Accabonac Harbor Subwatershed Management Plan

June 2013

Prepared for:

The Peconic Estuary Program
Suffolk County Department of Health Services
Office of Ecology
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and the
Town of East Hampton

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1.0 Introduction

This plan is part of the on-going efforts of the Peconic Estuary Program (PEP), operating from the Suffolk County Department Health Services' Office of Ecology, to improve water quality in the Peconic Estuary and its watersheds. In 2001, the PEP adopted a final Comprehensive Conservation and Management Plan (CCMP) that identifies four priority management issues: control of pathogens, nitrogen, toxins, and enhancement of habitat and living resources. In 2003, Horsley Witten Group (HW) completed a regional stormwater assessment and management project for the Peconic Estuary Program that focused on developing a regional, storm-event-based, pollutant loading model to help prioritize management efforts for four pilot watersheds within the greater Peconic Estuary system based on the contributions of pathogens and nitrogen from each watershed. In 2006, HW completed management plans for those four pilot subwatersheds. The development of this Subwatershed Management Plan for the Accabonac Harbor Subwatershed in the Town of East Hampton, along with plans for 5 other subwatersheds in the Towns of Southold, Shelter Island, and Southampton, continues the work of those initial projects.

1.1 Peconic Estuary Watershed Issues

The Peconic Estuary is located on the eastern end of Long Island, New York between the North and South Forks (see Figure 1-1). It is one of 28 estuaries in the National Estuary Program (NEP), administered by the United States Environmental Protection Agency (USEPA) under Sec. 320 of the Clean Water Act to protect and preserve nationally significant estuaries which are threatened by pollution, development, or overuse. The Peconic Estuary was accepted into the program as an "estuary of national significance" in 1992. Its waters cover approximately 158,000 acres with 450 miles of shoreline and support a wide array of wildlife. There are several smaller bays recognized throughout the greater Peconic Estuary including Flanders Bay, Great Peconic Bay, Shelter Island Sound, Gardiners Bay, and Little Peconic Bay. Bordering this estuary are the towns of East Hampton, Southampton, Brookhaven, Riverhead, Southold, and Shelter Island. The region is popular for vacationing and supports a wide variety of both recreational and commercial activities and contains abundant natural resources. Boating, swimming and sunbathing are a few of the many recreational activities that draw thousands of people to this region. Fishing and shellfishing are two of the predominant local industries that are directly dependent upon the water quality of the estuary. Economic studies of the overall Peconic Estuary region have estimated that those businesses and industries directly tied to the estuary produce upwards of $450 million of annual income within the region (PEP CCMP, 2001).

Unfortunately, many of the tidal creeks and harbors within the Peconic Estuary, including Accabonac Harbor, are currently not meeting water quality standards and are classified as impaired water bodies. Specifically, the shellfishing beds in the Peconic Estuary have been monitored for several decades by the New York State Department of Environmental Conservation (NYSDEC) in order to assess the safety of these shellfish for consumption. High levels of coliform bacteria have resulted in the closure, either periodic or year-round, of much of the most productive beds in the estuary. Coliform bacteria, specifically fecal coliform (FC), are produced in the intestinal tracts of warm-blooded animals and are present in high concentrations in their fecal matter. FC bacteria are used as an indicator for the presence of other, potentially harmful pathogens. In 2006, a Total Maximum Daily Load (TMDL) for pathogens was developed for the impaired waterbodies in the estuary, and in 2007, a TMDL for nitrogen was developed. One of the sources of both pathogen and nitrogen loading to the estuary is from stormwater runoff. High pathogen and nitrogen loads to the tidal creeks within the estuary are problematic and directly affect water quality by causing the following common issues:

- Reduction in water clarity;
- Bacteria levels in excess of acceptable levels for human contact or consumption of shellfish;
- Overabundance of nitrogen leads to over stimulation of plants and/or algae, resulting in excess plant decay and low dissolved oxygen levels during summer months. The low levels of dissolved oxygen threatens aquatic life and can result in fish kills; and
- Excess algae, plants, and decaying plant material can cause the loss of other plant species (e.g., eel grass) that are important to the aquatic ecosystem.

Within the CCMP, non-point source pollution, including stormwater runoff, is designated as the highest priority for remedial efforts. Carefully planned and implemented stormwater management practices and strategies can reduce loadings of both bacteria and nitrogen. These strategies would therefore work to help accomplish several of the goals outlined within the Peconic CCMP including reopening shellfishing areas, reducing overall nitrogen loading, and decreasing the occurrence of brown tide.

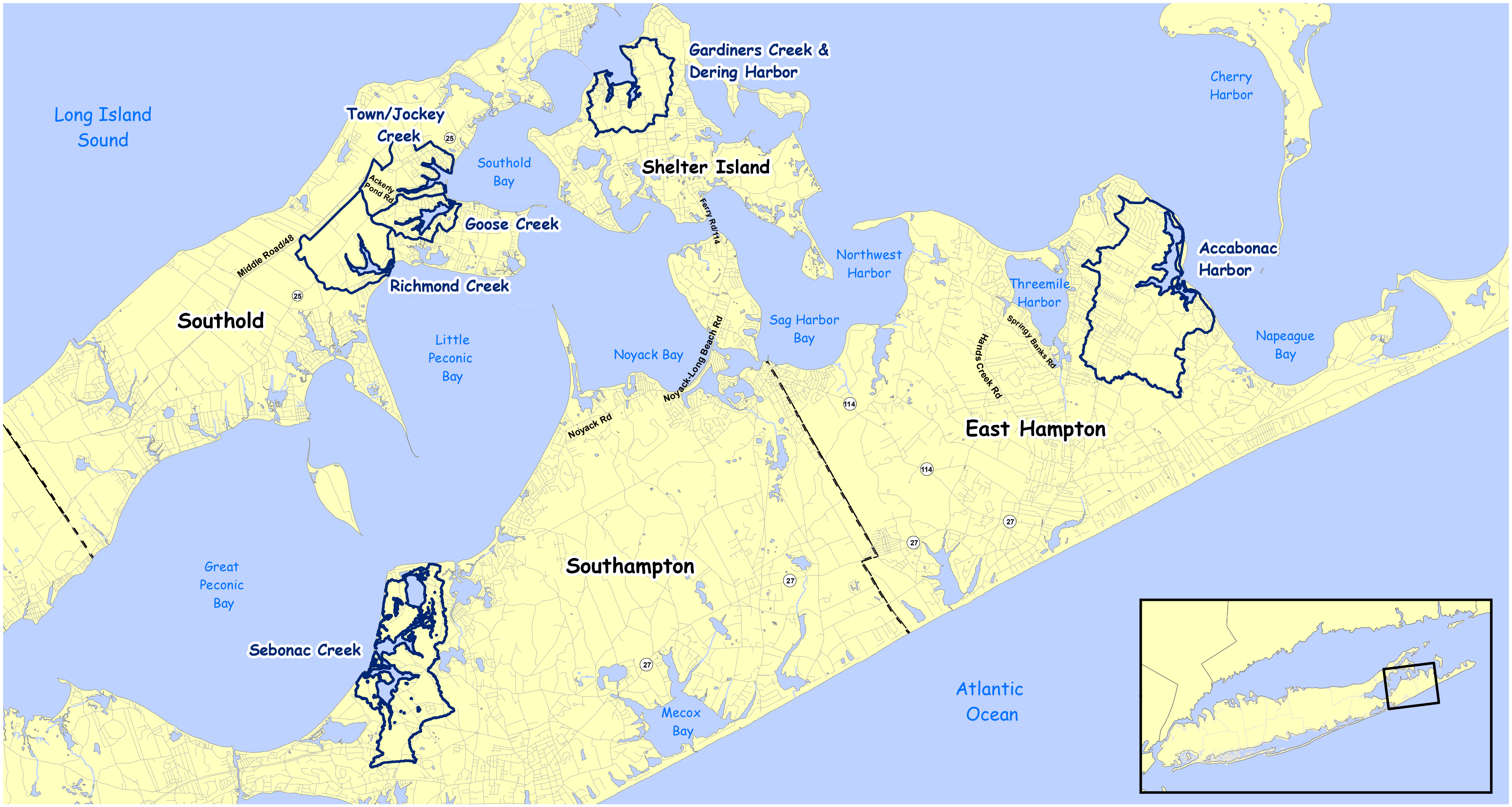
1.2 Purpose of the Plan

This plan focuses on identifying cost-effective structural and non-structural practices to reduce overall pollutant loadings (e.g., bacteria, sediment, nutrients) and runoff volume to Accabonac Harbor. The approach included rapid field assessment for stormwater management throughout the watershed. The stormwater assessment was used to identify likely stormwater pollutant sources as well as areas where best management practices (BMPs) could be installed to improve the management and treatment of stormwater in the watershed. Successful implementation of this plan is expected to help reduce stormwater runoff pollution; maintain or improve overall water quality conditions, shellfish harvesting capacity, eelgrass habitat, and degraded marsh areas.

Caveats

The following limitations on the information presented in this plan should be considered:

- While field investigations and stakeholder meetings were conducted, the list of stormwater retrofits and restoration opportunities presented here should not be considered exhaustive.
- Project ranking is intended to inform the implementation process; actual implementation frequently occurs as other opportunities arise, and the ranking should not be viewed as an absolute sequence for implementation.
- Where planning level construction costs are provided, these costs are based upon unit cost data compiled from various sources and should be used for general planning purposes only and comparison between candidate projects.
- This document is not intended as a compliance plan for the Town of East Hampton's Municipal Separate Storm Sewer System (MS4) permit issued by New York's State Pollutant Discharge Elimination System (SPDES). Rather, it is intended to provide watershed-wide restoration opportunities to be implemented by not only the Town, but by PEP and/or other organizations, and private business and homeowners.



Legend

Subwatersheds Evaluated as Part of this Assessment

Horsley Witten Group
Sustainable Environmental Solutions

The Peconic Estuary Region Vicinity and Subwatershed Context Map

Date: 6/30/2013

Figure 1.1

Legend

Accabonac Harbor Subwatershed

N

Feet

2,600

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Aerial
Accabonac Harbor Subwatershed
East Hampton, NY

Date: 7/1/2013

Figure 1.2

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2.0 Accabonac Harbor Subwatershed

This section summarizes baseline information specifically for the Accabonac Harbor Subwatershed, including a description of the unique subwatershed characteristics and a summary of existing water quality conditions.

2.1 General Subwatershed Characteristics

The Accabonac subwatershed is located within the Town of East Hampton on the north side of Long Island's South Fork. This subwatershed is primarily rural-residential with few commercial properties. The topography is extremely flat with little elevation change throughout much of the subwatershed, with the exception of a few isolated areas along the subwatershed boundaries. The subwatershed is abutted to the north by Gardiners Bay, to the east by Napeague Bay, Three Mile Harbor watershed to the west, and rural and urban areas of East Hampton to the south. There are two primary arterial roadways within the subwatershed: Springs-Fireplace Road, which runs north to south; and Old Stone Highway, which runs east to west within the subwatershed.

2.2 Land Use and Infrastructure

The subwatershed includes a small, slightly urbanized downtown area that is comprised of several commercial properties including a restaurant, two country markets, and auto/boat repair shops, as well as municipal/public buildings such as a high school, fire station, church, library, and meeting hall. Most neighborhoods are made up of low to medium density (one-quarter to one acre), single-family residential lots and appear to be constructed between the 1960s and 1970s; new construction (less than 10 years) is minimal. The southern end of the subwatershed is primarily undeveloped, wooded land. There is a significant inter-tidal, salt marsh zone that borders Accabonac Harbor that is mostly undeveloped. Table 2.1 provides a breakdown of the various land uses in the subwatershed, and a land use map is included in Appendix A.

Table 2.1. Land Use Summary

Land Use	Percent of Subwatershed
Low Density Residential	24%
Medium Density Residential	23%
High Density Residential	0%
Commercial	0%
Industrial	0%
Institutional	1%
Open Space	14%
Agricultural	0%
Vacant	29%
Transportation	8%
Utilities	0%
Waste Handling	0%
Surface Water	0%

Existing stormwater infrastructure within the watershed generally consists of drainage inlets and leaching catchbasins to infiltrate runoff. However, it appears that many of the leaching catchbasins, particularly those within the public rights-of-way, are clogged due to high accumulations of sediment and organics. Overall, within the subwatershed, there are only a few drainage outfalls that discharge directly into Accabonac Harbor or any of its tributaries.

2.3 Soils and Hydrology

The soils in the subwatershed are mapped by the USDA Natural Resources Conservation Services as Carver and Plymouth sands, Montauk fine sandy loam/loamy sand/silt loam, Plymouth Loamy Sand, Dunes, Beaches, and Tidal Marsh, with lesser amounts of Berryland mucky sand, Deerfield sand, Haven loam, Riverhead sandy loam, and Wareham loamy sand. The hydrologic soil group (HSG) indicates the infiltrative capacity of the soils, with A indicating high infiltration rates (i.e., sands and gravels) and D representing very poorly drained soils. The subwatershed is mostly compromised of HSG Type A and Type C soils. Much of the Type A soil is found near the center of the subwatershed and extends to the south, east of Springs-Fireplace Road. The Type C soil zones are located in the northern and western residential areas. Table 2.2 provides a breakdown of the soils found in the subwatershed. A map of the soil conditions is provided in Appendix A.

Table 2.2. Summary of Soil Conditions

Soil HSG	Percent in Subwatershed
A	31%
B	2%
C	59%
D	8%

2.4 Existing Water Quality

To comply with the Clean Water Act, the NYSDEC compiles a Priority Waterbodies List (PWL). Accabonac Harbor is included under PWL# 1701-0047 as an impaired waterbody, and in 2006, a TMDL for pathogens was developed for this area with urban stormwater runoff identified as a pollutant source, along with inputs from forest runoff and waterfowl. In addition, the NYSDEC has designated Accabonac Harbor as “growing area 14” for shellfish, of which portions are closed and/or seasonally closed for shellfishing.

3.0 Field Assessment of Restoration Opportunities

This chapter describes both the methodology used for the watershed assessment and the proposed recommendations to help improve the water quality of the Accabonac Harbor Subwatershed. The proposed options range from site-specific stormwater retrofits to non-structural control measures. A map showing the restoration opportunities is included as Figure 3.1.

3.1 Assessment Methods

In April 2011, an initial field reconnaissance was performed in the subwatershed to identify preliminary retrofit and restoration sites. Following the site walk, a "desktop analysis" was performed for those preliminary sites, which included using GIS information from the New York State GIS database and the Town of East Hampton to identify soils, wetlands, other site constraints, approximate drainage areas, and any known stormwater infrastructure. This information was used to prepare field forms, aerial plans, and overall watershed maps to be used in the field to verify site conditions and finalize assessments.

The full field reconnaissance was conducted in May 2011. Field teams used the data collected from the preliminary site walk and desktop analysis, as well as information from Town staff, to assess the previously identified sites and identify any additional opportunities throughout the subwatershed. Restoration opportunities were evaluated using watershed assessment protocols originally developed by the Center for Watershed Protection (Kitchell and Schueler, 2004; Wright et al. 2005; and Schueler et. al., 2007) and adapted by HW for application on Long Island. The completed field reconnaissance forms can be found in **Appendix B**.

Stormwater Retrofits

At each candidate location, the field teams evaluated drainage conditions, identified site constraints, and selected stormwater retrofit options with the best reported pollutant removal capability for the pollutants of concern (nitrogen, bacteria, and sediments) and have the highest runoff reduction potential. Examples include but are not limited to:

- Bioretention (or raingardens, where applicable);
- Infiltration systems;
- Permeable pavement;
- Dry swales (linear practices that contain amended soils);
- Wet swales (linear practices with emergent wet vegetation); and
- Constructed stormwater wetlands.

Vegetated infiltration and filtering practices have the best bacteria and nitrogen removal potential and were recommended where feasible based on soils and estimated groundwater elevations. In areas of high suspected groundwater, wet swales and constructed wetlands were proposed. In general, all of these practices can be adapted as necessary to several different drainage configurations including larger open areas, roadside drainage, and parking lots. Additional information and details on the design of each of these practices can be found in the 2010 update of the New York State Stormwater Management Design Manual. In addition, the 2010 Rhode Island Stormwater Design and Installation

Standards Manual is an additional resource for the design and assessment of stormwater management practices.

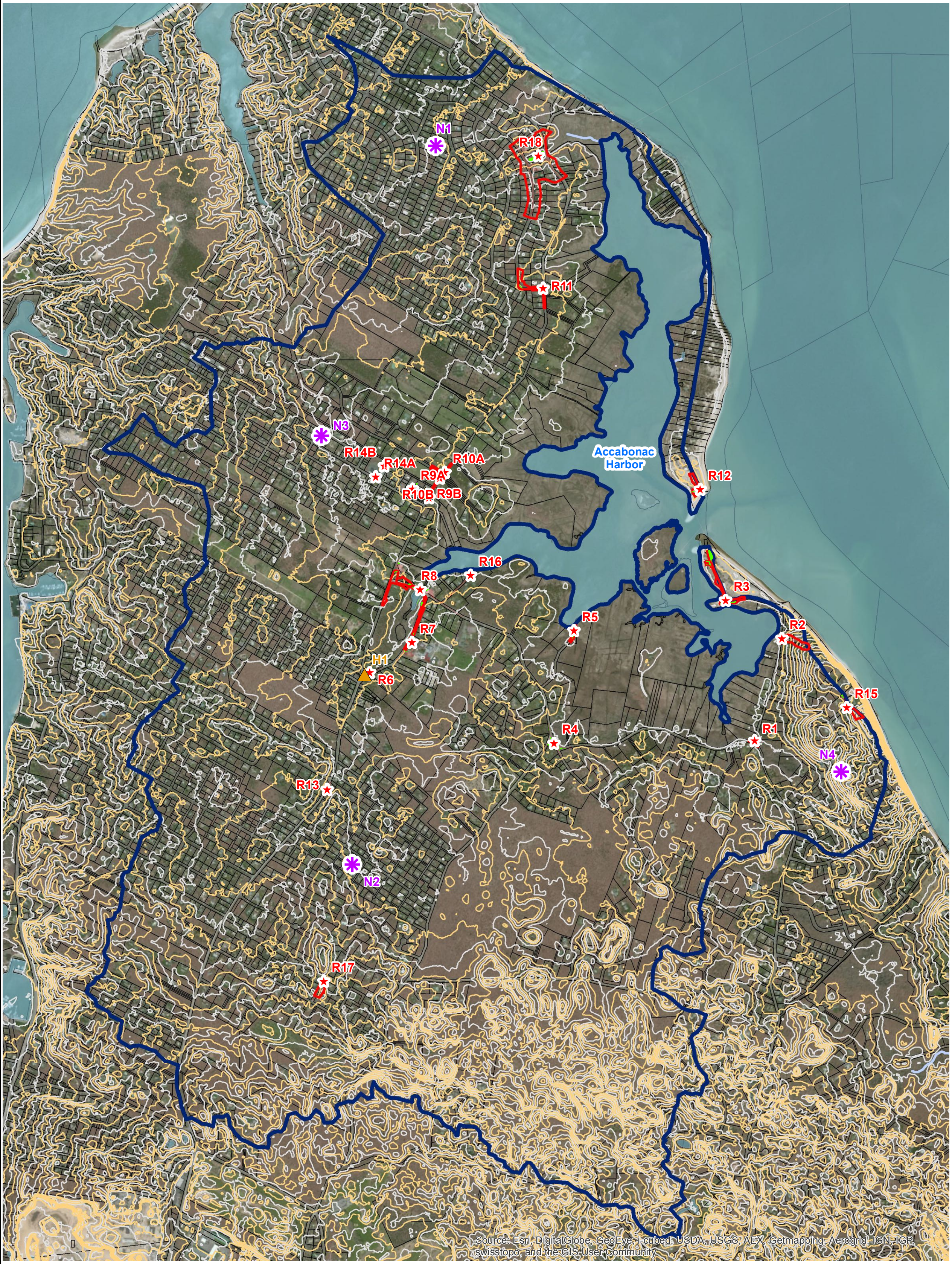
A preliminary ranking process was conducted to determine which of the retrofit design concepts should be further refined – the full methodology and results are included in Appendix C.

Neighborhood Assessments

A rapid watershed assessment of neighborhoods was conducted in the subwatershed to help identify and assess a range of non-structural stormwater practices. The methodology used was adapted from the Upland Subwatershed and Site Reconnaissance (USSR), Residential Source Assessment (Wright et al., 2004). This assessment evaluates neighborhood pollution potential and weighs the importance of specific sources (e.g., evidence of pet waste, over fertilize lawn, trash and debris) with specific management strategies (e.g., pet waste management, car washing) to help target watershed education and outreach efforts. The assessment also evaluates general conditions of the street and drainage network to determine the relative importance of street sweeping and catchbasin cleanout as potential management priorities. Neighborhood assessments were conducted to help identify and document if the neighborhoods are likely to generate pollutants of concern (e.g., nitrogen, bacteria, sediment), to identify the sources common within each neighborhood, and which areas/sources should be targeted for watershed stewardship activities.

Hotspot Assessment

During the rapid watershed assessment, field teams also identified land uses that have the potential to contribute a high level of pollutants to the creeks and their tributaries, also known as stormwater hotspots. Sites were then identified as candidates for both structural and non-structural pollution prevention controls.



Legend

- Accabonac Harbor Subwatershed
- Parcels
- Retrofit Sites
- Retrofit Footprint
- Retrofit Drainage Area
- Retrofit Impervious
- Hot Spots
- Neighborhoods
- Hydrography
- Hydrography
- East Hampton 10ft. Contours
- East Hampton 5ft. Contours

N

1,600 Feet

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Restoration Opportunities
Accabonac Harbor
Subwatershed
East Hampton, NY

Date: 7/8/2013

Figure 3.1

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3.2. Stormwater Retrofit Sites

Multiple sites were identified by project partners and through field assessment as potential stormwater improvement opportunities. These stormwater retrofit opportunities are summarized in Table 3.1. A more detailed description of existing conditions and potential opportunities at these sites is provided below.

Table 3.1. Summary of Stormwater Retrofits Sites

Site ID	Location	Description	Ranking
AB-R1A	Junction of Louse Point and Old Stone Hwy	Traffic island bioretention area.	Medium
AB-R1B	Junction of Louse Point and Old Stone Hwy	Wet swale along right-of-way (ROW).	High
AB-R2	Unpaved driveways along Louse Point Road	Driveway stabilization. Paved gutter to vegetated swale and deep-sump structure.	Low
AB-R3A1	Northern end of Louse Point Road	Path stabilization (e.g., water bars and/or revegetation).	Low
AB-R3A2	Northern end of Louse Point Road	Parking lot paving or gravel stabilization and bioretention area.	Medium
AB-R3B1	Louse Point Road Boat Launch	Trash management. Path stabilization (e.g., water bars and/or revegetation).	Low
AB-R3B2	Louse Point Road Boat Launch	Pavement removal and bioretention area.	Medium
AB-R4A	Junction of Old Stone Hwy and Neck Path	Traffic island bioretention area.	Medium
AB-R4B	Junction of Old Stone Hwy and Accabonac Road.	Traffic island bioretention area.	Medium
AB-R4C	Junction of Old Stone Hwy and Neck Path	Constructed wetland in ROW.	High
AB-R4D	Junction of Accabonac Road and Neck Path.	Paved drainage flumes to reduce erosion.	Low/Medium
AB-R4E	Old Stone Hwy	Bioswale in ROW.	Medium
AB-R5	Landing Lane Boat Ramp & Parking Area	Parking lot paving or gravel stabilization. Path stabilization and revegetation.	High*
AB-R6	Barnes Country Market Parking Lot	Pavement removal and bioretention area. Parking realignment.	Low
AB-R7A1	Front of School on School Street	Bioretention area/"Green Street" (northern-most site).	Medium
AB-R7A2	Front of School on School Street	Bioretention area/"Green Street." Pave on-street shoulder parking.	High
AB-R7B1	School bus loop on School Street	Bioretention area.	Medium
AB-R7B2	Front of School on School Street	Bioretention area/"Green Street" (southern-most site). Pave on-street shoulder parking.	High/Medium

Site ID	Location	Description	Ranking
AB-R7C	Back of School	Rain barrels and educational activities/signage.	Low/Medium
AB-R8A1	Parsons Street/Springs Trail	Constructed wetland. Educational signage.	High/Medium
AB-R8A2	Parsons Street/Old Stone Rd intersection.	Bioretention area. Educational signage.	High/Medium
AB-R8B	Church at junction of Springs-Fireplace Rd. and Old Stone Rd.	Bioretention area.	High*
AB-R8C1	Pussy's Pond Park on School Street	Bioretention area. Educational signage.	High*
AB-R8C2	Pussy's Pond Park on School Street	Bank stabilization/revegetation. Water fowl management. Educational signage.	High*
AB-R8D	Springs General Store	Pavement removal; bioretention area; and curb and gutter installation.	Low
AB-R8E	Ashawagh Hall	Bioswale.	Medium
AB-R9A	Commercial properties at Old Stone Hwy and Fort Pond Road.	Pave access road or stabilize with gravel.	Low
AB-R9B	Commercial properties along Old Stone Hwy	Pave ROW parking (in-front of businesses) or stabilize with gravel.	Low
AB-R10A	End of Talmage Farm Lane	Pavement removal. Vegetated swale and bioretention area (north side of intersection).	High
AB-R10B	End of Talmage Farm Lane	Pavement removal. Vegetated swale and bioretention area (south side of intersection).	High
AB-R11A	Norfolk Dr & Underwood Drive	Pavement removal; bioretention area.	High/Medium
AB-R11B/R11C	Underwood Drive	Installation of oil-grit separators (OGS) and/or deep-sump catchbasins (CB) for pretreatment. Install new leaching CB.	Low
AB-R12	End of Gerard Point	Path stabilization with reinforced drainage swale and revegetation.	Low
AB-R13	Low points southwest end of Springs-Fireplace Road	Bioretention areas and/or tree pits.	Low*
AB-R14A	Springs Fire Dept.	Bioretention area (front of building).	Low
AB-R14B	Springs Fire Dept.	Installation of OGS and/or deep-sump catchbasins for pretreatment. Conversion of overflow parking to permeable pavements.	Low
AB-R15A	Waters Edge and Carriage Lane	Pavement removal. Bioretention area.	Low*

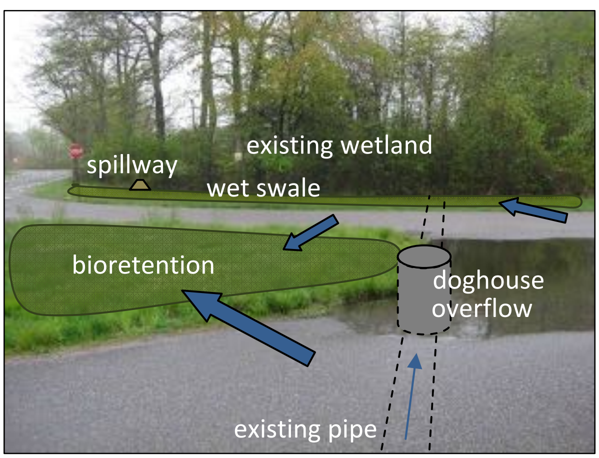
Site ID	Location	Description	Ranking
AB-R15B	Waters Edge and Carriage Lane	Pavement removal. Bioretention area.	Low*
AB-R15C	Waters Edge and Carriage Lane	Pavement removal and planting area.	Low
AB-R16	Shipyard Rd	Pavement removal. Bioretention area.	High
AB-R17	Harrison Ave Neighborhood Cul-de-sacs	Cul-de-sac planter conversion to bioretention areas.	Medium
AB-R18	Teak Rd Wetland	Improved peak flow detention with outlet control structure retrofit. Invasive vegetation control.	High

**Rankings were adjusted based on the Town's local areas of concern and priorities*

Junction of Louse Point Rd and Old Stone Hwy (AB-R1A/AB-R1B)

This retrofit includes regrading the traffic island to take road runoff and constructing a **bioretention area** (or constructed wetland depending on depth to groundwater). A proposed "doghouse" overflow would connect into the existing corrugated metal drain pipe that runs from the existing wetland on the east side of the intersection to the wetland/stream on the west side. In order to capture runoff that flows away from the traffic island, a **wet swale** is proposed with an overflow spillway that discharges to the adjacent wetland. On the southeast side of the intersection, a paved flume into the existing wetland would help to reduce roadway ponding. There is not enough space available for a swale at this location, nor enough available head for a catchbasin type structure. The existing corrugated metal drain pipe at this location will likely have to be replaced due to corrosion.

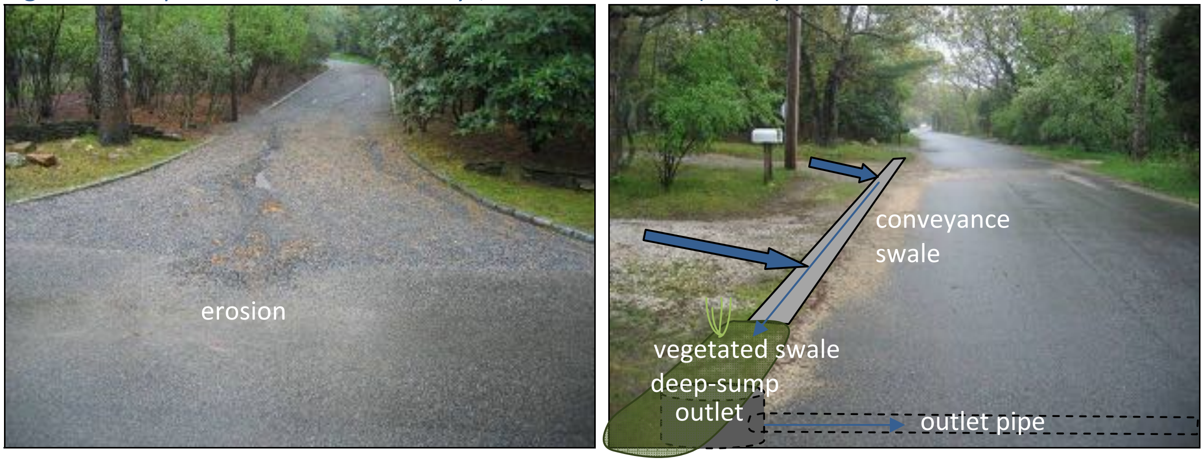
Figure 3.2. *Proposed concept for the Junction of Louse Point Rd and Old Stone Hwy (AB-R1A and B)*



Unpaved residential driveways, Louse Point Road (AB-R2)

Dirt and gravel driveways for residences at #76, #78, and #80 Louse Point Road are eroding and depositing sediment into the roadway. A conveyance swale (e.g., paved gutter) at the driveways could be installed to direct runoff down into a **vegetated swale**. The water would overflow into a proposed **deep-sump outlet structure** and through a small diameter pipe to the west across the roadway. One possible design constraint at this location is the existing thick vegetation that may need to be thinned in some places. A similar management strategy could be implemented in other areas along Louse Point Road, provided there is appropriate space/elevation on the Bay-side of the road for an outlet pipe.

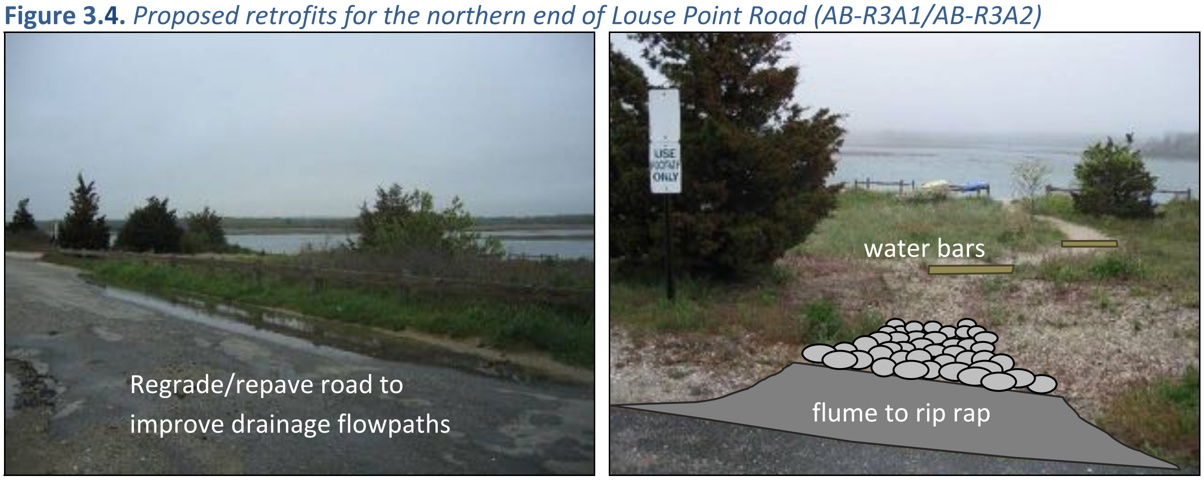
Figure 3.3. *Unpaved residential driveways, Louse Point Road (AB-R2)*



Northern end of Louse Point Road (AB-R3A1/AB-R3A2)

At Louse Point, there is an eroding footpath that leads west from Louse Point Road. This traditional path should be stabilized without reducing access (AB-R3A1). **Stabilization measures** should include a paved flume and riprap splashpad to capture and convey runoff from the road and parking lot. Water bars should be installed on the footpath to redirect drainage off the path and into the vegetated areas in such a way as to not limit accessibility. The northern end of Louse Point Road has eroded significantly due to the current between the ocean and bay. Asphalt is missing, and there is a near vertical slope from the end of the road down to the beach. A portion of the asphalt roadway should be removed back to the parking lot without greatly impacting use of the area; the coastal bank should then be **stabilized and revegetated** (AB-R3A2). It is also proposed to pave or place washed quartz crushed gravel over the existing dirt parking area to reduce sediment load to the estuary. In addition, there is sufficient space to construct a **bioretention area** for treating runoff from the parking area; however, this should only be constructed if regrading and paving were to occur.

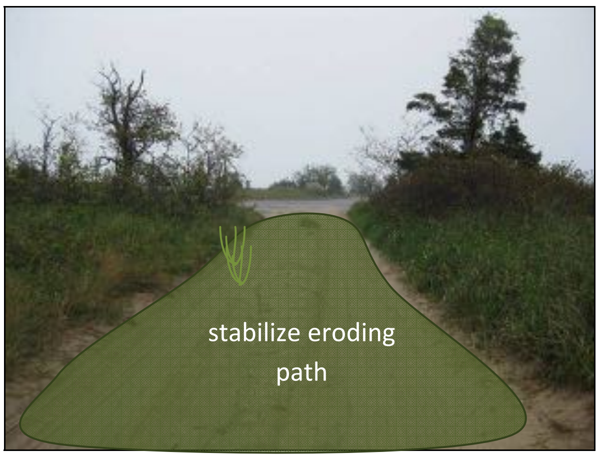
Figure 3.4. *Proposed retrofits for the northern end of Louse Point Road (AB-R3A1/AB-R3A2)*



Louse Point Boat Launch (AB-R3B1/AB-R3B2)

At the Louse Point boat launch, there is an existing sand path/road that leads down to the edge of water that is eroding. The **path should be stabilized** in a way that does not reduce this traditional access point (AB-R3B1). A **reinforced drainage swale** should also be created alongside the paved boat launch. Due to a large amount of trash and debris found around the site, trash cans, a fishing line disposal receptacle, and a dog bag dispenser are recommended. Any fishing nets, traps, and debris along the beach should be removed. The parking area pavement should be swept and maintained at least twice annually. There is also sufficient space to construct a **bioretention area** for treating runoff from the parking area; approximately 1,500 square feet (minimum) of area would be required (AB-R3B2). Some **pavement removal** would be necessary to construct such a system. The southern edge of the parking area would be the ideal location for this due to the existing drainage flowpaths. Due to the popularity of this site among various user groups, educational signage would be effective for any of the proposed retrofit opportunities.

Figure 3.5. *Proposed concepts for Louse Point Boat Launch (AB-R3B1/AB-R3B2)*



Junction of Old Stone Hwy, Accabonac Road & Neck Path (AB-R4A/AB-R4B/AB-R4C/AB-R4D/AB-R4E)

Several treatment practices are proposed at this location. The most feasible and practicable retrofit (retrofit A) is a **traffic island bioretention** retrofit at the intersections of Old Stone Hwy and Neck Path. There is currently an existing depression that temporarily collects some road runoff, and a drain inlet that manages another portion of road runoff. An engineered soil mix could replace the existing soil in the depression to enhance pollutant removals at this location. The existing drain inlet could serve as the overflow structure for this system if the asphalt berm that surrounds it is removed.

Other areas that can be modified within the right-of-way (ROW) to manage additional runoff include the following: B) Construction of a **second traffic island bioretention area** at the intersection of Old Stone Hwy and Accabonac Road. C) Creating a **constructed wetland** in the ROW along the southeastern edge of the Old Stone Hwy and Neck Path intersection. There is an asphalt berm around an existing leaching catchbasin that should be removed in order to convert the catchbasin to an overflow for the proposed wetland. This catchbasin was not draining (i.e., clogged) at the time of observation. D) Add **paved drainage flumes** to reduce erosion at an existing roadside wetland at the intersection of Accabonac Road and Neck Path. E) Install paved flumes at the west side of Old Stone Hwy, nearest the intersection, to direct runoff from the road into a **bioswale** with either a new or existing leaching catchbasin as an overflow structure. If using the existing structure, the existing asphalt berm(s) must be removed.

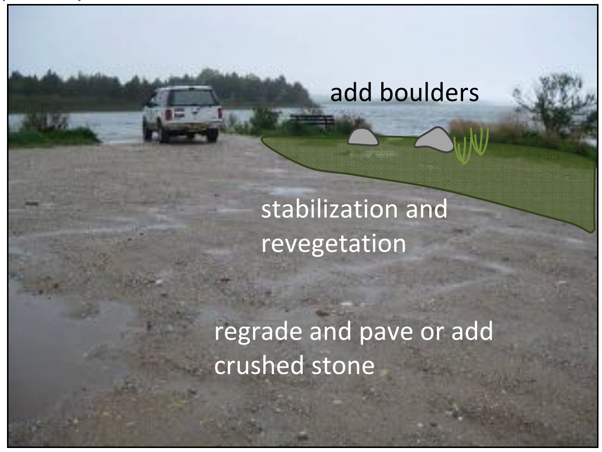
Figure 3.6. *Proposed retrofits for the sites at the Junction of Old Stone Hwy, Accabonac Rd & Neck Path (AB-R4A/B, top left; AB-R4C, top right; AB-R4D, bottom left, and AB-R4E, bottom right)*

Landing Lane Boat Ramp & Parking Area (AB-R5)

At the end of Landing Lane, there is a dirt parking lot and boat launching area. The parking lot is in need of regrading to remove rutting that has occurred. During rain events, the dirt parking area contributes sediment to the adjacent estuary. Recommended restoration alternatives include paving or placement of washed quartz gravel to reduce sediment load. There is also sufficient space to increase the buffer between the parking area and the estuary by reducing parking lot size. An **additional 15 feet of buffer area** along the parking lot perimeter is well within reason given the current layout.

There are two dirt paths that are being used as boat launching areas, despite the presence of a designated launching ramp. Vehicle access should be prevented from these areas and directed to the paved boat ramp. The dirt paths could then be **revegetated and stabilized**. The existing parking area low-point/drainage path near the shore should also be stabilized (with coir fabric) to reduce erosion. Restoration planting may include salt marsh grasses in any eroding tidal areas.

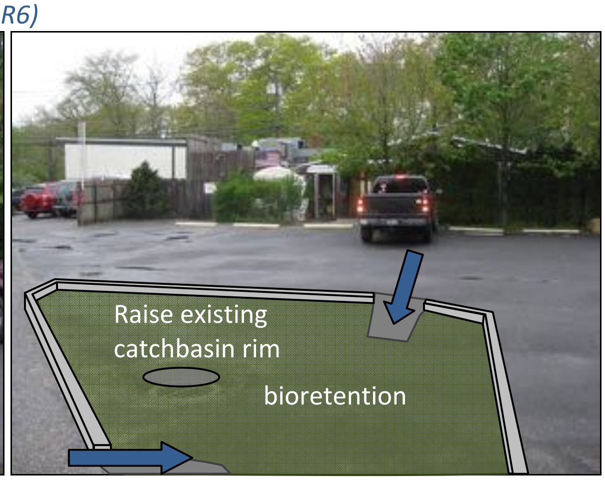
Figure 3.7. *Landing Lane Boat Ramp & Parking Area (AB-R5)*



Barnes Country Markey Parking Lot (AB-R6)

Barnes Country Market is located near the intersection of Springs-Fireplace Road and School Street. The market has a parking lot along School Street that accommodates approximately 12 vehicles. There is an existing leaching catchbasin that drains the majority of the parking area. **Pavement removal** and a **bioretention system** are proposed within the existing parking area. The rim of the existing leaching catchbasin could be raised to act as the overflow structure. Adjustments to the location of the parking spaces, as well as the overflow traffic flow, would be necessary to implement such a practice (see field sketch in Appendix B); however, loss of available parking spaces is not anticipated and should be avoided.

