

Municipality/Organization: SPENCER, MASSACHUSETTS
EPA NPDES Permit Number: MAR041162
MassDEP Transmittal Number: W- X265873
Annual Report Number & Reporting Period: Year 15
April 1, 2017 – March 31, 2018

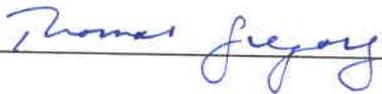
**NPDES PII Small MS4 General Permit
Annual Report
(Due: May 1, 2018)**

Part I. General Information

Contact Person: Steven J. Tyler, P.E. **Title:** Superintendent
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Certification:

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

Signature: 
Printed Name: Thomas M. Gregory
Title: Town Administrator
Date: April 24, 2018

Part II. Self-Assessment

Administrative Note: *In recent years, the Best Management Practices (BMPs) identified in the 2003 Notice of Intent to receive coverage under the MS4 Permit, and on which the Town of Spencer reported, were modified and updated. As a result, not all progress made by the Town was reflected in the reports. Since Year 10 this report restores the original 22 BMPs and identifies where revisions to the original BMP have been made. This Year 13 Report also shows all original permit tasks as well as all new tasks, actions, and progress completed since 2003 as “Additions”.*

Central Massachusetts Regional Stormwater Coalition 2003-MS4 Permit Coalition Activities in Year 15 (April 1, 2017-March 31, 2018)

Introduction

The Central Massachusetts Regional Stormwater Coalition (CMRSWC) is an MS4 resource for all 30 member communities. CMRSWC has three standing sub-committees to allow members to focus efforts on specific issues important to the Coalition. These sub-committees are:

- Education Sub-Committee: responsible for developing and promoting outreach and educational materials required by the MS4 permit. The Education sub-committee is also responsible for planning and scheduling the Annual Meeting, educational workshops, and other forums for discussion of MS4 topics. The committee is CMRSWC’s primary liaison to professional organizations and university partnerships.
- Technical Sub-Committee: responsible for managing Coalition’s website and shared equipment resources; advising members on relevant technical issues including GIS system maintenance and upgrades.
- Legislative Sub-Committee: serves as the liaison to the Massachusetts Statewide Stormwater Collaborative; responsible for tracking MS4 related legislation and regulations and keeping the legislature and regulatory agencies informed of the concerns of member communities.

The CMRSWC Steering Committee held four meetings during this 12 month reporting cycle. The CMRSWC Annual Meeting was held on November 15, 2017 in Worcester. Members of CMRSWC also attended and actively participated in the Massachusetts Statewide Municipal Stormwater Coalition meetings.

MS4 Workshops and Technical Training (Minimum Control Measures 3, 4, 5, and 6)

Best Management Practices Technical Tour

On October 25, 2017, CMRSWC sponsored a technical tour and workshop for DPWs, Highway, and other staff in member communities responsible for the operations and maintenance of local roads, drainage, sidewalks, parking lots, and other public infrastructure. The tour was led by a team from Fuss & O’Neill and took attendees from 14 communities on a “road trip” to visit sites at Dennison Lubricants (Worcester), Tufts Veterinary School (North Grafton), and several Mass DCR sites. At each site, participants had the opportunity to learn about the BMPs in use at the site from a variety of staff from DCR and Mass DOT, as well as engineers and project owners. A lunch program offered additional opportunities to discuss stormwater management techniques. Handouts, presentation materials, and video footage of the tour are being offered to CMRSWC members through the website.

Videos and Templates (Minimum Control Measures 1, 3, 4, 5, 6)

As a follow-up to the Best Management Practices Technical Tour, 12 new CMRSWC videos were produced that feature the various BMPs visited on the tour, presentations from the day, and additional detailed footage recorded at the BMP sites after the event.

Department of Conservation and Recreation Education and Outreach Materials (Minimum Control Measures 1 and 2)

As part of the Stormwater BMP Technical Tour, Kelley Freda from the Department of Conservation and Resources presented participants with stormwater education and outreach materials available from DCR. She distributed a packet of various brochures targeting a diverse audience. These materials are available from the DCR website www.mass.gov/dcr/watersupply

Worcester Polytechnic Institute Water Resource Outreach Center (Minimum Control Measures 1 and 2)

Worcester Polytechnic Institute's (WPI) Massachusetts Water Resource Outreach Center (WROC) is dedicated to assisting Central and Eastern Massachusetts municipalities and watershed associations with their water resource needs through student project collaboration. CMRSWC has been working with the WPI-WROC and MassDEP on Interactive Qualifying Projects (IQPs) since 2012.

The CMRSWC and MassDEP sponsored a 2017 WPI-WROC project called "Stormwater Management Educational Materials for Central Massachusetts Municipalities." Municipalities are required to distribute educational materials on stormwater issues to comply with the MS4 permit; "the ultimate objective being to increase knowledge and change behavior of the public so that pollutants in stormwater are reduced." The project team used public surveys and questionnaires to assess the public's understanding of stormwater and stormwater runoff. The results showed that most people do not understand what stormwater is, how it gets into our waterbodies and the impacts it has on water quality and public health. Focusing on increasing awareness of the importance of protecting our water among our elementary school student population, the WPI students developed a stormwater toolkit featuring an activity book and stickers for children. The activity book includes opportunities for parents to participate and ask questions.

Building on the previous work for educational materials, the 2018 student team worked with stormwater experts at MassDEP, MA Department of Education representatives and school teachers from Shrewsbury and Holden to develop a 5th grade watershed curriculum that meets the new Massachusetts Next Generation science standards. Components of the curriculum include the water cycle, watersheds, stormwater runoff and other environmental features that demonstrate to children how runoff and contaminants affect water quality. The students will be presenting their findings on May 1, 2018 at 4:00 p.m. at the MassDEP Central Regional Office in Worcester.

More information is available at: <http://wp.wpi.edu/wroc/>

EnviroScape Nonpoint Source Pollution Model (Minimum Control Measures 1 and 2)

The CMRSWC owns two 3D EnviroScape® Watershed/Nonpoint Source models which are available for use by our members. These models provide a hands-on, interactive demonstration of the sources and effects of water pollution and ways to prevent pollution. The CMRSWC sponsored a booth at the EcoTarium's Earth Day Celebration in April using the model to teach about stormwater education. Several member communities including Holden, Charlton, Framingham, Hopkinton, Lunenburg, Palmer, Shrewsbury, Auburn, & Dudley have used the EnviroScape model for presentations at Earth Day festivals, school programs, scouting events, and public works open houses.

Member Needs Survey

In March 2018, CMRSWC contracted with Fuss & O'Neill to develop a technical needs survey that measured the concerns of member communities with respect to compliance with the updated MS4 General Permit for Stormwater Discharges (which is currently stayed pending judicial review). The survey served as a follow-up to the first coalition member survey in the fall of 2016 and asked members to rank certain programs/tasks that CMRSWC could support to assist members in complying with the MS4 Permit. The survey also requested that respondents identify the CMRSWC tools, resources, and events that they made use of during 2017 or provide feedback on why they chose not to take advantage of such tools or events.

Coalition members ranked their needs as follows:

1. Maintain the CMRSWC Website with Available Tools and Templates
2. Provide Written IDDE Program Template and Training
3. Provide NOI/SWMP Template and Training

Coalition members ranked their compliance concerns as follows:

1. Preparation of NOI and SWMP
2. Performing Outfall Inspections
3. Performing Outfall Inventory Ranking
4. Meeting TMDL Requirements
5. Developing Written Catchment Investigation Procedures
6. Designing and Constructing BMP Retrofits
7. Designing and Maintaining SWPPPs
8. Identifying and Removing Illicit/Illegal Discharges
9. Developing a Written IDDE Program
10. Mapping the Storm Sewer System

Statewide Stormwater Coalition Grant Award

CMRSWC announced at its January 8th Steering Committee Meeting a \$200,000 grant from the State to the Statewide Stormwater Coalition to develop and implement a statewide stormwater education and outreach campaign. The project will provide stormwater education materials to communities across the state, including CMRSWC member communities. The funds, issued through the Commonwealth's Fiscal Year 2018 "MS4 Municipal Assistance Grant Program," recognize the important work of stormwater coalitions and regionalized stormwater management. Materials will be made available in July 2018.

Conclusion

Working as a group, CMRSWC collectively protects regional water resources while assisting communities with meeting requirements of the MS4 permit in an efficient and cost-effective manner. Member communities continue to benefit from the use of CMRSWC tools, resources, and events to continue to implement their MS4 program with local staff and resources.

The production of 16 videos targeting specific MS4 topics and training opportunities expands the learning opportunities to anyone with access to the web.

Link to MS4 Training Videos 2016 http://www.centralmastormwater.org/Pages/crsc_toolbox/videos

The enhanced MS4 templates and information sources on developing IDDE plans, SWPPPs, bylaw review, and LID, which are accessible on the Coalition's website, provide relevant tools to communities implementing their MS4 program with local staff and resources. They are just as relevant to MS4 communities choosing to partner with associations or consultants in the implementation of their MS4 requirements.

Link to CMRSWC Web Site <http://www.centralmastormwater.org/Pages/index>

CMRSWC members receive ongoing value from the Coalition's workshops, field training, video library, and templates. CMRSWC membership provides consistency to an MS4 constituency subject to routine staff changes, questionable access to funding, and ongoing regulatory demands.

Part III. Summary of Minimum Control Measures

1. Public Education and Outreach

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 16
PE-1	Flyer Distribution		Get participation in a Household Hazardous Waste collection event	A HHHW collection event took place September 23, 2017. 29 Spencer residents participated in this event.	A HHHW collection date is scheduled for September 29, 2018.
Revised	Household Hazardous Waste (HHHW) Day	U/F Dept. Deb Graves	Annual Household Hazardous Waste Day Event	Electronics collection events took place in May and October, 2017.	The Town intends to host two electronics collection events in Year 16, as well in May 2018 and September 2018.
PE-2	Informational Mailings	U/F Dept. Steven Tyler	Implement at houses adjacent to outfalls.	This BMP was expanded to include educating residents beyond those immediately adjacent to the outfall locations, and to use more visible tools to raise awareness of our valuable water resources in high traffic areas.	The installation of stream name signs was completed in Year 11.
Revised	Stream Name Signs	Highway Dept. Eben Butler	New signs installed		
PE-3	Community Group Meetings	U/F Dept. Steven Tyler	Awards & Participation	This BMP was expanded to include education and outreach efforts beyond formal meetings, such as coordination with the local groups, schools and other boards, departments and commissions. The highway department supported Spencer's Pride Day (trash and debris cleanup town wide) in April, 2017 and had 58 participants.	The Town will explore options for participating in 2017 and 2018 community Earth Day events, Spencer's Pride Day in April 2018, and other community festivals, such as by staffing a booth. The town will utilize education and outreach materials, such as using the CMRSWC nonpoint source pollution Enviroscope table to demonstrate the value of stormwater management at these events.
Revised	Public Awareness			In Year 12, the U/F Department Superintendent assisted with mentoring students from WPI School as they completed their the stormwater culvert assessment project analyzing 22 culverts and developing a culvert inspection and assessment tool now being copied and used by cities/towns statewide.	The Town has linked its website to the CMRSWC website, www.CentralMAStormwater.org .

