Pathogens
Peconic Estuary			
Traditional Land Use	1,4,7a-d,8a,9,10,11,12	2,3,5,6,8b	Pathogens and Nitrogen
Traditional Non-Land Use	1,4,7a-d,8a,9,10,11,12	2,3,5,6,8b	Pathogens and Nitrogen
Non-Traditional	1,4,7a-d,8a,9	2,3,4,5,8b,10,11,12	Pathogens and Nitrogen
Oscawana Lake Watershed			
Traditional Land Use	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Traditional Non-Land Use	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Non-Traditional	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
LI 27 Embayments			
Traditional Land Use	1,2,3,4,7a-d,9,10,11,12	5,6,8a,8b	Pathogens
Traditional Non-Land Use	1,2,3,4,7a-d,9,10,11,12	5,6,8a,8b	Pathogens
Non-Traditional	1,2,3,4,7a-d,9	5,6,8a,8b,10,11,12	Pathogens

1. Does your MS4/Coalition have an education program addressing impacts of phosphorus/nitrogen/pathogens on waterbodies? Yes No N/A

2. Has 100% of the MS4/Coalition conveyance system been mapped in GIS? Yes No N/A
 If N/A, go to question 3.

If No, estimate what percentage of the conveyance system has been mapped so far. 1 0 %

Estimate what percentage was mapped in this reporting period. 0 %

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID

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3. Does your MS4/Coalition have a Stormwater Conveyance System (infrastructure) Inspection and Maintenance Plan Program? Yes No N/A

4. Estimate the percentage of on-site wastewater treatment systems that have been inspected and maintained or rehabilitated as necessary in this reporting period?

		0
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 %

5. Has your MS4/Coalition developed a program that provides protection equivalent to the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activities (GP-0-08-001) to reduce pollutants in stormwater runoff from construction activities that disturb five thousand square feet or more? Yes No N/A

6. Has your MS4/Coalition developed a program to address post-construction stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre that provides equivalent protection to the NYS DEC SPDES General Permit for Stormwater Discharges from Construction Activities (GP-0-08-001), including the New York State Stormwater Design Manual Enhanced Phosphorus Removal Standards? Yes No N/A

7a. Does your MS4/Coalition have a retrofitting program to reduce erosion or phosphorus/nitrogen/pathogen loading? Yes No N/A

7b. How many projects have been sited in this reporting period?

		0
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7c. What percent of the projects included in 7b have been completed in this reporting period?

		0
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 %

7d. What percent of projects planned in previous years have been completed?

		0
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 %
 No Projects Planned

8a. Has your MS4/Coalition developed and implemented a turf management practices and procedures policy that addresses proper fertilizer application on municipally owned lands? Yes No N/A

8b. Has your MS4/Coalition developed and implemented a turf management practices and procedures policy that addresses proper disposal of grass clippings and leaves from municipally owned lands? Yes No N/A

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

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9. Has your MS4/Coalition developed and implemented a program of native planting?

Yes No N/A

10. Has your MS4/Coalition enacted a local law prohibiting pet waste on municipal properties and prohibiting goose feeding?

Yes No N/A

11. Does your MS4/Coalition have a pet waste bag program?

Yes No N/A

12. Does your MS4/Coalition have a program to manage goose populations?

Yes No N/A

MS4 Annual Report Cover Page

MCC form for period ending March 9,

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Provide SPDES ID of each permitted MS4 included in this report.

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MS4 Municipal Compliance Certification(MCC) Form

MCC form for period ending March 9, 2 0 2 1

Name of MS4

SPDES ID
N Y R 2 0 A 3 4 2

Section 2 - Contact Information

Important Instructions - Please Read

Contact information must be provided for **each** of the following positions as indicated below:

1. Principal Executive Officer, Chief Elected Official or other qualified individual (per GP-0-08-002 Part VI.J).
2. Duly Authorized Representative (Information for this contact must only be submitted if a Duly Authorized Representative is signing this form)
3. The Local Stormwater Public Contact (required per GP-0-08-002 Part VII.A.2.c & Part VIII.A.2.c).
4. The Stormwater Management Program (SWMP) Coordinator (Individual responsible for coordination/implementation of SWMP).
5. Report Preparer (Consultants may provide company name in the space provided).

A separate sheet must be submitted for each position listed above unless more than one position is filled by the same individual. If one individual fills multiple roles, provide the contact information once and check all positions that apply to that individual.

If a new Duly Authorized Representative is signing this report, their contact information must be provided and a signature authorization form, signed by the Principal Executive Officer or Chief Elected Official must be attached.

For each contact, select all that apply:

- Principal Executive Officer/Chief Elected Official
- Duly Authorized Representative
- Local Stormwater Public Contact
- Stormwater Management Program (SWMP) Coordinator
- Report Preparer

First Name MI Last Name

Title

Address

City State Zip

eMail

Phone County

MS4 Municipal Compliance Certification (MCC) Form

MCC form for period ending March 9, 2 0 2 1

Name of MS4 Village of Buchanan

SPDES ID
N Y R 2 0 A 3 4 2

Section 3 - Partner Information

Did your MS4 work with partners/coalition to complete some or all permit requirements during this reporting period? Yes No

If Yes, complete information below.

Submit a separate sheet for each partner. Information provided in other formats will not be accepted. If your MS4 cooperated with a coalition, submit one sheet with the name of the coalition. It is not necessary to include a separate sheet for each MS4 in the coalition.

If No, proceed to Section 4 - Certification Statement.

Partner/Coalition Name

Partner/Coalition Name (con't.) SPDES Partner ID - If applicable
N Y R 2 0

Address

City State Zip

eMail

Phone () -

Legally Binding Agreement in accordance with GP-0-08-002 Part IV.G.? Yes No

What tasks/responsibilities are shared with this partner (e.g. MM1 School Programs or Multiple Tasks)?

- MM1
- MM2
- MM3
- MM4
- MM5
- MM6

Additional tasks/responsibilities

- Watershed Improvement Strategy Best Management Practices required for MS4s in impaired watersheds included in GP-0-08-002 Part IX.

MS4 Municipal Compliance Certification(MCC) Form

MCC form for period ending March 9, 2 0 2 1

Name of MS4 Village of Buchanan

SPDES ID

N Y R 2 0 A 3 4 2

Section 4 - Certification Statement

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

This form must be signed by either a principal executive officer or ranking elected official, or duly authorized representative of that person as described in GP-0-08-002 Part VI.J.

First Name

M a r c u s

MI

Last Name

S e r r a n o

Title (Clearly print title of individual signing report)

V i l l a g e A d m i n i s t r a t o r

Signature

Date

0 5 / 1 6 / 2 0 2 1

Send completed form and any attachments to the DEC Central Office at:

MS4 Permit Coordinator
 Division of Water
 4th Floor
 625 Broadway
 Albany, New York 12233-3505

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	1
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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4. Evaluating Progress Toward Measurable Goals MCM 1

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

Information is located on the website, Village Hall and Public Library.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

C. How many times was this observation measured or evaluated in this reporting period?

--	--	--	--	--

(ex.: samples/participants/events)

D. Has your MS4 made progress toward this Measurable Goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Continue to make information available to the public.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2021

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition: SPDES ID

3. Where can the public access copies of this annual report, Stormwater Management Program SWMP) Plan and submit comments on those documents?

Enter address/contact info and select radio button to indicate which document is available and whether comments may be submitted at that location. Submit additional pages as needed.

- MS4/Coalition Office Annual Report SWMP Plan Comments

Department
V i l l a g e o f B u c h a n a n

Address
2 3 6 T a t e A v e n u e

City
B u c h a n a n Zip
1 0 5 1 1 - 1 2 1 2

Phone
(9 1 4) 7 3 7 - 1 0 3 3

- Library Annual Report SWMP Plan Comments

Address
1 8 5 K i n g s F e r r y R o a d

City
M o n t r o s e Zip
1 0 5 4 8 - 1 2 3 6

Phone
(9 1 4) 7 3 9 - 5 6 5 4

- Other Annual Report SWMP Plan Comments

Address
1 6 8 9 R o u t e 2 2

City
B r e w s t e r Zip
1 0 5 0 9 -

Phone
(8 4 5) 2 7 9 - 2 2 2 0

- Web Page URL: Annual Report SWMP Plan Comments

h t t p : / / w w w . v i l l a g e o f b u c h a n a n . c o
m / c o m m u n i t y - G e n . h t m l

Please provide specific address of page where report can be accessed - not home page.

- eMail Comments

a d m i n i s t r a t o r @ v i l l a g e o f b u c h a n a n
. c o m

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2 0 2 1

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID
N Y R 2 0 A 3 4 2

4.a. If this report was made available on the internet, what date was it posted?

Leave blank if this report was not posted on the internet.

0 5 / 2 7 / 2 0 2 1

4.b. For how many days was/will this report be posted?

3 6 5

If submitting a report for single MS4, answer 5.a.. If submitting a joint report, answer 5.b..

5.a. Was an Annual Report public meeting held in this reporting period?

Yes No

If Yes, what was the date of the meeting?

0 6 / 0 2 / 2 0 2 0

If No, is one planned?

Yes No

5.b. Was an Annual Report public meeting held for all MS4s contributing to this report during this reporting period?

Yes No

If No, is one planned for each?

Yes No

6. Were comments received during this reporting period?

Yes No

If Yes, attach comments, responses and changes made to SWMP in response to comments to this report.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	1
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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7. Evaluating Progress Toward Measurable Goals MCM 2

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

Information is located on the website, Village Hall and Public Library.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

None

C. How many times was this observation measured or evaluated in this reporting period?

				0
--	--	--	--	---

(ex.: samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Continue to make information available to the public.
 An annual Day Event which includes stormwater pamphlets handouts.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	1
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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12. Evaluating Progress Toward Measurable Goals MCM 3

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

New facilities will have oil/water separator where possible discharges may occur.
Scheduled cleanings of catch basins and parking lots are performed.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

Planning, building and engineering department monitor for compliance.

C. How many times was this observation measured or evaluated in this reporting period?

			1
--	--	--	---

(ex.: samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Continue monitoring for compliance.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	1
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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Minimum Control Measures 4 and 5.
Construction Site and Post-Construction Control

The information in this section is being reported (check one):

- On behalf of an individual MS4
- On behalf of a coalition

How many MS4s contributed to this report?

--	--	--

1a. Has each MS4 contributing to this report adopted a law, ordinance or other regulatory mechanism that provides equivalent protection to the NYS SPDES General Permit for Stormwater Discharges from Construction Activities? Yes No

1b. Has each Town, City and/or Village contributing to this report documented that the law is equivalent to a NYSDEC Sample Local Law for Stormwater Management and Erosion and Sediment Control through either an attorney certification or using the NYSDEC Gap Analysis Workbook? Yes No NT

If Yes, Towns, Cities and Villages provide date of equivalent NYS Sample Local Law.
 09/2004 03/2006 NT

2. Does your MS4/Coalition have a SWPPP review procedure in place? Yes No

3. How many Construction Stormwater Pollution Prevention Plans (SWPPPs) have been reviewed in this reporting period?

		0
--	--	---

4. Does your MS4/Coalition have a mechanism for receipt and consideration of public comments related to construction SWPPPs? Yes No NT

If Yes, how many public comments were received during this reporting period?

		0
--	--	---

5. Does your MS4/Coalition provide education and training for contractors about the local SWPPP process? Yes No

6. Identify which of the following types of enforcement actions you used during the reporting period for construction activities, indicate the number of actions, or note those for which you do not have authority:

- Notices of Violation #

--	--	--	--	--

 No Authority
- Stop Work Orders #

--	--	--	--	--

 No Authority
- Criminal Actions #

--	--	--	--	--

 No Authority
- Termination of Contracts #

--	--	--	--	--

 No Authority
- Administrative Fines #

--	--	--	--	--

 No Authority
- Civil Penalties #

--	--	--	--	--

 No Authority
- Administrative Orders #

--	--	--	--	--

 No Authority
- Enforcement Actions or Sanctions #

--	--	--	--	--

 No Authority
- Other #

--	--	--	--	--

 No Authority

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	1
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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Minimum Control Measure 4. Construction Site Stormwater Runoff Control

The information in this section is being reported (check one):

- On behalf of an individual MS4
- On behalf of a coalition

How many MS4s contributed to this report?

--	--	--

1. How many construction projects have been authorized for disturbances of one acre or more during this reporting period?

		0
--	--	---

2. How many construction projects disturbing at least one acre were active in your jurisdiction during this reporting period?

		0
--	--	---

3. What percent of active construction sites were inspected during this reporting period? NT

1	0	0
---	---	---

 %

4. What percent of active construction sites were inspected more than once? NT

1	0	0
---	---	---

 %

5. Do all inspectors working on behalf of the MS4s contributing to this report use the NYS Construction Stormwater Inspection Manual? Yes No NT

6. Does your MS4/Coalition provide public access to Stormwater Pollution Prevention Plans (SWPPPs) of construction projects that are subject to MS4 review and approval? Yes No NT

If your MS4 is Non-Traditional, are SWPPPs of construction projects made available for public review? Yes No

If Yes, use the following page to identify location(s) where SWPPPs can be accessed.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2021

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID
N Y R 2 0 A 3 4 2

6. con't.:

Submit additional pages as needed.

MS4/Coalition Office

Department

B u i l d i n g D e p a r t m e n t

Address

2 3 6 T a t e A v e n u e

City

B u c h a n a n

N Y

Zip

1 0 5 1 1 - 1 2 1 2

Phone

() -

Library

Address

City

Zip

-

Phone

() -

Other

Address

1 6 8 9 R o u t e 2 2

City

B r e w s t e r

N Y

Zip

1 0 5 0 9 -

Phone

() -

Web Page URL(s): Please provide specific address where SWPPPs can be accessed - not home page.

URL

URL

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	1
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID

N	Y	R	2	0	A	3	4	2
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7. Evaluating Progress Toward Measurable Goals MCM 4

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

Monitor sites under construction during reporting period.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

Reports indicate corrective measures to be implemented.

C. How many times was this observation measured or evaluated in this reporting period?

			0
--	--	--	---

(ex.: samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Continue to monitor sites during construction.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2 0 2 1

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID
N Y R 2 0 A 3 4 2

Minimum Control Measure 5. Post-Construction Stormwater Management

The information in this section is being reported (check one):

- On behalf of an individual MS4
- On behalf of a coalition

How many MS4s contributed to this report?

1. How many and what type of post-construction stormwater management practices has your MS4/Coalition inventoried, inspected and maintained in this reporting period?

	# Inventoried	# Inspections	# Times Maintained
<input checked="" type="radio"/> Alternative Practices	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value="1"/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>
<input type="radio"/> Filter Systems	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>
<input checked="" type="radio"/> Infiltration Basins	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value="2"/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>
<input type="radio"/> Open Channels	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>
<input type="radio"/> Ponds	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>
<input type="radio"/> Wetlands	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>
<input type="radio"/> Other	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>

2. Do you use an electronic tool (e.g. GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance? Yes No

3. What types of non-structural practices have been used to implement Low Impact Development/Better Site Design/Green Infrastructure principles?

- Building Codes Municipal Comprehensive Plans
- Overlay Districts Open Space Preservation Program
- Zoning Local Law or Ordinance
- None Land Use Regulation/Zoning
- Watershed Plans Other Comprehensive Plan

Other:
P l a n n i n g B o a r d R e v i e w

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	1
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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4a. Are the MS4s contributing to this report involved in a regional/watershed wide planning effort?

Yes No

4b. Does the MS4 have a banking and credit system for stormwater management practices?

Yes No

4c. Do the SWMP Plans for each MS4 contributing to this report include a protocol for evaluation and approval of banking and credit of alternative siting of a stormwater management practice?

Yes No

4d. How many stormwater management practices have been implemented as part of this system in this reporting period?

		1
--	--	---

5. What percent of municipal officials/MS4 staff responsible for program implementation attended training on Low Impace Development (LID), Better Site Design (BSD) and other Green Infrastructure principles in this reporting period?

	1	0
--	---	---

 %

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	1
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID

N	Y	R	2	0	A	3	4	2
---	---	---	---	---	---	---	---	---

6. Evaluating Progress Toward Measurable Goals MCM 5

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

None.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

None.

C. How many times was this observation measured or evaluated in this reporting period?

			0
--	--	--	---

(ex.: samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

None.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2 0 2 1

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition:

SPDES ID

Minimum Control Measure 6. Stormwater Management for Municipal Operations

The information in this section is being reported (check one):

- On behalf of an individual MS4
- On behalf of a coalition

How many MS4s contributed to this report?

1. Choose/list each municipal operation/facility that contributes or may potentially contribute Pollutants of Concern to the MS4 system. For each operation/facility indicate whether the operation/facility has been addressed in the MS4's/Coalition's Stormwater Management Program(SWMP) Plan and whether a self-assessment has been performed during the reporting period. A self-assessment is performed to: 1) determine the sources of pollutants potentially generated by the permittee's operations and facilities; 2) evaluate the effectiveness of existing programs and 3) identify the municipal operations and facilities that will be addressed by the pollution prevention and good housekeeping program, if it's not done already.

<u>Operation/Activity/Facility</u>	<u>Addressed in SWMP?</u>		<u>Self-Assessment</u>	
			<u>Operation/Activity/Facility performed within the past 3 years?</u>	
	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
Street Maintenance.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Bridge Maintenance.....	<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input type="radio"/> Yes	<input checked="" type="radio"/> No
Winter Road Maintenance.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Salt Storage.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Solid Waste Management.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
New Municipal Construction and Land Disturbance..	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Right of Way Maintenance.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Marine Operations.....	<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input type="radio"/> Yes	<input checked="" type="radio"/> No
Hydrologic Habitat Modification.....	<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input type="radio"/> Yes	<input checked="" type="radio"/> No
Parks and Open Space.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Municipal Building.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Stormwater System Maintenance.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Vehicle and Fleet Maintenance.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Other.....	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2 0 2 1
 If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition: Village of Buchanan SPDES ID
N Y R 2 0 A 3 4 2

2. Provide the following information about municipal operations good housekeeping programs:

- Parking Lots Swept (Number of acres X Number of times swept) # Acres 2
- Streets Swept (Number of miles X Number of times swept) # Miles 2 0
- Catch Basins Inspected and Cleaned Where Necessary # 2 9 5
- Post Construction Control Stormwater Management Practices Inspected and Cleaned Where Necessary # 1
- Phosphorus Applied In Chemical Fertilizer # Lbs. 0
- Nitrogen Applied In Chemical Fertilizer # Lbs. 0
- Pesticide/Herbicide Applied (Number of acres to which pesticide/herbicide was applied X Number of times applied to the nearest tenth.) # Acres 0 .

3. How many stormwater management trainings have been provided to municipal employees during this reporting period? 1

4. What was the date of the last training? 0 2 / 2 3 / 2 0 2 1

5. How many municipal employees have been trained in this reporting period? 8

6. What percent of municipal employees in relevant positions and departments receive stormwater management training? 1 0 0 %

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	1
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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7. Evaluating Progress Toward Measurable Goals MCM 6

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

Highway Department and Building Department personnel are trained in identifying and reporting stormwater issues to the Village Engineer.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

Parking areas and roads are swept as needed.
Sediment collected from catch basins and street sweeping is used in leaf composting facility.

C. How many times was this observation measured or evaluated in this reporting period?

--	--	--	--

(ex.: samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Buchanan is less than 2 square miles in area with a well developed drainage system. Most issues are from the natural degradation of streams causing sediment, winter sanding and illicit discharges. Water bodies are monitored daily and the recent issues are from Hurricane Irene.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2 0 2 1

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition Village of Buchana

SPDES ID
N Y R 2 0 A 3 4 2

Additional Watershed Improvement Strategy Best Management Practices

The information in this section is being reported (check one):

- On behalf of an individual MS4
- On behalf of a coalition

How many MS4s contributed to this report?

MS4s must answer the questions or check NA as indicated in the table below.

MS4 Description	Answer	Check NA	(POC)
NYC EOH Watershed			
Traditional Land Use	1,2,3,4,5,6,7a-d,8a,8b,9	10,11,12	Phosphorus
Traditional Non-Land Use	1,2,3,4,7a-d,8a,8b,9	5,10,11,12	Phosphorus
Non-Traditional	1,2,77a-d,8a,8b,9	3,4,5,10,11,12	Phosphorus
Onondaga Lake Watershed			
Traditional Land Use	1,6,7a-d,8a,9	2,3,4,5,8b,10,11,12	Phosphorus
Traditional Non-Land Use	1,6,7a-d,8a,9	2,3,4,5,8b,10,11,12	Phosphorus
Non-Traditional	1,6,7a-d,8a,9	2,3,4,5,8b,10,11,12	Phosphorus
Greenwood Lake Watershed			
Traditional Land Use	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Traditional Non-Land Use	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Non-Traditional	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Oyster Bay			
Traditional Land Use	1,4,7a-d,9,10,11,12	2,3,5,6,8a,8b	Pathogens
Traditional Non-Land Use	1,4,7a-d,9,10,11,12	2,3,5,6,8a,8b	Pathogens
Non-Traditional	1,4,7a-d,9	2,3,4,5,8a,8b,10,11,12	Pathogens
Peconic Estuary			
Traditional Land Use	1,4,7a-d,8a,9,10,11,12	2,3,5,6,8b	Pathogens and Nitrogen
Traditional Non-Land Use	1,4,7a-d,8a,9,10,11,12	2,3,5,6,8b	Pathogens and Nitrogen
Non-Traditional	1,4,7a-d,8a,9	2,3,4,5,8b,10,11,12	Pathogens and Nitrogen
Oscawana Lake Watershed			
Traditional Land Use	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Traditional Non-Land Use	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Non-Traditional	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
LI 27 Embayments			
Traditional Land Use	1,2,3,4,7a-d,9,10,11,12	5,6,8a,8b	Pathogens
Traditional Non-Land Use	1,2,3,4,7a-d,9,10,11,12	5,6,8a,8b	Pathogens
Non-Traditional	1,2,3,4,7a-d,9	5,6,8a,8b,10,11,12	Pathogens

1. Does your MS4/Coalition have an education program addressing impacts of phosphorus/nitrogen/pathogens on waterbodies? Yes No N/A

2. Has 100% of the MS4/Coalition conveyance system been mapped in GIS? Yes No N/A

If N/A, go to question 3.

If No, estimate what percentage of the conveyance system has been mapped so far. 1 0 %

Estimate what percentage was mapped in this reporting period. 0 %

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	1
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID

N	Y	R	2	0	A	3	4	2
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3. Does your MS4/Coalition have a Stormwater Conveyance System (infrastructure) Inspection and Maintenance Plan Program? Yes No N/A

4. Estimate the percentage of on-site wastewater treatment systems that have been inspected and maintained or rehabilitated as necessary in this reporting period?

		0
--	--	---

 %

5. Has your MS4/Coalition developed a program that provides protection equivalent to the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activities (GP-0-08-001) to reduce pollutants in stormwater runoff from construction activities that disturb five thousand square feet or more? Yes No N/A

6. Has your MS4/Coalition developed a program to address post-construction stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre that provides equivalent protection to the NYS DEC SPDES General Permit for Stormwater Discharges from Construction Activities (GP-0-08-001), including the New York State Stormwater Design Manual Enhanced Phosphorus Removal Standards? Yes No N/A

7a. Does your MS4/Coalition have a retrofitting program to reduce erosion or phosphorus/nitrogen/pathogen loading? Yes No N/A

7b. How many projects have been sited in this reporting period?

		0
--	--	---

7c. What percent of the projects included in 7b have been completed in this reporting period?

		0
--	--	---

 %

7d. What percent of projects planned in previous years have been completed?

		0
--	--	---

 %
 No Projects Planned

8a. Has your MS4/Coalition developed and implemented a turf management practices and procedures policy that addresses proper fertilizer application on municipally owned lands? Yes No N/A

8b. Has your MS4/Coalition developed and implemented a turf management practices and procedures policy that addresses proper disposal of grass clippings and leaves from municipally owned lands? Yes No N/A

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	1
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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- 9. **Has your MS4/Coalition developed and implemented a program of native planting?**
 Yes No N/A

- 10. **Has your MS4/Coalition enacted a local law prohibiting pet waste on municipal properties and prohibiting goose feeding?**
 Yes No N/A

- 11. **Does your MS4/Coalition have a pet waste bag program?**
 Yes No N/A

- 12. **Does your MS4/Coalition have a program to manage goose populations?**
 Yes No N/A

MS4 Annual Report Cover Page

MCC form for period ending March 9, 2022

Provide SPDES ID of each permitted MS4 included in this report.

SPDES ID
N Y R 2 0 A

MS4 Municipal Compliance Certification(MCC) Form

MCC form for period ending March 9,

2	0	2	2
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Name of MS4

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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Section 2 - Contact Information

Important Instructions - Please Read

Contact information must be provided for ***each*** of the following positions as indicated below:

1. Principal Executive Officer, Chief Elected Official or other qualified individual (per GP-0-08-002 Part VI.J).
2. Duly Authorized Representative (Information for this contact must only be submitted if a Duly Authorized Representative is signing this form)
3. The Local Stormwater Public Contact (required per GP-0-08-002 Part VII.A.2.c & Part VIII.A.2.c).
4. The Stormwater Management Program (SWMP) Coordinator (Individual responsible for coordination/implementation of SWMP).
5. Report Preparer (Consultants may provide company name in the space provided).

A separate sheet must be submitted for each position listed above unless more than one position is filled by the same individual. If one individual fills multiple roles, provide the contact information once and check all positions that apply to that individual.

If a new Duly Authorized Representative is signing this report, their contact information must be provided and a signature authorization form, signed by the Principal Executive Officer or Chief Elected Official must be attached.

For each contact, select all that apply:

- Principal Executive Officer/Chief Elected Official
- Duly Authorized Representative
- Local Stormwater Public Contact
- Stormwater Management Program (SWMP) Coordinator
- Report Preparer

First Name

T	h	e	r	e	s	a													
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 MI

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 Last Name

K	n	i	c	k	e	r	b	o	c	k	e	r							
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Title

M	a	y	o	r															
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Address

2	3	6		T	a	t	e		A	v	e	n	u	e					
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City

B	u	c	h	a	n	a	n												
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 State

N	Y
---	---

 Zip

1	0	5	1	1	-	1	2	1	2
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eMail

t	h	e	r	e	s	a	k	@	v	i	l	l	a	g	e	o	f	b	u	c	h	a	n	a	n	.	c	o	m
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Phone

(9	1	4)	7	3	7	-	1	0	3	3
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 County

W	e	s	t	c	h	e	s	t	e	r									
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MS4 Municipal Compliance Certification (MCC) Form

MCC form for period ending March 9, 2 0 2 2

Name of MS4 Village of Buchanan

SPDES ID

N Y R 2 0 A 3 4 2

Section 3 - Partner Information

Did your MS4 work with partners/coalition to complete some or all permit requirements during this reporting period?

Yes No

If Yes, complete information below.

Submit a separate sheet for each partner. Information provided in other formats will not be accepted. If your MS4 cooperated with a coalition, submit one sheet with the name of the coalition. It is not necessary to include a separate sheet for each MS4 in the coalition.

If No, proceed to Section 4 - Certification Statement.

Partner/Coalition Name

[Grid for Partner/Coalition Name]

Partner/Coalition Name (con't.)

[Grid for Partner/Coalition Name (con't.)]

SPDES Partner ID - If applicable

N Y R 2 0

Address

[Grid for Address]

City

[Grid for City]

State

[Grid for State]

Zip

[Grid for Zip]

- [Grid for Zip]

eMail

[Grid for eMail]

Phone

([Grid]) [Grid] - [Grid]

Legally Binding Agreement in accordance with GP-0-08-002 Part IV.G.?

Yes No

What tasks/responsibilities are shared with this partner (e.g. MM1 School Programs or Multiple Tasks)?

MM1 [Grid]

MM2 [Grid]

MM3 [Grid]

MM4 [Grid]

MM5 [Grid]

MM6 [Grid]

Additional tasks/responsibilities

Watershed Improvement Strategy Best Management Practices required for MS4s in impaired watersheds included in GP-0-08-002 Part IX.

[Grid for Additional tasks/responsibilities]

MS4 Municipal Compliance Certification(MCC) Form

MCC form for period ending March 9, 2022

Name of MS4: Village of Buchanan

SPDES ID
N Y R 2 0 A 3 4 2

Section 4 - Certification Statement

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

This form must be signed by either a principal executive officer or ranking elected official, or duly authorized representative of that person as described in GP-0-08-002 Part VIJ.

First Name: M a r c u s MI: Last Name: S e r r a n o

Title (Clearly print title of individual signing report):
V i l l a g e A d m i n i s t r a t o r

Signature: 

Date: 0 4 / 2 1 / 2 0 2 2

Send completed form and any attachments to the DEC Central Office at:

MS4 Permit Coordinator
Division of Water
4th Floor
625 Broadway
Albany, New York 12233-3505

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	2
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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4. Evaluating Progress Toward Measurable Goals MCM 1

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

Information is located on the website, Village Hall and Public Library.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.**C. How many times was this observation measured or evaluated in this reporting period?**

--	--	--	--

(ex.: samples/participants/events)

D. Has your MS4 made progress toward this Measurable Goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Continue to make information available to the public.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2022

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition: SPDES ID

3. Where can the public access copies of this annual report, Stormwater Management Program SWMP) Plan and submit comments on those documents?

Enter address/contact info and select radio button to indicate which document is available and whether comments may be submitted at that location. Submit additional pages as needed.

MS4/Coalition Office Annual Report SWMP Plan Comments

Department
V i l l a g e o f B u c h a n a n

Address
2 3 6 T a t e A v e n u e

City
B u c h a n a n

Zip
1 0 5 1 1 - 1 2 1 2

Phone
(9 1 4) 7 3 7 - 1 0 3 3

Library Annual Report SWMP Plan Comments

Address
1 8 5 K i n g s F e r r y R o a d

City
M o n t r o s e

Zip
1 0 5 4 8 - 1 2 3 6

Phone
(9 1 4) 7 3 9 - 5 6 5 4

Other Annual Report SWMP Plan Comments

Address
1 6 8 9 R o u t e 2 2

City
B r e w s t e r

Zip
1 0 5 0 9 -

Phone
(8 4 5) 2 7 9 - 2 2 2 0

Web Page URL: Annual Report SWMP Plan Comments

h t t p : / / w w w . v i l l a g e o f b u c h a n a n . c o
m / c o m m u n i t y - G e n . h t m l

Please provide specific address of page where report can be accessed - not home page.

eMail Comments

a d m i n i s t r a t o r @ v i l l a g e o f b u c h a n a n
. c o m

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	2
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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4.a. If this report was made available on the internet, what date was it posted?

Leave blank if this report was not posted on the internet.

0	5	/	3	1	/	2	0	2	2
---	---	---	---	---	---	---	---	---	---

4.b. For how many days was/will this report be posted?

3	6	5
---	---	---

If submitting a report for single MS4, answer 5.a.. If submitting a joint report, answer 5.b..

5.a. Was an Annual Report public meeting held in this reporting period?
 Yes No

If Yes, what was the date of the meeting?

0	5	/	0	3	/	2	0	2	2
---	---	---	---	---	---	---	---	---	---

If No, is one planned?

 Yes No
5.b. Was an Annual Report public meeting held for all MS4s contributing to this report during this reporting period?
 Yes No

If No, is one planned for each?

 Yes No
6. Were comments received during this reporting period?
 Yes No

If Yes, attach comments, responses and changes made to SWMP in response to comments to this report.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	2
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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7. Evaluating Progress Toward Measurable Goals MCM 2

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

Information is located on the website, Village Hall and Public Library.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

None

C. How many times was this observation measured or evaluated in this reporting period?

			0
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(ex. : samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Continue to make information available to the public.
 An annual Day Event which includes stormwater pamphlets handouts.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	2
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID

N	Y	R	2	0	A	3	4	2
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12. Evaluating Progress Toward Measurable Goals MCM 3

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

New facilities will have oil/water separator where possible discharges may occur.
 Scheduled cleanings of catch basins and parking lots are performed.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

Planning, building and engineering department monitor for compliance.

C. How many times was this observation measured or evaluated in this reporting period?

			1
--	--	--	---

(ex.: samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Continue monitoring for compliance.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	2
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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Minimum Control Measures 4 and 5.
Construction Site and Post-Construction Control

The information in this section is being reported (check one):

- On behalf of an individual MS4
 On behalf of a coalition

How many MS4s contributed to this report?

--	--	--

1a. Has each MS4 contributing to this report adopted a law, ordinance or other regulatory mechanism that provides equivalent protection to the NYS SPDES General Permit for Stormwater Discharges from Construction Activities? Yes No

1b. Has each Town, City and/or Village contributing to this report documented that the law is equivalent to a NYSDEC Sample Local Law for Stormwater Management and Erosion and Sediment Control through either an attorney certification or using the NYSDEC Gap Analysis Workbook? Yes No NT

If Yes, Towns, Cities and Villages provide date of equivalent NYS Sample Local Law.

09/2004 03/2006 NT

2. Does your MS4/Coalition have a SWPPP review procedure in place? Yes No

3. How many Construction Stormwater Pollution Prevention Plans (SWPPPs) have been reviewed in this reporting period?

		0
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4. Does your MS4/Coalition have a mechanism for receipt and consideration of public comments related to construction SWPPPs? Yes No NT

If Yes, how many public comments were received during this reporting period?

		0
--	--	---

5. Does your MS4/Coalition provide education and training for contractors about the local SWPPP process? Yes No

6. Identify which of the following types of enforcement actions you used during the reporting period for construction activities, indicate the number of actions, or note those for which you do not have authority:

- | | | | | | | | | |
|--|---|----------------------|----------------------|----------------------|----------------------|----------------------|---|------------------------------------|
| <input type="radio"/> Notices of Violation | # | <input type="text"/> | 0 | <input type="radio"/> No Authority |
| <input type="radio"/> Stop Work Orders | # | <input type="text"/> | 0 | <input type="radio"/> No Authority |
| <input type="radio"/> Criminal Actions | # | <input type="text"/> | 0 | <input type="radio"/> No Authority |
| <input type="radio"/> Termination of Contracts | # | <input type="text"/> | 0 | <input type="radio"/> No Authority |
| <input type="radio"/> Administrative Fines | # | <input type="text"/> | 0 | <input type="radio"/> No Authority |
| <input type="radio"/> Civil Penalties | # | <input type="text"/> | 0 | <input type="radio"/> No Authority |
| <input type="radio"/> Administrative Orders | # | <input type="text"/> | 0 | <input type="radio"/> No Authority |
| <input type="radio"/> Enforcement Actions or Sanctions | # | <input type="text"/> | 0 | |
| <input type="radio"/> Other | # | <input type="text"/> | 0 | <input type="radio"/> No Authority |

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2022

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID

N	Y	R	2	0	A	3	4	2
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Minimum Control Measure 4. Construction Site Stormwater Runoff Control

The information in this section is being reported (check one):

- On behalf of an individual MS4
- On behalf of a coalition

How many MS4s contributed to this report?

1. How many construction projects have been authorized for disturbances of one acre or more during this reporting period?

2. How many construction projects disturbing at least one acre were active in your jurisdiction during this reporting period?

3. What percent of active construction sites were inspected during this reporting period? NT %

4. What percent of active construction sites were inspected more than once? NT %

5. Do all inspectors working on behalf of the MS4s contributing to this report use the NYS Construction Stormwater Inspection Manual? Yes No NT

6. Does your MS4/Coalition provide public access to Stormwater Pollution Prevention Plans (SWPPPs) of construction projects that are subject to MS4 review and approval? Yes No NT

If your MS4 is Non-Traditional, are SWPPPs of construction projects made available for public review? Yes No

If Yes, use the following page to identify location(s) where SWPPPs can be accessed.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	2
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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7. Evaluating Progress Toward Measurable Goals MCM 4

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

Monitor sites under construction during reporting period.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

Reports indicate corrective measures to be implemented.

C. How many times was this observation measured or evaluated in this reporting period?

			0
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(ex.: samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Continue to monitor sites during construction.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2 0 2 2

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID
N Y R 2 0 A 3 4 2

Minimum Control Measure 5. Post-Construction Stormwater Management

The information in this section is being reported (check one):

- On behalf of an individual MS4
- On behalf of a coalition

How many MS4s contributed to this report?

1. How many and what type of post-construction stormwater management practices has your MS4/Coalition inventoried, inspected and maintained in this reporting period?

	# Inventoried	# Inspections	# Times Maintained
<input checked="" type="radio"/> Alternative Practices	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value="1"/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>
<input type="radio"/> Filter Systems	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>
<input checked="" type="radio"/> Infiltration Basins	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value="2"/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>
<input type="radio"/> Open Channels	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>
<input type="radio"/> Ponds	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>
<input type="radio"/> Wetlands	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>
<input type="radio"/> Other	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>

2. Do you use an electronic tool (e.g. GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance? Yes No

3. What types of non-structural practices have been used to implement Low Impact Development/Better Site Design/Green Infrastructure principles?

- Building Codes
- Municipal Comprehensive Plans
- Overlay Districts
- Open Space Preservation Program
- Zoning
- Local Law or Ordinance
- None
- Land Use Regulation/Zoning
- Watershed Plans
- Other Comprehensive Plan

Other:

P l a n n i n g B o a r d R e v i e w

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	2
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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4a. Are the MS4s contributing to this report involved in a regional/watershed wide planning effort?

Yes No

4b. Does the MS4 have a banking and credit system for stormwater management practices?

Yes No

4c. Do the SWMP Plans for each MS4 contributing to this report include a protocol for evaluation and approval of banking and credit of alternative siting of a stormwater management practice?

Yes No

4d. How many stormwater management practices have been implemented as part of this system in this reporting period?

		1
--	--	---

5. What percent of municipal officials/MS4 staff responsible for program implementation attended training on Low Impace Development (LID), Better Site Design (BSD) and other Green Infrastructure principles in this reporting period?

	1	0
--	---	---

 %

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	2
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
---	---	---	---	---	---	---	---	---

6. Evaluating Progress Toward Measurable Goals MCM 5

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

None.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

None.

C. How many times was this observation measured or evaluated in this reporting period?

			0
--	--	--	---

*(ex.: samples/participants/events)***D. Has your MS4 made progress toward this measurable goal during this reporting period?**
 Yes No
E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?
 Yes No
F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

None.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	2
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID

N	Y	R	2	0	A	3	4	2
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Minimum Control Measure 6. Stormwater Management for Municipal Operations

The information in this section is being reported (check one):

- On behalf of an individual MS4
- On behalf of a coalition

How many MS4s contributed to this report?

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1. Choose/list each municipal operation/facility that contributes or may potentially contribute Pollutants of Concern to the MS4 system. For each operation/facility indicate whether the operation/facility has been addressed in the MS4's/Coalition's Stormwater Management Program(SWMP) Plan and whether a self-assessment has been performed during the reporting period. A self-assessment is performed to: 1) determine the sources of pollutants potentially generated by the permittee's operations and facilities; 2) evaluate the effectiveness of existing programs and 3) identify the municipal operations and facilities that will be addressed by the pollution prevention and good housekeeping program, if it's not done already.

<u>Operation/Activity/Facility</u>	<u>Addressed in SWMP?</u>		<u>Self-Assessment Operation/Activity/Facility performed within the past 3 years?</u>	
	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No
Street Maintenance.....	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Bridge Maintenance.....	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Winter Road Maintenance.....	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Salt Storage.....	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Solid Waste Management.....	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
New Municipal Construction and Land Disturbance..	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Right of Way Maintenance.....	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Marine Operations.....	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Hydrologic Habitat Modification.....	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Parks and Open Space.....	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Municipal Building.....	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Stormwater System Maintenance.....	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Vehicle and Fleet Maintenance.....	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Other.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2022

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition Village of Buchanan

SPDES ID
NYR20A342

2. Provide the following information about municipal operations good housekeeping programs:

- Parking Lots Swept (Number of acres X Number of times swept) # Acres 2
- Streets Swept (Number of miles X Number of times swept) # Miles 20
- Catch Basins Inspected and Cleaned Where Necessary # 295
- Post Construction Control Stormwater Management Practices Inspected and Cleaned Where Necessary # 1
- Phosphorus Applied In Chemical Fertilizer # Lbs. 0
- Nitrogen Applied In Chemical Fertilizer # Lbs. 0
- Pesticide/Herbicide Applied (Number of acres to which pesticide/herbicide was applied X Number of times applied to the nearest tenth.) # Acres 0.