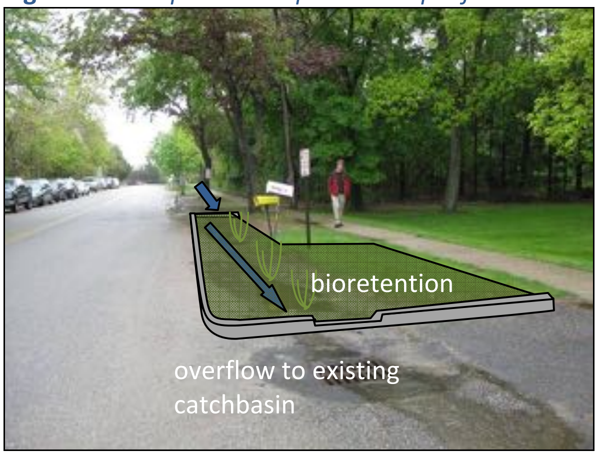
Figure 3.8. *Barnes Country Markey Parking Lot (AB-R6)*

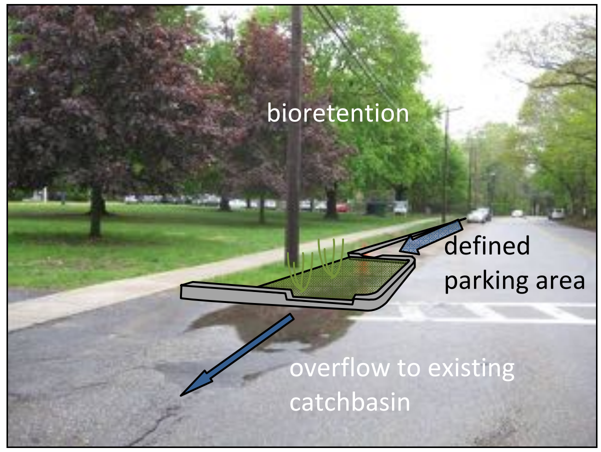


Front of School on School Street (AB-R7A1/AB-R7A2/AB-R7B1/AB-R7B2)

There are several opportunities for stormwater retrofits at this location. Currently, there is only one existing drain inlet that collects runoff from much of the impervious area in front of the school, including a significant portion of School Street and the paved bus loop. The proposed retrofit is to manage roadway runoff by **"Green Street" style bioretention areas**. The existing drain inlet could be used as a possible overflow structure for some of the proposed bioretention areas. There is available space for a bioretention area in the ROW just north of the school bus loop. Two raingarden bump-outs could be installed at either end of the School Street on-street parking directly in front of the school. The raingarden bumpouts would not only provide runoff treatment but also better define the designated parking area. Currently, uncontrolled parking in this area has deteriorated the lawn area and has caused significant erosion. Minor ROW regrading on the east side of School Street and addition of a curb would be necessary to prevent future erosion. Minor sidewalk realignment may also be necessary. A bioretention area is also feasible in the school lawn area near the southern bus loop entrance.

Figure 3.9. *Proposed bumpout concepts for AB-R7A and B.*





Back of Springs School (AB-R7C)

The existing downspouts from the roof connect into an underground leaching system. For educational purposes, the downspouts should be intercepted, and **rain barrels** added to collect water to use in the school's garden which is located nearby.

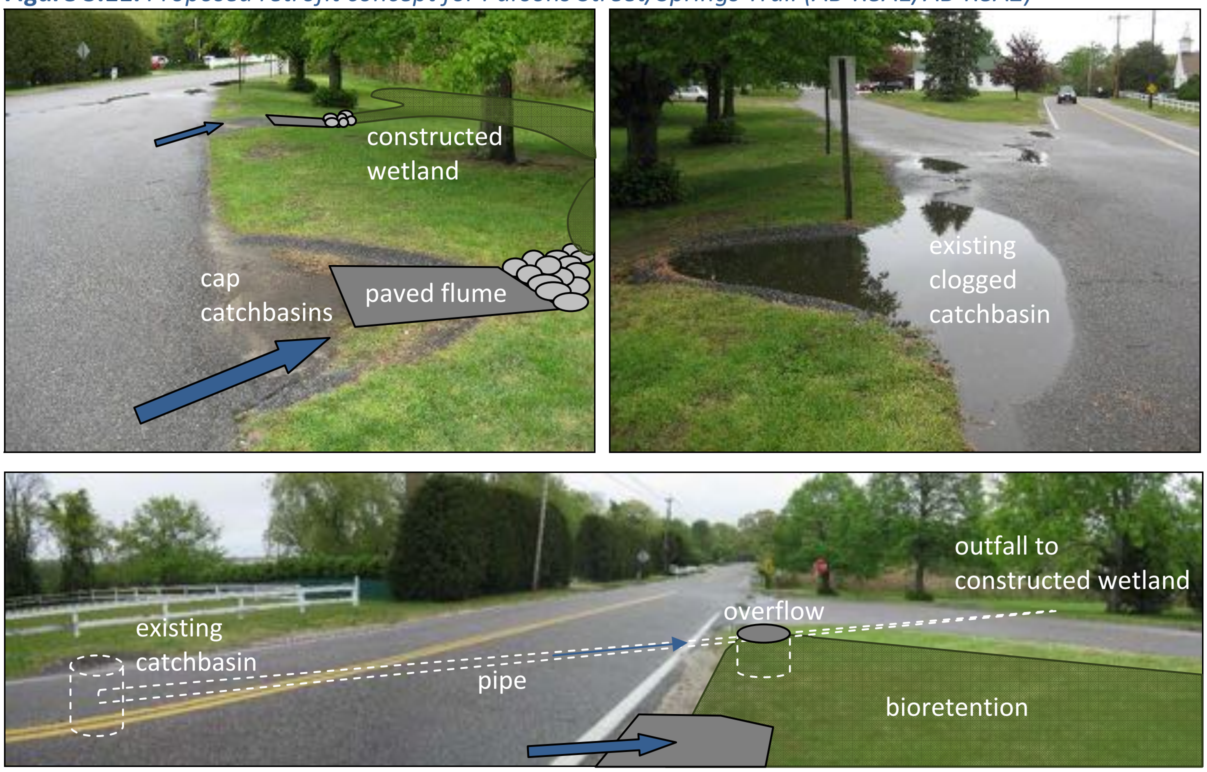
Figure 3.10. *Back of Springs School (AB-R7C)*

Parsons Street/Springs Trail (AB-R8A1/AB-R8A2)

There are two opportunities for retrofits at the intersection of Parsons Street and Old Stone Hwy. The first location, nearest Springs Trail/Parson's Blacksmith Shop and adjacent to Pussy's Pond, includes three existing leaching catchbasins along the roadway edge. If the existing structures were capped and paved flumes installed, runoff could be directed to a **constructed wetland** in the open space south of the structures. Runoff from large events would overtop the wetland area and discharge into Pussy's Pond. A high water table is anticipated. At least 200 square feet of treatment area would be required to implement this practice.

The second proposed retrofit is also located at the same intersection but on the opposite side of Parsons Street. A **bioretention facility** is more appropriate for this site due to its upgradient location. Runoff from Parsons Street and Old Stone Hwy could be directed to this practice. Both sites have potential as good educational locations due to their proximity to nearby historic sites and recreational areas.

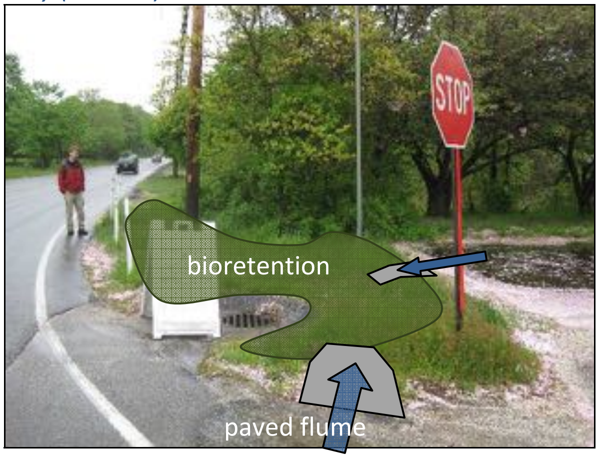
Figure 3.11. *Proposed retrofit concept for Parsons Street/Springs Trail (AB-R8A1/AB-R8A2)*



Church Parking at the Junction of Springs-Fireplace Road and Old Stone Hwy (AB-R8B)

At the intersection of Fireplace Road and Old Stone Hwy, poor drainage has resulted in ponding at the northwest corner of the nearby church parking lot. Runoff from Fireplace Road is captured either in a leaching catchbasin or a paved flume/drain pipe that discharges to a nearby stream channel. With minor drainage adjustments and/or curb installation to redirect runoff, a **bioretention area** could be constructed in the grassed ROW to treat the road runoff and a portion of the parking lot runoff. The existing drainage structure could be modified to serve as the bioretention outlet location. An existing utility pole and decorative trees may limit the amount of available treatment area.

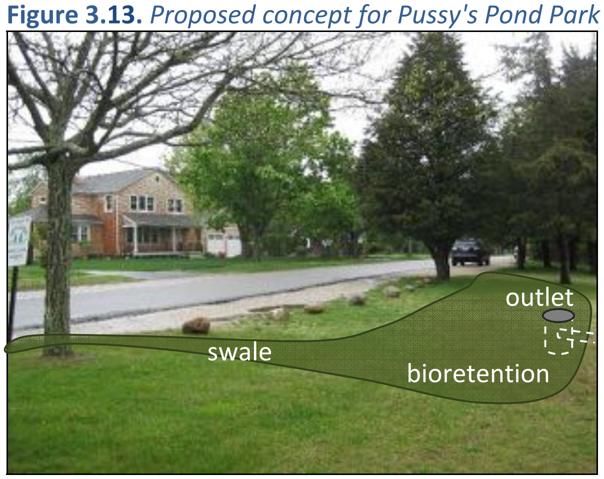
Figure 3.12. *Proposed retrofit for Church Parking at the Junction of Springs-Fireplace Road and Old Stone Hwy (AB-R8B)*

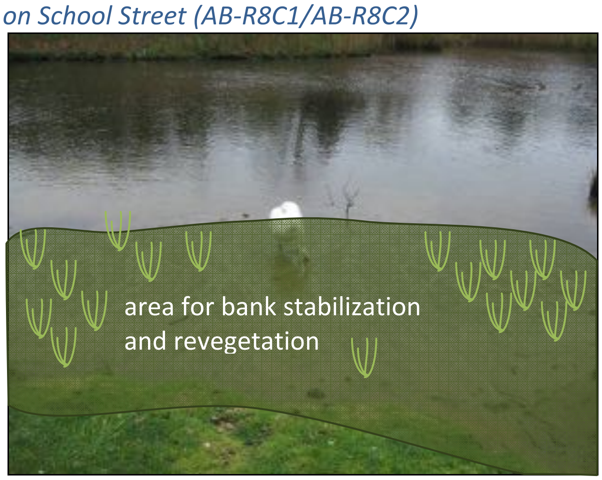


Pussy's Pond Park on School Street (AB-R8C1/AB-R8C2)

Lack of drainage infrastructure has caused runoff from School Street to flow into the park area and erode the grassed slope. Significant bank erosion has occurred at the edge of Pussy's Pond due to the unmanaged runoff, and a sediment plume was observed. **Grass swales** should be installed along the street to direct water into a **bioretention area**. There is adequate head to install an overflow inlet, underdrains, and an outlet pipe system. **Bank stabilization and revegetation** at the water's edge is recommended, which will not only help reduce erosion, but also help with duck and geese management at this location. Educational signs would be effective at this site to explain the purpose of the proposed facilities.

Figure 3.13. *Proposed concept for Pussy's Pond Park on School Street (AB-R8C1/AB-R8C2)*

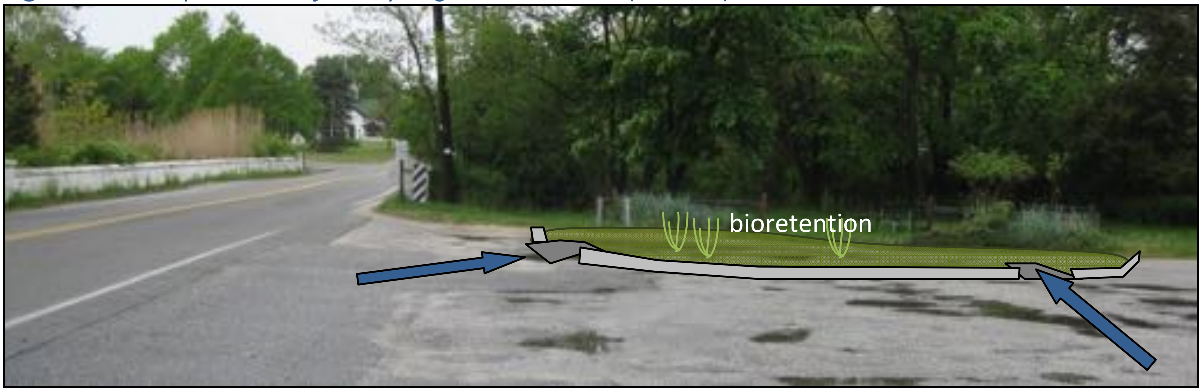




Springs General Store (AB-R8D)

No drainage infrastructure exists at the Springs General Store. Currently, stormwater flows onto the property from Old Stone Hwy and School Street and collects at the western edge of the parking area. The facility also includes a large paved parking lot that contributes a significant portion of the runoff associated with the 25,000 SF of impervious drainage area. Ponded water eventually flows over a grassed picnic area and into the salt marsh/wetland area that borders the property. A **bioretention area** is proposed in a portion of the existing picnic area. This project may be difficult to implement due to its location on private property, the required loss of picnic area, and permitting constraints.

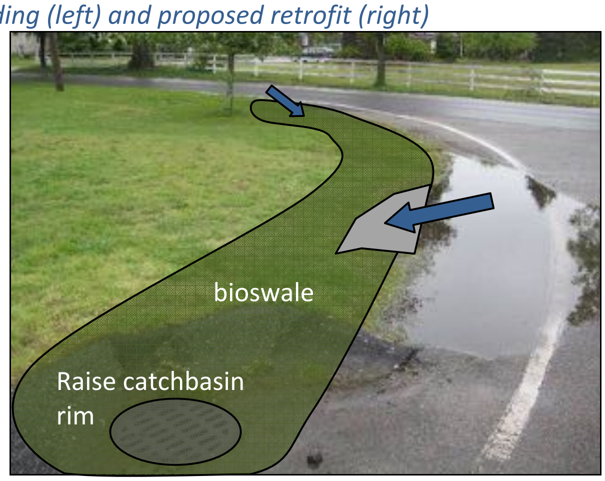
Figure 3.14. *Proposed retrofit at Springs General Store (AB-R8D)*



Ashawagh Hall (AB-R8E)

Runoff from the western end of Old Stone Hwy and a portion of Fireplace Road is currently captured in a leaching catchbasin structure near the Ashawagh Hall property. A **bioswale system** is proposed that could be installed in the ROW along Fireplace Road. The rim of the existing leaching structure could be raised and converted to an overflow for the bioswale system. The Ashawagh Hall would be a good location for educational signage explaining any nearby retrofit systems.

Figure 3.15. *Ashawagh Hall (AB-R8E) – Existing ponding (left) and proposed retrofit (right)*



Commercial Properties at Old Stone Hwy & Fort Pond Blvd Intersection (AB-R9A/AB-R9B)

Lack of paving and drainage infrastructure at the commercial properties near the intersection of Old Stone Hwy and Fort Pond Blvd is causing erosion and rutting. There is an access road to several of the commercial properties (St Francis Pl) that is only paved for about half of its length. This access road is severely rutted. The ROW of Old Stone Hwy in front of the commercial properties is also severely eroded due to restaurant/beverage store customer parking use. A possible solution to decrease erosion, ponding, and sedimentation is to **pave** the remainder of the access road and the ROW parking area. Maintenance to the existing drainage infrastructure in the vicinity is also recommended due to poor drainage.

Figure 3.16. *Commercial Properties at Old Stone Hwy & Fort Pond Blvd Intersection (AB-R9A/AB-R9B)*

End of Talmage Farm Lane (AB-R10)

A portion of Springs Fireplace Rd and Talmage Lane drain to two leaching catchbasins on Talmage Lane. The road width of Talmage Lane increases from 30' to about 70' at the intersection. Pavement could be removed from both intersection corners to maintain a constant 30' road width. After **pavement removal**, **bioretention areas** could be constructed at each corner to treat runoff from Fireplace Road and Talmage Lane. Vegetated swales would be necessary to convey runoff from Talmage Lane to the proposed systems. The rims of the existing leaching structures could be raised and converted as overflows for the proposed treatment areas.

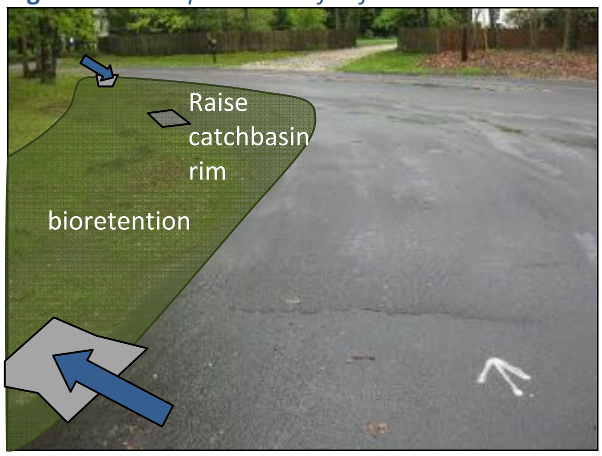
Figure 3.17. *End of Talmage Farm Lane (AB-R10) – proposed retrofit (left) and existing conditions (right)*

Underwood Drive (AB-R11A/AB-R11B/AB-R11C)

Several opportunities exist along Underwood Drive for stormwater retrofits. Currently, there are leaching catchbasins near its intersection with Norfolk Rd and Fireplace Rd. There is sufficient space in the ROW to install a **bioretention area** at the southern end of Norfolk Road. The existing leaching catchbasin could be converted as the bioretention overflow structure with minor rim elevation adjustments. **Pavement removal** is also an option at this location.

In order to treat the eastern end of Underwood Drive where it intersects Fireplace Rd, drainage structures would have to be installed on both sides of the roadway. The north side of Underwood Drive currently lacks any drainage infrastructure, and ponding in the roadway is common. The south side is managed by a single leaching catchbasin. Due to space constraints, the most viable drainage retrofit alternative is an **oil-grit separator or deep-sump catchbasin** for pretreatment and a **leaching chamber** for infiltration.

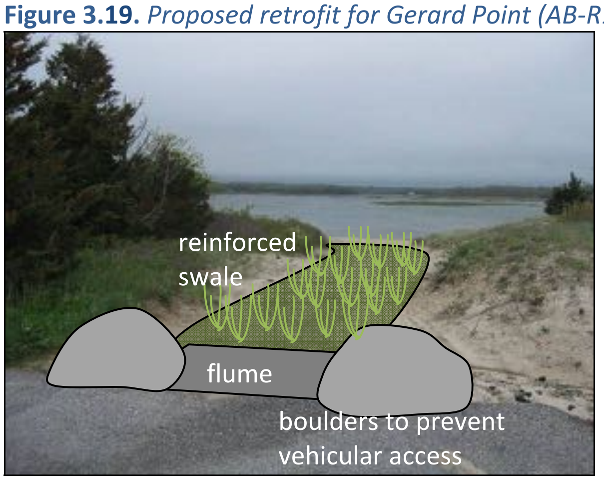
Figure 3.18. *Proposed retrofits for Underwood Drive (AB-R11A, left; AB-R11B-C, right)*



End of Gerard Point (AB-R12)

Runoff currently flows from the paved roadway and cul-de-sac, down the western-most access paths, and into Accabonac Harbor. The access path and beach area are eroding and contributing sediment to the harbor. In order to prevent future erosion, vehicular and pedestrian access should be restricted from the western-most access path (at a minimum). A **reinforced drainage swale** should be constructed at this location to direct runoff to a stabilized area. After restricting access, the swale and path area could then be **revegetated with native plants**.

Figure 3.19. *Proposed retrofit for Gerard Point (AB-R12) on left; existing conditions on right.*



Low points Southwest end of Springs-Fireplace Road (AB-R13)

There are new large leaching catchbasins and curbs along Springs-Fireplace Road. If drainage improvements along the roadway continue, there could be various opportunities for stormwater retrofits that utilize any combination of tree pits, bioretention areas, or vegetated swales for treatment prior to discharge into the leaching structures. The feasibility of the alternatives depends on the topography of the road and available ROW space at each location. One possible retrofit location is the landscaped area between the roadway and sidewalk, north of the intersection of Springs Fireplace Rd and Woodbine Ave. A small **bioretention area(s)** could be constructed with an overflow system that discharges into the newly installed leaching catchbasins. Any proposed drainage modifications would have to be coordinated with the County due to roadway jurisdiction.

Figure 3.20. *Low points Southwest end of Springs-Fireplace Road (AB-R13)*

Springs Fire Department (AB-R14A/AB-R14B)

At the local Springs Fire Station, there is a large paved parking lot that was observed to only receive limited use. It is expected that the lot reaches maximum capacity during local fire emergencies. The parking lot is outfitted with leaching catchbasin structures at all major low points. There is a diesel storage and truck washing area within the parking lot. Possible stormwater retrofits may include construction of a **bioretention area** in the grass area in front of the fire station building to treat runoff from Fort Pond Blvd and a portion of the driveway area. **Oil-grit separators or deep-sump catchbasins** could be installed near the existing drainage structures to intercept runoff for pretreatment prior to infiltration. It is not anticipated that pavement removal will be a viable alternative for this facility; however, conversion of some of the overflow parking areas to **permeable pavement** could provide additional stormwater treatment and a reduction in runoff.

Figure 3.21. *Springs Fire Department (AB-R14A/AB-R14B)*

Waters Edge Rd and Carriage Lane (AB-R15A/AB-R15B/AB-R15C)

Runoff from Waters Edge Road (a private road) and some residential driveways flows north down the roadway to the dead-end/paved cul-de-sac area. The existing paved area is much larger than is required for typical residential traffic flow around the cul-de-sac. Thus, the paved area could be reduced significantly with little impact to residential property. A **bioretention area** could be constructed at the northern end of the cul-de-sac if **pavement removal** were to occur. The bioretention area could either overflow into a leaching chamber or into the adjacent woodland. A circular **planting area** could be installed at the center of the cul-de-sac to aesthetics and to improve traffic flow.

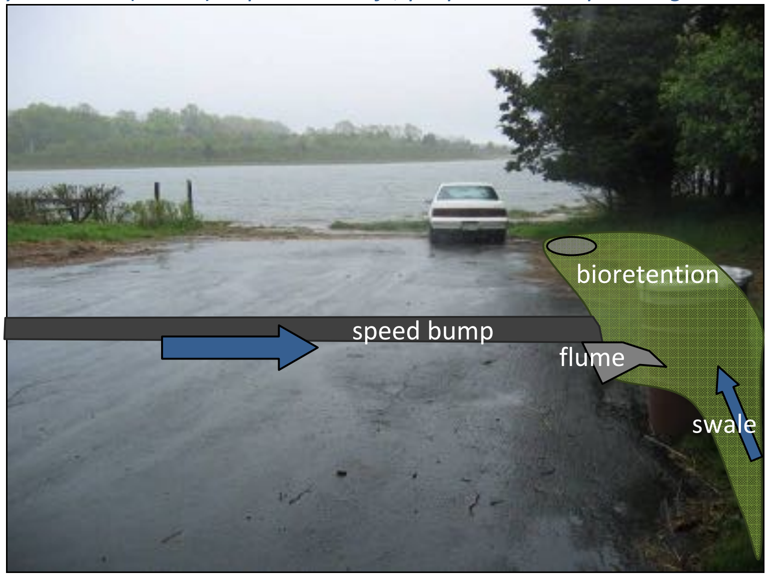
Just upgradient of the cul-de-sac is an overly wide intersection between Waters Edge Road and Carriage Lane; the width of Carriage Lane increases from 30' to approximately 70' at the intersection. Significant **pavement removal** could occur on either side of the Carriage Lane. There is also adequate space to construct a **bioretention area** along the southern side of the intersection.

Figure 3.22. *Waters Edge Rd and Carriage Lane (AB-R15A, left; AB-R15B, right)*

Shipyard Road (AB-16)

Shipyard Road drains to a boat ramp at the northern end of the street. There is an existing catchbasin on the southeast side of the road near the boat ramp that manages a portion of the road runoff. The remainder bypasses the structure and discharges directly into Accabonac Harbor. A speed bump could be installed near the boat ramp to direct runoff to the southeast side of the road and into a proposed **bioretention area**. The roadway and shoulder are wide enough to provide ample space for construction with some **pavement removal**. A **vegetated swale** along the southeastern side of Shipyard Lane may also be necessary to direct runoff to the treatment area.

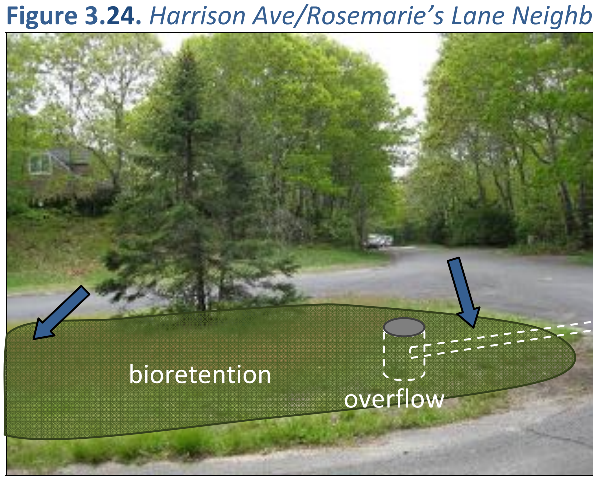
Figure 3.23. *Existing conditions at Shipyard Road (AB-16) in photo on left; proposed concept on right*

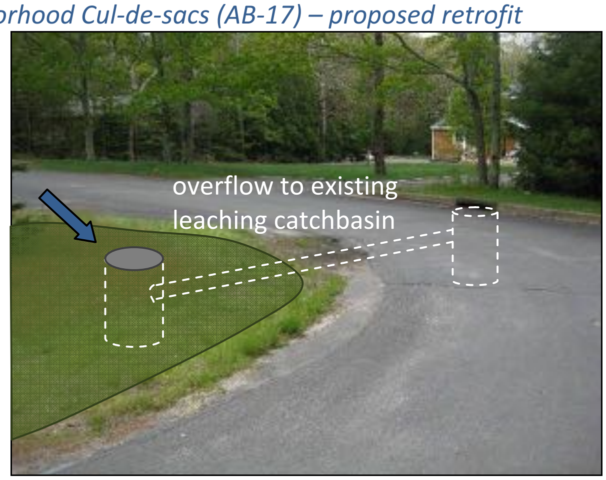


Harrison Ave Neighborhood Cul-de-sacs (AB-17)

In the southern end of the Accabonac subwatershed, there is a series of six dead-end, private cul-de-sac roads that branch off Harrison Avenue. All of these six roads are constructed with a raised landscaped island in the center of the cul-de-sac. Stormwater runoff is managed only by leaching catchbasins. These landscaped islands could be retrofitted as **bioretention areas** to provided treatment of stormwater prior to discharge into the existing leaching structures. Depending on the grading of each individual street, paved flumes and/or diversionary asphalt berms may be necessary to direct runoff into the proposed bioretention areas. This type of retrofit scenario could be applied to any of the neighborhood cul-de-sacs providing topography and existing center island vegetation allow.

Figure 3.24. *Harrison Ave/Rosemarie's Lane Neighborhood Cul-de-sacs (AB-17) – proposed retrofit*

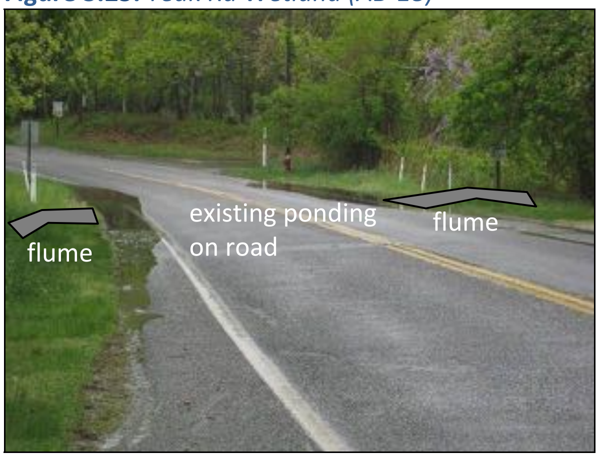




Teak Rd Wetland (AB-18)

In the northern end of the Accabonac subwatershed, there is an existing wetland/detention basin that manages runoff from a nearly 15-acre drainage area. The basin had been outfitted with an outlet control structure (OCS) to regulate peak discharge rates, but at the time of inspection (May 2011), it was corroded, broken, and failing. There is a 15-inch outlet pipe that discharges from the detention basin to the salt marsh area, east of Springs Fireplace Road. The detention basin is currently overgrown with *phragmites*, an invasive species. A proposed retrofit could include replacing the OCS with a **new OCS** designed to achieve maximum runoff detention and utilization of storage volume, as well as an adequate drain time to control the growth of *phragmites*. A small permanent pool could be excavated near the OCS to improve pollutant settling and limit potential debris clogging of the OCS. **Oil-grit separators and/or deep-sump catchbasins** could be installed throughout the local contributing drainage area to provide some additional runoff pretreatment prior to discharge into the basin.

Figure 3.25. *Teak Rd Wetland (AB-18)*



3.3. Neighborhood Assessment

A summary of general neighborhood conditions is provided below in order to identify which neighborhoods are likely to generate pollutants of concern, what the common sources are, and which areas/sources should be targeted for subwatershed stewardship activities. Table 3.2 is a comparative summary of each neighborhood, and more detail is provided below. Pollution source loading is determined by the number of observed pollutants.

Table 3.2. Neighborhood Inventory Summary

Description/ Code	Pollutant Loading	Main Pollutant Source	Stewardship Activities
Underwood and Norfolk (AB-N1)	Low	Nutrients from leaf litter	raingardens, maintenance of roads/CBs
Hildreth and Church (AB-N2)	Low	Nutrients from leaf litter, sediment	raingardens, maintenance of roads/CBs
Fort Pond (AB-N3)	Low	Nutrients from leaf litter, sediment	raingardens, maintenance of roads/CBs

Description/ Code	Pollutant Loading	Main Pollutant Source	Stewardship Activities
Barnes Landing (AB-N4)	Low/Medium	Nutrients from leaf litter, sediment	raingardens, pavement reduction
Talmage (AB-N5)	Low	Nutrients from leaf litter, sediment	raingardens, pavement reduction
Sycamore and Hog Creek (AB-N6)	Low	Nutrients from leaf litter	raingardens
Gardiner (AB-N7)	Low	Nutrients from leaf litter	raingardens, maintenance of roads/CBs, pavement reduction, pavement maintenance
Harrison Ave/ Rosemarie's Lane cul-de-sacs (AB-N8)	Low	Nutrients from leaf litter, sediment	raingardens, maintenance of roads/CBs, management of erosion at mail-box pull-offs

Underwood and Norfolk (AB-N1)

The neighborhood bordered by Underwood and Norfolk Drive is about 50 years old with single family detached dwellings. The roads are paved and are new or in good condition, and there are no sidewalks. No cars were parked on the streets during the field observations. The overall size of the neighborhood is about 370 acres, of which about 70% is developed. A typical lot is approximately ½ of an acre, made up of 15% impervious cover, 20% grass, 10% landscaped beds, and 55% forested land. The majority of lawns in the neighborhood do not appear to have permanent irrigation. At least 80% of the lots have low management requirements, while 18% have medium levels, and 2% have high levels. Approximately 85% of the driveways are pervious and were mostly clean with minimal sediment runoff. About 50% of the lots have swimming pools. The neighborhood was clean at the time of observation without visible pet waste, trash, or illegal dumping.

Stormwater runoff is collected via storm drain inlets, and it appears to be recharged through leaching catchbasins. Examples of proposed retrofits for these locations include retrofit sites AB-R11A, AB-R11B, and AB-R11C. There is an existing detention pond that manages runoff from a nearly 15 acre portion of the neighborhood for which a retrofit is proposed (retrofit site AB-R18).

Opportunities for pollution prevention within the neighborhood include better maintenance of the leaf litter on the road via street cleaning and catchbasin cleanouts. Additionally, raingardens could be constructed in yards to help collect stormwater from downspouts, reducing overall runoff volume and increasing infiltration. Almost all downspouts currently drain to grassed or landscaped pervious surfaces. Homeowner education on the proper disposal of swimming pool water could reduce runoff high in chemicals. No obvious septic system issues were observed.

Figure 3.26. *Typical roadways and forested area within the Underwood Dr / Norfolk Dr Neighborhood*

Hildreth and Church (AB-N2)

The neighborhood around Church Lane and Hildreth Place is about 50 years old with single family detached dwellings. The roads are paved and in good condition, and there are no sidewalks. No cars were parked on the streets during the field observations. Many of the streets in the neighborhood dead-end into small cul-de-sacs. The overall size of the neighborhood is 110 acres, of which approximately 90% is developed. A typical lot is approximately ¼ to ½ of an acre, made up of 15% impervious cover, 30% grass, 10% landscaped beds, and 45% forested land. The majority of lawns in the neighborhood do not appear to have permanent irrigation. Approximately 85% of the lots have low management requirements, while 15% have medium levels. Roughly 95% of the driveways are pervious and appeared clean. About 40% of the lots have swimming pools. The neighborhood was clean at the time of observation without visible pet waste, trash, or illegal dumping. Stormwater runoff is collected via storm drain inlets, and it appears to be recharged through leaching catchbasins.

Pollution prevention within the neighborhood should include better maintenance of the leaf litter on the road via street cleaning and catchbasin cleanouts and repair. Additionally, homeowners could effectively reduce runoff by disconnecting downspouts to impervious areas and redirecting them to pervious areas of the yard or to raingardens. Almost all downspouts drain to grassed or landscaped pervious surfaces. Homeowner education on the proper disposal of swimming pool water could reduce runoff high in chemicals. No obvious septic system issues were observed.

Figure 3.27. *Typical lots within the Hildreth Pl / Church Ln Neighborhood*

Fort Pond (AB-N3)

The neighborhood up Fort Pond Blvd is about 30 to 40 years old with single family detached dwellings. The roads are paved and are generally in good condition with some potholes; there are no sidewalks. No cars were parked on the streets during the field observations. The overall size of the neighborhood is about 125 acres, of which approximately 80% is developed. A typical lot is approximately ¼ to ½ of an acre, made up of 30% impervious cover, 25% grass, 10% landscaped beds, and 35% forested land. The majority of lawns in the neighborhood do not appear to have permanent irrigation. Approximately 85% of the lots have low management requirements, while 15% have medium levels. Roughly 95% of the driveways are pervious, and they appeared clean. About 25% of the lots have swimming pools. Stormwater runoff is collected via storm drain inlets, and it appears to be recharged through leaching catchbasins. The drain inlets were completely clogged during the field observations, creating ponding in the roads.

Pollution prevention within the neighborhood should include better maintenance of the leaf litter on the road via street cleaning and catchbasin cleanouts and repair. Additionally, raingardens could be constructed in yards to help collect stormwater from downspouts and increase infiltration. Almost all downspouts drain to grassed or landscaped pervious surfaces. No obvious septic system issues were observed.

Figure 3.28. *Typical lots within Fort Pond Blvd Neighborhood*

Barnes Landing (AB-N4)

The Barnes Landing neighborhood along Winding Way is about 50 years old with single family detached dwellings. There was some remodeling occurring on lots at the time of the field observations. The wide roads appear newly paved. There is one cul-de-sac in the neighborhood and no sidewalks. No cars were parked on the streets during the field observations. The overall size of the neighborhood is 130 acres, of which approximately 60% is developed. A typical lot is approximately ½ to 1 acre, made up of 10% impervious cover, 55% grass, 5% landscaped beds, and 30% forested land. Only 5% of lawns in the neighborhood appear to have permanent irrigation and high management requirements (e.g., fertilizers and pesticides), while the remaining are mostly low maintenance lawns. Roughly 95% of the driveways are pervious, and they appeared clean. The neighborhood was clean at the time of observation without visible pet waste, trash, or illegal dumping. There were no visible drain inlets in the neighborhood.

Pollution prevention within the neighborhood should include better maintenance of the leaf litter on the road via street cleaning. A reduction in pavement along the roads and at intersections would decrease impervious surface and make room for swales and bioretention areas that could help treat stormwater runoff. Examples of applicable retrofit sites in the neighborhood include AB-R15A, AB-R15B, and AB-R15C. Additionally, raingardens could be constructed in yards to help collect stormwater from downspouts and increase infiltration. Covering stockpiled materials during remodeling or landscaping projects would help reduce sediment and trash accumulation. Sediment traps at the end of unpaved driveways will also help reduce erosion. No obvious septic system issues were observed.

Figure 3.29. *Typical roadways and lots within the Barnes Landing Neighborhood. Notice the sedimentation in the roadway(s) due to eroding driveways.*

Talmage (AB-N5)

The neighborhood along Talmage Farm Lane is about 30 to 40 years old with single family detached dwellings. The wide roads are paved, some more recently than others, and are generally in good condition. There are a few cul-de-sacs in the neighborhood, but no sidewalks. No cars were parked on the streets during the field observations. The overall size of the neighborhood is 100 acres, of which approximately 60% is developed. A typical lot is over an acre, made up of 10% impervious cover, 25% grass, 10% landscaped beds, and 65% forested land. Only 5% of lawns in the neighborhood appear to have permanent irrigation and high management requirements (e.g., fertilizers and pesticides), while the remaining are mostly low maintenance lawns. Roughly 95% of the driveways are pervious, and they appeared clean. Almost all (~95%) of the lots have swimming pools. The neighborhood was clean at the time of observation without visible pet waste, trash, or illegal dumping. Stormwater runoff is collected via storm drain inlets, and it appears to be recharged through leaching catchbasins. Examples of proposed retrofits for these locations include retrofit sites AB-R10A and AB-R10B.

Pollution prevention within the neighborhood should include continued maintenance of the leaf litter on the road via street cleaning, catchbasin cleanouts and repair and maintenance. A reduction in pavement along the roads and at intersections would decrease impervious surface and make room for swales and bioretention areas that could help treat stormwater runoff. Additionally, raingardens could be constructed in yards to help collect stormwater from downspouts and increase infiltration. Almost all downspouts drain to grassed or landscaped pervious surfaces. Homeowner education on the proper disposal of swimming pool water could reduce runoff high in chemicals. No obvious septic system issues were observed.

Figure 3.30. *Typical roadways and lots within the Talmage Farm Ln Neighborhood.*

Sycamore and Hog Creek (AB-N6)

The neighborhood between Sycamore Drive and Hog Creek Road is about 30 to 40 years old with single family detached dwellings. The roads are paved and are in good condition; there are no sidewalks. No cars were parked on the streets during the field observations. The overall size of the neighborhood is 100 acres, of which approximately 70% is developed. A typical lot is approximately ¼ to ½ of an acre, made up of 20% impervious cover, 50% grass, 10% landscaped beds, and 20% forested land. The majority of lawns in the neighborhood appeared to be low maintenance, having no permanent irrigation and using little to no fertilizers and pesticides. Roughly 95% of the driveways are pervious, and they appeared clean. About half of the lots have swimming pools. The neighborhood was clean at the time of observation without visible pet waste, trash, or illegal dumping. There were no visible drain inlets in the neighborhood.

Pollution prevention within the neighborhood should include better maintenance of the leaf litter on the road via street cleaning. Additionally, raingardens could be constructed in yards to help collect stormwater from downspouts and increase infiltration. At a minimum, installation of basin drainage infrastructure is recommended. Homeowner education on the proper disposal of swimming pool water could reduce runoff high in chemicals. No obvious septic system issues were observed.

