



**Town of Essex, Connecticut
2021 Annual Report**

**General Permit for the Discharge of Stormwater
from Small Municipal Separate Storm Sewer Systems (MS4)**

Permit Number GSM 000019

MS4 General Permit
Town of Essex 2021 Annual Report
Existing MS4 Permittee
Permit Number GSM 000019
January 1, 2021 – December 31, 2021

Primary MS4 Contact:

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This report documents the Town of Essex’s efforts to comply with the conditions of the MS4 General Permit to the maximum extent practicable (MEP) from January 1, 2021 to December 31, 2021.

Part I: Summary of Minimum Control Measure Activities

1. Public Education and Outreach (Section 6 (a)(1) / page 19)

1.1 BMP Summary

BMP	Status (Complete, Ongoing, In Progress, or Not started)	Activities in current reporting period (if needed, more space available after this table)	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date (include the start date for anything that is ‘in progress’)	Additional details
1-1 Implement public education and outreach	In Progress	2021 Facebook Recycling and Environmental postings. Published on social media and town website a reminder about proper removal and disposal of leaves and other vegetation and to prevent debris from entering the MS4. Link to information on free compost collection at the Essex Landfill station.	Impacts to stormwater from web-based personal waste / recycling programs and car washing activities.	Alyson Finnegan	Ongoing	Ongoing	Facebook posts have reach approximately 100 people per post.

1-2 Address education/ outreach for pollutants of concern	On going	Town of Essex Community Resiliency Building Workshop.	Town of Essex embarked on a certification via Sustainable CT. As part of that certification, Sustainable CT and the Nature Conservancy provided the Town with a voluntary process to conduct an assessment of Climate Change impacts. In August 2019, a municipal-based core team organized a Community Reliance Building Workshop facilitated by the Nature Conservancy in Partnership with Sustainable CT.	Town Members	Ongoing	Ongoing	
1-3 Car and Truck Washing Events	Complete	Published Car and Truck washing prohibited on impervious surfaces.	Posted vehicle washing recommendations on town web site and Facebook page. Residents should avoid having car washes on impervious surfaces.	Town Members	OnGoing		The Town continues to educate residents to wash their cars and boats on grassy or crushed stone areas.
1-4 Pet Wastes (Pick Up)	Ongoing	Published pet waste removal from Public Areas (i.e. Parks)	Residents request to pick up after your pet.	Town Members	Ongoing	Until End of Permit	The Town provides pet-waste bags in municipal-owned parks and continues to educate residents about picking up after pets. Facebook posts on <i>People of Essex, CT</i> page documents the ongoing dialog and conversation about pet waste.

1-5 Address education/ outreach for pollutants of concern*	Non-Active	Due to Covid-19 restrictions, which included the closure of public buildings, schools, and town fairs and events, minimal public outreach occurred in 2021.	None	None	July 1, 2018	None	None
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Extra space for describing above BMP activities, if needed:

1.2 Describe any Public Education and Outreach activities planned for the next year, if applicable.

Continued support of Sustainable CT and the Stormwater MS4 Working Group.
 Continued Facebook posts regarding material recycling and MS4 Issues.
 Continue Town Web Page regarding MS4 Activities.
 Continue Quarterly MS4 Committee Meetings
 Continue to pursue other public activities and groups to participate in MS-4 activities.

1.3 Details of activities implemented to educate the community on stormwater

Program Element/Activity	Audience (and number of people reached)	Topic(s) covered	Pollutant of Concern addressed (if applicable)	Responsible dept. or partner org.
Educational stormwater sign installed at Town Hall and Library.	Students, parents, teachers (approx. 100)	Impact of impervious cover, stormwater infiltration	Phosphorus, nitrogen	Department of Public Works
Brochures distributed at DPH and Selectman's Office	Developers, home owners (approx. 10)	Impact of impervious cover, Septic systems & Fertilizer use	Bacteria, nitrogen and phosphorus	Essex Health Department, Zoning
<i>Essex Events Magazine, electronic newsletter or Valley Courier</i>	100's	Keeping Stormwater clean, recognizing illicit discharges and "What can I do?" items.	All	Essex Health Department
<i>Public Education and Outreach</i>	Due to Covid-19 restrictions, which included the closure of public buildings, schools and town fairs and events, minimal public outreach occurred in 2021.	None	None	None

2. Public Involvement/Participation (Section 6(a)(2) / page 21)

2.1 BMP Summary

BMP	Status (Complete, Ongoing, In Progress, or Not started)	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date (include the start date for anything that is 'in progress')	Additional details
2-1 Final Stormwater Management Plan publicly available	Ongoing	Publically Available SMP.	Completed SMP	Town of Essex	Review SMP Annually by Feb 15	Completed on March 23, 2017	Town Hall and Town Website http://essexct.gov/
2-2 Comply with public notice requirements for Annual Reports		Public Notice available	45-day Public Notice	Town of Essex	Ongoing	Ongoing	Hartford Courant
2-3 Town of Essex Stormwater (MS4) Working Group	Quarterly Meetings	Committee Members Identified	Provide forum to coordinate SWMP implementation across depts. and commissions	John Guskowski (Town Planner) Lisa Fasulo (DPH) Robert Doane (Town Engineer)	-	Ongoing	Reason for addition: Committee will represent town departments & commissions with stake in stormwater mgmt.
2-4 Town of Essex Stormwater (MS4) Working Group	Quarterly Meetings MInutes	Committee Members	Minutes are posted on Town Web page and available to the public.	Alyson Finnegan (Administrative Assistant to the Selectman)	After every quarterly meeting.	Ongoing	Minutes are posted on Town Web page and available to the public.