3. How many stormwater management trainings have been provided to municipal employees during this reporting period? 1

4. What was the date of the last training? 02 / 23 / 2022

5. How many municipal employees have been trained in this reporting period? 7

6. What percent of municipal employees in relevant positions and departments receive stormwater management training? 100 %

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	2
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
---	---	---	---	---	---	---	---	---

7. Evaluating Progress Toward Measurable Goals MCM 6

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

Highway Department and Building Department personnel are trained in identifying and reporting stormwater issues to the Village Engineer.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

Parking areas and roads are swept as needed.

Sediment collected from catch basins and street sweeping is used in leaf composting facility.

C. How many times was this observation measured or evaluated in this reporting period?

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(ex.: samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Buchanan is less than 2 square miles in area with a well developed drainage system. Most issues are from the natural degradation of streams causing sediment, winter sanding and illicit discharges. Water bodies are monitored daily and the recent issues are from Hurricane Irene.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	2
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchana

SPDES ID

N	Y	R	2	0	A	3	4	2
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Additional Watershed Improvement Strategy Best Management Practices

The information in this section is being reported (check one):

- On behalf of an individual MS4
- On behalf of a coalition

How many MS4s contributed to this report?

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MS4s must answer the questions or check NA as indicated in the table below.

MS4 Description	Answer	Check NA	(POC)
NYC EOH Watershed	-	-	-
Traditional Land Use	1,2,3,4,5,6,7a-d,8a,8b,9	10,11,12	Phosphorus
Traditional Non-Land Use	1,2,3,4,7a-d,8a,8b,9	5,10,11,12	Phosphorus
Non-Traditional	1,2,77a-d,8a,8b,9	3,4,5,10,11,12	Phosphorus
Onondaga Lake Watershed	-	-	-
Traditional Land Use	1,6,7a-d,8a,9	2,3,4,5,8b,10,11,12	Phosphorus
Traditional Non-Land Use	1,6,7a-d,8a,9	2,3,4,5,8b,10,11,12	Phosphorus
Non-Traditional	1,6,7a-d,8a,9	2,3,4,5,8b,10,11,12	Phosphorus
Greenwood Lake Watershed	-	-	-
Traditional Land Use	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Traditional Non-Land Use	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Non-Traditional	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Oyster Bay	-	-	-
Traditional Land Use	1,4,7a-d,9,10,11,12	2,3,5,6,8a,8b	Pathogens
Traditional Non-Land Use	1,4,7a-d,9,10,11,12	2,3,5,6,8a,8b	Pathogens
Non-Traditional	1,4,7a-d,9	2,3,4,5,8a,8b,10,11,12	Pathogens
Peconic Estuary	-	-	-
Traditional Land Use	1,4,7a-d,8a,9,10,11,12	2,3,5,6,8b	Pathogens and Nitrogen
Traditional Non-Land Use	1,4,7a-d,8a,9,10,11,12	2,3,5,6,8b	Pathogens and Nitrogen
Non-Traditional	1,4,7a-d,8a,9	2,3,4,5,8b,10,11,12	Pathogens and Nitrogen
Oscawana Lake Watershed	-	-	-
Traditional Land Use	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Traditional Non-Land Use	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Non-Traditional	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
LI 27 Embayments	-	-	-
Traditional Land Use	1,2,3,4,7a-d,9,10,11,12	5,6,8a,8b	Pathogens
Traditional Non-Land Use	1,2,3,4,7a-d,9,10,11,12	5,6,8a,8b	Pathogens
Non-Traditional	1,2,3,4,7a-d,9	5,6,8a,8b,10,11,12	Pathogens

1. Does your MS4/Coalition have an education program addressing impacts of phosphorus/nitrogen/pathogens on waterbodies? Yes No N/A

2. Has 100% of the MS4/Coalition conveyance system been mapped in GIS? Yes No N/A

If N/A, go to question 3.

If No, estimate what percentage of the conveyance system has been mapped so far.

	1	0
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 %

Estimate what percentage was mapped in this reporting period.

		0
--	--	---

 %

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	2
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID

N	Y	R	2	0	A	3	4	2
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3. Does your MS4/Coalition have a Stormwater Conveyance System (infrastructure) Inspection and Maintenance Plan Program? Yes No N/A

4. Estimate the percentage of on-site wastewater treatment systems that have been inspected and maintained or rehabilitated as necessary in this reporting period?

		0
--	--	---

 %

5. Has your MS4/Coalition developed a program that provides protection equivalent to the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activities (GP-0-08-001) to reduce pollutants in stormwater runoff from construction activities that disturb five thousand square feet or more? Yes No N/A

6. Has your MS4/Coalition developed a program to address post-construction stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre that provides equivalent protection to the NYS DEC SPDES General Permit for Stormwater Discharges from Construction Activities (GP-0-08-001), including the New York State Stormwater Design Manual Enhanced Phosphorus Removal Standards? Yes No N/A

7a. Does your MS4/Coalition have a retrofitting program to reduce erosion or phosphorus/nitrogen/pathogen loading? Yes No N/A

7b. How many projects have been sited in this reporting period?

		0
--	--	---

7c. What percent of the projects included in 7b have been completed in this reporting period?

		0
--	--	---

 %

7d. What percent of projects planned in previous years have been completed?

		0
--	--	---

 %
 No Projects Planned

8a. Has your MS4/Coalition developed and implemented a turf management practices and procedures policy that addresses proper fertilizer application on municipally owned lands? Yes No N/A

8b. Has your MS4/Coalition developed and implemented a turf management practices and procedures policy that addresses proper disposal of grass clippings and leaves from municipally owned lands? Yes No N/A

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	2
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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9. Has your MS4/Coalition developed and implemented a program of native planting?

Yes No N/A

10. Has your MS4/Coalition enacted a local law prohibiting pet waste on municipal properties and prohibiting goose feeding?

Yes No N/A

11. Does your MS4/Coalition have a pet waste bag program?

Yes No N/A

12. Does your MS4/Coalition have a program to manage goose populations?

Yes No N/A

MS4 Municipal Compliance Certification(MCC) Form

MCC form for period ending March 9, 2023

Name of MS4 Village of Buchanan

SPDES ID
N Y R 2 0 A 3 4 2

Section 2 - Contact Information

Important Instructions - Please Read

Contact information must be provided for each of the following positions as indicated below:

1. Principal Executive Officer, Chief Elected Official or other qualified individual (per GP-0-08-002 Part VI.J).
2. Duly Authorized Representative (Information for this contact must only be submitted if a Duly Authorized Representative is signing this form)
3. The Local Stormwater Public Contact (required per GP-0-08-002 Part VII.A.2.c & Part VIII.A.2.c).
4. The Stormwater Management Program (SWMP) Coordinator (Individual responsible for coordination/implementation of SWMP).
5. Report Preparer (Consultants may provide company name in the space provided).

A separate sheet must be submitted for each position listed above unless more than one position is filled by the same individual. If one individual fills multiple roles, provide the contact information once and check all positions that apply to that individual.

If a new Duly Authorized Representative is signing this report, their contact information must be provided and a signature authorization form, signed by the Principal Executive Officer or Chief Elected Official must be attached.

For each contact, select all that apply:

- Principal Executive Officer/Chief Elected Official
- Duly Authorized Representative
- Local Stormwater Public Contact
- Stormwater Management Program (SWMP) Coordinator
- Report Preparer

First Name: G e o r g e MI: Last Name: P o m m e r

Title: V . P . H a h n E n g i n e e r i n g , P . C .

Address: 1 6 8 9 R o u t e 2 2

City: B r e w s t e r State: N Y Zip: 1 0 5 0 9 -

eMail: g p o m m e r @ h a h n - e n g . c o m

Phone: (8 4 5) 2 7 9 - 2 2 2 0 County: P u t n a m

MS4 Municipal Compliance Certification (MCC) Form

MCC form for period ending March 9, 2023

Name of MS4 Village of Buchanan

SPDES ID

N Y R 2 0 A 3 4 2

Section 2 - Contact Information**Important Instructions - Please Read**Contact information must be provided for **each** of the following positions as indicated below:

1. Principal Executive Officer, Chief Elected Official or other qualified individual (per GP-0-08-002 Part VI.J).
2. Duly Authorized Representative (Information for this contact must only be submitted if a Duly Authorized Representative is signing this form)
3. The Local Stormwater Public Contact (required per GP-0-08-002 Part VII.A.2.c & Part VIII.A.2.c).
4. The Stormwater Management Program (SWMP) Coordinator (Individual responsible for coordination/implementation of SWMP).
5. Report Preparer (Consultants may provide company name in the space provided).

A separate sheet must be submitted for each position listed above unless more than one position is filled by the same individual. If one individual fills multiple roles, provide the contact information once and check all positions that apply to that individual.

If a new Duly Authorized Representative is signing this report, their contact information must be provided and a signature authorization form, signed by the Principal Executive Officer or Chief Elected Official must be attached.

For each contact, select all that apply:

- Principal Executive Officer/Chief Elected Official
- Duly Authorized Representative
- Local Stormwater Public Contact
- Stormwater Management Program (SWMP) Coordinator
- Report Preparer

First Name: T h e r e s a MI: Last Name: K n i c k e r b o c k e r

Title: M a y o r

Address: 2 3 6 T a t e A v e n u e

City: B u c h a n a n State: N Y Zip: 1 0 5 1 1 - 1 2 1 2

eMail: t h e r e s a k @ v i l l a g e o f b u c h a n a n . c o m

Phone: (9 1 4) 7 3 7 - 1 0 3 3 County: W e s t c h e s t e r

MS4 Municipal Compliance Certification (MCC) Form

MCC form for period ending March 9, 2023

Name of MS4: Village of Buchanan

SPDES ID

NYR20A342

Section 2 - Contact Information

Important Instructions - Please Read

Contact information must be provided for *each* of the following positions as indicated below:

1. Principal Executive Officer, Chief Elected Official or other qualified individual (per GP-0-08-002 Part VI.J).
2. Duly Authorized Representative (Information for this contact must only be submitted if a Duly Authorized Representative is signing this form)
3. The Local Stormwater Public Contact (required per GP-0-08-002 Part VII.A.2.c & Part VIII.A.2.c).
4. The Stormwater Management Program (SWMP) Coordinator (Individual responsible for coordination/implementation of SWMP).
5. Report Preparer (Consultants may provide company name in the space provided).

A separate sheet must be submitted for each position listed above unless more than one position is filled by the same individual. If one individual fills multiple roles, provide the contact information once and check all positions that apply to that individual.

If a new Duly Authorized Representative is signing this report, their contact information must be provided and a signature authorization form, signed by the Principal Executive Officer or Chief Elected Official must be attached.

For each contact, select all that apply:

- Principal Executive Officer/Chief Elected Official
- Duly Authorized Representative
- Local Stormwater Public Contact
- Stormwater Management Program (SWMP) Coordinator
- Report Preparer

First Name: M a r c u s MI: Last Name: S e r r a n o

Title: V i l l a g e A d m i n i s t r a t o r

Address: 2 3 6 T a t e A v e n u e

City: B u c h a n a n State: N Y Zip: 1 0 5 1 1 - 1 2 1 2

eMail: m s e r r a n o @ v i l l a g e o f b u c h a n a n . c o m

Phone: (9 1 4) 7 3 7 - 1 0 3 3 County: W e s t c h e s t e r

MS4 Municipal Compliance Certification (MCC) Form

MCC form for period ending March 9, 2023

Name of MS4 Village of Buchanan

SPDES ID

NYR20A342

Section 4 - Certification Statement

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

This form must be signed by either a principal executive officer or ranking elected official, or duly authorized representative of that person as described in GP-0-08-002 Part VIJ.

First Name MI Last Name
M a r c u s S e r r a n o

Title (Clearly print title of individual signing report)
V i l l a g e A d m i n i s t r a t o r

Signature
Marcus Serrano

Date
04 / 20 / 2023

Send completed form and any attachments to the DEC Central Office at:

MS4 Permit Coordinator
Division of Water
4th Floor
625 Broadway
Albany, New York 12233-3505

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2023

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID

4. Evaluating Progress Toward Measurable Goals MCM 1

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

Information is located on the website, Village Hall and Public Library.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

C. How many times was this observation measured or evaluated in this reporting period?

(ex.: samples/participants/events)

D. Has your MS4 made progress toward this Measurable Goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Continue to make information available to the public.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2023

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

SPDES ID

Name of MS4/Coalition

3. Where can the public access copies of this annual report, Stormwater Management Program SWMP) Plan and submit comments on those documents?

Enter address/contact info and select radio button to indicate which document is available and whether comments may be submitted at that location. Submit additional pages as needed.

- MS4/Coalition Office Annual Report SWMP Plan Comments

Department

Address

City

Zip

Phone

- Library Annual Report SWMP Plan Comments

Address

City

Zip

Phone

- Other Annual Report SWMP Plan Comments

Address

City

Zip

Phone

- Web Page URL: Annual Report SWMP Plan Comments

Please provide specific address of page where report can be accessed - not home page.

- eMail Comments

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2 0 2 3

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition:

Village of Buchanan

SPDES ID

N Y R 2 0 A 3 4 2

4.a. If this report was made available on the internet, what date was it posted?

Leave blank if this report was not posted on the internet.

0 5 / 3 1 / 2 0 2 3

4.b. For how many days was/will this report be posted?

3 6 5

If submitting a report for single MS4, answer 5.a.. If submitting a joint report, answer 5.b..

5.a. Was an Annual Report public meeting held in this reporting period?

Yes No

If Yes, what was the date of the meeting?

0 4 / 2 5 / 2 0 2 3

If No, is one planned?

Yes No

5.b. Was an Annual Report public meeting held for all MS4s contributing to this report during this reporting period?

Yes No

If No, is one planned for each?

Yes No

6. Were comments received during this reporting period?

Yes No

If Yes, attach comments, responses and changes made to SWMP in response to comments to this report.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2023

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID

7. Evaluating Progress Toward Measurable Goals MCM 2

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

Information is located on the website, Village Hall and Public Library.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

None

C. How many times was this observation measured or evaluated in this reporting period?

(ex.: samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Continue to make information available to the public.
An annual Day Event which includes stormwater pamphlets handouts.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2023

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition Village of Buchanan

SPDES ID
N Y R 2 0 A 3 4 2

3.b. What types of illicit discharges have been found during this reporting period?

- Broken Lines From Sanitary Sewer
- Industrial Connections
- Cross Connections
- Inflow/Infiltration
- Failing Septic Systems
- Pump Station Failure
- Floor Drains Connected To Storm Sewers
- Sanitary Sewer Overflows
- Illegal Dumping
- Straight Pipe Sewer Discharges
- Other: None

4. How many illicit discharges/potential illegal connections have been detected during this reporting period?

0

5. How many illicit discharges have been confirmed during this reporting period?

0

6. How many illicit discharges/illegal connections have been eliminated during this reporting period?

0

7. Has the storm sewershed mapping been completed in this reporting period? Yes No
If No, approximately what percent was completed in this reporting period?

100%

8. Is the above information available in GIS? Yes No
Is this information available on the web? Yes No
If Yes, provide URL(s):

Please provide specific address of page where map(s) can be accessed - not home page.

URL

http://www.villageofbuchanan.com

URL

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2023

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID

N	Y	R	2	0	A	3	4	2
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12. Evaluating Progress Toward Measurable Goals MCM 3

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

New facilities will have oil/water separator where possible discharges may occur.
 Scheduled cleanings of catch basins and parking lots are performed.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

Planning, building and engineering department monitor for compliance.

C. How many times was this observation measured or evaluated in this reporting period?

(ex.: samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Continue monitoring for compliance.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2 0 2 3

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition: Village of Buchanan

SPDES ID
N Y R 2 0 A 3 4 2

Minimum Control Measures 4 and 5.
Construction Site and Post-Construction Control

The information in this section is being reported (check one):

- On behalf of an individual MS4
 On behalf of a coalition

How many MS4s contributed to this report?

1a. Has each MS4 contributing to this report adopted a law, ordinance or other regulatory mechanism that provides equivalent protection to the NYS SPDES General Permit for Stormwater Discharges from Construction Activities? Yes No

1b. Has each Town, City and/or Village contributing to this report documented that the law is equivalent to a NYSDEC Sample Local Law for Stormwater Management and Erosion and Sediment Control through either an attorney certification or using the NYSDEC Gap Analysis Workbook? Yes No NT

If Yes, Towns, Cities and Villages provide date of equivalent NYS Sample Local Law.

09/2004 03/2006 NT

2. Does your MS4/Coalition have a SWPPP review procedure in place? Yes No

3. How many Construction Stormwater Pollution Prevention Plans (SWPPPs) have been reviewed in this reporting period? 0

4. Does your MS4/Coalition have a mechanism for receipt and consideration of public comments related to construction SWPPPs? Yes No NT

If Yes, how many public comments were received during this reporting period? 0

5. Does your MS4/Coalition provide education and training for contractors about the local SWPPP process? Yes No

6. Identify which of the following types of enforcement actions you used during the reporting period for construction activities, indicate the number of actions, or note those for which you do not have authority:

- | | | | | | | | | |
|--|---|---|--|---|--|--|---|------------------------------------|
| <input type="radio"/> Notices of Violation | # | <table border="1"><tr><td></td><td></td><td></td><td></td><td>0</td></tr></table> | | | | | 0 | <input type="radio"/> No Authority |
| | | | | 0 | | | | |
| <input type="radio"/> Stop Work Orders | # | <table border="1"><tr><td></td><td></td><td></td><td></td><td>0</td></tr></table> | | | | | 0 | <input type="radio"/> No Authority |
| | | | | 0 | | | | |
| <input type="radio"/> Criminal Actions | # | <table border="1"><tr><td></td><td></td><td></td><td></td><td>0</td></tr></table> | | | | | 0 | <input type="radio"/> No Authority |
| | | | | 0 | | | | |
| <input type="radio"/> Termination of Contracts | # | <table border="1"><tr><td></td><td></td><td></td><td></td><td>0</td></tr></table> | | | | | 0 | <input type="radio"/> No Authority |
| | | | | 0 | | | | |
| <input type="radio"/> Administrative Fines | # | <table border="1"><tr><td></td><td></td><td></td><td></td><td>0</td></tr></table> | | | | | 0 | <input type="radio"/> No Authority |
| | | | | 0 | | | | |
| <input type="radio"/> Civil Penalties | # | <table border="1"><tr><td></td><td></td><td></td><td></td><td>0</td></tr></table> | | | | | 0 | <input type="radio"/> No Authority |
| | | | | 0 | | | | |
| <input type="radio"/> Administrative Orders | # | <table border="1"><tr><td></td><td></td><td></td><td></td><td>0</td></tr></table> | | | | | 0 | <input type="radio"/> No Authority |
| | | | | 0 | | | | |
| <input type="radio"/> Enforcement Actions or Sanctions | # | <table border="1"><tr><td></td><td></td><td></td><td></td><td>0</td></tr></table> | | | | | 0 | <input type="radio"/> No Authority |
| | | | | 0 | | | | |
| <input type="radio"/> Other | # | <table border="1"><tr><td></td><td></td><td></td><td></td><td>0</td></tr></table> | | | | | 0 | <input type="radio"/> No Authority |
| | | | | 0 | | | | |

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2023

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition: Village of Buchanan

SPDES ID: NYR20A342

Minimum Control Measure 4. Construction Site Stormwater Runoff Control

The information in this section is being reported (check one):

- On behalf of an individual MS4
- On behalf of a coalition

How many MS4s contributed to this report? [][]

1. How many construction projects have been authorized for disturbances of one acre or more during this reporting period? [][]0

2. How many construction projects disturbing at least one acre were active in your jurisdiction during this reporting period? [][]0

3. What percent of active construction sites were inspected during this reporting period? NT 100%

4. What percent of active construction sites were inspected more than once? NT 100%

5. Do all inspectors working on behalf of the MS4s contributing to this report use the NYS Construction Stormwater Inspection Manual? Yes No NT

6. Does your MS4/Coalition provide public access to Stormwater Pollution Prevention Plans (SWPPPs) of construction projects that are subject to MS4 review and approval? Yes No NT

If your MS4 is Non-Traditional, are SWPPPs of construction projects made available for public review? Yes No

If Yes, use the following page to identify location(s) where SWPPPs can be accessed.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2023

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition: Village of Buchanan

SPDES ID

NYR20A342

6. con't.:

Submit additional pages as needed.

MS4/Coalition Office

Department

Building Department

Address

236 Tate Avenue

City

Buchanan NY

Zip

10511-1212

Phone

(000) 000-0000

Library

Address

City

Zip

0000-0000

Phone

(000) 000-0000

Other

Address

1689 Route 22

City

Brewster NY

Zip

10509-

Phone

(000) 000-0000

Web Page URL(s): Please provide specific address where SWPPPs can be accessed - not home page.

URL

Empty grid for URL entry

URL

Empty grid for URL entry

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	3
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

Village of Buchanan

SPDES ID

N	Y	R	2	0	A	3	4	2
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7. Evaluating Progress Toward Measurable Goals MCM 4

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

Monitor sites under construction during reporting period.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

Reports indicate corrective measures to be implemented.

C. How many times was this observation measured or evaluated in this reporting period?

			0
--	--	--	---

(ex.: samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Continue to monitor sites during construction.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2023

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition: Village of Buchanan

SPDES ID
N Y R 2 0 A 3 4 2

Minimum Control Measure 5. Post-Construction Stormwater Management

The information in this section is being reported (check one):

- On behalf of an individual MS4
- On behalf of a coalition

How many MS4s contributed to this report?

1. How many and what type of post-construction stormwater management practices has your MS4/Coalition inventoried, inspected and maintained in this reporting period?

	# Inventoried	# Inspections	# Times Maintained
<input checked="" type="radio"/> Alternative Practices	<input type="text"/> 1	<input type="text"/>	<input type="text"/>
<input type="radio"/> Filter Systems	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input checked="" type="radio"/> Infiltration Basins	<input type="text"/> 2	<input type="text"/>	<input type="text"/>
<input type="radio"/> Open Channels	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> Ponds	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> Wetlands	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> Other	<input type="text"/>	<input type="text"/>	<input type="text"/>

2. Do you use an electronic tool (e.g. GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance? Yes No

3. What types of non-structural practices have been used to implement Low Impact Development/Better Site Design/Green Infrastructure principles?

- Building Codes
- Municipal Comprehensive Plans
- Overlay Districts
- Open Space Preservation Program
- Zoning
- Local Law or Ordinance
- None
- Land Use Regulation/Zoning
- Watershed Plans
- Other Comprehensive Plan

Other:

P l a n n i n g | B o a r d | R e v i e w

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	3
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition:

SPDES ID

N	Y	R	2	0	A	3	4	2
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4a. Are the MS4s contributing to this report involved in a regional/watershed wide planning effort?
 Yes No

4b. Does the MS4 have a banking and credit system for stormwater management practices?
 Yes No

4c. Do the SWMP Plans for each MS4 contributing to this report include a protocol for evaluation and approval of banking and credit of alternative siting of a stormwater management practice?
 Yes No

4d. How many stormwater management practices have been implemented as part of this system in this reporting period?

		1
--	--	---

5. What percent of municipal officials/MS4 staff responsible for program implementation attended training on Low Impace Development (LID), Better Site Design (BSD) and other Green Infrastructure principles in this reporting period?

	1	0
--	---	---

 %

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2023

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition: Village of Buchanan

SPDES ID: NYR20A342

6. Evaluating Progress Toward Measurable Goals MCM 5

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

None.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

None.

C. How many times was this observation measured or evaluated in this reporting period?

0

(ex.: samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

None.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition:

SPDES ID

Minimum Control Measure 6. Stormwater Management for Municipal Operations

The information in this section is being reported (check one):

- On behalf of an individual MS4
- On behalf of a coalition

How many MS4s contributed to this report?

1. Choose/list each municipal operation/facility that contributes or may potentially contribute Pollutants of Concern to the MS4 system. For each operation/facility indicate whether the operation/facility has been addressed in the MS4's/Coalition's Stormwater Management Program(SWMP) Plan and whether a self-assessment has been performed during the reporting period. A self-assessment is performed to: 1) determine the sources of pollutants potentially generated by the permittee's operations and facilities; 2) evaluate the effectiveness of existing programs and 3) identify the municipal operations and facilities that will be addressed by the pollution prevention and good housekeeping program, if it's not done already.

<u>Operation/Activity/Facility</u>	<u>Addressed in SWMP?</u>		<u>Self-Assessment Operation/Activity/Facility performed within the past 3 years?</u>	
	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Street Maintenance.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Bridge Maintenance.....	<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input type="radio"/> Yes	<input checked="" type="radio"/> No
Winter Road Maintenance.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Salt Storage.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Solid Waste Management.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
New Municipal Construction and Land Disturbance..	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Right of Way Maintenance.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Marine Operations.....	<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input type="radio"/> Yes	<input checked="" type="radio"/> No
Hydrologic Habitat Modification.....	<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input type="radio"/> Yes	<input checked="" type="radio"/> No
Parks and Open Space.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Municipal Building.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Stormwater System Maintenance.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Vehicle and Fleet Maintenance.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Other.....	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No

MS4 Annual Report Form

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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID

2. Provide the following information about municipal operations good housekeeping programs:

- Parking Lots Swept (Number of acres X Number of times swept) # Acres
 - Streets Swept (Number of miles X Number of times swept) # Miles
 - Catch Basins Inspected and Cleaned Where Necessary #
 - Post Construction Control Stormwater Management Practices Inspected and Cleaned Where Necessary #
 - Phosphorus Applied In Chemical Fertilizer # Lbs.
 - Nitrogen Applied In Chemical Fertilizer # Lbs.
 - Pesticide/Herbicide Applied # Acres
- (Number of acres to which pesticide/herbicide was applied X Number of times applied to the nearest tenth.)

3. How many stormwater management trainings have been provided to municipal employees during this reporting period?

4. What was the date of the last training?

/ /

5. How many municipal employees have been trained in this reporting period?

6. What percent of municipal employees in relevant positions and departments receive stormwater management training?

%

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2023

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition Village of Buchanan

SPDES ID
N Y R 2 0 A 3 4 2

7. Evaluating Progress Toward Measurable Goals MCM 6

Use this page to report on your progress and project plans toward achieving measurable goals identified in your Stormwater Management Program Plan (SWMPP), including requirements in Part III.C.1. Submit additional pages as needed.

A. Briefly summarize the Measurable Goal identified in the SWMPP in this reporting period.

Highway Department and Building Department personnel are trained in identifying and reporting stormwater issues to the Village Engineer.

B. Briefly summarize the observations that indicated the overall effectiveness of this Measurable Goal.

Parking areas and roads are swept as needed.
Sediment collected from catch basins and street sweeping is used in leaf composting facility.

C. How many times was this observation measured or evaluated in this reporting period?

Three empty boxes for numerical input.

(ex.: samples/participants/events)

D. Has your MS4 made progress toward this measurable goal during this reporting period?

Yes No

E. Is your MS4 on schedule to meet the deadline set forth in the SWMPP?

Yes No

F. Briefly summarize the stormwater activities planned to meet the goals of this MCM during the next reporting cycle (including an implementation schedule).

Buchanan is less than 2 square miles in area with a well developed drainage system. Most issues are from the natural degradation of streams causing sediment, winter sanding and illicit discharges. Water bodies are monitored daily and the recent issues are from Hurricane Irene.

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2 0 2 3

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition Village of Buchana

SPDES ID

N Y R 2 0 A 3 4 2

Additional Watershed Improvement Strategy Best Management Practices

The information in this section is being reported (check one):

- On behalf of an individual MS4
- On behalf of a coalition

How many MS4s contributed to this report?

MS4s must answer the questions or check NA as indicated in the table below.

MS4 Description	Answer	Check NA	(POC)
NYC EOH Watershed			
Traditional Land Use	1,2,3,4,5,6,7a-d,8a,8b,9	10,11,12	Phosphorus
Traditional Non-Land Use	1,2,3,4,7a-d,8a,8b,9	5,10,11,12	Phosphorus
Non-Traditional	1,2,7a-d,8a,8b,9	3,4,5,10,11,12	Phosphorus
Onondaga Lake Watershed			
Traditional Land Use	1,6,7a-d,8a,9	2,3,4,5,8b,10,11,12	Phosphorus
Traditional Non-Land Use	1,6,7a-d,8a,9	2,3,4,5,8b,10,11,12	Phosphorus
Non-Traditional	1,6,7a-d,8a,9	2,3,4,5,8b,10,11,12	Phosphorus
Greenwood Lake Watershed			
Traditional Land Use	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Traditional Non-Land Use	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Non-Traditional	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Oyster Bay			
Traditional Land Use	1,4,7a-d,9,10,11,12	2,3,5,6,8a,8b	Pathogens
Traditional Non-Land Use	1,4,7a-d,9,10,11,12	2,3,5,6,8a,8b	Pathogens
Non-Traditional	1,4,7a-d,9	2,3,4,5,8a,8b,10,11,12	Pathogens
Peconic Estuary			
Traditional Land Use	1,4,7a-d,8a,9,10,11,12	2,3,5,6,8b	Pathogens and Nitrogen
Traditional Non-Land Use	1,4,7a-d,8a,9,10,11,12	2,3,5,6,8b	Pathogens and Nitrogen
Non-Traditional	1,4,7a-d,8a,9	2,3,4,5,8b,10,11,12	Pathogens and Nitrogen
Oscawana Lake Watershed			
Traditional Land Use	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Traditional Non-Land Use	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
Non-Traditional	1,4,6,7a-d,8a,9	2,3,5,8b,10,11,12	Phosphorus
LI 27 Embayments			
Traditional Land Use	1,2,3,4,7a-d,9,10,11,12	5,6,8a,8b	Pathogens
Traditional Non-Land Use	1,2,3,4,7a-d,9,10,11,12	5,6,8a,8b	Pathogens
Non-Traditional	1,2,3,4,7a-d,9	5,6,8a,8b,10,11,12	Pathogens

1. Does your MS4/Coalition have an education program addressing impacts of phosphorus/nitrogen/pathogens on waterbodies? Yes No N/A

2. Has 100% of the MS4/Coalition conveyance system been mapped in GIS? Yes No N/A

If N/A, go to question 3.

If No, estimate what percentage of the conveyance system has been mapped so far. 1 0 %

Estimate what percentage was mapped in this reporting period. 0 %

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9, 2023

If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition: Village of Buchanan

SPDES ID: NYR20A342

3. Does your MS4/Coalition have a Stormwater Conveyance System (infrastructure) Inspection and Maintenance Plan Program? Yes No N/A

4. Estimate the percentage of on-site wastewater treatment systems that have been inspected and maintained or rehabilitated as necessary in this reporting period? 0 %

5. Has your MS4/Coalition developed a program that provides protection equivalent to the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activities (GP-0-08-001) to reduce pollutants in stormwater runoff from construction activities that disturb five thousand square feet or more? Yes No N/A

6. Has your MS4/Coalition developed a program to address post-construction stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre that provides equivalent protection to the NYS DEC SPDES General Permit for Stormwater Discharges from Construction Activities (GP-0-08-001), including the New York State Stormwater Design Manual Enhanced Phosphorus Removal Standards? Yes No N/A

7a. Does your MS4/Coalition have a retrofitting program to reduce erosion or phosphorus/nitrogen/pathogen loading? Yes No N/A

7b. How many projects have been sited in this reporting period? 0

7c. What percent of the projects included in 7b have been completed in this reporting period? 0 %

7d. What percent of projects planned in previous years have been completed? 0 %
 No Projects Planned

8a. Has your MS4/Coalition developed and implemented a turf management practices and procedures policy that addresses proper fertilizer application on municipally owned lands? Yes No N/A

8b. Has your MS4/Coalition developed and implemented a turf management practices and procedures policy that addresses proper disposal of grass clippings and leaves from municipally owned lands? Yes No N/A

MS4 Annual Report Form

This report is being submitted for the reporting period ending March 9,

2	0	2	3
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If submitting this form as part of a joint report on behalf of a coalition leave SPDES ID blank.

Name of MS4/Coalition

SPDES ID

N	Y	R	2	0	A	3	4	2
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- 9. **Has your MS4/Coalition developed and implemented a program of native planting?**
 Yes No N/A

- 10. **Has your MS4/Coalition enacted a local law prohibiting pet waste on municipal properties and prohibiting goose feeding?**
 Yes No N/A

- 11. **Does your MS4/Coalition have a pet waste bag program?**
 Yes No N/A

- 12. **Does your MS4/Coalition have a program to manage goose populations?**
 Yes No N/A

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MS4 Annual Report/Interim Progress Certification 2025

version 1.0

(Submission #: HQ9-6JKA-H1500, version 1)

Details

Submitted 3/31/2025 (0 days ago) by William Angiolillo

Alternate Identifier NYR20A342

Submission ID HQ9-6JKA-H1500

Status Submitted

Active Steps Review

Form Input

MS4 Operator Information

Municipality Name or Legal Entity Name

Village of Buchanan

Permit ID #:

NYR20A342

MS4 Operator Type

Traditional land use control

Traditional Land Use Control

Village

Traditional Land Use Control

Traditional land use control MS4 Operator requirements are found in Part VI of the MS4 General Permit.

Legal Municipal/Entity Mailing address

236 Tate Ave

Buchanan, NY 10511

Westchester

Ranking Official

Official Title	First and Last Name	Phone	Email
Other: Village Administrator	Marcus Serrano	914-737-1033	mserrano@buchananny.gov

Report Preparer

Report Preparer Title	First and Last Name	Phone	Email
Municipal Engineer	George E. Pommer, P.E.	845-279-2220	gpommer@hahn-eng.com

Stormwater Program Coordinator

Coordinator Title	First and Last Name	Phone	Email
Stormwater Program Coordinator	George E. Pommer, P.E.	845-279-2220	gpommer@hahn-eng.com

Part IV

Was the information in this section completed as part of a coalition/group?

No

MS4 General Permit Resources

Use the following webpages for more information on the permit and fact sheet:

[MS4 Permit Webpage](#)

[MS4 Toolbox](#)

SWMP Plan

Annually: Have the alternative implementation agreements in the SWMP Plan been updated? (Part IV.A.1.e.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

No agreements required updating

Annually: Has the SWMP been updated? (Part IV.B.3.)

Yes

Mapping

Annually: Has the comprehensive system mapping been updated? (Part IV.D.)

Yes

What tools are used to satisfy the comprehensive system mapping requirements? (e.g. paper maps, GIS, web mappers, etc.)

County GIS

Within three (3) years of the EDC: Has Phase I of the comprehensive mapping been completed? (Part IV.D.2.a.)

No

Please clarify the reason for selecting "No" for this item.

It has not been three years yet.

Within five (5) years of the EDC: Has Phase II of the comprehensive mapping been completed? (Part IV.D.2.b.)

No

Please clarify the reason for selecting "No" for this item.

It has not been five years yet.

Legal Authority

Within three (3) years of the EDC: For newly designated MS4 Operators, has adequate legal authority been developed and implemented? (Part IV.E.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

The MS4 is not "newly designated"

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Part V

In Year 5: Has the SWMP Plan been evaluated? (Part V.C.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5

Part VI

Which MCMs in this Part were completed as a coalition/group, if any?

NONE PROVIDED

Minimum Control Measure 1

Within three (3) years of the EDC: Have the focus areas been identified? (Part VI.A.1.a.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

Within three (3) years of the EDC: Have the target audience(s) and associated pollutant generating activities been identified? (Part VI.A.1.b.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

Within three (3) years of the EDC: Have the education and outreach topics been identified and how the education and outreach topics will reduce the potential for pollutants explained? (Part VI.A.1.c.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

In Year 5: Has the method(s) used for distribution of educational messages been identified? (Part VI.A.2.a.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet.

In Year 5: Has one educational message been delivered to each target audience(s) for each focus area based on the education and outreach topic(s)? (Part VI.A.2.b.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet.

In Year 4 and Year 5: Have target audiences, focus areas, and/or education and outreach topics been updated? (Part VI.A.2.c.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Minimum Control Measure 2

Annually: Has an opportunity for public involvement/participation in the development and implementation of the SWMP been provided? (Part VI.B.1.a.)

Yes

What was the opportunity for public involvement/participation in the SWMP?

Public hearings or meetings

Annually: Has the public been informed about the opportunity for their involvement in the development and implementation of the SWMP and how they can get involved? (Part VI.B.1.b.)

Yes

What is the method(s) used for distribution to inform the public of the opportunity for involvement?

Printed materials (e.g., mail inserts, brochures and newsletters)

Electronic materials (e.g., websites, email listservs)

Annually: Has an opportunity to review and comment on the publicly available SWMP Plan been provided? (Part VI.B.2.a.)

Yes

Annually: Has an opportunity to review and comment on the draft annual report been provided? (Part VI.B.2.b.i.)

Yes

What opportunity for review and comment on the draft annual report has been provided?

Presentation of the draft Annual Report

Posting of draft Annual Report on a public website

Annually: Have the comments received on the SWMP Plan been summarized? (Part VI.B.2.c.i.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

No comments received

Annually: Have the comments received on the draft annual report been summarized? (Part VI.B.2.c.i.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

No comments received

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Minimum Control Measure 3

Within three (3) years of the EDC: Has an inventory of monitoring locations been developed? (Part VI.C.1.c.i.)

Yes

How many monitoring locations are on the inventory?

2

How many MS4 outfalls are on the inventory?

25

How many interconnections are on the inventory?

1

How many municipal facility intraconnections are on the inventory?

5

In Year 4 and Year 5: Has the monitoring location inventory been updated? (Part VI.C.1.c.ii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet

Within three (3) years of the EDC: Have monitoring locations been prioritized? (Part VI.C.1.d.i.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet

In Year 4 and Year 5: Has the monitoring location prioritization been updated? (Part VI.C.1.d.iii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet

Within two (2) years of the EDC: Has a monitoring locations inspection and sampling program been developed and implemented? (Part VI.C.1.e.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 2 yet. In progress.

In Year 5: Have all the monitoring locations been inspected? (Part VI.C.1.e.i.a))

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

In Year 5: Has training on the MS4 Operator's monitoring locations inspection and sampling procedures been provided? (Part VI.C.1.e.ii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

In Year 3, Year 4, and Year 5: Have the names, titles, and contact information for the individuals who have received monitoring locations inspection and sampling training been updated? (Part VI.C.1.e.iii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3, 4 or 5 yet

In Year 3, Year 4, and Year 5: Have the monitoring locations inspection and sampling procedures been updated? (Part VI.C.1.e.iv.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3, 4 or 5 yet

Within two (2) years of the EDC: Has an illicit discharge track down program been developed and implemented? (Part VI.C.2.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 2 yet. In progress.

In Year 5: Has training on the MS4 Operator's illicit discharge track down procedures prior to conducting illicit discharge track down been provided? (Part VI.C.2.b.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

In Year 3, Year 4, and Year 5: Have the names, titles, and contact information for the individuals who have received illicit discharge track down procedures training been updated? (Part VI.C.2.c.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3, 4 or 5 yet

In Year 3, Year 4, and Year 5: Have the illicit discharge track down procedures been reviewed and updated? (Part VI.C.2.d.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3, 4 or 5 yet

Within two (2) years of the EDC: Has an illicit discharge elimination program been developed and implemented? (Part VI.C.3.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 2 yet. In progress.

In Year 5: Has training on the MS4 Operator's illicit discharge elimination procedures prior to conducting illicit discharge elimination been provided? (Part VI.C.3.b.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

In Year 3, Year 4, and Year 5: Have the names, titles, and contact information for the individuals who have received illicit discharge elimination procedures training been updated? (Part VI.C.3.c.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3, 4 or 5 yet

In Year 3, Year 4, and Year 5: Have the illicit discharge elimination procedures been reviewed and updated? (Part VI.C.3.d.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3, 4 or 5 yet

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Minimum Control Measure 4

Within one (1) year of the EDC: Has a construction oversight program been developed and implemented? (Part VI.D.3)

Yes

In Year 5: Has training on the MS4 Operator's construction oversight procedures prior to conducting construction oversight been provided? (Part VI.D.3.b.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

In Year 2, Year 3, Year 4, and Year 5: Have the names, titles, and contact information for the individuals who have received construction oversight procedures training been updated? (Part VI.D.3.c.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 2, 3, 4 or 5 yet. In progress.