Figure 3.31. *Typical lots within the Sycamore Dr and Hog Creek Rd Neighborhood.*

Gardiner (AB-N7)

The neighborhood along Gardiner Ave is about 30 to 50 years old with single family detached dwellings. Gardiner Ave is paved and in good condition. Almost every other road in the neighborhood has old, broken pavement or is made of gravel and dirt, and they each end in small cul-de-sacs with no sidewalks. No cars were parked on the streets during the field observations. The overall size of the neighborhood is 230 acres, of which approximately 70% is developed. A typical lot is approximately ¼ of an acre, made up of 20% impervious cover, 50% grass, 10% landscaped beds, and 20% forested land. The majority of lawns in the neighborhood appeared to be low maintenance, having no permanent irrigation and using little to no fertilizers and pesticides. Roughly 95% of the driveways are pervious, and they appeared clean. Very few of the lots (~10%) have swimming pools. Stormwater runoff is collected via storm drain inlets, and it appears to be recharged through leaching catchbasins. The drain inlets were completely clogged during the field observations, creating ponding in the roads.

Pollution prevention within the neighborhood should include continued maintenance of the leaf litter on the road via street cleaning, catchbasin cleanouts, repair, and maintenance. Leaching catchbasins in the gravel and dirt cul-de-sac roads have rutting around them; these areas should be paved. In general, the cul-de-sacs should be turned into straight spurs to reduce the impervious surface and the extra pervious areas should be utilized for vegetated swales. Additionally, raingardens could be constructed in yards to help collect stormwater from downspouts and increase infiltration. Almost all downspouts drain to grassed or landscaped pervious surfaces. No obvious septic system issues were observed.

Figure 3.32. *Typical roadways and lots within the Gardiner Ave Neighborhood. Notice the unpaved roads and the rutting around the existing drainage structures.*

Harrison Ave/Rosemarie's Lane Cul-de-sacs (AB-N8)

The neighborhood of Harrison Ave, Rosemarie's Lane, Renee's Way, and Bonac Wood Lane is about 40 to 50 years old with single family detached dwellings. Every road in the neighborhood ends in a cul-de-sac, and the pavement is in good condition. There are no sidewalks. No cars were parked on the streets during the field observations. The overall size of the neighborhood is about 100 acres, of which approximately 50% is developed. A typical lot is larger than an acre, made up of 15% impervious cover, 30% grass, 10% landscaped beds, and 45% forested land. The majority of lawns in the neighborhood do not appear to have permanent irrigation. Approximately 75% of the lots have low management requirements, 20% have medium levels, and 5% have high management requirements. Roughly 95% of the driveways are pervious, and they appeared clean. About half of the lots have swimming pools. The neighborhood was clean at the time of observation without visible pet waste, trash, or illegal dumping.

Stormwater runoff is collected via storm drain inlets, and it appears to be recharged through leaching catchbasins. Currently, the cul-de-sacs are designed with raised, landscaped center islands. These islands are ideal locations for bioretention system retrofits provided the road grading allows. An example of an applicable retrofit site for the cul-de-sac islands is AB-R17.

Pollution prevention within the neighborhood should include continued maintenance of the leaf litter on the road via street cleaning, catchbasin cleanouts and repair and maintenance. Erosion management should occur in the mailbox pull-off areas at the entrance to the roads. Additionally, raingardens could be constructed in yards to help collect stormwater from downspouts and increase infiltration. Almost all downspouts drain to grassed or landscaped pervious surfaces. Homeowner education on the proper disposal of swimming pool water could reduce runoff high in chemicals. No obvious septic system issues were observed.

Figure 3.33. *Typical roadways and lots within the Harrison Ave Neighborhood. Notice the example of a well-functioning sediment trap/gutter at the end of an unpaved driveway.*

3.4. Stormwater Hotspot Inventory

A stormwater "hotspot" is a land use that may generate a greater amount of pollutant loads than other land uses. A general summary of hotspot locations and conditions is provided below only to identify possible opportunities for improvement and collaboration rather than regulatory enforcement. These are general observations only. Table 3.3 is a comparative summary of each hotspot.

Table 3.3. Hotspot Inventory Summary

Project ID/ Site Name	Description of Recommended Actions	Ranking
AB-HS1 / Auto Repair	Install oil-grit separator at garage entrance	Medium
AB-HS2 / Auto Marine Services	Install oil-grit separator at garage entrance and at vehicle washing station. Cover stockpiled soils at end of St. Francis Place.	Medium
AB-HS5 / School bus parking & washing station	Vehicle cleaning supplies and chemicals are stored outdoors and uncovered. Provide a storage container or shed to prevent spills. Install oil-grit separators for vehicle wash water pretreatment.	Medium
AB-HS6 / Commercial Marine Business	Provide oil/fuel containment. Construct a boat washing area with an oil-grit separator for pretreatment. Recommended trash/material management.	Low
AB-HS7 / Commercial Site	Recommended trash/material management. Repaving and installation of drainage infrastructure.	Low
AB-HS8 / Dog Park	Provide trash cans for pet waste management.	Medium

Auto Repair (AB-HS1)
No oil containment or catchment practices were observed at the garage. Any fluid spills will drain away from the garage and into existing leaching catchbasins near the perimeter of the site. A trench drain is proposed at the entrance to the garage that discharges to an oil-grit separator. There is very little open space available at this property.

Figure 3.34. *Auto Repair - proposed trench drain and existing drainage structures*

Auto & Marine Services (AB-HS2)
No oil containment or catchment practices were observed at the garage. Any fluid spills will drain away from the garage and into existing leaching catchbasins located in the center of the paved parking area(s). Trench drains are proposed at the entrance(s) to the garage that discharge to oil-grit separators in order to collect any spilled materials. Vehicle washing activities were observed and water was draining directly to an apparent leaching catchbasin. Vehicle wash water should be pretreated in an oil-grit separator. As mentioned in the retrofit assessment of this report, the dirt access road for this facility should be regraded, paved to prevent erosion, and drainage infrastructure installed.

Figure 3.35. *Auto & Marine Services*

School Bus Parking & Washing Station (AB-HS5)

On Old Stone Hwy, near the public school facilities, there is a school bus parking lot where vehicle cleaning supplies and chemicals are stored outdoors and uncovered. A storage container or shed is recommended to prevent chemical spills. A vehicle wash down area and oil-grit separator are also recommended for pretreatment of any wash water generated at the site. The parking lot is outfitted with several leaching catchbasins where all wash water currently drains.

Figure 3.36. *School bus parking lot and cleaning supply storage area*

Commercial Marine Business (AB-HS6)

At the marine maintenance facility, there are various stockpiled materials located throughout the site; trash and materials management is recommended. All oils, fuels, and cleaning supplies should be stored in contained areas. A designated boat washing area with an oil-grit separator for wash water pretreatment is recommended. Paving of the dirt drive would decrease potential offsite sediment load.

Figure 3.37. *Commercial Marine Business - unpaved driveways and stockpile areas*

Commercial Site (AB-HS7)

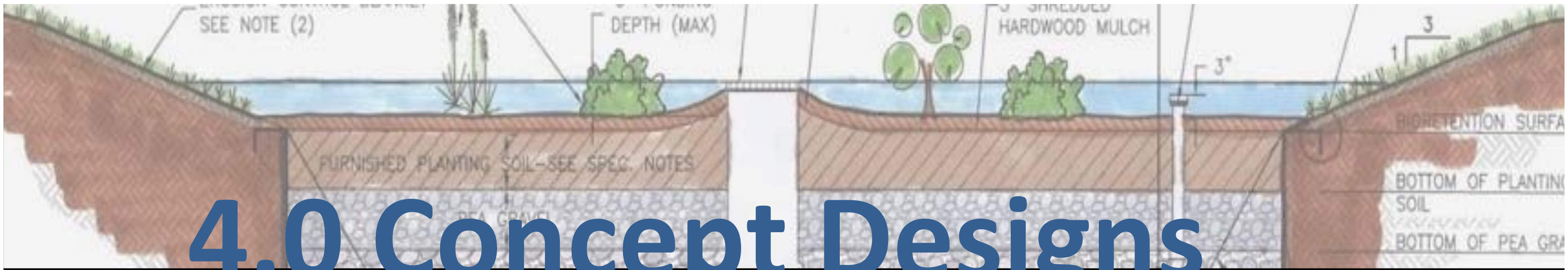
At this commercial site, there are various stockpiled materials located throughout the site; trash and materials management is recommended. Repaving of the driveway and parking areas is recommended to decrease potential offsite sediment load. Redirection of roof downspouts to pervious areas is suggested.

Figure 3.38. *Commercial site deteriorated driveways and stockpile areas. Notice the poor site drainage and the roof downspouts that discharge to pavement*

Dog Park (AB-HS8)

This Dog Park is a large, maintained park that is a popular location for hiking and dog walking. There is a dog-bag dispenser onsite, but no trash cans for waste disposal were observed. Trash cans and regular waste removal is suggested at the entrance and throughout the park in key locations.

Figure 3.39. *Dog Park entrance*



4.0 Concept Designs for Priority Retrofits

This section provides concept designs for the top-ranked retrofits identified in Section 3 and Appendix C. These concepts are planning-level designs that use the estimated drainage area, impervious cover, and proposed practice design criteria to identify the size, pollutant removal effectiveness, and estimated costs for each retrofit. In addition, necessary next steps are identified. The purpose of the concept designs is to provide sufficient level of detail to be used in grant applications for funding the full implementation of the proposed retrofits. The concepts were provided in fact sheet formatting so that they can be used as stand-alone documents as needed. Design criteria and pollutant removal assumptions were based on information in the New York State Stormwater Management Design Manual (2010 update), as well as the Rhode Island Stormwater Installation and Design Standards Manual (2010).

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AB-R3B. Louse Point Boat Launch — Drainage Improvements; Erosion Control; Trash Management

Site Description

The Louse Point Boat Launch is located on the southern peninsula that separates Napeague Bay from Accabonac Harbor. It is less than one-quarter mile south of Louse Point. The boat launch provides water access to Accabonac Harbor. There is a paved parking area that serves the boat launch located on Louse Point Road. In addition, there is a dirt path that leads from the parking area to the beach. This path appears to be frequently traveled by vehicles, despite the fact that the boat launch ramp is wider and paved. The site currently lacks stormwater management so erosion problems are of particular concern. Dumping of trash and stockpiling of old fishing equipment is also of concern at this location.

Proposed Concepts

Two projects have been indentified at the Louse Point Boat Launch that can help to reduce sedimentation and pollution from stormwater runoff. AB-R3B1 includes improving two eroding channels that collect runoff from the parking area and direct it to the beach. The first is an eroding path that leads west from the parking area to the beach. The path currently receives a combination of foot traffic, vehicle traffic, and stormwater flows from Louse Point Road and the majority of the paved parking area. Erosion can be reduced through the installation of water bars to help to redirect drainage off of the path and into the vegetated shoulder areas. This can be done in such a way as to not limit accessibility to the beach.

The second erosion gully has formed along the northern edge of the boat launch ramp. This erosion gully could be converted into a formal drainage swale and stabilized with vegetation and a turf reinforcement mat.

Because this site is frequented by a variety of users, it may serve as a great location for public education and signage. Educational topics may include stormwater, proper refueling strategies, and waste management. At the time of observation (May 2011), trash was observed near the parking area and along the beach, including stockpiling of old fishing equipment. Defunct fishing nets can be environmental hazards for birds, fish, and other aquatic species. Additional proposed site amenities may include trash cans, a fishing line disposal receptacle, and a dog-waste bag dispenser.

Retrofit AB-R3B2 targets runoff treatment from Louse Point Road and the paved boat launch parking area. A bioretention area is proposed along the southern perimeter of the parking lot. Some pavement removal would be necessary to construct such a system. The existing drainage flowpaths make the bioretention area capable of capturing runoff from nearly the entire paved drainage area.

Practice Sizing/Design Considerations

The path/swale conveyance structures should be designed to accommodate peak flowrates for up to the 10-year storm. The bioretention area should be sized to treat the water quality volume. This equates to approximately 1,110 SF of required treatment area, all of which is available at this location if some pavement removal takes place. The sandy soils here provide the option of designing the bioretention as an infiltrating system with no underdrains. Any additional runoff from larger storm events will bypass through an overflow structure and discharge to a stabilized outfall. In order to reduce the sediment load to the proposed site features, the parking area and roadway should be swept and maintained at least twice annually.

Pollutant Removal

Bioretention areas are expected to remove 90% TSS; 30% TP; 55% TN; and 70% bacteria (RI Manual, 2010), assuming the full design treatment volume can be provided. The proposed drainage improvements and paving operations will also help to reduce TSS and TP loading to Accabonac Harbor.

Project costs

The construction of Site AB-R3B, including the bioretention area, path stabilization, swale, water bars, signage, disposal structures, etc., is expected to cost approximately $62,400. This includes an estimated 10% fee for final engineering design and permitting and a 20% contingency. Long-term operation and maintenance costs are likely to be in the range of 3%-5% of the construction costs, or $1,500 to $2,500, annually.

Next steps

- Conduct a local beach cleanup event;
- Complete a topographic survey;
- Map existing utilities; and
- Map existing resource area boundaries and buffers.

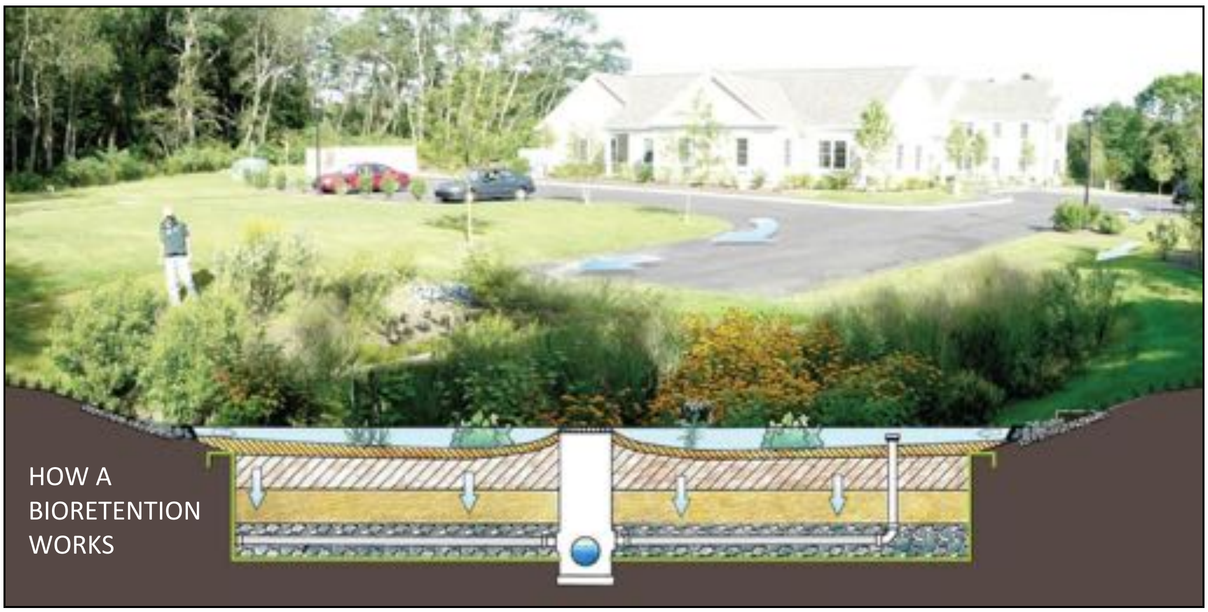
Site ID	Drainage Area (ac)	% Impervious	Design Treatment Volume (cf)*	Practice Area Required (sf)*	Practice Area Available (sf)*
AB-R3B1	0.73	34	1,135	N/A	N/A
AB-R3B2	0.34	84	1,200	1,110	1,110

*Design Water Quality Volume: WQv (cf) = (1.2")(Rv)(A)/12; where Rv = 0.05+0.009(I), A = drainage area (sf), I = percent impervious cover (per NY State Stormwater Design Manual, 2010).
*Practice Area Required is calculated based on practice-specific design assumptions.
*Practice Area Available is estimated from available mapping. Actual practice area may be adjusted as needed during pre-construction.

Existing Conditions and Proposed Concept Sketch


stabilize path
with water bars


remove nets, trash,
and debris


HOW A
BIORETENTION
WORKS

AB-R5. Landing Lane Boat Launch — Erosion Control; Buffer Creation & Revegetation

Site Description

Landing Lane is located along the southern perimeter of Accabonac Harbor. At the end of Landing Lane, there is a one-third acre dirt parking lot and boat launch. During rain events, sediment-laden runoff from the dirt parking area flows unmanaged to the harbor, creating erosion gullies along the way. The parking lot is in need of regrading and resurfacing to reduce rut and pothole formation. Despite the presence of a wide, paved boat ramp, there are two dirt paths that are frequented by vehicles, possibly for boat launching. The parking/vehicle turn-around area is likely oversized for the level of use that it receives. Town officials have reported that Landing Lane is used less often than other boat launches in the vicinity. The site currently lacks stormwater management so erosion and sediment deposition is of particular concern.

Proposed Concepts

In order to reduce erosion and rutting of the parking lot and sedimentation in Accabonac Harbor, the parking/vehicle turn-around area should be regraded and paved or resurfaced with washed, crushed quartz gravel. The 15,000 sf oversized lot also provides sufficient space to increase the buffer between the parking area and the shoreline. An additional 15 feet of buffer area along the parking lot perimeter is proposed, leaving an approximate 50-foot turning radius for vehicles with boat trailers. Transportation standards require a 50-foot turning radius for motor homes when outfitted with boat trailers.

Vehicle access should be prevented from the two dirt launching areas that have formed, possibly with boulders or other barrier structures. The dirt paths could then be revegetated to help with stabilization. Restoration plantings in tidal areas should include native salt marsh grasses. This site may provide opportunities for public education about a stormwater, proper refueling strategies, and waste management.

Practice Sizing/Design Considerations

No formal treatment strategies that require sizing are proposed at this location, primarily due to the presence of a high groundwater table. However, by simply providing a larger buffer between the parking lot and shoreline, natural stormwater treatment can occur through buffer vegetation and infiltration. The 15’ wide buffer will create up to an additional 5,000 SF of vegetated area at the boat launch facility. In order to further reduce the sediment load the parking area, if paved, and roadway should be swept and maintained at least twice annually.

Pollutant Removal

The proposed revegetation and paving operations will also help to reduce TSS and TP loading to Accabonac Harbor.

Project costs

The construction of Site AB-R5, including stabilization with gravel, buffer plantings, signage, and erosion and sediment control, is expected to cost approximately $50,700. This includes an estimated 10% fee for final engineering design and permitting and a 20% contingency. Long-term operation and maintenance costs are likely to be about 5% of the construction costs, or $2,000, annually.

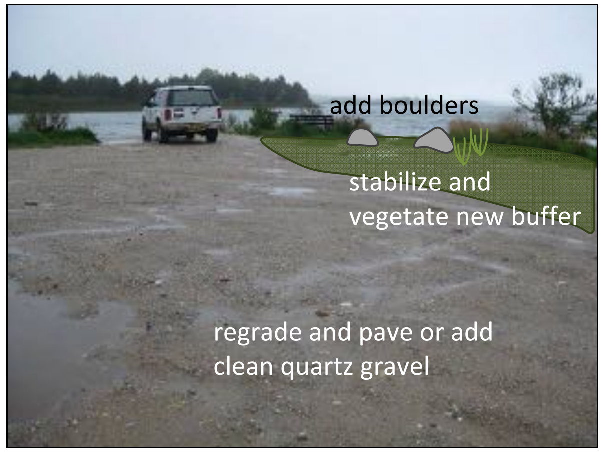
Next steps

- Complete a topographic survey;
- Map existing utilities; and
- Map existing resource area boundaries and buffers.

Site ID	Drainage Area (ac)	% Impervious	Design Treatment Volume (cf)*	Practice Area Required (sf)*	Practice Area Available (sf)*
AB-R5	0.43	13	374	N/A	N/A

*Design Water Quality Volume: WQv (cf) = (1.2")(Rv)(A)/12; where Rv = 0.05+0.009(I), A = drainage area (sf), I = percent impervious cover (per NY State Stormwater Design Manual, 2010).

Existing Conditions and Proposed Concept Sketch



Legend

- Accabonac Harbor Subwatershed
- Parcels
- Retrofit Sites
- Retrofit Footprint
- Retrofit Drainage Area
- Retrofit Impervious
- Inlets (HW)
- Hot Spots
- Neighborhoods
- Hydrography
- Hydrography
- East Hampton 10ft. Contours
- East Hampton 5ft. Contours

N

40 Feet

Horsley Witten Group
Sustainable Environmental Solutions
90 Route 6A • Sandwich, MA • 02563
Tel: 508-833-6600 • Fax: 508-833-3150 • www.horsleywitten.com

Retrofit 5
Accabonac Harbor Subwatershed
East Hampton, NY

Date: 7/8/2013

Path: H:\Projects\2009\9072 Peconic-Sub WS Mgt Plans\GIS\Maps\FieldMaps\130701_Accabonac_blowups_portrait_9072.mxd

AB-R8B. Right-of-way at Springs Community Presbyterian Church — Bioretention Area

Site Description

Springs Community Presbyterian Church is located on Old Stone Highway, at the intersection with Springs-Fireplace Road. The church property includes a one-quarter acre paved parking lot that drains to its northernmost corner. This facility lacks formal drainage infrastructure resulting in temporary runoff ponding in the parking lot. The main area of concern also accepts runoff from Old Stone Highway and Springs-Fireplace Road due to inadequate roadway drainage infrastructure. When the ponding depth exceeds the elevation of the surrounding lawn areas, stormwater will flow overland to the adjacent tidal tributary to Accabonac Harbor.

Proposed Concepts

The proposed retrofit at this location includes the construction of a bioretention system at the vegetated island between Springs-Fireplace Road and the Church parking lot. In order to capture and treat runoff from the entire drainage area, the practice may have to be partially located within the right-of-way and partially within private property, requiring an easement. The retrofit would include the installation of at least two paved drainage flumes to pickup runoff from the roadways and the parking lot.

There is currently an existing paved flume and leaching catchbasin that captures a portion of the runoff from Springs-Fireplace Road. The existing paved flume would be removed to prevent bypass of the proposed system. The catchbasin frame and grate could be elevated to serve as the overflow for the bioretention system if a new outlet pipe is installed.

This retrofit site also presents an opportunity for impervious surface removal. The church parking lot has no parking stall striping and lacks formal driving lanes. The large expanse of pavement could be reduced through the installation of vegetated traffic islands. This could be completed in a way that better defines the parking and travel lanes but limits any reduction in parking spaces.

Practice Sizing/Design Considerations

The conveyance structures should be designed to accommodate peak flowrates for at least the 10-year storm. The bioretention area should be sized to treat water quality volume from the contributing impervious surface. This equates to approximately 1,620 SF of required treatment area. The available surface area at this location is about 960 SF but could possibly be enlarged through pavement removal. Any amount of pavement removal would also decrease the amount of required treatment area. Additional design considerations include possible relocation of an existing utility pole and guy wire and removal of one or two decorative trees that may be impacted by the proposed site improvements.

Pollutant Removal

Bioretention areas are expected to remove 90% TSS; 30% TP; 55% TN; and 70% bacteria (RI Manual, 2010). This assumes the full design treatment volume can be provided.

Project costs

The construction of Site AB-R8B, including the bioretention area, paved flumes, pavement removal, erosion and sediment control, etc., is expected to cost approximately $74,600. This includes an estimated 10% fee for final engineering design and permitting and a 20% contingency. Long-term operation and maintenance costs are likely to be in the range of 3%-5% of the construction costs, or $1,800 to $3,000, annually.

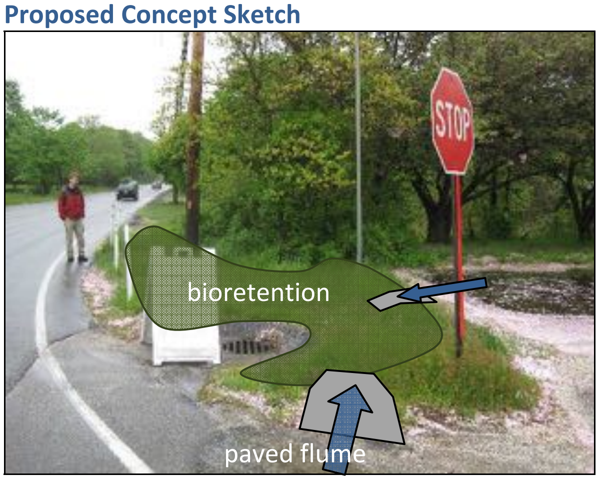
Next steps

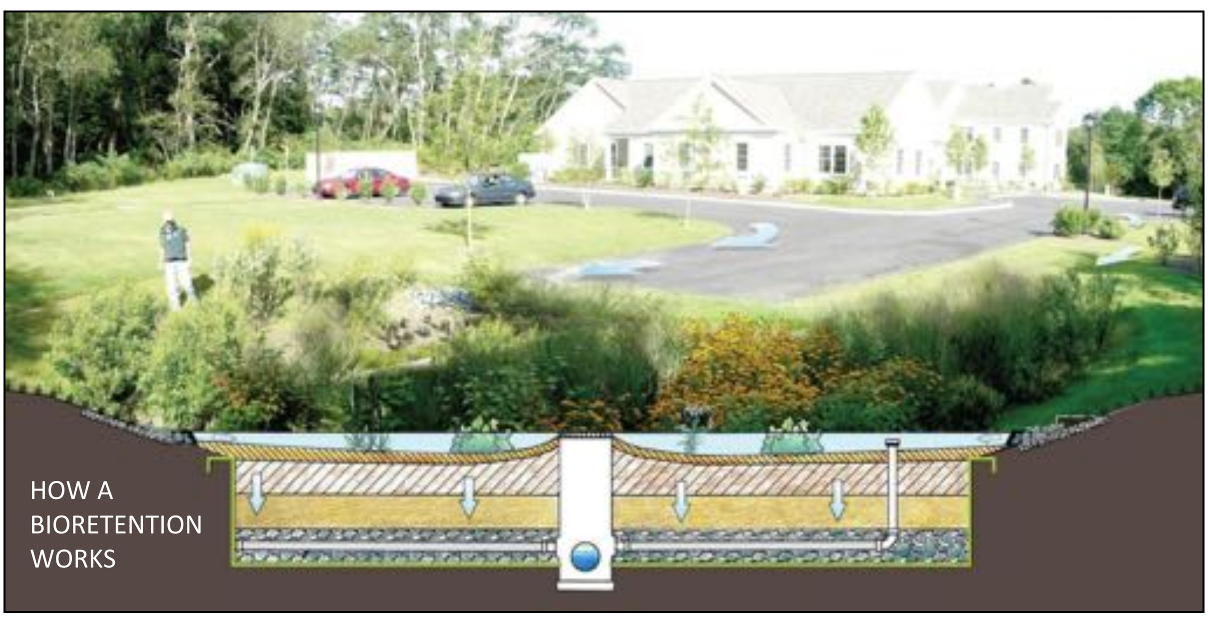
- Solicit interest from the church property owner;
- Complete a topographic survey and map existing utilities; and
- Map existing resource area boundaries and buffers.

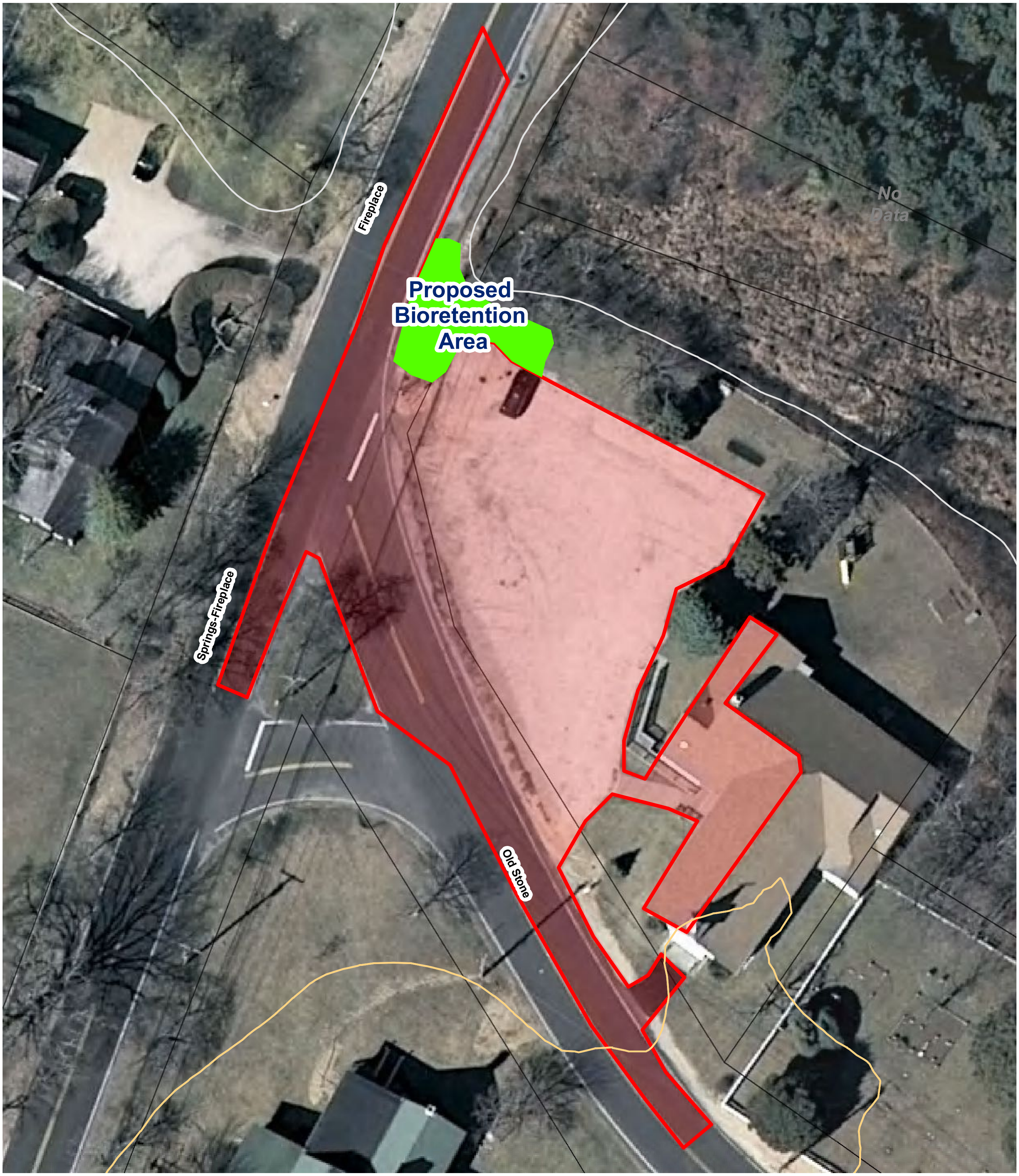
Site ID	Drainage Area (ac)	% Impervious	Design Treatment Volume (cf)*	Practice Area Required (sf)*	Practice Area Available (sf)*
AB-R8B	0.47	89	1,750	1,615	960

*Design Water Quality Volume: WQv (cf) = (1.2")(Rv)(A)/12; where Rv = 0.05+0.009(I), A = drainage area (sf), I = percent impervious cover (per NY State Stormwater Design Manual, 2010).
*Practice Area Required is calculated based on practice-specific design assumptions.
*Practice Area Available is estimated from available mapping. Actual practice area may be adjusted as needed during pre-construction.

Proposed Concept Sketch







Legend

Inlets (HW)
Accabonac Harbor Subwatershed
Parcels
Retrofit Sites
Retrofit Footprint
Retrofit Drainage Area
Retrofit Impervious
Hot Spots
Neighborhoods
Hydrography
Hydrography
East Hampton 10ft. Contours
East Hampton 5ft. Contours

N

40 Feet

Horsley Witten Group
Sustainable Environmental Solutions
90 Route 6A • Sandwich, MA • 02563
Tel: 508-833-6600 • Fax: 508-833-3150 • www.horsleywitten.com

Retrofit 8B
Accabonac Harbor Subwatershed
East Hampton, NY

Date: 7/8/2013

Path: H:\Projects\2009\9072 Peconic-Sub WS Mgt Plans\GIS\Maps\FieldMaps\130701_Accabonac_blowups_portrait_9072.mxd

AB-R8C. Pussy's Pond Park — Bioretention Area; Bank Restoration; Public Education

Site Description

Pussy's Pond Park is located on School Street near the Springs town center. It is an established location for residents to sit, enjoy the view of the pond, and feed the ducks and geese that inhabit the pond. Unfortunately, the lack of drainage infrastructure along School Street has contributed to lawn deterioration in the park and bank erosion along the pond shoreline. Stormwater currently flows north on School Street along the dirt shoulder, then through the park, before finally reaching the pond. An erosion gully and headcut has formed at the shoreline which is slowly migrating into the park. At the time of observation (May 2011), a sediment plume was observed in the pond at the erosion gully location. The stormwater flows likely carry other pollutants such as metals, oils, and bacteria directly into the pond.

Proposed Concepts

Two projects have been indentified at Pussy's Pond that can help to reduce erosion, sedimentation, and pollution from unmanaged runoff. Retrofit AB-R8C1 targets stormwater treatment through the installation of a bioretention area in the upgradient region of the park, adjacent to School Street. Runoff would be collected from the road shoulder either in shallow drainage inlets or vegetated swales, which would direct stormwater into the proposed bioretention area. The bioretention area would be planted with an array of flowering species to enhance the overall park appearance.

The upgradient drainage improvement will help to reduce the stormwater flows through the park lawn area, improving grass establishment and reducing erosion. Furthermore, it will help limit the migration of the headcut at the pond, allowing for execution of retrofit AB-R8C2. This retrofit proposes to restore the eroded shoreline through bio-engineered stabilization strategies. Techniques may include installation of coir fiber logs, coir fabric, and live stakes to create a naturally, stable riparian zone.

Pussy's Pond Park may serve as an excellent location for public education about stormwater treatment, resource area management, and pollution prevention. Informing park users about the negative impacts associated with feeding water fowl could go a long way toward reducing bacteria loads in Pussy's Pond and throughout the Accabonac watershed.

Practice Sizing/Design Considerations

Any proposed conveyance structures should be designed to accommodate peak flowrates for at least the 10-year storm. The bioretention area should be sized to treat the water quality volume from the contributing impervious surface. This equates to approximately 440 SF of required treatment area, which is readily available within the combined park and right-of-way areas. Runoff generated from storms greater the water quality event will bypass through an overflow structure within the bioretention area and discharge to a stabilized outfall at the pond shoreline. No sizing is required for the bank stabilization measures but native plants that thrive in freshwater environments should be selected for revegetation.

Pollutant Removal

Bioretention areas are expected to remove 90% TSS; 30% TP; 55% TN; and 70% bacteria (RI Manual, 2010), assuming the full design treatment volume can be provided. The proposed bank stabilization measures will also help to reduce TSS and TP loading to the pond and Accabonac Harbor.

Project costs

The construction of Site AB-R8C is expected to cost approximately $46,500. This includes an estimated 10% fee for final engineering design and permitting and a 20% contingency. Long-term operation and maintenance costs are likely to be in the range of 3%-5% of the construction costs, or $1,000 to $1,800, annually.

Next steps

- Consider preliminary public education opportunities for managing water fowl populations;
- Complete a topographic survey and map existing utilities; and
- Map existing resource area boundaries and buffers.

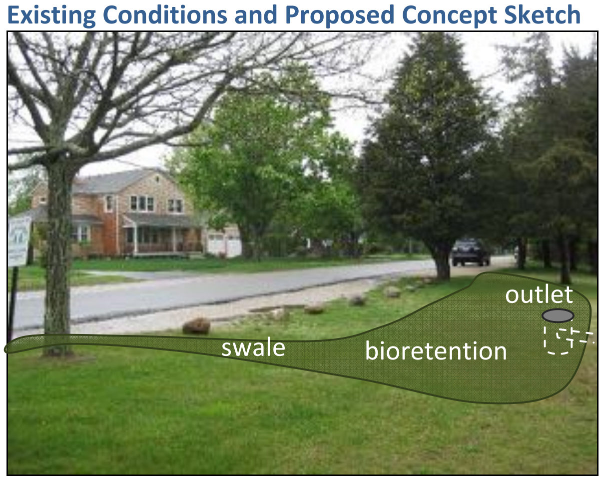
Site ID	Drainage Area (ac)	% Impervious	Design Treatment Volume (cf)*	Practice Area Required (sf)*	Practice Area Available (sf)*
AB-R8C1	0.21	51	468	432	432

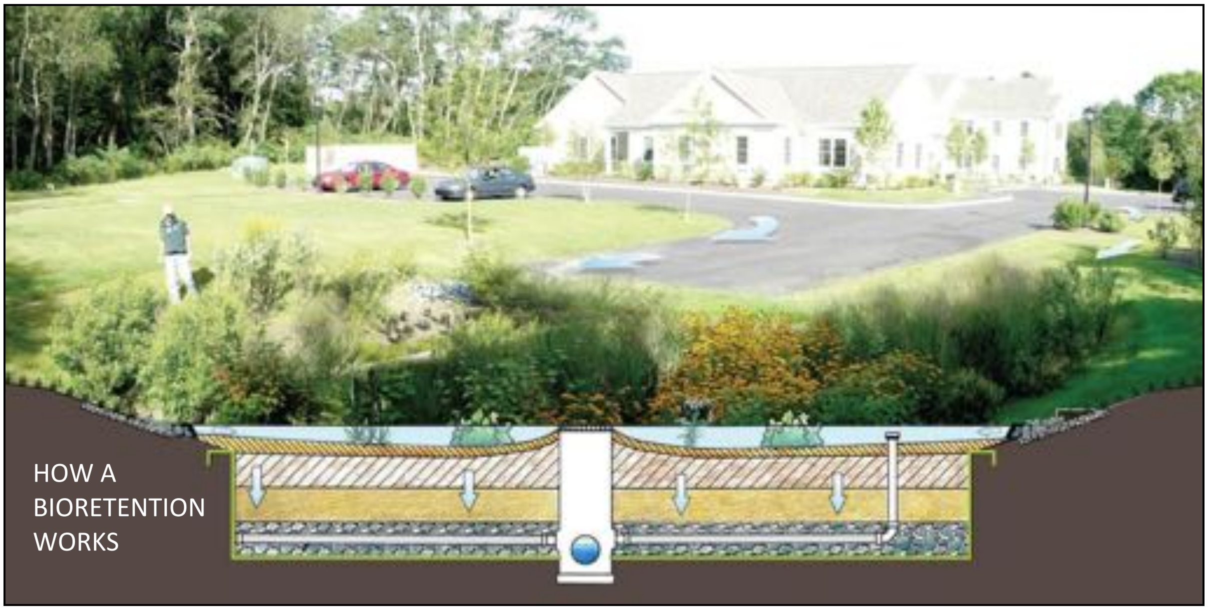
*Design Water Quality Volume: WQv (cf) = (1.2")(Rv)(A)/12; where Rv = 0.05+0.009(I), A = drainage area (sf), I = percent impervious cover (per NY State Stormwater Design Manual, 2010).

*Practice Area Required is calculated based on practice-specific design assumptions.

*Practice Area Available is estimated from available mapping. Actual practice area may be adjusted as needed during pre-construction.

Existing Conditions and Proposed Concept Sketch




HOW A
BIORETENTION
WORKS

AB-R16. Shipyard Lane Boat Launch — Pavement removal and bioretention facility

Site Description

The Shipyard Lane Boat Launch is located at the western-most embayment of Accabonac Harbor. Access to the boat launch is from the south via Shipyard Lane. The site is less than one-quarter mile from the Springs town center. The road, boat launch, and associated parking areas are paved. Most of Shipyard Lane drains to the boat launch area where there is a single catchbasin with a six-inch diameter outlet pipe that handles a portion of the runoff. At the time of observation (May 2011), the catchbasin appeared partially clogged with debris and overwhelmed by stormwater flows. It also appeared that the catchbasin would be submerged during high tide conditions.

Proposed Concepts

A bioretetion facility is proposed along the southeastern side of boat launch area to improve current drainage and provide stormwater treatment for Shipyard Lane. The bioretention area would be constructed immediately upgradient of the existing catchbasin. The existing catchbasin could be converted as the primary outlet control structure for the bioretention system by raising the frame and grate elevation. Possible upgrades to the structure and piping may be necessary depending on age and condition. Pavement removal may be necessary for construction of the bioretention area.

In order to capture runoff from the entire boat launch area, a diversionary "speed bump" is proposed across the width Shipyard Lane. A vegetated swale is also proposed along the southeastern side of the road to carry runoff from the upgradient extents of the drainage area. The swale will help to provide pretreatment of runoff prior to reaching the bioretention facility. Some pavement removal may be necessary to properly size and locate the system within the public right-of-way. This site may provide opportunities for public education about a stormwater, proper refueling strategies, and waste management.