2.2 Describe any Public Involvement/Participation activities planned for the next year, if applicable.

Hold quarterly stormwater committee meetings to review SMP implementation progress.

2.3 Public Involvement/Participation reporting metrics

Metrics	Implemented	Date	Posted
Availability of the Stormwater Management Plan to public	Yes	2017	http://essexct.gov ;
Availability of Annual Report announced to public	Yes	2022	http://essexct.gov , Facebook posts on <i>Town of Essex – Government</i> page, Hartford Courant

3. Illicit Discharge Detection and Elimination (Section 6(a)(3) and Appendix B / page 22)

3.1 BMP Summary

BMP	Status (Complete, In Progress, or Not started)	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date (include the start date for anything that is 'in progress')	Additional details
3-1 Develop written IDDE program	<i>Completed</i>	<i>Town completing the written IDDE program using the CT IDDE program template</i>	<i>Written Plan Prepared</i>	Essex DPW Essex Health Dept.	Jul 1, 2018	<i>February 20, 2019</i>	
3-2 Develop list and maps of all MS4 stormwater outfalls in priority areas	<i>100% Complete</i>	Finalizing the remaining interconnections and CBs.	<i>100%</i>	<i>MapGEO</i> Essex DPW Essex Health Dept.	August 2020		
3-3 Implement citizen reporting program	Ongoing	Design a public comment / reporting on MS4 webpage.	Completed Reporting Program	WebMaster Alyson Finnegan	Ongoing	<i>March 2020</i>	

BMP	Status (Complete, Ongoing, In Progress, or Not started)	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date (include the start date for anything that is 'in progress')	Additional details
3-4 Establish legal authority to prohibit illicit discharges	Completed	Completed	Written Ordinance	Town Officials	February 2019	Completion Date: February 20, 2019	
3-5 Develop recordkeeping system for IDDE tracking	Completed	Dry and Wet Inspection Sheets and MS4 Documentation	Completion	Essex DPW Essex Health Department	Ongoing	March 2022	
3-6 Address IDDE in areas with pollutants of concern	Ongoing	Performed final 1/2 of outfall dry inspections.	Completed dry Inspections	MapGEO Essex DPW	Ongoing	March 2023	

Extra space for describing above BMP activities, if needed:

BMP	

3.2 Describe any IDDE activities planned for the next year, if applicable.

The written IDDE Plan / program will be posted to the Town of Essex webpage and a link listed in 2021 Annual Report; will update the written IDDE program as needed throughout the permit term.

Maintain master IDDE tracking spreadsheet and ensure all employees involved in IDDE program understand the logging process and can log in future IDDE reports.

3.3 List of citizen reports of suspected illicit discharges received during this reporting period. Illicit discharges are any unpermitted discharge to waters of the state that do not consist entirely of stormwater or uncontaminated groundwater except those discharges identified in Section 3(a)(2) of the MS4 general permit when such non-stormwater discharges are not significant contributors of pollution to a discharge from an identified MS4.

Date of Report	Location / suspected source	Response taken
None		

3.4 Provide a record of illicit discharges occurring during the reporting period and SSOs occurring July 2012 through end of reporting period using the following table.

Location (Lat long/ street crossing /address and receiving water)	Date and duration of occurrence	Discharge to MS4 or surface water	Estimated volume discharged	Known or suspected cause / Responsible party	Corrective measures planned and completed (include dates)	Sampling data (if applicable)
None						

3.5 Briefly describe the method used to track illicit discharge reports, responses to those reports, and who was responsible for tracking this information.

Illicit discharges are called into the town. Town assistant records call and the town public works department is sent in to investigate.

3.6 Provide a summary of actions taken to address septic failures using the table below.

Date	Location of structure with failing septic systems	Nature of structure with failing septic systems	Actions taken to respond to and address the failures	Impacted waterbody or watershed, if known
05/06/21	30 Meadow Woods	Failed D Box	Septic repair D box only	None
08/06/21	64 Book Hill Road	System Failure	Repair System 3 bedroom	None
07/01/21	12 Carriage Lane	Replace tank	Tank only 3 bedroom	None
04/30/21	28 River Road	Construct new septic system	New septic for 4 bedroom 1250 gallon	None
06/07/21	49 River Road	Septic tank failure	Septic repair add new tank and fields 4 bedroom	None
07/01/21	71 Dennison Road	Septic tank and dry well failure	Replace tnk & drywell failure	None
08/24/21	9 Brookside Lane	D-Box failure (poor structural condition)	Replace D-box	None
No Date	30 Laurel Road	System failure	Replace septic system	None
07/19/21	38 Laurel Road	Construct new septic system	New septic 1250 gal 4 bedroom	None
12/15/21	68 No. Main Street	Replace septic tank	Replacing tank 1000 gal to 1500 gallon	None
08/20/21	1 Teal Lane	Move septic tank	Moving septic tank 10' away from house	None
05/17/21	2 Champlin Square	Required capacity	New tank for new Deck	None
10/26/21	29 West Avenue	Failing pump chamber	Replace pump chamber	None
08/04/21	5 Champlin Square	System Failure	Septic repair	None
05/12/21	57 West Avenue	System Failure	Septic repair	None
08/14/21	24 Sunset Terrace	System Failure	Septic repair	None
08/27/21	26 Sunset Terrace	Broken pipe	Repair broken pipe	None
10/04/21	4 Sunset Terrace	Full drywell	Empty drywell full	None
03/29/21	4 Westbrook Road	Septic tank failure	Septic tank repair only	None

