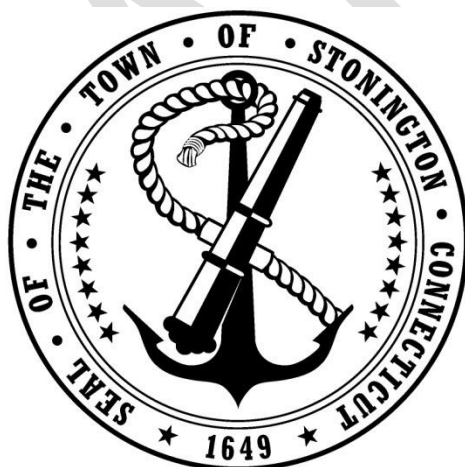


TOWN OF STONINGTON 2016 PHASE 2 STORM WATER ANNUAL REPORT



**Prepared by
Scot Deledda, P.E.
Stonington Town Engineer**

December 2016

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Section A

Stormwater Program Permit Information

Permitting Authority:	CT DEP
Permit Number:	000056
Permit Type:	General
Permit Name:	Stonington Small MS4 Permit
Date Issue:	07/09/2004
Date Expire:	06/30/2017

General Information for MS4 Operator

Operator Name:	Mr. Robert Simmons
Operator Title:	First Selectman
Represented Entity:	Town of Stonington
Mailing Address:	152 Elm St
Mail City, State, Zip:	Stonington, CT 06378
Phone Number	(860) 535-5050
Population:	Approx. 18,000
Households:	Approx. 7,000
Area:	Approx 39 sq miles
Official Website:	www.stonington-ct.gov

General Information for Primary Contact Person

Name:	Scot Deledda, P.E.
Title:	Town Engineer
Phone Number:	(860) 535-5055
E-Mail Address:	sdeledda@stonington-ct.gov

General Information for Secondary Contact Person

Name:	Barbara McKrell, P.E.
Title:	Director of Public Works
Phone Number:	(860) 535-5055
E-Mail Address:	bmckrell@stonington-ct.gov

General Information for Receiving Waters

Receiving Water Lists: Listed below are all the identified receiving waterbodies to which identified outfalls discharge.

Receiving Streams

(Creek, stream, river, etc.)

Whitford Brook
Pequotsepos Brook
Copps Brook
Anguilla Brook
Stony Brook
Donahue Brook
Wheeler Brook

Receiving Waterbodies

(Lake, wetland, ocean, etc.)

Mystic River
Whitford Pond
Mystic Harbor
Stonington Harbor
Mystic Reservoir
Little Narragansett Bay
Fishers Island Sound
Wequetequock Pond
Wequetequock River
Pawcatuck River

Receiving Watersheds

Whitford Brook
Mystic River
Pequotsepos Brook
Copps Brook
Stonington Harbor
Wequetequock River
Little Narragansett Bay
Pawcatuck River

Section B

Plan Contents Summary

The Stormwater Management Plan consists of the following Minimum Control Measures (MCM's) and Best Management Practices (BMP's):

<u>MCM's and BMP's</u>	<u>Target Start Date</u>	<u>Target End Date</u>
<i>MCM #1 - Public Participation/Involvement</i>		
1.1 Establishing a Stormwater Mgt Study Group	07/01/2004	06/30/2005
1.2 Public Info Meeting	07/01/2004	06/30/2005
1.3 Finalize SMSG Recommendations	07/01/2004	06/30/2005
1.4 Continue to meet with Stormwater Group	07/01/2005	01/09/2009
1.5 Organize a Storm Drain Marking Program	07/01/2005	06/29/2006
1.6 Storm Drain Marking (Year 3)	07/01/2006	06/29/2007
1.7 Storm Drain Marking (Year 4)	07/01/2007	06/29/2008
1.8 Storm Drain Marking (Year 5)	07/01/2008	01/08/2009
1.9 Storm Drain Marking (Year 6)	07/01/2009	01/08/2010
1.10 Storm Drain Marking (Year 7)	07/01/2010	01/01/2011
1.11 Storm Drain Marking (Year 8)	07/01/2011	01/01/2012
1.12 Storm Drain Marking (Year 9)	07/01/2012	01/01/2013
1.13 Storm Drain Marking (Year 10)	07/01/2013	01/01/2014
1.14 Post draft SMP on Website (Year 12)	12/30/2016	01/31/2017
<i>MCM #2 - Public Education and Outreach</i>		
2.1 Creating & Procuring Stormwater Literature (Year1)	07/01/2004	06/29/2005
2.2 Develop Info for Website (Year 1)	07/01/2004	06/29/2005
2.3 Teach Stormwater Issues to Schools (Year 1)	07/01/2004	06/29/2005
2.4 Inform the public on the hazards of Illicit Discharges	07/01/2005	06/29/2006
2.5 Distribute Literature (Year 2)	07/01/2005	06/29/2006
2.6 Update Info for Website (Year 2)	07/01/2005	06/30/2006
2.7 Distribute Literature (Year 3)	07/01/2006	06/29/2007
2.8 Storm Drain Marking (Year 3)	07/01/2006	06/29/2007
2.9 Update Info for Website (Year 3)	07/01/2006	06/29/2007
2.10 Distribute Literature (Year 4)	07/01/2007	06/29/2008
2.11 Storm Drain Marking (Year 4)	07/01/2007	06/29/2008
2.12 Update Info on Website (Year 4)	07/01/2007	06/29/2008
2.13 Distribute Literature (Year 5)	07/01/2008	01/08/2009
2.14 Storm Drain Marking (Year 5)	07/01/2008	01/07/2009
2.15 Update Info for Website (Year 5)	07/01/2008	01/08/2009
2.16 Storm Drain Marking (Year 6)	07/01/2009	01/08/2010
2.17 Update Info for Website (Year 6)	07/01/2009	01/08/2010
2.18 Storm Drain Marking (Year 7)	07/01/2010	01/01/2011
2.19 Update Info for Website (Year 7)	07/01/2010	01/01/2011
2.20 Storm Drain Marking (Year 8)	07/01/2011	01/01/2012

2.21 Update Info for Website (Year 8)	07/01/2011	01/01/2012
2.22 Storm Drain Marking (Year 9)	07/01/2012	01/01/2013
2.23 Update Info for Website (Year 9)	07/01/2012	01/01/2013
2.24 Storm Drain Marking (Year 10)	07/01/2013	01/01/2014
2.25 Update Info for Website (Year 10)	07/01/2013	01/01/2014
2.26 Update Info on new website (Year 11)	12/29/2014	07/31/2015
2.27 Reconstructed Town Website (Year 12)	09/02/2016	12/31/2017
2.28 Distribute Literature (Year 12)	12/31/2015	12/31/2016

MCM #3 - Illicit Discharge Detection and Elimination

3.1 Initial Identification of Illicit Discharge Sources	07/01/2004	06/29/2005
3.2 Inform the public on non-stormwater discharges	07/01/2005	06/30/2006
3.3 Stormwater Ordinance	07/01/2004	06/29/2005
3.4 Develop and Implement an IDD&E Program	07/01/2005	06/30/2006
3.5 Drainage System Map - Year 2	07/01/2005	06/29/2006
3.6 Drainage System Map - Year 3	07/01/2006	06/29/2007
3.7 Drainage System Map - Year 4	07/01/2007	06/29/2008
3.8 Outlet Sampling - Year 1	07/01/2004	06/29/2005
3.9 Outlet Sampling - Year 2	07/01/2005	06/29/2008
3.10 Outlet Sampling - Year 3	07/01/2006	06/30/2007
3.11 Outlet Sampling - Year 4	07/01/2007	06/29/2008
3.12 Outlet Sampling - Year 5	07/01/2008	01/09/2009
3.13 Outlet Sampling - Year 6	07/01/2009	01/09/2010
3.14 Outlet Sampling - Year 7	07/01/2010	01/01/2011
3.15 Outlet Sampling - Year 8	07/01/2011	01/01/2012
3.16 Outlet Sampling - Year 9	07/01/2012	01/01/2013
3.17 Outlet Sampling - Year 10	07/01/2013	01/01/2014
3.18 Outlet Sampling - Year 11	07/01/2014	01/01/2015
3.19 Outlet Sampling - Year 12	07/01/2015	12/31/2015
3.20 Outlet Sampling - Year 13	12/31/2015	12/31/2016

MCM #4 - Construction Site Runoff Control

4.1 Modify & Enforce Town's Ex. E&S Control Program	07/01/2004	06/29/2005
4.2 Ordinance / Regulatory Mechanism	07/01/2004	06/29/2005
4.3 Implement Reg. Req. - projects exc. 1 ac. threshold	07/01/2004	06/30/2005
4.4 Continue to Improve on E&S Program	07/01/2005	12/31/2016
4.5 Continue Compliance with Reg. Requirements	07/01/2005	12/31/2016
4.6 Continue Req. for E&S Controls on all projects	07/01/2004	12/31/2016
4.7 Develop an IMS to Track E&S compliance	07/01/2004	06/29/2005
4.8 Perform Construction Site Inspections	07/01/2005	12/31/2016
4.9 Requirements for Controlling Waste	07/01/2004	06/29/2005

MCM #5 - Post-Construction Runoff Control

5.1	Develop a Town-Wide Tech Standards Document	07/01/2004	01/01/2011
5.2	Require BMP's	07/01/2005	12/31/2016
5.3	Continue to Improve Water Quality Standards	07/01/2005	12/31/2016
5.4	Drainage Maintenance Agreements	07/01/2005	12/31/2016

MCM #6 - Pollution Prevention/Good Housekeeping

6.1	Develop an O&M Program for Municipal Operations	07/01/2004	06/29/2005
6.2	Employee Training Materials	07/01/2004	06/29/2005
6.3	Train Employees	07/01/2005	11/30/2016
6.4	Develop and Implement Street Sweeping Program	07/01/2004	06/29/2005
6.5	Continue Street Sweeping Program	07/01/2005	12/31/2016
6.6	Develop & Impl. Catch Basin Cleaning Program	07/01/2004	06/29/2005
6.7	Continue Catch Basin Cleaning Program	07/01/2005	12/31/2016
6.8	Develop a Drainage System Improvement Program	07/01/2006	06/30/2007
6.9	Redesigned the towns leaf collection program	12/31/2015	12/31/2016

Section C

Minimum Control Measure #1 - Public Participation/Involvement

EPA Requirements:

To satisfy this minimum control measure, the operator of a regulated small MS4 must:

1. Comply with applicable State, Tribal, and local public notice requirements; and
2. Determine the appropriate best management practices (BMP's) and measurable goals for this minimum control measure.

EPA believes that the public can provide valuable input and assistance to a regulated small MS4's municipal storm water management program and, therefore, suggests that the public be given opportunities to play an active role in both the development and implementation of the program. An active and involved community is crucial to the success of a storm water management program because it allows for:

1. Broader public support since citizens who participate in the development and decision making process are partially responsible for the program and, therefore, may be less likely to raise legal challenges to the program and more likely to take an active role in its implementation.
2. Shorter implementation schedules due to fewer obstacles in the form of public and legal challenges and increased sources in the form of citizen volunteers;
3. A broader base of expertise and economic benefits since the community can be a valuable, and free, intellectual resource; and
4. A conduit to other programs as citizens involved in the storm water program development process provides important cross-connections and relationships with other community and government programs. This benefit is particularly valuable when trying to implement a storm water program on a watershed basis, as encouraged by EPA.

