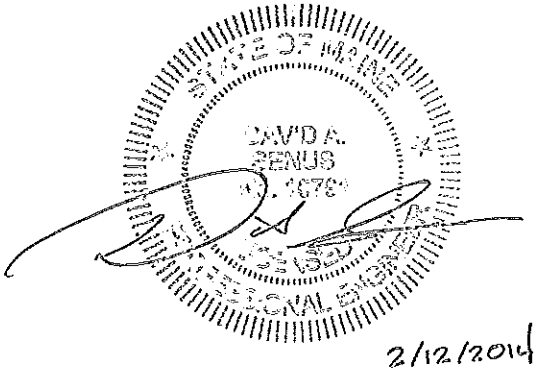
NRPA INDIVIDUAL PERMIT APPLICATION

Capisic Pond Enhancement



2/12/2014

225672.77

City of Portland

February 2014

WOODARD &CURRAN

woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

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APPLICATION FOR A NATURAL RESOURCES PROTECTION ACT PERMIT

➔**PLEASE TYPE OR PRINT IN *BLACK INK ONLY***

1. Name of Applicant:	**City of Portland, Department of Public Services, c/o Nathaniel Smith, Project Manager**	**5.Name of Agent:**	**Woodard & Curran, c/o Lauren Swett, PE**
2. Applicant's Mailing Address:	**55 Portland Street, Portland ME 04101**	**6. Agent's Mailing Address:**	**41 Hutchins Drive, Portland ME 04102**
3. Applicant's Daytime Phone #:	**207-874-8801**	**7. Agent's Daytime Phone #:**	**207-774-2112**
4. Applicant's Email Address (Required from *either* applicant or agent):	nhs@portlandmaine.gov	**8. Agent's Email Address:**	**lswett@woodardcurran.com**

9. Location of Activity: (Nearest Road, Street, Rt.#)	**Capisic Pond Park @ Capisic Street**	**10. Town:**	**Portland**	**11. County:**	**Cumberland**

12. Type of Resource: (Check all that apply)	❑ River, stream or brook ❑ Great Pond ❑ Coastal Wetland ☑ Freshwater Wetland ☑ Wetland Special Significance ☑ Significant Wildlife Habitat ❑ Fragile Mountain	**13. Name of Resource:**	**Capisic Pond**
		14. Amount of Impact: (Sq.Ft.)	**Fill: 107,700 SF** **Dredging/Veg Removal/Other: 304,800 SF (includes fill area)**

15. Type of Wetland: (Check all that apply)	☑ Forested ☑ Scrub Shrub ☑ Emergent ❑ Wet Meadow ❑ Peatland ☑ Open Water ❑ Other_____	**FOR FRESHWATER WETLANDS**		
		Tier 1	*Tier 2*	*Tier 3*
		❑ 0 - 4,999 sq ft. ❑ 5,000-9,999 sq ft ❑ 10,000-14,999 sq ft	❑ 15,000 – 43,560 sq. ft.	☑ > 43,560 sq. ft. or ❑ smaller than 43,560 sq. ft., not eligible for Tier 1

16. Brief Activity Description:	**Enhancements include the mechanical removal of cattails and sediments to increase the open water area in Capisic Pond to approximately 4.5 acres. New wetland areas to support diverse wetland plantings will be constructed around the pond perimeter using a portion of the dredge sediment.**

17. Size of Lot or Parcel & UTM Locations:	❑ _____square feet, or ☑ **18** acres	UTM Northing: **4835558.5**	UTM Easting: **394584.9**

18. Title, Right or Interest:	☑ own	❑ lease	❑ purchase option	☑ written agreement	**224**		**X001**
19. Deed Reference Numbers:	Book#:	Page:	**20. Map and Lot Numbers:**	Map #: **192 224A**	Lot #: **C001 X001**		
21. DEP Staff Previously Contacted:	**Robert L. Green, Jr.**		**22. Part of a larger project:**	☑ Yes ❑ No	**After-the-Fact:**	❑ Yes ☑ No	
23. Resubmission of Application?:	❑ Yes➔ ☑ No	**If yes, previous application #**		**Previous project manager:**			
24. Written Notice of Violation?:	❑ Yes ➔ ☑ No	**If yes, name of DEP enforcement staff involved:**		**25. Previous Wetland Alteration:**	❑ Yes ☑ No		
26. Detailed Directions to the Project Site:	**From the Southern Maine Regional Office, head southwest on Canco Rd., turn left onto Read St., right onto Ocean Ave., and left onto Forest Ave. Take the first right onto Woodford St., turn left onto Stevens Ave., right onto Capisic St., and right onto Macy St. The Capisic Brook Trail abuts Capisic Pond.**						

27. TIER 1	**TIER 2/3 AND INDIVIDUAL PERMITS**	
❒ Title, right or interest documentation ❒ Topographic Map ❒ Narrative Project Description ❒ Plan or Drawing (8 1/2" x 11") ❒ Photos of Area ❒ Statement of Avoidance & Minimization ❒ Statement/Copy of cover letter to MHPC	☑ Title, right or interest documentation ☑ Topographic Map ☑ Copy of Public Notice/Public Information Meeting Documentation ☑ Wetlands Delineation Report (Attachment 1) that contains the Information listed under Site Conditions ☑ Alternatives Analysis (Attachment 2) including description of how wetland impacts were Avoided/Minimized	☑ Erosion Control/Construction Plan ☑ Functional Assessment (Attachment 3), if required N/A Compensation Plan (Attachment 4), if required ☑ Appendix A and others, if required ☑ Statement/Copy of cover letter to MHPC N/A Description of Previously Mined Peatland, if required

28. FEES Amount Enclosed:	**$4,728.96**

CERTIFICATIONS AND SIGNATURES LOCATED ON PAGE 2

IMPORTANT: IF THE SIGNATURE BELOW IS NOT THE APPLICANT'S SIGNATURE, ATTACH LETTER OF AGENT AUTHORIZATION SIGNED BY THE APPLICANT.

By signing below the applicant (or authorized agent), certifies that he or she has read and understood the following :

DEP SIGNATORY REQUIREMENT

PRIVACY ACT STATEMENT

Authority: 33 USC 401, Section 10; 1413, Section 404. Principal Purpose: These laws require permits authorizing activities in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Disclosure: Disclosure of requested information is voluntary. If information is not provided, however, the permit application cannot be processed nor a permit be issued.

CORPS SIGNATORY REQUIREMENT

USC Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry shall be fines not more than $10,000 or imprisoned not more than five years or both. I authorize the Corps to enter the property that is subject to this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein.

DEP SIGNATORY REQUIREMENT

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Further, I hereby authorize the DEP to send me an electronically signed decision on the license I am applying for with this application by emailing the decision to the address located on the front page of this application (see #4 for the applicant and #8 for the agent)."

Matt Smith

SIGNATURE OF AGENT/APPLICANT

Date: 02/11/2014

NOTE: Any changes in activity plans must be submitted to the DEP and the Corps in writing and must be approved by both agencies prior to implementation. Failure to do so may result in enforcement action and/or the removal of the unapproved changes to the activity.

(pink)

ATTACHMENT 1. ACTIVITY DESCRIPTION

The following attachments are presented in accordance with the State of Maine Department of Environmental Protection Natural Resources Protection Act Individual Permit Application requirements.

1.1 INTRODUCTION

The City of Portland (the Applicant) is proposing to complete a habitat enhancement project in Capisic Pond. The proposed project is the result of significant public and regulatory input into the Capisic Pond Sustainability Plan developed in 2011. Due to the size of the project and the level of impact to wetlands of special significance, a Natural Resource Protection Act (NRPA) Individual Permit is required. In addition to the work being addressed by this permit, a second project including improvements to the Rockland Avenue Outfall, which discharges to Capisic Pond is being carried out separately. This project has been permitted through the NRPA Permit By Rule process.

1.2 PROJECT SITE & BACKGROUND

Capisic Pond, which is located in Capisic Pond Park on the north side of Capisic Street, west of Stevens Avenue, in the Rosemont Neighborhood of Portland, lies in the lowest portion of the Capisic Brook watershed, and drains south to the tidal Fore River. The Capisic Pond is the City of Portland's largest freshwater water body and the adjacent Park is a favorite destination for area residents and bird watchers.

The pond was created by a manmade impoundment on the Capisic Brook, which began when the first dam was installed in the 1600s for the purpose of running a gristmill. Since then, the dam and weirs have maintained the pond as an open water wetland habitat. Modifications to the dam's overflow weir were made in the late 1990s and early 2000s to manage upstream flooding, which consequently increased the overflow capacity, accommodating the passage of more water without raising the Pond's water level. The weir modifications, and the resulting hydraulic changes, may have increased the likelihood of cattails and other vegetation to colonize in near-shore pond sediments.

The pond was last dredged in the early 1950s. Since the last dredging, open water in Capisic Pond has been reduced from approximately 7.7 acres to approximately two acres; the rate of open water reduction has accelerated over the last ten years, and the wetlands around Capisic Pond have become dominated by a monoculture of cattails. The following photographs show the extent of cattail encroachment:

Figure 1-1 Photographs of Capisic Pond Illustrating Cattail Encroachment

The following aerial photography shows the change in the area of open water in Capisic Pond between 2001 and 2009, emphasizing the accelerated reduction that has occurred in the past decade.

Figure 1-2 Aerial Imagery: 2001 (Top) VS 2009 (Bottom), Capisic Pond – Illustrating Cattail Encroachment

A wetland delineation and functional assessment study was completed for the project area to determine the current wetland conditions around Capisic Pond. The delineation and assessment was carried out by Boyle Associates in the summer and fall of 2012, and a final report was completed in September, 2012; this report describes the wetland areas in greater detail and has been provided in Attachment 9 for your reference.

The wetland delineation identified a number of areas of wetlands throughout the Capisic Pond Park property. Wetlands included a variety of herbaceous and shrub wetland species, as well as areas of open water. Some of these wetland areas are considered Wetlands of Special Significance (WOSS). It was noted in the report that the wetlands on the site all display signs of impacts and degradation due to current and historic development in the pond's watershed. In addition, many of the wetland areas have developed a "monoculture" of cattail plants. These impacts and the monoculture of cattails have resulted in a reduction of the area's ability to provide diverse habitat and value. The intent of the enhancement project is to help restore value to Capisic Pond and its surrounding wetland areas by diversifying the wetland species, and providing improved habitat area. A more detailed description of the proposed activity is provided later in this Report.

1.3 ACTIVITY PURPOSE & NEED

The project is located within the watershed of Capisic Brook, which is classified as an urban impaired stream. Over the past 15 years, the City has made significant investment in improving the Capisic Brook watershed through combined sewer overflow abatement and stormwater management and planning. With recent Capisic Pond Park habitat enhancements through the West Side Interceptor Sewer Separation

project and planned improvements to watershed quality under the Capisic Brook Watershed Management Plan, a Capisic Pond enhancement project will allow the community to realize the full benefits of this resource.

As development has increased over the past 50-years in the Capisic Brook watershed, runoff into Capisic Pond has presumably increased, and sediments have built up in Capisic Pond. The shallow, slow-moving, and nutrient-rich water favors the growth of cattails (Typha spp.).

Cattails are aggressive colonizers when they take hold and are often able to out-compete most other wetland plant species and form large monocultures (i.e. stands of a single plant species). The cattail stands can be very dense and slow surface water, causing additional sediments to settle, furthering the sedimentation of the pond and favoring additional cattail growth. While emergent marsh habitat (including cattails) is utilized by a variety of waterfowl species, a monoculture is not the most beneficial scenario, as it does not provide habitat for as wide of a variety of species as a diverse wetland habitat. Additionally, as the cattails expand, the percentage of the wetland system that is dominated by open water begins to shrink, as demonstrated by the photographs and aerial images shown earlier in this section, jeopardizing the pond's rating for wading bird and waterfowl habitat.

The Maine Department of Inland Fisheries and Wildlife (MDIFW) rates Inland Waterbird and Waterfowl Habitats (IWWHs) based on five categories. For each potential habitat, points are assessed in the following categories: dominant wetland class, wetland diversity, size of the wetland, interspersion of different wetland types, and percentage of open water. All points are tallied, and a score is given to the habitat to determine its ranking as a low-, moderate-, or high-value. Capisic Pond is currently ranked as moderate value, but is trending quickly towards a low-value rating; moderate value IWWHs are considered Significant Wildlife Habitat under state law. Cattail encroachment is causing a loss of open water habitat and a decrease in wetland diversity, and is slowly leading to a degradation of the IWWH habitat and a reduction of the scenic and recreational aspects of the pond. With cattail encroachment, the pond is losing its ranking points for percent open water.

The proposed Capisic Pond Enhancement project will remove invasive vegetation (cattails) and sediments from historically open water areas. The proposed design will create the optimum open water to wetland radio under the Significant Wildlife Habitat designation. The enhanced wetland areas will provide stratigraphic and habitat diversity for the pond; will enhance the aesthetic, recreational, and education opportunities of the park; and will allow the pond to remain classified as a moderate value IWWH by the MDIFW.

1.4 PROPOSED ACTIVITY

The goal of the enhancement project is to improve the existing habitat for the variety of species that currently utilize the pond, maintain the current IWWH habitat as moderate value, and improve the aesthetic quality of the pond, while balancing the concerns of local residents and maintaining the existing character of the park. This will be achieved by mechanical removal of sediments and cattails to provide a larger open water area with water depths that are not conducive to cattail growth and to create perimeter wetland areas that will support more diverse wetland plantings.

1.4.1 Open Water Creation

Due to the pervasive nature and tenacious expansion of cattails, removal of both the cattails and the sediments upon which they grow, followed by a few seasons of draining, cutting, and flooding is the

proposed strategy to regain and maintain open water habitat in Capisic Pond. The proposed open water indicated on the plans has been designed to minimize the likelihood of future regrowth by cattails.

The current depths in the open water portion of the pond range from approximately 18-inches on the fringes to 36-inches in a few deeper pockets (with the exception of deeper areas just south of Capisic Street). Pond depths were surveyed by Woodard & Curran through the use of depth measurements and sub-meter accuracy Global Positioning System (GPS) for horizontal location in September 2012. Pond bathymetry was mapped utilizing measured depths in reference to a known benchmark at the Capisic Pond dam weir.

Currently, cattail growth is primarily limited to the shallower reaches of the pond (less than two feet), with sporadic floating-mat populations in the deeper areas. Based on these existing conditions, an average depth of three feet would be an appropriate depth for cattail exclusion; greater depths would make cattail regrowth less likely, but it would also incur more expense and impacts from the removal of additional material. Additionally, managing the depth at approximately three feet is conducive to wading birds and waterfowl habitat; three feet will allow diving ducks to fish from the pond interior, while dabbling ducks and wading birds can still hunt and forage along the pond's edge.

Mechanical excavation of sediment and cattails will be utilized to achieve a target water depth of three feet, which will increase the open water component of the pond to approximately 4.5 acres. The cattail-dominated wetland areas within the limit of work will be eliminated and replaced with mixed shrub/herbaceous wetlands and open water. A portion of the removed sediments will be utilized on-site to create transitional wetland areas suitable for growing shrubs and diversified herbaceous wetland plantings along the former margins of the pond and current cattail marsh. Removed sediments not utilized on-site will be disposed of off-site, and options for beneficial use will be investigated.

It is important to note that, although the plan is to enhance/diversify the cattail dominated wetlands within the limit of work and produce an environment that limits cattail regrowth, we anticipate cattails will continue to emerge to a limited extent and future management will be needed to limit their dominance. Additionally, existing cattail stands located north of the limit of work will remain unaltered, as the cattail wetlands do offer habitat to certain species that live in or migrate through the park.

1.4.2 Wetland Diversity and Interspersion Plan

As described earlier, MDIFW rates IWWHs based on five categories. One of the categories, Interspersion, ranks the intermixing of various wetland types surrounding the open water component of the habitat. Another category of the ranking system is diversity of wetland types. While Capisic Pond contains a mix of wetland types, MDIFW rates this wetland as limited to low diversity. It was noted in the wetland delineation report that shrub habitat in particular is limited within this wetland complex. Additionally, due to encroachment of the cattail monoculture, the open water portion of the marsh is largely surrounded by either cattail marsh or upland trees. In order to increase the habitat interspersion and diversity, the proposed project includes the addition of a dense, low-growing, woody transitional wetland zone along the western edge of the pond. An increase in woody plant density and diversity along the pond will help create habitat for feeding, nesting, and refuge for a variety of species.

The western edge of the pond is more isolated from Park use disturbances (i.e. dogs and humans) and will provide a beneficial area to increase shrub habitat surrounding the pond. Additionally, areas have been identified for shrub habitat along the eastern shore of the Pond to complement transition to upland vegetation, and where sediment removal would compromise underlying utility infrastructure (storm drain pipe).

In all cases, these wetland enhancement areas will be sited to minimize visual obstruction from Park viewpoints. Adding woody plants along this riparian area will increase wildlife habitat, improve the aesthetic qualities of the pond, and provide additional shading for the pond and marsh. In order to achieve the appropriate growing medium for shrubs, the cattails currently covering these areas of the pond will be removed, and sediments and substrate from dredged open water areas of the pond will be utilized to raise the elevation of the perimeter area up to 18-inches above the average elevation of the adjacent pond. This area will be covered with natural weed control mats, and numerous native shrubs will be installed to jumpstart the new riparian habitat.

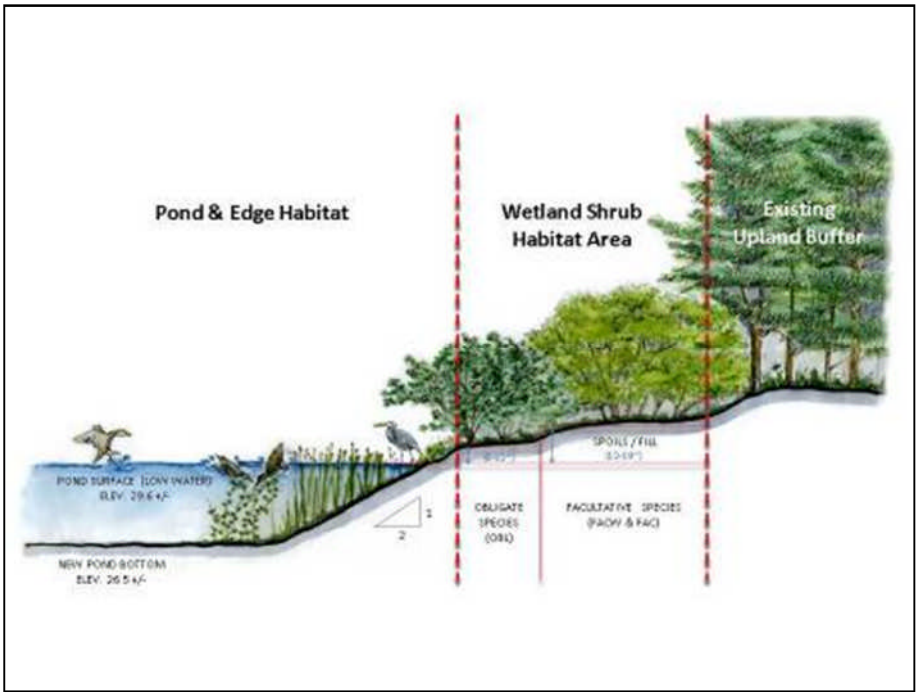

Figure 1-3 Concept for Wetland Shrub Habitat Areas

In order to achieve a dense cover and to help compete with regenerating cattails, the planting effort proposes an overall density of 800 shrubs per acre in the riparian shrub transition wetland. Native woody plant species have been selected that can tolerate a range of hydrology, are resistant to pollution and wind damage, grow quickly, and that provide habitat (food and shelter) for native birds and animals. The following table provides a list of recommended species that would be appropriate for these areas:

Table 1-1 Plant Species List

Species Common Name	Species Latin Name	Bare Root (BR)/Live Stake (LS)	Wetland Indicator
Buttonbush	Cephalanthus occidentalis	LS	OBL
Red-osier Dogwood	Cornus sericea	LS	FAC
Winterberry	Ilex verticillata	BR	FACW
Pussy Willow	Salix discolor	LS	FACW
Speckled Alder	Alnus incana var. rugosa	BR	FACW
Mountain Holly	Ilex mucronata	BR	OBL
Arrow-wood	Viburnum recognitum	BR	FACW

A mix of bare root nursery stock and live stakes will be installed across the created shrub habitat areas. Wet tolerant species will be planted in lower elevations along the pond, and drier species will be planted along the upper reaches of the slope or in mounded central locations. In areas not completely covered with natural weed control mats, a native wetland seed mixture should be applied to loose sediments and lightly raked in once applied. Straw mulch will be applied over newly seeded areas at a rate of 70-90 pounds (about 2 bales)/ 1,000 square feet.

1.4.3 Wetland Impact

The plans depict a "limit of work" boundary around the pond enhancement area. All areas within the limit of work area will be temporarily disturbed. Prior to the start of work, the pond will be drained down through a low flow outlet at the dam. A coffer dam will be constructed upstream of the project area, and base flow associated with Capisic Brook and the Rockland Avenue Outfall will be directed into an adjacent ten foot diameter stormwater conveyance pipe during construction. Details of this bypass system are shown on the plans included in Attachment 5. Temporary erosion and sedimentation control measures will be established prior to the start of construction, to ensure that the work will not result in contamination of adjacent natural resources, and removed after construction has been completed and the site has been stabilized.

The proposed project will increase the total wetland area on the site, as some upland areas within the limit of work will be replaced with wetland plants. The cattail dominated wetlands will be eliminated, and the area will be replaced with other wetland plantings as well as additional open water; no new impervious surface will be created as part of this project. A summary of upland and wetland areas for the existing condition and proposed condition are listed in the following table:

Table 1-2 Capisic Pond Enhancement Areas

	Existing	**Proposed**
Wetland		
PEM1 (Herbaceous, Cattail Dominated)	*212,600 SF*	*0 SF*
PEM2 (Herbaceous other than Cattails)	*600 SF*	*115,600 SF*
PSS (Shrub)	*7,100 SF*	
PUB – Open Water	*84,500 SF*	*197,100 SF*
Total	**304,800 SF**	**312,700 SF**
Upland	**52,500 SF**	**44,600 SF**
Total Limit of Work Area	**357,300 SF**	**357,300 SF**

All existing wetlands within the project limit of work will be temporarily impacted during construction. Existing and proposed areas listed in the table above are shown on the Wetland Impact Figures 1 and 2 attached to this section of the report.

Construction activity for this project is anticipated to begin in the summer of 2015 (within the timeframe permitted by MaineDEP and Army Corps of Engineers) upon receipt of all applicable permits.

1.4.4 Post Construction Monitoring

A post-construction monitoring plan has been developed for the project to ensure the post-construction effectiveness of the wetland enhancements and to check for regrowth of cattails and invasive species after construction is complete. The plan has been developed based on the New England District Army Corps of Engineers Mitigation Guidance document. A copy of the plan is attached to this Report.

1.5 PERMITTING REQUIREMENTS

Woodard & Curran and the City of Portland have engaged the Maine Department of Environmental Protection, the U.S. Army Corps of Engineers, and the Maine Department of Inland Fisheries and Wildlife throughout the planning and preliminary design phases of this project. The proposed project will require the following state and federal approvals:

- NRPA Individual Permit – The project is located within Significant Wildlife Habitat and will temporarily disturb a sizable portion of the existing pond area, requiring a NRPA Individual Permit through the MaineDEP. Based on previous correspondence with the MaineDEP, it has been verified that compensatory mitigation for the project's wetland impacts is satisfied by the enhancement activities associated with the project and as such additional compensation (i.e. payment of a fee-in-lieu) is not required.

- Army Corps – An Individual Permit for wetland disturbance will also be required through the USACOE, as the project will disturb more than three acres of existing wetland area. Maine Historic Preservation Commission consultation will be required as part of the USACOE review.

- MCGP & Stormwater PBR – The project will result in the disturbance of greater than one acre of land and will require a Notice of Intent to comply with the Maine Construction General Permit (MCGP) and a Stormwater Permit-by-Rule (PBR) through the MaineDEP.

- City of Portland Level III Site Plan Review – Due to the size of the proposed land disturbance (greater than three acres, including stripping, grading, grubbing, filling, and excavation), the project requires review under a City of Portland Level III Site Plan.

In addition, to the permits listed above, a Beneficial Reuse Permit may also be required as a part of this project, depending on the location of sediment disposal and/or reuse. Pond sediments were analyzed under an earlier phase of work (Capisic Pond Sediment Sampling memorandum to Doug Roncarati from Woodard & Curran, dated December 2, 2011, a copy of which has been attached to this Report for your reference) for parameters in accordance with "Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods, SW-846, 2nd Edition, 1982" and compared against the MaineDEP limits for beneficial reuse, as described in MaineDEP Chapter 418, Section A. This analysis has indicated that the material to be removed from the Pond is of sufficient quality to meet Beneficial Reuse criteria. A copy of the analysis has been included as Appendix E of this report.

1.6 ATTACHMENTS

1.6.1 Wetland Impact Figures

1.6.2 Post-Construction Monitoring Plan

MACHIGONNE STREET

CITY OF PORTLAND
PROPERTY BOUNDARY
CAPISIC POND PARK

CAPISIC
POND PARK

CAPISIC POND
84,500 S.F.
1.94 ACRES

MUNICIPAL R.O.W.

MACY STREET

CAPISIC STREET

private
DRIVEWAY

CAPISIC POND
DAM
WEIR CREST
ELEV. 29.60

LW

LIMIT OF WORK

TABLE OF IMPACTS:

TABLE REPRESENTS EXISTING OPEN WATER AREAS, WETLAND AREAS, AND UPLAND AREAS TO BE IMPACTED WITHIN LIMIT OF WORK BOUNDARY

Wetland	Area (SF)
PEM1 (Herbaceous, Cattail Dominated)	*212,600*
PEM2 (Herbaceous other than Cattails)	*600*
PSS (Shrub)	*7,100*
PUB – Open Water	*84,500*
Total	**304,800**
Upland	**52,500**
Total Limit of Work Area	**357,300**

LEGEND

- EXISTING PEM1 WETLAND TO BE IMPACTED
- EXISTING PEM2 WETLAND TO BE IMPACTED
- EXISTING PSS WETLAND TO BE IMPACTED
- EXISTING PUB – OPEN WATER AREA TO BE IMPACTED
- UPLAND AREA TO BE IMPACTED
- LIMIT OF WORK — LW —

NOTE: ALL WETLAND AREAS WITHIN LIMIT OF WORK WILL BE TEMPORARILY IMPACTED. SEE FIGURE 2 FOR PROPOSED WETLAND CONDITIONS.

40' 0 40' 80'
BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING

PERMIT REVIEW SET – NOT FOR CONSTRUCTION

41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

STATE OF MAINE · DAVID A SENUS · 10824 · REGISTERED PROFESSIONAL ENGINEER · 12/31/2014

REV	DESCRIPTION	DATE
DESIGNED BY: DAS	CHECKED BY: DAS	
DRAWN BY: BKM		

WETLAND IMPACT FIGURE – EXISTING CONDITIONS

CITY OF PORTLAND PORTLAND, MAINE

CAPISIC POND ENHANCEMENTS

JOB NO.: 225672.15
DATE: FEBRUARY 2014
SCALE: 1"=40'
SHEET: 1 OF 2

Fig. 1

Z:\225672 Portland-Gen Eng Svcs\wip\07 Capisic Pond Ph III\Drawings\Design Drawings\225672-07 C109 ACOE.dwg, Feb 12, 2014 - 9:06am

MACHIGONNE STREET

CITY OF PORTLAND PROPERTY BOUNDARY, CAPISIC POND PARK

CAPISIC POND PARK

CAPISIC POND
197,100 S.F.
4.52 ACRES

MUNICIPAL R.O.W.

MACY STREET

CAPISIC STREET

PRIVATE DRIVEWAY

CAPISIC POND DAM

TABLE OF PROPOSED CONDITIONS:

TABLE REPRESENTS PROPOSED OPEN WATER AREAS, WETLAND AREAS, AND UPLAND AREAS WITHIN LIMIT OF WORK BOUNDARY

Wetland	Area (SF)
PEM1 (Herbaceous, Cattail Dominated)	*0*
PEM2 (Herbaceous other than Cattails)	*115,600*
PSS (Shrub)	
PUB – Open Water	*197,100*
Total	**312,700**
Upland	**44,600**
Total Limit of Work Area	**357,300**

LEGEND

PROPOSED PEM2 & PSS – WETLAND AREA

PROPOSED PUB – OPEN WATER AREA

UPLAND AREA

LIMIT OF WORK ——— LW ———

BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING

PERMIT REVIEW SET – NOT FOR CONSTRUCTION

41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

DAVID A. SENUS 10124 MAINE REGISTERED PROFESSIONAL ENGINEER 2/12/2014

REV	DESCRIPTION	DATE
DESIGNED BY: DAS	CHECKED BY: DAS	
DRAWN BY: BKM		

WETLAND IMPACT FIGURE – PROPOSED CONDITIONS

CITY OF PORTLAND PORTLAND, MAINE

CAPISIC POND ENHANCEMENTS

JOB NO.: 2256772.15
DATE: FEBRUARY 2014
SCALE: 1"=40'
SHEET: 2 OF 2

Fig. 2

Z:\2256772 Portland-Gen Eng Svcs\wip\77 Capisic Pond Pn m\Drawings\Design Drawings\2256772 77 C10X ACOE.dwg, Feb 12, 2014 - 9:06am

Capisic Pond Enhancement Project - Portland, Maine
Monitoring and Management Plan
February 2014

Boyle Associates, Environmental Consultants
Mailing Address: 25 Dundee Road
Gorham, Maine 04038
(207) 591-5220
www.boyleassociates.net

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INTRODUCTION

Capisic Pond is a shallow, manmade pond located within Capisic Pond Park in Portland, Maine. The pond was first created in the 1600's for the construction of a grist mill. The grist mill is long since gone, but the land was recognized for its intrinsic value to the community and adopted as a park that has been enjoyed for years. Today the park and pond are important areas for wildlife; the pond and the areas around it are mapped by the Maine Department of Inland Fisheries and Wildlife (MDIFW) as a moderate-value Inland Wading Bird and Waterfowl Habitat (IWWH). The park is also an important area for nature watchers and recreationalists, but continued local development has negatively impacted the pond and is degrading the IWWH. The City of Portland has worked over the recent years with their consultants from Woodard and Curran and Boyle Associates, conducting studies to conceive the best approach to revitalize the pond and enhance the IWWH.

ENHANCEMENT STRATEGY

The goal of this enhancement project is to restore the open water component of the pond to a larger size and increase riparian habitat diversity and interspersion in order to maintain the moderate-value IWWH rating. As development has increased within the watershed, so has runoff, leading to increased sedimentation of the pond. This, in conjunction with dam modification in the late 1990's to alleviate upstream flooding concerns, has created a shallow, nutrient rich environment that favors the growth of vegetation, especially cattails. Cattails are aggressive, invasive colonizers that thrive in this type of environment. As cattails spread, they form dense stands of vegetation, further compounding sediment build-up. While emergent marsh vegetation is certainly utilized by a variety of wildlife species, a monoculture is undesirable and negatively impacts the amount of open water which is an important qualifying value of IWWH.

The key strategy for this pond and riparian habitat enhancement project will be a reduction of the invasive cattail monoculture and an increase in interspersion of a variety of habitat types. To accomplish this goal, studies were conducted by Woodard & Curran and Boyle Associates on how best to approach a habitat improvement project. Additional input was gathered from meetings with the public and a habitat enhancement plan was created. The proposed enhancement project includes:

- Removal of accumulated sediments and cattail vegetation from within the pond changing the current open water from around 1 foot in depth to 3 feet in depth and about 2 acres of open water to 4.5 acres open water. It is estimated that dredging of pond sediments and vegetation will remove around 16,000 cubic yards of material, 7,500 of which will be utilized to create approximately 2.7 acres of riparian scrub-shrub wetland, approximately 8,500 being disposed of off-site;
- An increase in the open water to vegetated wetland covertype ratio consistent with the IWWH rating system;

- An increase in wetland diversity through beneficial reuse of excavated sediments from the pond for use in riparian wetland conversion from cattail dominated marsh to a mixed species shrub swamp.

A detailed description of the project location, surrounding land uses, history, current conditions, and the functions and values of the sites natural resources is included in the "Wetland Delineation and Functional Assessment" report developed by Boyle Associates and included as Attachment 9 of the Natural Resources Protection Act (NRPA) permit application. Specific details incorporated into the proposed design strategy including dredging locations and amounts, shrub wetland habitat enhancement zone locations, construction details and other pertinent information is included in Attachment 1 of the NRPA permit application.

A monitoring and management plan is an asset that ensures the long-term viability and continued success of project goals. Without monitoring, the IWWH enhancements could be eroded over time. Monitoring to identify problems and provide adaptive solutions to those problems is a key to success. In addition, monitoring can identify maintenance issues that need to be addressed as time progresses. As Benjamin Franklin once said "An ounce of prevention is worth a pound of cure!" The *Capisic Pond Enhancement Project: Monitoring and Management Plan* contains guidelines for providing quantifiable data to ensure the scrub-shrub wetland enhancement establishes itself in a manner that supports quality IWWH habitat for the long-term. In addition, a maintenance plan is included for control of cattails within the pond and other terrestrial (wetland and upland) invasive plant species that could establish themselves within the enhancement areas and degrade the enhanced wetland habitat.