Date	Location of structure with failing septic systems	Nature of structure with failing septic systems	Actions taken to respond to and address the failures	Impacted waterbody or watershed, if known
04/08/21	45 West Hills Rd	Leach field failure	Replace / repair leach field	None
06/03/21	14 Highland Terrace	Leach field failure	Replace / repair leach field	None
01/11/21	21 Blake Street	Soil test TBD	Soil test TBD	None
09/30/21	43 Main Street, Ivoryton	Failure septic and D-box	Replace septic and D-box	None
01/27/21	73 Main Street, Ivoryton	System failure 4x4 galleys full	Replace / repair system 4x4 galleys	None
09/07/21	33 Westbrook Road	Septic tank collapse	Replace septic tank	None
10/01/21	91 Main Street, Centerbrook	Outlet pipe - root intrusion	Repair outlet pipe	None
08/18/21	13 Partridge Hill	Leach field failure	Repair leach field	None
06/17/21	22 Hilltop Avenue	Septic system failure (2 bedroom)	Replace 1250 gal tank	None
08/5/21	30 South Main Street, Essex	Septic system failure	Repair septic system for 4 bedroom	None
01/04/21	1 Nott Lane / 10 Bank Lane	Septic system failure	Repair septic system	None
05/06/21	17 Scholes Lane	Septic system failure	Repair septic D-box & outlet pipe only	None
07/21/21	15 Novelty Lane	Septic system failure	Repair septic system	None
05/12/21	58 Saybrook Road	Septic system upgrade	Repair septic system for 4 bedroom	None
12/02/21	67 South Main Street	Septic system upgrade	Repair septic system for 4 bedroom	None
05/17/21	13 Walnut Street	Septic system upgrade	Repair septic system for 3 bedroom	None
06/16/21	47 Comstock Avenue	Septic system upgrade	Modify / repair septic system	None
05/17/21	12 Walnut Street	Septic system upgrade	Repair septic system for 3 bedroom	None
03/09/21	73 Lynn Road	Septic system failure	Repair septic tank only	None
07/15/21	28 Walnut Street	Septic system failure	Repair septic system	None
10/20/21	35 Oak Drive	Two (2) dry wells full	Clean out and repair (2) dry wells	None

Date	Location of structure with failing septic systems	Nature of structure with failing septic systems	Actions taken to respond to and address the failures	Impacted waterbody or watershed, if known
11/30/21	7 Cove Hill Road	Septic system failure	Repair septic system	None
08/24/21	28 Crosstrees Hill	Septic system failure	Repair septic system	None
04/19/21	42 Crosstrees Hill	Septic system failure	Repair septic system	None
06/14/21	24 Hemlock Drive	Septic system modification	Relocate septic D-box pipe around new retaining wall.	None
01/04/21	10 Hunters Trail	Septic system failure	Repair septic system	None
05/20/21	8 Harmony Lane, Ivoryton	Septic system failure	Septic repair tank only (Three (3) bedroom)	None
01/27/21	2 Piney Branch Road	Septic system failure	System failure, infiltrators to be removed – NC	None
06/03/21	27 Melody Lane	Septic system failure	Septic Repair D-box (Three (3) bedroom)	None
08/03/21	50 Hickory Lane	Septic system failure	Septic Repair Pipe from tank to D-box	None
04/26/21	6 Piney Branch Road	Septic system failure	Repair septic system	None
05/20/21	9 Ferry Street	Removal of previously abandoned leach field – NC	Removal of previously abandoned leach field – NC	None
05/27/21	19 Navy Lane	New Septic System – NSFR	New Septic System - NSFR	None
12/07/21	11 Clark Lane	-	New Septic System	None
10/26/21	River Road	-	New Septic System	None
04/22/21	46 Grove Street	-	New Septic System	None
06/11/21	36 Maple Avenue	-	New Septic System	None
11/15/21	8 West Avenue	-	New Septic System	None
11/30/21	49 Plains Road	-	Proposed new commercial building	None
07/20/21	17 Mack Lane	-	New Septic System	None
11/17/21	36 Mack Lane	-	New Septic 1000 gallon for bath over garage.	None
08/27/21	Edgewood Avenue	-	Proposed 2 bedroom SFR	None

Date	Location of structure with failing septic systems	Nature of structure with failing septic systems	Actions taken to respond to and address the failures	Impacted waterbody or watershed, if known
11/08/21	175 Saybrook Road	-	New septic 4 bedroom 1500 gal tank	None
12/02/21	64 South Main Street	Change in Use	Change in Use	None

3.7 IDDE reporting metrics

Metrics	
Estimated or actual number of MS4 outfalls	207
Estimated or actual number of interconnections	18
Outfall mapping complete	100%
Interconnection mapping complete	100%
System-wide mapping complete (detailed MS4 infrastructure)	100%
Outfall assessment and priority ranking	75%
Dry weather screening of all High and Low priority outfalls complete	207
Catchment investigations complete	340
Estimated percentage of MS4 catchment area investigated	60%

3.8 Briefly describe the IDDE training for employees involved in carrying out IDDE tasks including what type of training is provided and how often is it given (minimum once per year).

Two Public Works employees are trained to recognize IDDE issues including IDDE identification, potential catchment basin and outfall repairs and sediment loading. These employees perform the inspection throughout the town. IDDE Training is given annually by the Town Garage (Public Works) Director and the environmental consultant.