<p>PE-3 (cont)</p> <p>Revised</p>	<p>Community Group Meetings (continued)</p> <p>Public Awareness</p>			<p>In Year 13 a student from WPI participated in “seasonal summer work” as a highway department employee, including involvement in numerous duties related to stormwater, water quality and the NPDES MS4 permit program and requirements.</p> <p>In Year 15 a Clark University Student created numerous stormwater web pages & a pet waste mailer distributed by the Town Clerk by mail to over 2,100 licensed pet owners.</p> <p>New stormwater web pages created in 2017 include: http://www.spencerma.gov/Pages/SpencerMA_Bcomm/Planning/StormwaterResources.</p> <p>Link to Pet Waste Flyer http://www.spencerma.gov/Pages/SpencerMA_Bcomm/Planning/Stormwater/PetWasteManagement</p>	<p>The Town is interested in exploring new options for integrating stormwater education into the science program of the school department, such as by demonstrating World Water Monitoring Day Challenge water quality test kits, and distributing kits to interested teachers.</p> <p>Despite repeating efforts, the local school district and other school officials they have been unresponsive to working with the Town on any school outreach or education efforts.</p> <p>The Town intends to make the U/F Department Superintendent or Highway Foreman available for a “job shadowing” experience for a high school student in Year 16.</p>
<p>PE-4</p> <p>Revised</p>	<p>Public Service Announcements</p>	<p>U/F Dept. Deb Graves</p>	<p>Develop Announcements</p>	<p>At a minimum all public service announcements are posted on the Town’s web site (www.spencerma.gov). We also post in local newspapers and on the local cable access channel. This BMP has expanded to using the local cable access channel to advertise events.</p> <p>Thanks to its strong participation with the CMRSWC in Year 15, the Town has access to education and outreach materials that address a variety of topics in the MS4 Permit. Most of these materials are appropriate to put on the local cable access channel.</p> <p>Many if not all are available through the stormwater coalition website: http://www.centralmastormwater.org/</p>	<p>Continue full implementation.</p> <p>Make new materials available on the local cable access program, including the Liquid Assets DVD, the presentation on stormwater management (content focused on educating the general public and volunteer groups), and other videos.</p> <p>Advertise the U/F Department’s participation at events, such as Earth Day, HHHW collection events, and electronics collection events.</p> <p>The town will continue to update our stormwater web pages.</p>

PE-5	Stream Restoration	U/F Dept. Steven Tyler	Clean around 1 stream per year	This BMP expanded to focus not just on streams, but other water bodies within the community. Several culverts were replaced in 2016 which included restoration and stabilization of both perennial and intermittent streams.	Continue Muzzy Pond, Sugden Lake and Lake Whittemore annual pond/lake lowering for weed control and cleanup.
Revised	Water Body Restoration		On-going Annual Events	Muzzy Pond, Sugden Lake and Lake Whittemore annual pond/lake lowering for weed control and cleanup completed. Additional shoreline cleanup was performed as part of Spencer Pride Day, April 22, 2017.	

1a. Additions

PE-6	Public Awareness	U/F Dept. Steven Tyler	Public Access TV	In Year 12 the U/F Superintendent discussed Stormwater on Talk of the Town, a local cable access program.	We would like to perform similar outreach in Year 16.
PE-7	Public Awareness	U/F Dept. Steven Tyler	Public Access TV	Continue to air “Liquid Assets” on local cable access	Make new materials available on the local cable access program, including the Liquid Assets DVD.
PE-8	Catch Basin Stenciling Program	Highway Dept. Raymond Holmes	Complete Urbanized Area Stenciled	All catch basins in the MS4 Urbanized Area were stenciled in previous years, using a frog logo and the phrase “Protect ‘R’ Water”. The Town has refreshed this effort where needed to maintain previously stenciled catch basins.	Continue this effort to catch basins in rural areas outside the MS4 Urbanized Area. Continue to refresh stencils at previously-stenciled catch basins.
PE-9	Seek grants for non-point source pollution evaluation	U/F Dept. Steven Tyler	Seek and apply for grants from local, State, and Federal programs.	In Year 12, the Town implemented a FEMA HMGP grant to address flooding on N. Spencer Road (Route 31). In Year 15 we passed a local funding article for roadway and stormwater improvements.	In addition to alleviating a reoccurring flooding problem this project improves stormwater treatment and reduce erosion due to the inherent BMPs added to the stormwater treatment train (i.e., water quality swale, deep sump catch basins and sedimentation forebay at outfall).

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2. Public Involvement and Participation

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 16
PP-1 Revised	Storm Drain Stenciling		Stenciling Areas of immediate concern	<p>This BMP was redundant with BMP PE-8, discussed previously, as it focused on public education and outreach.</p> <p>As with most MS4 communities, Town volunteers are not utilized for catch basin stenciling due to safety issues.</p>	<p>Continue to support BMP PE-8, to use stencils as an effective and visible tool to educate the public about stormwater infrastructure.</p> <p>As with most MS4 communities, Town volunteers will not be utilized for catch basin stenciling due to safety issues.</p>
PP-2 Revised	Hazardous Waste Day Household Hazardous Waste Collection Day Events	U&F Dept. Steven Tyler	Resident Participation at this once per year event Collect HHHW Materials	<p>This BMP is redundant with BMP PE-1 and PE-4, discussed previously, which educate the public about household hazardous waste collection events.</p> <p>A HHHW collection event took place September 23, 2017. 29 Spencer residents participated in this event.</p> <p>Electronics collection events took place in May and October, 2017.</p>	<p>Continue to support BMP PE-1 and PE-4 by hosting and advertising household hazardous waste collection events.</p> <p>A HHHW collection date is scheduled for September 29, 2018.</p> <p>The Town intends to host two electronics collection events in Year 16, as well in May 2018 and September 2018.</p>
PP-3 Revised	Volunteer Monitoring Efforts		Annually	<p>This BMP was not specific and has been replaced by PP-5 through PP-8.</p>	N/A
PP-4	SWMP Volunteer Monitoring		Annually	<p>The public continues to have the opportunity to comment on the Town’s Stormwater Management Plan.</p> <p>U/F Superintendent participated in several meetings with the Conservation Commission under MCM 4 and MCM 5. The U&F Office works closely with the Conservation Commission on all stormwater and water quality related matters.</p>	<p>The Town will continue to announce all meetings and presentations related to stormwater, and encourage public attendance. In addition, the U&F Office will continue to work closely with the Spencer Conservation Commission on all stormwater and water quality related matters.</p>

Revised				<p>The public continues to have the opportunity to comment on the Town's Stormwater Management Plan.</p> <p>U/F Superintendent participated in several meetings with the Conservation Commission under MCM 4 and MCM 5. The U&F Office works closely with the Conservation Commission on all stormwater and water quality related matters.</p>	<p>The Town will continue to announce all meetings and presentations related to stormwater, and encourage public attendance. In addition, the U&F Office will continue to work closely with the Spencer Conservation Commission on all stormwater and water quality related matters.</p>
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2a. Additions

PP-5	Cable viewers	N/A	Local "Talk of the Town" program	As noted in BMP PE-6, the Town has made progress toward having the stormwater topic featured on this local cable access program.	If possible we will encourage Town residents to call in to Talk of the Town with questions about stormwater, or send questions via social media.
Revised					
PP-6	Adopt Stormwater Regulations	Paul Dell' Aquilla	Adopt Stormwater Regulations	<p>Stormwater Regulations were adopted in November 2011.</p> <p>In Year 12 we made recommendations for updates and improvements to the Stormwater Bylaw and Regulations.</p> <p>In Year 13 our recommendations for updates and improvements to the Stormwater Bylaw and Regulations were approved/adopted by Town Meeting Vote in May 2016.</p>	<p>Continue to implement November 2011 Stormwater Regulations as amended in Year 16.</p> <p>Continue to consider and evaluate suggestions and revisions into our Stormwater Regulations as part of a public process, and as USEPA publishes a new MA MS4 Permit.</p>
PP-7	Establish Stormwater Committee	U/F Dept. Steven Tyler	Solicit feedback on stormwater program from Town and residents	A Stormwater Committee was formed for the development of Stormwater Regulations. Since their implementation no new formal	The Town is exploring options to establish a formal Stormwater Committee, based on groups active in surrounding communities. The

Revised				Stormwater Committee has been formed, to date.	Committee may include representation from the following among its members: Planning Board, Conservation Committee, general public; the school department; additional interested parties.
PP-8	Public attendees at draft bylaw presentations and hearings	N/A	Feedback on Draft Stormwater Bylaw Regulations	Stormwater Regulations were adopted in November 2011.	Continue to implement November 2011 Stormwater Regulations as amended in Year 16.
Revised				In Year 12 we made recommendations for updates and improvements to the Stormwater Bylaw and Regulations. In Year 13 our recommendations for updates and improvements to the Stormwater Bylaw and Regulations were approved/adopted by Town Meeting Vote in May 2016.	Continue to consider and evaluate suggestions and revisions into our Stormwater Regulations as part of a public process, and as USEPA publishes a new MA MS4 Permit.
PP-9	Lead Central Massachusetts Regional Stormwater Coalition	Town Administrator Adam Gaudette U/F Dept. Steven Tyler	Lead development of a regional stormwater management project.	The Town of Spencer served as the lead community on the Coalition efforts in Year 15. This involved participation in 16+ meetings or workshops, review of deliverables, and coordinating grant funding received from the Massachusetts Executive Office of Administration and Finance. The U/F Superintendent serves as the manager of two Leica GPS devices purchased as part of the Coalition project. Assisted with the creation of a statewide stormwater coalition in 2016 and attending quarterly meetings.	The Town of Spencer will continue to lead this effort in Year 16, moving the project forward to its total number of communities as members of the Coalition. The CMRSWC is presently at 31 communities and hope to have an organization of 40 or more communities in the relatively near future. Continue participation in State Stormwater Coalition.

3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 16
ID-1 Revised	Visual Inspection		All outfalls quarterly	There is no regulatory mandate to inspect outfalls quarterly. This BMP did not provide benefit to the stormwater management program, and was replaced with BMPs ID-6, ID-7, and ID-8, which address the specific tools that will be used to identify illicit discharges.	N/A
ID-2 Revised	Laboratory Analysis	U/F Dept. Steven Tyler	When pollution is evident	Water quality screening was completed at 2 locations in Year 15. One location had no concerns were identified by the testing. The second location identified an illicit connection on corner of Valley St. and Chestnut St. which was eliminated.	Utilize Coalition field test kits and meters, when appropriate, to provide screening analysis at outfalls. Utilize full laboratory analysis when field screening parameters exceed benchmarks, as appropriate. Additional street by street screenings planned by Sewer Dept. in Year 16.
ID-3 Revised	Identify and map outfalls Identify and map outfalls in urban area	U/F Dept. Steven Tyler	Map and identify all outfalls in UA Develop storm sewer map (ongoing w/ GIS)	All known outfalls and water bodies in the UA were located and mapped prior to Year 13. In Year 13, the U/F Department Superintendent assisted with mentoring students from WPI School as they completed their the stormwater culvert assessment project analyzing 22 culverts and developing a culvert inspection and assessment tool now being copied and used by cities/towns statewide.	Continue mapping of new or newly found drainage structures, confluences and outfalls. Verify mapping of catch basins and drain manhole structures and pipe and culvert infrastructure, in conjunction with catch basin cleaning and other maintenance or repair events, utilizing Coalition tools. In Year 16, the Town will develop a web site for further sharing and implementation of the culvert inspection and assessment tool developed by WPI students for the Town of Spencer.

ID-4	Remove source of contamination		When pollution is evident	In Year 15, the Town of Spencer conducted video inspections and testing of stormwater piping in an effort to identify potential illicit discharges.	Continue to enforce the permanent removal of illicit discharges.
Revised	Enforce removal of illicit discharge	U/F Dept. Steven Tyler Town Administrator Adam Gaudette	Ensure permanent elimination of illicit discharge.	In Year 12, the Town of Spencer purchased a new pipe inspection robot for approximately \$65,000.00. In Year 13, the Town purchased a customized trailer for our pipe inspection robot to improve efficiency.	Continue to utilize the new pipe inspection robot to investigate and identify issues or concerns with damage, infiltration, illicit connections, etc.

3a. Additions

ID-5	Develop Discharge Regulations	Stormwater Committee & Planning Board	Adopt Stormwater Regulations	Adopted new Stormwater Bylaw at May 7, 2009 Town Meeting.	Continue to implement November 2011 Stormwater Regulations as amended in Year 14.
Revised				Adopted new Stormwater Regulations in November 2011. In Year 12 we made recommendations for updates and improvements to the Stormwater Bylaw and Regulations. In Year 13 our recommendations for updates and improvements to the Stormwater Bylaw and Regulations were approved/adopted by Town Meeting Vote in May 2016.	Continue to consider and evaluate suggestions and revisions into our Stormwater Regulations as part of a public process, and as USEPA publishes a new MA MS4 Permit.
ID-6	Screening of urban outfalls	Highway Dept. Eben Butler	Trace system outfalls in urban area using CCTV	In Year 15, CCTV of stormwater and sanitary sewer systems included Main Street and Maple Street as part of	Identify and begin screening outlying areas.

