

STORMWATER MS4 OPERATIONS & MAINTENANCE PLAN

Town of Rockland

June 2020



ENVIRONMENTAL
 **PARTNERS**

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SECTION 1 INTRODUCTION

This Stormwater Operation & Maintenance (O&M) Plan has been prepared by the Town of Rockland to address stormwater infrastructure O&M requirements (Part 2.3.7.a.iii) of the Environmental Protection Agency's (EPA's) 2016 National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) in Massachusetts, hereafter referred to as the "2016 Massachusetts MS4 Permit" or "MS4 Permit."

This O&M Plan addresses Minimum Control Measure 6, Good Housekeeping and Pollution Prevention for Permittee Owned Operations, by describing the activities and procedures the Town of Rockland will implement so that the MS4 infrastructure is maintained in a timely manner to reduce the discharge of pollutants from the MS4. The O&M Plan outlines inspection and maintenance procedures for catch basins, municipally-owned streets, facilities, and parking lots, and stormwater Best Management Practices.

The O&M Plan for the Town of Rockland also establishes procedures to address the proper use, storage and disposal of pesticides, herbicides and fertilizers. It includes recommendations for proper lawn maintenance and disposal of grass clippings and other vegetative waste at Open Spaces and Parks maintained by the Town of Rockland. The Plan includes a description of structural and non-structural BMP's under municipal control as well as recommended maintenance schedules and operations for all municipal stormwater structures.

Inspection form templates are included to record observations and corrective actions taken for specific BMP's. The completed inspection forms should be kept on file for a minimum of 3 years and the information used to update the O&M Plan as necessary. For example, if a particular catch basin is scheduled for annual inspection / cleaning and is consistently found to contain accumulated sediments to within one foot of the outlet, the inspection frequency should be revised accordingly. Information obtained from prior maintenance activities, inspection reports, citizen complaints as well as reports provided by Town of Rockland departments or regulatory boards, such as the Conservation Commission among others, will be used to determine the appropriate priority level.

The O&M Plan reflects the current processes for the Town of Rockland operations, and its use is applied throughout the Department, as listed below:

Department	Supervisor
Highway	David P. Taylor Jr.
Park	Peter Ewell

SECTION 2 PERMIT REQUIREMENT ELEMENTS

The Permit details the requirements of an O&M Plan for stormwater infrastructure and includes the elements listed in Section 2.3.7.a.ii.1 and Sections 2.3.7.a.iii through 2.4.7.a.v of the Permit, as detailed below. Typically Town-owned facilities include parks and open space, buildings and facilities, and vehicles and equipment. The items below detail individual elements associated with each facility that can either affect stormwater quality or specifically treat stormwater generated by these facilities. EPA Maps and corresponding TMDL Data are attached to this report as Appendix A.

- **Fertilizer Use, Storage, and Disposal** – “establish procedures to address the proper use, storage, and disposal of pesticides, herbicides, and fertilizers including minimizing the use of these products and using only in accordance manufacturer’s instruction.”
- **Lawn and Landscaping Maintenance** – “evaluate lawn maintenance and landscaping activities to ensure practices are protective of water quality. Protective practices include reduced mowing frequencies, proper disposal of lawn clippings, and use of alternative landscaping materials (e.g. drought resistant planting).”
- **Public Trash Receptacles and Pet Waste Storage** – “establish pet waste handling collection and disposal locations at all parks and open space where pets are permitted, including the placing of proper signage concerning the proper collection and disposal of pet waste... Establish procedures for management of trash containers at parks and open space (scheduled cleanings; sufficient number).”
- **Catch Basin Cleaning Program** – “the permittee shall optimize routine inspections, cleaning and maintenance of catch basins such that the following conditions are met:
 - o ...prioritize inspection and maintenance for catch basins near construction activities...
 - o ...establish a schedule with a goal that the frequency of routine cleaning will ensure that no catch basin at any time will be more than 50 percent full.
 - o ...if a catch basin sump is more than 50 percent full during two consecutive routine inspections/cleaning events, ...document that finding, investigate the contributing drainage area for sources of excessive sediment loading, and...abate contributing sources.
 - o ... [Consider] an excessive sediment or debris loading as a catch basin sump more than 50 percent full...
 - o ...document in the SWMP and in the first annual report [the permittee’s] plan for optimizing catch basin cleaning, inspection plans, or its schedule for gathering information to develop the optimization plan...
 - o ...report in each annual report the total number of catch basins, number inspected, number cleaned, and the total volume or mass of material removed from all catch basins.”
- **Street Sweeping Program** – “the permittee shall establish and implement procedures for sweeping and/or cleaning streets, and permittee-owned parking lots... The procedures shall also include more frequent sweeping of targeted areas determined by the permittee on the basis of pollutant load reduction potential, based on inspections, pollutant loads, catch basin cleaning or inspection results, land use, water quality limited or TMDL waters or other relevant factors as determined by the permittee...The permittee shall report in each annual report the

number of miles cleaned and the volume or mass of material removed.”

- **BMP Maintenance & Inspection Procedures** – “the permittee shall establish and implement inspection and maintenance frequencies and procedures for all stormwater treatment structures such as water quality swales, retention/detention basins, infiltration structures, proprietary treatment devices or other similar structures. All permittee-owned stormwater treatment structures (excluding catch basins) shall be inspected annually at a minimum.”
- **Storage of Catch Basin Cleanings & Street Sweepings** – “the permittee shall ensure proper storage of catch basin cleanings and street sweepings prior to disposal or reuse such that they do not discharge to receiving waters.”
- **Winter Road Maintenance** – “the permittee shall establish and implement procedures for winter road maintenance including the use and storage of salt and sand; minimize the use of sodium chloride and other salts, and evaluate opportunities for use of alternative materials; and ensure that snow disposal activities do not result in disposal of snow into waters of the United States...”
- **Vehicles and Equipment** – “establish procedures for the storage of permittee owned vehicles. Establish procedures to ensure that vehicle wash waters are not discharged to the municipal storm sewer system or to surface waters...”
- **Facility Audit** – “evaluate the use, storage and disposal of petroleum products and other potential stormwater pollutants... Develop management procedures for dumpsters and other waste management equipment. Sweep parking lots and keep areas surrounding facilities clean to reduce runoff of pollutants.”
- **Reporting** – “the permittee shall report in the annual report on the status of the inventory required by this part and any subsequent updates; the status of the O&M programs... and the maintenance activities associated with each...the permittee shall keep a written record of all required activities but not limited to maintenance activities, inspections and training...”

SECTION 3 FERTILIZER USE, STORAGE, AND DISPOSAL

The Town of Rockland maintains its public spaces and parks utilizing subcontractors to periodically fertilize some Town-owned land. The list of public facilities currently maintained by the Parks Department or other departments include: Town Hall, Fire Department, Police Department, Recycling Center, Highway Department, Robert J. Nyman Rockland Senior Center, Park Department, Abington & Rockland Joint Water Department, Sewer Department, Memorial Library, Community Center, Rockland Preschool/Middle School/High School Complex, R. Stewart Esten Elementary School, Jefferson Elementary School, Memorial Park Elementary School, Hartstuff Park, Lower Oval Field, Reed Street Field, Memorial Stadium, [verify] (see attached Figure 1).

3.1 CURRENT FERTILIZER USE

The Town of Rockland currently uses fertilizers on Memorial Stadium, the softball field at Memorial Park School, Lower Oval Field, and Reed Street Field. The Town of Rockland only uses [insert fertilizer type/brand name], and typically sprays it the day of purchase. The fertilizer is applied by the Town on Memorial Stadium and the softball field; the Town of Rockland hires subcontractors to apply fertilizers to Lower Oval Field and Reed Street Field. The Town also uses [insert herbicide type/brand name] and [insert pesticide type/brand name] on all the parks that receive fertilizer.

The Town of Rockland is consistently reviewing its operation and usage of these chemicals, looking for ways to reduce the use, and to ensure that it is always applied in accordance with the manufacturer's instructions.

All fertilizer applications should conform to the requirements outlined in 330 CMR 31.00 Plant Nutrient Application Requirements for Agricultural Land and Non-Agricultural Turf and Lawns. The purpose of this regulation is to ensure that municipalities limit non-point source pollutants from entering the surface and groundwater resources of the Commonwealth as well as minimizing the impacts of nutrients on water resources to protect human health and safety. This Regulation also references the University of Massachusetts Amherst Extension Service guidelines for fertilizer applications. With regard to fertilizer applications, 330 CMR 31.00 includes the following requirements:

- Apply fertilizers and nutrients consistent with University of Massachusetts Extension Service guidelines for turf.
- Do not apply fertilizers or nutrients to surface waters, saturated soils, flooded soils, or frozen soils.
- Do not apply fertilizers within 100 feet of surface waters used for public water supplies.
- Do not apply fertilizers within a Zone I of a public Water Supply Well.
- Apply fertilizers using a broadcast method outside of 20 feet of Surface Waters.
- Apply fertilizers using a drop spreader or rotary spreader with a deflector or targeted spray within ten feet of Surface Waters.
- Do not apply fertilizers to impervious areas.
- Do not apply fertilizers for de-icing purposes.
- Do not apply fertilizers to drought dormant, cold dormant, inactive, or brown turf.

- Do not apply fertilizers containing Phosphorus unless
 - A soil test was taken within the last three years that indicates additional phosphorus is needed for growth, or
 - Phosphorous containing fertilizer is used to establish a new lawn.
- Records shall be kept for all applications of Plant Nutrients or Phosphorus Containing Fertilizer to Non-agricultural Turf and Lawns consistent with 330 CMR 31.07.

3.2 FERTILIZER STORAGE

The Town of Rockland typically applies fertilizer the day of purchase and, therefore, there is no current need to store fertilizers. Small quantities of pesticides and herbicides are stored at the Parks Department maintenance facility. The chemicals are stored [describe the shelf/cabinet or other position of storage] within [describe the room]. This room does not have a floor drain [verify].

Fertilizer storage and handling should be performed consistent with UMass Extension Service regarding Fertilizer storage and handling. Guidance can be found here:

<https://ag.umass.edu/greenhouse-floriculture/greenhouse-best-management-practices-bmp-manual/fertilizer-storage-handling>

Specifically, fertilizers should be stored as follows:

- Store fertilizers separate from other chemicals in dry conditions.
- Provide extra care to concentrate stock solutions. Secondary containment should be used for stock solutions.
- Provide pallets to keep large drums or bags off the floor. Shelves for smaller containers should have a lip to keep the containers from sliding off easily. Steel shelves are easier to clean than wood if a spill occurs.
- For storage in large bulk tanks, provide a containment area large enough to confine 125 percent of the contents of the largest bulk container.
- Keep the storage area locked and clearly labeled as a fertilizer storage area. Preventing unauthorized use of fertilizers reduces the chance of accidental spills or theft. Labels on the windows and doors of the building give firefighters information about fertilizers and other products present during an emergency response to a fire or a spill.
- Provide adequate road access for deliveries and use, and in making the storage area secure. Also make it accessible, to allow getting fertilizers and other chemicals out in a hurry.
- Never store fertilizers inside a wellhouse or a facility containing an abandoned well.
- Reseal open containers and return to storage.
- Replace and/or repair damaged containers.
- Insure there are no floor drains within fertilizer containment areas.
- Insure fire detection and alarm systems are present. Oxidizers and flammable materials should be stored separately. Fire extinguishers should be immediately available. Fire Department should be notified annually of fertilizer inventories.
- Inventories should be actively maintained.
- Lighting should be provided.

- Inspections should occur monthly for 1) signs of container corrosion or other damage (leaking or damaged containers should be repackaged as appropriate) 3) faulty ventilation, electrical, and fire suppression systems (problems should be reported and corrected).
- Storage areas should be locked.
- Signs should be posted.
- Active mechanical temperature control should be provided with no direct sources of heat.
- Mechanical ventilation should be working and used.
- Fertilizer stock tanks should be labeled with fertilizer formulation and concentration; records should be kept of fertilizer formulation, concentration, date, and location of application; records should be kept of media nutrient analyses.
- Concentrated stock should be stored near the injector in high density polyethylene or polypropylene containers with extra heavy duty walls; secondary containment should be provided.
- Sufficient planning should be made to eliminate the need for disposal; empty fertilizer containers should be discarded based on latest advice from environmental protection authorities.
- Fertilizer systems should be cleaned. Solids and rinse solution should be composted.
- Secondary containment should be used for fertilizer stock tanks routinely; spill clean-up materials should be used for liquids (e.g., absorbent materials) and solids (e.g., shovel, dust pan, broom and empty and/or buckets) should be available within the general area.
- Any fertigation equipment should be checked monthly for accuracy; containment tanks, back flow preventers and any equipment that holds fertilizer in the dry or liquid form should be inspected; stock tanks should be inspected weekly for deterioration and cracks; the manufacturer recommendations should be followed when calibrating or working on fertilizer injector equipment; stock solution tanks and the areas surrounding fertilizer injectors and concentrated solutions should be kept clean and free of debris.

3.3 FERTILIZER DISPOSAL

The Town of Rockland does not dispose of fertilizers. All fertilizers purchased are utilized.

Consistent with the UMass Extension Service's guidance on fertilizer management, sufficient planning should be made to eliminate the need for disposal. Empty fertilizer containers should be discarded based on latest advice from environmental authorities.

SECTION 4 LAWN & LANDSCAPING MAINTENANCE

The Parks Department maintains the Town of Rockland's public spaces and parks. The list of public spaces currently maintained by the Town of Rockland include: Town Hall, Fire Department, Police Department, Recycling Center, Highway Department, Council on Aging, Park Department, Water Department, Sewer Department, Sanitary Landfill, Memorial Library, Housing Authority, Youth Commission, Hartstuff Park, Lower Oval Field, Reed Street field, Rockland Preschool, R. Stewart Esten Elementary School, Jefferson Elementary School, Memorial Park Elementary School, Memorial Stadium, John W. Rogers Middle School, Rockland High School (see attached Figure 1).

4.1 CURRENT LAWN & LANDSCAPING PRACTICES

The Town of Rockland currently maintains a mowing and landscaping schedule through the Parks Department. In addition to the application of fertilizers described in Section 3.0 above, lawn and landscaping maintaining activities include: mowing, tree-trimming and landscaping. The Town performs these services, and mows all lawns weekly and mows irrigated field up to three times a week from April through November. The Town of Rockland is currently reviewing its operation schedule, looking for ways to reduce the mowing frequency. Lawn mowing should be performed consistent with UMass Extension Service recommendations as follows:

<https://ag.umass.edu/home-lawn-garden/fact-sheets/lawn-mowing>

4.2 DISPOSAL OF LAWN CLIPPINGS

The Town of Rockland mulches all lawn clippings generated by the mowed areas.

The UMass Extension Service recommends that lawn clippings should generally remain left on the lawn unless there is an excessive amount of lawn clippings due to infrequent mowing. Lawn clippings are a valuable source of nutrients and can reduce the need for fertilization. In the event that lawns are mowed when grass is wet, they may clump together and need to be removed. Lawn clippings should be managed consistent with the UMass Extension Service recommendations as follows:

<https://ag.umass.edu/home-lawn-garden/fact-sheets/lawn-mowing>

4.3 ALTERNATIVE LANDSCAPING MATERIALS

The Town of Rockland does not currently use alternative landscaping materials, but will look into the possibility of using them in future planting events. Any alternative landscape materials or practices should be coordinated with applicable guidance documents and regulations including, but not limited to:

- Massachusetts Regulations
- UMass Extension Service Guidance
- Applicable Federal Laws and Regulations
- Environmental Protection Agency Policies and Guidance documents.

SECTION 5 TRASH RECEPTACLES & PET WASTE

5.1 PUBLIC TRASH OPERATIONS

The Parks Department currently maintains the trash receptacles at the Memorial Stadium, Lower Oval Field, Reed Street Field, Hartstuff Park, [add other Town parks with trash cans]. Additionally, the Highway Department and the Parks Department jointly maintain 12 trash receptacles at Rockland's town center, along Union Street. The trash is collected and deposited into [insert where trash is deposited] weekly. Trash receptacles at fields are emptied up to three times a week, depending on usage.

The Town of Rockland is currently reviewing its operation schedule, looking for ways to increase the efficiency of trash removal.

5.2 PET WASTE

The Town has Pet Waste informational signs and waste receptacles installed at three stations along the Hanover Branch Rail Trail and would like to introduce signage to parks and open spaces. The Town of Rockland will work with Town Departments (Highway, Parks) to discuss these objectives, with the goal of installing them in the next year.

Efforts should be made to increase the number of signs installed to alert pet owners regarding the removal and disposal of pet wastes. All pet wastes should be collected by pet owners and disposed of in trash receptacles. Any signs posted should include wording that discourages pet owners from disposing of pet waste in catch basins.

SECTION 6 CATCH BASIN CLEANING PROGRAM

Traditional municipal storm drain systems were designed to quickly collect, treat, detain, infiltrate and convey stormwater runoff to receiving waters. The purpose of catch basin, inlet, and storm drain cleanings is to remove accumulated sediment which prevents blockages, flooding and reduce the release of downstream pollutants.

Fine particles and pollutants generated by stormwater run-off, atmospheric deposition, vehicle emissions, breakup of street surface materials, littering, and sanding accumulate along the curbs of roads in between rainfall events. This results in the accumulation of trash and sediment. Pollutants attach to trash and sediment including nutrients, metals, hydrocarbons, bacteria, pesticides, and toxic chemicals. Storm drain maintenance is often the first opportunity to provide pre-treatment and remove pollutants before they are conveyed through the storm drain system. Because they effectively trap these pollutants, catch basins need to be cleaned out periodically to prevent those materials from being transported by high stormwater flows into downstream stormwater best management practices and Rockland's waterways and water resources.

The catch basin maintenance schedule should begin annually after the last spring snowfall. Inspection should include the condition of the inlet structure grate, brick or concrete risers, oil hoods and inlet and outlet pipes. As applicable, each stormwater inlet should include a public awareness message (e.g. "drains to pond" or "only rain in this drain") stenciled or otherwise marked near the drain. Catch basins with illegible or missing labels should be noted on the inspection report and be re-labeled before the next scheduled inspection. Damage or deterioration threatening the structural integrity of any component, conveyance, or facility should be repaired as soon as possible but no longer than before the next scheduled inspection. The Massachusetts Department of Environmental Protection Stormwater Management Standards recommend cleaning catch basins four times per year, including at the end of the snow removal and foliage removal seasons.

6.1 EXISTING CATCH BASIN CLEANING PROGRAM

The Town of Rockland with the assistance of a subcontractor currently runs its catch basin cleaning program once per year, visiting all of its catch basins annually, typically in early spring. The Town performs the catch basin cleanings using a Stetco crane truck with claw removal system. The subcontractors utilize a vacuum/jet truck. Historically, Rockland has had issues with sediment and debris build-up in their catch basin structures along the north side of Manzella Court, the south side of Nevens Circle, and near 392 Forest Street. Thus, these areas receive more frequent cleanings to help relieve flooding issues. The Town of Rockland has had no flooding issues in other parts of Town and has not allowed sediment to build up in their catch basins beyond 50% full. This is primarily due to Rockland's mandate that all Town catch basins are cleaned regularly. Also, the Town cleans out manhole structures that have historic sediment buildup.

6.2 CATCH BASIN MAPPING AND INSPECTIONS

There are 1,833 catch basins throughout the Town of Rockland that have been previously mapped in the MS4 area (2000 + 2010 Census) in Geographic Information System (GIS) format using historic aerial flyover data, handheld GPS units, and employee knowledge. A Town-wide mapbook has been

prepared showing unique catch basin identifiers (e.g. CB-1001) to aid in accurately recording and cataloging data from field inspections. The mapbook is included with this report as Attachment 1 (stand-alone 11x17 set of maps). Additionally, catch basin locations are shown in the stormwater infrastructure map attached in Appendix G.

In the event that there are additional catch basin structures visited in the field that have not been mapped, the field crew will sketch in the approximate location, and label with a temporary ID for future entry into the system. This will allow the field crew to generate a historic record in the logging system for the new structures characteristics. The locations of the new catch basin structures will be captured in the future using a hand-held GPS unit.

During the catch basin cleaning program, the field crew will utilize the mapbook and a field inspection form in order to create a historic log for each structure. Items to be noted will include: condition of the grate cover, volume of sediment accumulated in the structure, date inspected/cleaned, marking paint condition, etc. The inspection form template for the catch basins is attached as Appendix B.

6.3 CATCH BASIN STRUCTURE PRIORITY RANKING

This section of the O&M Plan is to be used to focus on areas that typically found to generate high levels of sediment or, if the Town decides, to reduce the scope of their annual catch basin cleaning program (i.e., not cleaning every catch basin every year).

In the event that catch basin cleaning's are prioritized, using the data collected during the field inspection program, the Town stormwater catch basins will be assigned a priority maintenance schedule according to the following criteria:

- Priority A – Catch basins that are designated as consistently generating the highest volumes of trash, sediment and/or debris. These catch basins are typically located near construction activities. Any catch basins that are more than 50 percent full during two consecutive inspections and cleanings should receive top priority. Catch basins that are located in a high priority watershed or watershed discharging to an impaired water or water that has an established Total Maximum Daily Load should also be inspected more often.
- Priority B – Catch basins that are designated as consistently generating moderate volumes of trash, sediment and/or debris. These catch basins will consistently show sediment loads in the catch basin sumps but the depths of sediment may not reach 50 percent of the sump depth.
- Priority C – Catch basins that are designated as generating low volumes of trash, sediment and/or debris. These catch basins may not include any sediment on a consistent basis.

The future inspection/cleaning schedule assignments would be as follows:

BMP	Activity	Frequency
Catch Basin	Inspection / Cleaning	Priority A – Inspect four times/year. Clean when sediment reaches 50% of sump depth. Priority B – Inspect minimum of one time per year. Clean when sediment reaches 50% of sump depth. Priority C – Inspect minimum of one time/year

The Massachusetts Department of Environmental Protection Stormwater Management Standards recommend that catch basins be inspected four times per year or whenever the depths of sediment within the catch basin sump equals $\frac{1}{2}$ the depth from the bottom of the sump to the catch basin invert. Newer catch basins that were installed consistent with MA DEP Stormwater Management Standards have typically included a four foot deep sump. Catch basins that were installed prior to the promulgation of these Standards, or did not meet the standards, may have been installed with a smaller sump depth, or possibly no sump at all.

Catch basin are to be cleaned when accumulated sediments and debris either by mechanical methods when its depth is equal to or greater than $\frac{1}{2}$ the depth from the bottom of the basin to the invert of the outlet pipe. If a hydrocarbon sheen is noted on the surface of the water in the basin it shall be removed using absorbent pads; these pads will be allowed to dry prior to disposal in a solid waste dumpster pursuant to DEP's "1-drip" policy.

The materials removed from the catch basin shall not re-enter the stormwater system. Non-hazardous sediments are to be disposed of at an approved solid waste landfill and used as daily cover in accordance with Massachusetts DEP policy and regulations. In cases where an inspection reveals sediments with abnormal, non-natural discoloration or detects strong petroleum and/or chemical odors, the crew performing the catch basin cleanings should notify the Town of Rockland Fire Department for proper handling of hazardous materials. Also, a Licensed Site Professional (LSP) registered in the State of Massachusetts pursuant to MGL c.21A, §§ 19 through 19J shall be responsible for managing the disposal of such material in accordance with 310 CMR 40.0000 the Massachusetts Contingency Plan. Refer to Section 7.0 for proper catch basin cleaning material storage protocol.

The MS4 permit requires that logs be kept documenting the number of catch basins cleaned and inspected each year. The number of catch basins inspected, cleaned, and the total mass of material removed from each catch basin shall be reported each year.

SECTION 7 STREET SWEEPING PROGRAM

Street and parking lot sweeping is a practice that municipalities may have traditionally conducted for aesthetic purposes. However, the water quality benefits are widely recognized and street and parking lot sweeping is identified in the Massachusetts Department of Environmental Protection Stormwater Management Standards as a pretreatment strategy for removing solids, as well as the pollutants that become attached to sediment.

A number of factors impact the effectiveness of a street sweeping program. The first factor is the type of equipment used. When standard mechanical sweeping equipment needs to be replaced, high-performance sweepers are purchased preferentially. Street sweeping has traditionally been more effective at removing large-sized particles, but new equipment has been developed to remove smaller, fine-grained particles. Mechanical sweepers (broom-type) are usually the least expensive and are better suited to pick up large-grained sediment. Vacuum and regenerative air sweepers are better at removing fine-grained articles, but they are more expensive. Removal efficiency can be improved through tandem sweeping (i.e. two sweepers sweeping the same route, with one following the other to pick up missed material), or if the street sweeper makes multiple passes on a street. Vacuum sweepers are also best suited for cleaning pervious pavements.

The second factor influencing street sweeping effectiveness is the way in which the equipment is operated. The equipment must be operated according to the manufacturers' operating instructions by operators who have been properly trained to sweep in order to protect water quality.

The third determining factor is the degree to which parked cars or similar blockages can impede a sweeper's access to the curb.

The frequency of street sweeping is also a significant factor in removing sediments and other pollutants from municipal streets. The MS4 permit requires streets to be swept once per year in the spring following winter activities such as sanding.

7.1 EXISTING STREET SWEEPING PROGRAM

The Town of Rockland currently runs their street sweeping program once per year, sweeping 65 miles of roads annually in early spring. Additionally, main roads are swept weekly from spring to fall. The department currently utilizes work orders to track the date, number of loads taken, start/end times, names of streets swept, etc.

7.2 STREET SWEEPING PRIORITY RANKING

The permittee shall sweep and/or clean streets, and permittee-owned parking lots a minimum of once per year. All streets with the exception of high speed limited access highways should be swept and/or cleaned a minimum of once per year in the spring (following winter activities such as sanding). More frequent sweeping shall occur in targeted areas including streets and parking lots that consistently experience higher pollutant loads based on catch basin inspections and cleanings, proximity to constructions sites, and areas that discharge to water bodies with impairments or have

a Total Maximum Daily Load. The procedures shall also include more frequent sweeping of targeted areas (See Appendix A and Figure 2) determined by the permittee on the basis of following factors: (a) pollutant load reduction potential, (b) pollutant loads, (c) catch basin cleaning or inspection results, (d) land use, (e) proximity to impaired/TMDL waters or other relevant factors as determined by the Town. These targeted areas are shown in Figure 2. The permittee shall report in each annual report the number of miles cleaned and the volume or mass of material removed.

For uncurbed, limited access highways, the permittee shall either meet the minimum frequencies above, or develop and implement an inspection, documentation and targeted sweeping plan within one year of the effective date of the permit, and submit such plan with its year one annual report.

This schedule applies only to streets and municipal parking lots with curb/gutter construction. Other municipal roadways and parking lots will be prioritized according to the previous schedule and will include trash and litter control as well as hand sweeping and collection. Sweepings collected during sweeping activities are currently stockpiled at the Town-owned yard located behind the Recycling Center and are used by the Town as fill after mixing it with reclaimed material. A Town-wide GIS map will be drafted to display the designated priority zones to aid the Town to prioritize street sweeping and planning for future activities. Refer to Section 9.1 for proper street sweeping material storage protocol.

SECTION 8 BMP MAINTENANCE

An essential component of an effective municipal stormwater system is the ongoing operation and maintenance of the various components of the stormwater drainage and conveyance systems. Failure to provide effective maintenance of stormwater management systems can reduce the hydraulic capacity, the pollutant removal efficiency, and infiltration capacity of stormwater practices. Stormwater management system Operation and Maintenance Programs should address operation and maintenance concerns proactively instead of reacting to problems that occur such as flooding or water quality degradation associated with erosion, clogging or outright failure of one or more of the system components. Proactively inspecting facilities and addressing concerns provides some consistency in workflow and helps to avoid emergency situations. Inspection form templates for stormwater BMPs are attached as Appendix C.

There are two key components to adequately maintaining stormwater management infrastructure:

- Regularly scheduled inspections, and
- Regular maintenance.

8.1 PROPRIETARY SUBSURFACE SEPARATORS

Proprietary Subsurface Separators have a greater ability to trap and contain stormwater-borne pollutants than standard catch basins. They are fitted with baffles and chambers that create a hydrodynamic separation of floatable and non-floatable particles. The Town of Rockland has subsurface separators within its MS4 System at the Parks Department, Water Department, and Fire Department.

Proprietary Subsurface Separators under operational control of the Town will be maintained consistent with manufacturers operations and maintenance guidelines. Typically, these units need to be inspected a minimum of once per year. For units that are installed in high sediment areas, these units may need to be inspected more frequently.

Inspection of proprietary subsurface separators will include inspecting the operational condition of any baffles and filters contained within the structure. The depth of sediment collected in the separator will also be measured. All floatable trash will be removed from the separator during each inspection. If a hydrocarbon sheen is noted on the surface of the water in the separator it shall be removed using absorbent pads; these pads will be allowed to dry prior to disposal in a solid waste dumpster pursuant to DEP's "1-drip" policy. If the accumulated sediment is within 18 inches of the outlet elevation, it will be removed by vacuum or mechanical means. Disposal of all collected sediments will conform to the procedures described herein for disposal of sediments collected from municipal catch basins. The SOP for oil/water separator maintenance is attached in Appendix E.

8.2 STORMWATER BASINS

Stormwater basins are designed differently depending on site conditions and each project's approach to stormwater management. Stormwater basins can be further described to include the following types of stormwater basins that are more commonly designed and constructed:

- Extended Detention basins
- Infiltration Basins
- Wet Basins
- Bioretention Basins/Rain Gardens
- Sediment Forebays

Each specific type of basin has distinct operations and maintenance requirements as outlined in the Operations and Maintenance plan that was developed as part of each project's design and approval process. Below are operation and maintenance requirements that are specific to each type of stormwater basin as described in Massachusetts Stormwater Management Standards.

Extended Dry Detention Basins

- Inspect biannually
- Inspect outlet control structure for clogging, etc., twice per year
- Check for erosion, twice per year
- Check for sedimentation, annually
- Mow basin bottom, side slopes, spillway, twice per year
- Remove trash, twice per year

Infiltration Basins

- Inspection and perform preventive maintenance, minimum twice per year
- Inspect pretreatment BMP, as required by each BMP and after major storm events for first six months
- Inspect after major storms for first six months, check drawdown times
- Address ponding immediately
- Inspect twice per year for
 - o Differential settlement
 - o Cracking
 - o Erosion
 - o Leakage in embankments
 - o Tree growth on embankments
 - o Condition of rip-rap
 - o Sediment accumulation (when bottom is dry)
 - o Health of turf
- Mow side slopes and basin bottom, twice per year
- Remove trash and debris, twice per year
- When removing sediment, wait until bottom is dry, till remaining soil, revegetate
- Inspect and clean pretreatment devices minimum twice per year or more

Wet Basins

- Inspect annually
- Inspect outlet control structure for clogging, etc., twice per year
- Check for erosion, tree growth, etc., twice per year
- Mow dry/upper stages, twice per year
- Remove trash, sediment, twice per year

Bioretention Basins/Rain Gardens

- Inspect for soil erosion, monthly
- Inspect and remove trash monthly
- Inspect for invasive species/weeds, monthly
- Replace mulch, annually in the spring
- Remove dead vegetation, annually in either the fall or spring
- Replace dead vegetation, annually in either the fall or spring
- Prune, annually in either the fall or spring
- Replace soil media and all vegetation, as needed in either

Sediment Forebays

- Inspect monthly
- Clean minimum of four times per year
- Mow twice per year or when grass exceeds 6 inches in height
- Replace rip-rap pads, when necessary

The Town is currently developing an inventory of its stormwater basins within its MS4 and will be mapping them in GIS this year.

8.3 WATER QUALITY SWALES

Water Quality Swales under operational control by the Town should be maintained consistent with the Massachusetts Stormwater Management Standards or the Operations and Maintenance manual as approved as part of the projects design and approval.

The maintenance objective for water quality swales includes preserving the hydraulic and removal efficiency of the channel and maintaining a dense, healthy vegetative cover to encourage sediment removal and – where appropriate – stormwater infiltration. The following operations and maintenance activities are recommended for Water Quality Swales consistent with the Massachusetts Stormwater Management Standards:

- Inspect twice per year
- Mow annually, or if vegetation exceeds 6 inches
- Remove Sediment/Trash, Minimum once per year
- Reseed eroded areas, as needed

Every five years, scraping of the channel bottom and removal of sediment to restore original cross section and infiltration rate, and seeding to restore ground cover is recommended.

Dry swales should be inspected on an annual basis and after storms of greater than or equal to the 1-year precipitation event. Both the structural and vegetative components should be inspected and repaired if needed. Trash and debris should be removed and properly disposed of.

Wet swales should be inspected annually and after storms of greater than or equal to the 1-year precipitation event. During inspection, the structural components of the system, including trash racks, valves, pipes, and spillway structures should be checked for proper function. Any clogged openings should be cleaned out and repairs should be made where necessary. Sediment should be removed from the bottom of the swale.

8.4 DRY WELLS

Dry wells are structures that collect stormwater generated by either roof tops or paved surfaces and infiltrate stormwater into the ground. Dry wells vary in size and depth, but are typically either four, six or eight feet in diameter and have varying depths depending on ground water elevations. Dry wells typically have open bottoms and include perforations in concrete that allows water to leach out of the bottom and sides of the structures. The structures are typically surrounded by one to two feet of 3/4 to 1-1/2 inch stone around the sides and bottom of the dry well. When these facilities collect and infiltrate stormwater from surface runoff, pretreatment of stormwater is critical to insure that sediments are removed prior to discharge to the structure.

Maintenance of dry wells should include the following consistent with the Massachusetts Stormwater Management Standards:

- Inspect annually to insure that there has been no sediment build-up that could impact the functionality of the dry well
- Remove sediment in the dry well when it reaches 50% capacity
- Replace the structure and or stone when the system fails to infiltrate effectively

8.5 OTHER STORMWATER BEST MANAGEMENT PRACTICES

The Stormwater Best Management Practices (BMP) described above are typically designed and constructed for projects where it is intended that the local municipality will assume Operations and Maintenance activities. There are numerous other stormwater Best Management Practices that are described within the Massachusetts Stormwater Standards. Operations and Maintenance activities related to these additional Best Management Practices should be conducted as outlined in the Standards, as well as in the Operations and Maintenance Plans developed and approved by local regulatory boards for each approved BMP. Additional stormwater BMP's that could be Operated and Maintained by municipalities include:

- Gravel Wetlands
- Constructed Wetlands
- Vegetated Filter Strips

- Sand and Organic Filters
- Infiltration Trenches
- Leaching Fields
- Porous Pavements
- Rain Barrels and Cisterns

SECTION 9 STREET SWEEPING & CATCH BASIN CLEANINGS

This section describes the disposal of the Town of Rockland's Street Sweeping and Catch Basin Cleanings materials. Rockland has traditionally disposed of catch basin cleanings and street sweepings at a Town-owned yard located behind the Recycling Center (see Figure 3). The procedures required for properly managing these materials are further described below and in the SOP's attached as Appendix E. Also, a street and parking lot sweeping log is attached in Appendix H.

9.1 STREET SWEEPINGS

The Town's street sweeping operations are mainly conducted once a year in the spring, with main roads being swept weekly from spring to fall. The street sweepings are subsequently brought back to the Town-owned yard behind the Recycling Center to the designated street sweeping stockpile area (Figure 3) and are currently being stored there for eventual mixing with reclaimed material and reuse as fill material. The annual amount generated is approximately 40-60 tons.

Street sweepings need to be disposed of consistent with the Massachusetts Department of Environmental Protection policy entitled "Reuse and Disposal of Street Sweepings, Department of Environmental Protection Policy # BAW-18-001," dated 5/14/18. They must also be managed under MassDEP Policy #COMM-97-001 "Reuse and Disposal of Contaminated Soil at Massachusetts Landfills."

Street sweepings can be stored prior to use under the following conditions:

- Storage must be at a site where the sweepings are generated.
- Storage must be at a location, such as the Highway Department yard, that is under control of the government entity doing the sweeping.
- Must be protected from wind and rain to prevent dust, erosion, and off-site migration.
- Cannot be stored within 100 feet of a wetland or within a wetlands resource area or riverfront area.
- Cannot be stored within 500 feet of a ground or drinking water supply.
- Cannot result in a public nuisance.
- Must be temporary and will be used within one year of collection.

Street sweepings are considered "solid waste" and are therefore subject to the Massachusetts solid waste regulations. Street sweepings have been preapproved to be used for the following uses without Prior Approval from MassDEP:

- Daily cover at permitted lined solid waste landfills provided they meet the daily cover materials specified at 310 19.130(15).
- Use as Fill in Public or Private Ways and Parking Lots with some restrictions and conditions.
- Use as an Additive to Restricted Use Compost with some restrictions and conditions.
- Reuse as Anti-Skid Material with some restrictions and conditions.

- Reuse at Landfills Regulated under MassDEP Policy #COMM-97-001 with some restrictions and conditions.
- Use at Reclamation Soil Facilities Regulated Under MassDEP Policy #COMM-15-01.
- Street sweepings may also be used as a bulking agent for wastewater sludge or septage disposal granted prior approval is received from MassDEP.

9.2 CATCH BASIN CLEANINGS

The Municipality's catch basin cleaning operations are conducted once a year in the spring [\[verify\]](#). The cleanings are subsequently brought back to the Town-owned yard behind the Recycling Center at the catch basin cleanings stockpile area located (Figure 3). The annual amount generated is approximately 40-60 tons.

Figure 3 also shows the location of the catch basin cleanings storage area and the proximity to localized wetlands and waterbodies surrounding the storage area; unnamed wetlands are adjacent to the storage area, but due to site topography and the distance present, there is no direct route to discharge these materials to receiving waters.

Catch basin cleanings collected by the Town need to be disposed of consistent with the Massachusetts Department of Environmental Protection policies regarding "Management of Catch Basin Cleanings." Materials removed from catch basins are typically defined as solid waste by the Massachusetts Department of Environmental Protection. Any catch basin cleanings that have been contaminated by a spill, or are suspected of contamination need to be disposed of in accordance with the 310 CMR 30,000 Hazardous Waste Regulations. Any materials that contain liquids are prohibited from being disposed of at landfills. Dry materials can be disposed of at landfills, and may be approved for use as grading and shaping materials at landfills.

SECTION 10 WINTER ROAD MAINTENANCE

Winter Road Maintenance includes the management of equipment and facilities needed to maintain roads for safe travel as well as the application of anti-icing and de-icing materials. Municipalities are required to ensure roads are as safe as possible. Because of this, the tendency to think that “more sand/salt is better” can be difficult to overcome. Several studies have shown that by using new techniques, equipment, and chemicals, roads can actually be safer with less salt use. MassDOT typically treats road using both anti-icing and de-icing strategies. Anti-icing involve applying a liquid solution to roads before a storm that prevents snow and ice from binding to the pavement. De-icing is performed during and after storms to remove ice and snow through plowing and applying additional materials to the surface of the roads. MassDOT typically uses 5 different materials to treat roads for snow and ice as follows:

- Rock salt
- Liquid Magnesium Chloride
- Liquid Brine
- Sand
- Pre-mix (rock salt and calcium chloride)

Winter maintenance teams can benefit from the following practices:

1. Use the Right Material. Stop using sand, except for low-speed intersections, curves and hills. Use a chemical that is effective at current road surface temperatures. Consider using alternate chemicals on bridges and in source water protection areas.
2. Use the Right Amount. The number one factor in applying salt is the surface temperature. Warmer roads need less salt. Consider purchasing inexpensive infrared thermometers for spreading trucks.
3. Apply at the Right Place. Put salt down where it will do most good. Hills, curves/corners, shaded sections of road, bridges, etc., need special attention. A section of road with surface temp below 10°F will not benefit from rock salt. Use another chemical instead. Designate sensitive areas as low or no salt zones.
4. Apply at the Right Time. Apply as early as possible! Obtain and use the most up-to-date weather forecasts. Do not wait until snow is falling to get started. It takes much more salt to melt accumulated snow than it does to prevent accumulation. Factor in expected traffic, approaching day/night change in temperatures, etc. Brine can be applied very early, forming a bond with the road that can be effective for days in the right conditions.

10.1 SAND USE

The Town of Rockland applies salt to three quarters of Town roads and a 50% salt and 50% sand mixture to the other one quarter of Town roads. Municipalities should avoid using sand to the greatest extent practicable as it can clog storm drains and other stormwater management systems

elements. In the event the stormwater management system is not maintained properly and unable to capture sand, sand could possibly be discharges to water and wetland resources.

10.2 DEICING CHEMICAL USE

The Town uses salt and calcium chloride.

De-icing and anti-icing strategies should be used in lieu of sand when appropriate.

10.3 STORAGE OF SAND AND DEICING CHEMICALS

The Town stores salt in a covered shed at the Highway Department. Sand is also stored at the Highway Department with cement berms around three sides of the stockpile. Calcium chloride deicing material is stored in bags within the salt shed.

Improper storage techniques can cause some of the most severe environmental damage from winter maintenance materials because they can result in highly concentrated runoff. Salt can cause serious environmental issues. Sand is typically mixed with salt, sand piles should also be included in a proper storage program.

Deicing chemicals (i.e. salt, calcium chloride, etc.) shall be stored in storage sheds or tanks in a manner that minimizes the potential for runoff. All deicing chemicals shall be covered when not in use. Sand piles shall be bermed to minimize runoff. During handling, sand and salt which fall outside of the storage areas will be swept back to the storage areas within 48 hours of the activity, to minimize runoff.

A properly stored salt/sand pile is:

- Located on a flat site
- Located away from source water protection areas, floodplains and wetlands
- Sited on an impermeable (paved) pad, with a drain that directs runoff to proper treatment
- Covered with a roof and walls on at least 3 sides

During regular inspections, the sand and deicing chemical storage areas shall be inspected by the Highway Superintendent to ensure that runoff is minimized. All findings during an inspection shall be sent to the Highway Department.

Figure 4 shows the location of the sand and salt storage areas and the proximity to localized wetlands and waterbodies surrounding the storage area.

Mass DEP Guideline DWSG97-1 pertaining to storage of road salt and other chemical deicing agents became effective December 19, 1997. Uncovered storage of salt is forbidden by Massachusetts General Law Chapter 85, section 7A in areas that would threaten water supplies. 310 CMR 22.21(2)(b) restricts deicing chemical storage within wellhead protection areas, such as Zone I and Zone II, for public water supply wells, unless storage is within a structure designed to prevent the leaching or runoff of salt. 310 CMR 22.20C prohibits uncovered or uncontained storage of road or parking lot de-icing and sanding materials within Zone A at reservoirs.

10.4 SNOW DISPOSAL ACTIVITIES

The Town disposes of snow at Hartstuff Park on Hingham Street (Figure 5). [Insert any relevant additional details]

The Massachusetts Department of Environmental Protection Bureau of Water Resources Snow Disposal Guidance, effective December 23, 2019 provides guidance on snow disposal activities. These guidelines provide the following criteria for selection of snow disposal sites including:

- Locating them adjacent to or on pervious surfaces in upland areas.
- Locating sites away from water resources and drinking water wells.
- Avoid storage of disposal of snow and ice containing deicing chemicals in Zone A and Zone II of a drinking water supply.
- Avoid storage and disposal of snow or ice within an Interim Wellhead Protection Area (IWPA) of public water supply wells and within 75 feet of private wells.
- Avoid dumping snow into any waterbody, including rivers, the ocean, reservoirs, ponds, or Wetlands.
- Avoid dumping snow on MassDEP designated high and medium yield aquifers.
- Avoid dumping snow in sanitary landfills and gravel pits.
- Avoid disposing of snow on top of storm drain catch basins or in stormwater drainage systems including detention basins, swales, or ditches.

With regard to Site Preparation and Maintenance, MassDEP provides the following standards for snow disposal sites:

- Install a silt fence or barrier on the down-gradient side of snow disposal sites.
- Maintain a minimum 50 foot vegetated buffer between the disposal site and adjacent waterbodies.
- Clear debris from the site prior to using the sit for snow removal.
- Clear debris from the site and properly dispose of it at the end of snow season, and no later than May 15.

With regard to snow disposal site approvals, MassDEP provides the following guidance:

- No review needed for previously used and mapped upland and pervious snow disposal locations.
- In cases where there is no snow disposal capacity, local Conservation Commissions may provide Emergency Certification under the Wetlands Protection Act to authorize snow disposal in buffer zones to wetlands, open water areas, and resource areas. Emergency authorizations should utilize the following guidelines:
 - o Dispose of snow in open water with adequate flow and mixing to prevent ice dams from forming.
 - o Do not dispose of snow in salt marshes, vegetated wetlands, certified vernal pools, shellfish beds, mudflats, drinking water reservoirs and their tributaries, Zone IIs or IWPA's of public water supply wells, Outstanding Resource Waters, or Areas of Critical Environmental Concern.