4. Construction Site Runoff Control (Section 6(a)(4) / page 25)

4.1 BMP Summary

BMP	Status (Complete, Ongoing, In Progress, or Not started)	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date (include the start date for anything that is 'in progress')	Additional details
4-1 Implement, upgrade, and enforce land use regulations or other legal authority to meet requirements of MS4 general permit	Ongoing	Specific LID Requirements		Land Use Office Town Engineer Essex DPW Essex Health Dept.	Jul 1, 2019		
4-2 Develop/Implement plan for interdepartmental coordination in site plan review and approval	Ongoing	Stormwater MS4 Working Group		Land Use Office Town Engineer Essex DPW Essex Health Dept.	Ongoing	Completed	
4-3 Review site plans for stormwater quality concerns	Ongoing	Stormwater MS4 Working Group	None	Land Use Office Town Engineer Essex DPW Essex Health Dept.	Ongoing	Ongoing	
4-4 Conduct site inspections	Ongoing	<ul style="list-style-type: none"> Inspect Heron Pond (detention) Inspect 36 Pratt Street (oil/water separator) Inspect Stonebrook Drive stormwater recharge system 	Inspections Completed	Essex DPW Town Engineer MapGEO	Ongoing	Ongoing	<p>Heron Pond (stormwater detention pond) clean out on 11/10/21.</p> <p>36 Pratt Street Oil/water Separator – Inspection on 07/22/21.</p> <p>Stonebrook Drive recharge inspection 10/12/21.</p> <p>57 Main St Ivoryton (building renovation adjacent to Falls River) – inspect E&S controls frequently</p>

							14 Essex Glen (ongoing large site development project) – inspect E&S controls & detention pond frequently
4-5 Implement procedure to allow public comment on site development	Ongoing	Stormwater MS4 Working Group		Land Use Office Town Engineer Essex DPW	Ongoing	Ongoing	
4-6 Implement procedure to notify developers about DEEP construction stormwater permit		Section 82 of the Zoning Regulations	Regulation Completed Land Use	Land Use Office Town Engineer	Ongoing	Ongoing	
4-7 Develop stormwater compliance checklist	In progress	Developing checklist to provide developers on stormwater management compliance requirements and LID options	LID checklist (attached)	Land Use Office Town Engineer	-	Ongoing	The existing Zoning and Inland Wetlands Regulations are routinely enforced by Town staff for all approved Wetlands and P & Z applications that are under construction.

Extra space for describing above BMP activities, if needed:

BMP	

4.2 Describe any Construction Site Runoff Control activities planned for the next year, if applicable.

Continue to inspect and perform maintenance on Town-owned stormwater features such as detention ponds, oil/water separators and infiltration galleries. The Town of Essex Land Use Office and Engineering Department require any new proposed Site Plans to comply with the Planning and Zoning LID regulation requirements. The Town of Essex Land Use Department Officer, or his designee, inspects all construction sites a minimum of once a week or as necessary.

The Town of Essex Land Use and Town Engineer require any new proposed Site Plans to comply with the current Erosion and Sediment Control and LID regulation requirements.

Integrate stormwater compliance checklist into review process once completed.

5. Post-construction Stormwater Management (Section 6(a)(5) / page 27)

5.1 BMP Summary

BMP	Status (Complete, Ongoing, In Progress, or Not started)	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date (include the start date for anything that is 'in progress')	Additional details
5-1 Establish and/or update legal authority and guidelines regarding LID and runoff reduction in site development planning	In Progress	Article IV Section 608 Drainage and Stormwater Control regulations	Written Zoning Regulations - Completed	Land Use Office	July 1, 2021	Ongoing – Beginning date July 1, 2021	
5-2 Enforce LID/runoff reduction requirements for development and redevelopment projects	In Progress	Article IV Section 608 Drainage and Stormwater Control regulations.	Written Zoning Regulations - Completed	Land Use Office	Ongoing beginning Jul 1, 2019	Ongoing	
5-3 Identify retention and detention ponds in priority areas	In Progress	Heron Pond (stormwater detention pond) 36 Pratt Street Oil/water separator Stone Brook Drive Recharge/Infiltration Gallery.	Annual and Semi-annual Maintenance activities	Land Use Office Town Engineer Essex DPW	Ongoing beginning Jul 1, 2019	Ongoing	Heron Pond (stormwater detention pond) clean out on 11/10/21. 36 Pratt Street Oil/water Separator – Inspection on 07/22/21. Stonebrook Drive recharge inspection 10/12/21.

5-4 Implement long-term maintenance plan for stormwater basins and treatment structures	In Progress	Heron Pond (stormwater detention pond) 36 Pratt Street Oil/water separator Stone Brook Drive Stormwater Recharge/Infiltration Gallery.	Annual and Semi-annual Maintenance activities	Land Use Office Town Engineer Essex DPW	Ongoing beginning Jul 1, 2019	Heron Pond (stormwater detention pond) 36 Pratt Street Oil/water separator Stone Brook Drive Stormwater Recharge/Infiltration Gallery.	
5-5 DCIA mapping	Complete	DCIA Mapping and Report Completed	Town-wide DCIA estimated at 6.78%	Land Use Office Town Engineer AppGEO	June 1, 2020	June 12, 2020	
5-6 Address post-construction issues in areas with pollutants of concern	In Progress	None	Reduction DCIA by 2% per year.	Land Use Office Town Engineer	Not specified		

Extra space for describing above BMP activities, if needed:

BMP	

5.2 Describe any Post-Construction Stormwater Management activities planned for the next year, if applicable.

No new residential or commercial development which impact MS4 was performed during 2021. However, the Town of Essex Land Use and Town Engineer require any new proposed Site Plans to comply with the current Erosion and Sediment Control and LID regulation requirements.