Revised				<p>advance road reconstruction project planning. No illicit discharge was identified within the project limits.</p> <p>The Town replaced the storm drain and six catch basins on Maple Street. New catch basins have deep sump design to improve collection of sediments.</p>	<p>In Year 12, the Town of Spencer purchased a new pipe inspection robot for approximately \$65,000.00.</p> <p>In Year 13, the Town purchased a customized trailer for our pipe inspection robot to improve efficiency.</p> <p>The Town will incorporate inspection tools developed as part of the Coalition project into its catch basin cleaning program, especially those related to IDDE.</p>
ID-7 Revised	Smoke Testing Sewer Mains	Sewer Dept. Mark Robidoux	IDDE Investigation and Elimination	<p>In Year 13 smoke testing of the Mechanic Street project area sewer mains was conducted. The smoke testing did not identify any illicit connections, however, private property issues such as cracked sewer pipes in basement were identified and the property owners were directed to make repairs.</p>	<p>Additional sanitary sewer and storm drain lines will be tested as part of programmed roadway improvements. In Year 16, the Town will perform additional pipe inspections on roadway locations in advance of planned projects.</p>
ID-8 Revised	Smoke Testing of Urban Outfalls	Highway Dept. Eben Butler	IDDE Investigation and Elimination	<p>In Year 15, the Town of Spencer did not perform any smoke testing. Because of the recent purchase for a pipe inspection robot we are able to use the robot to get better information about potential illicit connections.</p>	<p>Additional sanitary sewer and storm drain lines will be tested as part of programmed roadway improvements. Our new procedure will utilize robot inspections first and smoke testing will be used if needed following the robotic inspection.</p>
Revised				<p>In year 15 the Town located and eliminated 4 IDDE waste connections to the stormwater system. Refer to Appendix A – IDDE Program for further information.</p>	<p>The Town will continue to locate and eliminate IDDEs wherever possible.</p>

4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 16
CS-1	Develop Bylaws	Stormwater Committee & Planning Board	By the end of permit Year 2.	Adopted new Stormwater Bylaw at May 7, 2009 Town Meeting.	Continue to implement November 2011 Stormwater Regulations as amended in Year 16.
Revised	Develop Construction Site Stormwater Runoff Control Bylaw and Regulations		Adopt Stormwater Regulations	<p>Adopted new Stormwater Regulations in November 2011.</p> <p>In Year 12 we made recommendations for updates and improvements to the Stormwater Bylaw and Regulations.</p> <p>In Year 13 our recommendations for updates and improvements to the Stormwater Bylaw and Regulations were approved/adopted by Town Meeting Vote in May 2016.</p>	<p>Continue to consider and evaluate suggestions and revisions into our Stormwater Regulations as part of a public process, and as USEPA publishes a new MA MS4 Permit.</p>
CS-2	Pre-Construction Informational Meetings	ConCom Margaret Washburn	Each construction project after bylaws are in place.	In Year 15, the Conservation Commission completed site approximately 213+ inspections of projects under construction at various stages of development. Of these, 7 notices of violations were issued and 10 stop work orders for immediate corrective actions.	Continue performing inspections of projects under construction.
Revised	Site Inspections	ConCom Margaret Washburn	Identifying and Tracking Violations	<p>Violations identified are tracked until resolved</p>	Continue identifying and tracking violations

4a. Additions

CS-3	Review of Major Proposed Projects for Erosion & Sedimentation Control	U/F Dept. Steven Tyler	Review projects for erosion and sedimentation controls.	In Year 15, the U/F Superintendent completed a review of over 30 proposed projects as part of the preliminary technical review committee and in support of significant Conservation Commission filings.	The U/F Superintendent will continue to review projects submitted for approval, with a focus on erosion and sedimentation controls as well as overall site stormwater design.
CS-4	Increase awareness of sedimentation and erosion requirements.	U/F Dept. Steven Tyler	Make information available at more locations	In Year 15 further information was distributed to staff and made available to the public via our internet web site. Also, the Town developed new BMP standards for inclusion in permitting documents and requirements	In Year 16, the Town will track the effectiveness of BMP standards for construction project types that have has erosion and sedimentation issues in the past.

5. Post-Construction Stormwater Management in New Development and Redevelopment

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 16
PC-1	Visual Monitoring	ConCom Margaret Washburn	Minimum of one time after completion	In Year 15, the Conservation Commission completed site approximately 213+ inspections of projects under construction at various stages of development. Of these, 7 notices of violations were issued and 10 stop work orders for immediate corrective actions.	Continue performing inspections of projects under construction.
Revised	Site Inspections	ConCom Margaret Washburn	Identifying and Tracking Violations	Violations identified are tracked until resolved	Continue identifying and tracking violations

5a. Additions

PC-2	Develop Post-Construction Stormwater Management Regulations	Stormwater Committee & Planning Board	Adopt Stormwater Regulations	Adopted Stormwater Bylaw in 2009 and Stormwater Regulations in 2011. In Year 12 we made recommendations for updates and improvements to the Stormwater Bylaw and Regulations. In Year 13 our recommendations for updates and improvements to the Stormwater Bylaw and Regulations were approved/adopted by Town Meeting Vote in May 2016.	Continue to implement November 2011 Stormwater Regulations as amended in Year 16. Continue to consider and evaluate suggestions and revisions into our Stormwater Regulations as part of a public process, and as USEPA publishes a new MA MS4 Permit.
Revised					
PC-3	Review of Major Proposed Projects for Erosion & Sedimentation Control	U/F Dept. Steven Tyler	Review projects to evaluate pre-and post-development runoff, and whether use of infiltration BMPs on site may be appropriate.	In Year 15, the U/F Superintendent completed a review of over 30 proposed projects as part of the preliminary technical review committee and in support of significant Conservation Commission filings.	The U/F Superintendent will continue to review projects submitted for approval, with a focus on erosion and sedimentation controls as well as overall site stormwater design.

6. Pollution Prevention and Good Housekeeping in Municipal Operations

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 16
GH-1 Revised	Employee Training	U/F Dept. Steven Tyler	Annual training meeting Provide training to appropriate employees based on nature of activities.	In Year 15, U/F staff members continued to receive training and/or refreshers on an as needed basis. U/F Superintendent Steven Tyler attended other training on stormwater related equipment, systems and implementation. The U/F department hosts a number of internal training events, reaching seven staff members, related to the need to implement Emergency Response procedures consistent with the town’s Environmental Management System. All of these have objectives consistent with the MS4.	The Town will continue to take advantage of training opportunities that are presented as part of the Coalition work and from the Worcester County Highway Association, MassDOT and other training resources. The Town will continue to train staff internally on procedures necessary to implement the Environmental Management System.
GH-2 Revised	Develop Operation and Maintenance Schedule		Develop within first year.	This BMP was vague and did not reflect on the specific maintenance activities completed within the Town’s system. It has been replaced with BMPs GH-6, GH-7, and GH-8.	N/A

GH-3 Revised	Implement Operation and Maintenance Schedule		Implement during Permit Years 2 through 5.	This BMP was vague and did not reflect on the specific maintenance activities completed within the Town's system. It has been replaced with BMPs GH-6, GH-7, and GH-8.	N/A
GH-4 Revised	Recordkeeping		For each BMP employed	<p>During Year 15, the Coalition continued development and input into our online mapping and inspection system that documents all inspections and provides the opportunity to produce a report of actions. This includes inspections of BMPs as well as many other common tasks associated with the MS4 Permit.</p> <p>The Coalition also finalized and adopted 15 Standard Operating Procedures for many stormwater-related activities, such as dry- and wet-weather outfall inspection, catch basin inspection. These SOPs define the consistent approach that serves as the foundation for effective recordkeeping.</p>	Continue to implement the SOPs and the online mapping and inspection system.

6a. Additions

GH-5	Water Dept. Environmental Management System (EMS) Implementation	U/F Dept. Steven Tyler	Finalize EMS	<p>The Town revised its original EMS program in Year 12, incorporating new inspections and action items into the existing report.</p> <p>This EMS includes Town resources associated with water, highway, sewer, police, fire, and transfer station facilities and operations.</p>	Continue to implements the Town's Environmental Management System (EMS) policy and procedures, as necessary.
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GH-6	Catch basin and outfall cleaning	HWY Dept. Eben Butler Ray Holmes	Clean each structure twice a year (min.); maintain log of conditions, etc.	Completed annual catch basin program; updated maps and records. All catch basins are cleaned in spring, with selected basins cleaned a second time, in fall, based on staff knowledge of basin conditions. Having this device “in house” will facilitate multiple cleanings in the future.	The Town will continue its program of cleaning catch basins at least once. The Town will incorporate inspection tools developed as part of the Coalition project into its catch basin cleaning program, especially those related to IDDE.
Revised					
GH-7	Street Sweeping	HWY Dept. Eben Butler Kevin Simonovitch	Main Street weekly; urban area monthly; complete town annually	All streets and sidewalks within the urbanized area are swept in spring. Some streets and sidewalks are swept a second time in fall, based on U/F knowledge of debris and grit. The Town uses its own mechanical sweeper to complete this task.	Continue sweeping streets and sidewalks in the urbanized area at least once a year.
Revised					
GH-8	Minimize salt and sand use & exposure	Highway Dept. Eben Butler	Monitor salt and sand use – cover pile off season	In Year 15, the Highway Department continued efforts to set best practices benchmarks for salt and sand use and reduce the quantity of materials used. Staff re-calibrated all spreading equipment to determine how much each component was delivering. The Town has also switched to “treated” salt, which consists of standard salt treated with magnesium chloride. Use of this material has allowed the Town to use less sand, reducing how frequently catch basins fill up, and applying fewer pounds of chloride per lane mile. The Town presently calculates its chloride application at approximately 400-500 pounds +/- of chloride per lane-mile.	Maintain expectations & continue training on equipment calibration. Attempt to procure funding to add a new salt shed. The Town will continue to reduce its application rate of salt, ensuring that the public safety is not jeopardized.
GH-9	Close police firing range at Town well site	U/F Dept. Steven Tyler	Keep Range Closed	The range was closed in previous Permit Years.	Keep the range closed in order to prevent stormwater pollution.

Revised					
GH-10	Implement pollution prevention practices at Town properties	U/F Dept. Steven Tyler	Implement pollution prevention practices at Crash Derby	<p>In Year 15, the U/F Superintendent refined and implemented a number of best management practices at the Town Fairgrounds property, site of the annual Crash Derby and the other newly added vehicular events located within the Zone 2 of a public water supply.</p> <p>These BMPs included requiring the Fire Department to be on site to respond to spills, preventing vehicles from staying on-site overnight, minimizing the amount of fuel contained in each vehicle, and prohibiting factory fuel tanks and antifreeze in any vehicle.</p> <p>While aimed at protecting the public water supply, these BMPs also result in cleaner surface water and reduced pollution potential, overall.</p>	<p>Continue to monitor BMPs during the Crash Derby and other vehicular events to prevent stormwater pollution.</p> <p>Implement additional BMPs if determined necessary.</p> <p>Continue to seek BMPs to implement at other Town properties that will prevent stormwater pollution.</p>
Revised					

7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA) <<if applicable>>

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Permit Year 15 (Reliance on non-municipal partners indicated, if any)	Planned Activities – Permit Year 16
Revised				In Year 15 we are continuing to prepare for the new permit and TMDL requirements.	In Year 16 we will implement our CWA Sect. 319 grant with matching local funds to make TMDL improvements within the Sevenmile River watershed.

7a. Additions

7b. WLA Assessment

Several water bodies, including Sevenmile River and Cranberry River (Category 2), are currently being assessed for one or more designated uses, which may require TMDLs in the future. Other water bodies have never been assessed (Category 3), but may require TMDLs in the future. Spencer will continue to watch for these TMDLs to be published and will evaluate published Waste Load Allocations, accordingly.

Under Category 4a (“TMDL is Completed”), Sugden Reservoir (TMDL 3633, “Nutrient/Eutrophication Biological Indicators”) is located within Spencer. Spencer will continue to evaluate its actions toward meeting Waste Load Allocations for this TMDL.

Water bodies that address plants or other non-pollutant impairments include Jones Pond (TMDL 2364, “Aquatic Plants [Macrophytes]”) and Brooks Pond, which has been assessed as having an “Impairment not caused by a Pollutant” (Category 4c; no TMDL required). These impairments do not require actions under the MS4.