In Year 2, Year 3, Year 4, and Year 5: Have the construction oversight procedures been reviewed and updated? (Part VI.D.3.e.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 2, 3, 4 or 5 yet. In progress.

Annually: Has the inventory of construction sites been updated? (Part VI.D.4.b.)

Yes

How many construction sites are on the inventory?

2

Within one (1) year of the EDC: Have construction sites been prioritized? (Part VI.D.5.a.)

Yes

How many high priority construction sites are on the inventory?

0

In Year 2, Year 3, Year 4, and Year 5: Has the construction site prioritization been updated? (Part VI.D.5.c.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 2, 3, 4 or 5 yet

Within three (3) years of the EDC: Have the individuals responsible for reviewing SWPPPs for acceptance received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil & Water Conservation District, or other Department endorsed entity prior to conducting SWPPP reviews and/or approvals? (Part VI.D.6.a.i.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

P.E. performs review. P.E. does not require training.

Annually: Have the names, titles, and contact information for the individuals who have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil & Water Conservation District, or other Department endorsed entity, for individuals responsible for reviewing SWPPPs been updated? (Part VI.D.6.d.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

No change

Are pre-construction meetings conducted prior to the commencement of construction activity? (Part VI.D.7.)

Yes

Within three (3) years of the EDC: Have the individuals responsible for construction site inspections received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil & Water Conservation District, or other Department endorsed entity prior to conducting construction site inspections? (Part VI.D.8.a.i.)

Yes

Annually: Have all sites with construction activity identified in the inventory been inspected during active construction after the pre-construction meeting, or sooner if deficiencies are noted that require attention? (Part VI.D.8.c.)

Yes

Annually: Have the names, titles, and contact information for the individuals who have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil & Water Conservation District, or other Department endorsed entity, for individuals responsible for construction site inspections been updated? (Part VI.D.8.d.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

No changes requiring updates

Are final construction site inspections conducted? (Part VI.D.9.)

Yes

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Minimum Control Measure 5

Annually: Has the inventory of post-construction SMPs been updated? (Part VI.E.2.c.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

No changes requiring updates

How many post-construction SMPs are on the inventory?

6

Within five (5) years of the EDC: Have the required components been included in the post-construction SMP inventory? (Part VI.E.2.d.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

Within one (1) year of the EDC: Has a post-construction SMP inspection and maintenance program been developed and implemented? (Part VI.E.4.)

Yes

Has each post-construction SMP identified in the inventory been inspected at the required frequency? (Part VI.E.4.a.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

There are no MS4 owned SMPs

In Year 5: Has training on the MS4 Operator's post-construction SMP inspection and maintenance procedures prior to conducting post-construction SMP inspection and maintenance been provided? (Part VI.E.4.b.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

Annually: Have names, titles, and contact information for the individuals who have received post-construction SMP inspection and maintenance procedures training updated? (Part VI.E.4.c.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

No changes requiring updates

In Year 2, Year 3, Year 4, and Year 5: Have the post-construction SMP inspection and maintenance procedures been reviewed and updated? (Part VI.E.4.d.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 2, 3, 4 or 5 yet

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Minimum Control Measure 6

Within three (3) years of the EDC: Have best management practices (BMPs) been incorporated into the municipal facility program and municipal operations program? (Part VI.F.1.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

Within three (3) years of the EDC: Has a municipal facility program been developed and implemented? (Part VI.F.2.a.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

In Year 5: Has training on the MS4 Operator's municipal facility procedures prior to conducting municipal facility procedures been provided? (Part VI.F.2.a.ii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

In Year 4 and Year 5: Have the names, titles, and contact information for the individuals who have received municipal facility procedures training been updated? (Part VI.F.2.a.iii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet

In Year 4 and Year 5: Have the municipal facility procedures been updated? (Part VI.F.2.a.iv.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet

Within two (2) years of the EDC: Has a municipal facility inventory been developed? (Part VI.F.2.b.i.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 2 yet. In progress.

In Year 3, Year 4, and Year 5: Has the municipal facility inventory been updated? (Part VI.F.2.b.ii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3, 4 or 5 yet

Within three (3) years of the EDC: Have the municipal facilities been prioritized? (Part VI.F.2.c.i.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

In Year 4 and Year 5: Has the municipal facility prioritization been updated? (Part VI.F.2.c.iii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet

Within five (5) years of the EDC: Has a municipal facility specific SWPPP for each high priority municipal facility been developed? (Part VI.F.2.d.i.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet.

How many municipal facility specific SWPPPs for high priority municipal facilities have been developed?

0

In Year 5: Has all wet weather visual monitoring of the monitoring locations at all high priority municipal facilities been conducted? (Part VI.F.2.d.ii.a))

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

In Year 5: Has a comprehensive site assessment for each high priority municipal facility been completed? (Part VI.F.2.d.ii.c))

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

In Year 5: Has a comprehensive site assessment for each low priority municipal facility been completed? (Part VI.F.2.e.ii.c))

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

Within three (3) years of the EDC: Has a municipal operations program been developed? (Part VI.F.3.a.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

In Year 5: Has training on the MS4 Operator's municipal operations procedures prior to conducting municipal operations been provided? (Part VI.F.3.a.ii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

In Year 4 and Year 5: Have the names, titles, and contact information for the individuals who have received municipal operations procedures training been updated? (Part VI.F.3.a.iii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet

In Year 4 and Year 5: Have the municipal operations procedures been reviewed and updated? (Part VI.F.3.a.iv.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet

Within three (3) years of the EDC: Have catch basins in need of inspection been identified? (Part VI.F.3.c.i.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

Within three (3) years of the EDC: Has catch basin inspection information been inventoried? (Part VI.F.3.c.ii.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

In Year 5: Have all streets, bridges, parking lots, and right of ways been swept? (Part VI.F.3.d.i.a))

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

Annually: Have all streets in business districts and commercial areas been swept? (Part VI.F.3.d.i.b))

Yes

Within five (5) years of the EDC: Have roads, bridges, parking lots, and right of way maintenance specific BMPs been implemented? (Part VI.F.3.d.ii.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet.

Within five (5) years of the EDC: Have winter road maintenance specific BMPs been implemented? (Part VI.F.3.d.iii.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet.

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Part VIII

Does the MS4 Operator discharge to an impaired water listed in Appendix C of GP-0-24-001?

Yes

For which pollutant(s) is the waterbody impaired? Select the pollutants for all the impaired waters listed in Appendix C of GP-0-24-001 to which the MS4 Operator discharges.

Phosphorus

Which requirements in this Part were completed as a coalition/group, if any?

NONE PROVIDED

Phosphorus

Within three (3) years of the EDC: Has the comprehensive system mapping been updated, in a geographic information system (GIS), to include MS4 infrastructure and sewershed information for each MS4 outfall and ADA MS4 outfall discharging to a phosphorus impaired water listed in Appendix C? (Part VIII.A.1.a.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

Within three (3) years of the EDC: Has the comprehensive system mapping been updated, in a geographic information system (GIS), to include the listed items for each MS4 outfall discharging to a phosphorus impaired water listed in Appendix C? (Part VIII.A.1.b.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

Within three (3) years of the EDC: Has the comprehensive system mapping been updated, in a geographic information system (GIS), to include ADA MS4 outfalls discharging to a phosphorus impaired water listed in Appendix C? (Part VIII.A.1.c.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

There are no ADA MS4 outfalls.

Minimum Control Measure 1

Twice a year, in Year 4 and Year 5: Have educational messages with information specific to phosphorus been provided? (Part VIII.A.2.b.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet. Educational pamphlets have been provided.

Minimum Control Measure 3

Within five (5) years of the EDC: Has the number of each item listed in Part VIII.A.1.b. been included on the MS4 outfall inventory for each associated MS4 outfall? (Part VIII.A.4.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

Minimum Control Measure 4

How many high priority construction sites discharge to the phosphorus impaired water(s)?

0

Minimum Control Measure 6

In Year 4 and Year 5: Have all streets located in sewersheds discharging to phosphorus impaired segments been swept? (Part VIII.A.7.a.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Part IX

Does the MS4 Operator discharge to a TMDL listed in Table 3 of GP-0-24-001?

No

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Interim Progress Status

Interim Progress Resources

Use the following webpages for more information on the permit and fact sheet:

[MS4 Permit Webpage](#)

[MS4 Toolbox](#)

Have you reviewed compliance items due within two years of EDC?

Yes

Have you reviewed compliance items due within three years of EDC?

Yes

Have you reviewed compliance items due within four years of EDC?

Yes

Have you reviewed compliance items due within five years of EDC?

Yes

Have you reviewed compliance items which need to be completed routinely (annually, every five (5) years, etc.)?

Yes

Please enter any comments related to the questions in this section.

NONE PROVIDED

Certification

The ranking elected official or Principal Executive Officer for the MS4 Operator will be signing the form.

Yes

As the Ranking Elected Official or Principal Executive Officer, please download the certification form using the link below. Complete and sign the certification. Then, upload the certification form to this Interim Progress Certification

and/or Annual Report.
[Certification Form](#)

Attach completed certification form.

MS4 Certification-2025.pdf - 03/28/2025 10:13 AM

Comment

NONE PROVIDED

Attachments

Date	Attachment Name	Context	User
3/28/2025 10:13 AM	MS4 Certification-2025.pdf	Attachment	William Angiolillo

Status History

	User	Processing Status
12/27/2024 11:38:05 AM	William Angiolillo	Draft
3/31/2025 1:19:17 PM	William Angiolillo	Submitting
3/31/2025 1:19:36 PM	William Angiolillo	Submitted

Processing Steps

Step Name	Assigned To/Completed By	Date Completed
Form Submitted	William Angiolillo	3/31/2025 1:19:36 PM
Review		

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water, Bureau of Water Permits
625 Broadway, Albany, New York 12233-3505
P: (518) 402-8111 | F: (518) 402-9029
www.dec.ny.gov

MS4 Operator Certification Form for eReports
SPDES General Permit for
Stormwater Discharges From
Municipal Separate Storm Sewer Systems (GP-0-24-001)

Instructions

As required by Part V.B.2. and Part V.B.3. of GP-0-24-001, the MS4 Operator must submit the Annual Report and the Interim Progress Certification, respectively. As stated in Part V.B.5. of GP-0-24-001, all reports must be signed in accordance with Part X.J. of GP-0-24-001.

MS4 Operator Name: Village of Buchanan

Permit ID: NYR20A 342

eReport Submission Number: HQ9-6JKA-H1500

MS4 Operator Certification

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

Name (please print or type)

Title

Marcus Serrano

Village Administrator

Signature

Date

Marcus Serrano

3/19/2025



Department of
Environmental
Conservation

Appendix D

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MS4 Interim Progress Certification 6 Month Requirements

version 1.0

(Submission #: HQ7-1B7G-VMG89, version 1)

Details

Submitted 9/30/2024 (0 days ago) by William Angiolillo

Alternate Identifier NYR20A342

Submission ID HQ7-1B7G-VMG89

Status Submitted

Active Steps Review

Form Input

MS4 Operator Information

Municipality Name or Legal Entity Name

Village of Buchanan

Permit ID #:

NYR20A342

MS4 Operator Type

Traditional land use control

Traditional Land Use Control

Town

Traditional Land Use Control

Traditional land use control MS4 Operator requirements are found in Part VI of the MS4 General Permit.

Legal Municipal/Entity Mailing address

236 Tate Avenue
Buchanan, NY 10511
Westchester

Ranking Official

Official Title	First and Last Name	Phone	Email
Other: Village Administrator	Marcus Serrano	914-737-1033	mserrano@villageofbuchanan.com

Report Preparer

Report Preparer Title	First and Last Name	Phone	Email
Municipal Engineer	George Pommer, P.E.	845-279-2220	gpommer@hahn-eng.com

Stormwater Program Coordinator

Coordinator Title	First and Last Name	Phone	Email
Stormwater Program Coordinator	George Pommer, P.E.	845-279-2220	gpommer@hahn-eng.com

Part I-V

MS4 General Permit Resources

Use the following webpages for more information on the permit and fact sheet:

[MS4 Permit Webpage](#)

[MS4 Toolbox](#)

Part II

Obtaining Permit Coverage

Has a complete Notice of Intent (NOI) been submitted? (Part II.A.)

Yes

Part IV

Administrative

Has a written staffing/organizational chart, which includes job titles and other entities as identified in Part IV.A.1, and the roles and responsibilities for each, corresponding to the required elements of the SWMP been developed? (Part IV.A.2.)

Yes

SWMP Plan

Has the current SWMP Plan, and any documentation associated with the implementation of the SWMP Plan, been made available during normal business hours? (Part IV.B.2.a.)

Yes

Is a copy of the current SWMP Plan available for public inspection during normal business hours at a location that is accessible to the public, or on a public website? (Part IV.B.2.b.)

Yes

Mapping

Are the required components included in the comprehensive system mapping? (Part IV.D.1.)

Yes

Legal Authority

Has adequate legal authority been maintained? (Part IV.E.)

Yes

Enforcement Measures & Tracking

Has an enforcement response plan (ERP) which clearly describes the action(s) to be taken for violations that the MS4 Operator has enacted for illicit discharge been developed? (Part IV.F.1.)

Yes

Has an enforcement response plan (ERP) which clearly describes the action(s) to be taken for violations that the MS4 Operator has enacted for construction been developed? (Part IV.F.1.)

Yes

Has an enforcement response plan (ERP) which clearly describes the action(s) to be taken for violations that the MS4 Operator has enacted for post-construction been developed? (Part IV.F.1.)

Yes

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Part VI & VII

Minimum Control Measure 1

Has information related to the prevention of illicit discharges been made available? (Part VI/VII.A.1.d.)

Yes

Minimum Control Measure 2

Has a local point of contact to receive and respond to public concerns regarding stormwater management and compliance with permit requirements been identified? (Part VI/VII.B.1.c.)

Yes

Minimum Control Measure 3

Has an email or phone number to allow the public to report illicit discharges been established? (Part VI/VII.C.1.a.i.)

Yes

Minimum Control Measure 4

Has an email or phone number to allow the public to report complaints related to construction stormwater activity been established? (Part VI/VII.D.2.a.)

Yes

Has a construction site inventory been developed? (Part VI/VII.D.4.a.)

Yes

Minimum Control Measure 5

Has the inventory of post-construction stormwater management practices (SMPs) been maintained from previous iterations of this SPDES general permit? (Part VI/VII.E.2.a.i.)

Yes

Has the inventory of post-construction stormwater management practices (SMPs) been developed as they are approved/discovered or after the owner/operator of the construction activity has filed the Notice of Termination? (Part VI/VII.E.2.a.ii.)

Yes

Minimum Control Measure 6

Have procedures for sweeping and/or cleaning of municipal streets, bridges, parking lots, and right of ways been developed? (Part VI/VII.F.3.d.i.)

Yes

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Part VIII

Does the MS4 Operator discharge to an impaired water listed in Appendix C of GP-0-24-001?

Yes

For which pollutant(s) is the waterbody impaired? Select the pollutants for all the impaired waters listed in Appendix C of GP-0-24-001 to which the MS4 Operator discharges.

Phosphorus

Phosphorus

Has information on how phosphorus is being addressed by implementation of the MS4 Operator's local law or legal mechanism with content equivalent to the model local law been made available? (Part VIII.A.2.a.)

Yes

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Part IX

Does the MS4 Operator discharge to a TMDL listed in Table 3 of GP-0-24-001?

No

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Compliance Schedule Review

Compliance Schedule Resources

Use the following links for more information on the permit and compliance schedule:

[MS4 Permit Webpage](#)

[MS4 Toolbox](#)

What is the status for compliance items due within one year of effective date of coverage (EDC), January 2, 2025?

Citation	Compliance Items	Compliance Progress
Part VI/VII.D.3.	Develop and implement a construction oversight program	Completed
Part VI/VII.D.5.a.	Prioritize construction sites	Completed

Citation	Compliance Items	Compliance Progress
Part VI/VII.E.4.	Develop and implement a post-construction stormwater management practice inspection and maintenance program	In Progress
Part VIII.C.7.b.iv.	Evaluate the effectiveness of deterrents, population controls, and other measures that may reduce bird related pathogen contributions	Completed
Part VIII.C.7.c.	Make dog waste receptacles available in areas where pets/domestic animals may frequent	In Progress
Part IX.A.6.f.i.a. and IX.B.6.f.i.a.	Submit to the Department a retrofit plan that identifies the required components	Not Applicable

Please clarify the reason for selecting "Not Applicable" for one or more of the compliance items above.

Buchanan does not discharge into a TMDL.

Have you reviewed compliance items due within two years of EDC, January 2, 2026?

Yes

Have you reviewed compliance items due within three years of EDC, January 2, 2027?

Yes

Have you reviewed compliance items due within four years of EDC, January 2, 2028?

Yes

Have you reviewed compliance items due within five years of EDC, January 2, 2029?

Yes

Have you reviewed compliance items which need to be completed routinely (annually, every five (5) years, etc.)?

Yes

Please enter any comments related to the questions in this section.

NONE PROVIDED

Certification

I am the ranking elected official or Principal Executive Officer for the MS4 Operator and will be signing the form electronically.

No

[Duly Authorized Representative Form](#)

Attach completed certification form.

[MS4 Operator Cert 2024-09-30.pdf - 09/30/2024 02:37 PM](#)

Comment

NONE PROVIDED

Attach completed Duly Authorized Representative Form or written authorization.

[MS4 Duly Authorized Rep 2024-09-30.pdf - 09/30/2024 02:37 PM](#)

Comment

NONE PROVIDED

Attachments

Date	Attachment Name	Context	User
9/30/2024 2:37 PM	MS4 Duly Authorized Rep 2024-09-30.pdf	Attachment	William Angiolillo
9/30/2024 2:37 PM	MS4 Operator Cert 2024-09-30.pdf	Attachment	William Angiolillo

Status History

	User	Processing Status
9/30/2024 10:12:16 AM	William Angiolillo	Draft
9/30/2024 2:38:10 PM	William Angiolillo	Submitting
9/30/2024 2:38:17 PM	William Angiolillo	Submitted

Processing Steps

Step Name	Assigned To/Completed By	Date Completed
Form Submitted	William Angiolillo	9/30/2024 2:38:17 PM
Review		

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water, Bureau of Water Permits
625 Broadway, Albany, New York 12233-3505
P: (518) 402-8111 | F: (518) 402-9029
www.dec.ny.gov

Duly Authorized Representative Form

for SPDES MS4 General Permit, GP-0-24-001

(40 CFR 122.22(b) and (c) and Part X.J.b. of GP-0-24-001)

MS4 Operator Name: Village of Buchanan

Permit ID: NYR20A^{34 2}

With respect to all reports required by GP-0-24-001, the following person
George E. Pommer, P.E. Village Engineer (name/title of person described in Part X.J.b.
of GP-0-24-001) is the duly authorized representative.

Only the person listed on this form is a duly authorized representative. This authorization is effective until the submission of a notification to the NYS DEC Bureau of Water Compliance of a new duly authorized representative.

Signed by:


Marcus Serrano, Village Administrator
Signature of person described in Part X.J.a. of GP-0-24-001

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water, Bureau of Water Permits
625 Broadway, Albany, New York 12233-3505
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www.dec.ny.gov

MS4 Operator Certification Form for eReports
SPDES General Permit for
Stormwater Discharges From
Municipal Separate Storm Sewer Systems (GP-0-24-001)

Instructions

As required by Part V.B.2. and Part V.B.3. of GP-0-24-001, the MS4 Operator must submit the Annual Report and the Interim Progress Certification, respectively. As stated in Part V.B.5. of GP-0-24-001, all reports must be signed in accordance with Part X.J. of GP-0-24-001.

MS4 Operator Name: Village of Buchanan

Permit ID: NYR20A 3 4 2

eReport Submission Number: HQ7-1B7G-VMG89

MS4 Operator Certification

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

Name (please print or type)

Marcus Serrano

Title

Village Administrator

Signature

Marcus Serrano

Date

9/30/2024

MS4 Annual Report/Interim Progress Certification—2025

version 1.0

(Submission #: HQ9-6JKA-H1500, version 1)

Details

Originally Started By William Angiolillo
Alternate Identifier NYR20A342
Submission ID HQ9-6JKA-H1500
Status Draft

Form Input

MS4 Operator Information

Municipality Name or Legal Entity Name
Village of Buchanan

Permit ID #:
NYR20A342

MS4 Operator Type
Traditional land use control

Traditional Land Use Control
Village

Traditional Land Use Control

Traditional land use control MS4 Operator requirements are found in Part VI of the MS4 General Permit.

Legal Municipal/Entity Mailing address

236 Tate Ave
 Buchanan, NY 10511
 Westchester

Ranking Official

Official Title	First and Last Name	Phone	Email
Other: Village Administrator	Marcus Serrano	914-737-1033	mserrano@buchananny.gov

Report Preparer

Report Preparer Title	First and Last Name	Phone	Email
Municipal Engineer	George E. Pommer, P.E.	845-279-2220	gpommer@hahn-eng.com

Stormwater Program Coordinator

Coordinator Title	First and Last Name	Phone	Email
Stormwater Program Coordinator	George E. Pommer, P.E.	845-279-2220	gpommer@hahn-eng.com

Part IV

Was the information in this section completed as part of a coalition/group?

No

MS4 General Permit Resources

Use the following webpages for more information on the permit and fact sheet:

[MS4 Permit Webpage](#)

[MS4 Toolbox](#)

SWMP Plan

Annually: Have the alternative implementation agreements in the SWMP Plan been updated? (Part IV.A.1.e.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

No agreements required updating

Annually: Has the SWMP been updated? (Part IV.B.3.)

Yes

Mapping

Annually: Has the comprehensive system mapping been updated? (Part IV.D.)

Yes

What tools are used to satisfy the comprehensive system mapping requirements? (e.g. paper maps, GIS, web mappers, etc.)

County GIS

Within three (3) years of the EDC: Has Phase I of the comprehensive mapping been completed? (Part IV.D.2.a.)

No

Please clarify the reason for selecting "No" for this item.

It has not been three years yet.

Within five (5) years of the EDC: Has Phase II of the comprehensive mapping been completed? (Part IV.D.2.b.)

No

Please clarify the reason for selecting "No" for this item.

It has not been five years yet.

Legal Authority

Within three (3) years of the EDC: For newly designated MS4 Operators, has adequate legal authority been developed and implemented? (Part IV.E.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

The MS4 is not "newly designated"

Please enter any comments related to the questions in this section below:*NONE PROVIDED***Part V****In Year 5: Has the SWMP Plan been evaluated? (Part V.C.)**

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5

Part VI

Which MCMs in this Part were completed as a coalition/group, if any?

NONE PROVIDED

Minimum Control Measure 1

Within three (3) years of the EDC: Have the focus areas been identified? (Part VI.A.1.a.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

Within three (3) years of the EDC: Have the target audience(s) and associated pollutant generating activities been identified? (Part VI.A.1.b.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

Within three (3) years of the EDC: Have the education and outreach topics been identified and how the education and outreach topics will reduce the potential for pollutants explained? (Part VI.A.1.c.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

In Year 5: Has the method(s) used for distribution of educational messages been identified? (Part VI.A.2.a.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet.

In Year 5: Has one educational message been delivered to each target audience(s) for each focus area based on the education and outreach topic(s)? (Part VI.A.2.b.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet.

In Year 4 and Year 5: Have target audiences, focus areas, and/or education and outreach topics been updated? (Part VI.A.2.c.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Minimum Control Measure 2

Annually: Has an opportunity for public involvement/participation in the development and implementation of the SWMP been provided? (Part VI.B.1.a.)

Yes

What was the opportunity for public involvement/participation in the SWMP?

Public hearings or meetings

Annually: Has the public been informed about the opportunity for their involvement in the development and implementation of the SWMP and how they can get involved? (Part VI.B.1.b.)

Yes

What is the method(s) used for distribution to inform the public of the opportunity for involvement?

Printed materials (e.g., mail inserts, brochures and newsletters)

Electronic materials (e.g., websites, email listservs)

Annually: Has an opportunity to review and comment on the publicly available SWMP Plan been provided? (Part VI.B.2.a.)

Yes

Annually: Has an opportunity to review and comment on the draft annual report been provided? (Part VI.B.2.b.i.)

Yes

What opportunity for review and comment on the draft annual report has been provided?

Presentation of the draft Annual Report

Posting of draft Annual Report on a public website

Annually: Have the comments received on the SWMP Plan been summarized? (Part VI.B.2.c.i.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

No comments received

Annually: Have the comments received on the draft annual report been summarized? (Part VI.B.2.c.i.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

No comments received

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Minimum Control Measure 3

Within three (3) years of the EDC: Has an inventory of monitoring locations been developed? (Part VI.C.1.c.i.)

Yes

How many monitoring locations are on the inventory?

2

How many MS4 outfalls are on the inventory?

25

How many interconnections are on the inventory?

1

How many municipal facility intraconnections are on the inventory?

5

In Year 4 and Year 5: Has the monitoring location inventory been updated? (Part VI.C.1.c.ii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet

Within three (3) years of the EDC: Have monitoring locations been prioritized? (Part VI.C.1.d.i.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet

In Year 4 and Year 5: Has the monitoring location prioritization been updated? (Part VI.C.1.d.iii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet

Within two (2) years of the EDC: Has a monitoring locations inspection and sampling program been developed and implemented? (Part VI.C.1.e.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 2 yet. In progress.

In Year 5: Have all the monitoring locations been inspected? (Part VI.C.1.e.i.a))

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

In Year 5: Has training on the MS4 Operator's monitoring locations inspection and sampling procedures been provided? (Part VI.C.1.e.ii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

In Year 3, Year 4, and Year 5: Have the names, titles, and contact information for the individuals who have received monitoring locations inspection and sampling training been updated? (Part VI.C.1.e.iii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3, 4 or 5 yet

In Year 3, Year 4, and Year 5: Have the monitoring locations inspection and sampling procedures been updated? (Part VI.C.1.e.iv.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3, 4 or 5 yet

Within two (2) years of the EDC: Has an illicit discharge track down program been developed and implemented? (Part VI.C.2.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 2 yet. In progress.

In Year 5: Has training on the MS4 Operator's illicit discharge track down procedures prior to conducting illicit discharge track down been provided? (Part VI.C.2.b.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

In Year 3, Year 4, and Year 5: Have the names, titles, and contact information for the individuals who have received illicit discharge track down procedures training been updated? (Part VI.C.2.c.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3, 4 or 5 yet

In Year 3, Year 4, and Year 5: Have the illicit discharge track down procedures been reviewed and updated? (Part VI.C.2.d.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3, 4 or 5 yet

Within two (2) years of the EDC: Has an illicit discharge elimination program been developed and implemented? (Part VI.C.3.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 2 yet. In progress.

In Year 5: Has training on the MS4 Operator's illicit discharge elimination procedures prior to conducting illicit discharge elimination been provided? (Part VI.C.3.b.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

In Year 3, Year 4, and Year 5: Have the names, titles, and contact information for the individuals who have received illicit discharge elimination procedures training been updated? (Part VI.C.3.c.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3, 4 or 5 yet

In Year 3, Year 4, and Year 5: Have the illicit discharge elimination procedures been reviewed and updated? (Part VI.C.3.d.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3, 4 or 5 yet

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Minimum Control Measure 4

Within one (1) year of the EDC: Has a construction oversight program been developed and implemented? (Part VI.D.3)

Yes

In Year 5: Has training on the MS4 Operator's construction oversight procedures prior to conducting construction oversight been provided? (Part VI.D.3.b.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

In Year 2, Year 3, Year 4, and Year 5: Have the names, titles, and contact information for the individuals who have received construction oversight procedures training been updated? (Part VI.D.3.c.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 2, 3, 4 or 5 yet. In progress.

In Year 2, Year 3, Year 4, and Year 5: Have the construction oversight procedures been reviewed and updated? (Part VI.D.3.e.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 2, 3, 4 or 5 yet. In progress.

Annually: Has the inventory of construction sites been updated? (Part VI.D.4.b.)

Yes

How many construction sites are on the inventory?

2

Within one (1) year of the EDC: Have construction sites been prioritized? (Part VI.D.5.a.)

Yes

How many high priority construction sites are on the inventory?

0

In Year 2, Year 3, Year 4, and Year 5: Has the construction site prioritization been updated? (Part VI.D.5.c.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 2, 3, 4 or 5 yet

Within three (3) years of the EDC: Have the individuals responsible for reviewing SWPPPs for acceptance received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil & Water Conservation District, or other Department endorsed entity prior to conducting SWPPP reviews and/or approvals? (Part VI.D.6.a.i.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

P.E. performs review. P.E. does not require training.

Annually: Have the names, titles, and contact information for the individuals who have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil & Water Conservation District, or other Department endorsed entity, for individuals responsible for reviewing SWPPPs been updated? (Part VI.D.6.d.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

No change

Are pre-construction meetings conducted prior to the commencement of construction activity? (Part VI.D.7.)

Yes

Within three (3) years of the EDC: Have the individuals responsible for construction site inspections received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil & Water Conservation District, or other Department endorsed entity prior to conducting construction site inspections? (Part VI.D.8.a.i.)

Yes

Annually: Have all sites with construction activity identified in the inventory been inspected during active construction after the pre-construction meeting, or sooner if deficiencies are noted that require attention? (Part VI.D.8.c.)

Yes

Annually: Have the names, titles, and contact information for the individuals who have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil & Water Conservation District, or other Department endorsed entity, for individuals responsible for construction site inspections been updated? (Part VI.D.8.d.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

No changes requiring updates

Are final construction site inspections conducted? (Part VI.D.9.)

Yes

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Minimum Control Measure 5

Annually: Has the inventory of post-construction SMPs been updated? (Part VI.E.2.c.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

No changes requiring updates

How many post-construction SMPs are on the inventory?

6

Within five (5) years of the EDC: Have the required components been included in the post-construction SMP inventory? (Part VI.E.2.d.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

Within one (1) year of the EDC: Has a post-construction SMP inspection and maintenance program been developed and implemented? (Part VI.E.4.)

Yes

Has each post-construction SMP identified in the inventory been inspected at the required frequency? (Part VI.E.4.a.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

There are no MS4 owned SMPs

In Year 5: Has training on the MS4 Operator's post-construction SMP inspection and maintenance procedures prior to conducting post-construction SMP inspection and maintenance been provided? (Part VI.E.4.b.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

Annually: Have names, titles, and contact information for the individuals who have received post-construction SMP inspection and maintenance procedures training updated? (Part VI.E.4.c.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

No changes requiring updates

In Year 2, Year 3, Year 4, and Year 5: Have the post-construction SMP inspection and maintenance procedures been reviewed and updated? (Part VI.E.4.d.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 2, 3, 4 or 5 yet

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Minimum Control Measure 6

Within three (3) years of the EDC: Have best management practices (BMPs) been incorporated into the municipal facility program and municipal operations program? (Part VI.F.1.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

Within three (3) years of the EDC: Has a municipal facility program been developed and implemented? (Part VI.F.2.a.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

In Year 5: Has training on the MS4 Operator's municipal facility procedures prior to conducting municipal facility procedures been provided? (Part VI.F.2.a.ii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

In Year 4 and Year 5: Have the names, titles, and contact information for the individuals who have received municipal facility procedures training been updated? (Part VI.F.2.a.iii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet

In Year 4 and Year 5: Have the municipal facility procedures been updated? (Part VI.F.2.a.iv.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet

Within two (2) years of the EDC: Has a municipal facility inventory been developed? (Part VI.F.2.b.i.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 2 yet. In progress.

In Year 3, Year 4, and Year 5: Has the municipal facility inventory been updated? (Part VI.F.2.b.ii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3, 4 or 5 yet

Within three (3) years of the EDC: Have the municipal facilities been prioritized? (Part VI.F.2.c.i.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

In Year 4 and Year 5: Has the municipal facility prioritization been updated? (Part VI.F.2.c.iii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet

Within five (5) years of the EDC: Has a municipal facility specific SWPPP for each high priority municipal facility been developed? (Part VI.F.2.d.i.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet.

How many municipal facility specific SWPPPs for high priority municipal facilities have been developed?

0

In Year 5: Has all wet weather visual monitoring of the monitoring locations at all high priority municipal facilities been conducted? (Part VI.F.2.d.ii.a))

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

In Year 5: Has a comprehensive site assessment for each high priority municipal facility been completed? (Part VI.F.2.d.ii.c))

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

In Year 5: Has a comprehensive site assessment for each low priority municipal facility been completed? (Part VI.F.2.e.ii.c))

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

Within three (3) years of the EDC: Has a municipal operations program been developed? (Part VI.F.3.a.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

In Year 5: Has training on the MS4 Operator's municipal operations procedures prior to conducting municipal operations been provided? (Part VI.F.3.a.ii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

In Year 4 and Year 5: Have the names, titles, and contact information for the individuals who have received municipal operations procedures training been updated? (Part VI.F.3.a.iii.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet

In Year 4 and Year 5: Have the municipal operations procedures been reviewed and updated? (Part VI.F.3.a.iv.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet

Within three (3) years of the EDC: Have catch basins in need of inspection been identified? (Part VI.F.3.c.i.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

Within three (3) years of the EDC: Has catch basin inspection information been inventoried? (Part VI.F.3.c.ii.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

In Year 5: Have all streets, bridges, parking lots, and right of ways been swept? (Part VI.F.3.d.i.a))

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

Annually: Have all streets in business districts and commercial areas been swept? (Part VI.F.3.d.i.b))

Yes

Within five (5) years of the EDC: Have roads, bridges, parking lots, and right of way maintenance specific BMPs been implemented? (Part VI.F.3.d.ii.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet.

Within five (5) years of the EDC: Have winter road maintenance specific BMPs been implemented? (Part VI.F.3.d.iii.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet.

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Part VIII

Does the MS4 Operator discharge to an impaired water listed in Appendix C of GP-0-24-001?

Yes

For which pollutant(s) is the waterbody impaired? Select the pollutants for all the impaired waters listed in Appendix C of GP-0-24-001 to which the MS4 Operator discharges.

Phosphorus

Which requirements in this Part were completed as a coalition/group, if any?

NONE PROVIDED

Phosphorus

Within three (3) years of the EDC: Has the comprehensive system mapping been updated, in a geographic information system (GIS), to include MS4 infrastructure and sewershed information for each MS4 outfall and ADA MS4 outfall discharging to a phosphorus impaired water listed in Appendix C? (Part VIII.A.1.a.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

Within three (3) years of the EDC: Has the comprehensive system mapping been updated, in a geographic information system (GIS), to include the listed items for each MS4 outfall discharging to a phosphorus impaired water listed in Appendix C? (Part VIII.A.1.b.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 3 yet. In progress.

Within three (3) years of the EDC: Has the comprehensive system mapping been updated, in a geographic information system (GIS), to include ADA MS4 outfalls discharging to a phosphorus impaired water listed in Appendix C? (Part VIII.A.1.c.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

There are no ADA MS4 outfalls.

Minimum Control Measure 1

Twice a year, in Year 4 and Year 5: Have educational messages with information specific to phosphorus been provided? (Part VIII.A.2.b.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet. Educational pamphlets have been provided.

Minimum Control Measure 3

Within five (5) years of the EDC: Has the number of each item listed in Part VIII.A.1.b. been included on the MS4 outfall inventory for each associated MS4 outfall? (Part VIII.A.4.)

No

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 5 yet

Minimum Control Measure 4

How many high priority construction sites discharge to the phosphorus impaired water(s)?

0

Minimum Control Measure 6

In Year 4 and Year 5: Have all streets located in sewersheds discharging to phosphorus impaired segments been swept? (Part VIII.A.7.a.)

N/A

Please clarify the reason for selecting "No" or "N/A" for this item.

It is not Year 4 or 5 yet

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Part IX

Does the MS4 Operator discharge to a TMDL listed in Table 3 of GP-0-24-001?

No

Please enter any comments related to the questions in this section below:

NONE PROVIDED

Interim Progress Status

Interim Progress Resources

Use the following webpages for more information on the permit and fact sheet:

[MS4 Permit Webpage](#)

[MS4 Toolbox](#)

Have you reviewed compliance items due within two years of EDC?

Yes

Have you reviewed compliance items due within three years of EDC?

Yes

Have you reviewed compliance items due within four years of EDC?

Yes

Have you reviewed compliance items due within five years of EDC?

Yes

Have you reviewed compliance items which need to be completed routinely (annually, every five (5) years, etc.)?

Yes

Please enter any comments related to the questions in this section.

NONE PROVIDED

Certification

The ranking elected official or Principal Executive Officer for the MS4 Operator will be signing the form.

Yes

As the Ranking Elected Official or Principal Executive Officer, please download the certification form using the link below. Complete and sign the certification. Then, upload the certification form to this Interim Progress Certification and/or Annual Report.

[Certification Form](#)

Attach completed certification form.