MONITORING PLAN

For each of the first five full growing seasons following dredging and construction of the enhanced wetlands, the site will be monitored and annual monitoring reports submitted by the permittee or their consultant. Observations will occur at least two times during the growing season – in late spring/early summer and again in late summer/early fall. Each annual monitoring report, in the format provided in the following "Monitoring Report Requirements" section, will be submitted to the Maine Department of Environmental Protection (MDEP) and the Army Corps of Engineers (ACOE), no later than December 15 of the year of monitoring. The reports will address the following performance standards in the Summary Data section and will address the additional items noted in the Monitoring Report Requirements, in the appropriate section. The reports will also include the monitoring report appendices. The first year of monitoring will be the first year that the site has been through a full growing season after completion of construction and planting. For this requirement, a growing season starts no later than May 31. However, if there are problems that need to be addressed and if the measures to correct them require prior approval from the MDEP and ACOE the permittee or their consultant will contact the regulatory agencies as soon as the need for corrective action is discovered.

Remedial measures will be implemented – at least two years prior to the completion of the monitoring period – to attain the success standards described below within five growing seasons after completion

of construction of the enhancement project. Should measures be required within two years of the end of the original monitoring period, the monitoring period will be extended to ensure two years of monitoring after the remedial work is completed. Measures requiring earth movement or changes in hydrology will not be implemented without written approval from the aforementioned regulatory agencies.

Surviving woody plant densities will be measured using quadrats or linear transects established in the enhanced wetland community. Survey areas will be permanently marked in the field, and GPS located. From the data collected, an overall assessment of the plant mortality will be extrapolated, summarized and reported.

PERFORMANCE STANDARDS

The following performance standards will be addressed each year for the site.

1. Is hydrology within the site sufficient to support to the planned covertype for that area? What percentage of the site is meeting projected hydrology levels? Areas that are too wet or too dry will be identified along with suggested corrective measures.
2. Is the proposed vegetation standard met (i.e. at least an average of 600 woody plants per acre that are healthy and are at least 12" tall) in at least 75% of the planned shrub enhancement area; AND at least the following number of non-exotic species including planted and volunteer species*:

# species planted minimum	# species required (volunteer and planted)
2	2
3	3
4	3
5	4
6	4
7	5
8	5
9 or more	6

*To count a volunteer species, there must be at least 25 individuals of that species within the enhancement area.

3. Do the creation and enhancement areas have at least 80% aerial cover by noninvasive species (see Invasive Species Control Plan (ISCP) for a list of species)?
4. Do the shrub enhancement areas have at least 60% cover by noninvasive hydrophytes, of which at least 15% are woody species?
5. Are invasive plants at the enhancement site being controlled? For the purpose of this performance standard, invasive species include:
    - Cattails (*Typha latifolia* and *T. angustifolia*);
    - Common reed (*Phragmites australis*);
    - Purple loosestrife (*Lythrum salicaria*);
    - Reed canary-grass (*Phalaris arundinacea*);

- Glossy buckthorn (*Rhamnus frangula*);
- Common buckthorn (*Rhamnus cathartica*)
- Common reed (*Phragmites australis*);
- Purple loosestrife (*Lythrum salicaria*);
- Autumn olive (*Elaeagnus umbellata*);
- Mulitflora rose (*Rosa multiflora*);
- Reed canary grass (*Phalaris arundinacea*); and
- Japanese knotweed (*Fallopia japonica*).

For this standard, small patches must be eliminated during the entire monitoring period. Large patches must be aggressively treated and the treatment documented. Refer to the ISCP for specific monitoring and control methodologies.

6. Does the soil in the enhancement area have documented evidence of redoximorphic features developing?
7. Is there evidence of use by target species of wading birds and other waterfowl? Is there evidence of the use of the site by other wildlife? Provide a comparison of wildlife observed at the site pre- and post-construction on an annual basis.
8. Are all slopes, soils and substrates within and adjacent to the mitigation site stabilized?

MONITORING REPORT REQUIREMENTS

Monitoring reports will generally follow a 10-page maximum report format, with a self-certification form transmittal (not including photos, maps and other appendices). The report will be submitted in an electronic format (e.g., PDF). The information will be presented within the following format.

PROJECT OVERVIEW

At the beginning of the report and highlighted in the self-certification form, a project overview will be included with a summary of problems that need immediate attention (e.g., problem with hydrology, severe invasive species problem, serious erosion, etc.).

REQUIREMENTS

The report will list all enhancement related requirements as specified in the approved management plan including: the monitoring and performance and/or success standards and evaluate whether the project site is successfully achieving the approved performance and/or success standards or trending toward success.

SUMMARY DATA

Summary data will be provided to substantiate the success and/or potential challenges associated with the enhancement project. Photo documentation will be provided to support the findings and recommendations.

- Address performance standards achievement and/or measures to attain the standards.
- Describe the monitoring inspections that occurred since the last report and provide associated dates.
- Soils data, commensurate with the requirements of the soils portion of the most recent versions of the Corps Wetlands Delineation Manual and approved regional supplement will be collected after construction and every alternate year throughout the monitoring period.
- Concisely describe remedial actions done during the monitoring year to meet the performance or success standards – actions such as removing debris, replanting, controlling invasive plant species, re-grading the site, applying additional topsoil or soil amendments, adjusting site hydrology, etc. Also describe any other remedial actions done at each site.
- Report the status of all erosion control measures at the site. Are they in place and functioning? If temporary measures are no longer needed, have they been removed?
- Give visual estimates of (1) percent vegetative cover for each enhancement site and (2) percent cover of the invasive species listed for control in the ISCP, within the construction area.
- What wildlife use the site and what do they use it for (nesting, feeding, shelter, etc.)?
- By species planted, describe the general health and vigor of the surviving plants, the prognosis for their future survival, and a diagnosis of the cause(s) of morbidity or mortality.

MAPS/PLANS

Maps will be provided to show the location of the enhancement site relative to other landscape features, habitat types, locations of photographic reference points, transects, sampling data points, and/or other features pertinent to the Management Plan. In addition, the submitted maps/plans will clearly delineate the site boundaries to assist in proper locations for subsequent site visits. Each map or diagram will fit on a standard 8 ½ x 11" piece of paper and include a legend, bar scale, and the location of any photos submitted for review.

CONCLUSIONS

A general statement will be included describing the conditions of the project. If performance or success standards are not being met, a brief discussion of the difficulties and potential remedial actions proposed by the project sponsor, including a timetable, must be provided.

MONITORING REPORT APPENDICES

- Appendix A - An as-built plan showing topography to 1-foot contours and the location and extent of the designed plant community types (e.g., shrub swamp, emergent marsh, etc.) will be included. Within each community type the plan shall show the species planted—but it will not illustrate the precise location of each individual plant. This will be included in the first monitoring report and in subsequent reports if there is grading or soil modifications or additional plantings of different species in subsequent years.

- Appendix B - A vegetative species list of volunteers in each plant community type. The volunteer species list will, at a minimum, include those that cover at least 5% of their vegetative layer.
- Appendix C - Representative photos of the site taken from the same locations for each monitoring event. Photos will be dated and clearly labeled with the direction from which the photo was taken. The photo sites will also be identified on the appropriate maps.

ASSESSMENT PLAN

A post-construction assessment of the condition of the project site shall be performed following the fifth growing season (Year 5) after completion of site construction, or by the end of the monitoring period, whichever is later. "Growing season" in this context begins no later than May 31. The assessment report shall be submitted to the MDEP and ACOE by December 15 of the year the assessment is conducted; this will coincide with the year of the final monitoring report, so it is acceptable to include both the final monitoring report and assessment in the same document.

The post-construction assessment shall include the four assessment appendices listed below and shall:

- Summarize the original or modified goals of the project and discuss the level of attainment of these goals within the site.
- Describe significant problems and solutions during construction and maintenance (monitoring) of the project site.
- Recommend measures to improve the efficiency, reduce the cost, or improve the effectiveness of similar projects in the future.

ASSESSMENT APPENDICES

- Appendix A – Summary of the results of a functions and values assessment of the project site.
- Appendix B – Calculation of the area by type (e.g., wetlands, vernal pools) of aquatic resources contiguous with the pond. Wetlands will be identified and delineated using the most current versions of the Corps Wetland Delineation Manual and approved regional supplement. Supporting documents shall include:
    1. a scaled drawing showing the aquatic resource boundaries and representative data plots, and
    2. datasheets for the corresponding data plots.
- Appendix C – Comparison of the area and extent of delineated constructed aquatic resources (from Appendix B) with the area and extent of created aquatic resources proposed in the permitted construction plans. This comparison shall be made on a scaled drawing or as an overlay on the as-built plan. This plan shall also show any major vegetation community types.
- Appendix D – Photos of the site taken from the same locations as the monitoring photos.

CONTINGENCY PLAN

To ensure success of the wetland enhancement project, problems identified during monitoring visits will be addressed within the same monitoring year that they are encountered. Given the types of wetland enhancement proposed for this project, it is expected that potential remedial measures could include the following:

- Re-planting or re-seeding
- Re-soiling due to erosion
- Re-grading of areas that are too wet or dry
- Repair of erosion control features
- Supplemental seeding
- Invasive plant control
- Removal or control of herbaceous vegetation competition around trees and shrubs
- Herbivory control (e.g., fencing, tree guards, etc.)

The permittee will undertake remedial and or maintenance needs on a timely basis, and in coordination with the project design team. The natural resource agencies will be consulted on a case-by-case basis regarding the need for remedial measures.

INVASIVE SPECIES CONTROL PLAN (ISCP)

Invasive plants are introduced species that can thrive in areas beyond their natural range of dispersal. These plants are characteristically adaptable, aggressive, and have a high reproductive capacity. Their vigor combined with a lack of natural enemies often leads to outbreak populations. Introduction of these plants into an area does or is likely to cause economic or environmental harm or harm to human health.

Invasive plants can spread in a variety of ways. Plants can be physically moved from one place to another, seeds can be dispersed by wind or from animals or even by water. Once moved, plants tend to colonize areas of disturbance, places where natural competition is limited for some reason or another. Due to years of disturbance from development, many areas within and around the park and pond contain well established stands of invasive plants. Eradication attempts would be difficult to nearly impossible. The goal of this ISCP will be to limit spread of existing populations of invasive plants into areas disturbed during construction of the enhancement project. Strategies incorporated into the project design took in to account limiting establishment or recolonization of disturbance areas. Additional monitoring and control will be needed during the monitoring phase of the project. Once the monitoring phase is completed and robust native vegetation is established the native vegetation should be sufficient to keep existing populations of invasive plants from spreading into enhancement areas. Monitoring and control of invasive plants, except for cattails will cease. Cattail monitoring and control will continue as outlined below.

Upon completion of construction, a management strategy needs to be followed to ensure long-term control of invasive vegetation. By limiting the spread of existing colonies and establishment of new

colonies within the construction limits, future management will be easier and more successful. Due to the park's location in a highly developed landscape, many invasive plant species are present, some more so than others. Notably absent from the site are the tenacious and common invasive plants common reed (*Phragmites australis*) and autumn olive (*Elaeagnus umbellata*). These plants can be found nearby the site (*e.g*. within the adjacent Fore River Sanctuary and along Capisic Brook), so their absence in the park is surprising. These species will be monitored for establishment along with other common invasive plants. The following invasive plant species are currently found within the park:

- Norway maple (*Acer platanoides*)
- Canada thistle (*Cirsium arvense*)
- Ornamental jewelweed (*Impatiens glandulifera*)
- Bush honeysuckle (*Lonicera* spp.)
- Oriental bittersweet (*Celastrus orbiculatus*)
- Burningbush (*Euonymous alatus*)
- Bird's-foot trefoil (*Lotus corniculata*)
- Black locust (*Robinia pseudoacacia*)
- Crown vetch (*Securigera varia*)
- Asparagus (*Asparagus officinalis*)
- Purple loosestrife (*Lythrum salicaria*)
- Reedcanary grass (*Phalaris arundinacea*)
- Japanese knotweed (*Polygonum cuspidatum*)
- Common buckthorn (*Rhamnus cathartica*)
- Glossy buckthorn (*Rhamnus frangula*)
- Multiflora rose (*Rosa multiflora*)
- Broadleaf cattail (*Typha latifolia*) – Invasive in certain conditions, presence of native cattail species in a diverse marsh habitat is known to be beneficial, but monocultures are harmful
- Narrowleaf cattail (*Typha latifolia)*

Common invasive plant species targeted for management during the monitoring phase of the project includes:

- Autumn olive (*Elaeagnus umbellata*)
- Bush honeysuckle (*Lonicera morrowii* and *Lonicera tatarica*)
- Cattails (*Typha latifolia* and *Typha angustifolia*) – Note: Cattails will be monitored indefinitely
- Common and glossy buckthorn (*Rhamnus frangula* and *Rhamnus cathartica*)
- Common reed (*Phragmites australis*)
- Japanese knotweed (*Fallopia japonica*)
- Multiflora rose (*Rosa multiflora*)
- Oriental bittersweet (*Celastrus orbiculatus*)
- Purple loosestrife (*Lythrum salicaria*)
- Reed canary grass (*Phalaris arundinacea*)

Invasive species found within the park, but not on the list of managed species typically do not invade areas as aggressively as the species found on the managed list. If other species become a concern they will be added to the list of managed species as needed. A crucial part of meeting the project's goal of enhancing IWWH habitat requires long-term control of invasive species. Of particular concern is control of cattails, but there are many other invasive plants commonly found adjacent to the construction area. Due to the highly developed nature of the environment surrounding Capsic Pond, control rather than eradication of invasive plants is the plan's goal.

INVASIVE PLANT MANAGEMENT

Invasive plant management outside of the pond will be conducted by using a variety of cultural, mechanical, and chemical methodologies.

General Construction Best Management Practices

Several cultural control methods were utilized in the project's design to successful exclude colonization of the enhancement areas. Caution will be taken to avoid importing invasive species to and from the site during construction; control will include inspection of equipment prior to transport to and from the site. Equipment with excessive mud will be cleaned prior to shipment to the site either by hand or with a pressure washer. Additionally, the site will be seeded with a seed mixture (free of weed or noxious plant seeds) immediately after construction which will limit colonization of freshly disturbed soil and provide competition should any invasive plants find their way to the site. On-going monitoring and control of invasive plant infestations post-construction is outlined below.

Post-Construction Monitoring

As a part of annual monitoring of the project site, an inventory of invasive plants will be conducted within the project area. During the first year of monitoring, stands of the invasive plants targeted for management that occur directly adjacent to, but outside of the project area, will mapped using GPS and GIS technology. This will create a baseline of information for future comparison to see if these colonies of plants are advancing into the enhancement area of the site. If spread of these invasive species is documented, control measures, as outlined below, will be implemented. Locations of invasive plants found within the project area during monitoring will be sketched on a map and the size and distribution will be noted by species. Removal of the plants should occur as soon as possible.

Post-Construction Control Methods

The project was designed to limit disturbance and recolonization by invasive plants as described above, with the ultimate goal of creating an environment of natural competition that can successfully exclude invasive plant colonization without intervention. To ensure successful establishment of robust vegetation, control during the monitoring phase of the project is necessary. Individual invasive plants or very small stands, found within the enhancement areas, will be removed by hand during monitoring. Larger stands that cannot be reasonably pulled by hand or dug with a shovel in a short amount of time will be documented and a control strategy implemented as outlined below.

Mechanical Control Methods

Seedlings found within the enhancement areas can be pulled by hand, and tools such as spades and shovels can be used to dig up larger plants. If small shrubs become established, a helpful tool is a Weed Wrench® (http://www.weedwrench.com). The tool has jaws that clamp around the trunk of a plant and a handle that allows a massive amount of leverage for pulling up plants with deep taproots. The tool is very effective on small to medium-sized shrubs. Methods such as mowing or cutting can be effective, but should be used with care as not to harm planted vegetation.

Chemical Control Methods

If mechanical methods are not sufficiently controlling invasive plant populations, then chemical control may be warranted. In this situation, non-powered applications of herbicides should be considered. If herbicide use is necessary, it will comply with guidance provided by the MDEP regarding herbicide use in wetlands and will be conducted in accordance with rules administered by the Maine Board of Pesticides Control. Particular herbicides and methods of application will vary based on the targeted species. The guidance of a knowledgeable invasive plant control professional from Boyle Associates will be sought before chemical control is employed.

Species Specific Monitoring and Control

Cattails – During Construction

Primary methods of cattail control during construction includes dredging of the entire plant and covering pond spoils used in wetland enhancement zones with heavy fabric to limit regrowth. Also, wetland enhancement zones will be planted and seeded with fast growing native vegetation providing competition to any resprouts. The planned hydrology for these zones will not contain areas of standing water which will exclude cattail growth. Details of methods planned for construction are outlined in Attachment 1 of the NRPA application.

Cattails – Post-Construction

Monitoring

After the construction phase is completed, additional maintenance of the pond may be necessary to ensure continued cattail control. Late in the first growing season after construction, remaining cattail population extents will be mapped using GPS and GIS technology to create a baseline for future

comparison. If new colonies crop up or existing colonies expand back into the pond, additional control strategies (described below) will be implemented on an as-needed basis. If monitoring data shows that methods are providing insufficient control, a professional from Boyle Associates, knowledgeable in the control of cattails, will be consulted and an alternative management strategy will be created.

Control Methods

Draining the pond, followed by mowing of all standing cattails and reflooding should be utilized to provide future control of small populations of cattails that may crop up or spread from adjacent planned marsh areas into open water. The pond will be partially drained in the late summer to early fall and all cattail leaves and stalks cut close to the substrate level in order to ensure the entire plant will be inundated. To limit disturbance within the pond, a handheld gas-powered brushcutter will be used to cut cattail stems. Once mowing is complete, the water level will be returned to normal depth (an average depth of three feet).

ATTACHMENT 2. ALTERNATIVES ANALYSIS

The enclosed alternatives analysis has been developed by Boyle Associates.

2.1 ATTACHMENTS

2.1.1 Alternatives Analysis Report

Capisic Pond Enhancement Project - Portland, Maine

Alternatives Analysis

January 2014

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INTRODUCTION

Capisic Pond is a shallow, manmade pond located within Capisic Pond Park in Portland, Maine. The pond was first created in the 1600's for the construction of a grist mill. Today the park and pond are important areas for wildlife; the pond and the areas around it are mapped by the Maine Department of Inland Fisheries and Wildlife (MDIFW) as a moderate-value Inland Wading Bird and Waterfowl Habitat (IWWH). The park is also an important area for nature watchers and recreationalists. Over the years, due to changes within and around the park, the pond has begun to fill with cattails (*Typha* spp.) and is beginning to lose some of its wildlife habitat value.

The goal of this enhancement project is to restore the open water component of the pond to a larger size (approximately four acres) and increase habitat diversity and interspersion in order to maintain the moderate-value IWWH rating. The proposed plan achieves this goal via cattail removal, wetland habitat creation, and by deepening portions of the pond. In general, this will be achieved by dredging portions of Capisic Pond that have been clogged by sediments and now contain monotypic stands of cattails. Most of the excavated materials will be relocated to the margins of the pond (using engineered bio-geo-textiles) to create shrubby wetland habitat.

PROJECT PURPOSE

Capisic Pond was last dredged by the City of Portland in the 1950's. A review of historic aerial photographs shows a decrease in the open water component of the pond over the last few decades, with the largest cattail expansion taking place within the last 10-15 years (Figure 1).

Figure 1. 2001 aerial imagery (top) compared with a 2009 image (bottom) depicts expansive growth of cattails around the pond margins and interior.

As the area of impervious surface has increased in the Capisic Brook watershed, runoff into Capisic Brook has increased and sediments have built up in Capisic Pond. The sedimentation, combined with weir dam alteration efforts designed to alleviate upstream flooding damage, have reduced the water level in the pond. The shallow, slow-moving and nutrient-rich water favors the growth of cattails. Cattails are aggressive colonizers and are often able to out-compete most other wetland plant species and form large monocultures (*i.e.,* stands of a single plant species). The cattail stands can become very dense and further slow surface water. This causes additional sediments to precipitate from the water column, furthering the sedimentation of the pond and favoring additional cattail growth. While emergent marsh habitat is utilized by a variety of waterfowl species, a monoculture is certainly not the most beneficial and does not provide habitat for as wide of a variety of species as a diverse, native habitat would. Additionally, as the cattails take over the pond, the percentage of the wetland system that is dominated by open water shrinks, and so does the pond's quality of wading bird and waterfowl habitat.

The pond and its surrounding habitat are currently mapped by the MDIFW as moderate-value IWWH. Moderate-value IWWHs are considered significant wildlife habitat (SWH) under state law. This law provides additional protection for most land within 250 feet of the edge of the pond. According to MDIFW, "wading bird habitats consist of breeding, feeding, roosting, loafing, and migration areas. Wading bird breeding habitat includes upland and wetland areas used for courtship and mating, nesting, and rearing young. Feeding habitats include areas used by breeding adults, juveniles, and sub-adults or non-breeding birds. Roosting and loafing habitats include areas used for resting and overnight roosting.

Migration habitat includes areas used for feeding, roosting, and loafing during spring and fall migration and post-breeding dispersal" (MDIFW, 2010).

MDIFW rates IWWHs based on five categories. For each potential habitat, points are assessed in the following categories: dominant wetland class, wetland diversity, size of the wetland, interspersion of different wetland types, and percentage of open water. All points are tallied and a score is given to the habitat to determine its rating as a low-, moderate-, or high-value IWWH. Capisic Pond is currently rated as moderate value, but is trending quickly towards a low-value rating. With cattail encroachment, the pond is losing points for diversity, interspersion and percent open water.

The goal of this project's plan is to increase wetland diversity and wetland interspersion and to restore the open water component of the wetland. Increasing and restoring the wetland habitats will allow the pond to remain classified as a moderate-value IWWH.

PROJECT ALTERNATIVES

PROPOSED ENHANCEMENT STRATEGY

In brief, cattail encroachment is causing a loss of open water habitat, and is slowly leading to a degradation of the IWWH habitat and reducing the scenic and recreational aspects of Capisic Pond. The goal of the enhancement plan is to improve the existing wetland habitat for the variety of species that currently utilize the pond, maintain the current IWWH habitat as moderate-value and improve the aesthetic quality of the pond and maintain the existing character of Capisic Park. These goals will be achieved by dredging portions of the pond to remove the current population of cattails and increase the open water component of the pond. Additionally, the plan proposes the enhancement of riparian wetland habitats along portions of the pond margin currently dominated by shallow, cattail marsh to shrub wetlands. The raised land for this woody, transitional wetland zone will be created from the spoils dredged from the pond. The project's designers considered a variety of alternatives while designing the proposed habitat enhancements to the pond. Specific details incorporated into the proposed design strategy including disturbance locations and amounts, construction details and other pertinent information is outlined in Attachment 1.

AVOIDANCE

No other locations in the City were reviewed as a project alternative. Capisic Pond is one of only two IWWH's in the City of Portland regulated as SWH. Over many years, the City of Portland has worked to improve water quality in the Capisic Brook watershed through infrastructure improvements, aggressive maintenance programs, and community education and outreach. While many of these improvements have had an indirect benefit to Capisic Pond and the surrounding habitat, none have dealt directly with the cattail encroachment that is degrading the pond habitat. In addition, enhancement of an IWWH requires some level of disturbance within a protected natural resource regardless of the project's location.

MINIMIZATION

Since 2011, the project's designers have conducted numerous studies and worked with natural resource protection agencies and the public to find the best approach to bring Capisic Pond back to a healthy state. In the design phase of the project several options were considered:

Option 1: Leave the pond in its current state to naturally mature into an emergent marsh.

This option would allow the pond to continue to revert to an emergent marsh dominated by cattails. The existing IWWH habitat would continue to be degraded and most likely fall into the low value category causing the pond to lose its SWH designation. This option would cause the least damage to protected natural resources in the short-term. In the long-term, loss of valuable IWWH habitat in a highly developed environment would be harmful to wildlife that currently depend on the pond at various stages of their life cycle. Furthermore, if the pond's IWWH habitat were re-evaluated in the future and rated as low value, it could lose its SWH designation allowing the potential for development to further encroach on the pond with less regulatory oversight. This option was not preferred.

Option 2: Dredge the pond back to the "original" condition of the 1950's.

This option would require dredging of the pond to create an open water area of approximately seven acres. Additionally, most of the vegetation along the shoreline would be removed. Costs to remove large amounts of material from the pond and the environmental permitting associated with this option would be significant. Creating this much open water would be detrimental to the already impaired IWWH habitat. This option was not preferred by the project's designers or the public. This option does not minimize impacts to protected natural resources.

Option 3: Create an enhancement plan that is beneficial to wetlands, wildlife and the public.

Strategy 1 – Alter weir structure to raise pond depth

This strategy would utilize the existing weir dam to alter the water level of the pond and flood the cattails to a depth sufficient to exclude and reduce cattail populations. This strategy limits impacts to natural resources by creating fewer disturbances than other methods of open water habitat creation such as dredging. However, this strategy does not meet the project goals due to:

- The City of Portland altered the existing dam structure in 2001 to alleviate upstream flooding of residential homes within the watershed. Using the dam to raise the water level of the pond would re-introduce these concerns and has the potential to cause property damage to landowners during extreme storm events.
- Using flooding to reduce cattail populations to a point that the ratio of open water habitat to terrestrial wetland is in the beneficial range for inland wading birds and waterfowl would be difficult to control. Based on bathymetry data, it may not be possible to flood certain areas of the pond deep enough to reduce or exclude cattail growth, limiting the amount of open water that can be created with this method.

- Flooding alone to reduce established cattail stands can take many years to produce meaningful results.
- Habitat enhancement is not maximized as this method does not increase wetland interspersion around the margins of the pond.
- This method does not deal with the underlying problem – the pond is slowly filling with sediments creating ideal habitat for cattail colonization.

Strategy 2 – Implement a mechanical cattail control plan

Mechanical cutting would reduce the amount of cattails within the pond and allow project designer's to control the open water to terrestrial wetland ratio that is an important aspect of valuable IWWH. Control would involve draining the pond during late summer to allow for equipment access. Cattails would be mowed low on the plant stem. Once mowing is completed the pond would be re-filled, flooding the cut stems. The plants would be forced to live off of carbohydrate stores within their rhizomes. The plants cannot survive long-term without gas exchange through the plant leaves. After several growing seasons of mowing and flooding, the plants would die. This strategy has potential to create additional open water habitat, but does not meet the project goals because:

- Habitat enhancement is not maximized as this method does not increase wetland interspersion around the margins of the pond.
- This method takes several years to produce meaningful results.
- This method would require annual maintenance to ensure long-term success.
- Cattail stands in the shallow pond margins may not be flooded to a sufficient depth that would impact the plants.
- This method does not deal with the underlying problem – the pond is slowly filling with sediments creating ideal habitat for cattail colonization.

Strategy 3 – Dredge the pond to create open water habitat and remove cattail stands. Utilize pond sediments to create additional wetland habitat along pond margins.

This option requires the creation of a strategic plan that balances the desires of the public with a wildlife enhancement strategy that focuses on revitalization of the IWWH habitat. Utilizing, MDIFW's habitat rating for moderate- and high-value IWWH's, project designers created a plan to dredge cattails and pond sediments that creates a beneficial proportion of open water to terrestrial wetland for inland wading birds and waterfowl. A portion of the dredged material will be utilized to create terrestrial wetland of varying cover types along the pond's western edge, thereby seeking to enhance the IWWH habitat by creating broader stratigraphic diversity. Dredging will incorporate the removal of cattails from the pond to create the open water habitat. Proposed post-construction pond depths (about three feet) will be sufficient to limit the regrowth of cattails for the foreseeable future. Research of scientific literature show the underlying problem with cattail colonization is related to shallow water depth. Various control strategies such as mowing, herbicide application and periodic flooding do not have the lasting effect of plant removal and water depth alteration. Based on this research, dredging was chosen as the most effective long-term solution for cattail control. Of further note, mowing and periodic flooding can have a beneficial effect as a future management strategy to limit recolonization after the

underlying water depth problem is corrected. Long-term management strategies such as these are included in a long-term management plan created for this project.

This is the proposed option. This option limits natural resource impacts by:

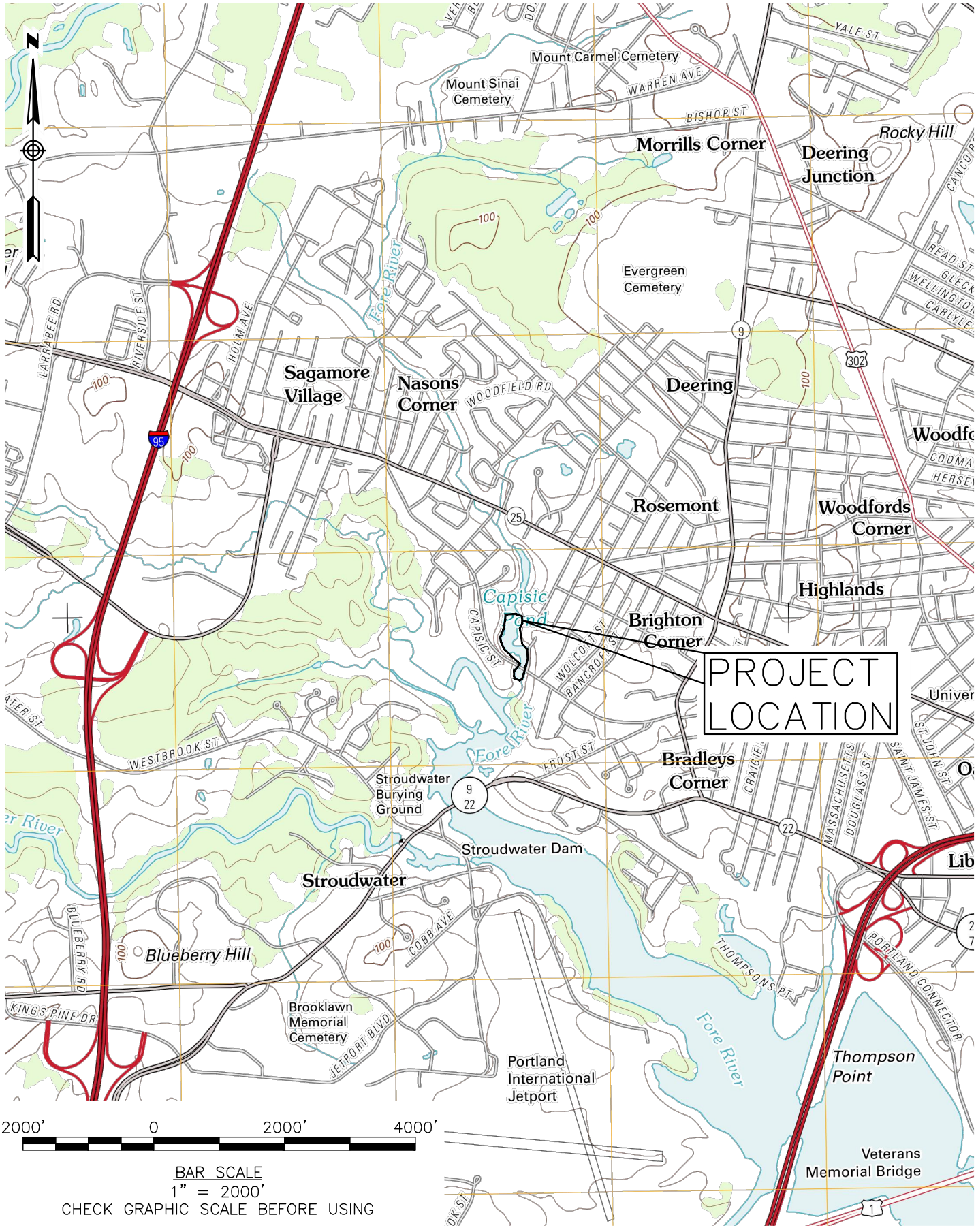
- Only dredging portions of the pond needed to create a beneficial ratio of open water to terrestrial wetland within the IWWH habitat;
- Providing a long-term solution to cattail management, thus limiting a need for future dredging; and
- Limiting clearing of vegetation around the pond to only those areas necessary to create terrestrial wetlands, viewsheds for recreationalists, and access to the pond for winter recreation.

ATTACHMENT 3. LOCATION MAP

The enclosed USGS topographical map shows where the Capisic Pond Enhancement activity will be located.

3.1 ATTACHMENTS

3.1.1 Location Map



2000' 0 2000' 4000'

BAR SCALE
1" = 2000'
CHECK GRAPHIC SCALE BEFORE USING

WOODARD &CURRAN
41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

PROJECT LOCATION MAP

DESIGNED BY: N/A	CHECKED BY: LJS
DRAWN BY: BCM	225672.77 SITE LOCATION*.dwg

CITY OF PORTLAND
PORTLAND, MAINE

CAPISIC POND ENHANCEMENTS

JOB NO: 225672.77
DATE: NOVEMBER 2013
SCALE: 1"=2000'

FIG. 1

ATTACHMENT 4. PHOTOGRAPHS

The following photographs show existing conditions for the Capisic Pond in the Capisic Pond Park, which is located on the north side of Capisic Street, west of Stevens Avenue, in the Rosemont Neighborhood of Portland, Maine.

Figure 4-1 View of Capisic Pond, facing west (Photo by Woodard & Curran, November 2012)

Figure 4-2 View of Capisic Pond, facing northwest (Photo by Woodard & Curran, November 2012)

Figure 4-3 View of culvert crossing under Capisic Street, facing northeast (Photo by Woodard & Curran, September 2012)

Figure 4-4 View of Capisic Pond from Capisic Brook Trail, facing north (Photo by Woodard & Curran, August 2012)

ATTACHMENT 5. SITE PLAN

A full-size plan set including the following sheets is included with the permit application.

Plan List

Cover Sheet

G-001 – General Notes, Legend & Abbreviations

C-100 – Existing Conditions

C-101 – Construction Plan

C-102 – Pond Cross Sections – 1

C-103 – Pond Cross Sections – 2

C-104 – Landscaping Plan Pond Enhancements

C-201 – Landscaping Details

C-300 – Site Details – 1

C-301 – Site Details – 2

ATTACHMENT 6. ADDITIONAL PLANS

Please see Attachment 5 for all applicable engineering plans.

