

MATERIAL LIST FOR
FEBRUARY 24, 2014
COUNCIL AGENDA PACKETS

1. Copy of Agenda for the Feb. 24th, 2014 Regular Council meeting.
2. Copy of Town Manager's report to Council.
3. Copy of Report to Council from Jessa Kellogg, Shoreland Resource Officer regarding update on the Spruce Creek Watershed Improvement Project.
4. Copy of check in the amount of \$800 from the Kittery Community Market for the Kittery Community Center.
5. Copy of check in the amount of \$510.37 from John Robinson as a match donation for the Spruce Creek Watershed Improvement Project.
6. Copy of application form from Herbert Kingsbury for his re-appointment to the Recycling Scholarship Selection Committee.
7. Copy of application from Central Maine Power for a Pole Location Permit between CMP and Northern New England Operations for permission to install one pole on Cutts Road.



TOWN OF KITTERY

200 Rogers Road, Kittery, ME 03904
Telephone: (207) 475-1329 Fax: (207) 439-6806

WORKSHOP

6:00 p.m.

The Kittery Town Council will meet with the Acting Town Manager, Finance Director and Auditor to review the FY 2013 audit.

February 24, 2014

Kittery Town Council
Regular Meeting Agenda
7:00 p.m.

Council Chambers

1. Call to Order
2. Introductory
3. Pledge of Allegiance
4. Roll Call
5. Agenda Amendment and Adoption
6. Town Manager's Report
7. Acceptance of Previous Minutes
8. Interviews for the Board of Appeals and Planning Board
9. All items involving the town attorney, town engineers, town employees or other town consultants or requested officials.
 - a. (020214-1) The Kittery Town Council moves to hear a progress report from Jessa Kellogg regarding the Phase III - Spruce Creek Watershed Improvement Project.
10. PUBLIC HEARING
11. DISCUSSION
 - a. Discussion by members of the public (three minutes per person)
 - b. Response to public comment directed to a particular Councilor
 - c. Chairperson's response to public comments
12. UNFINISHED BUSINESS
13. NEW BUSINESS
 - a. Donations/gifts received for Council disposition

The Kittery Town Council moves to accept a donation from the Kittery Community Market in the amount of \$800.00 for the Kittery Community Center to be deposited in Acct. # 2063-43600.

The Kittery Town Council moves to accept a match donation from John H. Robinson in the amount of \$510.37 for the Phase III - Spruce Creek Watershed Improvement Project, to be deposited in account # 2072-43600.

b. (020214-2) The Kittery Town Council moves to approve the disbursement warrants.

c. (020214-3) The Kittery Town Council moves to appoint a representative to meet with the Chair of the Recycling Scholarship Selection Committee to interview Herbert Kingsbury for his re-appointment to that board until 2/08/17.

d. (020214-4) The Kittery Town Council moves to appoint Denise Payne to the Parks Commission as a full member until May 3, 2016.

e. (020214-5) The Kittery Town Council moves to approve an application for a Pole Location Permit between Central Maine Power and Northern New England Telephone Operations, LLC, to install one new pole on Cutts Road .

14. COUNCILOR ISSUES OR COMMENT

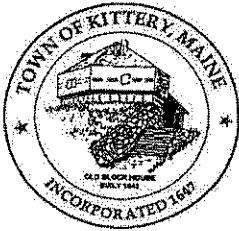
15. COMMITTEE AND OTHER REPORTS

- a. Communications from the Chairperson
- b. Committee Reports

16. EXECUTIVE SESSION

17. ADJOURNMENT

Posted: February 20, 2014



TOWN OF KITTERY

Office of the Town Manager

200 Rogers Road, Kittery, ME 03904

Telephone: 207-475-1329 Fax: 207-439-6806

ncolbertpuff@kitteryme.org

Nancy Colbert Puff
Town Manager

Town Manager's Report to the Town Council February 24, 2014

1. **Draft Budget Calendar** – Attached is a draft of the budget calendar for FY 2015. Please note that all items listed as “TBD” need further consult with the Chairperson.
2. **Foreside Forum 3, March 3rd, 7 pm** – The next meeting of the Foreside Forum will be on Monday, March 3rd at the Community Center. I will copy the Council on the email I send out with further details on the evening.
3. **Bridge 1 Structural Repairs at the Naval Shipyard** – PNS proposes to “demolish and replace the superstructure of Bridge 1 which connects to Walker Street (deck and steel girders) and to reinforce the piers,” and has notified the Town of this plan as part of its Section 106 (of the National Historic Preservation Act) permitting process. Since the Foreside is an area potentially impacted by this change, they have invited our comments on this proposal. I have forwarded the proposal to the Planning Department for review, but invite the Council and others to comment as well – I will post the information in the News Section of our web site.
4. **Town Manger Goals for FY 2014-15** – Attached are my goals for the Council's consideration. I look forward to your review and input.
5. **Scheduled Vacation** – As a remainder, I will be away until Monday, March 3rd.

If you have any questions or concerns prior to Monday's evening's meeting, please do not hesitate to contact me. Thank you.

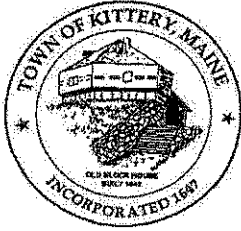
Respectfully Submitted,

Nancy Colbert Puff

2014-15 Budget Schedule

- December CIP requests to the Manager
- January CIP Committee reviews the FY' 15-19 CIP Plan
- January 27th Provide Budget forms to Department Heads
- February 18th Municipal Revenue estimates and salaries due to the Manager
- February 18th Municipal Budget requests due to the Manager
- March 11/12th Manager & Dept Heads budget meeting
- March 18th Manager & Dept Heads finalize proposed budget
- March 18th School Committee votes on the "Form of Notice of Amounts Adopted by Town Council" and School Budget Ordinances and provides those documents to the Town Clerk on March 19th
- March 19th School Budget due to the Manager
- March 24th Municipal & School budgets presented to Council (TBD)
- April 7th Workshop (TBD)
- April 14th Council Votes on Warrant Articles for June 10th Town Meeting Ballot
- April 14th Council takes preliminary vote on School Budget and votes to schedule May 12th for a public hearing for its final approval on the School budget and to schedule the BVR for June 10th
- April 21st Workshop (TBD)
- April 25th Notice in paper for the for the BVR public hearing May 12th
- May 5th Workshop (TBD)
- May 12th Budget Validation Referendum public hearing 7:00 pm
- May 12th Absentee ballots available
- May 19th Workshop (TBD)
- May 20th Send Town Meeting public hearing notice to the paper

- May 23rd Town Meeting public hearing 7:00pm
- May 26th Council schedules June 23rd for public hearing to vote on the budget (publish notice at least 14 days before the public hearing)
- June 3rd Send Budget Public Hearing notice to the paper
- June 6th Notice in paper for the FY'15 Budget public hearing
- June 10th Election
- June 23rd Public Hearing - Council votes on FY'15 Budget



TOWN OF KITTERY
OFFICE OF THE TOWN MANAGER
200 Rogers Road, Kittery, ME 03904
Telephone: 207-475-1329 Fax: 207-439-6806
ncolbertpuff@kitteryme.org

Nancy Colbert Puff
Town Manager

INTEROFFICE MEMORANDUM

TO: TOWN COUNCIL
FROM: NANCY COLBERT PUFF, TOWN MANAGER *NCP*
SUBJECT: MANAGER GOALS FOR FY 2014 AND FY 2015
DATE: FEBRUARY 19, 2014

I am pleased to submit my goals for the upcoming year for the Council's review and consideration. As I noted in my email to Council dated January 5th, I derived this list with the input of all Department Heads, also keeping in mind the Council's goals workshop of January 6th.

Goals/Strategies

Time Frame

1. Improve Communication Within our Organization and with the Community

- | | |
|---|------------------------------|
| a. Implement an internal review process to improve the quality of materials before Town Council's consideration. | January 2014 |
| b. Use the web site "News" section regularly to communicate with the community; post all Council packets in the news section; notify Council when the packet is electronically available. | January 2014 -
On-going |
| c. Develop and implement an additional form of regular communication with the community (e.g. Twitter, Constant Contact, etc.). | April 2014 -
on-going |
| d. Increase use and programming of Channel 22 | February 2014 -
June 2015 |
| e. Meet regularly with the local media and inform the Council of topics they may read about in the news. | February 2014 -
on-going |
| f. Develop a budget that clearly narrates the Town's goals, strategies, and methods toward achieving goals in concert with the Governmental Finance Officers Association's (GFOA) guidelines. | June 2014
June 2015 |

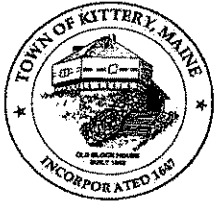
- g. Recommend and implement an improved project review process for those seeking to develop here (see also Goal #4) September 2014
- 2. Explore Opportunities for Operational Efficiency and/or Enhancement Through Regionalization or Shared Services with Kittery's Neighbors**
- a. Meet regularly with neighboring municipalities to discuss potential opportunities December 2013 – on-going
- b. Report quarterly to Council on progress July & October 2014, January & April 2015
- 3. Ensure a High Level of Customer Service throughout the Organization**
- a. Implement operating procedures and train employees in customer service best practices to ensure superior service delivery November 2014
- b. Develop and implement customer service feedback system to track organizational progress and promote timely responses March 2015
- c. Enhance on-line services by converting all forms available on Kittery's web site to customer-friendly, editable format August 2014
- d. Make recommendation on Town Hall hours to Council for consideration April 2014
- e. Develop and implement employee recognition program to reinforce service delivery goals and highlight examples of outstanding performance June 2015
- 4. Promote Kittery as a Place to Live and Visit**
- a. Pursue ownership/management of John Paul Jones Park as a gateway to Kittery December 2013-August 2014
- b. Solicit input and facilitate community involvement in the future of Foreside through the Foreside Forum January-November, 2014
- c. Work with the Maine Outlets to publicize Kittery's businesses July 2014
- 5. Explore Savings and/or Improved Service through Coordinated Facilities Management**
- a. Evaluate a variety of service contracts Town-wide for cost savings and efficiency (e.g. technology, fire extinguisher December 2014

inspections, alarm systems, building maintenance)

- b. Identify and evaluate potential for energy savings through innovation and shared expertise; establish a working group to recommend improvements July 2014-June 2015

- c. Work with CIP Committee to identify improvements that may benefit from coordination across departments; continue CIP Committee meetings year-round to enhance CIP programming February 2014 – June 2015

I look forward to the Council's review and input concerning these priorities for this upcoming year.



TOWN OF KITTERY
200 Rogers Road, Kittery, ME 03904
Telephone: 207-475-1329 Fax: 207-439-6806

REPORT TO TOWN COUNCIL

Meeting Date: 2/24/2014
From: Jessa Kellogg, Shoreland Resource Officer
Subject: Update on Spruce Creek Watershed Improvement Project - Phase III
Councilor Sponsor:

EXECUTIVE SUMMARY

Emily DiFranco, the project manager from FB Environmental Associates who is managing the Spruce Creek Watershed Improvement Project - Phase III, will update the Town Council on the progress of the Project.

STATEMENT OF NEED

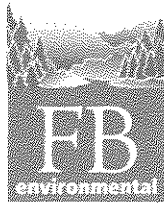
Spruce Creek, particularly the tidal portion, is being intensely impacted by contaminated stormwater from both residential and commercial properties. Compounding this problem is the removal of vegetative buffer areas by those desiring water views. The developed areas surrounding the Creek and its tributaries continue to contribute to water quality degradation at an increasing rate. Phased treatment and management of existing sources of contaminated stormwater is crucial for watershed health.

BACKGROUND

The Town of Kittery is currently in Phase III of the Spruce Creek Watershed Improvement Project (SCWIP), funded by a grant through section 319 of the Clean Water Act and a grant match from the Town. The SCWIP represents a broad collaborative effort between local, state and federal government, the Spruce Creek watershed communities, the private sector and a local citizen-based watershed group, the Spruce Creek Association. This two-year initiative (Feb 2013-Jan 2015) to reduce bacteria, nutrients, toxic chemicals, sediments and habitat alterations will improve the health of the Spruce Creek watershed. These pollutants are the primary sources of impairments identified by federal, state and local assessments and pose the greatest threat to human and ecological health. Section 319 funding will enable this projects' partners to continue to implement an innovative stormwater retrofit and low impact development (LID) implementation program addressing at least four sites, conduct an agency-assisted sanitary survey and Illicit Discharge Detection and Elimination Program for septic systems, continue a highly-successful cost-sharing residential conservation practices program targeting several hundred individuals, and conduct innovative public outreach campaigns to reach residents and many of the more than three million annual visitors to the watershed. Reductions of bacteria (load reduction), sediment (tons/year), nitrogen (lbs/yr) and phosphorus (lbs/year) will be estimated for NPS sites treated with BMPs.

CURRENT SITUATION

Projects to monitor, evaluate and improve the health of Spruce Creek are ongoing and future projects are currently being discussed for proposal.



FOR IMMEDIATE RELEASE:

January 12, 2014

CONTACT:

Emily DiFranco

FB Environmental Associates

(603) 343-6311

Fax: (603) 610-7101

Email: emilyd@fbenvironmental.com

Website: <http://www.fbenvironmental.com/>

**KITTERY UTILIZES UNIQUE TOOLS TO IMPROVE WATER QUALITY AT FORT
FOSTER BEACH**

Identifying pollution hotspots and tracking sources of bacteria is often a challenging task for municipalities. However, there are multiple low-cost, effective bacteria tracking tools that can assist municipalities with this effort. The Town of Kittery has been working to track bacteria sources for over a decade through town and grant-funded projects with much success. With the assistance of water quality specialists at FB Environmental Associates (FBE) based in Portsmouth, the town has taken great strides toward improving water quality in Spruce Creek and other water bodies in Kittery.