A TMDL has been completed for Browning Pond to address “Nutrient/Eutrophication Biological Indicators: Non-Native Aquatic Plants” (TMDL 3626), but this water body is not located within Spencer’s Urbanized Area. A TMDL for Lake Whittemore (Category 5; Turbidity) will be developed in the future. Spencer will continue to watch for these TMDLs to be published and will evaluate published Waste Load Allocations, accordingly.

Part IV. Summary of Information Collected and Analyzed

Since beginning of permit coverage the Town of Spencer has presented our summary of information collected and analyzed in the preceding sections. Other than the information presented in Part III, above, no additional; information was collected or analyzed. The Town of Spencer maintains that it continues to be in compliance with the 2003 Massachusetts Small MS4 Permit.

Part V. Program Outputs & Accomplishments (OPTIONAL)

(Since beginning of permit coverage unless specified otherwise by a **, which indicates response is for period covering April 1, 2017 through March 31, 2018)

Programmatic

	(Preferred Units)	Response
Stormwater management position created/staffed	(y/n)	Yes (Committee)
Annual program budget/expenditures **	(\$)	±\$40,000
Total program expenditures since beginning of permit coverage	(\$)	±\$220,000
Funding mechanism(s) (General Fund, Enterprise, Utility, etc)		General Fund

Education, Involvement, and Training

Estimated number of property owners reached by education program(s)	(# or %)	5,000
Stormwater management committee established	(y/n)	Yes
Stream teams established or supported	(# or y/n)	Yes
Shoreline clean-up participation or quantity of shoreline miles cleaned **	(y/n or mi.)	1 mi
Shoreline cleaned since beginning of permit coverage	(mi.)	8 mi.
Household Hazardous Waste Collection Days		
▪ days sponsored **	(#)	1
▪ community participation **	(# or %)	44
▪ material collected **	(tons or gal)	72 gals +/-
School curricula implemented	(y/n)	No. (No cooperation by school district)

Legal/Regulatory

	In Place Prior to Phase II	Reviewing Existing Authorities	Drafted	Draft in Review	Adopted
Regulatory Mechanism Status (indicate with “X”)					
▪ Illicit Discharge Detection & Elimination					X
▪ Erosion & Sediment Control					X
▪ Post-Development Stormwater Management					X
Accompanying Regulation Status (indicate with “X”)					
▪ Illicit Discharge Detection & Elimination					X
▪ Erosion & Sediment Control					X
▪ Post-Development Stormwater Management					X

Mapping and Illicit Discharges

	(Preferred Units)	Response
Outfall mapping complete	(%)	98%
Estimated or actual number of outfalls	(#)	100
System-Wide mapping complete (complete storm sewer infrastructure)	(%)	98%
Mapping method(s)		
▪ Paper/Mylar	(%)	<2%
▪ CADD	(%)	<2%
▪ GIS	(%)	98%
Outfalls inspected/screened **	(# or %)	80%
Outfalls inspected/screened (Since beginning of permit coverage)	(# or %)	99%
Illicit discharges identified **	(#)	4
Illicit discharges identified (Since beginning of permit coverage)	(#)	9
Illicit connections removed **	(#); and (est. gpd)	4; (gpd unknown)
Illicit connections removed (Since beginning of permit coverage)	(#); and (est. gpd)	9; (gpd unknown)
% of population on sewer	(%)	50%
% of population on septic systems	(%)	50%

Construction

(Preferred Units) Response

Number of construction starts (>1-acre) **	(#)	15
Estimated percentage of construction starts adequately regulated for erosion and sediment control **	(%)	95%
Site inspections completed **	(# or %)	213+
Tickets/Stop work orders issued **	(# or %)	10
Fines collected **	(# and \$)	\$300
Complaints/concerns received from public **	(#)	17

Post-Development Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control	(%)	95%
Site inspections (for proper BMP installation & operation) completed **	(# or %)	213 +/-
BMP maintenance required through covenants, escrow, deed restrictions, etc.	(y/n)	YES
Low-impact development (LID) practices permitted and encouraged	(y/n)	YES

Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets) **	(times/yr)	2 times/year
Average frequency of catch basin cleaning (commercial/arterial or other critical streets) **	(times/yr)	2 times/year
Qty of structures cleaned **	(#)	±1,000
Qty. of storm drain cleaned **	(%, LF or mi.)	±1,500 lf
Qty. of screenings/debris removed from storm sewer infrastructure **	(lbs. or tons)	10 tons
Disposal or use of screenings (landfill, POTW, compost, beneficial use, etc.) **	(location)	landfill

Basin Cleaning Costs		
• Annual budget/expenditure (labor & equipment)**	(\$)	\$30,000
• Hourly or per basin contract rate **	(\$/hr or \$ per basin)	
• Disposal cost**	(\$)	
Cleaning Equipment		
• Clam shell truck(s) owned/leased	(#)	1 owned
• Vacuum truck(s) owned/leased	(#)	0
• Vacuum trucks specified in contracts	(y/n)	No
• % Structures cleaned with clam shells **	(%)	100%
• % Structures cleaned with vactor **	(%)	0%
	(Preferred Units)	Response
Average frequency of street sweeping (non-commercial/non-arterial streets) **	(times/yr)	1 time/year
Average frequency of street sweeping (commercial/arterial or other critical streets) **	(times/yr)	2+ times/year
Qty. of sand/debris collected by sweeping **	(lbs. or tons)	±900 tons
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.) **	(location)	Landfill/Compost
Annual Sweeping Costs		
• Annual budget/expenditure (labor & equipment)**	(\$)	20,000
• Hourly or lane mile contract rate **	(\$/hr. or ln mi.)	
• Disposal cost**	(\$)	
Sweeping Equipment		
• Rotary brush street sweepers owned/leased	(#)	1
• Vacuum street sweepers owned/leased	(#)	0
• Vacuum street sweepers specified in contracts	(y/n)	No
• % Roads swept with rotary brush sweepers **	%	100%
• % Roads swept with vacuum sweepers **	%	0%
Reduction (since beginning of permit coverage) in application on public land of: ("N/A" = never used; "100%" = elimination)		
▪ Fertilizers	(lbs. or %)	100%
▪ Herbicides	(lbs. or %)	50%
▪ Pesticides	(lbs. or %)	50%
Integrated Pest Management (IPM) Practices Implemented	(y/n)	No

	(Preferred Units)	Response
Average Ratio of Anti-/De-Icing products used ** (also identify chemicals and ratios used in specific areas, e.g., water supply protection areas)	% NaCl % CaCl ₂ % MgCl ₂ % CMA % Kac % KCl % Sand	75-100% <25% <15%
Pre-wetting techniques utilized **	(y/n or %)	No
Manual control spreaders used **	(y/n or %)	Yes 95%
Zero-velocity spreaders used **	(y/n or %)	No
Estimated net reduction or increase in typical year salt/chemical application rate **	(±lbs/l _n mi. or %)	5% increase
Estimated net reduction or increase in typical year sand application rate **	(±lbs/l _n mi. or %)	5% decrease
% of salt/chemical pile(s) covered in storage shed(s)	(%)	100%
Storage shed(s) in design or under construction	(y/n or #)	No
100% of salt/chemical pile(s) covered in storage shed(s) by May 2009	(y/n)	Yes

Water Supply Protection

Storm water outfalls to public water supplies eliminated or relocated	# or y/n	0
Installed or planned treatment BMPs for public drinking water supplies and their protection areas	# or y/n	Yes
<ul style="list-style-type: none"> Treatment units induce infiltration within 500-feet of a wellhead protection area 	# or y/n	Yes

APPENDIX A

2017 IDDE Program

#41 and #43 Mechanic St - IDDE (Sump Pumps) Elimination - 2 Buildings



#41 Mechanic St:
New 4" Sched. 40
PVC Sump Pump
Connection to
Storm Drain.
Eliminate existing
sump pump
connection to sewer.

#43 Mechanic St:
New 4" Sched. 40
PVC Sump Pump &
Roof Drain
Connection to Storm
Drain. Eliminate
existing sump pump
connection to sewer.

Property Information

Property ID U07-207
Location 41-47 MECHANIC ST
Owner JEBOLA PROPERTIES INC



MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Spencer, MA makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Parcels updated 10/1/2017
 Properties updated 10/1/2017

Map Theme Legends

USGS Color Aerial Photo, 2014

Imagery - USGS Color Ortho Imagery,

Stormwater System

-  Storm Water Outfalls
-  Storm Drainage Manholes
-  Storm Water Basins
-  Catch Basins
-  Storm Water Pipes

Town of Spencer. For informational purposes only. See Disclaimer.

Sewer System

- Sewer System
-  Manhole
 -  Force Main
 -  Gravity Main (Unknown Diameter)
 -  2" Gravity Main
 -  6" Gravity Main
 -  8" Gravity Main
 -  10" Gravity Main
 -  12" Gravity Main
 -  15" Gravity Main
 -  18" Gravity Main
 -  24" Gravity Main
 -  Flow Direction
 -  Sub Area