Activities Performed in 2016

Town-wide Clean-ups & Hazardous Waste collections:

The town sponsors several cleanups providing safety vests, refuse collection containers & dumpsters for neighborhood associations, Pawcatuck and Mystic River cleanups, and during other town festivals. This is provided and organized through the Solid Waste Department and indirectly aids in improving stormwater quality.

Other town-wide hazardous waste collection events are publicized through various means to allow up to 9 different public events for citizens to dispose of hazardous waste and other related items not allowed in normal household trash. These events reduce the amount of toxins being stored on properties in town of which through leaks, spills or illegal dumping may end up in receiving water bodies.

Public Participation & Involvement Goals for 2017:

Reinstate a stormwater task force composed of town staff and members of the public to address the goals of the new stormwater management plan, increase compliance with the permit and assist in improving overall stormwater quality. Improve/expand on coordination efforts with other local groups and agencies to provide additional public involvement opportunities.

Minimum Control Measure #2 – Public Education and Outreach

EPA Requirements:

To satisfy this minimum control measure, the operator of a regulated small MS4 needs to:

1. Implement a public education program to distribute educational materials to the community, or conduct equivalent outreach activities about the impacts of storm water discharges on local waterbodies and the steps that can be taken to reduce storm water pollution; and
2. Determine the appropriate best management practices (BMP's) and measurable goals for this minimum control measure.

An informed and knowledgeable community is crucial to the success of a storm water management program since it helps to ensure the following:

1. Greater support for the program as the public gains a greater understanding of the reasons why it is necessary and important. Public support is particularly beneficial when operators of small MS4s attempt to institute new funding initiatives for the program or seek volunteers to help implement the program; and
2. Greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions they can take to protect or improve the quality of area waters.

Activities Performed in 2016

Provide Information to the Public through: Town's Website, Town Hall and outside Agency Support

The town has completely revamped the Phase 2 Stormwater webpage with a brief discussion of the new MS4 General Permit conditions and how the town plans to address these requirements. Links have been added to: CTDEEP & EPA websites, recent Stormwater Annual Reports, Educational Flyers and many other useful links related to stormwater. The website can be viewed at <http://www.stonington-ct.gov/engineering/pages/phase-2-stormwater-permitting>.

In addition to the town's website, there is a local group CUSH (Clean up Sound and Harbors) that has been very active in stormwater education. They have their own website that provides a tremendous amount of information to the public on this subject. The website can be viewed at <http://cushinc.org/>.

Other forms of public education and outreach the town is involved with include: stormwater related education material available to the public in various locations within the town hall and distribution of a Flood Awareness News letter which is sent out once a year to residents in flood hazard zones. Although the Flood Awareness News letter is not directly related to Stormwater quality, we include a section that asks residents to keep stormdrain systems clear of debris and obstructions which indirectly have a positive impact on stormwater quality as most of these properties are in coastal areas closest to stormdrain outlets.

Public Education & Outreach Goals in 2017

Strengthen our public education and outreach program by focusing more attention on the impairments of water bodies around Stonington and aligning the outreach & educational material with pollutants of concern and targeted audiences. The town will continue to work together with local groups to disseminate: flyers & mailings, training students & teachers in Stonington public schools and labeling catch basins in certain areas with special "Don't Pollute" emblems designed specifically for the Town of Stonington.

Minimum Control Measure #3 - Illicit Discharge Detection and Elimination

EPA Requirements:

Recognizing the adverse effects illicit discharges can have on receiving waters, the final rule requires an operator of a regulated small MS4 to develop, implement and enforce illicit discharge detection and elimination program. This program must include the following:

1. A storm sewer system map, showing the location of all outfalls and the names and location of all waters of the Town that receive discharges from those outfalls.
2. Through an ordinance, or other regulatory mechanism, a prohibition (to the extent allowable under State, Tribal, or local law) on non-storm water discharges into the MS4, and appropriate enforcement procedures and actions.
3. A plan to detect and address non-storm water discharges, including illegal dumping, into the MS4.
4. The education of public employees, businesses, and the general public about the hazards associated with illegal discharges and improper disposal of waste.
5. The determination of appropriate best management practices (BMP's) and measurable goals for this minimum control measure.

Discharges from MS4s often include wastes and wastewater from non-storm water sources. A study conducted in 1987 in Sacramento, California, found that almost one-half of the water discharged from a local MS4 was not directly attributable to precipitation runoff. A significant portion of these dry weather flows were from illicit and/or inappropriate discharges and

connections to the MS4. Illicit discharges enter the system through either direct connections (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, or paint or used oil dumped directly into a drain). The result is untreated discharges that contribute 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, wildlife, and human health.

Activities Performed in 2016

Identification of Illicit Discharges

No additional outfalls were detected in 2016. Previously 35 different outlets were earmarked in which to begin our illicit discharge and illegal connection investigations. We anticipate reviewing our IDDE implementation program as part of the new Stormwater Management Plan due in April 2017.

2016 Wet Sampling

The town continues to perform wet sampling in 8 different locations. These are the same locations that were sampled in 2004-2015. All of the sampling was performed on September 1, 2016 and results are included as an attachment to this report.

The Town also provided the sampling results from 2 additional locations inside the Stonington Borough and forwarded the data to the Borough Warden.

IDDE Goals in 2017

Review the current IDDE ordinance as it relates to the new general permit and improve on our implementation strategies.

Minimum Control Measure #4 - Construction Site Runoff Control

EPA Requirements:

The Phase II Final Rule requires an operator of a regulated small MS4 to develop, implement, and enforce a program to reduce pollutants in storm water runoff to their MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. The small MS4 operator is required to:

1. Have an ordinance or other regulatory mechanism requiring the implementation of proper erosion and sediment controls, and controls for other wastes, on applicable construction sites.
2. Have procedures for site plan review of construction plans that consider potential water quality impacts.
3. Have procedures for site inspection and enforcement of control measures.

4. Have sanctions to ensure compliance (established in the ordinance or other regulatory mechanism).
5. Establish procedures for the receipt and consideration of information submitted by the public.
6. Determine the appropriate best management practices (BMP's) and measurable goals for this minimum control measure.

Polluted storm water runoff from construction sites often flows to MS4s and ultimately is discharged into local rivers and streams. Of the pollutants listed in Table 1, sediment is usually the main pollutant of concern. Sediment runoff rates from construction sites are typically 10 to 20 times greater than those of agricultural lands, and 1,000 to 2,000 times greater than those of forest lands. During a short period of time, construction sites can contribute more sediment to streams than can be deposited naturally during several decades. The resulting siltation, and the contribution of other pollutants from construction sites, can cause physical, chemical, and biological harm to our nation's waters. For example, excess sediment can quickly fill rivers and lakes, requiring dredging and destroying aquatic habitats.

Pollutants Commonly Discharged from Construction Sites include the following; Sediment, Solid and sanitary wastes, Phosphorous (fertilizer), Nitrogen (fertilizer), Pesticides, Oil and grease, Concrete truck washout

Activities Performed in 2016

Continue to Inspect for E&S Controls

The town continues to inspect all development projects over 5 acres and smaller selected projects which are in sensitive locations for compliance with their approved stormwater pollution prevention plan (SWPPP). The town continues to request E&S bonds for these types of projects to help pay for these efforts. A total of 4 sites were inspected by the towns designated E&S consulting firm for compliance with approved plans. At least 8 other projects required spot inspections by the Town Staff for erosion and sediment control during 2016.

Continue Compliance with Registration Requirements

We continue to make sure in our plan review process that development applications which propose over 5 acres of disturbance submit General Permit for Construction Activities to the CTDEEP. A total of 2 projects were approved by the Inland wetlands Commission which require a submittal to CTDEEP for a general permit application for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities.

Construction Site Runoff Control Goals in 2017

Review the current town regulations and implementation policies as they relate to the new general permit requirements.

Minimum Control Measure # 5 - Post-Construction Runoff Control

EPA Requirements:

The Phase II Final Rule requires an operator of a regulated small MS4 to develop, implement, and enforce a program to reduce pollutants in post-construction runoff to their MS4 from new development and redevelopment projects that result in the land disturbance of greater than or equal to 1 acre. The small MS4 operator is required to:

1. Develop and implement strategies which include a combination of structural and/or non-structural best management practices (BMP's).
2. Have an ordinance or other regulatory mechanism requiring the implementation of post-construction runoff controls to the extent allowable under State, Tribal or local law.
3. Ensure adequate long-term operation and maintenance of controls.
4. Determine the appropriate best management practices (BMP's) and measurable goals for this minimum control measure.

Post-construction storm water management in areas undergoing new development or redevelopment is necessary because runoff from these areas has been shown to significantly effect receiving waterbodies. Many studies indicate that prior planning and design for the minimization of pollutants in post-construction storm water discharges is the most cost-effective approach to storm water quality management.

There are generally two forms of substantial impacts of post-construction runoff. The first is caused by an increase in the type and quantity of pollutants in storm water runoff. As runoff flows over areas altered by development, it picks up harmful sediment and chemicals such as oil and grease, pesticides, heavy metals, and nutrients (e.g., nitrogen and phosphorus). These pollutants often become suspended in runoff and are carried to receiving waters, such as lakes, ponds, and streams. Once deposited, these pollutants can enter the food chain through small aquatic life, eventually entering the tissues of fish and humans. The second kind of post-construction runoff impact occurs by increasing the quantity of water delivered to the waterbody during storms. Increased impervious surfaces interrupt the natural cycle of gradual percolation of water through vegetation and soil. Instead, water is collected from surfaces such as asphalt and concrete and routed to drainage systems where large volumes of runoff quickly flow to the nearest receiving water. The effects of this process include stream bank scouring and downstream flooding, which often lead to a loss of aquatic life and damage to property.

Activities Performed in 2016

Requiring BMP's

During our plan review process we require that applicable projects (7 projects in 2016) are designed in conformance with the 2002 CT E&S Guidelines as well as the 2004 Connecticut Stormwater Quality Manual. The town has begun compiling a list of all approved projects which require stormwater infrastructure including information such as: site address, type of infrastructure and ownership & maintenance responsibilities. We have a total of 15 privately owned developments including commercial & residential that have been recorded since 2014.

Maintenance Agreements

We continue to require where necessary drainage maintenance agreements for homeowner's associations and/or commercial sites to insure that the owners fulfill their maintenance obligations. The owner of the site where stormwater infrastructure is approved is asked to keep a log of required maintenance available for review by town staff.

If a developer proposes to install a new drainage system in which the Town will take ownership of upon completion, we have been requiring the developer to post a cash bond for future maintenance and outlet sampling as required by our MS4 permit.

Post Construction Site Runoff Control Goals in 2017

Review the current town regulations and implementation policies as they relate to the new general permit requirements.