In 2012, as a step in the town's continued bacteria source tracking efforts, FBE and the Town of Kittery collaborated with Environmental Canine Services (ECS) of Vermontville, Michigan to the East Coast. These scent-trained dogs, together with their handlers, have been extensively trained to identify human sources of bacteria in a waterbody or storm drain system. This method, known as canine detection, has been proven successful in multiple studies in the Midwest and West Coast and has been written into the US Environmental Protection Agency's Region 5 Quality Assurance Project Plan (QAPP).

In the 2012 study, the dogs indicated the presence of human sources of bacteria along the eastern portion of Fort Foster Beach and in the marsh just north of this portion of the beach. Follow-up investigations led to the discovery of an old, unmaintained outhouse located north of the marsh off the access road to Horn Point. Within a week following the canine investigations, Kittery's Public Works Department dismantled and filled in the outhouse to remove this potential bacteria source from contaminating nearby water resources.

As a follow-up to this work, the Town of Kittery hired FBE and ECS to return to Fort Foster Beach in 2013. Results from the 2013 investigation indicated that human sources of bacteria have decreased significantly at some locations and have been completely removed in other

locations. In addition, no beach advisories have been posted at the beach since the removal of the outhouse.

The recent work in Kittery highlights the successful use of multiple bacteria source tracking tools in iterative, town-funded projects designed to identify illicit discharges and other bacteria sources. While some of this work is based on complex scientific analyses, a large part of the locally-led Spruce Creek Association's approach has involved developing public outreach and education programs regarding the water quality issues in Spruce Creek and other waterbodies in Kittery and educating local residents on what they can do to be a part of water quality restoration and protection.

The Town of Kittery continues its efforts to improve water quality through both town-funded water quality projects and the grant-funded Spruce Creek Watershed Improvement Project. Grant funds for the project were awarded to the town by the ME Department of Environmental Protection and the US Environmental Protection Agency. The town is currently in Phase III of this effort which continues to address polluted runoff and septic system problems to reduce bacteria loading and pollution to help restore water quality and open shellfish harvest areas in Spruce Creek. The town works closely with the Spruce Creek Association to raise community awareness and develop support for future water quality goals. For more information visit the Spruce Creek Association website: <http://www.sprucecreekassociation.org>, or contact Kittery's Shoreland Officer, Jessa Kellogg at JKellogg@kitteryme.org.

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**2013 SPRUCE CREEK
TRIBUTARY SAMPLING
AND
CANINE DETECTION**

*FORT FOSTER BEACH &
THE SPRUCE CREEK WATERSHED*

KITTERY, MAINE

JANUARY 2014

Prepared for:
Town of Kittery
200 Rogers Road
Kittery, ME 03904

Prepared by:
FB Environmental Associates
1950 Lafayette Road, Suite 102
Portsmouth, NH 03801

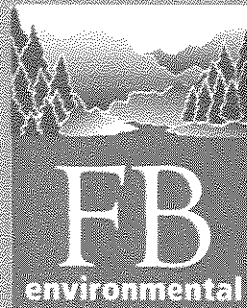


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EXECUTIVE SUMMARY

In 2013, water quality sampling and investigation in Kittery, Maine included bracket sampling in the Chickering Creek watershed and continued outfall sampling at the Manson Avenue stormwater outfalls in Admiralty Village. Additionally, an investigation of the stormwater system in the Manson Avenue neighborhood to identify illicit discharges was conducted. On July 31, 2013, FB Environmental (FBE) and Environmental Canine Services (ECS) collaborated with the Town of Kittery, ME to conduct targeted bacteria source tracking at Fort Foster Beach, Chickering Creek, and the Manson Avenue stormwater system. Scott and Karen Reynolds of ECS, along with canines Sable and Logan, pioneered the canine detection method of identifying human sources of water quality pollution in the upper Midwest and California.

This report provides results from bacteria sampling in the Spruce Creek watershed and at Fort Foster State Park from July – November, 2013, canine detection conducted in July 2013, and an investigation of the stormwater system draining Manson Avenue. Recommendations for next steps are provided.

Summary of Bacteria Sampling and Canine Detection in the Chickering Creek Watershed

Chickering Creek is a small tributary to Spruce Creek and has a watershed area of 0.4 square miles. The watershed consists largely of residential development to the north, with dense commercial development to the south along Route 1. Bacteria concentrations in Chickering Creek are highest in the portion of the creek downstream of the I-95. Results from bacteria sampling in 2013 show that concentrations are well above the water quality standard at multiple locations along Chickering Creek with some sites over four times the acceptable limit for *E. coli* bacteria even during dry weather conditions.

In addition to regular bacteria sampling, canine detection was conducted in the Chickering Creek watershed. Eighteen locations in the Chickering Creek watershed were assessed for the presence of human sources of bacteria using canine detection. Five of the eighteen sites were positive for bacteria originating from humans. In addition to canine detection, two sampling locations (“Orvis Out” and “CC-Adams”) were also sampled for *E. coli* bacteria. Samples from both of these sites exceeded Maine’s bacteria standard for *E. coli* and had positive responses via canine detection.

Sources of bacteria include stormwater runoff (as indicated by high bacteria concentrations under wet weather conditions, malfunctioning septic systems in the upper portion of the watershed and/or issues with the sewer line near Route 1 (as indicated by high bacteria concentrations under dry weather conditions and positive response from canine detection), and pet or wildlife waste.

Summary of Bacteria Sampling and Canine Detection on Manson Avenue

The Manson Avenue stormwater system drains a dense residential area in Admiralty Village and flows into an intertidal estuarine wetland that flows to Spruce Creek. Previous high levels of bacteria in water

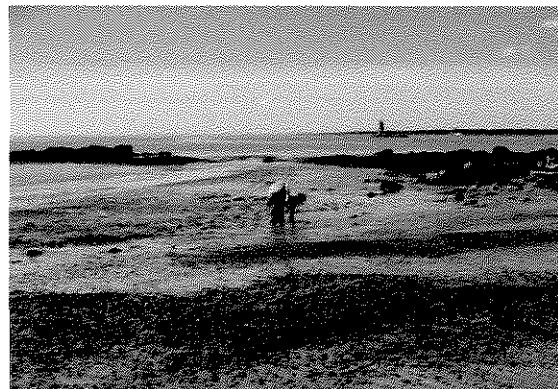
samples collected at this outfall prompted additional investigations of the stormwater system in the drainage area.

All sampling locations were consistently above the water quality standard for *E. coli* during both wet and dry weather conditions. The shoreline downstream of the stormwater outfall on Manson Avenue was assessed for the presence of human wastewater using canine detection. Canine response at many of these locations was positive for human sources of bacteria.

Though the Manson Avenue neighborhood is now serviced by a public sewer system, this area once had a combined storm/sewer network. This old infrastructure now serves as the stormwater system, though some older pipes are no longer in use. The interesting history of the storm and sewer network in this area, and the elevated bacteria concentrations during both dry and wet weather sampling events suggest that there may be potential sources of bacteria stemming from illicit discharges or storm/sewer cross connections in the Manson outfall drainage area. An investigation of the stormwater system in this neighborhood also revealed multiple catch basins in private back yards. Follow-up outreach to local residents and a more detailed investigation of the stormwater system in this neighborhood is recommended.

Summary of Bacteria Sampling and Canine Detection at Fort Foster Beach

A 2012 water quality study at Fort Foster Beach led to the discovery and removal of a potentially malfunctioning outhouse upstream of a marsh that drains to the beach. In that study, bacteria concentrations were found to exceed the water quality standard for enterococci bacteria in the marsh, surf zone, and in multiple locations along the shoreline. Through the use of canine detection, human sources of bacteria were discovered at all sampling sites in 2012 and were believed to originate from an outhouse upstream of the marsh.



Logan investigates Fort Foster Beach

In 2013, a follow-up investigation of the same sites was conducted to determine the effects of the removal of the outhouse. At all sampling locations, the strong positive responses in 2012 at five locations along Fort Foster beach were either negative in 2013 or positive as indicated by only one dog, indicating that the actual amount of human sources of bacteria in those seeps was relatively low. Though the removal of the outhouse upstream of the marsh in 2012 likely led to the decrease in human sources of bacteria reaching the beach, this area should be monitored continuously to prevent future contamination.

In this study, additional sites along the beach were investigated using both canine detection and water quality analysis where appropriate. Follow-up studies at these sites should include an investigation of both human and natural sources of bacteria, including pet and wildlife waste.

1. INTRODUCTION

Spruce Creek is listed in Maine's Integrated Water Quality Monitoring and Assessment Report (303d) as impaired under Category 4-A: Estuarine & Marine Water Impaired by Bacteria (TMDL complete) for nonpoint source pollutant sources. Efforts to reduce the bacteria load to Spruce Creek have increased in the past few years. The Town of Kittery, the Spruce Creek Association, and FB Environmental (FBE) have partnered to identify sources of bacteria to the creek in an effort to guide remediation efforts.



In 2009, FBE conducted a study of nine stormwater outfalls in the Spruce Creek watershed and investigated another 14 in 2011. From this work, two outfalls (Culvert on Picott and Culvert at Haley and Trafton) were identified as “primary hotspots” of bacterial contamination and were further investigated in 2012. Additional outfall sampling in 2012 resulted in the identification of more “hotspot” locations (the outlet of Chickering Creek and the Manson Avenue outfalls). Reducing the bacteria loading to these outfalls has become a priority. In 2013, bracket sampling was conducted in the Chickering Creek watershed, and continued outfall sampling was performed at the Manson Avenue outfalls. Additionally, a detailed investigation of the stormwater system in the Manson Avenue neighborhood was conducted.

On July 31, 2013, FBE and Environmental Canine Services (ECS) collaborated with the Town of Kittery to conduct targeted bacteria source tracking at Fort Foster Beach, Chickering Creek, and the Manson Avenue stormwater system. Scott and Karen Reynolds of ECS, along with canines Sable and Logan, pioneered the canine detection method of identifying pollution sources in the upper Midwest and California. Canine detection is recognized by EPA Region 5 as an effective, quality-assured tool able to rapidly detect human-source wastewater in the environment. FBE coordinated with ECS to conduct this second working visit to New England.

This report provides results from bacteria sampling in the Spruce Creek Watershed from July – October, 2013, canine detection investigations conducted in July 2013, and the Manson Avenue stormwater system investigation. Recommendations for next steps are provided.

2. BACTERIA SAMPLING

2.1 BACTERIA IN WATERBODIES

High concentrations of fecal indicator bacteria in waterbodies can lead to posted advisories at swimming beaches and closures of shellfish beds. These bacteria are used to signal human health risks such as gastrointestinal, respiratory, eye, ear, nose, throat, and skin infections transmissible to humans through consumption of contaminated fish and shellfish, skin contact, and/or ingestion of water.

E. coli bacteria are present in the intestinal tracts of warm-blooded animals and are used to indicate the presence of fecal contamination in waterbodies. Each gram of human feces contains approximately 12 billion bacteria, many associated with human health issues. Feces from other warm-blooded animals, including pets, farm animals, and wildlife may also contribute bacteria and associated disease vectors to waterbodies. *E. coli* bacteria are used by the State of Maine to assess the designated uses for freshwater streams, rivers and lakes. It is used to determine the need for closings and advisories at swimming beaches throughout the State. For this effort, *E. coli* bacteria sampling was conducted in addition to the canine detection efforts to understand levels of contamination in the water from various locations throughout the Spruce Creek watershed. The canines can detect human sources of bacteria at relatively low concentrations, so the conventional bacteria test provides an idea of the severity of pollution.

2.2 BACTERIA SOURCE TRACKING METHODS

Identifying the sources of bacteria to a waterbody is often difficult, as many sources are diffuse, may change over time, and can depend on weather conditions. Methods to track sources of bacteria include:

1. **Bacteria Sampling:** Regular water quality sampling of a waterbody at established sampling locations can provide general information about the sources of bacteria. For instance, high bacteria levels during wet weather may indicate that stormwater runoff is a primary source of bacteria, while dry weather sampling may indicate the presence of an illicit discharge.
2. **Bracket Sampling:** Bracket sampling is used to locate the sources of bacteria entering a storm drain system or tributary by sampling up gradient and down gradient of potential sources to “bracket” (or isolate) pollutant source locations. This type of testing can guide remediation efforts as it may reveal an isolated bacteria source or it may indicate that elevated bacteria levels are spread throughout the storm drain system or watershed.
3. **Mapping and Watershed Investigation:** Once areas of high bacterial pollution have been identified, creating a map of the watershed draining to a storm drain outfall or waterbody can provide additional information about sources of bacteria in the watershed. Through this method, the location of bacteria sources such as sewer lines, agricultural operations, and septic systems can be assessed and their potential contribution to the waterbody can be evaluated.
4. **Microbial Source Tracking:** Microbial Source Tracking refers to a broad range of genetic tests aimed at identifying specific sources of bacteria. These methods can often indicate the source

species of animal. A highly specialized laboratory is required, cost per sample can be high, and more time is required for this method. Some methods remain experimental.

5. **Canine Detection:** Environmental Canine Services (ECS) has trained dogs to identify human sources of bacteria through scent in a storm drain system or waterbody. This cost-efficient method provides a rapid screening method for illicit discharge detection.

Each of the above methods has its merits, and they are most effective when used in a coordinated, watershed-based, iterative approach to detecting sources of bacteria to waterbodies.