ATTACHMENT 7. CONSTRUCTION PLAN

A contractor has not yet been selected for the Capisic Pond Enhancement Project. The Contractor will likely be selected by public bidding process, and will be required to provide a construction management plan for the project that outlines their specific means and methods and defines their work schedule, subject to the review and approval of the City of Portland and the project engineer prior to the start of construction.

7.1 ANTICIPATED CONSTRUCTION SCHEDULE

Construction of the Capisic Pond Enhancement Project will be performed in accordance with the plans provided in Attachment 5 of this application. Construction will not begin prior to receipt of all applicable permits. Construction is anticipated to begin in 2015, pending the allocation of the necessary funds from the City's Capital Improvement Plan budget for Fiscal Year 2015. Construction is anticipated to be restricted to August 1-October 15 based on work activity restrictions that may be set by both the Maine DEP and the ACOE.

7.2 CONSTRUCTION SITE ACCESS

Access locations to the pond have been identified on the plans. The access locations on Macy Street and Capisic Street will be the only locations for access to the pond, unless specific approval is granted by the City for additional access points; temporary access off Rockland Avenue will be allowed at the onset of construction to establish base flow bypass systems. The Contractor will be required to work completely within the area defined on the plans as the limit of work. The site will be managed during construction to minimize impacts to the surrounding area and natural resources.

Security fencing and barricades will be utilized as necessary to prevent pedestrian access to the construction site. These barricades may be moved to accommodate the construction activities for the project. Temporary signage will also be utilized for traffic and pedestrian controls in the park.

7.3 FLOW AND EROSION CONTROL

At the onset of construction, a drawdown pipe and valve at the Capisic Pond Dam will be utilized to lower the water level in the pond. A coffer dam will be constructed at the upstream side of the project area, and the base flow from Capisic Brook and the Rockland Avenue outfall will be redirected to the existing 120-inch storm drain pipe that runs alongside and under the pond. Details of this bypass are provided on the drawings included in Attachment 5. This pipe has a discharge at the base of Capisic Pond Dam. This existing pipe may not accommodate high flows, and provisions will be made to bypass these flows as necessary, with restrictions placed on construction during and immediately following storm events. All dredging work will be conducted in the dry with the exception of the lowest locations of base flow and any un-drained low points.

Temporary erosion and sedimentation control measures will be established prior to the start of construction and removed after construction has been completed and the site has been stabilized. Erosion and sedimentation control measures will include temporary construction access, temporary erosion control matting, and sedimentation barriers. Watertight trucks will be utilized to transport dredged materials off of the site. The Contractor will also be required to conduct street sweeping as needed to mitigate the transport of sediment and debris from the construction activity off-site and along trucking routes. The locations and details for these erosion and sedimentation control measures are specified on the drawings provided as Attachment 5.

7.4 WILDLIFE MANAGEMENT

The Contractor shall be required to hire a qualified wetland biologist to develop a 'wildlife impact mitigation and management plan' for implementation before and during construction. The biologist shall evaluate the Contractor's proposed construction activities to prepare this project-specific plan. The Contractor must receive written approval of said plan from the Maine Department of Inland Fisheries and Wildlife Regional Biologist prior to the start of construction (coordinated through the City of Portland). The biologist must be hired by the Contractor to provide onsite consultation services (at a rate prescribed in the plan) to monitor compliance with the plan throughout the mitigation and construction efforts. The Contractor shall be responsible for implementing the considerations and recommendations made by the wetland biologist during construction.

7.5 DREDGING & DISPOSAL

Mechanical excavation will be utilized to remove pond sediment and vegetation. The total estimated quantity of sediment removal is 16,000 cubic yards. The required documentation for dredging is included as Appendix C of this report. Mechanical dredging equipment includes clamshells, draglines, backhoes or other machinery for excavating bottom sediments. A long reach excavator working from crane mat or gravel platforms may be utilized to conduct the dredging and transitional habitat creation. Dump trucks and low ground pressure equipment may also be necessary to assist with the excavation, removal, and placement of material. The Contractor will be required to utilize water-tight trucks to transport all dredged materials.

Excavated materials may be stockpiled within the project limit of work for dewatering as necessary. Approximately 7,500 cubic yards of the dredged sediment will be utilized to construct the transitional wetland areas surrounding the open water. Surplus material and vegetative residuals shall be hauled away in watertight dump trucks. Preliminary estimates show that approximately 8,500 cubic yards of material may need to be removed from the site during the construction process. A specific disposal or beneficial use location has not been selected at this time. If the removed sediment is to be beneficially reused, the appropriate permit applications will be provided to the Maine DEP Waste Management Division.

This volume of material removed will result in a significant amount of construction vehicle traffic. The Applicant is working with the City of Portland Traffic Engineer to develop a plan for accepted construction vehicle routes. The Contractor's plan for removal and disposal will be a part of the construction management plan reviewed by the City and the project engineer prior to the start of construction.

ATTACHMENT 8. EROSION CONTROL PLAN

Erosion and sedimentation control measures will be utilized during construction to ensure that the work will not result in contamination of adjacent natural resources. Temporary erosion and sedimentation control measures will be established prior to the start of construction and removed after construction has been completed and the site has been stabilized. Erosion and sedimentation control measures have been outlined within the drawings contained in Attachment 5. The plan sheets, along with the detail sheets, include erosion and sedimentation control locations, details, and notes for implementation and maintenance. In addition, these measures include temporary construction access and erosion control barriers, which will limit the migration of sediment from construction areas. Erosion and sedimentation control measures will conform to the Best Management Practices as specified by the Maine Department of Environmental Protection.

ATTACHMENT 9. SITE CONDITION REPORT

The proposed enhancement project will be taking place within Capisic Pond, an important public and natural resource in the City of Portland. The pond and the surrounding park contain varying wetland areas and wildlife habitats that will be temporarily impacted by the enhancement project.

9.1 WETLANDS

A wetland delineation and functional assessment study was completed for the project area. The delineation and assessment was carried out by Boyle Associates in the summer and fall of 2012, and a final report was completed in September, 2012; this report describes the wetland areas in greater detail and has been attached to this section.

The wetland delineation identified wetland areas throughout the Capisic Park property. Wetlands included a variety of herbaceous and shrub wetland species, as well as areas of open water. Some of these wetland areas are considered Wetlands of Special Significance (WOSS). It was noted in the report that the wetlands on the site all display signs of impacts and degradation due to current and historic development in the pond's watershed. In addition, many of the wetland areas have developed a "monoculture" of cattail plants. These impacts and the monoculture of cattails have resulted in a reduction of the area's ability to provide diverse habitat and value. The wetland areas are described further in the wetland report. The report describes the existing resource characteristics and the delineation methods.

The engineering plans included in Attachment 5 show the total project site, all resource boundaries, and the location and extent of wetland impacts. The plans depict a "limit of work" boundary around the pond enhancement area. All areas within the limit of work area will be temporarily disturbed. A summary of upland and wetland areas for the existing condition and proposed condition were included in Attachment 1, and are repeated in the following table:

Table 9-1 Capisic Pond Enhancement Areas

	Existing*	**Proposed**
Wetland		
PEM1 (Herbaceous, Cattail Dominated)	*212,600 SF*	*0 SF*
PEM2 (Herbaceous other than Cattails)	*600 SF*	*115,600 SF*
PSS (Shrub)	*7,100 SF*	
PUB – Open Water	*84,500 SF*	*197,100 SF*
Total	**304,800 SF**	**312,700 SF**
Upland	**52,500 SF**	**44,600 SF**
Total Limit of Work Area	**357,300 SF**	**357,300 SF**

All existing wetlands within the project limit of work will be temporarily impacted during construction. Existing and proposed areas listed in the table above are shown on the Wetland Impact Figures 1 and 2 included previously in Attachment 1.

The proposed project will increase the total wetland area on the site, as some upland areas within the limit of work will be replaced with wetland plants. The cattail dominated wetlands will be eliminated, and the area will be replaced with other wetland plantings as well as additional open water; no new impervious surface will be created as part of this project.

9.2 WILDLIFE HABITAT

The project will be taking place within a habitat area that has been designated by the Maine Department of Inland Fisheries and Wildlife as moderate value Inland Waterbird and Waterfowl Habitat (IWWH). As discussed previously, this moderate value ranking is in jeopardy due to the shrinking open water area and lack of wetland diversity in and around Capisic Pond. The proposed enhancement project will create the ideal ratio of open water to diverse perimeter wetlands to maintain the current habitat ranking.

9.3 FLOODPLAIN

The project is located within the FEMA Special Flood Hazard Area Zone AE. A copy of the FEMA flood map is attached to this section. The proposed work will provide an increased area of open water, and will not result in any additional flooding restrictions that would impact the Flood Hazard Area, or areas upstream of the proposed work.

9.4 SHORELAND ZONE

Portions of the work will take place within the shoreland zone and the stream protection overlay zone, as identified by the City of Portland's Zoning GIS mapping. The project will be in conformance with City of Portland Shoreland Zone requirements, and is being reviewed by the City's Zoning Administration as part of the local permitting process (City of Portland Level III Site Plan Application submitted on December 16, 2013).

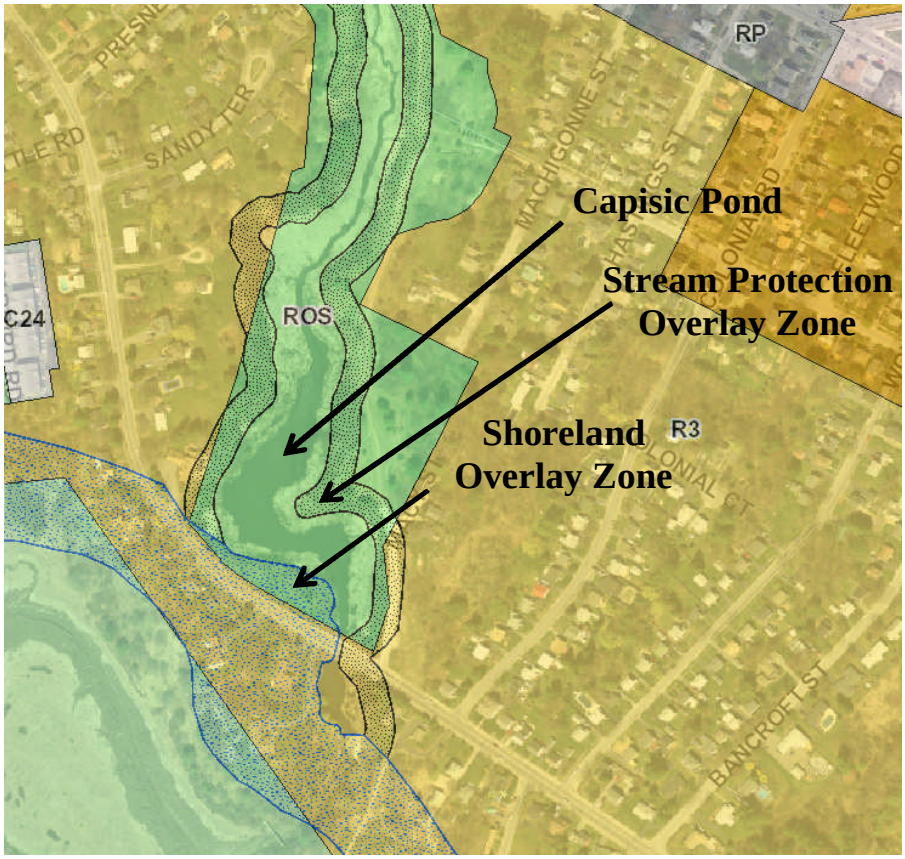


Figure 9-1 City of Portland GIS Zoning Map

9.5 VISIBILITY

The project is intended to enhance the aesthetic value of the Capisic Pond Park. Existing areas of cattail dominated wetlands will be replaced by open water and diversified wetland areas. The landscaping work will preserve existing viewsheds to the greatest extent possible. It is noted that during, and in the years immediately following construction, the pond aesthetics will be different, with small plantings and visible stabilized shoreline areas. It is anticipated to take approximately three years for the plantings to fully establish.

A visual evaluation has been completed for the site and is included as Appendix A.

9.6 ATTACHMENTS

9.6.1 Wetland Delineation Report & Functional Assessment

9.6.2 FEMA Flood Map

Capisic Pond Park - Portland, Maine
Wetland Delineation Report & Functional Assessment
September 2012

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LIST OF FIGURES

1. INTRODUCTION

Capisic Pond Park is an approximately 18-acre, city-owned property located in a suburban area of Portland, Maine (Figure 1). Capisic Pond Park is bounded by Capisic Street to the south and west, Lucas Street to the north and Machigonne Street to the east, with several of the property boundaries consisting of residential home lots. The park consists of emergent marsh and mixed forested, shrubby and grassy uplands and wetlands surrounding Capisic Pond. Within the park, a gravel footpath traverses the east side of the pond, generally following over a Portland Water District sewer line. The path runs from a small parking area on the corner of Capisic Street and Macy Street north to a small gravel lot on Lucas Street. There is a small side path that connects to Rockland Avenue. Several mowed trails veer from the main path, allowing access to additional viewpoints of the pond and surrounding habitats. The park is a popular destination for local residents and visitors who use the park primarily for hiking, walking, biking, and nature watching. Uplands within and around the site consist of small areas of woodlands, shrublands and grasslands surrounded by suburban development. Woodlands consist mainly of large tree species such as white pine (*Pinus strobus*) with a shrubby understory of invasive plant species such as honeysuckle (*Lonicera spp.*) and buckthorn (*Frangula* and *Rhamnus spp.*). Residential homes and yards surround most of the site. There are some larger house lots on the western side of the pond. Many areas along the pond are being maintained as lawn up to or very near the edge of the pond.

The park's main visual and habitat feature is Capisic Pond and its surrounding wetlands and riparian habitats. Capisic Pond roughly bisects the property. Fed primarily by Capisic Brook, the pond flows (slowly) from the north to south. Capisic Pond is an approximately 8-acre, manmade freshwater pond. A concrete dam just south of Capisic Street regulates water levels in the pond. Below the dam, Capisic Brook flows south into the Fore River and then to Casco Bay (Figure 2).

Current and past land uses of the park and the upstream and surrounding area have led to significant changes within the pond and its surrounding habitats. The water level in Capisic Pond has decreased due to an increase in sedimentation from upstream sources and to an intentional lowering of the pond to alleviate upgradient stormwater flooding. The lack of depth and increased inflow of nutrients has allowed a flourish of aggressively colonizing cattails (*Typha latifolia* and *T. angustifolia).* The cattails and sediments are changing the pond, making it shallower and reducing the amount of open water habitat. The pond receives inflow from Capisic Brook. Capisic Brook is listed by the Maine Department of Environmental Protection (MDEP) as an Urban-Impaired Stream (Chapter 502 of the Maine Stormwater Management Law). In an effort to improve water quality in Capisic Brook, the City of Portland has initiated several stormwater upgrades, habitat improvements and public outreach campaigns throughout the Capisic Brook watershed. Part of the overall strategy for watershed improvement includes a plan to enhance the wildlife habitats, water quality and land use qualities of Capisic Pond Park. Boyle Associates is working with the City's Engineering and Project Design consultant - Woodard & Curran, to provide wetland and wildlife ecology expertise on portions of the Capisic Pond Park habitat improvement plan. This report provides findings from Boyle Associates investigation of wetland boundaries and functions and values conducted in August, 2012.

1.1 STUDY AREA

The study area includes Capisic Pond Park and a 0.5-acre area south of Capisic Street on which the dam and a portion of the pond are located (see Figures 1 and 2). There is no public access to the portion of the study area south of Capisic Street.

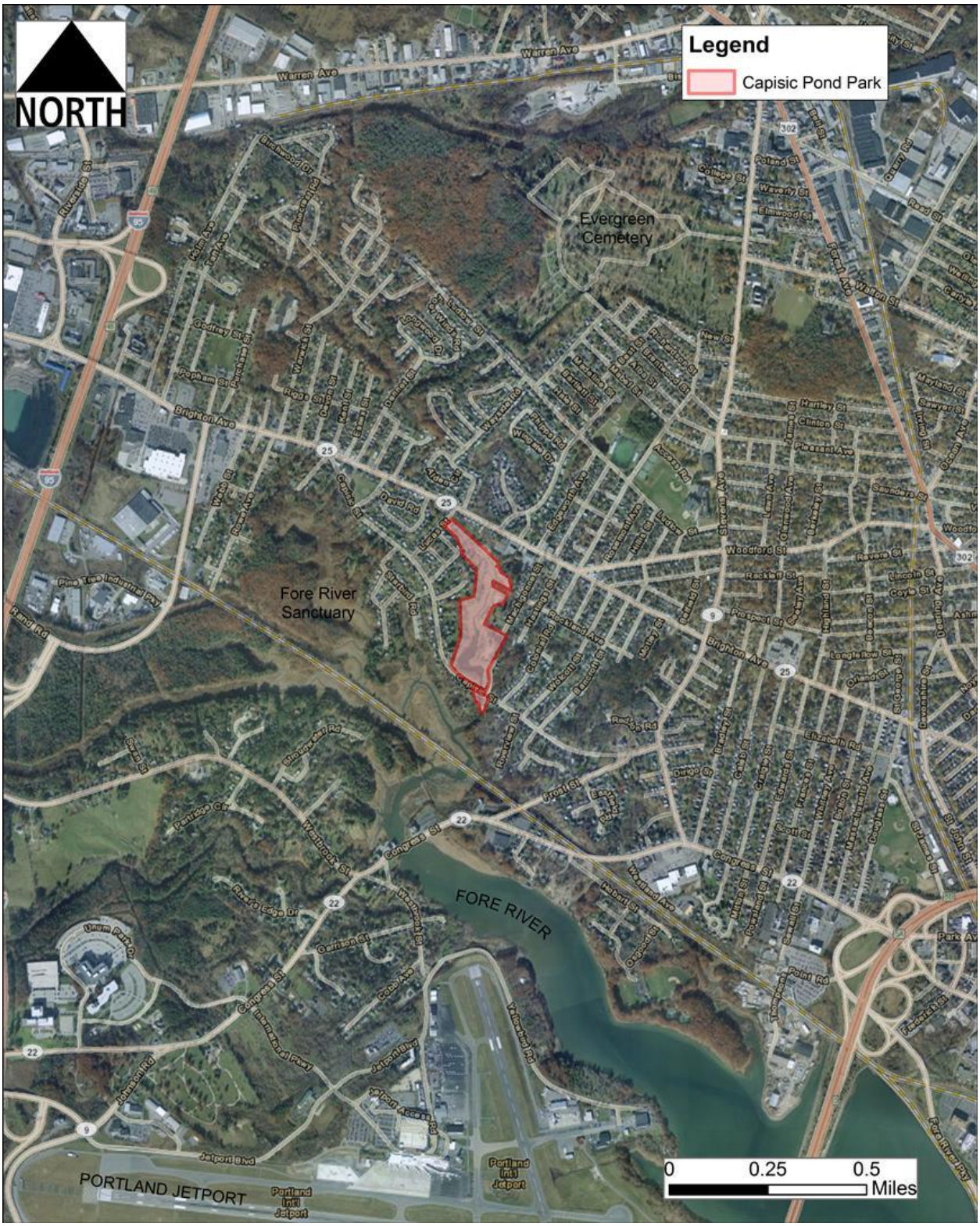

Figure 1. Capisic Pond Park location map (*Oct. 2009 aerial photo – ESRI*).

Figure 2. Capisic Pond Park Wetland Delineation and Functional Assessment Study Area (*Oct. 2009 aerial photo – ESRI*).

2. METHODS

2.1 WETLAND DELINEATION

2.1.1 Selection of Delineation Methodology

Based on current state and United States Army Corps of Engineers (USACE) policy for identifying jurisdictional wetlands, wetland boundaries were determined using the methods described in the *1987 USACE Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineer's Wetland Delineation Manual: Northcentral and Northeast Region, v2.0*. These methods use a three factor approach for identifying wetlands. The three factors are evidence of hydrology, a dominance of hydrophytic vegetation and the presence hydric soils.

2.1.2 Background Research

Prior to conducting fieldwork, Boyle Associates conducted a thorough review of existing site information including the following:

- United States Geologic Survey (USGS) 7.5-minute (24K) series topographic quadrangle map;
- Cumberland County soil survey from the United States Department of Agriculture/Soil Conservation Service (USDA/SCS, 1974) to determine presence and extent of hydric and upland soils;
- National Wetlands Inventory (NWI) 7.5-minute series quadrangle map from the United States Fish and Wildlife Service (USFWS) to determine the presence of mapped, federally-designated wetlands;
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) of Cumberland County, Maine; and,
- Historical records, indexes, reports, and maps (aerial and topographic) of the park and surrounding region – (see Section 4.0 for more information).

2.1.3 Onsite Wetland Boundary Determination

Following a review of the background information, Wetland Scientists from Boyle Associates performed systematic field surveys of the study area. The surveys were initiated with a walk-over inspection of the entire site to identify topographic, drainage and vegetation features that would indicate the presence of wetlands. Next, sample plots were analyzed along transects in order to determine the wetland boundary. Specific methods for sampling, characterizing and evaluating the soils, vegetation, and hydrologic indicators were based on the manual mentioned in Section 2.1.1.

2.1.4 Wetland Vegetation Covertype Mapping

Vegetative covertypes within each wetland were mapped using a combination of GPS location, field sketches and aerial photo interpretation. Each wetland covertype was classified using the *Classification of Wetlands and Deepwater Habitats of the United States* (1979) created by the U.S. Fish and Wildlife Service (also known as the *Cowardin Classification System*). This classification "*is intended to describe*

ecological taxa, arrange them in a system useful to resource managers, furnish units for mapping, and provide uniformity of concepts and terms." Systems form the highest level of classification hierarchy; these are Marine, Estuarine, Riverine, Lacustrine, and Palustrine. Each system is then further defined using subsystems and classes based on substrate material, hydrologic regime, and vegetative composition. Several modifiers can also be used to further describe each subsystem or class. For example, a freshwater wetland dominated by a forested or woody overstory with mixed deciduous and evergreen vegetation greater than 20 feet tall and seasonally flooded/saturated would be described under Cowardin as: *PFO 1/4E*. The appropriate classification based upon Cowardin system was determined and assigned for each wetland.

2.2 MAPPING

Data collected on the site were mapped using a mapping-grade Global Positioning System (GPS) unit (Trimble GeoXH). A minimum of 30 epochs were collected at each point and data were differentially corrected against fixed data from a commercial base station to ensure sub-meter accuracy. Data were exported to the following coordinate system and datum: NAD 1983, State Plane, Zone Maine West, 1802.

2.3 WETLAND FUNCTIONAL ASSESSMENT

A wetland functional assessment was performed pursuant to the approach described by the Army Corps Highway Methodology Workbook Supplement: Wetland Functions and Values. In this "Descriptive Approach" to functional assessment, the evaluators first determine if particular functions and values are *present* and why, followed by a determination of what functions and values are *principal* and why. Functions and values can be considered "principal" if they are an important physical component of a wetland ecosystem (function only), and/or are considered of special value to society, from a local, regional, and/or national perspective. When making determinations on the wetland, evaluators are encouraged to determine whether the wetland has the *potential* to serve the functions and values as well.

Functions are self-sustaining properties of a wetland ecosystem that exist in the absence of society and that result from both living and non-living components of a specific wetland resource. These include all processes necessary for the self-maintenance of the wetland ecosystem such as primary productivity and nutrient cycling, among others. Therefore, functions relate to the ecological significance of wetland properties without regard to subjective human values.

Values are benefits that derive from one or more functions and the physical characteristics associated with a wetland. Most wetlands have corresponding societal value. The value of a particular wetland function, or combination of functions, is based on human judgment of the worth, merit, quality or importance attributed to those functions.

Groundwater Recharge/Discharge: This function considers the potential for the wetland to serve as a groundwater recharge and/or discharge area. It refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

Floodwater Alteration (Storage & Desynchronization): This function considers the effectiveness of the wetland in reducing flood damage by attenuation of floodwaters for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecosystem or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas.

Fish and Shellfish Habitat: This function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in providing fish and shellfish habitat.

Sediment/Toxicant/Pathogen Retention: This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants or pathogens in runoff water from surrounding uplands, or upstream erosive wetland areas.

Nutrient Removal/Retention/Transformation: This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers or estuaries.

Production Export: This function evaluates the effectiveness of the wetland to produce food or usable products for man or other living organisms.

Sediment/Shoreline Stabilization: This function considers the effectiveness of the wetland in stabilizing stream banks and shorelines against erosion.

Wildlife Habitat: This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and migrating species are considered.

Recreation: This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting and other active or passive recreational activities.

Educational/Scientific Value: This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

Uniqueness/Heritage: This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values, including archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, or its relative importance as a typical wetland class for the geographic location.

Visual Quality/Aesthetics: This value considers the visual and aesthetic quality or usefulness of the wetland.

Endangered Species Habitat: This value considers suitability of the wetland to support threatened or endangered species.

3. RESULTS

3.1 WATERSHED

The survey area is located within the Presumpscot River and Casco Bay watershed (HUC 8: 01060001) and within the Fore River subwatershed (HUC: 0106000105).

3.2 INVASIVE SPECIES

Invasive species include introduced or non-native species brought to a location by man or some other vector, which adversely affect the natural habitat of a region that they invade economically, environmentally, and/or ecologically. Such species may be either plants or animals and may disrupt ecosystems due to the lack of the natural controls that exist in their native habitats. Typical vectors for invasive species include: water (i.e. seeds or plant fragments floating down a river or stream); wind; animals (either by eating fruits and spreading seeds or by unknowingly transporting seeds on fur and feathers); and transplanting seeds, plant fragments or contaminated soils on equipment, boots, tires, soil, mulch, or other human vectors. Invasive plants may provide some food and habitat value, but they tend to outcompete and crowd out native plants upon which the native animals and insects rely.

Several species and a high-density of invasive plants are found within Capisic Pond Park (see Appendix B for a complete list). Every wetland on the site contains the flowering invasive plant, purple loosestrife (*Lythrum salicaria*). Other invasive plants found within uplands or along wetland boundaries include: bush honeysuckle, glossy buckthorn (*Frangula alnus*), common buckthorn (*Rhamnus cathartica*), multiflora rose (*Rosa multiflora*), Japanese knotweed (*Fallopia japonica*), narrow-leaved cattail (*Typha angustifolia),* and oriental bittersweet (*Celastrus orbiculatus*) – see Appendix B for more information.

Notably absent from the site are the tenacious and common invasive plants common reed (*Phragmites australis*) and autumn olive (*Elaeagnus umbellata*). These plants can be found nearby the site (*e.g*. within the adjacent Fore River Sanctuary and along Capisic Brook), so their absence in the park is surprising. Future planning and work at the site should include provisions and strategies long-term management of these and all invasive species.

3.3 VERNAL POOLS

No areas within our study were identified as meeting the State of Maine Natural Resources Protection Act (NRPA) or Army Corps of Engineer's Maine General Permit (GP) definition of a vernal pool.

3.4 WETLANDS & STREAMS

Six wetlands and two streams were identified within the park. The following section includes wetland classifications and descriptions, and a listing of the functions and values determined for each wetland. Table 1 provides a list of wetlands with a brief description; Table 2 provides a list of the streams identified. While each wetland has the potential to provide a variety of functions and values, it should

be noted that impacts and development, both current and historic, have reduced the area's overall ability to provide habitat and value. All wetlands on the site display some sign of impacts and degradation, including draining, trash (including residential yard debris), grading, filling, excavation, and invasive species. Photographs are included in Appendix A.

Table 1. Wetland Survey Results

ID	Type	Classification[1]	WSS[2]	Brief Description
A	Scrub-shrub/ Emergent	PSS1E, PEM1E	Yes	Wetland complex draining from outside the eastern boundary into the park. Hydrology from the wetland flows to west and into Capisic Pond via a small culvert under the walking trail. The walking trail appears to be partially impounding flow in the wetland.
B	Emergent	PEM2/1E, PFO1E	No	Mostly herbaceous wet meadow adjacent to the trailhead along Macy Street. Flow tends generally to the southwest and into a culvert. The culvert appears to flow toward the pond, but the downslope outlet could not be located.
C	Emergent	PEM2/1E	No	A small, isolated wet meadow located on a knoll on the eastern side of the property. Hydrology within the wetland did not appear to flow in any particular direction. Ponding was evident post rainfall. The wetland appears to be the result of a historic excavation and provides minor functions or values.
D	Emergent / Scrub-shrub	PEM2/1E, PSS1E	Yes	Wetland complex draining from the eastern boundary and flowing to a shallow basin along the walking trail. Disturbance and fill along the walking trail appear to be impounding the lower elevations within the wetland. Ponding is evident within the wetland post rainfall and water can be seen flowing into the walking trail toward the pond.
E	Emergent / Scrub-shrub	PEM2/1E, PSS1E	Yes	Wetland complex along the eastern parcel boundary. Very little of this resource is within the survey area. The wetland drains from northwest and onto the site. Water is being impounded within the lower elevations of the wetland along the walking trail. A culvert was found draining from wetland E into the pond (wetland F).
F	Emergent / Open Water	PEM1J, PUB3	Yes	Large wetland/pond complex fed by Capisic Brook. The pond is impounded by a weir dam on the south side of Capisic Street and contains large areas of open water habitat interspersed with cattail marsh.

[1] Per **Cowardin** *et al*. 1979.
[2] Wetland of Special Significance

Table 2. Stream Survey Results

ID	Stream Type	Width	Depth	Substrate	Comments
1	Perennial	3-15’	18”	Boulder, cobble, gravel, sand, mud	Stream 1 (unnamed) begins at the Rockland Avenue outfall and flows for a short distance before entering Capisic Pond on the west side of the gravel trail. Stream is eroded and receives strong, concentrated stormwater flows post heavy rain events.
2	Perennial	15-20’	12-24”	Cobble, sand, mud	Within the survey area, stream 2 (Capisic Brook) flows south under Lucas Street through shady shrub habitat toward Capisic Pond. Directly south of Lucas Street the brook is shallow, fast moving, and rocky. As the stream approaches the pond, the habitat opens to emergent marsh and becomes deeper and meandering with slower water velocities before becoming open water and emergent marsh (*i.e.* Capisic Pond); the stream reforms as a fast-moving rocky-bottom stream below the dam south of Capisic Street (outside of study area).

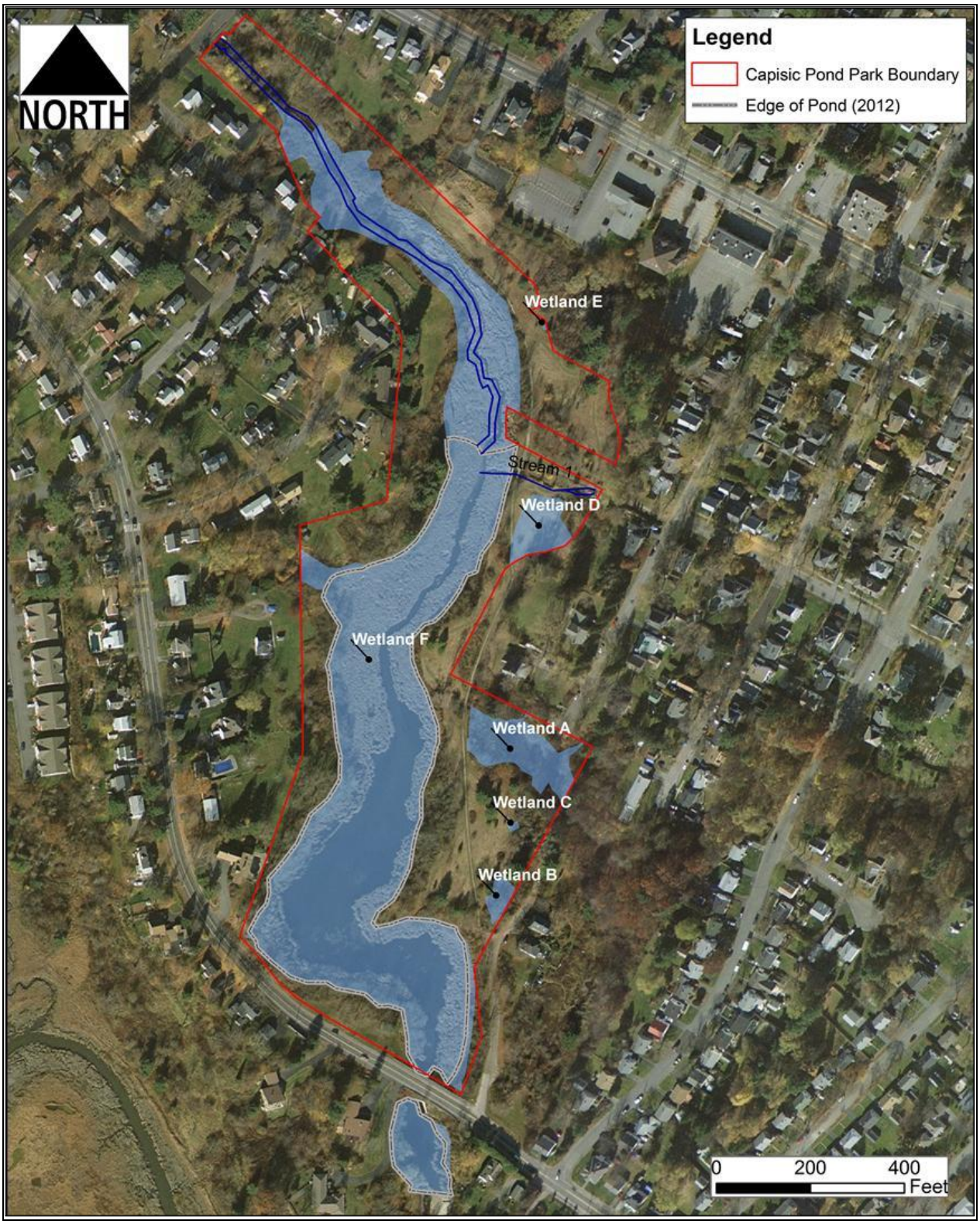

Figure 3. Capisic Pond Park Wetland Map

Figure 4. Wetland Covertypes

3.4.1 Wetland A

Cowardin Classification: Dominant class: PSS1E – Palustrine scrub-shrub, broad-leaved deciduous, seasonally saturated/flooded.