- o Do not dispose of snow where trucks may cause shoreline damage or erosion.
- o Consult with the municipal Conservation Commission to ensure that snow disposal in open water complies with local ordinances and bylaws.

SECTION 11 VEHICLES AND EQUIPMENT

Regular maintenance of both municipal and contracted vehicles and heavy equipment prolongs the life of municipal assets and helps reduce the potential for leaking of fluids associated with normal wear and tear. Leakage of fluids from vehicles can drain towards stormwater management facilities and ultimately towards water bodies and wetland resources. Therefore, it is important from both an operational and stormwater management perspective that municipalities maintain their vehicles and equipment properly. With regards to the maintenance of vehicles and equipment, municipalities should conduct the following activities to insure their vehicles and other equipment are maintained in good working order.

11.1 VEHICLE AND EQUIPMENT MAINTENANCE

Vehicle and equipment maintenance is performed at the Rockland Highway Garage. All vehicle and equipment maintenance should be performed consistent with the Guidelines below.

- Create an inventory of all vehicles and equipment that are used on a regular basis.
- Maintain and update the inventory of vehicles and equipment.
- Monitor vehicles and equipment for leaks.
- In instances where machinery have leaks, repair machinery as soon as possible.
- Dispose of and/or recycle all fluids consistent with state and federal regulations. Do not dump fluids outside or into stormwater management facilities
- Perform regular maintenance consistent with equipment manufacturer's recommendations.
- Perform all repairs and maintenance, including regular maintenance (i.e. oil changes. etc,) and painting, indoors.
- Insure that all drains within indoor facilities are not connected to stormwater management systems.
- Dispose of all waste materials and fluids consistent with local, state, and federal regulations.
- Insure that all fueling areas are covered,
- Insure that fueling areas should drain to an oil/gas separator or preferably fuel containment area.
- Store any waste materials under protection from outdoor elements and include secondary containment.
- Store all fluids in designated storage containers and areas. Insure these containers are located within buildings.
- Store and recycle batteries indoors,
- Insure that storage areas do not have floor drains. In the event that they do have floor drains, insure that they do not discharge to the municipal drain system or to wetland resource areas.
- Insure that all hazardous wastes are labelled and stored according to local, state, and federal regulations.
- Insure that any hazardous wastes are disposed of in accordance with local, state, and federal regulations.

- Perform all cleaning of parts indoors. Insure that all solvents are collected and recycled.

11.2 VEHICLE AND EQUIPMENT WASHING

Vehicle and equipment washing is performed at the Rockland Highway Garage. All vehicle and equipment washing should be performed consistent with the Guidelines below.

- All vehicles should be washed in a designated area.
- If possible, wash vehicles and equipment indoors. Indoor facilities should not have floor drains that are connected to the municipal stormwater management system or discharge to wetlands or water resources. Floor drains should be connected to either the sanitary sewage system, a recycled water system, or a tight tank.
- All wash water from vehicle washing should be collected by a recycling unit or tight tank.
- Do not discharge vehicle wash water to wetland resource areas or municipal drain systems.
- Use biodegradable or phosphate free detergents.
- Do not discharge any wash water to groundwater resource areas or wellhead protection areas.
- Maintain drip kits in wash areas.
- Provide separate wash and maintenance areas if possible.
- Remove any heavy debris, dirt, mud, etc from vehicles separate from designated wash areas. Remove heavy debris, dirt, mud, etc. and dispose of properly.
- Wash engines or other motorized parts with a high incidence of fluids indoors. Contain any drips and spills to maximum extent practicable.
- Avoid using solvents and heavy detergents to the maximum extent practicable.

11.3 EMPLOYEE TRAINING

Regular employee training should be provided for all staff performing regular vehicle maintenance and/or equipment cleaning. Providing regular training a minimum of one time per year is recommended.

SECTION 12 FACILITY AUDIT

Facility audits should be performed consistent with the requirements of Section 2.3.7.a.ii of the MS4 Permit. Audits should be performed for municipal buildings and facilities including:

- Schools
- Town-owned offices
- Police and Fire Stations
- Municipal pools
- Parking garages
- Parks and open spaces
- Vehicle storage areas

Facilities in the Town of Rockland to be audited include, but are not limited to, Rockland Public Schools, Town Hall, Police Department, Fire Department, Community Center, Robert J. Norman Rockland Senior Center, Highway Department, Park Department, Water Department, Sewer Department, Recycling Center, Memorial Library, Community Center, Millbrook Park, Rockland Ice Rink, and Mark Bavis Arena.

The facility audits should include observations and evaluations, including:

- The storage, proper use, and disposal of pesticides, herbicides, and fertilizers
- Lawn maintenance and landscaping activities including
 - o Mowing frequencies
 - o Disposal of lawn clippings
 - o Alternative landscaping techniques (drought resistant plantings)
 - o Pet waste handling including collection, disposal, and signage
- Waterfowl management (if applicable)
- Trash management
- Erosion and sedimentation
- Storage, use, and disposal of petroleum products
- Spill management
- Dumpster and waste management
- Parking lot sweeping
- Vehicle storage
- Fuel storage
- Vehicle wash areas

Each facility audit should include an interview with the person in charge of managing and operating each facility. Results of the audit should be well documented – including photographs and submitted to the site manager. Any observed deficiencies should be noted. Facility audit findings and recommendations from June 2020 are attached in Appendix F.

SECTION 13 REPORTING AND RECORDKEEPING

The tracking and documentation of MS4 Maintenance and Operations is a required part of the permit program. All inspection forms will be recorded and stored at the Highway Department Administration Office to ensure that the proper documentation is maintained and reported on the annual reports and that the relevant data is added to the Town's management database.

[Insert description of how Client currently maintains records – paper copies or digitally]

SECTION 14 TRAINING

This component of the O&M Plan establishes the procedures for identifying, planning, delivering and tracking training. The training is provided to operations and maintenance staff as necessary to maintain knowledge and skills that help ensure that they understand their roles and responsibilities and can adequately perform their duties as they relate to supporting the standard operating procedures outlined in this O&M Plan. Training is provided to employees through three basic means: 1) Annual Environmental Awareness Training; 2) Right-to-Know Training; 3) Regulatory Specific Training (e.g., Stage II vapor recovery equipment inspections).

The Highway Superintendent is responsible for identifying the personnel that require training based upon job duties and how those duties relate to environmental compliance. All inspectors of stormwater management facilities should have some knowledge or experience with stormwater systems. If possible, trained stormwater engineers should, however, direct them. Inspections by registered engineers should be performed where routine inspection has revealed a question of structural or hydraulic integrity affecting public safety.

14.1 TRAINING LEAD

For those staff responsible for implementing the O&M program, the job training will be managed by the Highway Superintendent. He/she will manage and assign training as described below.

The Town of Rockland shall, at a minimum, annually train all Highway Department employees or other employees involved in the implementation of the O&M program about the program. The Town shall report on the frequency and type of employee training in the annual report.

14.2 TRAINING PLAN

Training will be assigned to those individuals specifically involved in the O&M procedures.

Note that the Town of Rockland may elect to retain consultants for development of the O&M structure database, and associated mapping tasks. Preliminary training activities and identification of those to receive training are listed in the following table:

Training Topic	Attendees	Frequency	Description
Proper handling of hazardous materials	Town staff who handle potential stormwater pollutants	Min. once per year	As described in Section 2.3.7.a.ii.2 of the Permit, this training will cover the proper use, storage, and disposal of petroleum products and other potential stormwater pollutants.
Proper handling and disposal of catch basin cleanings and street sweepings	Town staff who handle catch basin cleanings and street sweepings	Min. once per year	As described in Section 2.3.7.a.iii.4 of the Permit, this training will cover proper handling and disposal of catch basin cleanings and street sweepings.
Proper inspection and maintenance	Town staff who inspect and maintain	Min. once per year	As described in Section 2.3.7.a.iii.6 of the Permit, this training will cover proper

Training Topic	Attendees	Frequency	Description
of stormwater Best Management Practices	stormwater Best Management Practices		inspection and maintenance of stormwater Best Management Practices.

SECTION 15 MEASUREMENT OF SUCCESS

The success of the O&M program will be measured by each of the elements outlined in the previous sections. Specifically, the following benchmarks will be used:

- Number of Catch Basins inspected and cleaned annually
- Volume of material removed from catch basins
- Number of street miles of street sweepings conducted annually
- Number of municipally owned parking lots swept annually
- Amount of material removed from streets adjacent to sensitive waters
- Number of stormwater Best Management Practices inspected and maintained
- Number of Outfalls repaired
- Training: Number of Employees trained

SECTION 16 REFERENCES

Environmental Protection Agency, General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts, July 2018.

Massachusetts Department of Environmental Protection, Massachusetts Stormwater Handbook, February 2008.

330 CMR 31.00 Plant Nutrient Application Requirements for Agricultural Land and Non-Agricultural Turf and Lawns.

UMass Extension Service Resources/Websites

<https://ag.umass.edu/greenhouse-floriculture/greenhouse-best-management-practices-bmp-manual/fertilizer-storage-handling>

<https://ag.umass.edu/home-lawn-garden/fact-sheets/lawn-mowing>

Massachusetts Department of Environmental Protection policy entitled "Reuse and Disposal of Street Sweepings, Department of Environmental Protection Policy # BAW-18-001," dated 5/14/18.

Mass DEP Guidelines on Road Salt Storage DWSG97-1, effective December 19, 1997;

The Massachusetts Department of Environmental Protection Bureau of Water Resources Snow Disposal Guidance, effective December 23, 2019

Rhode Island Department of Environmental Management and Coastal Resources Management Council, Rhode Island Stormwater Design and Installation Standards Manual; December 2010.

FIGURE 1

Parks and Open Space Maintenance

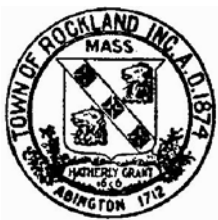
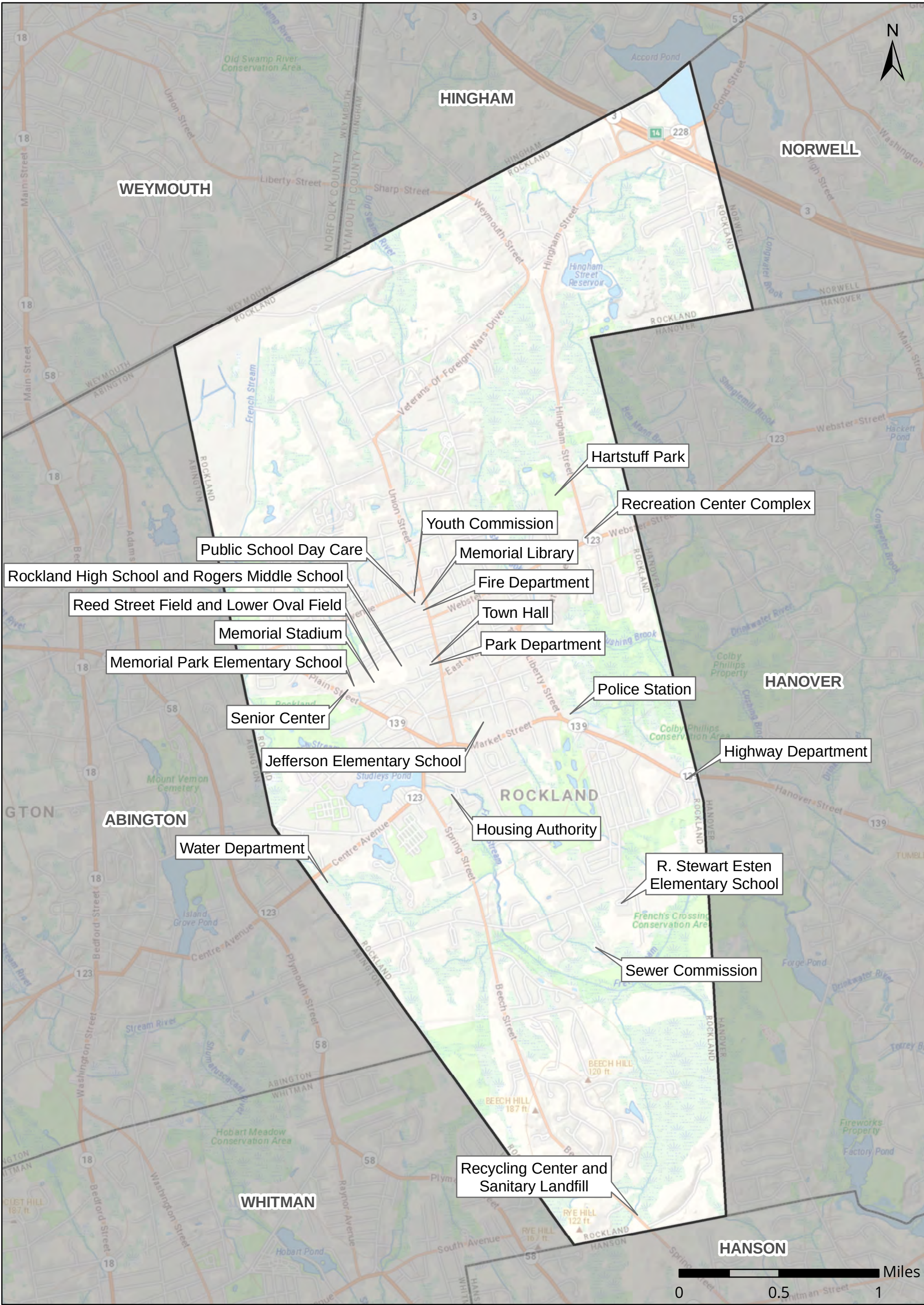


Figure 1. Parks & Open Space Maintenance
Rockland, Massachusetts
June 2020



FIGURE 2

Street Sweeping Prioritization

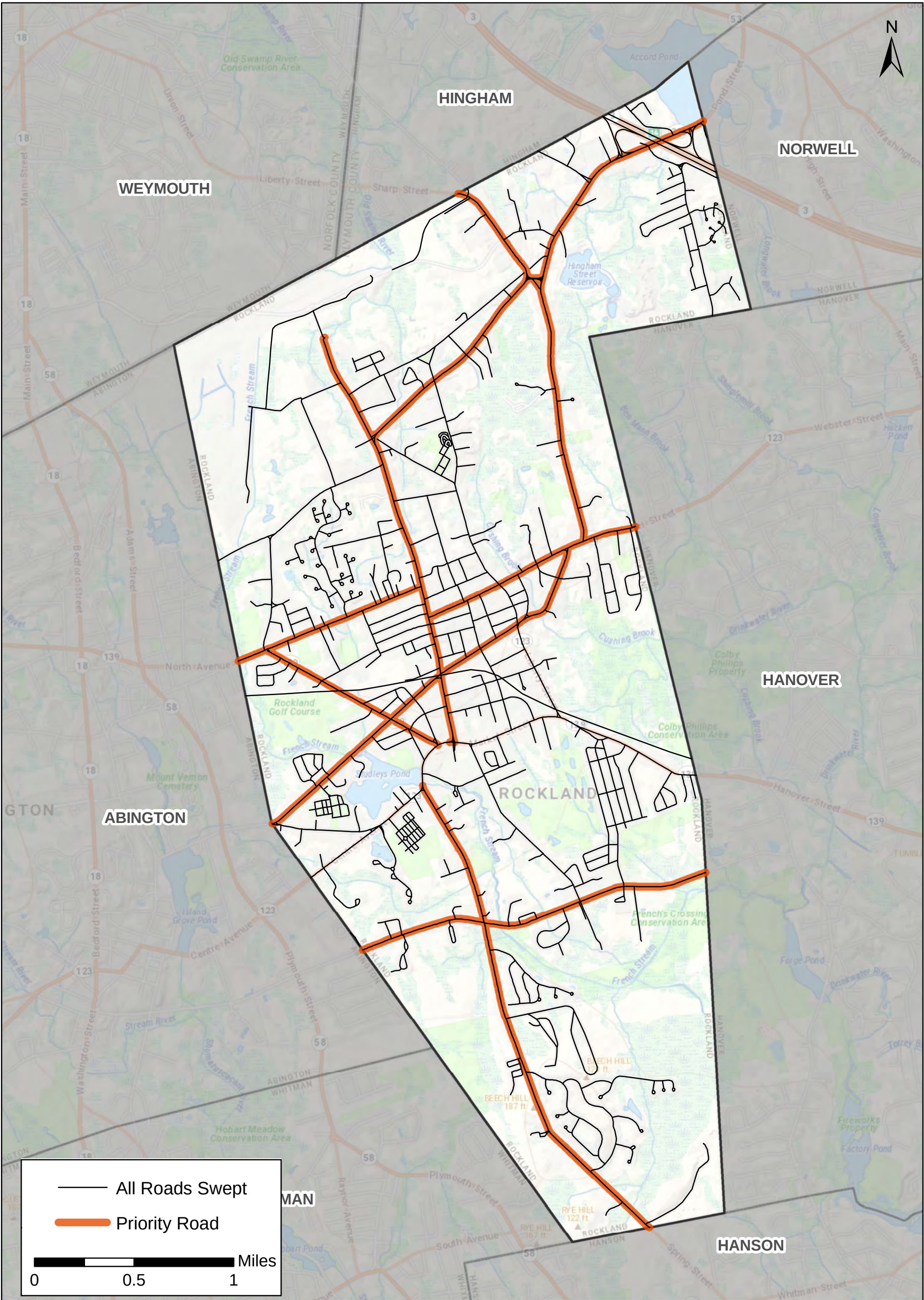


Figure 2. Street Sweepings Prioritization Rockland, Massachusetts June 2020



FIGURE 3

Storage Location of Street Sweepings & Catch Basin Cleanings



Figure 3. Storage Location of
Street Sweepings & Catch Basin Cleanings
Rockland, Massachusetts
June 2020



FIGURE 4

Storage Location of Salt and Sand Supplies



Figure 4. Storage Location of
Salt and Sand Supplies
Rockland, Massachusetts
June 2020

ENVIRONMENTAL
PARTNERS

FIGURE 5

Storage Locations of Snow Stockpile

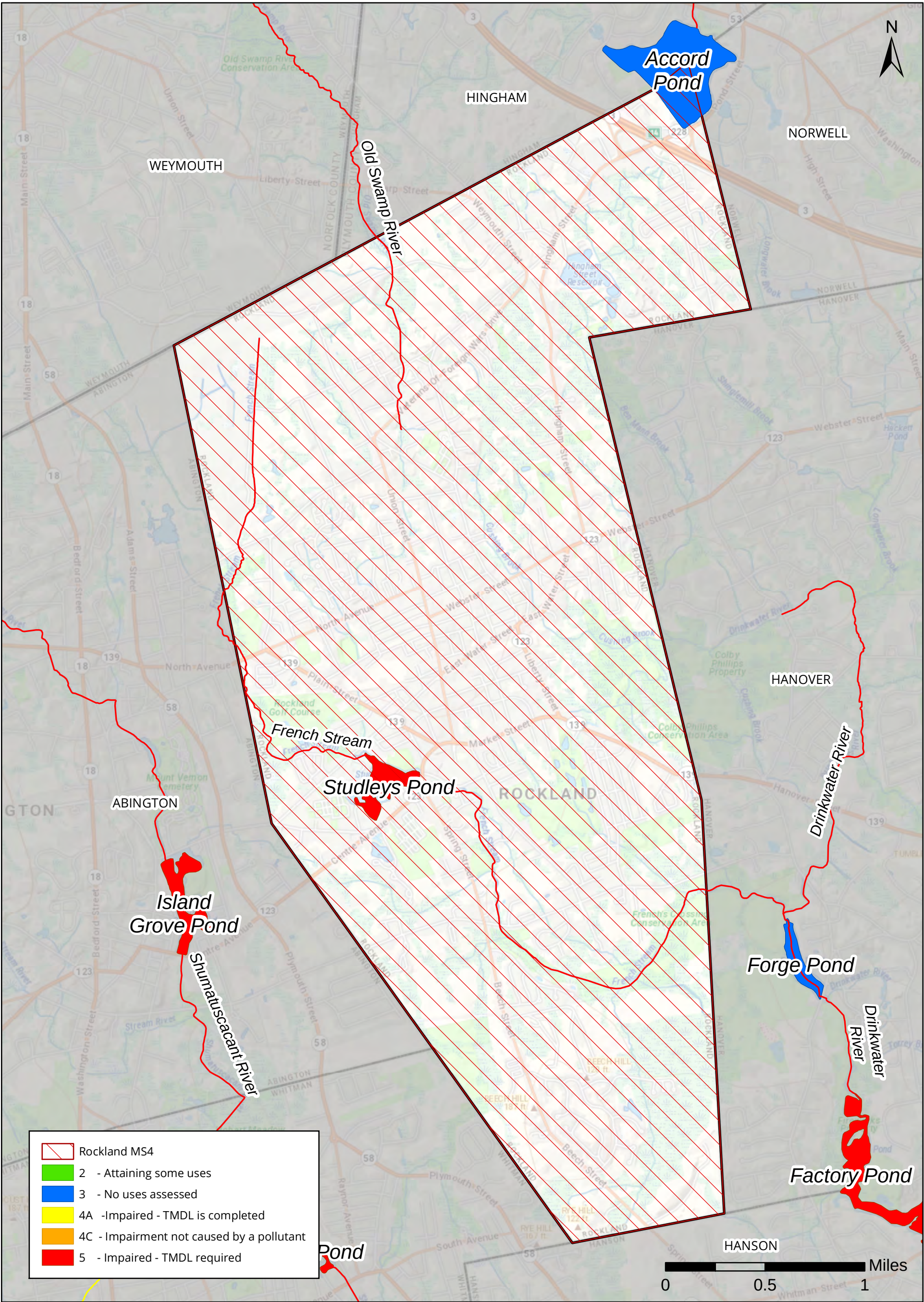


Figure 5. Storage Location of
Snow Stockpiles
Rockland, Massachusetts
June 2020



APPENDIX A

Town of Rockland Urbanized Area & Impaired Waterbodies Map
Town of Rockland Massachusetts Year 2016 Integrated List of Waters



Appendix A. Urbanized Area &
Impaired Waterbodies Map
Rockland, Massachusetts
June 2020

ENVIRONMENTAL
PARTNERS

Town of Rockland, Massachusetts
Massachusetts Year 2016 Integrated List of Waters

Category	Name	Segment ID	Description	Size	Units	Impairment Cause
5 – “Water Requiring a TMDL”	Old Swamp River	MA74-03	Headwaters west of Pleasant Street and north of Liberty Street, Rockland to inlet Whitmans Pond, Weymouth.	4.60	MILES	E. Coli Fecal Coliform
	Cushing Brook	MA94-40	Headwaters east of Pleasant Street, Rockland to mouth at confluence with Drinkwater River, Hanover.	3.10	MILES	E. Coli
	French Stream	MA94-03	Headwaters on the southeast side of the South Weymouth Naval Air Station, Rockland to mouth at confluence with Drinkwater River, Hanover.	5.80	MILES	Dissolved Oxygen E. Coli Fecal Coliform Fish Bioassessments Phosphorus, Total Whole Effluent Toxicity (WET)
	Studleys Pond	MA94151	Rockland.	25.00	ACRES	Fecal Coliform

APPENDIX B

Catch Basin Inspection Form Template

Job No.: _____ Town: Rockland
 Inspector: _____ Date: _____

CATCH BASIN INSPECTION FORM

Catch Basin I.D.		Final Discharge from Structure? Yes ☐ No ☐ If Yes, Discharge to Outfall No: _____	
Catch Basin Label:	Stencil ☐ Ground Inset ☐ Sign ☐ None ☐ Other _____		
Basin Material:	Concrete ☐ Corrugated metal ☐ Stone ☐ Brick ☐ Other: _____ ☐	Catch Basin Condition:	Good ☐ Poor ☐ Fair ☐ Crumbling ☐
Pipe Material:	Concrete ☐ HDPE ☐ PVC ☐ Clay Tile ☐ Other: _____ ☐	Pipe Measurements:	Inlet Dia. (in): d= _____ Outlet Dia. (in): D= _____
Required Maintenance/ Problems (check all that apply): ☐ Tree Work Required ☐ New Grate is Required ☐ Pipe is Blocked ☐ Frame Maintenance is Required ☐ Remove Accumulated Sediment ☐ Pipe Maintenance is Required ☐ Basin Undermined or Bypassed ☐ Cannot Remove Cover ☐ Ditch Work ☐ Corrosion at Structure ☐ Erosion Around Structure ☐ Remove Trash & Debris ☐ Need Cement Around Grate Other: _____			
Catch Basin Grate Type :	Sediment Buildup Depth :	Description of Flow:	Street Name/ Structure Location:
Bar: ☐ Cascade: ☐ Other: _____ Properly Aligned: Yes ☐ No ☐	0-6 (in): _____ 6-12(in): _____ 12-18 (in): _____ 18-24 (in): _____ 24 + (in): _____	Heavy ☐ Moderate ☐ Slight ☐ Trickling ☐	
*If the outlet is submerged check yes and indicate approximate height of water above the outlet invert. h above invert (in): _____		Yes ☐	No ☐
☐ Flow ☐ Standing Water (check one or both)	Observations: Color: _____ Odor: _____		Circle those present: Foam ☐ Oil Sheen ☐ Sanitary Waste ☐ Bacterial Sheen ☐ Orange Staining ☐ Floatables ☐ Excessive sediment ☐ Pet Waste ☐ Other: _____ ☐ Optical Enhancers ☐
Weather Conditions :		Dry > 24 hours ☐	Wet ☐
Sample of Screenings Collected for Analysis? Yes ☐ No ☐			
Comments:			

APPENDIX C

Stormwater BMP Inspection Form Template



INSPECTION OF BIORETENTION AREAS / RAIN GARDENS

General Information

BMP Description	Bioretention Area / Rain Garden		
BMP Location			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Type of Inspection: Regular ☐ Pre-Storm Event ☐ During Storm Event ☐ Post-Storm Event ☐			
Describe the weather conditions at time of inspection			

Specific Information

Maintenance Activity	Maintenance Frequency	Is Status of BMP Satisfactory?	Corrective Action Needed
Inspect for soil erosion and repair	Monthly	Yes ☐ No ☐	
Inspect for invasive species and remove if present	Monthly	Yes ☐ No ☐	
Remove trash	Monthly	Yes ☐ No ☐	
Mulch void areas	Annually	Yes ☐ No ☐	
Remove dead vegetation	Bi-Annually	Yes ☐ No ☐	
Replace dead vegetation	Annually	Yes ☐ No ☐	
Prune	Annually	Yes ☐ No ☐	
Replace all media and vegetation	As Needed	Yes ☐ No ☐	





INSPECTION OF CONSTRUCTED STORMWATER WETLANDS Years 0-3 of Operation

General Information

BMP Description	Constructed Stormwater Wetland		
BMP Location			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Type of Inspection: Regular ☐ Pre-Storm Event ☐ During Storm Event ☐ Post-Storm Event ☐			
Describe the weather conditions at time of inspection			

Specific Information

Maintenance Activity	Maintenance Frequency	Is Status of BMP Satisfactory?	Corrective Action Needed
Inspect for invasive species and remove if present	Monthly	Yes ☐ No ☐	
Replace all media and vegetation	As Needed	Yes ☐ No ☐	

In addition, the following information should be recorded and mapped at least once per year:

- Types and distribution of dominant wetland plants
- Presence and distribution of planted wetland species
- Presence and distribution of invasive species
- Indications other species are replacing planted wetland species
- Percent of standing water that is not vegetated
- Replace all media and vegetation
- Stability of original depth zones and micro-topographic features
- Accumulation of sediment in the forebay and micropool and survival rate of plants





INSPECTION OF CONSTRUCTED STORMWATER WETLANDS Year 4 - Lifetime of Operation

General Information

BMP Description	Constructed Stormwater Wetland		
BMP Location			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Type of Inspection: Regular ☐ Pre-Storm Event ☐ During Storm Event ☐ Post-Storm Event ☐			
Describe the weather conditions at time of inspection			

Specific Information

Maintenance Activity	Maintenance Frequency	Is Status of BMP Satisfactory?	Corrective Action Needed
Inspect for invasive species and remove if present	Monthly	Yes ☐ No ☐	
Clean forebays	Annually	Yes ☐ No ☐	
Clean sediment in basin/wetland system	Once every 10 years	Yes ☐ No ☐	
Mulch void areas	Annually	Yes ☐ No ☐	
Remove dead vegetation	Bi-Annually	Yes ☐ No ☐	
Replace dead vegetation	Annually	Yes ☐ No ☐	
Prune	Annually	Yes ☐ No ☐	
Replace all media and vegetation	As Needed	Yes ☐ No ☐	





INSPECTION OF EXTENDED DRY DETENTION BASINS

Inspections should be conducted bi-annually, and during and after major storm events.

General Information

BMP Description	Extended Dry Detention Basin		
BMP Location			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Type of Inspection: Regular ☐ Pre-Storm Event ☐ During Storm Event ☐ Post-Storm Event ☐			
Describe the weather conditions at time of inspection			

Specific Information

Maintenance Activity	Maintenance Frequency	Is Status of BMP Satisfactory?	Corrective Action Needed
Examine outlet structure for clogging or high outflow release velocities	Bi-Annually	Yes ☐ No ☐	
Mow upper stage, side slopes, embankment and emergency spillway	Bi-Annually	Yes ☐ No ☐	
Remove trash and debris	Bi-Annually	Yes ☐ No ☐	
Remove sediment from basin	At least once every 5 years	Yes ☐ No ☐	





INSPECTION OF PROPRIETARY MEDIA FILTERS

General Information

BMP Description	Media Filter		
BMP Location			
Media Type			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Type of Inspection: Regular ☐ Pre-Storm Event ☐ During Storm Event ☐ Post-Storm Event ☐			
Describe the weather conditions at time of inspection			

Specific Information

Maintenance Activity	Maintenance Frequency	Is Status of BMP Satisfactory?	Corrective Action Needed
Inspect for standing water, trash, sediment and clogging	Bi-Annually (minimum)	Yes ☐ No ☐	
Remove trash and debris	Each Inspection	Yes ☐ No ☐	
Examine to determine if system drains in 72 hours	Annually	Yes ☐ No ☐	
Inspect filtering media for clogging	Per manufacturer's schedule	Yes ☐ No ☐	





INSPECTION OF SAND AND ORGANIC FILTERS

Inspections should be conducted after every major storm event for the first 3 months following completion, then every 6 months thereafter.

General Information

BMP Description	Sand/Organic Filter		
BMP Location			
Media Type			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Type of Inspection: Regular ☐ Pre-Storm Event ☐ During Storm Event ☐ Post-Storm Event ☐			
Describe the weather conditions at time of inspection			

Specific Information

Maintenance Activity	Maintenance Frequency	Is Status of BMP Satisfactory?	Corrective Action Needed
Remove sediment, trash, and debris	Every 6 months	Yes ☐ No ☐	
Rake sand	Every 6 months	Yes ☐ No ☐	





INSPECTION OF DRY WELLS

Regular inspections should be conducted after every major storm event for the first 3 months following completion, then annually thereafter.

General Information

BMP Description	Dry Well		
BMP Location			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Type of Inspection: Regular ☐ Pre-Storm Event ☐ During Storm Event ☐ Post-Storm Event ☐			
Describe the weather conditions at time of inspection			
Describe condition of dry well at time of inspection			

After a major storm event, the water depth in the observation well should be measured at 24 and 48 hour intervals and the clearance rate calculated.





INSPECTION OF WET BASINS

Inspections should be conducted after every major storm event for the first 3 months following completion, then biannually thereafter.

General Information

BMP Description	Wet Basin		
BMP Location			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Type of Inspection: Regular ☐ Pre-Storm Event ☐ During Storm Event ☐ Post-Storm Event ☐			
Describe the weather conditions at time of inspection			
Describe condition of wet basin at time of inspection			

Specific Information

Maintenance Activity	Maintenance Frequency	Is Status of BMP Satisfactory?	Corrective Action Needed
Preventative maintenance	Bi-Annually	Yes ☐ No ☐	
Mow/rake buffer area, side slopes and basin bottom	Bi-Annually	Yes ☐ No ☐	
Remove trash, debris and organic matter	Bi-Annually	Yes ☐ No ☐	
Inspect and clean pretreatment devices	Every other month and after every major storm event	Yes ☐ No ☐	





INSPECTION OF OTHER BMP

General Information

BMP Description			
BMP Location			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Type of Inspection: Regular ☐ Pre-Storm Event ☐ During Storm Event ☐ Post-Storm Event ☐			
Describe the weather conditions at time of inspection			

Specific Information

Maintenance Activity	Maintenance Frequency	Is Status of BMP Satisfactory?	Corrective Action Needed
		Yes ☐ No ☐	
		Yes ☐ No ☐	
		Yes ☐ No ☐	
		Yes ☐ No ☐	
		Yes ☐ No ☐	
		Yes ☐ No ☐	
		Yes ☐ No ☐	





OIL/WATER SEPARATOR (OWS) QUARTERLY INSPECTION CHECKLIST

Facility: _____

OWS Location: _____

Inspected By: _____

Date: _____

Visual Inspection	Are there any signs of spills or leaks in the general area?	Yes ☐	No ☐
	Is there any evidence of petroleum bypassing the OWS?	Yes ☐	No ☐
	Are there any unauthorized substances entering the OWS?	Yes ☐	No ☐
	Does the OWS exhibit any signs of leaks or malfunctions?	Yes ☐	No ☐

If you answered “Yes” to any of the above questions, further inspection, repair, and/or cleaning may be necessary.

Measurements	A	Distance from rim of access cover to bottom of structure	
	B	Distance from rim of access cover to top of sludge layer	
	$C = A - B$	Depth of sludge layer	
	D	Distance from rim of access cover to the oil/water interface	
	E	Distance from rim of access cover to the top of the liquid surface	
	$F = D - E$	Depth of oil layer	

If the values for “C” and/or “F” are greater than those in the manufacturer’s recommendations, the OWS must be cleaned by a licensed OWS maintenance company.



APPENDIX D

Inventory of Stormwater Best Management Practices

[illegible]

APPENDIX E

Standard Operating Procedures (SOPs)

STANDARD OPERATING PROCEDURE 1: CATCH BASIN INSPECTION AND CLEANING

Introduction

Catch basins help minimize flooding and protect water quality by removing trash, sediment, decaying debris, solids from stormwater runoff, grease and oil, and pollutants attached to sediment such as phosphorus, nitrogen, bacteria, etc. Sediments are retained in the sump below the invert of the outlet pipe. Catch basin cleaning reduces foul odors, prevents clogs in the storm drain system, and reduces the loading of suspended solids, nutrients, and bacteria to receiving waters.

During regular cleaning and inspection procedures, data can be gathered related to the condition of the physical basin structure and its frame and grate and the quality of stormwater conveyed by the structure. Observations such as the following can indicate sources of pollution within the storm drain system:

- Oil sheen
- Discoloration
- Trash, debris and sediment

Both bacteria and petroleum can create a sheen on the water surface. The source of the sheen can be differentiated by disturbing it, such as with a pole. A sheen caused by oil will remain intact and move in a swirl pattern; a sheen caused by bacteria will separate and appear “blocky”. Bacterial sheen is not a pollutant but should be noted.

Observations such as the following can indicate a potential connection of a sanitary sewer to the storm drain system, which is an illicit discharge.

- Indications of sanitary sewage, including fecal matter or sewage odors
- Foaming, such as from detergent
- Optical enhancers, fluorescent dye added to laundry detergent

Each catch basin should be cleaned and inspected at least annually. Catch basins in high-use areas that collect significant amounts of sediment may require more frequent cleaning. The Massachusetts Department of Environmental Protection Stormwater Management Standards recommend that

sediment be removed when it reaches up to 50% of the sump depth. Performing street sweeping on an appropriate schedule will reduce the amount of sediment, debris, and organic matter entering the catch basins, which will in turn reduce the frequency with which structures need to be cleaned.

Cleaning Procedure

Catch basin inspection cleaning procedures should address both the grate opening and the basin's sump. Document any and all observations about the condition of the catch basin structure and water quality on the Catch Basin Inspection Form (attached).

Catch basin inspection and cleaning procedures include the following:

1. Work upstream to downstream.
2. Clean sediment and trash off grate.
3. Visually inspect the outside of the grate.
4. Visually inspect the inside of the catch basin to determine cleaning needs.
5. Inspect catch basin for structural integrity.
6. Determine the most appropriate equipment and method for cleaning each catch basin.
 - a. Manually use a shovel to remove accumulated sediments, or
 - b. Use a bucket loader to remove accumulated sediments, or
 - c. Use a high pressure washer to clean any remaining material out of catch basin while capturing the slurry with a vacuum.
 - d. If necessary, after the catch basin is clean, use the rodder of the vacuum truck to clean downstream pipe and pull back sediment that might have entered downstream pipe.
7. If contamination is suspected, chemical analysis will be required to determine if the materials comply with the Massachusetts DEP Hazardous Waste Regulations, 310 CMR 30.000 (https://www.mass.gov/files/documents/2016/08/xl/310cmr30_7883_54357.pdf). Chemical analysis required will depend on suspected contaminants. Note the identification number of the catch basin on the sample label, and note sample collection on the Catch Basin Inspection Form.
8. Properly dispose of collected sediments. See following section for guidance.
9. If fluids collected during catch basin cleaning are not being handled and disposed of by a third party, dispose of these fluids to a sanitary sewer system, with permission of the system operator.
10. If illicit discharges are observed or suspected, notify the appropriate Department.
11. At the end of each day, document location and number of catch basins cleaned, amount of waste collected, and disposal method for all screenings.
12. Report additional maintenance or repair needs to the appropriate Department.

Disposal of Screenings

Catch basin cleanings from storm water-only drainage systems may be disposed at any landfill that is permitted by MassDEP to accept solid waste. MassDEP does not routinely require stormwater-only catch basin cleanings to be tested before disposal, unless there is evidence that they have been contaminated by a spill or some other means.

Screenings may need to be placed in a drying bed to allow water to evaporate before proper disposal. In this case, ensure that the screenings are managed to prevent pollution.

Catch basin cleanings collected by the Town of Rockland need to be disposed of consistent with the Massachusetts Department of Environmental Protection policies regarding "Management of Catch Basin Cleanings." Materials removed from catch basins are typically defined as solid waste by the Massachusetts Department of Environmental Protection. Any catch basin that have been contaminated by a spill, or are suspected of contamination need to be disposed of in accordance with the 310 CMR 30,000 Hazardous Waste Regulations. Any materials that contain liquids are prohibited from being disposed of at landfills. Dry materials can be disposed of at landfills, and may be approved for use as grading and shaping materials at landfills.

[Attachments](#)

See Catch Basin Inspection Forms located in Appendix B

STANDARD OPERATING PROCEDURE 2:

INSPECTING CONSTRUCTED BEST MANAGEMENT PRACTICES

Introduction

Best Management Practices (BMPs) are policies, procedures and structures designed to reduce stormwater pollution, prevent contaminant discharges to natural water bodies, and reduce stormwater facility maintenance costs. Constructed BMPs are permanent site features designed to treat stormwater before infiltrating it to the subsurface or discharging it to a surface water body.

This Standard Operating Procedure provides a general summary of inspection procedures for eight common constructed BMPs, including:

1. Bioretention Areas and Rain Gardens
2. Constructed Stormwater Wetlands
3. Extended Dry Detention Basins
4. Proprietary Media Filters
5. Sand and Organic Filters
6. Wet Basins
7. Dry Wells
8. Infiltration Basins

This SOP is based on the Massachusetts Stormwater Handbook and is not intended to replace that document. This SOP is also not intended to replace the Stormwater BMP Operation and Maintenance (O&M) Plan required by the Massachusetts Wetlands Protection Act, Order of Conditions.

Bioretention Areas and Rain Gardens

Bioretention areas and rain gardens are shallow depressions filled with sandy soil, topped with a thick layer of mulch and planted with dense native vegetation. There are two types of bioretention cells:

1. Filtering bioretention area: Areas that are designed solely as an organic filter; and
2. Exfiltration bioretention area: Areas that are configured to recharge groundwater in addition to acting as a filter

Inspection & Maintenance

Regular inspection and maintenance are important to prevent against premature failure of bioretention areas or rain gardens. Regular inspection and maintenance of pretreatment devices and bioretention cells for sediment buildup, structural damage and standing water can extend the life of the soil media.

MAINTENANCE SCHEDULE: BIORETENTION AREAS AND RAIN GARDENS

Activity	Time of Year	Frequency
Inspect for soil erosion and repair	Year round	Monthly
Inspect for invasive species and remove if present	Year round	Monthly
Remove trash	Year round	Monthly
Mulch Void Areas	Spring	Annually
Remove dead vegetation	Fall and Spring	Bi-Annually
Replace dead vegetation	Spring	Annually
Prune	Spring or Fall	Annually
Replace all media and vegetation	Late Spring/Early Summer	As Needed

When failure is discovered, excavate the bioretention area, scarify the bottom and sides, replace the filter fabric and soil, replant vegetation and mulch the surface.

Never store snow within a bioretention area or rain garden. This would prevent required water quality treatment and the recharge of groundwater.

Constructed Stormwater Wetlands

Constructed stormwater wetlands maximize the pollutant removal from stormwater through the use of wetland vegetation uptake, retention and settling. Constructed storm water wetlands must be used in conjunction with other BMPs, such as sediment forebays.

Inspection & Maintenance

Regular inspection and maintenance are important to prevent against premature failure of bioretention areas or rain gardens. Regular inspection and maintenance of pretreatment devices and bioretention cells for sediment buildup, structural damage and standing water can extend the life of the soil media.

MAINTENANCE SCHEDULE, CONSTRUCTED STORMWATER WETLANDS: YEARS 0-3

Activity	Time of Year	Frequency
Inspect for invasive species and remove if present	Year round	Monthly
Record and Map:	Year round	Annually
Types and distribution of dominant wetland plants	Year round	Bi-Annually
Presence and distribution of planted wetland species	Spring	Annually
Presence and distribution of invasive species	Fall and Spring	Bi-Annually
Indications other species are replacing planted wetland species	Spring	Annually
Percent of standing water that is not vegetated	Spring or Fall	Annually
Replace all media and vegetation	Late Spring/Early Summer	As Needed
Stability of original depth zones and micro-topographic features		
Accumulation of sediment in the forebay and micropool and survival rate of plants		

MAINTENANCE SCHEDULE, CONSTRUCTED STORMWATER WETLANDS: YEARS 4 – LIFETIME

Activity	Time of Year	Frequency
Inspect for invasive species and remove if present	Year round	Monthly
Clean forebays	Year round	Annually
Clean sediment in basin/wetland system	Year round	Once every 10 years
Mulch Void Areas	Spring	Annually
Remove dead vegetation	Fall and Spring	Bi-Annually
Replace dead vegetation	Spring	Annually
Prune	Spring or Fall	Annually
Replace all media and vegetation	Late Spring/Early Summer	As Needed

When failure is discovered, excavate the bioretention area, scarify the bottom and sides, replace the filter fabric and soil, replant vegetation and mulch the surface.

Never store snow within a constructed stormwater wetland. This would prevent required water quality treatment and the recharge of groundwater.

Extended Dry Detention Basins

Extended dry detention basins are designed to control both stormwater quantity and quality. These BMPs are designed to hold stormwater for at least 24 hours, allowing solids to settle and to reduce local and downstream flooding. Pretreatment is required to reduce the potential for overflow clogging. The outflow may be designed as either fixed or adjustable. Additional nutrient removal may be achieved by a micropool or shallow marsh.

Inspection & Maintenance

Annual inspection of extended dry detention basins is required to ensure that the basins are operating properly. Potential problems include: erosion within the basin and banks, tree growth on the embankment, damage to the emergency spillway and sediment accumulation around the outlet. Should any of these problems be encountered, necessary repairs should be made immediately.

MAINTENANCE SCHEDULE: EXTENDED DRY DETENTION BASINS

Activity	Time of Year	Frequency
Inspect basins	Spring and Fall	Bi-Annually, and during and after major storms
Examine outlet structure for clogging or high outflow release velocities	Spring and Fall	Bi-Annually
Mow upper stage, side slopes, embankment and emergency spillway	Spring through Fall	Bi-Annually
Remove trash and debris	Spring	Bi-Annually
Remove sediment from basin	Year round	At least once every 5 years

Proprietary Media Filters

Media Filters are designed to reduce total suspended solids and other target pollutants, such as organics, heavy metals or nutrients, which are sorbed onto the filter media, which is contained in a concrete structure. The substrate used as filter media depends on the target pollutants, and may consist of leaf compost, pleated fabric, activated charcoal, perlite, amended sand in combination with perlite, and zeolite. Two types of Media Filters are manufactured: Dry Media Filters, which are designed to dewater within 72 hours; and Wet Media Filters, which maintain a permanent pool of water as part of the treatment system.