3. 2013 SAMPLING IN KITTERY, MAINE

3.1 SAMPLING METHODS AND LOCATIONS

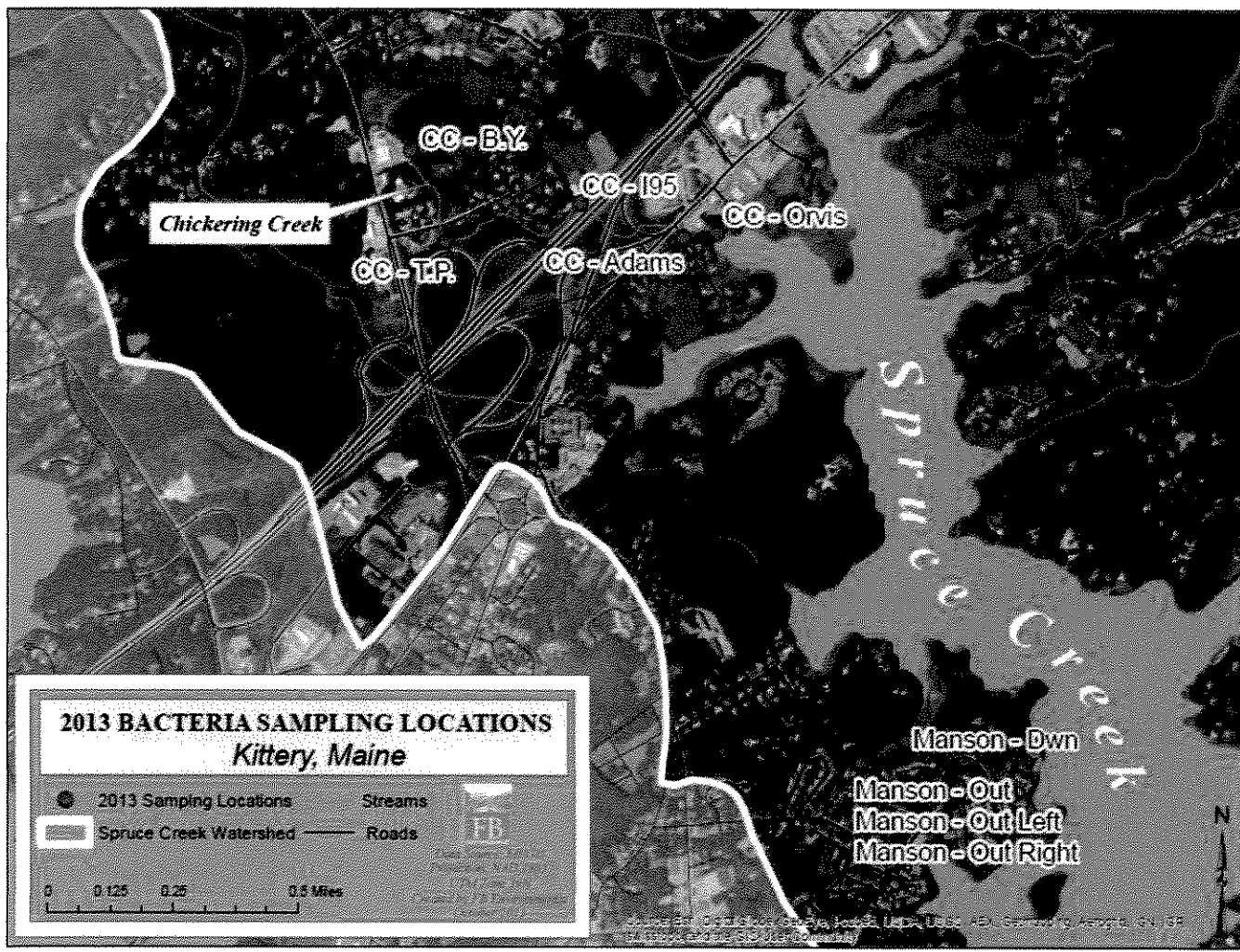
3.1.1 Bacteria Sampling

FBE conducted bacteria sampling on six dates under various weather conditions (three under wet weather conditions and three under dry weather conditions) at eight locations throughout the Spruce Creek watershed (Figure 1) from July to November 2013. Dissolved oxygen and temperature data were also collected during most sample events at each sampling location. All bacteria samples were analyzed for *E. coli* bacteria at Nelson Analytical Water Testing Laboratory in Kennebunk, Maine. In Maine, the state water quality standard for *E. coli* is 236 colonies/100mL for an instantaneous sample and 64 colonies/100mL for the geometric mean of multiple samples.

Of the eight sampling locations, five sites were located in the Chickering Creek watershed. Chickering Creek is a small tributary to Spruce Creek with a watershed area of 0.4 square miles. The watershed consists largely of residential development to the north, with dense commercial development to the south along Route 1 (Figure 1).

The other sampling locations were located at the stormwater outfalls on Manson Avenue. The Manson Avenue outfalls drain a dense residential area and flow into an intertidal estuarine wetland that flows to Spruce Creek. High bacteria levels in water samples collected at this outfall prompted additional investigations of the stormwater system.

Figure 1: Routine Spruce Creek Bacteria Sample Locations in Kittery, Maine in 2013



3.1.2 Canine Detection

On July 31, 2013, Emily DiFranco and Whitney Baker from FB Environmental Associates (FBE), Scott and Karen Reynolds from Environmental Canine Services (ECS), and Fred Dixon from the Kittery Department of Public Works investigated and sampled tributaries and outfalls discharging to Spruce Creek and areas along Fort Foster Beach (Figure 2).

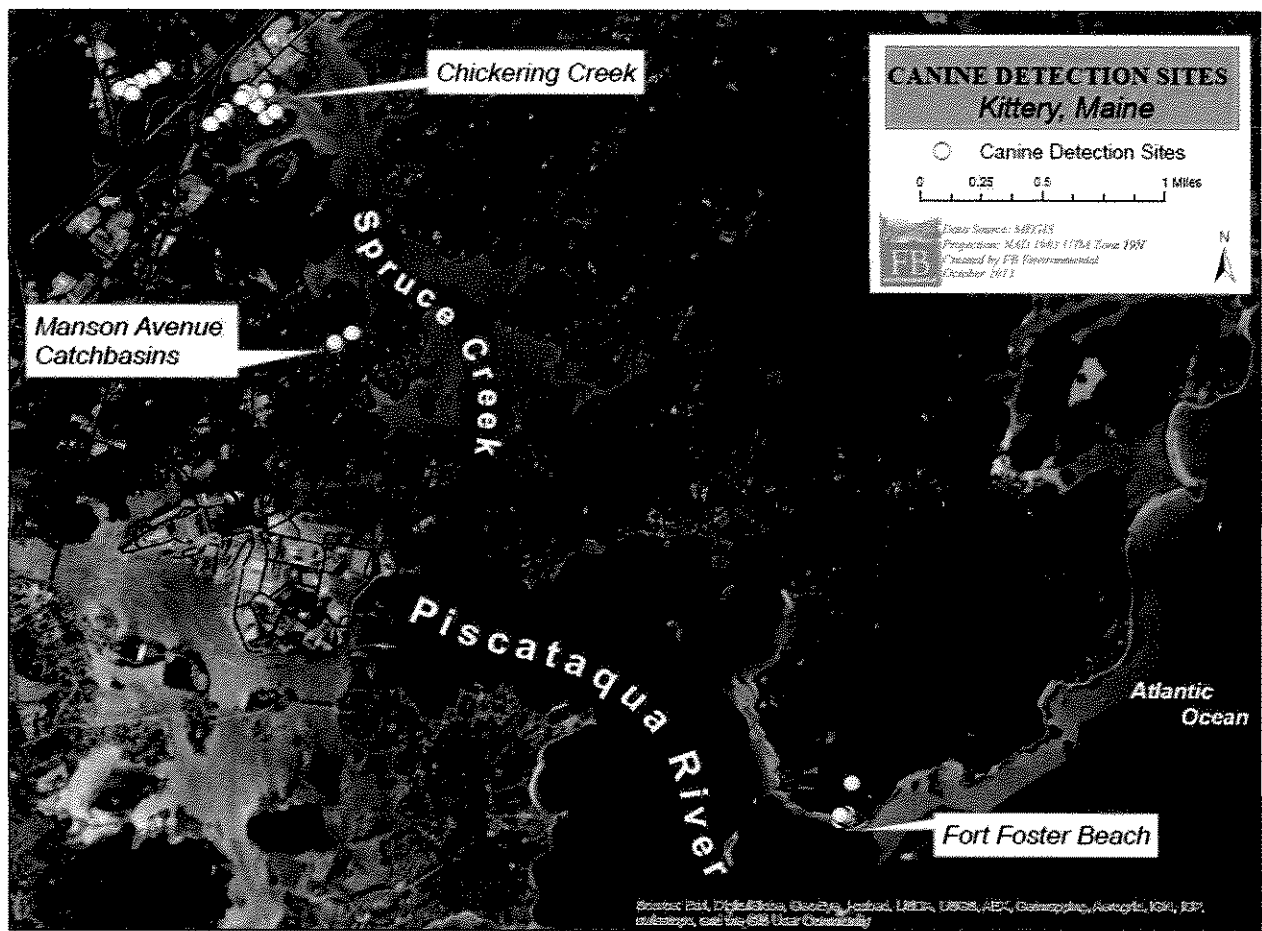
At all sampling locations, at least one dog was brought to the catch basin, outfall, or tributary to determine the presence of human sources of bacteria. When possible, both



Logan indicates a positive response

dogs were used to provide a check of the results. Sable, indicated the presence of human sources of bacteria by barking, while Logan indicated by sitting down. All in-field responses were recorded on field sheets. In some locations, samples were collected using plastic buckets with lids. All buckets were triple-rinsed at the collection site. Buckets were presented at a neutral location to Sable and Logan and responses were recorded on field sheets. Buckets were handled with gloves upon opening and removed from the area after analysis. At many locations, bacteria samples were collected in Whirl-pak bags for analysis at Nelson Analytical Laboratory in Kennebunk, ME. Samples were preserved with ice and transported to the laboratory following chain of custody protocol to be analyzed for *E. coli* bacteria. Sampling was conducted under low tide conditions.

Figure 2: Canine Detection Locations in Kittery, ME



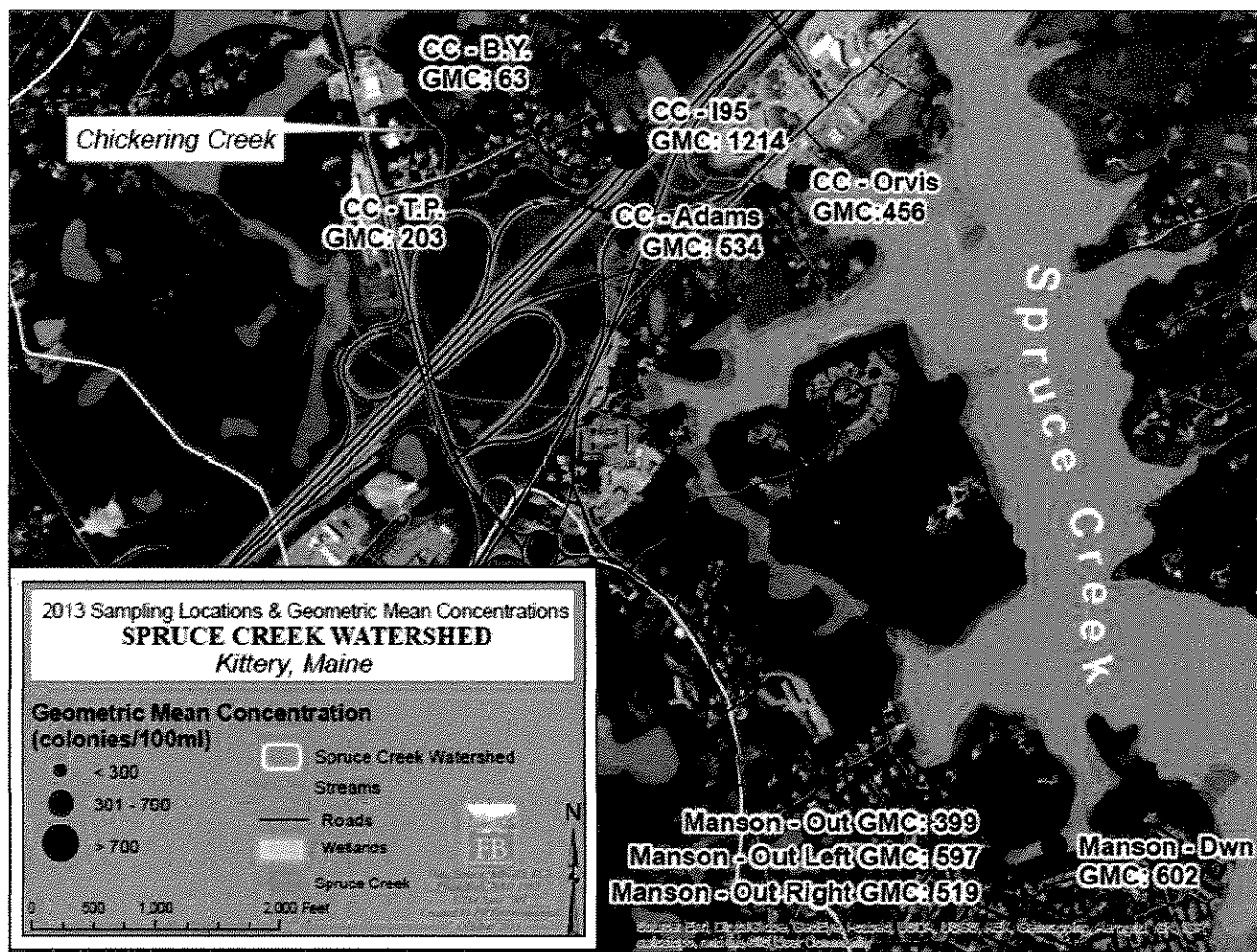
3.2 BACTERIA RESULTS

As shown in Table 1, *E. coli* concentrations ranged from 35 to over 2,420 colonies/100 mL. The geometric mean ranged from 63 to 1,214 colonies/100 mL. Geometric mean values for all but one site (CC-BY) were above the Maine water quality standard for *E. coli* bacteria. This site is located on Chickering Creek in a forested area upstream from the residential development north of I-95 and Route 1. Sites CC-195 and Manson Down had the highest geometric mean concentrations of all samples collected in 2013 (Table 1, Figure 3).