Other classes present: PEM1/2E – Palustrine emergent, seasonally saturated/flooded.

General Description: Wetland A is located in a narrow valley between the gravel walking trail and eastern parcel boundary. The margins of the wetland are comprised of a thick shrubby tangle of invasive and native shrubs. Evidence of historic and current filling along the wetland boundary is apparent. Due to the dense shrub growth and past land disturbances, the boundary between wetland and upland has been partially obscured. Hydrology within the wetland flows generally to the west toward Capisic Pond. A culvert located on the downslope side of the wetland along the walking trail appears to channel hydrology from wetland A into Capisic Pond (known herein as wetland F). Water was observed impounded against the fill extensions from the gravel trail.

Dominant Vegetation: Trees: Black willow (*Salix nigra*)

Shrubs: Speckled alder (*Alnus incana var. rugosa*), silky dogwood (*Cornus amomum*), withe-rod (*Viburnum nudum* var. *cassinoides*), and bush honeysuckle.

Herbs: Broadleaf cattail (*Typha latifolia*), woolgrass (*Scirpus cyperinus*), broadleaf arrowhead (*Sagittaria latifolia*), purple loosestrife, and white turtlehead (*Chelone glabra*).

Soils and Hydrology: Indicators of wetland hydrology are ponded surface water (flooded to approximately 6" in August 2012), saturation of the soil to the surface, water-stained leaves within the shrub-dominated portions of the wetland, and drainage patterns throughout the wetland.

Soils within wetland A are lacking an A-horizon (*i.e.* topsoil). This layer may have been removed during dredging or other site work in the past. The B-horizon (subsoil) consists of a gleyed matrix with redoximorphic features. Gleyed matrices are soils with a blue-green color and are indicative of prolonged saturation.

Wetlands of Special Significance: This wetland meets the Maine NRPA definition of a Wetland of Special Significance (WSS) due to the fact that is located entirely within a FEMA 100-year floodzone and contains Significant Wildlife Habitat (IWWH).

Functional Assessment: Wetland A provides or has the potential to provide the following functions and values: groundwater recharge/discharge, floodflow alteration, sediment/toxicant retention, nutrient removal, production export, sediment and shoreline stabilization and wildlife habitat. The capacity for the resource to provide these functions has been reduced due to its position within a developed landscape.

The principal function served by wetland A is floodflow alteration. Wetland A is found within in a narrow valley, it has a constricted outlet, it has dense shrub and herbaceous vegetation, and it has a broad, flat

topography; these features enable the wetland to store significant amounts of floodwater and runoff from the surrounding landscape. Additionally, much of the surrounding area near wetland A consists of impervious and semi-impervious surfaces (roads, houses, yards, driveways, etc.). During rain events, large amounts of runoff flow into the wetland, both overland and from stormwater outlets. The makeup of wetland A allows it to slow floodwaters, giving them time to infiltrate into the soil.

3.4.2 Wetland B

Cowardin Classification: Dominant class: PEM2/1E (Palustrine emergent, seasonally saturated/flooded).

Other classes present: PFO1E (Palustrine forested, broad-leaved deciduous, seasonally saturated/flooded).

General Description: Wetland B is located along the east side of the trail near the trailhead abutting Macy Street. Flow within the wetland tends to the south toward a culvert. The culvert appears to flow toward the pond, but an outlet could not be found (the culvert may drain into the City's stormwater conveyance system that runs under the park trail).

Dominant Vegetation: Trees: Red maple (*Acer rubrum*).

Shrubs: White meadowsweet (*Spiraea alba var. latifolia*).

Herbs: Flat-top goldentop (*Euthamia graminifolia*), jewelweed (*Impatiens capensis*), woolgrass, multiflora rose (*Rosa multiflora*), sensitive fern (*Onoclea sensibilis*), swamp rose (*Rosa palustris*), parasol whitetop (*Doellingeria umbellata*), and giant goldenrod (*Solidago gigantea*).

Soils and Hydrology: Soils within wetland B consist of a thick, dark, A-horizon underlain by a B-horizon with a depleted matrix within 10 inches of the mineral soil surface. Hydrology observed at the time of delineation was limited, but included water-stained leaves and drainage patterns. An inlet culvert was noted in the lowest portion of the wetland, near the park trailhead. An outlet into the pond could not be found. It is possible that the wetland is being drained into the stormwater system that runs along the park trail.

Wetlands of Special Significance: Based on field observations and office review of existing data, this wetland does meet any of the Maine NRPA criteria to be defined as a WSS.

Functional Assessment: Wetland B provides or has the potential to provide the following functions and values: groundwater recharge/discharge, floodflow alteration, sediment/toxicant retention, nutrient removal, and wildlife habitat. While the wetland has the capacity to provide the above-listed functions, none of these functions can be considered principal, as the resource's ability to provide these functions is limited by the size of the wetland and by development of the wetland and the surrounding landscape.

3.4.3 Wetland C

Cowardin Classification: Dominant class: PEM2/1E – Palustrine emergent, seasonally saturated/flooded.

General Description: Wetland C is a small, isolated wetland located along a grassy side trail of the park near the eastern property boundary and slightly south of wetland A. Wetland C appears to have been created by disturbance. Over time, the compaction of the soil in the small depression has caused extended periods of surface water ponding, saturating the soil and favoring hydrophytic vegetation to colonize the small basin.

Vegetation: Trees: None observed

Shrubs: None observed

Herbs: Flat-top goldentop (*Euthamia graminifolia*), purple loosestrife, woolgrass, and New York aster (*Symphyotrichum novi-belgii*).

Soils and Hydrology: Soils in wetland C consist of a thick, dark A-horizon with redoximorphic features underlain by a B-horizon with a depleted matrix. The A-horizon was very compact and overlies a dense, impervious layer of silty-clay. Evidence of hydrology consists of standing water (approximately three inches deep at the time of survey) and saturation to the soil surface.

Wetlands of Special Significance: This wetland is a small, isolated and potentially manmade feature, but due to the fact that it is contains Significant Wildlife Habitat (IWWH,) the wetland is considered WSS.

Functional Assessment: Wetland C provides or has the potential to provide the following functions and values: groundwater recharge/discharge and wildlife habitat. However, due to its small size and location next to the trail, no principal functions or values were identified for the resource.

3.4.4 Wetland D

Cowardin Classification: Dominant class: PEM2/1E – Palustrine emergent, seasonally saturated/flooded.

Other classes present: PSS1E – Palustrine scrub-shrub, broad-leaved deciduous, seasonally saturated/flooded.

General Description: Wetland D is a mixed herbaceous and shrub wetland located along the eastern boundary of the site, just south of Rockland Avenue. The wetland is located just south of Stream 1, that begins at the Rockland Avenue stormwater discharge site.

Vegetation: Trees: None observed

Shrubs: Silky dogwood, withe-rod and tamarack (*Larix laricina*).

Herbs: Common rush (*Juncus effusus*), giant goldenrod, parasol whitetop, flat-top goldentop, purple loosestrife, woolgrass, and Pennsylvania smartweed (*Polygonum pennsylvanicum*).

Soils and Hydrology: Soils within wetland D have a dark A-horizon made of gravelly fill material. Below the A-horizon, a hardpan, impervious B-horizon with mixed loamy-silty-clay B-horizon was observed. The B-horizon has a depleted matrix and many redoximorphic features.

Water flowing into the wetland from the northwest tends to back up against the Capisic Pond Park trail, adding to the small wetland's hydrology. Hydrologic indicators include periodic standing water in some of the lower areas of the wetland and a generally high water table (presumably perched on the hard silty-clay horizon). Additional indicators of wetness include sediment deposits from previous flooding events and surface soil cracks along the park trail.

Wetlands of Special Significance: Wetland D meets the Maine NRPA definition of WSS due to the fact that is located entirely within a FEMA 100-year floodplain and contains Significant Wildlife Habitat (IWWH).

Functional Assessment: Wetland D provides or has the potential to provide the following functions and values: groundwater recharge/discharge, floodflow alteration, sediment/toxicant retention, nutrient removal, production export, and sediment and shoreline stabilization. Several of the functions and values are being provided, but the capacity for the resource to provide those functions is limited due to its size, location and the surrounding, developed landscape. While the wetland has the capacity to provide the above-listed functions, the principal function served by wetland D is floodflow alteration.

Wetland D slopes gradually toward Capisic Pond, and slows and holds some stormwater runoff prior to it entering the pond. Additionally, the wetland appears to receive some overflow from the Rockland Avenue outfall during periods of high runoff. During these events, large amounts of runoff flow into the wetland, both overland and from the stormwater outlet. The makeup of wetland A allows it to slow floodwaters, giving them time to infiltrate the topsoil.

3.4.5 Wetland E

Cowardin Classification: Dominant class: PEM1/2E – Palustrine emergent, seasonally saturated/flooded.

Other classes present: PSS1E – Palustrine scrub-shrub, broad-leaved deciduous, seasonally saturated/flooded.

General Description: Wetland E is located in a narrow valley on the east side of the trail – only a small portion of the wetland is located within the study area. Wetland E is very similar to Wetland A. Drainage patterns were noted throughout the wetland and water is being impounded along the park trail. A culvert was observed along the trail; the culvert appears to drain floodwater water from wetland E and outlets into the wetland associated with Capisic Pond (Wetland F).

Vegetation: *Trees:* None observed

Shrubs: Black willow

Herbs: Purple loosestrife, jewelweed, swamp rose, common rush, beggar's tick (*Bidens frondosa*), fringed sedge (*Carex crinita*), New York aster, and New England aster (*Symphyotrichum novae-angliae*).

Soils and Hydrology: The topsoil in wetland E consists of a thin, silt-loam A-horizon underlain by a silty-clay B-horizon with a depleted matrix and redoximorphic features. Evidence of hydrology includes surface water and soil saturation to the surface.

Wetlands of Special Significance: Wetland E meets the Maine NRPA definition of a WSS because it is located entirely within a FEMA 100-year floodplain and contains Significant Wildlife Habitat (IWWH).

Functional Assessment: Wetland E provides or has the potential to provide the following functions and values: groundwater recharge/discharge, floodflow alteration, sediment/toxicant retention, nutrient removal, production export, sediment and shoreline stabilization and wildlife habitat. Several of the functions and values are being provided, but the capacity for the resource to provide those functions is limited due to its small size, its location and its developed surroundings. The principal function served by wetland E is floodflow alteration.

Wetland E is in a similar landscape position as Wetland A. It is has a broad basin located adjacent to the gravel trail. Water is impounded along the trail. The standing water slowly infiltrates the soil, attenuating runoff during periods of heavy storm flows.

3.4.6 Wetland F

Cowardin Classification: Dominant class: PEM1/2E – Palustrine emergent, seasonally saturated/flooded.

Other classes present: PUB – Palustrine unconsolidated bottom; PSS1E – Palustrine scrub-shrub, broad-leaved deciduous, seasonally saturated/flooded.

General Description: Wetland F includes Capisic Pond and its associated riparian wetlands. It covers approximately 10 acres of the study area. In general, Wetland F consists of a dammed, freshwater pond immediately bordered by treed uplands and emergent floodplain wetlands. A few shrubby wetland swales drain into the pond from the west. The wetland is bordered by some of the cleared grasslands and trails of the park to the east and suburban homes and lawns to the west. Wetland F is fed by Capisic Brook from the northwest. Capisic Brook has a narrow, mostly herbaceous floodplain near the northwestern end of the park before it drains into the pond.

The original Capisic Pond dam was constructed on Capisic Brook in the 1600s to power a grist and saw mill. Eventually, in the middle of the 20th century, the City of Portland began managing the dam as a component of its combined sewer/stormwater system. The City rebuilt the dam in its current location on the south side of Capisic Street in 1954. The most recent dam reconstructions, in 1996 and again in 2001, lowered the outlet in order to reduce stormwater flooding issues upstream in the Capisic Brook watershed.

Capisic Pond was last dredged in the 1950s. Over the years, as expansion of impervious surface from development has increased runoff into Capisic Brook, sediments have built up in the pond. The sedimentation, combined with the lower water elevation afforded by the dam lowering efforts of 1996 and 2001, has reduced the water level in the pond. The shallow, turbid water favors the growth of cattails, which outcompete most other species in these types of habitats. A review of historic aerial

photographs has shown a decrease in the open water component of the park over the last few decades, with the largest cattail expansion taking place within the last 10-15 years (see Figure 5) .

Figure 5. 2001 aerial imagery (top) compared with a 2009 image (bottom) indicates expansive growth of cattails around the pond margins and interior.

Vegetation: *Trees:* American elm *(Ulmus americana).*

Shrubs: Withe-rod, bush honeysuckle and silky dogwood.

Herbs: broadleaf cattail, narrowleaf cattail (*Typha angustifolia*), jewelweed, common duckweed (*Lemna minor*), broadleaf arrowhead, wild cucumber (*Echinocystis lobata*), variegated yellow pond-lily (*Nuphar lutea*), American white waterlily (*Nymphaea odorata*), pickerelweed (*Pontederia cordata*), floating pondweed (*Potamogeton natans*), and coontail species (*Ceratophyllum sp.*).

Soils and Hydrology: Soil within the open water portion of Wetland F consists of deep mucky silt and clay. Soil within the herbaceous plant-dominated portions of Wetland F consist a thick organic soils (also known as histosols).

Evidence of hydrology in Wetland F include surface water approximately four inches in depth, a high water table, saturation to the soil surface, sediment deposits, drift deposits ("wrack"), water-stained leaves, and drainage patterns.

Wetlands of Special Significance: Wetland F meets the criteria of a WSS due to the fact that is located entirely within a FEMA 100-year floodplain, contains greater than 20,000 square feet of open water or

emergent marsh vegetation, and contains significant wildlife habitat (moderate value IWWH as described in the NRPA). Additionally, all wetlands located within 25-feet of Capisic Brook are considered WSS.

Functional Assessment: Wetland F contains Capisic Brook and Capisic Pond. Historic alteration of the surrounding land has significantly altered the natural stream and surrounding wetland resources (*e.g.* creating the pond, clearing the riparian forests, sedimentation, *etc.*). One recent (*i.e.* within the last decade) but major change has been the growth of a cattail monoculture along the pond margins and into the pond center. The expansion of cattails has affected the functionality of the pond, effectively reducing the open water component and increasing the emergent wetland area. However, Capisic Pond and its surrounding wetland are still large, diverse and unique enough to provide important functions and values within the surrounding watershed. Wetland F provides or has the potential to provide the following functions and values: groundwater recharge/discharge, floodflow alteration, fish and shellfish habitat, sediment/toxicant retention, nutrient removal, production export, sediment and shoreline stabilization, wildlife habitat, recreation, educational/scientific value, uniqueness/heritage, and visual quality/aesthetics. Principal functions and values served by wetland F include sediment/toxicant retention, wildlife habitat, recreation, and uniqueness/heritage. These functions and values will be discussed below.

Sediment/Toxicant Retention: Sediment runs to the pond from stormwater outfalls and in runoff from surrounding developed and impervious surfaces. The pond can receive sediment and other pollutants from surface runoff and retain the materials in thick emergent marsh vegetation and allow materials to precipitate in the slow moving water of the pond.

Wildlife Habitat: The pond and its surrounding wetlands provide an important habitat island within an otherwise developed landscape. The wetland provides food, shelter, refugia, and breeding habitat for a variety of wildlife (see Appendix C).

Recreational Value: The pond is bordered on the east by a half-mile hiking trail and is encompassed by city-owned lands designating the area as a park. The trails provide access through the habitats within the park and are used for hiking, biking, bird-watching, dog walking, and “morning strolls”. The trails are included within a large, citywide trail system and are managed by Portland Trails (www.trails.org). Additionally, the pond itself has been traditionally used for ice skating.

Uniqueness/Heritage Value: The pond’s long history and relevance to Portland’s early development is well-documented. Historic use of the pond dates back as far as the late 1600s. The dam site was originally used as a gristmill and sawmill built at the falls of Capisic Brook (near the existing dam structure). Of more recent uniqueness value, Capisic Pond remains the largest freshwater pond in the city.

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APPENDIX A

PHOTOGRAPHIC RECORD

(All photos taken July-August, 2012 by Boyle Associates.)

	**Description:** Looking north-northwest from Capisic Street bridge at Capisic Pond (**Wetland F**).
	**Description**: Looking southeast from park trail at herbaceous-dominated, lower elevations of **Wetland A**.
	**Description**: Looking south across PFO/PEM area of **Wetland B** near trailhead by Macy Street.

	**Description**: Looking east at isolated emergent plant-dominated **Wetland C** from grassy side trail.
	**Description**: Looking east at **Wetland D** from main trail.
	**Description**: Looking southeast at **Wetland D** from main trail near bridge over Rockland Avenue outfall.

	**Description**: Looking east at **Wetland E** from main trail.
	**Description**: Looking northwest at **Wetland F** from southern, open water portion of Capisic Pond.
	**Description**: Looking northeast over cattail-dominated section of **Wetland F** from large blown down white pine on west side of pond.

	**Description**: Looking south across **Wetland F** from blown down pine on west side of pond.
	**Description**: Looking east at Rockland Avenue outfall and start of **Stream 1**.
	**Description**: Looking west at **Stream 1** from timber bridge along gravel trail.

	**Description**: Looking south along Capisic Brook (**Stream 2**) from the north-central portion of **Wetland F**.
	**Description**: Looking northwest at Capisic Brook (**Stream 2**) under Lucas Street.
	**Description**: Looking south at Capisic Brook **(Stream 2)** near Lucas Street.

	**Description**: Look north at the weir dam on the south side of Capisic Street.
	**Description**: Capisic Brook, below the weir dam, spills over granite outcrops and into a deep-walled granite valley.
	**Description**: Concrete diversion chamber below weir dam.

	**Description**: Looking north within former pond area of **Wetland F**. Near complete cattail encroachment has occurred through the central portion of pond.
	**Description**: Capisic Pond Park trailhead.
	**Description**: Young snapping turtle found crossing Macy Street.

APPENDIX B

LIST OF PLANT SPECIES OBSERVED (2012)

Family	Scientific name	Common Name	Noxious or invasive
Aceraceae	*Acer rubrum*	red maple	
Aceraceae	*Acer negundo*	boxelder	
Aceraceae	*Acer saccharinum*	silver maple	
Aceraceae	*Acer platanoides*	Norway maple	X
Adoxaceae	*Sambucus nigra*	black elderberry	
Alismataceae	*Sagittaria latifolia*	common arrowhead	
Anacardiaceae	*Rhus typhina*	staghorn sumac	
Apiaceae	*Daucus carota*	Queen Anne's lace	
Asclepiadaceae	*Asclepias syriaca*	common milkweed	
Asteraceae	*Symphyotrichum novae-angliae*	New England aster	
Asteraceae	*Euthamia graminifolia*	flat-top goldenrod	
Asteraceae	*Solidago gigantea*	giant goldenrod	
Asteraceae	*Solidago rugosa*	wrinkleleaf goldenrod	
Asteraceae	*Doellingeria umbellata*	parasol whitetop	
Asteraceae	*Hieracium sp.*	hawkweed	
Asteraceae	*Achillea millefolium*	yarrow	
Asteraceae	*Arctium sp.*	burdock	
Asteraceae	*Bidens frondosa*	devil's beggartick	
Asteraceae	*Helianthus tuberosa*	Jerusalum artichoke	
Asteraceae	*Ambrosia sp.*	ragweed	
Asteraceae	*Rudbeckia hirta*	blackeyed Susan	
Asteraceae	*Cirsium vulgare*	bull thistle	
Asteraceae	*Cirsium arvense*	Canada thistle	X
Asteraceae	*Taraxacum officinale*	dandelion	
Asteraceae	*Cichorium intybus*	chicory	
Asteraceae	*Centaurea sp.*	knapweed	
Balsaminaceae	*Impatiens capensis*	jewelweed	
Balsaminaceae	*Impatiens glandulifera*	ornamental jewelweed	X
Betulaceae	*Alnus incana var. rugosa*	speckled alder	
Campanulaceae	*Campanula rotundifolia*	bluebell bellflower	
Caprifoliaceae	*Viburnum nudum var. cassinoides*	withe-rod	
Caprifoliaceae	*Viburnum dentatum*	southern arrowwood	
Caprifoliaceae	*Viburnum opulus var. americanum*	highbush cranberry	
Caprifoliaceae	*Lonicera sp.*	honeysuckle	X
Celastraceae	*Celastrus orbiculatus*	Oriental bittersweet	X
Celastraceae	*Euonymus alatus*	burningbush	X
Ceratophyllaceae	*Ceratophyllum demersum*	coon’s tail	
Cornaceae	*Cornus amomum*	silky dogwood	
Cornaceae	*Cornus racemosa*	gray dogwood	

Family	Scientific name	Common Name	Noxious or invasive
Cucurbitaceae	*Echinocystis lobata*	wild cucumber	
Cupressaceae	*Juniperus communis*	common juniper	
Cyperaceae	*Scirpus cyperinus*	woolgrass	
Dryopteridaceae	*Onoclea sensibilis*	sensitive fern	
Fabaceae	*Lupinus sp.*	lupine	
Fabaceae	*Lotus corniculatus*	bird's-foot trefoil	X
Fabaceae	*Robinia pseudoacacia*	black locust	X
Fabaceae	*Vicia cracca*	cow vetch	
Fabaceae	*Securigera varia*	crown vetch	X
Fabaceae	*Trifolium pratense*	red clover	
Fabaceae	*Trifolium repens*	white clover	
Fagaceae	*Quercus rubra*	northern red oak	
Juncaceae	*Juncus effusus*	common rush	
Lamiaceae	*Monarda fistulosa*	wild bergamot	
Liliaceae	*Asparagus officinalis*	asparagus	X
Lythraceae	*Lythrum salicaria*	purple loosestrife	X
Onagraceae	*Oenothera sp.*	evening primrose	
Pinaceae	*Picea pungens*	blue spruce	
Pinaceae	*Pinus sylvestris*	Scots pine	
Pinaceae	*Picea rubens*	red spruce	
Pinaceae	*Pinus strobus*	white pine	
Pinaceae	*Larix laricina*	larch	
Plantaginaceae	*Plantago major*	plantain	
Poaceae	*Digitaria sp.*	crabgrass	
Poaceae	*Panicum virgatum*	switchgrass	
Poaceae	*Dactylis glomeratus*	orchard grass	
Poaceae	*Schizachyrium scoparium*	little bluestem	
Poaceae	*Lolium perenne*	perennial ryegrass	
Poaceae	*Echinochloa sp.*	barnyard grass	
Poaceae	*Phleum pratense*	timothy	
Poaceae	*Elymus viginicus*	Virginia wild rye	
Poaceae	*Dichanthelium clandestinum*	Deertongue grass	
Poaceae	*Phalaris arundinacea*	reedcanary grass	X
Polygonaceae	*Polygonum sagittatum*	arrowleaf tearthumb	
Polygonaceae	*Rumex crispus*	curly dock	
Polygonaceae	*Polygonum cuspidatum*	Japanese knotweed	
Polygonaceae	*Polygonum pennsylvanicum*	Pennsylvania smartweed	
Primulaceae	*Lysimachia terrestris*	swamp candle	
Ranunculaceae	*Ranunculus sp.*	buttercup	

Family	Scientific name	Common Name	Noxious or invasive
Ranunculaceae	*Thalictrum sp.*	meadow-rue	
Rhamnaceae	*Rhamnus cathartica*	common buckthorn	X
Rhamnaceae	*Rhamnus frangula*	glossy buckthorn	X
Rosaceae	*Rosa palustris*	swamp rose	
Rosaceae	*Amelanchier canadensis*	Canadian serviceberry	
Rosaceae	*Photinia melanocarpa*	black chokeberry	
Rosaceae	*Prunus nigra*	Canadian plum	
Rosaceae	*Crataegus sp.*	hawthorn	
Rosaceae	*Rosa multiflora*	multiflora rose	X
Rosaceae	*Rubus hispidus*	bristly dewberry	
Rosaceae	*Rubus allegheniensis*	Allegheny blackberry	
Rosaceae	*Malus sp.*	crabapple	
Rubiaceae	*Cephalanthus occidentalis*	common buttonbush	
Salicaceae	*Salix discolor*	pussy willow	
Salicaceae	*Salix nigra*	black willow	
Salicaceae	*Populus tremuloides*	quaking aspen	
Scrophulariaceae	*Chelone glabra*	white turtlehead	
Tiliaceae	*Tilia americana*	basswood	
Typhaceae	*Typha latifolia*	broadleaf cattail	X
Typhaceae	*Typha angustifolia*	narrowleaf cattail	X
Ulmaceae	*Ulmus americana*	American elm	
Verbenaceae	*Verbena hastata*	Swamp verbena	
Vitaceae	*Vitis sp.*	wild grape vine	

APPENDIX C

ANIMAL SPECIES LIST

BIRDS			
Common name	**Species name**	**Field observed**	**E-bird sighting***
Alder flycatcher	*Empidonax alnorum*		X
American black duck	*Anas rubripes*	X	X
American coot	*Fulica americana*		X
American crow	*Corvus brachyhychos*	X	X
American goldfinch	*Spinus tristis*	X	X
American kestrel	*Falco sparverius*		X
American redstart	*Setophaga ruticilla*	X	X
American robin	*Turdus migratorius*	X	X
American tree sparrow	*Spizella arborea*		X
American wigeon	*Anas americana*		X
American woodcock	*Scolopax minor*	X	X
Baltimore oriole	*Icterus galbula*		X
Bank swallow	*Riparia riparia*		X
Barn swallow	*Hirundo rustica*		X
Belted kingfisher	*Magaceryle alcyon*	X	X
Black-and-white warbler	*Mniotilta varia*		X
Blackburnian warbler	*Dendroica fusca*		X
Black-capped chickadee	*Poecile atricapillus*	X	X
Black-crowned night heron	*Nyticorax nyticorax*	X	X
Blackpoll warbler	*Dendroica striata*		X
Black-throated blue warbler	*Drendroica caerulescens*		X
Black-throated green warbler	*Dendroica virens*		X
Blue Jay	*Cyanocitta cristata*	X	X
Blue-gray gnatcatcher	*Polioptila caerulea*		X
Blue-headed vireo	*Vireo solitarius*		X
Bobolink	*Dolichonyx oryzivorus*		X
Bohemian waxwing	*Bombycilla garrulus*		X
Broad-winged hawk	*Buteo platypterus*	X	X
Brown thrasher	*Toxostoma rufum*		X
Brown-headed cowbird	*Molothrus ater*		X
Canada goose	*Branta canadensis*		X
Canada warbler	*Wilsonia canadensis*		X
Cape May warbler	*Dendroica tigrina*		X
Northern cardinal	*Cardinalis cardinalis*	X	X
Carolina wren	*Thryothorus ludovicianus*		X
Cedar waxwing	*Bombycilla cedrorum*	X	X
Chestnut-sided warbler	*Dendroica pensylvanica*	X	X
Chimney swift	*Chaetura pelagica*		X

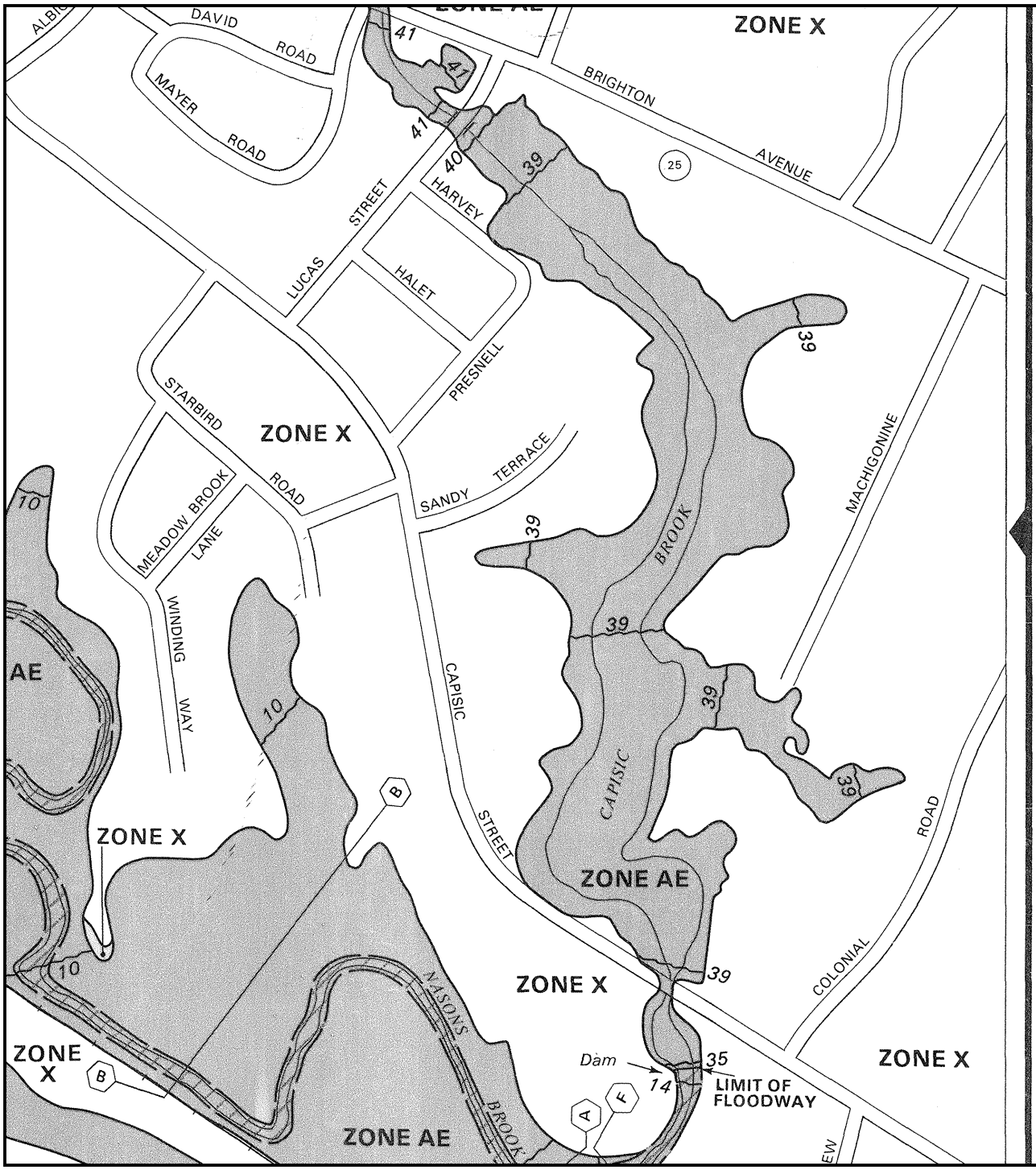
BIRDS			
Common name	**Species name**	**Field observed**	**E-bird sighting***
Chipping sparrow	*Spizella passerina*		X
Cliff swallow	*Petrochelidon pyrrhonota*		X
Common grackle	*Quiscalus quiscalus*	X	X
Common loon	*Gavia immer*		X
Common yellowthroat	*Geothlypis trichas*	X	X
Cooper's hawk	*Accipiter cooperii*		X
Dark-eyed junco	*Junco hyemalis*		X
Double-crested cormorant	*Phalacrocorax auritus*	X	X
Downy woodpecker	*Picoides pubescens*		X
Eastern bluebird	*Sialis sialis*		X
Eastern kingbird	*Tyrannus tyrannus*		X
Eastern phoebe	*Sayornis phoebe*		X
Eastern towhee	*Pipilo erythrophthalmus*		X
Eastern wood-pewee	*Contopus virens*		X
European starling	*Sturnus vulgaris*	X	X
Gadwall	*Anas strepera*		X
Gray catbird	*Dumetella carolinensis*	X	X
Great black-backed gull	*Larus marinus*		X
Great blue heron	*Ardea herodias*	X	X
Great crested flycatcher	*Myiarchus crinitus*		X
Great egret	*Ardea alba*	X	X
Greater yellowlegs	*Tringa melanoleuca*		X
Green heron	*Butorides virescens*	X	X
Hairy woodpecker	*Picoides villosus*		X
Hermit thrush	*Catharus guttatus*		X
Herring gull	*Larus argentatus*	X	X
Hooded merganser	*Lophodytes cucullatus*		X
House finch	*Carpodacus mexicanus*	X	X
House sparrow	*Passer domesticus*		X
House wren	*Troglodytes aedon*		X
Lark sparrow	*Chondestes grammacus*		X
Least flycatcher	*Empidonax minimus*		X
Least sandpiper	*Calidris minutilla*		X
Lincoln's sparrow	*Melospiza lincolnii*		X
Magnolia warbler	*Dendroica magnolia*		X
Mallard	*Anas platyrhynchos*	X	X
Merlin	*Falco columbarius*		X
Mourning dove	*Zenaida macroura*	X	X

BIRDS			
Common name	**Species name**	**Field observed**	**E-bird sighting***
Mourning warbler	*Oporornis philadelphia*		X
Nashville warbler	*Oreothlypis ruficapilla*		X
Northern flicker	*Colaptes auratus*		X
Northern mockingbird	*Mimus polyglottos*		X
Northern parula	*Parula americana*	X	X
Northern rough-winged swallow	*Stelgidopteryx serripennis*		X
Northern waterthrush	*Parkesia noveboracensis*		X
Orchard oriole	*Icterus spurius*		X
Osprey	*Pandion haliaetus*		X
Ovenbird	*Seiurus aurocapilla*		X
Palm warbler	*Dendroica palmarum*		X
Pied-billed grebe	*Podilymbus podiceps*		X
Pileated woodpecker	*Dryocopus pileatus*		X
Pine siskin	*Spinus pinus*		X
Pine warbler	*Dendroica pinus*		X
Prairie warbler	*Dendroica discolor*		X
Purple finch	*Carpodacus purpureus*		X
Red-bellied woodpecker	*Melanerpes carolinus*		X
Red-breasted nuthatch	*Sitta canadensis*		X
Red-eyed vireo	*Vireo olivaceus*		X
Redhead	*Aythya americana*		X
Red-tailed hawk	*Buteo jamaicensis*	X	X
Red-winged blackbird	*Agelaius phoeniceus*	X	X
Ring-billed gull	*Larus delawarensis*		X
Ring-necked duck	*Aythya collaris*		X
Rock pigeon	*Columba livia*	X	X
Rose-breasted grosbeak	*Pheucticus ludovicianus*		X
Ruby-crowned kinglet	*Regulus calendula*	X	X
Ruby-throated hummingbird	*Archilochus colubris*	X	X
Ruddy duck	*Oxyura jamaicensis*		X
Rusty blackbird	*Euphagus carolinus*		X
Savannah sparrow	*Passerculus sandwichensis*		X
Scarlet tanager	*Piranga olivacea*		X
Sharp-shinned hawk	*Accipiter striatus*		X
Solitary sandpiper	*Tringa solitaria*	X	X
Song sparrow	*Melospiza melodia*	X	X
Sora	*Porzana carolina*		X
Spotted sandpiper	*Actitis macularius*		X

BIRDS			
Common name	**Species name**	**Field observed**	**E-bird sighting***
Swamp sparrow	*Melospiza georgiana*		X
Tennessee warbler	*Oreothlypis peregrina*		X
Tree swallow	*Tachycineata bicolor*		X
Tufted titmouse	*Baeolophus bicolor*		X
Turkey vulture	*Cathartes aura*	X	X
Veery	*Catharus fuscescens*		X
Virginia rail	*Rallus limicola*		X
Warbling vireo	*Vireo gilvus*		X
White-breasted nuthatch	*Sitta carolinensis*	X	X
White-crowned sparrow	*Zonotrichia leucophrys*		X
White-throated sparrow	*Zonotrichia albicollis*		X
Willow flycatcher	*Empidonax traillii*		X
Wilson's snipe	*Gallinago delicata*		X
Wilson's warbler	*Wilsonia pusilla*		X
Wood duck	*Aix sponsa*	X	X
Wood thrush	*Hylocichla mustelina*		X
Yellow warbler	*Dendroica petechia*		X
Yellow-bellied flycatcher	*Empidonax flaviventris*		X
Yellow-rumped warbler	*Dendroica coronata*		X

*Source: eBird. 2012. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Available: http://www.ebird.org. (Accessed: September 16th, 2012). Search Criteria: first sightings Capisic Pond, 1997-2012

OTHER WILDLIFE	
Common name	**Species name**
American red squirrel	*Tamiasciurus hudsonicus*
Eastern gray squirrel	*Sciurus griseus*
Eastern chipmunk	*Tamias striatus*
White-tailed deer	*Odocoileus virginianus*
Coyote	*Canis latrans*
Common raccoon	*Procyon lotor*
Green frog	*Rana clamitans*
Bull frog	*Rana catasbeiana*
Common snapping turtle	*Chelydra serpentina*
Painted turtle	*Chrysemys picta*
fish	multiple (un-id'ed)
Chinese mystery snail	*Bellamya chinensis*
White-footed mouse	*Peromyscus leucopus*
Common garter snake	*Thamnophis sirtalis*



APPROXIMATE SCALE

400 0 400 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CITY OF
PORTLAND,
MAINE
CUMBERLAND COUNTY

PANEL 12 OF 17
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
230051 0012 C

MAP REVISED:
DECEMBER 8, 1998

Federal Emergency Management Agency

ATTACHMENT 10. NOTICE OF INTENT TO FILE

A public informational meeting was held on January 21, 2014. A copy of the meeting attendance sheet and minutes is enclosed. A Public Notice was distributed by certified mail to direct abutters of the project site to notify them of the project public informational meeting and a second public notice was provided for the intent to file this permit application. A copy of the public notice and abutters list is also enclosed.