Inspection & Maintenance

Maintenance in accordance with the manufacturer's requirements is necessary to ensure stormwater treatment. Inspection or maintenance of the concrete structure may require OSHA confined space training. Dry Media Filters are required to dewater in 72 hours, thus preventing mosquito and other insect breeding. Proper maintenance is essential to prevent clogging. Wet Media Filters require tight fitting seals to keep mosquitoes and other insects from entering and breeding in the permanent pools. Required maintenance includes routine inspection and treatment.

MAINTENANCE SCHEDULE: EXTENDED DRY DETENTION BASINS

Activity	Time of Year	Frequency
Inspect for standing water, trash, sediment and clogging	Per manufacturer's schedule	Bi-Annually (minimum)
Remove trash and debris	N/A	Each Inspection
Examine to determine if system drains in 72 hours	Spring, after large storm	Annually
Inspect filtering media for clogging	Per manufacturer's schedule	Per manufacturer's schedule

Sand and Organic Filters

Sand and organic filters, also known as filtration basins, are intended for quality control rather than quantity control. These filters improve water quality by removing pollutants through a filtering media and settling pollutants on top of the sand bed and/or in a pretreatment basin. Pretreatment is required to prevent filter media from clogging. Runoff from the filters is typically discharged to another BMP for additional treatment.

MAINTENANCE SCHEDULE: EXTENDED DRY DETENTION BASINS

Activity	Frequency
Inspect filters and remove debris	After every major storm for the first 3 months after construction completion. Every 6 months thereafter.

Wet Basins

Wet basins are intended to treat stormwater quality through the removal of sediments and soluble pollutants. A permanent pool of water allows sediments to settle and removes the soluble pollutants, including some metals and nutrients. Additional dry storage is required to control peak discharges during large storm events, and if properly designed and maintained wet basins can add fire protection, wildlife habitat and aesthetic values to a property.

Inspection & Maintenance

To ensure proper operation, wet basin outfalls should be inspected for evidence of clogging or excessive outfall releases. Potential problems to investigate include erosion within the basin and banks, damage to the emergency spillway, tree growth on the embankment, sediment accumulation around the outlet and the emergence of invasive species. Should any of these problems be encountered, perform repairs immediately. An on-site sediment disposal area will reduce sediment removal costs.

MAINTENANCE SCHEDULE: WET BASINS

Activity	Time of Year	Frequency
Inspect wet basins	Spring and/or Fall	Annually (Minimum)
Mow upper stage, side slopes, embankment and emergency spillway	Spring through Fall	Bi-Annually (Minimum)
Remove sediment, trash and debris	Spring through Fall	Bi-Annually (Minimum)
Remove sediment from basin	Year round	As required, but at least once every 10 years

Dry Wells

Dry wells are used to infiltrate uncontaminated runoff. These BMPs should never be used to infiltrate stormwater or runoff that has the potential to be contaminated with sediment and other pollutants. Dry wells provide groundwater recharge and can reduce the size and cost required of

downstream BMPs or storm drains. However, they are only applicable in drainage areas of less than one acre and may experience high failure rates due to clogging.

Inspection & Maintenance

Proper dry well function depends on regular inspection. Clogging has the potential to cause high failure rates. The water depth in the observation well should be measured at 24 and 48 hour intervals after a storm and the clearance rate calculated. The clearance rate is calculated by dividing the drop in water level (inches) by the time elapsed (hours).

MAINTENANCE SCHEDULE: DRY WELLS

Activity	Frequency
Inspect dry wells	After every major storm for the first 3 months after construction completion. Annually thereafter.

Infiltration Basins

Infiltration basins are designed to contain stormwater quantity and provide groundwater recharge. Pollution prevention and pretreatment are required to ensure that contaminated stormwater is not infiltrated. Infiltration basins reduce local flooding and preserve the natural water balance of the site, however high failure rates often occur due to improper siting, inadequate pretreatment, poor design and lack of maintenance.

Inspection & Maintenance

Regular maintenance is required to prevent clogging, which results in infiltration basin failure. Clogging may be due to upland sediment erosion, excessive soil compaction or low spots. Inspections should include signs of differential settlement, cracking, erosion, leakage in the embankments, tree growth on the embankments, riprap condition, sediment accumulation and turf health.

MAINTENANCE SCHEDULE: INFILTRATION BASINS

Activity	Time of Year	Frequency
Preventative maintenance	Spring and Fall	Bi-Annually
Inspection	Spring and Fall	After every major storm for the first 3 months after construction completion. Bi-annually thereafter and discharges through the high outlet orifice.
Mow/rake buffer area, side slopes and basin bottom	Spring and Fall	Bi-Annually
Remove trash, debris and organic matter	Spring and Fall	Bi-Annually

Attachments

See BMP inspection forms located in Appendix C

STANDARD OPERATING PROCEDURE 3:

OIL/WATER SEPARATOR (OWS) MAINTENANCE

Oil/water separators (OWS), also known as gas/oil separators, are structural devices intended to provide pretreatment of floor drain water from industrial and garage facilities. An OWS allows oils (and substances lighter than water) to be intercepted and be removed for disposal before entering the sanitary sewer system. Substances heavier than water settle into sludge at the bottom of the unit. The remaining water passes through the unit into the sanitary sewer system.

General OWS Maintenance Requirements

OWS units are generally required where petroleum-based products, wastes containing petroleum, or oily and/or flammable materials are used, produced, or stored. OWS units should not be used to manage stormwater or flow from vehicle washing facilities. High flow rates through an OWS will reduce the structure's ability to separate materials. Detergents and solvents can emulsify oil and grease, allowing the particles to enter the sewer, so these should not be disposed of in drains entering the OWS.

1. Each OWS at a facility may receive different materials in different quantities, so the cleanout schedule may not be the same for every OWS at a facility.
2. Employees performing inspections of an OWS must be properly trained and be familiar with the maintenance of that specific structure, since function can vary based on design. Third-party firms may be utilized to perform quarterly inspections.
3. Do not drain petroleum, oil, or lubricants directly to an OWS. The structures are designed to manage these materials at low and medium concentrations in sanitary sewage, not as slug loads.
4. Do not drain antifreeze, degreasers, detergents, fuels, alcohols, solvents, coolant, or paint to the OWS.
5. Separator compartment covers should be tightly sealed to ensure floor drainage only enters the first compartment of the OWS.
6. Drains should be kept free of debris and sediment to the maximum extent practicable.

7. Spill cleanup materials should be maintained in the area served by the OWS. For more information on spill cleanup and response materials, refer to SOP 4, "Spill Response and Cleanup Procedures".

OWS Inspection Procedures

Daily inspection of an OWS should include a visual examination of the area served by the OWS for evidence of spills or leaks.

Weekly inspections of an OWS should include the following:

Catch basin inspection and cleaning procedures include the following:

1. Visually examine the area served by the OWS for evidence of spills or leaks.
2. Inspect the point of discharge (i.e., sewer manhole) for evidence of petroleum bypassing the OWS.
3. Inspect drains for any signs of unauthorized substances entering the OWS.
4. Examine the OWS for signs of leaks or any malfunction.

Quarterly inspections of an OWS should include the following:

1. Complete tasks noted as appropriate for daily and weekly inspection.
2. Complete the Quarterly OWS Inspection Checklist, attached, during the inspection.
3. Take the following measurements to benchmark function of the OWS:
 - A. Distance from rim of access cover to bottom of structure
 - B. Distance from rim of access cover to top of sludge layer
 - C. Depth of sludge layer ($C = A - B$)
 - D. Distance from rim of access cover to the oil/water interface
 - E. Distance from rim of access cover to the top of the liquid surface
 - F. Depth of oil layer ($F = D - E$)

OWS Cleaning Procedures

Cleaning of the OWS is required when there has been a spill to the OWS that exceeds ten gallons of oil, one gallon of detergent or solvent, or any material prohibited by the owner of the sanitary sewer. Cleaning is also required when the levels of accumulated sludge and/or oil meet the manufacturer's recommended levels for cleaning. This will vary based on the manufacturer of the OWS. If the manufacturer's recommendations are unknown, the following guidelines are appropriate for determining when to clean:

1. When sludge accumulates to 25% of the wetted height of the separator compartment; or
2. When oil accumulates to 5% of the wetted height of the separator compartment; or
3. When 75% of the retention capacity of the OWS is filled.

Cleaning should be performed a minimum of once per year. When cleaning is required, it shall be performed by licensed OWS maintenance companies. Materials removed from the OWS must be disposed of in accordance with Massachusetts Hazardous Waste Regulations, 310 CMR 30.00.

Documentation of Cleaning and Service

The operator of the premises where the OWS is located shall maintain a log describing the date and type of all inspections, service and maintenance performed in connection with the Separator. Documentation shall include the identity of the inspector (or the identity of the person or entity that performed the service and/or maintenance). Records shall also document the amount of residue removed from the OWS each time it was cleaned, and how removed materials were disposed. This documentation shall be maintained for a minimum of six years.

Attachments

See OWS Quarterly Inspection Checklist located in Appendix C

STANDARD OPERATING PROCEDURE 4:

MANAGEMENT OF SAND AND DEICING CHEMICALS AT DPW FACILITIES

Purpose

To ensure that sand and deicing chemicals are managed consistent with environmental regulations.

Responsibility

It is the responsibility of the Highway Division General Foreman to report leaks in sheds/tanks and other problems to the Director of Operations. It is the Highway Division's General Foreman's responsibility to ensure that spilled deicing chemicals are cleaned up and put back to the storage area within 48 hours.

The Director of Operations is responsible for ensuring regular inspections of the sand and deicing chemical storage areas during regular inspections.

Policy

Deicing chemicals (i.e. salt, calcium chloride, etc.) shall be stored in storage sheds or tanks in a manner that minimizes the potential for runoff. All deicing chemicals shall be covered when not in use. Sand piles shall be bermed to minimize runoff. During handling, sand and salt which fall outside of the storage areas will be swept back to the storage areas within 48 hours of the activity, to minimize runoff.

During regular inspections, the sand and deicing chemical storage areas shall be inspected by the DPW Highway Division General Foreman or designee to ensure that runoff is minimized. All findings during an inspection shall be sent to the DPW Director of Operations.

STANDARD OPERATING PROCEDURE 5:

THE HANDLING AND STORAGE OF STREET SWEEPINGS

Purpose

To provide guidance on the handling and storage of street sweepings.

Street sweepings are defined as sand and soil generated during the routine cleaning of roadways. Street sweepings may also contain leaves and other miscellaneous solid waste. Street sweepings do not include the material swept from the road surface that has resulted from hazardous materials spills or material cleaned from other roadway structures such as catch basins or other drainage structures.

This policy does cover sweepings collected by DPW contractors. DPW contractors are fully responsible for the reuse and/or disposal of sweepings according to Department of Environmental Protection (DEP) policy. Under no circumstances are private contractors allowed to store sweepings on DPW property.

Responsibility

It is responsibility of the DPW Highway Division General Foreman and his designee (DPW Loader Operator) to ensure that sweepings are handled in compliance with this policy and other applicable state and federal regulations.

Policy

This policy is based upon the DEP Policy #BAW-18-001 "Reuse and Disposal of Street Sweepings." The DEP policy is attached and must be followed as part of this policy.

Street Sweepings are to be stored in a labeled accumulation area at the DPW Yard that ensures the prevention of dust, erosion, and off-site migration. This is generally accomplished by marking the perimeter of the stockpile of Sweepings with signage and linked jersey barriers/berms, and locating the stockpile in an area where the grades do not allow for the off-site migration of stormwater from the stockpile.

The sweepings must not be stored within the 100-foot Buffer Zone of a Wetland, within a Wetland Resource Area or within the 200 foot Riverfront Area.

Sweepings collected from urbanized areas (non-residential areas) should be stockpiled separately from sweepings collected from other areas. These two types of street sweepings should be stored in separate accumulation areas so that non-urbanized sweepings can be more easily reused. Storage of street sweepings is temporary. Street sweepings should not be stored for longer than one year.

Street Sweeping Reuse and Disposal

As indicated in the DEP policy, there are options for reuse that require no analytical testing or DEP oversight. Options for reuse (construction fill, compost additive, reapplication, etc.) will be evaluated on a case by case basis by the DPW Director of Operations

Disposal of street sweepings as solid waste or as cover material is allowed at permitted solid waste landfills.

Street sweepings collected from urban areas must have analytical testing conducted before reuse. If testing is required for disposal or reuse, each stockpile of sweepings must be tested (1 sample/1000 cubic yards).

Attachments

DEP Policy #BAW-18-001 "Reuse and Disposal of Street Sweepings"



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Matthew A. Beaton
Secretary

Martin Suuberg
Commissioner

REUSE AND DISPOSAL OF STREET SWEEPINGS

DEPARTMENT OF ENVIRONMENTAL PROTECTION

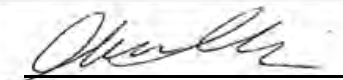
POLICY # BAW-18-001

(SUPERSEDES POLICY # BWP-94-092)

This Policy provides guidance to the regulated community about the Department of Environmental Protection's requirements, standards, and approvals for handling reuse or disposal of street sweepings. This Policy supersedes Department Policy BWP-94-092.

5/14/18

Date



Christine Kirby
Assistant Commissioner

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

TTY# MassRelay Service 1-800-439-2370

MassDEP Website: www.mass.gov/dep

Printed on Recycled Paper

POLICY #BAW-18-001
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1. Policy Statement and Scope

This Policy explains MassDEP requirements for managing Street Sweepings. Street Sweepings are “solid waste” subject to the Massachusetts solid waste regulations. The options for managing Street Sweepings are as follows.

- Use the Street Sweepings in accordance with the preapproved uses described in Section 4 of this policy.
- Use the Street Sweepings for a beneficial use not included in the list of preapproved uses after obtaining a permit from MassDEP under the provisions of the solid waste regulations, 310 CMR 19.060, Beneficial Use of Solid Wastes.
- Dispose of Street Sweepings at a permitted solid waste landfill.

2. Applicability

This policy applies to the reuse or disposal of Street Sweepings that are generated in the ordinary and customary cleaning of roadways and parking lots. This policy does not apply to catch basin cleanings or Street Sweepings mixed with catch basin cleanings or any other type of wastes. The disposal and reuse of catch basin cleanings is discussed in the “Management of Catch Basin Cleanings” Fact Sheet issued by the MassDEP (<https://www.mass.gov/lists/massdep-solid-waste-policies-guidance-fact-sheets>).

This policy does not apply to the material generated as the result of the clean-up of an oil or hazardous material spill. However, Street Sweepings that are generated in the ordinary and customary maintenance of roadways and parking lots are not exempt from the Hazardous Waste Regulations, 310 CMR 30.000, and must be handled as hazardous waste when they exhibit any of the characteristics of a hazardous waste. If there is no evidence of unusual contamination, MassDEP does not require Street Sweepings to be routinely tested, but, as is the case with any waste, the generator has the ultimate responsibility for determining whether the waste is a hazardous waste.

Although Street Sweepings are not considered soil, they may be managed under Policy #COMM-97-001, “Reuse and Disposal of Contaminated Soil at Massachusetts Landfills”, in accordance with Section 5.5 of this policy.

3. Definitions

This section contains definitions of the important terms used in this Policy.

Department or MassDEP means the Massachusetts Department of Environmental Protection.

Parking lots mean publicly or privately owned paved areas that provide access for the general public to park their car while patronizing retail or service businesses. Parking lots also include the paved areas used by the employees at office parks and businesses.

Private way means the strip of land over and under a privately owned, paved road or highway.

Public way means the strip of land over and under a publicly owned, paved road or highway and includes the publicly owned land adjacent to the road or highway.

Street Sweepings means materials consisting primarily of sand and soil generated during the routine cleaning of roadways or parking lots but may also contain some leaves and other miscellaneous solid wastes collected during street sweeping. Street Sweepings do not include the material generated during the clean-up of a spill or material from other structures associated with a roadway such as catch basins.

Urban center roads mean local roads in central commercial and retail business districts and industrial and manufacturing areas.

4. Handling

4.1 Collection of Street Sweepings

Although MassDEP does not regulate the collection of Street Sweepings, collection practices should be compatible with intended uses. Keeping sweepings from Urban Center Roads separate from sweepings from other areas will provide the generator of the Street Sweepings with the most options under this policy.

This policy does not cover sweepings known to be contaminated by spills, and such sweepings should be collected separately and kept segregated. Depending on the contamination and circumstances, the handling of contaminated sweepings may be governed by the Massachusetts Contingency Plan, 310 CMR 40.0000, the Massachusetts Hazardous Waste Regulations, 310 CMR 30.000, the Massachusetts Site Assignment Regulations for Solid Waste Facilities, 310 CMR 16.00 or the Massachusetts Solid Waste Management Facility Regulations, 310 CMR 19.000.

4.2 Storage

Street Sweepings shall be temporarily stored prior to use, only when the following conditions are satisfied:

- Storage must be:
 - at the site where the sweepings are generated (e.g. at a parking area that was swept);
 - at a location, such as a Department of Public Works (DPW) yard, that is under the control of the governmental entity doing the sweeping or has contracted for the sweeping; or,

- at other locations with prior written approval from the appropriate MassDEP Regional Office.
- The Street Sweepings shall be protected from wind and rain to the extent necessary to prevent dust, erosion, and off-site migration;
- The Street Sweepings shall not be stored within the 100 foot buffer zone of a wetland or within wetland resource areas including bordering vegetative wetlands and riverfront areas;
- The Street Sweepings shall not be stored within 500 feet of a ground or surface drinking water supply;
- Storage of the Street Sweepings shall incorporate good management practice and result in no public nuisance; and
- Storage of the Street Sweepings must be temporary. Street Sweepings shall be used within one year of collection unless the MassDEP Regional Office where the Street Sweepings are stored grants a written extension. An extension may be granted when it is demonstrated that all storage conditions will continue to be satisfied and the stored Street Sweepings will be put to a specific identified use prior to the expiration of the extension period.

4.3 Preparation Prior to Use

Solid waste, such as paper, auto parts and other trash, shall be removed from all Street Sweepings prior to use. Solid waste screened from the Street Sweepings shall be disposed of at a permitted solid waste facility. Leaves, twigs and other organic matter should also be removed when good engineering practice indicates this is necessary to produce a material that is suitable for the intended use.

5. Approved Uses, Restrictions & Conditions-No Prior Approval Needed from MassDEP

This policy allows Street Sweepings to be used in several applications. An approval from MassDEP is not required when the restrictions and conditions are adhered to as identified in this policy. However, Street Sweepings shall not be used unless prior approval is obtained from the owner of the location where the sweepings are to be used.

5.1 Use at Landfills

Street Sweepings may be used for daily cover at permitted lined solid waste landfills and need no prior MassDEP approval if the Street Sweepings satisfy the requirements for daily cover material specified at 310 CMR 19.130(15). A list of active permitted solid waste landfills can be found on the MassDEP website.

5.2 Use as Fill in Public or Private Ways and Parking Lots

Street Sweepings may be used for fill in public and private ways and parking lots without prior approval from MassDEP only when the following additional restrictions and conditions are observed:

- The Street Sweepings have not been collected from Urban Center Roads (see definition);
- Any collection, storage, or preparation for use of the Street Sweepings shall be in accordance with Sections 4.1 and 4.2 of this policy.
- The Street sweepings have been screened to remove all debris and solid waste and all debris/solid waste screened from the sweepings shall be disposed at a permitted solid waste facility (see Section 8);
- The Street Sweepings are kept above the level of the groundwater;
- The Street Sweepings are not used in designated "No Salt Areas";

- The Street Sweepings are not used within the 100 foot buffer zone of a wetland or within wetland resource areas including bordering vegetative wetlands and riverfront areas;
- The Street Sweepings are not used within 500 feet of a ground or surface drinking water supply;
- In public ways the Street Sweepings are used under the paved road surface or, except in residential areas, as fill along the side of the road within the public way;
- In private roadways or in residential areas the Street Sweepings are used only under the paved road surface; and
- In parking lots the Street Sweepings are used only under the paved parking surface.

5.3 Use As an Additive to Restricted Use Compost

Street Sweepings may be used as an additive to compost without prior written approval from MassDEP only when the following additional restrictions and conditions are observed:

- The Street Sweepings have not been collected from Urban Center Roads (see definition);
- Any collection, storage, or preparation for use of the Street Sweepings shall be in accordance with Sections 4.1 and 4.2 of this policy.
- The Street Sweepings have been screened to remove all debris and solid waste and all debris and solid waste screened from the sweepings is disposed at a permitted solid waste facility (see Section 8);
- The compost is used only along public ways and parking lot areas;
- The compost is not used in residential areas;
- The compost is kept above the level of the groundwater;
- The compost is not used in designated "No Salt Areas";
- The compost is not used within the 100 foot buffer zone of a wetland or within wetland resource areas including bordering vegetative wetlands and riverfront areas; and
- The compost is not used within 500 feet of a ground or surface drinking water supply.

5.4 Reuse as Anti-Skid Material

Street Sweepings may be used as a component to anti-skid material (e.g. street sanding material) without prior written approval from MassDEP only when the following additional restrictions and conditions are observed:

- The Street Sweepings have not been collected from Urban Center Roads (see definition);
- Any collection, storage, or preparation for use of the Street Sweepings shall be in accordance with Sections 4.1 and 4.2 of this policy;
- The Street Sweepings have been screened to remove all debris and solid waste and all debris and solid waste screened from the Street Sweepings is disposed at a permitted solid waste facility (see Sections 8);
- The anti-skid material/Street Sweepings are not used in designated "No Salt Areas";
- The anti-skid material/Street Sweepings are not used within the 100 foot buffer zone of a wetland or within wetland resource areas including bordering vegetative wetlands and riverfront areas; and
- The anti-skid material/Street Sweepings are not used within 500 feet of a ground or surface drinking water supply.

The use of Street Sweepings as anti-skid material in accordance with this policy is not a determination of the efficacy of the material for this purpose. Proper engineering review should be done to ensure the material works as intended.

5.5 Reuse at Landfills Regulated Under MassDEP Policy #COMM-97-001

Street Sweepings may be reused at a permitted Massachusetts landfill and need no prior written MassDEP approval if the sweepings have been adequately characterized pursuant to the MassDEP Policy #COMM-97-001 and the Street Sweepings have been screened to remove debris and solid waste.

All screened debris and solid waste removed from Street Sweepings shall be disposed of at a permitted solid waste facility. Street Sweepings for use at the landfill may contain only incidental, randomly dispersed, de minimis quantities of ash and/or Solid Waste as defined in 310 CMR 16.000 and 310 CMR 19.000, which collectively shall comprise less than 1% by volume of the Street Sweeping materials, as determined by visual inspections. Any Street Sweeping materials approved and brought onto the landfill property for use at the landfill shall contain no more than 5% (by volume) of Asphalt Pavement, Brick, and Concrete (“ABC”) material (as defined in 310 CMR 19.000), as determined by visual inspection. Any such material must measure less than 6 inches in any dimension.

Persons who wish to send Street Sweepings to a landfill must comply with MassDEP Policy #COMM-97-001 which requires sampling of the Street Sweepings to demonstrate that the Street Sweepings meet the standards listed in the Policy.

5.6 Use at Reclamation Soil Facilities Regulated Under MassDEP Policy # COMM-15-01

Street Sweepings may be used for fill at a permitted Reclamation Soil Facility (the Facility) and need no prior written MassDEP approval if the Street Sweepings have been adequately characterized pursuant to the Facility-specific Soil/Fill Management Plan and the Street Sweepings have been screened to remove debris and solid waste.

All screened debris and solid waste removed from Street Sweepings shall be disposed of at a permitted solid waste facility. Street Sweepings for use at the Facility may contain only incidental, randomly dispersed, de minimis quantities of ash and/or Solid Waste as defined in 310 CMR 16.000 and 310 CMR 19.000, which collectively shall comprise less than 1% by volume of the Street Sweeping materials, as determined by visual inspections. Any Street Sweeping materials approved and brought onto the property for use at the Facility shall contain no more than 5% (by volume) of ABC material, as determined by visual inspection. Any such material must measure less than 6 inches in any dimension.

Pursuant to Policy # COMM-15-01, persons who wish to send Street Sweepings to a Facility must sample and analyze the Street Sweepings as required by the Facility’s Soil/Fill Management Plan and demonstrate that the Street Sweepings meets the Facility’s acceptance criteria. Unless specifically addressed in a Facility’s Soil/Fill Management Plan, a minimum sampling frequency of 1 sample per 100 cubic yards is required for characterization of Street Sweepings originating from Urban Center Roads. Street Sweepings originating from non-Urban Center Roads may be sampled at a minimum of 1 sample per 500 cubic yards. Regardless of its point of origin, if the total quantity of Street Sweepings is less than 100 cubic yards, a minimum of one composite sample is required for characterization of the material. A list of active permitted Reclamation Soil facilities may be found at <https://www.mass.gov/soil-transport-re-use-and-disposal>.

6. Approved Use, Restrictions & Conditions- Prior Approval Needed from MassDEP

This policy allows Street Sweepings to be used in several applications. Prior written approval from MassDEP is required when using the Street Sweepings as identified in this section of the policy. In addition, Street Sweepings shall not be used at a location until prior written approval is obtained from the owner of the location where the Street Sweepings are to be used.

6.1 Use as a Bulking Agent for Wastewater Sludge or Septage Disposal

Street Sweepings may be used as a bulking material for wastewater treatment plant sludge or septage when the mixed material will be disposed in a permitted lined or unlined sludge or septage landfill in compliance with MGL Chapter 21, Sections 26-53 and MGL Chapter 83 Sections 6 & 7 provided that the appropriate MassDEP Regional Office's Bureau of Water Resources has granted prior written approval.

7. Other Uses

Any use not approved in this policy requires a MassDEP permit under the Beneficial Use provisions of the Solid Waste Management Facility Regulations at 310 CMR 19.060. A "Beneficial Use Determination" (BUD) can be issued only after the submission of an application characterizing the waste and describing the proposed beneficial use.

8. Disposal

While the beneficial use of Street Sweepings is strongly encouraged, MassDEP does not prohibit the disposal of Street Sweepings. Street Sweepings may be disposed in permitted solid waste landfills without prior approval from the Department.

9. Record Keeping

Any entity using Street Sweeping for any use listed under sections 5.3 or 5.4 shall keep records for a period of three years of the source of the sweepings, the location of use and the amount of sweepings used.

10. Additional Information

For additional copies of this policy, permit application forms or other MassDEP documents, call any MassDEP Regional Office and ask for the Service Center or visit <http://www.mass.gov/dep>. The permit application numbers for Beneficial Use Determinations are BWP SW 39, 40, 41 and 42.

Copies of all Massachusetts regulations, including the solid waste regulations, are available at the MassDEP website and may also be purchased from the State House Bookstore at 617-727-2834. The solid waste regulations are:

- 310 CMR 16.000, Site Assignment Regulations for Solid Waste Facilities: and,
- 310 CMR 19.000, Solid Waste Management Facility Regulations.

If you have technical questions about the policy, please call any MassDEP Regional Office and ask to speak with a staff member in the solid waste program

APPENDIX F

Facility Audit Findings and Recommendations



September 15, 2020

Mr. Dave Taylor Jr.
Highway Superintendent
Town of Rockland
841 Market Street
Rockland, MA 02370

**RE: NPDES Phase II Stormwater Assistance
Pollution Prevention & Good Housekeeping for Municipal Operations
Municipal Facility Audit Report**

Dear Mr. Taylor,

In accordance with our July 2019 Contract Agreement for professional engineering services, Environmental Partners (EP) is forwarding this report on our audit of municipal facilities for compliance with the Town of Rockland's National Pollution Discharge Elimination System (NPDES) Stormwater General Permit. Implementing Best Management Practices (BMPs) aimed at ensuring proper pollution prevention and good housekeeping for municipal operations is one requirement (Part 2.3.7.b.iii) of the 2016 General Permit.

On August 19th and 31st, EP staff performed facility audits at fourteen (14) municipal facilities owned and operated by the Town of Rockland. These facilities include:

- Rockland Community Center
- R. Stewart Esten Elementary School
- Fire Department
- Rockland Senior High School
- Highway Department
- Jefferson Elementary School
- Rockland Memorial Library
- Memorial Park Elementary School
- Police Department
- Robert J. Nyman Rockland Senior Center
- Sewer Department
- Town Hall
- Recycling Center
- Abington & Rockland Joint Water Department

The audit process included touring the buildings and grounds of each property, observing accessible areas, reviewing available documents, and interviewing available facility contacts. Observations related to pollution prevention and good housekeeping, stormwater management, areas of erosion, water ponding, impervious surfaces, storage containers, and stockpile areas were documented in writing, in mobile data collection forms, and by photograph.

Due to COVID-19 restrictions, EP was unable to thoroughly observe the interiors of the facilities. The garages at the Highway Department was the only interior space thoroughly audited.

The municipal facilities audited in the Town of Rockland are generally in compliance with respect to the Pollution Prevention and Good Housekeeping minimum control measure of the Stormwater General Permit. EP has provided recommendations for potential facility improvements to manage stormwater runoff from the facilities described in this report.

A table summarizing our findings from the audits is provided in Appendix A. The table lists the facilities where audits were performed and, where applicable, identifies instances of non-conformance with the goals of the Stormwater General Permit. Recommendations for corrective action are also provided for instances of non-conformance. Photographs for many of the identified instances of non-conformance or potential upgrades are shown in Appendix B.

During site visits, stormwater assets (catch basins, drain manholes, MS4 outfalls, outlets, inlets, and drain pipes) were observed. Facilities for which there were unmapped stormwater assets found during the site visits are noted in Appendix A.

Corrective actions taken in response to the report should be documented in writing by the facility managers of the individual facilities, with a copy forwarded to you at the Engineering Division to be kept on file with other NPDES Stormwater Permit compliance documentation.

We very much appreciate working with the Town of Rockland on this project. Should you have any questions or require additional information, please do not hesitate to us.

Sincerely,

A handwritten signature in blue ink, appearing to read "Scott D. Turner", is positioned above the typed name and title.

Environmental Partners Group, Inc.
Scott D. Turner, PE, AICP, LEED AP ND
Director of Planning
P: 617.657.0280
E: sdt@envpartners.com

CC: Natalie M. Pommersheim, Environmental Partners
William M. Watts, Environmental Partners

Figures: 1. Municipal Facility Audit Map

Appendices: A. Municipal Facility Audit Summary
B. PDF Reports with Photo Documentation
C. A Summary of Requirements for Small Quantity Generators of Hazardous Waste

Figure 1:

Municipal Facility Audit Map

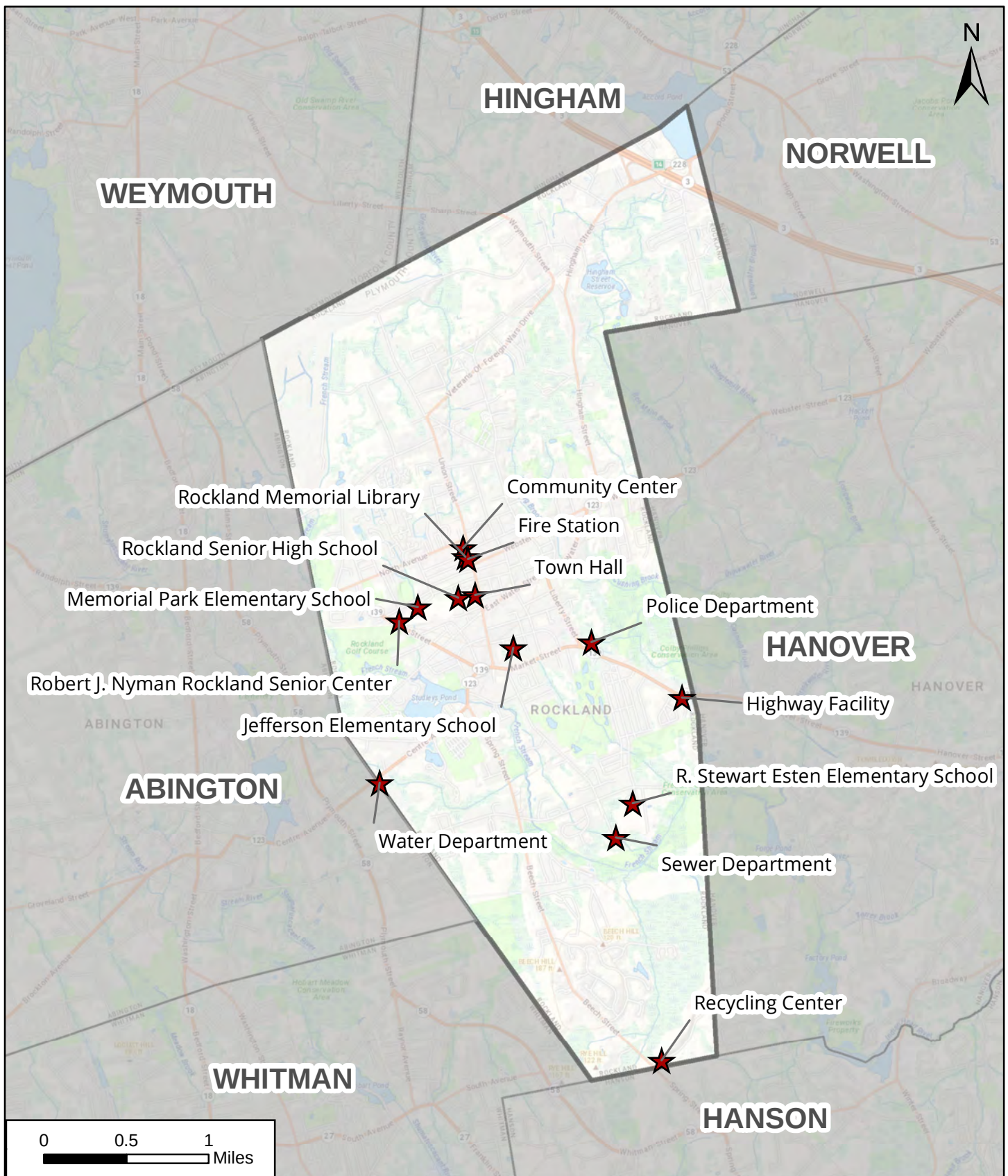


Figure 1
Municipal Facility Audit Map
Rockland, Massachusetts



Appendix A:

Municipal Facility Audit Summary



Facility	Address	Purpose of Facility	Observed Instances of Non-Conformance	Recommendation	Non-MS4 Observations & Recommendations
Rockland Community Center	394 Union Street	Community Center	Dumpster uncovered.	Verify floor drain discharge location. Remind employees to keep dumpster lids closed to avoid collection of rain water.	N/A
R. Stewart Esten Elementary School	733 Summer Street	School	N/A	N/A	N/A
Fire Department	360 Untio Street	Fire Station	N/A	N/A	N/A
Rockland Senior High School	52 Mackinlay Way	School	Dumpster uncovered.	Verify origin of pipe discharging to catch basin in grass in front of Goddard Ave. Remind employees to keep dumpster lids closed to avoid collection of rain water.	N/A
Highway Department	841 Market Street	Highway Facility	N/A	Previously unmapped stormwater assets (MS4 Outfall, catch basins) were discovered during site visit. Update GIS maps to reflect stormwater assets.	Organize solvents, oils, greases, and other chemicals and store neatly based on chemical compatibility. Gas cans/flammables should be stored the flammables storage locker. Purchase additional storage lockers as needed.
Jefferson Elementary School	34 James Street	School	N/A	N/A	N/A
Rockland Memorial Library	20 Belmont Street	Library	N/A	Previously unmapped stormwater assets (manhole, catch basin) were discovered during site visit. Update GIS maps to reflect stormwater assets.	N/A
Memorial Park Elementary School	1 Lt Col Brian Duffy Way	School	Dumpster uncovered.	Remind employees to keep dumpster lids closed to avoid collection of rain water.	N/A
Police Department	490 Market Street	Police Station	Dumpster uncovered.	Remind employees to keep dumpster lids closed to avoid collection of rain water.	N/A
Robert J. Nyman Rockland Senior Center	317 Plain Street	Senior Center	Dumpster uncovered.	Remind employees to keep dumpster lids closed to avoid collection of rain water. Previously unmapped stormwater assets (catch basins, drain manholes) were discovered during site visit. Update GIS maps to reflect stormwater assets.	Remove fertilizers and other items from top of flammables storage locker.
Sewer Department	587 Summer Street	Sewer Facility	N/A	Previously unmapped stormwater catch basin was discovered during site visit. Update GIS maps to reflect stormwater assets.	N/A
Town Hall	242 Union Street	School	Dumpster uncovered.	Remind employees to keep dumpster lids closed to avoid collection of rain water. Previously unmapped stormwater assets (catch basins, drain manholes) were discovered during site visit. Update GIS maps to reflect stormwater assets.	N/A
Recycling Center	1000 Beech Street	Transfer Station	N/A	N/A	N/A
Abington & Rockland Joint Water Department	366 Centre Avenue	Water Department	N/A	Previously unmapped stormwater assets (catch basins, drain manholes, outfall) were discovered during site visit. Update GIS maps to reflect stormwater assets.	N/A

Appendix B:

PDF Reports and Photo Documentation

Community Center

Created	2020-08-19 15:28:52 UTC by EPField 01
Updated	2020-08-19 15:39:13 UTC by EPField 01
Location	42.1329300321093, -70.9170779585838

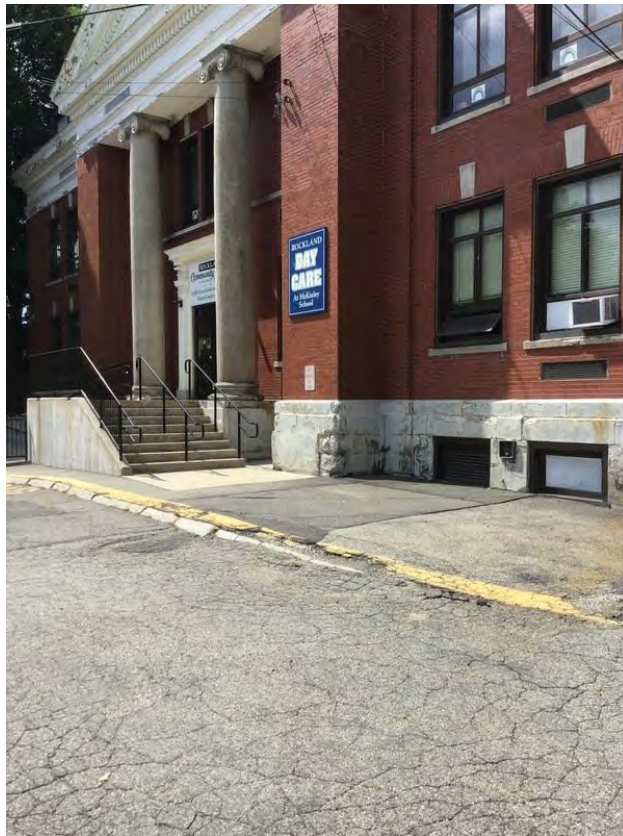
General

Client	Town of Rockland
Date	2020-08-19
Time	11:28
Address	394 Union St Rockland, MA 02370
Facility Type	Community Center

Inspection Information

Photos











School, R. Stewart Esten Elementary School

Created	2020-08-31 15:22:00 UTC by EPField 01
Updated	2020-09-01 14:38:33 UTC by EPField 01
Location	42.1103148967799, -70.8972316235304

General

Client	Town of Rockland
Date	2020-08-31
Time	11:22
Address	733 Summer St Rockland, MA 02370
Facility Type	School
Facility Name	R. Stewart Esten Elementary School

Inspection Information

Photos







Fire Station, Rockland Fire Station

Created	2020-08-31 16:29:18 UTC by EPField 01
Updated	2020-09-01 14:04:23 UTC by EPField 01
Location	42.1319384577713, -70.9164898842573

General

Client	Town of Rockland
Date	2020-08-31
Time	12:29
Address	360 Union St Rockland, MA 02370
Facility Type	Fire Station
Facility Name	Rockland Fire Station

Inspection Information

Photos





School, Rockland Senior High School

Created	2020-08-31 14:23:53 UTC by EPField 01
Updated	2020-09-01 14:30:40 UTC by EPField 01
Location	42.1285339675581, -70.9176781028509

General

Client	Town of Rockland
Date	2020-08-31
Time	10:23
Address	52 Mackinlay Way Rockland, MA 02370
Facility Type	School
Facility Name	Rockland Senior High School

Inspection Information

Photos











Highway Facility

Created	2020-08-19 17:02:10 UTC by EPField 01
Updated	2020-08-20 11:40:55 UTC by EPField 01
Location	42.1195945982282, -70.8912727609937

General

Client	Town of Concord
Date	2020-08-19
Time	13:02
Address	841 Market St Rockland, MA 02370
Facility Type	Highway Facility

Inspection Information

Photos

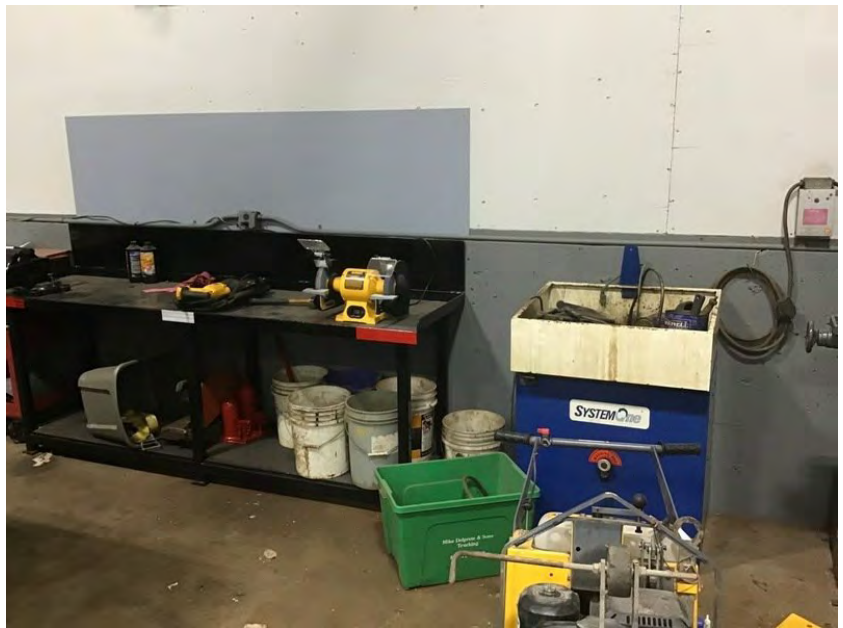




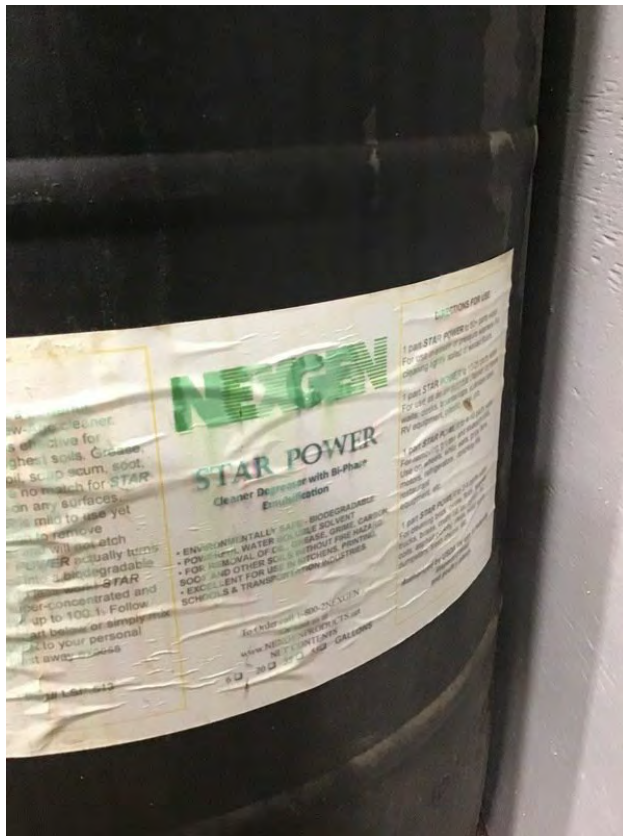
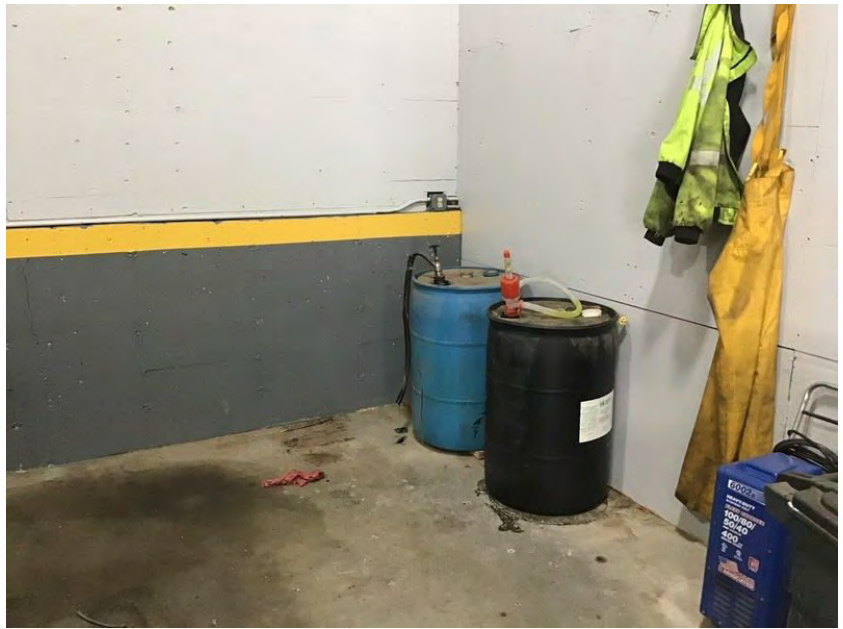
























