NONE PROVIDED

Comment

NONE PROVIDED

Appendix E

Buchanan Construction Site Inventory
Rev. 06/20/2024

Location	Project Name	Owner/Operator Contact Name	SWPPP Contact Name	SWPPP Contact Business Phone	SWPPP Contact Email	Receiving Waterbody Name/Class	Receiving Waterbody W/PWL ID	Disturbed Area	>5 Acres Disturbed?	Priority (High/Low)	SPDES ID	SWPPP Approval Date	NOI Submission Date	Pre-Con Mtg Date	Inspection Dates	Inspection Rating ¹	Inspection Review Comments	Status ²	Final Stabilization Date	NOT Date	Post-Construction SMP	Post-Construction SMP Type	Alternate SMP	GP-0-25-001 LOCC?
450 Broadway	Indep. Spent Fuel Storage Installat	Entergy Nuclear Operations, Inc.				Hudson River	864-2	4.8	No	Low	NYR10H166		6/7/2004					C	6/1/2007	7/31/2007	Yes			n/a
350 Broadway	LAFARGE NORTH AMERICA	LAFARGE NORTH AMERICA GYPSUM	MARR DOUGLAS	914-292-2500		Hudson River	864-2	14.9	Yes	High	NYR10781		4/25/2005					C	12/1/2011	2/18/2013	Yes			n/a
350 Broadway	LAFARGE NORTH AMERICA	LAFARGE NORTH AMERICA GYPSUM	JONES JEFFREY	914-292-2500		Hudson River	864-2	4.1	No	Low	NYR10I453		8/15/2005					C	12/1/2011	2/18/2013	Yes			n/a
Greentown Road	BUCHANAN TREES LLC	BUCHANAN TREES LLC	KUNNY, ANTHONY	914-273-2323		Hudson River		1.6	No	Low	NYR10N147		7/3/2007					C	4/1/2014	4/3/2014	Yes			n/a
Greentown Road	Site Development for Timco	Timco	Amicciharico, James	914-796-3664		Dickey Brook/Hudson River		4.2	No	Low	NYR10N897		11/29/2007					C	11/1/2010	3/17/2011	No			n/a
450 BROADWAY	Indian Point Energy Center Fence Project	ENTERGY NUCLEAR OPERATIONS INC	SETARO PETER	845-454-3411		Hudson River		8.4	No	Low	NYR10R868		10/28/2009					C	12/1/2011	1/10/2012	Yes			n/a
Buchanan 345KV Substation	Replacement of Y94 Overhead Station Bypass with Solid Dielectric Cables Project	Consolidated Edison Company of New York, Inc.	Veith, Brian	914-467-5300, x19		Unspecified Federal wetlands		1.8	No	Low	NYR10Z963		9/30/2015					C	11/1/2016	12/14/2016	Yes	Dry Swale (O-1)		n/a
450 Broadway	Entergy ISFSI Pad #2	Entergy Nuclear IP-2 & IP-3 LLC	Staudohar, Keith	914-796-3664	keith@cronengineering.net	Hudson River	864-2	2.2	No	Low	NYR11I009	4/13/2021	4/16/2021					T	n/a	n/a	Yes	Infiltration Basin (I-2)		n/a
450 Broadway	Holtec - IPEC ISFSI Pad #2	Holtec International Corporation	Staudohar, Keith	914-796-3664	keith@cronengineering.net	Hudson River	864-2	2.2	No	Low	NYR11I589	8/9/2021	8/11/2021					A			Yes	Infiltration Basin (I-2)		
Albany Post Road & Craft Lane	AMS Buchanan	Buchanan Dev AMS LLC	Villareale, Diego Masiovecchio, Kevin P.E. (JMC) Letson, Dennis P.E. (Inspecting)	914-273-5225	DVillareale@jmcpllc.com	On-site Pond Class B	n/a	4.2	No	Low	NYR11M399	3/15/2024	3/19/2024	9/19/2024	9/24/2024; 10/2/2024; 11/8/2024; 11/12/2024; 11/15/2024; 11/21/2024;12/12/2024; 12/19/2024; 12/26/2024; 1/2/2025; 1/10/2025; 1/14/2025; 1/17/2025; 1/28/2025; 02/04/2025; 02/10/2025; 2/27/2025	S	1/14/2025 - Sweep swale along Rte 9A, north of Craft Lane.; 1/29/2025 - Vehicles parked on stabilized fill above north detention center. Protect inlets to detention systems.; 2/27/2025 - Sweep Craft Lane & turnover stabilized construction entrance.	A			Yes	Stormwater Planter (RR-7), Green Roof (RR-10), Media Filter	Jellyfish	Yes 1/30/25
3095 Albany Post Road	Village Square / Carbone	Carbone Brothers	Mastromonaco, Ralph, P.E.	914-271-4762	ralphgmastromonaco@gmail.com	On-site Pond Class B	n/a	3.0	No	Low	TBD	3/13/2025	3/13/25	3/14/25	10/18/2024; 11/18/2024; 12/13/2024; 3/14/2025	M	10/18/2024 - Concrete debris on shoulder of Rte 9A. 11/18/2024 - Site cleared but not stabilized. Perimeter silt fence in place. 3/14/25 - Pre-Con Mtg	TS			Yes	Pond/Wetland (W-3) Infiltrators (I-4)	no	GP-0-25-001

¹S=Satisfactory; M=Marginal; U=Unsatisfactory
²A=Active; T=Transferred; TS=Temporary Shutdown; C=Complete

Appendix F



**NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER**



 Department of Environmental Conservation		New York State Department of Environmental Conservation Construction Site Inspection Report for SPDES MS4 General Permit GP-0-24-001	
Project Name:		Date:	
Project Location:		Weather:	
Permit # (if any): NYR	Contacted: <input type="checkbox"/> Yes <input type="checkbox"/> No	Entry Time:	Exit Time:
Name of SPDES Permittee:	Inspection Type: <input type="checkbox"/> NOT <input type="checkbox"/> Complaint <input type="checkbox"/> Compliance <input type="checkbox"/> Referral	MS4 Operator Name: MS4 Permit ID: NYR20A	
Phone Number(s):			
On-site Representative(s) and Company(s):			

SPDES Authority

Yes	No	N/A		Citation	
1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Does the project have permit coverage?	GP-0-20-001: I.A & II. B
2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is a copy of the NOI and Acknowledgment Letter available on site and accessible for viewing?	GP-0-20-001: II.D.2
3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is a copy of the MS4 SWPPP Acceptance Form available on site and accessible for viewing?	GP-0-20-001: II.D.2
4.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is an up-to-date copy of the signed SWPPP retained at the construction site?	GP-0-20-001: II.D.2. & III.A.4
5.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is a copy of the SPDES General Permit retained at the construction site?	GP-0-20-001: II.D.2
6.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Does the NOI accurately report the number of acres to be disturbed?	GP-0-20-001: II.B.4

SWPPP Content

Yes	No	N/A		Citation	
7.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Does the SWPPP describe and identify the erosion and sediment control measures to be employed?	GP-0-20-001: III.B.1.e
8.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Does the SWPPP provide an inspection schedule and maintenance requirements for the E&SC measures?	GP-0-20-001: III.B.1.i
9.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Does the SWPPP describe and identify the stormwater management practices to be employed?	GP-0-20-001: III.B.2
10.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Does the SWPPP identify the contractor(s) and subcontractor(s) responsible for each measure?	GP-0-20-001: III.A.6
11.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Does the SWPPP identify at least one trained individual from each contractor(s) and subcontractor(s) companies?	GP-0-20-001: III.A.6
12.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Does the SWPPP include all the necessary Contractor Certification Statements and signatures?	GP-0-20-001: III.A.6
13.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is the SWPPP signed by the permittee?	GP-0-20-001: VII.H.2
14.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is the SWPPP prepared by a qualified professional (if post-construction stormwater management required)?	GP-0-20-001: III.A.3
15.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Do the SMPs conform to the Enhanced Phosphorus Removal Standards (projects in TMDL watersheds)?	GP-0-20-001: III.B.3

Recordkeeping

Yes	No	N/A		Citation	
16.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are self-inspections performed as required by the permit (weekly, or twice weekly for >5 acres disturbed)?	GP-0-20-001:IV.C.2.a. & b
17.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are the self-inspections performed and signed by a qualified inspector and retained on site?	GP-0-20-001:II.C.2.,IV.C.6 & VII.H.3
18.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Do the qualified inspector's reports include the minimum reporting requirements?	GP-0-20-001: IV.C.4
19.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Do inspection reports identify corrective measures that have not been implemented or are recurring?	GP-0-20-001: IV.C.5



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Visual Observations

Yes No N/A	Citation
20. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Are all erosion and sediment control measures installed properly?	GP-0-20-001: VII.L
21. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Are all erosion and sediment control measures being maintained properly?	GP-0-20-001: IV.A.1
22. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Was written authorization issued for any disturbance greater than 5 acres?	GP-0-20-001: II.D.3
23. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Have stabilization measures been implemented in inactive areas per Permit (>5acres) or ESC Standard?	GP-0-20-001: II.D.3.b & III.B.1.f
24. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Are post-construction stormwater management practices constructed/installed correctly?	GP-0-20-001: III.B.2
25. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Has final site stabilization been achieved and temporary E&SC measures removed prior to NOT submittal?	GP-0-20-001: V.A.2
26. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Was there a discharge from the site on the day of inspection?	
27. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Is there evidence that a discharge caused or contributed to a violation of water quality standards?	ECL 17-0501, 6 NYCRR 703.2 & GP-0-20-001: I.D

Water Quality Observations

Describe the discharge(s): location, source(s), impact on receiving water(s), etc.

Describe the quality of the receiving water(s) both upstream and downstream of the discharge:

Describe any other water quality standards or permit violations:



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Additional Comments:

Photographs attached

Overall Inspection Rating: <input type="checkbox"/> Satisfactory <input type="checkbox"/> Marginal <input type="checkbox"/> Unsatisfactory	
Name/Agency of Lead Inspector:	Signature of Lead Inspector:
Names/Agencies of Other Inspectors:	

Appendix G

Monitoring Locations Inspection and Sampling Field Sheet

Section 1: Background Data

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

Section 2: Monitoring Location 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"/> Single <input type="checkbox"/> Elliptical <input type="checkbox"/> Double <input type="checkbox"/> Box <input type="checkbox"/> Triple <input type="checkbox"/> Other: _____ <input type="checkbox"/> Other: _____ <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 5</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 MONITORING LOCATIONS					
PARAMETER	RESULT	UNIT	EQUIPMENT		
<input type="checkbox"/> Flow #1	Volume		Liter	Bottle	
	Time to fill		Sec		
<input type="checkbox"/> Flow #2	Flow depth		In	Tape measure	
	Flow width	____' ____"	Ft, In	Tape measure	
	Measured length	____' ____"	Ft, In	Tape measure	
	Time of travel		S	Stopwatch	
Temperature			°F	Thermometer	
pH			pH Units	Test strip/Probe	
Ammonia			mg/L	Test strip	

Monitoring Locations Inspection and Sampling Field Sheet

Section 4: Physical Indicators for Flowing Monitoring Locations 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"/> Rancid/sour <input type="checkbox"/> Petroleum/gas <input type="checkbox"/> Sulfide <input type="checkbox"/> Other:	<input type="checkbox"/> 1 - Faint	<input type="checkbox"/> 2 – Easily detected	<input type="checkbox"/> 3 – Noticeable from a distance
Color	<input type="checkbox"/>	<input type="checkbox"/> Clear <input type="checkbox"/> Brown <input type="checkbox"/> Gray <input type="checkbox"/> Yellow <input type="checkbox"/> Green <input type="checkbox"/> Orange <input type="checkbox"/> Red <input type="checkbox"/> Other:	<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 flow
Turbidity	<input type="checkbox"/>	See severity	<input type="checkbox"/> 1 – Slight cloudiness	<input type="checkbox"/> 2 - Cloudy	<input type="checkbox"/> 3 – Opaque
Floatables -Does Not Include Trash!!	<input type="checkbox"/>	<input type="checkbox"/> Sewage (Toilet Paper, etc.) <input type="checkbox"/> Suds <input type="checkbox"/> Petroleum (oil sheen) <input type="checkbox"/> Other:	<input type="checkbox"/> 1 – Few/slight; origin not obvious	<input type="checkbox"/> 2 - Some; indications of origin (e.g., possible suds or oil sheen)	<input type="checkbox"/> 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Monitoring Locations

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

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Monitoring Location Damage	<input type="checkbox"/>	<input type="checkbox"/> Spalling, Cracking or Chipping <input type="checkbox"/> Peeling Paint <input type="checkbox"/> Corrosion	
Deposits/Stains	<input type="checkbox"/>	<input type="checkbox"/> Oily <input type="checkbox"/> Flow Line <input type="checkbox"/> Paint <input type="checkbox"/> Other:	
Abnormal Vegetation	<input type="checkbox"/>	<input type="checkbox"/> Excessive <input type="checkbox"/> Inhibited	
Poor pool quality	<input type="checkbox"/>	<input type="checkbox"/> Odors <input type="checkbox"/> Colors <input type="checkbox"/> Floatables <input type="checkbox"/> Oil Sheen <input type="checkbox"/> Suds <input type="checkbox"/> Excessive Algae <input type="checkbox"/> Other:	
Pipe benthic growth	<input type="checkbox"/>	<input type="checkbox"/> Brown <input type="checkbox"/> Orange <input type="checkbox"/> Green <input type="checkbox"/> Other:	

Section 6: Overall Monitoring Location Characterization

<input type="checkbox"/> Unlikely <input type="checkbox"/> Potential (presence of two or more indicators) <input type="checkbox"/> Suspect (one or more indicators with a severity of 3) <input type="checkbox"/> Obvious

Section 7: Data Collection

1. Sample for the 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-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?

**Annual Good Housekeeping Program
Inspection Form
Village of Buchanan**

Facility Name: _____

Date/Time: _____

LANDSCAPE AND SITE INSPECTION CHECKLIST

Applicable: Yes or No

Components to check	Problems Observed	Maintenance/Repairs Necessary	Action
Grass/plant condition		Yes or No	
Catch Basin		Yes or No	
General area		Yes or No	

SPILL RESPONSE AND PREVENTION INSPECTION CHECKLIST

Applicable: Yes or No

Components to check	Problems Observed	Maintenance/Repairs Necessary	Action
Products/waste storage		Yes or No	
Equipment storage areas		Yes or No	
Secondary containment systems		Yes or No	
Oil/Water separators		Yes or No	
Floor drains		Yes or No	
Storm receiver inlets and outlets		Yes or No	

VEHICLE MAINTENANCE/STORAGE AREA INSPECTION CHECKLIST

Applicable: Yes or No

Components to check	Problems Observed	Maintenance/Repairs Necessary	Action
Dirt and grease buildup?		Yes or No	
Debris (paper, leaves, etc.)?		Yes or No	
Do storm inlets contain debris?		Yes or No	
Truck/equipment		Yes or No	
Salt spreader		Yes or No	
Salt storage		Yes or No	
Lawn care equipment		Yes or No	
Chlorine Storage		Yes or No	

Inspected By: _____

Signature: _____

--NOTICE--

**VILLAGE OF BUCHANAN
BUILDING DEPARTMENT
COMPLAINT OF VIOLATION**

Issued to: Applicant/Owner File

Form of Complaint Phone: _____ or Letter (attached)
Complainant: _____
Address: _____
Phone: _____
Site Locations: _____
Section _____ Block _____ Lot: _____
Property Owner: _____
Nature of Complaint: _____

ACTION BY ENFORCEMENT OFFICER

Possible Violation of Article _____, Section _____, Subsection _____
of the Site Inspection completed on Date _____, Time _____ (AM/PM)

Report of Findings:

Recommended Action:

Building Department

ENFORCEMENT MEASURE:

Verbal Warning was issued:

Date(s): _____ **No more than sixty (60) days to remedy.**

Written Warning issued with Recommended Action: Section 166 of Village Code.

Date(s): _____ **No more than sixty (60) days to remedy.**

Citation issued for Court Appearance:

Date(s): _____ **Based on court decision.**

Fee to remedy \$ _____ **Based on court decision.**

Stop Work Order Issued.

Date: _____.

Resolution.

Date(s): _____.

Penalty & Fees associated with Violation.

\$ _____.

Building Department

Illicit Discharge Detection and Elimination Minimum Control Measure



[Photo](#) by U.S. EPA

This fact sheet profiles the Illicit Discharge Detection and Elimination (IDDE) minimum control measure, one of six program areas an operator of a Phase II-regulated small municipal separate storm sewer system (MS4) is required to address as part of its National Pollutant Discharge Elimination System (NPDES) stormwater permit. This fact sheet offers some general considerations on strategies used by MS4s to implement IDDE programs. It is important to keep in mind that the regulated small MS4 operator typically has flexibility in choosing exactly how to satisfy the IDDE requirements in its NPDES permit.

Illicit Discharge Detection and Elimination Minimum Control Measure

What Is an “Illicit Discharge”?

Federal regulations define an illicit discharge as “...any discharge to an MS4 that is not composed entirely of stormwater...” with some exceptions. These exceptions include discharges from NPDES-permitted industrial and construction sources and discharges from fire-fighting activities. In practice, illicit discharges are identified as measurable flow within the storm sewer system that occurs during dry weather consisting of pollutants and/or pathogens. Illicit discharges (see Table 1) are considered “illicit” because MS4s are not designed to accept, process, or discharge such non-stormwater wastes.

Table 1. Pollutants Associated with Illicit Discharges

TSS (Total Suspended Solids)
VSS (Volatile Suspended Solids)
TOC (Total Organic Carbon)
COD (Chemical Oxygen Demand)
NO ₃ /NO ₂ (Nitrate + Nitrite)
TKN (Total Kjeldahl Nitrogen)
Phosphorus as PO ₄
Cu (Total Copper)
Pb (Total Lead)
Zn (Total Zinc)

Why Are Illicit Discharge Detection and Elimination Efforts Necessary?

Discharges from MS4s often include wastes and wastewater from non-stormwater sources. A National Research Council’s report on urban stormwater indicates that according to field experience in conducting outfall surveys, illicit discharges may occur at 2-5% of all outfalls at any given time and may amplify pollutants effect on water quality and biological diversity (2009).

Illicit discharges enter the system through either direct connection (e.g., wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g., infiltration into the MS4 from cracked sanitary systems, spills collected by drain outlets, and paint or used oil dumped directly into a drain). The result is the release of untreated wastewater and pollutants into the storm sewer system that contributes to high levels of pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria to receiving waterbodies. Pollutant levels from these illicit discharges have been shown in [EPA studies](#) to be high enough to significantly degrade receiving water quality and threaten aquatic species, wildlife, and human health.

What Is Required?

Recognizing the adverse effects illicit discharges can have on receiving waters, the Phase II regulations require permitted small MS4s to develop, implement, and enforce an IDDE program. Permits will also require, at a minimum, that the MS4:

- Develop, if not already completed, a storm sewer system map, showing the location of all outfalls and the names and location of all waters of the United States that receive discharges from those outfalls.
- Effectively prohibit through an ordinance, or other regulatory mechanism (to the extent allowable under state, tribal, or local law) non-stormwater discharges into the MS4 and implement appropriate enforcement procedures and actions.

Illicit Discharge Detection and Elimination Minimum Control Measure

- Develop and implement a plan to detect and address non-stormwater discharges, including illegal dumping, into the MS4.
- Inform public employees, businesses, and the general public about the hazards associated with illegal discharges and improper disposal of waste.

Are All Non-Stormwater Discharges Prohibited as Illicit Discharges?

No. The IDDE program does not need to address the following categories of non-stormwater discharges or flows unless the operator of the regulated small MS4 identifies them as significant contributors of pollutants to its MS4:

- | | |
|--|---|
| <ul style="list-style-type: none">▪ Water line flushing.▪ Landscape irrigation.▪ Diverted stream flows.▪ Rising ground waters.▪ Uncontaminated ground water infiltration.▪ Uncontaminated pumped ground water.▪ Discharges from potable water sources.▪ Foundation drains.▪ Air conditioning condensation. | <ul style="list-style-type: none">▪ Irrigation water.▪ Springs.▪ Water from crawl space pumps.▪ Footing drains.▪ Lawn watering.▪ Individual residential car washing.▪ Flows from riparian habitats and wetlands.▪ Dechlorinated swimming pool discharges.▪ Street wash water. |
|--|---|

Illicit Discharge Permit Requirements

Each permit specifies the minimum elements that must be included in each IDDE program. These elements will differ from state to state although all permits will share the bottom-line requirement that the MS4 must implement an IDDE program that detects and removes illicit discharges.

EPA has compiled several examples from federal and state MS4 permits that address the IDDE minimum control measure. These examples are included in a series of permit compendia available on the EPA's stormwater website. See particularly Section C (Illicit Discharge Detection and Elimination) in the EPA's [Compendium of MS4 Permitting Approaches – Part 1: Six Minimum Control Measures](#).

Considerations in Implementing IDDE Programs

The objective of the IDDE program is to find, fix, and prevent illicit discharges. The regulated small MS4 operator does this by gaining a thorough awareness of their storm sewer system and service area. This awareness allows them to determine the types and sources of illicit discharges entering their system; and establish the legal, technical, and educational means

Illicit Discharge Detection and Elimination Minimum Control Measure

needed to eliminate these discharges. Permittees will meet their illicit discharge requirements in a variety of ways depending on their individual needs and abilities. Some of the general considerations that should be accounted for are discussed below.

The Map

The storm sewer system map is meant to demonstrate a basic awareness of the intake and discharge areas of the system. The map is needed to help determine the extent of discharged dry weather flows, the possible sources of the dry weather flows, and the waterbodies these flows may be affecting. An existing map, such as a topographical map, on which the location of major pipes and outfalls can be clearly presented will assist the MS4 in developing such an awareness.

EPA recommends collecting all existing information on outfall locations (e.g., review city records, drainage maps, storm drain maps), and then conducting field surveys to verify these locations. It probably will be necessary to walk the streambanks and shorelines for visual observation (e.g., wade through small receiving waters or use a boat for larger waters). More than one trip may be needed to locate all outfalls.

Legal Prohibition and Enforcement

EPA recognizes that some permittees may have limited authority under state, tribal, or local law to establish and enforce an ordinance or other regulatory mechanism prohibiting illicit discharges. In such a case, the permittee is encouraged to obtain the necessary authority, if possible, or to utilize other authorities or mechanisms it does possess. See Fact Sheet 2.10 for further discussion of how operators should implement programs when they lack specific legal authority.

The Plan

The plan to detect and address illicit discharges is the central component of the MS4's program. The plan is dependent upon several factors, including the permittee's available resources, size of staff, degree and character of its illicit discharges, and the relevant NPDES permit requirements. Four recommended steps for developing and implementing a plan are outlined below:

Locate Problem Areas

EPA recommends that priority areas be identified for detailed screening of the system based on the likelihood of illicit connections (e.g., areas with older sanitary sewer lines). Methods that can be effective in pinpointing problem areas include: visual screening; water sampling from manholes and outfalls during dry weather; the use of infrared and thermal photography; cross-training field staff to detect illicit discharges; and public complaints.

Illicit Discharge Detection and Elimination Minimum Control Measure

Find the Source

Once a problem area or discharge is found, additional efforts usually are necessary to determine the source of the problem. Methods that can be helpful in locating the source of the illicit discharge include: dye-testing buildings in problem areas; dye- or smoke-testing buildings at the time of sale; tracing the discharge upstream in the storm sewer; employing a certification program that shows that buildings have been checked for illicit connections; implementing an inspection program of existing septic systems; and using video to inspect the storm sewers.

Remove/Correct Illicit Connections

Once the source is identified, the offending discharger should be notified and directed to correct the problem. Education efforts and working with the discharger can be effective in resolving the problem before taking legal action.

Document Actions Taken

As a final step, all actions taken under the plan should be documented. This helps the MS4 track its efforts to implement its illicit discharge program and the progress being made to eliminate illicit connections and discharges. Documented actions should be included in annual reports and include information such as: the number of outfalls screened; any complaints received and corrected; the number of discharges and quantities of flow eliminated; and the number of dye or smoke tests conducted.

Educational Outreach

The Center for Watershed Protection and Robert Pitt (2004) researched the most cost-effective and efficient techniques that can be employed to identify and correct inappropriate discharges. Data from Montgomery County, Maryland, was analyzed and it was determined that staff identify and correct about six inappropriate discharges per year as a result of regular screening. By contrast, over 185 inappropriate discharges are corrected each year in Montgomery County as a direct result of citizen complaints and calls to a storm water compliant hotline. Public education and labeling of outfalls and other storm drain infrastructure are important elements of establishing a successful citizen hotline. Outreach to public employees, businesses, property owners, the general public, and elected officials regarding ways to detect and eliminate illicit discharges is an integral part of this minimum measure.

Suggested educational outreach efforts include:

- Developing **informative brochures and guidance** for specific audiences (e.g., carpet cleaning businesses) and school curricula.
- Designing a program to **publicize and facilitate public reporting** of illicit discharges.
- **Coordinating volunteers** for locating, and visually inspecting, outfalls or to stencil storm drains.

Illicit Discharge Detection and Elimination Minimum Control Measure

- Initiating **recycling programs** for commonly dumped wastes, such as motor oil, antifreeze, and pesticides.

For Additional Information

Contacts

A list of contacts for the U.S. EPA's Office of Wastewater Management (Headquarters), each EPA regional office, and state office is located at:

<https://www.epa.gov/npdes/contact-us-stormwater>

Your NPDES Permitting Authority

Most states and territories are authorized to administer the NPDES Program, except the following, for which EPA is the permitting authority:

- American Samoa
- District of Columbia
- Guam
- Johnston Atoll
- Massachusetts
- Midway and Wake Islands
- New Hampshire
- New Mexico
- Northern Mariana Islands
- Puerto Rico
- Most Indian country lands

Reference Documents

- [EPA's Stormwater Website](#)
- [Stormwater Phase II Final Rule \(64 FR 68722\)](#)
- [Final MS4 General Permit Remand Rule \(81 FR 89320\)](#)
- [Final Small MS4 Urbanized Area Clarification \(88 FR 37994\)](#)
- [Stormwater Phase II Rule Fact Sheet Series](#)
- [National Menu of Best Management Practices for Stormwater Phase II](#)
- [MS4 Permits – Compendium of Clear, Specific, and Measurable Permitting Examples](#)
- [Illicit Discharge Detection and Elimination \(IDDE\) Resources on EPA's MS4 Website](#)
- Center for Watershed Protection and R. Pitt. (2004). [Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments](#).

Disclaimer: This information is guidance only and does not establish or affect legal rights or obligations. Agency decisions in any particular case will be made by applying the law and regulations to the specific facts of the case.

Pollution Prevention/Good Housekeeping Minimum Control Measure



This fact sheet profiles the Pollution Prevention/Good Housekeeping for Municipal Operations minimum control measure, one of six program areas the operator of a Phase II regulated small municipal separate storm sewer system (MS4) is required to address as part of its National Pollutant Discharge Elimination System (NPDES) permit. This fact sheet offers general considerations on strategies used by MS4s to implement pollution prevention/good housekeeping programs. It is important to keep in mind that the small MS4 operator typically has flexibility in choosing exactly how to satisfy the pollution prevention/good housekeeping requirements in its NPDES permit.

Pollution Prevention/Good Housekeeping Minimum Control Measure

Why Is Pollution Prevention/Good Housekeeping Necessary?

The Pollution Prevention/Good Housekeeping for Municipal Operations minimum control measure requires small MS4 permits to include requirements for operators to examine and subsequently alter their own actions to help ensure a reduction in the amount and type of pollution that: (1) collects on streets, parking lots, open spaces, and storage and vehicle maintenance areas and is discharged into local waterways; and (2) results from actions such as environmentally damaging land development and flood management practices or poor maintenance of storm sewer systems.

While this measure is meant primarily to improve or protect receiving water quality by altering municipal or facility operations, it also can result in a cost savings for the small MS4 operator, since proper and timely maintenance of storm sewer systems can help avoid repair costs from damage caused by age and neglect.

What Is Required?

Recognizing the benefits of pollution prevention practices, the rule specifies that small MS4 permits must require regulated small MS4s to develop and implement an operation and maintenance program that:

- Has the ultimate goal of preventing or reducing pollutant runoff from municipal operations into the storm sewer system.
- Includes employee training on how to incorporate pollution prevention/good housekeeping techniques into municipal operations such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance. To minimize duplication of effort and conserve resources, the MS4 operator can use training materials that are available from EPA, their state or tribe, or relevant organizations.
- Determines the appropriate best management practices (BMPs) to meet permit requirements for this minimum control measure.

Some program implementation approaches and BMPs (i.e., the program actions/activities) are suggested below.

What Are Some Guidelines for Developing and Implementing This Measure?

The intent of this control measure is to ensure that existing municipal, state, or federal operations are performed in ways that will minimize contamination of stormwater discharges. Small MS4 operators are encouraged to consider the following types of components when developing their program for this measure:

Pollution Prevention/Good Housekeeping Minimum Control Measure

- ***Maintenance activities, maintenance schedules, and long-term inspection procedures*** for structural and non-structural controls to reduce floatables and other pollutants discharged from the separate storm sewers.
- ***Controls for reducing or eliminating the discharge of pollutants*** from areas such as roads and parking lots, maintenance and storage yards (including salt/sand storage and snow disposal areas), and waste transfer stations. These controls could include programs that promote recycling (to reduce litter), minimize pesticide use, and ensure the proper disposal of animal waste.
- ***Procedures for the proper disposal of waste*** removed from separate storm sewer systems and areas listed in the bullet above, including dredge spoil, accumulated sediments, floatables, and other debris.
- ***Ways to ensure that new flood management projects assess the impacts on water quality*** and examine existing projects for incorporation of additional water quality protection devices or practices. EPA encourages coordination with flood control managers for the purpose of identifying and addressing environmental impacts from such projects.

The effective performance of this control measure hinges on the proper maintenance of the BMPs used, particularly for the first two bullets above. For example, structural controls, such as grates on outfalls to capture floatables, typically need regular cleaning, while non-structural controls, such as training materials and recycling programs, need periodic updating.

Pollution Prevention/Good Housekeeping Minimum Control Measure

For Additional Information

Contacts

A list of contacts for the U.S. EPA's Office of Wastewater Management (Headquarters), each EPA regional office, and state office is located at:
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- New Hampshire
- New Mexico
- Northern Mariana Islands
- Puerto Rico
- Most Indian country lands

Reference Documents

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- [National Menu of Best Management Practices for Stormwater Phase II](#)
- [MS4 Permits – Compendium of Clear, Specific, and Measurable Permitting Examples](#)

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Appendix H

Additional Information
Available

Village of Buchanan

[Village https://buchananny.gov/stormwater.html](https://buchananny.gov/stormwater.html)

<https://buchananny.gov>

Westchester County

[https://planning.westchestergov.com/environment
/stormwater-management](https://planning.westchestergov.com/environment/stormwater-management)

[https://planning.westchestergov.com/print-
materials](https://planning.westchestergov.com/print-materials)

NYS Department of
Environmental
Conservation

[New York State Department of Environmental
Conservation \(ny.gov\)](https://dec.ny.gov/sites/default/files/2024-01/fertbrochure15.pdf)

[https://dec.ny.gov/sites/default/files/2024-
01/fertbrochure15.pdf](https://dec.ny.gov/sites/default/files/2024-01/fertbrochure15.pdf)

**THANK YOU FOR YOUR
COOPERATION !**

**Together we can maintain
and further improve
the visual beauty
and health of
Lake Meahagh.**

Contact Information:

Village of Buchanan

Marcus Serrano
Village Administrator
(914) 737-1033
mserrano@buchananny.gov

Village Hall Office:
Municipal Building
236 Tate Avenue
Buchanan, NY 10511



**Lake
Meahagh**



**Annual Watershed
Mailing**

April 2025

INTRODUCTION

Lake Meahagh has been classified by the New York State Department of Conservation (NYSDEC) as an impaired waterbody due to excessive phosphorous.

Over the past few years the Village has enacted various measures to help the Lake, Such as:

- Cleaning of catch basins throughout the Village.
- Street sweeping throughout the Village.
- Community outreach.

Recently, Lake Meahagh has been impacted by various invasive species such as the Eurasian Milfoil.

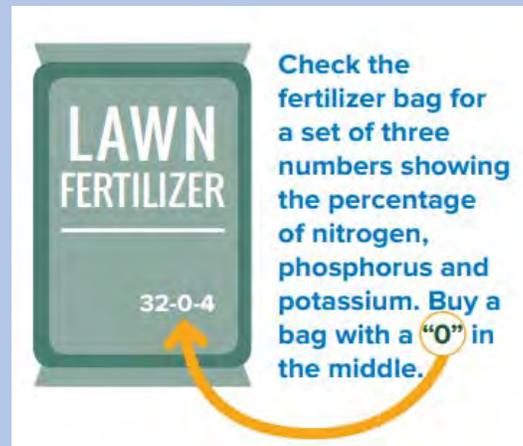


Source: <https://www.invasivespeciesinfo.gov/aquatic/plants/eurasian-watermilfoil>

HOW YOU CAN HELP

Fertilizers

- Only apply phosphorus free fertilizers or else excess phosphorous will be washed away into storm drains and streams.
- Avoid applying fertilizer If rain is in the upcoming forecast.
- Sweep excess fertilizer back onto your lawn and off of the street.
- Test your soil to determine what your lawn really needs.



Source: [Look for the Zero Sign \(ny.gov\)](#)

Pet Waste

- Pick up waste and dispose of in the trash.
- Do not let the waste wash away into streams and catch basins.



Lawn Mowing

Consider mowing your grass at a high setting (over 2.5 inches). When you mow your lawn, direct the clippings away from the street, driveways, sidewalks, and other paved areas. Sweep to your own lawn, as grass clippings are a great source of natural fertilizer.





After the Storm

For more information contact:

or visit
www.epa.gov/npdes/stormwater
www.epa.gov/nps



EPA 833-B-03-002

January 2003

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*A Citizen's Guide to
Understanding Stormwater*



What is stormwater runoff?

Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground.

Why is stormwater runoff a problem?

Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

The effects of pollution

Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

- ◆ Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.
- ◆ Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.
- ◆ Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.
- ◆ Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.
- ◆ Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.
- ◆ Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.



Stormwater Pollution Solutions

Residential

Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them onto the ground or into storm drains.

Lawn care

Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.



- ◆ Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- ◆ Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- ◆ Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains or streams.
- ◆ Cover piles of dirt or mulch being used in landscaping projects.

Septic systems

Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies. Pathogens can cause public health problems and environmental concerns.

- ◆ Inspect your system every 3 years and pump your tank as necessary (every 3 to 5 years).
- ◆ Don't dispose of household hazardous waste in sinks or toilets.



Auto care

Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.

- ◆ Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- ◆ Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.



Pet waste

Pet waste can be a major source of bacteria and excess nutrients in local waters.

- ◆ When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.



Education is essential to changing people's behavior. Signs and markers near storm drains warn residents that pollutants entering the drains will be carried untreated into a local waterbody.

Residential landscaping

Permeable Pavement—Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through, decreasing stormwater runoff.

Rain Barrels—You can collect rainwater from rooftops in mosquito-proof containers. The water can be used later on lawn or garden areas.

Rain Gardens and Grassy Swales

—Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.



Vegetated Filter Strips—Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streets.



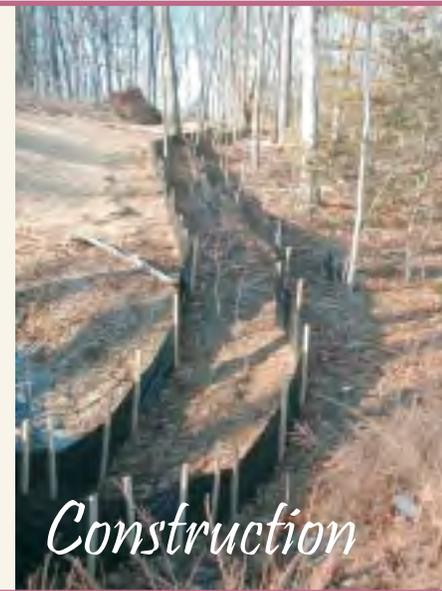
Commercial

Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

- ◆ Sweep up litter and debris from sidewalks, driveways and parking lots, especially around storm drains.
- ◆ Cover grease storage and dumpsters and keep them clean to avoid leaks.
- ◆ Report any chemical spill to the local hazardous waste cleanup team. They'll know the best way to keep spills from harming the environment.

Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be carried into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

- ◆ Divert stormwater away from disturbed or exposed areas of the construction site.
- ◆ Install silt fences, vehicle mud removal areas, vegetative cover, and other sediment and erosion controls and properly maintain them, especially after rainstorms.
- ◆ Prevent soil erosion by minimizing disturbed areas during construction projects, and seed and mulch bare areas as soon as possible.



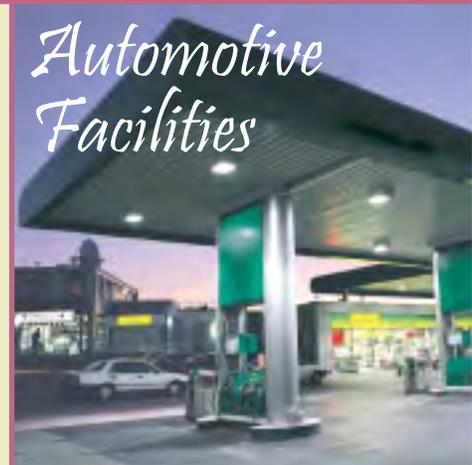
Construction



Agriculture

Lack of vegetation on streambanks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local waterbodies. Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making them unsafe for human contact.

- ◆ Keep livestock away from streambanks and provide them a water source away from waterbodies.
- ◆ Store and apply manure away from waterbodies and in accordance with a nutrient management plan.
- ◆ Vegetate riparian areas along waterways.
- ◆ Rotate animal grazing to prevent soil erosion in fields.
- ◆ Apply fertilizers and pesticides according to label instructions to save money and minimize pollution.



Automotive Facilities

Uncovered fueling stations allow spills to be washed into storm drains. Cars waiting to be repaired can leak fuel, oil, and other harmful fluids that can be picked up by stormwater.

- ◆ Clean up spills immediately and properly dispose of cleanup materials.
- ◆ Provide cover over fueling stations and design or retrofit facilities for spill containment.
- ◆ Properly maintain fleet vehicles to prevent oil, gas, and other discharges from being washed into local waterbodies.
- ◆ Install and maintain oil/water separators.



Forestry

Improperly managed logging operations can result in erosion and sedimentation.

- ◆ Conduct preharvest planning to prevent erosion and lower costs.
- ◆ Use logging methods and equipment that minimize soil disturbance.
- ◆ Plan and design skid trails, yard areas, and truck access roads to minimize stream crossings and avoid disturbing the forest floor.
- ◆ Construct stream crossings so that they minimize erosion and physical changes to streams.
- ◆ Expedite revegetation of cleared areas.

SPRING STORMWATER TIPS

Help Prevent Stormwater Pollution this Spring

- Only Rain Belongs in the Drain
- Use Lawn Chemicals Sparingly
- Avoid Over-Watering Your Lawn
- Wash Your Car Over Grass or Gravel
- Pick Up Pet Waste
- Plant Low-Maintenance Grasses and Plants

Buchanan Highway Department
914-737-6858

SUMMER STORMWATER TIPS



Only Rain down the drain. Please keep Storm drains clean, clear and safe.

Buchanan Highway Department
914-737-6858

WINTER STORMWATER TIPS



- Apply de-icing products sparingly and avoid overspreading. Overuse can result in excessive amounts of salt and other chemicals entering our waterway.
- De-icing products are meant to be used before a precipitation event begins. This will limit accumulation of ice and snow, and reduce the amount of product needed.
- When shoveling or plowing, snow should not be piled on top of a storm drain. Choose locations where the snow will have the most opportunity to infiltrate into the ground instead of becoming stormwater runoff.

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914-737-6858

FALL STORMWATER TIPS

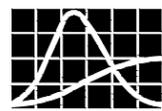
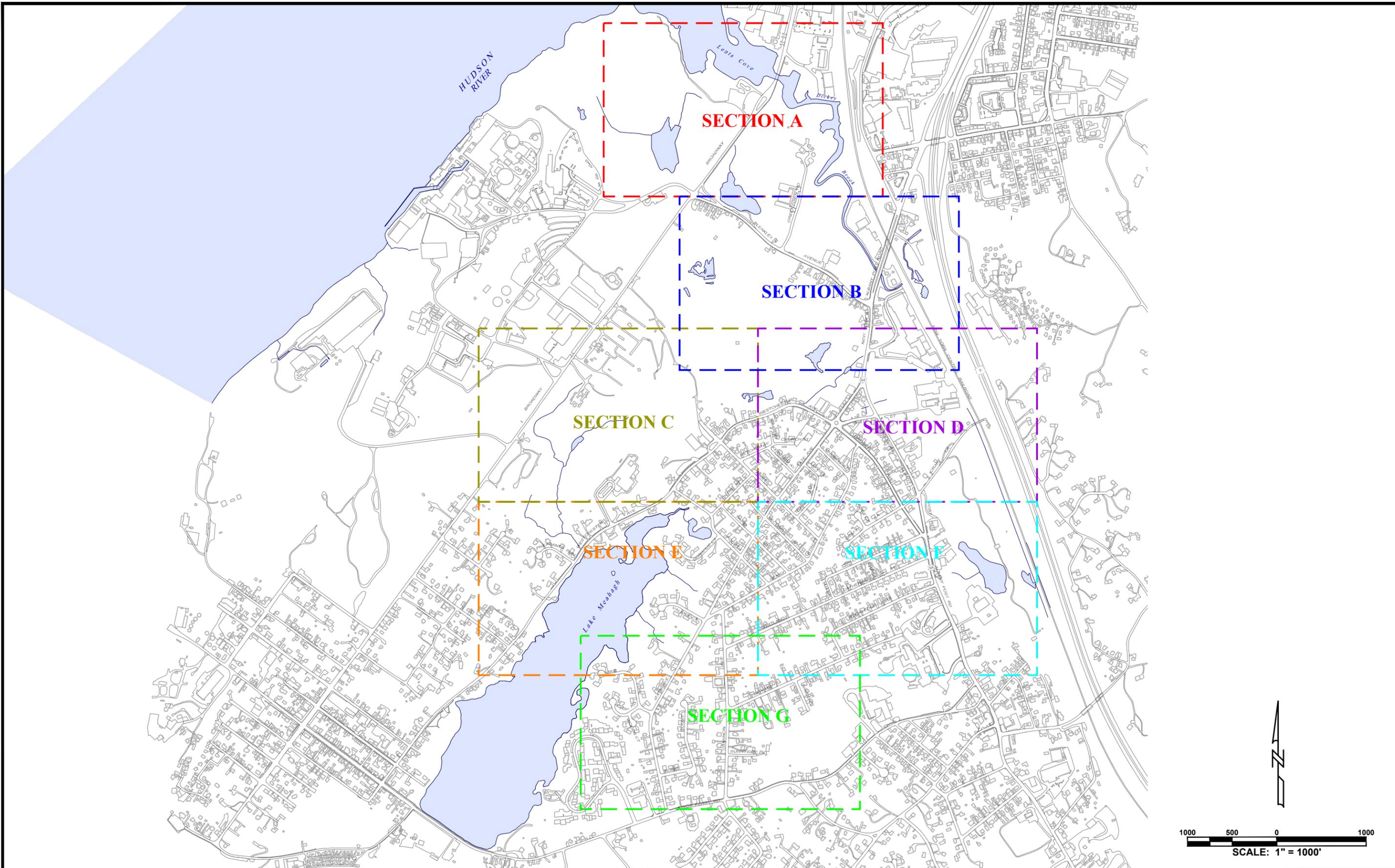


- Remove leaves from your gutters, ditches, driveways, and sidewalks. Don't forget to sweep along the curb.
- Despite being natural, when leaves decompose in our waterways, they release extra nutrients that create algae blooms and kill fish.
- Only Rain down the drain. Please keep Storm drains clean, clear and safe.