Minimum Control Measure #6-Pollution Prevention/Good Housekeeping

EPA Requirements:

Recognizing the benefits of pollution prevention practices, the rule requires an operator of a regulated small MS4 to:

1. Develop and implement an operation and maintenance program with the ultimate goal of preventing or reducing pollutant runoff from municipal operations into the storm sewer system.
2. Include 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 storm water 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.
3. Determine the appropriate best management practices (BMP's) and measurable goals for this minimum control measure.

The Pollution Prevention/Good Housekeeping for municipal operations minimum control measure is a key element of the small MS4 storm water management program. This measure requires the small MS4 operator 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.

Activities Performed in 2016

Operations & Maintenance - Pollution Prevention and Spill Prevention Programs

The Town has in place Stormwater Pollution Prevention Plans for the: Highway Garage, Town Dock, Water Pollution Control Facility (Pawcatuck) and the Solid Waste Facility. In Addition to these plans, the Town has Spill Prevention, Control and Countermeasure plans for these facilities as well as the Police Station. The town hires and outside environmental compliance specialist who performs multiple onsite inspections of these facilities yearly and continues to work with the town departments to improve our compliance levels.

Employee Training

On November 30, 2016, the town hired the same environmental consultant who performs inspections of all of the facilities to train town employees from the Highway Department, Solid Waste/Transfer Station, Town Dock, Water Pollution Control Authority and the Police Station on Oil Pollution Prevention (SPCC) and Stormwater Pollution Prevention (SWPP) measures. Over 27 town employees attended the training in 2016.

Street Sweeping Program

The Town's Public Works Department swept approximately 85 miles of roadway (170 lane miles) of road throughout the Town. Downtown areas are swept first including (Mystic & Pawcatuck) and rural roads second. In addition to the normal street sweeping program, downtown areas were swept an additional 12 times for specialty events. The town purchased a new street sweeper in 2016 which has both increased our productivity and effectiveness by removing more particulate matter and greatly increasing our efficiency rate. This ultimately results in cleaner runoff entering our stormdrain systems and less material required to be vacuumed out of the stormdrain systems. The town spent approximately \$9,839.40 in removal of roadway sweeping byproduct from the town by January 2017.

Catch Basin Cleaning Program

The Town hires a Vac-Truck contractor annually to clean catch basins throughout the town. This year the town cleaned 1,040 of our nearly 1,600 catch basins throughout Town. Due to budget constraints the remaining catch basins are scheduled to be cleaned out in 2017. The cost of the 2016 cleaning work totaled approximately \$7,384.15. The Town will continue to budget money to have this type of work done on an annual basis.

Leaf Collection Program

The Public Works Department completely revamped the town-wide leaf collection program this year to improve on past practices. This year, GIS maps were created to strategically plan and guide town staff & the public on the new leaf collection routes with a focus around urbanized areas and areas with poor drainage. Different areas of town were alternated to provide a consistent program to all residents. The program was prioritized by street and posted on the town website to facilitate homeowners and landscape contractors to better coordinate their efforts with town staff to maximize the leaf removal process.

As a result of the modified leaf program, over 1800 cubic yards of leaves were removed from properties within the town. This aids in less leaf matter collecting in the roads and stormdrain systems and ultimately improves the stormwater quality. This program is expected to continue under the same format with only minor adjustments in future years.

Pollution Prevention/Good House Keeping Goals 2017

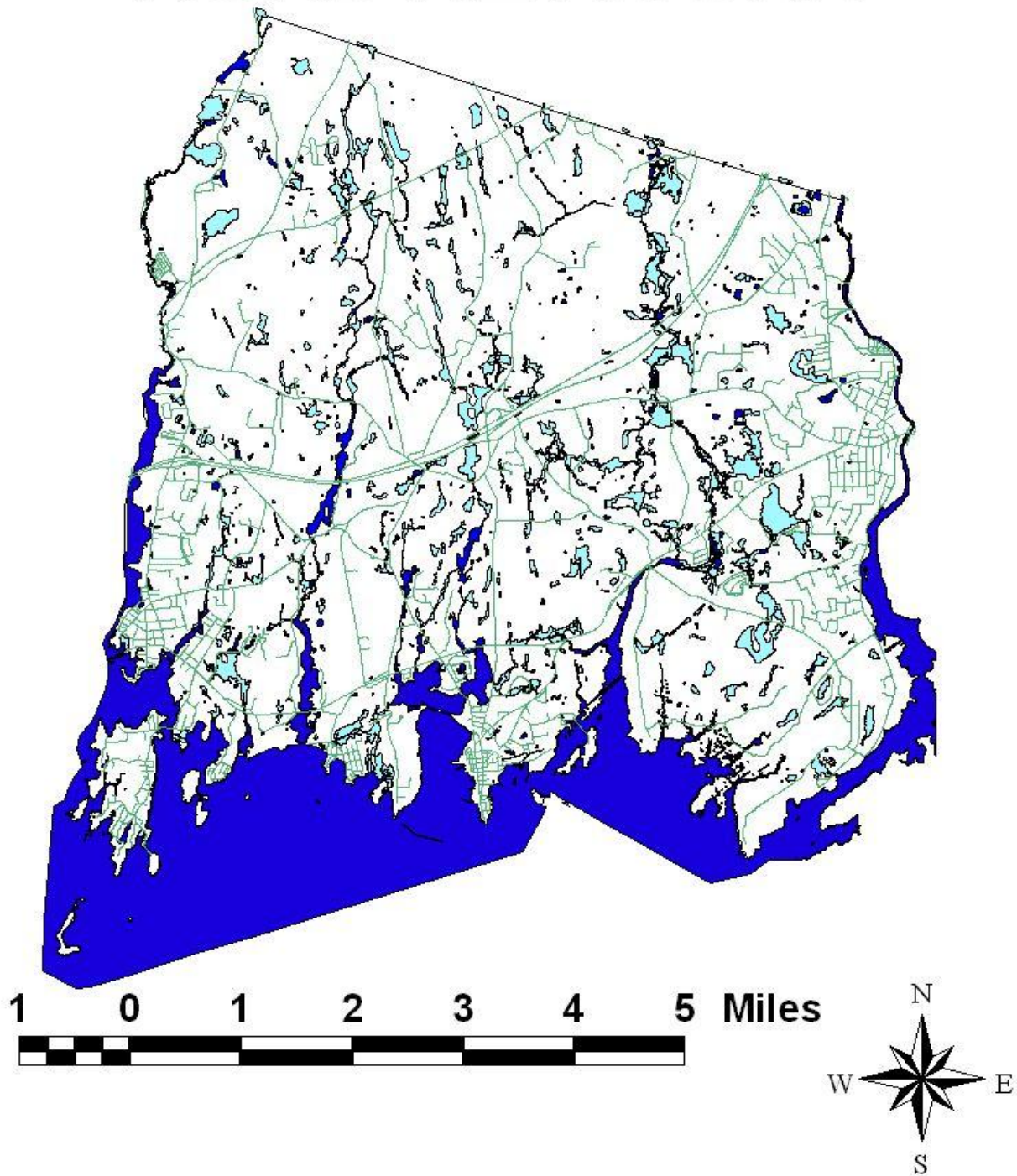
Further improve our housekeeping programs to align with the new general permit guidelines. Additional focus will be required in areas that drain to impaired water bodies and areas with over 11% directly connected impervious surfaces.