School, Jefferson Elementary School

Created	2020-08-31 15:04:10 UTC by EPField 01
Updated	2020-09-01 14:35:52 UTC by EPField 01
Location	42.1240883879756, -70.9112108778869

General

Client	Town of Rockland
Date	2020-08-31
Time	11:04
Address	34 James St Rockland, MA 02370
Facility Type	School
Facility Name	Jefferson Elementary School

Inspection Information

Photos









Library

Created	2020-08-19 15:39:17 UTC by EPField 01
Updated	2020-08-19 15:41:37 UTC by EPField 01
Location	42.1321236953802, -70.9168251603842

General

Client	Town of Rockland
Date	2020-08-19
Time	11:39
Address	20 Belmont St Rockland, MA 02370
Facility Type	Library

Inspection Information

Photos





School, Memorial Park Elementary School

Created	2020-08-31 14:48:31 UTC by EPField 01
Updated	2020-09-01 14:33:01 UTC by EPField 01
Location	42.1277489327287, -70.9224738926356

General

Client	Town of Rockland
Date	2020-08-31
Time	10:48
Address	1 Lt Col Brian Duffy Way Rockland, MA 02370
Facility Type	School
Facility Name	Memorial Park Elementary School

Inspection Information

Photos





Police Station, Rockland Police Department

Created	2020-08-31 16:43:03 UTC by EPField 01
Updated	2020-09-01 14:34:23 UTC by EPField 01
Location	42.1245406940566, -70.90197712183

General

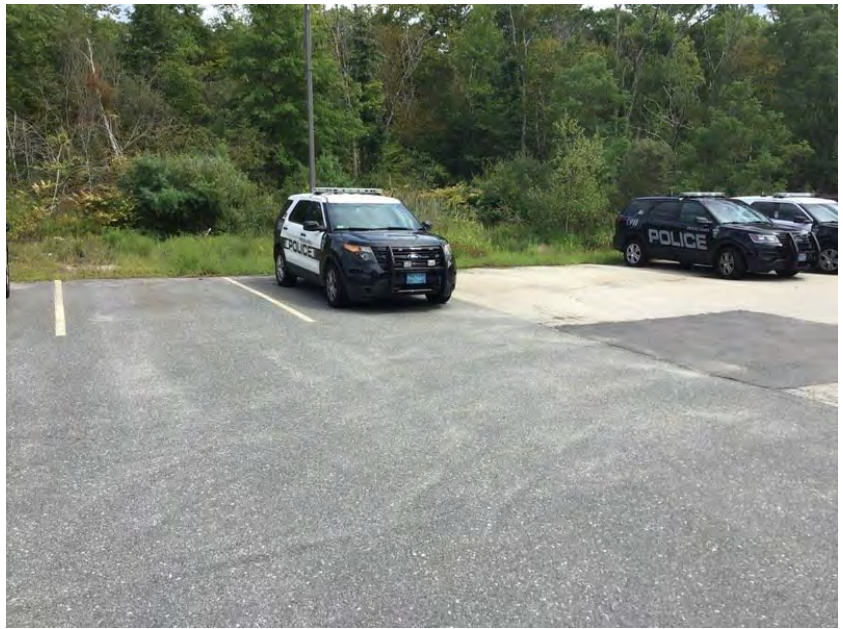
Client	Town of Rockland
Date	2020-08-31
Time	12:43
Address	490 Market St Rockland, MA 02370
Facility Type	Police Station
Facility Name	Rockland Police Department

Inspection Information

Photos







Senior Center

Created	2020-08-19 15:48:26 UTC by EPField 01
Updated	2020-08-19 15:58:53 UTC by EPField 01
Location	42.1265016791708, -70.9247326478362

General

Client	Town of Rockland
Date	2020-08-19
Time	11:48
Address	317 Plain St Rockland, MA 02370
Facility Type	Senior Center

Inspection Information

Photos











Sewer Department, Rockland Sewer Department

Created	2020-08-31 15:37:03 UTC by EPField 01
Updated	2020-09-01 14:40:45 UTC by EPField 01
Location	42.1073049260696, -70.8992677555148

General

Client	Town of Rockland
Date	2020-08-31
Time	11:37
Address	587 Summer St Rockland, MA 02370
Facility Type	Sewer Department
Facility Name	Rockland Sewer Department

Inspection Information

Photos







Town Hall

Created	2020-08-19 14:59:46 UTC by EPField 01
Updated	2020-08-19 15:23:41 UTC by EPField 01
Location	42.1287423399489, -70.9156952798367

General

Client	Town of Rockland
Date	2020-08-19
Time	10:59
Address	242 Union St Rockland, MA 02370
Facility Type	Town Hall

Inspection Information

Photos









Transfer Station , Town of Rockland Recycle Center

Created	2020-08-31 16:59:41 UTC by EPField 01
Updated	2020-09-01 14:43:15 UTC by EPField 01
Location	42.0876258938034, -70.894014062426

General

Client	Town of Rockland
Date	2020-08-31
Time	12:59
Address	1000 Beech St Rockland, MA 02341
Facility Type	Transfer Station
Facility Name	Town of Rockland Recycle Center

Inspection Information

Photos











Abington & Rockland Joint Water Department, Water Department

Created	2020-08-31 17:28:12 UTC by EPField 01
Updated	2020-09-01 14:37:30 UTC by EPField 01
Location	42.1122785606247, -70.927155688405

General

Client	Town of Rockland
Date	2020-08-31
Time	13:28
Address	366 Centre Ave Rockland, MA 02370
Facility Type	Abington & Rockland Joint Water Department
Facility Name	Water Department

Inspection Information

Photos







Appendix C:

A Summary of Requirements for Small Quantity Generators of Hazardous Waste

**A SUMMARY OF REQUIREMENTS
FOR
SMALL QUANTITY GENERATORS
OF HAZARDOUS WASTE**

Updated July 2014

Prepared by:
Massachusetts Department of Environmental Protection
Bureau of Waste Prevention
Business Compliance Division
1 Winter Street
Boston, MA 02108
www.mass.gov/dep/

INTRODUCTION

Many essential services, including auto repair and dry-cleaners and institutions, such as schools and hospitals, produce hazardous waste. If you use cleaning solvents, oil, inks, paints, acids, or alkalines, for example, you may be a generator of hazardous waste.

As a generator, it is your responsibility to know your legal obligations under the Massachusetts Hazardous Waste Regulations. Inappropriate handling and disposal of hazardous waste has damaged water supplies and threatened human health. Increasingly, businesses find that meeting the legal requirements is good practice that protects the environment, the equity in their property and their neighbors and employees.

Under the "Superfund" law, you are liable for your hazardous waste and any damage it causes even after it leaves your site and is taken away by a transporter to a treatment, storage or disposal facility. You can be required to contribute to the costs of cleaning up any contamination, resulting from your wastes wherever they end up. It is important, therefore, that you determine how to prevent pollution before it begins.

The cost of waste disposal and liability coverage is escalating. Landfilling of many hazardous wastes is now banned. There are few commercial hazardous waste disposal facilities and their capacity is limited.

Reducing the amount of your hazardous waste may be the most economical and environmentally sound approach to meeting your requirements. Substituting non-hazardous for hazardous products, modifying your process, segregating non-hazardous from hazardous waste streams, recycling your waste and better housekeeping should be key considerations for you.

The Massachusetts Department of Environmental Protection (DEP) regulates all non-households (businesses and institutions) which generate any amount of hazardous waste. Radioactive wastes, unless mixed with hazardous waste, and infectious wastes are regulated by the Massachusetts Department of Public Health as well as by federal agencies.

This brochure is a summary of a portion of the Massachusetts Hazardous Waste Regulations and is organized as follows:

- Classification
- Paperwork
- Housekeeping
- Very Small Quantity Generators

It is designed to help you understand the regulations and will assist you in meeting your legal obligation and avoiding potential penalties. However, it is not a substitute for reading and complying with the full Hazardous Waste Regulations 310 CMR 30.000.

Because Massachusetts requirements are more stringent than the federal requirements, you will be in compliance with federal hazardous waste regulations when you meet the state standards.

The complete regulations are available at cost at the State House Bookstores. You can have them sent to you by calling Boston's bookstore (617) 727-2834, or (413) 784-1376 in Springfield. Ask for the most recent compilation of 310 CMR 30.000.

For a specific fact sheet for your industry, which will provide more detailed information, call the Hazardous Waste Regulatory Program's Compliance Assistance Line at (617) 292-5898.

CLASSIFICATION

Determine whether your waste is hazardous (310 CMR 30.100)

Common hazardous wastes are:

- waste oil
- solvents and thinners
- acids and bases/alkalines
- toxic or flammable paint wastes
- nitrates, perchlorates and peroxides
- abandoned or used pesticides
- some wastewater treatment sludges

There are two ways a waste may be identified as hazardous: it may be **listed** in the regulations (310 CMR 30.131-136) or it may be defined by its hazardous **characteristic** (310 CMR 30.120).

Hazardous waste may be a listed discarded chemical, an off-specification product, or a liquid or solid residue from an operation process, which has one or more of the characteristics below:

- * **Ignitable** (easily catches fire, flash point 140 F);
- * **Corrosive** (easily corrodes materials or human tissue, very acidic or alkaline, pH of ≤ 2 or ≥ 12.5);
- * **Reactive** (explosive, produces toxic gases when mixed with water or acid);
- * **Toxic** (can leach toxic chemicals as determined by a special laboratory test).

Your waste is considered **acutely hazardous** if it is on the list of acutely hazardous wastes (310 CMR 30.136). These wastes are extremely toxic or reactive and are regulated more strictly than other hazardous wastes.

To find out if your waste is hazardous check with:

- * the supplier of the product (request a material safety data sheet);
- * laboratories;
- * trade associations;
- * consulting engineers;

and verify by reviewing the Massachusetts Hazardous Waste Regulations.

Determine your generator status and regulatory requirements

Two activities determine your generator category: the *rate* at which you generate and *how much* you store (accumulate). The amount and length of time you can accumulate your wastes will vary according to the type of waste.

A **Large Quantity Generator (LQG)** generates more than 1,000 kilograms (2200 lbs.) of hazardous waste in a month, or more than 1 kilogram of acutely hazardous waste (acutely hazardous waste is listed in the Massachusetts regulations, 310 CMR 30.136). The waste must be shipped within 90 days. There is no limit to the amount which can be accumulated.

A **Small Quantity Generator (SQG)** generates less than 1,000 kilograms in a month, and/or less than 1 kilogram of acutely hazardous waste. The waste must be shipped within 180 days and accumulation is limited to 6000 kilograms in tanks and containers.

A **Very Small Quantity Generator (VSQG)** generates less than 100 kilograms in a month, generates no acutely hazardous waste, and accumulates no more than 1,000 kilograms at any time.

To understand how you are regulated, estimate your maximum monthly volume of waste oil and your maximum monthly volume of all other hazardous waste. The Guide to Determining Status and Regulatory Requirements on page 5 will assist you.

Example:

Your firm generates 55 gallons of spent solvent and 500 gallons of waste oil in a month. According to the Guide (see conversions), you are a Small Quantity Generator (SQG) of hazardous waste because you generate more than 100 kilograms but less than 1000 kilograms, and a Large Quantity Generator (LQG) of waste oil because you generate more than 1000 kilograms. Your regulatory status will be found on the fifth line [SQG/LQG].

Reading across, you may accumulate your solvent for as long as 180 days, or until you have reached a volume of 6000 kilograms (1500 gallons) (see page 10), whichever happens first. You must ship your waste oil every 90 days, regardless of the volume. You must obtain an EPA Identification Number and use a manifest for both wastes. You must manage your waste according to the accumulation area standards on page 8 and you must fulfill the emergency preparation and response requirements on page 11. You are not required to file an annual report or a contingency plan or provide full personnel training, which is necessary for large generators of hazardous waste.

This matrix does not reflect ACUTELY Hazardous waste

Regulatory Status		Hazardous Waste Management Accumulation Limits		Waste Oil Management Accumulation Limits		Transport Requirements		Management Requirements		
Hazardous Waste	Waste Oil	Time (Days)	Volume in Tanks and Containers (kg)	Time (Days)	Volume in Tanks and Containers (kg)	Must Use Manifest	May Self Transport Haz Waste and/or Waste Oil	Accumulation Area Standards	Emergency Preparation	Personnel Training & Contingency Plans & Biennial Rpt
NOTIFICATION TO EPA	LQG	LQG	90	NO LIMIT	90	NO LIMIT	YES		YES	YES
	LQG	SQG	90	NO LIMIT	180	6000	YES		YES	YES
	LQG	VSQG	90	NO LIMIT	NO LIMIT	1000	YES*	YES _(WO)	YES	YES
	LQG	NONE	90	NO LIMIT	N/A	N/A	YES		YES	YES
	SQG	LQG	180	6000	90	NO LIMIT	YES		YES	YES
	SQG	SQG	180	6000	180	6000	YES		YES	YES
	SQG	VSQG	180	6000	NO LIMIT	1000	YES*	YES _(WO)	YES	YES
	SQG	NONE	180	6000	N/A	N/A	YES		YES	YES
	VSQG	LQG	NO LIMIT	1000	90	NO LIMIT	YES*	YES _(HW)	YES	YES
	NONE	LQG	N/A	N/A	90	NO LIMIT	YES		YES	YES
TO DEP	VSQG	SQG	NO LIMIT	1000	180	6000	YES*	YES _(HW)	YES	YES
	VSQG	VSQG	NO LIMIT	1000	NO LIMIT	1000	YES*	YES	YES	
	VSQG	NONE	NO LIMIT	1000	N/A	N/A	YES*	YES	YES	
	NONE	SQG	N/A	N/A	180	6000	YES		YES	YES
	NONE	VSQG	N/A	N/A	NO LIMIT	1000	YES*	YES	YES	

* - A manifest must be used for the VSQG category unless self transported.

Definitions:	<u>Regulatory Status</u>	<u>Kilograms/ Month (Generation)</u>	Conversions::	<u>Kilograms</u>	<u>Pounds</u>	<u>Gallons (varies by substance)</u>
	LQG	1000 OR MORE		100	220	25-27
	SQG	100-999		1000	2200	250-270
	VSQG	LESS THAN 100		6000	13200	1500-1620

PAPERWORK

The Manifest (310 CMR 30.310)

As a generator you always retain responsibility for your hazardous waste. If your waste is dumped or disposed of improperly, you can be held responsible. It is therefore important that you know where your waste is going and that it is handled properly and safely.

Federal law (the Resource Conservation and Recovery Act of 1976, known as RCRA) requires a national 'cradle to grave' tracking system for hazardous waste. In Massachusetts, every shipment of hazardous waste by a large or small generator must be transported by a licensed hauler and sent to a licensed treatment, storage or disposal facility (TSDF) or a permitted recycling facility and must be accompanied by a shipping document, called the Uniform Hazardous Waste Manifest.

You are responsible for completing the generator portion of the manifest. Directions for the distribution of the copies are on the back of the manifest. A copy will be returned to you when the facility has accepted your shipment.

If you do not receive a copy of the manifest from the receiving facility within 35 days of the date when your waste was shipped, you should contact your transporter or the operator of the facility to determine the status of your waste. If you have still not received the manifest within 45 days, you must file an Exception Report, explaining the efforts you've taken, with the DEP's Business Compliance Division and with the state where the designated facility is located.

If you are shipping hazardous waste directly to an out-of-state designated facility, you must submit a photocopy of Copy 3 to the Department within 30 days of receiving your copy from the designated facility.

Note the generator's certification statement on your manifest, which you must sign:

"If I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford."

All generators must keep copies of all manifests, any records of tests and analyses done of their hazardous waste, and records of waste determinations (including any determinations that their wastes are not hazardous) for at least three years, and for the duration of any enforcement action.

The EPA Identification Number (EPA ID) (310 CMR 30.303)

As a Small Quantity Generator of Hazardous Waste, to have your waste accepted by a licensed hauler or treatment/storage facility, you will need to obtain a federal Identification Number. The Environmental Protection Agency (EPA) will assign a 12-digit number, such as **MAR999999999**, which is unique for your location. Enter this number in Block **1** on each manifest.

In order to get an EPA ID, call DEP (617-338-2255 or 1-800-462-0444, outside the 617 area code) or go to <http://www.mass.gov/dep/bwp/dhm/files/hwepaid.pdf> for an application. Mail the completed application to the office listed in the instructions. Your number will be mailed to you within a few months. While you are waiting for your ID, you can use a temporary ID beginning with the letters MP, followed by your 10-digit telephone number.

The ID number is site-specific. You are required to notify the Bureau of Waste Prevention in your DEP Regional office of any change in your address, name of company, contact person or generator status. (See listing of towns by DEP Region on the back page.)

Shipping Your Hazardous Waste (310 CMR 30.304, 30.305)

All hazardous waste must be transported in containers that are labeled with the words HAZARDOUS WASTE, the name of the waste, type of hazard (e.g., toxic, flammable), generator's name, address and EPA ID number. Refer to the container standards described on page 8.

A list of licensed transporters is now available on DEP's Website at www.mass.gov/dep/ under the Bureau of Waste Prevention: you may also call DEP at (617) 292-55576. Transporters may assist you in preparing your waste for shipment.

Annual Compliance Assurance Fee (310 CMR 4.03)

All Small Quantity Generators of hazardous waste^{*} are billed an annual compliance fee of \$645 to cover costs of the services provided by the Department. These services include, but are not limited to, notification processing, compliance inspection, compliance assistance hot line, and information services.

As a Small Quantity Generator of hazardous waste you must notify the Department if you intend to cancel or modify your registration in any way. Any changes to your generator status must be received by the Department before July 1 to change your annual compliance fee for the upcoming fiscal year.

^{*} Small Quantity Generators of waste oil only are not subject to the fee.

HOUSEKEEPING

Accumulation Area Standards (310 CMR 30.351[8])

Your accumulation or storage area must meet the following conditions for both containers and tanks. (**VSQG** indicates VSQG's are also required to meet the standard.)

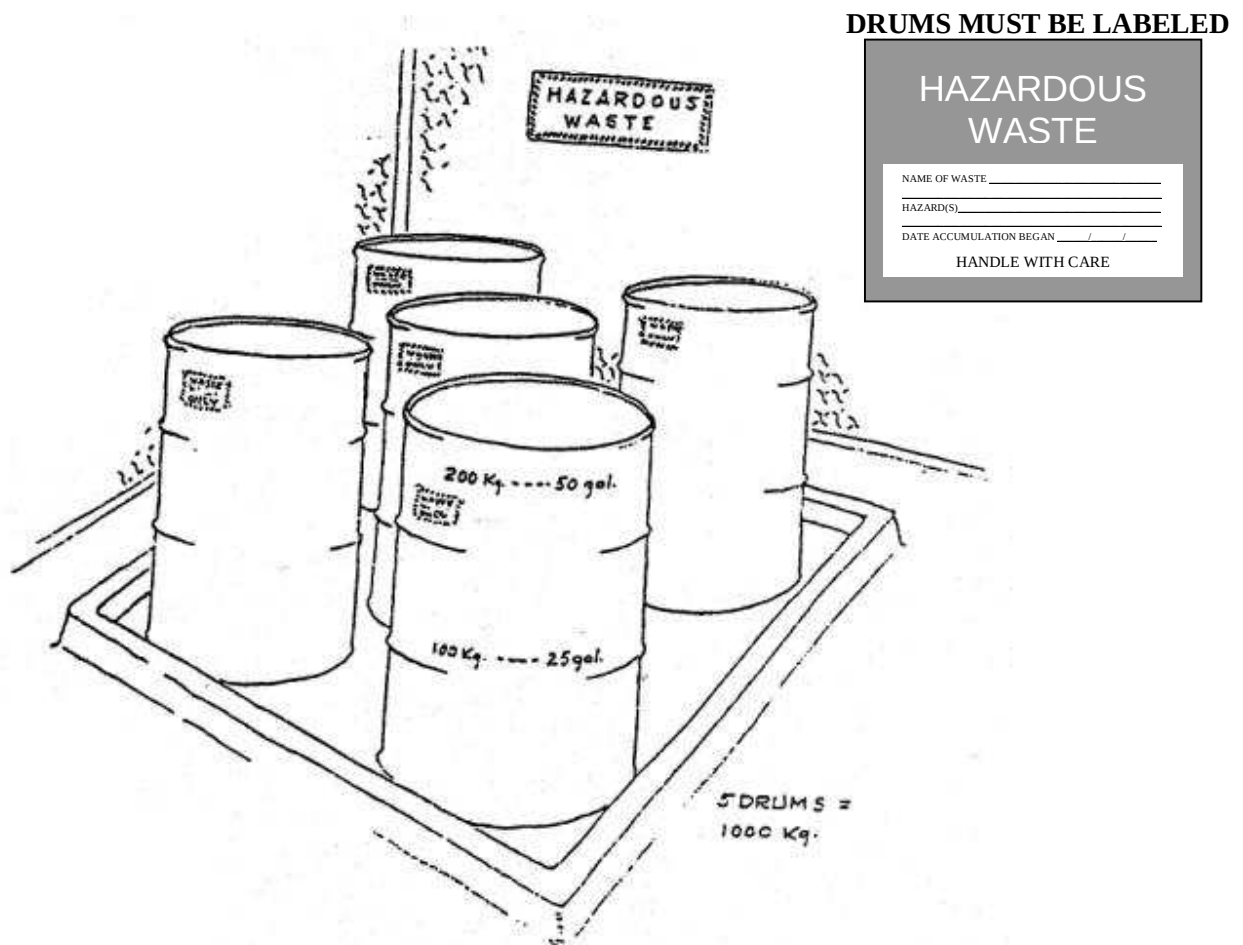
- VSQG** • Above-ground tanks and containers must be on a surface which does not have any cracks or gaps and is impervious to the hazardous wastes being stored and on pallets if containers are stacked;
- VSQG** • Area must be secured against unauthorized entry;
- VSQG** • Area must be clearly marked (e.g., by a visible line or tape, or by a fence) and be separate from any points of generation;
- VSQG** • Area must be posted with a sign: "HAZARDOUS WASTE" in capital letters at least one inch high;
- VSQG** • An **outdoor** area must have secondary containment, such as a berm or dike, which will hold any spill or leaks at:
 - 10% of the total volume of the containers, or
 - 110% of the volume of the largest container, whichever is larger.Any spillage must be promptly removed.

(In general, if the hazardous waste being stored has no free liquids, no pad or berm is required, provided that the accumulation area is sloped, or the containers are elevated.)

Standards for Containers and Tanks [310 CMR 30.341(2), 30.680, 30.690]

- VSQG** • Each container and tank must be clearly and visibly labeled throughout the period of accumulation with the following:
 - the words "HAZARDOUS WASTE:
 - the name of the waste (e.g., waste oil, acetone)
 - the type of hazard(s) (e.g., ignitable, toxic)
- SQG ONLY** - date on which accumulation began.
- VSQG** • Each container must be in good condition

- VSQG**
- Wastes of different types must be segregated. This includes not mixing waste oil or used fuel oil with other wastes. Be careful not to put incompatible wastes in the same container or put wastes in unwashed containers that previously held incompatible wastes.
- VSQG**
- Separate containers of incompatible wastes by a berm, dike, or similar structure.
- VSQG**
- Each container holding hazardous wastes must be tightly closed throughout the period of accumulation, except when the waste is being added or removed.
 - Containers holding ignitable or reactive wastes must be at least 15 meters (50 ft.) from the property line. If this is not possible or practical, you must store such containers in compliance with all applicable local ordinances and by-laws.
 - Inspect your accumulation area at least once a week for any leaking or deterioration of your containers. You must have enough aisle space between your containers to allow for inspections.



Accumulation Time Limits (310 CMR 30.351[5])

As a small quantity generator (SQG), you may accumulate up to 6000 kgs (1500-1620 gallons) in containers and *tanks* for as long as 180 days. You have two upper limits - time and volume. Whichever is reached first determines the date on which you must ship your waste.

Satellite Accumulation (310 CMR 30.351[4])

Additional flexibility is offered by allowing you to accumulate up to 55 gallons of hazardous waste (per wastestream), or one quart of acutely hazardous waste, at each point where you generate your waste, if you meet the following conditions:

- The waste must be generated from a process at the location of the satellite accumulation;
- Each satellite accumulation area can have only one container for each waste stream in use at a time;
- Each satellite accumulation area must be managed by the person who is directly responsible for the process producing the waste;
- The waste must be moved to the main designated accumulation area within three days after the container is full.

Accumulation of Waste Oil in Underground Tanks (including those resting directly on the ground) [310 CMR 30.253(1)(g)]

All underground tanks must have tight caps, leak detection devices and cathodic protection with an overflow and spill prevention device by December 22, 1998.

- Tanks must have continuous leak detection capability through an in-tank monitoring device or be double-walled.
- Keep a log of all test results, beginning and ending measurements, variation and average figures, for at least 3 years.
- Report a difference of a month's average greater than 5 gallons (for tanks containing 550 gallons or less) to your DEP regional office.

EMERGENCY PREPARATION AND RESPONSE (310 CMR 30.351(9))

Equipment

To minimize the risk of fire, explosion, or release of hazardous wastes that may contaminate the environment, you are required to have on site, and immediately accessible to your hazardous waste handling area, the following (unless the hazards posed by your wastes do not require one of them):

- * an alarm or communication system which can provide emergency instruction to employees;
- * a telephone, two-way radio or other device which can summon police, fire or emergency response teams;
- * portable fire extinguishers and/or fire control equipment (e.g. foam, inert gas), and spill control/decontamination equipment;
- * adequate supply and pressure of water, automatic sprinklers or water sprays, or foam-producing equipment.

All your equipment must be periodically tested and properly maintained so it will work during an emergency.

Prepare Your Employees

You must thoroughly familiarize each of your employees with all the waste handling and emergency procedures that may be needed for each of their jobs. An employee must have immediate access to alarm or communication devices, either directly or through another employee, whenever hazardous waste is being handled. If your operation is at any time being handled by a single employee, that person must have immediate access to a telephone or two-way radio.

For easy movement of employees and emergency equipment, you must maintain adequate aisle space in the area of hazardous waste handling. Mark all exits clearly.

Notify Local Authorities

You must make every reasonable attempt to carry out the following arrangements, in regards to the waste you produce:

- * Familiarize your police department, fire department, local boards of health, and any emergency response teams with the hazardous nature of your waste; the layout of your site, including entrances and evacuation routes, and the location where your employees usually work;
- * Familiarize local hospitals with the hazards of your waste and the types of injuries that could result from any accidents;
- * Obtain agreements with emergency response teams and contractors, and local boards of health;
- * If more than one police and/or fire department might respond to an emergency, make an agreement with the department which will have primary emergency authority and specify others as support.

If such arrangements cannot be made, a copy of a signed and dated letter which demonstrates an effort to make these arrangements from you, the generator, to the state or local entity will be considered sufficient.

Emergency Coordinator

You must designate at least one employee to be on call (or on the premises) at all times. This person is the emergency coordinator and is responsible for coordinating all emergency response measures.

Emergency Response

You must have posted next to each telephone near your waste generation area the following:

- * name(s) and telephone number(s) of your emergency coordinator(s);
- * location(s) of the fire control equipment and any fire alarms;
- * telephone number of the fire department, or if there is a direct alarm system, instructions on how to use it;
- * evacuation routes, where applicable.

If any of the following emergencies occur:

Fire - attempt to extinguish the fire and/or call the fire department;

Spill or leak - contain the flow as quickly as possible and as soon as is practical, clean up the waste and any soil or other materials which may have become contaminated with waste;

A release (spill or leak) or threat of release, fire or explosion of hazardous waste that may threaten human health or the environment

- Call the appropriate DEP Regional Office (see page 17) and ask for Emergency Response, or the Central Boston office at (617) 556-1133 or (888) 304-1133.

and

- Call the National Response Center's 24-hour toll-free number (1-800-424-8802).

VERY SMALL QUANTITY GENERATOR (VSQG) (310 CMR 30.353)

Registration

If you generate less than 100 kgs a month of hazardous waste, and no acutely hazardous waste, you are eligible to register as a Very Small Quantity Generator (see page 5 for the generation and accumulation limits). To qualify as a Very Small Quantity Generator you must register with DEP (see page 16).

Housekeeping Requirements (see pages 8 and 9 for VSQG identified lines)

Treatment/Disposal Options

As a registered VSQG you have the following options for handling your waste:

You may recycle or treat your waste, provided the process you describe in your registration is acceptable to DEP;

You may transport your waste to another generator who is in compliance with the regulations and who will count your waste as part of their generation;

You may transport your waste in your own vehicle to a licensed treatment, storage or disposal facility, or permitted recycling facility, by pre-arrangement;

You may use a licensed transporter and a manifest form. Use of the manifest requires an ID number. (VSQG's and SQG's of waste oil use a number beginning with the letters MV followed by their 10-digit telephone number.)

Self-Transport Option

As a registered VSQG you may transport your own hazardous waste under the following conditions:

You transport only the waste that you generated on your premises;

You do not transport more than 200 kgs at one time;

VSQG (cont.)

Your waste is in containers that are:

- no larger than 55 gallons in volume
- compatible with the waste
- tightly sealed
- labeled as "HAZARDOUS WASTE"
- labeled with the name of the waste and the type of hazard
- tightly secured to the vehicle

You do not transport incompatible wastes in the same shipment;

In the event of a spill or leak of hazardous waste that may threaten human health or the environment you notify DEP or the State Police and the National Response Center, as described on page 13;

You must have a copy of your registration with DEP in the vehicle;

You must be in compliance with federal Department of Transportation (617-494-2770) and Massachusetts Department of Public Safety (978-567-3300) requirements.

Record-keeping

If you are not using a licensed transporter but are transporting your own wastes, you do not need a manifest form. You must, however, keep a record of the type and quantity, as well as the date, of the transport and treatment or disposal of your waste. You will need proof of the receipt of the waste by the facility or generator.

You must keep receipts or manifests of waste shipped and records of waste analysis for at least 3 years, or for the duration of any enforcement action by DEP.

Accumulation Limits

You may accumulate up to 1000 kgs (approximately 270 gallons or five 55 gallon drums) of hazardous waste in containers that meet the standards on pages 8-9 with no time limit.

There is no annual compliance assurance fee for Very Small Quantity Generators.

STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODES

Automotive Industry

5013 Auto parts/supplies
 7512 Autobody shops
 7549 Automotive repair services
 5511 Car dealers, new & used
 7542 Car washes
 7699 Engine repair
 5541 Gasoline service stations
 7538 General auto & truck repair
 4231 Motor freight terminals
 371 Motor vehicles & equipment
 5093 Scrap & waste dealers
 4214 Trucking & storage

Construction, Building Trades

2951 Asphalt paving manufacture
 1521 Building contractor (single family)
 7349 Building maintenance
 1751 Carpenter, cabinetmaker
 1731 Electrical contractor
 8711 Engineering, architecture
 1749 Excavating contractor
 1752 Floor laying
 154 General contractor (non-residential)
 162 Heavy construction contractor
 1721 Painting, paper hanging
 1611 Paving contractor
 1711 Plumbing, heating
 1761 Roofing
 1442 Sand & gravel

Educational Institutions

8221 Colleges & universities
 8211 Elementary & secondary schools
 8412 Museums
 8922 Non-commercial educational scientific & research organizations
 8249 Vocational schools

Food Industry (Retail)

5461 Bakery products
 5451 Dairy products

Machine shops/metal fabrication

3362 Brass, bronze & copper castings
 3432 Brass goods/plumbing fixtures
 3471 Electroplating, anodizing
 3431 Enameled iron & metal ware
 3499 Fabricated metal products
 344 Fabricated structural metal
 346 Forgings & stamping
 3429 Hardware
 3569 Heavy equipment
 391 Jewelry silverware, plated ware
 3544 Job shops, tool & die
 355 Machinery
 3412 Metal barrels, drums
 3398 Metal heat treating
 3451 Screw machine products
 3444 Sheet metal work
 333 Smelting – non-ferrous metals
 334 7692 Welding

Manufacturing

362 Electric appliances (industrial)
 2851 Paints, varnish
 2621 Paper mills
 2821 Plastics, liquid resins
 367 Printed circuit boards, semiconductor
 243 Wood products, mill work

Medical Services

8021 Dentists
 8060 Hospitals
 8071 Medical & X-ray laboratories
 8011 Physicians
 8731 Research laboratories
 074 Veterinarians

Municipal Services

9224 Fire
 9221 Police
 9229 Public works
 4953 Refuse, landfills

Other Services

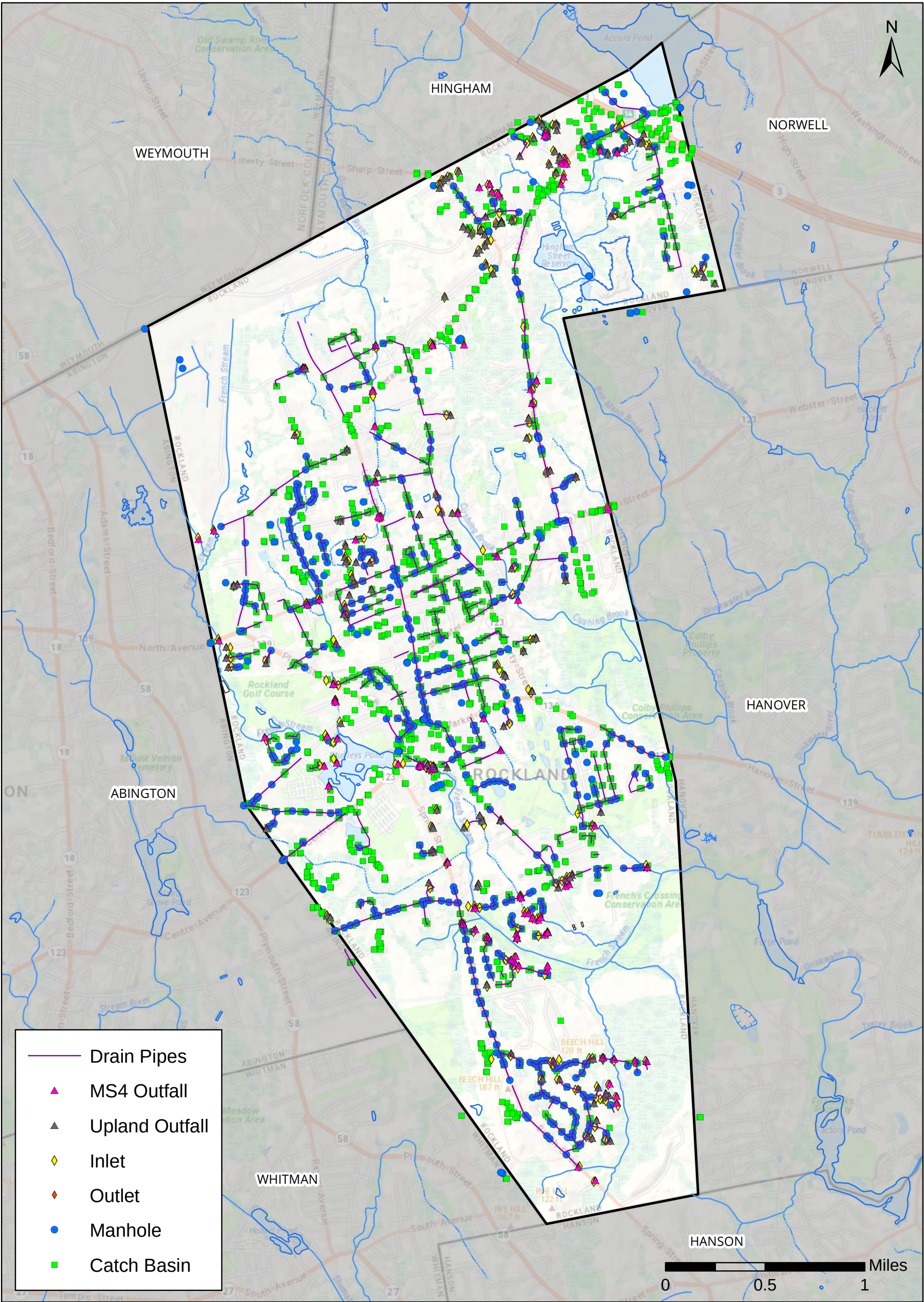
7623 Air conditioning repair
 764 Antiques repair
 8999 Art restoration
 7231 Beauty salons
 4493 Boat yard
 7699 Cesspool cleaning
 7342 Disinfecting
 7216 Dry cleaning
 7641 Furniture stripping
 078 Landscaping, horticultural
 7389 Miscellaneous business services
 5983 Motor oil retailer
 7512 Paint shops
 1611 Paving contractor
 722 Photographers
 4311 Postal, U.S.
 5093 Scrap & waste dealers
 4171 Transportation (bus)
 448 Transportation (water)

Printing Industry

7334 Blueprinting, photocopying
 2731 Book publishing
 2754 Commercial gravure
 2752 Lithographic printing
 2711 Newspaper publishers
 2721 Periodical publishers
 2793 Photoengraving
 7384 Photofinishing laboratories
 226 Screenprinting

APPENDIX G

Stormwater Infrastructure Map



Appendix G. Stormwater
Infrastructure Map
Rockland, Massachusetts
June 2020



APPENDIX H

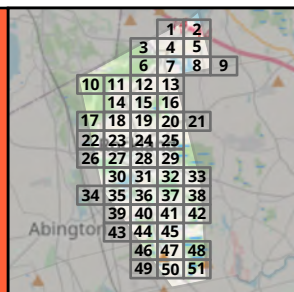
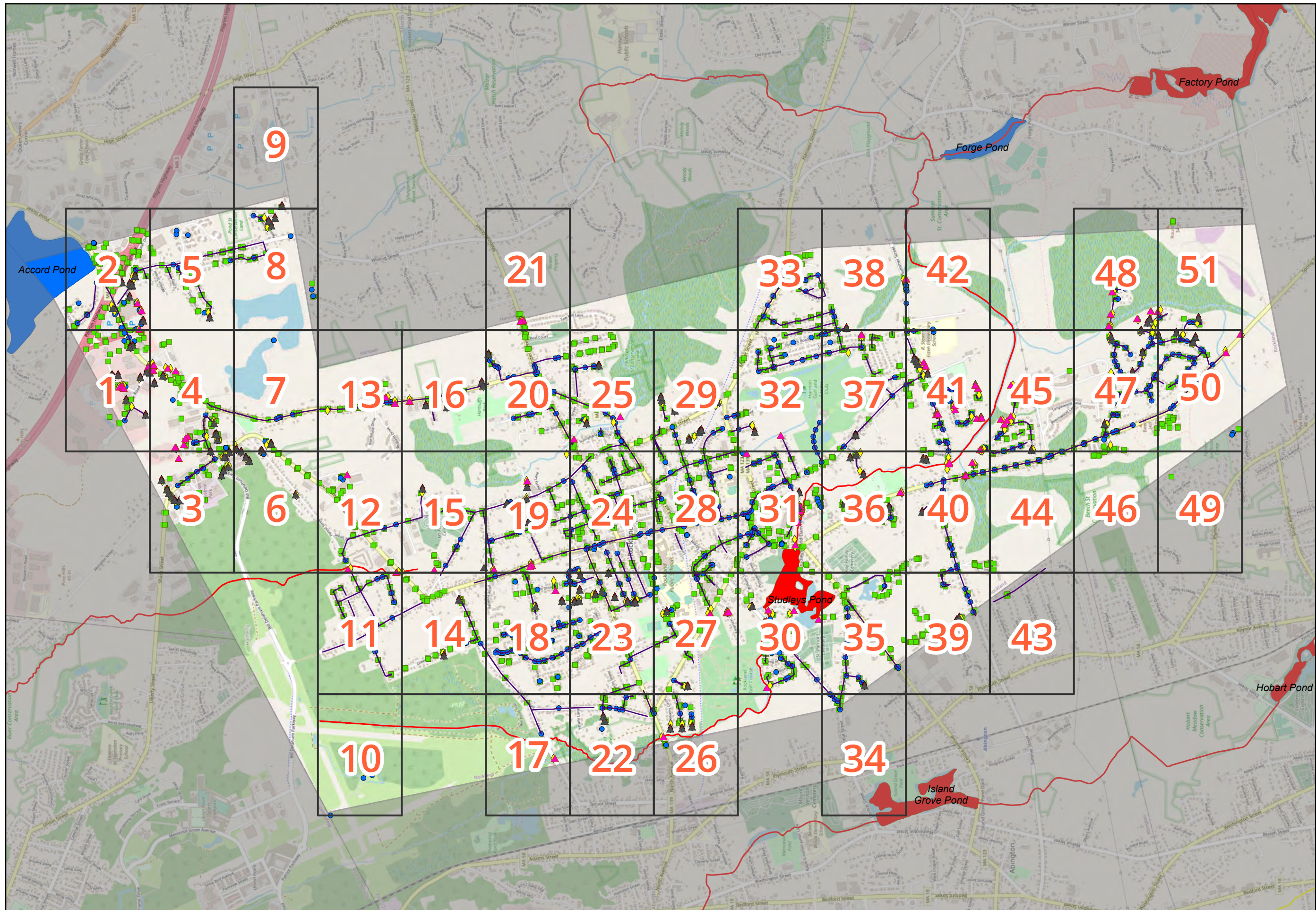
Street and Parking Lot Sweeping Log



Street Sweeping Log			
Date _____ Precipitation in the last three days? Yes ☐ No ☐			
Weather Today: _____ Temperature: _____			
Supervisor/Crew Leader: _____			
Street Swept (Name)	Miles	Potential Sources of Pollution	Comments
		☐ None ☐ Construction Activity ☐ Erosion ☐ Material Storage ☐ Equipment Storage ☐ Other	
		☐ None ☐ Construction Activity ☐ Erosion ☐ Material Storage ☐ Equipment Storage ☐ Other	
		☐ None ☐ Construction Activity ☐ Erosion ☐ Material Storage ☐ Equipment Storage ☐ Other	
		☐ None ☐ Construction Activity ☐ Erosion ☐ Material Storage ☐ Equipment Storage ☐ Other	
		☐ None ☐ Construction Activity ☐ Erosion ☐ Material Storage ☐ Equipment Storage ☐ Other	
		☐ None ☐ Construction Activity ☐ Erosion ☐ Material Storage ☐ Equipment Storage ☐ Other	
		☐ None ☐ Construction Activity ☐ Erosion ☐ Material Storage ☐ Equipment Storage ☐ Other	
		☐ None ☐ Construction Activity ☐ Erosion ☐ Material Storage ☐ Equipment Storage ☐ Other	
		☐ None ☐ Construction Activity ☐ Erosion ☐ Material Storage ☐ Equipment Storage ☐ Other	
		☐ None ☐ Construction Activity ☐ Erosion ☐ Material Storage ☐ Equipment Storage ☐ Other	
		☐ None ☐ Construction Activity ☐ Erosion ☐ Material Storage ☐ Equipment Storage ☐ Other	
		☐ None ☐ Construction Activity ☐ Erosion ☐ Material Storage ☐ Equipment Storage ☐ Other	
Total Sediment Accumulated from Route (estimated based on truck loads) _____ cubic yards			
Total Sediment Accumulated from Route (if weighed) _____ tons			