E. M. THIBAUT EXCAVATION INC.
ROUTE 31 89 NORTH SPENCER ROAD
SPENCER, MASSACHUSETTS 01562
PHONE 885-4641

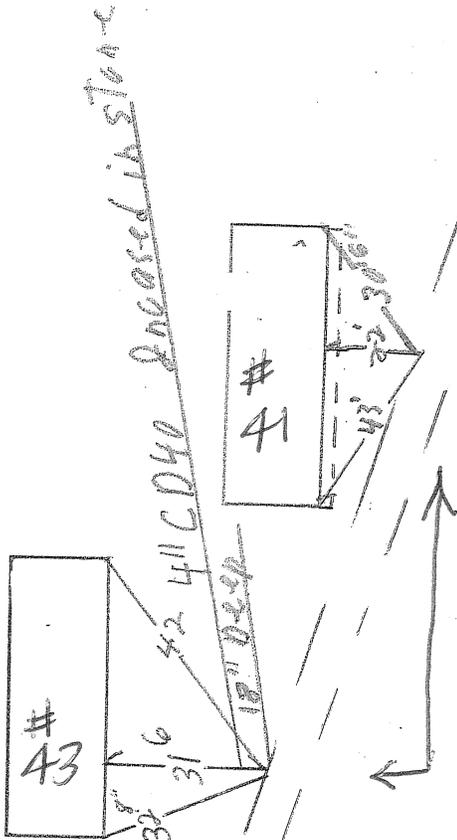
41 & 43

Mechanis st Drainage

12/1/17

5 FT Storm Drain

Mechanic St



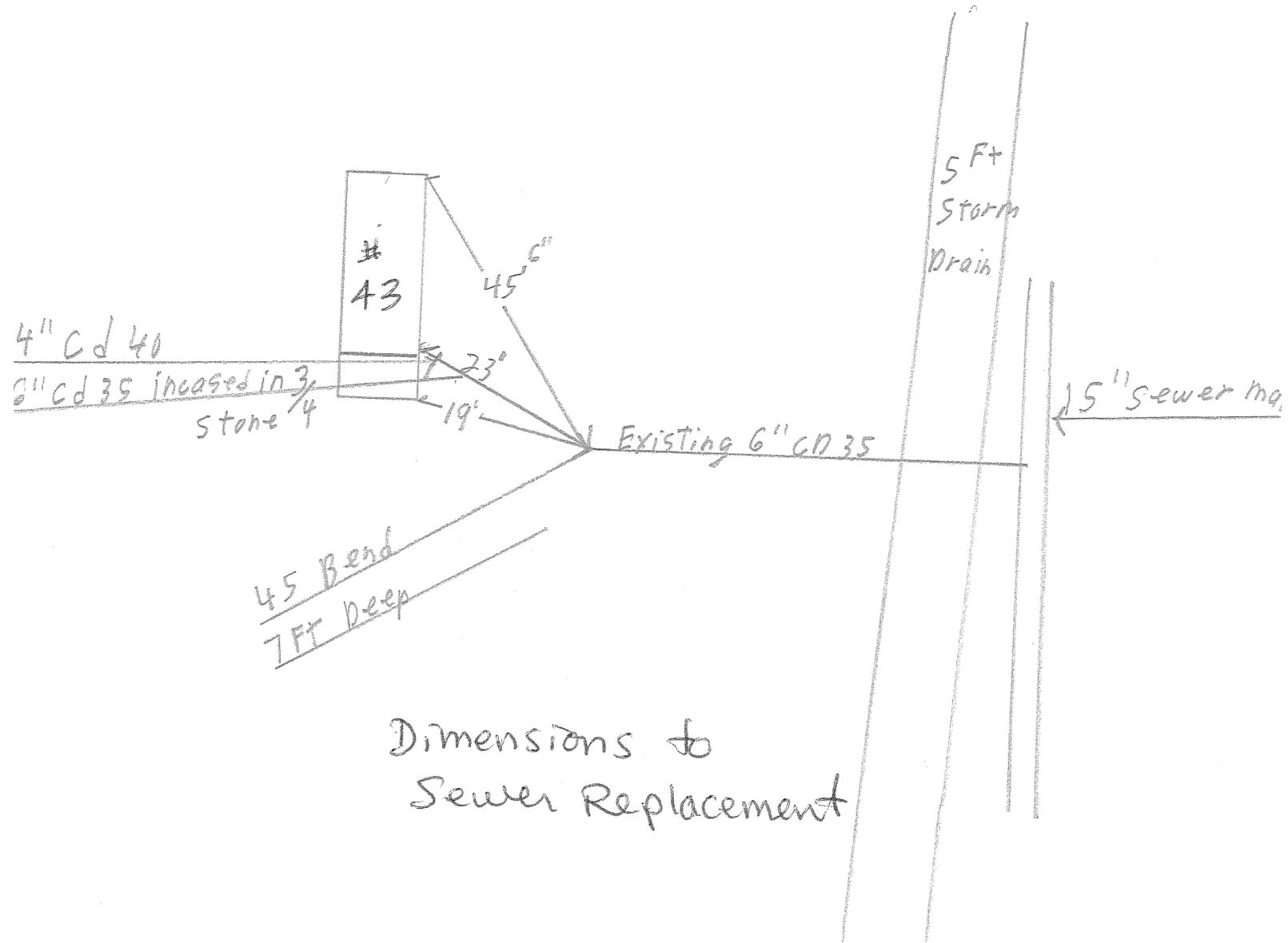
Dimensions to
Connection at 5' DIA.
Storm drain



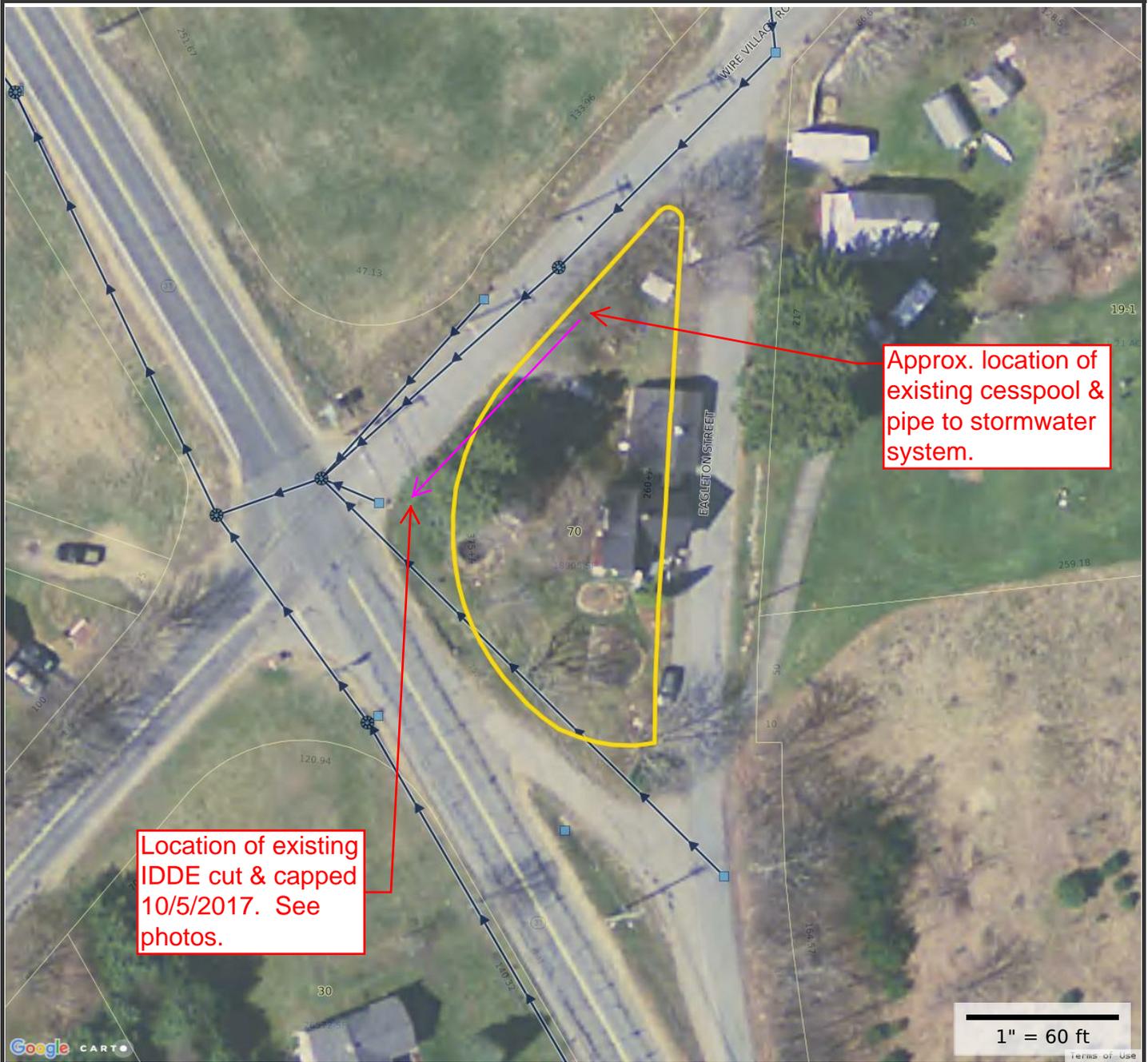
E. M. THIBAUT EXCAVATION INC.
ROUTE 31 89 NORTH SPENCER ROAD
SPENCER, MASSACHUSETTS 01562
PHONE 885-4641

11/20/17 # 43 Mechanic St Sewer Replaced 12/1/17

Mechanic St



2017-10-05 IDDE Capped at 150 Pleasant St



Property Information

Property ID U21-70
Location 150 PLEASANT ST
Owner SWEET JOYCE A



**MAP FOR REFERENCE ONLY
 NOT A LEGAL DOCUMENT**

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Parcels updated 1/1/2016
 Properties updated 1/1/2016

Map Theme Legends

USGS Color Aerial Photo, 2014

□

Imagery - USGS Color Ortho Imagery,

Stormwater System

-  Storm Water Outfalls
-  Storm Drainage Manholes
-  Storm Water Basins
-  Catch Basins
-  Storm Water Pipes

Town of Spencer. For informational purposes only. See Disclaimer.

Wetlands

-  Shoreline
-  Hydrologic Connection
-  Mean Low Water Line
-  Wetland Limit
-  Closure Line
-  Reservoir (with PWSID)
-  Marsh/Bog
-  Wooded Marsh
-  Cranberry Bog
-  Salt Marsh
-  Tidal Flats
-  Beach/Dune

MassDEP Wetlands, MassDEP Wetlands



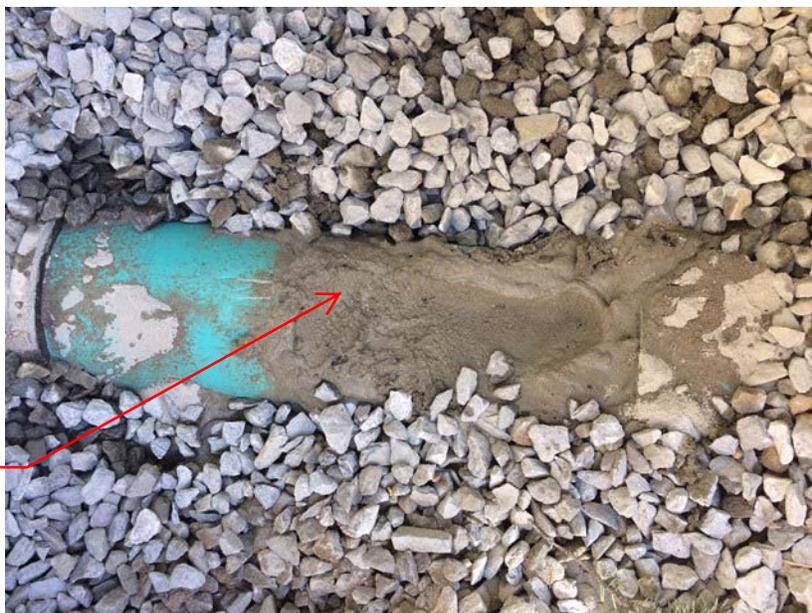
Location of existing IDDE cut & capped 10/5/2017. See close up photos below.

2017-10-05 IDDE Capped at 150 Pleasant St 001



Location of existing IDDE cut & capped 10/5/2017. Cut at existing orangeburge pipe. PVC pipe was opened & filled with concrete.

2017-10-05 IDDE Capped at 150 Pleasant St 002



Location of existing IDDE cut & capped 10/5/2017. Cut at existing orangeburge pipe. PVC pipe was opened & filled with concrete.

2017-10-05 IDDE Capped at 150 Pleasant St 003

APPENDIX B

New Town Web Page & Public
Informational Brochure

Stormwater Resources & Permitting
Center

(CREATED SEPTEMBER 2017)


 Search

- [DEPARTMENTS](#)
- [BOARDS](#)
- [ABOUT SPENCER](#)

Stormwater Resources & Permitting Center

[Printer-Friendly Version](#)

The future health of Spencer's water depends on the actions of every individual.



- [Award Winning Video Introduction to Stormwater \(by WPI students - 2017 APWA Stormy Award\)](#)

Stormwater Permits, Regulations and Resources:

Spencer Stormwater Regulations	US EPA Stormwater Home Page	2016 Massachusetts Small MS4 General Permit
Spencer Stormwater Permit Application	EPA's 2012 Construction General Permit (CGP)	US EPA Green Infrastructure Home Page
CMRSWC (Central Mass.) Stormwater Home Page	Interactive Mapping of the Integrated List of Waters	EPA's Stormwater Discharge Mapping Tools

What is Stormwater and Why does it matter?

Stormwater is the water that flows over the ground when it rains or snows. Some of it seeps into the ground or evaporates, but much of it runs off over the land or through storm drains and then flows into our streams and ponds. Stormwater picks up litter, sand, bacteria, oil and other chemicals as it flows over the land, and it carries these pollutants to our streams, ponds, and wetlands, usually without any treatment or cleansing. Runoff from paved surfaces, such as roads, parking lots, and driveways, may contribute large amounts of polluted stormwater.

What are Best Management Practices (BMP's)?

Best Management Practice (BMP) is broadly used to describe the most effective, feasible method that does the job. In the context of storm water management, it is often used to mean a structure or technology used to manage or treat the water such as a hooded catch basin, detention basin, or a filter system. The term BMP is also used for behavioral practices such as timely cleaning of catch basins, or habitual closing of the lid on a dumpster (avoiding dumpster brew when it rains). A BMP can even be restraint of a specific behavior such as minimizing the use of lawn fertilizer, or of road salt and sand.

What is MS4?

MS4 stands for "municipal separate storm sewer system." It is a drainage system owned by a municipality intended to carry only surface runoff (i.e. stormwater). A separate sewer is not intended to, nor should it, carry storm water combined with sanitary sewage or with any other pollutant.