The Town of Essex Public Works department maintains the stormwater retention ponds, oil/water separators and infiltration galleries.

5.3 Post-Construction Stormwater Management reporting metrics

For details on this requirement, visit www.nemo.uconn.edu/ms4/tasks/post-construction.htm. Scroll down to the DCIA section.

Metrics	
Baseline (2012) Directly Connected Impervious Area (DCIA)	1,507.67 acres
DCIA disconnected (redevelopment plus retrofits)	0 acres this year / acres total
Retrofit projects completed	0#
DCIA disconnected	0% this year / % total since 2012
Estimated cost of retrofits	\$0
Detention or retention ponds identified	0# this year /# total

5.4 Briefly describe the method to be used to determine baseline DCIA.

To estimate the DCIA % for the town, the total acres of catchment areas (1,507.67 acres) and impervious cover within those catchments (250.52 acres) were used to get the towns IC% (16%). Equation 3 was used as an average for all the catchments to estimate the town's DCIA% to be **6.78%**.

6. Pollution Prevention/Good Housekeeping (Section 6(a)(6) / page 31)

6.1 BMP Summary

BMP	Status (Complete, Ongoing, In Progress, or Not started)	Activities in current reporting period	Measurable goal	Department / Person Responsible	Due	Date completed or projected completion date (include the start date for anything that is 'in progress')	Additional details
6-1 Develop/implement formal employee training program	Ongoing	Perform Training Program	Annual training Performed	Essex DPW	Ongoing	05/30/22	
6-2 Implement MS4 property and operations maintenance	Complete	Heron Pond (stormwater detention pond) 36 Pratt Street Oil/water separator Stone Brook Drive Recharge/Infiltration Gallery.	Annual and Semi-annual Maintenance activities	Land Use Office Town Engineer Essex DPW	Ongoing beginning Jul 1, 2018	Ongoing Annual Maintenance Activities	
6-3 Implement coordination with interconnected MS4s	In Progress	Wet and Dry Outfall Inspections to verify interconnected MS4s	Identify MS4s interconnections	Essex DPW	Not specified	Ongoing	
6-4 Develop/implement program to control other sources of pollutants to the MS4	Ongoing	Industrial stormwater permit compliance at Town Garage.	Compliance with Industrial Stormwater General Permit Criteria	Essex Health Department Essex DPW	Not specified	Ongoing	
6-5 Evaluate additional measures for discharges to impaired waters*	Ongoing	There are no impaired waterways identified for the Town of Essex	Complete	Essex Health Department Essex DPW	Not specified	Ongoing	There are no impaired waterways identified for the Town of Essex

6-6 Track projects that disconnect DCIA	Ongoing	Drywell installations (4)		Essex DPW MapGeo	Ongoing		
6-7 Implement infrastructure repair/rehab program	Ongoing	Catchment basin repairs (394)	Three hundred ninety four (394) CB were repaired during 2021.	Essex DPW	July 1, 2021	Continue inspecting and repairing CBs in town.	
6-8 Develop/implement plan to identify/prioritize retrofit projects	Not started yet				July 1, 2020		
6-9 Implement retrofit projects to disconnect 2% of DCIA	Ongoing				July 1, 2022		
6-10 Develop/implement street sweeping program	Ongoing	Street sweeping report attached.	Completed 2021 Street Sweeping Program	Essex DPW	Ongoing beginning July 1, 2017		
6-11 Develop/implement catch basin cleaning program	Ongoing	394 catch basins cleaned (out of 965 total)	List of 394 CBs cleaned in 2021	Essex DPW	Ongoing beginning July 1, 2020		
6-12 Develop/implement snow management practices	Ongoing	Snow management practices began in 2019 including snow disposal locations, reduced sand spreading operations and use of treated "brown" salt materials.	Snow Management Plan (2020)	Essex DPW	Ongoing beginning July 1, 2018	Ongoing	

6-13 Map & Inventory highly erosive areas in town ROW	Ongoing	Collect information on eroding areas in ROW from highway maintenance personnel over course of normal operations	ID areas contributing large volume of sediment to town waterbodies	Essex DPW	-	Jul 1, 2021	Reduce sedimentation of waterways near town ROWs
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Extra space for describing above BMP activities, if needed:

BMP	

6.2 Describe any Pollution Prevention/Good Housekeeping activities planned for the next year, if applicable.

Inventory and Map erosion areas in Town ROW to reduce the sediment that may be entering the Town MS4 system.
 Continue infrastructure repair and rehabilitation, street sweeping, catch basin cleaning and snow management practices.
 The town will continue to track illicit discharges and sanitary sewer system failures / repairs.