Buchanan Highway Department
914-737-6858

Appendix I

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JAMES J. HAHN
ENGINEERING, P.C.

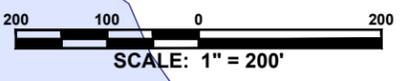
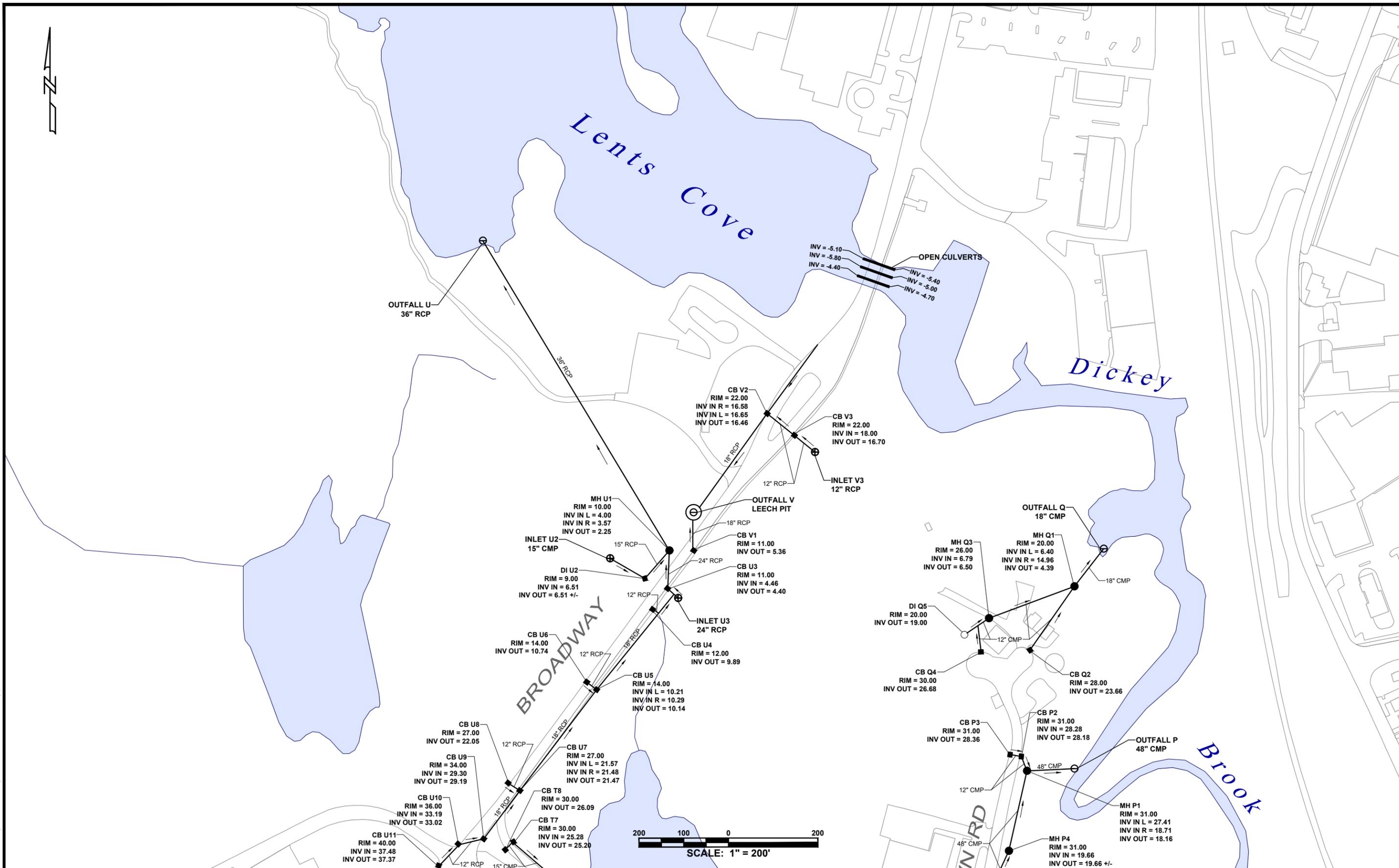
Putnam Business Park
1689 Route 22
Brewster, New York 10509
Tel: (845) 279-2220

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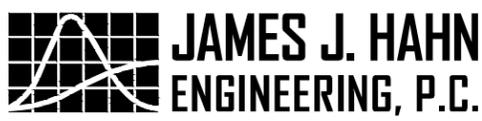
REV.	DATE	DESCRIPTION

TITLE	LOCATION PLAN
PROJECT	DRAINAGE SYSTEM MAP
	VILLAGE OF BUCHANAN, WESTCHESTER COUNTY, NY

SCALE	DATE
1" = 1,000'	1/14/25
DRAWING NO.	SHEET NO.
X-X	1 OF 8



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Putnam Business Park
 1689 Route 22
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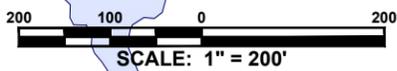
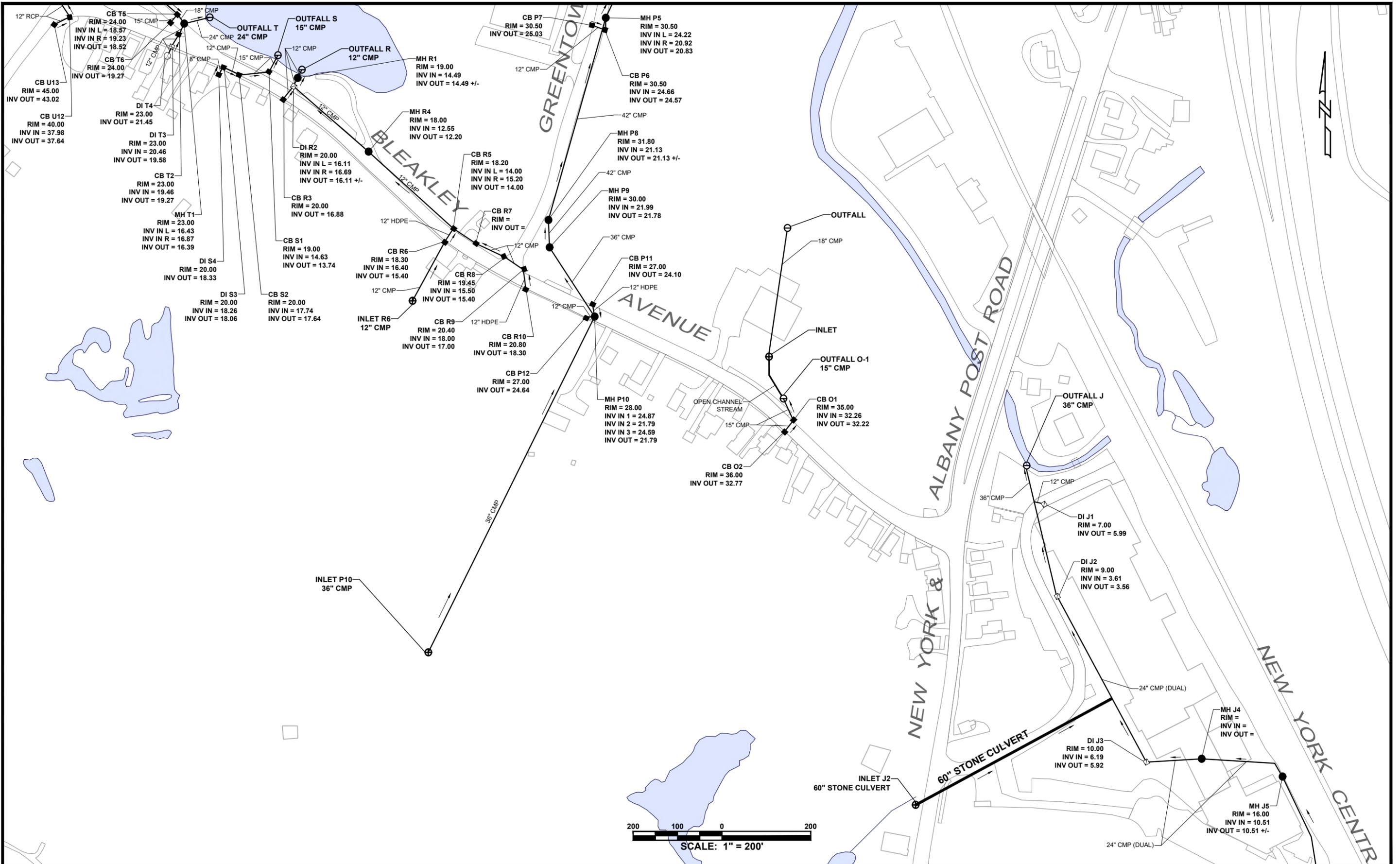
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REV.	DATE	DESCRIPTION

TITLE	MAP SECTION A
PROJECT	DRAINAGE SYSTEM MAP VILLAGE OF BUCHANAN, WESTCHESTER COUNTY, NY

SCALE	1" = 200'	DATE	1/14/25
DRAWING NO.	A-A	SHEET NO.	2 OF 8

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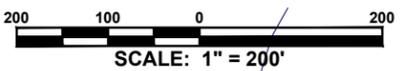
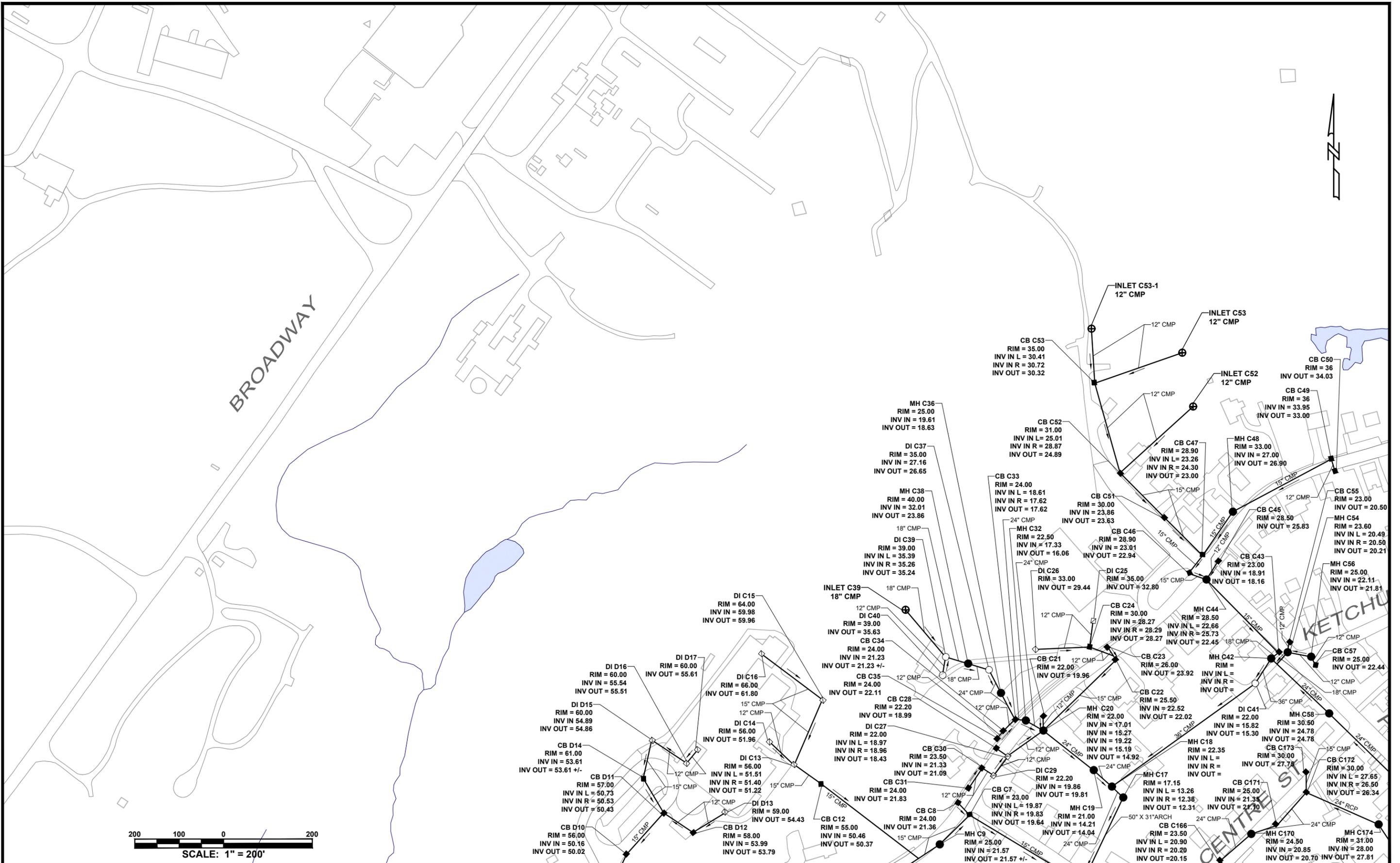
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TITLE	MAP SECTION B
PROJECT	DRAINAGE SYSTEM MAP
VILLAGE OF BUCHANAN, WESTCHESTER COUNTY, NY	

SCALE	DATE
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DRAWING NO.	SHEET NO.
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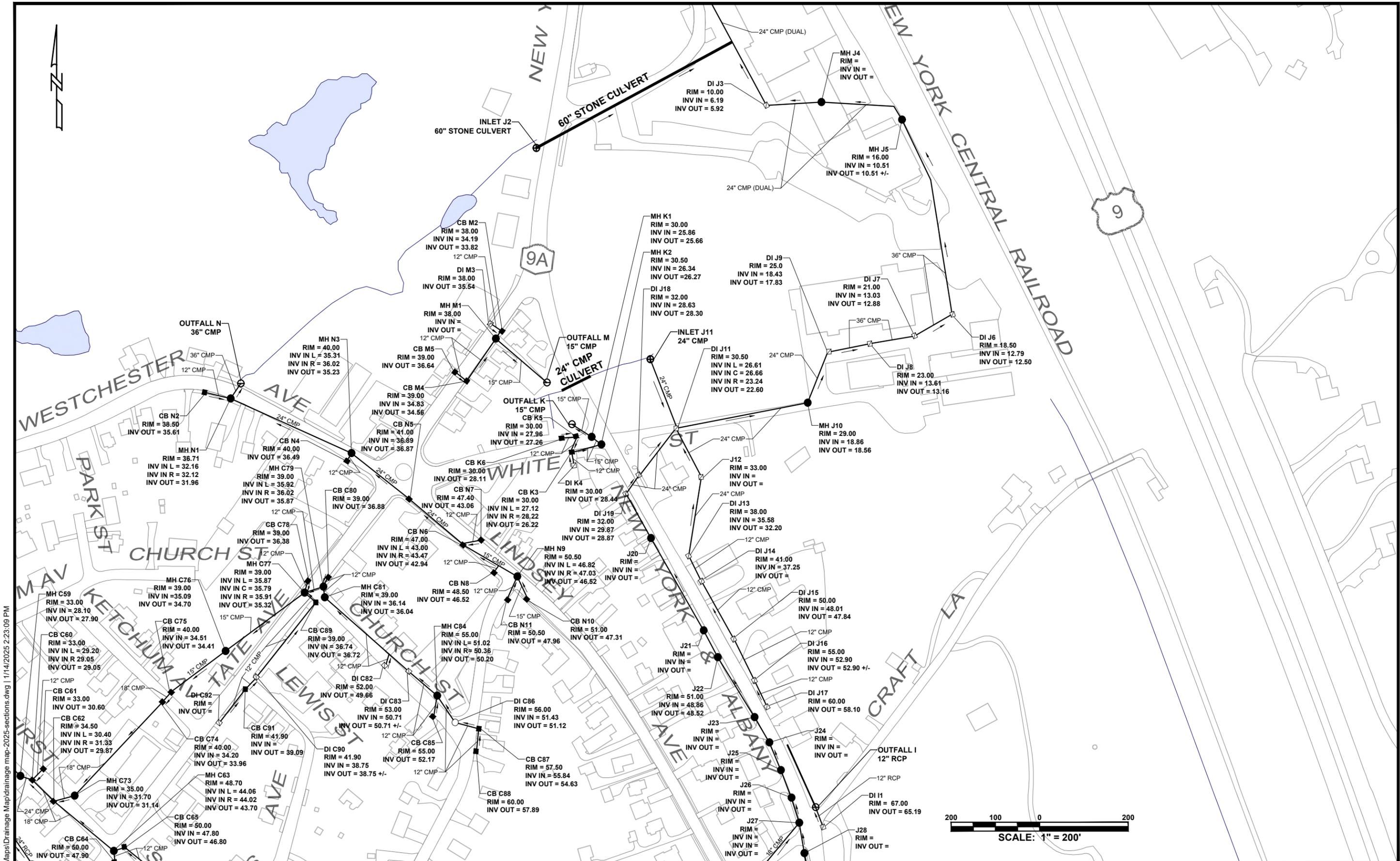
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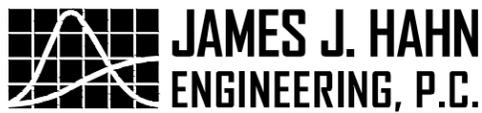
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TITLE	MAP SECTION C
PROJECT	DRAINAGE SYSTEM MAP
VILLAGE OF BUCHANAN, WESTCHESTER COUNTY, NY	

SCALE	1" = 200'
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DRAWING NO.	C-C
SHEET NO.	4 OF 8



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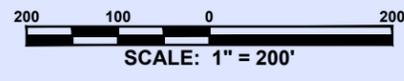
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REV.	DATE	DESCRIPTION

TITLE	MAP SECTION D
PROJECT	DRAINAGE SYSTEM MAP VILLAGE OF BUCHANAN, WESTCHESTER COUNTY, NY

SCALE	DATE
1" = 200'	1/14/25
DRAWING NO.	SHEET NO.
D-D	5 OF 8

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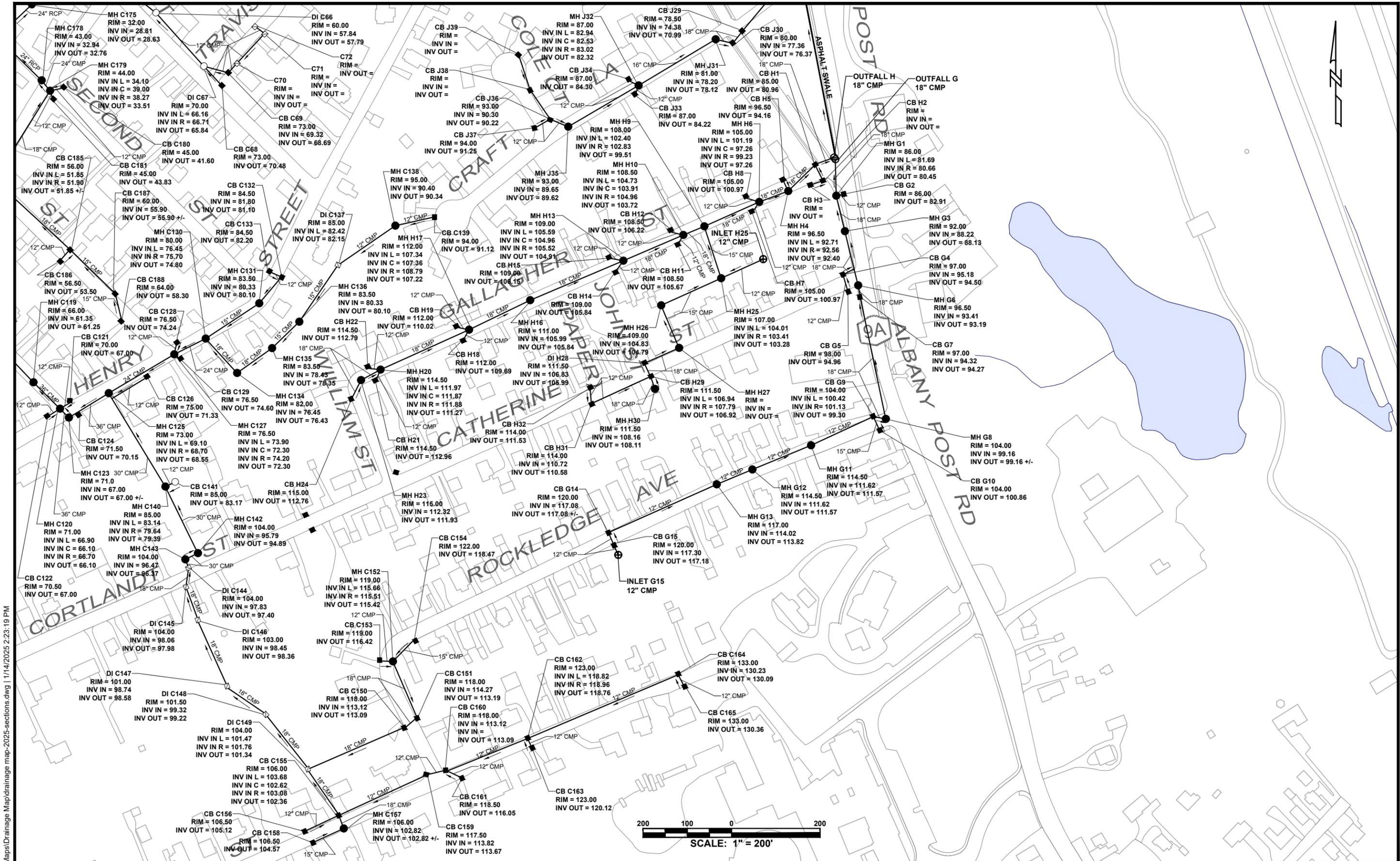
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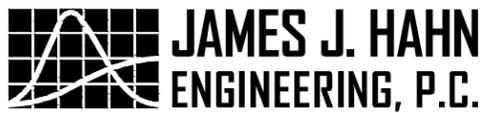
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PROJECT: **DRAINAGE SYSTEM MAP**
VILLAGE OF BUCHANAN, WESTCHESTER COUNTY, NY

SCALE: 1" = 200'	DATE: 1/14/25
DRAWING NO.: E-E	SHEET NO.: 6 OF 8



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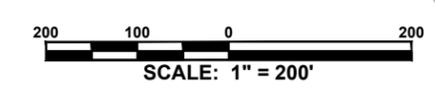
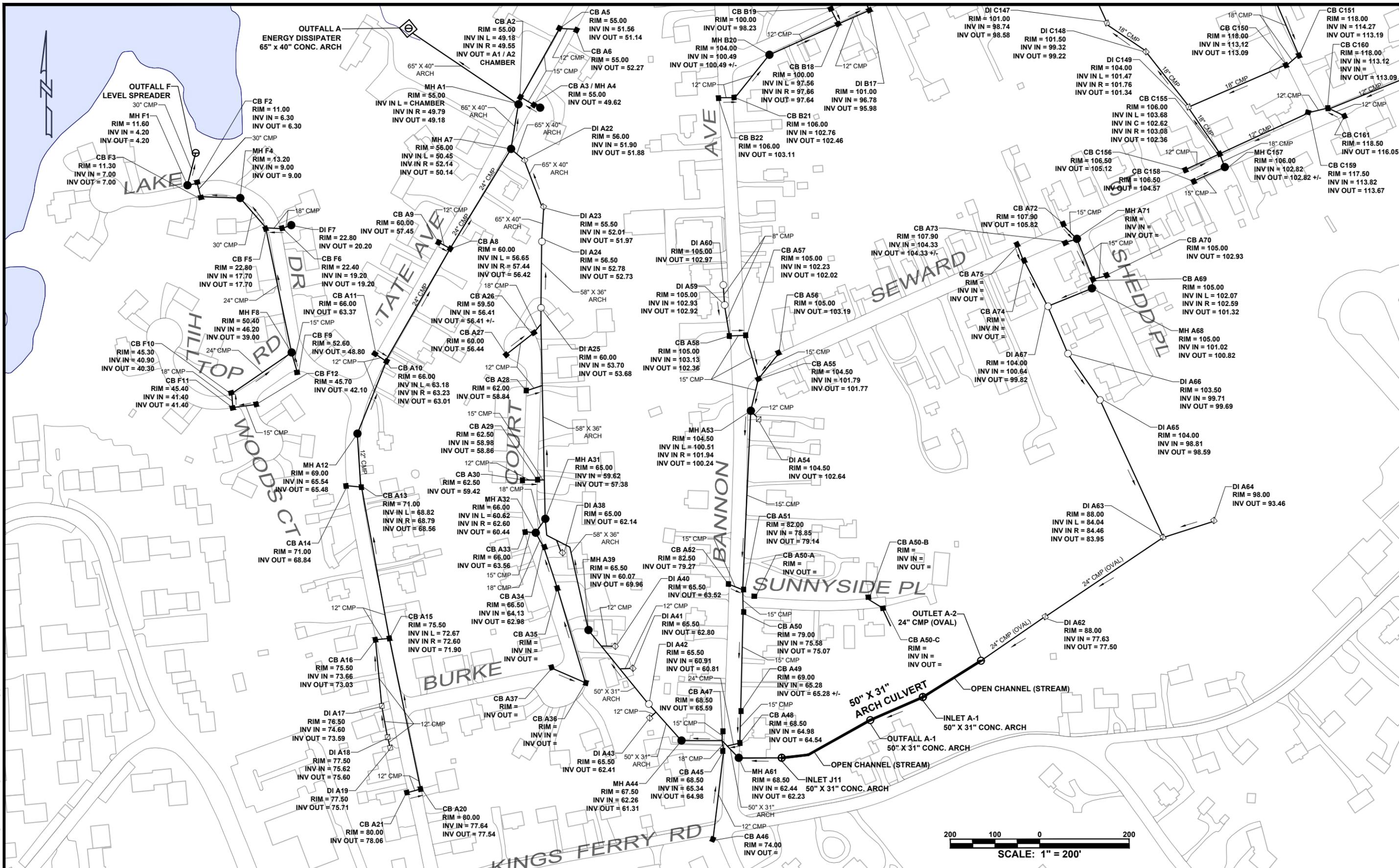
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PROJECT	DRAINAGE SYSTEM MAP
VILLAGE OF BUCHANAN, WESTCHESTER COUNTY, NY	

SCALE	DATE
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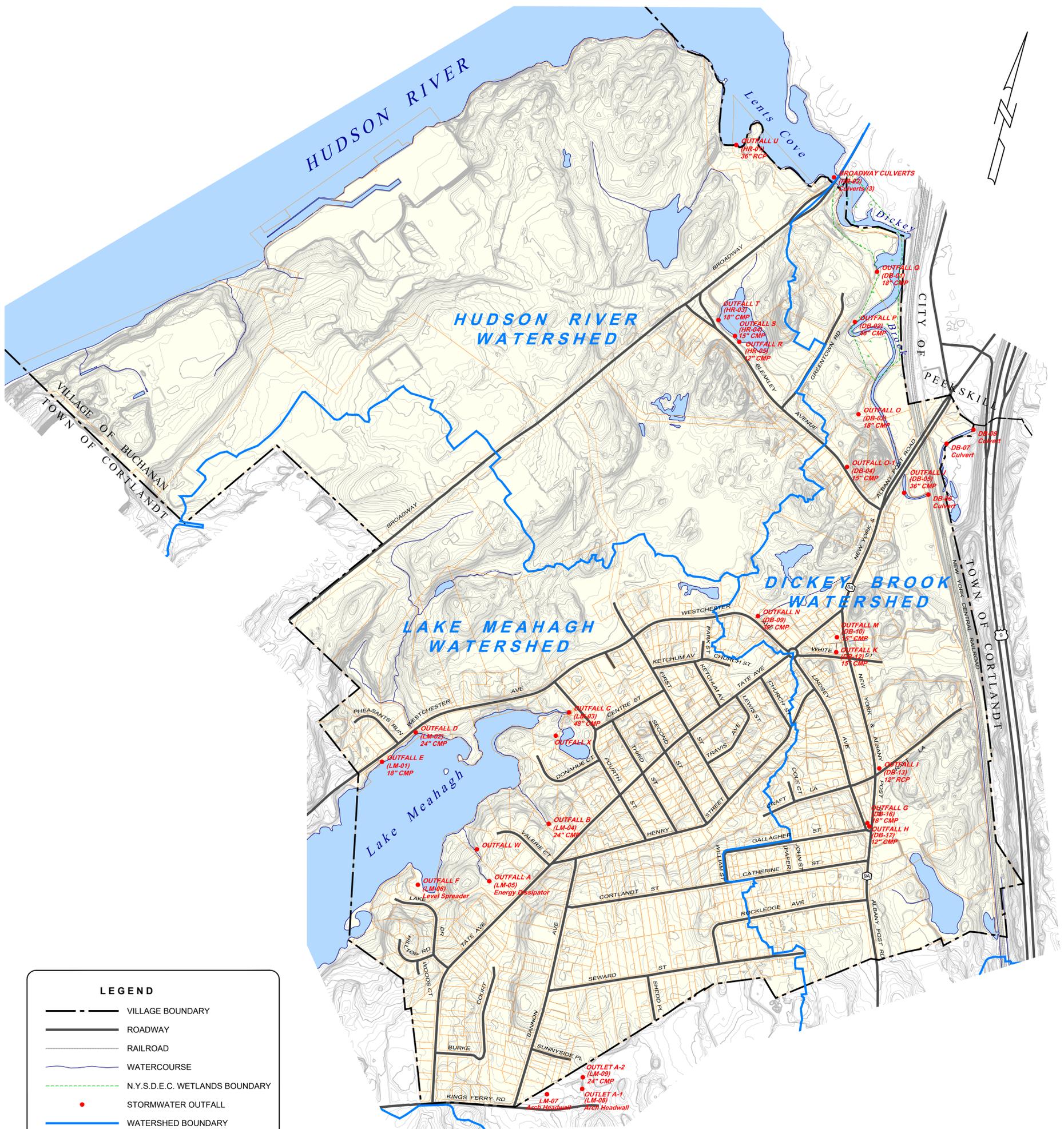
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REV.	DATE	DESCRIPTION

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PROJECT	DRAINAGE SYSTEM MAP VILLAGE OF BUCHANAN, WESTCHESTER COUNTY, NY

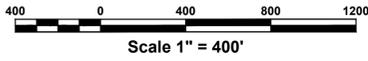
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DATE	1/14/25
DRAWING NO.	G-G
SHEET NO.	8 OF 8

Appendix J



LEGEND

- VILLAGE BOUNDARY
- ROADWAY
- RAILROAD
- WATERCOURSE
- - - N.Y.S.D.E.C. WETLANDS BOUNDARY
- STORMWATER OUTFALL
- WATERSHED BOUNDARY



NOTES

1. Lake Meahagh (Water Index Number H-49a-P160) is included on the Final New York 2020/2022 Section 303(d) List of Impaired/TMDL Waters, Part 1. The pollutant of impairment or stress is phosphorus sourced from "Onsite WTS, urban", classified 2002.
2. The Hudson River (Water Index Number H (portion 2b)) is included on the Final New York 2020/2022 Section 303(d) List of Impaired/TMDL Waters, Part 2b. The pollutants of impairment or stress are PCBs and other toxics which may include mercury, dioxins/furans, PAHs, pesticides and other heavy metals sourced from "Contaminated Sed.", classified 1998.

TITLE STORMWATER OUTFALL LOCATION MAP																							
PROJECT VILLAGE OF BUCHANAN STORMWATER OUTFALLS																							
VILLAGE OF BUCHANAN, WESTCHESTER COUNTY, NEW YORK																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REV.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	REV.	DATE	DESCRIPTION																<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: small;">UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209 (2) OF THE NEW YORK STATE EDUCATION LAW. THIS PLAN IS NULL AND VOID FOR CONSTRUCTION PURPOSES WITHOUT THE SIGNATURE AND SEAL OF THE DESIGN ENGINEER.</td> <td style="text-align: center;"> JAMES J. HAHN ENGINEERING, P.C. </td> <td style="font-size: x-small;"> Putnam Business Park 1889 Route 22 Brewster, New York 10509 Tel: (845) 278-2220 </td> <td style="font-size: x-small;"> SCALE 1" = 400' DATE 3/4/2025 DRAWING NO. - SHEET NO. 1 of 1 </td> </tr> </table>	UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209 (2) OF THE NEW YORK STATE EDUCATION LAW. THIS PLAN IS NULL AND VOID FOR CONSTRUCTION PURPOSES WITHOUT THE SIGNATURE AND SEAL OF THE DESIGN ENGINEER.	 JAMES J. HAHN ENGINEERING, P.C.	Putnam Business Park 1889 Route 22 Brewster, New York 10509 Tel: (845) 278-2220	SCALE 1" = 400' DATE 3/4/2025 DRAWING NO. - SHEET NO. 1 of 1
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Appendix K

Chapter 12: Indicator Monitoring

Indicator monitoring is used to confirm illicit discharges, and provide clues about their source or origin. In addition, indicator monitoring can measure improvements in water quality during dry weather flow as a result of the local IDDE program. This chapter reviews the suite of chemical indicator parameters that can identify illicit discharges, and provides guidance on how to collect, analyze and interpret each parameter.

Program managers have a wide range of indicator parameters and analytical methods to choose from when determining the presence and source of illicit discharges. The exact combination of indicator parameters and methods selected for a community is often unique. This chapter recommends some general approaches for communities that are just starting an indicator monitoring program or are looking for simple, cost-

effective, and safe alternatives to their current program.

Organization of the Chapter

This chapter provides technical support to implement the basic IDDE monitoring framework shown in Figure 44, and is organized into eight sections as follows:

1. Review of indicator parameters
2. Sample collection considerations
3. Methods to analyze samples
4. Methods to distinguish flow types
5. Chemical library
6. Special monitoring methods for intermittent and transitory discharges
7. In-stream dry weather monitoring
8. Costs for indicator monitoring

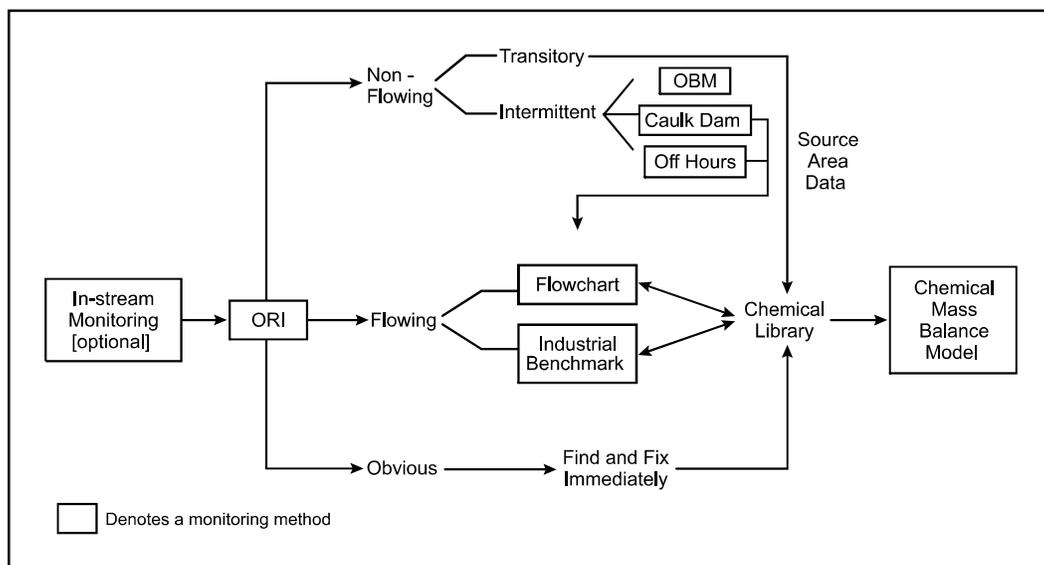


Figure 44: IDDE Monitoring Framework

Program managers developing an indicator monitoring program need a solid background in basic water chemistry, and field and laboratory methods. This chapter describes the major factors to consider when designing an indicator monitoring program for illicit discharges, and assumes some familiarity with water quality sampling and analysis protocols.

Indicator monitoring terminology can be confusing, so some of the basic terms are defined as they specifically relate to illicit discharge control. Some of the common terms introduced in this Chapter are defined below:

Chemical Library: A database and statistical summary of the chemical characteristics, or “fingerprint” of various discharge flow types in a community (e.g., sewage, wash water, shallow groundwater, tap water, irrigation water, and liquid wastes). The library is assembled by collecting and analyzing representative samples from the source of each major flow type in the community.

Chemical Mass Balance Model (CMBM): A computer model that uses flow characteristics from a chemical library file of flow types to estimate the most likely source components that contribute to dry weather flows.

Detergents: Commercial or retail products used to wash clothing. Presence of detergents in flow is usually measured as surfactants or fluorescence.

False Negative: An indicator sample that identifies a discharge as uncontaminated when it actually is contaminated.

False Positive: An indicator sample that identifies a discharge as contaminated when it is not.

Flow Chart Method: The use of four indicators (surfactants, ammonia, potassium, and fluoride) to identify illicit discharges.

Indicator Parameter: A water quality measurement that can be used to identify a specific discharge flow type, or discriminate between different flow types.

Monitoring: A strategy of sample collection and laboratory analysis to detect and characterize illicit discharges.

Optical Brightener Monitoring (OBM) Traps: Traps that use absorbent pads to capture dry weather flows, which can later be observed under a fluorescent light to determine if detergents using optical brighteners were present.

Reagent: A chemical added to a sample to create a reaction that enables the measurement of a target chemical parameter.

Sampling: Water sample collection from an outfall, pipe or stream, along with techniques to store and preserve them for subsequent laboratory analysis.

Surfactants: The main component of commercial detergents that detaches dirt from the clothing. The actual concentration of surfactants is much lower than the concentration of detergent, but analytical methods that measure surfactants are often referred to as “detergents.” To avoid confusion, this chapter expresses the concentration of surfactants as “detergents as surfactants.”

12.1 Indicator Parameters to Identify Illicit Discharges

At least fifteen different indicator parameters can confirm the presence or origin of an illicit discharge. These parameters are discussed in detail in Appendix F and include:

- Ammonia
- Boron
- Chlorine
- Color
- Conductivity
- Detergents
- *E. coli*, enterococi, and total coliform
- Fluorescence
- Fluoride
- Hardness
- pH
- Potassium
- Surface Tension
- Surfactants
- Turbidity

In most cases, however, only a small subset of indicator parameters (e.g., three to five) is required to adequately characterize an illicit discharge. This section summarizes the different indicator parameters that have been used.

An ideal indicator parameter should reliably distinguish illicit discharges from clean water and provide clues about its sources. In addition, they should have the following characteristics:

- Have a significantly different concentration for major flow or discharge types

- Exhibit relatively small variations in concentrations within the same flow or discharge type
- Be conservative (i.e., concentration will not change over time due to physical, chemical or biological processes)
- Be easily measured with acceptable detection limits, accuracy, safety and repeatability.

No single indicator parameter is perfect, and each community must choose the combination of indicators that works best for their local conditions and discharge types. Table 39 summarizes the parameters that meet most of the indicator criteria, compares their ability to detect different flow types, and reviews some of the challenges that may be encountered when measuring them. More details on indicator parameters are provided in Appendix F.