To meet the requirements of the City of Portland permitting process, the public notice was also sent to residents within 500 feet of the project as well as a list of interested parties in the City of Portland. Public notice was posted on the City of Portland website and was also filed with a local newspaper, the Portland Press Herald on January 13, 2014. The signed Public Notice Filing and Certification form is attached for your reference.

10.1 ATTACHMENTS

10.1.1 Public Informational Meeting Attendance Sheet

10.1.2 Public Informational Meeting Minutes

10.1.3 List of Project Abutters

10.1.4 Public Notice Letters to Abutters

10.1.5 Public Notice in Portland Press Herald

10.1.6 Public Notice Filing and Certification

CAPISIC POND ENHANCEMENTS

Neighborhood Meeting
January 21, 2014

WOODARD &CURRAN

Name	Address
Adrienne Turyn	45 Machigonne St.
mecheile & Robert Connolly	33 Sandy Terrace
Gail + David Robinson	407 Capisic
John Lander	51 Sandy Terrace
Julie + Bill Howison	262 Capisic St. Portland, me
Bill Dowd	25 Machigonne
Ed Scebac	46 Kenard St
Donna + Steve Williams	85 Machigonne St
Anne Rieabey	43 Macy St
Amy Graham	43 Macy St
Beverly Bailey	295 Capisic St
Nancy Kilbride	289 Capisic St.
Emily Selden	15 Hastings St.
Robert C. Haines	250 Holm Avenue
Jeff Schen	60 Kenilworth St.
Marilyn Brazier	22 Halet ST
Buck + Mike Kramer	57 Machigonne St
Vollee + Ted Kaynor	315 Capisic St.
Nathan Smith	212 CAPISIC ST
Eleanor Smith	212 Capisic

MEETING AGENDA & NOTES

This Meeting:	Capisic Pond Enhancements Neighborhood Meeting
Date/Time:	6:30-8:30 PM – January 21, 2014
Location:	Deering High School Cafeteria

Meeting Objectives

- Understand Project Objectives
- Understand Regulatory Review Process and Project Schedule
- Understand Enhancement Plans
    - Pond Enhancement
    - Rockland Avenue Outfall

Agenda

- Introductions/Greeting/Agenda Overview
- Brief Overview of Previous Pond and Park Decisions
- Overview of Local, State, and Federal Regulatory Process & Schedule
- Presentation of 80% Design Plans (Breakout Sessions – 2 tables)
    - Table 1: Rockland Avenue Outfall Plans and Renderings
    - Table 2: Capisic Pond Open Water Enhancement Plans and Renderings
        - Attendees are split into two groups and half to one table for 20-30 minutes and half to other table for 20-30 minutes.
- Recap & Closing

Project information and meeting materials available on the City of Portland website:
http://publicworks.portlandmaine.gov/capisicpondparkproject.asp

Meeting Notes

- Introductions were provided by all (see attached sign-in sheet). Background information on the project progress and financing was provided by Councilor Ed Suslovic. An overview of the two projects and the ongoing permitting process was provided by David Senus and Zach Henderson from Woodard & Curran (see attached presentation).
- Project Team in attendance included David Senus, Zach Henderson, and Lauren Swett from Woodard & Curran; Regina Leonard from Regina S. Leonard Landscape Architect; and Jim Boyle and David Brenneman from Boyle Associates. City of Portland representatives in attendance included Mike Bobinsky, Doug Roncarati, and Nathaniel Smith.

- Member of the public and project abutter Nathan Smith suggested that a one page fact sheet about the project be developed for distribution to abutters and interested parties. The fact sheet should highlight the benefits & importance of implementing the watershed management plan, Rockland Avenue outfall improvement project, and pond enhancement project. Councilor Ed Suslovic agreed and requested this be provided.
- The group split into two groups for breakout sessions, one for the Capisic Pond Enhancement Project and one for the Rockland Avenue Outfall Project. After 20 minutes, the two groups switched tables.
- The following questions, comments, and concerns were raised for the Capisic Pond Project:
    - Q: How would you use the 10' diameter storm drain to drain base flow in the pond?

      A: A coffer dam would be installed in the pond, just above the project area. An opening would be made in the storm drain to allow the base flow to drain into the pipe and bypass the project area in the pond.
    - Q: After project completion, will skaters and skiers have access to the pond?

      A: Yes, several access points have already been chosen based on public comment and more can be added if needed.
    - Q: Will Capisic Street remain open during construction?

      A: Yes and a traffic control plan will be required of the contractor and reviewed by the City to ensure that trucks can safely enter and exit the site.
    - Q: Will Macy Street remain open during construction?

      A: Yes, but there will be some on-street parking limitations and traffic control will be necessary to safely manage truck traffic and allow residents access to and from their homes.
    - Q: What is a stabilized construction site entrance?

      A: A section of crushed stone material is installed in the area where a temporary gravel construction road meets an asphalt road. The crushed stone helps shed mud and dirt from truck tires and reduces tracking of these materials onto the roadway as trucks leave the site.
    - Q: Will Macy Street be repaired at the end of construction and who will be responsible for making the repairs?

      A: Yes, the street will be restored and both the City and its contractor will be responsible for the repairs.
    - Q: Where will the retained dredged material be kept?

      A: It will be collected within the pond and will be placed and stabilized along the edge of the pond to create the new pond banks. The pond bank will then be planted with various shrubs and plants to provide further stabilization.

- Q: The section of cattail marsh and brook to the north of the Rockland Avenue outfall is outside of the project area. Will that be preserved and maintained?

  A: Yes, that area will continue to be maintained as a cattail marsh by managing water levels in the pond, and the stream will continue to flow through on its way to the pond.

- Q: Does the planting plan call for taller trees, which might block our view of the pond, to be installed along the edge of the pond?

  A: Special care was taken to not propose new trees and shrubs where they would block specific viewsheds of the pond; "viewshed" areas are identified in the plan set.

- Q: Will any construction work or clearing be done outside the designated work area?

  A: Work and vegetation clearing will be confined to the project area unless a problem is encountered that requires an adjustment in the field; this would be overseen by the on-site inspector and project manager.

- Access for snow removal equipment was discussed. This equipment is used to clear the ice for skating. The location of this access point will be considered further, and anticipated near the end of Macy Street.

- Q: Will the contractor and/or City ensure that the new plantings become well-established and are replaced as needed?

  A: Yes, the permits will require a monitoring and management plan and residents will be able to inform staff about areas where new plants are failing to thrive. The site will be monitored over several years to ensure that the site recovers and the vegetation grows in. Funding will need to be included in the operating or capital improvement budgets to support long term site restoration.

- Q: If the project won't be finished until October, after the normal growing season, will the planting plan and site restoration be completed the following year?

  A: It's anticipated that plantings will happen in phases during the fall and following spring. Some additional site clean-up might also happen the following spring, depending on weather and the contractor's schedule.

- Q: Will the plant list be posted to the Capisic Pond Park project web page?

  A: Yes, the plant list was included in the attachments accompanying the meeting notes from 12-19-2013, which are posted on the web page.

- Q: Can the scope of the pond enhancement project be expanded to include consideration of stocking fish that could serve as forage food for wading birds, rather than waiting for or allowing fish species to become established by accident?

  A: Possibly, although it is challenging, from a regulatory perspective, to establish a fish stocking program. Furthermore, introduction of fish can have unintended consequences and result in degradation of the pond and wetland habitat. Further consideration of this issue will be necessary. The Design Team will contact the Department of Inland Fisheries

and Wildlife to discuss the viability of stocking fish in Capisic Pond (This answer was prepared subsequent to the meeting to provide response to public's question).

- Q: Will many trees along the edge of the pond be impacted by the construction project? A property owner identified a small grove of locust trees on the northwest side of the pond that screens their property from view.

  A: Vegetation and tree removal will be confined to the project area and limited as much as possible. The locust grove will be noted and can be visited during the site walk to determine if it will be impacted by construction and how the issue can be addressed.

- Q: The western side of the pond should continue to serve as relatively undisturbed and inaccessible wildlife habitat (e.g.: Kingfisher perches and wood duck nesting sites).

  A: Based on previous feedback any informal trails on the western side of the pond will not be improved or expanded and new trees, shrubs and plants will be installed after construction to discourage people from using the construction road to access that area. Limited, temporary signage might be used during construction to discourage people from accessing these areas.

- Q: What is a "viewshed" or "viewscape"?

  A: The area that can be seen from a particular vantage point. The planting and restoration plan was designed to protect and/or enhance views of the pond from various perspectives and identified several particularly important viewsheds.

- The following questions, comments, and concerns were raised for the Rockland Avenue Outfall Project:

  - The Design Team discussed the expected impacts to the existing trail located adjacent to the stream channel. The trail will need to be closed during construction. At certain times during construction, the trail may be left open in the evening, but the contractor may choose to close the trail 24-hours a day for pedestrian safety.

  - Q: Is there the potential for sewer odors originating from the stormwater treatment unit?

    A: Sewer odors are not anticipated. The treatment unit will be installed on the stormwater pipe, and will not be receiving sewer flow. Three solid manhole covers will be installed on the stormwater treatment unit, and all stormwater flows in and out of the system will be through inlet and outlet pipes. The structure will not be vented, and the only time it will be opened is during cleaning.

  - Q: What is the frequency of cleaning for the stormwater treatment unit?

    A: Similar systems in the City with smaller contributing watersheds are cleaned twice per year. The Rockland Outfall system will be cleaned at least twice per year, possibly more frequently. The system will be regularly evaluated during the first year to determine the ideal frequency of cleaning.

  - Q: What is the impact of the project on abutting property values?

A: Negative impact to property values is not anticipated. The goal of the project is to improve the area, creating a more natural stream channel leading from the Rockland outfall to Capisic Pond. The stormwater treatment unit will help to reduce pollution to the outfall and Pond, and will only be visible as three solid manhole covers at the ground surface. Direct impacts to neighboring properties, for example, the need to remove and reset a fence on an abutter's property, will be addressed with the specific property owners prior to construction. Any unforeseen impacts to neighboring properties during construction, for example, damage to buried utility services, will be fully addressed by the City and the contractor as they arise, without expense to the property owner.

- Q: Will accumulated materials in the drainage channel beyond the bridge be removed?

  A: The project plans do not indicate improvements beyond the bridge. Deposited material in the area may include accumulated erosion control fabrics. The project team will evaluate the area, and will adjust the limit of work for the outfall or pond project to account for cleanup of this area as necessary. The topography of the area around the bridge does create a restriction for flow, and this restriction will not be eliminated as part of this project, but a buildup of sediment and trash may be removed.

- Q: Pollution into Capisic Pond from the outfall and from Capisic Brook was discussed. The question was asked if the amount of pollution from each could be quantified and compared.

  A: The Design Team indicated that a specific comparison would be difficult to calculate. It was noted that the watershed for the outfall is approximately one tenth the size of the watershed for Capisic Brook; however, during quick high intensity rain events, the amount of pollution coming from the outfall may be greater. In general, both watersheds are sources of pollution, and efforts by people upstream to reduce the discharge of pollutants will be important to the health of Capisic Pond.

- The impact of the project on existing trees was discussed. The design team has met with the City's Arborist on site to review trees in the area that will be impacted by construction. Likely, only a Norway maple and a honeysuckle bush will be removed to provide construction access. Larches along the stream channel will also be removed in order to complete the stabilization work. The larches will be replaced. Abutters expressed concerns about tree replanting, and requested that larger trees be installed if possible. This will be considered as part of the development of the final landscaping plan.

- Concerns were raised about wet areas on the trail near the bridge. The Design Team will be reviewing the existing trail, and will be making improvements to drainage to help with water in some areas. Near the bridge, the City has already done some work to help alleviate soft areas. Some of the wet areas near the bridge are due to the presence of protected wetlands. These areas cannot be drained or filled to eliminate the wet areas. The Design Team will review these areas further during final design to see if anything more can be done.

- Q: Is there ledge, and will blasting be required to install the stormwater treatment unit?

A: The structure will be installed in-line with an existing stormdrain pipe, but will be approximately 5-feet deeper than the bottom of the pipe. It is not anticipated that ledge will be encountered, and the Design Team will review past design plans for the sewer and stormwater work in this area. If ledge is encountered in the relatively small area of excavation, it will likely be dealt with using equipment, not blasting. The City has regulations regarding construction noise and vibrations, and will manage this aspect of construction to ensure that there is no damage or negative impacts on nearby properties.

- Abutters expressed concerns with contractor behavior based on experiences with the previous Westside Interceptor project. Specific issues include trash and debris thrown into excavations. The City intends to manage contractor behavior during the upcoming projects, and will address trash concerns at meetings held with interested contractors prior to bidding.

Meeting Concluded at 8:30 PM

Notes Recorded By: Lauren Swett and Doug Roncarati

Capisic Pond Park Abutters

NAME	Mailing Address1	Mailing Address2
GEASON MELINDA S & THOMAS M COLUCCI JTS	37 MACHIGONNE ST	PORTLAND ME 04102
ACETO CHARLES D	744 BRIGHTON AVE # 3	PORTLAND ME 04102
ALCORN MATTHEW W & ELLEN D JTS	4 MACY ST	PORTLAND ME 04102
ALLEN CYNTHIA J & MATTHEW J FLAHERTY SR JTS	41 SANDY TER	PORTLAND ME 04102
Ansheles Carole J	31 Machigonne St	Portland ME 04102
ARONSON STEPHEN E & SUSAN E DENT JTS	198 CAPISIC ST	PORTLAND ME 04102
ATH REALTY LLC	16 EQUESTRAIN WAY	SCARBOROUGH ME 04074
BAILEY BEVERLY	295 CAPISIC ST	PORTLAND ME 04102
Bokeelia Investments LLC	PO BOX 1456	Portland, ME 04102
City of Portland	389 Congress St	Portland ME 04101
COLBURN ELIZABETH ANNE	40 PRESNELL ST	PORTLAND ME 04102
CONNOLLY MECHELLE L & ROBERT M CONNOLLY JTS	33 SANDY TER	PORTLAND ME 04102
DANBY EDITH S	25 SANDY TER	PORTLAND ME 04102
DIMILLO ANTONIO HEIRS	271 CAPISIC ST	PORTLAND ME 04102
DIMILLO DANIEL P	275 CAPISIC ST	PORTLAND ME 04102
DOWD DEBRA V	PO BOX 1456	PORTLAND ME 04104
DVILINSKY NORMAN L KW VET & MARY E JTS	706 BRIGHTON AVE	PORTLAND ME 04102
FITCH JACK L & STACIA N FITCH JTS	43 PRESNELL ST	PORTLAND ME 04102
GEASON MELINDA S & THOMAS M COLUCCI JTS	37 MACHIGONNE ST	Portland ME 04102
HALLOWELL EDITH	256 CAPISIC ST	PORTLAND ME 04102
HANSEN EDITH C WID WWII VET TRUSTEE	246 CAPISIC ST	Portland ME 04102
HOWISON JULIE L	262 CAPISIC ST	PORTLAND ME 04102
HUNZIKER CRAIG F & MARY KATHERINE JTS	41 MACHIGONNE ST	PORTLAND ME 04102
JOYCE KENNETH T	726 BRIGHTON AVE	PORTLAND ME 04102
KAYNOR EDWARD & LESLIE KAYNOR JTS	315 CAPISIC ST	PORTLAND ME 04102
KILBRIDE ETHEL L WWII VET & BLIND	289 CAPISIC ST	PORTLAND ME 04102
KLUDT ROSEMARY A	220 CAPISIC ST	PORTLAND ME 04102
KRAMER MICHAEL E & ELIZABETH M JTS	57 MACHIGONNE ST	PORTLAND ME 04102
LANDER JOHN A & JANICE W JTS	51 SANDY TER	PORTLAND ME 04102
LAWRENCE JOHN PHILIP & MARVIN CLAY MEANS	716 BRIGHTON AVE	PORTLAND ME 04102
MAILMAN GERALD F WWII VET & FRANCES JTS	45 SANDY TER	PORTLAND ME 04102
MEIGHEN SCOTT	48 LUCAS ST	PORTLAND ME 04102
Mulkern William E	35 Machigonne St	Portland ME 04102
NELSON MICHAEL A & LUCRETIA S JTS	230 CAPISIC ST	PORTLAND ME 04102
PAOLILLI ANNA M	710 BRIGHTON AVE	PORTLAND ME 04102
PFEFFER DONNA A	46 SANDY TER	PORTLAND ME 04102
PHILBROOK ROBERT W	301 CAPISIC ST	PORTLAND ME 04102
Portland Trails	305 Commercial St	Portland ME 04101
RIESENBERG ANNE R & ANDREW D GRAHAM JTS	43 MACY ST	PORTLAND ME 04102
SHIR AHMAD S & SHAHNAZ JTS	722 BRIGHTON AVE	PORTLAND ME 04102
Six Fifty Brighton LLC	650 Brighton Ave	Portland ME 04102
SMITH ELEANOR HIND	212 CAPISIC ST	PORTLAND ME 04102
TARDIF MARY S WID WWII VET	21 HARVEY ST	PORTLAND ME 04102
TARDIF MARY S WID WWII VET	21 Solomon Dr	Gorham ME 04038
TURYN ADRIENNE	45 MACHIGONNE ST	PORTLAND ME 04102
WAKEFIELD RAYMOND B JR & SHARON A JTS	732 BRIGHTON AVE	PORTLAND ME 04102
WEST ROBERT B JR & GERALD OSBORNE	700 BRIGHTON AVE	PORTLAND ME 04102
WILLEY DIANA L	1 HARVEY ST	PORTLAND ME 04102
WILLIAMS DONNA	85 MACHIGONNE ST	PORTLAND ME 04102
ZAPPIA JOHN J	686 BRIGHTON AVE	PORTLAND ME 04102

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WOODARD &CURRAN

January 10, 2014

Dear Neighbor:

On behalf of the City of Portland's Department of Public Services (DPS), this letter is to notify you of a public informational meeting and permit filing for the proposed Capisic Pond Enhancement project located in the City of Portland's Capisic Pond Park, on the north side of Capisic Street, west of Stevens Avenue, in the Rosemont Neighborhood.

Public Informational Meeting

Meeting Location: Deering High School Cafeteria, 370 Stevens Avenue, Portland, Maine

Meeting Date: Tuesday, January 21, 2014

Meeting Time: 6:30PM-8:00PM

Applicant Name: City of Portland, Department of Public Services, c/o Nathaniel Smith, Project Manager

Applicant Address: 55 Portland Street, Portland ME 04101

Applicant Telephone: 207-874-8801

The City of Portland Code of Ordinances requires that for projects applying for Level III Site Plan Approval, property owners within 500 feet of the proposed development, and residents on an "interested parties list" be invited to participate in a neighborhood meeting. In addition, under Section 10.B. of Chapter 2 of the Maine Department of Environmental Protection (DEP) Rules Concerning the Processing of Applications and Other Administrative Matters, an applicant for Natural Resource Protection Act Permits is required to hold a public informational meeting prior to filing that application. State regulations require that property owners directly adjoining the project property be invited to participate in the public informational meeting.

The purpose of the meeting is for the Applicant to inform the public of the project and its anticipated environmental impacts and to educate the public about the opportunities for public comment on the project. A sign-in sheet will be circulated and minutes of the meeting will be taken.

Project Information

The Capisic Pond Enhancement Project proposes to remove cattails and sediments from historically open water areas via mechanical excavation to provide stratigraphic and habitat diversity for the pond; to enhance the aesthetic, recreational, and educational opportunities of the park; and to allow the pond to remain classified as a moderate-value Inland Waterbird and Waterfowl Habitat by the Maine Department of Inland Fisheries and Wildlife.

Additional improvements include water quality enhancements at the Rockland Avenue outfall, including stabilization of the channel below the Rockland Avenue Outfall, which discharges stormwater flow into Capisic Pond, and the installation of an underground in-line trash and sediment control structure uphill of the outfall.

Permit Applications

A Level I Site Alteration Application for the Rockland Avenue Outfall work and a Level III Preliminary Site Plan Application for the Capisic Pond Enhancement work have been filed with the City of Portland. A Permit By Rule for the Rockland Avenue Outfall work and an Individual Permit for the Capisic Pond Enhancement work will be filed with the Maine DEP in compliance with the Natural Resource Protection Act. A "Notice of Intent to File" with the Maine DEP is attached to this letter.

If you should have any questions, please contact Lauren Swett at (207) 774-2112.

Sincerely,

WOODARD & CURRAN INC.

Lauren Swett

Lauren Swett, PE
Project Engineer

LJS/aea
225672.77

Enclosure: Maine DEP Notice of Intent to File

Note:

Under Section 14-32(C) and 14-524c of the City Code of Ordinances, an applicant for a Level III development, subdivision of over five lots/units, or zone change is required to hold a neighborhood meeting within 30 days of submitting a preliminary application or 21 days of submitting a final site plan application, if a preliminary plans was not submitted. The neighborhood meeting must be held at least seven days prior to the Planning Board public hearing on the proposal. Should you wish to offer additional comments on this proposed development, you may contact the Planning Division at 874-8721 or send written correspondence to the Planning and Urban Development Department, Planning Division 4th Floor, 389 Congress Street Portland, ME 04101 or by email: to bab@portlandmaine.gov

PUBLIC NOTICE:

NOTICE OF INTENT TO FILE

Please take notice that

City of Portland, Department of Public Services, c/o Nathaniel Smith, Project Manager

55 Portland Street, Portland ME 04101, (207)874-8801

is intending to file a Natural Resources Protection Act permit application with the Maine Department of Environmental Protection pursuant to the provisions of 38 M.R.S.A. §§ 480-A thru 480-BB on or about

January 31, 2014 .

The application is for:

Enhancement work in and around Capisic Pond, including the removal of cattails and sediments from historically open water areas via mechanical excavation to provide stratigraphic and habitat diversity for the pond, to enhance the aesthetic, recreational, and educational opportunities of the park, and to allow the pond to remain classified as a moderate-value Inland Waterbird and Waterfowl Habitat by the Maine Department of Inland Fisheries and Wildlife;

at the following location:

Capisic Pond, located within the City of Portland's Capisic Pond Park, on the north side of Capisic Street, west of Stevens Avenue.

A request for a public hearing or a request that the Board of Environmental Protection assume jurisdiction over this application must be received by the Department in writing, no later than 20 days after the application is found by the Department to be complete and is accepted for processing. A public hearing may or may not be held at the discretion of the Commissioner or Board of Environmental Protection. Public comment on the application will be accepted throughout the processing of the application.

The application will be filed for public inspection at the Department of Environmental Protection's office in Portland during normal working hours. A copy of the application may also be seen at the municipal offices in Portland, Maine.

Written public comments may be sent to the regional office in Portland, where the application is filed for public inspection:

MDEP, Southern Maine Regional Office, 312 Canco Road, Portland, Maine 04103

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WOODARD &CURRAN

February 11, 2014

Dear Neighbor:

On behalf of the City of Portland's Department of Public Services (DPS), this letter provides notification for a permit filing for the proposed Capisic Pond Enhancement project located in the City of Portland's Capisic Pond Park, on the north side of Capisic Street, west of Stevens Avenue, in the Rosemont Neighborhood.

An Individual Natural Resources Protection Act Permit Application for the Capisic Pond Enhancement Project will be filed with the Maine DEP on or about February 12, 2014. A "Notice of Intent to File" with the Maine DEP is attached to this letter. You have received this notice previously. We are required to ensure that notice is sent no more than 30 days prior to the filing of an application, and are resending the notice to comply with this requirement.

If you should have any questions, please contact Lauren Swett at (207) 774-2112.

Sincerely,

WOODARD & CURRAN INC.

Lauren Swett

Lauren Swett, PE
Project Engineer

LJS
225672.77

Enclosure: Maine DEP Notice of Intent to File

PUBLIC NOTICE:

NOTICE OF INTENT TO FILE

Please take notice that

City of Portland, Department of Public Services, c/o Nathaniel Smith, Project Manager

55 Portland Street, Portland ME 04101, (207)874-8801

is intending to file a Natural Resources Protection Act permit application with the Maine Department of Environmental Protection pursuant to the provisions of 38 M.R.S.A. §§ 480-A thru 480-BB on or about

February 12, 2014 .

The application is for:

Enhancement work in and around Capisic Pond, including the removal of cattails and sediments from historically open water areas via mechanical excavation to provide stratigraphic and habitat diversity for the pond, to enhance the aesthetic, recreational, and educational opportunities of the park, and to allow the pond to remain classified as a moderate-value Inland Waterbird and Waterfowl Habitat by the Maine Department of Inland Fisheries and Wildlife;

at the following location:

Capisic Pond, located within the City of Portland's Capisic Pond Park, on the north side of Capisic Street, west of Stevens Avenue.

A request for a public hearing or a request that the Board of Environmental Protection assume jurisdiction over this application must be received by the Department in writing, no later than 20 days after the application is found by the Department to be complete and is accepted for processing. A public hearing may or may not be held at the discretion of the Commissioner or Board of Environmental Protection. Public comment on the application will be accepted throughout the processing of the application.

The application will be filed for public inspection at the Department of Environmental Protection's office in Portland during normal working hours. A copy of the application may also be seen at the municipal offices in Portland, Maine.

Written public comments may be sent to the regional office in Portland, where the application is filed for public inspection:

MDEP, Southern Maine Regional Office, 312 Canco Road, Portland, Maine 04103

PUBLIC NOTICE PUBLIC INFORMATIONAL MEETING ANNOU

PUBLIC NOTICE PUBLIC INFORMATIONAL MEETING ANNOUNCEMENT & NOTICE OF INTENT TO FILE - CAPISIC POND ENHANCEMENT PROJECT The City of Portland, Department of Public Services, c/o Nathaniel Smith, Project Manager, 55 Portland, Street, Portland, ME 04101, (207)874-8801, will hold a public informational meeting for the Capisic Pond Enhancement project on January 21, 2014 at 6:30 PM at the Deering High School Cafeteria, 370 Stevens Avenue, Portland, Maine. The meeting will be held in compliance with the requirements for Natural Resource Protection Act Permit Applications, in Section 10.B. of Chapter 2 of the Maine Department of Environmental Protection Rules, and the City of Portland Code of Ordinance requirements for Level III Site Plan Applications. The purpose of the meeting is for the Applicant to inform the public of the project and its anticipated environmental impacts and to educate the public about the opportunities for public comment on the project. The Applicant is intending to file a Natural Resource Protection Act permit application with the Maine Department of Environmental Protection pursuant to the provisions of 38 M.R.S.A. Sections 480-A through 480-BB on or about January 31, 2014. The Capisic Pond Enhancement project is located in the City of Portland's Capisic Pond Park, on the north side of Capisic Street, west of Stevens Avenue, in the Rosemont Neighborhood. The project proposes to remove cattails and sediments from historically open water areas, increasing wetland and habitat diversity in and around the pond. Additional improvements include water quality enhancements at the Rockland Avenue Outfall, which discharges stormwater flow into Capisic Pond. A request for a public hearing or a request that the Board of Environmental Protection assume jurisdiction over this application must be received by the Department in writing, no later than 20 days after the application is found by the Department to be complete and is accepted for processing. A public hearing may or may not be held at the discretion of the Commissioner or Board of Environmental Protection. Public comment on the application will be accepted throughout the processing of the application. The application will be filed for public inspection at the Department of Environmental Protection's office in Portland during normal working hours. A copy of the application may also be seen at the municipal offices in Portland, Maine. Written public comments may be sent to the regional office in Portland, where the application is filed for public inspection: MDEP, Southern Maine Regional Office, 312 Canco Road, Portland, Maine 04103. #4985923

Appeared in: ***Portland Press Herald/Maine Sunday Telegram*** on Monday, 01/13/2014

Back

PUBLIC NOTICE FILING AND CERTIFICATION

Department Rules, Chapter 2, require an applicant to provide public notice for all Tier 2, Tier 3 and individual Natural Resources Protect Act projects. In the notice, the applicant must describe the proposed activity and where it is located. **"Abutter"** for the purposes of the notice provision means any person who owns property that is BOTH (1) adjoining and (2) within one mile of the delineated project boundary, including owners of property directly across a public or private right of way.

1. **Newspaper:** You must publish the Notice of Intent to File in a newspaper circulated in the area where the activity is located. The notice must appear in the newspaper within 30 days prior to the filing of the application with the Department. You may use the attached Notice of Intent to File form, or one containing identical information, for newspaper publication and certified mailing.

2. **Abutting Property Owners:** You must send a copy of the Notice of Intent to File by certified mail to the owners of the property abutting the activity. Their names and addresses can be obtained from the town tax maps or local officials. They must receive notice within 30 days prior to the filing of the application with the Department.

3. **Municipal Office:** You must send a copy of the Notice of Intent to File and a **duplicate of the entire application** to the Municipal Office.

ATTACH a list of the names and addresses of the owners of abutting property.

CERTIFICATION

By signing below, the applicant or authorized agent certifies that:

5. A Notice of Intent to File was published in a newspaper circulated in the area where the project site is located within 30 days prior to filing the application;
6. A certified mailing of the Notice of Intent to File was sent to all abutters within 30 days of the filing of the application;
7. A certified mailing of the Notice of Intent to File, and a duplicate copy of the application was sent to the town office of the municipality in which the project is located; and
8. Provided notice of and held a public informational meeting, if required, in accordance with Chapter 2, Rules Concerning the Processing of Applications, Section 13, prior to filing the application. Notice of the meeting was sent by certified mail to abutters and to the town office of the municipality in which the project is located at least ten days prior to the meeting. Notice of the meeting was also published once in a newspaper circulated in the area where the project site is located at least seven days prior to the meeting.

The Public Informational Meeting was held on January 21, 2014.
Date

Approximately 35 members of the public attended the Public Informational Meeting.

Lauren Swett
Signature of Applicant or authorized agent

2/5/14
Date

ATTACHMENT 11. MAINE HISTORIC PRESERVATION COMMISSION

The project requires review by the Army Corps of Engineers (ACOE). Projects receiving ACOE review are also required to submit copies of the Individual NRPA Permit Application and associated attachments to the Maine Historic Preservation Commission (MHPC). A copy of the NRPA application is being submitted to the MHPC. Attached is a copy of the cover letter that is being sent to the MHPC with the NRPA application.