Table 1: *E. coli* (colonies/100mL) results & geometric mean concentrations for all sampling locations in the Spruce Creek watershed in Kittery, Maine from August – November 2013 (sites organized upstream to downstream)

Sample ID	Site Location	8/13/2013	9/20/2013	9/23/2013	9/26/2013	10/7/2013	10/23/2013	11/1/2013	Geometric Mean
		0" in 48 hours Dry	0" in past 96 hours Dry	0.6" in past 48 hours Wet	0" in past 48 hours Dry	0.2" in past 24 hours Wet	0" in past 96 hours Dry	0.1" in past 24 hours Wet	
Chickering Creek Sites									
CC-BY	Chickering Creek behind Boat Yard facility	99	65	157	35	68		27 *	63
CC-T.P.	Off Dana Ave. - Downstream of the trailer park	52	140	249	70	228 *		>2420	203
CC 195	I-95 at end of Manson Road		>2420	2420	1203	>2420		1046	1214
CC-ADAMS	Culvert downstream of Adams Dr.	99	649	1414 *	770	1986		166	534
CC-ORVIS OUT	Outlet of Chickering Creek	93	687	1414	381 *	2420		108	456
Manson Avenue Sites									
LEFT-MANSON OUT	Left culvert				87	2420	250	>2420	597
RIGHT-MANSON OUT	Right culvert				115	>2420	108	>2420	519
MANSON OUT	Outfall at Manson Ave	770	181 *	435					399
MANSON DWN	Downstream of outfall in wetland/marsh	1300	261	285	236	1203	1986	308	602
<p>☛ Gray cells indicate an exceedance of WQS for <i>E. coli</i> (Single sample = 236 colonies/100 mL; Geometric Mean = 64 colonies/100 mL).</p> <p>* indicates that a field duplicate was collected. Result is the average of two samples.</p> <p>☛ Wet weather sampling is determined using the following parameters for precipitation in Kittery, ME. Precipitation totals must meet at least 1 of the 3 parameters to be a wet weather sample: > 2.0 inches in the past 96 hours >0.25 inches in the past 48 hours >0.1 inches in the past 24 hours</p>									

Figure 3: Geometric Mean Concentrations (colonies/100 ml) at all 2013 Spruce Creek Sampling Locations in Kittery, Maine



3.2.1 Wet and Dry Weather Analysis

The geometric means for wet weather and dry weather samples were also calculated in an effort to understand the sources of bacteria in the watershed (Table 2). Both wet and dry weather geometric mean values exceeded the water quality standard for *E. coli* at all sites in the Spruce Creek watershed except for site CC-BY during dry weather. At this location, the dry weather geometric mean did not exceed the water quality standard while the wet weather geometric mean value was only slightly elevated above the state water quality standard. At sampling location CC-195, the wet and dry weather geometric means were over 20 times the water quality standard.

Table 2: *E. coli* (colonies/100mL) wet weather, dry weather, and total geometric mean and response from canine detection for all sampling locations in the Spruce Creek watershed from August – November 2013.

Sample ID	Site Location	DRY	WET	TOTAL	CANINE RESPONSE
		Weather Geometric Mean	Weather Geometric Mean	Geometric Mean	Sable
Chickering Creek Sites					
CC-BY	Chickering Creek behind Boat Yard facility	61	66	63	--
CC-T.P.	Off Dana Ave. - Downstream of the trailer park	80	522	203	No
CC I95	CC- I95	1706	1217	1214	--
CC-ADAMS	Culvert downstream of Adams Dr.	367	775	534	Yes
CC-ORVIS OUT	Outlet of Chickering Creek	303	718	456	Yes
Manson Avenue Sites					
LEFT-MANSON OUT	Left culvert			597	--
RIGHT-MANSON OUT	Right culvert			519	--
MANSON OUT	Outfall at Manson Ave			399	Yes
MANSON DWN	Downstream of outfall in wetland/marsh	631	710	602	Yes
§ Gray cells indicate an exceedance of WQS for <i>E. coli</i> (Geometric Mean = 64 colonies/100mL) --Indicates no sample was taken due to time or accessibility issues XXXX Indicates less than three wet or dry samples were collected - could not calculate a wet/dry geometric mean.					

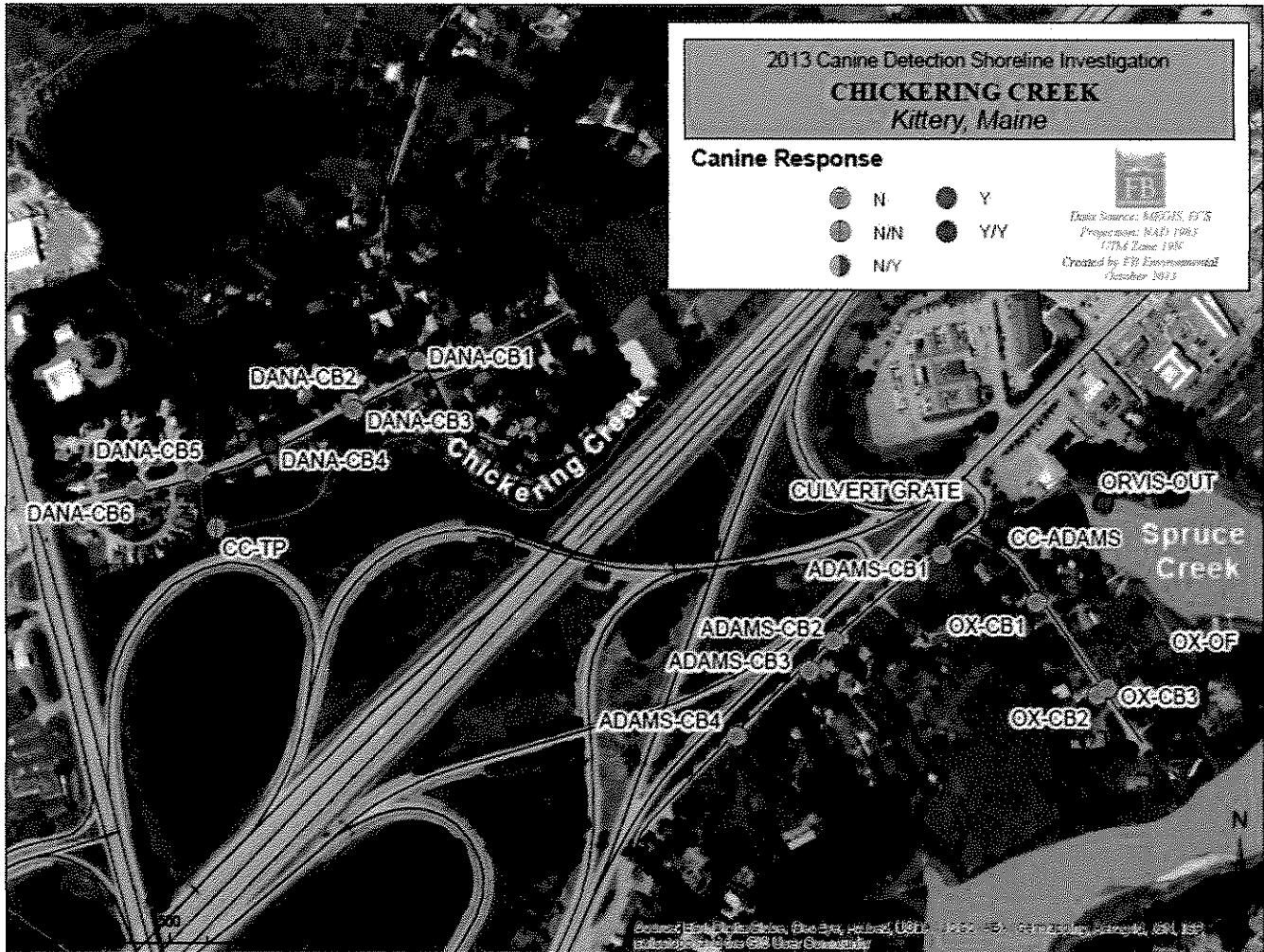
3.3 CANINE DETECTION

3.3.1 Chickering Creek Results

Chickering Creek was investigated by Scott Reynolds and canine Sable from Environmental Canine Services, Fred Dixon from the Town of Kittery Department of Public Works, and Whitney Baker from FB Environmental. The field team investigated the shoreline and all outfalls at the outlet of Chickering Creek at its convergence with Spruce Creek. Catch basin investigations were conducted on Adams Drive, Ox Point Drive, and Dana Avenue. As shown in Figure 4, 18 locations in the Chickering Creek watershed were assessed for the presence of human wastewater using canine detection including catch basins on Adams Drive, Oxpoint Drive and Dana Avenue. Five of the 18 sites were positive for human sources of

bacteria. These sites include a catch basin on Dana Road, a culvert grate near the intersection of Adams and Oxpoint Drive, an outfall in the Oxpoint Drive neighborhood, and the two downstream sampling locations along Chickering Creek (CC-Adams and Orvis Out).

Figure 4: Sampling locations on Chickering Creek in Kittery, ME (July 31, 2013). Colored dots indicate canine response.



3.3.2 Manson Avenue Results

Manson Avenue was investigated by Scott Reynolds and canine Sable from Environmental Canine Services, Fred Dixon from the Town of Kittery Public Works Department, and Whitney Baker from FB Environmental. The field team investigated the area surrounding two large outfalls located off of Manson Avenue. These outfalls empty into an estuarine marsh and ultimately into Spruce Creek.

As shown in Figure 5, the shoreline downstream of the stormwater system outfall at Manson Avenue was assessed for the presence of human wastewater using canine detection. Canine response at the stormwater outfall and the downstream location were positive for human sources of bacteria (Table 2).

Figure 5: Sampling locations at the Manson Avenue Outfalls in Kittery, ME (July 31, 2013). Colored dots indicate canine response.

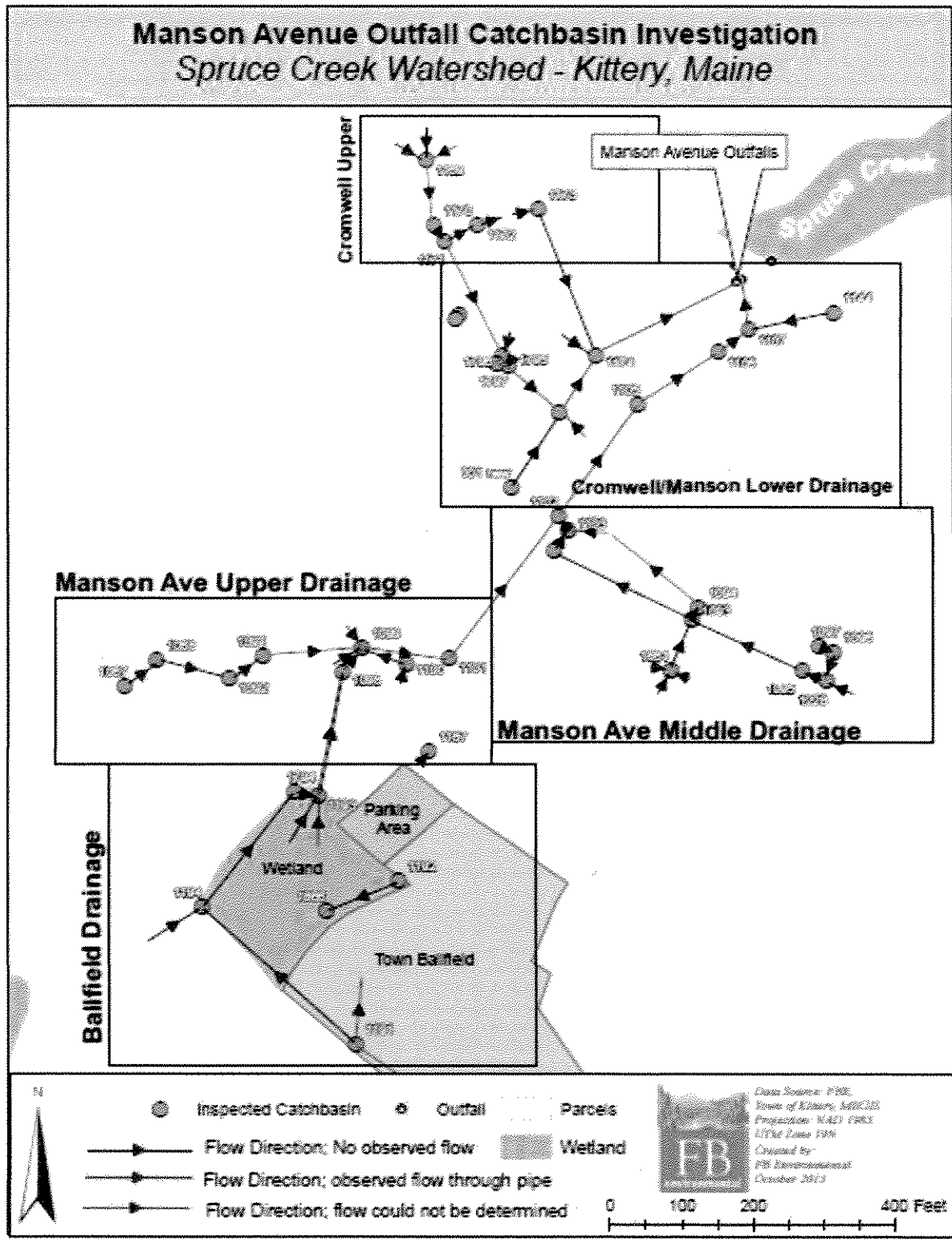


3.4 MANSON AVENUE CATCH BASIN INVESTIGATION

On September 27 and October 24, 2013, Whitney Baker and Logan Cline from FBE, and Fred Dixon from the Town of Kittery Department of Public Works, investigated the stormwater system that drains to the Manson Avenue outfalls. The purpose of the catch basin investigation was to identify potential illicit discharges, document flow patterns, and map all existing catch basins in the drainage area.

Beginning at the two Manson Avenue outfalls, each storm drain was opened and investigated. In-flow and out-flow pipes were documented and a photo was taken. Based on current stormwater system data and information from knowledgeable staff at the Kittery Department of Public Works, connections between catch basins were documented. Some pipes observed within catch basins were of unknown origin. These are presented in the maps below with “??” next to the pipe line. Unknown pipes with observed flow into a catch basin are of particular concern as they may indicate illicit discharges. Figure 6 displays the entire drainage area investigated in the Manson Avenue area on the above dates. The drainage area was divided into five segments for detailed analysis. This analysis can be found in Appendix A.

Figure 6: Manson Avenue Catch Basins draining to the “Manson Out” sampling location in Admiralty Village, Kittery, ME.