6.3 Pollution Prevention/ Good Housekeeping reporting metrics

Metrics	
Employee training provided for key staff	Yes / 02/05/21
Street sweeping	
Curb miles swept	84 miles
Volume (or mass) of material collected	400 cuyd
Catch basin cleaning	
Total catch basins in priority areas (value will be less than or equal to total catch basins town or institution-wide)	340
Total catch basins town- (or institution-) wide	950
Catch basins inspected	394

Catch basins cleaned	394
Volume (or mass) of material removed from all catch basins	350 lbs or tons
Volume removed from catch basins to impaired waters (if known)	Unknown
Snow management	
Type(s) of deicing material used	Blizzard Wizard (treated sugar cane molasses salt) and Washed winter road sand.
Total amount of each deicing material applied	Salt – 198 tons Sand – 440 tons
Type(s) of deicing equipment used	Spreader / Jet Sanders
Lane-miles treated (A lane-mile is a mile of roadway in a single driving lane)	84 miles
Snow disposal location	1. Bushnell Park Parking Lot 2. Comstock Field (50 Park Road)
Staff training provided on application methods & equipment	On the Job training
Municipal turf management program actions (for permittee properties in basins with N/P impairments)	The Town of Essex does not use fertilizers on town-owned properties. 100%
Reduction in application of fertilizers (since start of permit)	100%
Reduction in turf area (since start of permit)	acres
Lands with high potential to contribute bacteria (dog parks, parks with open water, & sites with failing septic systems)	
Cost of mitigation actions/retrofits	\$0

6.4 Catch basin cleaning program

Provide any updates or modifications to your catch basin cleaning program

The Town of Essex retains the services of Janet Sweeping Company, Meriden Connecticut. The Department of Public Works oversees the catch basin cleaning activities and attempts to complete a third of the CBs in one year (approximately 350/year).

6.5 Retrofit program

Briefly describe the Retrofit Program identification and prioritization process, the projects selected for implementation, the rationale for the selection of those projects and the total DCIA to be disconnected upon completion of each project.

The Town of Essex will utilize the DCIA map and new zoning regulations to prioritize the Retrofit Program. Any new project that is anticipated to be undertaken will be evaluated for possible retrofit to remove impervious surfaces with low LID projects. The responsible departments will review any projects that may be used as retrofit projects.

Responsible Department: Engineering, Public Works

Administration Measurable Goal: Develop a list of possible retrofit projects.

Status to Date: Nothing at this time.
Scheduled for 2022

Describe plans for continuing the Retrofit program and how to achieve a goal of 1% DCIA disconnection in future years.

The Town of Essex Planning and Engineering Departments require any new proposed Site Plans to comply with the Planning and Zoning LID regulation requirements.

Describe plans for continuing the Retrofit program beyond this permit term with the goal to disconnect 1% DCIA annually over the next 5 years.

The Town of Essex Planning and Engineering Departments require any new proposed Site Plans to comply with the Planning and Zoning LID regulation requirements.

Part II: Impaired waters investigation and monitoring

1. Impaired waters investigation and monitoring program

For details on this requirement, visit www.nemo.uconn.edu/ms4/tasks/monitoring.htm. Refer to the yellow column of the Monitoring comparison chart and the Impaired waters monitoring flowchart.

1.1 Indicate which stormwater pollutant(s) of concern occur(s) in your municipality or institution. This data is available on the MS4 map viewer: <http://s.uconn.edu/ctms4map>.

Nitrogen/ Phosphorus Bacteria Mercury Other Pollutant of Concern

1.2 Describe program status.

Discuss 1) the status of monitoring work completed, 2) a summary of the results and any notable findings, and 3) any changes to the Stormwater Management Plan based on monitoring results.

According to the MS4 map viewer described above, there are no priority impaired or TMDL Impaired waterways / waterbodies located in the Town of Essex. The Town of Essex monitors six (6) outfalls for bacteria (E. coli), Nitrogen and Phosphorus.

2. Screening data for outfalls to impaired waterbodies (Section 6(i)(1) / page 41)

2.1 Screening data

Complete the table below to report data for any wet weather sampling completed for MS4 outfalls that discharge directly to a stormwater impaired waterbody during the reporting period. For details on this requirement, visit www.nemo.uconn.edu/ms4/tasks/monitoring.htm. Refer to the yellow column of the Monitoring comparison chart and the Impaired waters monitoring flowchart.

Each Annual Report will add on to the previous year's data showing a cumulative list of sampling data. You may also attach an excel spreadsheet with the same data rather than copying it into this table.

Outfall ID	Latitude / Longitude	Sample date	Parameter (Nitrogen, Phosphorus, Bacteria, or Other pollutant of concern)	Results (mg/L or as specified)	Name of Laboratory (if used)	Follow-up required? *
River's Edge		12/22/21	pH	6.20 SU	ECL	Phosphorous >0.3 mg/L

			Ammonia as N Nitrate as N Nitrite as N TKN as N Phosphorous (T) Chlorine (TRC) Salinity Surfactants (MBAS) E. Coli	0.06 0.11 ND<0.01 4.16 0.79 ND<0.02 0.088 ppt 0.12 149.7 MPN / 100 ml		
Essex Plaza		12/22/21	pH Ammonia as N Nitrate as N Nitrite as N TKN as N Phosphorous (T) Chlorine (TRC) Salinity Surfactants (MBAS) E. Coli	6.71 SU 0.41 0.54 ND<0.01 2.12 0.11 ND<0.02 0.091 ppt 0.12 1.0 MPN / 100 ml	ECL	None
Book Hill Road		12/22/21	pH Ammonia as N Nitrate as N Nitrite as N TKN as N Phosphorous (T) Chlorine (TRC) Salinity Surfactants (MBAS) E. Coli	6.93 SU 0.22 0.48 ND<0.01 1.74 0.24 ND<0.02 0.083 ppt 0.26 261.3 MPN / 100 ml	ECL	E. coli > 235 col/100ml
Industrial Park		12/22/21	pH Ammonia as N Nitrate as N Nitrite as N TKN as N Phosphorous (T) Chlorine (TRC) Salinity Surfactants (MBAS) E. Coli	6.21 SU 0.12 1.59 ND<0.01 0.56 0.05 ND<0.02 0.158 ppt 0.13 14.4 MPN / 100 ml	ELC	None
Foot of Main		12/22/21	pH Ammonia as N Nitrate as N Nitrite as N TKN as N Phosphorous (T)	6.82 SU 0.23 0.37 ND<0.01 1.69 0.32	ECL	Total N > 2.5 mg/l E. coli > 410 col/100ml Total P > 0.3 mg/l