ATTACHMENT 1

Town of Rockland Mapbook



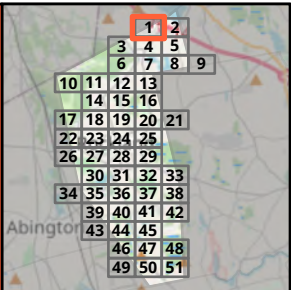
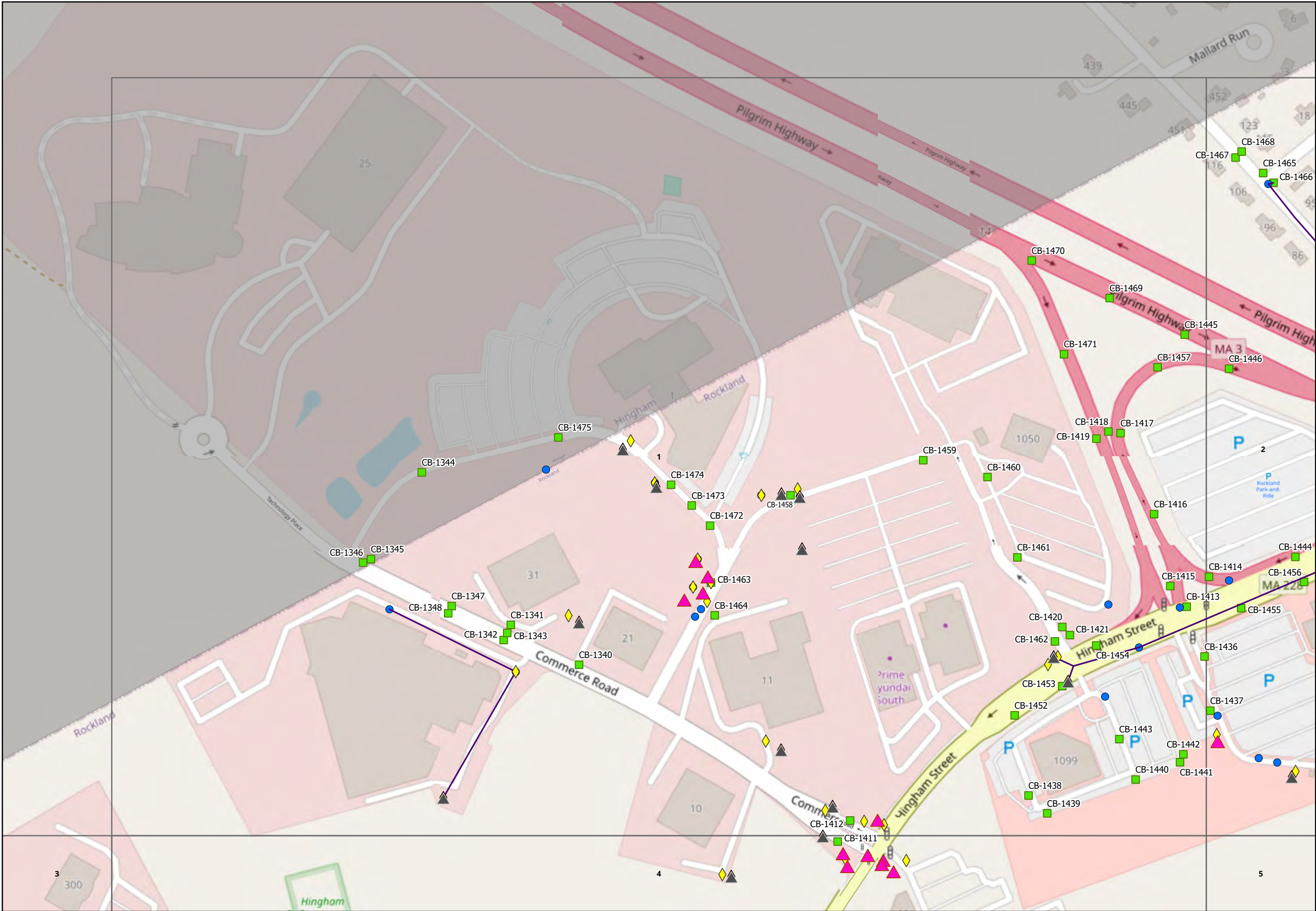
Stormwater System
Rockland, Massachusetts

- ▲ MS4 Outfall
- ▲ Upland Outfall
- Manhole
- Catch Basin
- ◆ Inlet
- ◆ Outlet
- Drain Pipes



0 1,000 2,000
Feet

ENVIRONMENTAL
PARTNERS



Page Number: 1

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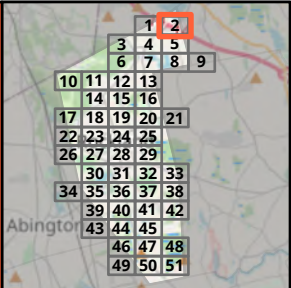
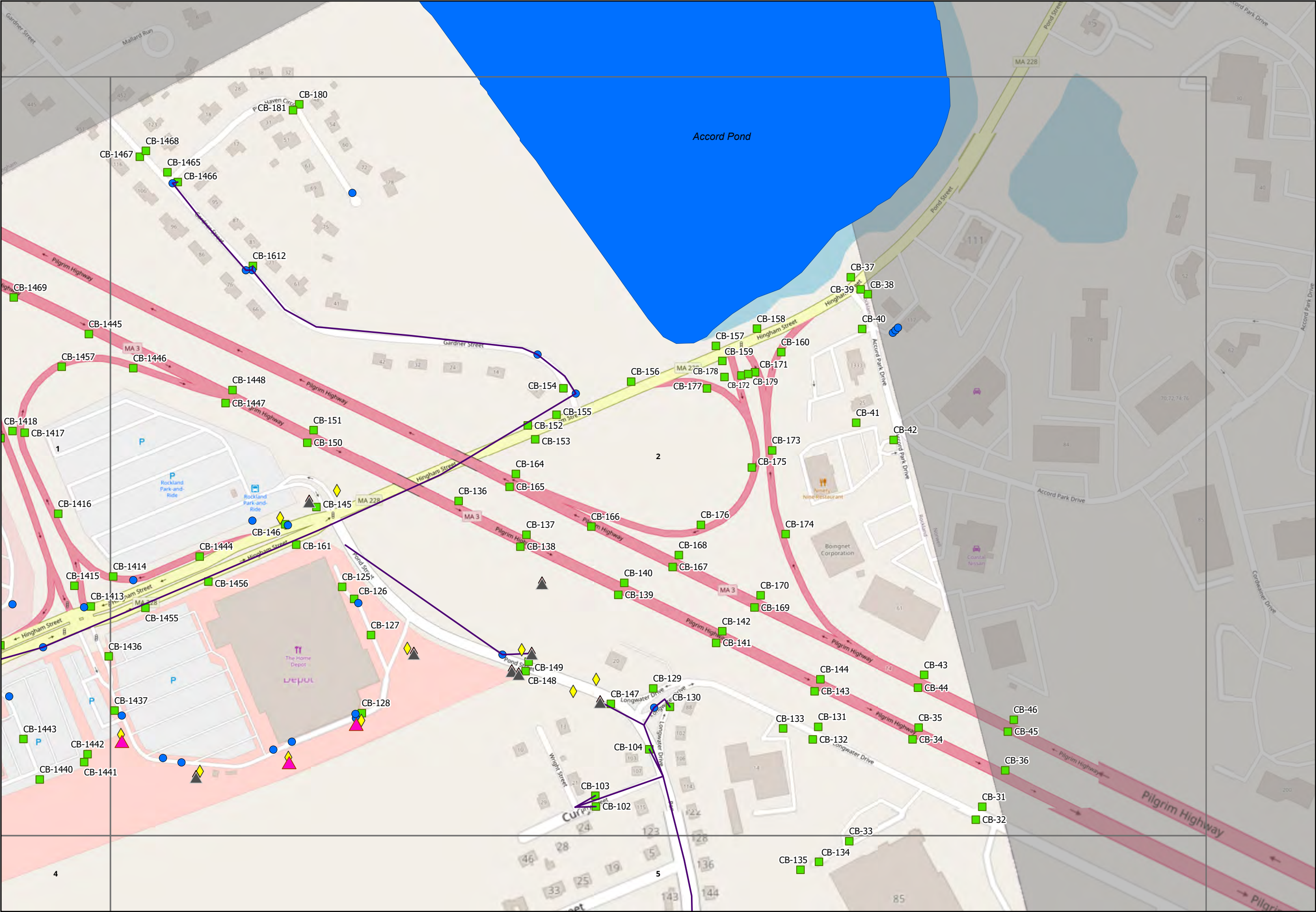
Rockland, Massachusetts

- MS4 Outfall
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- Manhole
- Catch Basin
- Inlet
- Outlet
- Drain Pipes



0 125 250 Feet

ENVIRONMENTAL PARTNERS



Page Number: 2

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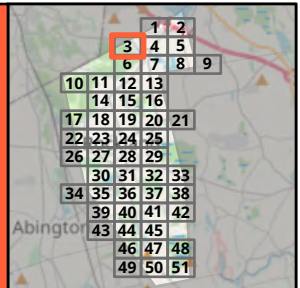
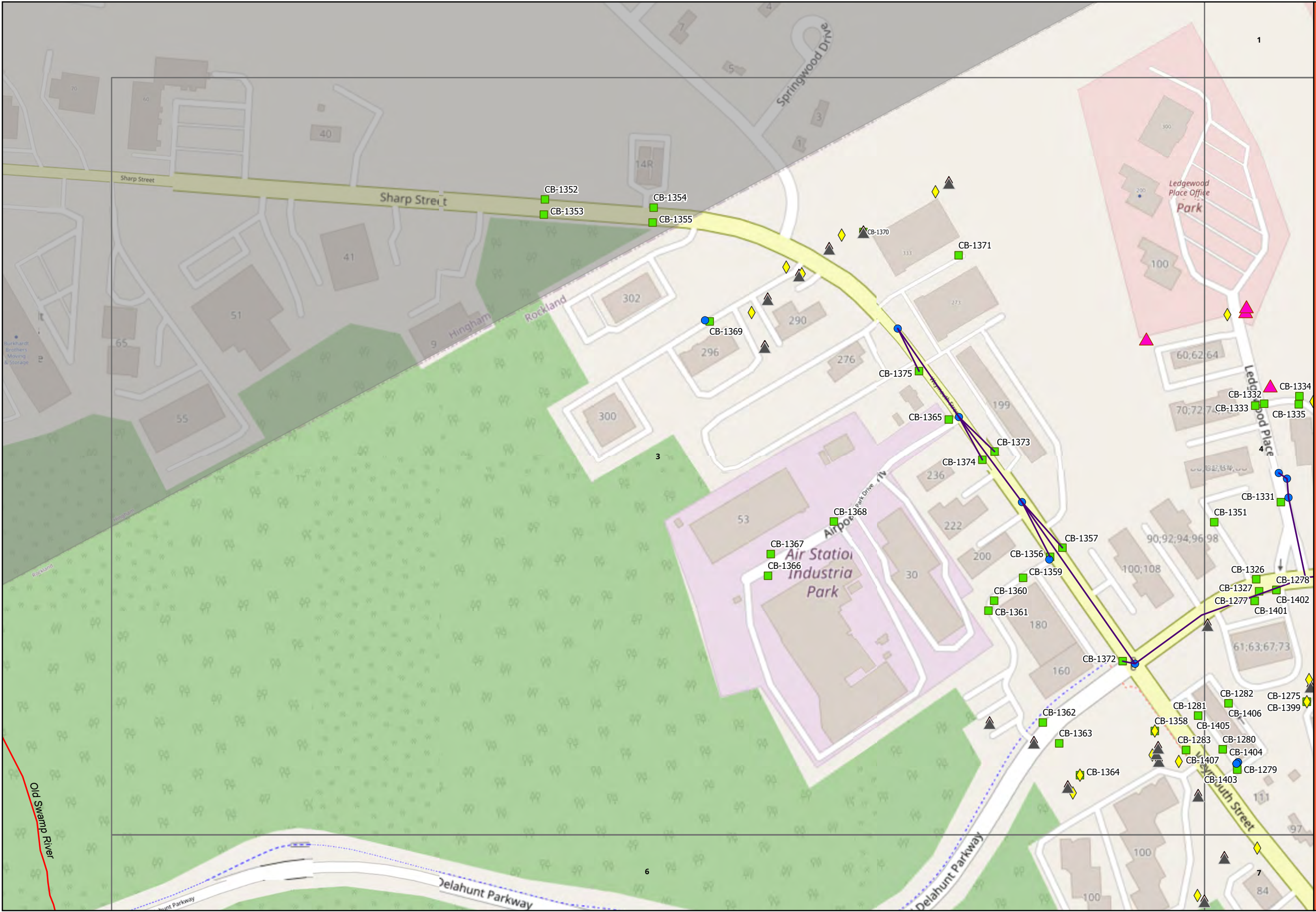
Rockland, Massachusetts

- MS4 Outfall
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- Outlet
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0 125 250 Feet

ENVIRONMENTAL PARTNERS



Page Number: 3

Stormwater System

Rockland, Massachusetts

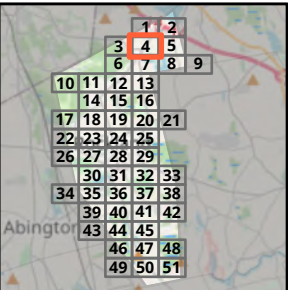
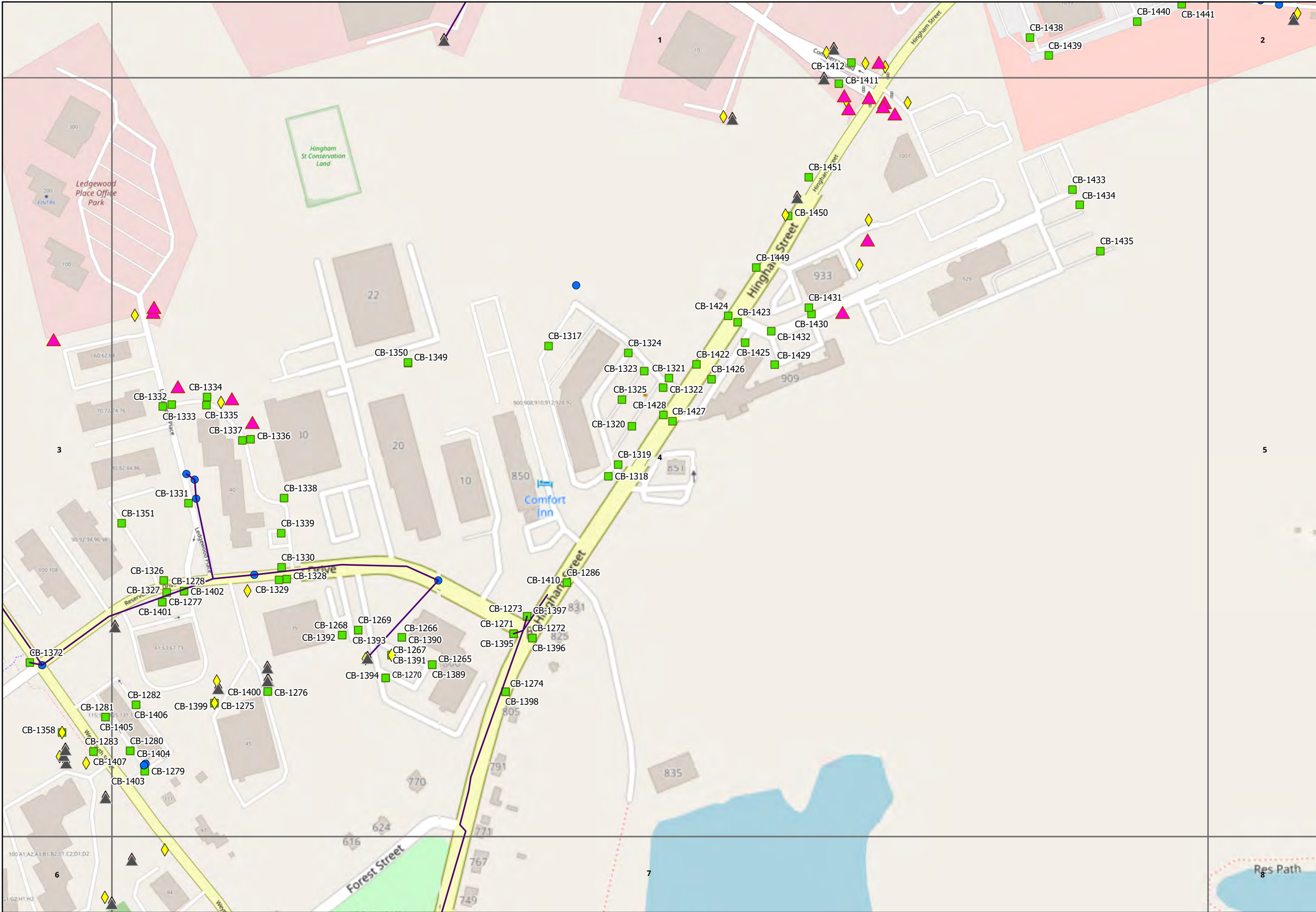
- MS4 Outfall
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- Drain Pipes



0 125 250 Feet

ENVIRONMENTAL PARTNERS

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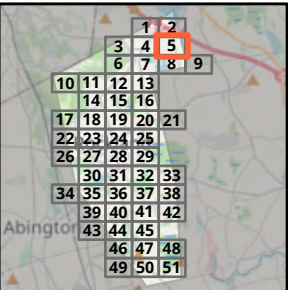
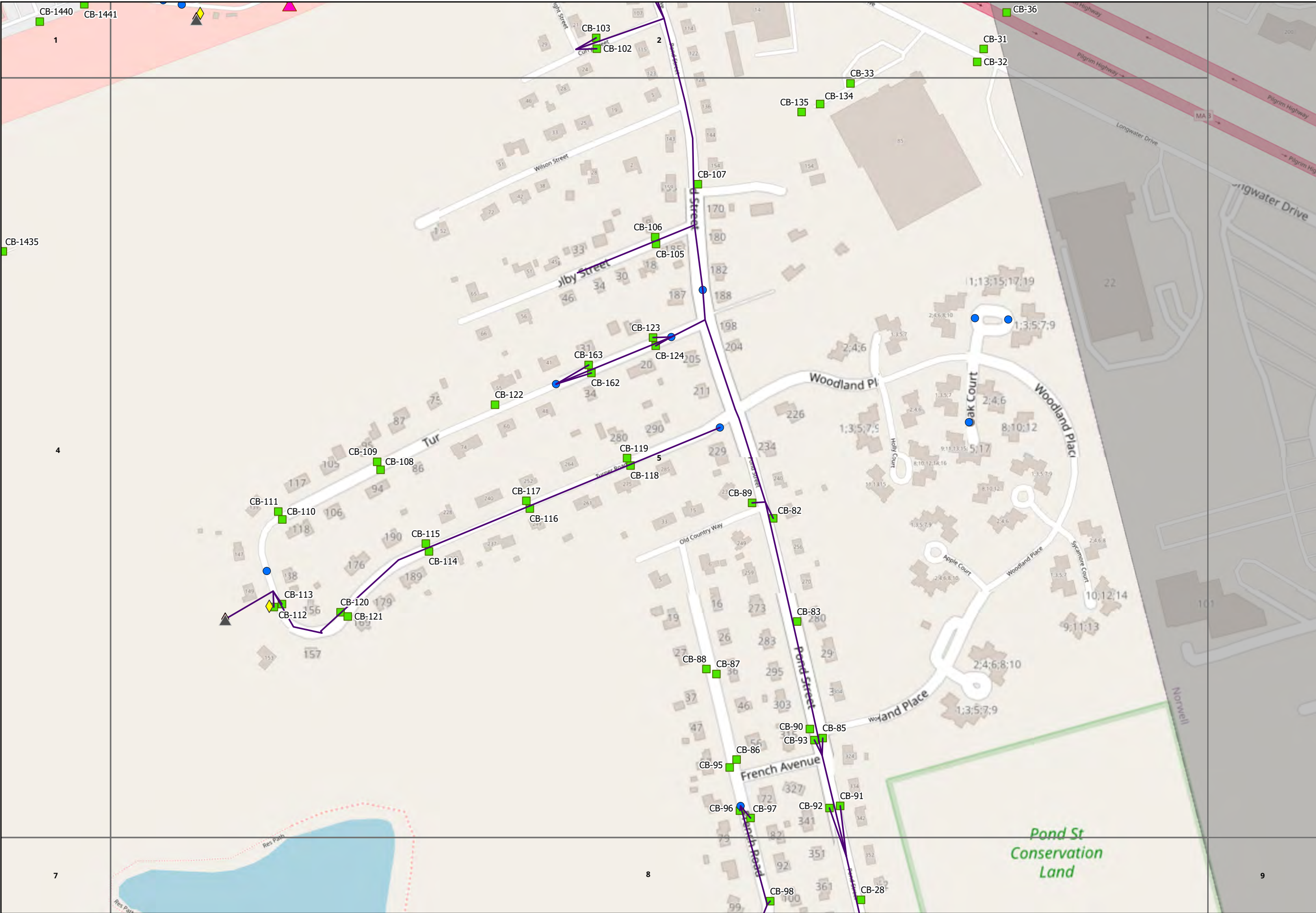
Rockland, Massachusetts

- MS4 Outfall
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- Manhole
- Catch Basin
- Inlet
- Outlet
- Drain Pipes



0 125 250 Feet

ENVIRONMENTAL PARTNERS



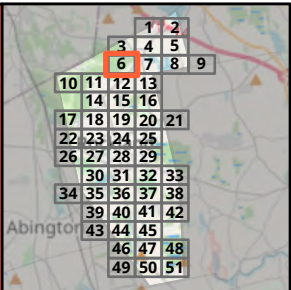
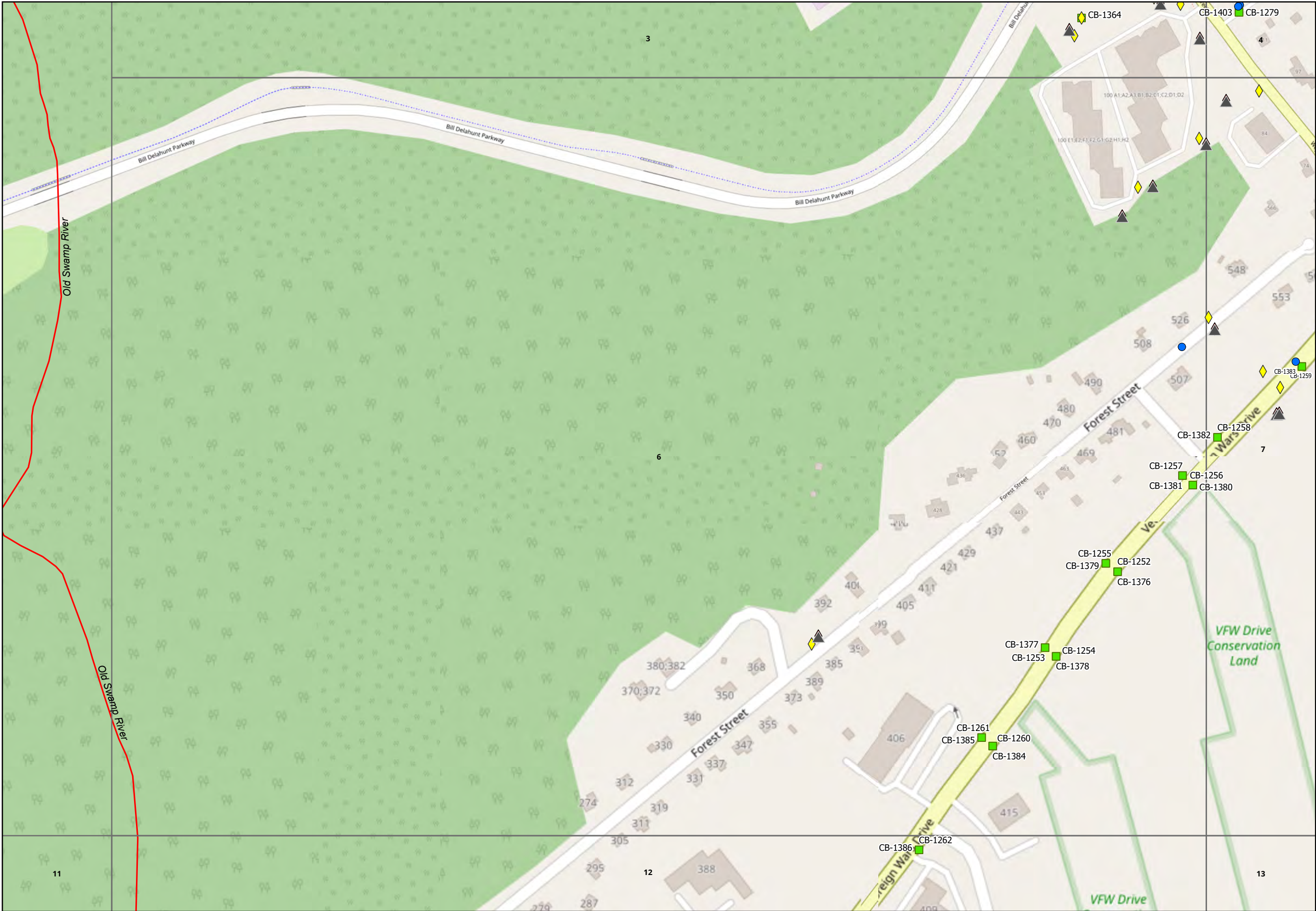
Stormwater System
Rockland, Massachusetts

- MS4 Outfall
- Upland Outfall
- Manhole
- Catch Basin
- Inlet
- Outlet
- Drain Pipes



0 125 250 Feet





Stormwater System

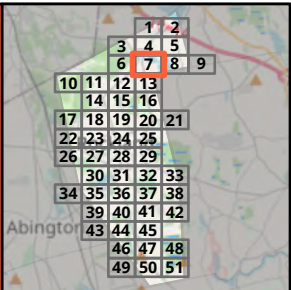
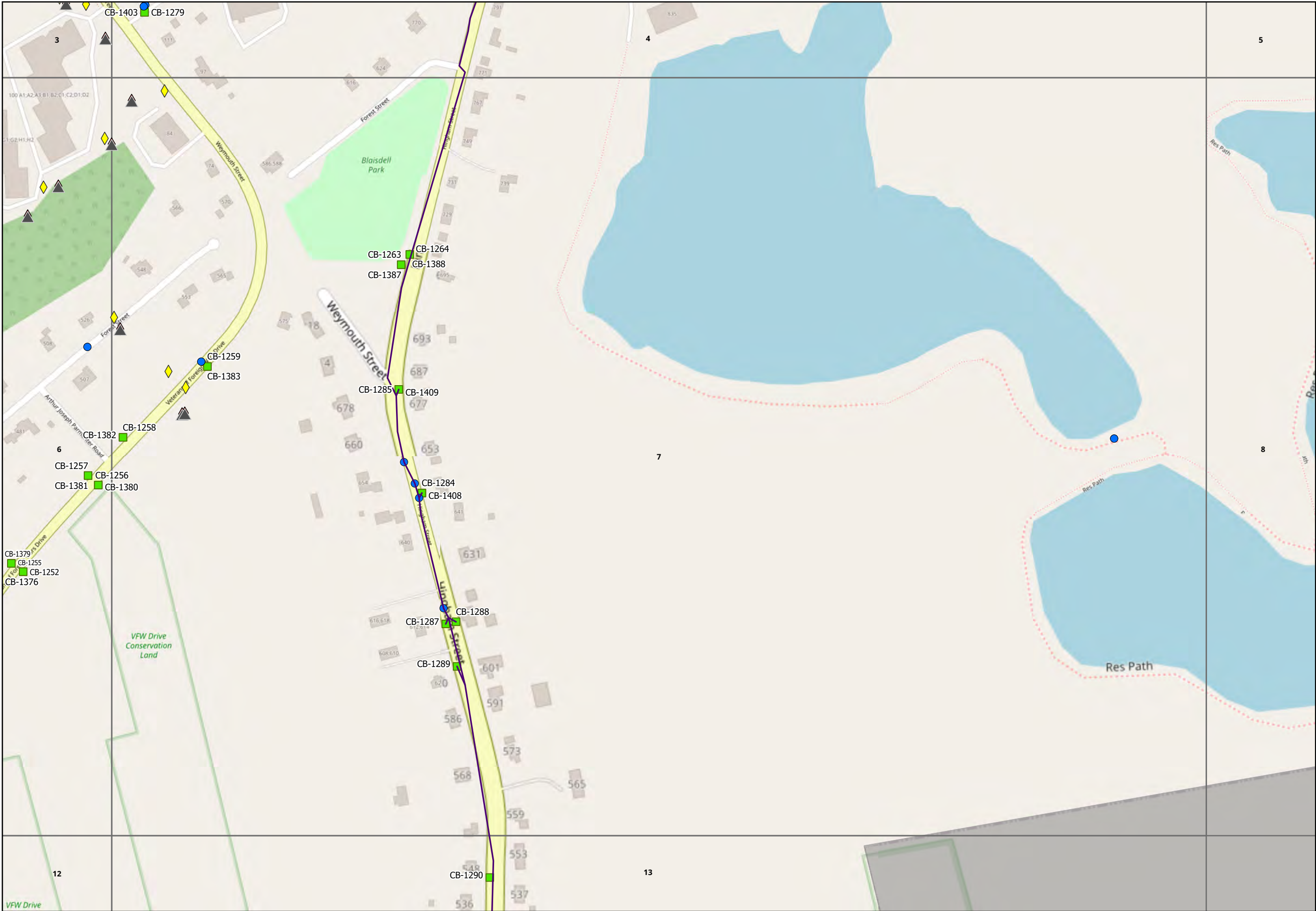
Rockland, Massachusetts

- MS4 Outfall
- Upland Outfall
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- Catch Basin
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- Drain Pipes



0 125 250 Feet

ENVIRONMENTAL PARTNERS



Page Number: 7

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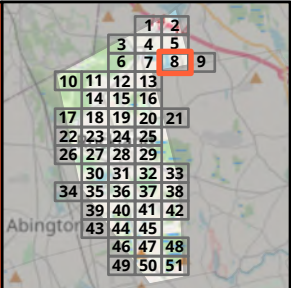
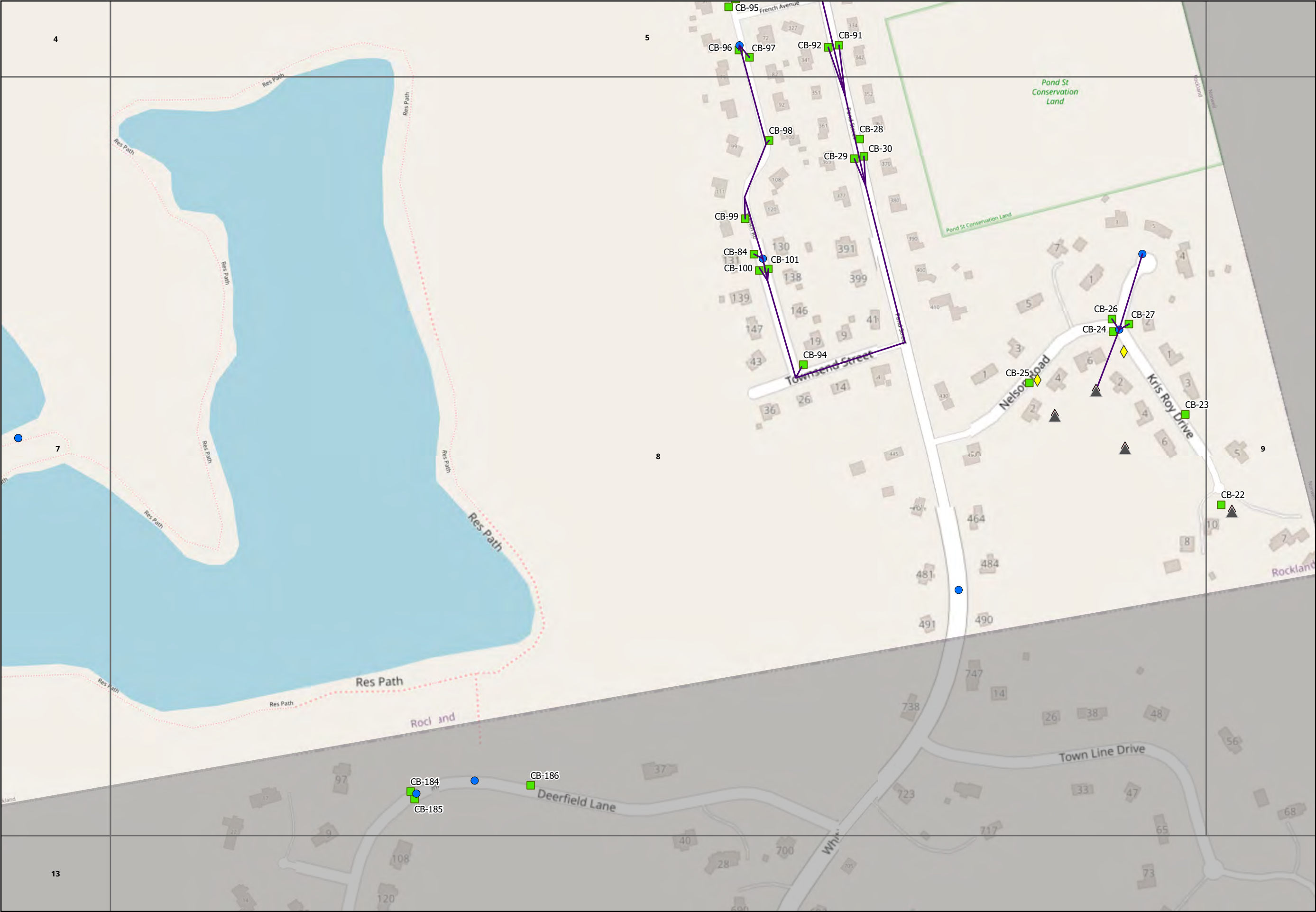
Rockland, Massachusetts

- MS4 Outfall
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- Manhole
- Catch Basin
- Inlet
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- Drain Pipes



0 125 250 Feet

ENVIRONMENTAL PARTNERS



Stormwater System

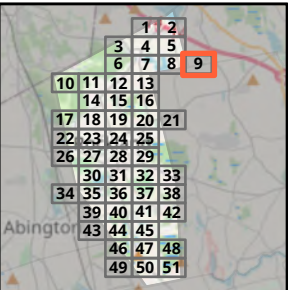
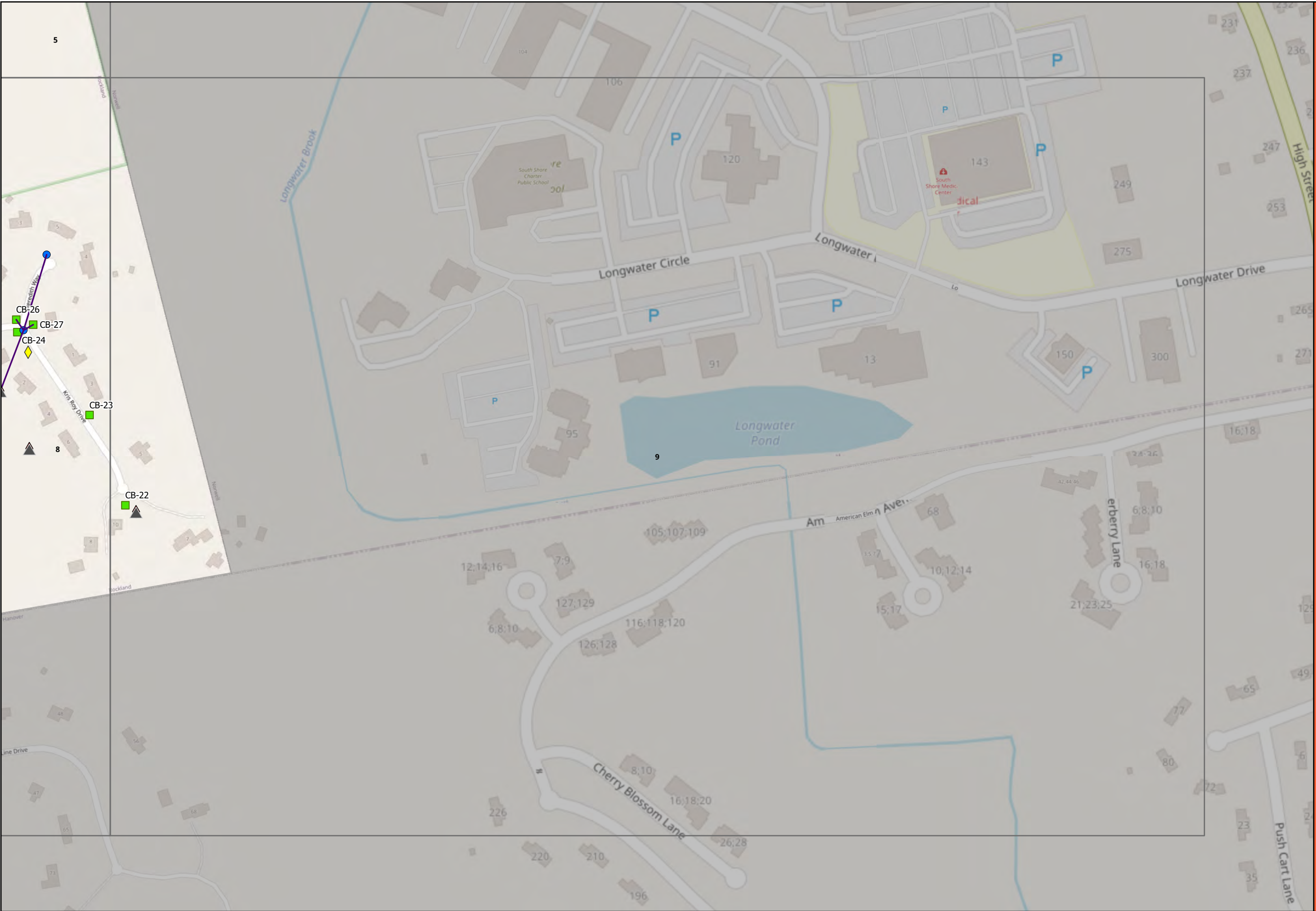
Rockland, Massachusetts

- MS4 Outfall
- Upland Outfall
- Manhole
- Catch Basin
- Inlet
- Outlet
- Drain Pipes



0 125 250 Feet





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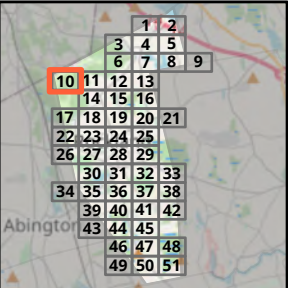
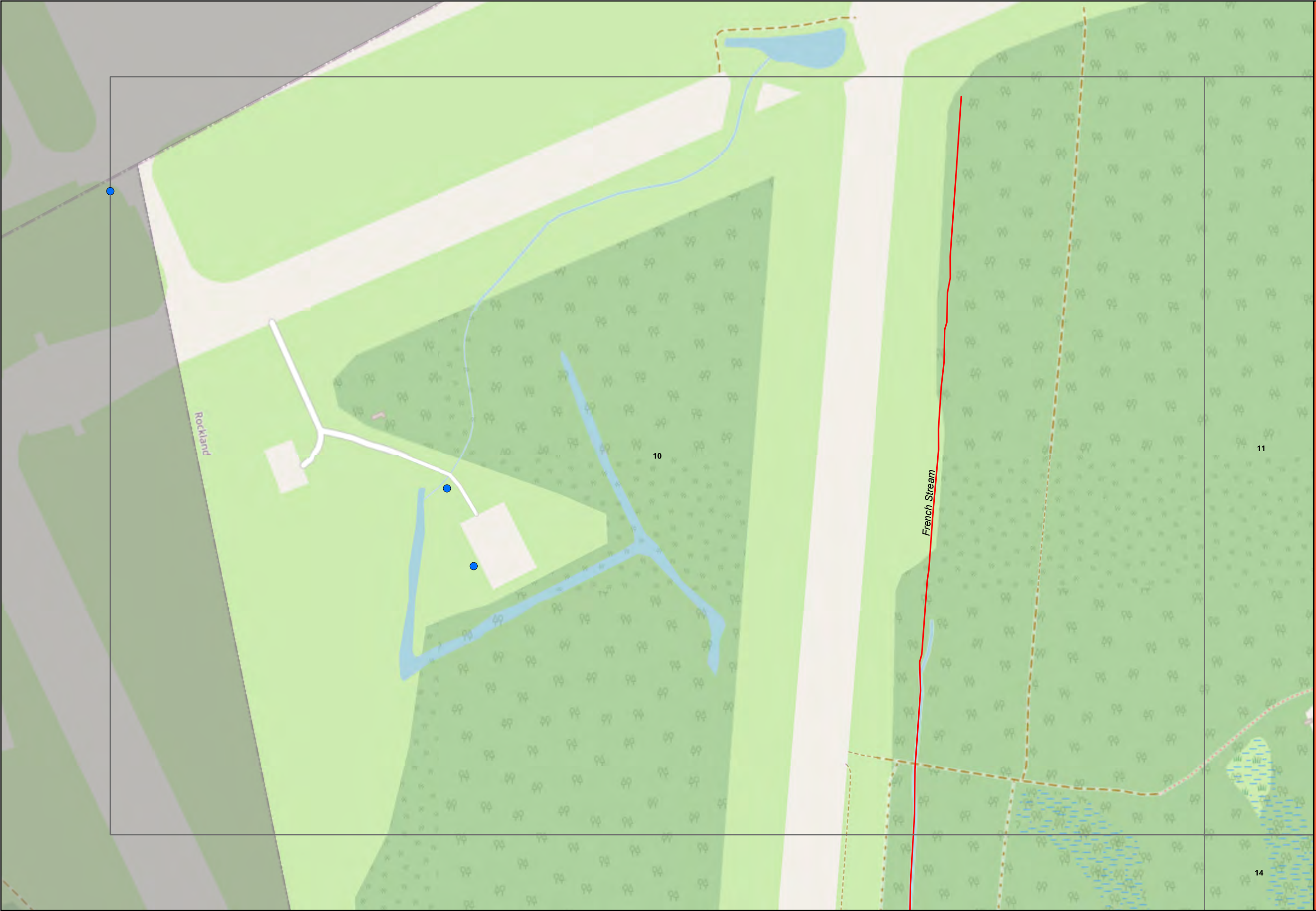
Rockland, Massachusetts

- MS4 Outfall
- Upland Outfall
- Manhole
- Catch Basin
- Inlet
- Outlet
- Drain Pipes



0 125 250 Feet





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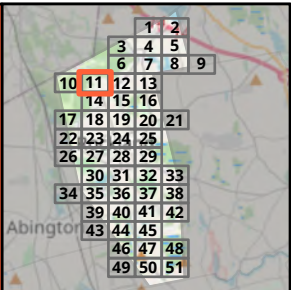
Rockland, Massachusetts

- ▲ MS4 Outfall
- ▲ Upland Outfall
- Manhole
- Catch Basin
- ◆ Inlet
- ◆ Outlet
- Drain Pipes