In addition, per the requirements of the ACOE permitting process, the State's federally recognized Indian Tribes have been contacted to request review of the project location for potential impacts to tribal resources. Copies of these letters are also attached.

The project is not located within the Portland Historic District, and does not require review by the City of Portland Historic Preservation Board.

11.1 ATTACHMENTS

11.1.1 MHPC Cover Letter

11.1.2 Maine Indian Tribe Letters

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February 7, 2014

Earle G. Shettleworth, Jr.
Director and State Historic Preservation Officer
Maine Historic Preservation Commission
55 Capitol Street
65 State House Station
Augusta, ME 04333-0065

Re: City of Portland, Capisic Pond Enhancement

Dear Earle:

The City of Portland is filing an Individual Natural Resource Protection Act (NRPA) Permit with the Maine Department of Environmental Protection (MaineDEP) and the U.S. Army Corps of Engineers (USACOE) for the proposed Capisic Pond Enhancement Project. As part of the submission to USACOE, Woodard & Curran is submitting a copy of the application to the Maine Historical Preservation Commission (MHPC); enclosed is a copy of the permit application being filed with the MaineDEP and USACOE.

The Capisic Pond Enhancement Project will remove cattails and sediments from historically open water areas via mechanical excavation and will construct diverse perimeter wetlands to maintain the optimum open water to wetland radio under the Significant Wildlife Habitat designation. A portion of the removed sediments will be utilized onsite where they will be placed along the former margins of the pond and current cattail marsh to create the new terrestrial wetland areas, suitable for growing shrubs and diversified herbaceous wetland plantings. The enhanced wetland areas will provide stratigraphic and habitat diversity for the pond and riparian habitat; will enhance the aesthetic, recreational, and education opportunities of the park; and will help allow the pond to remain classified as a moderate value Inland Waterbird and Waterfowl Habitat by MDIFW.

We appreciate your review of this project. If you have any questions, please do not hesitate to call me at (207) 774-2112 or by email at lswett@woodardcurran.com.

Sincerely,

WOODARD & CURRAN INC.

Lauren Swett

Lauren Swett, P.E.
Project Engineer

Enclosure - NRPA Individual Permit Application Form w/ Attachments

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February 11, 2014

Ms. Victoria Higgins, Chief
Aroostook Band of Micmacs
7 Northern Road
Presque Isle, Maine 04769

Re: NRPA Individual Permit Application – Capisic Pond Enhancement Project, Portland, ME

Dear Chief Higgins:

On behalf of the City of Portland, Woodard & Curran is submitting an application for an Individual Natural Resource Protection Act (NRPA) Permit for the proposed Capisic Pond Enhancement Project in Portland, Maine. As part of the application process, we are consulting with the State's federally recognized Indian Tribes and requesting that the project area be reviewed for the presence of tribal resources that the proposed work may affect. The Capisic Pond is located in Capisic Pond Park, which is located on the north side of Capisic Street, west of Stevens Avenue, in the Rosemont neighborhood of Portland; the project site is shown on the enclosed location map.

The project area is currently ranked by the Maine Department of Inland Fisheries and Wildlife (MDIFW) as a moderate-value Inland Waterbird and Waterfowl Habitat (IWWH), but is trending quickly towards a low-value rating. The encroachment of a cattail monoculture is causing a loss of open water habitat and a decrease in wetland diversity, and is slowly leading to a degradation of the IWWH habitat and a reduction of the scenic and recreational aspects of the pond. The proposed Capisic Pond Enhancement Project will remove the excessive monocultures of cattails and sediments from historically open water areas and create diverse wetland edges along the pond to provide habitat diversity for the pond; enhance the aesthetic, recreational, and education opportunities of the park; and allow the pond to remain classified as a moderate value IWWH by the MDIFW.

Thank you for your time in coordinating the review of the project's location for potential impacts to tribal resources. If you have any questions regarding this application, please feel free to contact me at (207)774-2112 or by email at lswett@woodardcurran.com.

Sincerely,

WOODARD & CURRAN INC.

Lauren Swett

Lauren Swett, P.E.
Project Engineer

Enclosure: Site Location Map

cc: Rodney Howe, ACOE
Jay Clement, ACOE
Nathaniel Smith, Project Manager, City of Portland Department of Public Services
Doug Roncarati, Stormwater Program Coordinator, City of Portland, Dept. of Public Services (email)

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February 11, 2014

Sharri Venno, Environmental Planner
Houlton Band of Maliseet Indians
88 Bell Road
Littleton, Maine 04730

Re: NRPA Individual Permit Application – Capisic Pond Enhancement Project, Portland, ME

Dear Chief:

On behalf of the City of Portland, Woodard & Curran is submitting an application for an Individual Natural Resource Protection Act (NRPA) Permit for the proposed Capisic Pond Enhancement Project in Portland, Maine. As part of the application process, we are consulting with the State's federally recognized Indian Tribes and requesting that the project area be reviewed for the presence of tribal resources that the proposed work may affect. The Capisic Pond is located in Capisic Pond Park, which is located on the north side of Capisic Street, west of Stevens Avenue, in the Rosemont neighborhood of Portland; the project site is shown on the enclosed location map.

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Thank you for your time in coordinating the review of the project's location for potential impacts to tribal resources. If you have any questions regarding this application, please feel free to contact me at (207)774-2112 or by email at lswett@woodardcurran.com.

Sincerely,

WOODARD & CURRAN INC.

Lauren Swett

Lauren Swett, P.E.
Project Engineer

Enclosure: Site Location Map

cc: Rodney Howe, ACOE
Jay Clement, ACOE
Nathaniel Smith, Project Manager, City of Portland Department of Public Services
Doug Roncarati, Stormwater Program Coordinator, City of Portland, Dept. of Public Services (email)

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February 11, 2014

Donald Soctomah, THPO
Passamaquoddy Tribe
Indian Township Reservation & Pleasant Point Reservation
PO Box 301
Princeton, Maine 04668

Re: NRPA Individual Permit Application – Capisic Pond Enhancement Project, Portland, ME

Dear Mr. Soctomah:

On behalf of the City of Portland, Woodard & Curran is submitting an application for an Individual Natural Resource Protection Act (NRPA) Permit for the proposed Capisic Pond Enhancement Project in Portland, Maine. As part of the application process, we are consulting with the State's federally recognized Indian Tribes and requesting that the project area be reviewed for the presence of tribal resources that the proposed work may affect. The Capisic Pond is located in Capisic Pond Park, which is located on the north side of Capisic Street, west of Stevens Avenue, in the Rosemont neighborhood of Portland; the project site is shown on the enclosed location map.

The project area is currently ranked by the Maine Department of Inland Fisheries and Wildlife (MDIFW) as a moderate-value Inland Waterbird and Waterfowl Habitat (IWWH), but is trending quickly towards a low-value rating. The encroachment of a cattail monoculture is causing a loss of open water habitat and a decrease in wetland diversity, and is slowly leading to a degradation of the IWWH habitat and a reduction of the scenic and recreational aspects of the pond. The proposed Capisic Pond Enhancement Project will remove the excessive monocultures of cattails and sediments from historically open water areas and create diverse wetland edges along the pond to provide habitat diversity for the pond; enhance the aesthetic, recreational, and education opportunities of the park; and allow the pond to remain classified as a moderate value IWWH by the MDIFW.

Thank you for your time in coordinating the review of the project's location for potential impacts to tribal resources. If you have any questions regarding this application, please feel free to contact me at (207)774-2112 or by email at lswett@woodardcurran.com.

Sincerely,

WOODARD & CURRAN INC.

Lauren Swett

Lauren Swett, P.E.
Project Engineer

Enclosure: Site Location Map

cc: Rodney Howe, ACOE
Jay Clement, ACOE
Nathaniel Smith, Project Manager, City of Portland Department of Public Services
Doug Roncarati, Stormwater Program Coordinator, City of Portland, Dept. of Public Services (email)

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February 11, 2014

Ms. Bonnie Newsom, THPO
Penobscot Indian Nation
Indian Island Reservation
12 Wabanaki Way
Indian Island, Maine 04468

Re: NRPA Individual Permit Application – Capisic Pond Enhancement Project, Portland, ME

Dear Ms. Newsom:

On behalf of the City of Portland, Woodard & Curran is submitting an application for an Individual Natural Resource Protection Act (NRPA) Permit for the proposed Capisic Pond Enhancement Project in Portland, Maine. As part of the application process, we are consulting with the State's federally recognized Indian Tribes and requesting that the project area be reviewed for the presence of tribal resources that the proposed work may affect. The Capisic Pond is located in Capisic Pond Park, which is located on the north side of Capisic Street, west of Stevens Avenue, in the Rosemont neighborhood of Portland; the project site is shown on the enclosed location map.

The project area is currently ranked by the Maine Department of Inland Fisheries and Wildlife (MDIFW) as a moderate-value Inland Waterbird and Waterfowl Habitat (IWWH), but is trending quickly towards a low-value rating. The encroachment of a cattail monoculture is causing a loss of open water habitat and a decrease in wetland diversity, and is slowly leading to a degradation of the IWWH habitat and a reduction of the scenic and recreational aspects of the pond. The proposed Capisic Pond Enhancement Project will remove the excessive monocultures of cattails and sediments from historically open water areas and create diverse wetland edges along the pond to provide habitat diversity for the pond; enhance the aesthetic, recreational, and education opportunities of the park; and allow the pond to remain classified as a moderate value IWWH by the MDIFW.

Thank you for your time in coordinating the review of the project's location for potential impacts to tribal resources. If you have any questions regarding this application, please feel free to contact me at (207)774-2112 or by email at lswett@woodardcurran.com.

Sincerely,

WOODARD & CURRAN INC.

Lauren Swett

Lauren Swett, P.E.
Project Engineer

Enclosure: Site Location Map

cc: Rodney Howe, ACOE
Jay Clement, ACOE
Nathaniel Smith, Project Manager, City of Portland Department of Public Services
Doug Roncarati, Stormwater Program Coordinator, City of Portland, Dept. of Public Services (email)

APPENDIX A: VISUAL EVALUATION

APPENDIX A: MDEP VISUAL EVALUATION
FIELD SURVEY CHECKLIST
(Natural Resources Protection Act, 38 M.R.S.A. §§ 480 A - Z)

Name of applicant: City of Portland Dept of Public Services Phone: 207-874-8801

Application Type: MDEP Individual NRPA Permit

Activity Type: (brief activity description) Pond Enhancements: cattail/sediment removal & wetland planting

Activity Location: Town: Portland Court:

GIS Coordinates, if known: UTM Northing 4835558.5 Easting 394584.9

Date of Survey: January 21, 2014 Observer: Ashley Auger Phone: 207-774-2112

	Distance Between the Proposed Visibility Activity and Resource (in Miles)		
1. Would the activity be visible from:	0-¼	¼-1	1+
A. A National Natural Landmark or other outstanding natural feature?	No		
B. A State or National Wildlife Refuge, Sanctuary, or Preserve or a State Game Refuge?	☐ No	☐	☐
C. A state or federal trail?	No		
D. A public site or structure listed on the National Register of Historic Places?	☐	☒ Leonard Bond Chapman House	☐
E. A National or State Park?	No		
F. 1) A municipal park or public open space?	☒ Capisic Pond Park & Fore River Sanctuary	☐	☐
2) A publicly owned land visited, in part, for the use, observation, enjoyment and appreciation of natural or man-made visual qualities?	☒ Capisic Pond Park & Fore River Sanctuary	☐	☐
3) A public resource, such as the Atlantic Ocean, a great pond or a navigable river?	☐	☒ Tidal Fore River	☐
2. What is the closest estimated distance to a similar activity?	☒	☐	☐
3. What is the closest distance to a public facility intended for a similar use?	☒	☐	☐
4. Is the visibility of the activity seasonal? (i.e., screened by summer foliage, but visible during other seasons)		☐ Yes	☒ No
5. Are any of the resources checked in question 1 used by the public during the time of year during which the activity will be visible?		☒ Yes	☐ No

APPENDIX B: COASTAL WETLAND CHARACTERIZATION (NOT APPLICABLE)

APPENDIX C: SUPPLEMENTAL INFORMATION FOR DREDGING

APPENDIX C: APPLICATION FOR A NATURAL RESOURCES PROTECTION ACT PERMIT

SUPPLEMENTAL INFORMATION FOR DREDGING ACTIVITIES IN A COASTAL WETLAND, GREAT POND, RIVER, STREAM OR BROOK

(Discard this part if dredging is not proposed as part of your activity.)

The DEP and the Corps strongly recommend that applicants schedule a pre-application meeting prior to submitting an application for dredging.

Volume to be dredged:	**16,000** cu. yds.		
Sq. ft. to be dredged: i	**197,100** sq. ft.		

Max. depth of dredging below existing grade:	**3-feet**
Type of material (example: sand, silt, clay, gravel. etc.) to be Dredged:	**Silt & Clay**
Describe what erosion and sediment control measures will be used during the dredging operation. (attach separate sheet if necessary):	**All dredging work will take place within Capisic Pond. Temporary diversion of base flow to a nearby stormdrain pipe will reduce the flow of water through the dredged area while work is being done. Pipe and swale inlets and outlets within Capisic Pond will be protected using sediment barriers as necessary, and will be monitored and cleared of any deposited sediment during and after the dredging work has been completed. Stabilized construction entrances/exits will be used at all access points to reduce the tracking of sediment beyond the limit of work and regular sweeping will be required. Details and notes for erosion control are included in the plan set in Attachment 5.**
Describe how and where the dredge spoils will be dewatered (attach separate sheet if necessary): **Show dewatering location and erosion control measures on activity drawings.**	**A portion of the dredged material will be reused on site for the construction of pond bankings, and the remainder of the dredged material will be removed from the site and either disposed of or beneficially reused off-site. The Contractor shall be required to utilize water-tight trucks for transporting dredged materials. Dredged materials may be stockpiled within the limit of work for dewatering as necessary. Dewatering of dredge materials by means of mechanical equipment will not be allowed within the work area. Dewatering of dredge materials using mechanical equipment must take place at the selected off-site disposal or beneficial reuse location.**
What equipment will be used for the dredge?	**A contractor has not yet been selected for the project. Specific means and methods for dredging will be determined by the contractor; however it is anticipated that dredging may be completed using excavators.**

Disposal Location: (Check one)	**Upland disposal:** ☑ On site **(Approx. 7, 500 CY)** ❑ Landfill ☑ Other **Beneficial Reuse** **(Location TBD, Approx 8,500 CY)**	**Ocean disposal:** Federal Disposal Site ❑ Arundel ❑ Portland ❑ Rockland ❑ Other_____

(pink)

FOR UPLAND DISPOSAL:

Contact the Division of Solid Waste Management at (207) 822-6300: ***Note: We intend to contact the Division of Solid Waste Management regarding the Beneficial Reuse of excess dredged materials upon finalizing the disposal locations.**

Contacted: ❑ Yes ☑ No If yes, attach a copy of any correspondence.
Permitted: ❑ Yes ❑ No If yes, provide the permit number_____.

FOR OCEAN DISPOSAL:

N/A ❑ Submit as **Attachment 15,** a copy of the test results performed in accordance with the U.S. Environmental Protection Agency and the Army Corps of Engineers' document entitled "Regional Implementation Manual for the Evaluation of Dredged Material Proposed for Disposal in New England Waters" (May 2002). This is available from the Army Corps of Engineers. (207) 623-8367

NOTE: Applicants are STRONGLY recommended to contact the DEP prior to performing any sediment sampling. Improperly sampled or analyzed sediments may have to be retested.

N/A ❑ Submit as **Attachment 16,** a copy of a map showing the proposed transportation route to the disposal site.

List all municipalities adjacent to the proposed transportation site:

_____

_____

_____

A copy of the application must be submitted to all municipalities adjacent to the proposed transportation site.

N/A ❑ Submit as **Attachment 17,** a copy of the notice of the proposed transportation route. A copy of the proposed transportation route must be published in a newspaper of general circulation in the area of the proposed route. (The notice of the proposed route must include compass bearings or Loran coordinates). The notice must be published under the heading "NOTICE TO FISHERMAN".

(pink)

APPENDIX D: ADDITIONAL INFORMATION – RIGHT TITLE & INTEREST

Right Title & Interest – Supplemental Information for Application Block 18

Capisic Pond is located in Capisic Pond Park, on the north side of Capisic Street, west of Stevens Avenue. Much of the project is located on public land owned by the City of Portland (parcels located at chart, block, lot 224 C001, 192 C001, & 224AX001); however, the Pond area to the south of Capisic Street is located entirely within private property. The land owners for this area of the pond, Eleanor and Nathan Smith, have been active public participants in the project planning and have offered to work with the City to provide a work agreement or temporary access easement in this area of the pond. This has occurred with past projects associated with the dam and bank stabilization. Easements from this private land owner will be secured prior to performing the work. The attached letter from the City of Portland states their intent to obtain the required agreements with landowners in order to complete the work.

Attached are two plan sheets entitled "Plan of City Property at Capisic Pond" prepared by the City of Portland, Maine Parks and Public Works Department, Engineering Division in September 1993. The City of Portland Department of Public Services is currently working on preparing a new "boundary page" to update and verify the September 1993 plans. The updated boundary page can be forwarded when it becomes available upon request.

Danielle P. West-Chuhta
Corporation Counsel

Jennifer L. Thompson
Associate Counsel

Lawrence C. Walden
Associate Counsel

Trish McAllister
Neighborhood Prosecutor

February 7, 2014

David Cherry, Environmental Specialist
Department of Environmental Protection
Bureau of Land and Water Quality
312 Canco Road
Portland, ME 04103

Re: City of Portland, Capisic Pond NRPA Permit

Dear Mr. Cherry:

I am providing this letter to satisfy conditions associated with the filing of the Natural Resource Protection Act permit application associated with the above referenced project.

I have reviewed the plans and supporting documents for the City of Portland, Capisic Pond NRPA Permit, and I am of the opinion that the City of Portland will possess all proper interests in the sites and rights of way for this project following the remaining negotiations with property owners. In the event any of the negotiations are unsuccessful, the City will exercise eminent domain in order to secure all necessary property interests. In addition, I am of the opinion that all sewer mains, laterals and other improvements constructed pursuant to the plans for this project will be properly located within said sites and rights of way.

Thank you for your attention to this matter. If you have any questions or need additional information, please feel free to contact me.

Sincerely,

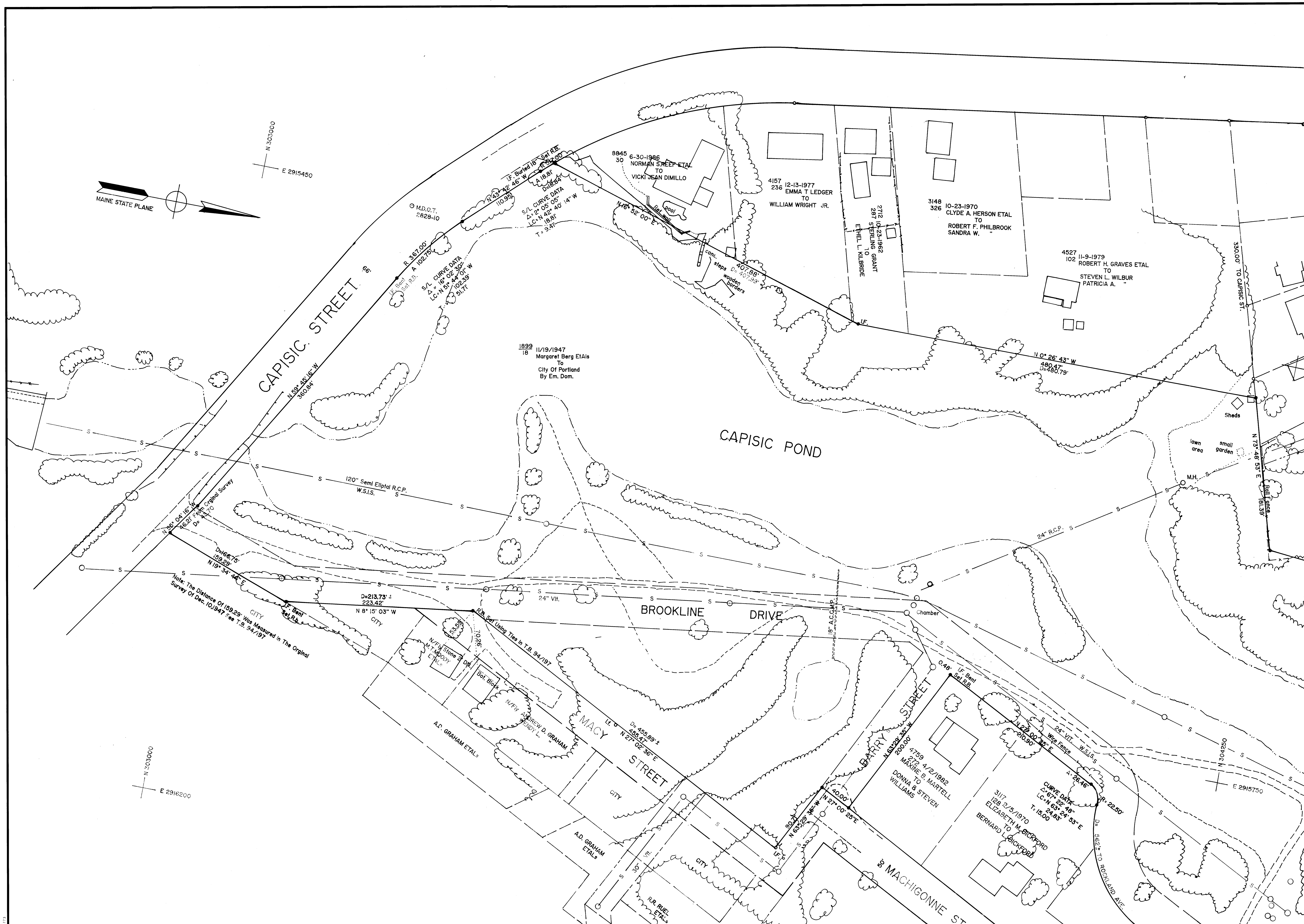
Danielle West-Chuhta
Corporation Counsel

cc. Nathaniel Smith, Project Engineer, City of Portland Planning Department

947/3

PROFESSIONAL GRAPHICS DPD-30

947.3



REFERENCES	DESCRIPTION	DATE

PROJECT NO	DESIGNED BY
DATE SEPT. 10, 1993	DRAWN BY J.M. ROBBINS
SCALE AS NOTED 1" = 50'	CHECKED BY

PLAN OF CITY PROPERTY AT CAPISIC POND.

CITY OF PORTLAND, MAINE
PARKS AND PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

APPROVED ______ DIRECTOR OF ENGINEERING

SHEET 2 OF 2

APPENDIX E: CAPISIC POND SEDIMENT SAMPLING

COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

MEMORANDUM

TO: Doug Roncarati, City of Portland
FROM: Zach Henderson and Dave Dinsmore
DATE: December 2, 2011
RE: Capisic Pond Sediment Sampling

Introduction

Capisic Pond (hereafter referred to as Pond) is Portland's largest freshwater body and formed by a manmade impoundment, the Capisic Pond Dam, on the Capisic Brook. The current Capisic Pond dam was built by the City of Portland during the mid-1950s as part of the West Side Interceptor Sewer project, and as part of the overflow structure of the combined sewer system. This structure was a reconstruction of and is located below the placement of the original privately owned dam, the construction period of which is unknown, but knowledge of the pond reaches as far back as the mid- to late-1800s or further. Capisic Pond has been a central part of Portland's history for many years. The original falls, near the current dam location, powered a sawmill and a gristmill established in the late 1600's and was central to the economy in early Portland (then called Falmouth). Capisic Brook, which feeds the pond, is a small stream approximately 2.5 miles in length. The Capisic Brook watershed is approximately 1,500 acres and is highly developed with a mix of residential and commercial development. The Pond receives runoff from undeveloped land, developed areas and roads and combined sewer overflows during certain rain events.

The City of Portland is currently implementing combined sewer overflow abatement activities with the goal of eliminating combined sewer discharges into the Capisic Brook within the next several years. Additionally, the City has drafted a watershed management plan to address urban area stormwater runoff impacts to both the Capisic Brook and Capisic Pond. These environmental remediation efforts in the watershed now allow the City to consider a long-term management and enhancement plan for the Pond.

Over the last three decades, the City of Portland and other entities have undertaken a number of studies and plans relevant to Capisic Pond and the adjacent park area. With the increasing public awareness and appreciation for urban natural spaces, the 18-acre Capisic Pond Park has gained increasing importance both for its walking trails and as an environment in which to experience wildlife in an otherwise urban setting. The City and project partners are now contemplating restoration and management activities consistent with previous plans, which may include removal of pond sediments under various restoration scenarios.

In order to inform the potential costs and benefits of various pond management alternatives, characterization of existing pond sediment is necessary. This memorandum is consistent with our proposal dated April 13, 2011 and includes a description of sediment sampling and analytical methods, the chemical parameters of sampled sediment, results and conclusions.

In addition, the following results were compared to previous pond sediment analysis conducted in 1996 by the Friends of Casco Bay. At that time, Normandeau Associates collected composite sediment samples at four locations (on April 25, 1996); samples were analyzed for percent solids, metals, polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs). There was no graphic available to enable Woodard & Curran to determine the locations from which those samples were collected.

Methods

On September 14, 2011 sediment samples were collected from four locations along the margin of the pond. The dam had been opened for four days prior to sample collection so water levels were lowered and areas of shoreline were exposed.

Sediment samples were collected from four locations, as depicted on the attached Figure 1. As indicated in the Figure, the locations cover the entire length of the pond and were selected to evaluate the distribution and variability of the chemical and physical characteristics described above. SD-01 is the furthest south of all samples locations, located on the western shore of the pond just south of Capisic Street and just north of a section of the shoreline where riprap has been recently installed. At the time of sample collection there was minimal water remaining in this part of the pond. SD-02 is situated on the eastern shoreline of the pond approximately 300 feet north of the Capisic Street crossing. SD-03 is also located on the eastern shoreline approximately 200 feet northwest of SD-02. The final sample location, SD-04, is just downstream from the Rockland Avenue stormwater discharge point at the northern end of the pond. Only one location, SD-4, was submerged during sample collection.

At each of the four locations, a 48" long by 1.5" diameter macro acetate liner tube was pushed into the sediments to maximum penetration to obtain a core sample. The liner is equipped with a core catcher on one end to retain the sediments and to prevent them from falling out of the liner upon retrieval. In order to collect representative samples and sufficient volume of material for analysis, several cores were obtained at each location. The sediment material in the liners was extracted from the liners into a glass mixing bowl. A stainless steel spoon was used to homogenize the material once all of the cores were placed into the bowl to create a composite sample. Once the material was homogenized into a composite it was transferred into labeled sample containers and put on ice in a cooler. The samples were submitted to an environmental laboratory for chemical analysis.

Sediment samples were analyzed at Katahdin Analytical Laboratories for chemical parameters including metals, dioxins, pesticides, PCBs, PAHs, extractable petroleum hydrocarbons (EPH), and phosphorous. Grain size analyses were conducted to determine physical characteristics of the sediments.

All of the sediment samples were analyzed for parameters in accordance with "Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods, SW-846, 2nd Edition, 1982" and compared against Maine Department of Environmental Protection (MaineDEP) limits defined for beneficial reuse and described in MaineDEP Chapter 418, Section A. The concentrations from analyses of the four samples collected during this project were compared against these specifications to evaluate the option of potential reuse of the sediment material.

The chemical and physical analytical methods that were used to characterize the sediment samples are summarized in **Table 1** below.

Table 1: Sediment Sample Analytical Summary

Parameter	Analytical Method
Pesticides	USEPA 8081
PCBs (polychlorinated biphenyls)	USEPA 8082
EPH (extractable petroleum hydrocarbons)	MA DEP EPH 04-1.1
PAHs (polycyclic aromatic hydrocarbons)	USEPA 8270C – SIMs
Metals (As, Cd, Cr, Pb, Hg)	USEPA 3050/6010, 7471 (Hg)
Hexavalent chromium	USEPA 3060
Total Phosphorous	USEPA 365.4
Dioxins	USEPA Method 1631
Grain Size Analysis	ASTM D422

Sample Results

The depth of penetration for each core and a visual physical characterization of the material were recorded and are summarized in Table 2 below.

Table 2: Core Penetration Depths and Visual Sediment Characterization Summary

Sample Location	Number of Cores	Depth of Penetration to Refusal (feet below pond bottom surface)	Physical Characteristics
SD-01	5	1.1 to 1.4	Poorly sorted medium to fine sands evenly distributed in greenish-gray clay.
SD-02	6	0.7 to 1.65	Stiff olive gray clay overlain by a loose unconsolidated layer of varying thickness (approximately 0.13 to 0.5 feet) of highly organic silt.
SD-03	9	0.5 to 0.8	Layer of organic silt (0.5) feet overlying clay.
SD-04	5	1.4 to 1.96	Hard dark brown clay containing small amounts of peat dispersed throughout and overlain by a thin layer of peat

Laboratory analyses of the sediment samples collected from Capisic Pond are summarized by chemical parameter in the following subsections. The raw data as received by the laboratory is included in Appendix A. The MaineDEP reduced procedure beneficial reuse standards are included in the following tables for comparison against the reported concentrations. For the EPH analysis, there is no current guidance from Chapter 418, so the total concentration was compared to the total petroleum hydrocarbon (TPH) standard in the Guidance on Disposal & Use of Assorted Solid Wastes Generated in Maine (rev. 4/16/2008). Sediment sample concentrations were also compared with results reported from the 1996 study conducted by Normandeau (where appropriate).

PAHs

For PAHs, results were obtained using two different methods; the selective ion monitoring (SIMs) Method 8270 and the EPH analysis. Although lower detection limits are reported with the USEPA 8270 SIMs analysis, concentrations obtained using both methods were compared against MaineDEP reuse limits and are summarized in Table 3.

As indicated in Table 3, the concentrations of all PAHs for both methods are below the beneficial reuse limits, when they are available. All PAH concentrations from the USEPA 8270 SIMs method are within the historical range of concentrations reported for the Normandeau 1996 study. For the EPH method, PAHs were not detected and are below the historical concentrations for samples collected at SD-02, SD-03, and SD-04. The highest concentrations of PAHs using both methods were detected in the sample collected from SD-01. Since the sample locations from the 1996 Normandeau study are unknown, the results cannot be compared directly with the locations selected for this study. Therefore, a range of historical concentrations are included in Table 3 for comparison.

Table 3: Summary of Analytical Results – PAHs

PAHs – USEPA 8270 and EPH Methods	1996 Study Historical Range-	DEP Reuse	2011 Sediment Sample Concentrations – mg/kg							
			SD-01		SD-02		SD-03		SD-04	
Compound	mg/kg	mg/kg	8270	EPH	8270	EPH	8270	EPH	8270	EPH
Naphthalene	-	-	0.20	0.37	<0.028	<0.27	<0.035	<0.33	<0.029	<0.25
2-methylnaphthalene	-	-	0.46	0.76	<0.028	<0.27	<0.035	<0.33	<0.029	<0.25
Acenaphthylene	-	-	<0.025	0.26	<0.028	<0.27	<0.035	<0.33	<0.029	<0.25
Acenaphthene	-	-	0.27	0.51	<0.028	<0.27	<0.035	<0.33	<0.029	<0.25
Fluorene	-	-	0.44	0.67	<0.028	<0.27	<0.035	<0.33	<0.029	<0.25
Phenanthrene	-	-	1.5	2.6	0.088	<0.27	0.15	<0.33	0.037	<0.25
Anthracene	-	-	0.28	0.52	<0.028	<0.27	<0.035	<0.33	<0.029	<0.25
Fluoranthene	-	-	0.76	1.7	0.21	<0.27	0.31	<0.33	0.075	<0.25
Pyrene	-	-	1.1	2.5	0.18	<0.27	0.28	<0.33	0.064	<0.25
Benzo(a)anthracene	-	2.0	0.36	0.62	0.092	<0.27	0.15	<0.33	0.034	<0.25
Chrysene	-	1.6	0.37	0.74	0.15	<0.27	0.24	<0.33	0.035	<0.25
Benzo(b)fluoranthene	-	5.0	0.34	0.48	0.24	<0.27	0.40	<0.33	0.062	<0.25
Benzo(k)fluoranthene	-	49	0.14	0.49	0.083	<0.27	0.14	<0.33	<0.029	<0.25
Benzo(a)pyrene	-	8.0	0.27	0.43	0.13	<0.27	0.20	<0.33	0.044	<0.25
Indeno(1,2,3-cd)pyrene	-	14	0.18	0.33	0.14	<0.27	0.20	<0.33	0.039	<0.25
Dibenzo(a,h)anthracene	-	2.0	0.041	<0.22	<0.028	<0.27	0.047	<0.33	<0.029	<0.25
Benzo(g,h,i)perylene	-	-	0.11	0.31	0.084	<0.27	0.13	<0.33	<0.029	<0.25
Total all PAHs	1.68 to 24.3		6.821	13.29	1.397	ND	2.247	ND	0.039	ND

ND = not detected
- = Not available
All concentrations in Table 3 are dry weight
Totals do not include non-detection values.

EPH

Although PAHs are considered to be target compounds, the primary constituents from the EPH analyses are petroleum hydrocarbons which are extracted from the sediment matrix using methylene chloride and hexane. As the name implies, the chemicals detected in this analysis are related to compounds found in petroleum products such as motor oil. The results are reported as different fractions based on the chemical structure and number of carbons contained in the extracted compounds. A summary of the petroleum hydrocarbon results are contained below in **Table 4**. Samples collected from the 1996 study were not analyzed for EPH, therefore there is no historical data against which to compare these results.