Practice Sizing/Design Considerations

The conveyance and drainage structures such as the swale, catchbasin, and piping should be designed to accommodate peak flowrates for at least the 10-year storm event. The bioretention area should be sized to treat water quality volume from the contributing impervious surface. This equates to approximately 1,180 SF of required treatment area. The available surface area at this location is at approximately 1,000 SF, meaning the practice will be able to manage about 83% of the design water quality volume. Any additional runoff than that enters the bioretention area will bypass through the raised, existing catchbasin to a stabilized outfall. In order to prevent groundwater influence during high tides, the bioretention system may have to be lined with an impermeable liner.

Pollutant Removal

Bioretention areas are expected to remove 90% TSS; 30% TP; 55% TN; and 70% bacteria (RI Manual, 2010). This assumes the full design treatment volume can be provided.

Project costs

The construction of Site AB-R16, including speed bump, flume, signage, erosion and sediment control, etc., is expected to cost approximately $59,800. This includes an estimated 10% fee for final engineering design and permitting and a 20% contingency. Long-term operation and maintenance costs are likely to be in the range of 3%-5% of the construction costs, or $1,500 to $2,300, annually.

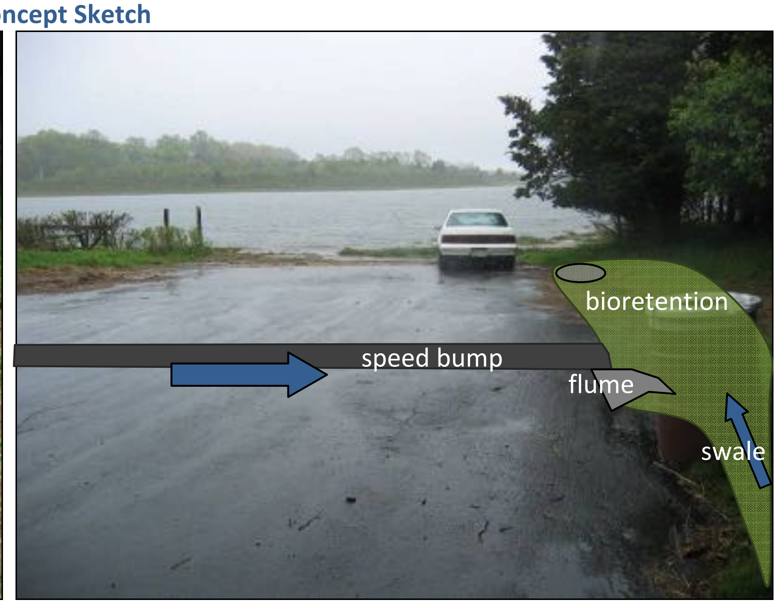
Next steps

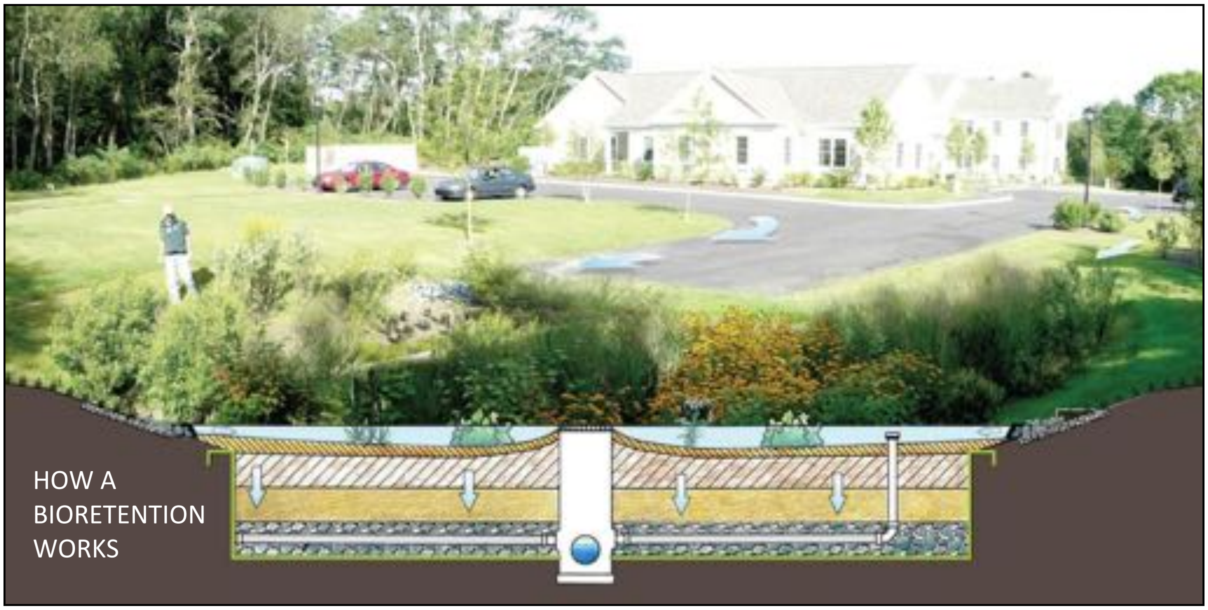
- Determine extent of groundwater fluctuation through test pits or borings;
- Complete a topographic survey and map existing utilities; and
- Map existing resource area boundaries and buffers.

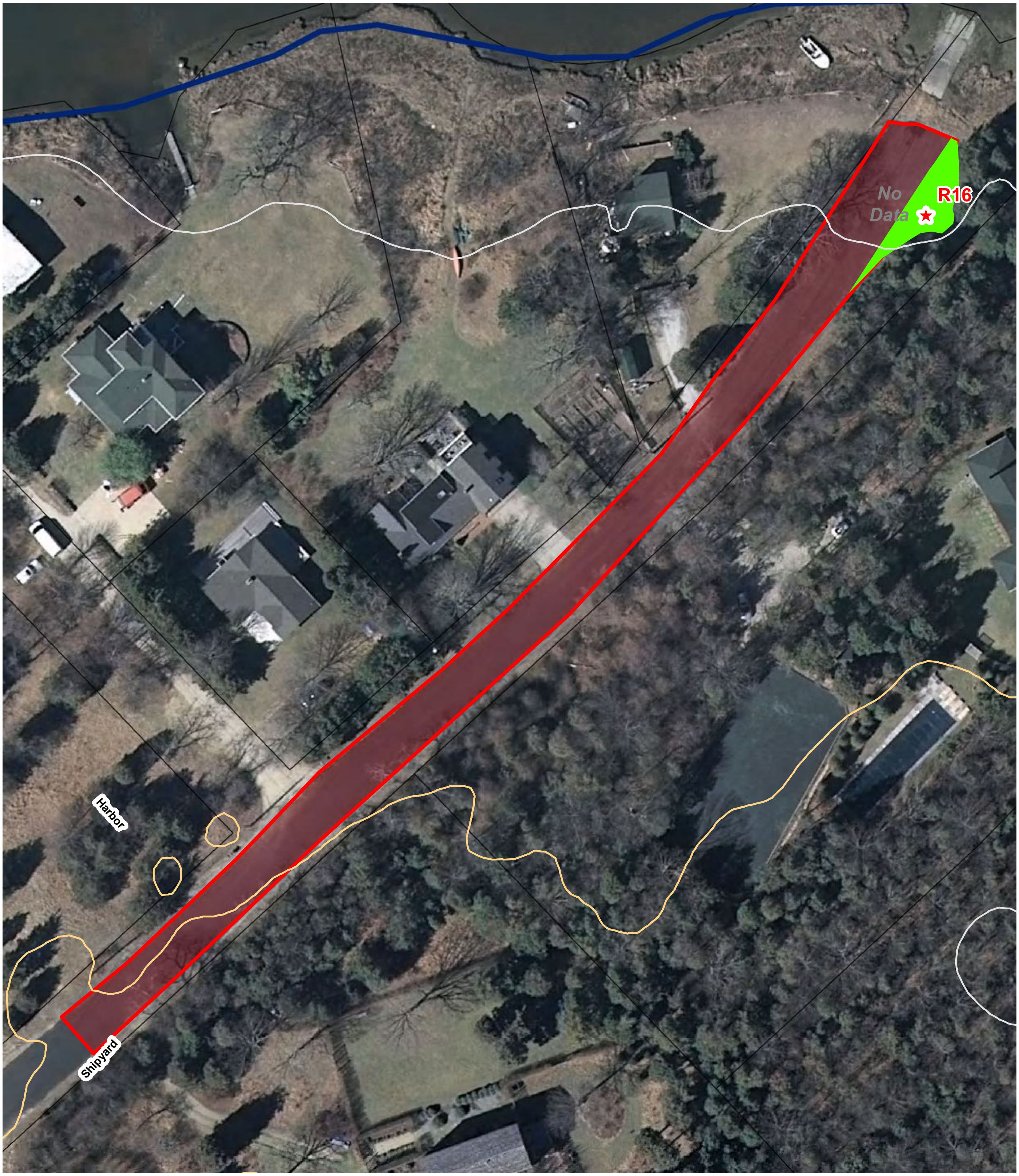
Site ID	Drainage Area (ac)	% Impervious	Design Treatment Volume (cf)*	Practice Area Required (sf)*	Practice Area Available (sf)*
AB-R16	0.34	93	1,300	1,180	980

*Design Water Quality Volume: WQv (cf) = (1.2")(Rv)(A)/12; where Rv = 0.05+0.009(I), A = drainage area (sf), I = percent impervious cover (per NY State Stormwater Design Manual, 2010).
*Practice Area Required is calculated based on practice-specific design assumptions.
*Practice Area Available is estimated from available mapping. Actual practice area may be adjusted as needed during pre-construction.

Existing Conditions and Proposed Concept Sketch




HOW A
BIORETENTION
WORKS



Legend

- Inlets (HW)
- Accabonac Harbor Subwatershed
- Parcels
- Retrofit Sites
- Retrofit Footprint
- Retrofit Drainage Area
- Retrofit Impervious
- Hot Spots
- Neighborhoods
- Hydrography
- Hydrography
- East Hampton 10ft. Contours
- East Hampton 5ft. Contours

N

65 Feet

Horsley Witten Group
Sustainable Environmental Solutions
90 Route 6A • Sandwich, MA • 02563
Tel: 508-833-6600 • Fax: 508-833-3150 • www.horsleywitten.com

Retrofit 16
Accabonac Harbor Subwatershed
East Hampton, NY

Date: 7/8/2013

Path: H:\Projects\2009\9072 Peconic-Sub WS Mgt Plans\GIS\Maps\FieldMaps\130701_Accabonac_blowups_portrait_9072.mxd

AB-R18. Teak Road Wetland — Retrofits for an existing stormwater detention basin

Site Description

At the northern end of the Accabonac subwatershed, there is an existing wet detention basin that manages runoff from an approximate 14.9-acre drainage area. The basin had been outfitted with an outlet control structure (OCS) to regulate peak discharge rates. At the time of observation (May 2011), it was deteriorated and failing, significantly reducing the flood control potential of the detention facility. The detention basin is also currently overgrown with *phragmites*, an invasive species that can out-compete native vegetation.

Currently, untreated stormwater runoff flows into the basin from the Underwood-Norfolk neighborhood (AB-N1) and other surrounding roadways. It then flows east through a 15-inch diameter outlet pipe that discharges to a coastal salt marsh. Peak flow control is likely minimal given the poor condition of the existing outlet structure. Drainage infrastructure along Springs-Fireplace Road is insufficient, contributing to temporary ponding in the roadway.

Proposed Concepts

In order to improve water quality and flood control and reduce erosion flow conditions, the OCS could be replaced with a new structure designed to achieve maximum attenuation and utilization of available storage capacity. By reducing release rates and increasing drain times, the growth of *phragmites* could be managed. A small permanent pool should be excavated near the outlet structure to improve pollutant settling. This would also allow the installation of a reverse-flow outlet pipe which would help to reduce clogging from floating debris. Deep-sump catchbasins and/or oil-grit separators are recommended throughout the local contributing drainage area to provide runoff pretreatment prior to discharge into the basin. Paved flumes with riprap splash pads at roadway low-points will also help to reduce erosion and sedimentation in the wetland.

Practice Sizing/Design Considerations

The OCS should be sized to accommodate flows for the preferred design storm event, possibly the 10-year storm, while also restricting outflows for the small storm events to maximize pollutant removals. The total drainage area to the site is approximately 14.9 acres with 23% impervious surface. The basin currently offers at least 43,000 cubic feet of volume for attenuation (two feet of storage depth over a 21,500 square foot area). A primary design consideration for this project is selecting a design release rate that is adequate for reducing peak flows, providing sufficient extended detention for water quality treatment, and for managing *phragmites* growth. All drainage work should be able to be completed within the existing drainage easement and public right-of-ways.

Pollutant Removal

Wet extended detention basins are expected to remove up to 80% TSS; 52% TP; 31% TN; and 70% bacteria (RI Manual, 2010). The proposed retrofit will help increase the removal efficiencies currently observed by increasing attenuation and decreasing peak discharges.

Project costs

The construction of Site AB-R18 is expected to cost approximately $55,900. This includes an estimated 10% fee for final engineering design and permitting and a 20% contingency. Long-term operation and maintenance costs are likely to be in the range of 3%-5% of the construction costs, or $1,300 to $2,200, annually.

Next steps

- Complete a topographic survey of the area.
- Determine if there are any site utility conflicts; and
- Map existing resource area boundaries and buffers.

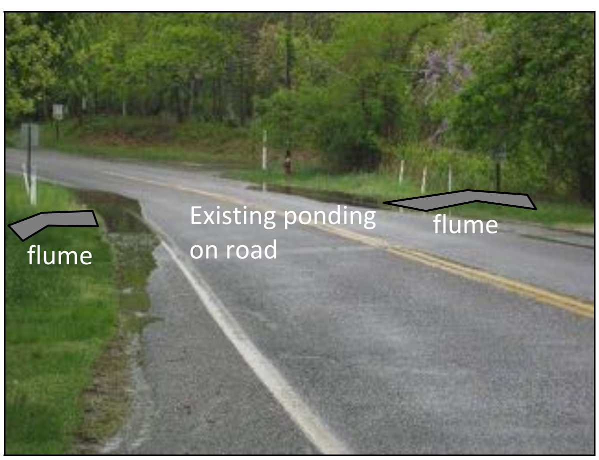
Site ID	Drainage Area (ac)	% Impervious	Design Storm (yrs)	Practice Volume Required (cf)*	Practice Volume Available (cf)*
AB-R18	14.9	23	10	41,000	43,000

*Design Storm Rainfall Depth = 5-inches, Provide 24-hour extended detention for the 1.2 inch water quality event

*Practice Area Required is calculated based on practice-specific design assumptions.

*Practice Area Available is estimated from available mapping. Actual practice area may be adjusted as needed during pre-construction.

Existing Conditions and Proposed Concept Sketch



Legend

Inlets (HW)
Accabonac Harbor Subwatershed
Parcels
Retrofit Sites
Retrofit Footprint
Retrofit Drainage Area
Retrofit Impervious
Hot Spots
Neighborhoods
Hydrography
Hydrography
East Hampton 10ft. Contours
East Hampton 5ft. Contours

N

200 Feet

Horsley Witten Group
Sustainable Environmental Solutions
90 Route 6A • Sandwich, MA • 02563
Tel: 508-833-6600 • Fax: 508-833-3150 • www.horsleywitten.com

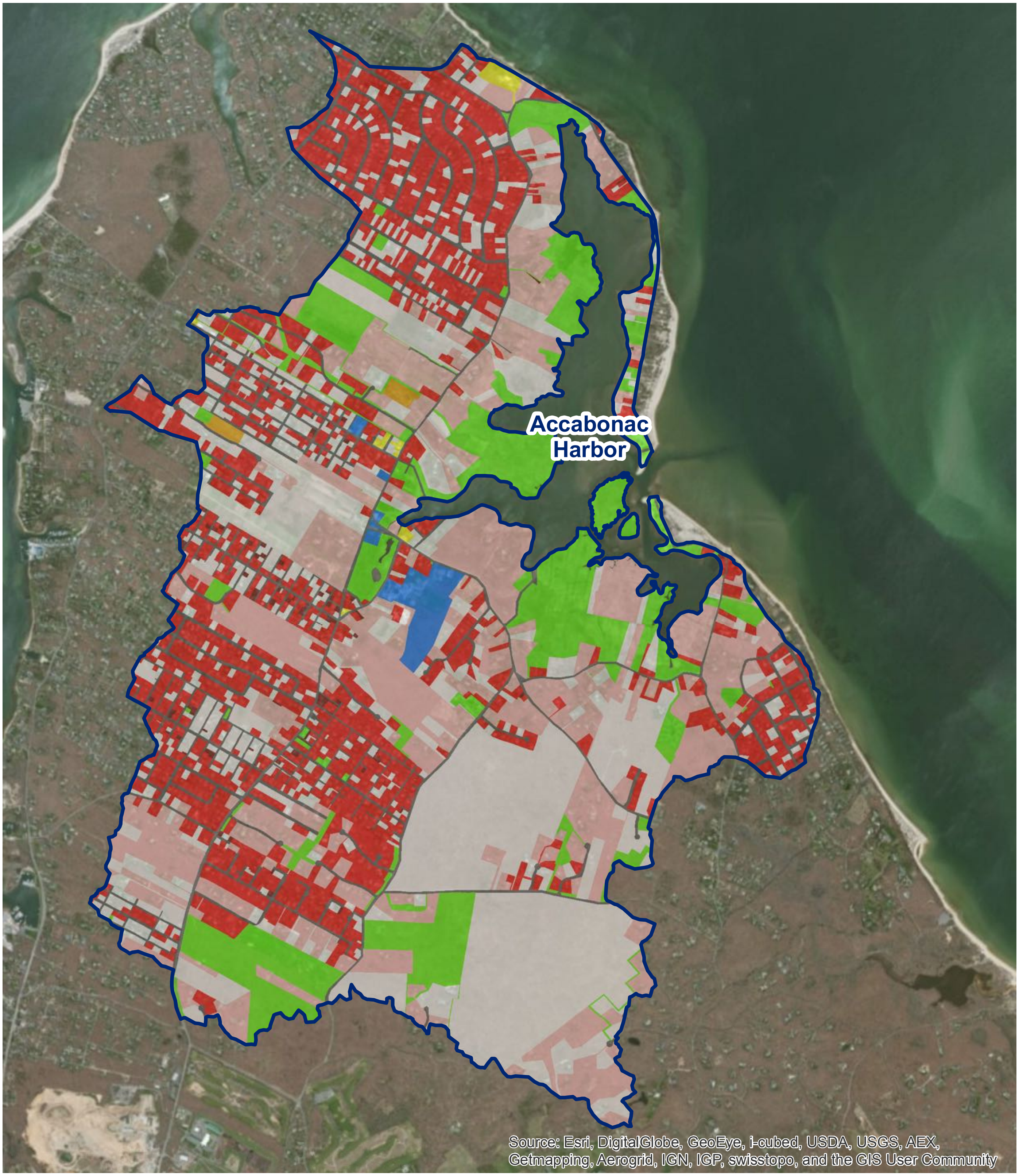
Retrofit 18
Accabonac Harbor Subwatershed
East Hampton, NY

Date: 7/8/2013

Path: H:\Projects\2009\9072 Peconic-Sub WS Mgt Plans\GIS\Maps\FieldMaps\130701_Accabonac_blowups_portrait_9072.mxd

APPENDIX A:

SUBWATERSHED BASELINE MAPS



Legend

Accabonac Harbor Subwatershed

Land Use

- Transportation
- Low Density Res.
- Med Density Res.
- High Density Res
- Commercial
- Industrial
- Institutional
- Open Space
- Agricultural
- Vacant
- Utilities
- Waste Handling & Mant.

N

Feet

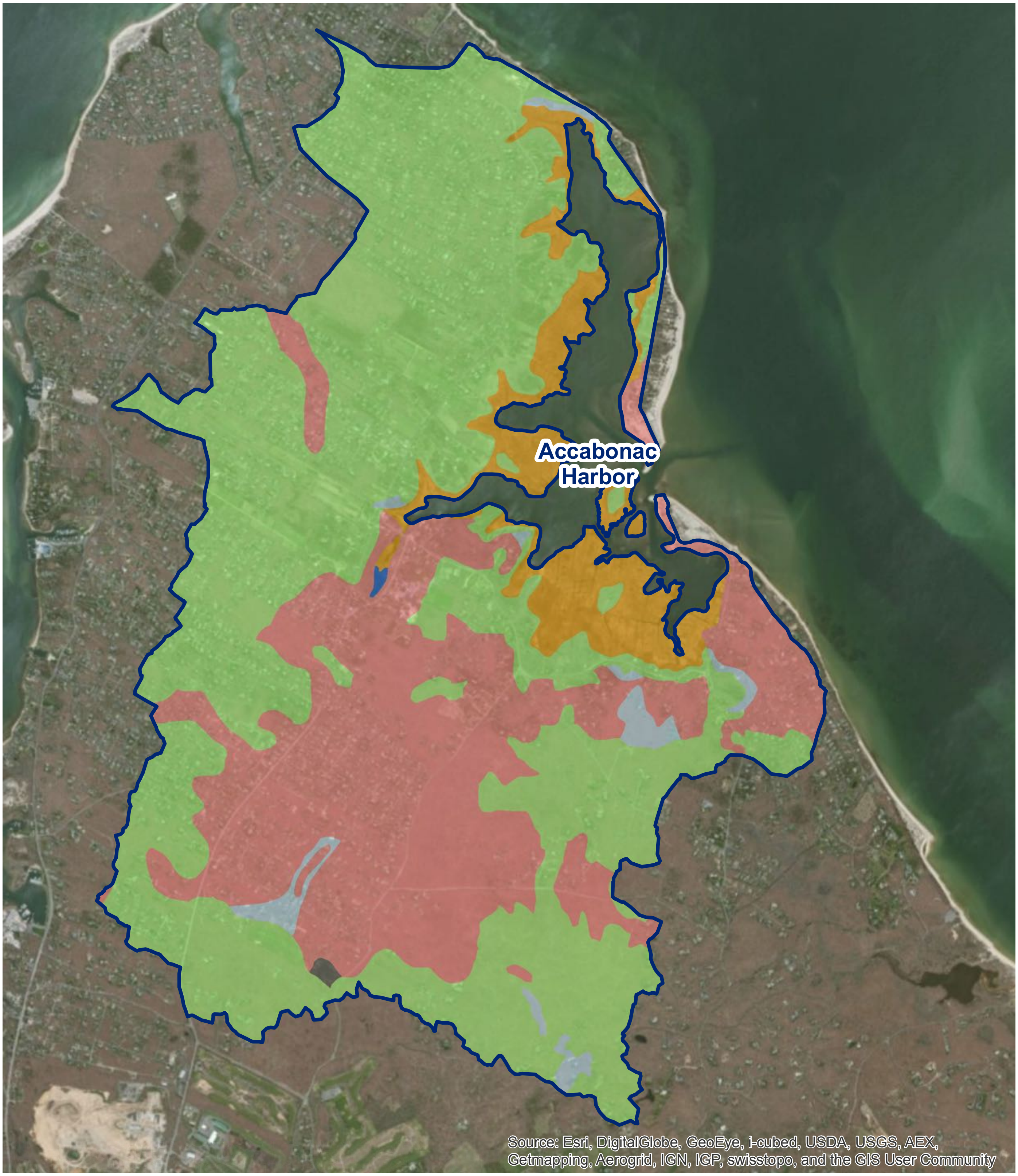
2,600

Horsley Witten Group
Sustainable Environmental Solutions
90 Route 6A • Sandwich, MA • 02563
Tel: 508-833-6600 • Fax: 508-833-3150 • www.horsleywitten.com

Land Use
Accabonac Harbor Subwatershed
East Hampton, NY

Date: 6/30/2013

Path: H:\Projects\2009\9072 Peconic-Sub WS Mgt Plans\GIS\Maps\Land_Use\130628_AH_LandUse_9072.mxd



Legend

Accabonac Harbor Subwatershed

Hydro Group

A
B
B/D
C
C/D
D
U

Horsley Witten Group
Sustainable Environmental Solutions
90 Route 6A • Sandwich, MA • 02563
Tel: 508-833-6600 • Fax: 508-833-3150 • www.horsleywitten.com

Soils
Accabonac Harbor Subwatershed
East Hampton, NY

Date: 6/30/2013

Path: H:\Projects\2009\9072 Peconic-Sub WS Mgt Plans\GIS\Maps\Soils\130628_AH_Soils_9072.mxd

APPENDIX B:

FIELD FORMS AND SKETCHES

FIELD FORMS - RETROFITS

Land Use: ☒ Public ☐ Private ☐ Unknown:

☒ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☐ Park ☐ Agricultural ☒ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: ________

Is the site a hotspot? ☐ Yes ☒ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☐ Sediment ☐ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☐ Yes ☒ No ☐ Unknown:

Soils: ☐ Unknown ☒ poor infiltration ☐ good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

- Broken bits at the culvert supply
- [illegible] catch basin [illegible]
- ponding around traffic island - no CBs

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☐ existing BMP upgrade ☐ new BMP

☒ bio/rain garden ☒ swale ☐ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☐ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☐ Other (describe): wet swale

Area Draining to Retrofit
☐ Hotspot ☐ Individual rooftop
☐ Parking Lot ☐ other small impervious area
☒ Street ☐ Pervious area
☐ Other (describe):

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = _____%

Impervious Area = _____ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☒ Water Quality ☐ Recharge
☐ Demonstration / Education ☐ Repair ☐ Other: ________

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☒ High water table
☒ Wetlands ☐ Other:

Describe conflicts:

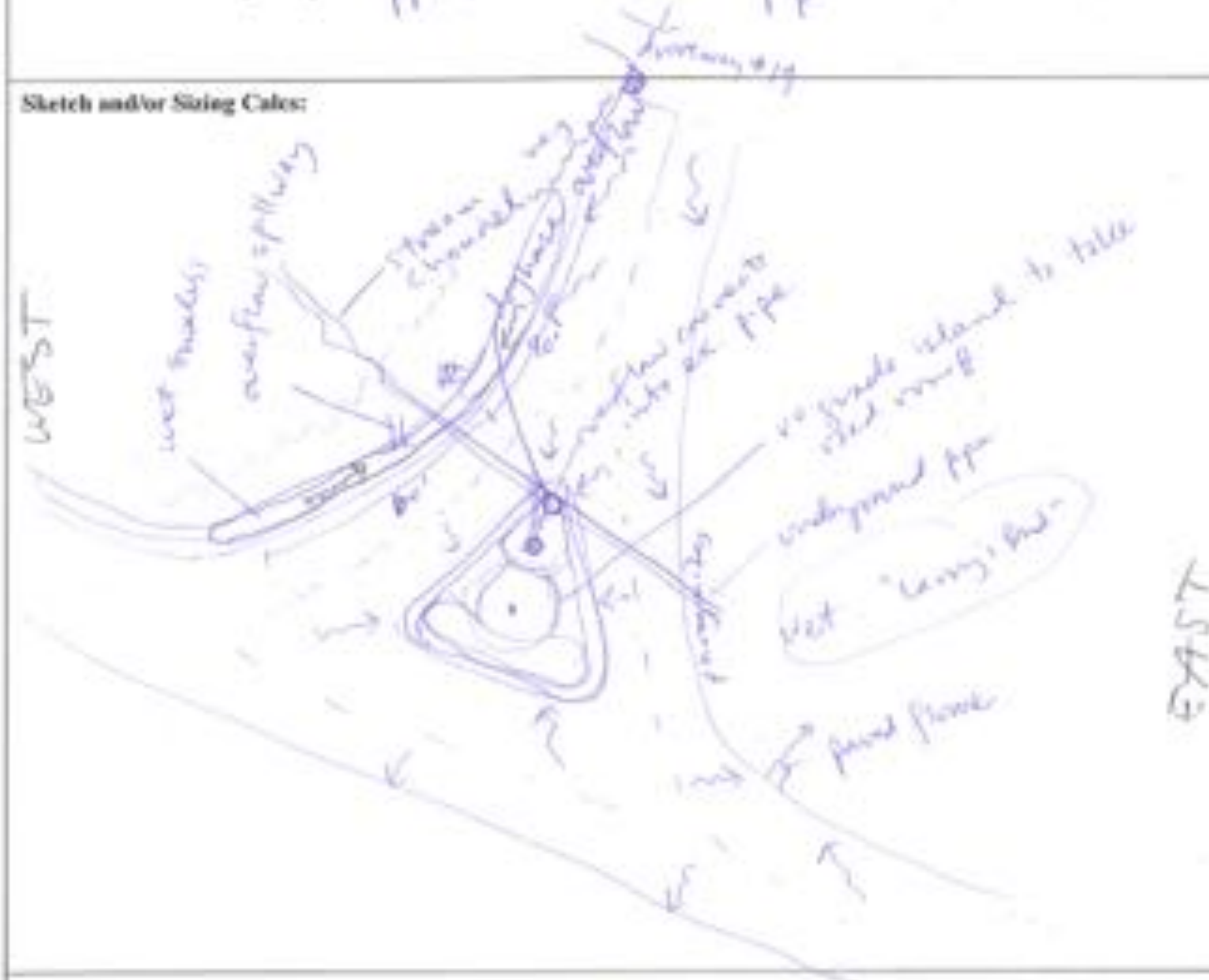
NEXT STEPS

Candidate for pilot project ☐ yep, love it ☐ OK ☐ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☐ Confirm property ownership
☐ Confirm drainage area/impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☐ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☐ Perform test pits

• re-grade traffic island to take road runoff. overflow pipe connects into ex- pipe to channel

Sketch and/or Sizing Calcs:



Existing Head Available/Where Measured: ok

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:
good feasibility, ok priority

Thoughts on Maintenance Burden: ☐ Low ☒ Medium ☐ High


Legend
Inlets (HW)
Stormdrain Outfalls (PEP)
Water Line
PEP Stormdrain Conveyance Systems
Parcels
N
Feet
50

end of driveways

☑ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☐ Park ☐ Agricultural ☑ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: Driveways

Is the site a hotspot? ☐ Yes ☑ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☑ Sediment ☐ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☐ Yes ☑ No ☐ Unknown:

Soils: ☑ Unknown ☐ poor infiltration ☐ good infiltration edge of A and D

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

dirt/stone driveways slightly eroding onto road

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☐ existing BMP upgrade ☑ new BMP

☐ bio/rain garden ☑ swale ☐ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☐ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☑ Other (describe): trench/gutter

Area Draining to Retrofit
☐ Hotspot ☐ Individual rooftop
☐ Parking Lot ☐ other small impervious area
☐ Street ☐ Pervious area
☑ Other (describe): Gravel drives

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = ______%

Impervious Area = ______ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☐ Water Quality ☐ Recharge
☐ Demonstration / Education ☐ Repair ☐ Other: ↓ Sediment

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☐ High water table
☐ Wetlands ☐ Other:

Describe conflicts:

NEXT STEPS

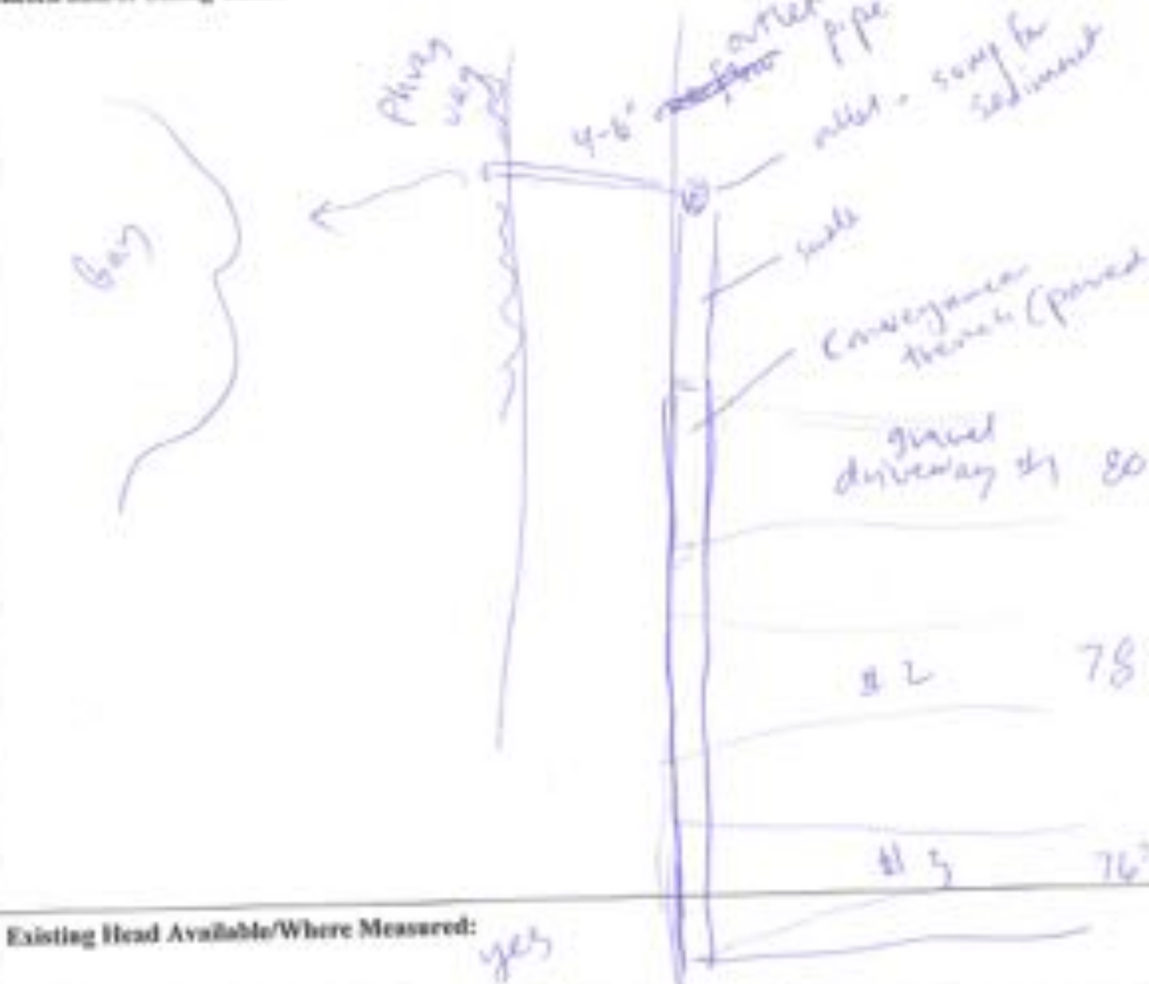
Candidate for pilot project ☐ yep, love it ☐ OK ☐ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☐ Confirm property ownership
☑ Confirm drainage area/impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☐ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☐ Perform test pits

Site ID ____________

outlet w/ sump and through a 4-6" pipe down road

Sketch and/or Sizing Calcs:



Existing Head Available/Where Measured: yes

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:
low priority, gravel drives typical on this road.