0 125 250 Feet

ENVIRONMENTAL PARTNERS



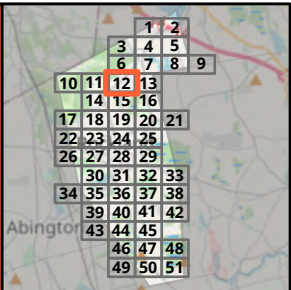
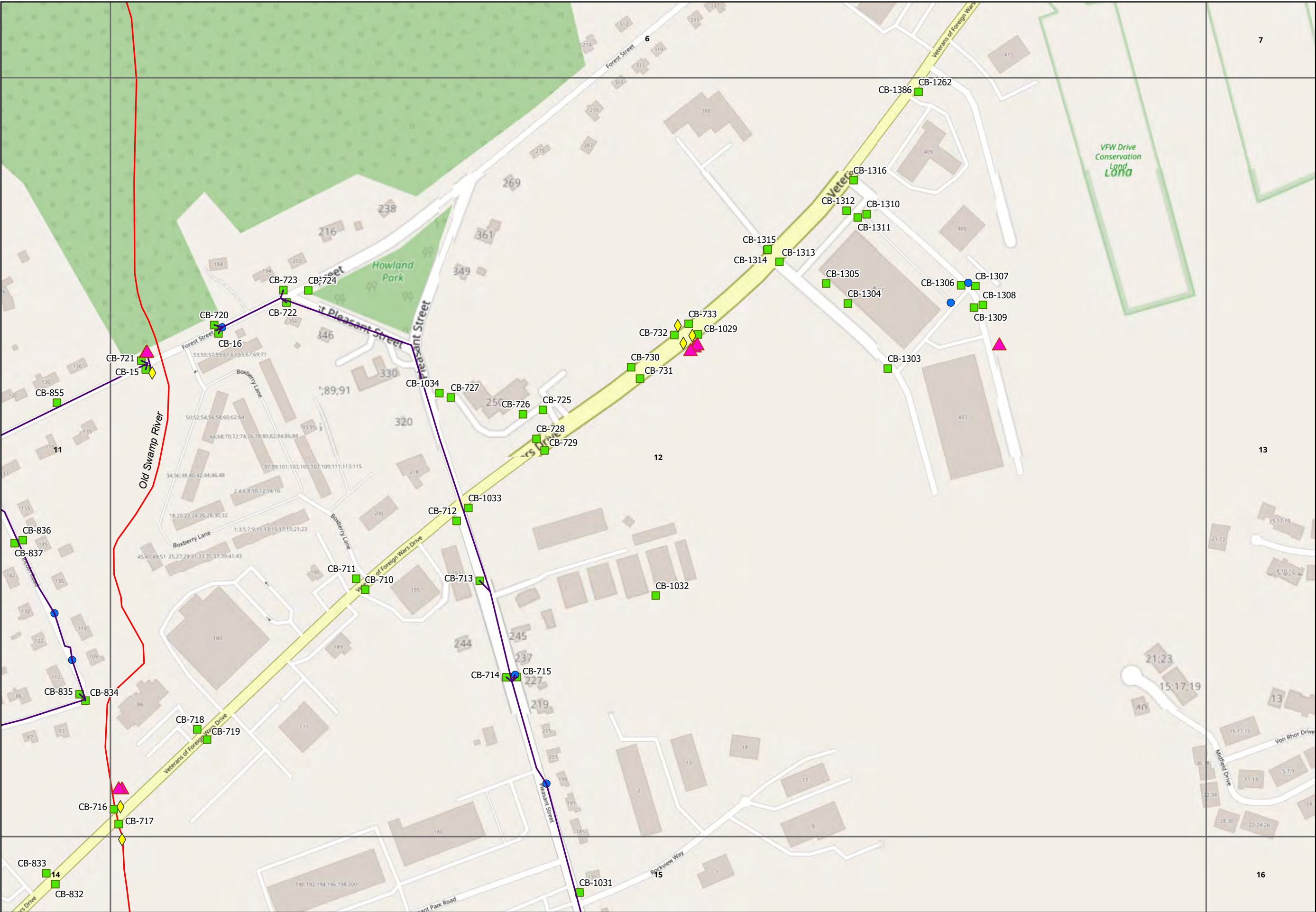
Stormwater System
Rockland, Massachusetts

- MS4 Outfall
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- Inlet
- Outlet
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0 125 250 Feet





Stormwater System

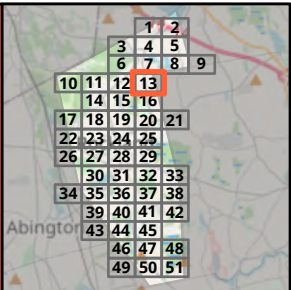
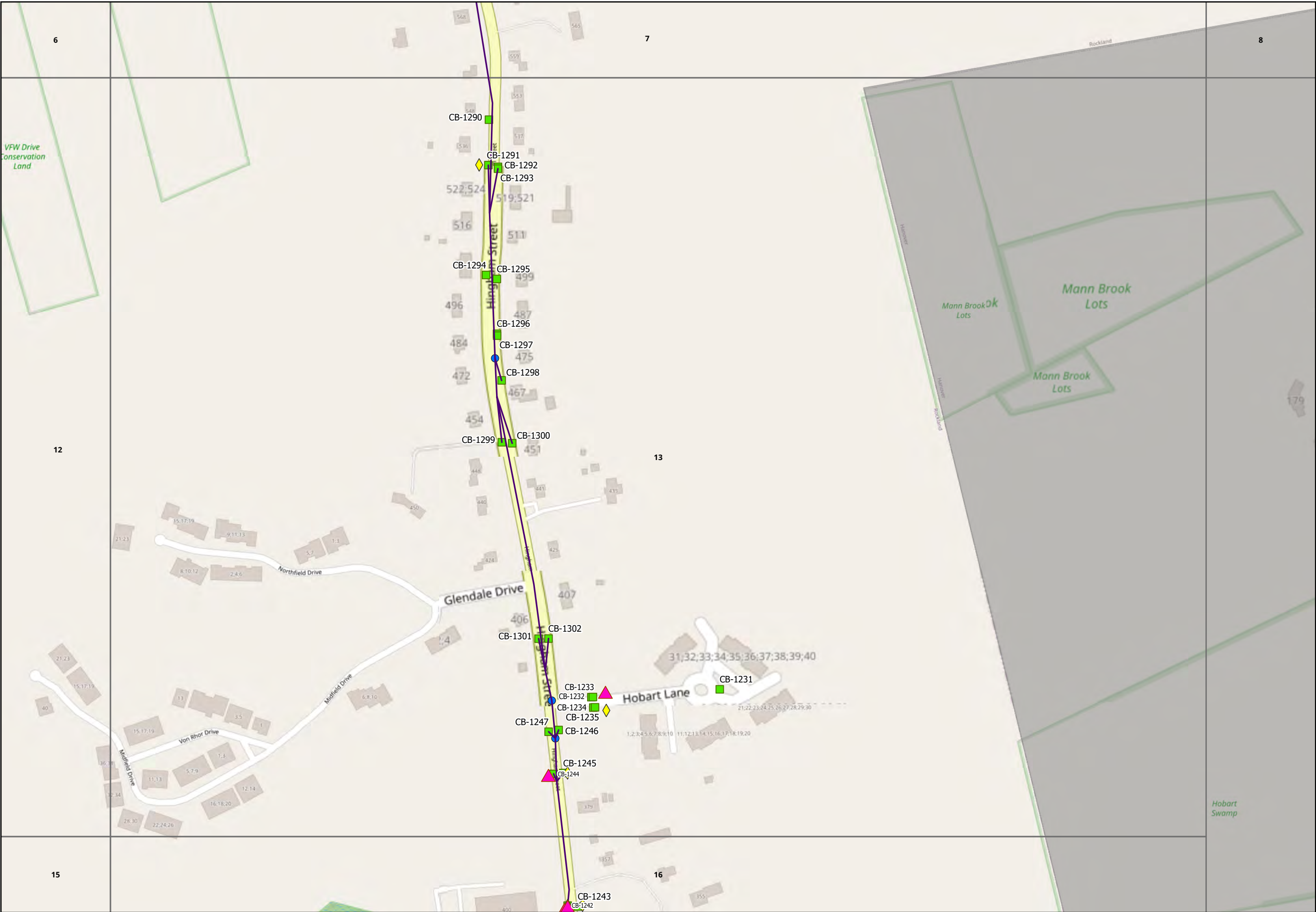
Rockland, Massachusetts

- MS4 Outfall
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- Manhole
- Catch Basin
- Inlet
- Outlet
- Drain Pipes



0 125 250 Feet

ENVIRONMENTAL PARTNERS



Stormwater System

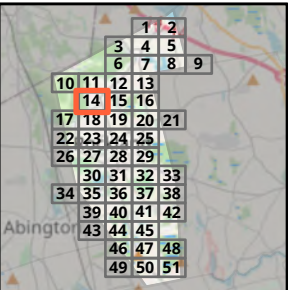
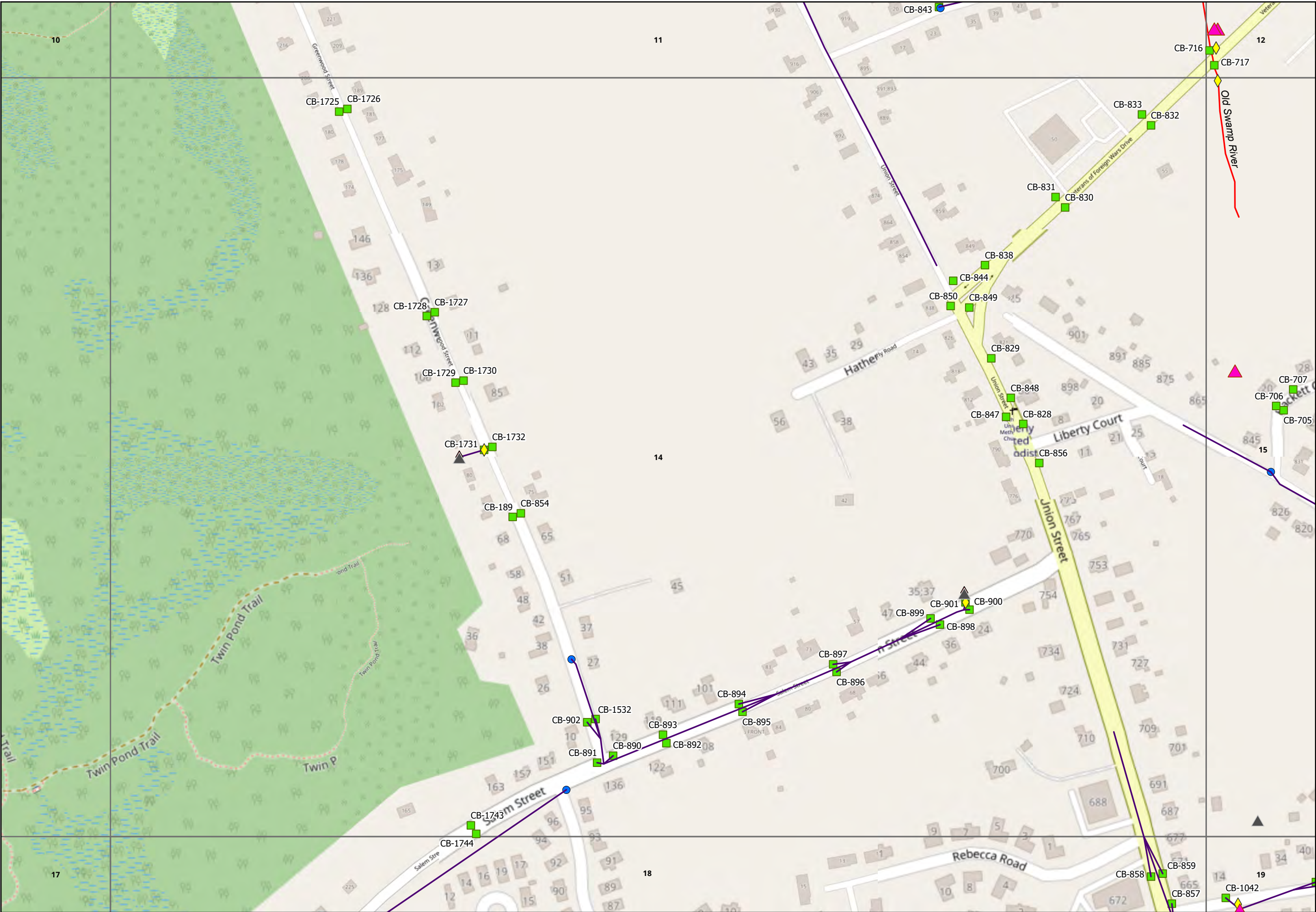
Rockland, Massachusetts

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0 125 250 Feet





Stormwater System

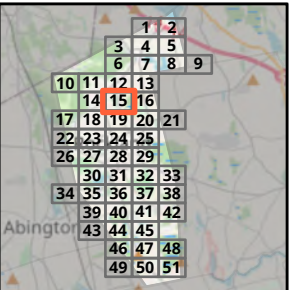
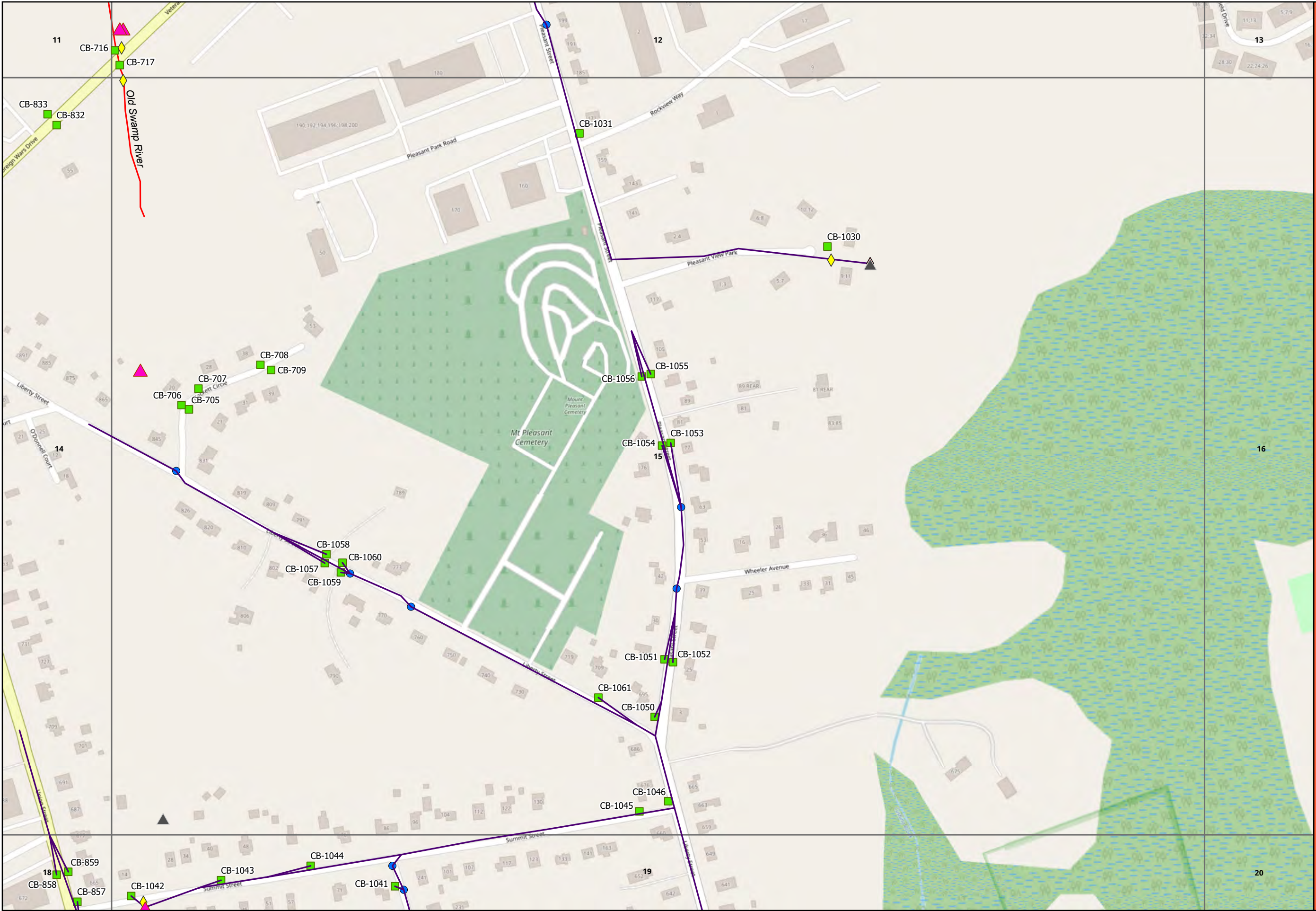
Rockland, Massachusetts

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0 125 250 Feet





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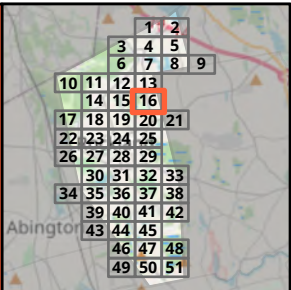
Rockland, Massachusetts

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- Manhole
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- Outlet
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0 125 250 Feet





Stormwater System

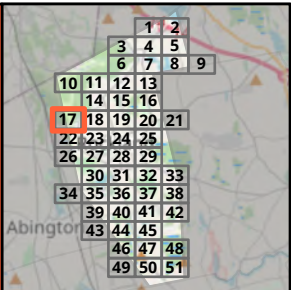
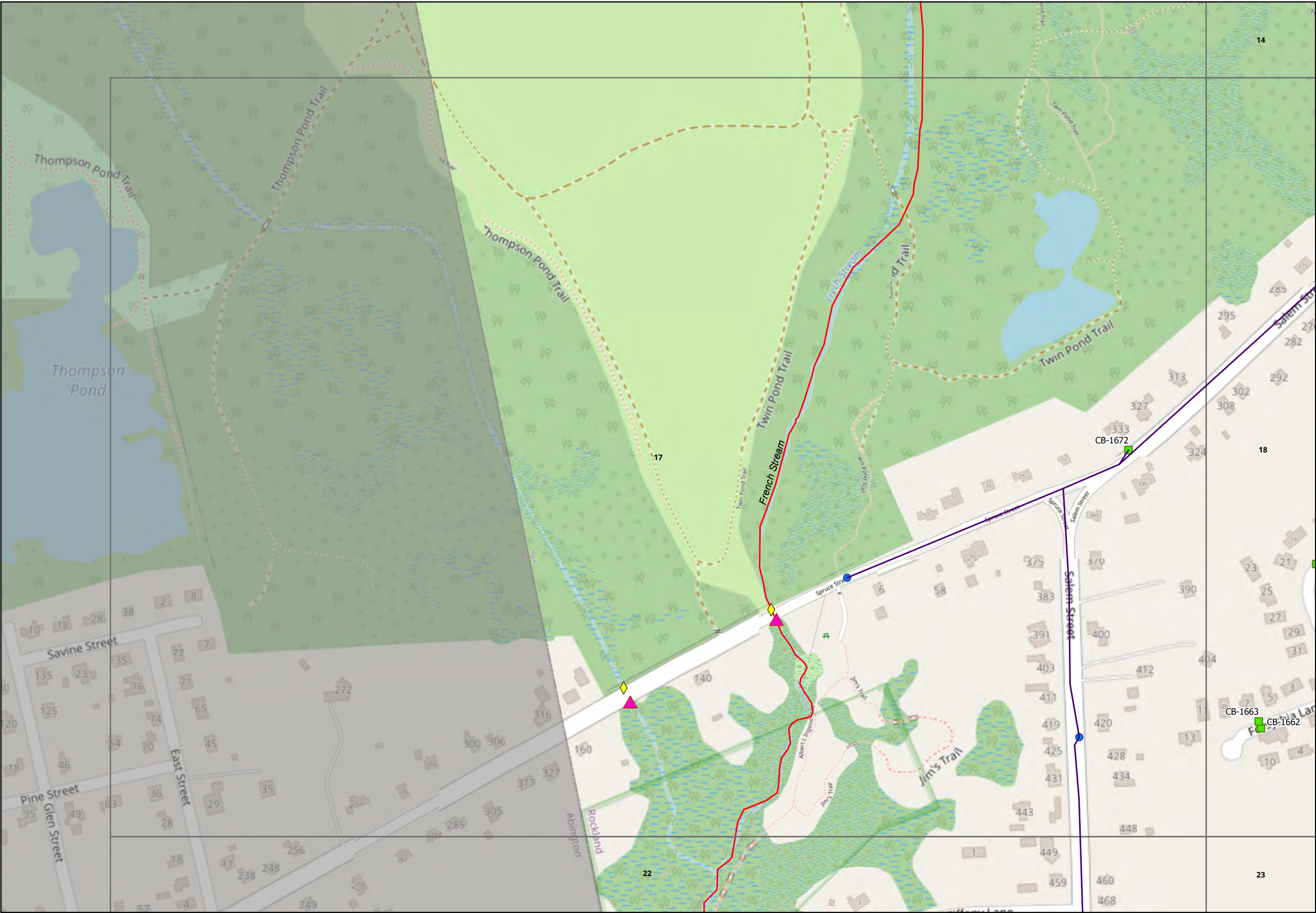
Rockland, Massachusetts

- MS4 Outfall
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0 125 250 Feet





Stormwater System

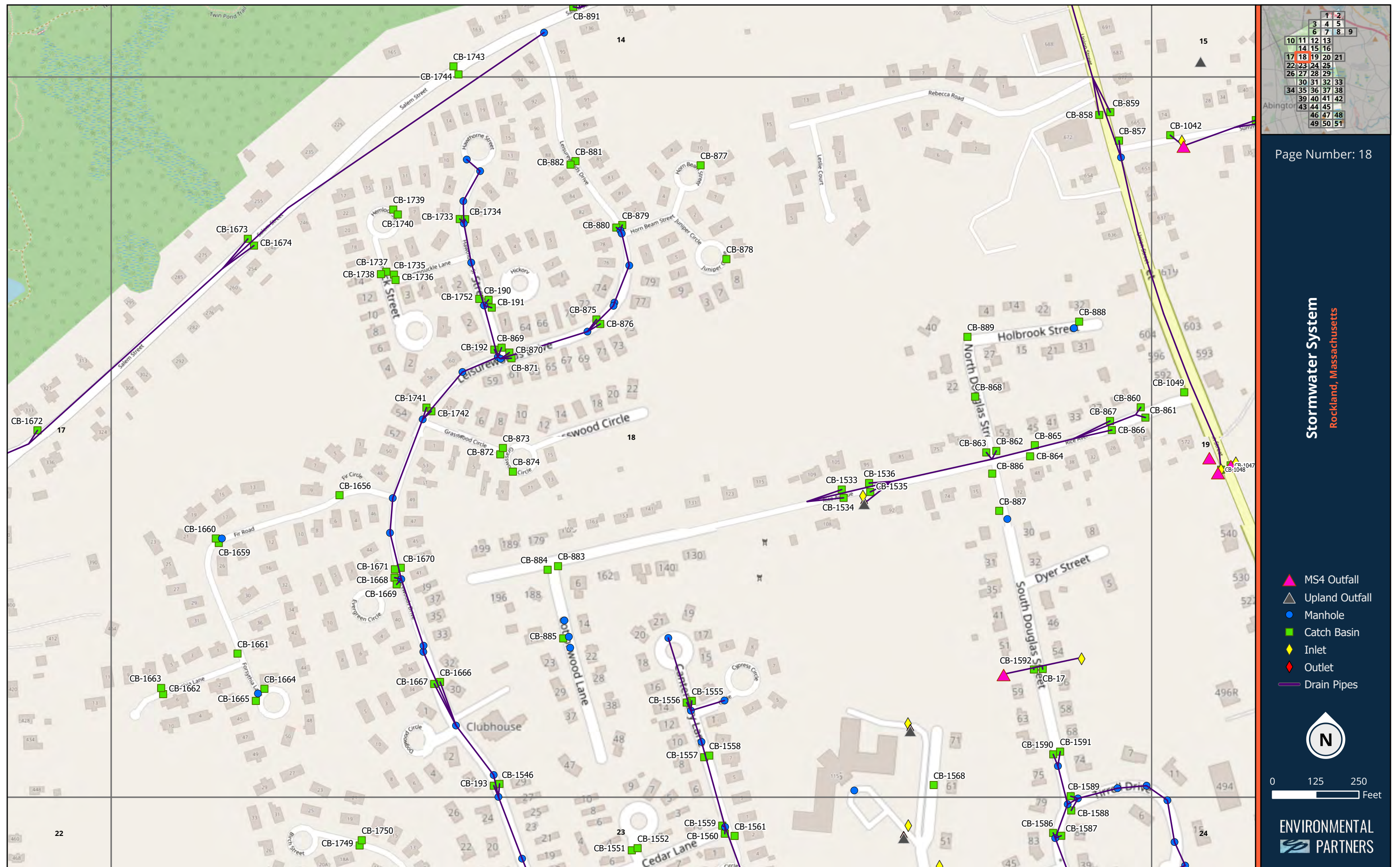
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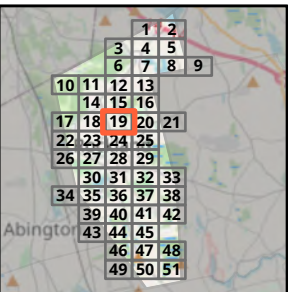
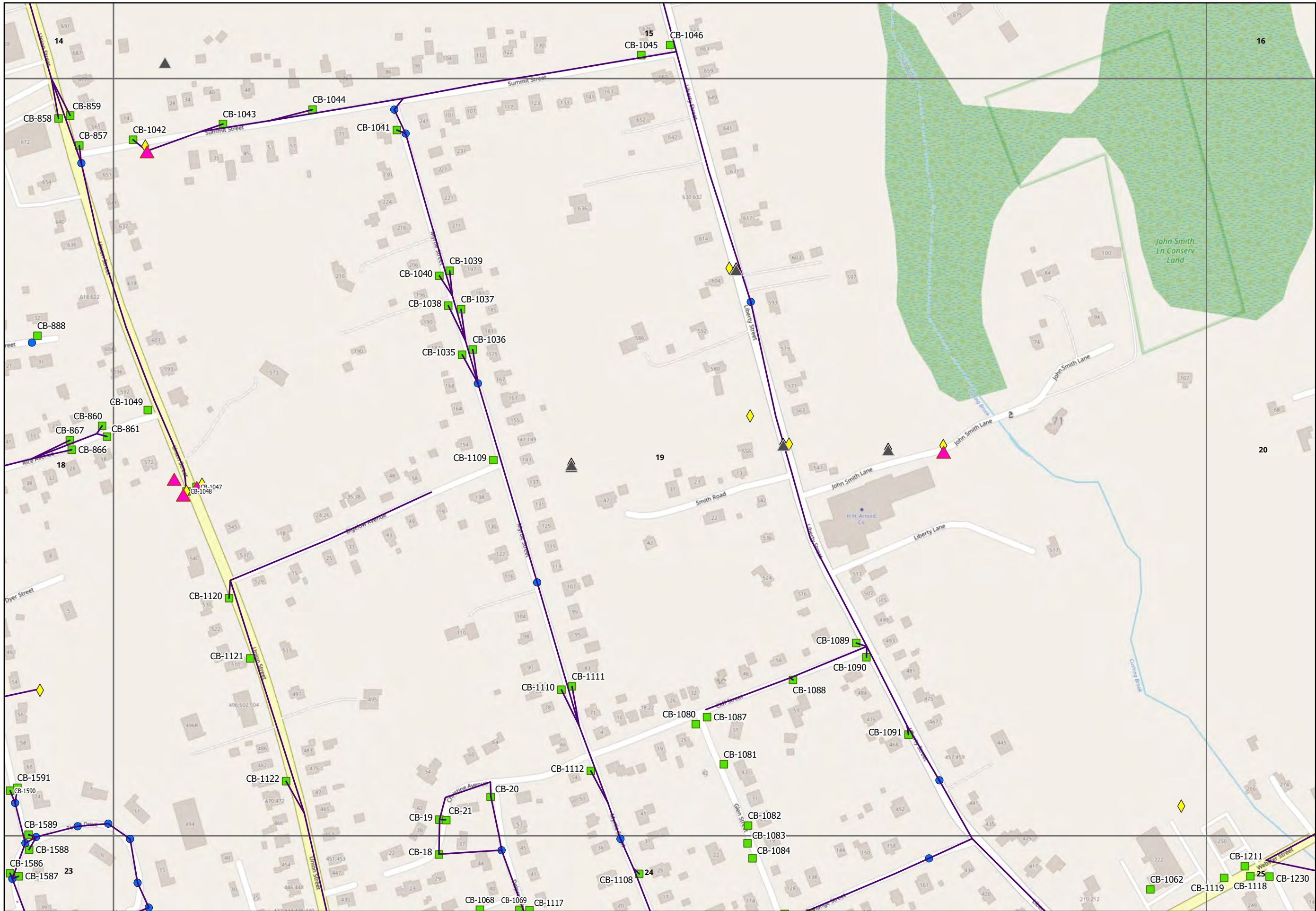
- MS4 Outfall
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0 125 250 Feet







Page Number: 19

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Rockland, Massachusetts

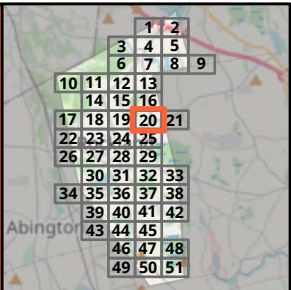
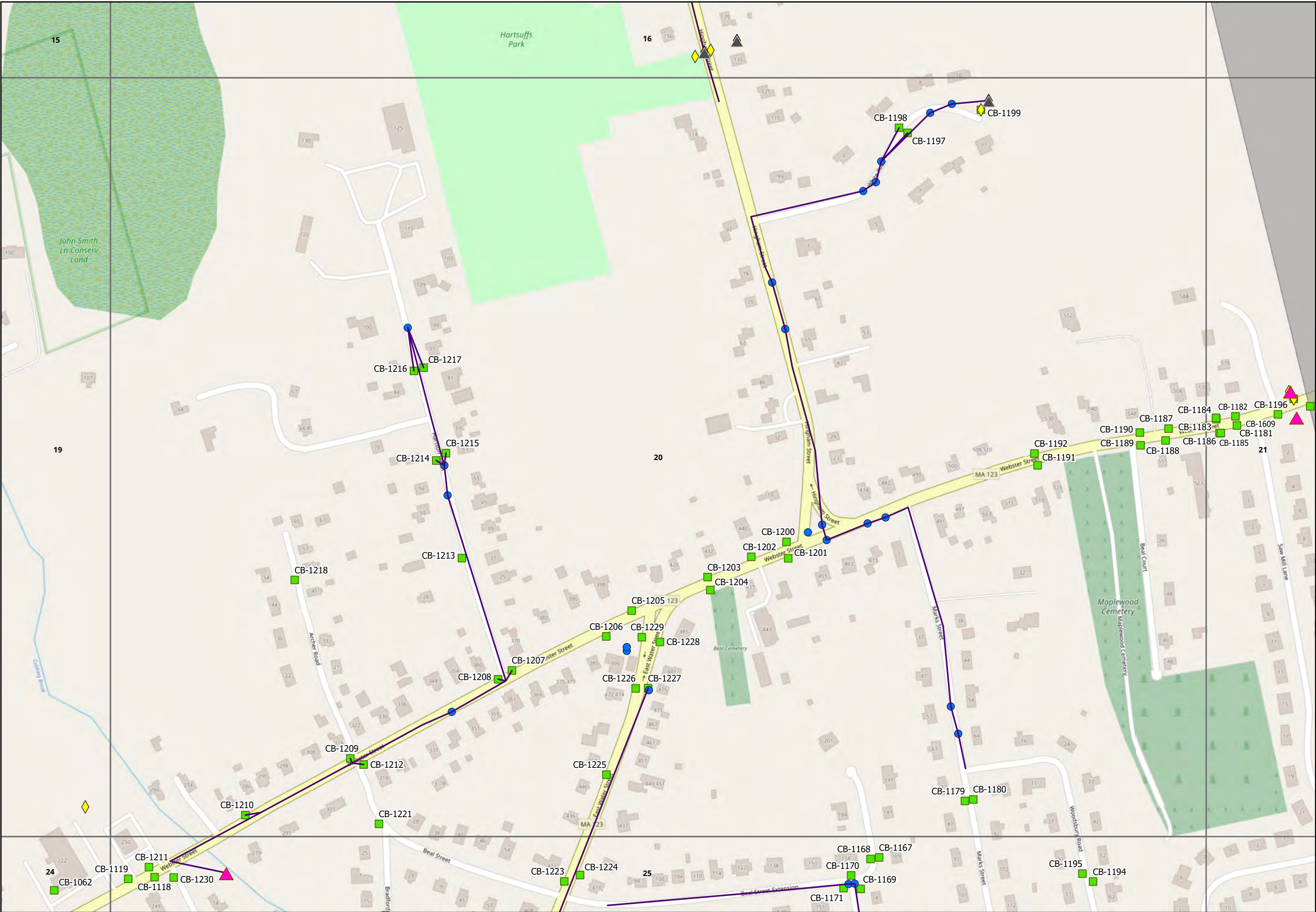
- MS4 Outfall
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0 125 250 Feet

ENVIRONMENTAL PARTNERS

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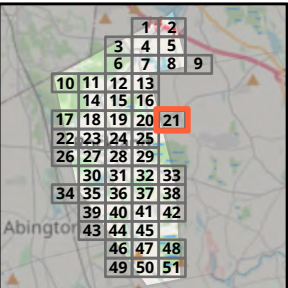
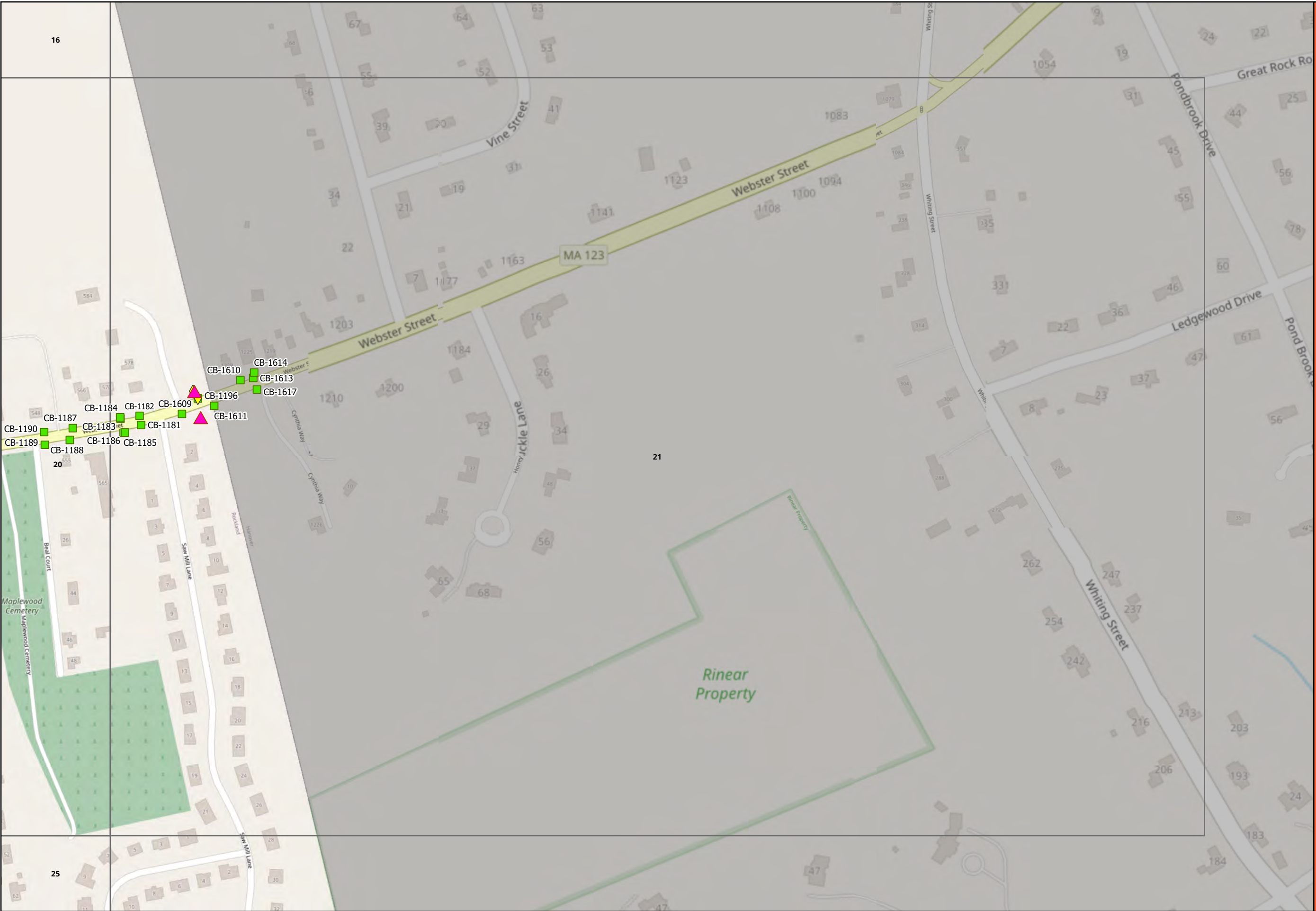
Stormwater System
Rockland, Massachusetts

- MS4 Outfall
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0 125 250 Feet





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Stormwater System

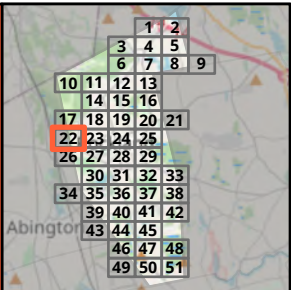
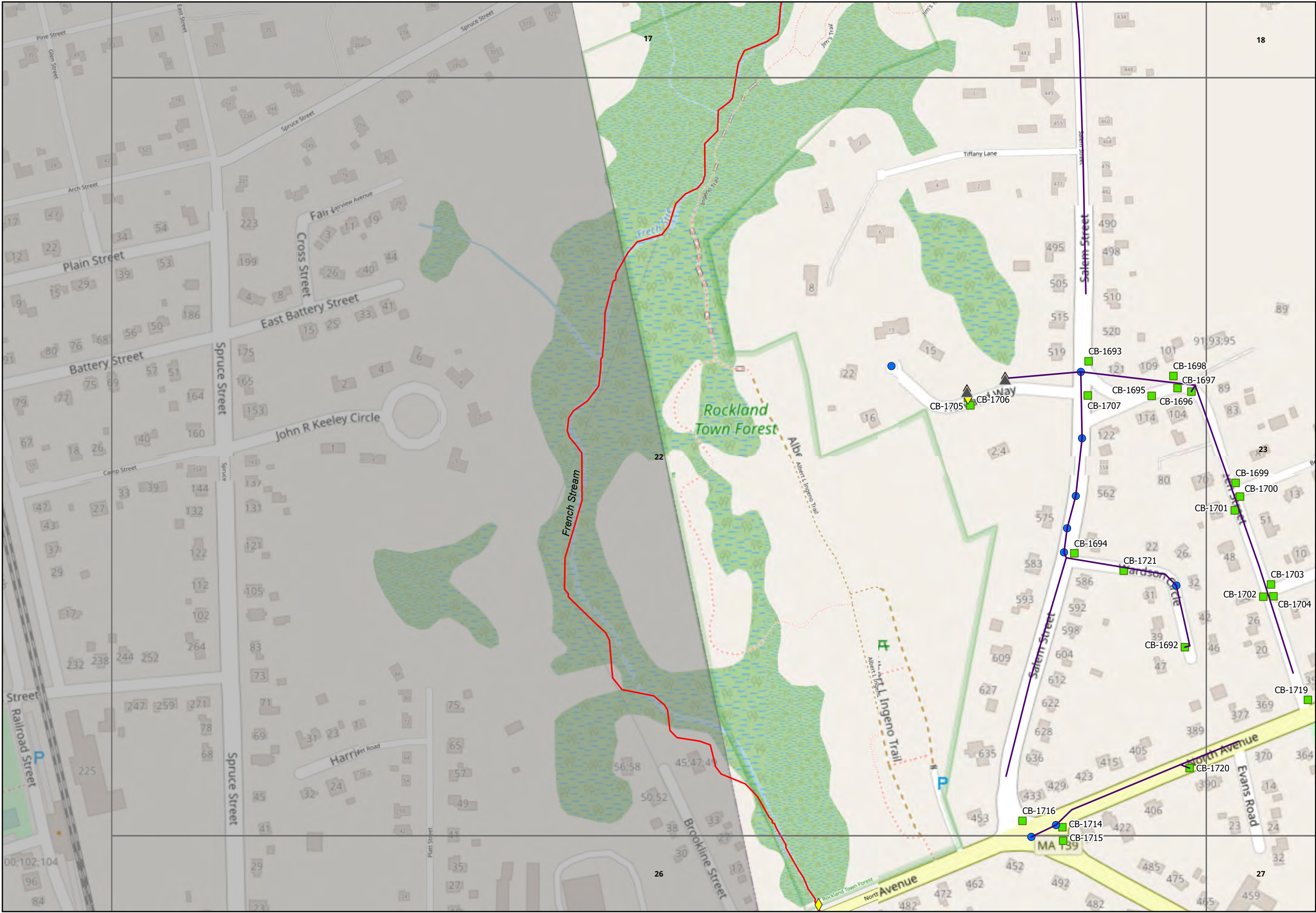
Rockland, Massachusetts

- MS4 Outfall
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0 125 250 Feet





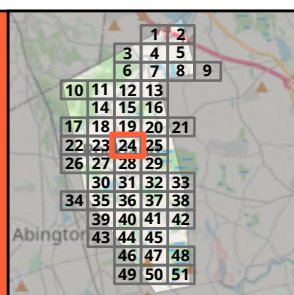
Stormwater System

Rockland, Massachusetts

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0 125 250 Feet

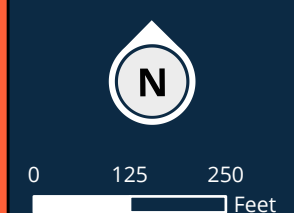


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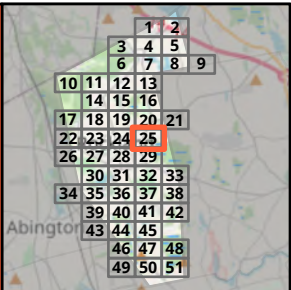
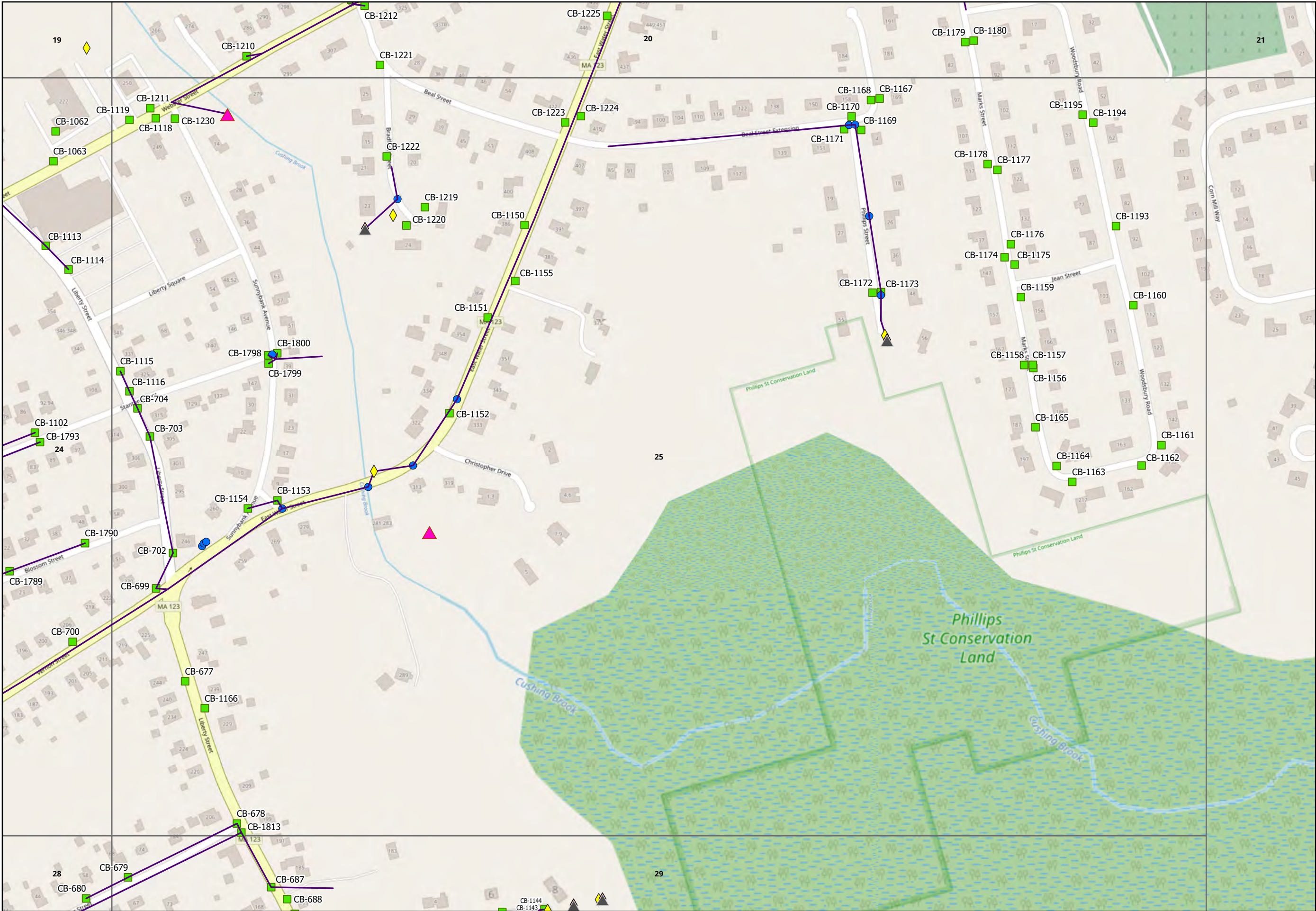
Stormwater System