3.5 CHICKERING CREEK DISCUSSION OF RESULTS AND NEXT STEPS

3.5.1 Discussion of Results for Chickering Creek

As shown in Table 2, four of the five sampling locations along Chickering Creek exceeded the water quality standard for bacteria. At the sampling location adjacent to I-95, bacteria concentrations ranged from 16 to 38 times the water quality standard throughout the study period in both wet and dry weather. Bacteria concentrations remained elevated from this location to the mouth of the creek. Though no sample was available from the I-95 location for canine detection due to accessibility issues, the two downstream sites, CC-Adams and Orvis Out were both positive for human sources of bacteria.

Bacteria in Chickering Creek could be from stormwater, malfunctioning septic systems in the upper portion of the watershed and leaking sewer line or illicit discharges to the stormwater system in the lower portion. Though present, the actual amount of human-derived bacteria at these sites is unknown and other sources such as animal waste from pets and wildlife should be considered. Much of the Chickering Creek watershed is residential with commercial development around Route 1 and I-95 channeling the creek through culverts and sending additional inputs of untreated stormwater into Chickering Creek. Large areas of impervious surfaces and high concentrations of bacteria during wet weather sampling events suggest that stormwater runoff is an important source of bacteria pollution in the Chickering Creek watershed.

A catch basin on Dana Avenue (Dana-CB4) had signs of a laundry connection into the catch basin. Water within this basin was grey and cloudy. An obvious fabric softener odor was observed during the investigation of this catch basin. Connections to washers or other wash stations within a residence can be a source of bacteria, surfactants and other chemicals to Chickering Creek.

3.5.2 Recommended Next Steps for Chickering Creek

1. Continue bacteria monitoring throughout the Chickering Creek watershed under varying weather conditions to monitor changes in bacteria concentrations
2. Investigate the stormwater system draining into Chickering Creek from commercial areas along Route 1.
3. Conduct an investigation (such as a smoke test) of the sewer line on Route 1 to ensure there are no leaks in the system.
4. Determine the septic system history of any residential neighborhoods in the watershed to identify potentially failing systems.
5. Add bacteria sampling locations upstream of existing sampling locations in an effort to further bracket the sources of bacteria.
6. Walk the watershed to determine the extent of pet waste and to identify areas where wildlife (such as birds) may congregate.
7. Investigate potential illicit discharge to Dana- CB4.

3.6 MANSON AVENUE DISCUSSION OF RESULTS AND NEXT STEPS

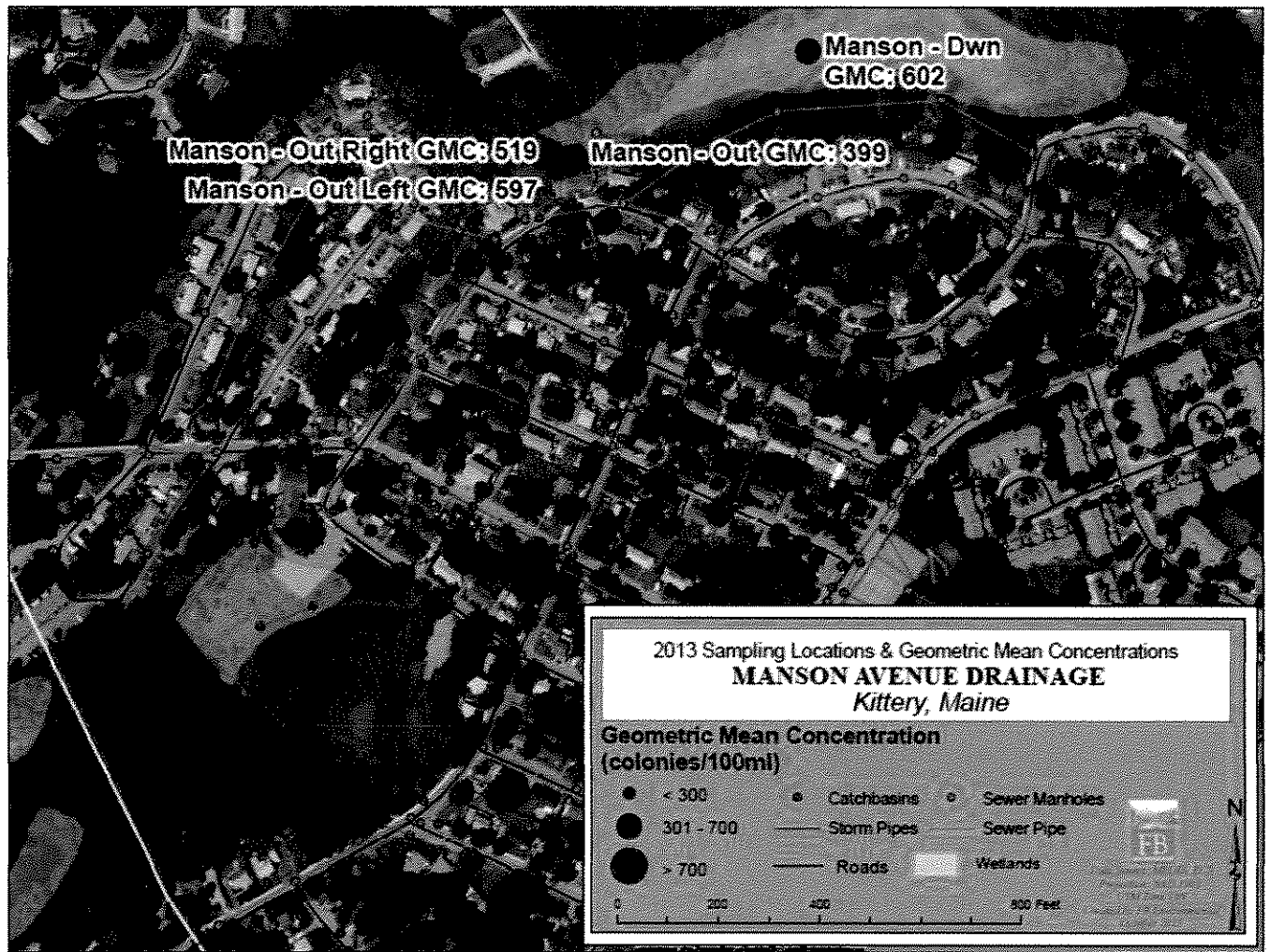
3.6.1 Discussion of Results for Manson Avenue

The two outfalls (“Manson out Left” and “Manson out Right”) receive stormwater from the neighborhood along Manson Avenue and Cromwell Street, respectively, in Admiralty Village (Figure 7). As shown in Tables 1 and 2 bacteria concentrations at the Manson Avenue outfalls and the “Manson Down” sample location have been consistently high; consistently exceeding the state standard for *E. coli* during both wet and dry weather conditions and were positive for human sources of bacteria (Table 2).

As bacteria concentrations exceeded the water quality standard under varying weather conditions, sources of bacteria likely include a mix of sources including stormwater runoff, malfunctioning septic systems, pet waste, and wildlife. Overall, bacteria concentrations were higher under wet weather conditions than under dry weather conditions though dry weather concentrations continuously exceeded the water quality standard as well, indicating that bacteria sources are derived not only from stormwater runoff (Table 2).

The Manson Avenue neighborhood is now serviced by a public sewer system. This area once had a combined storm/sewer network. This old infrastructure still exists as the current stormwater system, though some older pipes are no longer in use. The interesting history of the storm and sewer network in this area and the elevated bacteria concentrations during both dry and wet weather sampling events suggest that there may be potential sources of bacteria stemming from illicit discharges or storm/sewer cross connections in the Manson outfall drainage area. Figure 7, below, shows the interconnected storm and sewer network throughout this drainage area along with the geometric mean concentrations at the sample sites in 2013.

Figure 7: Manson Avenue Outfalls and the storm/sewer network drainage area in Admiralty Village - Kittery, Maine



3.6.2 Recommended Next Steps in the Manson Avenue Drainage Area

Though this investigation led to the development of a more accurate map of the stormwater system in the Manson Avenue neighborhood (Figure 6 and Appendix A), further investigation is necessary to determine the origin of bacteria within the stormwater system. A list of prioritized next steps is presented below:

1. Contact and notify all property owners with mapped catch basins on their property.
2. Generate educational materials for all landowners within the drainage area about the presence of backyard catch basins asking landowners to contact the Town of Kittery or the Spruce Creek Association if they believe they have a catch basin on their property.

3. Conduct bacteria sampling in all prioritized catch basins in this neighborhood to determine where bacteria could be entering the system.
4. Conduct a smoke test or dye test of prioritized catch basins to determine potential illicit connections. Camera inspections of pipes with unknown origins will also provide valuable information on pipe origin and potential illicit discharges.
5. Focus investigations at prioritized catch basins (Appendix A).

4. CANINE DETECTION AT FORT FOSTER

As a follow-up to sampling completed in 2012, Fort Foster Beach was investigated by Scott and Karen Reynolds and dogs Sable and Logan from Environmental Canine Services, Jessa Kellogg from Kittery Department of Public Works, and Emily DiFranco and Whitney Baker from FB Environmental. The field team investigated the shoreline, culvert outfalls, and the marsh located inland to the north. In 2012, high bacteria concentrations and human sources of bacteria were found along the beach in wet seeps, in the surf zone, and in the marsh upstream of the beach. After sampling in 2012, two outhouses located above the marsh were discovered and removed by Kittery Department of Public Works.

4.1.1 Fort Foster Beach Results

In 2013, eight locations were assessed for the presence of human sources of bacteria using canine detection at Fort Foster Beach (Figure 8). Many of these locations were assessed also assessed in 2012, though additional sites were chosen in 2013 as new wet seeps were found (Table 3). Human sources of bacteria were found at three of the eight sampling locations (indicated by one or both dogs). In addition to canine detection, water quality samples were taken at all but one location. At this location (Outfall-FF), there was insufficient flow to sample. Three of seven samples collected exceeded the water quality standard (Table 3). Maine's enterococci water quality standards (WQS) for determining beach closures are:

- 104 colonies/100 mL for instantaneous samples
- 35 colonies/100 mL for a geometric mean of multiple samples.

As shown in Table 3, multiple sites that were positive for human sources of bacteria in 2012 were negative in 2013. In some cases, Logan alerted to the presence of human sources of bacteria while Sable did not. In a 2011 Water Environment Research Foundation study, it was shown that Logan is more sensitive to low levels of human sources of bacteria than Sable. In these cases of a positive alert by Logan only and if other indicators of human sources of bacteria (e.g. suds, toilet paper, visible sewage) were not present, it is likely that the actual amount of human sources of bacteria present at the time of detection were also relatively low. However, human sources should still be included as potential sources of bacteria in follow-up investigations.

Table 3: Bacteria sampling and canine detection results from 2012 and 2013 at Fort Foster Beach in Kittery, Maine

Site Name	Site Description	2012 Bacteria Concentration Enterococci (colonies/100 mL)	2012 Canine Response (Logan/Sable)	2013 Bacteria Concentration Enterococci (colonies/100 mL)	2013 Canine Response (Logan/Sable)
Wet Seep 1	Seep furthest east on Fort Foster Beach	--	--	>2420	No/No
Wet Seep 2	Seep west of 'Wet Seep 1'	--	--	78	Yes/Yes
Wet Seep 3	In front of outfall on beach	--	--	613	Yes/No
Outfall - FF	Outfall draining marsh	--	Yes/Yes	--	No/No
Wet Seep 5	Seep furthest west	146	Yes/Yes	31	Yes/No
Upper Marsh - FF	South side of access road	569	Yes/Yes	101	No/No
Lower Marsh - FF	Above culvert to beach	109	Yes/Yes	29	No/No
Surf Zone - FF	Ocean	40	Yes/Yes	516	No/No
-- Indicates that no sample was collected due to insufficient flow Grey cells indicate an exceedance of the water quality standard (104 colonies/100 mL) Red cells indicate a positive canine response from both dogs Blue cells indicate a positive canine response from one dog					

Figure 8: Sampling locations at Fort Foster Beach in Kittery, ME on July 31, 2013. Colored dots indicate canine response.



4.1.2 Fort Foster Beach Discussion

At one location (Wet Seep 1), enterococci concentrations were over 20 times the water quality standard (Table 3). However, the dogs indicated that there were no human sources of bacteria present at this location. This may be a result of wildlife activity or other non-human sources inland and northeast of the beach. 'Wet Seep 3' also had bacteria concentration of over six times the state bacteria standard for enterococci. A white substance was present in this seep. Though Sable did not indicate the presence of human wastewater at this site, high bacteria results, and a positive response from Logan indicate that human sources may be



contributing to the contamination at this location. Both dogs gave positive responses at the ‘Wet Seep 2’ location on Fort Foster Beach. However, bacteria concentrations were below the water quality standard indicating that the extent of contamination at this site may be low.

As shown in Table 4, the strong positive responses in 2012 at five locations along Fort Foster beach were either negative in 2013 or positive as indicated by only one dog (Logan). As described above, Logan is more sensitive to low levels of human sources of bacteria than Sable indicating that the actual amount of human sources of bacteria in that seep was relatively low. Though the removal of the outhouse upstream of the marsh in 2012 likely led to the decrease in human sources of bacteria reaching the beach, this area should be monitored continuously to prevent future contamination.

4.1.3 Recommended Next Steps for Fort Foster Beach

1. Continue to conduct regular sampling (bacteria and canine detection) along Fort Foster Beach.
2. Investigate other potential human sources of bacteria near the beach including the bath house.
3. Investigate areas throughout Fort Foster State Park for areas of concentrated pet waste and where wildlife congregates (such as birds).
4. Examine the pattern of wet weather vs. dry weather bacteria counts, conducting additional sampling as needed. High counts in wet weather can indicate a connection to surface hydrology (street runoff, pet or wildlife waste, pipes or systems subject to overflow from rain) while high counts in dry weather suggest a source fed by a domestic water supply (leaking sewer pipes or septic systems).