Thoughts on Maintenance Burden: ☐ Low ☒ Medium ☐ High

Site ID ____________

Legend

- Inlets (HW)
- Stormdrain Outfalls (PEP)
- Water Line
- PEP Stormdrain Conveyance Systems
- Parcels

Horsley Witten Group

Retrofit 2
Accabonac Harbor Subwatershed
East Hampton, NY

Date: 5/13/2011

☐ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☐ Park ☐ Agricultural ☒ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: ________

Is the site a hotspot? ☐ Yes ☒ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☒ Sediment ☐ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☐ Yes ☒ No ☐ Unknown:

Soils: ☐ Unknown ☐ poor infiltration ☒ good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

- eroding foot path to beach
- no paved flume

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☐ existing BMP upgrade ☐ new BMP

☐ bio/rain garden ☐ swale ☐ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☐ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☒ Other (describe): water bars + paved flume

Area Draining to Retrofit
☐ Hotspot ☐ Individual rooftop
☒ Parking Lot ☐ other small impervious area
☒ Street ☐ Pervious area
☐ Other (describe):

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = ____%

Impervious Area = ____ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☒ Water Quality ☐ Recharge
☐ Demonstration / Education ☒ Repair ☐ Other: ________

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☐ High water table
☐ Wetlands ☐ Other:

Describe conflicts:

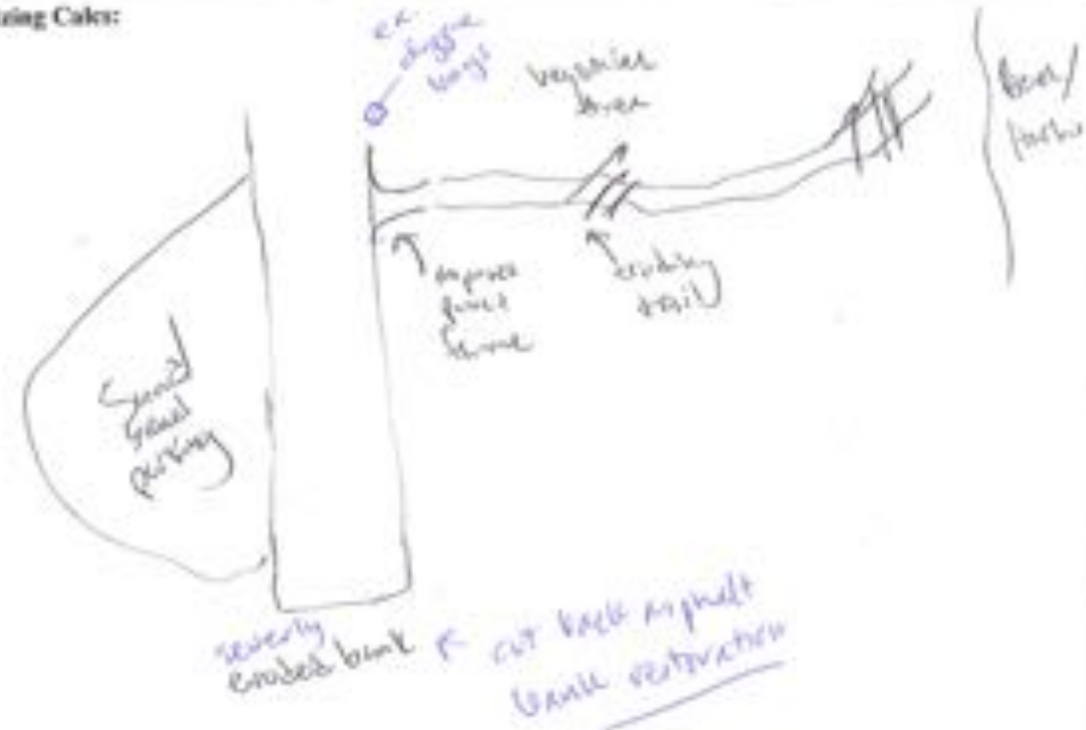
NEXT STEPS

Candidate for pilot project ☐ yep, love it ☒ OK ☐ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☐ Confirm property ownership
☐ Confirm drainage area/impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☐ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☐ Perform test pits

• water bars to redirect drainage off of foot path

Sketch and/or Sizing Calcs:



Existing Head Available/Where Measured:

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

good feasibility

Thoughts on Maintenance Burden: ☑ Low ☐ Medium ☐ High


R-12
Legend
Inlets (HW)
Storndrain Outfalls (PEP)
Water Line
PEP Storndrain Conveyance Systems
Parcels
N
Feet
50
Horsley Witten Group
Retrofit 12
RF-3A
Accabonac Harbor Subwatershed
East Hampton, NY
Date: 5/13/2011

☐ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☑ Park ☐ Agricultural ☐ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: ________ Beach / Boat Launch

Is the site a hotspot? ☑ Yes ☐ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☑ Sediment ☑ Nutrients/organics ☑ Oil/grease ☑ Trash/Floatables

Existing Stormwater BMP on site? ☐ Yes ☑ No ☐ Unknown:

Soils: ☑ Unknown ☐ poor infiltration ☐ good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☐ existing BMP upgrade ☑ new BMP

☐ bio/rain garden ☑ swale ☐ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☑ reforestation ☐ impervious cover removal
☐ rainwater harvesting ☑ disconnection ☐ Other (describe):

Area Draining to Retrofit
☑ Hotspot ☐ Individual rooftop
☑ Parking Lot ☐ other small impervious area
☑ Street ☐ Pervious area
☐ Other (describe):

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = _____%

Impervious Area = _____ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☑ Water Quality ☐ Recharge
☐ Demonstration / Education ☐ Repair ☐ Other: ____________

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☐ High water table
☐ Wetlands ☐ Other:

Describe conflicts:

NEXT STEPS

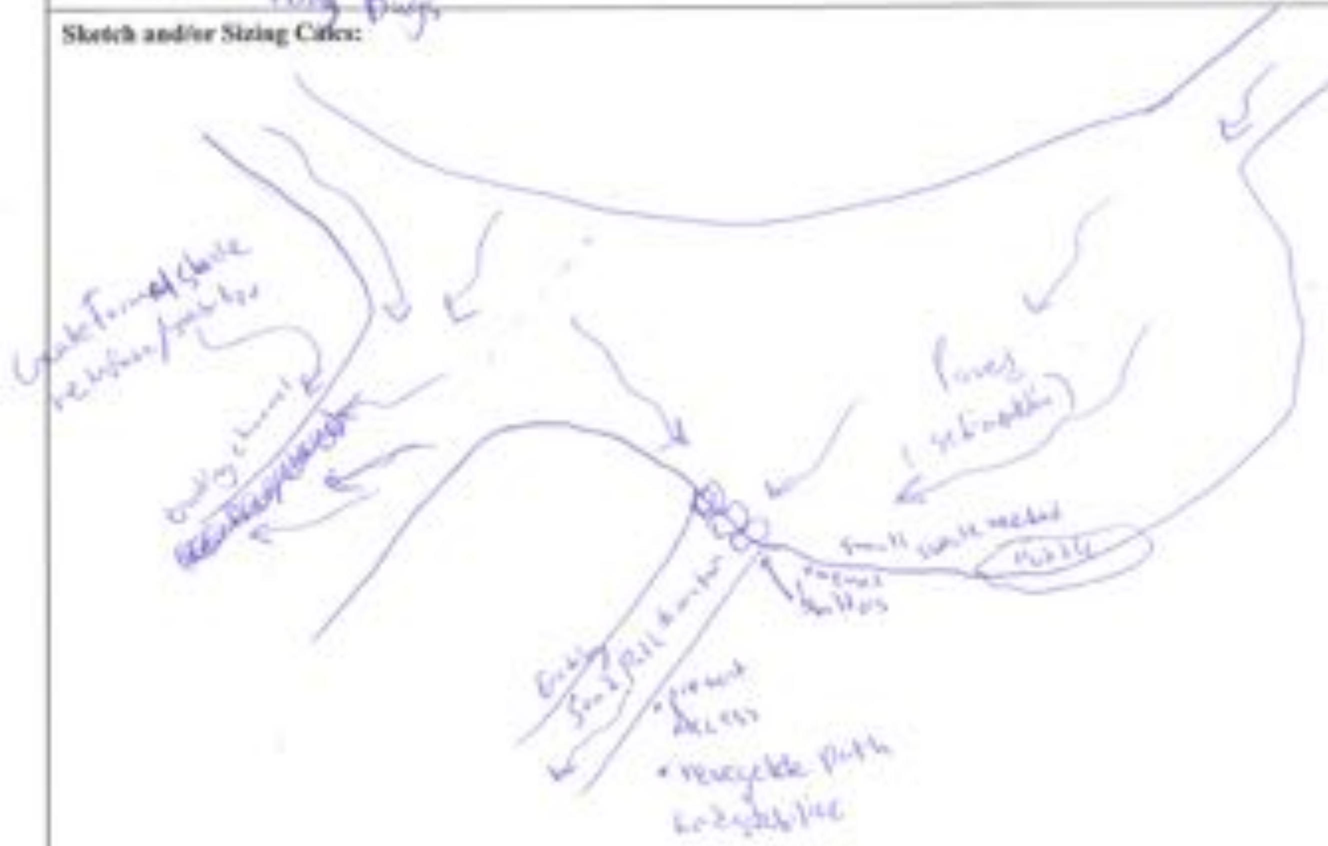
Candidate for pilot project ☐ yep, love it ☐ OK ☐ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☐ Confirm property ownership
☐ Confirm drainage area/impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☐ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☐ Perform test pits

Site ID ____________

- Fishing line disposal/receptacle
- Remove fishing net/traps and debris from water/banks
- Sweep pavement
- Dog bags

Sketch and/or Sizing Calcs:



Existing Head Available/Where Measured:

N/A

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

med-high feasibility

Thoughts on Maintenance Burden: ☒ Low ☐ Medium ☐ High


R3
Legend
Inlets (HW)
Stormdrain Outfalls (PEP)
Water Line
PEP Stormdrain Conveyance Systems
Parcels
N
Feet
50

☐ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☐ Park ☐ Agricultural ☒ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: ________

Is the site a hotspot? ☐ Yes ☒ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☒ Sediment ☐ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☒ Yes ☐ No ☐ Unknown: leaching catch basins

Soils: ☐ Unknown ☒ poor infiltration ☐ good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

• or wetland in Row/private property
• or mush/wetlands performing well
• two areas of pond ponding due to clogged or non-existent leachers

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☐ existing BMP upgrade ☐ new BMP

☐ bio/rain garden ☐ swale ☐ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☐ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☒ Other (describe): wet swale

Area Draining to Retrofit		
☐ Hotspot	☐ Individual rooftop	**Drainage Area to retrofit** = ______ acres/sq ft
☐ Parking Lot	☐ other small impervious area	**Imperviousness** = ______ %
☒ Street	☐ Pervious area	**Impervious Area** = ______ acres/sq ft
☐ Other (describe):		

Benefits of Retrofit (primary & secondary): ☐ Storage ☒ Water Quality ☐ Recharge
☐ Demonstration / Education ☐ Repair ☐ Other: ________

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☒ High water table
☒ Wetlands ☐ Other:

Describe conflicts: permits

NEXT STEPS

Candidate for pilot project ☐ yep, love it ☐ OK ☒ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept

☒ Confirm property ownership
☒ Confirm drainage area/impervious cover
☐ Confirm volume computations
☒ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☐ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☐ Perform test pits

• Ex. roadside wetlands providing good treatment/ storage currently

Sketch and/or Sizing Calcs:

Existing Head Available/Where Measured:

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

low priority, good feasibility

Thoughts on Maintenance Burden: ☐ Low ☒ Medium ☐ High

Legend

- Inlets (HW)
- Stormdrain Outfalls (PEP)
- Water Line
- PEP Stormdrain Conveyance Systems
- Parcels

N

70 Feet

Horsley Witten Group

Retrofit 4
Accabonac Harbor Subwatershed
East Hampton, NY

Date: 5/13/2011

☐ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☐ Park ☐ Agricultural ☒ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: ________

Is the site a hotspot? ☒ Yes ☐ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☒ Sediment ☐ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☐ Yes ☒ No ☐ Unknown:

Soils: ☐ Unknown ☒ poor infiltration ☐ good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

- paved road draining to sand/dirt parking lot
- Parking lot contributing sediment into harbor
- multiple ramps into water

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☐ existing BMP upgrade ☒ new BMP

☐ bio/rain garden ☐ swale ☐ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☒ reforestation ☐ impervious cover removal
☐ rainwater harvesting ☒ disconnection ☐ Other (describe):

Area Draining to Retrofit
☐ Hotspot ☐ Individual rooftop
☒ Parking Lot ☐ other small impervious area
☐ Street ☐ Pervious area
☐ Other (describe):

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = ____%

Impervious Area = _____ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☒ Water Quality ☐ Recharge
☒ Demonstration / Education ☒ Repair ☐ Other: ________

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☒ High water table
☐ Wetlands ☐ Other:

Describe conflicts:

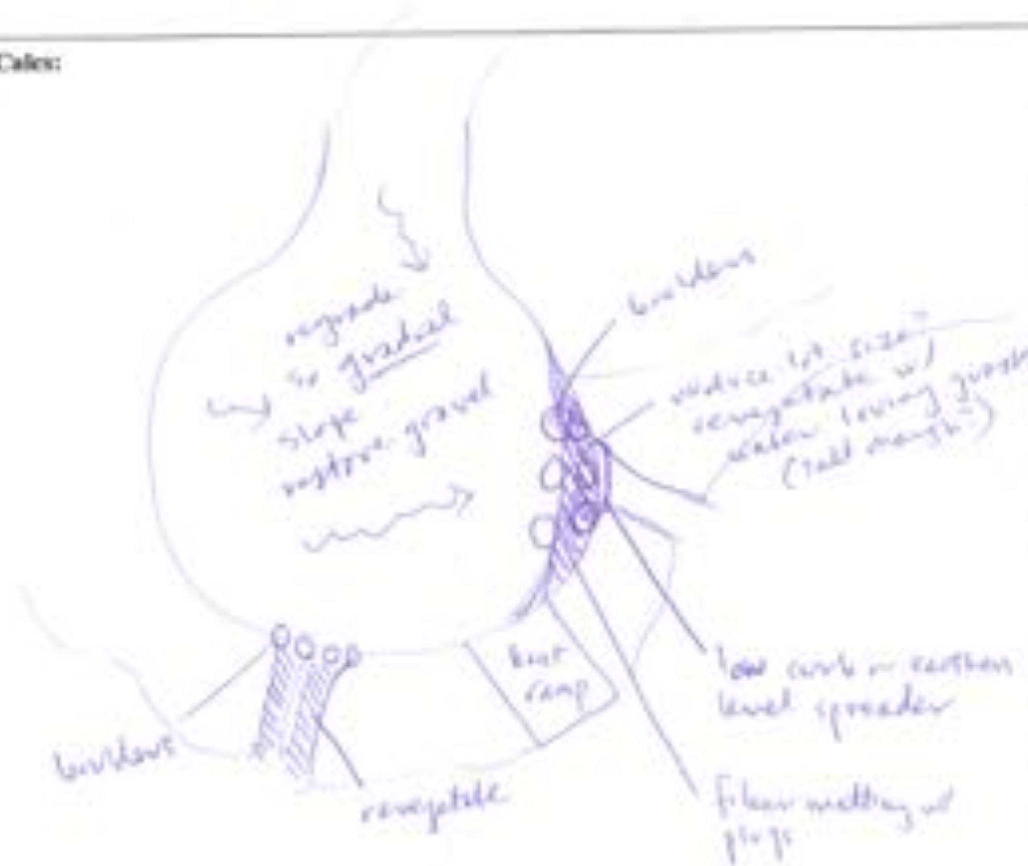
NEXT STEPS

Candidate for pilot project ☐ yep, love it ☐ OK ☐ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☒ Confirm property ownership
☒ Confirm drainage area/impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☐ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☐ Perform test pits

revegetate and prevent access w/ boulders
- doggie bags receptacle

Sketch and/or Sizing Calcs:



Existing Head Available/Where Measured: Y

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

good feasibility

Thoughts on Maintenance Burden: ☑ Low ☐ Medium ☐ High — [illegible]

Legend

- Inlets (HW)
- Stormdrain Outfalls (PEP)
- Water Line
- PEP Stormdrain Conveyance Systems
- Parcels

N

50 Feet

Horsley Witten Group

Retrofit 5
Accabonac Harbor Subwatershed
East Hampton, NY

☐ Single Family Residential ☐ Multi-Fam. Residential ☑ School ☐ Golf Course ☐ Park ☐ Agricultural ☑ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: ______

Is the site a hotspot? ☐ Yes ☑ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☐ Sediment ☐ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☐ Yes ☑ No ☐ Unknown:

Soils: ☐ Unknown ☐ poor infiltration ☐ good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

Drain inlet captures water from school side of school street

PROPOSED RETROFIT CONCEPT (CONT. ON BACK)

Proposed Retrofit Practice(s): ☐ existing BMP upgrade ☑ new BMP

☑ bio/rain garden ☑ swale ☑ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☐ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☐ Other (describe):

Area Draining to Retrofit
☐ Hotspot
☑ Parking Lot
☑ Street
☐ Other (describe):
☐ Individual rooftop
☐ other small impervious area
☐ Pervious area

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = 45 %

Impervious Area = ______ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☑ Water Quality ☐ Recharge
☑ Demonstration / Education ☐ Repair ☐ Other:

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☐ High water table
☐ Wetlands ☑ Other: Grade Change

Describe conflicts: On the S side of the CB the grade of the tree lawn slope increases

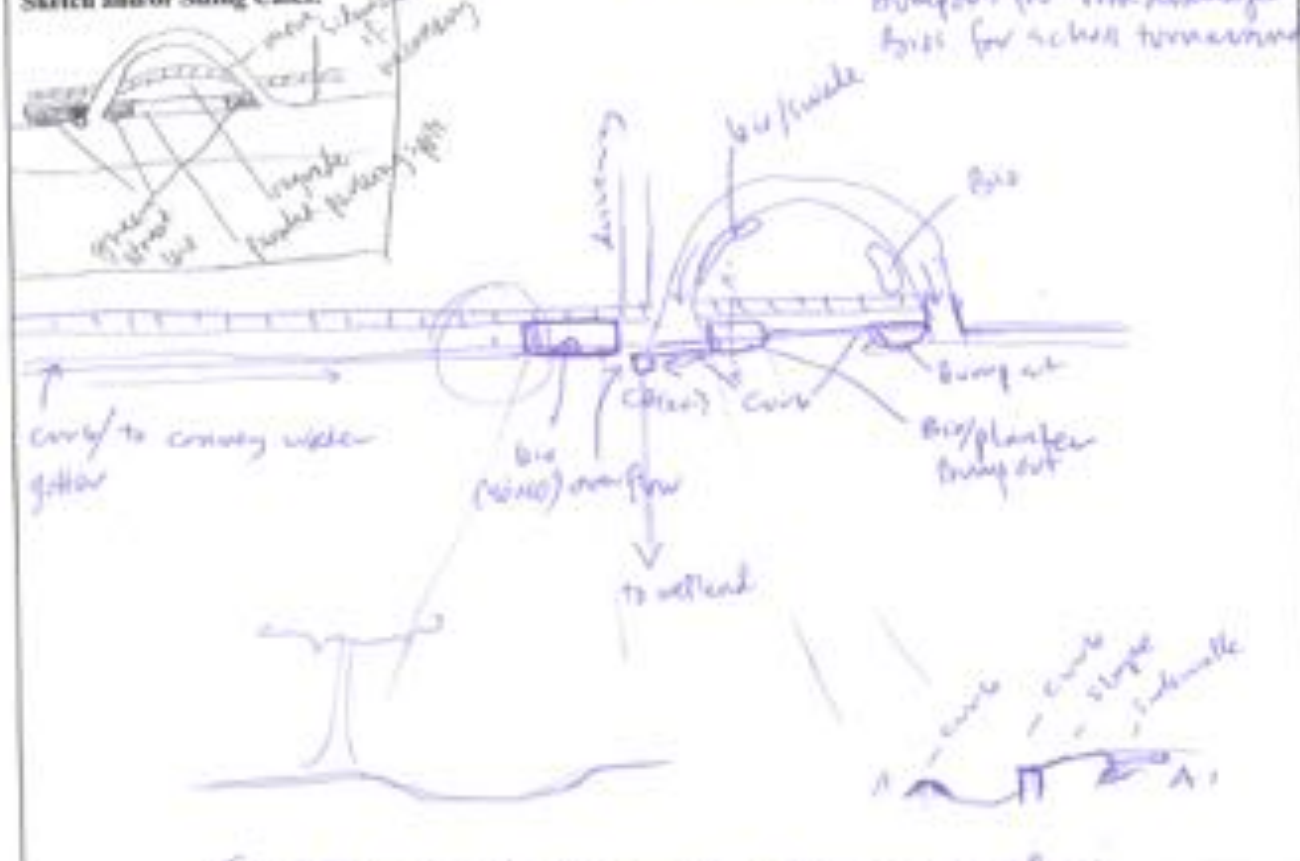
NEXT STEPS

Candidate for pilot project ☐ yep, love it ☐ OK ☐ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☐ Confirm property ownership
☑ Confirm drainage area/impervious cover
☑ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing as-builts/site plans
☑ Obtain detailed topography
☑ Confirm storm drain invert elevations
☐ Other:
☑ Obtain utility mapping
☐ Perform test pits

practice on S side in tree lawn/parking (...)
depth - 6" Planter box on S side instead of bio for
reducing steep grade change
• Possibly convert existing drain inlet to deep sump CB w/hood

Sketch and/or Sizing Calcs:



• Ex drain inlet possibly convert to deep sump CB w/hood

Existing Head Available/Where Measured: Not alot but good enough

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

Thoughts on Maintenance Burden: ☐ Low ☒ Medium ☐ High

Site ID__________

Legend

- Inlets (HW)
- Stormdrain Outfalls (PEP)
- Water Line
- PEP Stormdrain Conveyance Systems
- Parcels

N

250 Feet

Horsley Witten Group

Retrofit 7
Accabonac Harbor Subwatershed
East Hampton, NY

Date: 5/13/2011

Legend

- Inlets (HW)
- Stormdrain Outfalls (PEP)
- Water Line
- PEP Stormdrain Conveyance Systems
- Parcels

N

Feet

100

Land Use: ☒ Public ☐ Private ☐ Unknown:

☐ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☒ Park ☐ Agricultural ☐ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: ________

Is the site a hotspot? ☐ Yes ☒ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☒ Sediment ☐ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☐ Yes ☒ No ☐ Unknown:

Soils: ☐ Unknown ☐ poor infiltration ☒ good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☐ existing BMP upgrade ☒ new BMP

☒ bio/rain garden ☐ swale ☐ planter ☐ tree pits ☒ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☐ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☐ Other (describe):

Area Draining to Retrofit
☐ Hotspot ☐ Individual rooftop
☐ Parking Lot ☐ other small impervious area
☐ Street ☐ Pervious area
☐ Other (describe):

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = _____%

Impervious Area = _____ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☒ Water Quality ☐ Recharge
☐ Demonstration / Education ☐ Repair ☐ Other: ________

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☒ High water table
☒ Wetlands ☐ Other:

Describe conflicts:

NEXT STEPS

Candidate for pilot project ☐ yep, love it ☐ OK ☒ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☒ Confirm property ownership
☐ Confirm drainage area/impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☐ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☒ Perform test pits

• Overflow location/direction difficult

Sketch and/or Sizing Calcs:

Existing Head Available/Where Measured:

OK

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

[illegible]

Thoughts on Maintenance Burden: ☐ Low ☒ Medium ☐ High

☐ Single Family Residential ☐ Multi-Fam. Residential ☑ School ☐ Golf Course ☐ Park ☐ Agricultural ☐ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: ______

Is the site a hotspot? ☐ Yes ☑ No ☐ Unknown: Roof
Sources/pollutants observed? ☐ No ☐ Sediment ☐ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☑ Yes ☑ No ☐ Unknown: leaching CBs

Soils: ☐ Unknown ☐ poor infiltration ☑ good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

Existing downspouts from roof connect into pipe → storm (septic system?) system - probably infiltrates

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☐ existing BMP upgrade ☑ new BMP

☐ bio/rain garden ☐ swale ☐ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☐ impervious cover removal
☑ rainwater harvesting ☐ disconnection ☐ Other (describe):

Area Draining to Retrofit
☐ Hotspot ☑ Individual rooftop
☐ Parking Lot ☐ other small impervious area
☐ Street ☐ Pervious area
☐ Other (describe):

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = ____%

Impervious Area = _____ acres/sq ft

Benefits of Retrofit (primary & secondary): ☑ Storage ☐ Water Quality ☐ Recharge
☑ Demonstration / Education ☐ Repair ☐ Other:

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☐ High water table
☐ Wetlands ☐ Other:

Describe conflicts:

NEXT STEPS

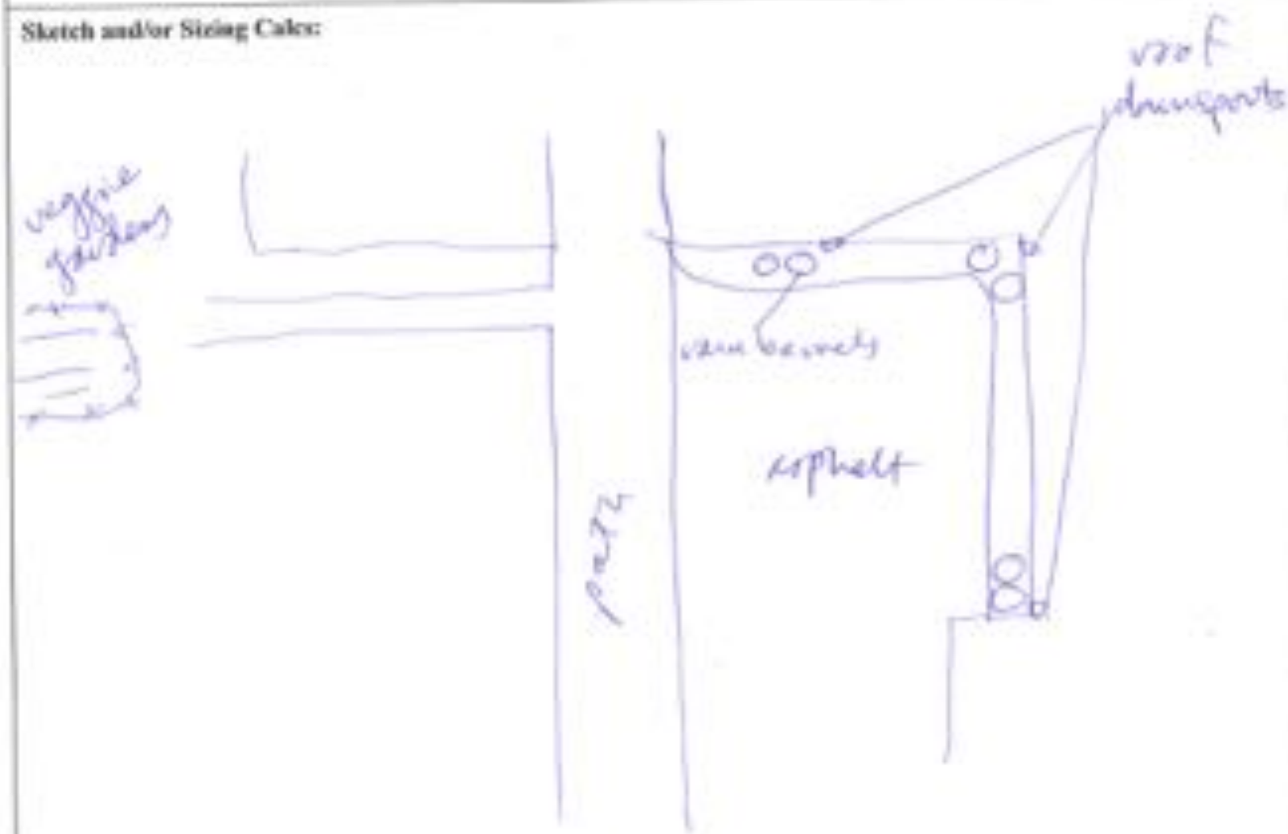
Candidate for pilot project ☐ yep, love it ☐ OK ☐ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☐ Confirm property ownership
☑ Confirm drainage area/impervious cover
☑ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☐ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☐ Perform test pits

Site ID ______________

school veggie garden is close by.

Sketch and/or Sizing Calcs:



Existing Head Available/Where Measured: N/A

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

good feasibility

Thoughts on Maintenance Burden: ☑ Low ☐ Medium ☐ High

Site ID______________

☐ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☑ Park ☐ Agricultural ☑ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: ______

Is the site a hotspot? ☐ Yes ☑ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☑ Sediment ☑ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☐ Yes ☑ No ☐ Unknown:

Soils: ☐ Unknown ☐ poor infiltration ☑ good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

3 leaching catchbasins -

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☒ existing BMP upgrade ☒ new BMP

☑ bio/rain garden ☑ swale ☐ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☐ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☐ Other (describe):

Area Draining to Retrofit
☐ Hotspot ☐ Individual rooftop
☐ Parking Lot ☐ other small impervious area
☒ Street ☐ Pervious area
☐ Other (describe):

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = ____%

Impervious Area = ______ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☒ Water Quality ☐ Recharge
☒ Demonstration / Education ☐ Repair ☐ Other:

Possible Conflicts due to: ☒ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☒ High water table
☒ Wetlands ☐ Other:

Describe conflicts:
Water table

NEXT STEPS

Candidate for pilot project ☐ yep, love it ☒ OK ☐ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☐ Confirm property ownership
☐ Confirm drainage area/impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☐ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☒ Perform test pits

Site ID ____ CE

or buffer berm for overflow ports into bio

Sketch and/or Sizing Calcs:

Existing Head Available/Where Measured:

Good

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

Good, water table [illegible] but infiltration looks good

Thoughts on Maintenance Burden: ☐ Low ☒ Medium ☐ High

Site ID__________


R8
Legend
Inlets (HW)
Stormdrain Outfalls (PEP)
Water Line
PEP Stormdrain Conveyance Systems
Parcels
N
Feet
100

Land Use: ☑ Public ☐ Private ☐ Unknown:

☐ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☐ Park ☐ Agricultural ☑ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☑ Other Church

Is the site a hotspot? ☐ Yes ☑ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☑ Sediment ☐ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☐ Yes ☑ No ☐ Unknown:

Soils: ☑ Unknown ☐ poor infiltration ☐ good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

partially pervious parking lot - (gravel) - poor drainage - ponding near ex. leaching CB
Extra pipe inlet from Fireplace (in lot) to wetland

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☑ existing BMP upgrade ☑ new BMP

☑ bio/rain garden ☐ swale ☐ planter ☐ tree pits ☐ infiltration ☑ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☐ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☐ Other (describe):

Area Draining to Retrofit
☐ Hotspot ☑ Individual rooftop
☑ Parking Lot ☐ other small impervious area
☑ Street ☐ Pervious area
☐ Other (describe):

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = ______%

Impervious Area = ______ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☑ Water Quality ☐ Recharge
☐ Demonstration / Education ☐ Repair ☐ Other:

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☑ High water table
☑ Wetlands ☐ Other:

Describe conflicts:

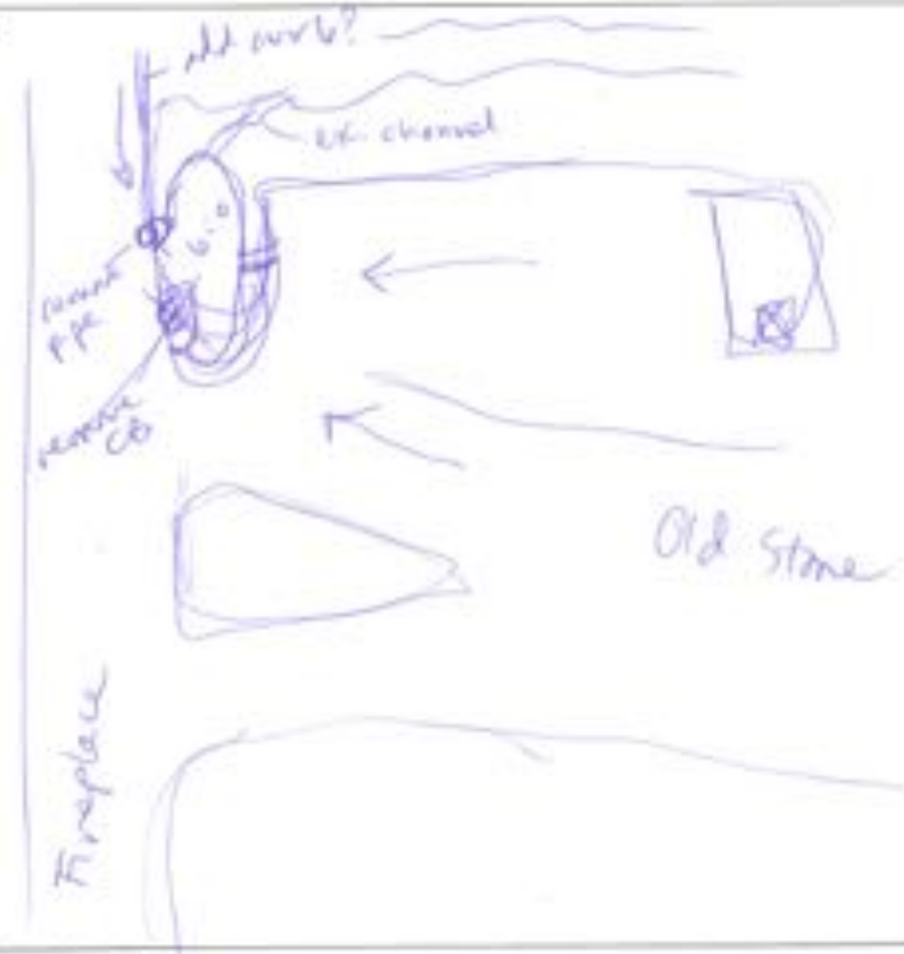
NEXT STEPS

Candidate for pilot project ☐ yep, love it ☑ OK ☐ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☑ Confirm property ownership
☐ Confirm drainage area/impervious cover
☐ Confirm volume computations
☑ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☐ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☐ Perform test pits

leaching CB b/c overflows to ex. drainage channel
Bar in ROW (+ private prop.)

Sketch and/or Sizing Calcs:



Existing Head Available/Where Measured:

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

Thoughts on Maintenance Burden: ☐ Low ☐ Medium ☐ High

Land Use: [x] Public [ ] Private [ ] Unknown:

[ ] Single Family Residential [ ] Multi-Fam. Residential [ ] School [ ] Golf Course [x] Park [ ] Agricultural [ ] Road
[ ] Commercial/Industrial [ ] Resort [ ] Marina [ ] Other: ________

Is the site a hotspot? [x] Yes [ ] No [ ] Unknown:
Sources/pollutants observed? [ ] No [x] Sediment [x] Nutrients/organics [ ] Oil/grease [ ] Trash/Floatables

Existing Stormwater BMP on site? [ ] Yes [x] No [ ] Unknown:

Soils: [ ] Unknown [ ] poor infiltration [x] good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

None, [illegible] drainage

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): [ ] existing BMP upgrade [x] new BMP

[x] bio/rain garden [ ] swale [ ] planter [ ] tree pits [ ] infiltration [ ] permeable paver [ ] sand filter [ ] pond
[ ] constructed wetland [ ] proprietary practice [ ] soil amendments [ ] reforestation [ ] impervious cover removal
[ ] rainwater harvesting [ ] disconnection [ ] Other (describe):

Area Draining to Retrofit
[ ] Hotspot
[ ] Parking Lot
[x] Street
[ ] Other (describe):
[ ] Individual rooftop
[ ] other small impervious area
[ ] Pervious area

Drainage Area to retrofit = [illegible] acres/sq ft

Imperviousness = ____%

Impervious Area = ____ acres/sq ft

Benefits of Retrofit (primary & secondary): [ ] Storage [x] Water Quality [x] Recharge
[x] Demonstration / Education [ ] Repair [ ] Other:

Possible Conflicts due to: [ ] Soils [ ] Access
[ ] Adjacent Land Use [ ] Existing Utilities
[ ] Contamination [ ] High water table
[x] Wetlands [ ] Other:

Describe conflicts:
[illegible]

NEXT STEPS

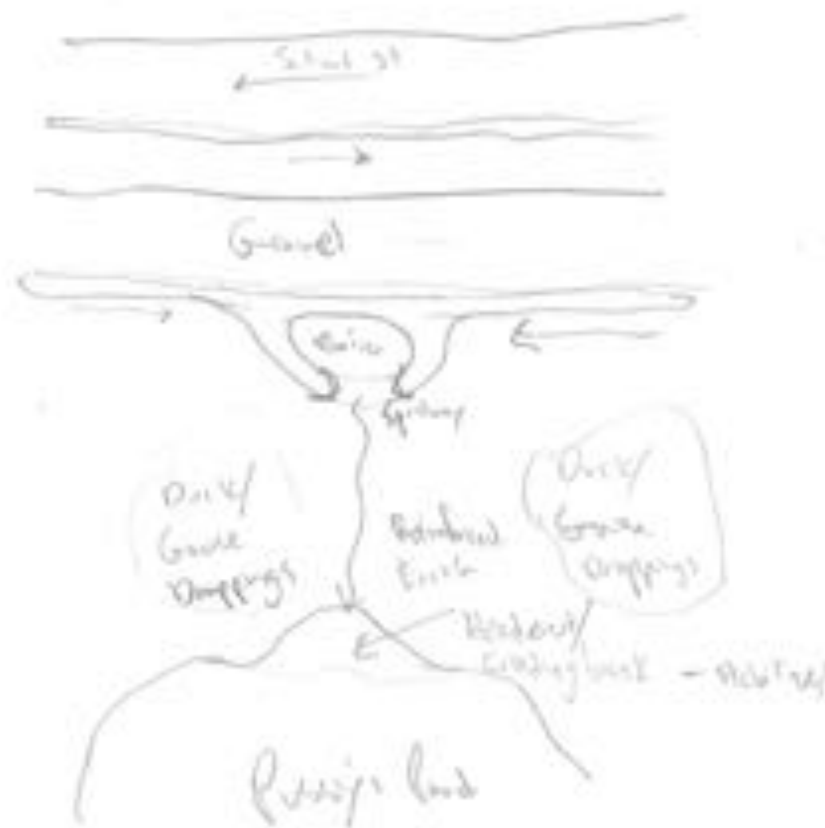
Candidate for pilot project [x] yep, love it [ ] OK [ ] undecided [ ] no, but keep listed [ ] no way

Follow-up needed to Complete Field Concept
[ ] Confirm property ownership
[ ] Confirm drainage area/impervious cover
[ ] Confirm volume computations
[x] Complete concept sketch
[ ] Obtain existing as-builts/site plans
[ ] Obtain detailed topography
[ ] Confirm storm drain invert elevations
[ ] Other:
[ ] Obtain utility mapping
[x] Perform test pits

Site ID 4C

· Stabilize headcut
· Manage Geese/Ducks

Sketch and/or Sizing Calcs:



Existing Head Available/Where Measured:

Good

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

· Small drainage area infeasible
· Temp parking lots

Thoughts on Maintenance Burden: ☐ Low ☒ Medium ☐ High

Land Use: ☐ Public ☑ Private ☐ Unknown:

☐ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☐ Park ☐ Agricultural ☐ Road
☑ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: ________

Is the site a hotspot? ☐ Yes ☐ No ☑ Unknown: Dumpster, restaurant, underground tanks?
Sources/pollutants observed? ☐ No ☑ Sediment ☐ Nutrients/organics ☑ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☐ Yes ☑ No ☐ Unknown:

Soils: ☐ Unknown ☐ poor infiltration ☑ good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

impervious parking draining towards stream
roof runoff + road runoff

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☐ existing BMP upgrade ☑ new BMP

☑ bio/rain garden ☐ swale ☐ planter ☐ tree pits ☐ infiltration ☑ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☑ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☐ Other (describe):

Area Draining to Retrofit
☑ Hotspot ☑ Individual rooftop
☑ Parking Lot ☐ other small impervious area
☑ Street ☐ Pervious area
☐ Other (describe):

Drainage Area to retrofit = ______ acres/sq ft
Imperviousness = _____%
Impervious Area = _____ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☑ Water Quality ☐ Recharge
☐ Demonstration / Education ☐ Repair ☐ Other: ________

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☑ High water table
☑ Wetlands ☑ Other: Private Property

Describe conflicts: Current picnic area but only a small area of whole picnic area

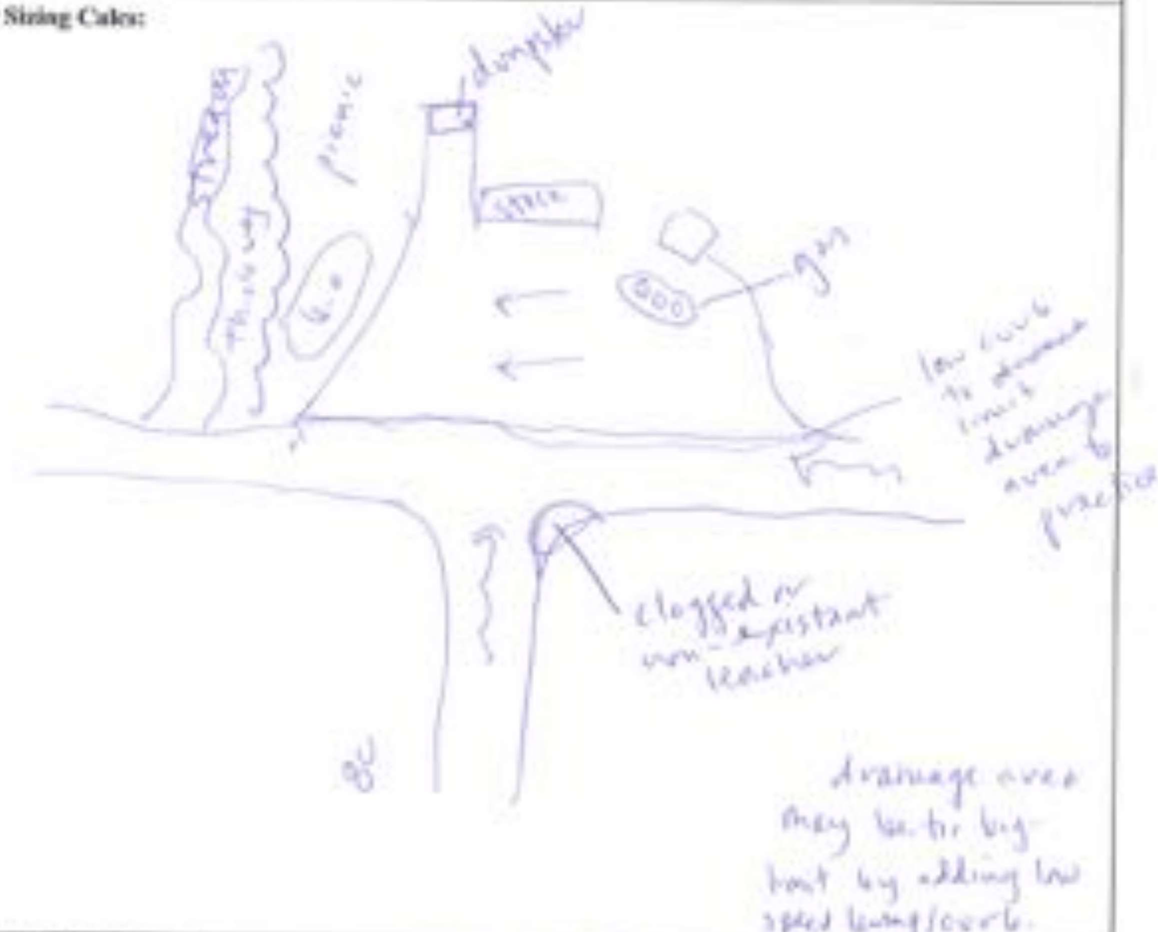
NEXT STEPS

Candidate for pilot project ☐ yep, love it ☐ OK ☐ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☐ Confirm property ownership
☑ Confirm drainage area/impervious cover
☐ Confirm volume computations
☑ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☐ Confirm storm drain invert elevations
☑ Other: Confirm underground fuel tanks
☑ Obtain utility mapping
☐ Perform test pits

(existing))

Sketch and/or Sizing Calcs:



Existing Head Available/Where Measured: Very good!

Initial Feasibility and Construction Considerations/ Design or Delivery Notes: Private property but spot picnic

Thoughts on Maintenance Burden: ☐ Low ☒ Medium ☐ High

Land Use: ☐ Public ☑ Private ☐ Unknown:

☐ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☐ Park ☐ Agricultural ☑ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☑ Other: Meeting Hall

Is the site a hotspot? ☐ Yes ☐ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☑ Sediment ☐ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☑ Yes ☐ No ☐ Unknown: Leaching CB

Soils: ☑ Unknown ☐ poor infiltration ☐ good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

One leaching CB roads and Hall parking drain to

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☑ existing BMP upgrade ☐ new BMP

☑ bio/rain garden ☑ swale ☐ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☐ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☐ Other (describe):

Area Draining to Retrofit
☐ Hotspot
☑ Parking Lot
☑ Street
☐ Other (describe):
☑ Individual rooftop
☐ other small impervious area
☑ Pervious area

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = _____%

Impervious Area = _____ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☑ Water Quality ☐ Recharge
☐ Demonstration / Education ☐ Repair ☐ Other:

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☑ High water table
☐ Wetlands ☐ Other: Private!