Rockland, Massachusetts

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ENVIRONMENTAL PARTNERS



Stormwater System

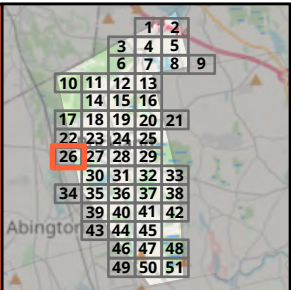
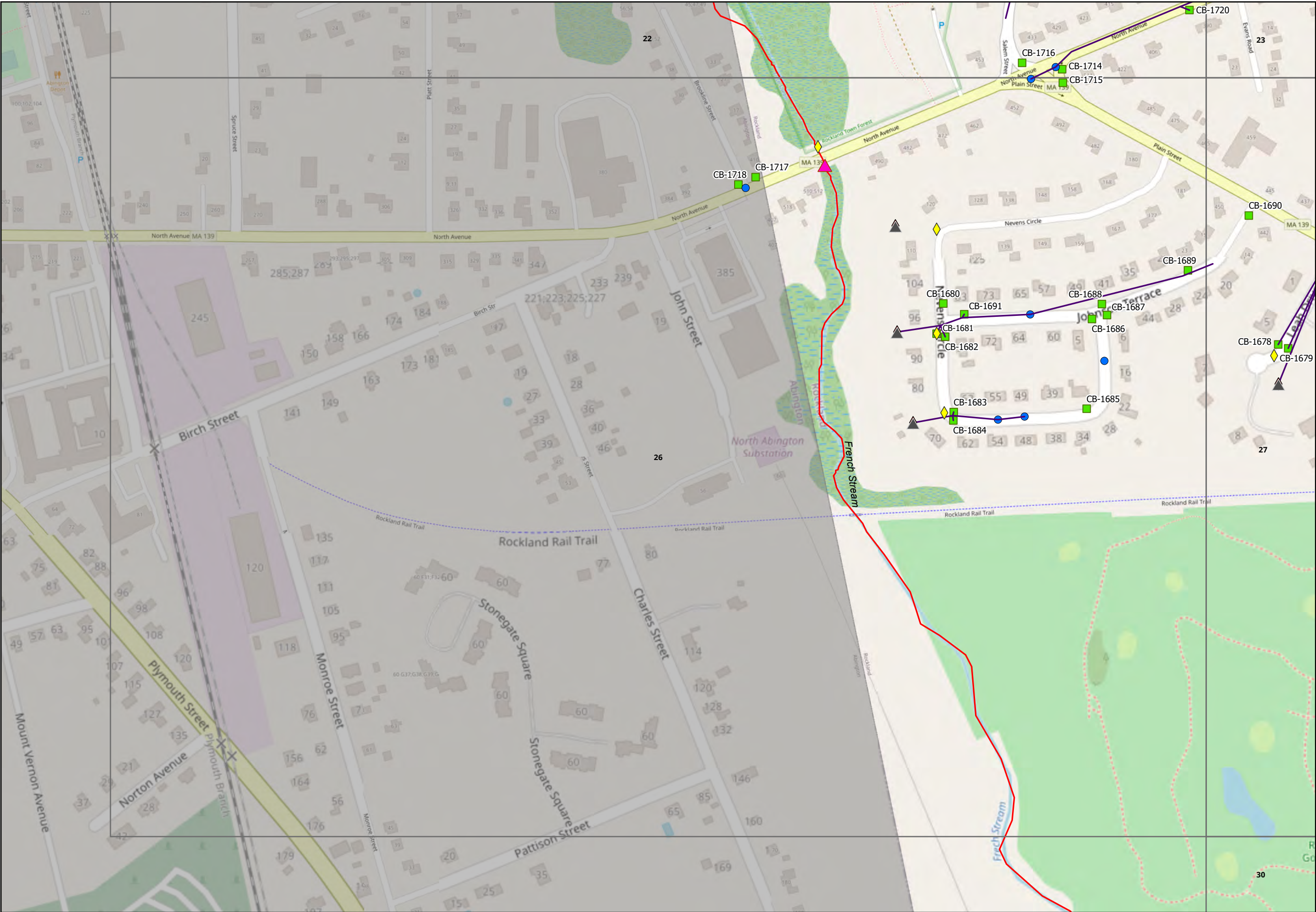
Rockland, Massachusetts

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0 125 250 Feet

ENVIRONMENTAL PARTNERS



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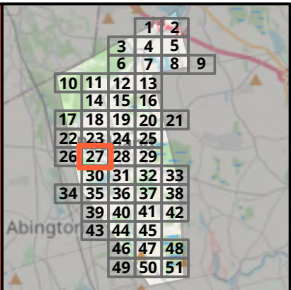
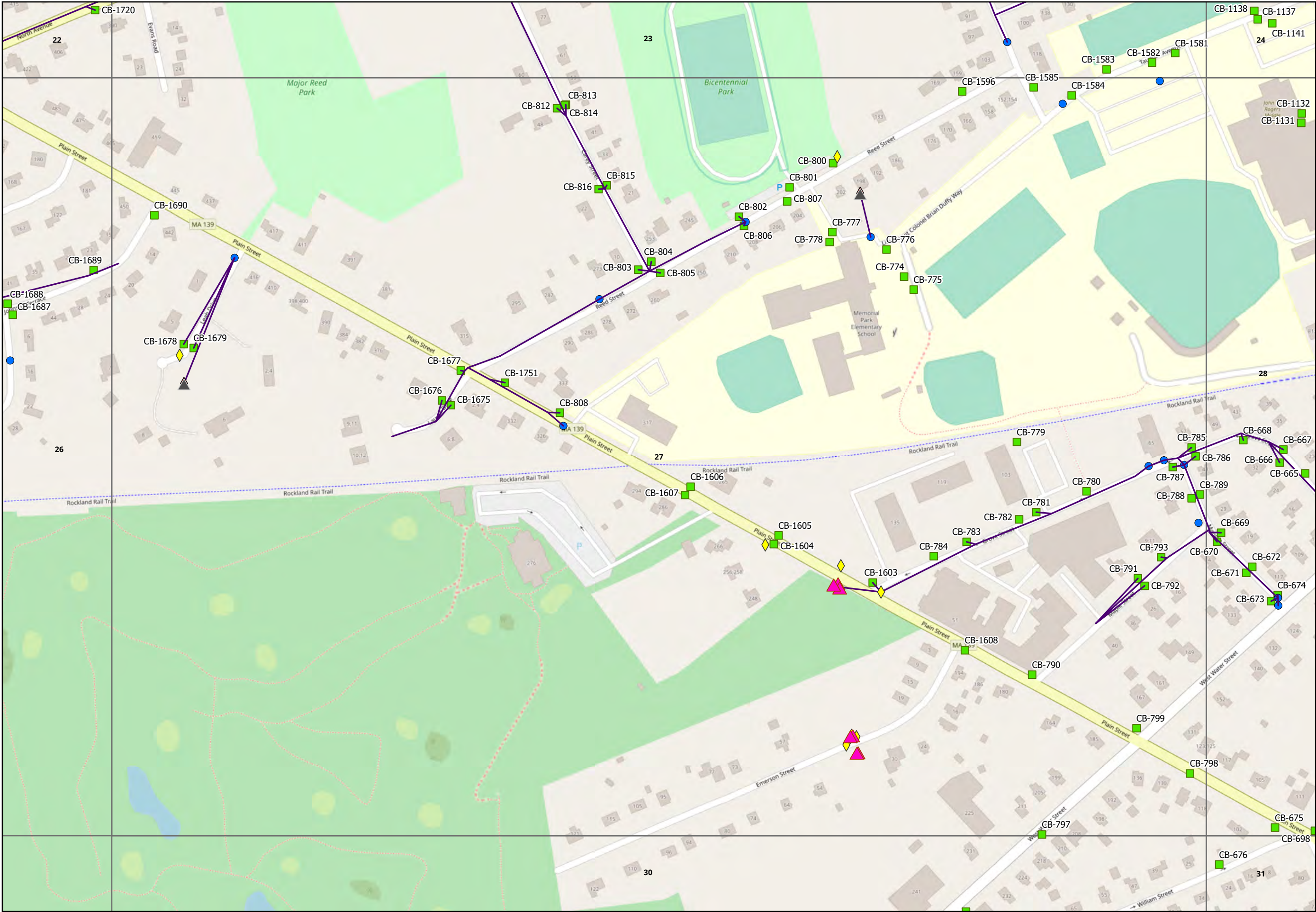
Rockland, Massachusetts

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- Outlet
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0 125 250 Feet

ENVIRONMENTAL PARTNERS



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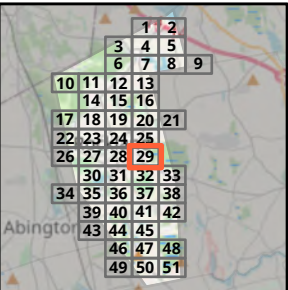
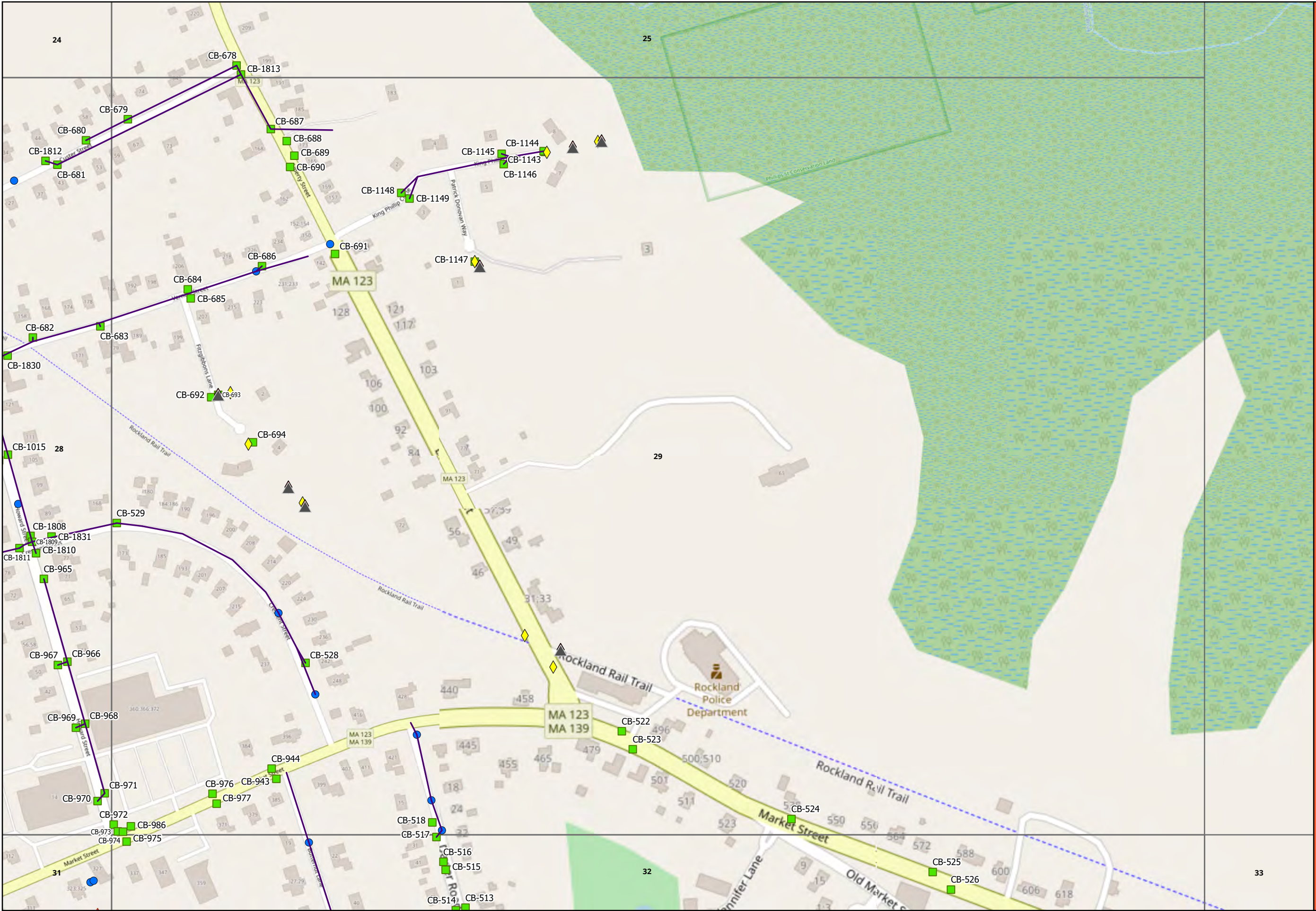
Rockland, Massachusetts

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0 125 250 Feet

ENVIRONMENTAL
PARTNERS



Page Number: 29

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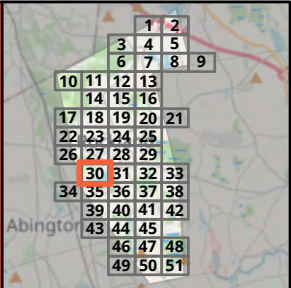
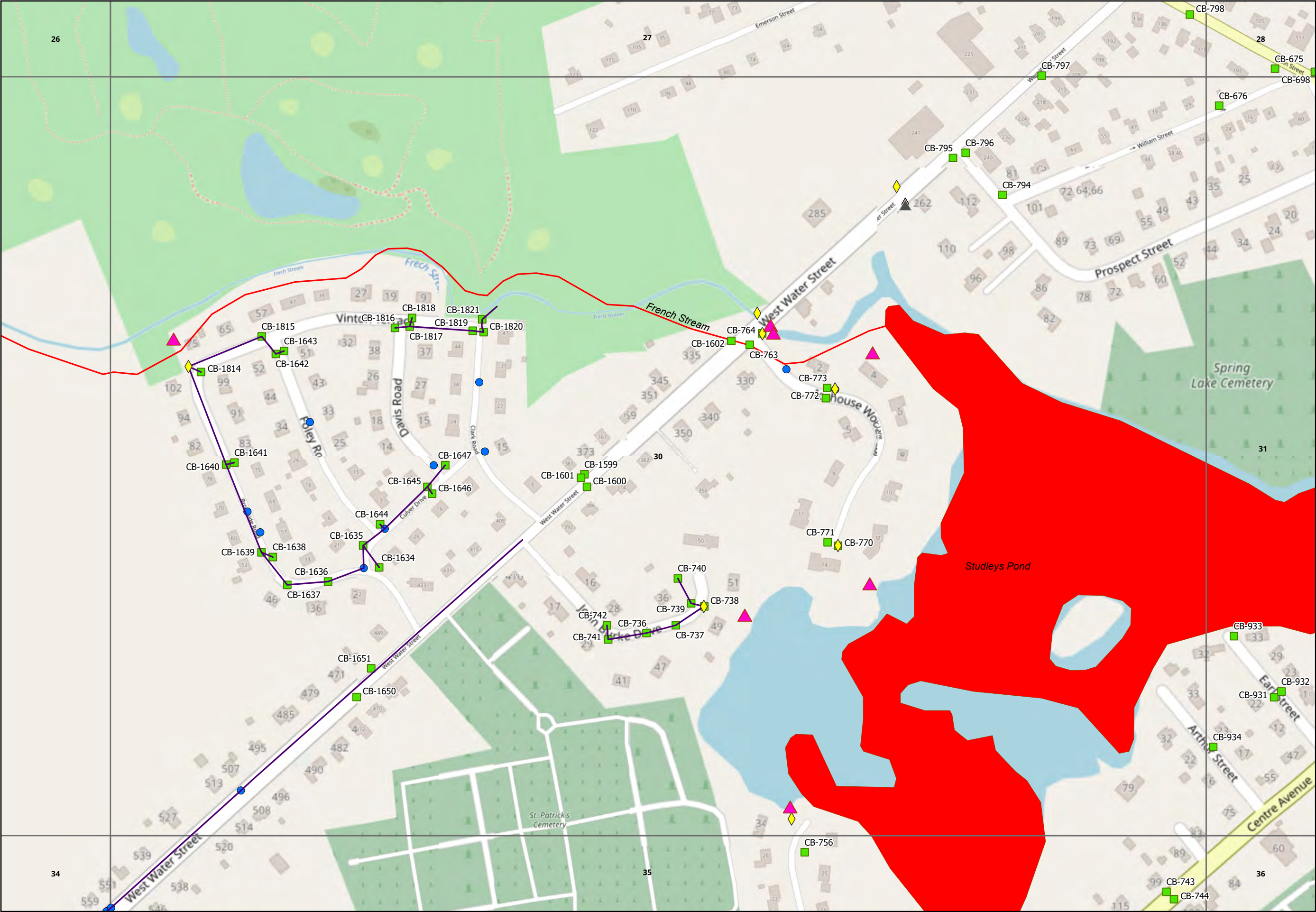
Rockland, Massachusetts

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0 125 250 Feet

ENVIRONMENTAL PARTNERS



Stormwater System

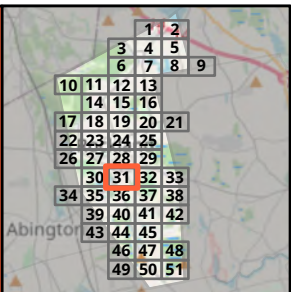
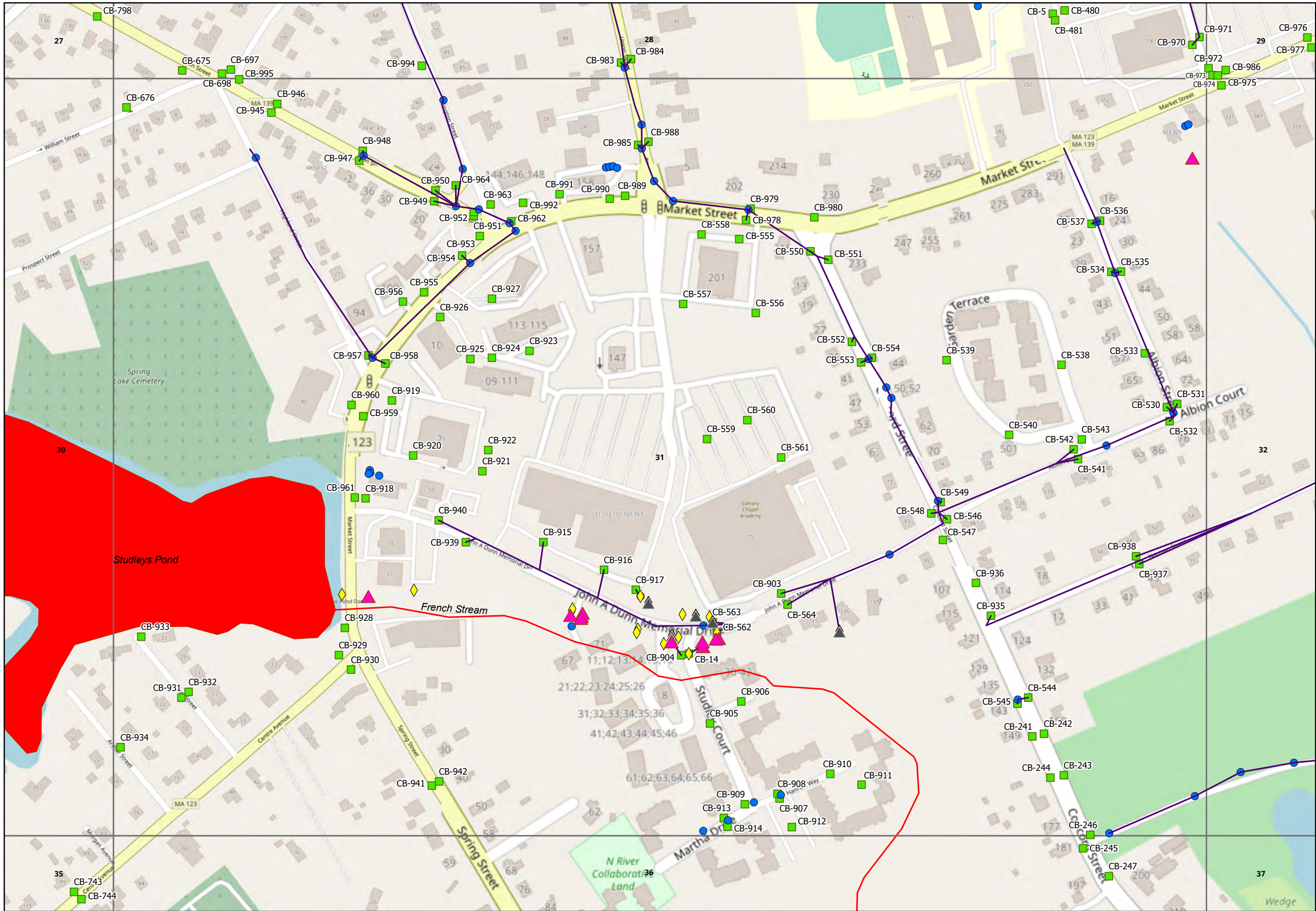
Rockland, Massachusetts

- MS4 Outfall
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- Catch Basin
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- Outlet
- Drain Pipes



0 125 250 Feet





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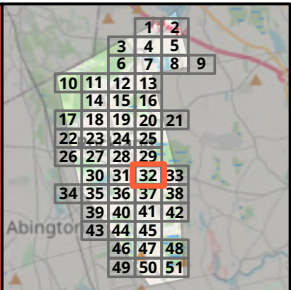
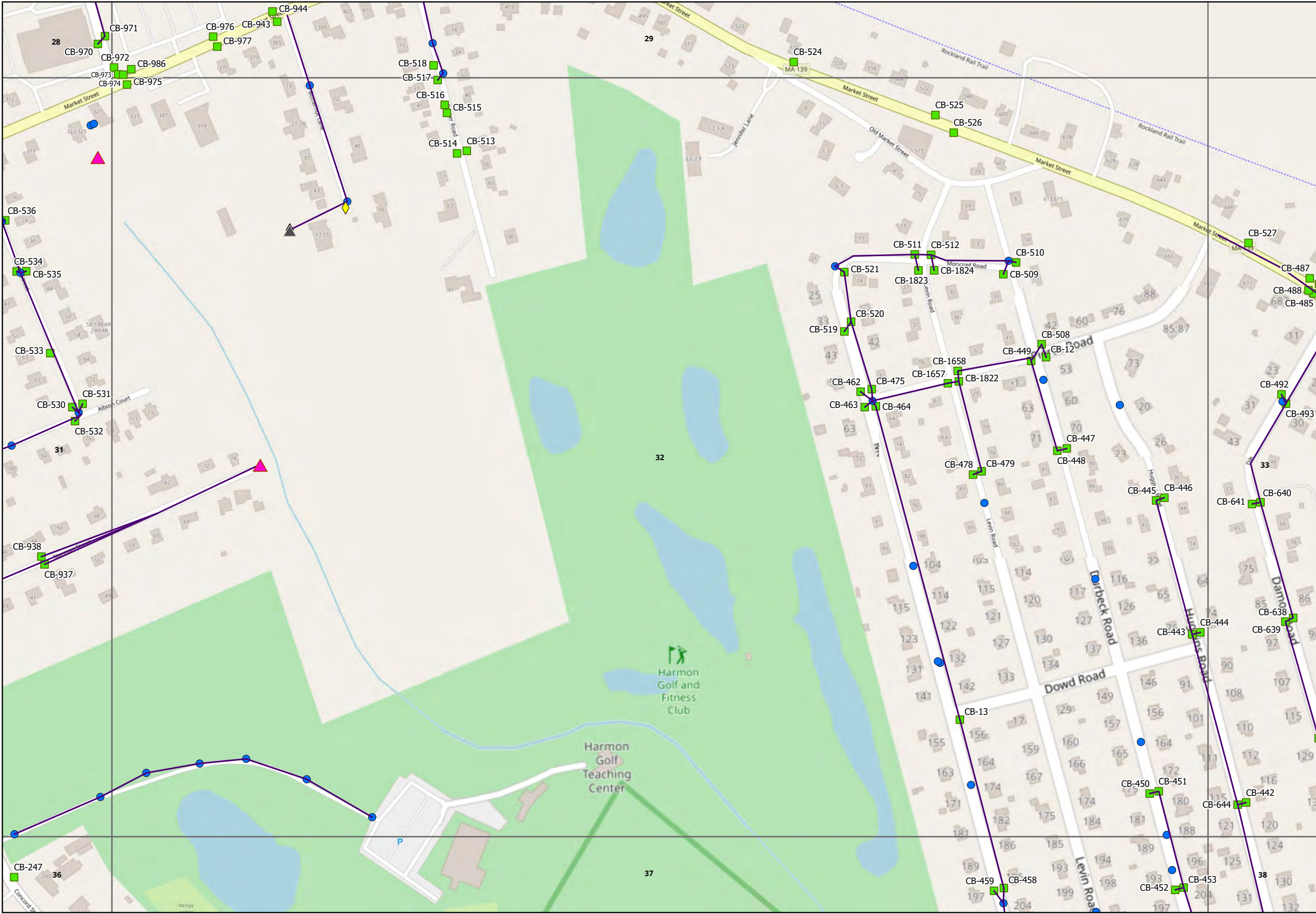
Rockland, Massachusetts

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- Catch Basin
- Inlet
- Outlet
- Drain Pipes



0 125 250 Feet

ENVIRONMENTAL PARTNERS



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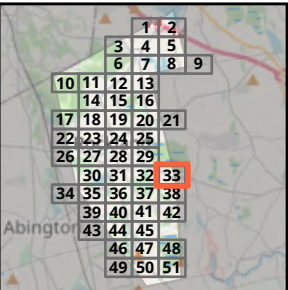
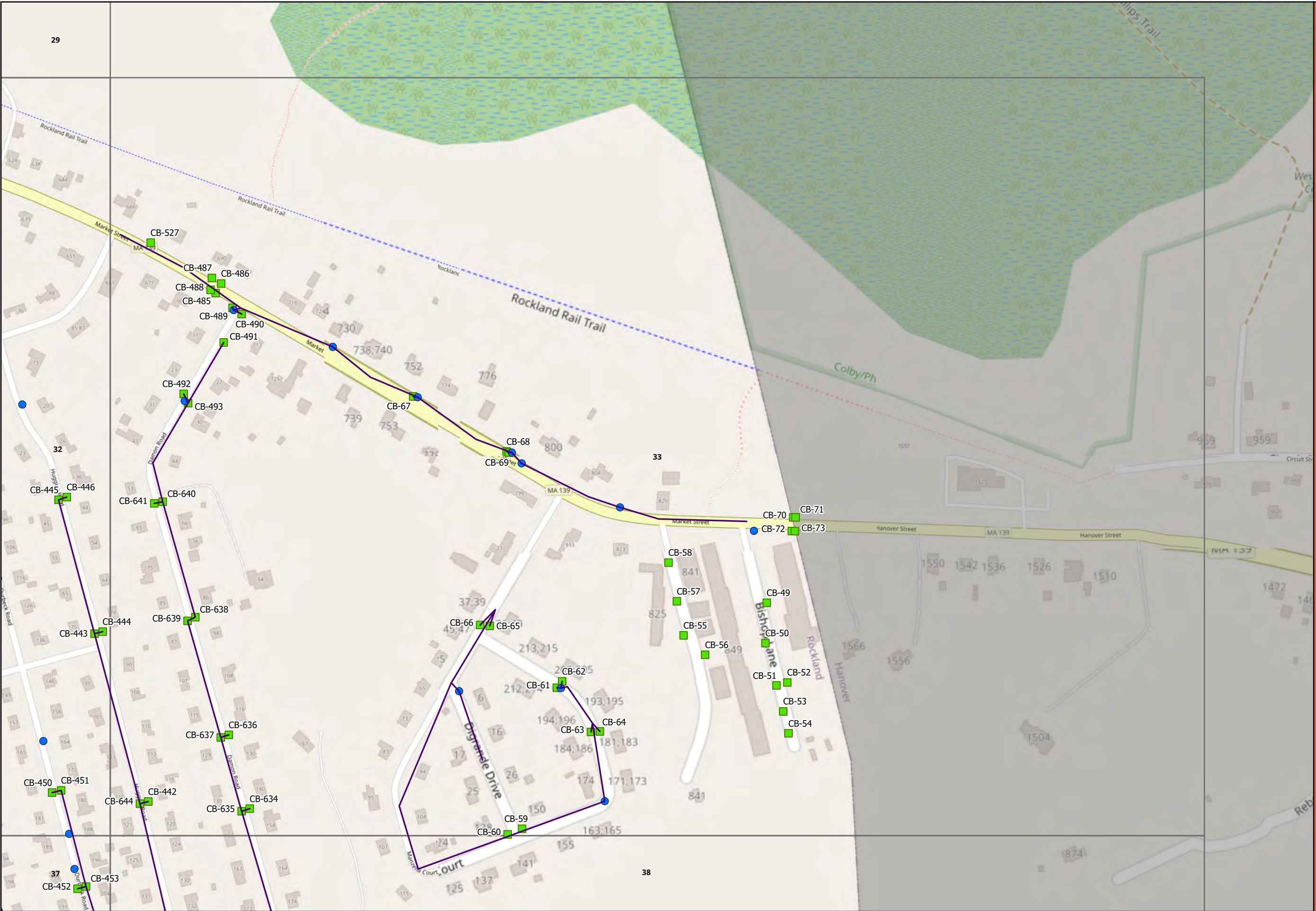
Rockland, Massachusetts

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0 125 250 Feet

ENVIRONMENTAL PARTNERS



Page Number: 33

Stormwater System

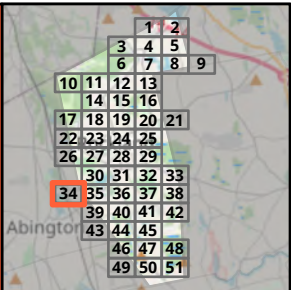
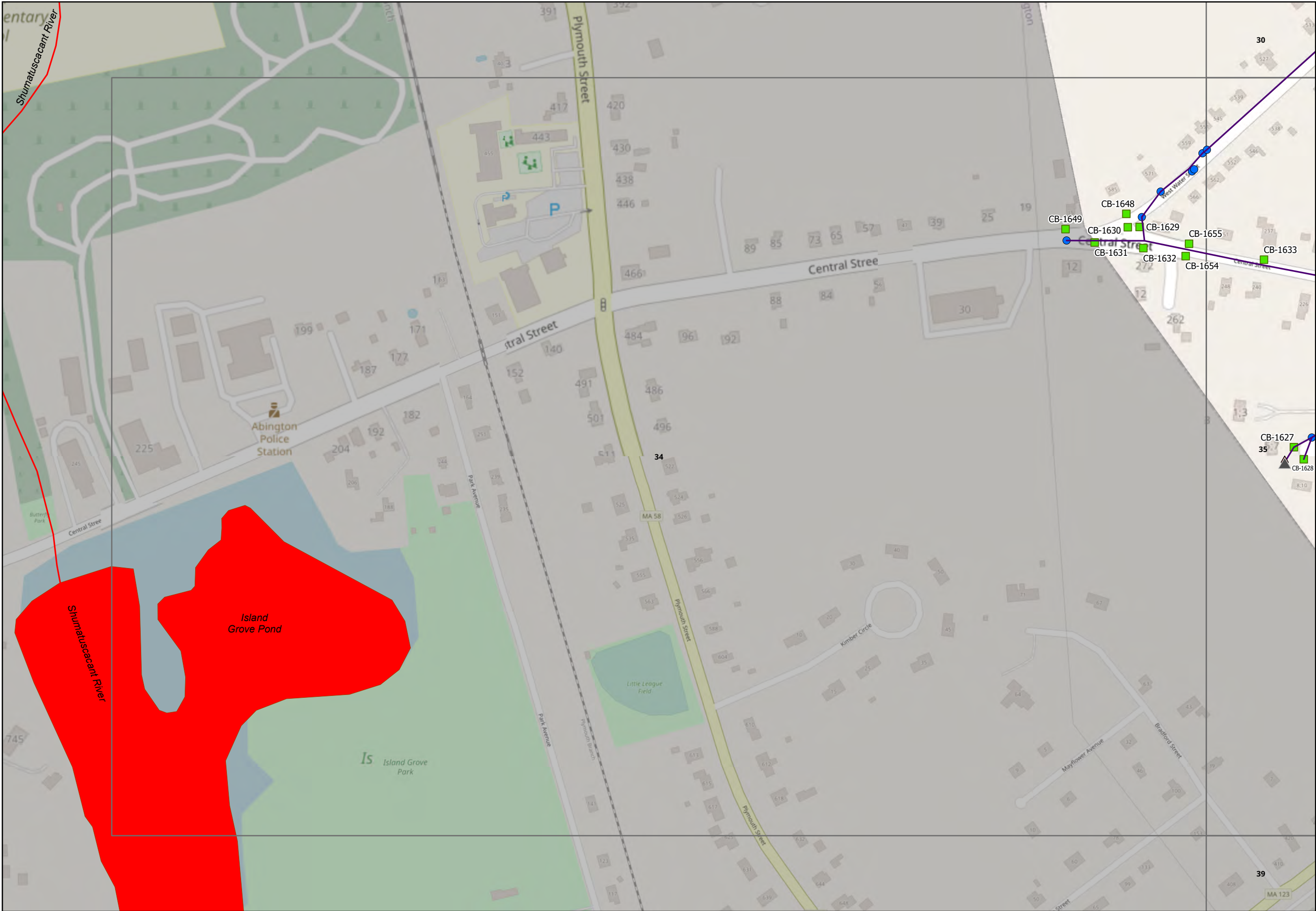
Rockland, Massachusetts

- MS4 Outfall
- Upland Outfall
- Manhole
- Catch Basin
- Inlet
- Outlet
- Drain Pipes



0 125 250 Feet

ENVIRONMENTAL PARTNERS



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Stormwater System

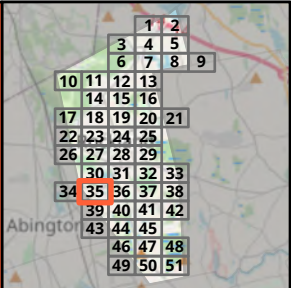
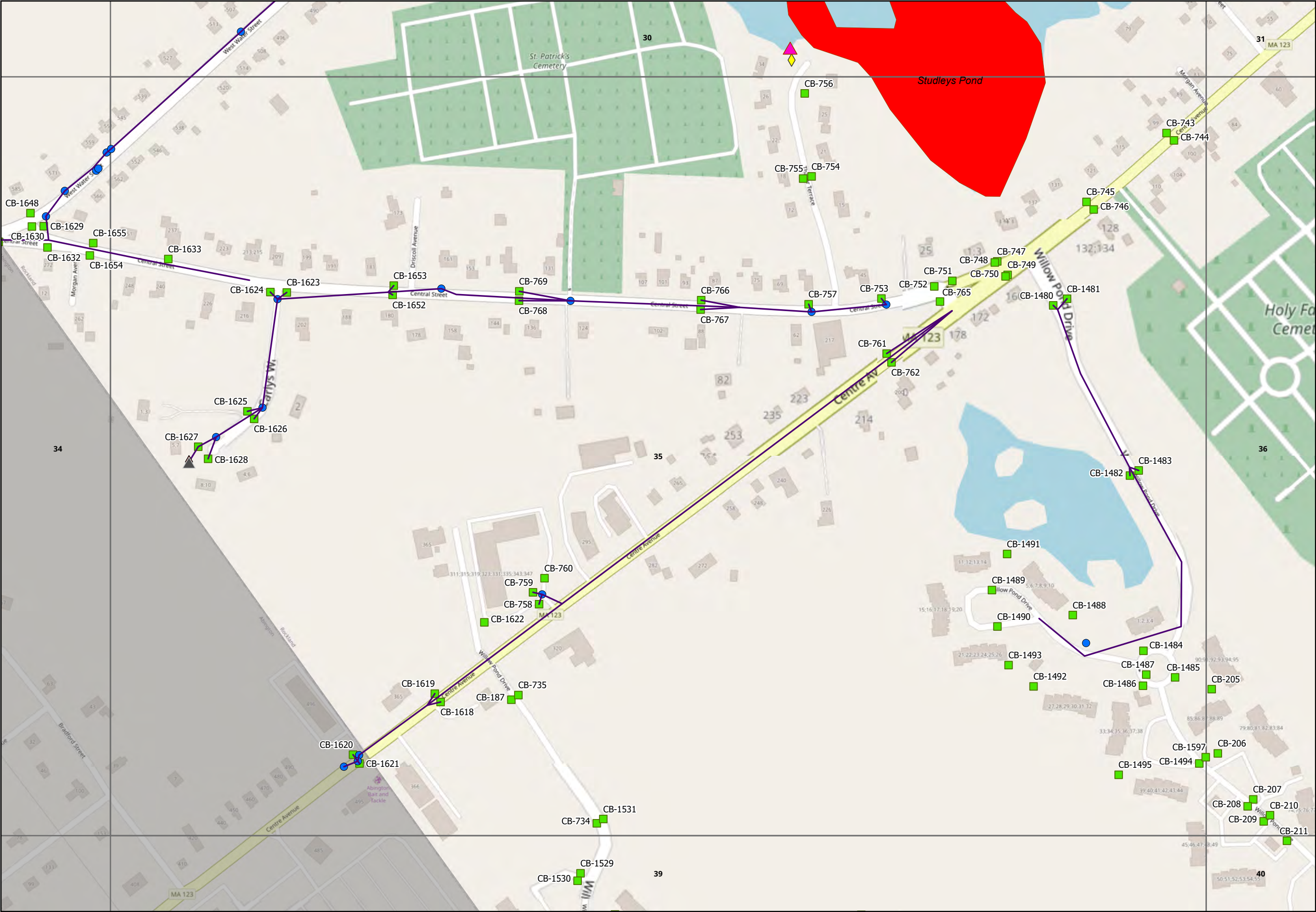
Rockland, Massachusetts

- MS4 Outfall
- Upland Outfall
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- Catch Basin
- Inlet
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0 125 250 Feet

ENVIRONMENTAL PARTNERS



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Stormwater System

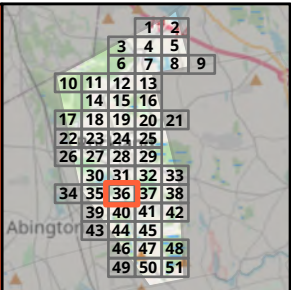
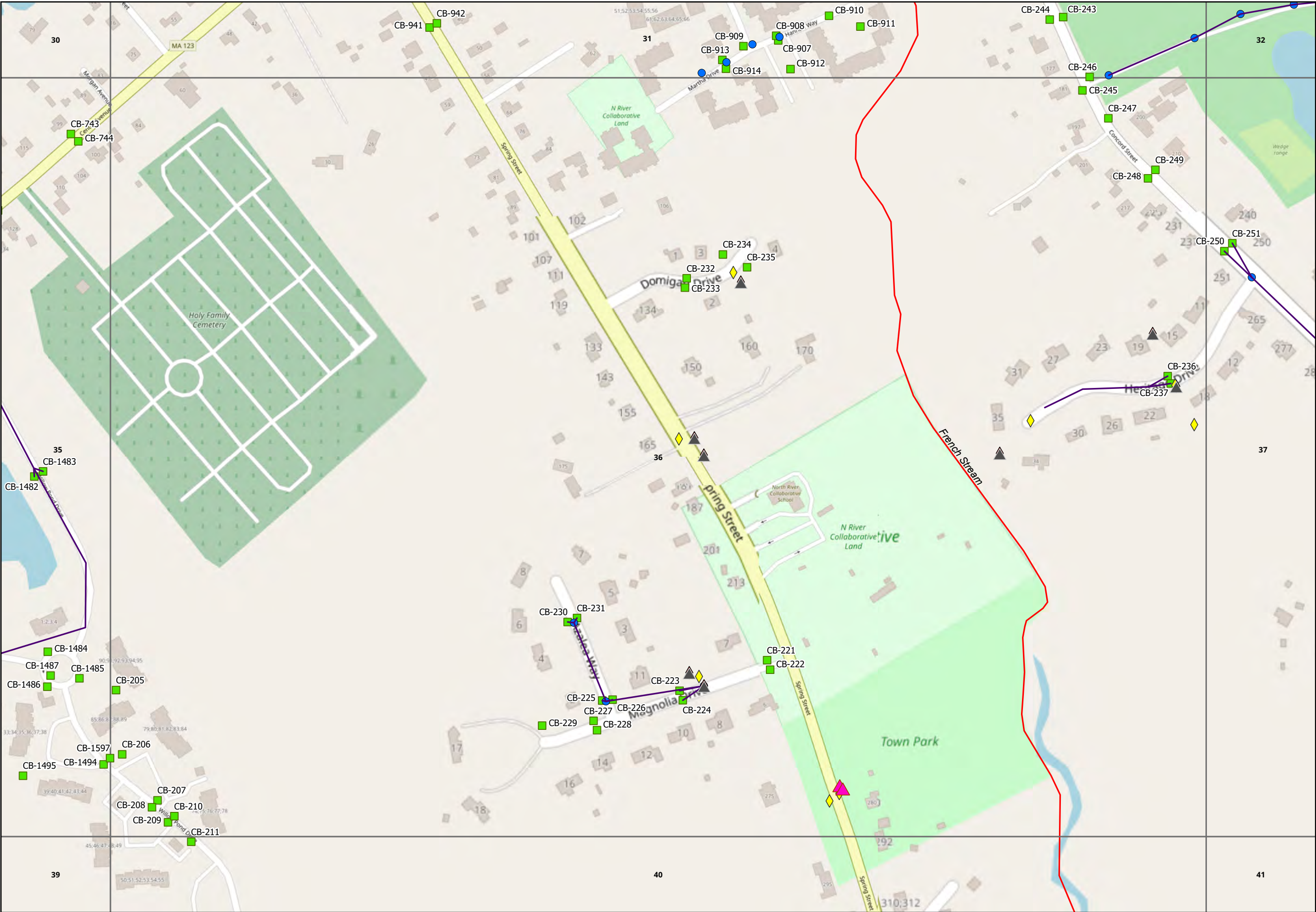
Rockland, Massachusetts

- MS4 Outfall
- Upland Outfall
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- Catch Basin
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- Outlet
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0 125 250 Feet

ENVIRONMENTAL PARTNERS



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Stormwater System

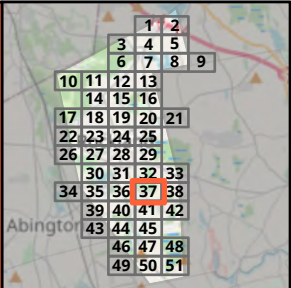
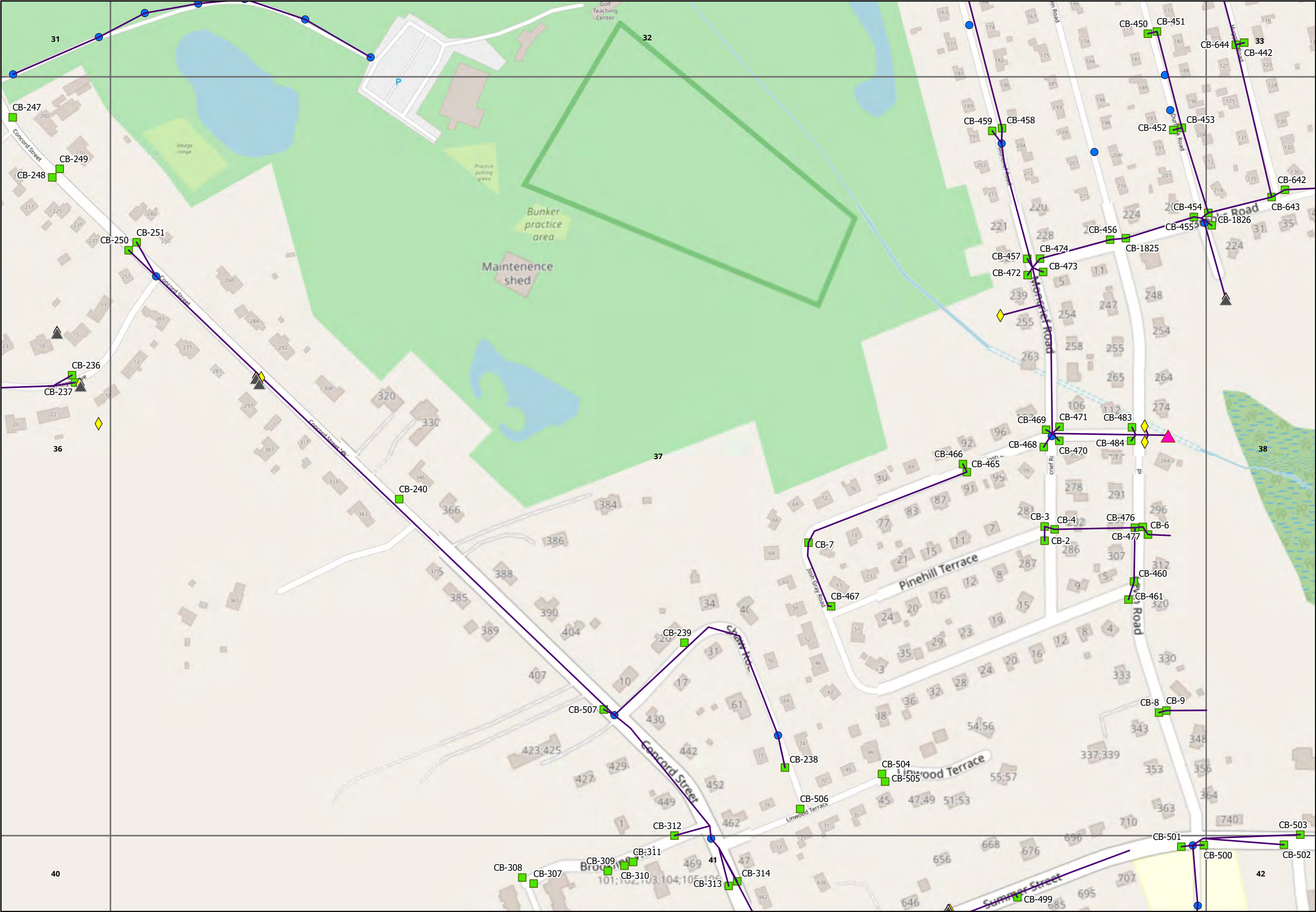
Rockland, Massachusetts