DRAFT

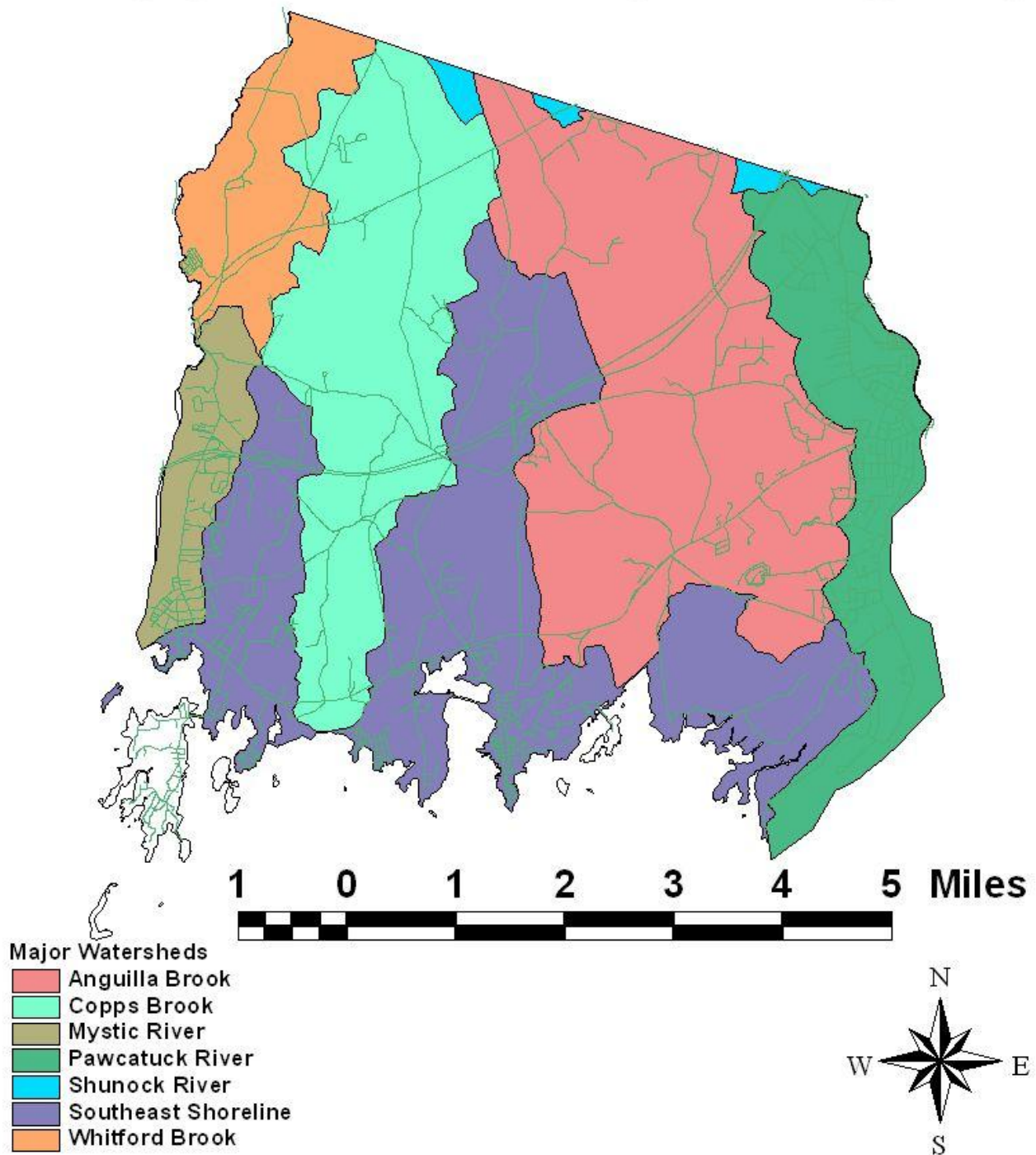
APPENDICES

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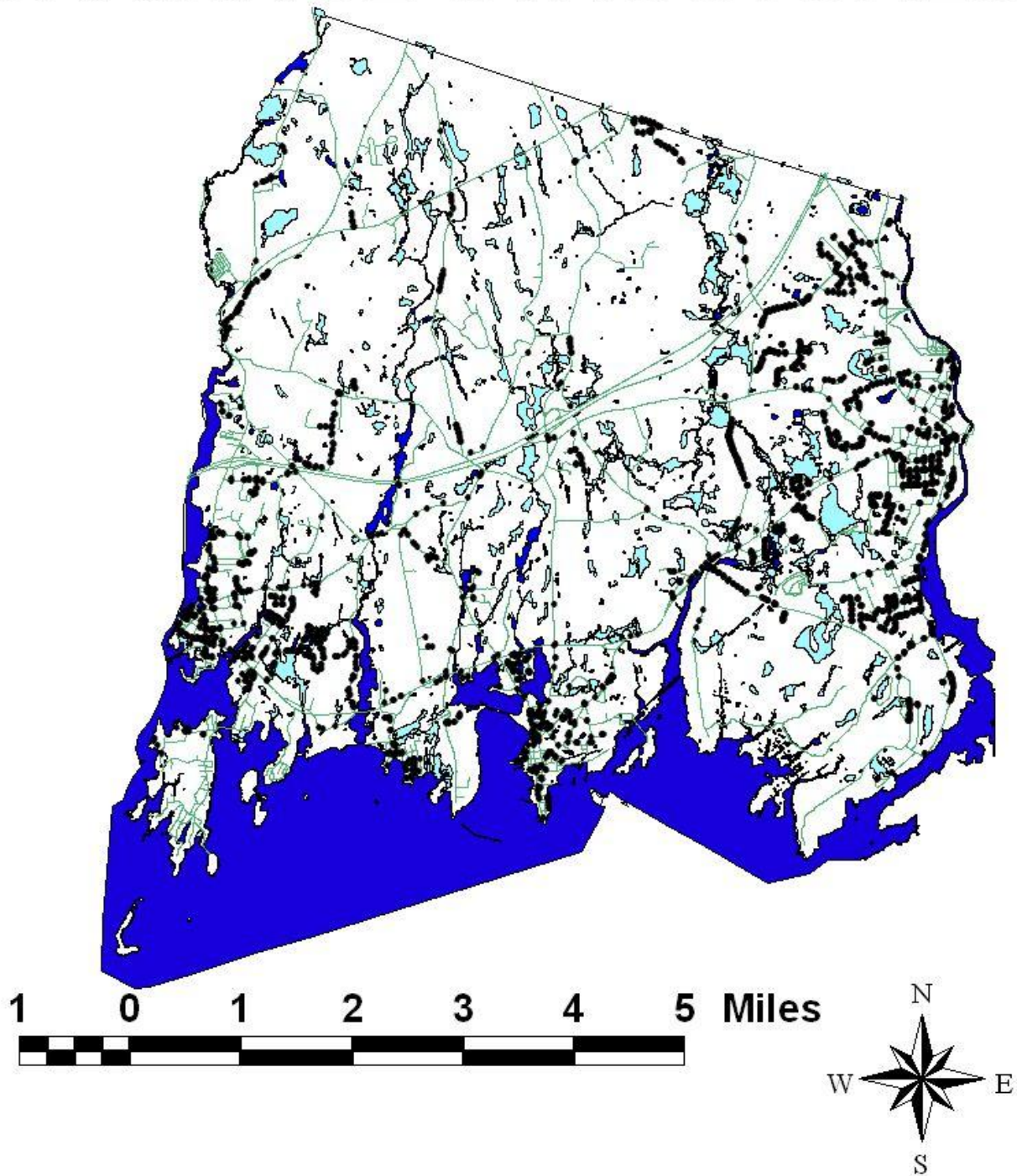
TOWN OF STONINGTON ROAD NETWORK



TOWN OF STONINGTON MAJOR DRAINAGE BASINS



TOWN OF STONINGTON DRAINAGE STRUCTURES



CMG ENVIRONMENTAL, INC.

September 13, 2016

Barbara McKrell, P.E.
DPW Director
Town of Stonington
152 Elm Street
Stonington, CT 06378

**Re: 2016 Stormwater MS4 General Permit Sampling Results
CMG ID 2016-049**

Dear Ms. McKrell:

CMG Environmental, Inc. (CMG) presents you with the 2016 Stormwater MS4 General Permit sampling results for the Town of Stonington. This letter report provides a summary of the work performed and the laboratory analytical results associated with stormwater sampling in the Town.

STORMWATER SAMPLING PROCEDURES

Eight stormwater samples were collected in the Town of Stonington on September 1, 2016 in accordance with the requirements of the Connecticut Department of Energy and Environmental Protection (CT DEEP) General Permit for the Discharge of Stormwater for Small Municipal Separate Storm Sewer Systems (Stormwater MS4 General Permit). Specifically, two stormwater samples were collected from a separate stormwater system serving a commercial area, two samples were collected from a system serving industrial areas, and four samples were collected from systems serving residential areas. As you are aware, the Town previously determined the sampling points. Descriptions and locations of each sampling point, as well as rain event information, are included on the attached Stormwater Sampling Data form.

LABORATORY ANALYTICAL PROCEDURES

The samples were submitted to Phoenix Environmental Laboratories, Inc., a State of Connecticut certified laboratory, and analyzed for pH, hardness, conductivity, oil and grease, chemical oxygen demand, turbidity, total suspended solids, total phosphorus, ammonia, total Kjeldahl nitrogen, nitrate plus nitrite nitrogen and E. coli. Sampling and testing procedures were conducted in accordance with Title 40, CFR, Part 136.

67 HALL ROAD
STURBRIDGE, MA 01566
PHONE (774) 241-0901
FAX (774) 241-0906

560 SOUTH MAIN STREET
NEW BRITAIN, CT 06051
PHONE (866) 304-7625
FAX (860) 223-5454

LABORATORY ANALYTICAL RESULTS

The results of the laboratory analyses for the six stormwater samples collected in the Town of Stonington are summarized in the attached table entitled 2016 Stormwater MS4 Sampling Results.

RECOMMENDATIONS

We recommend that the Town continue to implement its Stormwater Management Plan and evaluate the effectiveness of the associated control measures.

REPORTING REQUIREMENTS

In accordance with the Stormwater MS4 General Permit requirements, a Stormwater Monitoring Report (SMR) Form has been prepared for each outfall. The SMR Forms should be submitted to the CT DEEP at the following address:

Stormwater Permit Coordinator
Department of Energy & Environmental Protection
Bureau of Water Management
79 Elm Street
Hartford, CT 06106-5127

A copy of the Stormwater Sampling Data form, 2016 Stormwater MS4 Sampling Results table, SMR Forms, laboratory report and chain of custody has been included with this letter report.

Please sign the attached SMR Forms and submit them to the CT DEEP at the above address. Also, keep a copy of the Forms for the Town's records. This entire letter report should be kept with the Town's Stormwater Management Plan.

If you have any questions or require additional information, please contact me at 774-241-0901 (office) or 860-614-4748 (cell) if you have any questions or if CMG can be of any further assistance to you.

Sincerely,
CMG ENVIRONMENTAL, INC.



Matthew Reiser, CHMM
Compliance Specialist

Attachments Stormwater Sampling Data Form
 2016 Stormwater Phase II Sampling Results Table
 Stormwater Monitoring Reports
 Laboratory Report and Chain of Custody

ATTACHMENTS

STORMWATER SAMPLING DATA FORM

2016 STORMWATER MS4 GENERAL PERMIT SAMPLING RESULTS TABLE

STORMWATER MONITORING REPORTS

LABORATORY REPORT AND CHAIN OF CUSTODY

STORMWATER SAMPLING DATA FORM

STORMWATER SAMPLING DATA

Town of Stonington
Stonington, Connecticut

General Information		
Sampling Personnel: Matt Reiser, CMG Environmental		
Sampling Date: 9-1-16		
Rain Start Time: ~6:30 am	Rain Stop Time: ~1:45 pm	Runoff Start Time: variable
Rain Description (i.e., drizzle, steady, downpour, etc.): drizzle		
Outside Temperature: ~71°F		
Magnitude of Storm Event (in inches): 0.21		
Date of Previous Storm Event of 0.1 Inches or More: 8-22-16		
Location of Rain Gauge or Gauging Station: Mason's Island Marina, as reported on www.wunderground.com		
Sampling Data		
Outfall No.	Location Description	Sampling Time
C1	Catch basin on east side of road just south of C.C. O'Brien's at 8 Mechanic Street in Pawcatuck	10:10 am
C2	Outfall through retention wall of river across street from Old Mystic General Store at 47 Main Street in Mystic	8:55 am
I1	Outfall on east side of road at intersection of Clark Street, River Road and Mechanic Street in Pawcatuck	10:00 am
I2	Catch basin on north side of road across from 5 Edgemont Street in Mystic	8:40 am
R1	Outfall at northeast end of Walnut Street in Pawcatuck	10:25 am
R2	Catch basin on northeast side of road between 19 and 21 Church Street in Mystic	8:45 am
R3	Catch basin on east side of road across from 9 Cove Road in Stonington	9:15 am
R4	Catch basin at southeast corner of Quana Duck Road in Stonington	9:25 am
Analysis Data		
Laboratory Performing Analyses: Phoenix Environmental Laboratories, Inc.		
Date Samples Dropped Off: 9-1-16		
<u>Note:</u> Attach laboratory report, including analytical results, techniques and methods used.		
Comments		
Sample from Outfall C-2 was taken from upstream catch basin. Sample from Outfall R-1 was taken from a catch basin in Stillman Avenue due to no flow at outfall or in Walnut Street catch basins. Outfall R-2 catch basin was full, i.e., water was at street level.		