Data in Table 39 are based on research by Pitt (Appendix E) conducted in Alabama, and therefore, the percentages shown to distinguish “hits” for specific flow types should be viewed as representative and may shift for each community. Also, in some instances, indicator parameters were “downgraded” to account for regional variation or dilution effects. For example, both color and turbidity are excellent indicators of sewage based on discharge fingerprint data, but both can vary regionally depending on the composition of clean groundwater.

Table 39: Indicator Parameters Used to Detect Illicit Discharges

Parameter	Discharge Types It Can Detect				Laboratory/Analytical Challenges
	Sewage	Washwater	Tap Water	Industrial or Commercial Liquid Wastes	
Ammonia	●	⊙	○	⊙	Can change into other nitrogen forms as the flow travels to the outfall
Boron	⊙	⊙	○	N/A	
Chlorine	○	○	○	⊙	High chlorine demand in natural waters limits utility to flows with very high chlorine concentrations
Color	⊙	⊙	○	⊙	
Conductivity	⊙	⊙	○	⊙	Ineffective in saline waters
Detergents – Surfactants	●	●	○	⊙	Reagent is a hazardous waste
<i>E. coli</i> Enterococci Total Coliform	⊙	○	○	○	24-hour wait for results Need to modify standard monitoring protocols to measure high bacteria concentrations
Fluoride*	○	○	●	⊙	Reagent is a hazardous waste Exception for communities that do not fluoridate their tap water
Hardness	⊙	⊙	⊙	⊙	
pH	○	⊙	○	⊙	
Potassium	⊙	○	○	●	May need to use two separate analytical techniques, depending on the concentration
Turbidity	⊙	⊙	○	⊙	
<p>● Can almost always (>80% of samples) distinguish this discharge from clean flow types (e.g., tap water or natural water). For tap water, can distinguish from natural water.</p> <p>⊙ Can sometimes (>50% of samples) distinguish this discharge from clean flow types depending on regional characteristics, or can be helpful in combination with another parameter</p> <p>○ Poor indicator. Cannot reliably detect illicit discharges, or cannot detect tap water</p> <p>N/A: Data are not available to assess the utility of this parameter for this purpose.</p> <p>Data sources: Pitt (this study)</p> <p>*Fluoride is a poor indicator when used as a single parameter, but when combined with additional parameters (such as detergents, ammonia and potassium), it can almost always distinguish between sewage and washwater.</p>					

12.2 Sample Collection Considerations

Sample collection is an important aspect of an IDDE program. Program managers need to be well informed about the key facets of sampling such as sample handling, QA/QC, and safety. The guidance in this section is limited to an overview of sample collection considerations including: equipment needed

for collecting samples, elements of sampling protocols, and general tips. Several useful documents are available that detail accepted water quality sampling protocols such as the following:

- Burton and Pitt (2002) - Stormwater Effects Handbook: A Toolbox for Watershed Managers, Scientists, and Engineers

- USGS National Field Manual for the Collection of Water-Quality Data
<http://water.usgs.gov/owq/FieldManual/>
- *Standard Methods for the Examination of Water and Wastewater*
<http://www.standardmethods.org/>
- *EPA NPDES Stormwater Sampling Guidance Document*
<http://cfpub.epa.gov/npdes> (Note: while this document is oriented towards wet weather sampling, there are still many sampling procedures that apply to dry weather sampling)

State environmental agencies are also a good resource to contact for recommended or required sampling protocols.

Equipment Needed for Field Sampling

The basic equipment needed to collect samples is presented in Table 40. Most sampling equipment is easily available for purchase from scientific supply companies and various retail stores.

Developing a Consistent Sample Collection Protocol

Samples should never be collected haphazardly. To get reliable, accurate, and defensible data, it is important to develop a consistent field sampling protocol to collect each indicator sample. A good field sampling protocol incorporates eight basic elements:

1. Where to collect samples
2. When to collect samples
3. Sample bottle preparation
4. Sample collection technique
5. Storage and preservation of samples
6. Sample labeling and chain of custody plan

7. Quality assurance/control samples
8. Safety considerations

Appendix G provides more detail on each monitoring element. Some communities already have established sampling protocols that are used for in-stream or wet weather sampling. In most cases these existing sampling protocols are sufficient to conduct illicit discharge sampling.

Tips for Collecting Illicit Discharge Samples

The following tips can improve the quality of your indicator monitoring program.

1. Remember to fill out an ORI field form at every outfall where samples are collected. The ORI form documents sample conditions, outfall characteristics and greatly aids in interpreting indicator monitoring data.
2. Most state water quality agencies have detailed guidance on sampling protocols. These resources should be consulted and the appropriate guidelines followed. Another useful guidance on developing a quality assurance plan is the “Volunteer Monitor’s Guide to Quality Assurance Project Plans” (EPA, 1996).

Table 40: Equipment Needed for Sample Collection

- A cooler (to be kept in the vehicle)
- Ice or “blue ice” (to be kept in the vehicle)
- Permanent marker (for labeling the samples)
- Labeling tape or pre-printed labels
- Several dozen one-liter polyethylene plastic sample bottles
- A “dipper,” a measuring cup at the end of a long pole, to collect samples from outfalls that are hard to reach
- Bacteria analysis sample bottles (if applicable), typically pre-cleaned 120mL sample bottles, to ensure against contamination

3. Sample in batches where feasible to cut down on field and mobilization time.
4. Avoid sampling lagged storm water flows by sampling at least 48 to 72 hours after runoff producing events.
5. It may be necessary to collect multiple samples at a single outfall if preservatives are going to be used. Preservatives are typically necessary when long hold times are required for samples before analysis occurs. Appendix G contains guidance on the required preservation and maximum allowable hold times for various parameters.

12.3 Methods to Analyze Indicator Samples

This section reviews methods to analyze indicator samples, and begins with a discussion of whether they should be analyzed in-house or sent to an independent contract lab. Next, recommended methods for analyzing indicator parameters are outlined, along with data on their comparative cost, safety, and accuracy. Lastly, tips are offered to improve an indicator monitoring program.

Analyzing Samples In-house vs. Contract Lab

Program managers need to decide whether to analyze samples in-house, or through an independent monitoring laboratory. The decision on which route to take is often based on the answers to the following questions:

- *What level of precision or accuracy is needed for the indicator parameter(s)?*
Precise and accurate data are needed when indicator monitoring is used to legally document a violation or

enforcement action. The lab setting is important, since the quality of the data may be challenged. Precise data are also needed for outfalls that have very large drainage areas. These discharges are often diluted by groundwater, so lab methods must be sensitive and have low detection limits to isolate illicit discharges that are masked or blended with other flow types. Accurate data are also needed for large outfalls since the cost and effort triggered by a false positive reading to track and isolate discharges in a large and complex drainage area is much greater.

- *How quickly are sampling results needed?* Fast results are essential if the community wants to respond instantly to problem outfalls. In this case, the capability to collect and analyze indicator samples in-house is desirable to provide quick response.
- *How much staff time and training is needed to support in-house analysis?* Local staff that perform lab analysis must be certified in laboratory safety, quality control and proper analytical procedures. Communities that do not expect to collect many indicator samples may want to utilize a contract lab to reduce staff training costs.
- *Does a safe environment exist to analyze samples and dispose of wastes?* A safe environment is needed for lab analysis including storage in a fireproof environment, eyewash stations, safety showers, fume hoods and ventilation. Lab workers should have standard safety equipment such as gloves, safety glasses and lab coats. Lastly, many of the recommended analytical methods create small quantities of hazardous wastes that need to be properly disposed. Program

managers should carefully evaluate in-house work space to determine if a safe lab environment can be created.

- *What is the comparative cost for sample analysis in each option?* The initial up-front costs to use an independent laboratory are normally lower than those required to establish an in-house analysis capability. An in-house analysis capability normally becomes cost-effective when a community expects to analyze more than 100 indicator samples per year. Section 12.8 outlines some of the key budget factors to consider when making this decision, but program managers should always get bids from reputable and certified contract labs to determine analysis costs.
- *Are existing monitoring laboratories available in the community?* Cost savings are often realized if an existing wastewater treatment or drinking water lab can handle the sample analysis. These labs normally possess the equipment, instruments and trained staff to perform the water quality analyses for indicator parameters.

Considerations for In-house Analysis Capability

Three basic settings can be used to analyze indicator parameters in-house: direct field measurements, small office lab, and a more formal municipal lab. The choice of which in-house setting to use depends on the indicator parameters selected, the need for fast and accurate results and safety/disposal considerations.

In-Field Analysis – A few indicator parameters can be analyzed in the field with probes and other test equipment (Figure 45). While most field parameters can identify

problem outfalls, they generally cannot distinguish the specific type of discharge. Some of the situations where in-field analysis¹⁰ is best applied are:

- When a community elects to use one or two indicator parameters, such as ammonia and potassium, that can be measured fairly easily in the field
- When field crews measure indicator parameters to trace or isolate a discharge in a large storm drain pipe network, and need quick results to decide where to go next

Office Analysis – Many of the recommended indicator parameters can be analyzed in an informal “office” lab with the possible exception of surfactants and fluoride (Figure 46). The office analysis option makes sense in communities that have available and trained staff, and choose analytical methods that are safe and have few hazardous waste disposal issues. Another option is to use the office lab to conduct most indicator analyses, but send out fluoride and surfactant indicator samples to a contract lab.

TIP

The methodology for any bacteria analysis also has a waste disposal issue (e.g., biohazard). Check state guidance for appropriate disposal procedures.

¹⁰ Some communities have had success with in-field analysis; however, it can be a challenging environment to conduct rapid and controlled chemical analysis. Therefore, it is generally recommended that the majority of analyses be conducted in a more controlled “lab” setting.

Formal Laboratory Setting – The ideal option in many communities is to use an existing municipal or university laboratory. Existing labs normally have systems in place to dispose of hazardous material, have room and facilities for storing samples, and are equipped with worker safety features. Be careful to craft a schedule that does not interfere with other lab activities.

When in-house analysis is used, program managers need to understand the basic analytical options, safety considerations, equipment needs and analysis costs for each analytical method used to measure indicator parameters. This understanding helps program managers choose what indicator parameters to collect and where they should be analyzed. Much of this information is

detailed in Appendix F and summarized below.

Supplies and Equipment

The basic supplies needed to perform lab analysis are described in Table 41, and are available from several scientific equipment suppliers. In addition, reagents, disposable supplies and some specialized instruments may be needed, depending on the specific indicator parameters analyzed. For a partial list of suppliers, consult the Volunteer Stream Monitoring Manual (US EPA, 1997), which can be accessed at www.epa.gov/owow/monitoring/volunteer/stream/appendb.html. Table 42 summarizes the equipment needed for each analytical method.



Figure 45: Analyzing samples in the back of a truck



Figure 46: Office/lab set up in Fort Worth, TX

Table 41: Basic Lab Supplies	
<p>Disposable Supplies</p> <ul style="list-style-type: none"> • Deionized water (start with about 10 gallons, unless a reverse osmosis machine is available) • Nitric acid for acid wash (one or two gallons to start) <p>Safety</p> <ul style="list-style-type: none"> • Lab or surgical gloves • Lab coats • Safety glasses 	<p>Glassware/Tools</p> <ul style="list-style-type: none"> • About two dozen each of 100 and 200 mL beakers • Two or three 100 mL graduated cylinders • Two or three tweezers • Pipettes to transfer samples in small quantities

Table 42: Analytical Methods Supplies Needed				
Indicator Parameter	Specific Glassware	Equipment	Reagents or Kits	Unique Suppliers
Ammonia	Sample Cells	Spectrophotometer or Colorimeter	Hach reagents for method 8155	www.hach.com
Boron	None	Spectrophotometer or Colorimeter	Hach reagents for method 10061	www.hach.com
Chlorine	None	Spectrophotometer or Colorimeter	Hach reagents for method 8021	www.hach.com
Color	None	None	Color Kit	www.hach.com
Conductivity	None	Horiba probe	Standards	www.horiba.com
Detergents - Surfactants (MBAS)	None	None	Chemets Detergents Test	www.chemetrics.com
<i>E. Coli</i>	None	Sealer Black Light Comparator	Colilert Reagent Quanti-Tray Sheets	IDEXX Corporation www.idexx.com
Fluorescence	Cuvettes	Fluorometer	None	Several
Fluoride	None	Spectrophotometer or Colorimeter	Hach reagents for method 8029	www.hach.com
Hardness	Erlenmeyer Flask	Burette and Stand or Digital Titrator	EDTA Cartridges or Reagent and Buffer Solution	www.hach.com
pH	None	Horiba Probe	Standards	www.horiba.com
Potassium	None	Horiba Probe	Standards	www.horiba.com
Potassium (Colorimetric)	None	Spectrophotometer or Colorimeter	Hach Reagents for method 8012	www.hach.com

Cost

Table 43 compares the per sample cost to analyze indicator parameters. In general, the per sample cost is fairly similar for most parameters, with the exception of bacteria analyses for *E. coli*, total coliform, or Enterococci. Reagents typically cost

less than \$2.00 per sample, and equipment purchases seldom exceed \$1,000. The typical analysis time averages less than 10 minutes per sample. More information on budgeting indicator monitoring programs can be found in Section 12.8.

Table 43: Chemical Analysis Costs					
Parameter	Analysis Cost				
	Per Sample Costs				Approximate Initial Equipment Cost (Item)
	Disposable Supplies	Analysis Time (min/sample)	Staff Cost (@\$25/hr)	Total Cost Per Sample	
Ammonia	\$1.81	25 ³	\$10.42	\$12.23	\$950 ⁴ (Colorimeter)
Boron	\$0.50	20 ³	\$8.33	\$8.83	\$950 ⁴ (Colorimeter)
Chlorine	\$0.60	5	\$2.08	\$2.68	\$950 ⁴ (Colorimeter)
Color	\$0.52	1	\$0.42	\$0.94	\$0
Conductivity	\$0.65 ²	4 ³	\$1.67	\$2.32	\$275 (Probe)
Detergents – Surfactants ¹	\$3.15	7	\$2.92	\$6.07	\$0
Enterococci, <i>E. Coli</i> or Total Coliform ¹	\$6.75	7 (24 hour waiting time)	\$2.92	\$9.67	\$4,000 (Sealer and Incubator)
Fluoride ¹	\$0.68	3	\$1.25	\$1.93	\$950 ⁴ (Colorimeter)
Hardness	\$1.72	5	\$2.08	\$3.80	\$125 (Digital Titrator)
pH	\$0.65 ²	3.5 ³	\$1.46	\$2.11	\$250 (Probe)
Potassium (High Range)	\$0.50 ²	5.5 ³	\$2.29	\$2.79	\$250 (Probe)
Potassium (Low Range)	\$1.00	5	\$2.08	\$3.08	\$950 ⁴ (Colorimeter)
Turbidity	\$0.50 ²	6 ³	\$2.50	\$3.00	\$850 (Turbidimeter)

¹ Potentially high waste disposal cost for these parameters.

² The disposable supplies estimates are based on the use of standards to calibrate a probe or meter.

³ Analysts can achieve significant economies of scale by analyzing these parameters in batches.

⁴ Represents the cost of a colorimeter. The price of a spectrophotometer, which measures a wider range of parameters, is more than \$2,500. This one-time cost can be shared among chlorine, fluoride, boron, potassium and ammonia.

Additional Tips for In-house Laboratory Analysis

The following tips can help program managers with in-house laboratory analysis decisions:

- Program managers may want to use both in-house analysis and contract labs

to measure the full range of indicator parameters needed in a safe and cost-effective manner. In this case, a split sample analysis strategy is used, where some samples are sent to the contract lab, while others are analyzed in house.

- Remember to order enough basic lab supplies, because they are relatively cheap and having to constantly re-order supplies and wash glassware can be time-consuming. In addition, some scientific supply companies have minimum order amounts, below which additional shipping and handling is charged.
 - Be careful to craft a sample analysis schedule that doesn't interfere with other lab operations, particularly if it is a municipal lab. With appropriate preservation, many samples can be stored for several weeks.
4. Ensure that the maximum hold time for each indicator parameter exceeds the time it takes to ship samples to the lab for analysis.
 5. Carefully review and understand the shipping and preservation instructions provided by the contract lab.
 6. Look for labs that offer electronic reporting of sample results, which can greatly increase turn-around time, make data analysis easier, and improve response times.
 7. Periodically check the lab's QA/QC procedures, which should include lab spikes, lab blanks, and split samples. The procedures for cleaning equipment and calibrating instruments should also be evaluated. These QA/QC procedures are described below.

Considerations for Choosing a Contract Lab

When a community elects to send samples to an independent contract lab for analysis, it should investigate seven key factors:

1. Make sure that the lab is EPA-certified for the indicator parameters you choose. A state-by-state list of EPA certified labs for drinking water can be found at: <http://www.epa.gov/safewater/privatewells/labs.html>. State environmental agencies are also good resources to contact for pre-approved laboratories.
 2. Choose a lab with a short turn-around time. Some Phase I communities had problems administering their programs because of long turn-around times from local labs (CWP, 2002). As a rule, a lab should be able to produce results within 48 hours.
 3. Clearly specify the indicator parameter and analysis method you want, using the guidance in this manual or advice from a water quality expert.
- *Lab spikes* – Samples of known concentration are prepared in the laboratory to determine the accuracy of instrument readings.
 - *Lab blanks* – Deionized water samples that have a known zero concentration are used to test methods, or in some methods to “zero” the instruments.
 - *Split samples* – Samples are divided into two separate samples at the laboratory for a comparative analysis. Any difference between the two sample results suggests the analysis method may not be repeatable.
 - *Equipment cleaning and instrument maintenance protocols* – Each lab should have specific and routine procedures to maintain equipment and clean glassware and tubing. These procedures should be clearly labeled on each piece of equipment.

- *Instrument calibration* – Depending on the method, instruments may come with a standard calibration curve, or may require calibration at each use. Lab analysts should periodically test the default calibration curve.

Table 44 summarizes estimated costs associated with sample analyses at a contract lab.

12.4 Techniques to Interpret Indicator Data

Program managers need to decide on the best combination of indicator parameters that will be used to confirm discharges and identify flow types. This section presents guidance on four techniques to interpret indicator parameter data:

- Flow Chart Method (recommended)
- Single Parameter Screening
- Industrial Flow Benchmarks
- Chemical Mass Balance Model (CMBM)

Parameter	Costs
Ammonia	\$12 - \$25
Boron	\$16 - \$20
Chlorine	\$6 - \$10
Color	\$7 - \$11
Conductivity	\$2 - \$6
Detergents – Surfactants	\$17- \$35
Enterococci, <i>E. Coli</i> or Total Coliform	\$17 - \$35
Fluoride	\$14 - \$25
Hardness	\$8 - \$16
pH	\$2 - \$7
Potassium	\$12 - \$14
Turbidity	\$9 - \$12

All four techniques rely on benchmark concentrations for indicator parameters in order to distinguish among different flow types. Program managers are encouraged to adapt each technique based on local discharge concentration data, and some simple statistical methods for doing so are provided throughout the section.

The Flow Chart Method

The Flow Chart Method is recommended for most Phase II communities, and was originally developed by Pitt *et al.* (1993) and Lalor (1994) and subsequently updated based on new research by Pitt during this project. The Flow Chart Method can distinguish four major discharge types found in residential watersheds, including sewage and wash water flows that are normally the most common illicit discharges. Much of the data supporting the method were collected in Alabama and other regions, and some local adjustment may be needed in some communities. The Flow Chart Method is recommended because it is a relatively simple technique that analyzes four or five indicator parameters that are safe, reliable and inexpensive to measure. The basic decision points involved in the Flow Chart Method are shown in Figure 47 and described below:

Step 1: Separate clean flows from contaminated flows using detergents

The first step evaluates whether the discharge is derived from sewage or washwater sources, based on the presence of detergents. Boron and/or surfactants are used as the primary detergent indicator, and values of boron or surfactants that exceed 0.35 mg/L and 0.25 mg/L, respectively, signal that the discharge is contaminated by sewage or washwater.

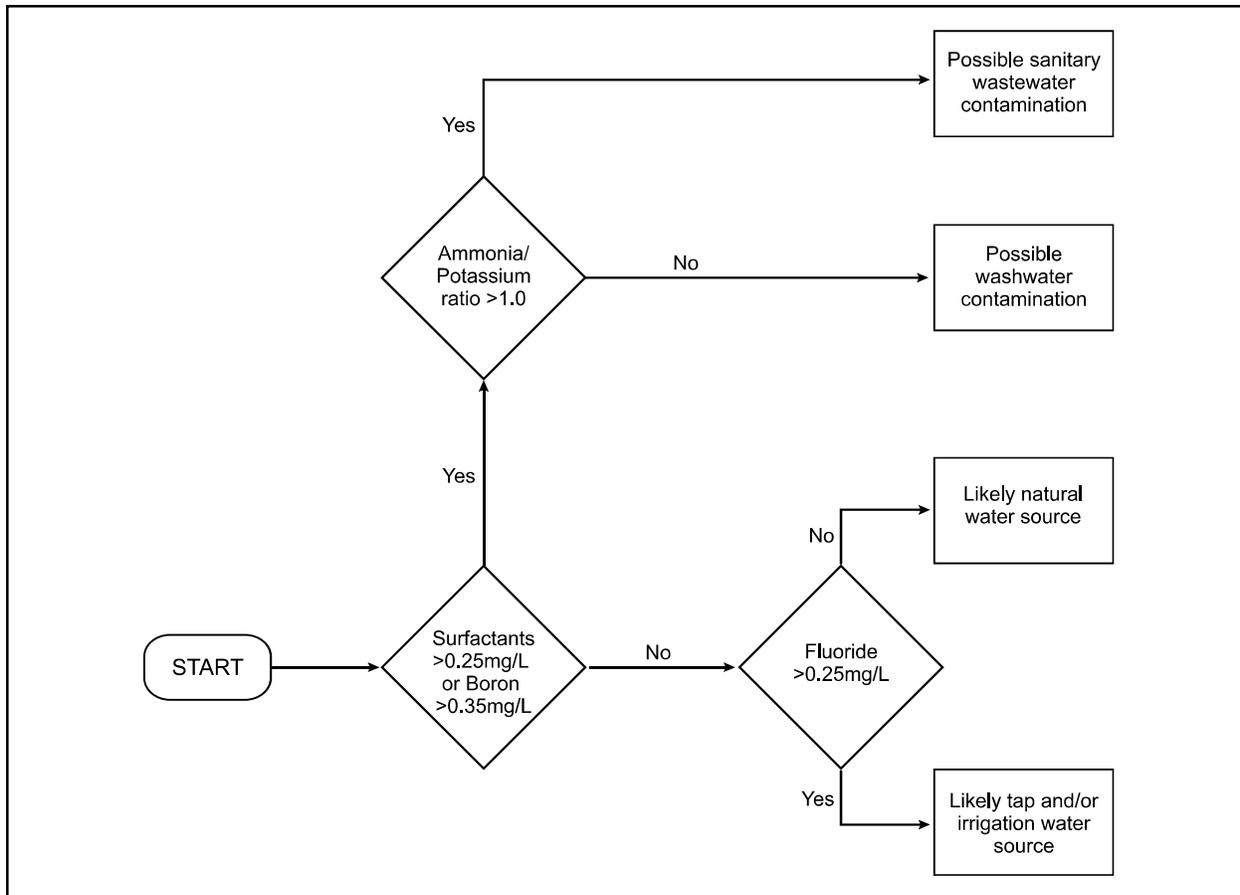


Figure 47: Flow Chart to Identify Illicit Discharges in Residential Watersheds

Step 2: Separate washwater from wastewater using the Ammonia/Potassium ratio

If the discharge contains detergents, the next step is to determine whether they are derived from sewage or washwater, using the ammonia to potassium ratios. A ratio greater than one suggests sewage contamination, whereas ratios less than one indicate washwater contamination. The benchmark ratio was developed by Pitt *et al.* (1993) and Lalor (1994) based on testing in urban Alabama watersheds.

Step 3: Separate tap water from natural water

If the sample is free of detergents, the next step is to determine if the flow is derived from spring/groundwater or comes from tap water. The benchmark indicator used in this step is fluoride, with concentrations exceeding 0.60 mg/L indicating that potable water is the source. Fluoride levels between 0.13 and 0.6 may indicate non-target irrigation water. The purpose of determining the source of a relatively “clean discharge” is that it can point to water line breaks, outdoor washing, non-target irrigation and other uses of municipal water that generate flows with pollutants.

Adapting the Flow Chart Method

The Flow Chart Method is a robust tool for identifying illicit discharge types, but may need to be locally adapted, since much of the supporting data was collected in one region of the country. Program managers should look at four potential modifications to the flow chart in their community.

- 1) Is boron or surfactants a superior local indicator of detergents?

Surfactants are almost always a more reliable indicator of detergents, except for rare cases where groundwater has been contaminated by sewage. The disadvantage of surfactants is that the recommended analytical method uses a hazardous chemical as the reagent. Boron uses a safer analytical method. However, if boron is used as a detergent indicator, program managers should sample boron levels in groundwater and tap water, since they can vary regionally. Also, not all detergent formulations incorporate boron at high levels, so it may not always be a strong indicator.

- 2) Is the ammonia/potassium ratio of one the best benchmark to distinguish sewage from washwater?

The ammonia/potassium ratio is a good way to distinguish sewage from washwater, although the exact ratio appears to vary in different regions of the country. The benchmark value for the ratio was derived from extensive testing in one Alabama city. In fact, data collected in another Alabama city indicated an ammonia/potassium ratio of 0.6 distinguished sewage from wash water. Clearly, program managers should evaluate the ratio in their own community, although the proposed ratio of 1.0 should still capture the majority of sewage discharges. The ratio can be refined over

time using indicator monitoring at local outfalls, or through water quality sampling of sewage and washwater flow types for the chemical library.

- 3) Is fluoride a good indicator of tap water?

Usually. The two exceptions are communities that do not fluoridate their drinking water or have elevated fluoride concentrations in groundwater. In both cases, alternative indicator parameters such as hardness or chlorine may be preferable.

- 4) Can the flow chart be expanded?

The flow chart presented in Figure 47 is actually a simplified version of a more complex flow chart developed by Pitt for this project, which is presented in Appendix H. An expanded flow chart can provide more consistent and detailed identification of flow types, but obviously requires more analytical work and data analysis. Section 12.5 provides guidance on statistical techniques to customize the flow chart method based on your local discharge data.

Single Parameter Screening

Research by Lalor (1994) suggests that detergents is the best single parameter to detect the presence or absence of the most common illicit discharges (sewage and washwater). The recommended analytical method for detergents uses a hazardous reagent, so the analysis needs to be conducted in a controlled laboratory setting with proper safety equipment. This may limit the flexibility of a community if it is conducting analyses in the field or in a simple office lab.

Ammonia is another single parameter indicator that has been used by some communities with widespread or severe

sewage contamination. An ammonia concentration greater than 1 mg/L is generally considered to be a positive indicator of sewage contamination. Ammonia can be analyzed in the field using a portable spectrophotometer, which allows for fairly rapid results and the ability to immediately track down sources and improper connections (see Chapter 13 for details on tracking down illicit discharges)¹¹. Since ammonia can be measured in the field, crews can get fast results and immediately proceed to track down the source of the discharge using pipe testing methods (see Chapter 13 for details).

As a single parameter, ammonia has some limitations. First, ammonia by itself may not always be capable of identifying sewage discharges, particularly if they are diluted by “clean” flows. Second, while some washwaters and industrial discharges have relatively high ammonia concentrations, not all do, which increases the prospects of false negatives. Lastly, other dry weather discharges, such as non-target irrigation, can also have high ammonia concentrations that can occasionally exceed 1 mg/L. Supplementing ammonia with potassium and looking at the ammonia/potassium ratio is a simple adjustment to the single parameter approach that helps to further and more accurately characterize the discharge. Ratios greater than one indicate a sewage source, while ratios less than or equal to one indicate a washwater source. Potassium is easily analyzed using a probe (Horiba Cardy™ is the recommended probe).

¹¹ In-field analysis may be appropriate when tracking down illicit flows, but it is typically associated with challenging and uncontrollable conditions. Therefore, it is generally recommended that analyses be conducted in a controlled lab setting.

Industrial Flow Benchmark

If a subwatershed has a high density of industrial generating sites, additional indicator parameters may be needed to detect and trace these unique discharges. They are often needed because industrial and commercial generating sites produce discharges that are often not composed of either sewage or washwater. Examples include industrial process water, or wash down water conveyed from a floor drain to the storm drain system.

This guidance identifies seven indicator parameters that serve as industrial flow benchmarks to help identify illicit discharges originating from industrial and other generating sites. The seven indicators (ammonia, color, conductivity, hardness, pH, potassium and turbidity) are used to identify liquid wastes and other industrial discharges that are not always picked up by the Flow Chart Method. Table 45 summarizes typical benchmark concentrations that can distinguish between unique industrial or commercial liquid wastes. Note that two of the seven indicator parameters, ammonia and potassium, are already incorporated into the flow chart method.

Table 46 illustrates how industrial benchmark parameters can be used independently or as a supplement to the flow chart method, based on data from Alabama (Appendix E). The best industrial benchmark parameters are identified in pink shading and can distinguish industrial sources from residential washwater in 80% of samples. Supplemental indicator parameters denoted by yellow shading, can distinguish industrial source from residential washwater in 50% of samples, or roughly one in two samples.

Most industrial discharges can consistently be identified by extremely high potassium levels. However, these discharges would be misclassified as washwater when just the Flow Chart Method is used. Other benchmark parameters have value in identifying specific industrial types or operations. For example, metal plating bath waste discharges are often indicated by extremely high conductivity, hardness and potassium concentrations.

Adapting Industrial Flow Benchmark

By their very nature, industrial and other generating sites can produce a bewildering diversity of discharges that are hard to classify. Therefore, program managers will experience some difficulty in differentiating industrial sources. Over time, the composition of industrial discharges can be refined as chemical libraries for specific industrial flow types and sources are developed. This can entail a great deal of sampling, but can reduce the number of false positive or negative readings.

Table 45: Benchmark Concentrations to Identify Industrial Discharges

Indicator Parameter	Benchmark Concentration	Notes
Ammonia	≥50 mg/L	<ul style="list-style-type: none"> Existing "Flow Chart" Parameter Concentrations higher than the benchmark can identify a few industrial discharges.
Color	≥500 Units	<ul style="list-style-type: none"> Supplemental parameter that identifies a few specific industrial discharges. Should be refined with local data.
Conductivity	≥2,000 μS/cm	<ul style="list-style-type: none"> Identifies a few industrial discharges May be useful to distinguish between industrial sources.
Hardness	≤10 mg/L as CaCO ₃ ≥2,000 mg/L as CaCO ₃	<ul style="list-style-type: none"> Identifies a few industrial discharges May be useful to distinguish between industrial sources.
pH	≤5	<ul style="list-style-type: none"> Only captures a few industrial discharges High pH values may also indicate an industrial discharge but residential wash waters can have a high pH as well.
Potassium	≥20 mg/L	<ul style="list-style-type: none"> Existing "Flow Chart" Parameter Excellent indicator of a broad range of industrial discharges.
Turbidity	≥1,000 NTU	<ul style="list-style-type: none"> Supplemental parameter that identifies a few specific industrial discharges. Should be refined with local data.

Table 46: Usefulness of Various Parameters to Identify Industrial Discharges

Industrial Benchmark Concentration	Detergents as Surfactants (mg/L)	Ammonia (mg/L)	Potassium (mg/L)	Initial "Flow Chart" Class	Color (Units)	Conductivity (:S/cm) ¹	Hardness (mg/L as CaCO ₃)	pH	Turbidity (NTU)	Best Indicator Parameters to Identify This Flow Type	Additional Indicator Parameters to Identify This Flow Type	
												≥50
<i>Concentrations in Industrial and Commercial Flow Types</i>												
Automotive Manufacturer ¹	5	0.6	66	Wash water	15	220	30	6.7	118	Potassium		
Poultry Supplier ¹	5	4.2	41	Wash water	23	618	31	6.3	111	Potassium		
Roofing Product Manufacturing ¹	8	10.2	27	Wash water	>100 ²	242	32	7.1	229	None	Potassium Color	
Uniform Manufacturing ¹	6	6.1	64	Wash water	>100 ²	798	35	10.4	2,631	Potassium	Color Turbidity	
Radiator Flushing	15	(26.3)	(2,801)	Wash water	(3,000)	(3,278)	(5.6)	(7.0)	-	Potassium Conductivity Color	Hardness	
Metal Plating Bath	7	(65.7)	(1,009)	Wash water	(104)	(10,352)	(1,429)	(4.9)	-	Ammonia Potassium Conductivity Hardness	pH	
Commercial Car Wash	140	0.9; (0.2)	4; (43)	Wash water	>61; (222)	274; (485)	71; (157)	7.7; (6.7)	156		Potassium Turbidity	
Commercial Laundry	(27)	(0.8)	3	Wash water	47	(563)	(36)	(9.1)	-			
<p><i>Best Indicators, shaded in pink, distinguish this source from residential wash water in 80% of samples in both Tuscaloosa and Birmingham, AL. Supplemental indicators, shaded in yellow, distinguish this source from residential wash water in 50% of samples, or in only one community. (Data in parentheses are mean values from Birmingham); Data not in parentheses are from Tuscaloosa</i></p> <p>¹ Fewer than 3 samples for these discharges.</p> <p>² The color analytical technique used had a maximum value of 100, which was exceeded in all samples. Color may be a good indicator of these industrial discharges and the benchmark concentration may need adjustment downward for this specific community.</p>												

Chemical Mass Balance Model (CMBM) for Blended Flows

The Chemical Mass Balance Model (CMBM) is a sophisticated technique to identify flow types at outfalls with blended flows (i.e., dry weather discharges originating from multiple sources). The CMBM, developed by Karri (2004) as part of this project is best applied in complex sewersheds with large drainage areas, and relies heavily on the local chemical library discussed in **the next section**.

The CMBM can quantify the fraction of each flow type present in dry weather flow at an outfall (e.g., 20% spring water; 40% sewage; 20% wash water). The CMBM relies on a computer program that generates and solves algebraic mass balance equations, based on the statistical distribution of specific flow types derived from the chemical library. The CMBM is an excellent analysis tool, but requires significant advance preparation and sampling support. More detailed guidance on how to use and interpret CMBM data can be found in Appendix I.

The chemical library requires additional statistical analysis to support the CMBM. Specifically, indicator parameter data for each flow type need to be statistically analyzed to determine the **mean**, the **coefficient of variation**, and the **distribution type**. In its current version, the CMBM accepts two distribution types: normal or lognormal distributions. Various statistical methodologies can determine the distribution type of a set of data. Much of this analysis can be conducted using standard, readily-available statistical software, such as the Engineering Statistics Handbook which is available from the National Institute of Standards and Technology, and can be accessed at <http://www.itl.nist.gov/div898/handbook/>.

12.5 The Chemical Library

The chemical library is a summary of the chemical composition of the range of discharge types found in a community. The primary purpose of the library is to characterize distinct flow types that may be observed at outfalls, including both clean and contaminated discharges. A good library includes data on the composition of tap water, groundwater, sewage, septage, non-target irrigation water, industrial process waters, and washwaters (e.g., laundry, car wash, etc.). The chemical library helps program managers customize the flow chart method and industrial benchmarks, and creates the input data needed to drive the CMBM.

To develop the library, samples are collected directly from the discharge source (e.g., tap water, wastewater treatment influent, shallow wells, septic tanks, etc.). Table 47 provides guidance on how and where to sample each flow type in your community. As a general rule, about 10 samples are typically needed to characterize each flow type, although more samples may be needed if the flow type has a high coefficient of variation. The measure of error can be statistically defined by evaluating the coefficient of variation of the sample data (variability relative to the mean value), and the statistical distribution for the data (the probable spread in the data beyond the mean). For more guidance on statistical techniques for assessing sampling data, consult Burton and Pitt (2002) and US EPA (2002), which can be accessed at <http://galton.uchicago.edu/~cises/resources/EPA-QA-Sampling-2003.pdf>.

Chemical libraries should also be compared to databases that summarize indicator monitoring of dry weather flows at suspect

outfalls. Outfall samples may not always be representative of individual flow types because of mixing of flows and dilution, but they can serve as a valuable check if the discharge source is actually confirmed. Program managers can also use both the chemical library and indicator database to refine flow chart or industrial benchmarks (see Appendix J for an example).

Over time, communities may want to add other flow types to the chemical library, such as transitory discharges that generate small volume flows such as “dumpster juice,” power washing and residential car washing. Transitory discharges are hard to detect with outfall monitoring, but may cumulatively contribute significant dry weather loads. Understanding the chemical makeup of the transitory discharges can help program managers prioritize education and pollution prevention efforts.

Table 47: Where and How to Sample for Chemical “Fingerprint” Library

Flow Type	Places to Collect the Data	Any Other Potential Sources?
Shallow Groundwater	<ul style="list-style-type: none"> From road cuts or stream banks Samples from shallow wells USGS regional groundwater quality data Dry weather in-stream flows at headwaters with no illicit discharges 	None. Locally distinct.
Spring Water	<ul style="list-style-type: none"> Directly from springs 	None. Locally distinct.
Tap water	<ul style="list-style-type: none"> Individual taps throughout the community or analyze local drinking water monitoring reports or annual consumer confidence reports 	None. Locally distinct.
Irrigation	<ul style="list-style-type: none"> Collect irrigation water from several different sites. May require a hand operated vacuum pump to collect these shallow flows (see Burton and Pitt, 2002) 	None. Locally distinct.
Sewage	<ul style="list-style-type: none"> Reported sewage treatment plant influent data provides a characterization of raw sewage and is usually available from discharge monitoring reports. Because the characteristics of sewage will vary within the collection system depending upon whether the area is serving residential or commercial uses, climate, residence time in the collection system, etc, it is often more accurate and valuable to collect “fingerprint” samples from within the system, rather than at the treatment plant. 	Data in Appendix E can provide a starting point, but local data are preferred.
Septage	<ul style="list-style-type: none"> Outflow of several individual septic tanks or leach fields 	
Most Industrial Discharges	<ul style="list-style-type: none"> Direct effluent from the industrial process (Obtain samples as part of industrial pre-treatment program in local community) 	Data in Appendix E characterize some specific industrial flows. Industrial NPDES permit monitoring can also be used.
Commercial Car Wash; Commercial Laundry	<ul style="list-style-type: none"> Sumps at these establishments 	Data in Appendix E can provide a starting point, but local data are preferred.

Evaluating Interpretive Techniques Using Outfall Indicator Monitoring Data

Outfall sampling data for confirmed sources or flow types can be used to test the accuracy and reliability of all four interpretive techniques. The sampling record is used to determine the number of false positives or false negatives associated with a specific interpretive technique. A simple tabulation of false test readings can identify the types and levels of indicator parameters that are most useful.

Table 48 provides an example of how the Flow Chart Method was tested with outfall monitoring data from Birmingham, AL (Pitt *et al.*, 1993). In this case, the Flow Chart Method was applied without adaptation to local conditions, and the number of correctly (and incorrectly) identified discharges was tracked. Tests on 10 Birmingham outfalls were mostly favorable, with the flow chart method correctly identifying contaminated discharges in all cases (i.e., washwater or sewage waste water). At one outfall, the flow chart incorrectly identified sewage as washwater, based on an ammonia (NH₃)/potassium (K) ratio of 0.9 that was very close to the breakpoint in the Flow Chart Method (ratio of one). Based on such tests, program managers may want to slightly adjust the breakpoints in the Flow Chart Method to minimize the occurrence of errors.

12.6 Special Monitoring Techniques for Intermittent or Transitory Discharges

The hardest discharges to detect and test are intermittent or transitory discharges to the storm drain system that often have an indirect mode of entry. With some ingenuity, luck, and specialized sampling techniques, however, it may be possible to catch these discharges. This section describes some specific monitoring techniques to track down intermittent discharges. Transitory discharges cannot be reliably detected using conventional outfall monitoring techniques, and are normally found as a result of hotline complaints or spill events. Nevertheless, when transitory discharges are encountered, they should be sampled if possible.