- [Award Winning Video Introduction to Stormwater \(by WPI students - 2017 APWA Stormy Award\)](#)

Stormwater Outreach Materials

[HOME](#)

[TOWN CALENDARS](#)

[MINUTES & AGENDAS](#)

[FORMS & APPLICATIONS](#)

[BY-LAWS & REGULATIONS](#)

[PUBLIC RECORDS ACCESS INFORMATION](#)

[PAID OPENINGS](#)

[VOLUNTEER OPENINGS](#)

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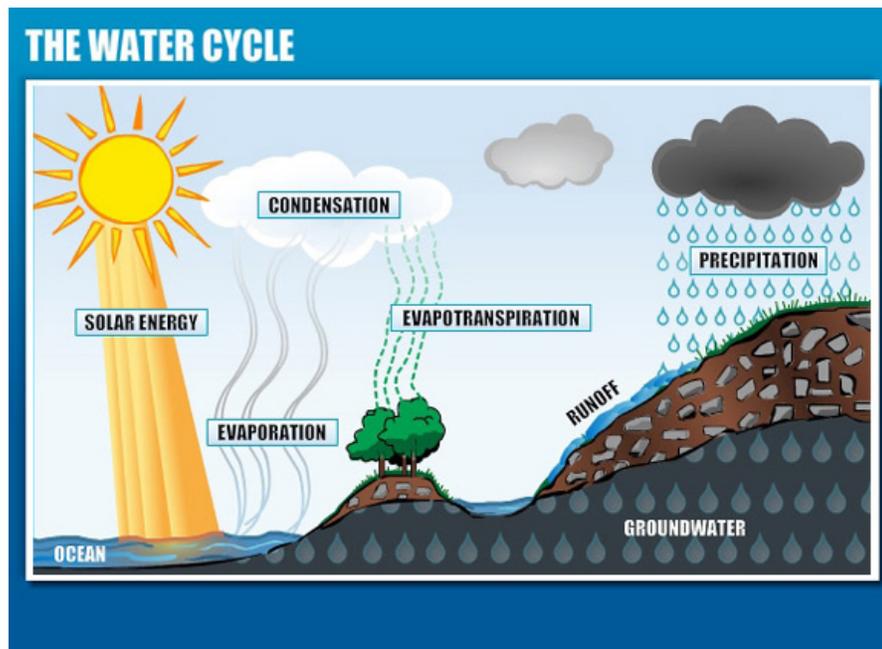
[BIDS & RFPs](#)

QUICK LINKS

[Residents](#)

[Applicants/Businesses](#)

[Visitors](#)



Residents & Homeowners Best Practices

- [Stormwater Pollution Prevention Guide for Homeowners](#)
- [Stormwater - What You Can Do as a Citizen](#)
- [Pet Waste Management](#)
- [Rain Gardens: Go Green with Stormwater](#)
- [Protecting Your Lake or Pond from Stormwater Pollution: Be A Beneficial Lake Effect](#)
- [Raingardens MassDCR](#)
- [Stormwater Best Practices for Fertilizing the Lawn](#)
- [Spencer Homeowner's Rain Garden & Stormwater Infiltration Details](#)

Homeowners DIY Guides to Greening Stormwater Runoff

- [Do-It-Yourself Stormwater Solutions for Your Home](#)
- [Homeowner's Guide to Greening Stormwater Runoff](#)
- [Spencer Homeowner's Rain Garden & Stormwater Infiltration Details](#)
- [Spencer Cranberry Meadow Well Rain Garden Design \(Built by Water Dept. June 2017\)](#)
- [Automotive Maintenance & Car Care](#)

Business

- [Stormwater Management for Small Businesses](#)
- [Pollution Prevention for Businesses](#)
- [Spencer Cranberry Meadow Well Rain Garden Design \(Built by Water Dept. June 2017\)](#)

Developers

- [Stormwater - What You Can Do as a Developer](#)
- [General Construction and Site Supervision Stormwater Tips](#)
- [How Low-Impact Development \(LID\) Principles and Technologies Reduce Development Cost](#)
- [Stormwater Pollution Prevention for Small Residential Construction Sites](#)
- [Spencer Cranberry Meadow Well Rain Garden Design \(Built by Water Dept. June 2017\)](#)

Industrial

- [Industrial Stormwater Best Management Practices](#)
- [Spencer Cranberry Meadow Well Rain Garden Design \(Built by Water Dept. June 2017\)](#)

Kid-Friendly Materials

- [The Water Cycle Introduction](#)
- [Who Owns The Raindrop \(Coloring Book\)](#)
- [Living Green with the Eco Superheroes \(Coloring Book\)](#)
- [Two Underground Systems](#)
- [Word Search: Can You Find These Words?](#)
- [Take the Stormwater Runoff Challenge \(Crossword Puzzle\)](#)
- [Clean Water Bookmark](#)

- [Stormwater Stickers](#)
- [Backpack Mail](#)
- [In Classroom Activity](#)
- [Stormwater Activity Book](#)

DO THE RIGHT THING



Lawn and Yard Care



Pet Waste Management



Car Care



Soak Up the Rain

Videos

- Click [here](#) to view MS4 Requirement Workshop Excerpts Video
 Click [here](#) to view Stormwater Chasers Video - Intro to Stormwater
 Click [here](#) to view CMRSWC MS4 Training Videos 2016

Tools, Information and Links

[MS4 Outreach Presentation \(PDF\)](#)

[Stormwater BMP Performance in New England \(PDF\)](#)

Long-term cumulative performance estimates of eight stormwater BMP types, based on BMP capacity and various loading rates for total phosphorus, solids, and zinc.

[Green Infrastructure Opportunities that Arise During Municipal Operations \(PDF\)](#)

This document presents examples and case studies of how integrating green infrastructure methods can enhance retrofits and maintenance projects and provide other multiple community benefits.

[Storm Water Management Program for Town of Spencer, MA](#) (2003 by Prism Environmental)

The Town of Spencer is a member of the
[Central Massachusetts Regional Stormwater Coalition \(CMRSWC\)](#)

Town of Spencer, 157 Main Street, Spencer, MA 01562 (508) 885-7500
 Website Disclaimer & Privacy Policy | Virtual Towns & Schools Website

The most common source of pollution associated with construction activities is **sedimentation** caused by erosion.

Failure to maintain adequate Erosion and Sediment Controls (ESCs) at construction sites often results in sediment discharges into the storm drain system. In the Town of Spencer, storm drains flow directly into your lakes, streams and rivers.

Once this discharge reaches waterways, it creates problems such as turbidity (cloudiness of the water) and chemical changes to the water. These changes effect drinking water quality and can even kill fish and other aquatic wildlife.



Ideally, the only thing that should leave your project's site and enter a storm drain is rainwater – clean, uncontaminated rainwater. An effective stormwater management program is one in which ALL potential pollutants are recognized and a plan is designed to control or prevent them. As a result, you will ensure the safety of the public and preserve the quality of local waters.

Stormwater Permitting and Resources

For a more comprehensive list of Best Management Practices and stormwater guidance for water quality permitting, go to The Town of Spencer's Stormwater Resources & Permitting Center at

http://www.spencerma.gov/Pages/SpencerMA_Bcomm/Planning/StormwaterResources

Town of Spencer
Utilities and Facilities Office
3 Old Meadow Road
Spencer, MA 01562
508-885-7525

http://www.spencerma.gov/Pages/SpencerMA_Bcomm/Planning/StormwaterResources

August 2017



Stormwater Quality & Permitting for General Construction and Site Development

Protect Your Rivers, Streams, Ponds and Lakes, they are only a storm drain away.

What goes in here ...



... comes out here.

Allowing stormwater with sediment or pollutants to leave your property or construction site and enter into a storm drain or waterway is a violation of Federal, State, and Local law!



Local Stormwater Permitting

For any land disturbance in Spencer greater than 5000 sq. ft., you will most likely need a Town of Spencer Stormwater Permit. Contact the Spencer Planning Department or visit our “Stormwater Resources and Permitting Center” on our website.

Federal/State Stormwater Permitting

You are subject to coverage under the EPA NPDES Construction General Permit (CGP) if greater than 1 acre of disturbance is proposed and stormwater may leave your site. This permit requires a Stormwater Pollution Prevention Plan (SWPPP) before ANY work begins.

The SWPPP is a plan to control stormwater discharges from your construction site. It is broader and more complicated than a typical erosion and sediment control plan, and contains more information. The SWPPP needs to be updated as work progresses, and the plan MUST be available on site.

For more information on SWPPP development and the CGP Notice of Intent process refer to: www.epa.gov and search “SWPPP” in the top right hand corner.

If you don't have the required permit coverage, you could be fined up to \$32,500 per day federally and up to \$300 per day locally!

As an owner, operator, or supervisor of a construction site, you may be held financially responsible for any environmental damage caused by your subcontractors or employees!

Plan In Advance to Prevent Pollution:

- Remove existing vegetation only as needed.
- Schedule excavation, grading, and paving operations for dry weather periods.
- Designate a specific area of the site, well away from storm drains or waterways, for material storage and equipment maintenance.
- Educate your employees and subcontractors about stormwater management requirements and their pollution prevention responsibilities.
- Have extra erosion controls (such as hay bales and silt fence/silt socks) on site in case of any emergency.
- Develop and implement an effective combination of erosion and sediment controls for the site.

Best Management Practices and good housekeeping can significantly reduce pollutant discharges from your construction site.

Pollutant minimization suggestions:

- Protect all storm drain inlets and streams located near the site.
- Limit access to and from the site and stabilize construction entrances and exits.
- Sweep frequently.
- Protect stockpiles by storing under a roof, impermeable tarp, or plastic sheeting.
- Do not store or stockpile materials near a storm drain, wetland or stream.
- Perform major maintenance and repairs of vehicles off site.
- Wash out concrete mixers only in designated washout areas away from resources, and set up small mixers on tarps.
- Remove trash, debris, and wastes on a regular basis and ensure that dumpsters are covered.
- Clean up small spills immediately using dry cleanup methods, such as an absorbent. Sweep as soon as possible.
- Prevent erosion by implementing soil stabilization practices such as mulching, temporary or permanent seeding.
- Maintain all hay bales and silt fence to make sure no materials are getting beyond them; replace if necessary.

Stormwater Quality & Permitting for General Construction and Site Development

Protect Your Rivers, Streams, Ponds and Lakes, they are only a storm drain away.

What goes in here...

Allowing stormwater with sediment or pollutants to leave your property or construction site and enter into a storm drain or waterway is a violation of Federal, State, and Local law!

SPENCER MASSACHUSETTS TOURIST GUIDE & MAP

If you own property built before 1978, here are 5 Reasons Why You Need to Hire a Lead-Safe Renovation Contractor

Let's talk flu.

Stay clear and stay alive. Keep at least 10 feet away from power lines.

Information about Recreational Camps in Massachusetts

Thibault Occupational Safety Training

What's the simplest way to protect yourself from colds? flu? diarrhea? hepatitis A? SARS?

Guaranteed Rural Housing Loans

Spencer State Forest Trail Map

Spencer State Forest Trail Map

Know a good lawyer? We do.

Lawyer Referral Service Massachusetts Bar Association

We've helped more than 450,000 people find the right lawyer. (866) MASS-LRS www.MassLawHelp.com

Spencer State Forest Trail Map

Worcester Regional Medical Reserve Corps

Inhalants poison your body

Sores on the face and in the mouth and nose. Irritation, itching and damage to the skin. Problems with hearing, balance and vision. Nausea and nosebleeds. Damage to the brain and nerves.

Protect your Family. Test Your Well's Water Quality Today.