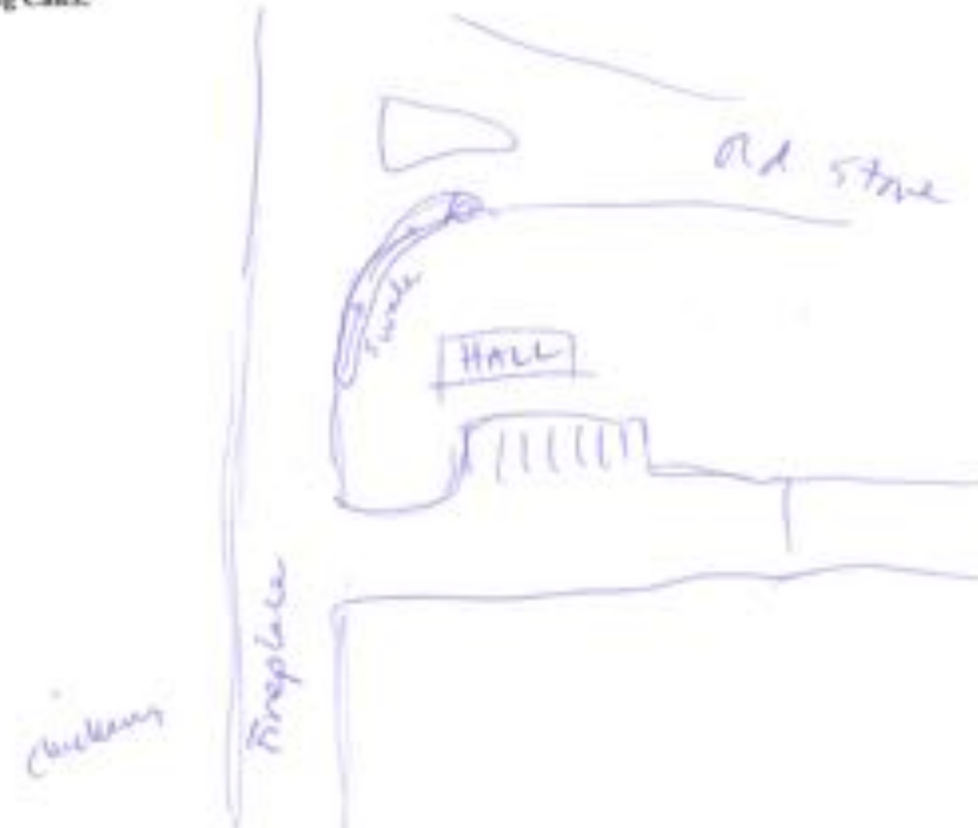
Describe conflicts: Private property? Meeting Hall possible drainage/road easement

NEXT STEPS

Candidate for pilot project ☐ yep, love it ☐ OK ☐ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☑ Confirm property ownership
☑ Confirm drainage area/impervious cover
☐ Confirm volume computations
☑ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☐ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☐ Perform test pits

Sketch and/or Sizing Calcs:



Existing Head Available/Where Measured:

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

Thoughts on Maintenance Burden: ☐ Low ☐ Medium ☐ High

Land Use: ☐ Public ☐ Private ☐ Unknown

☐ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☐ Park ☐ Agricultural ☒ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: ________

Is the site a hotspot? ☐ Yes ☒ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☐ Sediment ☐ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☐ Yes ☐ No ☒ Unknown: *leaching CB?*

Soils: ☐ Unknown ☐ poor infiltration ☐ good infiltration *C soils*

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

Fireplace: Talmage drain to 2 CB on Talmage
Not sure if leaching. (water 2-3' down in CB)
structure connected by 12" CMP

Proposed Retrofit Concept *(Cont. on Back)*

Proposed Retrofit Practice(s): ☐ existing BMP upgrade ☒ new BMP

☐ bio/rain garden ☒ swale ☒ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☒ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☐ Other (describe):

Area Draining to Retrofit
☐ Hotspot ☐ Individual rooftop
☐ Parking Lot ☐ other small impervious area
☒ Street ☐ Pervious area
☐ Other (describe):

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = _____%

Impervious Area = _____ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☒ Water Quality ☐ Recharge
☐ Demonstration / Education ☐ Repair ☐ Other: ________

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☒ High water table
☐ Wetlands ☐ Other:

Describe conflicts:

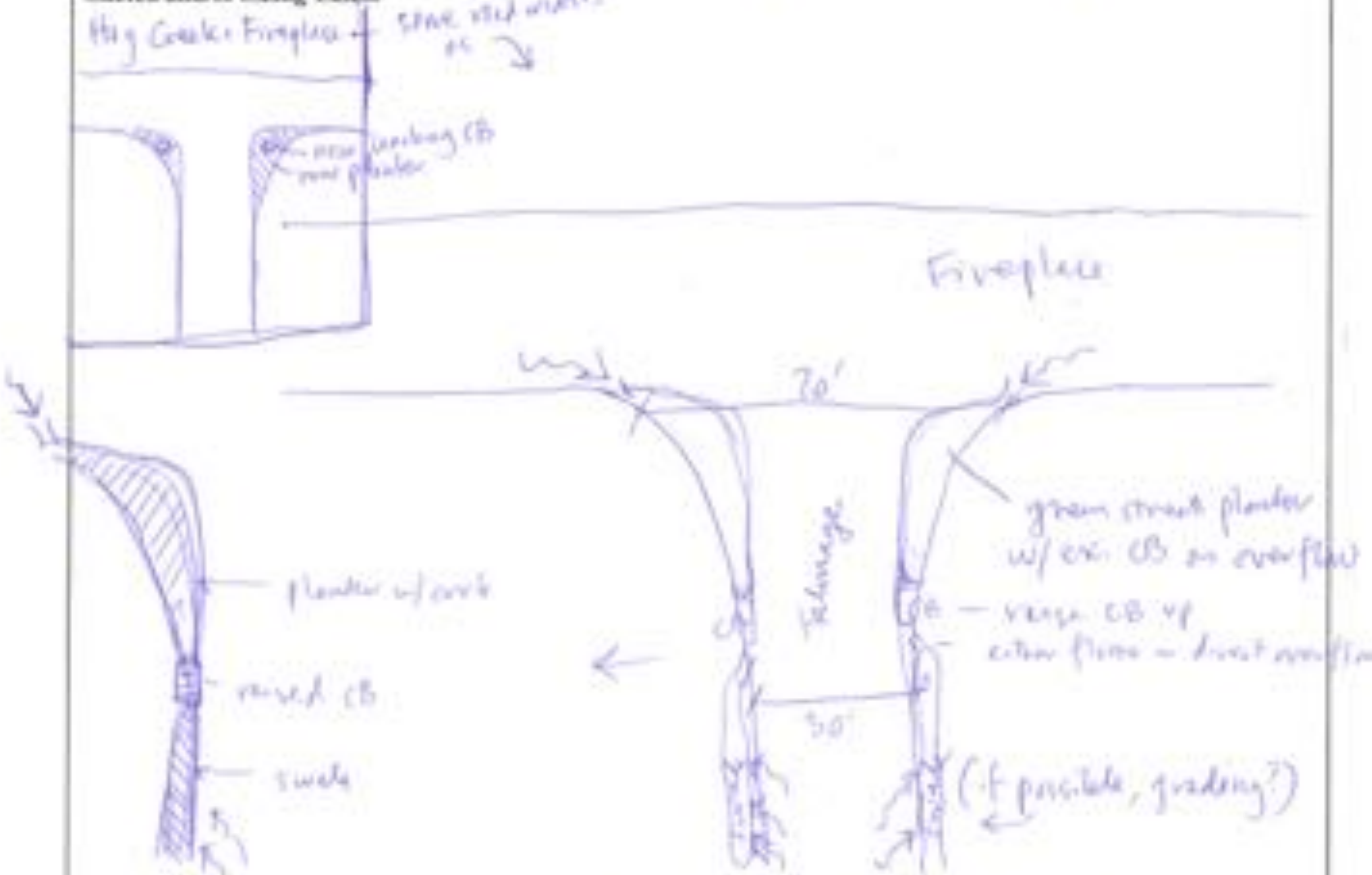
Next Steps

Candidate for pilot project ☐ yep, love it ☐ OK ☐ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☐ Confirm property ownership
☒ Confirm drainage area/impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☒ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☐ Perform test pits

(Maybe be able to attract overflow to existing CB for swale + planters)
- build swales on Talmage, planter on Fireplace

Sketch and/or Sizing Calcs:

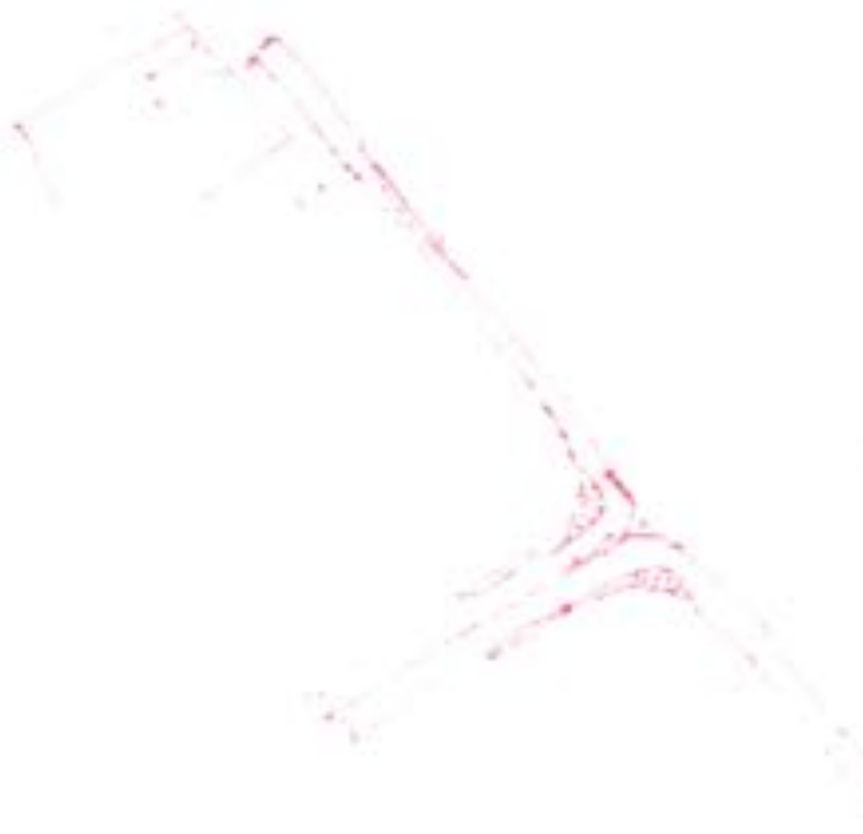


Existing Head Available/Where Measured: Unsure - yes for fireplace planters possible for Talmage

Initial Feasibility and Construction Considerations/ Design or Delivery Notes: good feas.

Thoughts on Maintenance Burden: ☐ Low ☑ Medium ☐ High


Legend
Inlets (HW)
Stormdrain Outfalls (PEP)
Water Line
PEP Stormdrain Conveyance Systems
Parcels
N
Feet
100



Land Use: ☑ Public ☐ Private ☐ Unknown:

☐ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☐ Park ☐ Agricultural ☑ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: ________

Is the site a hotspot? ☐ Yes ☑ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☑ Sediment ☐ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☑ Yes ☐ No ☐ Unknown: leaching CB

Soils: ☐ Unknown ☑ poor infiltration ☐ good infiltration C-C-15

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

Fireplace + Underwood drain to leaching CB at intersection. Only one CB on S side of Underwood. Further up Underwood water drains to two leaching catch basins also collecting water from Norfolk

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☑ existing BMP upgrade ☐ new BMP

☐ bio/rain garden ☐ swale ☑ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☑ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☑ Other (describe): Deep Sump

Area Draining to Retrofit
☐ Hotspot ☐ Individual rooftop
☐ Parking Lot ☐ other small impervious area
☑ Street ☐ Pervious area
☐ Other (describe):

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = _____%

Impervious Area = _____ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☑ Water Quality ☐ Recharge
☐ Demonstration / Education ☐ Repair ☐ Other: ____________

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☑ High water table
☐ Wetlands ☐ Other:

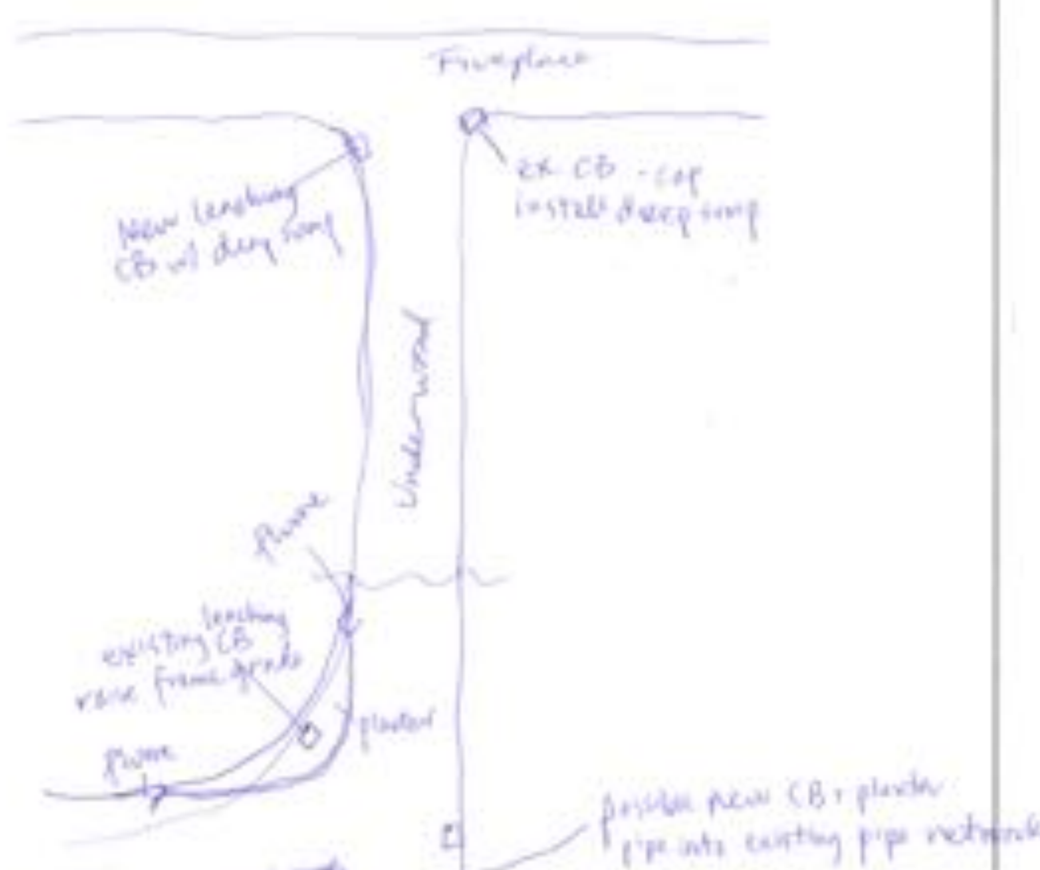
Describe conflicts:

NEXT STEPS

Candidate for pilot project ☐ yep, love it ☐ OK ☐ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☐ Confirm property ownership
☑ Confirm drainage area/impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☐ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☐ Perform test pits

Sketch and/or Sizing Calcs:



Existing Head Available/Where Measured:

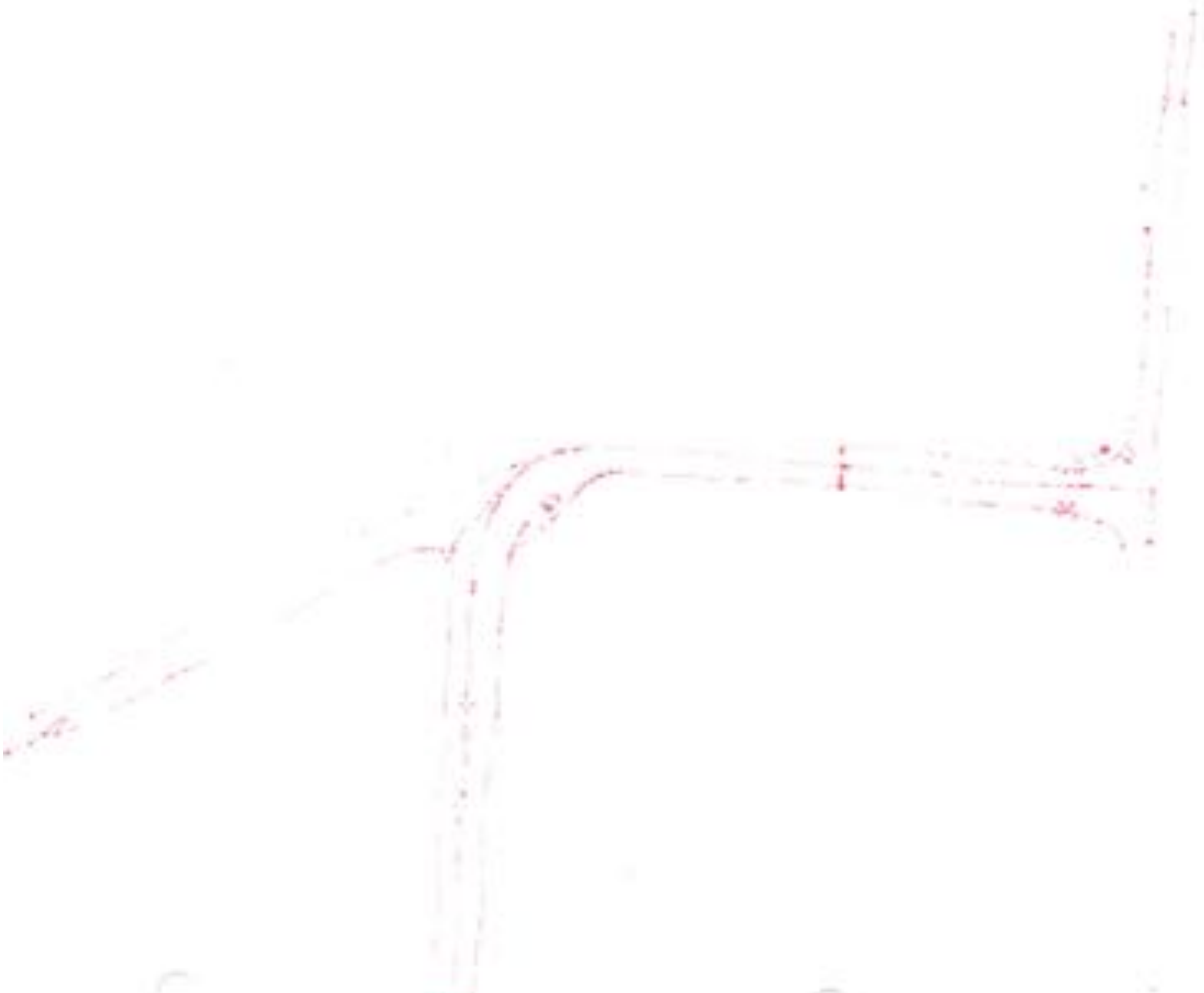
yes No

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

large drainage area - possible (and feas.)

Thoughts on Maintenance Burden: ☐ Low ☑ Medium ☐ High


Legend
Inlets (HW)
Stormdrain Outfalls (PEP)
Water Line
PEP Stormdrain Conveyance Systems
Parcels
N
Feet
100



☐ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☐ Park ☐ Agricultural ☑ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: ______

Is the site a hotspot? ☐ Yes ☑ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☑ Sediment ☐ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☐ Yes ☑ No ☐ Unknown:

Soils: ☐ Unknown ☐ poor infiltration ☑ good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

Water flows over turn around pavement onto sand causing erosion. Trucks drive down this "trail" to water.

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☐ existing BMP upgrade ☑ new BMP

☐ bio/rain garden ☑ swale ☐ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☑ reforestation ☐ impervious cover removal
☐ rainwater harvesting ☑ disconnection ☐ Other (describe):

Area Draining to Retrofit
☐ Hotspot ☐ Individual rooftop
☑ Parking Lot ☐ other small impervious area
☑ Street ☐ Pervious area
☐ Other (describe):

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = ____%

Impervious Area = ____ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☑ Water Quality ☐ Recharge
☐ Demonstration / Education ☐ Repair ☐ Other: ______

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☑ High water table
☐ Wetlands ☐ Other:

Describe conflicts:

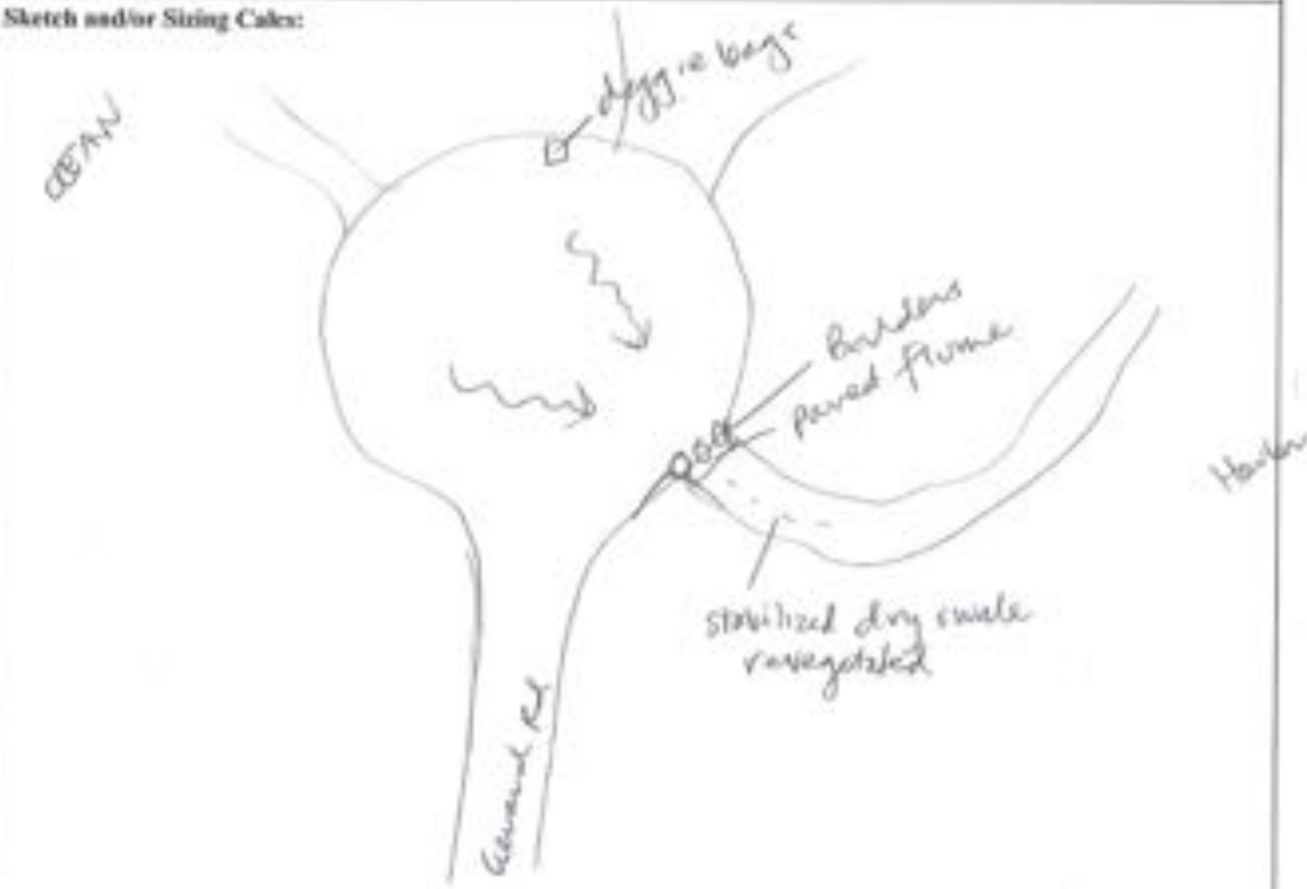
NEXT STEPS

Candidate for pilot project ☐ yep, love it ☐ OK ☐ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☐ Confirm property ownership
☑ Confirm drainage area/impervious cover
☐ Confirm volume computations
☑ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☐ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☐ Perform test pits

- doggie bag receptacle

Sketch and/or Sizing Calcs:



Existing Head Available/Where Measured:

Y

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

good

Thoughts on Maintenance Burden: ☑ Low ☐ Medium ☐ High

Legend

- Inlets (HW)
- Stormdrain Outfalls (PEP)
- Water Line
- PEP Stormdrain Conveyance Systems
- Parcels

N

50 Feet

Horsley Witten Group

R15 RF-12

Accabonac Harbor Subwatershed
East Hampton, NY

Date: 5/13/2011

☐ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☐ Park ☐ Agricultural ☑ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: ______

Is the site a hotspot? ☐ Yes ☑ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☐ Sediment ☐ Nutrients/organics ☑ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☑ Yes ☐ No ☐ Unknown: leaching CB – new

Soils: ☐ Unknown ☐ poor infiltration ☑ good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

New leaching catch basins (large) and curb along road - bike paths? /shoulder

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☑ Existing BMP upgrade ☐ new BMP

☑ bio/rain garden ☐ swale ☐ planter ☑ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☑ proprietary practice ☐ soil amendments ☐ reforestation ☐ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☑ Other (describe): deep sump

Area Draining to Retrofit
☐ Hotspot ☐ Individual rooftop
☐ Parking Lot ☐ other small impervious area
☑ Street ☐ Pervious area
☐ Other (describe):

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = ______ %

Impervious Area = ______ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☑ Water Quality ☐ Recharge
☐ Demonstration / Education ☐ Repair ☐ Other: ______

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☐ High water table
☐ Wetlands ☐ Other:

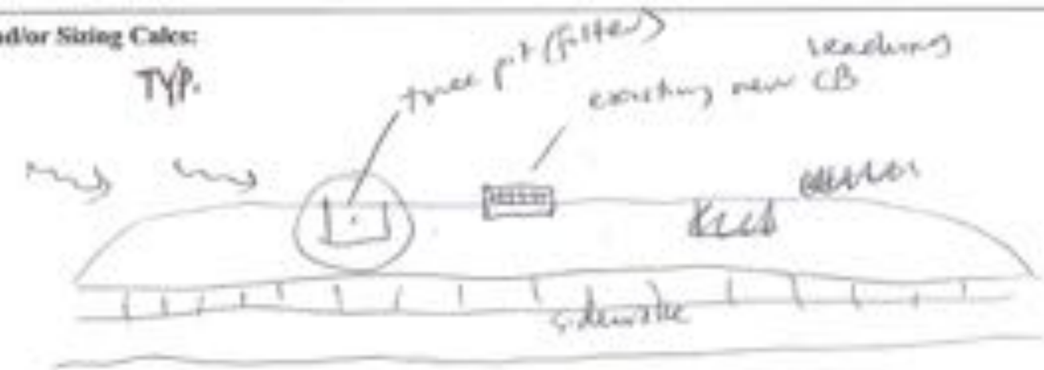
Describe conflicts: Just added new CBs and curbs

NEXT STEPS

Candidate for pilot project ☐ yep, love it ☐ OK ☐ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☐ Confirm property ownership
☑ Confirm drainage area/impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing as-builts/site plans
☑ Obtain detailed topography
☐ Confirm storm drain invert elevations
☐ Other:
☑ Obtain utility mapping
☐ Perform test pits

Sketch and/or Sizing Calcs:



Alternate: ① deep sump CB - (cap leaching CB)

② (swales to new/few CBs where grade allows)

③ oil/water separator

Existing Head Available/Where Measured: Y

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

low feas. due to cost and new CBs/grading

higher feas. on road N of Woodbine intersection.

Thoughts on Maintenance Burden: ☐ Low ☒ Medium ☐ High

Legend

- Inlets (HW)
- Stormdrain Outfalls (PEP)
- Water Line
- PEP Stormdrain Conveyance Systems
- Parcels

N

100 Feet

Horsley Witten Group

Retrofit 13
Accabonac Harbor Subwatershed
East Hampton, NY

Date: 5/13/2011

Land Use: [x] Public [ ] Private [ ] Unknown:

[ ] Single Family Residential [ ] Multi-Fam. Residential [ ] School [ ] Golf Course [ ] Park [ ] Agricultural [ ] Road
[ ] Commercial/Industrial [ ] Resort [ ] Marina [x] Other: Parking lot

Is the site a hotspot? [x] Yes [ ] No [ ] Unknown:
Sources/pollutants observed? [x] No [ ] Sediment [ ] Nutrients/organics [x] Oil/grease [ ] Trash/Floatables

Existing Stormwater BMP on site? [x] Yes [ ] No [ ] Unknown: leachers

Soils: [x] Unknown [ ] poor infiltration [ ] good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

- large impervious areas - used parking
- diesel storage
- truck washing
- many ex. leachers

- parking lot graded to leachers

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): [ ] existing BMP upgrade [x] new BMP

[ ] bio/rain garden [ ] swale [ ] planter [ ] tree pits [ ] infiltration [x] permeable paver [ ] sand filter [ ] pond
[ ] constructed wetland [ ] proprietary practice [ ] soil amendments [ ] reforestation [x] impervious cover removal
[ ] rainwater harvesting [ ] disconnection [ ] Other (describe):

Area Draining to Retrofit
[ ] Hotspot
[x] Parking Lot
[ ] Street
[ ] Other (describe):
[x] Individual rooftop
[ ] other small impervious area
[ ] Pervious area

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = ______ %

Impervious Area = ______ acres/sq ft

Benefits of Retrofit (primary & secondary): [ ] Storage [x] Water Quality [ ] Recharge
[ ] Demonstration / Education [ ] Repair [ ] Other: ______

Possible Conflicts due to: [ ] Soils [ ] Access
[ ] Adjacent Land Use [ ] Existing Utilities
[ ] Contamination [ ] High water table
[ ] Wetlands [x] Other: Land Use

Describe conflicts:

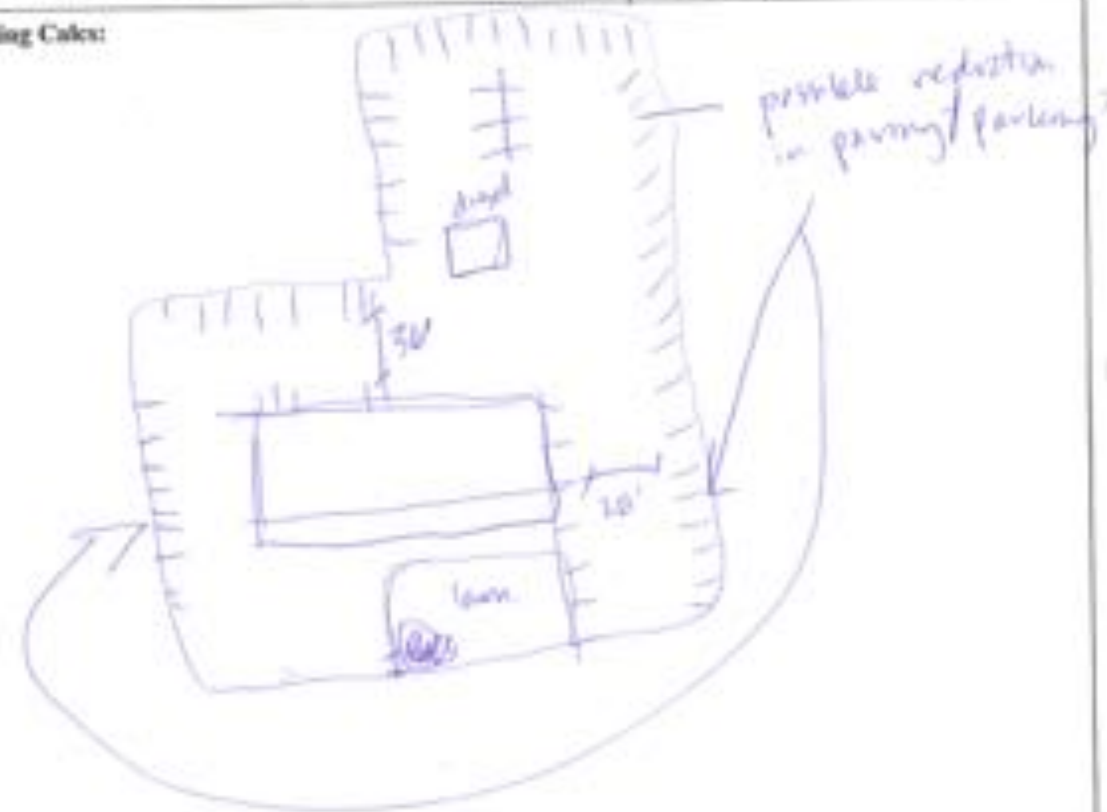
NEXT STEPS

Candidate for pilot project [ ] yep, love it [ ] OK [ ] undecided [ ] no, but keep listed [ ] no way

Follow-up needed to Complete Field Concept
[ ] Confirm property ownership
[x] Confirm drainage area/impervious cover
[ ] Confirm volume computations
[ ] Complete concept sketch
[x] Obtain existing as-builts/site plans
[ ] Obtain detailed topography
[ ] Confirm storm drain invert elevations
[ ] Other:
[ ] Obtain utility mapping
[ ] Perform test pits

- eliminate parking spaces/impervious surface — [illegible] reduction
- porous pavement areas?
- add oil/water separators / deep sumps

Sketch and/or Sizing Calcs:



Existing Head Available/Where Measured: N/A

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

unknown

Thoughts on Maintenance Burden: ☑ Low ☐ Medium ☐ High


Springs Fire Dept
Legend
Inlets (HW)
Stormdrain Outfalls (PEP)
Water Line
PEP Stormdrain Conveyance Systems
Parcels
N
Feet
75

☑ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☐ Park ☐ Agricultural ☐ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: ________

Is the site a hotspot? ☐ Yes ☑ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☑ Sediment ☐ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☐ Yes ☑ No ☐ Unknown:

Soils: ☐ Unknown ☐ poor infiltration ☑ good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

water flows down hilly roads + driveways -
oversized roads and turnaround (30'± ROW)

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☐ existing BMP upgrade ☑ new BMP

☑ bio/rain garden ☑ swale ☐ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☑ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☑ Other (describe): leaching CB

Area Draining to Retrofit
☐ Hotspot ☐ Individual rooftop
☐ Parking Lot ☐ other small impervious area
☑ Street ☐ Pervious area
☐ Other (describe):

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = ____%

Impervious Area = ____ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☑ Water Quality ☐ Recharge
☐ Demonstration / Education ☐ Repair ☐ Other: ________

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☑ High water table
☐ Wetlands ☐ Other:

Describe conflicts:

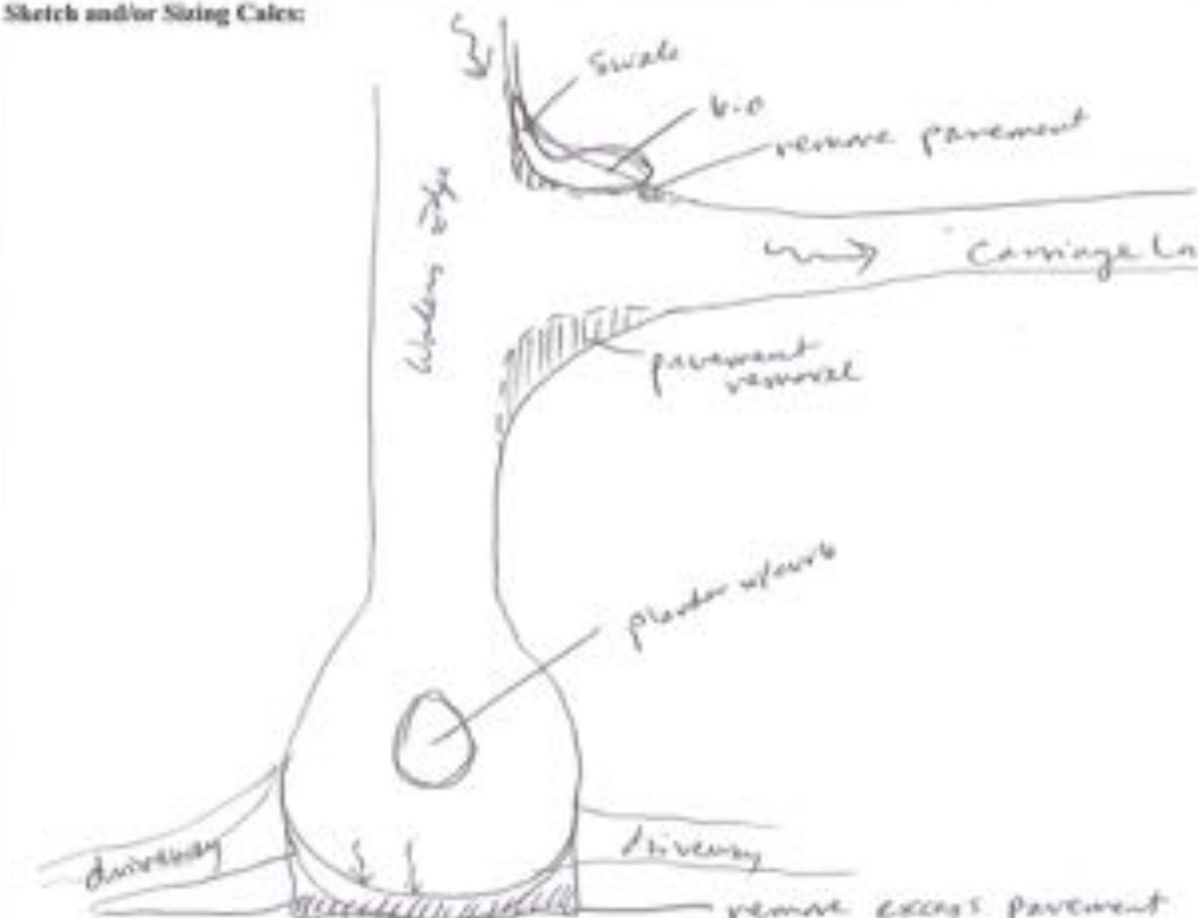
NEXT STEPS

Candidate for pilot project ☐ yep, love it ☐ OK ☐ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☑ Confirm property ownership (ROW)
☑ Confirm drainage area/impervious cover
☐ Confirm volume computations
☑ Complete concept sketch
☐ Obtain existing as-builts/site plans
☑ Obtain detailed topography
☐ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☑ Perform test pits

- reduce pavement on back edge - no curb.
- widen edge rd draining to Carriage Ln
  - reduce pavement at intersection
  - swale to bio w/ leaching cb as overflow

Sketch and/or Sizing Calcs:



Existing Head Available/Where Measured:

y

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

good feasibility, med. priority

Thoughts on Maintenance Burden: ☐ Low ☑ Medium ☐ High

Land Use: [x] Public [ ] Private [ ] Unknown:

[ ] Single Family Residential [ ] Multi-Fam. Residential [ ] School [ ] Golf Course [ ] Park [ ] Agricultural [ ] Road [ ] Commercial/Industrial [ ] Resort [ ] Marina [ ] Other: ________

Is the site a hotspot? [ ] Yes [x] No [ ] Unknown:
Sources/pollutants observed? [ ] No [x] Sediment [ ] Nutrients/organics [ ] Oil/grease [ ] Trash/Floatables

Existing Stormwater BMP on site? [ ] Yes [x] No [ ] Unknown:

Soils: [ ] Unknown [ ] poor infiltration [ ] good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

- Street drainage to boat ramp
- ex CB
- lots of pavement

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): [ ] existing BMP upgrade [x] new BMP

[x] bio/rain garden [x] swale [ ] planter [ ] tree pits [ ] infiltration [ ] permeable paver [ ] sand filter [ ] pond [ ] constructed wetland [ ] proprietary practice [ ] soil amendments [ ] reforestation [x] impervious cover removal [ ] rainwater harvesting [ ] disconnection [ ] Other (describe):

Area Draining to Retrofit
[ ] Hotspot
[ ] Parking Lot
[x] Street
[ ] Other (describe):
[x] Individual rooftop
[ ] other small impervious area
[ ] Pervious area

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = _____%

Impervious Area = _____ acres/sq ft

Benefits of Retrofit (primary & secondary): [ ] Storage [x] Water Quality [ ] Recharge [x] Demonstration / Education [ ] Repair [ ] Other:

Possible Conflicts due to: [ ] Soils [ ] Access [ ] Adjacent Land Use [ ] Existing Utilities [ ] Contamination [x] High water table [x] Wetlands [ ] Other:

Describe conflicts:

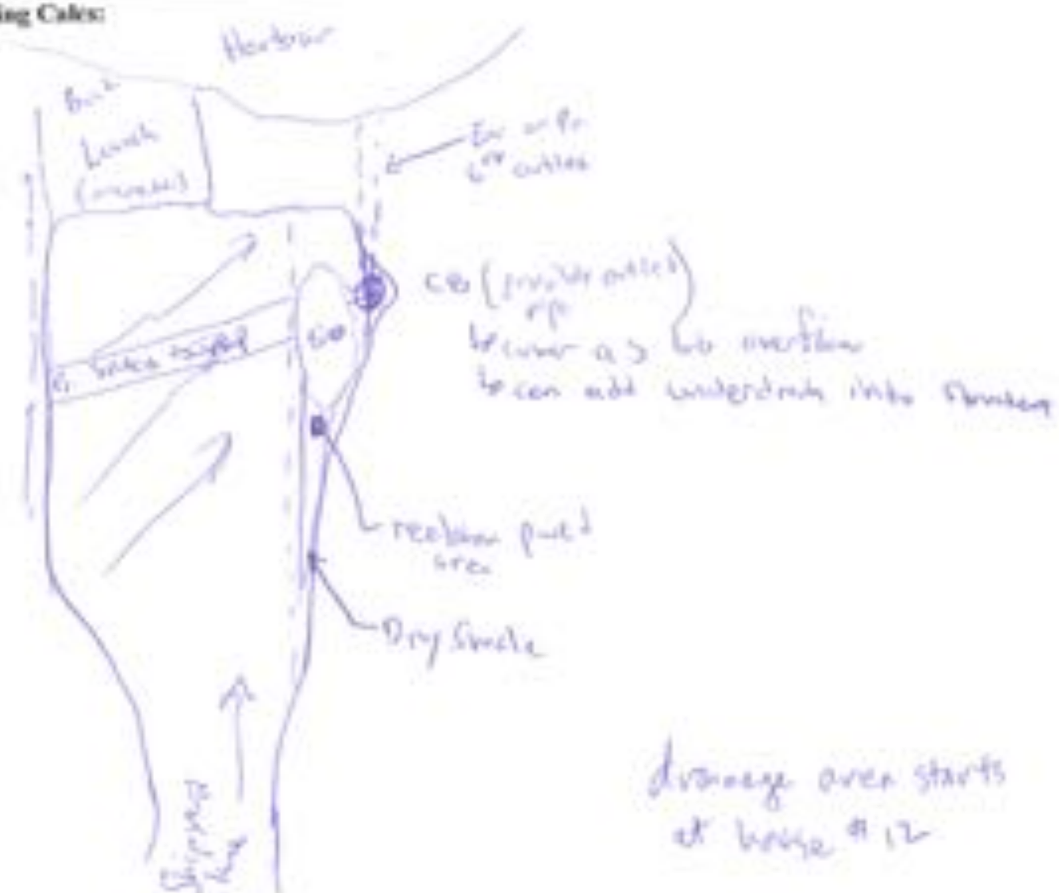
NEXT STEPS

Candidate for pilot project [ ] yep, love it [ ] OK [ ] undecided [ ] no, but keep listed [ ] no way

Follow-up needed to Complete Field Concept
[x] Confirm property ownership
[ ] Confirm drainage area/impervious cover
[ ] Confirm volume computations
[ ] Complete concept sketch
[ ] Obtain existing as-builts/site plans
[ ] Obtain detailed topography
[x] Confirm storm drain invert elevations
[x] Other: Verify ROW
[ ] Obtain utility mapping
[x] Perform test pits

* Add speed bump for collecting drainage.