Techniques for Monitoring Intermittent Discharges

An outfall may be suspected of having intermittent discharges based on physical indicators (e.g., staining), poor in-stream dry weather water quality, or the density of generating sites in the contributing subwatershed. The only sure way to detect an intermittent discharge is to camp out at the outfall for a long period of time, which is obviously not very cost-effective or feasible. As an alternative, five special monitoring techniques can be used to help track these elusive problems:

- Odd hours monitoring
- Optical brightener monitoring traps
- Caulk dams
- Pool sampling
- Toxicity monitoring

Table 48: Evaluation of the Flow Chart Method Using Data from Birmingham, Alabama
(Adapted from Pitt et al., 1993)

Outfall ID	Outfall Concentrations (mg/L)					Predicted Flow Type	Confirmed Flow Type	Result
	Detergents-Surfactants (>0.25 is sanitary or wash water)	NH3	K	NH3/K (>1.0 is sanitary)	Fluoride (>0.25 is tap, if no detergents)			
14	0	0	0.69	0.0	0.04	Natural Water	Spring Water	Correct
20	0	0.03	1.98	0.0	0.61	Tap Water	Rinse Water (Tap) and Spring Water	Correct
21	20	0.11	5.08	0.0	2.80	Washwater	Washwater (Automotive)	Correct
26	0	0.01	0.72	0.0	0.07	Natural Water	Spring Water	Correct
28	0.25 ¹	2.89	5.96	0.5	0.74	Washwater	Washwater (Restaurant)	Correct
31	0.95	0.21	3.01	0.1	1.00	Washwater	Laundry (Motel)	Correct
40z	0.25 ¹	0.87	0.94	0.9	0.12	Washwater	Shallow Groundwater and Septage	Identifies Contaminated but Incorrect Flow Type
42	0	0	0.81	0.0	0.07	Natural Water	Spring Water	Correct
48	3.0	5.62	4.40	1.3	0.53	Sanitary Wastewater	Spring Water and Sewage	Correct
60a	0	0.31	2.99	0.1	0.61	Tap Water	Landscaping Irrigation Water	Correct

¹ These values were increased from reported values of 0.23 mg/L (outfall 28) and 0.2 mg/L (outfall 40z). The analytical technique used in Birmingham was more precise (but more hazardous) than the method used to develop the flow chart in Figure 47. It is assumed that these values would have been interpreted as 0.25 mg/L using the less precise method.

Odd Hours Monitoring

Many intermittent discharges actually occur on a regular schedule, but unfortunately not the same one used by field crews during the week. For example, some generating sites discharge over the weekend or during the evening hours. If an outfall is deemed suspicious, program managers may want to consider scheduling “odd hours” sampling at different times of the day or week. Some key times to visit suspicious outfalls include:

- Both morning and afternoon

- Weekday evenings
- Weekend mornings and evenings

Optical Brightener Monitoring Traps

Optical brightener monitoring (OBM) traps are another tool that crews can use to gain insight into the “history” of an outfall without being physically present. OBM traps can be fabricated and installed using a variety of techniques and materials. All configurations involve an absorbent, unbleached cotton pad or fabric swatch and a holding or anchoring device such as

a wire mesh trap (Figure 48) or a section of small diameter (e.g., 2-inch) PVC pipe. Traps are anchored to the inside of outfalls at the invert using wire or monofilament that is secured to the pipe itself or rocks used as temporary weights.

Field crews retrieve the OBM traps after they have been deployed for several days of dry weather, and place them under a fluorescent light that will indicate if they have been exposed to detergents. OBM traps have been used with some success in Massachusetts (Sargent *et al.*, 1998) and northern Virginia (Waye, 2000). Although each community used slightly different methods, the basic sampling concept is the same. For more detailed guidance on how to use OBM traps and interpret the results, consult the guidance manual found at: <http://www.naturecompass.org/8tb/sampling/index.html> and <http://www.novaregion.org/obm.htm>.

Although OBM traps appear useful in detecting some intermittent discharges, research during this project has found that OBM traps only pick up the most contaminated discharges, and the detergent level needed to produce a “hit” was roughly similar to pure washwater from a washing machine (see Appendix F for results).



Figure 48: OBM Equipment includes a black light and an OBM Trap that can be placed at an outfall

Source: R. Pitt

Consequently, OBM traps may be best suited as a simple indicator of presence or absence of intermittent flow or to detect the most concentrated flows. OBM traps need to be retrieved before runoff occurs from the outfalls, which will contaminate the trap or wash it away.

Caulk Dams

This technique uses caulk, plumber’s putty, or similar substance to make a dam about two inches high within the bottom of the storm drain pipe to capture any dry weather flow that occurs between field observations. Any water that has pooled behind the dam is then sampled using a hand-pump sampler, and analyzed in the lab for appropriate indicator parameters.

Pool Sampling

In this technique, field crews collect indicator samples directly from the “plunge pool” below an outfall, if one is present. An upstream sample is also collected to characterize background stream or ditch water quality that is not influenced by the outfall. The pool water and stream sample are then analyzed for indicator parameters, and compared against each other. Pool sampling results can be constrained by stream dilution, deposition, storm water flows, and chemical reactions that occur within the pool.

Toxicity Monitoring

Another way to detect intermittent discharges is to monitor for toxicity in the pool below the outfall on a daily basis. Burton and Pitt (2002) outline several options to measure toxicity, some of which can be fairly expensive and complex. The Fort Worth Department of Environmental Management has developed a simple low-cost outfall toxicity testing technique known as the Stream Sentinel program. Stream sentinels

place a bottle filled with minnows in the pool below suspected outfalls and measure the survival rate of the minnows as an indicator of the toxicity of the outfall¹² (see Figure 49).

One advantage of the sentinel program is that volunteer monitors can easily participate, by raising and caring for the minnows, placing bottles at outfalls, and visiting them everyday to record mortality. The long-term nature of sentinel monitoring can help pick up toxicity trends at a given outfall. For example, Fort Worth observed a trend of mass mortality on the second Tuesday of each month at some outfalls, which helped to pinpoint the industry responsible for the discharges, and improved

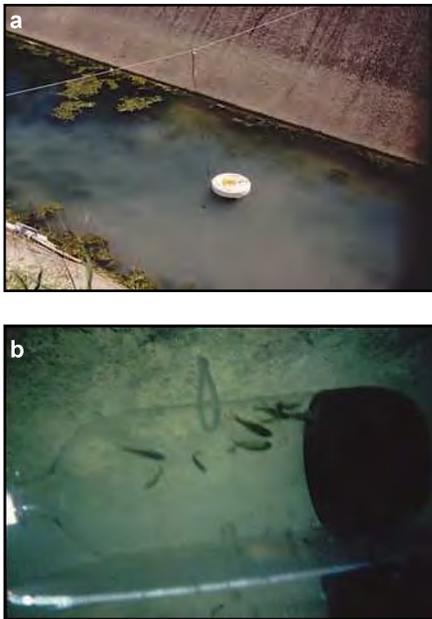


Figure 49: Float and wire system to suspend a bottle in a stream sentinel station deployed in Fort Worth, TX (a); Minnows in the perforated bottle below the water surface (b).

sample scheduling (City of Fort Worth, 2003). More information about the Stream Sentinel program can be found at: www.fortworthgov.org/DEM/stream_sentinel.pdf.

Due to the cost and difficulty of interpreting findings, toxicity testing is generally not recommended for communities unless they have prior experience and expertise with the method.

Techniques for Monitoring Transitory Discharges

Transitory discharges, such as spills and illegal dumping, are primarily sampled to assign legal responsibility for enforcement actions or to reinforce ongoing pollution prevention education efforts. In most cases, crews attempt to trace transitory discharges back up the pipe or drainage area using visual techniques (see Chapter 13). However, field crews should always collect a sample to document the event. Table 49 summarizes some follow-up monitoring strategies to document transitory discharges.

12.7 Monitoring of Stream Quality During Dry Weather

In-stream water quality monitoring can help detect sewage and other discharges in a community or larger watershed. Stream monitoring can identify the subwatersheds with the greatest illicit or sewage discharge potential that is then used to target outfall indicator monitoring. At the smaller reach scale, stream monitoring may sometimes detect major individual discharges to the stream.

¹² It may be necessary to obtain approval from the appropriate state or federal regulatory agency before conducting toxicity monitoring using vertebrates.

Table 49: Follow-Up Monitoring for Transitory Discharges

Condition	Response
Oils or solvents	Special hydrocarbon analysis to characterize the source of the oil
Unknown but toxic material	Full suite of metals, pesticides, other toxic materials
Probable sewage	Monitor for parameters associated with the Flow Chart Technique (detergents, ammonia, potassium, fluoride) for residential drainage areas

Stream Monitoring to Identify Problem Reaches or Subwatersheds

Stream monitoring data can be used to locate areas in subwatersheds where illicit discharges may be present, and where human or aquatic health risks are higher. To provide this information, stream monitoring should be conducted regularly during dry weather conditions to track water quality (at least monthly) and to document changes in water quality over a period of time. Stream monitoring data are particularly effective when combined with ORI data. For example, a subwatershed with many ORI physical indicators of illicit discharges (e.g., a high number of flowing outfalls) that also has poor stream water quality would be an obvious target for intensive outfall monitoring.

Stream monitoring parameters should reflect local water quality goals and objectives, and frequently include bacteria and ammonia. Bacteria are useful since sewage discharges can contribute to violations of water contact standards set for recreation during dry weather conditions. Table 50 summarizes water quality standards for *E. coli* that EPA recommends for water contact recreation. It is important to note that individual states may use different action levels or bacteria indicators (e.g., Enterococci or fecal coliform) to regulate water contact recreation. For a review of the impacts bacteria exert on surface waters, consult CWP (2000).

An important caveat when interpreting stream monitoring data is that a violation of bacteria standards during dry weather flow does not always mean that an illicit discharge or sewage overflow is present. While raw sewage has bacteria concentrations that greatly exceed bacteria standards (approximately 12,000 MPN/100 mL) other bacteria sources, such as urban wildlife, can also cause a stream to violate standards. Consequently, stream monitoring data need to be interpreted in the context of other information, such as upstream land use, past complaints, age of infrastructure, and ORI surveys.

Ideally, stream monitoring stations should be strategically located with a minimum of one station per subwatershed, and additional stations at stream confluences and downstream of reaches with a high outfall density. Stations should also be located at beaches, shellfish harvesting and other areas where discharges represent a specific threat to public health. See Burton and Pitt (2002) for guidance on stream monitoring.

Stream Monitoring to Identify Specific Discharges

Stream monitoring data can help field crews locate individual discharges within a specific stream reach. Immediate results are needed for this kind of monitoring, so indicator parameters should be analyzed using simple field test kits or portable analytical

instruments (e.g., spectrophotometer). Bacteria is not a good indicator parameter to use for this purpose because lab results cannot be received for at least one day (analytical method requires a “hold time” of 24 hours). Table 51 summarizes nutrient indicator parameters along with their “potential problem level” benchmarks. It is important to note that other factors, such as animal operations, can elevate stream nutrient concentrations, so data should always be interpreted in the context of surrounding land use. Stream monitoring benchmarks should be continuously refined as communities develop a better

understanding of what dry weather baseline concentrations to expect.

If stream monitoring indicates that a potential problem level benchmark has been exceeded, field crews continue stream sampling to locate the discharge through a process of elimination. Crews walk upstream taking regular samples above and below stream confluences until the benchmark concentration declines. The crews then take samples at strategic points to narrow down the location of the discharge, using the in-pipe monitoring strategy described in Chapter 13.

Table 50: Typical “Full Body Contact Recreation” Standards for *E. coli*

(Source: EPA, 1986)¹

Use	Criterion
Designated beach area	235 MPN /100 mL
Moderately-used full body contact recreation area	298 MPN /100 mL
Lightly-used full body contact recreation	406 MPN /100 mL
Infrequently-used full body contact recreation	576 MPN /100 mL

¹ These concentrations represent standards for a single sampling event. In all waters, a geometric mean concentration of 126 MPN/100 mL cannot be exceeded for five samples taken within one month.

Table 51: Example In-Stream Nutrient Indicators of Discharges

(Zielinski, 2003)

Parameter	Potential Problem Level*	Possible Cause of Water Quality Problem
Total Nitrogen (TN)	3.5 mg/l	High nutrients in ground water from agriculture, lawn practices, or sewage contamination from illicit connection, sanitary line break or failing septic system.
Total Phosphorus (TP)	0.4 mg/l	Contamination from lawn practices, agriculture, sewage or washwater.
Ammonia (NH ₃)	0.3 mg/l	Sewage or washwater contamination from illicit connection, sanitary line break or failing septic system.

*Nutrient parameters are based on USGS NAWQA data with 85% of flow weighted samples being less than these values in urban watersheds (Note: data from Nevada were not used, due to climatic differences and for some parameters they were an order of magnitude higher). Communities can modify these benchmarks to reflect local data and experience.

12.8 The Costs of Indicator Monitoring

This section provides general guidance on scoping and budgeting an indicator monitoring program. The required budget will ultimately be dictated by the monitoring decisions and local conditions within a community. The budgeting data presented in this section are based on the level of indicator sampling effort in two hypothetical communities, using different numbers of samples, indicator parameters, and analysis methods.

Budgets for Indicator Monitoring in a Hypothetical Community

Communities can develop annual budgets for indicator monitoring if the degree of sampling effort can be scoped. This is normally computed based on the expected number of samples to analyze and is a function of stream miles surveyed and outfall density. For example, if a community collects samples from 10 stream miles with eight outfalls per mile, it will have 80 samples to analyze. This number can be used to generate start-up and annual monitoring cost estimates that represent the expected level of sampling effort. Table 52 summarizes how indicator monitoring budgets were developed for two hypothetical communities, each with 80 outfalls to sample. Budgets are shown using both in-house and contract lab set-ups, and are split between initial start-up costs and annual costs.

Community A: Primarily Residential Land Use, Flow Chart Method

In this scenario, six indicator parameters were analyzed, several of which were used to support the Flow Chart Method. The community took no additional samples to create a chemical library, and instead

relied on default values to identify illicit discharges. The community analyzed the samples in-house at a rate of one sample (includes analysis of all six parameters) per staff hour.

Community B: Mixed Land Use - Multiple Potential Sources, Complex Analysis

In the second scenario, the community analyzed 11 indicator parameters, including a bacteria indicator, and took samples of eight distinct flow types to create a chemical library, for a total of 88 samples. The community analyzed the samples in-house at a rate of one sample per 1.5 staff hours.

Some general rules of thumb that were used for this budget planning example include the following:

- \$500 in initial sampling equipment (e.g., sample bottles, latex gloves, dipper, cooler, etc).
- Outfall samples are collected in batches of 10. Each batch of samples can be collected and transported to the lab in two staff days (two-person crew required to collect samples for safety purposes).
- Staff rate is \$25/hr.
- Overall effort to collect samples for the chemical library and statistically analyze the data is approximately one staff day per source type.
- The staff time needed to prepare for field work and interpret lab results is roughly two times that required for conducting the field work (i.e., eight days of collecting samples requires 16 days of pre- and post-preparation).

Costs for Intermittent Discharge Analyses

Equipment costs for most specialized intermittent discharge techniques tend to be low (<\$500), and are dwarfed by staff effort. As a rule of thumb, assume about four hours

of staff time to deploy, retrieve and analyze samples collected from a single outfall using these techniques.

Table 52: Indicator Monitoring Costs: Two Scenarios				
	Community A: In-House	Community A: Contract Lab	Community B: In-House	Community B: Contract Lab
Initial Costs				
Initial Sampling Supplies and Lab Equipment ¹	\$1,700	\$500	\$7,500	\$500
Staff Cost: Library Development ²	\$0	\$0	\$4,600 ³	\$2,000
Analysis Costs: Library Development (Reagents or Contract Lab Cost)	\$0	\$0	\$1,400	\$13,000 ⁴
Total Initial Costs	\$1,700	\$500	\$13,500	\$15,500
Annual Costs in Subsequent Years				
Staff Field Cost (Sample Collection) ^{2, 5, 6}	\$3,200	\$3,200	\$3,200	\$3,200
Staff Costs: Chemical Analysis ²	\$2,000	\$200 ⁷	\$3,000	\$200
Staff Time to Enter/ Interpret Data ^{2, 6}	\$3,200	\$3,200	\$4,800	\$4,800
Analysis Costs: Annual Outfall Sampling (Reagents or Contract Lab Cost)	\$600	\$8,400 ⁴	\$1,400	\$13,000 ⁴
Total Annual Cost	\$9,000	\$15,000	\$12,400	\$21,200
<p><i>Notes:</i></p> <p>¹ \$500 in initial sampling equipment.</p> <p>² Samples can be shipped to a contract lab using one staff hour.</p> <p>³ Overall effort to collect samples for the library and statistically analyze the data is approximately one staff day per source type.</p> <p>⁴ For contract lab analysis, assume a cost that is an average between the two extremes of the range in Table 43.</p> <p>⁵ Outfall samples are collected in batches of 10. Each batch of samples can be collected and transported to the lab in two staff days (two-person crew required to collect samples for safety purposes).</p> <p>⁶ Assume that the staff time needed to interpret lab results and prepare for field work is roughly 16 staff days. An additional eight days are required for the flow type pre- and post-preparation for Community 2.</p> <p>⁷ Staff rate is \$25/hr.</p>				

Chapter 13: Tracking Discharges To A Source

Once an illicit discharge is found, a combination of methods is used to isolate its specific source. This chapter describes the four investigation options that are introduced below.

Storm Drain Network Investigation

Field crews strategically inspect manholes within the storm drain network system to measure chemical or physical indicators that can isolate discharges to a specific segment of the network. Once the pipe segment has been identified, on-site investigations are used to find the specific discharge or improper connection.

Drainage Area Investigation

This method relies on an analysis of land use or other characteristics of the drainage area that is producing the illicit discharge. The investigation can be as simple as a “windshield” survey of the drainage area or a more complex mapping analysis of the storm drain network and potential generating sites. Drainage area investigations work best when prior indicator monitoring reveals strong clues as to the likely generating site producing the discharge.

On-site Investigation

On-site methods are used to trace the source of an illicit discharge in a pipe segment, and may involve dye, video or smoke testing within isolated segments of the storm drain network.

Septic System Investigation

Low-density residential watersheds may require special investigation methods if

they are not served by sanitary sewers and/or storm water is conveyed in ditches or swales. The major illicit discharges found in low-density development are failing septic systems and illegal dumping. Homeowner surveys, surface inspections and infrared photography have all been effectively used to find failing septic systems in low-density watersheds.

13.1 Storm Drain Network Investigations

This method involves progressive sampling at manholes in the storm drain network to narrow the discharge to an isolated pipe segment between two manholes. Field crews need to make two key decisions when conducting a storm drain network investigation—where to start sampling in the network and what indicators will be used to determine whether a manhole is considered clean or dirty.

Where to Sample in the Storm Drain Network

The field crew should decide how to attack the pipe network that contributes to a problem outfall. Three options can be used:

- Crews can work progressively up the trunk from the outfall and test manholes along the way.
- Crews can split the trunk into equal segments and test manholes at strategic junctions in the storm drain system.
- Crews can work progressively down from the upper parts of the storm drain network toward the problem outfall.

The decision to move up, split, or move down the trunk depends on the nature and land use of the contributing drainage area. Some guidance for making this decision is provided in Table 53. Each option requires different levels of advance preparation. Moving up the trunk can begin immediately when an illicit discharge is detected at the outfall, and only requires a map of the storm drain system. Splitting the trunk and moving down the system require a little more preparation to analyze the storm drain map to find the critical branches to strategically sample manholes. Accurate storm drain maps are needed for all three options. If good mapping is not available, dye tracing

can help identify manholes, pipes and junctions, and establish a new map of the storm drain network.

Option 1: Move up the Trunk

Moving up the trunk of the storm drain network is effective for illicit discharge problems in relatively small drainage areas. Field crews start with the manhole closest to the outfall, and progressively move up the network, inspecting manholes until indicators reveal that the discharge is no longer present (Figure 50). The goal is to isolate the discharge between two storm drain manholes.

Table 53: Methods to Attack the Storm Drain Network			
Method	Nature of Investigation	Drainage System	Advance Prep Required
Follow the discharge up	Narrow source of an individual discharge	Small diameter outfall (< 36") Simple drainage network	No
Split into segments	Narrow source of a discharge identified at outfall	Large diameter outfall (> 36"), Complex drainage Logistical or traffic issues may make sampling difficult.	Yes
Move down the storm drain	Multiple types of pollution, many suspected problems—possibly due to old plumbing practices or number of NPDES permits	Very large drainage area (> one square mile).	Yes

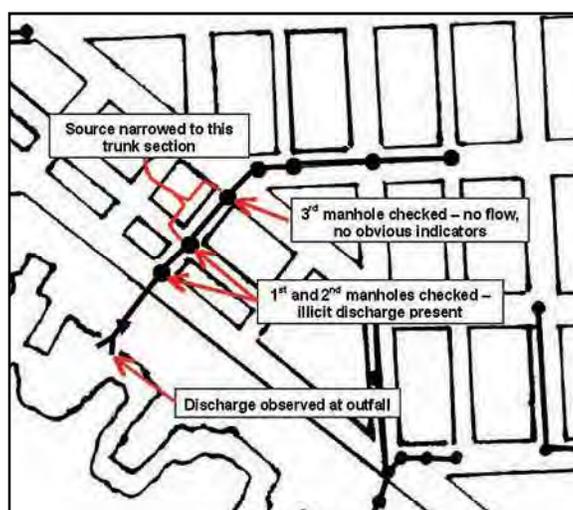


Figure 50: Example investigation following the source up the storm drain system

Option 2: Split the storm drain network

When splitting the storm drain network, field crews select strategic manholes at junctions in the storm drain network to isolate discharges. This option is particularly suited in larger and more complex drainage areas since it can limit the total number of manholes to inspect, and it can avoid locations where access and traffic are problematic.

The method for splitting the trunk is as follows:

1. Review a map of the storm drain network leading to the suspect outfall.
2. Identify major contributing branches to the trunk. The trunk is defined as the largest diameter pipe in the storm drain network that leads directly to the outfall. The “branches” are networks of smaller pipes that contribute to the trunk.
3. Identify manholes to inspect at the farthest downstream node of each contributing branch and one immediately upstream (Figure 51).
4. Working up the network, investigate manholes on each contributing branch and trunk, until the source is narrowed to a specific section of the trunk or contributing branch.
5. Once the discharge is narrowed to a specific section of trunk, select the appropriate on-site investigation method to trace the exact source.
6. If narrowed to a contributing branch, move up or split the branch until a specific pipe segment is isolated, and commence the appropriate on-site investigation to determine the source.

Option 3: Move down the storm drain network

In this option, crews start by inspecting manholes at the “headwaters” of the storm drain network, and progressively move down pipe. This approach works best in very large drainage areas that have many potential continuous and/or intermittent discharges. The Boston Water and Sewer Commission has employed the headwater option to investigate intermittent discharges in complex drainage areas up to three square miles (Jewell, 2001). Field crews certify that each upstream branch of the storm drain network has no contributing discharges before moving down pipe to a “junction manhole” (Figure 52). If discharges are found, the crew performs dye testing to pinpoint the discharge. The crew then confirms that the discharge is removed before moving farther down the pipe network. Figure 53 presents a detailed flow chart that describes this option for analyzing the storm drain network.

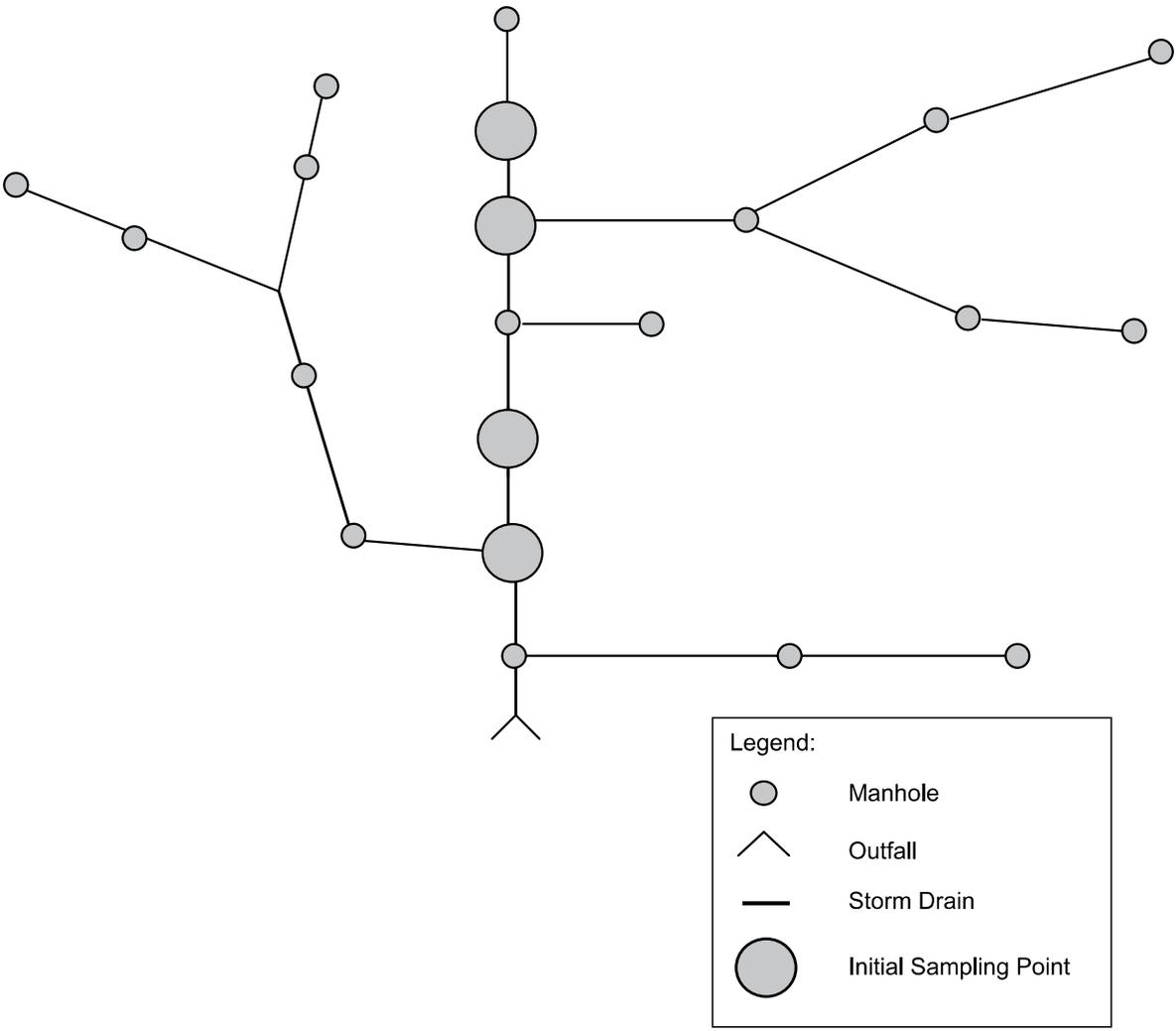


Figure 51: Key initial sampling points along the trunk of the storm drain

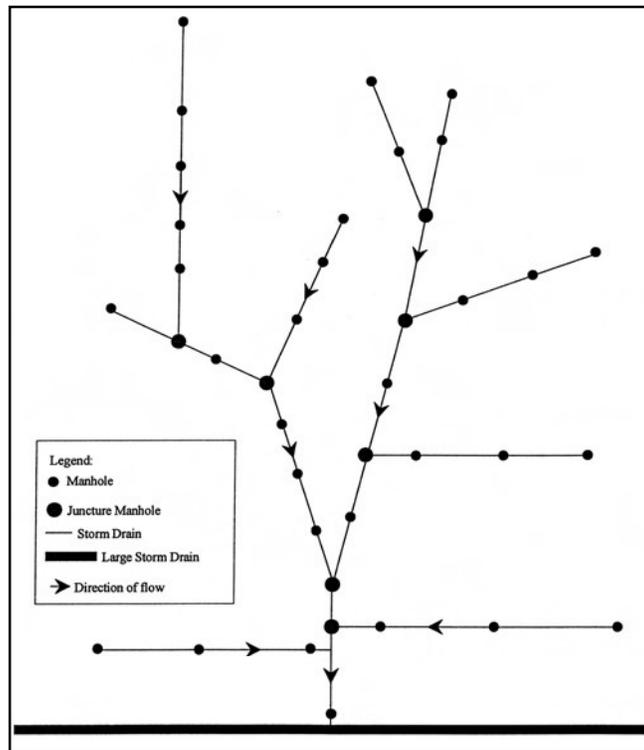


Figure 52: Storm Drain Schematic Identifying “Juncture Manholes” (Source: Jewell, 2001)

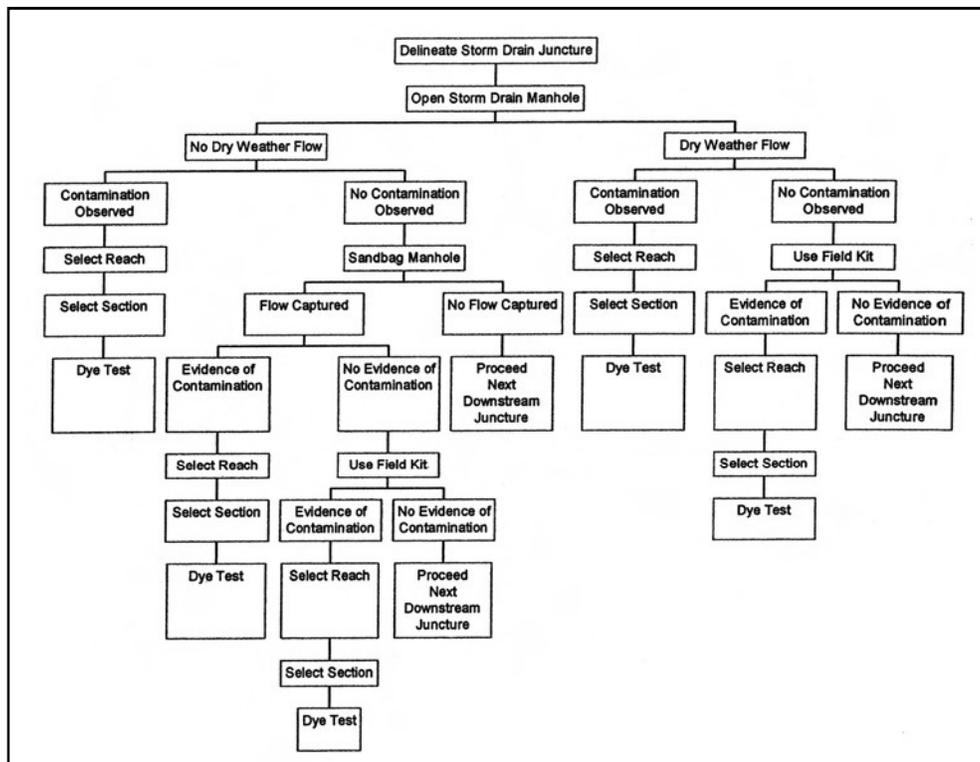


Figure 53: A Process for Following Discharges Down the Pipe (Source: Jewell, 2001)

Dye Testing to Create a Storm Drain Map

As noted earlier, storm drain network investigations are extremely difficult to perform if accurate storm drain maps are not available. In these situations, field crews may need to resort to dye testing to determine the flowpath within the storm drain network. Fluorescent dye is introduced into the storm drain network and suspected manholes are then inspected to trace the path of flow through the network (U.S. EPA, 1990). Two or three member crews are needed for dye testing. One person drops the dye into the trunk while the other(s) looks for evidence of the dye down pipe.

To conduct the investigation, a point of interest or down pipe “stopping point” is identified. Dye is then introduced into manholes upstream of the stopping point to determine if they are connected. The process continues in a systematic manner until an upstream manhole can no longer be determined, whereby a branch or trunk of the system can be defined, updated or corrected. More information on dye testing methods is provided in Section 13.3.

Manhole Inspection: Visual Observations and Indicator Sampling

Two primary methods are used to characterize discharges observed during manhole inspections—visual observations and indicator sampling. In both methods, field crews must first open the manhole to determine whether an illicit discharge is present. Manhole inspections require a crew of two and should be conducted during dry weather conditions.

Basic field equipment and safety procedures required for manhole inspections are outlined

in Table 54. In particular, field crews need to be careful about how they will safely divert traffic (Figure 54). Other safety considerations include proper lifting of manhole covers to reduce the potential for back injuries, and testing whether any toxic or flammable fumes exist within the manhole before the cover is removed. Wayne County, MI has developed some useful operational procedures for inspecting manholes, which are summarized in Table 55.

Table 54: Basic Field Equipment Checklist

• Camera and film or digital camera	• Storm drain, stream, and street maps
• Clipboards	• Reflective safety vests
• Field sheets	• Rubber / latex gloves
• Field vehicle	• Sledgehammer
• First aid kit	• Spray paint
• Flashlight or spotlight	• Tape measures
• Gas monitor and probe	• Traffic cones
• Manhole hook/crow bar	• Two-way radios
• Mirror	• Waterproof marker/pen
• Hand held global positioning satellite (GPS) system receiver (best resolution available within budget, at least 6' accuracy)	



Figure 54: Traffic cones divert traffic from manhole inspection area

Table 55: Field Procedure for Removal of Manhole Covers*(Adapted from: Pomeroy et al., 1996)***Field Procedures:**

1. Locate the manhole cover to be removed.
2. Divert road and foot traffic away from the manhole using traffic cones.
3. Use the tip of a crowbar to lift the manhole cover up high enough to insert the gas monitor probe. Take care to avoid creating a spark that could ignite explosive gases that may have accumulated under the lid. Follow procedures outlined for the gas monitor to test for accumulated gases.
4. If the gas monitor alarm sounds, close the manhole immediately. Do not attempt to open the manhole until some time is allowed for gases to dissipate.
5. If the gas monitor indicates the area is clear of hazards, remove the monitor probe and position the manhole hook under the flange. Remove the crowbar. Pull the lid off with the hook.
6. When testing is completed and the manhole is no longer needed, use the manhole hook to pull the cover back in place. Make sure the lid is settled in the flange securely.
7. Check the area to ensure that all equipment is removed from the area prior to leaving.

Safety Considerations:

1. Do not lift the manhole cover with your back muscles.
2. Wear steel-toed boots or safety shoes to protect feet from possible crushing injuries that could occur while handling manhole covers.
3. Do not move manhole covers with hands or fingers.
4. Wear safety vests or reflective clothing so that the field crew will be visible to traffic.
5. Manholes may only be entered by properly trained and equipped personnel and when all OSHA and local rules apply.

Visual Observations During Manhole Inspection

Visual observations are used to observe conditions in the manhole and look for any signs of sewage or dry weather flow. Visual observations work best for obvious illicit discharges that are not masked by groundwater or other “clean” discharges, as shown in Figure 55. Typically, crews progressively inspect manholes in the storm drain network to look for contaminated

flows. Key visual observations that are made during manhole inspections include:

- Presence of flow
- Colors
- Odors
- Floatable materials
- Deposits or stains (intermittent flows)



Figure 55: Manhole observation (left) indicates a sewage discharge. Source is identified at an adjacent sewer manhole that overflowed into the storm drain system (right).

Indicator Sampling

If dry weather flow is observed in the manhole, the field crew can collect a sample by attaching a bucket or bottle to a tape measure/rope and lowering it into the manhole (Figure 56). The sample is then immediately analyzed in the field using probes or other tests to get fast results as to whether the flow is clean or dirty. The most common indicator parameter is ammonia, although other potential indicators are described in Chapter 12.

Manhole indicator data is analyzed by looking for “hits,” which are individual samples that exceed a benchmark concentration. In addition, trends in indicator concentrations are also examined throughout the storm drain network.

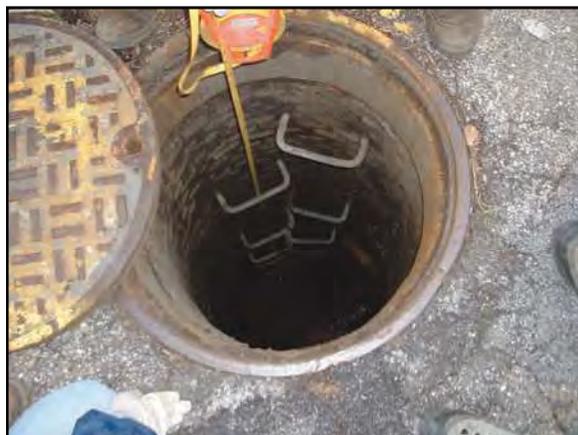


Figure 56: Techniques to sample from the storm drain

Figure 57 profiles a storm drain network investigation that used ammonia as the indicator parameter and a benchmark concentration of 1.0 mg/L. At both the outfall and the first manhole up the trunk, field crews recorded finding “hits” for ammonia of 2.2 mg/L and 2.3 mg/L, respectively. Subsequent manhole inspections further up the network revealed one manhole with no flow, and a second with a hit for ammonia (2.4 mg/L). The crew then tracked the discharge upstream of the second manhole, and found a third manhole with a low ammonia reading (0.05 mg/L) and a fourth with a much higher reading (4.3 mg/L). The crew then redirected its effort to sample above the fourth manhole with the 4.3 mg/L concentration, only to find another low reading. Based on this pattern, the crew concluded the discharge source was located between these two manholes, as nothing else could explain this sudden increase in concentration over this length of pipe.

The results of storm drain network investigations should be systematically documented to guide future discharge investigations, and describe any infrastructure maintenance problems encountered. An example of a sample manhole inspection field log is displayed in Figure 58.

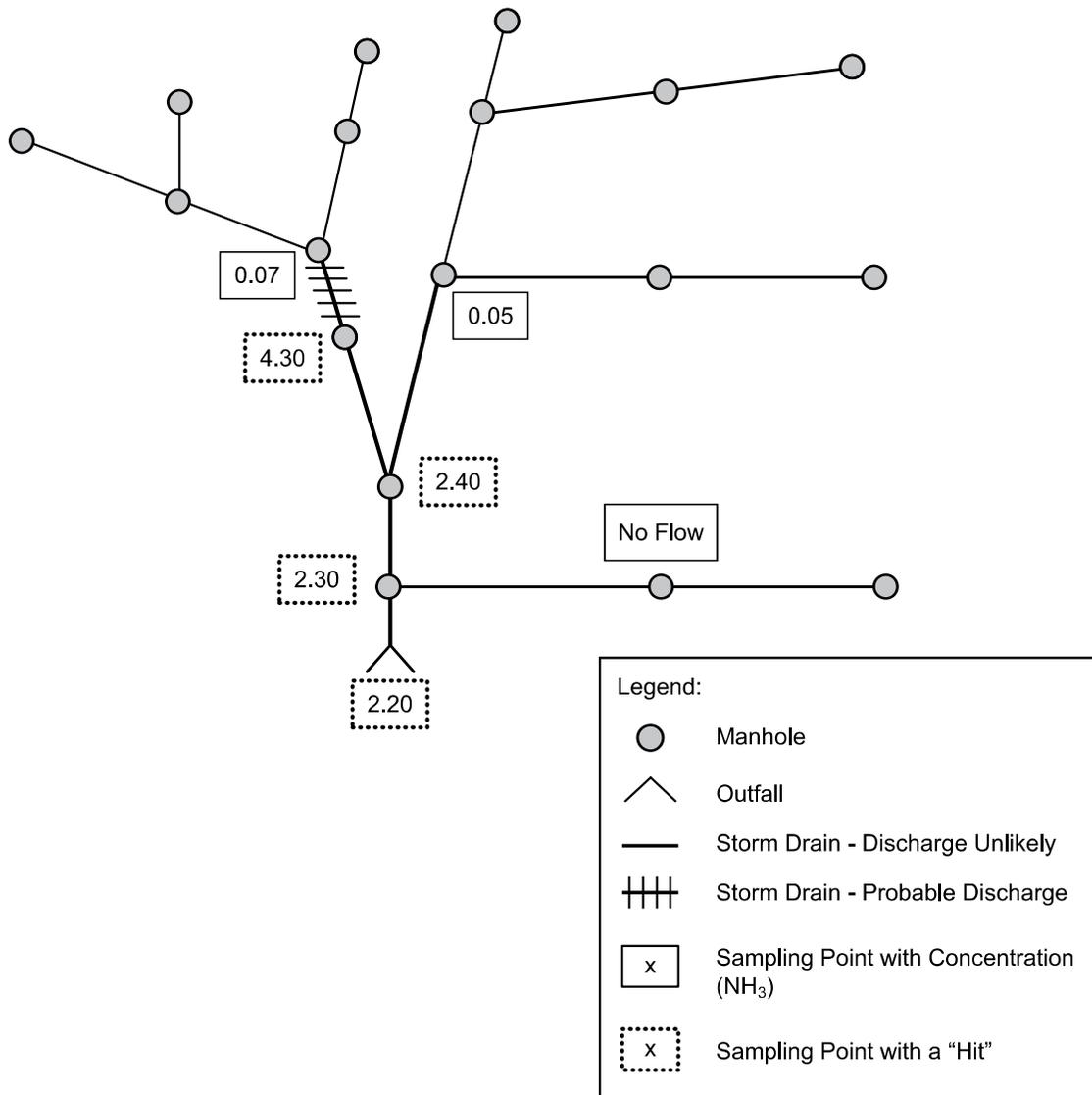


Figure 57: Use of ammonia as a trace parameter to identify illicit discharges



BOSTON WATER AND SEWER COMMISSION
MANHOLE INSPECTION LOG

Manhole ID No.