2016 STORMWATER MS4 GENERAL PERMIT
SAMPLING RESULTS TABLE

2016 STORMWATER MS4 GENERAL PERMIT SAMPLING RESULTS

Town of Stonington Stonington, Connecticut

Laboratory Parameter ⁽²⁾	Commercial ⁽¹⁾		Industrial ⁽¹⁾		Residential ⁽¹⁾			
	Outfall 1	Outfall 2	Outfall 1	Outfall 2 ⁽³⁾	Outfall 1	Outfall 2	Outfall 3	Outfall 4
Uncontaminated Rainfall Sample (SU) ⁽⁴⁾	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Stormwater pH (SU)	7.16	6.40	7.13	7.53	6.09	6.79	7.63	6.93
Hardness (mg/L) ⁽⁵⁾	812	12.7	1,250	5,220	16.6	661	4,710	48.1
Conductivity (umhos/cm) ⁽⁶⁾	13,400	73	13,800	57,800	80	8,290	61,000	368
Oil and Grease (mg/L)	<1.4	1.4	<1.4	2.3	<1.4	1.6	<1.4	<1.4
Chemical Oxygen Demand (mg/L)	84	84	146	888	133	138	646	59
Turbidity (NTU) ⁽⁷⁾	4.90	13.1	4.02	12.3	14.0	11.2	7.46	6.91
Total Suspended Solids (mg/L)	82	29	13	58	25	24	210	13
Total Phosphorous (mg/L)	0.08	0.38	0.11	0.22	0.44	0.33	0.20	0.64
Ammonia (mg/L)	0.28	1.22	0.27	0.13	1.27	0.62	0.35	1.71
Total Kjeldahl Nitrogen (mg/L)	0.81	2.73	1.29	0.52	3.44	1.76	1.00	1.88
Nitrate plus Nitrite Nitrogen (mg/L)	0.860	1.122	0.680	0.090	1.128	0.931	<0.030	0.395
E. coli (col/100 mL) ⁽⁸⁾	414	1,170	7,270	5,170	17,300	19,900	8,160	20

Notes:

1. Refer to the Stormwater Sampling Data form for the locations of each stormwater outfall.
2. Laboratory parameters are taken from the CT DEEP General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems.
3. Residential Outfall 4 was formerly Commercial Outfall 3. It was determined that stormwater from this outfall is actually from a residential storm sewer system not a commercial storm sewer system.
4. SU = standard units
5. mg/L = milligrams per liter
6. umhos/cm = micromhos per centimeter
7. NTU = nephelometric turbidity units
8. col/100 mL = coliforms per 100 milliliters

STORMWATER MONITORING REPORTS



General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems

Stormwater Monitoring Report Form

PERMITTEE INFORMATION

Town: Stonington
Mailing Address: 152 Elm Street, Stonington, CT 06378
Contact Person: Barbara McKrell, P.E. Title: DPW Director Phone: 860-535-5055
Permit Registration # GSM000056

SAMPLING INFORMATION

Discharge Location (Lat/Long or other description): C1 - Catch basin on east side of road just south of C.C. O'Brien's at 8 Mechanic Street in Pawcatuck
Please circle the appropriate area description: Industrial, Commercial or Residential
Receiving Water (name, basin): Pawcatuck River, Pawcatuck River Drainage Basin
Time of Start of Discharge: unknown
Date/Time Collected: 9-1-16 at 10:10 am Water Temperature: _____
Person Collecting Sample: Matt Reiser, CMG Environmental, Inc.
Storm Magnitude (inches): approx. 0.22 Storm Duration (hours): approx. 12
Date of Previous Storm Event: 8-22-16

MONITORING RESULTS

Parameter	Method	Results (units)	Laboratory
Sample pH	SM4500-H B-00	7.16 SU	Phoenix Environmental Laboratories, Inc.
Rain pH	Litmus Paper	5.0 SU	CMG Environmental, Inc.
Hardness	E200.7	812 mg/L	Phoenix Environmental Laboratories, Inc.
Conductivity	SM2510B-97	13,400 umhos/cm	Phoenix Environmental Laboratories, Inc.
Oil & Grease	EPA 1664A	<1.4 mg/L	Phoenix Environmental Laboratories, Inc.
COD	SM5220D-97	84 mg/L	Phoenix Environmental Laboratories, Inc.
Turbidity	SM2130B-01	4.90 NTU	Phoenix Environmental Laboratories, Inc.
TSS	SM2540D-97	82 mg/L	Phoenix Environmental Laboratories, Inc.
TP	SM4500PE-99	0.08 mg/L	Phoenix Environmental Laboratories, Inc.
Ammonia	E350.1	0.28 mg/L	Phoenix Environmental Laboratories, Inc.
TKN	E351.1	0.81 mg/L	Phoenix Environmental Laboratories, Inc.
NO ₃ +NO ₂	E353.2	0.860 mg/L	Phoenix Environmental Laboratories, Inc.
E. coli	SM9223B-04	414 col/100 mL	Phoenix Environmental Laboratories, Inc.

STATEMENT OF ACKNOWLEDGMENT

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: Barbara McKrell,

Signature:  Date: 9/22/16



**General Permit for the Discharge of Stormwater from Small
Municipal Separate Storm Sewer Systems**

Stormwater Monitoring Report Form

PERMITTEE INFORMATION

Town: Stonington
Mailing Address: 152 Elm Street, Stonington, CT 06378
Contact Person: Barbara McKrell, P.E. Title: DPW Director Phone: 860-535-5055
Permit Registration # GSM000056

SAMPLING INFORMATION

Discharge Location (Lat/Long or other description): C2 - Outfall through retention wall of river across street from Old Mystic General Store at 47 Main Street in Mystic
Please circle the appropriate area description: Industrial, Commercial or Residential
Receiving Water (name, basin): Mystic River, Mystic River Drainage Basin
Time of Start of Discharge: unknown
Date/Time Collected: 9-1-16 at 8:55 am Water Temperature: _____
Person Collecting Sample: Matt Reiser, CMG Environmental, Inc.
Storm Magnitude (inches): approx. 0.22 Storm Duration (hours): approx. 12
Date of Previous Storm Event: 8-22-16

MONITORING RESULTS

Parameter	Method	Results (units)	Laboratory
Sample pH	SM4500-H B-00	6.40 SU	Phoenix Environmental Laboratories, Inc.
Rain pH	Litmus Paper	5.0 SU	CMG Environmental, Inc.
Hardness	E200.7	12.7 mg/L	Phoenix Environmental Laboratories, Inc.
Conductivity	SM2510B-97	73 umhos/cm	Phoenix Environmental Laboratories, Inc.
Oil & Grease	EPA 1664A	1.4 mg/L	Phoenix Environmental Laboratories, Inc.
COD	SM5220D-97	84 mg/L	Phoenix Environmental Laboratories, Inc.
Turbidity	SM2130B-01	13.1 NTU	Phoenix Environmental Laboratories, Inc.
TSS	SM2540D-97	29 mg/L	Phoenix Environmental Laboratories, Inc.
TP	SM4500PE-99	0.38 mg/L	Phoenix Environmental Laboratories, Inc.
Ammonia	E350.1	1.22 mg/L	Phoenix Environmental Laboratories, Inc.
TKN	E351.1	2.73 mg/L	Phoenix Environmental Laboratories, Inc.
NO ₃ +NO ₂	E353.2	1.122 mg/L	Phoenix Environmental Laboratories, Inc.
E. coli	SM9223B-04	1,170 col/100 mL	Phoenix Environmental Laboratories, Inc.

STATEMENT OF ACKNOWLEDGMENT

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: Barbara McKrell

Signature: *Barbara McKrell* Date: 11/21/16



General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems

Stormwater Monitoring Report Form

PERMITTEE INFORMATION

Town: Stonington
Mailing Address: 152 Elm Street, Stonington, CT 06378
Contact Person: Barbara McKrell, P.E. Title: DPW Director Phone: 860-535-5055
Permit Registration # GSM000056

SAMPLING INFORMATION

Discharge Location (Lat/Long or other description): I1 - Outfall on east side of road at intersection of
Clark Street, River Road and Mechanic Street in Pawcatuck
Please circle the appropriate area description: Industrial Commercial or Residential
Receiving Water (name, basin): Pawcatuck River, Pawcatuck River Drainage Basin
Time of Start of Discharge: unknown
Date/Time Collected: 9-1-16 at 10 am Water Temperature: _____
Person Collecting Sample: Matt Reiser, CMG Environmental, Inc.
Storm Magnitude (inches): approx. 0.22 Storm Duration (hours): approx. 12
Date of Previous Storm Event: 8-22-16

MONITORING RESULTS

Parameter	Method	Results (units)	Laboratory
Sample pH	SM4500-H B-00	7.13 SU	Phoenix Environmental Laboratories, Inc.
Rain pH	Litmus Paper	5.0 SU	CMG Environmental, Inc.
Hardness	E200.7	1,250 mg/L	Phoenix Environmental Laboratories, Inc.
Conductivity	SM2510B-97	13,800 umhos/cm	Phoenix Environmental Laboratories, Inc.
Oil & Grease	EPA 1664A	<1.4 mg/L	Phoenix Environmental Laboratories, Inc.
COD	SM5220D-97	146 mg/L	Phoenix Environmental Laboratories, Inc.
Turbidity	SM2130B-01	4.02 NTU	Phoenix Environmental Laboratories, Inc.
TSS	SM2540D-97	13 mg/L	Phoenix Environmental Laboratories, Inc.
TP	SM4500PE-99	0.11 mg/L	Phoenix Environmental Laboratories, Inc.
Ammonia	E350.1	0.27 mg/L	Phoenix Environmental Laboratories, Inc.
TKN	E351.1	1.29 mg/L	Phoenix Environmental Laboratories, Inc.
NO ₃ +NO ₂	E353.2	0.680 mg/L	Phoenix Environmental Laboratories, Inc.
E. coli	SM9223B-04	7,270 col/100 mL	Phoenix Environmental Laboratories, Inc.

STATEMENT OF ACKNOWLEDGMENT

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: Barbara McKrell,

Signature: *Barbara McKrell* Date: 11/21/16



**General Permit for the Discharge of Stormwater from Small
Municipal Separate Storm Sewer Systems**

Stormwater Monitoring Report Form

PERMITTEE INFORMATION

Town: Stonington
Mailing Address: 152 Elm Street, Stonington, CT 06378
Contact Person: Barbara McKrell, P.E. Title: DPW Director Phone: 860-535-5055
Permit Registration # GSM000056

SAMPLING INFORMATION

Discharge Location (Lat/Long or other description): I2 - Catch basin on north side of road across from
5 Edgemont Street in Mystic
Please circle the appropriate area description: Industrial Commercial or Residential
Receiving Water (name, basin): Mystic Harbor, Southeast Shoreline Drainage Basin
Time of Start of Discharge: unknown
Date/Time Collected: 9-1-16 at 8:40 am Water Temperature: _____
Person Collecting Sample: Matt Reiser, CMG Environmental, Inc.
Storm Magnitude (inches): approx. 0.22 Storm Duration (hours): approx. 12
Date of Previous Storm Event: 8-22-16

MONITORING RESULTS

Parameter	Method	Results (units)	Laboratory
Sample pH	SM4500-H B-00	7.53 SU	Phoenix Environmental Laboratories, Inc.
Rain pH	Litmus Paper	5.0 SU	CMG Environmental, Inc.
Hardness	E200.7	5,220 mg/L	Phoenix Environmental Laboratories, Inc.
Conductivity	SM2510B-97	57,800 umhos/cm	Phoenix Environmental Laboratories, Inc.
Oil & Grease	EPA 1664A	2.3 mg/L	Phoenix Environmental Laboratories, Inc.
COD	SM5220D-97	888 mg/L	Phoenix Environmental Laboratories, Inc.
Turbidity	SM2130B-01	12.3 NTU	Phoenix Environmental Laboratories, Inc.
TSS	SM2540D-97	58 mg/L	Phoenix Environmental Laboratories, Inc.
TP	SM4500PE-99	0.22 mg/L	Phoenix Environmental Laboratories, Inc.
Ammonia	E350.1	0.13 mg/L	Phoenix Environmental Laboratories, Inc.
TKN	E351.1	0.52 mg/L	Phoenix Environmental Laboratories, Inc.
NO ₃ +NO ₂	E353.2	0.090 mg/L	Phoenix Environmental Laboratories, Inc.
E. coli	SM9223B-04	5,170 col/100 mL	Phoenix Environmental Laboratories, Inc.