4.2 PUBLIC OUTREACH

A public outreach event was held at Fort Foster Beach in Kittery, Maine from 10 AM – 12 PM on July 31, 2013 (Figure 9). The Town of Kittery held the event and set up a booth displaying past and present work that the town has completed in efforts to improve water quality in Spruce Creek and throughout the Town of Kittery. The event included demonstrations from the dogs and a discussion of water quality in Kittery.



Public outreach event at Fort Foster in Kittery, Maine, July 31, 2013

Figure 9: Public outreach flyer for canine detection in Kittery

Come See the Sewage Sniffing Dogs in Action!

Save the Date!
July 31, 2013 10 am - 12 pm
Fort Foster Park,
Kittery, ME

The Town of Kittery is pleased to be working with the dogs from Environmental Canine Services for a day of Bacteria Source Tracking. Come see how these dogs are trained to keep our waterways clean!

What is Canine Detection?

- *An innovative method to identify human sources of bacteria in water.*
- *A cost-efficient and effective bacteria source tracking tool.*
- *Investigate storm drain systems, stream channels, and shorelines.*
- *Proven successful in multiple studies including projects in New England.*

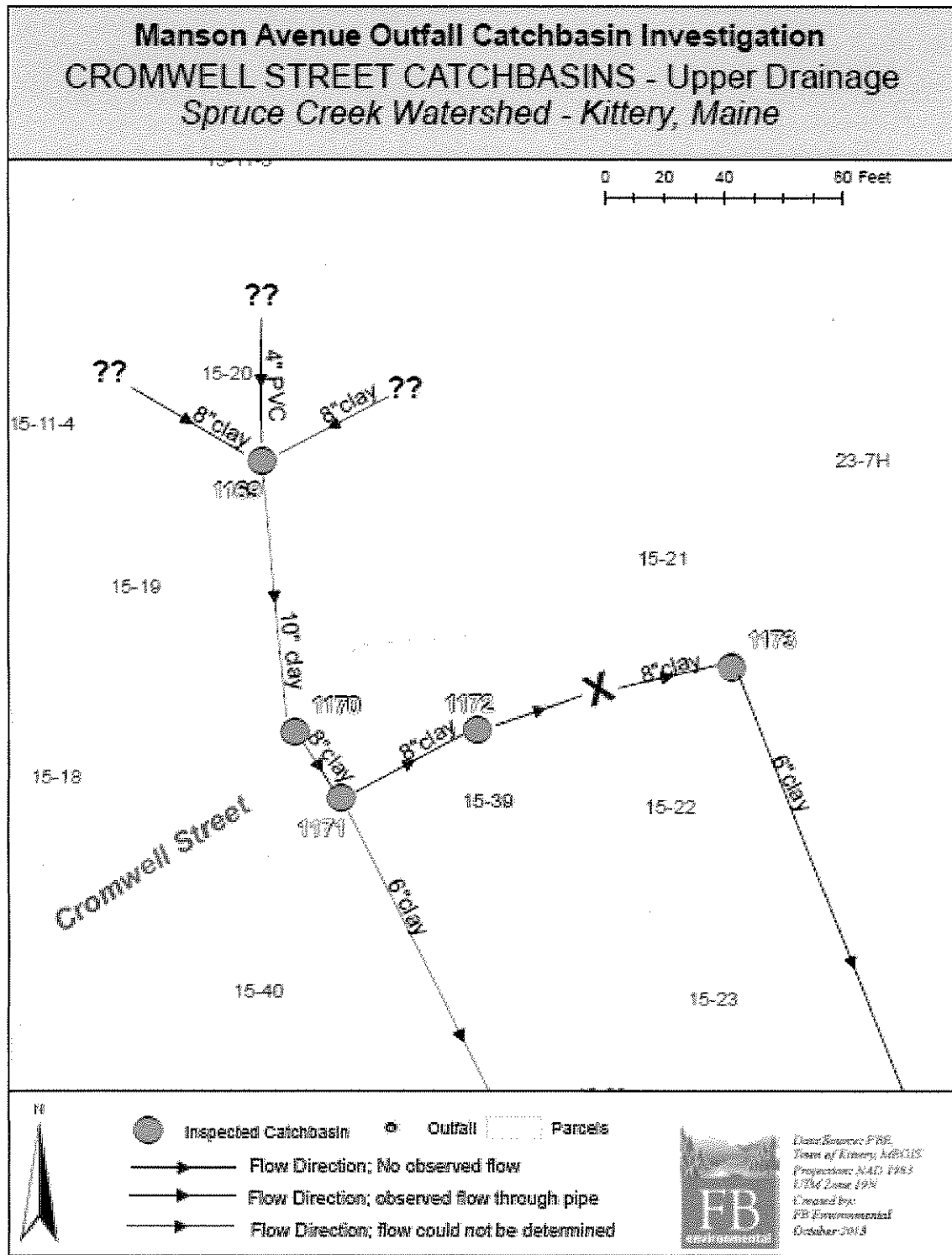
Environmental Canine Services LLC
Partnering Our Precious Resources With Nature's Gift

For more information, contact: Emily DiFranco
FB Environmental Associates, Portsmouth, NH
emilyd@fb-environmental.com, (603) 343-6321
Or visit our website for more information
www.fb-environmental.com/CanineDetection2013.html

5. APPENDIX A: DETAILED ANALYSIS OF THE CATCH BASIN SYSTEM IN THE MANSON AVENUE NEIGHBORHOOD

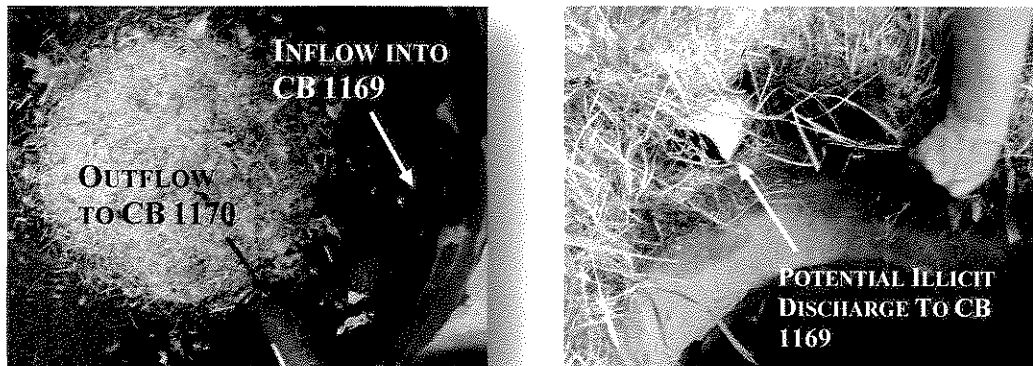
The first area investigated in the Manson Avenue area was the section of storm system that drains the houses along Cromwell Street. An unmapped backyard catch basin was also identified behind a residence on the south side of Cromwell Street (001new). Figure 10 summarizes the results of the upper portion of the Cromwell Street drainage area. Figure 11 illustrates the findings in the lower portion of this drainage area.

Figure 10: Manson Avenue Outfall Catch Basin Investigation – Upper Cromwell Street Drainage Area



Findings of the upper Cromwell Street drainage area are as follows (Figure 10):

1. Inside catch basin (CB) 1169 a source of flow was documented. An 8-inch clay pipe was observed with an unknown origin. This pipe may potentially be from a perimeter drain discharging from the adjacent residence. A potential illicit discharge was also discovered at this location. A small PVC pipe was observed just above the storm drain cover. This may be used as a laundry drain or basement sump pump. The origins of both pipes should be investigated.

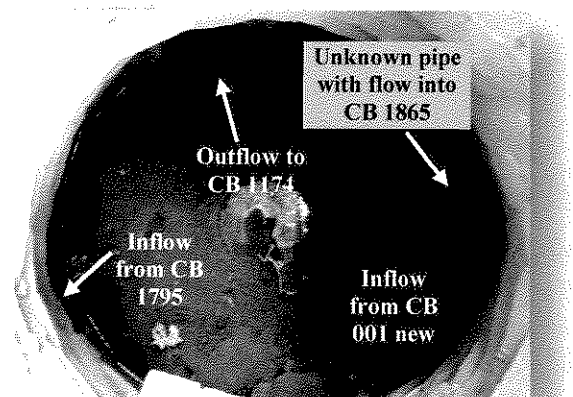


Catch Basin 1169 in the Upper portion of the Cromwell Street Drainage area.

2. A potential disconnect was discovered between CB 1172 and CB 1173. Based on observed pipes and current storm system data, water should flow from CB 1172 to CB 1173, and then on to 1174. However, during the Cromwell Street investigation, water was emptied into CB 1172 for a period of about 5 minutes. No flow was observed into CB 1173. CB 1173 is an older catch basin located in a backyard on Cromwell Street. It may be disconnected from the system as it observed to be dry.

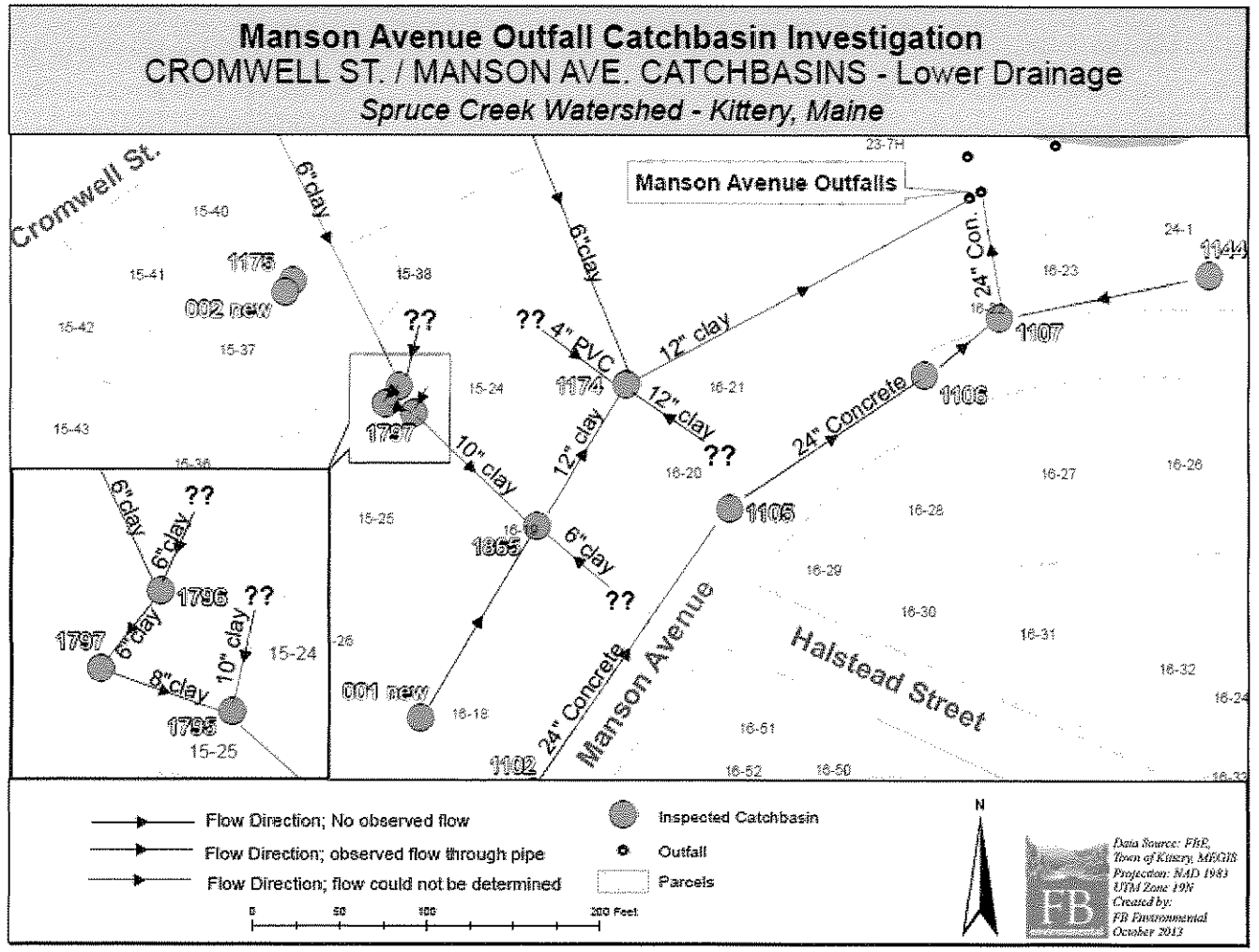
Findings from the investigation of the lower Cromwell Street / Manson Avenue drainage area are as follows (Figure 11):

1. A 10-inch clay pipe with observed flow into CB 1975 was observed during the Cromwell Street investigation. The origin of this pipe is unknown and should be investigated as moderate flow was observed from this pipe into CB 1795.
2. A 6-inch clay pipe with observed flow into CB 1865 was observed during the Cromwell Street investigation. The origin of this pipe is unknown.