A Place to Live

A DRIVING TOUR of SPENCER, MASSACHUSETTS

SCENIC ROAD of SPENCER, MASSACHUSETTS

2017/09/07

APPENDIX C

Site Stormwater Retrofit
Rain Garden at Cranberry
Well Pump Station



100' OFFSET FROM FLAGGED WETLANDS

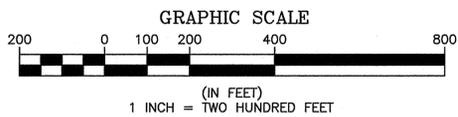
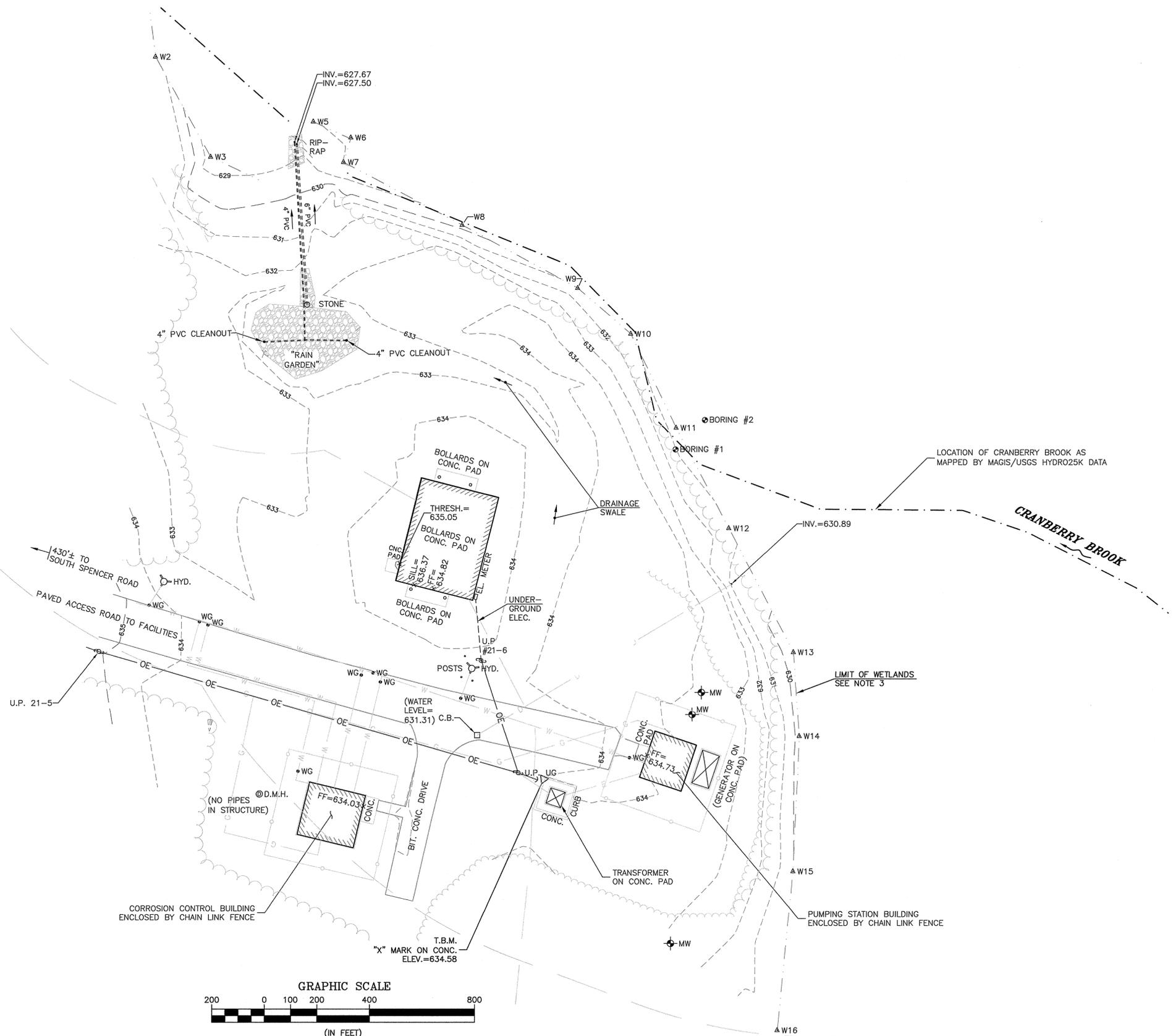
200' OFFSET FROM CRANBERRY BROOK AS MAPPED BY MAGIS/USGS HYDRO25K DATA

LEGEND

- CATCH BASIN
 - C.O. CLEAN OUT
 - ⊠ ELECTRIC TRANSFORMER
 - ⊕ UTILITY POLE W/GUY
 - ⊕ UTILITY POLE
 - W.G. WATER GATE
 - ⊕ HYDRANT
 - ⊕ SOIL BORING
 - ⊕ MW MONITORING WELL
 - ⊕ TEMPORARY BENCH MARK
- BUILDING
 - FINISHED FLOOR LOCATION SHOT
 - CONTOUR (INDEX)
 - CONTOUR (INTERMEDIATE)
 - STORM DRAIN
 - WATER MAIN
 - EDGE OF VEGETATION
 - FLAGGED WETLAND
 - CHAIN LINK FENCE
 - CURB OR BERM (AS NOTED)
 - EDGE OF PAVEMENT

NOTES:

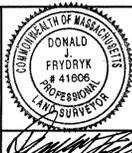
1. THIS PLAN IS BASED ON A FIELD SURVEY BY THIS OFFICE DATED 06/19/15 AND UPDATED WITH AS BUILT CONDITIONS ON 08/15/17.
2. HORIZONTAL DATUM IS NAD83. VERTICAL DATUM IS NAVD88. BOTH DATUMS WERE ESTABLISHED AT THIS SITE BY GPS METHODS.
3. BORDERING VEGETATED WETLANDS SHOWN WERE DELINEATED BY WETLAND CONSULTANTS INC., ON 06/16/15. ENTIRE LOCUS SHOWN IS WITHIN THE RIVERS PROTECTION AREA.
4. LOCATION OF CRANBERRY BROOK IS AS MAPPED BY MAGIS/USGS HYDRO25K DATA.
5. LOCATIONS OF UTILITIES SHOWN HEREON ARE THE RESULT OF SURFACE EVIDENCE AS LOCATED BY FIELD SURVEY AND A PLAN PROVIDED BY THE TOWN OF SPENCER. THIS PLAN DOES NOT NECESSARILY DEPICT THE EXACT LOCATIONS OF ALL UTILITIES WHICH MAY EXIST AT THIS TIME WITHIN THE PREMISES SURVEYED.
6. THE CONTRACTOR SHOULD VERIFY THE EXISTING CONDITIONS TO HIS SATISFACTION PRIOR TO BEGINNING ANY EXCAVATION. "DIG SAFE" SHALL BE NOTIFIED AT LEAST 72 HOURS PRIOR TO BEGINNING ANY WORK.
7. NO PROPERTY LINES ARE SHOWN ON THIS PLAN.



NO.	DATE	BY	REVISIONS

SHERMAN & FRYDRYK, LLC
Land Surveying and Engineering
 3 Converse Street, Suite 203
 Palmer, MA 01069

FIELD WORK: PWS/BJP
 COMPS: SBW
 DRAFTING: SBW
 CHECKED: DJF
 APPROVED: DJF



SCALE:
 HORZ: 1"=20'
 VERT: N/A
 DATE: 09/12/2017

AS BUILT CONDITIONS

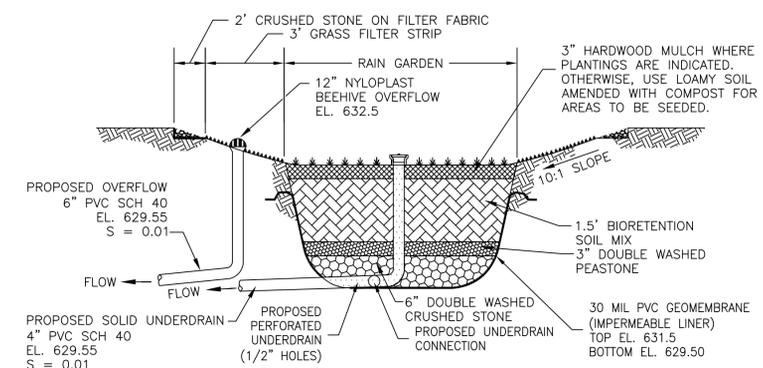
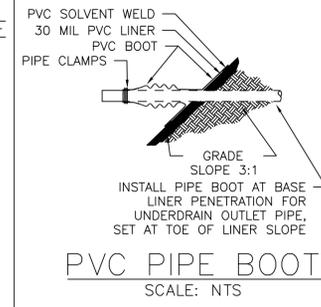
CRANBERRY BROOK WELL SITE

PLAN OF LAND IN SPENCER, MA
 PREPARED FOR
TOWN OF SPENCER

PROJECT NUMBER
15057
SHEET NUMBER
1 OF 1



Δ TRV N/F193



PROPOSED UNDERDRAIN OUTLET PIPE
4" PVC SCH 40
L = 55', S = 0.01 FT/FT
INV. LEAVING RAINGARDEN = 629.55
INV. AT OUTLET = 629.00

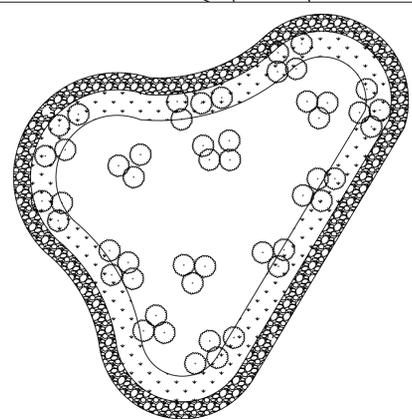
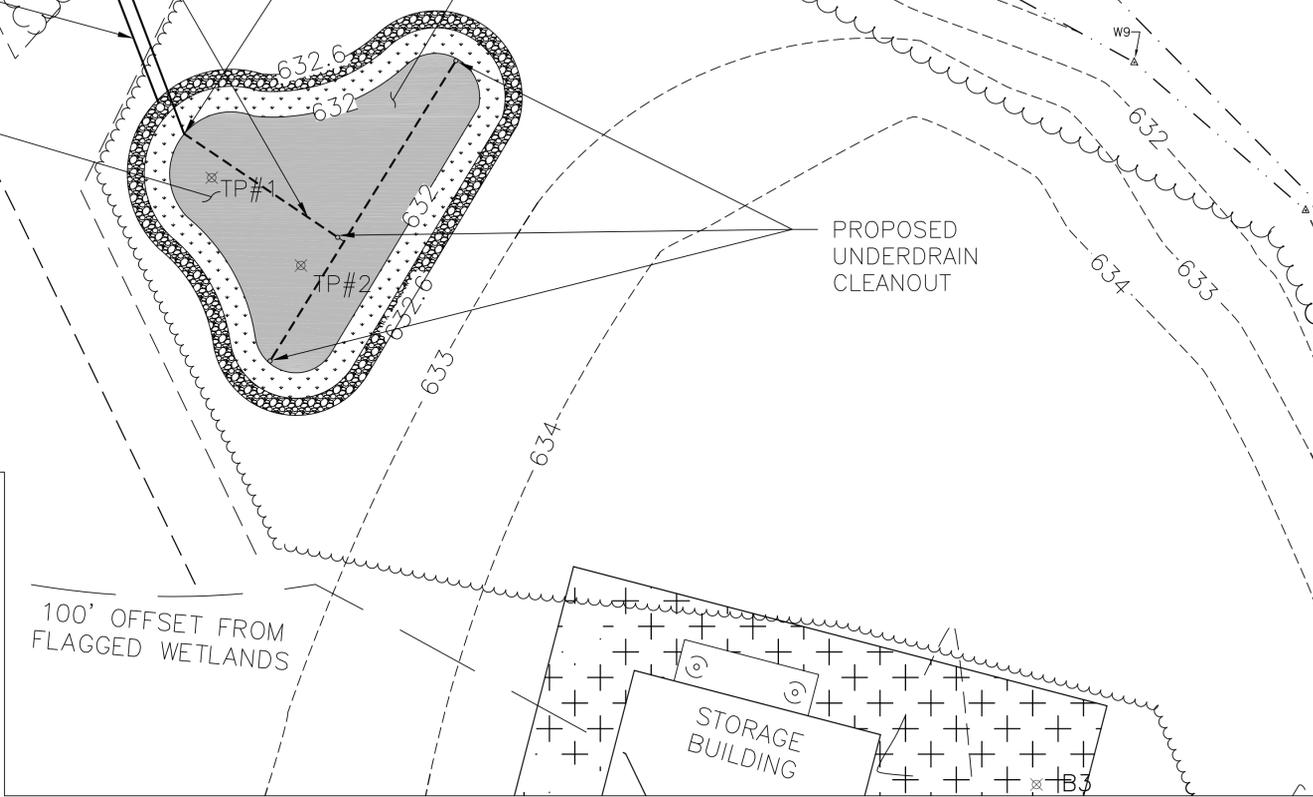
PROPOSED RAINGARDEN
750 SF BASE AREA
12" GRATE OVERFLOW = 632.50
3" MULCH = 632.00-631.75
1.5' BIORETENTION SOIL MIX = 631.75-630.25
3" DOUBLE WASHED PEASTONE = 630.25-630.00
6" CRUSHED STONE = 630.00-629.50
4" PVC UNDERDRAIN INV. OUT = 629.55
30 MIL PVC LINER = 629.5

PROPOSED UNDERDRAIN
4" PVC SCH 40 WITH 1/2" PERFORATIONS
EVERY FOOT @ 5 & 7 O'CLOCK
SET LEVEL @ INV. = 629.55

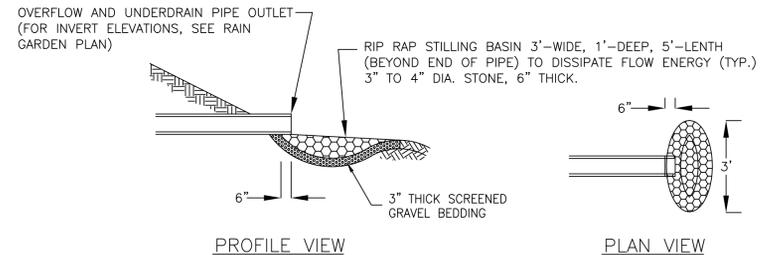
PROP. OVERFLOW OUTLET PIPE
6" PVC SCH 40
L = 52', S = 0.01 FT/FT
SET LEVEL @ INV. = 629.55

PROP. RAINGARDEN PLANTINGS
730 SQ. FT.