STATEMENT OF ACKNOWLEDGMENT

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: Barbara McKrell,

Signature: *Barbara McKrell*

Date: 11/21/16



**General Permit for the Discharge of Stormwater from Small
Municipal Separate Storm Sewer Systems**

Stormwater Monitoring Report Form

PERMITTEE INFORMATION

Town: Stonington
Mailing Address: 152 Elm Street, Stonington, CT 06378
Contact Person: Barbara McKrell, P.E. Title: DPW Director Phone: 860-535-5055
Permit Registration # GSM000056

SAMPLING INFORMATION

Discharge Location (Lat/Long or other description): R1 - Outfall at northeast end of Walnut Street in Pawcatuck
Please circle the appropriate area description: Industrial, Commercial or Residential
Receiving Water (name, basin): Pawcatuck River, Pawcatuck River Drainage Basin
Time of Start of Discharge: unknown
Date/Time Collected: 9-1-16 at 10:25 am Water Temperature: _____
Person Collecting Sample: Matt Reiser, CMG Environmental, Inc.
Storm Magnitude (inches): approx. 0.22 Storm Duration (hours): approx. 12
Date of Previous Storm Event: 8-22-16

MONITORING RESULTS

Parameter	Method	Results (units)	Laboratory
Sample pH	SM4500-H B-00	6.09 SU	Phoenix Environmental Laboratories, Inc.
Rain pH	Litmus Paper	5.0 SU	CMG Environmental, Inc.
Hardness	E200.7	16.6 mg/L	Phoenix Environmental Laboratories, Inc.
Conductivity	SM2510B-97	80 umhos/cm	Phoenix Environmental Laboratories, Inc.
Oil & Grease	EPA 1664A	<1.4 mg/L	Phoenix Environmental Laboratories, Inc.
COD	SM5220D-97	133 mg/L	Phoenix Environmental Laboratories, Inc.
Turbidity	SM2130B-01	14.0 NTU	Phoenix Environmental Laboratories, Inc.
TSS	SM2540D-97	25 mg/L	Phoenix Environmental Laboratories, Inc.
TP	SM4500PE-99	0.44 mg/L	Phoenix Environmental Laboratories, Inc.
Ammonia	E350.1	1.27 mg/L	Phoenix Environmental Laboratories, Inc.
TKN	E351.1	3.44 mg/L	Phoenix Environmental Laboratories, Inc.
NO ₃ +NO ₂	E353.2	1.128 mg/L	Phoenix Environmental Laboratories, Inc.
E. coli	SM9223B-04	17,300 col/100 mL	Phoenix Environmental Laboratories, Inc.

STATEMENT OF ACKNOWLEDGMENT

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: Barbara McKrell,

Signature:  Date: 11/21/16



**General Permit for the Discharge of Stormwater from Small
Municipal Separate Storm Sewer Systems**

Stormwater Monitoring Report Form

PERMITTEE INFORMATION

Town: Stonington
Mailing Address: 152 Elm Street, Stonington, CT 06378
Contact Person: Barbara McKrell, P.E. Title: DPW Director Phone: 860-535-5055
Permit Registration # GSM000056

SAMPLING INFORMATION

Discharge Location (Lat/Long or other description): R2 - Catch basin on northeast side of road
between 19 and 21 Church Street in Mystic
Please circle the appropriate area description: Industrial, Commercial or Residential
Receiving Water (name, basin): Mystic River, Mystic River Drainage Basin
Time of Start of Discharge: unknown
Date/Time Collected: 9-1-16 at 8:45 am Water Temperature: _____
Person Collecting Sample: Matt Reiser, CMG Environmental, Inc.
Storm Magnitude (inches): approx. 0.22 Storm Duration (hours): approx. 12
Date of Previous Storm Event: 8-22-16

MONITORING RESULTS

Parameter	Method	Results (units)	Laboratory
Sample pH	SM4500-H B-00	6.79 SU	Phoenix Environmental Laboratories, Inc.
Rain pH	Litmus Paper	5.0 SU	CMG Environmental, Inc.
Hardness	E200.7	661 mg/L	Phoenix Environmental Laboratories, Inc.
Conductivity	SM2510B-97	8,290 umhos/cm	Phoenix Environmental Laboratories, Inc.
Oil & Grease	EPA 1664A	1.6 mg/L	Phoenix Environmental Laboratories, Inc.
COD	SM5220D-97	138 mg/L	Phoenix Environmental Laboratories, Inc.
Turbidity	SM2130B-01	11.2 NTU	Phoenix Environmental Laboratories, Inc.
TSS	SM2540D-97	24 mg/L	Phoenix Environmental Laboratories, Inc.
TP	SM4500PE-99	0.33 mg/L	Phoenix Environmental Laboratories, Inc.
Ammonia	E350.1	0.62 mg/L	Phoenix Environmental Laboratories, Inc.
TKN	E351.1	1.76 mg/L	Phoenix Environmental Laboratories, Inc.
NO ₃ +NO ₂	E353.2	0.931 mg/L	Phoenix Environmental Laboratories, Inc.
E. coli	SM9223B-04	19,900 col/100 mL	Phoenix Environmental Laboratories, Inc.

STATEMENT OF ACKNOWLEDGMENT

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: Barbara McKrell,

Signature: *Barbara McKrell* Date: 11/21/16



**General Permit for the Discharge of Stormwater from Small
Municipal Separate Storm Sewer Systems**

Stormwater Monitoring Report Form

PERMITTEE INFORMATION

Town: Stonington
Mailing Address: 152 Elm Street, Stonington, CT 06378
Contact Person: Barbara McKrell, P.E. Title: DPW Director Phone: 860-535-5055
Permit Registration # GSM000056

SAMPLING INFORMATION

Discharge Location (Lat/Long or other description): R3 - Catch basin on east side of road across from
9 Cove Road in Stonington
Please circle the appropriate area description: Industrial, Commercial or Residential
Receiving Water (name, basin): Quiambog Cove, Copps Brook Drainage Basin
Time of Start of Discharge: unknown
Date/Time Collected: 9-1-16 at 9:15 am Water Temperature: _____
Person Collecting Sample: Matt Reiser, CMG Environmental, Inc.
Storm Magnitude (inches): approx. 0.22 Storm Duration (hours): approx. 12
Date of Previous Storm Event: 8-22-16

MONITORING RESULTS

Parameter	Method	Results (units)	Laboratory
Sample pH	SM4500-H B-00	7.63 SU	Phoenix Environmental Laboratories, Inc.
Rain pH	Litmus Paper	5.0 SU	CMG Environmental, Inc.
Hardness	E200.7	4,710 mg/L	Phoenix Environmental Laboratories, Inc.
Conductivity	SM2510B-97	61,100 umhos/cm	Phoenix Environmental Laboratories, Inc.
Oil & Grease	EPA 1664A	<1.4 mg/L	Phoenix Environmental Laboratories, Inc.
COD	SM5220D-97	646 mg/L	Phoenix Environmental Laboratories, Inc.
Turbidity	SM2130B-01	7.46 NTU	Phoenix Environmental Laboratories, Inc.
TSS	SM2540D-97	210 mg/L	Phoenix Environmental Laboratories, Inc.
TP	SM4500PE-99	0.20 mg/L	Phoenix Environmental Laboratories, Inc.
Ammonia	E350.1	0.35 mg/L	Phoenix Environmental Laboratories, Inc.
TKN	E351.1	1.00 mg/L	Phoenix Environmental Laboratories, Inc.
NO ₃ +NO ₂	E353.2	<0.030 mg/L	Phoenix Environmental Laboratories, Inc.
E. coli	SM9223B-04	8,160 col/100 mL	Phoenix Environmental Laboratories, Inc.

STATEMENT OF ACKNOWLEDGMENT

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: Barbara McKrell,

Signature: *Barbara McKrell* Date: 11/21/16



**General Permit for the Discharge of Stormwater from Small
Municipal Separate Storm Sewer Systems**

Stormwater Monitoring Report Form

PERMITTEE INFORMATION

Town: Stonington
Mailing Address: 152 Elm Street, Stonington, CT 06378
Contact Person: Barbara McKrell, P.E. Title: DPW Director Phone: 860-535-5055
Permit Registration # GSM000056

SAMPLING INFORMATION

Discharge Location (Lat/Long or other description): R4 - Catch basin at southeast corner of
Quanaduck Road in Stonington
Please circle the appropriate area description: Industrial, Commercial or **Residential**
Receiving Water (name, basin): Quanaduck Cove, Southeast Shoreline Drainage Basin
Time of Start of Discharge: unknown
Date/Time Collected: 9-1-16 at 9:25 am Water Temperature: _____
Person Collecting Sample: Matt Reiser, CMG Environmental, Inc.
Storm Magnitude (inches): approx. 0.22 Storm Duration (hours): approx. 12
Date of Previous Storm Event: 8-22-16

MONITORING RESULTS

Parameter	Method	Results (units)	Laboratory
Sample pH	SM4500-H B-00	6.93 SU	Phoenix Environmental Laboratories, Inc.
Rain pH	Litmus Paper	5.0 SU	CMG Environmental, Inc.
Hardness	E200.7	48.1 mg/L	Phoenix Environmental Laboratories, Inc.
Conductivity	SM2510B-97	368 umhos/cm	Phoenix Environmental Laboratories, Inc.
Oil & Grease	EPA 1664A	<1.4 mg/L	Phoenix Environmental Laboratories, Inc.
COD	SM5220D-97	59 mg/L	Phoenix Environmental Laboratories, Inc.
Turbidity	SM2130B-01	6.91 NTU	Phoenix Environmental Laboratories, Inc.
TSS	SM2540D-97	13 mg/L	Phoenix Environmental Laboratories, Inc.
TP	SM4500PE-99	0.64 mg/L	Phoenix Environmental Laboratories, Inc.
Ammonia	E350.1	1.71 mg/L	Phoenix Environmental Laboratories, Inc.
TKN	E351.1	1.88 mg/L	Phoenix Environmental Laboratories, Inc.
NO ₃ +NO ₂	E353.2	0.395 mg/L	Phoenix Environmental Laboratories, Inc.
E. coli	SM9223B-04	20 col/100 mL	Phoenix Environmental Laboratories, Inc.

STATEMENT OF ACKNOWLEDGMENT

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: Barbara McKrell

Signature: *Barbara McKrell* Date: 11/24/16

LABORATORY REPORT
AND
CHAIN OF CUSTODY



Thursday, September 08, 2016

Attn: Mr. Matt Reiser
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Project ID: 2016-049
Sample ID#s: BV01340 - BV01349

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Phyllis Shiller".