			Chlorine (TRC) Salinity Surfactants (MBAS) E. Coli	ND<0.02 0.144 ppt 0.29 2,419.6 MPN / 100 ml		
Pratt Street		12/22/21	pH Ammonia as N Nitrate as N Nitrite as N TKN as N Phosphorous (T) Chlorine (TRC) Salinity Surfactants (MBAS) E. Coli	6.73 SU ND<0.05 0.15 ND<0.01 1.31 0.28 ND<0.02 ppt 0.311 0.20 63.8 MPN / 100 ml	ECL	None

2.2 Credit for screening data collected under 2004 permit

If any outfalls to impaired waters were sampled under the 2004 MS4 permit, that data can count towards the monitoring requirements under the modified 2017 MS4 permit. Complete the table below to record sampling data for any outfalls to impaired waters under the 2004 MS4 permit.

Outfall	Latitude / Longitude	Sample date	Parameter (Nitrogen, Phosphorus, Bacteria, or Other pollutant of concern)	Results	Name of Laboratory (if used)	Follow-up required? *

*Follow-up investigation required (last column) if the following pollutant thresholds are exceeded:

Pollutant of concern	Pollutant threshold
Nitrogen	Total N > 2.5 mg/l
Phosphorus	Total P > 0.3 mg/l
Bacteria (fresh waterbody)	<ul style="list-style-type: none"> E. coli > 235 col/100ml for swimming areas or 410 col/100ml for all others Total Coliform > 500 col/100ml
Bacteria (salt waterbody)	<ul style="list-style-type: none"> Fecal Coliform > 31 col/100ml for Class SA and > 260 col/100ml for Class SB Enterococci > 104 col/100ml for swimming areas or 500 col/100 for all others
Other pollutants of concern	Sample turbidity is 5 NTU > in-stream sample

3. Follow-up investigations (Section 6(i)(1)(D) / page 43)

Provide the following information for outfalls exceeding the pollutant threshold.

Outfall ID	Status of drainage area investigation	Control measure to address impairment

4. Prioritized outfall monitoring (Section 6(i)(1)(D) / page 43)

Once outfall sampling has been completed for at least 50% of outfalls to impaired waters, identify 6 of the highest contributors of any pollutants of concern. Begin monitoring these outfalls on an annual basis by July 1, 2020.

Outfall	Latitude / Longitude	Sample Date	Parameter(s)	Results	Name of Laboratory (if used)

Part III: Additional IDDE Program Data

1. Assessment and Priority Ranking of Catchments data (Appendix B (A)(7)(c) / page 5)

Provide a list of all catchments with ranking results (DEEP basins may be used instead of manual catchment delineations).

1. Catchment ID (DEEP Basin ID)	2. Category	3. Rank
4011-00-2-R3	High Priority	3
4000-33-2-R2	Low Priority	10

2. Outfall and Interconnection Screening and Sampling data (Appendix B (A)(7)(d) / page 7)

2.1 Dry weather screening and sampling data from outfalls and interconnections

For details on this requirement, visit www.nemo.uconn.edu/ms4/tasks/monitoring.htm. Refer to the blue column of the Monitoring comparison chart and the IDDE baseline monitoring flowchart.

Provide sample data for outfalls where flow is observed. Only include Pollutant of concern data for outfalls that discharge into stormwater impaired waterbodies. You may also attach an excel spreadsheet with the same data rather than copying it into this table.

Outfall / Interconnection ID	Latitude / Longitude	Screening / sample date	Ammonia	Chlorine	Conductivity	Salinity	E. coli or enterococcus	Surfactants	Water Temp	Pollutant of concern	If required, follow-up actions taken
6-4A		3/20/17	0.3 mg/l	Not detected	400 uS/cm	0.4 ppt	E. coli 200 col/100ml	0.2 mg/l	15 C	n/a	No
6-4B		3/20/17	-	-	-	-	-	-	-	-	Evidence of prior dry weather flow – raised priority of catchment investigation

2.2 Wet weather sample and inspection data

For details on this requirement, visit www.nemo.uconn.edu/ms4/tasks/monitoring.htm. Refer to the green column of the Monitoring comparison chart and the IDDE catchment investigation flowchart.

Provide sample data for outfalls and key junction manholes of any catchment area with at least one System Vulnerability Factor. You may also attach an excel spreadsheet with the same data rather than copying it to this table.

Outfall / Interconnection ID	Latitude / Longitude	Sample date	Ammonia	Chlorine	Conductivity	Salinity	E. coli or Enterococcus	Surfactants	Water Temp	Pollutant of concern

3. Catchment Investigation data (Appendix B (A)(7)(e) / page 9)

For details on this requirement, visit www.nemo.uconn.edu/ms4/tasks/monitoring.htm. Refer to the green column of the Monitoring comparison chart and the IDDE catchment investigation flowchart.

3.1 System Vulnerability Factor Summary

For those catchments being investigated for illicit discharges (i.e. categorized as high priority, low priority, or problem) document the presence or absence of System Vulnerability Factors (SVF). If present, report which SVF's were identified. An example is provided below.