Sketch and/or Sizing Calcs:



Existing Head Available/Where Measured:

more than enough for all pr. pipes

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

Moderate feasibility

Thoughts on Maintenance Burden: ☐ Low ☒ Medium ☐ High

☒ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☐ Park ☐ Agricultural ☐ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: ________

Is the site a hotspot? ☐ Yes ☒ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☐ Sediment ☒ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☒ Yes ☐ No ☐ Unknown: leaders

Soils: ☐ Unknown ☐ poor infiltration ☒ good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

- road drainage to leaders
- center islands under utilized

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☒ existing BMP upgrade ☐ new BMP

☒ bio/rain garden ☐ swale ☐ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☐ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☐ Other (describe):

Area Draining to Retrofit
☐ Hotspot ☒ Individual rooftop
☐ Parking Lot ☒ other small impervious area
☒ Street ☐ Pervious area
☐ Other (describe):

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = _____%

Impervious Area = _____ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☐ Water Quality ☐ Recharge
☒ Demonstration / Education ☐ Repair ☐ Other: ________

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☐ High water table
☐ Wetlands ☐ Other: Homeowner Assoc.

Describe conflicts:
Areas likely managed by Homeowner Association

NEXT STEPS

Candidate for pilot project ☐ yep, love it ☒ OK ☐ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☐ Confirm property ownership
☐ Confirm drainage area/impervious cover
☐ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☒ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☒ Perform test pits

- Intercept roof drainage into cul-de-sac island (only one tree present)
- Construct bio retention w/ overflow structure piped to ex. leaching ch

Sketch and/or Sizing Calcs:

- bio will intercept some but not all drainage w/o paved diversion berms (speed bumps)

Existing Head Available/Where Measured:

Yes

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

Feasible but challenging due to likelihood of home owners association

Thoughts on Maintenance Burden: ☐ Low ☑ Medium ☐ High

Land Use: ☒ Public ☐ Private ☒ Unknown:

☐ Single Family Residential ☐ Multi-Fam. Residential ☐ School ☐ Golf Course ☐ Park ☐ Agricultural ☒ Road
☐ Commercial/Industrial ☐ Resort ☐ Marina ☐ Other: ______

Is the site a hotspot? ☐ Yes ☒ No ☐ Unknown:
Sources/pollutants observed? ☐ No ☐ Sediment ☐ Nutrients/organics ☐ Oil/grease ☐ Trash/Floatables

Existing Stormwater BMP on site? ☒ Yes ☐ No ☐ Unknown: wetland w/ OCS

Soils: ☐ Unknown ☒ poor infiltration ☐ good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

- Ex wetland w/ broken OCS
- 12"-15" outlet pipe - submerged at outfall
- Phrag. present
- could not observe upstream invert

PROPOSED RETROFIT CONCEPT *(CONT. ON BACK)*

Proposed Retrofit Practice(s): ☒ existing BMP upgrade ☐ new BMP

☐ bio/rain garden ☐ swale ☐ planter ☐ tree pits ☐ infiltration ☐ permeable paver ☐ sand filter ☐ pond
☐ constructed wetland ☐ proprietary practice ☐ soil amendments ☐ reforestation ☐ impervious cover removal
☐ rainwater harvesting ☐ disconnection ☒ Other (describe): OCS Retrofit

Area Draining to Retrofit
☐ Hotspot ☐ Individual rooftop
☐ Parking Lot ☐ other small impervious area
☐ Street ☐ Pervious area
☐ Other (describe):

Drainage Area to retrofit = ______ acres/sq ft

Imperviousness = ____%

Impervious Area = ____ acres/sq ft

Benefits of Retrofit (primary & secondary): ☐ Storage ☐ Water Quality ☐ Recharge
☐ Demonstration / Education ☒ Repair ☐ Other:

Possible Conflicts due to: ☐ Soils ☐ Access
☐ Adjacent Land Use ☐ Existing Utilities
☐ Contamination ☐ High water table
☒ Wetlands ☐ Other:

Describe conflicts:
Work in wetland req'd

NEXT STEPS

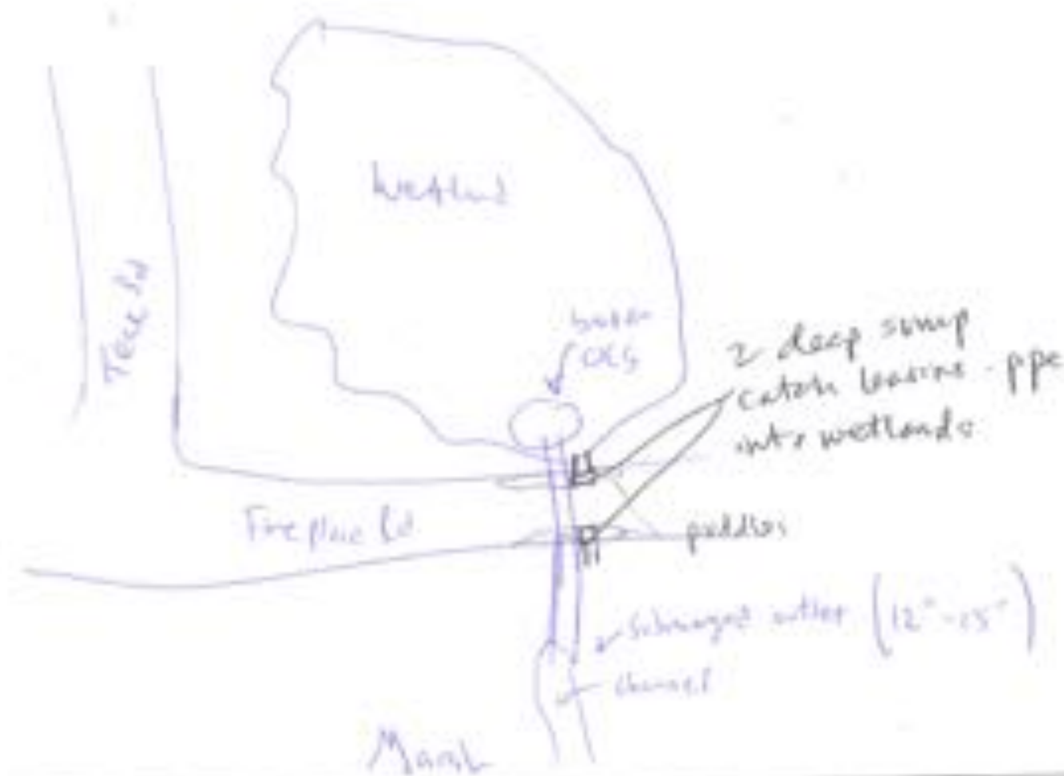
Candidate for pilot project ☐ yep, love it ☐ OK ☒ undecided ☐ no, but keep listed ☐ no way

Follow-up needed to Complete Field Concept
☐ Confirm property ownership
☒ Confirm drainage area/impervious cover
☒ Confirm volume computations
☐ Complete concept sketch
☐ Obtain existing as-builts/site plans
☐ Obtain detailed topography
☒ Confirm storm drain invert elevations
☐ Other:
☐ Obtain utility mapping
☐ Perform test pits

Site ID ______

- [illegible] removal
- permanent pw excavation
- possible presence [illegible] [illegible] neighborhood
- deep sump CBs for puddles on street

Sketch and/or Sizing Calcs:



Existing Head Available/Where Measured:

Yes

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

Unknown

Thoughts on Maintenance Burden: ☒ Low ☐ Medium ☐ High

Contact Information (if known): ____________________
Connected to other pervious area? ☐ Y ☒ N If yes, what type? ☐ Forest ☐ Wetland ☐ Other ____________

OPEN PERVIOUS AREAS

Current Vegetative Cover

Percent of assessed surface with:
Turf 60 % Other Herbaceous ____ % None (bare soil) ____ % Trees ____ % Shrubs ____ %
Other 40 % (please describe): building *Note – these should total 100%*

Turf: Height: 3 inches Apparent Mowing Frequency: ☐ Frequent ☐ Infrequent ☐ No-Mow ☒ Unknown
Condition (*check all that apply*): ☒ Thick/Dense ☐ Thin/Sparse ☐ Clumpy/Bunchy ☐ Continuous Cover

Thickness of organic matter at surface: ____ inches

Are invasive species present? ☐ Y ☒ N ☐ Unknown If yes, % of site with invasives: ____
Species: ____________________

Impacts

Observed Impacts (*check all that apply*): ☐ Soil Compaction ☐ Erosion ☐ Trash and Dumping
☐ Poor Vegetative Health ☐ Other (describe): ____________________

Reforestation Constraints

Sun exposure: ☐ Full sun ☐ Partial sun ☐ Shade ☐ Unknown

Nearby water source? ☒ Y ☐ N ☐ Unknown

Other constraints: ☐ Overhead wires ☐ Underground utilities ☐ Pavement ☒ Buildings
☐ Other (*please describe*): private property

NOTES

SKETCH

FIELD FORMS – NEIGHBORHOOD AND STREETS SOURCE ASSESSMENTS

If yes, name and contact information: Clearwater Beach Property Owners Ass

Residential (*circle average single family lot size*):
☐ Single Family Attached (Duplexes, Row Homes) <⅛ ¼ ⅜ ½ >½ acre
☑ Single Family Detached <⅛ ¼ (½) 1 >1 acre
☐ Multifamily (Apts, Townhomes, Condos) ☐ Mobile Home Park

Estimated Age of Neighborhood: 1960s years	Percentage of Homes with Garages: 50 %	
Sewer Service? ☐Y ☑N	Amount of Infill, Redevelopment, and Remodeling: ☐No Evidence ☑<5% of units ☐5-10% ☐>10%	
Yard and Lawn Conditions (Typical Lot)		Comments/Notes
% of lot with impervious cover	15 %	house + driveway (gravel)
% of lot with grass cover	20 %	not fertilized lawn
% of lot with landscaping (e.g. mulched bed areas)	60 %	mulched / landscaped beds
% of lot with forest	55 %	woods
Note: The % above must total 100%		
% of lot with forest canopy	65 %	
Evidence of permanent irrigation or "non-target" irrigation	0 %	
Proportion of *total neighborhood* turf lawns with following management status:	High: %	2
	Med: %	18
	Low: %	80
Outdoor swimming pools? ☑Y ☐N ☑Can't Tell Est.# 5	50? %	
Junk or trash in yards? ☐Y ☑N ☐Can't Tell	%	
Driveways and Sidewalks		Comments/Notes
% of driveways that are impervious ☐N/A	15 %	
Driveway condition: ☑Clean ☐Stained ☐Dirty ☐Breaking up Sediment		
Are sidewalks present? ☐Y ☑N If yes, are they on ☐one side of street or ☐along both sides ☐Spotless ☐Covered with lawn clippings/leaves ☐Receiving "non-target" irrigation Distance between sidewalk and street? ____ ft Is there pet waste in this area? ☐Y ☐N ☑N/A (yards)		

Site ID ____________

Downspouts discharge to a cistern, rain barrel, etc. | 0 %

Note: The % above must total 100%

Lawn area present downgradient of leader for rain garden? [x] Y [ ] N | 70 % | lawn or landscape beds

Streets

Condition of pavement: [x] New [x] Good [ ] Cracked [ ] Broken

Is on street parking permitted? [ ] Y [x] N If yes, approximate number of cars per block: ________ [x] N/A

Are large cul-de-sacs present? [ ] Y [x] N | Storm drain inlets? [x] Y [ ] N Are they stenciled? [ ] Y [x] N

Is trash present in curb and gutter? If so, use the index to the below to rate condition:

	Clean				Filthy
Sediment	[ ] 1	[x] 2	[ ] 3	[ ] 4	[ ] 5
Organic matter	[ ] 1	[ ] 2	[x] 3	[ ] 4	[ ] 5
Litter	[x] 1	[ ] 2	[ ] 3	[ ] 4	[ ] 5

Common Areas

Stormwater pond? [x] Y [ ] N Is it a [x] wet pond [ ] dry pond? Is it overgrown? [x] Y [ ] N
What is the estimated pond area? [ ] <1 acre [ ] about 1 acre [x] > 1 acre

Open space? [ ] Y [x] N If yes, is pet waste present? [ ] Y [ ] N Dumping? [ ] Y [ ] N
Buffers/floodplain present: [ ] Y [ ] N If yes, encroachment evident? [ ] Y [ ] N

Pollutant Reduction Strategies [x] Municipal [x] Private

Degree of pollutant accumulation in the system: [ ] High [x] Medium [x] Low [ ] None

Rate the feasibility of the following pollution prevention strategies:

Street Sweeping	[x] High	[ ] Moderate	[ ] Low
Storm Drain Stenciling	[ ] High	[ ] Moderate	[x] Low
Catchbasin Clean-outs	[x] High	[ ] Moderate	[ ] Low
Repair / Maintenance	[ ] High	[ ] Moderate	[x] Low

INITIAL NEIGHBORHOOD ASSESSMENT AND RECOMMENDATIONS

Based on field observations, this neighborhood has significant indicators for the following: (*check all that apply*)
[x] Nutrients [ ] Oil and Grease [ ] Trash / Litter [ ] Bacteria [ ] Sediment [x] Other Leaf Litter

Recommended Actions:

- [x] Onsite retrofit potential (small)
- [ ] Existing BMP retrofit
- [ ] Better maint. of common spaces (e.g., roads, BMPs)
- [ ] Address lawn care issues
- [ ] Buffer management
- [ ] Address pet waste issues
- [x] Downspout disconnection
- [ ] Parking lot retrofit
- [ ] Reforestation/lawn conversion
- [x] Address septic issues
- [ ] Other action(s) ________

If yes, name and contact information: ______

Residential (*circle average single family lot size*): ☐ Single Family Attached (Duplexes, Row Homes) <¹/₈ ¹/₈ ¼ ½ >½ acre ☑ Single Family Detached <¼ (¼ ½) 1 >1 acre ☐ Multifamily (Apts, Townhomes, Condos) ☐ Mobile Home Park		
Estimated Age of Neighborhood: 1960 years	Percentage of Homes with Garages: 10 %	
Sewer Service? ☐Y ☑N	Amount of Infill, Redevelopment, and Remodeling: ☐No Evidence ☑<5% of units ☐5-10% ☐>10%	
Yard and Lawn Conditions (Typical Lot)		Comments/Notes
% of lot with impervious cover	15 %	
% of lot with grass cover	40 %	
% of lot with landscaping (e.g. mulched bed areas)	10 %	
% of lot with bare soil frosted	35 %	
Note: The % above must total 100%		
% of lot with forest canopy	40 %	
Evidence of permanent irrigation or "non-target" irrigation	%	
Proportion of *total neighborhood* turf lawns with following management status:	High: %	0
	Med: %	15
	Low: %	85
Outdoor swimming pools? ☐Y ☐N ☐Can't Tell Est.# ___	5 %	
Junk or trash in yards? ☐Y ☑N ☐Can't Tell	%	
Driveways and Sidewalks		Comments/Notes
% of driveways that are impervious ☐ N/A	5 %	
Driveway condition: ☑Clean ☐ Stained ☐ Dirty ☐ Breaking up		
Are sidewalks present? ☐ Y ☑N If yes, are they on ☐ one side of street or ☐ along both sides ☐ Spotless ☐ Covered with lawn clippings/leaves ☐ Receiving "non-target" irrigation Distance between sidewalk and street? ______ ft Is there pet waste in this area? ☐ Y ☐ N ☑N/A		

Note: The % above must total 100%

Lawn area present downgradient of leader for rain garden? ☑ Y ☐ N | %

Streets

Condition of pavement: ☐ New ☑ Good ☐ Cracked ☐ Broken

Is on street parking permitted? ☐ Y ☐ N If yes, approximate number of cars per block: ______ N/A

Are large cul-de-sacs present? ☑ Y ☐ N (small) | Storm drain inlets? ☑ Y ☐ N Are they stenciled? ☐ Y ☑ N

Is trash present in curb and gutter? If so, use the index to the below to rate condition:

	Clean				Filthy
Sediment	☐ 1	☑ 2	☐ 3	☐ 4	☐ 5
Organic matter	☐ 1	☑ 2	☐ 3	☐ 4	☐ 5
Litter	☑ 1	☐ 2	☐ 3	☐ 4	☐ 5

Common Areas

Stormwater pond? ☐ Y ☑ N Is it a ☐ wet pond ☐ dry pond? Is it overgrown? ☐ Y ☐ N
What is the estimated pond area? ☐ <1 acre ☐ about 1 acre ☐ > 1 acre

Open space? ☐ Y ☑ N ? If yes, is pet waste present? ☐ Y ☐ N Dumping? ☐ Y ☐ N
Buffers/floodplain present: ☐ Y ☐ N If yes, encroachment evident? ☐ Y ☐ N

Pollutant Reduction Strategies ☑ Municipal ☑ Private

Degree of pollutant accumulation in the system: ☐ High ☐ Medium ☑ Low ☐ None

Rate the feasibility of the following pollution prevention strategies:

Street Sweeping	☐ High	☑ Moderate	☐ Low
Storm Drain Stenciling	☐ High	☐ Moderate	☑ Low
Catchbasin Clean-outs	☐ High	☑ Moderate	☐ Low
Repair / Maintenance	☐ High	☑ Moderate	☐ Low

INITIAL NEIGHBORHOOD ASSESSMENT AND RECOMMENDATIONS

Based on field observations, this neighborhood has significant indicators for the following: (*check all that apply*)
☑ Nutrients ☐ Oil and Grease ☐ Trash / Litter ☐ Bacteria ☑ Sediment ☐ Other ______

Recommended Actions:

- ☑ Onsite retrofit potential (small)
- ☐ Existing BMP retrofit
- ☑ Better maint. of common spaces (e.g., roads, BMPs)
- ☐ Address lawn care issues
- ☐ Buffer management
- ☐ Address pet waste issues
- ☐ Downspout disconnection
- ☐ Parking lot retrofit
- ☐ Reforestation/lawn conversion
- ☑ Address septic issues
- ☐ Other action(s) ______

If yes, name and contact information: ______

Residential (*circle average single family lot size*):
☐ Single Family Attached (Duplexes, Row Homes) <1/8 1/8 1/4 1/3 >1/3 acre
☒ Single Family Detached <1/4 (1/4 1/2) 1 >1 acre
☐ Multifamily (Apts, Townhomes, Condos) ☐ Mobile Home Park

Estimated Age of Neighborhood: 30+ Newer years	Percentage of Homes with Garages: 5 %	
Sewer Service? ☐Y ☐N	Amount of (Infill,) Redevelopment, and Remodeling: ☐No Evidence ☐<5% of units ☒5-10% ☐>10%	
Yard and Lawn Conditions (Typical Lot)		Comments/Notes
% of lot with impervious cover	30 %	
% of lot with grass cover	30 %	
% of lot with landscaping (e.g. mulched bed areas)	10 %	
% of lot with bare soil forest	30 %	
Note: The % above must total 100%		
% of lot with forest canopy	35 %	
Evidence of permanent irrigation or "non-target" irrigation	0 %	
Proportion of *total neighborhood* turf lawns with following management status:	High: %	0
	Med: %	15
	Low: %	85
Outdoor swimming pools? ☒Y ☐N ☐Can't Tell Est.# 2	5 %	
Junk or trash in yards? ☐Y ☒N ☐Can't Tell	%	
Driveways and Sidewalks		Comments/Notes
% of driveways that are impervious ☐N/A	5 %	
Driveway condition: ☒Clean ☐Stained ☐Dirty ☐Breaking up		

Are sidewalks present? ☐Y ☒N-If yes, are they on ☐ one side of street or ☐ along both sides
☐ Spotless ☐ Covered with lawn clippings/leaves ☐ Receiving "non-target" irrigation
Distance between sidewalk and street? ______ ft Is there pet waste in this area? ☐Y ☒N ☒N/A

Downspouts discharge to a cistern, rain barrel, etc. | 0 %

Note: The % above must total 100%

Lawn area present downgradient of leader for rain garden? ☑Y ☐N | 85 %

Streets

Condition of pavement: ☐New ☑Good ☐Cracked ☐Broken Private

Is on street parking permitted? ☐Y ☐N If yes, approximate number of cars per block: ______ 0 N/A

Are large cul-de-sacs present? ☐Y ☑N | Storm drain inlets? ☑Y ☐N Are they stenciled? ☐Y ☑N

Is trash present in curb and gutter? If so, use the index to the below to rate condition:

	Clean				Filthy
Sediment	☐1	☐2	☑3	☐4	☐5
Organic matter	☐1	☑2	☐3	☐4	☐5
Litter	☑1	☐2	☐3	☐4	☐5

Common Areas

Stormwater pond? ☐Y ☑N Is it a ☐ wet pond ☐dry pond? Is it overgrown? ☐ Y ☐ N
What is the estimated pond area? ☐ <1 acre ☐ about 1 acre ☐ > 1 acre

Open space? ☐Y ☑N If yes, is pet waste present? ☐ Y ☐ N Dumping? ☐ Y ☐ N
Buffers/floodplain present: ☐ Y ☐ N If yes, encroachment evident? ☐ Y ☐ N

Pollutant Reduction Strategies ☑Municipal ☑Private

Degree of pollutant accumulation in the system: ☐High ☐Medium ☑Low ☐None

Rate the feasibility of the following pollution prevention strategies:

Street Sweeping	☐ High	☑ Moderate	☐ Low
Storm Drain Stenciling	☐ High	☑ Moderate	☐ Low
Catchbasin Clean-outs	☑ High	☐ Moderate	☐ Low
Repair / Maintenance (of cbs/roads)	☐ High	☑ Moderate	☐ Low

INITIAL NEIGHBORHOOD ASSESSMENT AND RECOMMENDATIONS

Based on field observations, this neighborhood has significant indicators for the following: (*check all that apply*)
☑Nutrients ☐Oil and Grease ☐Trash / Litter ☐Bacteria ☑Sediment ☐Other ______

Recommended Actions:

☑Onsite retrofit potential (small)
☐ Existing BMP retrofit
☑Better maint. of common spaces (e.g., (roads), (BMPs))
☐Address lawn care issues
☐ Buffer management
☐Address pet waste issues
☐Downspout disconnection
☐ Parking lot retrofit
☐Reforestation/lawn conversion
☑Address septic issues
☐Other action(s) ______

CBs - leaching

If yes, name and contact information: ____________________

Residential (*circle average single family lot size*):
☐ Single Family Attached (Duplexes, Row Homes) <¹/₈ ¹/₈ ¼ ¹/₃ >²/₃ acre
☒ Single Family Detached <¹/₄ ¹/₄ ½ 1 >1 acre ~ 3/4
☐ Multifamily (Apts, Townhomes, Condos) ☐ Mobile Home Park

Estimated Age of Neighborhood: 1960 years	Percentage of Homes with Garages: 5-10 %	
Sewer Service? ☐Y ☒N	Amount of Infill, Redevelopment, and Remodeling: ☐No Evidence ☐<5% of units ☒5-10% ☐>10%	
Yard and Lawn Conditions (Typical Lot)		Comments/Notes
% of lot with impervious cover	10 %	buildings only
% of lot with grass cover	55 %	
% of lot with landscaping (e.g. mulched bed areas)	5 %	
% of lot with bare soil forest	30 %	
Note: The % above must total 100%		
% of lot with forest canopy	65 %	
Evidence of permanent irrigation or "non-target" irrigation	5 %	
Proportion of *total neighborhood* turf lawns with following management status:	High: %	5
	Med: %	15
	Low: %	80
Outdoor swimming pools? ☒Y ☐N ☐Can't Tell Est.#___	15 %	
Junk or trash in yards? ☐Y ☒N ☐Can't Tell	%	
Driveways and Sidewalks		Comments/Notes
% of driveways that are impervious ☐N/A	5 %	mostly gravel
Driveway condition: ☐Clean ☐Stained ☐Dirty ☐Breaking up		N/A

Are sidewalks present? ☐Y ☒N If yes, are they on ☐ one side of street or ☐ along both sides
☐ Spotless ☐ Covered with lawn clippings/leaves ☐ Receiving "non-target" irrigation
Distance between sidewalk and street? ______ ft Is there pet waste in this area? ☐Y ☒N ☐N/A

Downspout discharge to a cistern, rain barrel, etc.

Note: The % above must total 100%

Lawn area present downgradient of leader for rain garden? ☐Y ☐N | 80 %

Streets

Condition of pavement: ☐New ☐Good ☐Cracked ☐Broken

Is on street parking permitted? ☐Y ☐N If yes, approximate number of cars per block: ______

Are large cul-de-sacs present? ☐Y ☐N | Storm drain inlets? ☐Y ☐N Are they stenciled? ☐Y ☐N

Is trash present in curb and gutter? If so, use the index to the below to rate condition:

	Clean				Filthy
Sediment	☐1	☐2	☒3	☐4	☐5
Organic matter	☐1	☒2	☐3	☐4	☐5
Litter	☒1	☐2	☐3	☐4	☐5

Common Areas

Stormwater pond? ☐Y ☒N Is it a ☐ wet pond ☐dry pond? Is it overgrown? ☐ Y ☐ N
What is the estimated pond area? ☐ <1 acre ☐ about 1 acre ☐ > 1 acre

Open space? ☐Y ☐N If yes, is pet waste present? ☐ Y ☐ N Dumping? ☐ Y ☐ N
Buffers/floodplain present: ☐ Y ☐ N If yes, encroachment evident? ☐ Y ☐ N

Pollutant Reduction Strategies ☐Municipal ☐Private

Degree of pollutant accumulation in the system: ☐High ☐Medium ☒Low ☐None

Rate the feasibility of the following pollution prevention strategies:

Street Sweeping	☐ High	☒ Moderate	☐ Low
Storm Drain Stenciling	☐ High	☐ Moderate	☒ Low
Catchbasin Clean-outs	☐ High	☐ Moderate	☒ Low
Repair / Maintenance	☐ High	☐ Moderate	☐ Low

INITIAL NEIGHBORHOOD ASSESSMENT AND RECOMMENDATIONS

Based on field observations, this neighborhood has significant indicators for the following: (*check all that apply*)
☐Nutrients ☐Oil and Grease ☐Trash / Litter ☐Bacteria ☒Sediment ☐Other ______

Recommended Actions:

☐Onsite retrofit potential (small) rain garden
☐ Existing BMP retrofit
☐Better maint. of common spaces (e.g., roads, BMPs)
☐Address lawn care issues
☐ Buffer management
☐Address pet waste issues
☐Downspout disconnection
☐ Parking lot retrofit
☐Reforestation/lawn conversion
☒Address septic issues
☒Other action(s) ______

Residential (*circle average single family lot size*):
☐ Single Family Attached (Duplexes, Row Homes) <1/8 1/8 1/4 1/2 >1/2 acre
☒ Single Family Detached <1/4 1/4 1/2 1 (>1 acre) ~ 1.5 ?
☐ Multifamily (Apts, Townhomes, Condos) ☐ Mobile Home Park

Estimated Age of Neighborhood: ______ years	Percentage of Homes with Garages: ______ %	
Sewer Service? ☐Y ☒N	Amount of Infill, Redevelopment, and Remodeling: ☐No Evidence ☒<5% of units ☐5-10% ☐>10%	
Yard and Lawn Conditions (Typical Lot)		Comments/Notes
% of lot with impervious cover	10 %	
% of lot with grass cover	25 %	
% of lot with landscaping (e.g. mulched bed areas)	10 %	
% of lot with ~~bare soil~~ forest/land	65 %	
Note: The % above must total 100%		
% of lot with forest canopy	75 %	
Evidence of permanent irrigation or "non-target" irrigation	5 %	
Proportion of *total neighborhood* turf lawns with following management status:	High: %	2
	Med: %	13
	Low: %	85
Outdoor swimming pools? ☒Y ☐N ☐Can't Tell Est.# ___	10 %	
Junk or trash in yards? ☐Y ☒N ☐Can't Tell	%	
Driveways and Sidewalks		Comments/Notes
% of driveways that are impervious ☐N/A	5 %	
Driveway condition: ☒Clean ☐Stained ☐Dirty ☐Breaking up		

Are sidewalks present? ☐ Y ☒N If yes, are they on ☐ one side of street or ☐ along both sides
☐ Spotless ☐ Covered with lawn clippings/leaves ☐ Receiving "non-target" irrigation
Distance between sidewalk and street? ______ ft Is there pet waste in this area? ☐ Y ☐ N ☒N/A

Note: The % above must total 100%

Lawn area present downgradient of leader for rain garden? ☑Y ☐N | 90 %

Streets

Condition of pavement: ☐New ☑Good ☐Cracked ☐Broken   Two roads - 20% old asphalt

Is on street parking permitted? ☐Y ☐N If yes, approximate number of cars per block: ________ ☑ N/A

Are large cul-de-sacs present? ☑Y ☐N | Storm drain inlets? ☑Y ☐N Are they stenciled? ☐Y ☑N

Is trash present in curb and gutter? If so, use the index to the below to rate condition:

	Clean				Filthy
Sediment	☐1	☑2	☐3	☐4	☐5
Organic matter	☑1	☐2	☐3	☐4	☐5
Litter	☑1	☐2	☐3	☐4	☐5

Common Areas

Stormwater pond? ☐Y ☑N Is it a ☐ wet pond ☐dry pond? Is it overgrown? ☐ Y ☐ N
What is the estimated pond area? ☐ <1 acre ☐ about 1 acre ☐ > 1 acre

Open space? ☐Y ☑N If yes, is pet waste present? ☐ Y ☐ N Dumping? ☐ Y ☐ N
Buffers/floodplain present: ☐ Y ☐ N If yes, encroachment evident? ☐ Y ☐ N

Pollutant Reduction Strategies ☐Municipal ☑Private   Private Subdivision

Degree of pollutant accumulation in the system: ☐High ☐Medium ☑Low ☐None

Rate the feasibility of the following pollution prevention strategies:

Street Sweeping	☐ High	☑Moderate	☐ Low
Storm Drain Stenciling	☐ High	☐ Moderate	☑ Low
Catchbasin Clean-outs	☐ High	☑ Moderate	☐ Low
Repair / Maintenance	☐ High	☐ Moderate	☑ Low

INITIAL NEIGHBORHOOD ASSESSMENT AND RECOMMENDATIONS

Based on field observations, this neighborhood has significant indicators for the following: *(check all that apply)*
☑Nutrients ☐Oil and Grease ☐Trash / Litter ☐Bacteria ☑Sediment ☐Other ________

Recommended Actions:

☑Onsite retrofit potential (small) rain gardens
☐ Existing BMP retrofit
☐Better maint. of common spaces (e.g., roads, BMPs)
☐Address lawn care issues
☐ Buffer management
☐Address pet waste issues
☐Downspout disconnection
☐ Parking lot retrofit
☐Reforestation/lawn conversion
☑Address septic issues
☐Other action(s) Road width access

Residential (*circle average single family lot size*):
☐ Single Family Attached (Duplexes, Row Homes) <1/8 1/8 1/4 1/2 >1/2 acre
☒ Single Family Detached <1/4 (1/4 1/2) 1 >1 acre
☐ Multifamily (Apts, Townhomes, Condos) ☐ Mobile Home Park

Estimated Age of Neighborhood: more than 50 years	Percentage of Homes with Garages: 10 %	
Sewer Service? ☐Y ☒N	Amount of Infill, Redevelopment, and Remodeling: ☐No Evidence ☒<5% of units ☐5-10% ☐>10%	
Yard and Lawn Conditions (Typical Lot)		Comments/Notes
% of lot with impervious cover	20 %	
% of lot with grass cover	50 %	
% of lot with landscaping (e.g. mulched bed areas)	10 %	
% of lot with ~~bare soil~~ forest	20 %	
Note: The % above must total 100%		
% of lot with forest canopy	45 %	
Evidence of permanent irrigation or "non-target" irrigation	0 %	
Proportion of *total neighborhood* turf lawns with following management status:	High: %	0
	Med: %	15
	Low: %	85
Outdoor swimming pools? ☒Y ☐N ☐Can't Tell Est.# 3	3 %	
Junk or trash in yards? ☐Y ☒N ☐Can't Tell	%	
Driveways and Sidewalks		Comments/Notes
% of driveways that are impervious ☐N/A	5 %	
Driveway condition: ☒Clean ☐Stained ☐Dirty ☐Breaking up		
Are sidewalks present? ☐Y ☒N If yes, are they on ☐ one side of street or ☐ along both sides ☐ Spotless ☐ Covered with lawn clippings/leaves ☐ Receiving "non-target" irrigation Distance between sidewalk and street? _______ ft Is there pet waste in this area? ☐Y ☐N ☒N/A		

Note: The % above must total 100%

Lawn area present downgradient of leader for rain garden? ☑Y ☐N | 90 %

Streets

Condition of pavement: ☐New ☑Good ☐Cracked ☐Broken

Is on street parking permitted? ☐Y ☐N If yes, approximate number of cars per block: ______ ☑N/A

Are large cul-de-sacs present? ☐Y ☑N | Storm drain inlets? ☐Y ☑N Are they stenciled? ☐Y ☐N

Is trash present in curb and gutter? If so, use the index to the below to rate condition:

	Clean				Filthy
Sediment	☐1	☐2	☐3	☐4	☐5
Organic matter	☐1	☐2	☐3	☐4	☐5
Litter	☐1	☐2	☐3	☐4	☐5

Common Areas

Stormwater pond? ☐Y ☑N Is it a ☐ wet pond ☐dry pond? Is it overgrown? ☐ Y ☐ N
What is the estimated pond area? ☐ <1 acre ☐ about 1 acre ☐ > 1 acre

Open space? ☐Y ☑N If yes, is pet waste present? ☐ Y ☐ N Dumping? ☐ Y ☐ N
Buffers/floodplain present: ☐ Y ☐ N If yes, encroachment evident? ☐ Y ☐ N

Pollutant Reduction Strategies ☐Municipal ☑Private

Degree of pollutant accumulation in the system: ☐High ☐Medium ☑Low ☐None

Rate the feasibility of the following pollution prevention strategies:

Street Sweeping	☐ High	☑ Moderate	☐ Low
Storm Drain Stenciling	☐ High	☐ Moderate	☑ Low
Catchbasin Clean-outs	☐ High	☑ Moderate	☐ Low
Repair / Maintenance	☐ High	☐ Moderate	☑ Low

INITIAL NEIGHBORHOOD ASSESSMENT AND RECOMMENDATIONS

Based on field observations, this neighborhood has significant indicators for the following: (*check all that apply*)
☑Nutrients ☐Oil and Grease ☐Trash / Litter ☐Bacteria ☐Sediment ☐Other ______

Recommended Actions:

- ☑Onsite retrofit potential (small) ☐Address lawn care issues ☐ Parking lot retrofit
- ☐ Existing BMP retrofit ☐ Buffer management ☐Reforestation/lawn conversion
- ☐Better maint. of common spaces (e.g., roads, BMPs) ☐Address pet waste issues ☑Address septic issues
- ☑Downspout disconnection ☐Other action(s) ______

Site ID ______

Residential (*circle average single family lot size*):
☐ Single Family Attached (Duplexes, Row Homes) <1/4 1/8 1/4 1/3 >1/3 acre
☑ Single Family Detached <1/4 (1/2) 1/2 1 >1 acre
☐ Multifamily (Apts, Townhomes, Condos) ☐ Mobile Home Park

Estimated Age of Neighborhood: ______ years	Percentage of Homes with Garages: 10 %	
Sewer Service? ☐Y ☑N	Amount of Infill, Redevelopment, and Remodeling: ☐No Evidence ☑<5% of units ☐5-10% ☐>10%	
Yard and Lawn Conditions (Typical Lot)		Comments/Notes
% of lot with impervious cover	20 %	
% of lot with grass cover	50 %	
% of lot with landscaping (e.g. mulched bed areas)	10 %	
% of lot with ~~bare soil~~ forest	20 %	
Note: The % above must total 100%		
% of lot with forest canopy	30 %	
Evidence of permanent irrigation or "non-target" irrigation	0 %	
Proportion of *total neighborhood* turf lawns with following management status:	High: %	0
	Med: %	5
	Low: %	95
Outdoor swimming pools? ☐Y ☐N ☐Can't Tell Est.# ___	2 %	
Junk or trash in yards? ☑Y ☐N ☐Can't Tell	5 %	
Driveways and Sidewalks		Comments/Notes
% of driveways that are impervious ☐N/A	5 %	

Driveway condition: ☑Clean ☐Stained ☐Dirty ☐Breaking up

Are sidewalks present? ☑Y ☐N If yes, are they on ☑one side of street or ☐along both sides (only in one area)
☐Spotless ☐Covered with lawn clippings/leaves ☐Receiving "non-target" irrigation
Distance between sidewalk and street? 5 ft Is there pet waste in this area? ☐Y ☐N ☑N/A

Site ID ________

Downspouts discharge to a ...