Table 4: Summary of Petroleum Hydrocarbon Results

Petroleum Hydrocarbon Fraction	DEP Standard – mg/kg	Sediment Sample Locations – mg/kg			
		SD-01	SD-02	SD-03	SD-04
Unadjusted C11-C22 Aromatics		160	<27	41	<25
C9-C18 Aliphatics		<22	<27	<33	<25
C19-C36		55	58	100	<25
C11-C22 Aromatics		150	<27	40	<25
Total TPH	500 (see description below)	365	58	181	ND

ND = not detected
- = Not available
All concentrations in Table 4 are dry weight
Totals do not include non-detection values.

As indicated from **Table 4**, petroleum hydrocarbons were not detected in the sample collected at SD-04. Concentrations were compared to the standard for TPH found in the Guidance on Disposal & Use of Assorted Solid Wastes Generated in Maine. This document, produced by the MaineDEP provides additional guidance on the disposal and characterization of solid wastes such as grit retrieved from storm sewers and car wash facilities. This document contains a maximum limit of 500 mg/kg TPH for disposal of these kinds of waste. For the sediment sample locations where TPH was detected, all total concentrations are below this limit.

PCBs

PCB analysis was performed to identify any of seven target Arochlors including Arochlor-1016, 1221, 1232, 1242, 1248, 1254, and 1260. None of these compounds were detected above detection limits in any of the four sediment samples and are therefore below DEP beneficial reuse standards. However, each of the five samples collected in the 1996 study had detections of PCBs, ranging from 0.046 to 0.29 mg/kg. The low end of the range of detections is only slightly above the detection limit of 0.031 mg/kg. The concentrations of PCBs detected in all samples from the 1996 study are below the current beneficial reuse limit of 0.74 mg/kg.

Pesticides

The pesticide analysis includes 21 target compounds that were used for pest control and their associated degradation products. Only two pesticides were detected and the results are summarized in Table 5 below.

None of these compounds were detected in the sediment sample collected at SD-04. 4,4'-DDD and 4,4'-DDE were detected in each of the other three samples at generally trace concentrations. SD-03 had the highest concentrations of these compounds. 4,4'-DDE and 4,4'-DDD are degradation products of the pesticide 4,4'-DDT. DDT was widely used in the 1950s and 1960s to control mosquitoes. As indicated in Table 5, the total concentrations of pesticides are below the DEP's reuse standard of 0.74 mg/kg.

Table 5: Summary of Pesticide Detections

Pesticide	DEP Standard – mg/kg	Sediment Sample Locations – mg/kg			
		SD-01	SD-02	SD-03	SD-04
4,4'-DDE	-	0.0076	0.0079	0.056	<0.0025
4,4'-DDD	-	0.019	0.0089	0.044	<0.0025
Total	0.74	0.0266	0.0168	0.1	ND

ND = not detected
- = Not available
All concentrations in Table 5 are dry weight
Totals do not include non-detection values.

Metals

Sediment samples from each of the four locations were also analyzed for the metals arsenic, cadmium, chromium, lead and mercury. In addition, all samples were analyzed for hexavalent chromium, a particularly toxic form of this heavy metal. The results for each of the locations are summarized in Table 6 below.

Table 6: Summary of Metals Results

Metals – Methods 6010, 7471, 3060	1996 Study Historical Range-mg/kg	DEP Reuse Standard mg/kg	Sediment Concentrations – mg/kg			
Element			SD-01	SD-02	SD-03	SD-04
Arsenic	8.45 – 16.2	29	6.6	8.5	8.4	5.8
Cadmium	Not detected	8.0	<1.0	<2.33	<1.75	<1.0
Chromium	43.6-72.9	100	33.5	60.4	37	40.7
Lead	66.6-162	800	19.7	18	51.9	26.1
Mercury	ND to 0.59	60	<0.048	<0.054	0.072	<0.052
Hexavalent Chromium	Not analyzed	38	<0.66	<0.66	<0.94	<0.72

ND = not detected
- = Not available
All concentrations in Table 6 are dry weight
Totals do not include non-detection values.

As indicated by the summarized results in Table 6, the concentrations of all elements are below the corresponding MaineDEP reuse standards. Cadmium was not detected in any of the four sediment

samples. Lead concentrations were below the historical concentrations detected in 1996 for all samples. Chromium concentrations ranged from 33.5 to 60.4 mg/kg. This is similar to the range of historical concentrations from the 1996 Normandeau study. Hexavalent chromium was not detected in any of the samples.

Phosphorus

Phosphorus is an essential nutrient for plant and animal growth in aquatic systems, however, elevated levels within pond sediments can cycle when conditions are conducive and can contribute to algae blooms. Each of the four sediment samples was analyzed for phosphorus using USEPA Method 365.1. Each of the four samples had concentrations below what is considered typical for the sediments within natural lakes and ponds (approximately 1000-2000 mg/kg). Lower concentrations indicated in these results may be explained by the integration of samples across a few feet of sediments which include both deeper "parent" sediment as well as the surficial sediments/silt that are likely to be higher in nutrients. Total phosphorus concentrations are summarized in Table 7 below.

Table 7: Total Phosphorus Results

Sample Location	Total Phosphorus – mg/kg
SD-01	530
SD-02	580
SD-03	720
SD-04	600

While concentrations of phosphorus are not regulated under beneficial reuse requirements it is important to understand the concentration of phosphorus in sediments for long-term lake management. The sampling for Total Phosphorus was included in this evaluation for use in future studies of nutrient dynamics within the Capisic Pond.

Dioxins

The four sediment samples were also analyzed for dioxins using USEPA Method 1631. Dioxin is a generic term that is applied to many individual dioxin or dioxin-like compounds that are persistent in the environment. Dioxins are produced by natural and man-made combustion processes as well as some industrial processes. Some of these compounds are considered to be non-toxic while others are considered to be toxic. The dioxin and dioxin-like compounds are currently evaluated by toxic equivalency (TEQ). The TEQ approach uses a toxic equivalency factor (TEF) to weight the individual dioxin congeners and the dioxin-like compounds. With the TEFs, the toxicity of a mixture of dioxins and dioxin-like compounds can be expressed in a single number - the toxic equivalent, TEQ. It is a single figure resulting from the product of the concentration and individual TEF values of each congener. The TEQ concept has been developed to facilitate risk assessment and regulatory control. The TEF uses 2,3,7,8-tetrachlorodibenxo-p-dioxin (TCDD) as the comparison and the other congeners and dioxin-like compounds are some fractional part of the TCDD toxicity. The individual weighted values are summed to generate a TEQ value for each sample. The beneficial reuse TEQ limit for dioxin and dioxin-like compounds is 16 pg/g. The TEQ determined from the analysis of each of the sediment samples was compared against this limit. A summary of the TEQ values are presented in **Table 8** below.

Table 8: Summary of TEQ from Dioxin Analyses

	Sediment Sample Location			
	SD-01	SD-02	SD-03	SD-04
TEQ (pg/g)	2.50	1.57	2.59	1.37

The TEQs reported use the detection limit for non-detects and are the estimated maximum possible concentrations.

As indicated from **Table 8** above, all of the sediment samples had TEQ values that were below the DEP's beneficial use standard of 16 pg/g. TCDD was not detected in any of the four samples.

Physical Characteristics

Sediment samples were analyzed for grain size. For this analysis, the sample is passed through sieves of various mesh sizes to characterize the physical composition of the sediment material. Visual observations from field personnel during sample collection were also noted and recorded. The visual observations are summarized previously in Table 1. In general the sediment material was characterized as clay overlain by a layer of highly organic silts of varying thickness with small amounts of fine and medium sand. The results from the sieve analysis results are summarized in **Table 9** below.

Table 9: Summary of Physical Characteristics

	Sediment Sample Location - % Composition			
Sediment	SD-01	SD-02	SD-03	SD-04
Gravel	0.4 %	0.0%	4.4%	0.0%
Total Sand	23.2 %	11.6%	14.7%	1.8%
Coarse Sand	1.2%	0.3%	0.7%	0.0%
Medium Sand	5.6%	2.5%	4.5%	0.1%
Fine Sand	16.4%	8.8%	9.5%	1.7%
Silt	36.6%	41.3%	44.9%	46.3%
Clay	39.8%	47.1%	36.0%	51.4%

As indicated from **Table 9**, the highest percentage of sand was found in the sample collected at SD-01. The sample location with the highest percentage of clay and silt was SD-04. The physical composition of the sediments will be taken into consideration when options are assessed for reuse of dredged material.

Conclusions

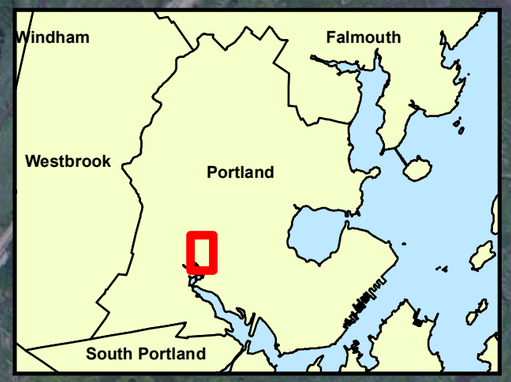
Sediment samples collected during the September 14, 2011 Capisic Pond study was analyzed for physical and chemical parameters in order to inform the potential reuse of this material under several future restoration scenarios. Sediments were also physically characterized for grain size to further define what purposes would be appropriate for the pond sediment material removed during restoration activities.

The concentrations from the chemical analyses were compared against MaineDEP reduced procedure beneficial reuse standards where available. The concentrations of all parameters at all sampled locations were below these standards. Concentrations of several chemical parameters were also compared against historical data from a 1996 study and while most concentrations were within the range of those from the 1996 study, a few parameters appeared to be higher in 1996 than in the sediment analysis conducted in 2011.

Although all samples had concentrations of all chemical parameters below MaineDEP reuse standards, other risk factors based on the removal methods or ultimate location selected for reuse of the sediment material will have to be considered and additional sampling and analysis may be required.

WOODARD &CURRAN

FIGURE



Capisic St

Capisic Pond

Capisic Brook

W-224

W-023

SD-01

SD-02

SD-03

SD-04

Brighton Ave

Colonial Rd

Legend

- DEP Monitoring Location
- 2011 Sediment Sample Location
- Inland Waterfowl/Wader Habitat

CAPISIC POND SUSTAINABILITY PLAN
PORTLAND, ME

2011 SEDIMENT SAMPLING LOCATIONS

FIGURE 1

WOODARD &CURRAN

SCALE: 1" = 200'	DOC: FIGURE1.MXD
DATE: NOVEMBER 2011	JOB NO.: 203939.74
DRAWN BY: DWP	SOURCE: OGIS, DEP, W&C

SITE PHOTOGRAPHS

Sampling Location SD-01

Sampling Location SD-02

Sampling Location SD-03

Sampling Location SD-04

APPENDIX A

Katahdin
ANALYTICAL SERVICES

nelac
Cert. No. E87604

October 17, 2011

Mr. Zach Henderson
Woodard & Curran
41 Hutchins Drive
Portland,ME 04102

RE: Katahdin Lab Number: SE5823
Project ID: Capisic Pond / 203939
Project Manager: Ms. Kelly Perkins
Sample Receipt Date(s): September 14, 2011

Dear Mr. Henderson:

Please find enclosed the following information:

* Report of Analysis (Analytical and/or Field)
* Laboratory results from subcontracted analysis (es)
* Quality Control Data Summary
* Chain of Custody (COC)
* Login Report

A copy of the Chain of Custody is included in the paginated report. The original COC is attached as an addendum to this report.

Should you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact the project manager listed above. The results contained in this report relate only to the submitted samples. This cover letter is an integral part of the ROA.

We certify that the test results provided in this report meet all the requirements of the NELAC standards unless otherwise noted in an attached technical narrative or in the Report of Analysis.

We appreciate your continued use of our laboratory and look forward to working with you in the future. The following signature indicates technical review and acceptance of the data.

Please go to http://www.katahdinlab.com/cert.html for copies of Katahdin Analytical Services Inc. current certificates and analyte lists.

Sincerely,
KATAHDIN ANALYTICAL SERVICES

Deborah J Nadeau
Authorized Signature

10/17/2011
Date

TECHNICAL NARRATIVE

Organics Analysis

The samples of Work Order SE5823 were analyzed in accordance with "Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods." SW-846, 2nd edition, 1982 (revised 1984), 3rd edition, 1986, and Updates I, II, IIA, III, IIIA, and IIIB 1996, 1998 & 2004, Office of Solid Waste and Emergency Response, U.S. EPA, and/or for the specific methods listed below or on the Report of Analysis.

8081 Analysis

The reported percent recovery acceptance limits for the Laboratory Control Samples (LCSs) are statistically derived for the full list of spiked compounds. The recoveries of the spiked analytes in the LCS, Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are compared to these acceptance limits. Katahdin standard operating procedure is to take corrective action only if the number of spiked analytes in the LCS that are outside of the QC limits is greater than the DoD QSM allowable number of exceedances. If the associated MS/MSD has greater than the allowable number of exceedances, no corrective action is taken, as long as the LCS is acceptable.

There were no other protocol deviations or observations noted by the organics laboratory staff.

KATAHDIN ANALYTICAL SERVICES - ORGANIC DATA QUALIFIERS

The sampled date indicated on the attached Report(s) of Analysis (ROA) is the date for which a grab sample was collected or the date for which a composite sample was completed. Beginning and start times for composite samples can be found on the Chain-of-Custody.

U Indicates the compound was analyzed for but not detected above the specified level. This level may be the Limit of Quantitation (LOQ)(previously called Practical Quantitation Level (PQL)), the Limit of Detection (LOD) or Method Detection Limit (MDL) as required by the client.

Note: All results reported as "U" MDL have a 50% rate for false negatives compared to those results reported as "U" PQL/LOQ or "U" LOD, where the rate of false negatives is <1%.

* Compound recovery outside of quality control limits.

D Indicates the result was obtained from analysis of a diluted sample. Surrogate recoveries may not be calculable.

E Estimated value. This flag identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis.

J Estimated value. The analyte was detected in the sample at a concentration less than the laboratory Limit of Quantitation (LOQ)(previously called Practical Quantitation Limit (PQL)), but above the Method Detection Limit (MDL).

or

J Used for Pesticide/Aroclor analyte when there is a greater than 40% difference for detected concentrations between the two GC columns.

B Indicates the analyte was detected in the laboratory method blank analyzed concurrently with the sample.

N Presumptive evidence of a compound based on a mass spectral library search.

A Indicates that a tentatively identified compound is a suspected aldol-condensation product.

P Used for Pesticide/Aroclor analyte when there is a greater than 25% difference for detected concentrations between the two GC columns. (for CLP methods only).

KATAHDIN ANALYTICAL SERVICES – INORGANIC DATA QUALIFIERS
(Refer to BOD Qualifiers Page for BOD footnotes)

The sampled date indicated on the attached Report(s) of Analysis (ROA) is the date for which a grab sample was collected or the date for which a composite sample was completed. Beginning and start times for composite samples can be found on the Chain-of-Custody.

U Indicates the compound was analyzed for but not detected above the specified level. This level may be the Limit of Quantitation (LOQ)(previously called Practical Quantitation Level (PQL)), the Limit of Detection (LOD) or Method Detection Limit (MDL) as required by the client.

Note: All results reported as "U" MDL have a 50% rate for false negatives compared to those results reported as "U" PQL/LOQ or "U" LOD, where the rate of false negatives is <1%.

E Estimated value. This flag identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis.

J Estimated value. The analyte was detected in the sample at a concentration less than the laboratory Limit of Quantitation (LOQ)(previously called Practical Quantitation Limit (PQL)), but above the Method Detection Limit (MDL).

I-7 The laboratory's Practical Quantitation Level could not be achieved for this parameter due to sample composition, matrix effects, sample volume, or quantity used for analysis.

A-4 Please refer to cover letter or narrative for further information.

MCL Maximum Contaminant Level

NL No limit

NFL No Free Liquid Present

FLP Free Liquid Present

NOD No Odor Detected

TON Threshold Odor Number

H1 Please note that the regulatory holding time for pH is "analyze immediately". Ideally, this analysis must be performed in the field at the time of sample collection. pH for this sample was not performed at the time of sample collection. The analysis was performed as soon as possible after receipt by the laboratory.

H2 Please note that the regulatory holding time for DO is "analyze immediately". Ideally, this analysis must be performed in the field at the time of sample collection. DO for this sample was not performed at the time of sample collection. The analysis was performed as soon as possible after receipt by the laboratory.

H3 Please note that the regulatory holding time for sulfite is "analyze immediately". Ideally, this analysis must be performed in the field at the time of sample collection. Sulfite for this sample was not performed at the time of sample collection. The analysis was performed as soon as possible after receipt by the laboratory.

H4 Please note that the regulatory holding time for residual chlorine is "analyze immediately". Ideally, this analysis must be performed in the field at the time of sample collection. Residual chlorine for this sample was not performed at the time of sample collection. The analysis was performed as soon as possible after receipt by the laboratory.

KATAHDIN ANALYTICAL SERVICES
Combined Dilution Form 1

Client: Woodard & Curran
Project: Capisic Pond/203939
PO No:
Sample Date: 09/14/11
Received Date: 09/14/11
Extraction Date: 09/19/11
Analysis Date: 27-SEP-2011 16:24
Report Date: 10/06/2011
Matrix: SOIL
% Solids: 75.1

Lab ID: SE5823-1DL
Client ID: SD-01
SDG: SE5823
Extracted by: JMS
Extraction Method: SW846 3550
Analyst: WAS
Analysis Method: SW846 M8270C SIM
Lab Prep Batch: WG97583
Units: ug/Kgdrywt

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL
91-20-3	Naphthalene		200	1.0	20	25
91-57-6	2-Methylnaphthalene		460	5.0	20	120
208-96-8	Acenaphthylene	U	25	1.0	20	25
83-32-9	Acenaphthene		270	1.0	20	25
86-73-7	Fluorene		440	5.0	20	120
85-01-8	Phenanthrene		1500	5.0	20	120
120-12-7	Anthracene		280	1.0	20	25
206-44-0	Fluoranthene		760	5.0	20	120
129-00-0	Pyrene		1100	5.0	20	120
56-55-3	Benzo(a)anthracene		360	5.0	20	120
218-01-9	Chrysene		370	5.0	20	120
205-99-2	Benzo(b)fluoranthene		340	5.0	20	120
207-08-9	Benzo(k)fluoranthene		140	1.0	20	25
50-32-8	Benzo(a)pyrene		270	1.0	20	25
193-39-5	Indeno(1,2,3-cd)pyrene		180	1.0	20	25
53-70-3	Dibenzo(a,h)anthracene		41	1.0	20	25
191-24-2	Benzo(g,h,i)perylene		110	1.0	20	25
321-60-8	2-Methylnaphthalene-D10		46%			
118-79-6	Fluorene-D10		41%			
1718-51-0	Pyrene-D10		56%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Woodard & Curran
Project: Capisic Pond/ 203939
PO No:
Sample Date: 09/14/11
Received Date: 09/14/11
Extraction Date: 09/15/11
Analysis Date: 22-SEP-2011 00:15
Report Date: 10/04/2011
Matrix: SOIL
% Solids: 75.1

Lab ID: SE5823-1
Client ID: SD-01
SDG: SE5823
Extracted by: KD
Extraction Method: SW846 3540
Analyst: CB
Analysis Method: SW846 8082
Lab Prep Batch: WG97401
Units: ug/Kgdrywt

Compound	Flags	Results	DF	PQL	Adj.PQL
Aroclor-1016	U	22	1.0	17	22
Aroclor-1221	U	22	1.0	17	22
Aroclor-1232	U	22	1.0	17	22
Aroclor-1242	U	22	1.0	17	22
Aroclor-1248	U	22	1.0	17	22
Aroclor-1254	U	22	1.0	17	22
Aroclor-1260	U	22	1.0	17	22
Tetrachloro-m-xylene		60%			
Decachlorobiphenyl		73%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Woodard & Curran
Project: Capisic Pond / 203939
PO No:
Sample Date: 09/14/11
Received Date: 09/14/11
Extraction Date: 09/15/11
Analysis Date: 23-SEP-2011 14:48
Report Date: 10/12/2011
Matrix: SOIL
% Solids: 75.1

Lab ID: SE5823-1
Client ID: SD-01
SDG: SE5823
Extracted by: KD
Extraction Method: SW846 3540
Analyst: EKC
Analysis Method: SW846 8081A
Lab Prep Batch: WG97400
Units: ug/Kgdrywt

Compound	Flags	Results	DF	PQL	Adj.PQL
alpha-BHC	U	2.2	1.0	1.7	2.2
gamma-BHC	U	2.2	1.0	1.7	2.2
Heptachlor	U	2.2	1.0	1.7	2.2
Aldrin	U	2.2	1.0	1.7	2.2
beta-BHC	U	2.2	1.0	1.7	2.2
delta-BHC	U	2.2	1.0	1.7	2.2
Heptachlor Epoxide	U	2.2	1.0	1.7	2.2
Endosulfan I	U	2.2	1.0	1.7	2.2
gamma-Chlordane	U	2.2	1.0	1.7	2.2
alpha-Chlordane	U	2.2	1.0	1.7	2.2
4,4'-DDE		7.6	1.0	3.3	4.2
Dieldrin	U	4.2	1.0	3.3	4.2
Endrin	U	4.2	1.0	3.3	4.2
4,4'-DDD		19	1.0	3.3	4.2
Endosulfan II	U	4.2	1.0	3.3	4.2
4,4'-DDT	U	4.2	1.0	3.3	4.2
Endrin Aldehyde	U	4.2	1.0	3.3	4.2
Endosulfan sulfate	U	4.2	1.0	3.3	4.2
Methoxychlor	U	22	1.0	17	22
Endrin Ketone	U	4.2	1.0	3.3	4.2
Toxaphene	U	42	1.0	33	42
Tetrachloro-m-Xylene		72%			
Decachlorobiphenyl		84%			

Extractable Petroleum Hydrocarbon (EPH) Analysis

Client:	Woodard & Curran	**SDG:**	SE5823
Client Sample ID:	SD-01	**Date Collected:**	14-SEP-11
KAS Sample ID:	SE5823-1	**Date Received:**	14-SEP-11
Analytical Method:	MA DEP EPH 04-1.1	**Date Extracted:**	20-SEP-11
Prep Method:	SW846 3540	**Date Reported:**	04-OCT-11
Matrix:	SL	**Percent Solids:**	75.

EPH Range Results	Results	PQL	Units	DF	Date Analyzed	Qual
Unadjusted C11-C22 Aromatics	160	22	mg/Kgdrywt	1	23-SEP-11	
C9-C18 Aliphatics	22	22	mg/Kgdrywt	1	23-SEP-11	U
C19-C36 Aliphatics	55	22	mg/Kgdrywt	1	23-SEP-11	
C11-C22 Aromatics	150	22	mg/Kgdrywt	1	23-SEP-11	

Targeted PAH Analytes	Results	PQL	Units	DF	Data Analyzed	Qual
Naphthalene	0.37	.22	mg/Kgdrywt	1	23-SEP-11	
2-Methylnaphthalene	0.76	.22	mg/Kgdrywt	1	23-SEP-11	
Phenanthrene	2.6	.22	mg/Kgdrywt	1	23-SEP-11	
Acenaphthylene	0.26	.22	mg/Kgdrywt	1	23-SEP-11	
Acenaphthene	0.51	.22	mg/Kgdrywt	1	23-SEP-11	
Anthracene	0.52	.22	mg/Kgdrywt	1	23-SEP-11	
Benzo(a)anthracene	0.62	.22	mg/Kgdrywt	1	23-SEP-11	
Benzo(a)pyrene	0.43	.22	mg/Kgdrywt	1	23-SEP-11	
Benzo(b)fluoranthene	0.48	.22	mg/Kgdrywt	1	23-SEP-11	
Benzo(g,h,i)perylene	0.31	.22	mg/Kgdrywt	1	23-SEP-11	
Benzo(k)fluoranthene	0.49	.22	mg/Kgdrywt	1	23-SEP-11	
Chrysene	0.74	.22	mg/Kgdrywt	1	23-SEP-11	
Dibenzo(a,h)anthracene	0.22	.22	mg/Kgdrywt	1	23-SEP-11	U
Fluoranthene	1.7	.22	mg/Kgdrywt	1	23-SEP-11	
Fluorene	0.67	.22	mg/Kgdrywt	1	23-SEP-11	
Indeno(1,2,3-cd)pyrene	0.33	.22	mg/Kgdrywt	1	23-SEP-11	
Pyrene	2.5	.22	mg/Kgdrywt	1	23-SEP-11	

EPH Surrogate Recoveries	Recovery	Acceptance Range	Date Analyzed	Qual
5-alpha androstane	93	40-140	23-SEP-11	
o-Terphenyl	84	40-140	23-SEP-11	
2-Fluorobiphenyl	70	40-140	23-SEP-11	
2-Bromonaphthalene	75	40-140	23-SEP-11	

* Fractionation Surrogates.

1 Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.

2 C11-C22 Aromatic Hydrocarbons exclude the concentration of Target PAH Analytes.

3 Diesel PAH Analytes.

Katahdin ANALYTICAL SERVICES

REPORT OF ANALYTICAL RESULTS

Client: Zach Henderson
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

Lab Sample ID: SE5823-001
Report Date: 10/5/2011
PO No.:
Project: Capisic Pond / 203939

Sample Description	Matrix	Percent Solids(%)	Date Sampled	Date Received
SD-01	SL	75.1	09/14/2011	09/14/2011

Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	By	Prep Method	Prepped Date	By	QC	Notes
ARSENIC	6.6	mg/Kgdrywt	0.8	1	0.8	SW846 6010	9/22/11	EAM	SW846 3050	9/21/11	NAT	BI21ICS1	
CADMIUM	U 1.00	mg/Kgdrywt	1.00	1	1	SW846 6010	9/22/11	EAM	SW846 3050	9/21/11	NAT	BI21ICS1	
CHROMIUM	33.5	mg/Kgdrywt	1.50	1	1.5	SW846 6010	9/22/11	EAM	SW846 3050	9/21/11	NAT	BI21ICS1	
LEAD	19.7	mg/Kgdrywt	0.5	1	0.5	SW846 6010	9/22/11	EAM	SW846 3050	9/21/11	NAT	BI21ICS1	
MERCURY	U 0.048	ug/gdrywt	0.048	1	0.04	SW846 7471	9/28/11	NAT	SW846 7471	9/26/11	NAT	BI26HGS1	1

1 The laboratory's Practical Quantitation Level could not be achieved for this parameter due to sample composition, matrix effects,sample volume, or quantity used for analysis.

Report of Analytical Results

Client: Zach Henderson
Woodard & Curran
41 Hutchins Drive
Portland,ME 04102

Lab Sample ID: SE5823-1
Report Date: 03-OCT-11
Client PO:
Project: Capisic Pond / 203939
SDG: SE5823

Sample Description	Matrix	Date Sampled	Date Received
SD-01	SL	14-SEP-11	14-SEP-11

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Chromium, Hexavalent	U0.66 mg/Kgdrywt	0.66	0.20	SW846 7196A	WG98085	22-SEP-11 10:45:00	SW846 3060A	21-SEP-11	CT	
Phosphorus, Total As P	530 mg/Kgdrywt	34.	8.8	EPA 365.4	WG97751	20-SEP-11 15:19:52	EPA 365.4	19-SEP-11	CT	
Total Solids	75. %	1		SM2540G	WG97657	21-SEP-11 09:15:00	ASTM D2216	20-SEP-11	RO	

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Woodard & Curran
Project: Capisic Pond/203939
PO No:
Sample Date: 09/14/11
Received Date: 09/14/11
Extraction Date: 09/19/11
Analysis Date: 25-SEP-2011 13:37
Report Date: 10/06/2011
Matrix: SOIL
% Solids: 68.1

Lab ID: SE5823-2
Client ID: SD-02
SDG: SE5823
Extracted by: JMS
Extraction Method: SW846 3550
Analyst: WAS
Analysis Method: SW846 M8270C SIM
Lab Prep Batch: WG97583
Units: ug/Kgdrywt

Compound	Flags	Results	DF	PQL	Adj.PQL
Naphthalene	U	28	1.0	20	28
2-Methylnaphthalene	U	28	1.0	20	28
Acenaphthylene	U	28	1.0	20	28
Acenaphthene	U	28	1.0	20	28
Fluorene	U	28	1.0	20	28
Phenanthrene		88	1.0	20	28
Anthracene	U	28	1.0	20	28
Fluoranthene		210	1.0	20	28
Pyrene		180	1.0	20	28
Benzo(a)anthracene		92	1.0	20	28
Chrysene		150	1.0	20	28
Benzo(b)fluoranthene		240	1.0	20	28
Benzo(k)fluoranthene		83	1.0	20	28
Benzo(a)pyrene		130	1.0	20	28
Indeno(1,2,3-cd)pyrene		140	1.0	20	28
Dibenzo(a,h)anthracene	U	28	1.0	20	28
Benzo(g,h,i)perylene		84	1.0	20	28
2-Methylnaphthalene-D10		37%			
Fluorene-D10		36%			
Pyrene-D10		51%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Woodard & Curran
Project: Capisic Pond/ 203939
PO No:
Sample Date: 09/14/11
Received Date: 09/14/11
Extraction Date: 09/15/11
Analysis Date: 22-SEP-2011 00:36
Report Date: 10/04/2011
Matrix: SOIL
% Solids: 68.1

Lab ID: SE5823-2
Client ID: SD-02
SDG: SE5823
Extracted by: KD
Extraction Method: SW846 3540
Analyst: CB
Analysis Method: SW846 8082
Lab Prep Batch: WG97401
Units: ug/Kgdrywt

Compound	Flags	Results	DF	PQL	Adj.PQL
Aroclor-1016	U	23	1.0	17	23
Aroclor-1221	U	23	1.0	17	23
Aroclor-1232	U	23	1.0	17	23
Aroclor-1242	U	23	1.0	17	23
Aroclor-1248	U	23	1.0	17	23
Aroclor-1254	U	23	1.0	17	23
Aroclor-1260	U	23	1.0	17	23
Tetrachloro-m-xylene		92%			
Decachlorobiphenyl		83%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Woodard & Curran
Project: Capisic Pond / 203939
PO No:
Sample Date: 09/14/11
Received Date: 09/14/11
Extraction Date: 09/15/11
Analysis Date: 23-SEP-2011 15:08
Report Date: 10/11/2011
Matrix: SOIL
% Solids: 68.1

Lab ID: SE5823-2
Client ID: SD-02
SDG: SE5823
Extracted by: KD
Extraction Method: SW846 3540
Analyst: EKC
Analysis Method: SW846 8081A
Lab Prep Batch: WG97400
Units: ug/Kgdrywt

Compound	Flags	Results	DF	PQL	Adj.PQL
alpha-BHC	U	2.3	1.0	1.7	2.3
gamma-BHC	U	2.3	1.0	1.7	2.3
Heptachlor	U	2.3	1.0	1.7	2.3
Aldrin	U	2.3	1.0	1.7	2.3
beta-BHC	U	2.3	1.0	1.7	2.3
delta-BHC	U	2.3	1.0	1.7	2.3
Heptachlor Epoxide	U	2.3	1.0	1.7	2.3
Endosulfan I	U	2.3	1.0	1.7	2.3
gamma-Chlordane	U	2.3	1.0	1.7	2.3
alpha-Chlordane	U	2.3	1.0	1.7	2.3
4,4'-DDE		7.9	1.0	3.3	4.4
Dieldrin	U	4.4	1.0	3.3	4.4
Endrin	U	4.4	1.0	3.3	4.4
4,4'-DDD		8.9	1.0	3.3	4.4
Endosulfan II	U	4.4	1.0	3.3	4.4
4,4'-DDT	U	4.4	1.0	3.3	4.4
Endrin Aldehyde	U	4.4	1.0	3.3	4.4
Endosulfan sulfate	U	4.4	1.0	3.3	4.4
Methoxychlor	U	23	1.0	17	23
Endrin Ketone	U	4.4	1.0	3.3	4.4
Toxaphene	U	44	1.0	33	44
Tetrachloro-m-Xylene		87%			
Decachlorobiphenyl		94%			

Extractable Petroleum Hydrocarbon (EPH) Analysis

Client:	Woodard & Curran	**SDG:**	SE5823
Client Sample ID:	SD-02	**Date Collected:**	14-SEP-11
KAS Sample ID:	SE5823-2	**Date Received:**	14-SEP-11
Analytical Method:	MA DEP EPH 04-1.1	**Date Extracted:**	20-SEP-11
Prep Method:	SW846 3540	**Date Reported:**	04-OCT-11
Matrix:	SL	**Percent Solids:**	68.

EPH Range Results	Results	PQL	Units	DF	Date Analyzed	Qual
Unadjusted C11-C22 Aromatics	27	27	mg/Kgdrywt	1	23-SEP-11	U
C9-C18 Aliphatics	27	27	mg/Kgdrywt	1	23-SEP-11	U
C19-C36 Aliphatics	58	27	mg/Kgdrywt	1	23-SEP-11	
C11-C22 Aromatics	27.	27	mg/Kgdrywt	1	23-SEP-11	U

Targeted PAH Analytes	Results	PQL	Units	DF	Data Analyzed	Qual
Naphthalene	0.27	.27	mg/Kgdrywt	1	23-SEP-11	U
2-Methylnaphthalene	0.27	.27	mg/Kgdrywt	1	23-SEP-11	U
Phenanthrene	0.27	.27	mg/Kgdrywt	1	23-SEP-11	U
Acenaphthylene	0.27	.27	mg/Kgdrywt	1	23-SEP-11	U
Acenaphthene	0.27	.27	mg/Kgdrywt	1	23-SEP-11	U
Anthracene	0.27	.27	mg/Kgdrywt	1	23-SEP-11	U
Benzo(a)anthracene	0.27	.27	mg/Kgdrywt	1	23-SEP-11	U
Benzo(a)pyrene	0.27	.27	mg/Kgdrywt	1	23-SEP-11	U
Benzo(b)fluoranthene	0.27	.27	mg/Kgdrywt	1	23-SEP-11	U
Benzo(g,h,i)perylene	0.27	.27	mg/Kgdrywt	1	23-SEP-11	U
Benzo(k)fluoranthene	0.27	.27	mg/Kgdrywt	1	23-SEP-11	U
Chrysene	0.27	.27	mg/Kgdrywt	1	23-SEP-11	U
Dibenzo(a,h)anthracene	0.27	.27	mg/Kgdrywt	1	23-SEP-11	U
Fluoranthene	0.27	.27	mg/Kgdrywt	1	23-SEP-11	U
Fluorene	0.27	.27	mg/Kgdrywt	1	23-SEP-11	U
Indeno(1,2,3-cd)pyrene	0.27	.27	mg/Kgdrywt	1	23-SEP-11	U
Pyrene	0.27	.27	mg/Kgdrywt	1	23-SEP-11	U

EPH Surrogate Recoveries	Recovery	Acceptance Range	Date Analyzed	Qual
5-alpha androstane	101	40-140	23-SEP-11	
o-Terphenyl	75	40-140	23-SEP-11	
2-Fluorobiphenyl	72	40-140	23-SEP-11	
2-Bromonaphthalene	73	40-140	23-SEP-11	

* Fractionation Surrogates.