11, IR @ 18" O.C
11, MD @ 18" O.C
11, PV @ 18" O.C
11, RF @ 18" O.C
11, HS @ 18" O.C



RAIN GARDEN CROSS-SECTION
SCALE: NTS



RIP RAP APRON AT RAIN GARDEN
OVERFLOW AND UNDERDRAIN OUTLETS
SCALE: NTS

SUGGESTED PLANT LIST

NOTE: PROPOSED PLANTINGS AND LOCATIONS TO BE FINALIZED BY THE TOWN AFTER REVIEW AND DISCUSSION WITH TOWN'S LANDSCAPE SUPPLIER.

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	COMMENTS
ORNAMENTAL GRASSES AND PERENNIALS					
IR	11	IRIS VERSICOLOR	BLUE FLAG IRIS	1 GAL	-
MD	11	MONARDIA DIDYMA 'JACOB CLINE'	JACOB CLINE BEEBALM	1 GAL	-
PV	11	PANICUM VIRGATUM 'SHENANDOAH'	SHENANDOAH SWITCHGRASS	1 GAL	-
RF	11	RUDBECKIA FULGIDA 'GOLDSTURM'	GOLDSTURM BLACK EYED SUSAN	1 GAL	-
HS	11	HEMEROCALLIS 'STELLA DE ORO'	STELLA DE ORO DAYLILY	1 GAL	-

IN ADDITION TO THE ABOVE NOTED PLANTINGS, SET IN MULCH BED AREAS (SEE PLANTING VIEW), THE RAINGARDEN SHALL BE LOAMED & SEEDED WITH A WILDFLOWER SEED MIX SUCH AS THE "LOW GROWING MEADOW MIX" FROM PRAIRIE NURSERY (WWW.PRAIRIENURSERY.COM). A SEED MIX ALLOWS A VARIETY OF SPECIES TO ADAPT TO THE SITE SPECIFIC ENVIRONMENT THROUGH NATURAL SELECTION, WHICH RESULTS IN A MORE ROBUST RAINGARDEN PLANT GROWTH.

NOTE:
PLANT LOCATIONS SHOWN ARE APPROXIMATE. PLACEMENT AND ARRANGEMENT OF PLANT TYPES TO BE DETERMINED BY LANDSCAPER DURING PLANTING.

Revision By Appd. YY.MM.DD	DRAFT FOR TOWN REVIEW IS MSB 9/16/2016 Issued By Appd. YY.MM.DD	Permit-Seal 4/5/17	Consultants 5 Burlington Woods Drive Burlington, MA 01803-4542 www.stantec.com The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay. The Copyrights to all designs and drawings are the property of Stantec. Reproduction or use for any purpose other than that authorized by Stantec is forbidden.	Client/Project TOWN OF SPENCER STORMWATER IMPROVEMENTS AT CRANBERRY MEADOW WELL SPENCER, MA	Title RAIN GARDEN DESIGN Project No. 195150340 Drawing No. 1

S:\1951\ACTIVELY\19510340\DESIGN\DRAWING\CAD\CANBERRY WELL RAIN GARDEN DESIGN.DWG 4/25/17 12:52 PM ORIGINAL SHEET - ARCH.D



RAIN GARDEN



Blue Flag Iris
Iris Versicolor



Jacob Cline Beebalm
Monarda Didyma "Jacob Cline"



Shenandoah Switchgrass
Panicum Virgatum "Shenandoah"



Goldstrum Black Eyed Susan
Rudbeckia Fulgida "Goldstrum"



Stella de Oro Daylily
Hemercallis "Stella de Oro"

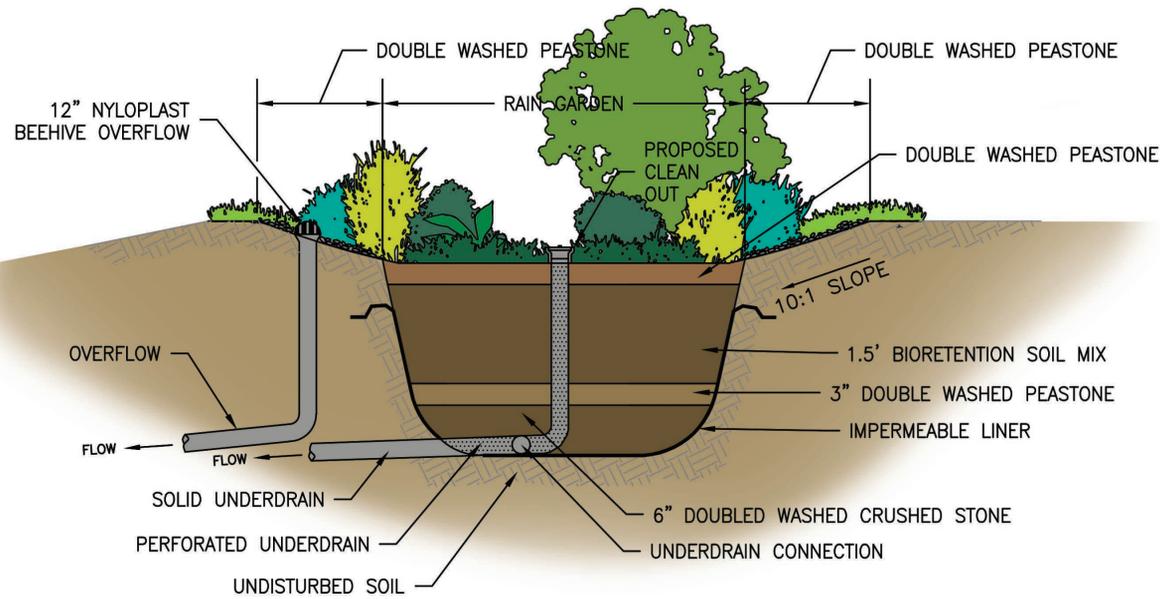
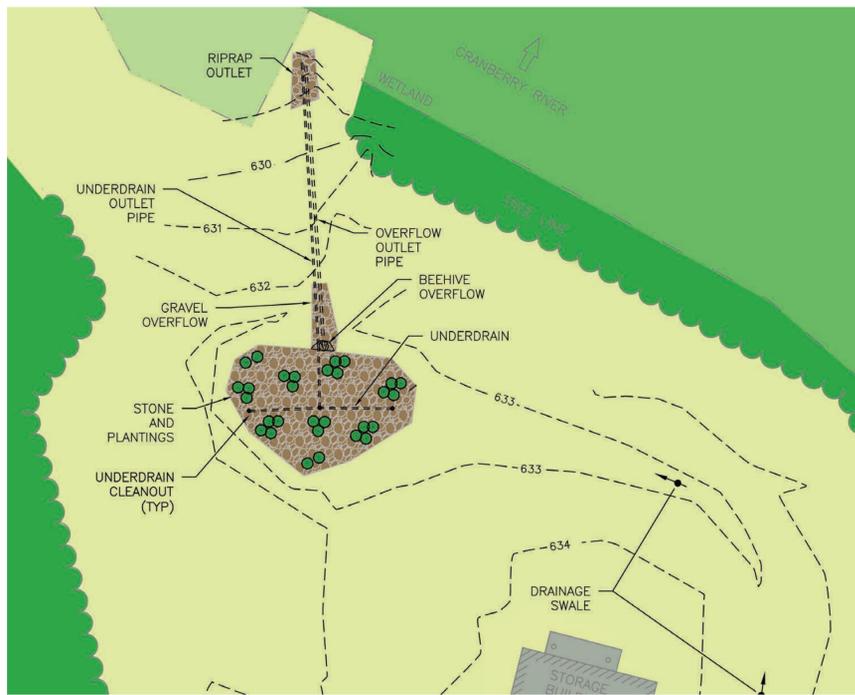


Coneflower
Echinacea purpurea

NATIVE PLANTINGS LIST

TO SUPPORT POLLINATORS

PURPOSE/ BENEFIT Reduce pollutants from stormwater runoff prior to discharging filtered stormwater to Cranberry River.



WATER QUALITY ACTIONS

The soils and plants in this rain garden remove stormwater pollutants through (1) filtering larger sediment particles, (2) uptake of phosphorus and nitrogen, and (3) microbial activity within the roots and soil.

DESIGN

This rain garden has an impermeable liner due to high groundwater at the site. Runoff reaching the garden travels through the plant roots and soil prior to reaching the underdrain which then discharges filtered stormwater to Cranberry River. The rain garden was sized to filter the first 0.5 inch of rain from the tributary area. The native plants were selected based on the site conditions such as light exposure and tolerance to wet/dry environment.



APPENDIX D

Misc. Activities

Join Us for an MS4 Training Opportunity



Central Massachusetts Regional Stormwater Coalition Stormwater BMP, LID and Green Infrastructure Technical Tour and Workshop

Central Massachusetts Regional Stormwater Coalition is sponsoring a technical tour and workshop for DPW's, Highway, and other staff in member communities responsible for the operations and maintenance of local roads, drainage, sidewalks, parking lots, and other public infrastructure. Participants in the tour will be exposed to BMP, LID, and green infrastructure options they can consider as part of their ongoing public works O/M operations. The program's objectives are to instill awareness of these opportunities for SW retrofits and LID standards within routine public works operations. This saves money, reduces flooding, considers climate change impacts, improves water quality, and complies with MS4 permit regulations.

The tour includes site visits to constructed stormwater BMPs and green infrastructure projects. The site visits include review of designs and plans, costs, funding, permitting, operations and maintenance, discussion on project drivers: flooding, pollutant removal, etc., and access to project owners. The workshop component of the program includes discussion on additional BMPs and LIDs that a DPW or Highway Department may be able to install with local staff as part of routine maintenance.

Participants will meet at Holden Town Hall on Wednesday, October 25 at 7:30 AM for sign-in and coffee. At 8:00 AM a motor coach will transport participants to the five selected sites. The sites include properties managed by the Department of Conservation and Recreation (DCR) and privately owned industrial sites. Presenters will include staff from DCR, Massachusetts Department of Transportation, engineers, and project owners. Participants will return to Holden Town Hall shortly after noon for lunch, workshop, and networking. The lunch program includes additional discussion on stormwater management techniques and opportunities for retrofits. Participants will receive a workshop package that includes available site plans and specs, O/M requirements, and other relevant project data.

The motor coach will accommodate one participant from each CMRSWC member community, ideally a public works or highway representative. CMRSWC will consider additional participants from communities if space allows.

Deadline for registration is Wednesday, October 18, 2017. Registration is limited to one participant from each CMRSWC community. Please see the attached program registration form.

Funding for this program is provided by the Central Massachusetts Regional Stormwater Coalition

Wednesday, October 25, 2017

8:00AM - 2:00PM

Tour begins at Holden Town Hall

7:30 AM	Breakfast and registration
8:00 AM	Bus promptly departs
12:00 PM	Lunch, workshop, networking
2:00 PM	Conclusion

For questions or additional information contact:

Mary Monahan

mmonahan@fando.com

413-313-6901