Note: The % above must total 100%

Lawn area present downgradient of leader for rain garden? ☑Y ☐N	90 %	

Streets

Condition of pavement: ☐New ☑Good ☑Cracked ☐Broken # main road - good, others broken/old

Is on street parking permitted? ☐Y ☐N If yes, approximate number of cars per block: ________ ☑ N/A

Are large (small) cul-de-sacs present? ☑Y ☐N | Storm drain inlets? ☑Y ☐N Are they stenciled? ☐Y ☑N

Is trash present in curb and gutter? If so, use the index to the below to rate condition:

	Clean				Filthy
Sediment	☐1	☐2	☐3	☐4	☑5
Organic matter	☐1	☐2	☑3	☐4	☐5
Litter	☑1	☐2	☐3	☐4	☐5

Common Areas

Stormwater pond? ☐Y ☑N Is it a ☐ wet pond ☐dry pond? Is it overgrown? ☐ Y ☐ N
What is the estimated pond area? ☐ <1 acre ☐ about 1 acre ☐ > 1 acre

Open space? ☐Y ☑N If yes, is pet waste present? ☐ Y ☐ N Dumping? ☐ Y ☐ N
Buffers/floodplain present: ☐ Y ☐ N If yes, encroachment evident? ☐ Y ☐ N

Pollutant Reduction Strategies ☑Municipal ☑Private

Degree of pollutant accumulation in the system: ☐High ☐Medium ☑Low ☐None

Rate the feasibility of the following pollution prevention strategies:

Street Sweeping	☑High	☐ Moderate	☐ Low
Storm Drain Stenciling	☐ High	☑ Moderate	☐ Low
Catchbasin Clean-outs	☑High	☐ Moderate	☐ Low
Repair / Maintenance	☑High	☐ Moderate	☐ Low

INITIAL NEIGHBORHOOD ASSESSMENT AND RECOMMENDATIONS

Based on field observations, this neighborhood has significant indicators for the following: (*check all that apply*)
☑Nutrients ☐Oil and Grease ☐Trash / Litter ☐Bacteria ☑Sediment ☐Other ________

Recommended Actions:

☑Onsite retrofit potential (small)
☐Existing BMP retrofit
☑Better maint. of common spaces (e.g., roads, BMPs)
☐Address lawn care issues
☐ Buffer management
☐Address pet waste issues
☐Downspout disconnection
☐ Parking lot retrofit
☐Reforestation/lawn conversion
☐Address septic issues
☐Other action(s) ________

☑ street sweeper observed
- leaches in gravel road have rutting around them. Pave around any
- reduce the paved cul-de-sacs to storage space

Site ID ________

Residential (*circle average single family lot size*):
☐ Single Family Attached (Duplexes, Row Homes) <1/8 1/8 1/4 1/2 >1/2 acre
☑ Single Family Detached <1/4 1/4 1/2 (1) >1 acre
☐ Multifamily (Apts, Townhomes, Condos) ☐ Mobile Home Park

Estimated Age of Neighborhood: 60's / 70's years	Percentage of Homes with Garages: ____ %	
Sewer Service? ☐Y ☑N	Amount of Infill, Redevelopment, and Remodeling: ☐No Evidence ☐<5% of units ☐5-10% ☐>10%	
Yard and Lawn Conditions (Typical Lot)		Comments/Notes
% of lot with impervious cover	15 %	
% of lot with grass cover	30 %	
% of lot with landscaping (e.g. mulched bed areas)	10 %	
% of lot with bare soil forested	45 %	
Note: The % above must total 100%		
% of lot with forest canopy	70 %	
Evidence of permanent irrigation or "non-target" irrigation	0 %	
Proportion of *total neighborhood* turf lawns with following management status:	High: %	5
	Med: %	20
	Low: %	75
Outdoor swimming pools? ☑Y ☐N ☐Can't Tell Est.# ~5	%	
Junk or trash in yards? ☐Y ☑N ☐Can't Tell	%	
Driveways and Sidewalks		Comments/Notes
% of driveways that are impervious ☐N/A	5 %	
Driveway condition: ☑Clean ☐Stained ☐Dirty ☐Breaking up		
Are sidewalks present? ☐Y ☑N If yes, are they on ☐one side of street or ☐along both sides ☐Spotless ☐Covered with lawn clippings/leaves ☐Receiving "non-target" irrigation Distance between sidewalk and street? ____ ft Is there pet waste in this area? ☐Y ☐N ☑N/A		

Site ID ____________

Downspouts discharge to a ...

Note: The % above must total 100%

Lawn area present downgradient of leader for rain garden? ☑Y ☐N | 90 %

Streets

Condition of pavement: ☐New ☑Good ☐Cracked ☐Broken

Is on street parking permitted? ☐Y ☐N If yes, approximate number of cars per block: ______ ☑ N/A

Are large cul-de-sacs present? ☑Y ☐N | Storm drain inlets? ☑Y ☐N Are they stenciled? ☐Y ☑N

Is trash present in curb and gutter? If so, use the index to the below to rate condition:

	Clean				Filthy
Sediment	☐1	☐2	☑3	☑4	☐5
Organic matter	☐1	☐2	☑3	☐4	☐5
Litter	☑1	☐2	☐3	☐4	☐5

Common Areas

Stormwater pond? ☐Y ☑N Is it a ☐ wet pond ☐dry pond? Is it overgrown? ☐ Y ☐ N
What is the estimated pond area? ☐ <1 acre ☐ about 1 acre ☐ > 1 acre

Open space? ☐Y ☐N If yes, is pet waste present? ☐ Y ☐ N Dumping? ☐ Y ☐ N
Buffers/floodplain present: ☐ Y ☐ N If yes, encroachment evident? ☐ Y ☐ N

Pollutant Reduction Strategies ☑Municipal (Road) ☑Private

Degree of pollutant accumulation in the system: ☐High ☐Medium ☑Low ☐None

Rate the feasibility of the following pollution prevention strategies:

Street Sweeping	☐ High	☑ Moderate	☐ Low
Storm Drain Stenciling	☐ High	☐ Moderate	☑ Low
Catchbasin Clean-outs	☐ High	☑ Moderate	☐ Low
Repair / Maintenance	☐ High	☑ Moderate	☐ Low

INITIAL NEIGHBORHOOD ASSESSMENT AND RECOMMENDATIONS

Based on field observations, this neighborhood has significant indicators for the following: (*check all that apply*)
☑Nutrients ☐Oil and Grease ☐Trash / Litter ☐Bacteria ☑Sediment ☐Other ______

Recommended Actions:

☑Onsite retrofit potential (small)
☐ Existing BMP retrofit
☑Better maint. of common spaces (e.g., roads, BMPs)
☐Address lawn care issues
☐ Buffer management
☐Address pet waste issues
☐Downspout disconnection
☐ Parking lot retrofit
☐Reforestation/lawn conversion
☐Address septic issues
☐Other action(s) ______

☑ management of mail box pulloffs at road entrances easement

Site ID ______

FIELD FORMS – HOTSPOT/POLLUTION PREVENTION

☐ Marina ☐ Animal Facility ☐ Other:

Basic Description of Operation: Auto Repair

Existing stormwater management on-site? ☐ Unknown ☐ No ☐ Yes, describe:

Condition of drain inlets on-site: ☐ None ☐ Good ☒ Need maintenance Full -

Evidence of riparian/wetland buffer encroachment: ☐ Unknown ☒ No ☐ Yes, describe:

Potential pollutants associated with:	**Pollutant of concern?**
☐ Vehicular operations (fueling, storage, maintenance)	☒ Limited ☐ Likely ☐ Observed for **sediment loading**
☐ Waste management (dumping)	☐ Limited ☒ Likely ☐ Observed for **oil/grease**
☐ Outdoor material storage (uncovered, leaking, no secondary containment)	☒ Limited ☐ Likely ☐ Observed for **trash**
☐ Landscaping (over fertilizing, irrigation)	☐ Limited ☐ Likely ☐ Observed for **nutrient loading**
☐ Building/parking lot maintenance (washdowns)	☒ Limited ☐ Likely ☐ Observed for **bacteria**
☐ Other:	☐ Limited ☐ Likely ☐ Observed for **other:**

Severity of Problem: ☐ Low ☒ Medium ☐ High

Describe Conditions: Control of spilled oil, etc. High probability of washouts to catch basins

Proposed Restoration Activities

- Potential installation of oil trap (oil/water separator)

Next Steps

Site ID ________________

CB's all leaches but
filled w/ water
~6" from rim

Legend

- Inlets (HW)
- Stormdrain Outfalls (PEP)
- Water Line
- PEP Stormdrain Conveyance Systems
- Parcels

N

Feet

50

☐ Marina ☐ Animal Facility ☐ Other:

Basic Description of Operation: Pizza place, truck auto repair/collision, "Fireplace Project", other commercial

Existing stormwater management on-site? ☐ Unknown ☐ No ☑ Yes, describe: leaching CBs (large)
Condition of drain inlets on-site: ☐ None ☐ Good ☑ Need maintenance - some (on Fireplace Rd)

Evidence of riparian/wetland buffer encroachment: ☐ Unknown ☑ No ☐ Yes, describe:

Potential pollutants associated with:
- ☑ Vehicular operations (fueling, storage, maintenance)
- ☑ Waste management (dumping)
- ☑ Outdoor material storage (uncovered, leaking, no secondary containment)
- ☐ Landscaping (over fertilizing, irrigation)
- ☑ Building/parking lot maintenance (washdowns)
- ☐ Other:

Pollutant of concern?
- ☐ Limited ☐ Likely ☑ Observed for **sediment loading**
- ☐ Limited ☑ Likely ☑ Observed for **oil/grease**
- ☐ Limited ☑ Likely ☐ Observed for **trash**
- ☐ Limited ☐ Likely ☐ Observed for **nutrient loading**
- ☐ Limited ☐ Likely ☐ Observed for **bacteria**
- ☐ Limited ☐ Likely ☐ Observed for **other:**

Severity of Problem: ☐ Low ☑ Medium ☐ High
Describe Conditions: Fireplace/Spring Rd - Clogged leaching CBs, compacted soil for parking on side of road;
In back: lack of drainage (dirt roads/parking in commercial/auto area) unprotected soil stockpile, washing-downs of vehicles over CBs

Proposed Restoration Activities

- installation of oil trap at auto/repair
- CB maintenance
- restore + regrade gravel p lot and roads (pave)
- add deep sump CB (if none or de-clog) from side of wine store) to leacher ↗ Fort Pond Rd.
- unprotected outside fueling fuel trucks (oil) (new development + paved rd + St Francis St.)

Next Steps

Site ID ________ Page 1 of 2

Site ID________________

Legend

- Inlets (HW)
- Stormdrain Outfalls (PEP)
- Water Line
- PEP Stormdrain Conveyance Systems
- Parcels

N

100 Feet

☐ Marina ☑ Animal Facility ☐ Other:

Basic Description of Operation:

Chicken Farm at residential lot (hot lot - 2+ acres)

Existing stormwater management on-site? ☑ Unknown ☐ No ☐ Yes, describe:

Condition of drain inlets on-site: ☐ None ☐ Good ☐ Need maintenance

Evidence of riparian/wetland buffer encroachment: ☐ Unknown ☑ No ☐ Yes, describe:

Potential pollutants associated with:	**Pollutant of concern?**
☐ Vehicular operations (fueling, storage, maintenance)	☐Limited ☐Likely ☐Observed for **sediment loading**
☐ Waste management (dumping)	☐Limited ☐Likely ☐Observed for **oil/grease**
☐ Outdoor material storage (uncovered, leaking, no secondary containment)	☐Limited ☐Likely ☐Observed for **trash**
☐ Landscaping (over fertilizing, irrigation)	☐Limited ☑Likely ☐Observed for **nutrient loading**
☐ Building/parking lot maintenance (washdowns)	☐Limited ☑Likely ☐Observed for **bacteria**
☑ Other: [illegible]	☐Limited ☐Likely ☐Observed for **other:**

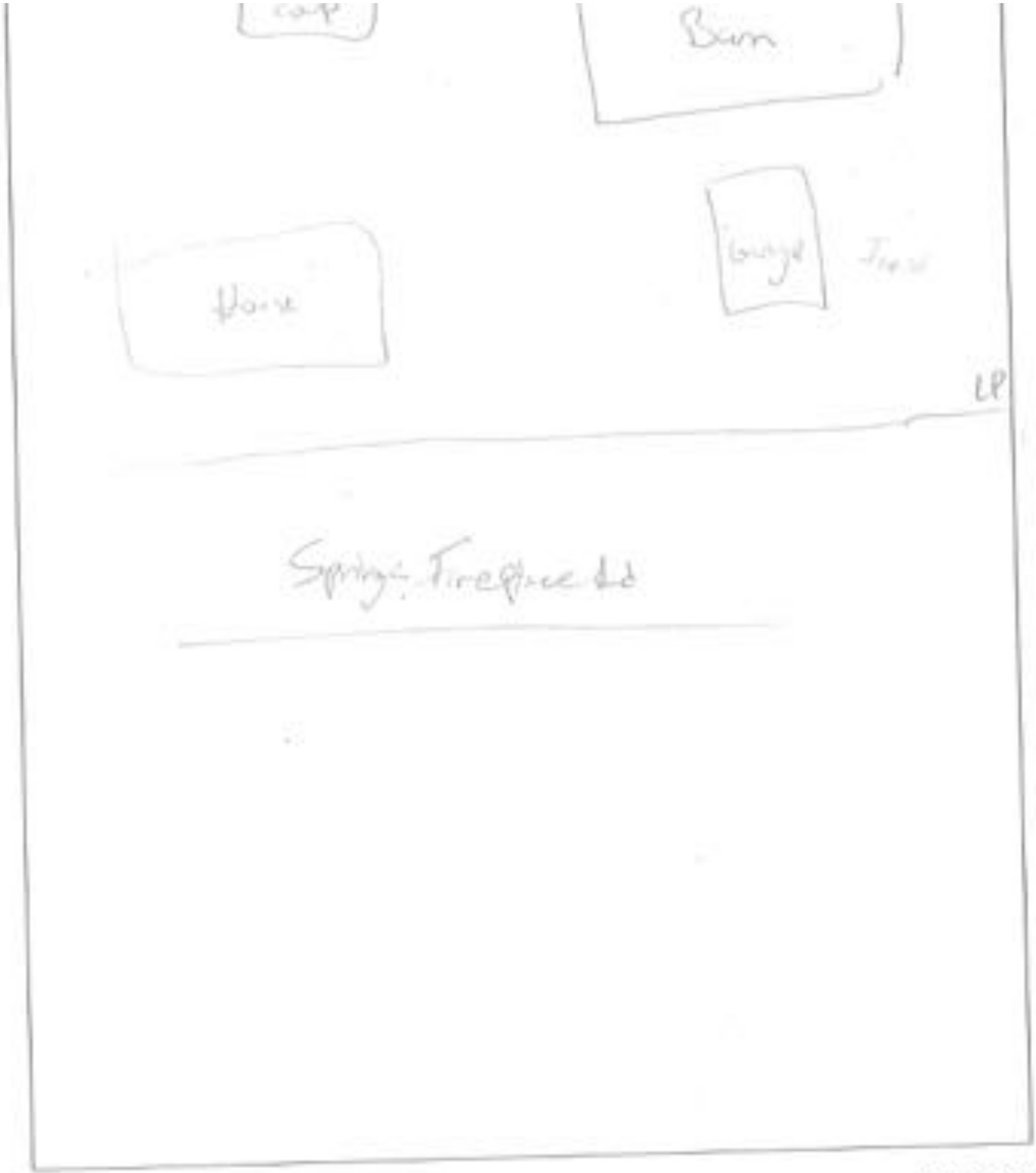
Severity of Problem: ☐Low ☑Medium ☐High

Describe Conditions:

Proposed Restoration Activities

Verify containment areas for chicken waste

Next Steps


Barn
House
LP
Springs Fireplace Rd

☐ Marina ☐ Animal Facility ☐ Other:

Basic Description of Operation:

School Bus parking area - at hour cleaning

Existing stormwater management on-site? ☐ Unknown ☐ No ☒ Yes, describe: Leaching CBr

Condition of drain inlets on-site: ☐ None ☒ Good ☐ Need maintenance

Evidence of riparian/wetland buffer encroachment: ☐ Unknown ☒ No ☐ Yes, describe:

Potential pollutants associated with:

- ☒ Vehicular operations (fueling, storage, maintenance)
- ☒ Waste management (dumping)
- ☒ Outdoor material storage (uncovered, leaking, no secondary containment)
- ☐ Landscaping (over fertilizing, irrigation)
- ☒ Building/parking lot maintenance (washdowns)
- ☐ Other:

Pollutant of concern?

- ☒ Limited ☐ Likely ☐ Observed for **sediment loading**
- ☐ Limited ☒ Likely ☐ Observed for **oil/grease**
- ☒ Limited ☐ Likely ☐ Observed for **trash**
- ☐ Limited ☐ Likely ☐ Observed for **nutrient loading**
- ☐ Limited ☐ Likely ☐ Observed for **bacteria**
- ☐ Limited ☐ Likely ☒ Observed for **other:** detergents

Severity of Problem: ☒ Low ☐ Medium ☐ High

Describe Conditions:

PROPOSED RESTORATION ACTIVITIES

Storage facility for cleaning supplies

NEXT STEPS

Site ID ______________

☐ Marina ☐ Animal Facility ☐ Other:

Basic Description of Operation:

Boat repair + storage

Existing stormwater management on-site? ☒ Unknown ☐ No ☐ Yes, describe:

Condition of drain inlets on-site: ☐ None ☐ Good ☐ Need maintenance

Unknown (none observed)

Evidence of riparian/wetland buffer encroachment: ☒ Unknown ☐ No ☐ Yes, describe:

Potential pollutants associated with:	**Pollutant of concern?**
☒ Vehicular operations (fueling, storage, maintenance)	☒ Limited ☒ Likely ☐ Observed for **sediment loading**
☒ Waste management (dumping)	☐ Limited ☒ Likely ☐ Observed for **oil/grease**
☒ Outdoor material storage (uncovered, leaking, no secondary containment)	☐ Limited ☒ Likely ☐ Observed for **trash**
☐ Landscaping (over fertilizing, irrigation)	☒ Limited ☐ Likely ☐ Observed for **nutrient loading**
☐ Building/parking lot maintenance (washdowns)	☒ Limited ☐ Likely ☐ Observed for **bacteria**
☐ Other:	☐ Limited ☐ Likely ☐ Observed for **other:**

Severity of Problem: ☒ Low ☐ Medium ☐ High

Describe Conditions:

PROPOSED RESTORATION ACTIVITIES

- Management of stroke piles, clean-up; litter, oils management
- oil, fuel (?) containment
- oil/water separator for boat maintenance/storage area

(we did not see most of property since it's private. Some management practices might be in place)

NEXT STEPS

Site ID____________________

☐ Marina ☐ Animal Facility ☐ Other:

Basic Description of Operation:

Existing stormwater management on-site? ☑ Unknown ☑ No ☐ Yes, describe:

Condition of drain inlets on-site: ☐ None ☐ Good ☐ Need maintenance

Evidence of riparian/wetland buffer encroachment: ☐ Unknown ☑ No ☐ Yes, describe:

Potential pollutants associated with:	**Pollutant of concern?**
☐ Vehicular operations (fueling, storage, maintenance)	☐ Limited ☑ Likely ☐ Observed for **sediment loading**
☑ Waste management (dumping)	☐ Limited ☐ Likely ☐ Observed for **oil/grease**
☑ Outdoor material storage (uncovered, leaking, no secondary containment)	☐ Limited ☐ Likely ☑ Observed for **trash**
☐ Landscaping (over fertilizing, irrigation)	☐ Limited ☐ Likely ☐ Observed for **nutrient loading**
☑ Building/parking lot maintenance (washdowns)	☐ Limited ☐ Likely ☐ Observed for **bacteria**
☐ Other:	☐ Limited ☐ Likely ☐ Observed for **other:**

Severity of Problem: ☑ Low ☐ Medium ☐ High

Describe Conditions: w lot look awful.

Proposed Restoration Activities

- repair p lot
- add drainage infrastructure
- trash + storage materials management
- overall site clean-up

Next Steps

Site ID____________________

☐ Marina ☐ Animal Facility ☒ Other: Dog Park
Basic Description of Operation:

Existing stormwater management on-site? ☒ Unknown ☐ No ☐ Yes, describe:
Condition of drain inlets on-site: ☒ None ☐ Good ☐ Need maintenance

Evidence of riparian/wetland buffer encroachment: ☒ Unknown ☐ No ☐ Yes, describe:

Potential pollutants associated with:
- ☐ Vehicular operations (fueling, storage, maintenance)
- ☐ Waste management (dumping)
- ☐ Outdoor material storage (uncovered, leaking, no secondary containment)
- ☐ Landscaping (over fertilizing, irrigation)
- ☐ Building/parking lot maintenance (washdowns)
- ☒ Other: Volunteer

Pollutant of concern?
- ☒ Limited ☐ Likely ☐ Observed for **sediment loading**
- ☒ Limited ☐ Likely ☐ Observed for **oil/grease**
- ☒ Limited ☒ Likely ☐ Observed for **trash**
- ☐ Limited ☒ Likely ☐ Observed for **nutrient loading**
- ☐ Limited ☒ Likely ☐ Observed for **bacteria**
- ☐ Limited ☐ Likely ☐ Observed for **other:**

Severity of Problem: ☒ Low ☐ Medium ☐ High
Describe Conditions:

PROPOSED RESTORATION ACTIVITIES

- Trash can(s)
- Manage dog waste pickup/removal/disposal

NEXT STEPS

APPENDIX C:

RETROFIT RANKING METHODOLOGY AND RESULTS

APPENDIX C – Retrofit Ranking Methodology

The recommended stormwater retrofits sites identified within this plan will likely not be implemented simultaneously; therefore, each of the evaluated retrofit sites were subject to a ranking procedure in order to help prioritize locations for further evaluation. Not all recommendations are equal when it comes to implementation. Some proposed projects may require additional planning and permitting, both of which will require additional time, while others may require a large amount of upfront construction costs. Prioritizing candidate sites allows retrofit sites to be compared to find the most cost-effective and feasible sites within the study area. The ranking system used a 100-point scoring system, where the relative merit of each proposed retrofit BMP was evaluated by assigning points based on the following site BMP ranking criteria:

- Pollutant Removal Potential (40 points)
- Estimated Construction Cost (25 points)
- Ease of Implementation (20 points) including:
    - Wetland impact/permitting
    - Site accessibility
    - Ownership
    - Maintenance burden
- Additional Benefits (25 points) including:
    - Public education/demonstrations
    - Additional stormwater benefits
    - Available partners

1) **Pollutant Removal Potential (40 points)--**This category was allotted the highest number of possible points based on the main goal of addressing the two pollutants of concern under the Peconic Estuary 2006 Total Maximum Daily Load (TMDL) for pathogens and the 2007 TMDL for nitrogen. We analyzed this category based on water quality volume treated (with a goal of 1.2 inch per impervious acre), as well as the most currently accepted removal efficiencies for the proposed practices as documented in the 2010 Rhode Island Stormwater Design Manual (see Table 1). Note, the 2010 RI Manual was used because it reflects the latest research results on pollutant removal capabilities within the northeastern region of the country.
    - Water Quality Volume Treated - The site with the maximum volume treated received 20 points, while the minimum received 10 points, and the remaining sites were ranked accordingly.

    - Pollutant Reduction – The practices were ranked based on their removal efficiency for both bacteria and nitrogen, for a maximum of 20 points possible (10 points each pollutant).

Table 1. Pollutant Removal Efficiencies (Source: 2010 Rhode Island Stormwater Design Manual)

Practice	% Bacteria Removal	%TN Removal
Constructed Wetland	60	30
Bioretention	70	55
Dry Swale	70	55
Wet Swale	60	30
Infiltration Basin	95	65
Infiltration Trench	95	65

Practice	% Bacteria Removal	%TN Removal
Permeable Paving	95	40
Rain Garden	70	55
Stormwater Planters	70	55
Gravel Wetland	85	55
Subsurface Chambers	40	90
Sand Filter	70	32
Dry Well	40	90
O/G Separator	0	0
Wet ED Basin	70	31
Deep Sump Catch Basin	*0*	*0*
Sediment Forebay	12	3
Grass Channel	0	40

2) **Estimated Construction Cost (25 points)—** Preliminary construction costs were roughly estimated on a unit cost per volume or area of the practice based on literature and HW's recent experience with implementation of local projects (see Table 2). Total estimated project cost was then divided by the water quality volume treated by each retrofit. Next, relative scores were assigned to each project, where the lowest cost per WQv unit was assigned 25 points and the highest cost was assigned 5 points.

Table 2. Construction Costs per Unit Treated

Practice	$/Unit
Constructed Wetland	$ 9.45 per cu ft
Bioretention	$27.00 per cu ft
Dry Swale	$16.90 per cu ft
Wet Swale	$16.90 per cu ft
Infiltration Basin	$10.80 per cu ft
Infiltration Trench	$21.60 per cu ft
Permeable Paving	$40.50 per cu ft
Rain Garden	$13.50 per cu ft
Stormwater Planters	$35. per cu ft
Pavement Removal	$0.5 per sq ft
Repaving	$3 per sq ft
Sand Filter	$125 per sq ft
O/G Separator	$3 per gallon

3) **Ease of Implementation (20 points)--**This category compared the concepts based on the following implementation factors:

- Potential required permitting
  - Minimal to no permitting required = 5 points;
  - Some permitting likely = 2.5 points; and
  - Complicated permitting likely = 0 points.

- Access issues
  - Site easily accessed = 5 points;
  - Some difficulty getting equipment to the site = 2.5 points; and
  - Site is difficult to access = 0 points.

- Ownership issues
  - Publically-owned = 5 points;
  - Ownership potentially an issue = 2.5 points; and
  - Privately-owned = 0 points.

- Maintenance burden
  - Low = 5 points;
  - Medium = 2.5 points; and
  - High = 0 points.

4) **Additional benefits/factors (15 points).** This category helps compare the proposed concepts based on additional factors of interest to this project, as listed below:

- Public Education/Demonstration
  - Site is located in a high visibility area and provides an excellent opportunity for reaching the public = 5 points:
  - Site provides moderate visibility and located where some portion of the public could benefit = 2.5 points; and
  - Site provides low visibility and is located in an area few people will visit = 0 points.

- Additional Stormwater Benefits
  - Concept provides additional flood abatement, runoff reduction, habitat benefits = 5 points;
  - Site provides moderate additional benefits = 2.5 points; and
  - Site provides little other benefits than water quality = 0 points.

- Available partners
  - Good opportunity for, or there are existing partners/funding/volunteers available for implementation = 5 points:
  - Some opportunity for implementation assistance = 2.5 points
  - Little to no opportunity for implementation assistance = 0 points

The eight or fewer retrofits with the highest total score were preliminarily classified as “high priority” for each subwatershed. Remaining retrofits were assigned “medium” or “low” priority ratings based on natural breaks in the total scores. Ranking categories are listed in the plan in the retrofit summary tables. Point thresholds defining categories vary between each subwatershed.

APPENDIX C - Retrofit Ranking Spreadsheet

Preliminary Sizing Calculations for Stormwater Retrofits:

Note: Water Quality Volume Required is based upon 1.2 inch of runoff times the contributing impervious area per 2010 NY Manual (Fig. 4.1)

Water Quality Volume (WQv)

#	Project	% Imp.	Drainage Area		Imp. Area		WQv Required	WQv provided	WQv provided	Bacteria removed	TN removed	Pavement Removed (sf)	Total Planning Level Cost $	Wetlands/ Permitting
		%	ac	sf	ac	sf	cf	%	cf	%	%			
AB-R1A	Louse Point Rd/Old Stone Hwy intersection - Traffic island bioretention	68.8	0.15	6,541	0.10	4,500	438	100.0	438	70	55		$ 11,817.00	M
AB-R1B	Louse Point Rd/Old Stone Hwy intersection - Wet swale	66.4	0.08	3,692	0.06	2,450	239	100.0	239	60	30		$ 4,038.42	M
AB-R2	Louse Point Rd: unpaved driveways - Paved gutter/sediment trap	35.0	1.37	59,577	0.48	20,869	2,176	0.0	0	0	0		$ 3,600.00	M
AB-R3A1	Louse Point Rd: northern end - Path stabilization / Revegetation	71.4	0.20	8,710	0.14	6,216	603	0.0	0	0	0		$ 7,500.00	M
AB-R3A2	Louse Point Rd: northern end - Parking lot paving & bioretention	100.0	0.21	9,343	0.21	9,343	888	86.7	769	70	55		$ 20,767.50	H
AB-R3B1	Louse Point Rd: boat launch - Path stabilization / Revegetation	34.2	0.73	31,713	0.25	10,853	1,135	0.0	0	0	0		$ 2,430.00	M
AB-R3B2	Louse Point Rd: boat launch - Pavement removal & bioretention	83.6	0.34	14,944	0.29	12,498	1,200	100.0	1200	70	55	2,446	$ 33,610.58	H
AB-R4A	Old Stone Hwy/Neck Path intersection - Traffic island bioretention	100.0	0.09	3,975	0.09	3,975	378	100.0	378	70	55		$ 10,195.88	M
AB-R4B	Old Stone Hwy/Accabonac Rd intersection - Traffic island bioretention	100.0	0.04	1,691	0.04	1,691	161	100.0	161	70	55		$ 4,337.42	M
AB-R4C	Old Stone Hwy/Neck Path intersection - right-of-way constructed wetland	100.0	0.13	5,648	0.13	5,648	537	100.0	537	60	30		$ 9,067.86	M
AB-R4D	Accabonac Rd/Neck Path intersection - paved drainage flumes	100.0	0.16	7,093	0.16	7,093	674	100.0	674	60	30		$ 6,367.74	M
AB-R4E	Old Stone Hwy - right-of-way bioswale	100.0	0.05	2,252	0.05	2,252	214	100.0	214	70	55		$ 5,776.38	M
AB-R5	Landing Lane - Parking lot paving & path stabilization / Revegetation	13.4	0.43	18,709	0.06	2,500	374	0.0	0	0	0		$ 43,860.00	H
AB-R6	Barnes Country Market Parking Lot - Pavement removal & bioretention	91.8	0.33	14,311	0.30	13,138	1,254	100.0	1254	70	55	1,173	$ 34,443.83	L
AB-R7A1	School Street Onstreet Parking - Bioretention (north) / "Green Streets"	64.0	0.34	14,830	0.22	9,487	928	62.0	575	70	55		$ 20,191.28	L
AB-R7A2	School Street Onstreet Parking - Bioretention (middle) / "Green Streets"	66.7	0.17	7,262	0.11	4,844	472	83.0	392	70	55		$ 13,765.05	L
AB-R7B1	School Street School Bus Loop - Bioretention	100.0	0.30	12,862	0.30	12,862	1,222	56.7	693	70	55		$ 18,720.00	L
AB-R7B2	School Street Onstreet Parking - Bioretention (south) / "Green Streets"	82.3	0.13	5,733	0.11	4,720	453	70.5	320	70	55		$ 11,217.38	L
AB-R7C	School Street School (back of buildling) - Rain barrels / Education	100.0	0.27	11,680	0.27	11,680	1,110	0.0	0	70	55		$ 3,000.00	L
AB-R8A1	Parsons Street/Springs Trail - Constructed wetland	45.6	0.30	13,061	0.14	5,962	602	100.0	602	70	55		$ 16,250.90	H
AB-R8A2	Parsons Street/Old Stone Hwy Intersection - Bioretention	33.0	0.56	24,496	0.19	8,081	850	100.0	850	70	55		$ 22,943.79	M
AB-R8B	Church Parking at Springs-Fireplace Rd/Old Stone Hwy Intersection - Bioretention	89.1	0.47	20,539	0.42	18,299	1,750	59.4	1039	70	55		$ 28,050.75	H
AB-R8C1	Pussy's Pond Park on School Street - Bioretention	50.6	0.21	9,255	0.11	4,684	468	100.0	468	70	55		$ 12,631.55	M
AB-R8C2	Pussy's Pond Park on School Street - Bank Restoration	0.0	0.00	0	0.00	0	0	0.0	0	70	55		$ 10,000.00	H
AB-R8D	Springs General Store - Bioretention	100.0	0.58	25,171	0.58	25,171	2,391	46.7	1117	70	55		$ 30,156.75	H
AB-R8E	Ashawagh Hall - Bioswale	42.6	0.78	34,125	0.33	14,521	1,478	69.5	1027	70	55		$ 27,727.65	L
AB-R9A	Old Stone Hwy/Fort Pond Blvd Intersection Commercial Properties - Pave access road	100.0	0.10	4,200	0.10	4,200	399	0.0	0	0	0		$ 12,600.00	L
AB-R9B	Old Stone Hwy/Fort Pond Blvd Commerical Properties - Pave Old Stone Hwy shoulder parking	100.0	0.03	1,358	0.03	1,358	129	0.0	0	0	0		$ 4,074.00	L
AB-R10A	Talmage Farm Lane/Fireplace Rd Intersection - Pavement removal & bioretention (north)	46.8	0.35	15,166	0.16	7,102	715	100.0	715	70	55	430	$ 19,520.00	L
AB-R10B	Talmage Farm Lane/Fireplace Rd Intersection - Pavement removal & bioretention (south)	59.4	0.32	14,097	0.192	8,374	824	100.0	824	70	55	417	$ 22,458.95	L
AB-R11A	Norfolk Rd/Underwood Dr Intersection - Bioretention	31.1	0.85	37,196	0.265	11,556	1,226	100.0	1226	70	55		$ 33,102.54	L
AB-R11B	Underwood Drive/Fireplace Rd Intersection - Deep sump CB to new leacher (north)	43.8	0.19	8,192	0.082	3,591	364	0.0	0	40	90		$ 12,000.00	L
AB-R11C	Underwood Drive/Fireplace Rd Intersection - Deep sump CB to ex. leacher (south)	49.8	0.32	13,785	0.157	6,859	686	0.0	0	40	90		$ 6,000.00	L
AB-R12	Gerard Point - Path stabilization / Revegetation	21.9	0.72	31,577	0.159	6,909	780	0.0	0	0	0		$ 5,208.00	M
AB-R13	Springs-Fireplace Rd - Bioretentions or tree-pits	100.0	0.14	6,000	0.138	6,000	570	48.2	275	70	55		$ 7,425.00	L
AB-R14A	Springs Fire Department (front) - Bioretention	100.0	0.19	8,455	0.194	8,455	803	100.0	803	70	55		$ 21,687.08	L
AB-R14B	Springs Fire Department (back) - Permeable pavement (or OGS retrofit)	100.0	0.15	6,500	0.149	6,500	618	100.0	618	95	40		$ 25,008.75	L
AB-R15A	Waters Edge circle - Pavement removal & bioretention	90.9	0.23	9,861	0.206	8,967	856	100.0	856	70	55	894	$ 23,568.05	L
AB-R15B	Waters Edge/Carriage Lane - Pavement removal & bioretention	28.6	0.56	24,589	0.162	7,042	757	100.0	757	70	55	1,300	$ 21,081.58	L
AB-R15C	Waters Edge/Carriage Lane - Pavement removal & revegetation	0.0	0.02	1,083	0.000	0	22	0.0	0	0	0	1,083	$ 3,790.50	L
AB-R16	Shipyard Rd Boat Launch - Pavement removal & bioretention	93.3	0.34	14,632	0.31	13,648	1,301	83.2	1082	70	55	984	$ 29,716.80	H
AB-R17	Harrison Ave Neighborhood Cul-de-sacs - Bioretentions	53.8	0.78	34,044	0.42	18,311	1,818	53.3	969	70	55		$ 26,165.70	L
AB-R18	Teak Rd Wetland - Detention pond outlet control structure retrofit	23.1	14.87	647,565	3.44	149,876	16,727	100.0	16727	0	33		$ 6,690.67	H

Ranking Results:

Site #	Total WQv treated **(20)**	Pollutant Reduction **(20)**	**#1 Score**	Total Cost/WQv Treated	**#2 Score***	Wetlands/ Permitting **(5)**	Accessibility **(5)**	Ownership **(5)**	Maintenance Burden **(5)**	**#3 Score**	Public Education/ Demonstration **(5)**	Addl SW Benefits (flood reduction, runoff reduction) **(5)**	Other Partr Involveme **(5)**
	1. Pollutant Removal Potential (possible 40 pts)			**2. Cost (25 points)**		**3. Ease of Implementation (20 points)**					**4. Additional Benefits/Factors (15 points)**		
AB-R1A	10.26	12.5	**22.8**	$ 27	**12**	2.5	5	5	5	**17.5**	0	0	2.5
AB-R1B	10.14	9.0	**19.1**	$ 17	**17**	2.5	5	5	5	**17.5**	0	0	2.5
AB-R2	10.00	0.0	**10.0**	-	**0**	2.5	5	2.5	2.5	**12.5**	0	0	0
AB-R3A1	10.00	0.0	**10.0**	-	**0**	2.5	5	5	5	**17.5**	2.5	0	2.5
AB-R3A2	10.46	12.5	**23.0**	$ 27	**12**	0	5	5	5	**15**	5	0	2.5
AB-R3B1	10.00	0.0	**10.0**	-	**0**	2.5	5	5	5	**17.5**	2.5	0	2.5
AB-R3B2	10.72	12.5	**23.2**	$ 28	**11**	0	5	5	5	**15**	5	2.5	2.5
AB-R4A	10.23	12.5	**22.7**	$ 27	**12**	2.5	5	5	5	**17.5**	0	0	2.5
AB-R4B	10.10	12.5	**22.6**	$ 27	**12**	2.5	5	5	5	**17.5**	0	0	2.5
AB-R4C	10.32	9.0	**19.3**	$ 17	**17**	2.5	5	5	5	**17.5**	0	0	2.5
AB-R4D	10.40	9.0	**19.4**	$ 9	**20**	2.5	0	0	5	**7.5**	0	0	2.5
AB-R4E	10.13	12.5	**22.6**	$ 27	**12**	2.5	5	5	5	**17.5**	0	0	2.5
AB-R5	10.00	0.0	**10.0**	-	**0**	0	5	5	5	**15**	2.5	0	2.5
AB-R6	10.75	12.5	**23.2**	$ 27	**11**	5	0	0	2.5	**7.5**	0	0	0
AB-R7A1	10.34	12.5	**22.8**	$ 35	**8**	5	5	5	5	**20**	5	0	0
AB-R7A2	10.23	12.5	**22.7**	$ 35	**8**	5	5	5	5	**20**	5	0	0
AB-R7B1	10.41	12.5	**22.9**	$ 27	**12**	5	2.5	5	5	**17.5**	5	0	0
AB-R7B2	10.19	12.5	**22.7**	$ 35	**8**	5	5	5	5	**20**	5	0	0
AB-R7C	10.00	12.5	**22.5**	-	**0**	5	2.5	5	5	**17.5**	5	0	5
AB-R8A1	10.36	12.5	**22.9**	$ 27	**12**	0	5	5	5	**15**	5	0	0
AB-R8A2	10.51	12.5	**23.0**	$ 27	**12**	2.5	5	5	5	**17.5**	2.5	0	0
AB-R8B	10.62	12.5	**23.1**	$ 27	**12**	0	0	0	5	**5**	5	0	0
AB-R8C1	10.28	12.5	**22.8**	$ 27	**12**	2.5	2.5	2.5	5	**12.5**	5	0	0
AB-R8C2	10.00	12.5	**22.5**	-	**0**	0	2.5	2.5	5	**10**	5	0	0
AB-R8D	10.67	12.5	**23.2**	$ 27	**12**	0	0	0	5	**5**	5	0	0
AB-R8E	10.61	12.5	**23.1**	$ 27	**12**	5	2.5	2.5	5	**15**	2.5	0	0
AB-R9A	10.00	0.0	**10.0**	-	**0**	5	5	5	5	**20**	0	0	0
AB-R9B	10.00	0.0	**10.0**	-	**0**	5	5	5	5	**20**	0	0	0
AB-R10A	10.43	12.5	**22.9**	$ 27	**12**	5	5	5	5	**20**	0	2.5	0
AB-R10B	10.49	12.5	**23.0**	$ 27	**12**	5	5	5	5	**20**	0	2.5	0
AB-R11A	10.73	12.5	**23.2**	$ 27	**12**	5	5	5	5	**20**	0	0	0
AB-R11B	10.00	13.0	**23.0**	-	**0**	5	5	5	2.5	**17.5**	0	0	0
AB-R11C	10.00	13.0	**23.0**	-	**0**	5	5	5	2.5	**17.5**	0	0	0
AB-R12	10.00	0.0	**10.0**	-	**0**	2.5	5	5	5	**17.5**	2.5	0	2.5
AB-R13	10.16	12.5	**22.7**	$ 27	**12**	5	5	2.5	5	**17.5**	0	0	0
AB-R14A	10.48	12.5	**23.0**	$ 27	**12**	5	0	0	5	**10**	2.5	0	0
AB-R14B	10.37	13.5	**23.9**	$ 41	**5**	5	0	0	2.5	**7.5**	2.5	0	0
AB-R15A	10.51	12.5	**23.0**	$ 28	**11**	5	5	0	5	**15**	0	2.5	0
AB-R15B	10.45	12.5	**23.0**	$ 28	**11**	5	5	0	5	**15**	0	2.5	0
AB-R15C	10.00	0.0	**10.0**	-	**0**	5	5	0	5	**15**	0	2.5	0
AB-R16	10.65	12.5	**23.1**	$ 27	**12**	0	5	5	5	**15**	5	2.5	0
AB-R17	10.58	12.5	**23.1**	$ 27	**12**	5	5	0	5	**15**	2.5	0	0
AB-R18	20.00	3.3	**23.3**	$ 0.40	**25**	0	2.5	5	5	**12.5**	0	5	2.5

Min	$	0.40	25
Max	$	40.50	5

*This score is weighted with the lowest cost/acre receiving the highest score (30) and the highest cost/acre receiving the lowest score (1).
The other sites receive scores based on cost/acre relative to the maximum and minimum.

APPENDIX D:

HOMEOWNERS GUIDE TO IMPROVING WATER QUALITY IN THE PECONIC ESTUARY