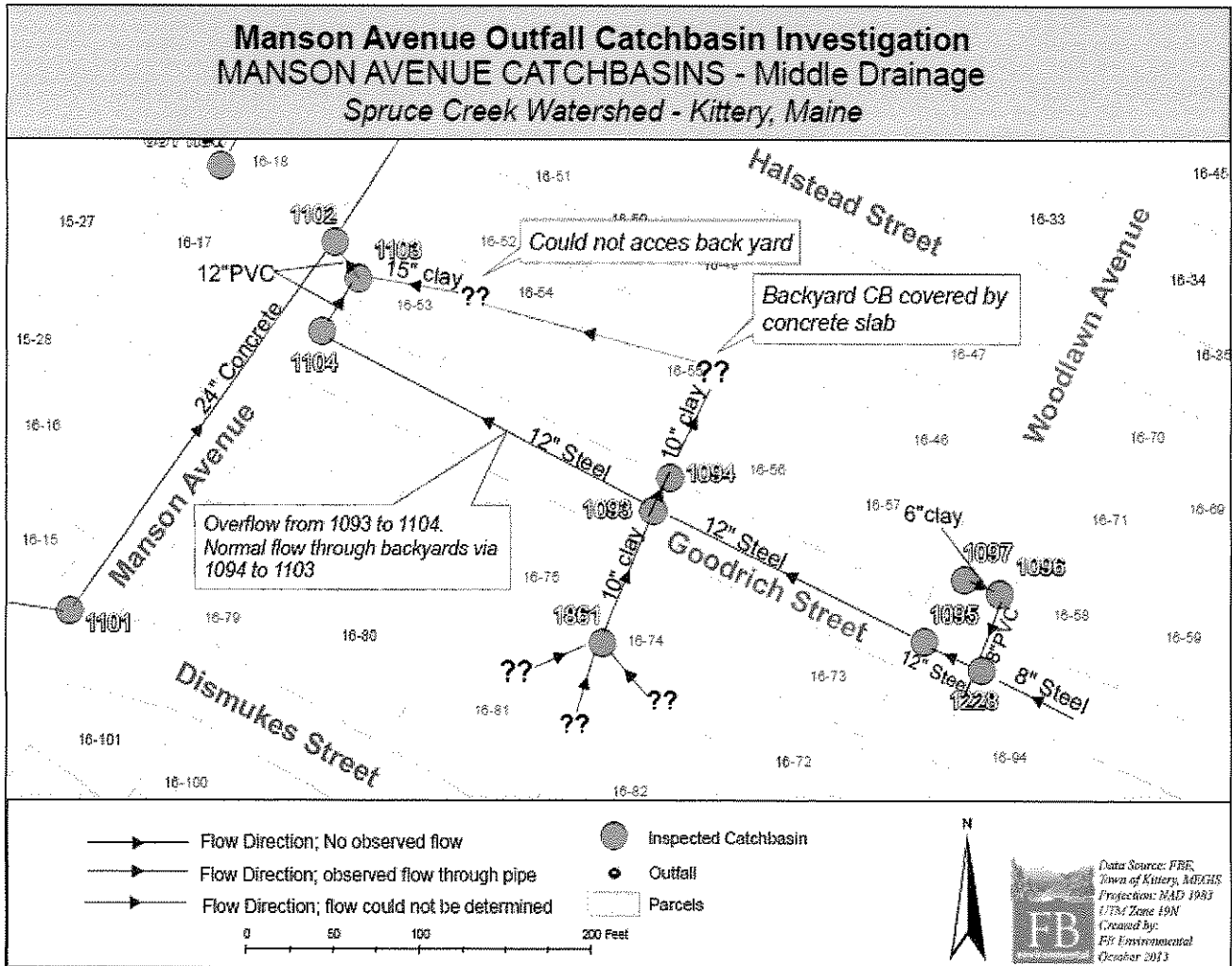
CB 1865 (left) with three inflow pipes and one outflow pipe to CB 1174.

Figure 11: Manson Avenue Outfall Catch Basin Investigation – Lower Cromwell Street / Lower Manson Avenue Drainage Area



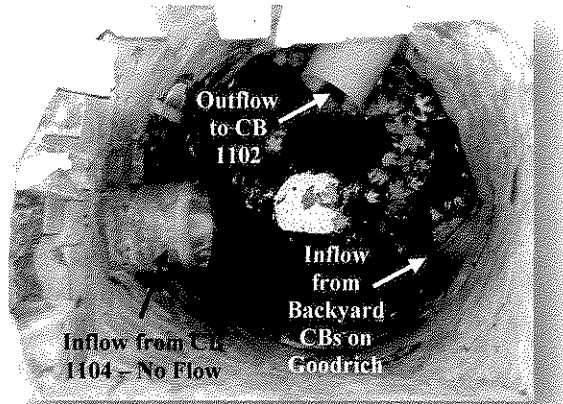
The next area investigated in the Manson Avenue neighborhood was the section of storm system along Goodrich Street. An important section of storm system was not investigated in this area as we could not gain access the backyards of the houses on parcels 16-53 and 16-54. The storm drain line that runs east to west at the most western end of Goodrich Street is actually an overflow for water flowing into CB 1093. Stormwater flows into CB1093, then to CB 1094 and through the backyards of parcels 16-55, 16-54 and 16-53. Flow continues to CB 1103 and then downstream on Manson Avenue. The mapped backyard catch basin located on parcel 16-55 was covered by a concrete slab and could not be accessed. Figure 12 displays the flow patterns in this portion of the storm system on Goodrich Street.

Figure 12: Manson Avenue Outfall Catch Basin Investigation – Middle Avenue Drainage Area at Goodrich Street



Findings from the investigation of the Middle Manson Avenue drainage area are as follows (Figure 12):

1. Further investigation of the portion of storm system located on parcels 16-55, 16-54, and 16-53 should be conducted to determine source of flow observed into CB1103.



CB 1103 located on the corner of Manson Ave and Goodrich Street – Observed flow through catch basin.

2. Catch basin 1861 is located in the backyard of parcel 16-75 and has three inflow pipes of unknown origin. According to homeowners, this catch basin receives a large amount of stormwater during rain events and often floods. Though the basin was dry during the investigation, the origins of these three pipes should be further investigated.



CB 1861 located on parcel 16-75 on Goodrich Street.

The catch basins located in the upper drainage area on Manson Avenue were also investigated for flow patterns and potential illicit discharges. This section of stormwater system starts at the corner of Manson Avenue and Boush Street to the corner of Dismukes Street. Figure 13 displays flows patterns through catchbasins in the upper drainage area on Manson Avenue.

Findings from the investigation of the Upper Manson Avenue drainage area are as follows (Figure 13):

1. CB1091 is source of flow into CB 1099, but no flow was observed through the CB 1091 during the investigation. There are a total of five pipes that flow into CB 1099 and one outflow pipe that connects to CB 1101. Flow was observed from three of the five pipes flowing into CB 1099. One pipe drains from the town ball field, parking area, and wetland. Another pipe receives stormwater from CB1091 on Manson Avenue. The last of these three pipes is a 10-inch transit pipe of unknown origin.

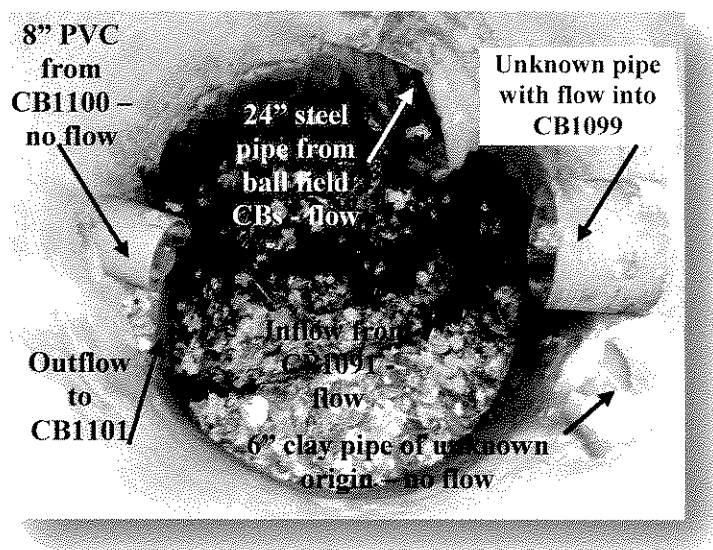
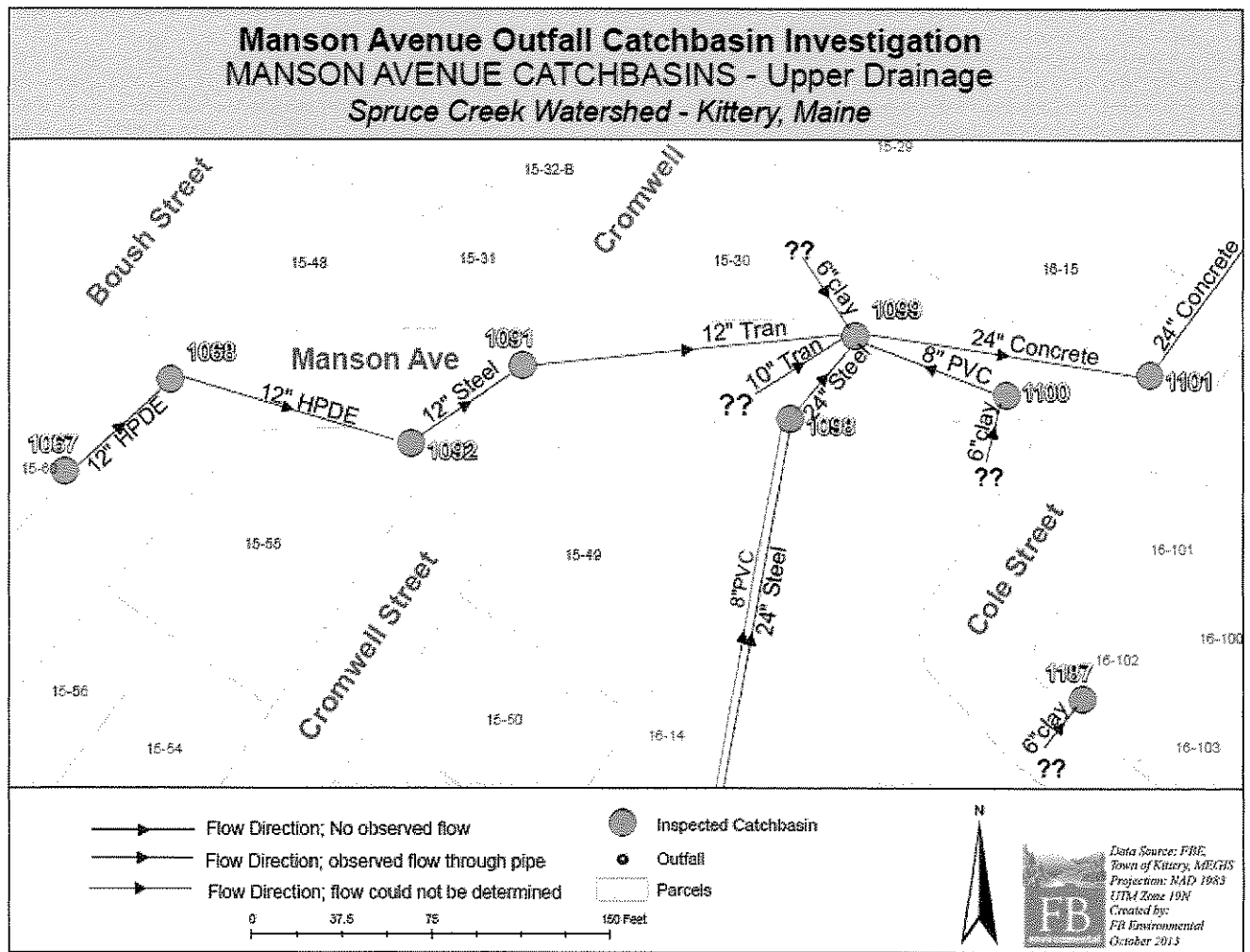


Figure 13: Manson Avenue Outfall Catch Basin Investigation – Upper Drainage Area

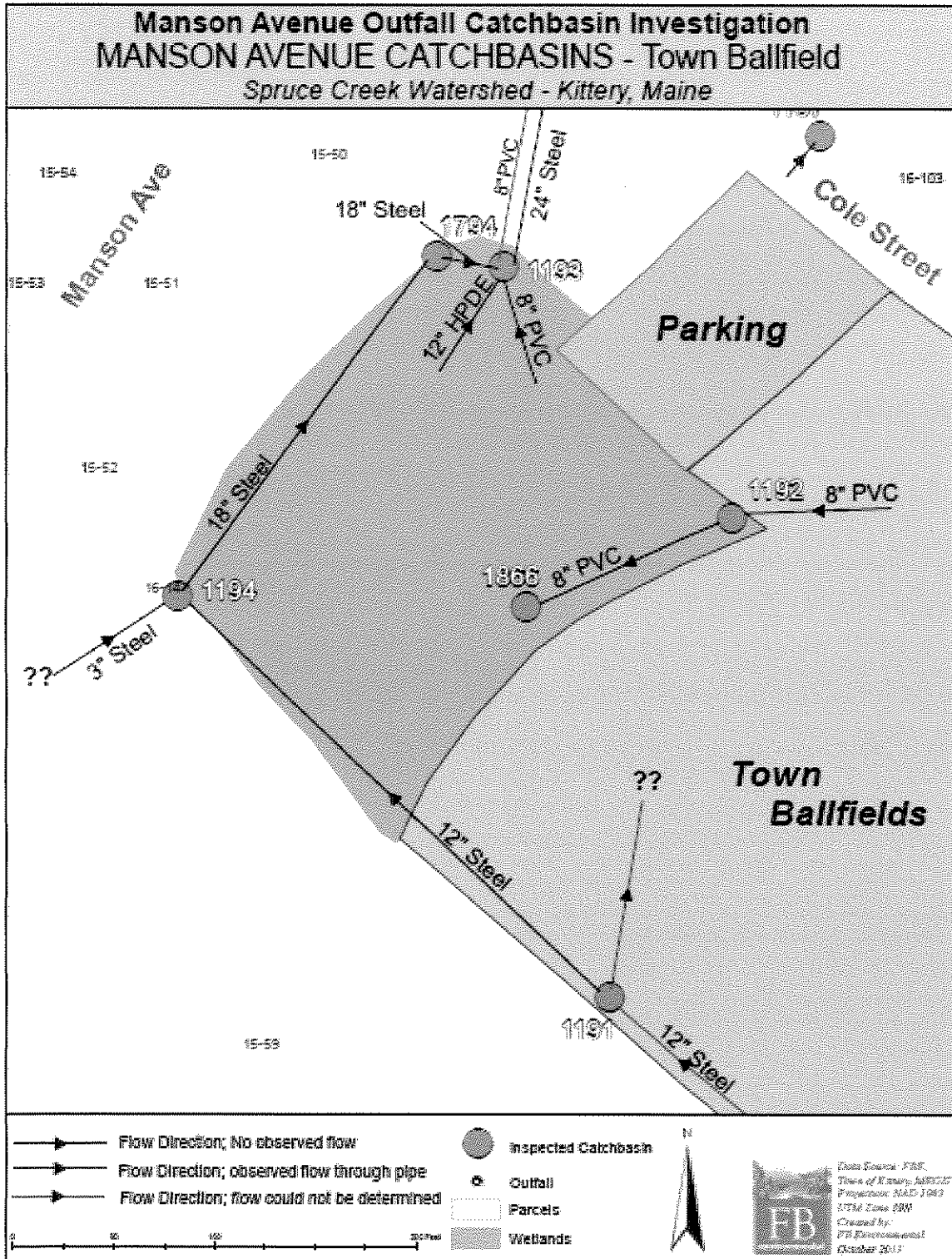


The next area included catch basins located around the town's ball park. Though there was flow into the catch basins, in many cases the outflow pipe was located high up in the basin. The catch basin would have to fill almost completely before water would drain out to the next downstream catch basin. Figure 14 summarizes the flow conditions in the ball field area and parking lot off of Cole Street in Kittery.