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0 125 250 Feet

ENVIRONMENTAL PARTNERS

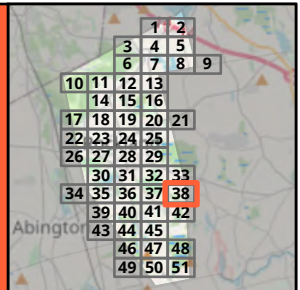
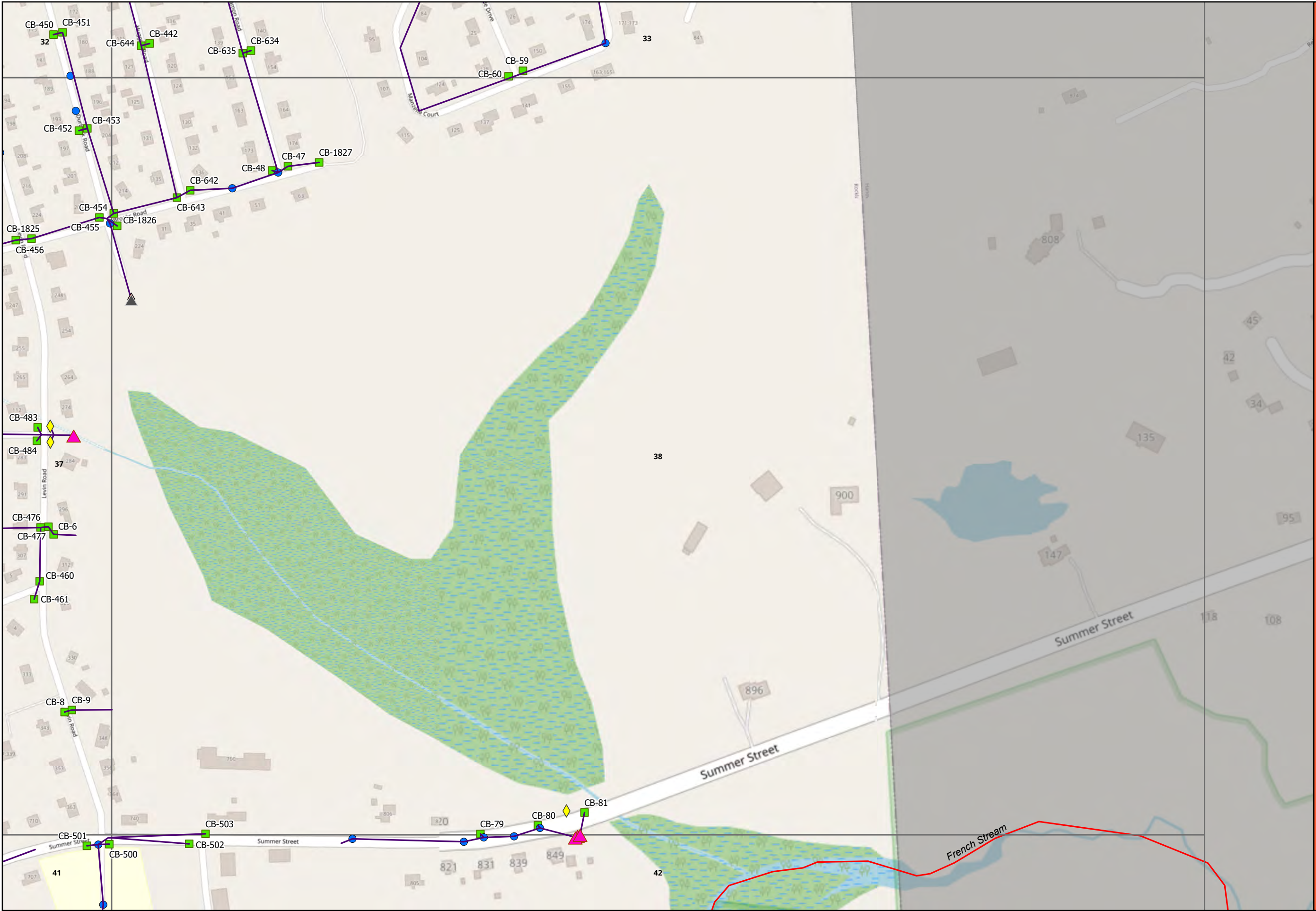


Stormwater System

Rockland, Massachusetts

- MS4 Outfall
- Upland Outfall
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Stormwater System

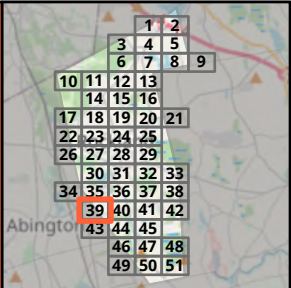
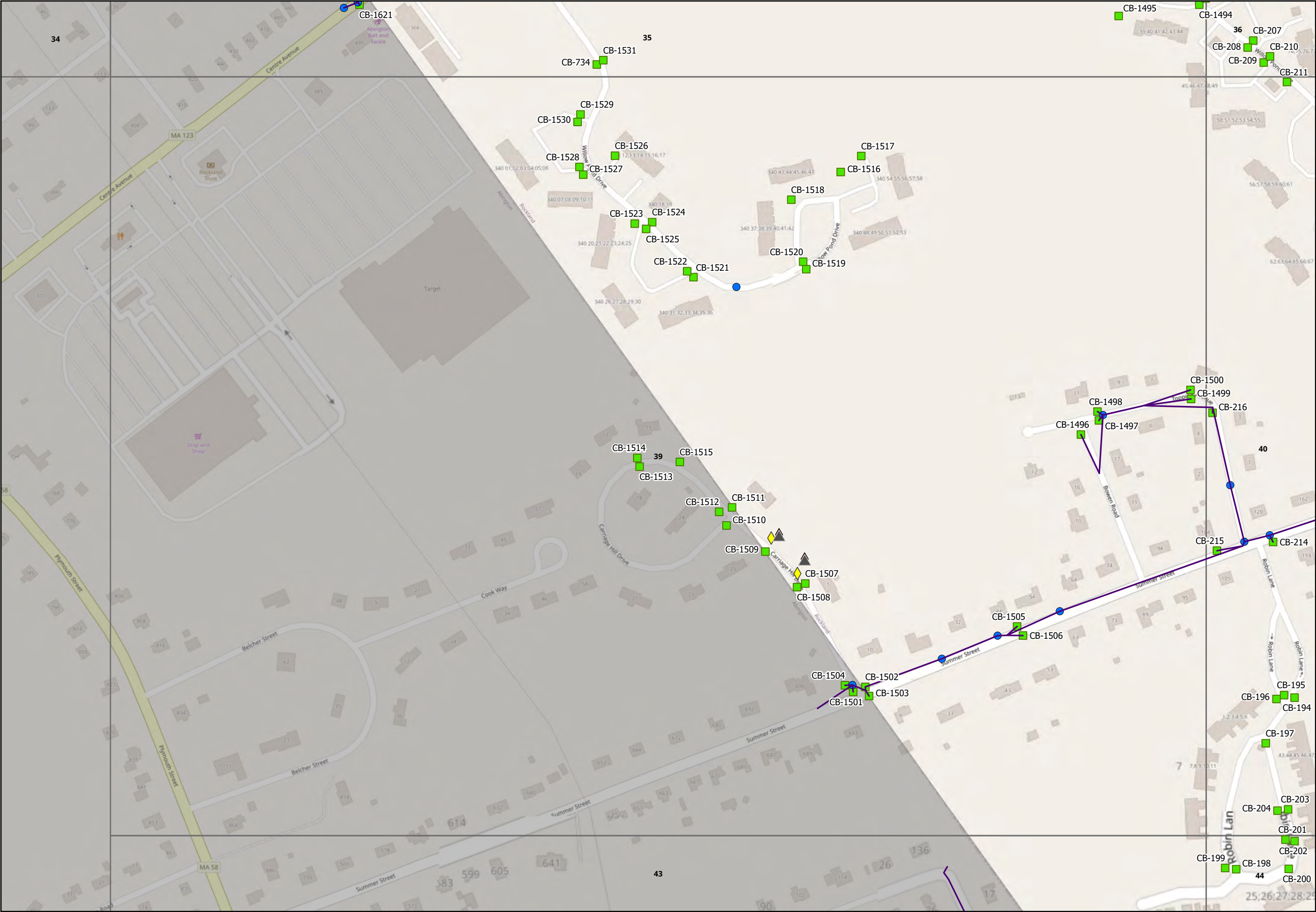
Rockland, Massachusetts

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0 125 250 Feet

ENVIRONMENTAL PARTNERS



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Stormwater System

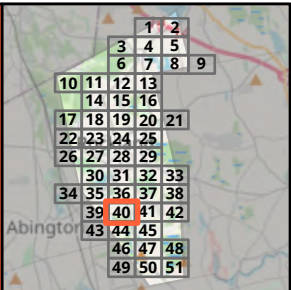
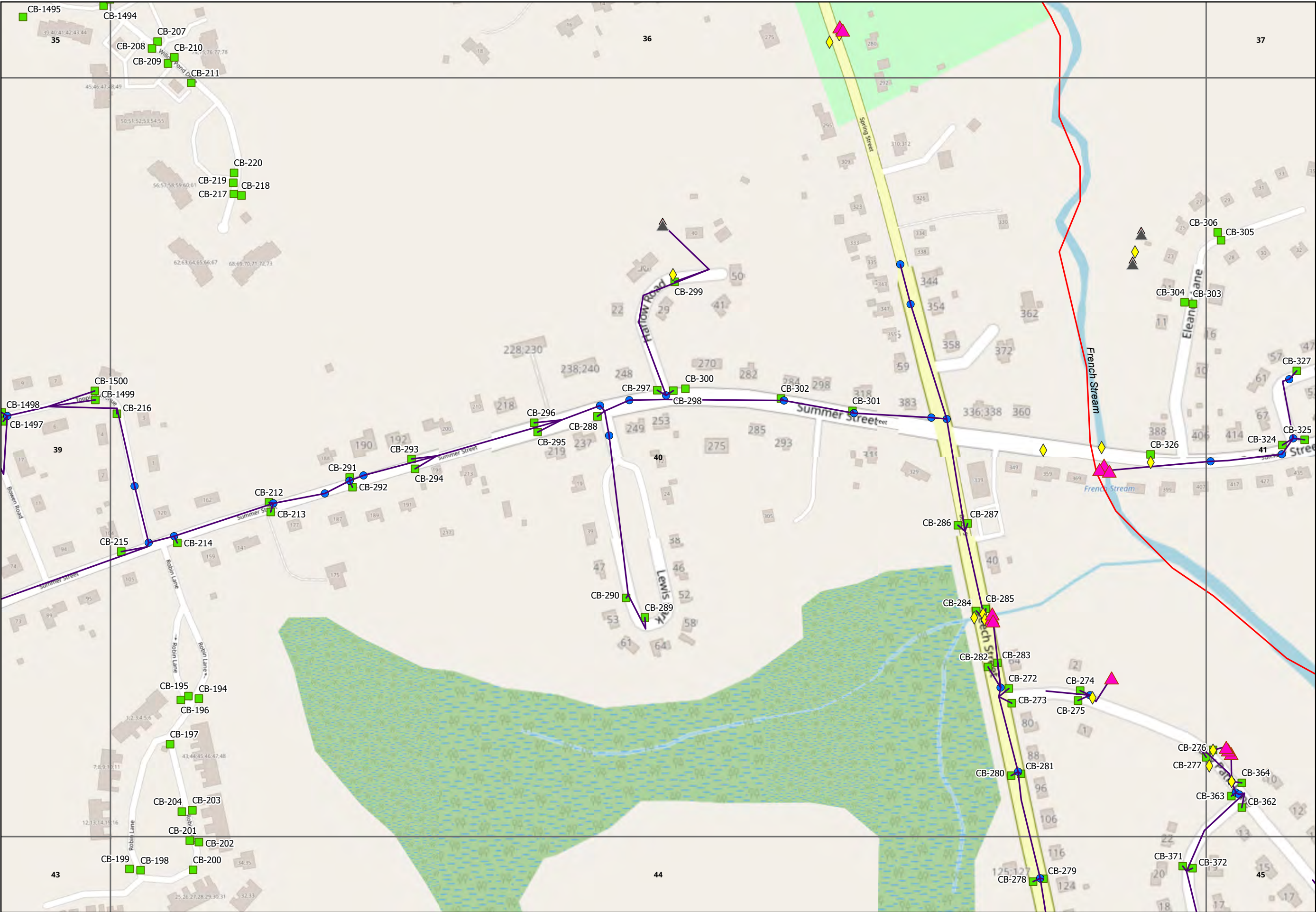
Rockland, Massachusetts

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0 125 250 Feet





Stormwater System

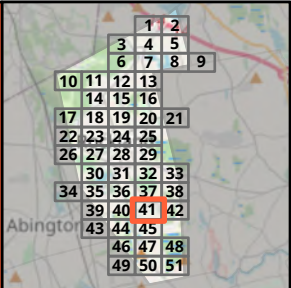
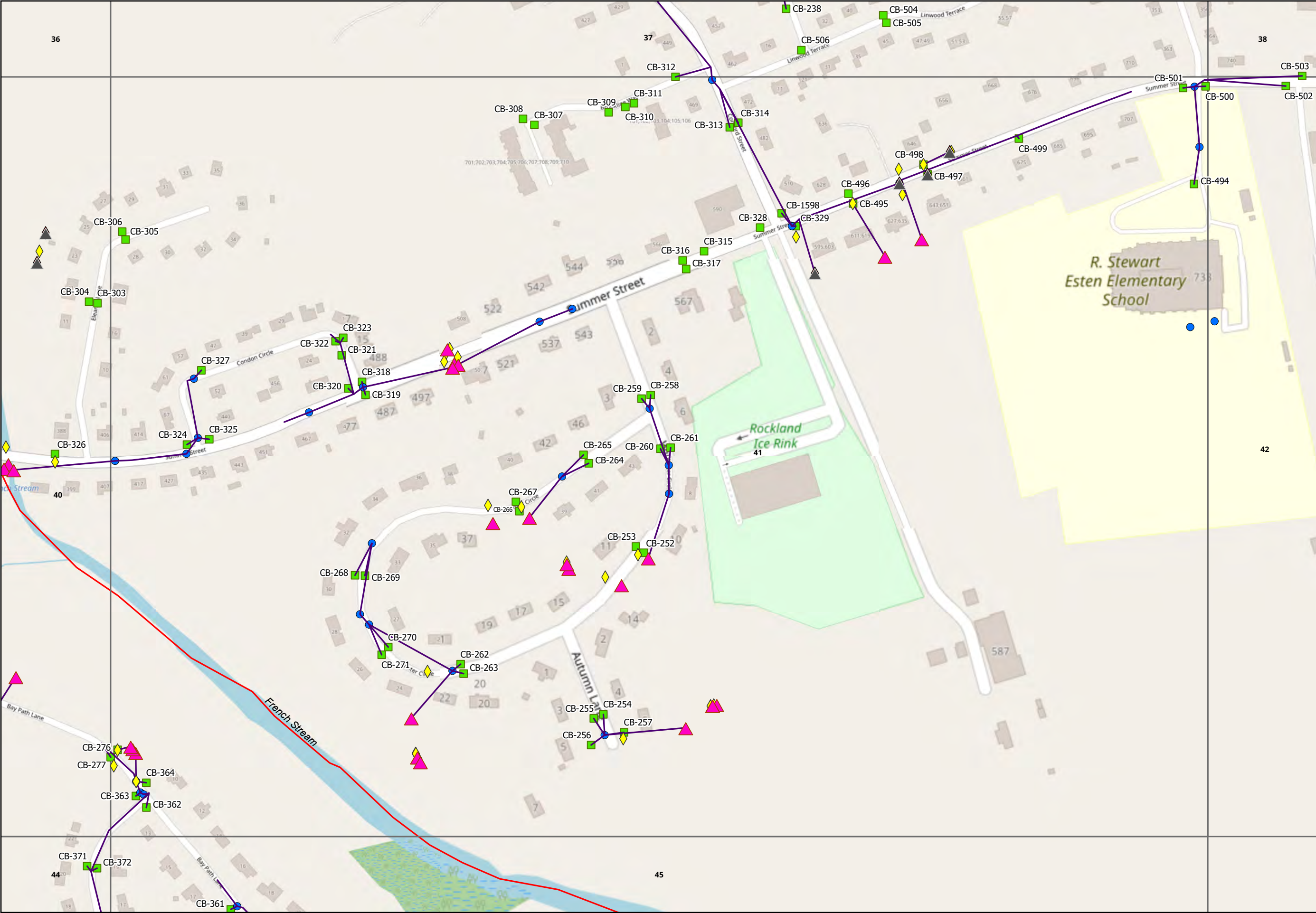
Rockland, Massachusetts

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0 125 250 Feet





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Stormwater System

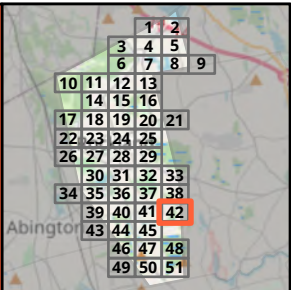
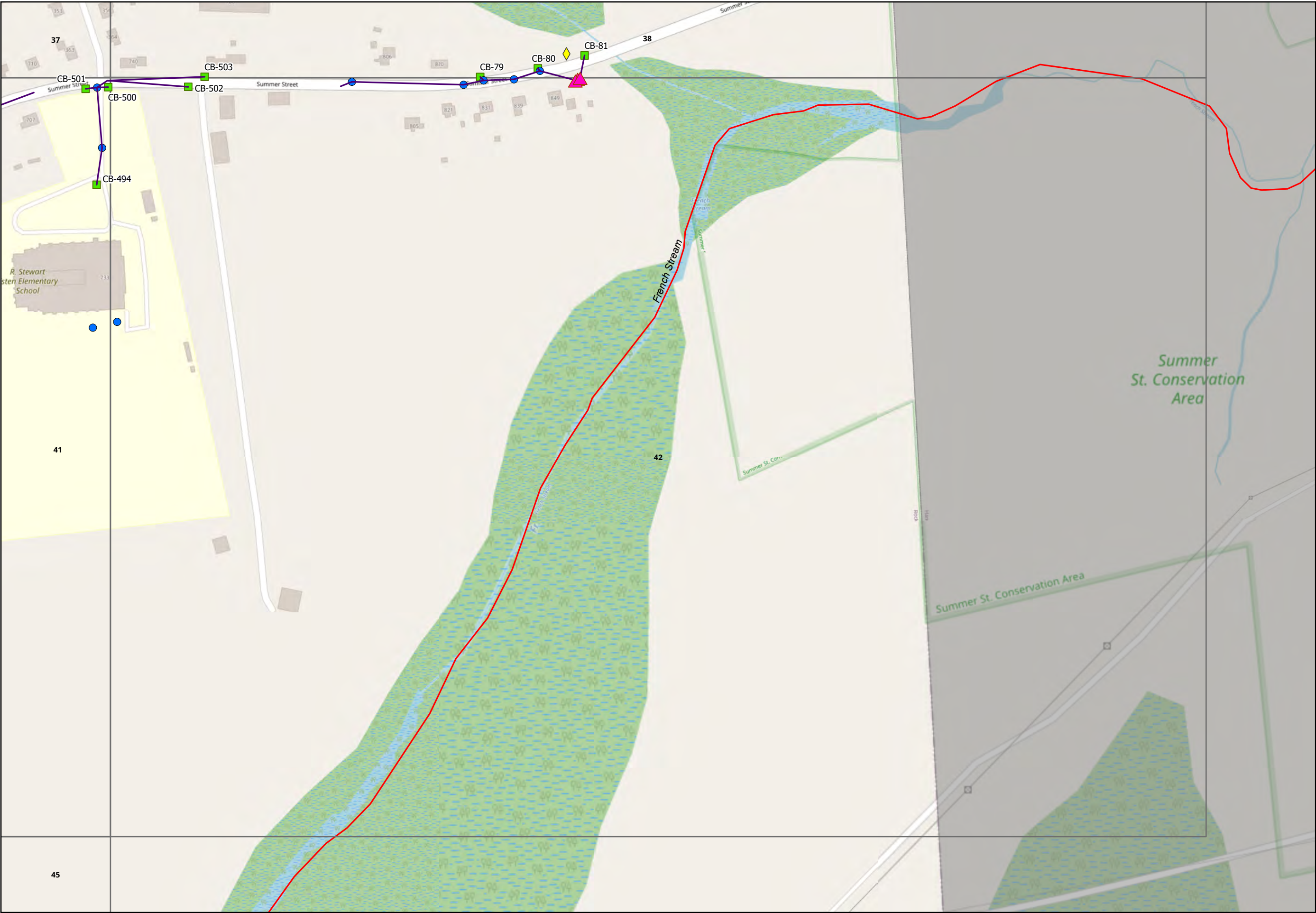
Rockland, Massachusetts

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0 125 250 Feet

ENVIRONMENTAL PARTNERS



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Stormwater System

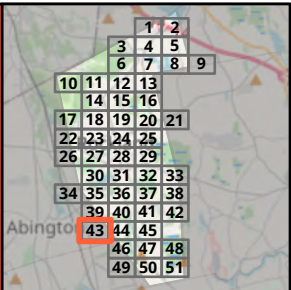
Rockland, Massachusetts

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0 125 250 Feet

ENVIRONMENTAL PARTNERS



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Stormwater System

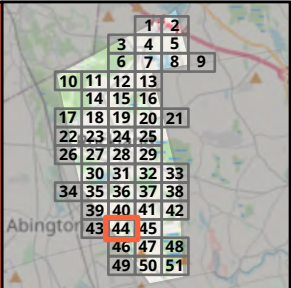
Rockland, Massachusetts

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0 125 250 Feet





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Stormwater System

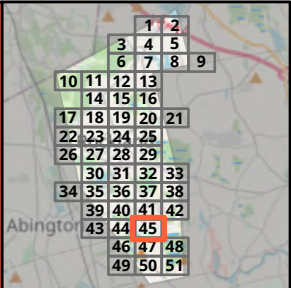
Rockland, Massachusetts

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0 125 250 Feet

ENVIRONMENTAL PARTNERS



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Stormwater System

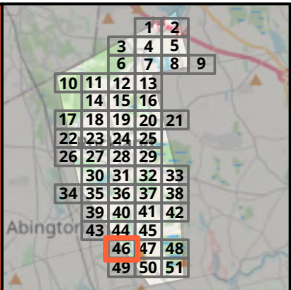
Rockland, Massachusetts

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0 125 250 Feet





Stormwater System

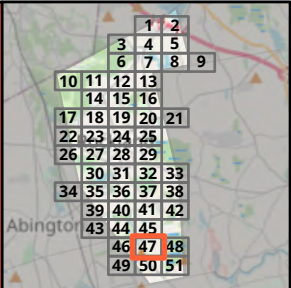
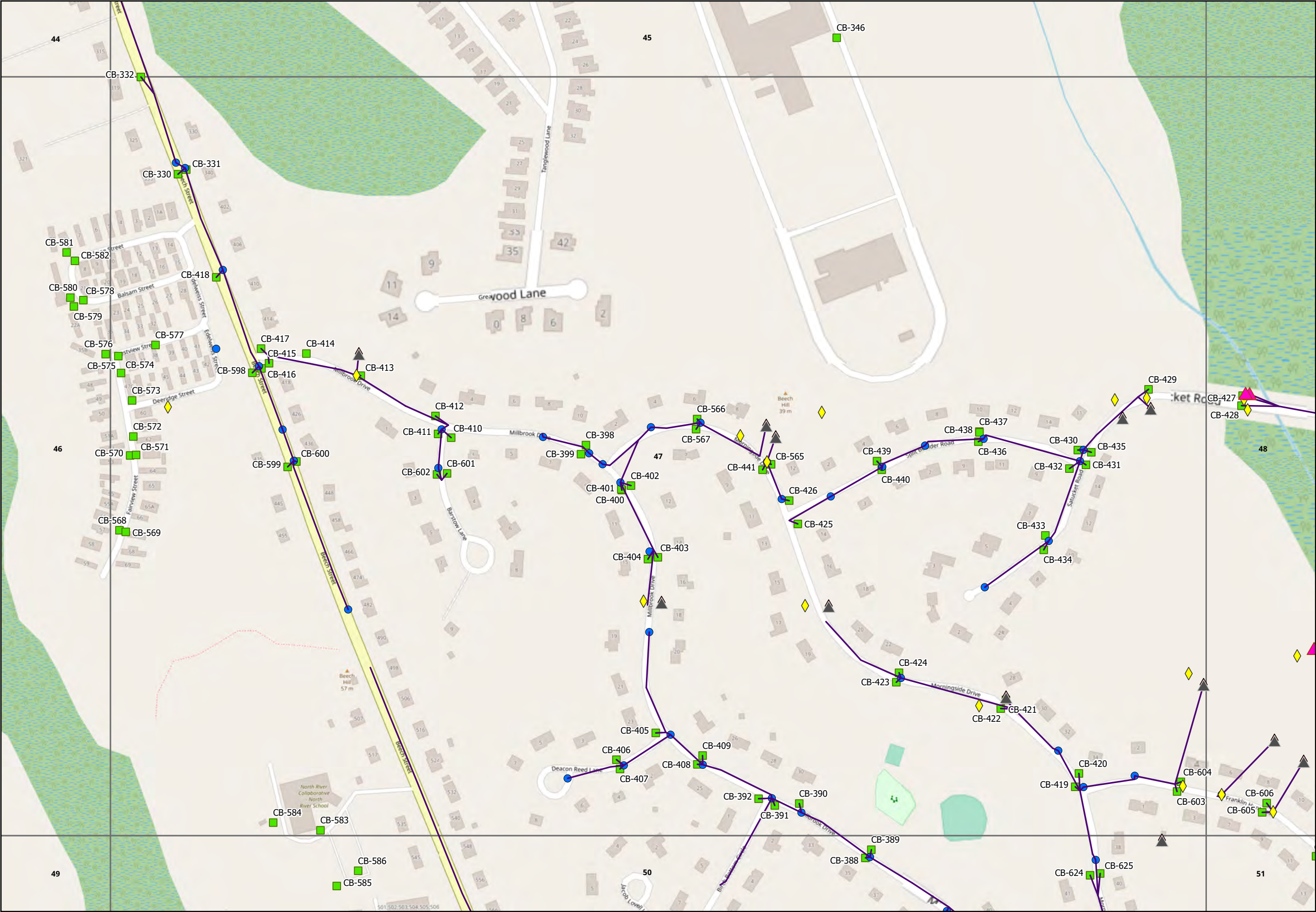
Rockland, Massachusetts

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0 125 250 Feet





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Stormwater System

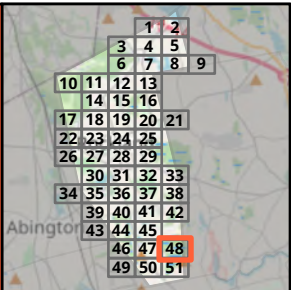
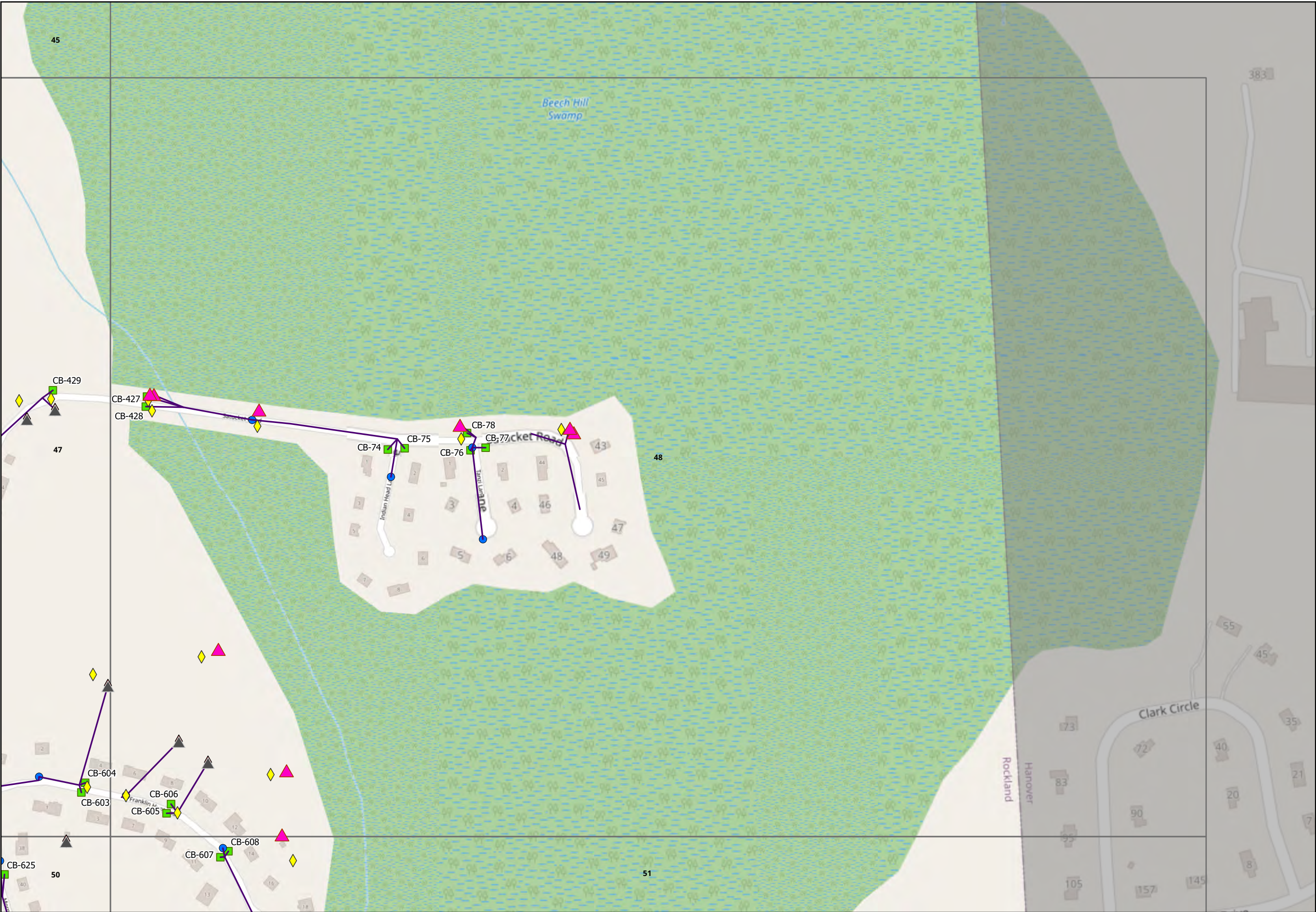
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0 125 250 Feet

ENVIRONMENTAL PARTNERS



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Stormwater System

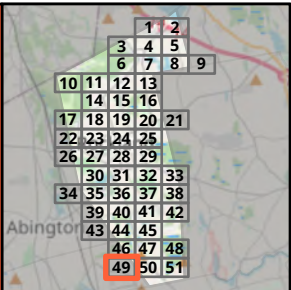
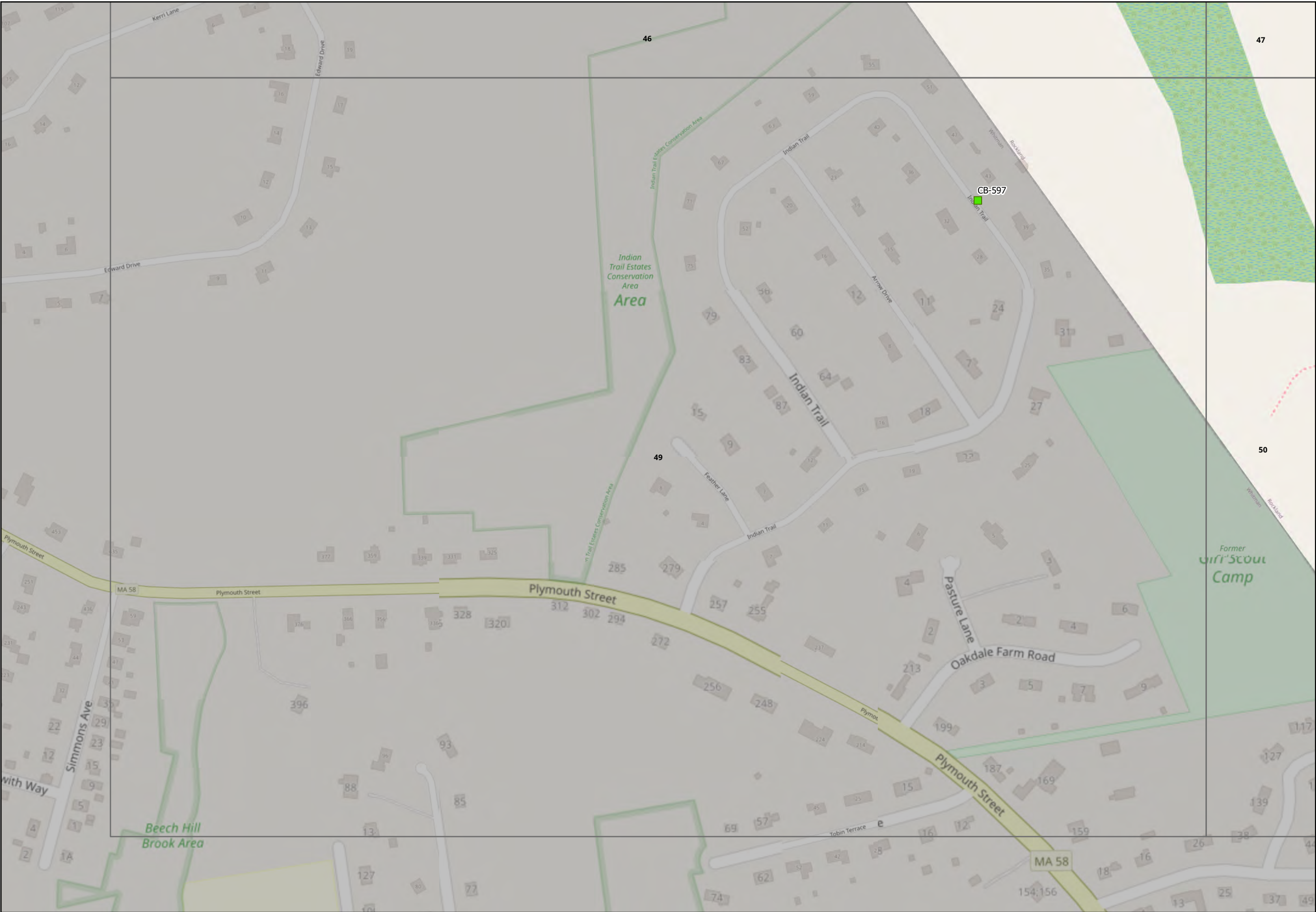
Rockland, Massachusetts

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ENVIRONMENTAL PARTNERS



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Stormwater System

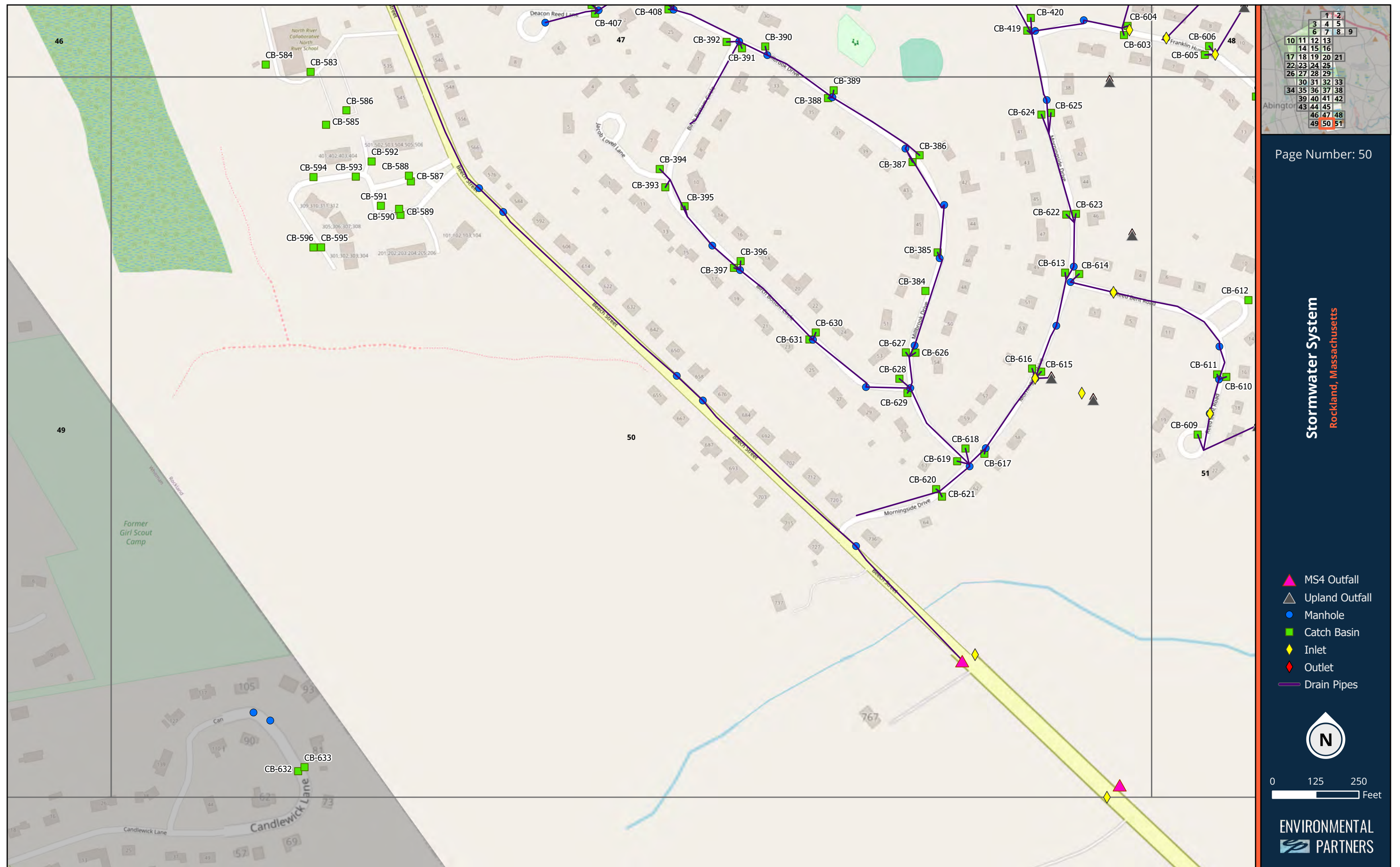
Rockland, Massachusetts

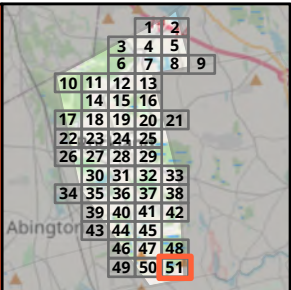
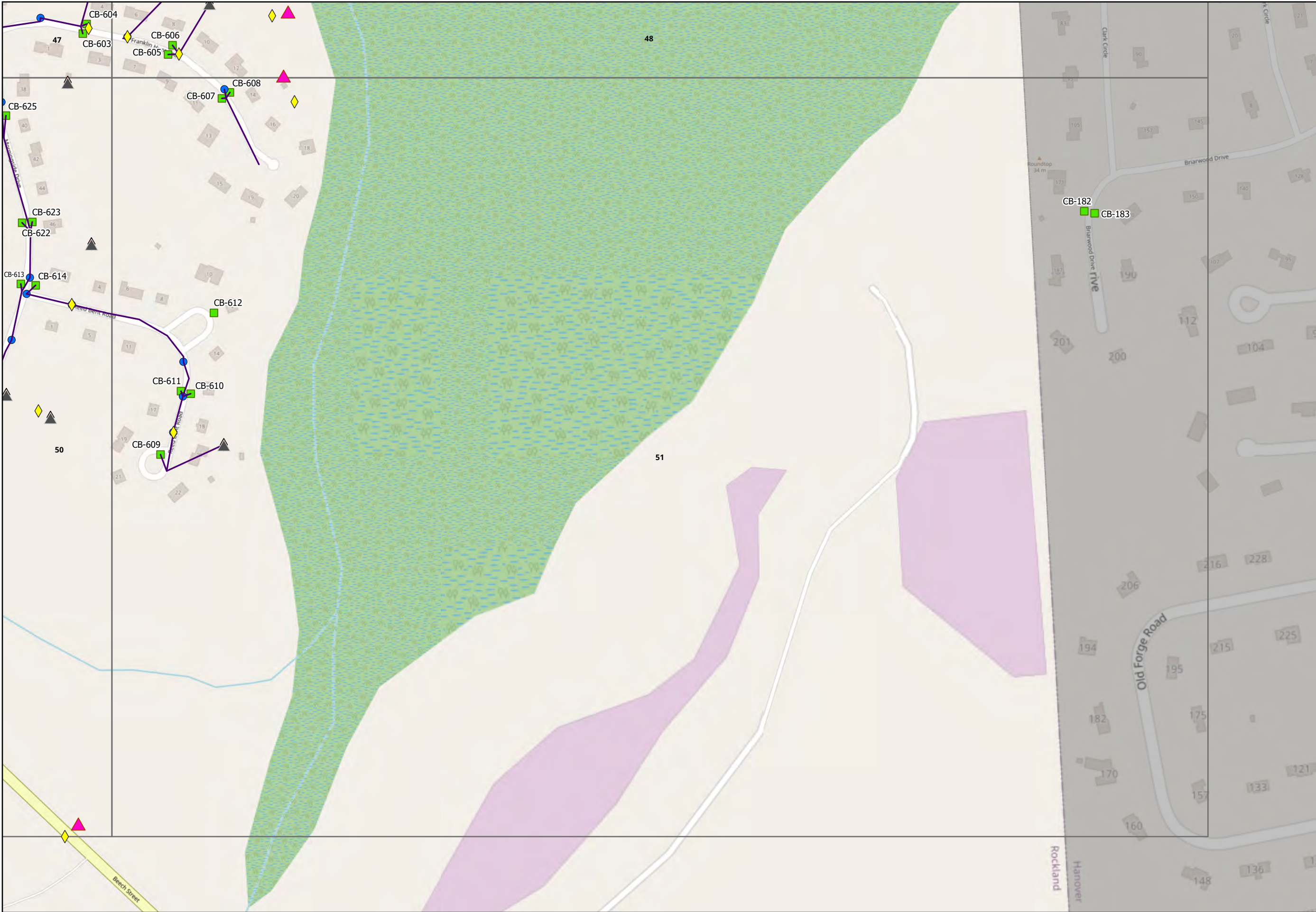
- MS4 Outfall
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0 125 250 Feet







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Stormwater System

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0 125 250 Feet





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