Phyllis Shiller

Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #MA-CT-007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B

NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

September 08, 2016

FOR: Attn: Mr. Matt Reiser
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information

Matrix: STORM WATER
Location Code: CMGENV
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: LB
Analyzed by: see "By" below

<u>Date</u>	<u>Time</u>
09/01/16	10:10
09/01/16	12:16

Laboratory Data

SDG ID: GBV01340
Phoenix ID: BV01340

Project ID: 2016-049
Client ID: STON C-1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Hardness (CaCO ₃)	812	0.1	mg/L	1	09/06/16		E200.7
Escherichia Coli	414	10	MPN/100 mls	10	09/01/16 15:15	CB/KDB	SM9223B-04
Total Coliforms	>24200	10	MPN/100 mls	10	09/01/16 15:15	CB/KDB	SW9223B
C.O.D.	84	10	mg/L	1	09/02/16	MSF	SM5220D-97
Conductivity	13400	50.0	umhos/cm	10	09/02/16	RWR/KDB	SM2510B-97
Ammonia as Nitrogen	0.28	0.05	mg/L	1	09/07/16	WHM	E350.1
Nitrite-N	< 0.010	0.010	mg/L	1	09/01/16 19:35	KD	E353.2
Nitrate-N	0.85	0.02	mg/L	1	09/01/16 19:35	KD	E353.2
Oil and Grease by EPA 1664	< 1.4	1.4	mg/L	1	09/02/16	MSF	E1664A
pH	7.16	0.10	pH Units	1	09/02/16 02:24	RR/EG	SM4500-H B-00
Nitrogen Tot Kjeldahl	0.81	0.10	mg/L	1	09/07/16	WHM	E351.1
Phosphorus, as P	0.08	0.01	mg/L	1	09/06/16	MA	SM4500PE-99
Total Suspended Solids	82	5.0	mg/L	1	09/02/16	KH	SM2540D-97
Turbidity	4.90	0.20	NTU	1	09/02/16 00:37	RWR	SM2130B-01
Total Metals Digestion	Completed				09/01/16	AG	

Project ID: 2016-049
Client ID: STON C-1

Phoenix I.D.: BV01340

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
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RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

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Phyllis Shiller, Laboratory Director

September 08, 2016

Reviewed and Released by: Deb Lawrie, Project Manager



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

September 08, 2016

FOR: Attn: Mr. Matt Reiser
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information

Matrix: STORM WATER
Location Code: CMGENV
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: LB
Analyzed by: see "By" below

Date	Time
09/01/16	8:55
09/01/16	12:16

Laboratory Data

SDG ID: GBV01340
Phoenix ID: BV01341

Project ID: 2016-049
Client ID: STON C-2

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Hardness (CaCO ₃)	12.7	0.1	mg/L	1	09/03/16		E200.7
Escherichia Coli	1170	10	MPN/100 mls	10	09/01/16 15:15	CB/KDB	SM9223B-04
Total Coliforms	>24200	10	MPN/100 mls	10	09/01/16 15:15	CB/KDB	SW9223B
C.O.D.	84	10	mg/L	1	09/02/16	MSF	SM5220D-97
Conductivity	73	5.00	umhos/cm	1	09/02/16	RR/EG	SM2510B-97
Ammonia as Nitrogen	1.22	0.05	mg/L	1	09/07/16	WHM	E350.1
Nitrite-N	0.022	0.010	mg/L	1	09/01/16 19:40	KD	E353.2
Nitrate-N	1.10	0.02	mg/L	1	09/01/16 19:40	KD	E353.2
Oil and Grease by EPA 1664	1.4	1.4	mg/L	1	09/02/16	MSF	E1664A
pH	6.40	0.10	pH Units	1	09/02/16 02:27	RR/EG	SM4500-H B-00
Nitrogen Tot Kjeldahl	2.73	0.10	mg/L	1	09/07/16	WHM	E351.1
Phosphorus, as P	0.38	0.02	mg/L	2	09/06/16	MA	SM4500PE-99
Total Suspended Solids	29	5.0	mg/L	1	09/02/16	KH	SM2540D-97
Turbidity	13.1	0.20	NTU	1	09/02/16 00:38	RWR	SM2130B-01
Total Metals Digestion	Completed				09/01/16	AG	

Project ID: 2016-049
Client ID: STON C-2

Phoenix I.D.: BV01341

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
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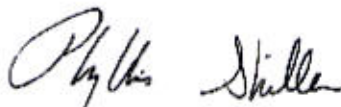
RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

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Phyllis Shiller, Laboratory Director

September 08, 2016

Reviewed and Released by: Deb Lawrie, Project Manager



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

September 08, 2016

FOR: Attn: Mr. Matt Reiser
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information

Matrix: STORM WATER
Location Code: CMGENV
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: LB
Analyzed by: see "By" below

Date Time

09/01/16 10:00
09/01/16 12:16

Laboratory Data

SDG ID: GBV01340
Phoenix ID: BV01342

Project ID: 2016-049
Client ID: STON I-1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Hardness (CaCO ₃)	1250	0.1	mg/L	1	09/06/16		E200.7
Escherichia Coli	7270	10	MPN/100 mls	10	09/01/16 15:15	CB/KDB	SM9223B-04
Total Coliforms	>24200	10	MPN/100 mls	10	09/01/16 15:15	CB/KDB	SW9223B
C.O.D.	146	10	mg/L	1	09/02/16	MSF	SM5220D-97
Conductivity	13800	50.0	umhos/cm	10	09/02/16	RWR/KDB	SM2510B-97
Ammonia as Nitrogen	0.27	0.05	mg/L	1	09/07/16	WHM	E350.1
Nitrite-N	< 0.010	0.010	mg/L	1	09/01/16 19:41	KD	E353.2
Nitrate-N	0.67	0.02	mg/L	1	09/01/16 19:41	KD	E353.2
Oil and Grease by EPA 1664	< 1.4	1.4	mg/L	1	09/02/16	MSF	E1664A
pH	7.13	0.10	pH Units	1	09/02/16 02:30	RR/EG	SM4500-H B-00
Nitrogen Tot Kjeldahl	1.29	0.10	mg/L	1	09/07/16	WHM	E351.1
Phosphorus, as P	0.11	0.01	mg/L	1	09/06/16	MA	SM4500PE-99
Total Suspended Solids	13	5.0	mg/L	1	09/02/16	KH	SM2540D-97
Turbidity	4.02	0.20	NTU	1	09/02/16 00:39	RWR	SM2130B-01
Total Metals Digestion	Completed				09/01/16	AG	

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
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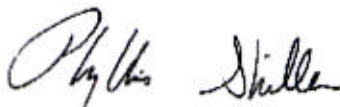
RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

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Phyllis Shiller, Laboratory Director

September 08, 2016

Reviewed and Released by: Deb Lawrie, Project Manager



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

September 08, 2016

FOR: Attn: Mr. Matt Reiser
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information

Matrix: STORM WATER
Location Code: CMGENV
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: LB
Analyzed by: see "By" below

Date	Time
09/01/16	8:40
09/01/16	12:16

Laboratory Data

SDG ID: GBV01340
Phoenix ID: BV01343

Project ID: 2016-049
Client ID: STON I-2

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Hardness (CaCO ₃)	5220	0.1	mg/L	1	09/07/16		E200.7
Escherichia Coli	5170	10	MPN/100 mls	10	09/01/16 15:15	CB/KDB	SM9223B-04
Total Coliforms	19900	10	MPN/100 mls	10	09/01/16 15:15	CB/KDB	SW9223B
C.O.D.	888	20	mg/L	2	09/06/16	MSF	SM5220D-97
Conductivity	57800	200	umhos/cm	40	09/02/16	RWR/KDB	SM2510B-97
Ammonia as Nitrogen	0.13	0.05	mg/L	1	09/07/16	WHM	E350.1
Nitrite-N	< 0.010	0.010	mg/L	1	09/01/16 19:45	KD	E353.2
Nitrate-N	0.08	0.02	mg/L	1	09/01/16 19:48	KD	E353.2
Oil and Grease by EPA 1664	2.3	1.4	mg/L	1	09/02/16	MSF	E1664A
pH	7.53	0.10	pH Units	1	09/02/16 03:00	RR/EG	SM4500-H B-00
Nitrogen Tot Kjeldahl	0.52	0.10	mg/L	1	09/07/16	WHM	E351.1
Phosphorus, as P	0.22	0.01	mg/L	1	09/06/16	MA	SM4500PE-99
Total Suspended Solids	58	5.0	mg/L	1	09/02/16	KH	SM2540D-97
Turbidity	12.3	0.200	NTU	1	09/02/16 03:00	RR/EG	SM2130B-01
Total Metals Digestion	Completed				09/01/16	AG	

Project ID: 2016-049

Client ID: STON I-2

Phoenix I.D.: BV01343

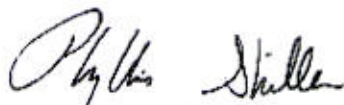
Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
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RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

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Phyllis Shiller, Laboratory Director

September 08, 2016

Reviewed and Released by: Deb Lawrie, Project Manager



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

September 08, 2016

FOR: Attn: Mr. Matt Reiser
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information

Matrix: STORM WATER
Location Code: CMGENV
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: LB
Analyzed by: see "By" below

<u>Date</u>	<u>Time</u>
09/01/16	10:25
09/01/16	12:16

Laboratory Data

SDG ID: GBV01340
Phoenix ID: BV01344

Project ID: 2016-049
Client ID: STON R-1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Hardness (CaCO ₃)	16.6	0.1	mg/L	1	09/03/16		E200.7
Escherichia Coli	17300	10	MPN/100 mls	10	09/01/16 15:15	CB/KDB	SM9223B-04
Total Coliforms	>24200	10	MPN/100 mls	10	09/01/16 15:15	CB/KDB	SW9223B
C.O.D.	133	10	mg/L	1	09/02/16	MSF	SM5220D-97
Conductivity	80	5.00	umhos/cm	1	09/02/16	RR/EG	SM2510B-97
Ammonia as Nitrogen	1.27	0.05	mg/L	1	09/07/16	WHM	E350.1
Nitrite-N	0.058	0.010	mg/L	1	09/01/16 19:46	KD	E353.2
Nitrate-N	1.07	0.02	mg/L	1	09/01/16 19:46	KD	E353.2
Oil and Grease by EPA 1664	< 1.4	1.4	mg/L	1	09/02/16	MSF	E1664A
pH	6.09	0.10	pH Units	1	09/02/16 03:04	RR/EG	SM4500-H B-00
Nitrogen Tot Kjeldahl	3.44	0.10	mg/L	1	09/07/16	WHM	E351.1
Phosphorus, as P	0.44	0.02	mg/L	2	09/06/16	MA	SM4500PE-99
Total Suspended Solids	25	5.0	mg/L	1	09/02/16	KH	SM2540D-97
Turbidity	14.0	0.20	NTU	1	09/02/16 00:40	RWR	SM2130B-01
Total Metals Digestion	Completed				09/01/16	AG	

Project ID: 2016-049
Client ID: STON R-1

Phoenix I.D.: BV01344

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
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RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

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Phyllis Shiller, Laboratory Director