Outfall ID	Date	Receiving Water	System Vulnerability Factors	Comment
CRN-OF-0013	02/05/21	Connecticut River	11, 12.	No flow
CRN-OF-0004	02/05/21	Connecticut River	11, 12.	Some flow (minimal). Rust evident on pipe.
CRN-OF-0002	02/05/21	Connecticut River	11, 12.	Some flow (minimal).
CRN-OF-0003	05/02/21	Connecticut River	11, 12.	Some flow (minimal). Rust evident on pipe.
CRN-OF-0009	05/02/21	Connecticut River	11, 12.	Some flow (minimal). Possibly tidal or river surge.
CRN-OF-0012	03/01/21	Connecticut River	11, 12.	Some flow (minimal).
CRN-OF-0021	03/01/21	Connecticut River	11, 12.	Some flow (minimal). Outfall covered by wood.
CRN-OF-0007	03/05/21	Connecticut River	11, 12.	No flow.
CRN-OF-0005	03/01/21	Connecticut River	11, 12.	No flow. End of pipe filled with construction debris.

Outfall ID	Date	Receiving Water	System Vulnerability Factors	Comment
FRN-OF-0019	03/01/21	Connecticut River	11, 12.	No flow. Some leaf and sediment debris.
FRN-OF-0001	03/04/21	Connecticut River	11, 12	No Flow.
FRN-OF-0006	03/04/21	Connecticut River	11, 12	No Flow.
FRN-OF-0030	03/01/21	Connecticut River	11, 12.	Some Leaf debris. Oil sheen observed in sediments.
FRN-OF-0057	03/01/21	Connecticut River	11, 12.	No flow
FRN-OF-0038	03/04/21	Connecticut River	11, 12.	River water 1/3 up into outfall pipe.
FRN-OF-0039	03/01/21	Connecticut River	11, 12.	Leaf debris 1/3 up into outfall pipe.
FRN-OF-0053	03/04/21	Connecticut River	11, 12.	No flow.
FRS-OF-0027	03/01/21	Connecticut River	11, 12.	Some flow (minimal).
FRS-OF-0017	03/04/21	Connecticut River	11, 12.	No flow. Erosion under headwall.
FRS-OF-0051	03/01/21	Connecticut River	11, 12.	River water ½ way up pipe.
FRS-OF-0052	03/01/21	Connecticut River	11, 12.	Could not find outfall due to heavy vegetation.
FRS-OF-0014	03/04/21	Connecticut River	11, 12.	No flow.
FRS-OF-0016	03/01/21	Connecticut River	11, 12.	Couldn't find the outfall.
FRS-OF-0003	03/04/21	Connecticut River	11, 12.	No flow. Some root mat and leaf / sediment debris.
FRS-OF-0007	03/01/21	Connecticut River	11, 12.	Rocks and boulders over outfall. Repairs made.
FRS-OF-0006	03/04/21	Connecticut River	11, 12.	No flow.
FRS-OF-0005	03/01/21	Connecticut River	11, 12.	No flow.
CRS-OF-0009	03/01/21	Connecticut River	11, 12.	No flow.
CRS-OF-0008	03/01/21	Connecticut River	11, 12.	No flow.
CRS-OF-0004	03/05/21	Connecticut River	11, 12.	No flow. Outfall covered by brush and rocks.
CRS-OF-0006	03/01/21	Connecticut River	11, 12.	Some flow (minimal). Outfall covered by brush and rocks.
CRS-OF-0007	03/01/21	Connecticut River	11, 12.	No flow.

Where SVFs are:

1. History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages.
2. Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs.
3. Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints.
4. Common or twin-invert manholes serving storm and sanitary sewer alignments.
5. Common trench construction serving both storm and sanitary sewer alignments.
6. Crossings of storm and sanitary sewer alignments.
7. Sanitary sewer alignments known or suspected to have been constructed with an underdrain system;

8. Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary infrastructure, directly piped connections between storm drain and sanitary sewer infrastructure, or other vulnerability factors identified through Inflow/Infiltration Analyses, Sanitary Sewer Evaluation Surveys, or other infrastructure investigations.
9. Areas formerly served by combined sewer systems.
10. Any sanitary sewer and storm drain infrastructure greater than 40 years old in medium and densely developed areas.
11. Widespread code-required septic system upgrades required at property transfers (indicative of inadequate soils, water table separation, or other physical constraints of the area rather than poor owner maintenance).
12. History of multiple local health department or sanitarian actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather than poor owner maintenance).

3.2 Key junction manhole dry weather screening and sampling data

You may also attach an excel spreadsheet with the same data rather than copying it to this table.

Key Junction Manhole ID	Latitude / Longitude	Screening / Sample date	Visual/ olfactory evidence of illicit discharge	Ammonia	Chlorine	Surfactants

3.3 Wet weather investigation outfall sampling data

You may also attach an excel spreadsheet with the same data rather than copying it to this table.

Outfall ID	Latitude / Longitude	Sample date	Ammonia	Chlorine	Surfactants

3.4 Data for each illicit discharge source confirmed through the catchment investigation procedure

Discharge location	Source location	Discharge description	Method of discovery	Date of discovery	Date of elimination	Mitigation or enforcement action	Estimated volume of flow removed

Part IV: Certification

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

Chief Elected Official or Principal Executive Officer	Document Prepared by
Print name: Norm Needleman, First Selectman	Print name: William Drouin, CHMM
Signature / Date:  3/30/2022	Signature / Date:  March 9, 2022
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