Findings from the investigation of the town ball field drainage area are as follows (Figure 14):

1. No signs of illicit discharges were discovered in the ball park area. Flow through CB 1193 is suggested to be solely stormwater driven. CB 1866 and CB 1192 receive water from perforated pipes that run underground along the perimeter to the ball fields. These collect water draining into the ditches along the field and drain into these two catch basins. The town installed these pipes to help prevent standing water on the fields.

Figure 14: Manson Avenue Outfall Catch Basin Investigation - Ball field Catch basins



KITTERY COMMUNITY MARKET
P O BOX 832
KITTERY, ME 03904

52-7450/2112

1056


DATE 2/10/14

PAY TO THE
ORDER OF

Kittery Community Center

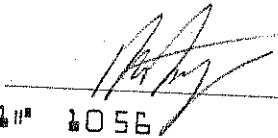
\$ 800.00

Eight hundred dollars 00/100

DOLLARS  Security Features
Detailed on Back


Kennebunk Savings

MEMO Donation



⑆ 211274502⑆ 44 002801⑆ 1056

2063 43600

Cindy Saklad

From: Jessa Kellogg
Sent: Wednesday, February 12, 2014 2:18 PM
To: Cindy Saklad
Subject: Re: Check from John Robinson

Spruce Creek Ph 3

Hi Cindy,
Sorry, it is a match donation for improvements at his personal residence we made this past fall. I should have mentioned that, I apologize!

Thanks,
Jessa

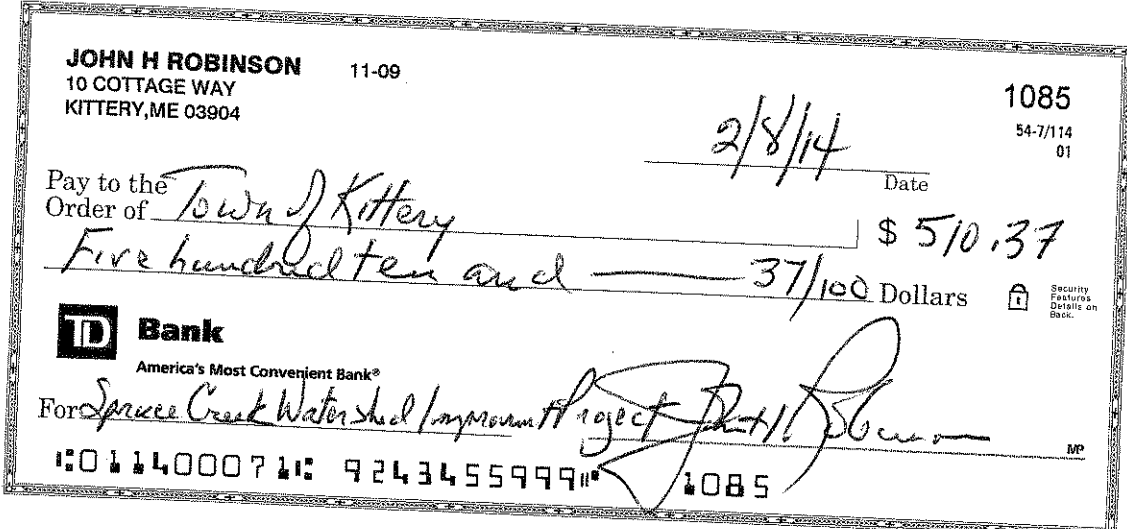
Sent from my Verizon Wireless 4G LTE Smartphone

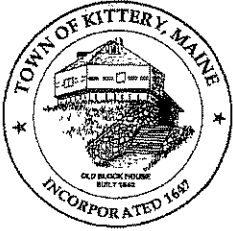
----- Reply message -----
From: "Cindy Saklad" <CSaklad@kitteryme.org>
To: "Jessa Kellogg" <JKellogg@kitteryme.org>
Subject: Check from John Robinson
Date: Wed, Feb 12, 2014 14:09

2072 - 43600
match
Donation

Hi Jessa,
What was this check for? A donation....if yes for what?
Cindy L. Saklad, Finance Director

Town of Kittery
200 Rogers Road
Kittery, ME 03904
Telephone: 207-475-1315
Email: CSaklad@kitteryme.org





OFFICE OF THE TOWN CLERK
TOWN OF KITTEERY, MAINE

200 Rogers Road
Kittery, ME 03904
Telephone: (207) 439-0452
Fax: (207) 439-6806

RECEIVED
FEB 06 2014

BY: 9:30 Am

PLEASE CHECK APPROPRIATE SQUARE:

- APPLICATION FOR RE-APPOINTMENT TO TOWN BOARDS
- APPLICATION FOR APPOINTMENT FROM ALTERNATE TO FULL MEMBER

NAME: Herbert Kingsbury

RESIDENCE: 100 Shepard's Cove Rd H201

MAILING ADDRESS IF DIFFERENT FROM ABOVE: _____

E-MAIL ADDRESS: Herbkings@gmail.com

TELEPHONE NUMBERS: (HOME) ²⁰⁷ 4396449 (WORK) _____

PRESENT POSITION: _____

PLEASE CHECK APPROPRIATE SQUARE:

- | | | |
|---|---|--|
| <input type="checkbox"/> Board of Appeals | <input type="checkbox"/> Port Authority | <input type="checkbox"/> Mary Safford Wildes Trust |
| <input type="checkbox"/> Conservation Commission | <input type="checkbox"/> Planning Board | <input type="checkbox"/> Shellfish Conservation Comm. |
| <input type="checkbox"/> Board of Assessment Review | <input type="checkbox"/> Parks Commission | <input type="checkbox"/> Other <u>Recycling Scholarships</u> |

COMMENTS: _____

[Signature]
SIGNATURE OF APPLICANT

2/4/14
DATE

Form 4503

Notification: 102145479

Work Order: 1000513255

LOCATION PERMIT

Upon the Application of Center Maine Power Company and Northern New England Telephone Operations LLC NH ,
 dated 02/04/2014 , asking for permission, in accordance with law, to construct and
 maintain poles, buried cables, conduits, and transformers, together with attached facilities and appurtenances
 over, under, along or across certain highways and public roads in the location described in said application,
 permission is hereby given to construct, reconstruct, maintain and relocate in substantially the same location,
 said facilities and appurtenances in the City / Town of Kittery
 approximately located as follows:

1. Starting Point: 16
2. Road (State & CMP): Cutts Road
3. Direction: Westerly
4. Distance: 50' feet
5. Number of Poles: 1

Facilities shall consist of wood poles and appurtenances with a minimum of wire and cable not less than 18 feet over the public highway and/or buried cables or conduit and appurtenances placed a minimum depth of 36 inches under pavement and 30 inches elsewhere, all in a manner conforming to the National Electric Safety Code.

By: _____

By: _____

By: _____

By: _____

By: _____

Municipal Officers

Office of the _____

Received and Recorded in Book _____, Page _____

Attest: _____

Clerk

Form 4501

Notification: 102145479

Work Order: 1000513255

CENTRAL MAINE POWER COMPANY
APPLICATION FOR POLE LOCATION OR UNDERGROUND LOCATION

In the City/Town of: Kittery, Maine

To the: City
 Town
 County of: York, Maine

- Central Maine Power hereby applies for permission to:
 - Construct and maintain poles together with attached facilities and appurtenances upon, along or across certain streets and highways in said City/Town as described below.
 - Construct and maintain buried cables, conduits, manholes and handholes, together with wire and cables, transformers, cutouts, and other equipment therein, under, along, and across certain streets and highways in said City/Town as described below.

Central Maine Power Company and Northern New England Telephone Operations LLC NH jointly apply for permission to construct and maintain poles together with attached facilities and appurtenances upon, along or across certain streets and highways in said City/Town as described below.

1. Starting Point: 16
2. Road (State & CMP): Cutis Road
3. Direction: Westerly
4. Distance: 50' feet
5. Number of Poles: 1

- Overhead wires shall have a minimum clearance of 18 feet over the public highway and be constructed to conform with the requirements of the National Electric Safety Code.
- Buried cable facilities shall be placed at a minimum depth of 36 inches under pavement and 30 inches elsewhere and be constructed to conform with the requirements of the National Electric Safety Code.

Any person, firm, or corporation to be adversely affected by this proposed location shall file a written objection with the State Department of Transportation, City, Town or County stating the cause of said objection within fourteen (14) days after the publication of this notice or ninety (90) days after installation of facilities without publication.

Public Notice of this application has been given by publishing the text of the same Not Published

In: _____
On: _____

CENTRAL MAINE POWER COMPANY

Northern New England Telephone Operations LLC NH

By: Elaine Titherington

Date: 02/04/2014

By: Jay Elap

Date: 2-4-14

Central Maine Power
Town Pole Permit
Fax Cover Sheet

RECEIVED
FEB 06 2014

BY:.....

Date 2/5/14

To: Town/City of Kittery

Fax #: 439-6806

Subject: Town Pole Permit

Town: Kittery

Road: CUTTS RD

CMP Job #: 102145479

From: Pat Shore, CMP Line Clerk
Fax 621-455 2
E-mail: patricia.shore@cmpco.com

Please sign attached and fax or e-mail back.

If you have any questions or concerns please call me direct
at 1-207-490-3033.

Thank you

Barbara Boggiano

From: Shore, Patricia [Patricia.Shore@cmpco.com]
Sent: Tuesday, February 18, 2014 11:30 AM
To: Barbara Boggiano
Subject: RE: Pole Location Permit CMP Job No. 102145479

This would be for a new pole # 16S (stub pole). This will be located across the street from existing pole #16.

From: Barbara Boggiano [mailto:BBoggiano@kitteryme.org]
Sent: Tuesday, February 18, 2014 11:19 AM
To: Shore, Patricia
Subject: FW: Pole Location Permit CMP Job No. 102145479

Sorry Pat,

this got returned to me because I sent it to the wrong address. My fingers aren't working well I guess - still cold!

Thank you for getting back to me at your earliest convenience.

Barbara

From: Barbara Boggiano
Sent: Tuesday, February 18, 2014 10:56 AM
To: 'patricia.shore@cmpco.com'
Cc: Maryann Place
Subject: Pole Location Permit CMP Job No. 102145479

Hi Pat,

We are in receipt of your fax for the above pole location permit and are putting this item on the Town Council agenda for their Feb. 24th meeting for Council approval. I would like clarification - is this permit application for a new pole or to relocate the existing CMP pole #16 as shown on your diagram.

Thank you for getting back to me.

Sincerely,
Barbara Boggiano
Admin. Assistant

1 **Expand Scope and Make Formal Charge and composition of Council's Shared Services Committee**

2 **To: Kittery Town Council**

3 **From: Councilors Denault and Spiller**

4 **Monday, February 24, 2014**

5
6 **Executive summary**

7 We propose that the scope and charge of the Shared Services Committee be updated and that the
8 Committee be charged to work in coordination with the Town Manager to identify and assess and
9 develop opportunities and agreements to share services and/or personnel within the Town of Kittery
10 and between the Town of Kittery and surrounding communities. We also propose that membership be
11 modified to include two Councilors, and the Town Manager and others identified by the Town Manager,
12 as appropriate to address the issue under consideration.

13
14
15 **Statement of need**

16 In recent years, the Town has sought efficiencies in the delivery of services that insure the community a
17 high level of service while also containing cost. As these efforts continue to expand, It would be helpful
18 to the Council and the Town Manager for a group to explore in a planned and systematic way
19 opportunities from the interdepartmental to the interlocal level and then advise the Council on actions
20 to implement, where Council involvement is required. As the town moves ahead with sharing services
21 and positions, particularly with other communities, it is important that the full implications are explored
22 and any agreements address fully longer term implications.

23
24 **Background**

25 The Town Council Shared Services Committee, consisting of two Councilors and the Town Manager, the
26 Superintendent of Schools and two School Committee representatives was formed by the Council over
27 seven years ago to explore joint initiatives between the Town municipal and the School Department
28 services. The scope included Town infrastructure, financial services, and other areas as they
29 arose. Shared Services has played an important behind the scenes role in the expansions of Mitchell and
30 Shapleigh Schools which eventually resulted in repurposing of the Frisbee School into the Kittery
31 Community Center; updating the Town's financial software; and reorganizing municipal and school
32 financial services in a de facto town financial center. More recently, the Town has successfully
33 negotiated with the Town of Eliot to share a police chief and is in the process of exploring other
34 opportunities to share joint staffing although Shared Services has not been involved in these efforts. As
35 Kittery and other surrounding communities see the value of sharing resources, we believe that there will
36 be a greater need for a committee like Shared Services to identify and vet potential agreements.

37
38 **Current situation**

39 The current Shared Services Committee has not been utilized in recent initiatives in this area.

40
41 **Proposed solution**

42 Expand scope of the Shared Services Committee to work at the request of the Town Council and in
43 coordination with the Town Manager to identify and develop opportunities and review agreements for
44 implementation of activities to achieve greater efficiency in delivering town services while containing
45 costs. Membership shall include two town Councilors appointed by the Council, the Town Manager,
46 town staff identified by the Town Manager as appropriate, and others dependent on the matter under
47 consideration.

48
49 **Cost**

50 There is not cost involved.

51
52