September 08, 2016

Reviewed and Released by: Deb Lawrie, Project Manager



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

September 08, 2016

FOR: Attn: Mr. Matt Reiser
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information

Matrix: STORM WATER
Location Code: CMGENV
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: LB
Analyzed by: see "By" below

Date Time

09/01/16 8:45
09/01/16 12:16

Laboratory Data

SDG ID: GBV01340
Phoenix ID: BV01345

Project ID: 2016-049
Client ID: STON R-2

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Hardness (CaCO ₃)	661	0.1	mg/L	1	09/06/16		E200.7
Escherichia Coli	19900	10	MPN/100 mls	10	09/01/16 15:15	CB/KDB	SM9223B-04
Total Coliforms	>24200	10	MPN/100 mls	10	09/01/16 15:15	CB/KDB	SW9223B
C.O.D.	138	10	mg/L	1	09/02/16	MSF	SM5220D-97
Conductivity	8290	50.0	umhos/cm	10	09/02/16	RWR/KDBSM2510B-97	
Ammonia as Nitrogen	0.62	0.05	mg/L	1	09/07/16	WHM	E350.1
Nitrite-N	0.051	0.010	mg/L	1	09/01/16 19:47	KD	E353.2
Nitrate-N	0.88	0.02	mg/L	1	09/01/16 19:47	KD	E353.2
Oil and Grease by EPA 1664	1.6	1.5	mg/L	1.1	09/02/16	MSF	E1664A
pH	6.79	0.10	pH Units	1	09/02/16 03:07	RR/EG	SM4500-H B-00
Nitrogen Tot Kjeldahl	1.76	0.10	mg/L	1	09/07/16	WHM	E351.1
Phosphorus, as P	0.33	0.02	mg/L	2	09/06/16	MA	SM4500PE-99
Total Suspended Solids	24	5.0	mg/L	1	09/02/16	KH	SM2540D-97
Turbidity	11.2	0.20	NTU	1	09/02/16 00:41	RWR	SM2130B-01
Total Metals Digestion	Completed				09/01/16	AG	

Project ID: 2016-049
Client ID: STON R-2

Phoenix I.D.: BV01345

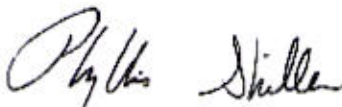
Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
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RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

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Phyllis Shiller, Laboratory Director

September 08, 2016

Reviewed and Released by: Deb Lawrie, Project Manager



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

September 08, 2016

FOR: Attn: Mr. Matt Reiser
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information

Matrix: STORM WATER
Location Code: CMGENV
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: LB
Analyzed by: see "By" below

Date	Time
09/01/16	9:15
09/01/16	12:16

Laboratory Data

SDG ID: GBV01340
Phoenix ID: BV01346

Project ID: 2016-049
Client ID: STON R-3

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Hardness (CaCO ₃)	4710	0.1	mg/L	1	09/07/16		E200.7
Escherichia Coli	8160	10	MPN/100 mls	10	09/01/16 15:15	CB/KDB	SM9223B-04
Total Coliforms	>24200	10	MPN/100 mls	10	09/01/16 15:15	CB/KDB	SW9223B
C.O.D.	646	20	mg/L	2	09/06/16	MSF	SM5220D-97
Conductivity	61000	200	umhos/cm	40	09/02/16	RWR/KDB	SM2510B-97
Ammonia as Nitrogen	0.35	0.05	mg/L	1	09/07/16	WHM	E350.1
Nitrite-N	< 0.010	0.010	mg/L	1	09/01/16 19:49	KD	E353.2
Nitrate-N	< 0.02	0.02	mg/L	1	09/01/16 19:49	KD	E353.2
Oil and Grease by EPA 1664	< 1.4	1.4	mg/L	1	09/02/16	MSF	E1664A
pH	7.63	0.10	pH Units	1	09/02/16 03:11	RR/EG	SM4500-H B-00
Nitrogen Tot Kjeldahl	1.00	0.10	mg/L	1	09/07/16	WHM	E351.1
Phosphorus, as P	0.20	0.02	mg/L	2	09/06/16	MA	SM4500PE-99
Total Suspended Solids	210	5.0	mg/L	1	09/02/16	KH	SM2540D-97
Turbidity	7.46	0.20	NTU	1	09/02/16 00:41	RWR	SM2130B-01
Total Metals Digestion	Completed				09/01/16	AG	

Project ID: 2016-049
Client ID: STON R-3

Phoenix I.D.: BV01346

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
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RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

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Phyllis Shiller, Laboratory Director

September 08, 2016

Reviewed and Released by: Deb Lawrie, Project Manager



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

September 08, 2016

FOR: Attn: Mr. Matt Reiser
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information

Matrix: STORM WATER
Location Code: CMGENV
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: LB
Analyzed by: see "By" below

Date	Time
09/01/16	9:25
09/01/16	12:16

Laboratory Data

SDG ID: GBV01340
Phoenix ID: BV01347

Project ID: 2016-049
Client ID: STON R-4

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Hardness (CaCO ₃)	48.1	0.1	mg/L	1	09/03/16		E200.7
Escherichia Coli	20	10	MPN/100 mls	10	09/01/16 15:15	CB/KDB	SM9223B-04
Total Coliforms	>24200	10	MPN/100 mls	10	09/01/16 15:15	CB/KDB	SW9223B
C.O.D.	59	10	mg/L	1	09/02/16	MSF	SM5220D-97
Conductivity	368	5.00	umhos/cm	1	09/02/16	RR/EG	SM2510B-97
Ammonia as Nitrogen	1.71	0.05	mg/L	1	09/07/16	WHM	E350.1
Nitrite-N	0.035	0.010	mg/L	1	09/01/16 19:50	KD	E353.2
Nitrate-N	0.36	0.02	mg/L	1	09/01/16 19:50	KD	E353.2
Oil and Grease by EPA 1664	< 1.4	1.4	mg/L	1	09/02/16	MSF	E1664A
pH	6.93	0.10	pH Units	1	09/02/16 03:14	RR/EG	SM4500-H B-00
Nitrogen Tot Kjeldahl	1.88	0.10	mg/L	1	09/07/16	WHM	E351.1
Phosphorus, as P	0.64	0.02	mg/L	2	09/06/16	MA	SM4500PE-99
Total Suspended Solids	13	5.0	mg/L	1	09/02/16	KH	SM2540D-97
Turbidity	6.91	0.20	NTU	1	09/02/16 00:42	RWR	SM2130B-01
Total Metals Digestion	Completed				09/01/16	AG	

Project ID: 2016-049
Client ID: STON R-4

Phoenix I.D.: BV01347

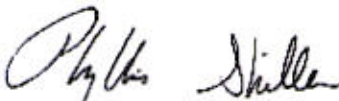
Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
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RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
This report must not be reproduced except in full as defined by the attached chain of custody.



Phyllis Shiller, Laboratory Director

September 08, 2016

Reviewed and Released by: Deb Lawrie, Project Manager



Environmental Laboratories, Inc.
 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
 Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

September 08, 2016

QA/QC Data

SDG I.D.: GBV01340

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 357708 (mg/L), QC Sample No: BV00882 (BV01340, BV01341, BV01342, BV01343, BV01344, BV01345, BV01346, BV01347, BV01348, BV01349)													
Oil and Grease by EPA 1664A	BRL	1.4				101						85 - 115	20
QA/QC Batch 357879 (mg/L), QC Sample No: BV01085 (BV01340, BV01341, BV01342, BV01343, BV01344, BV01345, BV01346, BV01347, BV01348, BV01349)													
Phosphorus, as P	BRL	0.01	1.42	1.43	0.70	109			104			85 - 115	20
QA/QC Batch 357703 (mg/L), QC Sample No: BV01133 (BV01340, BV01341, BV01342, BV01343, BV01344, BV01345, BV01346, BV01347, BV01348, BV01349)													
C.O.D.	BRL	10	40	40	NC	94.6			99.7			85 - 115	20
QA/QC Batch 357896 (mg/L), QC Sample No: BV01135 (BV01340, BV01341, BV01342, BV01343, BV01344, BV01345, BV01346, BV01347, BV01348, BV01349)													
Ammonia as Nitrogen	BRL	0.05	0.44	0.44	0	104			104			85 - 115	20
Nitrogen Tot Kjeldahl	BRL	0.10	0.71	0.72	1.40	90.9			96.2			85 - 115	20
QA/QC Batch 357706 (mg/L), QC Sample No: BV01315 (BV01340, BV01341, BV01342, BV01343, BV01344, BV01345, BV01346, BV01347, BV01348, BV01349)													
Total Suspended Solids	BRL	5.0	<5.0	<5.0	NC	92.0						85 - 115	20
QA/QC Batch 357647 (mg/L), QC Sample No: BV01340 (BV01340, BV01341, BV01342, BV01343, BV01344, BV01345, BV01346, BV01347, BV01348, BV01349)													
Nitrate-N	BRL	0.02	0.85	0.85	0	106			108			85 - 115	20
Nitrite-N	BRL	0.01	<0.010	<0.01	NC	98.8			104			85 - 115	20
QA/QC Batch 357662 (NTU), QC Sample No: BV01340 (BV01340, BV01341, BV01342, BV01343, BV01344, BV01345, BV01346, BV01347, BV01348, BV01349)													
Turbidity	BRL	0.20	4.90	4.93	0.60	102						85 - 115	20
QA/QC Batch 357686 (umhos/cm), QC Sample No: BV01358 (BV01340, BV01341, BV01342, BV01343, BV01344, BV01345, BV01346, BV01347, BV01348, BV01349)													
Conductivity	BRL	5.00	87	84.9	2.40	96.5						85 - 115	20
QA/QC Batch 357674 (pH), QC Sample No: BV01358 (BV01340, BV01341, BV01342, BV01343, BV01344, BV01345, BV01346, BV01347, BV01348, BV01349)													
pH			7.45	7.45	0	98.2						85 - 115	20
QA/QC Batch 357682 (NTU), QC Sample No: BV01358 (BV01343)													
Turbidity	BRL	0.200	7.83	7.83	0	90.5						85 - 115	20
QA/QC Batch 357822 (umhos/cm), QC Sample No: BV01540 (BV01340, BV01342, BV01343, BV01345, BV01346, BV01348)													
Conductivity	BRL	5.00	445	437	1.80	98.8						85 - 115	20
QA/QC Batch 357993 (mg/L), QC Sample No: BV01599 (BV01349)													
Phosphorus, as P	BRL	0.01	0.30	0.30	0	104			103			85 - 115	20

QA/QC Data

SDG I.D.: GBV01340

Parameter	Blank	Bik RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
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If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference

LCS - Laboratory Control Sample

LCSD - Laboratory Control Sample Duplicate

MS - Matrix Spike

MS Dup - Matrix Spike Duplicate

NC - No Criteria

Intf - Interference



Phyllis Shiller, Laboratory Director

September 08, 2016

Thursday, September 08, 2016

Sample Criteria Exceedences Report

GBV01340 - CMGENV

Page 1 of 1

Criteria: None

State: CT

SamplNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units
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*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.