Inspection Date: _____ Tributary Area: _____

Street: _____ Manhole Type: _____

Inspection: Not Found ___ Surface ___ Internal ___ Sanitary Sewer ___ Storm Drain ___
 Follow Up Inspection ___ High Outlet ___ Lovejoy ___

Time Since Last Rain:

Inspector: _____ < 48 hours ___ 48 – 72 hours ___ > 72 hours ___

Observations:

Standing Water in Manhole: Yes ___ No ___ Color of Water: Clear ___ Cloudy ___ Other _____

Flow in Manhole: Yes ___ No ___ Velocity: Slow ___ Medium ___ Fast ___ Depth of Flow: _____ in.

Color of Flow: No Flow: ___ Clear ___ Cloudy ___ Suspended Solids ___ Other _____

Blockages: Yes ___ No ___ Sediment in Manhole: Yes ___ No ___ If Yes: Percent of Pipe Filled: _____ %

Floatables: None ___ Sewage ___ Oily Sheen ___ Foam ___ Other _____

Odor: None ___ Sewage ___ Oil ___ Soap ___ Other _____

Field Testing:

pH ___ Temp ___ Spec. Cond. ___ Surfactants: Yes ___ No ___ Ammonia: Yes ___ No ___

Contamination:

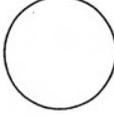
Found During Inspection Yes ___ Check one: ___ Observation ___ Positive Test Kit Result
 No ___ Sandbagged Placed No ___ Yes ___ Give Date _____

Sandbag Checked (Date): _____ Flow was ___ Captured ___ Not Captured: _____

Condition of Manhole:				Common Manholes:		
Grade:	At ___	Above ___	Below ___	High Outlet: Blocked	Yes ___	No ___ NA ___
				Lovejoy: Cover Plate in Place	Yes ___	No ___ NA ___
	Good	Fair	Poor	Comments		
Pavement	_____	_____	_____	_____		
Cover	_____	_____	_____	_____	Construction Material:	
Frame	_____	_____	_____	_____	Brick	Precast Other
Corbel	_____	_____	_____	_____	_____	_____
Walls	_____	_____	_____	_____	_____	_____
Floor	_____	_____	_____	_____	_____	_____

Comments: Manhole Correct as Mapped Yes ___ No ___

N↑



Plan of Manhole

Figure 58: Boston Water and Sewer Commission Manhole Inspection Log (Source: Jewell, 2001)

Methods to isolate intermittent discharges in the storm drain network

Intermittent discharges are often challenging to trace in the storm drain network, although four techniques have been used with some success.

Sandbags

This technique involves placement of sandbags or similar barriers within strategic manholes in the storm drain network to form a temporary dam that collects any intermittent flows that may occur. Any flow collected behind the sandbag is then assessed using visual observations or by indicator sampling. Sandbags are lowered on a rope through the manhole to form a dam along the bottom of the storm drain, taking care not to fully block the pipe (in case it rains before the sandbag is retrieved). Sandbags are typically installed at junctions in the network to eliminate contributing branches from further consideration (Figure 59). If no flow collects behind the sandbag, the upstream pipe network can be ruled out as a source of the intermittent discharge.

Sandbags are typically left in place for no more than 48 hours, and should only be installed when dry weather is forecast. Sandbags should not be left in place during a heavy rainstorm. They may cause a blockage in the storm drain, or, they may be washed downstream and lost. The biggest downside to sandbagging is that it requires at least two trips to each manhole.

Optical Brightener Monitoring (OBM) Traps

Optical brightener monitoring (OBM) traps, profiled in Chapter 12, can also be used to detect intermittent flows at manhole junctions. When these absorbent pads are anchored in the pipe to capture dry weather flows, they can be used to determine the presence of flow and/or detergents. These OBM traps are frequently installed by lowering them into an open-grate drop inlet or storm drain inlet, as shown in Figure 60. The pads are then retrieved after 48 hours and are observed under a fluorescent light (this method is most reliable for undiluted washwaters).

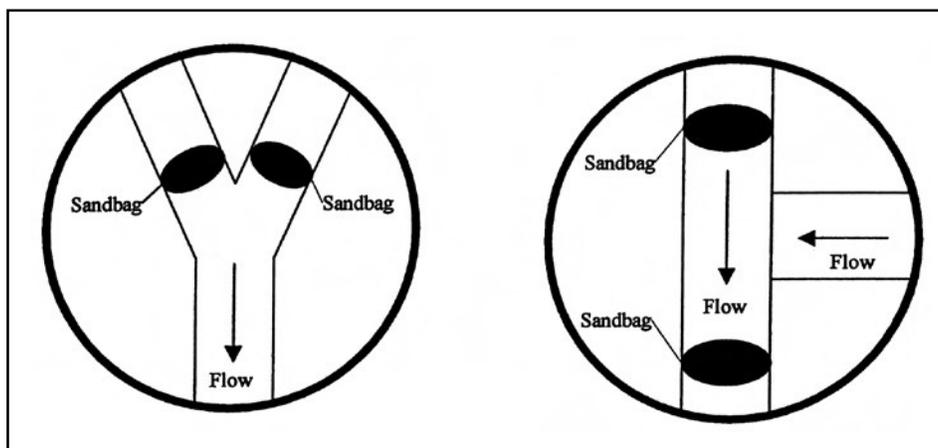


Figure 59: Example sandbag placement (Source: Jewell, 2001)



Figure 60: Optical Brightener Placement in the Storm Drain
(Source: Sargent and Castonguay, 1998)

Automatic Samplers

A few communities have installed automated samplers at strategic points within the storm drain network system that are triggered by small dry weather flows and collect water quality samples of intermittent discharges. Automated sampling can be extremely expensive, and is primarily used in very complex drainage areas that have severe intermittent discharge problems. Automated samplers can pinpoint the specific date and hours when discharges occur, and characterize its chemical composition, which can help crews fingerprint the generating source.

Observation of Deposits or Stains

Intermittent discharges often leave deposits or stains within the storm drain pipe or manhole after they have passed. Thus, crews should note whether any deposits or stains are present in the manhole, even if no dry weather flow is observed. In some cases, the origin of the discharge can be surmised by collecting indicator samples in the water ponded within the manhole sump. Stains and deposits, however, are not always a conclusive way to trace intermittent discharges in the storm drain network.

13.2 Drainage Area Investigations

The source of some illicit discharges can be determined through a survey or analysis of the drainage area of the problem outfall. The simplest approach is a rapid windshield survey of the drainage area to find the potential discharger or generating sites. A more sophisticated approach relies on an analysis of available GIS data and permit databases to identify industrial or other generating sites. In both cases, drainage area investigations are only effective if the discharge observed at an outfall has distinct or unique characteristics that allow crews to quickly ascertain the probable operation or business that is generating it. Often, discharges with a unique color, smell, or off-the-chart indicator sample reading may point to a specific industrial or commercial source. Drainage area investigations are not helpful in tracing sewage discharges, since they are often not always related to specific land uses or generating sites.

Rapid Windshield Survey

A rapid drive-by survey works well in small drainage areas, particularly if field crews are already familiar with its business operations. Field crews try to match the characteristics of the discharge to the most likely type of generating site, and then inspect all of the sites of the same type within the drainage area until the culprit is found. For example, if fuel is observed at an outfall, crews might quickly check every business operation in the catchment that stores or dispenses fuel. Another example is illustrated in Figure 61 where extremely dense algal growth was observed in a small stream during the winter. Field crews were aware of a fertilizer storage site in the drainage area, and a quick inspection identified it as the culprit.



Figure 61: Symptom (left): Discoloration of stream; Diagnosis: Extra hydroseed leftover from an upstream application (middle) was dumped into a storm drain by municipal officials (right).

A third example of the windshield survey approach is shown in Figure 62, where a very thick, sudsy and fragrant discharge was noted at a small outfall. The discharge appeared to consist of wash water, and the only commercial laundromat found upstream was confirmed to be the source. On-site testing may still be needed to identify the specific plumbing or connection generating the discharge.

Detailed Drainage Area Investigations

In larger or more complex drainage areas, GIS data can be analyzed to pinpoint the source of a discharge. If only general land use data exist, maps can at least highlight suspected industrial areas. If more detailed SIC code data are available digitally, the GIS can be used to pull up specific hotspot

operations or generating sites that could be potential dischargers. Some of the key discharge indicators that are associated with hotspots and specific industries are reviewed in Appendix K.

13.3 On-site Investigations

On-site investigations are used to pinpoint the exact source or connection producing a discharge within the storm drain network. The three basic approaches are dye, video and smoke testing. While each approach can determine the actual source of a discharge, each needs to be applied under the right conditions and test limitations (see Table 56). It should be noted that on-site investigations are not particularly effective in finding *indirect* discharges to the storm drain network.



Figure 62: The sudsy, fragrant discharge (left) indicates that the laundromat is the more likely culprit than the florist (right).

Table 56: Techniques to Locate the Discharge		
Technique	Best Applications	Limitations
Dye Testing	<ul style="list-style-type: none"> • Discharge limited to a very small drainage area (<10 properties is ideal) • Discharge probably caused by a connection from an individual property • Commercial or industrial land use 	<ul style="list-style-type: none"> • May be difficult to gain access to some properties
Video Testing	<ul style="list-style-type: none"> • Continuous discharges • Discharge limited to a single pipe segment • Communities who own equipment for other investigations 	<ul style="list-style-type: none"> • Relatively expensive equipment • Cannot capture non-flowing discharges • Often cannot capture discharges from pipes submerged in the storm drain
Smoke Testing	<ul style="list-style-type: none"> • Cross-connection with the sanitary sewer • Identifying other underground sources (e.g., leaking storage techniques) caused by damage to the storm drain 	<ul style="list-style-type: none"> • Poor notification to public can cause alarm • Cannot detect all illicit discharges

TIP

The Wayne County Department of the Environment provides excellent training materials on on-site investigations, as well as other illicit discharge techniques. More information about this training can be accessed from their website: http://www.wcdoe.org/Watershed/Programs___Srvcs_/IDEP/idep.htm.



Figure 63: Dye Testing Plumbing (NEIWPCC, 2003)

Dye Testing

Dye testing is an excellent indicator of illicit connections and is conducted by introducing non-toxic dye into toilets, sinks, shop drains and other plumbing fixtures (see Figure 63). The discovery of dye in the storm drain, rather than the sanitary sewer, conclusively determines that the illicit connection exists.

Before commencing dye tests, crews should review storm drain and sewer maps to identify lateral sewer connections and how they can be accessed. In addition, property owners must be notified to obtain entry permission. For industrial or commercial properties, crews should carry a letter to document their legal authority to gain

access to the property. If time permits, the letter can be sent in advance of the dye testing. For residential properties, communication can be more challenging. Unlike commercial properties, crews are not guaranteed access to homes, and should call ahead to ensure that the owner will be home on the day of testing.

Communication with other local agencies is also important since any dye released to the storm drain could be mistaken for a spill or pollution episode. To avoid a costly and embarrassing response to a false alarm,

crews should contact key spill response agencies using a “quick fax” that describes when and where dye testing is occurring (Tuomari and Thomson, 2002). In addition, crews should carry a list of phone numbers to call spill response agencies in the event dye is released to a stream.

At least two staff are needed to conduct dye tests – one to flush dye down the plumbing fixtures and one to look for dye in the downstream manhole(s). In some cases,

three staff may be preferred, with two staff entering the private residence or building for both safety and liability purposes.

The basic equipment to conduct dye tests is listed in Table 57 and is not highly specialized. Often, the key choice is the type of dye to use for testing. Several options are profiled in Table 58. In most cases, liquid dye is used, although solid dye tablets can also be placed in a mesh bag and lowered into the manhole on a rope (Figure 64). If a

Table 57: Key Field Equipment for Dye Testing <i>(Source: Wayne County, MI, 2000)</i>	
Maps, Documents	
<ul style="list-style-type: none"> • Sewer and storm drain maps (sufficient detail to locate manholes) • Site plan and building diagram • Letter describing the investigation • Identification (e.g., badge or ID card) • Educational materials (to supplement pollution prevention efforts) • List of agencies to contact if the dye discharges to a stream. • Name of contact at the facility 	
Equipment to Find and Lift the Manhole Safely (small manhole often in a lawn)	
<ul style="list-style-type: none"> • Probe • Metal detector • Crow bar • Safety equipment (hard hats, eye protection, gloves, safety vests, steel-toed boots, traffic control equipment, protective clothing, gas monitor) 	
Equipment for Actual Dye Testing and Communications	
<ul style="list-style-type: none"> • 2-way radio • Dye (liquid or “test strips”) • High powered lamps or flashlights • Water hoses • Camera 	



Figure 64: Dye in a mesh bag is placed into an upstream manhole (left); Dye observed at a downstream manhole traces the path of the storm drain (right)

longer pipe network is being tested, and dye is not expected to appear for several hours, charcoal packets can be used to detect the dye (GCHD, 2002). Charcoal packets can be secured and left in place for a week or two, and then analyzed for the presence of dye. Instructions for using charcoal packets in dye testing can be accessed at the following website: <http://bayinfo.tamug.tamu.edu/gbeppubs/ms4.pdf>.

The basic drill for dye tests consists of three simple steps. First, flush or wash dye down the drain, fixture or manhole. Second, pop open downgradient sanitary sewer manholes and check to see if any dye appears. If none is detected in the sewer manhole after an hour or so, check downgradient storm drain manholes or outfalls for the presence of dye. Although dye testing is fairly straightforward, some tips to make testing go more smoothly are offered in Table 59.

Table 58: Dye Testing Options

Product	Applications
Dye Tablets	<ul style="list-style-type: none"> • Compressed powder, useful for releasing dye over time • Less messy than powder form • Easy to handle, no mess, quick dissolve • Flow mapping and tracing in storm and sewer drains • Plumbing system tracing • Septic system analysis • Leak detection
Liquid Concentrate	<ul style="list-style-type: none"> • Very concentrated, disperses quickly • Works well in all volumes of flow • Recommended when metering of input is required • Flow mapping and tracing in storm and sewer drains • Plumbing system tracing • Septic system analysis • Leak detection
Dye Strips	<ul style="list-style-type: none"> • Similar to liquid but less messy
Powder	<ul style="list-style-type: none"> • Can be very messy and must dissolve in liquid to reach full potential • Recommended for very small applications or for very large applications where liquid is undesirable • Leak detection
Dye Wax Cakes	<ul style="list-style-type: none"> • Recommended for moderate-sized bodies of water • Flow mapping and tracing in storm and sewer drains
Dye Wax Donuts	<ul style="list-style-type: none"> • Recommended for large sized bodies of water (lakes, rivers, ponds) • Flow mapping and tracing in storm and sewer drains • Leak detection

Table 59: Tips for Successful Dye Testing
(Adapted from Tuomari and Thompson, 2002)

Dye Selection

- Green and liquid dyes are the easiest to see.
- Dye test strips can be a good alternative for residential or some commercial applications. (Liquid can leave a permanent stain).
- Check the sanitary sewer before using dyes to get a “base color.” In some cases, (e.g., a print shop with a permitted discharge to the sanitary sewer), the sewage may have an existing color that would mask a dye.
- Choose two dye colors, and alternate between them when testing multiple fixtures.

Selecting Fixtures to Test

- Check the plumbing plan for the site to isolate fixtures that are separately connected.
- For industrial facilities, check most floor drains (these are often misdirected).
- For plumbing fixtures, test a representative fixture (e.g., a bathroom sink).
- Test some locations separately (e.g., washing machines and floor drains), which may be misdirected.
- If conducting dye investigations on multiple floors, start from the basement and work your way up.
- At all fixtures, make sure to flush with plenty of water to ensure that the dye moves through the system.

Selecting a Sewer Manhole for Observations

- Pick the closest manhole possible to make observations (typically a sewer lateral).
- If this is not possible, choose the nearest downstream manhole.

Communications Between Crew Members

- The individual conducting the dye testing calls in to the field person to report the color dye used, and when it is dropped into the system.
- The field person then calls back when dye is observed in the manhole.
- If dye is not observed (e.g., after two separate flushes have occurred), dye testing is halted until the dye appears.

Locating Missing Dye

- The investigation is not complete until the dye is found. Some reasons for dye not appearing include:
- The building is actually hooked up to a septic system.
- The sewer line is clogged.
- There is a leak in the sewer line or lateral pipe.

Video Testing

Video testing works by guiding a mobile video camera through the storm drain pipe to locate the actual connection producing an illicit discharge. Video testing shows flows and leaks within the pipe that may indicate an illicit discharge, and can show cracks and other pipe damage that enable sewage or contaminated water to flow into the storm drain pipe.

Video testing is useful when access to properties is constrained, such as residential neighborhoods. Video testing can also be expensive, unless the community already owns and uses the equipment for sewer inspections. This technique will not detect all types of discharges, particularly when the illicit connection is not flowing at the time of the video survey.

Different types of video camera equipment are used, depending on the diameter and condition of the storm sewer being tested.

Field crews should review storm drain maps, and preferably visit the site before selecting the video equipment for the test. A field visit helps determine the camera size needed to fit into the pipe, and if the storm drain has standing water.

In addition to standard safety equipment required for all manhole inspections, video testing requires a Closed-Circuit Television (CCTV) and supporting items. Many commercially available camera systems are specifically adapted to televise storm sewers, ranging from large truck or van-mounted systems to much smaller portable cameras. Cameras can be self-propelled or towed. Some specifications to look for include:

- The camera should be capable of radial view for inspection of the top, bottom, and sides of the pipe and for looking up lateral connections.
- The camera should be color.
- Lighting should be supplied by a lamp on the camera that can light the entire periphery of the pipe.

When inspecting the storm sewer, the CCTV is oriented to keep the lens as close as possible to the center of the pipe. The camera can be self-propelled through the pipe using a tractor or crawler unit or it may be towed through on a skid unit (see Figures 65 and 66). If the storm drain



Figure 65: Camera being towed

has ponded water, the camera should be attached to a raft, which floats through the storm sewer from one manhole to the next. To see details of the sewer, the camera and lights should be able to swivel both horizontally and vertically. A video record of the inspection should be made for future reference and repairs (see Figure 67).

Smoke Testing

Smoke testing is another “bottom up” approach to isolate illicit discharges. It works by introducing smoke into the storm drain system and observing where the smoke surfaces. The use of smoke testing to detect illicit discharges is a relatively new application, although many communities have used it to check for infiltration and inflow into their sanitary sewer network. Smoke testing can find improper



Figure 66: Tractor-mounted camera



Figure 67: Review of an inspection video

connections, or damage to the storm drain system (Figure 68). This technique works best when the discharge is confined to the upper reaches of the storm drain network, where pipe diameters are too small for video testing and gaining access to multiple properties renders dye testing infeasible.

Notifying the public about the date and purpose of smoke testing before starting is critical. The smoke used is non-toxic, but can cause respiratory irritation, which can be a problem for some residents. Residents should be notified at least two weeks prior to testing, and should be provided the following information (Hurco Technologies, Inc., 2003):

- Date testing will occur
- Reason for smoke testing
- Precautions they can take to prevent smoke from entering their homes or businesses
- What they need to do if smoke enters their home or business, and any health concerns associated with the smoke
- A number residents can call to relay any particular health concerns (e.g., chronic respiratory problems)

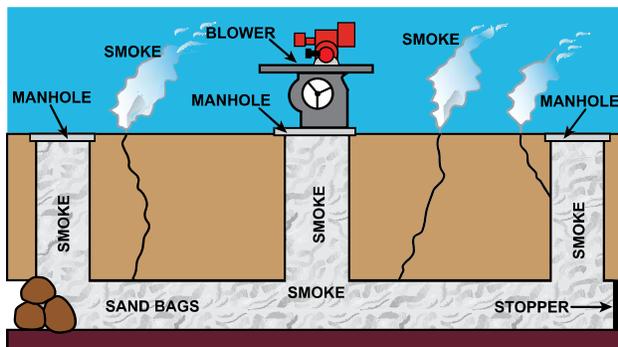


Figure 68: Smoke Testing System Schematic

Program managers should also notify local media to get the word out if extensive smoke testing is planned (e.g., television, newspaper, and radio). On the actual day of testing, local fire, police departments and 911 call centers should be notified to handle any calls from the public (Hurco Technologies, Inc., 2003).

The basic equipment needed for smoke testing includes manhole safety equipment, a smoke source, smoke blower, and sewer plugs. Two smoke sources can be used for smoke testing. The first is a smoke “bomb,” or “candle” that burns at a controlled rate and releases very white smoke visible at relatively low concentrations (Figure 69). Smoke bombs are suspended beneath a blower in a manhole. Candles are available in 30 second to three minute sizes. Once opened, smoke bombs should be kept in a dry location and should be used within one year.

The second smoke source is liquid smoke, which is a petroleum-based product that is injected into the hot exhaust of a blower where it is heated and vaporized (Figure 70). The length of smoke production can vary depending on the length of the pipe being



Figure 69: Smoke Candles



Figure 70: Smoke blower

tested. In general, liquid smoke is not as consistently visible and does not travel as far as smoke from bombs (USA Blue Book).

Smoke blowers provide a high volume of air that forces smoke through the storm drain pipe. Two types of blowers are commonly used: “squirrel cage” blowers and direct-drive propeller blowers. Squirrel cage blowers are large and may weigh more than 100 pounds, but allow the operator to generate more controlled smoke output. Direct-drive propeller blowers are considerably lighter and more compact, which allows for easier transport and positioning.

Three basic steps are involved in smoke testing. First, the storm drain is sealed off by plugging storm drain inlets. Next, the smoke is released and forced by the blower through the storm drain system. Lastly, the crew looks for any escape of smoke above-ground to find potential leaks.

One of three methods can be used to seal off the storm drain. Sandbags can be lowered into place with a rope from the street surface. Alternatively, beach balls that have a diameter slightly larger than the drain can be inserted into the pipe. The beach ball is then placed in a mesh bag with a

rope attached to it so it can be secured and retrieved. If the beach ball gets stuck in the pipe, it can simply be punctured, deflated and removed. Finally, expandable plugs are available, and may be inserted from the ground surface.

Blowers should be set up next to the open manhole after the smoke is started. Only one manhole is tested at a time. If smoke candles are used, crews simply light the candle, place it in a bucket, and lower it in the manhole. The crew then watches to see where smoke escapes from the pipe. The two most common situations that indicate an illicit discharge are when smoke is seen rising from internal plumbing fixtures (typically reported by residents) or from sewer vents. Sewer vents extend upward from the sewer lateral to release gas buildup, and are not supposed to be connected to the storm drain system.

13.4 Septic System Investigations

The techniques for tracing illicit discharges are different in rural or low-density residential watersheds. Often, these watersheds lack sanitary sewer service and storm water is conveyed through ditches or swales, rather than enclosed pipes. Consequently, many illicit discharges enter the stream as indirect discharges, through surface breakouts of septic fields or through straight pipe discharges from bypassed septic systems.

The two broad techniques used to find individual septic systems—on-site investigations and infrared imagery—are described in this section.

On-Site Septic Investigations

Three kinds of on-site investigations can be performed at individual properties to determine if the septic system is failing, including homeowner survey, surface condition analysis and a detailed system inspection. The first two investigations are rapid and relatively simple assessments typically conducted in targeted watershed areas. Detailed system inspections are a much more thorough investigation of the functioning of the septic system that is conducted by a certified professional. Detailed system inspections may occur at time of sale of a property, or be triggered by poor scores on the rapid homeowner survey or surface condition analysis.

Homeowner Survey

The homeowner survey consists of a brief interview with the property owner to determine the potential for current or future failure of the septic system, and is often done in conjunction with a surface condition analysis.

Table 60 highlights some common questions to ask in the survey, which inquire about resident behaviors, system performance and maintenance activity.

Surface Condition Analysis

The surface condition analysis is a rapid site assessment where field crews look for obvious indicators that point to current or potential production of illicit discharges by the septic system (Figure 71). Some of the key surface conditions to analyze have been described by Andrews *et al.*, (1997) and are described below:

- Foul odors in the yard
- Wet, spongy ground; lush plant growth; or burnt grass near the drain field
- Algal blooms or excessive weed growth in adjacent ditches, ponds and streams
- Shrubs or trees with root damage within 10 feet of the system
- Cars, boats, or other heavy objects located over the field that could crush lateral pipes
- Storm water flowing over the drain field
- Cave-ins or exposed system components
- Visible liquid on the surface of the drain field (e.g., surface breakouts)
- Obvious system bypasses (e.g., straight pipe discharges)

Table 60: Septic System Homeowner Survey Questions

(Adapted from Andrews *et al.*, 1997 and Holmes Inspection Services)

- How many people live in the house?¹
- What is the septic tank capacity?²
- Do drains in the house empty slowly or not at all?
- When was the last time the system was inspected or maintained?
- Does sewage back up into the house through drain lines?
- Are there any wet, smelly spots in the yard?
- Is the septic tank effluent piped so it drains to a road ditch, a storm sewer, a stream, or is it connected to a farm drain tile?

¹ Water usage ranges from 50 to 100 gallons per day per person. This information can be used to estimate the wastewater load from the house (Andrews *et al.*, 1997).

² The septic tank should be large enough to hold two days' worth of wastewater (Andrews *et al.*, 1997).



Figure 71: (a) Straight pipe discharge to nearby stream. (b) Algal bloom in a nearby pond.

(Sources: a- Snohomish County, WA, b- King County, WA)

Detailed System Inspection

The detailed system inspection is a much more thorough inspection of the performance and function of the septic system, and must be completed by a certified professional. The inspector certifies the structural integrity of all components of the system, and checks the depth of solids in the septic tank to determine if the system needs to be pumped out. The inspector also sketches the system, and estimates distance to groundwater, surface water, and drinking water sources. An example septic system inspection form from Massachusetts can be found at <http://www.state.ma.us/dep/brp/www/soilsys.htm>.

Although not always incorporated into the inspection, dye testing can sometimes point to leaks from broken pipes, or direct discharges through straight pipes that might be missed during routine inspection. Dye can be introduced into plumbing fixtures in the home, and flushed with sufficient running water. The inspector then watches the septic field, nearby ditches, watercourses and manholes for any signs of the dye. The

dye may take several hours to appear, so crews may want to place charcoal packets in adjacent waters to capture dye until they can return later to retrieve them.

Infrared Imagery

Infrared imagery is a special type of photography with gray or color scales that represent differences in temperature and emissivity of objects in the image (www.stocktoninfrared.com), and can be used to locate sewage discharges. Several different infrared imagery techniques can be used to identify illicit discharges. The following discussion highlights two of these: aerial infrared thermography¹³ and color infrared aerial photography.

Infrared Thermography

Infrared thermography is increasingly being used to detect illicit discharges and failing septic systems. The technique uses the temperature difference of sewage as a marker to locate these illicit discharges. Figure 72 illustrates the thermal difference

¹³ Infrared thermography is also being used by communities such as Mecklenburg County and the City of Charlotte in NC to detect illicit discharges at outfalls.

between an outfall discharge (with a higher temperature) and a stream.

The equipment needed to conduct aerial infrared thermography includes an aircraft (plane or helicopter); a high-resolution, large format, infrared camera with appropriate mount; a GPS unit; and digital recording equipment. If a plane is used, a higher resolution camera is required since it must operate at higher altitudes. Pilots should be experienced since flights take place at night, slowly, and at a low altitude. The camera may be handheld, but a mounted camera will provide significantly clearer results for a larger area. The GPS can be combined with a mobile mapping program and a video encoder-decoder that encodes and displays the coordinates, date, and time (Stockton, 2000). The infrared data are analyzed after the flight by trained analysts to locate suspected discharges, and field crews then inspect the ground-truthed sites to confirm the presence of a failing septic system.

Late fall, winter, and early spring are typically the best times of year to conduct these investigations in most regions of the



Figure 72: Aerial thermography showing sewage leak

country. This allows for a bigger difference between receiving water and discharge temperatures, and interference from vegetation is minimized (Stockton, 2004b). In addition, flights should take place at night to minimize reflected and direct daylight solar radiation that may adversely affect the imagery (Stockton, 2004b).

Color Infrared Aerial Photography

Color infrared aerial photography looks for changes in plant growth, differences in soil moisture content, and the presence of standing water on the ground to primarily identify failing septic systems (Figure 73).

The Tennessee Valley Authority (TVA) uses color infrared aerial photography to detect failing septic systems in reservoir watersheds. Local health departments conduct follow-up ground-truthing surveys to determine if a system is actually failing (Sagona, 1986). Similar to thermography, it is recommended that flights take place at night, during leaf-off conditions, or when the water table is at a seasonal high (which is when most failures typically occur (U.S. EPA, 1999).

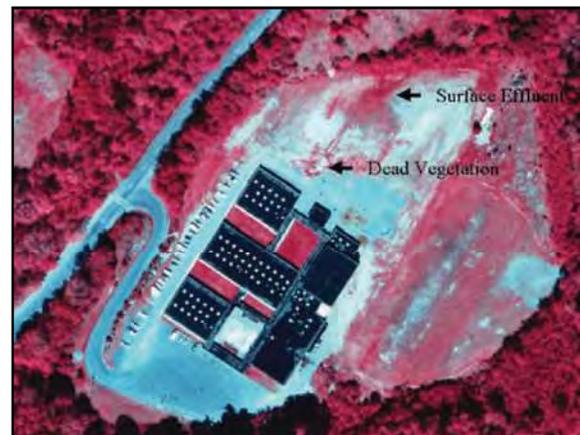


Figure 73: Dead vegetation and surface effluent are evidence of a septic system surface failure.

(Source: U.S. EPA, 1999)

13.5 The Cost to Trace Illicit Discharge Sources

Tracing illicit discharges to their source can be an elusive and complex process, and precise staffing and budget data are difficult to estimate. Experience of Phase I NPDES communities that have done these investigations in the past can shed some light on cost estimates. Some details on unit costs for common illicit discharge investigations are provided below.

Costs for Dye, Video, and Smoke Testing

The cost of smoke, dye, and video testing can be substantial and staff intensive, and

often depend on investigation specific factors, such as the complexity of the drainage network, density and age of buildings, and complexity of land use. Wayne County, MI, has estimated the cost of dye testing at \$900 per facility. Video testing costs range from \$1.50 to \$2.00 per foot, although this increases by \$1.00 per foot if pipe cleaning is needed prior to testing.

Table 61 summarizes the costs of start-up equipment for basic manhole entry and inspection, which is needed regardless of which type of test is performed. Tables 62 through 64 provide specific equipment costs for dye, video and smoke testing, respectively.

Table 61: Common Field Equipment Needed for Dye, Video, and Smoke Testing	
Item	Cost
1 Digital Camera	\$200
Clipboards, Pens, Batteries	\$25
1 Field vehicle	\$15,000 - \$35,000
1 First aid kit	\$30
1 Spotlight	\$40
1 Gas monitor and probe	\$900 - \$2,100
1 Hand-held GPS Unit	\$150
2 Two-way radios	\$250 - \$750
1 Manhole hook	\$80 - \$130
1 Mirror	\$70 - \$130
2 Reflective safety vests	\$40
Rubber/latex gloves (box of 100)	\$25
1 Can of Spray Paint	\$5
4 Traffic Cones	\$50

Table 62: Equipment Costs for Dye Testing

Product	Water Volume	Cost
Dye Strips	1 strip/500 gallons	\$75 – \$94 per 100 strips
Dye Tablets	0 – 50,000 gallons	\$40 per 200 tablets
Liquid Concentrate (Rhodamine WT)	0 – 50,000 gallons	\$80 – \$90 per gallon \$15 – \$20 per pint
Powder	50,000 + gallons	\$77 per lb
Dye Wax Cakes	20,000 – 50,000 gallons	\$12 per one 1.25 ounce cake
Dye Wax Donuts	50,000 + gallons	\$104 – \$132 per 42 oz. donut
<i>Price Sources:</i> <i>Aquatic Eco-Systems http://www.aquaticceco.com/</i> <i>Cole Parmer http://www.coleparmer.com</i> <i>USA Blue Book http://www.usabluebook.com</i>		

Table 63: Equipment Costs for Video Testing

Equipment	Cost
GEN-EYE 2™ B&W Sewer Camera with VCR & 200' Push Cable	\$5,800
100' Push Rod and Reel Camera for 2" – 10" Pipes	\$5,300
200' Push Rod and Reel Camera for 8" – 24" Pipes	\$5,800
Custom Saturn III Inspection System 500' cable for 6-16" Lines	\$32,000 (\$33,000 with 1000 foot cable)
OUTPOST	
<ul style="list-style-type: none"> • Box with build-out • Generator • Washdown system 	\$6,000 \$2,000 \$1,000
Video Inspection Trailer	
<ul style="list-style-type: none"> • 7'x10' trailer & build-out • Hardware and software package • Incidentals 	\$18,500 \$15,000 \$5,000
Sprinter Chassis Inspection Vehicle	
<ul style="list-style-type: none"> • Van (with build-out for inspecting 6" – 24" pipes) • Crawler (needed to inspect pipes >24") • Software upgrade (optional but helpful for extensive pipe systems) 	\$130,000 \$18,000 \$8,000
<i>Sources: USA Blue Book and Envirotech</i>	

Table 64: Equipment Costs for Smoke Testing

Equipment	Cost
Smoke Blower	\$1,000 to \$2,000 each
Liquid Smoke	\$38 to \$45 per gallon
Smoke Candles, 30 second (4,000 cubic feet)	\$27.50 per dozen
Smoke Candles, 60 Second (8,000 cubic feet)	\$30.50 per dozen
Smoke Candles, 3 Minute (40,000 cubic feet)	\$60.00 per dozen
<i>Sources: Hurco Tech, 2003 and Cherne Industries, 2003</i>	

Costs for Septic System Investigations

Most septic system investigations are relatively low cost, but factors such as private property access, notification, and the total number of sites investigated can increase costs. Unit costs for the three major septic system investigations are described below.

Homeowner Survey and Surface Condition Analysis

Both the homeowner survey and the surface condition analysis are relatively low cost investigation techniques. Assuming that a staff person can investigate one home per hour, the average cost per inspection is approximately \$25. A substantial cost savings can be realized by using interns or volunteers to conduct these simple investigations.

Detailed System Inspection

Septic system inspections are more expensive, but a typical unit cost is about \$250, and may also include an additional cost of pumping the system, at roughly \$150, if pumping is required to complete the inspection (Wayne County, 2003). This cost is typically charged to the homeowner as part of a home inspection.

Aerial Infrared Thermography

The equipment needed to conduct aerial infrared thermography is expensive; cameras alone may range from \$250,000 to \$500,000 (Stockton, 2004a). However, private contractors provide this service. In general, the cost to contract an aerial infrared thermography investigation depends on the length of the flight (flights typically follow streams or rivers); how difficult it will be to fly the route; the number of heat anomalies expected to be encountered; the expected post-flight processing time (typically, four to five hours of analysis for every hour flown); and the distance of the site from the plane's "home" (Stockton, 2004a). The cost range is typically \$150 to \$400 per mile of stream or river flown, which includes the flight and post-flight analyses (Stockton, 2004a).

As an alternative, local police departments may already own an infrared imaging system that may be used. For instance, the Arkansas Department of Health used a state police helicopter with a Forward Looking Infrared (FLIR) imaging system, GPS, video equipment, and maps (Eddy, 2000). The disadvantage to this is that the equipment may not be available at optimal times to conduct the investigation. In addition, infrared imaging equipment used by police departments may not be sensitive enough to detect the narrow range of temperature difference (only a few degrees) often expected for sewage flows (Stockton, 2004a).

Appendix L

MUNICIPAL FACILITY INVENTORY
VILLAGE OF BUCHANAN
December 31, 2025

#	Facility Name	Address	S/B/L	Facility Type	Priority & Reason ¹	Receiving Waterbody Name/Class WI/WPL ID	Facility Contact & Department Information	Site Activites	No Exposure Certification (y/n)	Size (acres)	Last Assessment ²	Best Management Practices (BMPs)	Next Assessment ²
1	Village Hall	236 Tate Avenue		Admin.	Low	Lake Meahagh/ Class C/1301-0053		Adminstrative Duties	N/A	1.85 ac	5/8/2025		5/8/2030
2	Village Highway Garage	218 Westchester Avenue		Hwy Garage	Low	Lake Meahagh/ Class C/1301-0053		Vehicle Storage/Maintenance/ Material Storage/Salt Shed	N/A	13.95 ac	5/8/2025		5/8/2030
3	Village WWTP	10 Greentown Road		Wastewater	Low	Minor Tribs to East of Hudson (Dickey Brook)/ Class C/1301-0133		Wastewater Treatment	N/A	9.87 ac	5/8/2025		5/8/2030
4	4th Street Pump Sta.	4th Steet		Wastewater	Low	Lake Meahagh/ Class C/1301-0053		Wastewater Pump Station	N/A	0.17 ac	10/1/2025		10/1/2030
5	Albany Post Rd Pump Sta.	Albany Post Road		Wastewater	Low	Minor Tribs to East of Hudson (Dickey Brook)/ Class C/1301-0133		Wastewater Pump Station	N/A	0.13 ac	10/1/2025		10/1/2030
6	Bleakley Ave Pump Sta.	Bleakley Avenue		Wastewater	Low	Hudson River/ Class SB/1301-0094		Wastewater Pump Station	N/A	0.28 ac	10/1/2025		10/1/2030
7	Lake Drive Pump Sta.	Lake Drive		Wastewater	Low	Lake Meahagh/ Class C/1301-0053		Wastewater Pump Station	N/A	0.10 ac	12/22/2025		12/22/2030
8	Valerie Court Pump Sta.	Valerie Court		Wastewater	Low	Lake Meahagh/ Class C/1301-0053		Wastewater Pump Station	N/A	0.01 ac	12/22/2025		12/22/2030
9	Westchester Ave Pump Sta.	Westchester Avenue		Wastewater	Low	Lake Meahagh/ Class C/1301-0053		Wastewater Pump Station	N/A	0.28 ac	12/22/2025		12/22/2030
10	Centerville Rec. Park	218 Westchester Avenue		Recreation	Low	Lake Meahagh/ Class C/1301-0053		Village Pool/Pavilion/Outdoor Recreation	N/A	13.95 ac	12/22/2025		12/22/2030
11	Lent's Cove Park	Broadway		Recreation	Low	Hudson River/ Class SB/1301-0094		Outdoor Recreation	N/A	9.34 ac	12/22/2025		12/22/2030
12	Village Circle	Village Circle		Beautification	Low	Minor Tribs to East of Hudson (Dickey Brook)/ Class C/1301-0133		Village ROW	N/A	0.19 ac	12/22/2025		12/22/2030

¹High priority municipal facilities have one or more of the following on site and exposed to Stormwater: (1) Storage of chemicals, salt, petroleum, pesticides, fertilizers, antifreeze, lead-acid batteries, tires, waste/debris (2) Fueling stations; and/or (3) Vehicle or equipment maintenance or repair. All other facilities are Low priority.

²Facilities are to be inspected once every 5 years during wet wether.