1 Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.

2 C11-C22 Aromatic Hydrocarbons exclude the concentration of Target PAH Analytes.

3 Diesel PAH Analytes.

Katahdin ANALYTICAL SERVICES

REPORT OF ANALYTICAL RESULTS

Client: Zach Henderson
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

Lab Sample ID: SE5823-002
Report Date: 10/5/2011
PO No.:
Project: Capisic Pond / 203939

Sample Description	Matrix	Percent Solids(%)	Date Sampled	Date Received
SD-02	SL	68.1	09/14/2011	09/14/2011

Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	By	Prep Method	Prepped Date	By	QC	Notes
ARSENIC	8.6	mg/Kgdrywt	2.	2	0.8	SW846 6010	9/22/11	EAM	SW846 3050	9/21/11	NAT	BI21ICS1	
CADMIUM	U 2.33	mg/Kgdrywt	2.33	2	1	SW846 6010	9/22/11	EAM	SW846 3050	9/21/11	NAT	BI21ICS1	1
CHROMIUM	60.4	mg/Kgdrywt	3.50	2	1.5	SW846 6010	9/22/11	EAM	SW846 3050	9/21/11	NAT	BI21ICS1	
LEAD	18.	mg/Kgdrywt	1.	2	0.5	SW846 6010	9/22/11	EAM	SW846 3050	9/21/11	NAT	BI21ICS1	
MERCURY	U 0.054	ug/gdrywt	0.054	1	0.04	SW846 7471	9/28/11	NAT	SW846 7471	9/26/11	NAT	BI26HGS1	1

1 The laboratory's Practical Quantitation Level could not be achieved for this parameter due to sample composition, matrix effects,sample volume, or quantity used for analysis.

Report of Analytical Results

Client: Zach Henderson
Woodard & Curran
41 Hutchins Drive
Portland,ME 04102

Lab Sample ID: SE5823-2
Report Date: 03-OCT-11
Client PO:
Project: Capisic Pond / 203939
SDG: SE5823

Sample Description	Matrix	Date Sampled	Date Received
SD-02	SL	14-SEP-11	14-SEP-11

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Chromium, Hexavalent	U0.66 mg/Kgdrywt	0.66	0.20	SW846 7196A	WG98085	22-SEP-11 10:51:00	SW846 3060A	21-SEP-11	CT	
Phosphorus, Total As P	580 mg/Kgdrywt	35.	9.1	EPA 365.4	WG97751	20-SEP-11 15:20:49	EPA 365.4	19-SEP-11	CT	
Total Solids	68. %	1		SM2540G	WG97657	21-SEP-11 09:16:00	ASTM D2216	20-SEP-11	RO	

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Woodard & Curran
Project: Capisic Pond/203939
PO No:
Sample Date: 09/14/11
Received Date: 09/14/11
Extraction Date: 09/19/11
Analysis Date: 25-SEP-2011 14:19
Report Date: 10/06/2011
Matrix: SOIL
% Solids: 52.8

Lab ID: SE5823-3
Client ID: SD-03
SDG: SE5823
Extracted by: JMS
Extraction Method: SW846 3550
Analyst: WAS
Analysis Method: SW846 M8270C SIM
Lab Prep Batch: WG97583
Units: ug/Kgdrywt

Compound	Flags	Results	DF	PQL	Adj.PQL
Naphthalene	U	35	1.0	20	35
2-Methylnaphthalene	U	35	1.0	20	35
Acenaphthylene	U	35	1.0	20	35
Acenaphthene	U	35	1.0	20	35
Fluorene	U	35	1.0	20	35
Phenanthrene		150	1.0	20	35
Anthracene	U	35	1.0	20	35
Fluoranthene		310	1.0	20	35
Pyrene		280	1.0	20	35
Benzo(a)anthracene		150	1.0	20	35
Chrysene		240	1.0	20	35
Benzo(b)fluoranthene		400	1.0	20	35
Benzo(k)fluoranthene		140	1.0	20	35
Benzo(a)pyrene		200	1.0	20	35
Indeno(1,2,3-cd)pyrene		200	1.0	20	35
Dibenzo(a,h)anthracene		47	1.0	20	35
Benzo(g,h,i)perylene		130	1.0	20	35
2-Methylnaphthalene-D10		55%			
Fluorene-D10		43%			
Pyrene-D10		60%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Woodard & Curran
Project: Capisic Pond/ 203939
PO No:
Sample Date: 09/14/11
Received Date: 09/14/11
Extraction Date: 09/15/11
Analysis Date: 22-SEP-2011 00:58
Report Date: 10/04/2011
Matrix: SOIL
% Solids: 52.8

Lab ID: SE5823-3
Client ID: SD-03
SDG: SE5823
Extracted by: KD
Extraction Method: SW846 3540
Analyst: CB
Analysis Method: SW846 8082
Lab Prep Batch: WG97401
Units: ug/Kgdrywt

Compound	Flags	Results	DF	PQL	Adj.PQL
Aroclor-1016	U	31	1.0	17	31
Aroclor-1221	U	31	1.0	17	31
Aroclor-1232	U	31	1.0	17	31
Aroclor-1242	U	31	1.0	17	31
Aroclor-1248	U	31	1.0	17	31
Aroclor-1254	U	31	1.0	17	31
Aroclor-1260	U	31	1.0	17	31
Tetrachloro-m-xylene		88%			
Decachlorobiphenyl		82%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Woodard & Curran
Project: Capisic Pond / 203939
PO No:
Sample Date: 09/14/11
Received Date: 09/14/11
Extraction Date: 09/15/11
Analysis Date: 23-SEP-2011 15:27
Report Date: 10/12/2011
Matrix: SOIL
% Solids: 52.8

Lab ID: SE5823-3
Client ID: SD-03
SDG: SE5823
Extracted by: KD
Extraction Method: SW846 3540
Analyst: EKC
Analysis Method: SW846 8081A
Lab Prep Batch: WG97400
Units: ug/Kgdrywt

Compound	Flags	Results	DF	PQL	Adj.PQL
alpha-BHC	U	3.1	1.0	1.7	3.1
gamma-BHC	U	3.1	1.0	1.7	3.1
Heptachlor	U	3.1	1.0	1.7	3.1
Aldrin	U	3.1	1.0	1.7	3.1
beta-BHC	U	3.1	1.0	1.7	3.1
delta-BHC	U	3.1	1.0	1.7	3.1
Heptachlor Epoxide	U	3.1	1.0	1.7	3.1
Endosulfan I	U	3.1	1.0	1.7	3.1
gamma-Chlordane	U	3.1	1.0	1.7	3.1
alpha-Chlordane	U	3.1	1.0	1.7	3.1
4,4'-DDE		44	1.0	3.3	6.1
Dieldrin	U	6.1	1.0	3.3	6.1
Endrin	U	6.1	1.0	3.3	6.1
4,4'-DDD		56	1.0	3.3	6.1
Endosulfan II	U	6.1	1.0	3.3	6.1
4,4'-DDT	U	6.1	1.0	3.3	6.1
Endrin Aldehyde	U	6.1	1.0	3.3	6.1
Endosulfan sulfate	U	6.1	1.0	3.3	6.1
Methoxychlor	U	31	1.0	17	31
Endrin Ketone	U	6.1	1.0	3.3	6.1
Toxaphene	U	61	1.0	33	61
Tetrachloro-m-Xylene		75%			
Decachlorobiphenyl		89%			

Extractable Petroleum Hydrocarbon (EPH) Analysis

Client:	Woodard & Curran	**SDG:**	SE5823
Client Sample ID:	SD-03	**Date Collected:**	14-SEP-11
KAS Sample ID:	SE5823-3	**Date Received:**	14-SEP-11
Analytical Method:	MA DEP EPH 04-1.1	**Date Extracted:**	20-SEP-11
Prep Method:	SW846 3540	**Date Reported:**	04-OCT-11
Matrix:	SL	**Percent Solids:**	53.

EPH Range Results	Results	PQL	Units	DF	Date Analyzed	Qual
Unadjusted C11-C22 Aromatics	41	33	mg/Kgdrywt	1	23-SEP-11	
C9-C18 Aliphatics	33	33	mg/Kgdrywt	1	23-SEP-11	U
C19-C36 Aliphatics	100	33	mg/Kgdrywt	1	23-SEP-11	
C11-C22 Aromatics	40.	33	mg/Kgdrywt	1	23-SEP-11	

Targeted PAH Analytes	Results	PQL	Units	DF	Data Analyzed	Qual
Naphthalene	0.33	.33	mg/Kgdrywt	1	23-SEP-11	U
2-Methylnaphthalene	0.33	.33	mg/Kgdrywt	1	23-SEP-11	U
Phenanthrene	0.33	.33	mg/Kgdrywt	1	23-SEP-11	U
Acenaphthylene	0.33	.33	mg/Kgdrywt	1	23-SEP-11	U
Acenaphthene	0.33	.33	mg/Kgdrywt	1	23-SEP-11	U
Anthracene	0.33	.33	mg/Kgdrywt	1	23-SEP-11	U
Benzo(a)anthracene	0.33	.33	mg/Kgdrywt	1	23-SEP-11	U
Benzo(a)pyrene	0.33	.33	mg/Kgdrywt	1	23-SEP-11	U
Benzo(b)fluoranthene	0.33	.33	mg/Kgdrywt	1	23-SEP-11	U
Benzo(g,h,i)perylene	0.33	.33	mg/Kgdrywt	1	23-SEP-11	U
Benzo(k)fluoranthene	0.33	.33	mg/Kgdrywt	1	23-SEP-11	U
Chrysene	0.33	.33	mg/Kgdrywt	1	23-SEP-11	U
Dibenzo(a,h)anthracene	0.33	.33	mg/Kgdrywt	1	23-SEP-11	U
Fluoranthene	0.38	.33	mg/Kgdrywt	1	23-SEP-11	
Fluorene	0.33	.33	mg/Kgdrywt	1	23-SEP-11	U
Indeno(1,2,3-cd)pyrene	0.33	.33	mg/Kgdrywt	1	23-SEP-11	U
Pyrene	0.33	.33	mg/Kgdrywt	1	23-SEP-11	U

EPH Surrogate Recoveries	Recovery	Acceptance Range	Date Analyzed	Qual
5-alpha androstane	100	40-140	23-SEP-11	
o-Terphenyl	77	40-140	23-SEP-11	
2-Fluorobiphenyl	69	40-140	23-SEP-11	
2-Bromonaphthalene	71	40-140	23-SEP-11	

* Fractionation Surrogates.

1 Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.

2 C11-C22 Aromatic Hydrocarbons exclude the concentration of Target PAH Analytes.

3 Diesel PAH Analytes.

Katahdin ANALYTICAL SERVICES

REPORT OF ANALYTICAL RESULTS

Client: Zach Henderson
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

Lab Sample ID: SE5823-003
Report Date: 10/5/2011
PO No.:
Project: Capisic Pond / 203939

Sample Description	Matrix	Percent Solids(%)	Date Sampled	Date Received
SD-03	SL	52.8	09/14/2011	09/14/2011

Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	By	Prep Method	Prepped Date	By	QC	Notes
ARSENIC	8.4	mg/Kgdrywt	1.	1	0.8	SW846 6010	9/22/11	EAM	SW846 3050	9/21/11	NAT	BI21ICS1	
CADMIUM	U 1.75	mg/Kgdrywt	1.75	1	1	SW846 6010	9/22/11	EAM	SW846 3050	9/21/11	NAT	BI21ICS1	1
CHROMIUM	37.0	mg/Kgdrywt	2.63	1	1.5	SW846 6010	9/22/11	EAM	SW846 3050	9/21/11	NAT	BI21ICS1	
LEAD	51.9	mg/Kgdrywt	0.9	1	0.5	SW846 6010	9/22/11	EAM	SW846 3050	9/21/11	NAT	BI21ICS1	
MERCURY	0.072	ug/gdrywt	0.069	1	0.04	SW846 7471	9/28/11	NAT	SW846 7471	9/26/11	NAT	BI26HGS1	

1 The laboratory's Practical Quantitation Level could not be achieved for this parameter due to sample composition, matrix effects,sample volume, or quantity used for analysis.

Report of Analytical Results

Client: Zach Henderson
Woodard & Curran
41 Hutchins Drive
Portland,ME 04102

Lab Sample ID: SE5823-3
Report Date: 03-OCT-11
Client PO:
Project: Capisic Pond / 203939
SDG: SE5823

Sample Description	Matrix	Date Sampled	Date Received
SD-03	SL	14-SEP-11	14-SEP-11

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Chromium, Hexavalent	U0.94 mg/Kgdrywt	0.94	0.29	SW846 7196A	WG98085	22-SEP-11 10:52:00	SW846 3060A	21-SEP-11	CT	
Phosphorus, Total As P	720 mg/Kgdrywt	62.	16.	EPA 365.4	WG97751	20-SEP-11 15:21:46	EPA 365.4	19-SEP-11	CT	
Total Solids	53. %	1		SM2540G	WG97657	21-SEP-11 09:17:00	ASTM D2216	20-SEP-11	RO	

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Woodard & Curran
Project: Capisic Pond/203939
PO No:
Sample Date: 09/14/11
Received Date: 09/14/11
Extraction Date: 09/19/11
Analysis Date: 25-SEP-2011 15:01
Report Date: 10/06/2011
Matrix: SOIL
% Solids: 67.4

Lab ID: SE5823-4
Client ID: SD-04
SDG: SE5823
Extracted by: JMS
Extraction Method: SW846 3550
Analyst: WAS
Analysis Method: SW846 M8270C SIM
Lab Prep Batch: WG97583
Units: ug/Kgdrywt

Compound	Flags	Results	DF	PQL	Adj.PQL
Naphthalene	U	29	1.0	20	29
2-Methylnaphthalene	U	29	1.0	20	29
Acenaphthylene	U	29	1.0	20	29
Acenaphthene	U	29	1.0	20	29
Fluorene	U	29	1.0	20	29
Phenanthrene		37	1.0	20	29
Anthracene	U	29	1.0	20	29
Fluoranthene		75	1.0	20	29
Pyrene		64	1.0	20	29
Benzo(a)anthracene		34	1.0	20	29
Chrysene		35	1.0	20	29
Benzo(b)fluoranthene		62	1.0	20	29
Benzo(k)fluoranthene	U	29	1.0	20	29
Benzo(a)pyrene		44	1.0	20	29
Indeno(1,2,3-cd)pyrene		39	1.0	20	29
Dibenzo(a,h)anthracene	U	29	1.0	20	29
Benzo(g,h,i)perylene	U	29	1.0	20	29
2-Methylnaphthalene-D10		52%			
Fluorene-D10		44%			
Pyrene-D10		64%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Woodard & Curran
Project: Capisic Pond/ 203939
PO No:
Sample Date: 09/14/11
Received Date: 09/14/11
Extraction Date: 09/15/11
Analysis Date: 22-SEP-2011 01:19
Report Date: 10/04/2011
Matrix: SOIL
% Solids: 67.4

Lab ID: SE5823-4
Client ID: SD-04
SDG: SE5823
Extracted by: KD
Extraction Method: SW846 3540
Analyst: CB
Analysis Method: SW846 8082
Lab Prep Batch: WG97401
Units: ug/Kgdrywt

Compound	Flags	Results	DF	PQL	Adj.PQL
Aroclor-1016	U	25	1.0	17	25
Aroclor-1221	U	25	1.0	17	25
Aroclor-1232	U	25	1.0	17	25
Aroclor-1242	U	25	1.0	17	25
Aroclor-1248	U	25	1.0	17	25
Aroclor-1254	U	25	1.0	17	25
Aroclor-1260	U	25	1.0	17	25
Tetrachloro-m-xylene		88%			
Decachlorobiphenyl		72%			

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Woodard & Curran
Project: Capisic Pond / 203939
PO No:
Sample Date: 09/14/11
Received Date: 09/14/11
Extraction Date: 09/15/11
Analysis Date: 23-SEP-2011 15:47
Report Date: 10/11/2011
Matrix: SOIL
% Solids: 67.4

Lab ID: SE5823-4
Client ID: SD-04
SDG: SE5823
Extracted by: KD
Extraction Method: SW846 3540
Analyst: EKC
Analysis Method: SW846 8081A
Lab Prep Batch: WG97400
Units: ug/Kgdrywt

Compound	Flags	Results	DF	PQL	Adj.PQL
alpha-BHC	U	2.5	1.0	1.7	2.5
gamma-BHC	U	2.5	1.0	1.7	2.5
Heptachlor	U	2.5	1.0	1.7	2.5
Aldrin	U	2.5	1.0	1.7	2.5
beta-BHC	U	2.5	1.0	1.7	2.5
delta-BHC	U	2.5	1.0	1.7	2.5
Heptachlor Epoxide	U	2.5	1.0	1.7	2.5
Endosulfan I	U	2.5	1.0	1.7	2.5
gamma-Chlordane	U	2.5	1.0	1.7	2.5
alpha-Chlordane	U	2.5	1.0	1.7	2.5
4,4'-DDE	U	4.8	1.0	3.3	4.8
Dieldrin	U	4.8	1.0	3.3	4.8
Endrin	U	4.8	1.0	3.3	4.8
4,4'-DDD	U	4.8	1.0	3.3	4.8
Endosulfan II	U	4.8	1.0	3.3	4.8
4,4'-DDT	U	4.8	1.0	3.3	4.8
Endrin Aldehyde	U	4.8	1.0	3.3	4.8
Endosulfan sulfate	U	4.8	1.0	3.3	4.8
Methoxychlor	U	25	1.0	17	25
Endrin Ketone	U	4.8	1.0	3.3	4.8
Toxaphene	U	48	1.0	33	48
Tetrachloro-m-Xylene		74%			
Decachlorobiphenyl		86%			

Extractable Petroleum Hydrocarbon (EPH) Analysis

Client:	Woodard & Curran	**SDG:**	SE5823
Client Sample ID:	SD-04	**Date Collected:**	14-SEP-11
KAS Sample ID:	SE5823-4	**Date Received:**	14-SEP-11
Analytical Method:	MA DEP EPH 04-1.1	**Date Extracted:**	20-SEP-11
Prep Method:	SW846 3540	**Date Reported:**	04-OCT-11
Matrix:	SL	**Percent Solids:**	67.

EPH Range Results	Results	PQL	Units	DF	Date Analyzed	Qual
Unadjusted C11-C22 Aromatics	25	25	mg/Kgdrywt	1	23-SEP-11	U
C9-C18 Aliphatics	25	25	mg/Kgdrywt	1	23-SEP-11	U
C19-C36 Aliphatics	25	25	mg/Kgdrywt	1	23-SEP-11	U
C11-C22 Aromatics	25.	25	mg/Kgdrywt	1	23-SEP-11	U

Targeted PAH Analytes	Results	PQL	Units	DF	Data Analyzed	Qual
Naphthalene	0.25	.25	mg/Kgdrywt	1	23-SEP-11	U
2-Methylnaphthalene	0.25	.25	mg/Kgdrywt	1	23-SEP-11	U
Phenanthrene	0.25	.25	mg/Kgdrywt	1	23-SEP-11	U
Acenaphthylene	0.25	.25	mg/Kgdrywt	1	23-SEP-11	U
Acenaphthene	0.25	.25	mg/Kgdrywt	1	23-SEP-11	U
Anthracene	0.25	.25	mg/Kgdrywt	1	23-SEP-11	U
Benzo(a)anthracene	0.25	.25	mg/Kgdrywt	1	23-SEP-11	U
Benzo(a)pyrene	0.25	.25	mg/Kgdrywt	1	23-SEP-11	U
Benzo(b)fluoranthene	0.25	.25	mg/Kgdrywt	1	23-SEP-11	U
Benzo(g,h,i)perylene	0.25	.25	mg/Kgdrywt	1	23-SEP-11	U
Benzo(k)fluoranthene	0.25	.25	mg/Kgdrywt	1	23-SEP-11	U
Chrysene	0.25	.25	mg/Kgdrywt	1	23-SEP-11	U
Dibenzo(a,h)anthracene	0.25	.25	mg/Kgdrywt	1	23-SEP-11	U
Fluoranthene	0.25	.25	mg/Kgdrywt	1	23-SEP-11	U
Fluorene	0.25	.25	mg/Kgdrywt	1	23-SEP-11	U
Indeno(1,2,3-cd)pyrene	0.25	.25	mg/Kgdrywt	1	23-SEP-11	U
Pyrene	0.25	.25	mg/Kgdrywt	1	23-SEP-11	U

EPH Surrogate Recoveries	Recovery	Acceptance Range	Date Analyzed	Qual
5-alpha androstane	97	40-140	23-SEP-11	
o-Terphenyl	80	40-140	23-SEP-11	
2-Fluorobiphenyl	79	40-140	23-SEP-11	
2-Bromonaphthalene	80	40-140	23-SEP-11	

* Fractionation Surrogates.

1 Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.

2 C11-C22 Aromatic Hydrocarbons exclude the concentration of Target PAH Analytes.

3 Diesel PAH Analytes.

Katahdin ANALYTICAL SERVICES

REPORT OF ANALYTICAL RESULTS

Client: Zach Henderson
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

Lab Sample ID: SE5823-004
Report Date: 10/5/2011
PO No.:
Project: Capisic Pond / 203939

Sample Description	Matrix	Percent Solids(%)	Date Sampled	Date Received
SD-04	SL	67.4	09/14/2011	09/14/2011

Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	By	Prep Method	Prepped Date	By	QC	Notes
ARSENIC	5.8	mg/Kgdrywt	0.8	1	0.8	SW846 6010	9/22/11	EAM	SW846 3050	9/21/11	NAT	BI21ICS1	
CADMIUM	U 1.00	mg/Kgdrywt	1.00	1	1	SW846 6010	9/22/11	EAM	SW846 3050	9/21/11	NAT	BI21ICS1	
CHROMIUM	40.7	mg/Kgdrywt	1.50	1	1.5	SW846 6010	9/22/11	EAM	SW846 3050	9/21/11	NAT	BI21ICS1	
LEAD	26.1	mg/Kgdrywt	0.5	1	0.5	SW846 6010	9/22/11	EAM	SW846 3050	9/21/11	NAT	BI21ICS1	
MERCURY	U 0.052	ug/gdrywt	0.052	1	0.04	SW846 7471	9/28/11	NAT	SW846 7471	9/26/11	NAT	BI26HGS1	1

1 The laboratory's Practical Quantitation Level could not be achieved for this parameter due to sample composition, matrix effects,sample volume, or quantity used for analysis.

Report of Analytical Results

Client: Zach Henderson
Woodard & Curran
41 Hutchins Drive
Portland,ME 04102

Lab Sample ID: SE5823-4
Report Date: 03-OCT-11
Client PO:
Project: Capisic Pond / 203939
SDG: SE5823

Sample Description	Matrix	Date Sampled	Date Received
SD-04	SL	14-SEP-11	14-SEP-11

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
Chromium, Hexavalent	U0.72 mg/Kgdrywt	0.72	0.22	SW846 7196A	WG98085	22-SEP-11 10:53:00	SW846 3060A	21-SEP-11	CT	
Phosphorus, Total As P	600 mg/Kgdrywt	48.	12.	EPA 365.4	WG97751	20-SEP-11 15:22:43	EPA 365.4	19-SEP-11	CT	
Total Solids	67. %	1		SM2540G	WG97657	21-SEP-11 09:18:00	ASTM D2216	20-SEP-11	RO	

FORM 4
SEMIVOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE ID

WG97583-BLANK

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: CAPISIC POND/203939 SDG No.: SE5823

Lab File ID: N1683 Lab Sample ID: WG97583-1

Instrument ID: GCMS-N Date Extracted: 09/19/11

Matrix: (soil/water) SOIL Date Analyzed: 09/25/11

Level:(low/med) LOW Time Analyzed: 1047

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	WG97583-LCS	WG97583-2	N1684	09/25/11	1129
02	WG97583-LCSD	WG97583-3	N1685	09/25/11	1212
03	SD-01	SE5823-1	N1686	09/25/11	1254
04	SD-02	SE5823-2	N1687	09/25/11	1337
05	SD-03	SE5823-3	N1688	09/25/11	1419
06	SD-04	SE5823-4	N1689	09/25/11	1501
07	SD-01	SE5823-1DL	N1722	09/27/11	1624
08					
09					
10					
11					
12					
13					
14					
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23					
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29					
30					

COMMENTS:

FORM IVSV

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client:
Project: Capisic Pond/203939
PO No:
Sample Date:
Received Date:
Extraction Date: 09/19/11
Analysis Date: 25-SEP-2011 10:47
Report Date: 10/06/2011
Matrix: SOIL
% Solids: 100

Lab ID: WG97583-1
Client ID: WG97583-Blank
SDG: SE5823
Extracted by: JMS
Extraction Method: SW846 3550
Analyst: WAS
Analysis Method: SW846 M8270C SIM
Lab Prep Batch: WG97583
Units: ug/Kgdrywt

Compound	Flags	Results	DF	PQL	Adj.PQL
Naphthalene	U	20	1.0	20	20
2-Methylnaphthalene	U	20	1.0	20	20
Acenaphthylene	U	20	1.0	20	20
Acenaphthene	U	20	1.0	20	20
Fluorene	U	20	1.0	20	20
Phenanthrene	U	20	1.0	20	20
Anthracene	U	20	1.0	20	20
Fluoranthene	U	20	1.0	20	20
Pyrene	U	20	1.0	20	20
Benzo(a)anthracene	U	20	1.0	20	20
Chrysene	U	20	1.0	20	20
Benzo(b)fluoranthene	U	20	1.0	20	20
Benzo(k)fluoranthene	U	20	1.0	20	20
Benzo(a)pyrene	U	20	1.0	20	20
Indeno(1,2,3-cd)pyrene	U	20	1.0	20	20
Dibenzo(a,h)anthracene	U	20	1.0	20	20
Benzo(g,h,i)perylene	U	20	1.0	20	20
2-Methylnaphthalene-D10		52%			
Fluorene-D10		47%			
Pyrene-D10		60%			

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: Capisic Pond/203939
PO No:
Sample Date:
Received Date:
Extraction Date: 09/19/11
Analysis Date: 09/25/11
Report Date: 10/06/2011
Matrix: SOIL

Lab ID: WG97583-2 & WG97583-3
Client ID: WG97583-LCS & WG97583-LCSD
SDG: SE5823
Extracted by: JMS
Extraction Method: SW846 3550
Analyst: WAS
Analysis Method: SW846 M8270C SIM
Lab Prep Batch: WG97583
Units: ug/Kgdrywt

COMPOUND	LCS SPIKE	LCSD SPIKE	SAMPLE CONC.	LCS CONC.	LCSD CONC.	LCS %REC.	LCSD %REC.	%RPD	%RPD LIMIT	QC. LIMITS
Naphthalene	67	67	NA	41	49	62	73	16	50	10-129
2-Methylnaphthalene	67	67	NA	45	52	67	78	15	50	10-152
Acenaphthylene	67	67	NA	41	48	62	71	14	50	25- 94
Acenaphthene	67	67	NA	40	46	60	68	13	50	33- 98
Fluorene	67	67	NA	40	45	60	67	10	50	40- 92
Phenanthrene	67	67	NA	46	49	69	74	7	50	46- 96
Anthracene	67	67	NA	43	46	65	68	5	50	34- 96
Fluoranthene	67	67	NA	56	56	84	84	0.7	50	38-116
Pyrene	67	67	NA	38	43	58	65	12	50	35-111
Benzo(a)anthracene	67	67	NA	48	49	72	74	2	50	48-100
Chrysene	67	67	NA	48	50	72	75	4	30	46-101
Benzo(b)fluoranthene	67	67	NA	58	56	86	84	3	50	53-100
Benzo(k)fluoranthene	67	67	NA	46	46	68	68	0.2	50	49- 96
Benzo(a)pyrene	67	67	NA	58	49	87	73	17	50	61-101
Indeno(1,2,3-cd)pyrene	67	67	NA	51	53	76	80	5	50	50-105
Dibenzo(a,h)anthracene	67	67	NA	55	58	82	87	6	50	55-105
Benzo(g,h,i)perylene	67	67	NA	43	45	64	68	6	50	53-103

FORM III SV-2

N1684.D & N1685.D

FORM 4

PESTICIDE METHOD BLANK SUMMARY

CLIENT SAMPLE ID

WG97401-BLANK

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: CAPISIC POND/ 203939 SDG No.: SE5823

Lab Sample ID: WG97401-1 Lab File ID: 8EI00169

Matrix (soil/water) SOIL Extraction:(SepF/Cont/Sonc) SW846 3540

Sulfur Cleanup: (Y/N) N Date Extracted: 09/15/11

Date Analyzed (1): 09/21/11 Date Analyzed (2): 09/21/11

Time Analyzed (1): 1836 Time Analyzed (2): 1836

Instrument ID (1): GC08 Instrument ID (2): GC08

GC Column (1): ZB-MULTIRESIDUE1 ID: 0.53(mm) GC Column (2): ZB-MULTIRESIDUE2 ID: 0.53(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	WG97401-LCS	WG97401-2	8EI00170	09/21/11	09/21/11
02	WG97401-LCSD	WG97401-3	8EI00171	09/21/11	09/21/11
03	SD-01	SE5823-1	8EI00185	09/22/11	09/22/11
04	SD-02	SE5823-2	8EI00186	09/22/11	09/22/11
05	SD-03	SE5823-3	8EI00187	09/22/11	09/22/11
06	SD-04	SE5823-4	8EI00188	09/22/11	09/22/11
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COMMENTS: _____

FORM IVPCB

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client:
Project: Capisic Pond/ 203939
PO No:
Sample Date:
Received Date:
Extraction Date: 09/15/11
Analysis Date: 21-SEP-2011 18:36
Report Date: 10/04/2011
Matrix: SOIL
% Solids: 100

Lab ID: WG97401-1
Client ID: WG97401-Blank
SDG: SE5823
Extracted by: KD
Extraction Method: SW846 3540
Analyst: CB
Analysis Method: SW846 8082
Lab Prep Batch: WG97401
Units: ug/Kgdrywt

Compound	Flags	Results	DF	PQL	Adj.PQL
Aroclor-1016	U	3.4	1.0	17	3.4
Aroclor-1221	U	3.4	1.0	17	3.4
Aroclor-1232	U	3.4	1.0	17	3.4
Aroclor-1242	U	3.4	1.0	17	3.4
Aroclor-1248	U	3.4	1.0	17	3.4
Aroclor-1254	U	3.4	1.0	17	3.4
Aroclor-1260	U	3.4	1.0	17	3.4
Tetrachloro-m-xylene		85%			
Decachlorobiphenyl		97%			

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: Capisic Pond / 203939
PO No:
Sample Date:
Received Date:
Extraction Date: 09/15/11
Analysis Date: 09/21/11
Report Date: 10/08/2011
Matrix: SOIL

Lab ID: WG97401-2 & WG97401-3
Client ID: WG97401-LCS & WG97401-LCSD
SDG: SE5823
Extracted by: KD
Extraction Method: SW846 3540
Analyst: CB
Analysis Method: SW846 8082
Lab Prep Batch: WG97401
Units: ug/Kgdrywt

COMPOUND	LCS SPIKE	LCSD SPIKE	SAMPLE CONC.	LCS CONC.	LCSD CONC.	LCS %REC.	LCSD %REC.	%RPD	%RPD LIMIT	QC. LIMITS
Aroclor-1016	33	33	NA	32	37	94	111	16	50	53-123
Aroclor-1260	33	33	NA	37	38	111	115	3	50	58-120

FORM 4

SEMIVOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE ID

WG97628-BLANK

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: CAPISIC POND / 203939 SDG No.: SE5823

Lab File ID: CEI1184 Lab Sample ID: WG97628-1

Instrument ID: GC12 Date Extracted: 09/20/11

Matrix: (soil/water) SOIL Date Analyzed: 09/22/11

Level:(low/med) LOW Time Analyzed: 1545

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	WG97628-LCSD	WG97628-3	CEI1182	09/22/11	1218
02	WG97628-LCS	WG97628-2	CEI1186	09/22/11	1752
03	SD-01	SE5823-1	CEI1195	09/23/11	0319
04	SD-02	SE5823-2	CEI1196	09/23/11	0422
05	SD-03	SE5823-3	CEI1197	09/23/11	0524
06	SD-04	SE5823-4	CEI1198	09/23/11	0627
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COMMENTS:

FORM IVDRO

FORM 4

SEMIVOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE ID

WG97628-BLANK

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: CAPISIC POND / 203939 SDG No.: SE5823

Lab File ID: CEI1184A Lab Sample ID: WG97628-1

Instrument ID: GC12 Date Extracted: 09/20/11

Matrix: (soil/water) SOIL Date Analyzed: 09/22/11

Level:(low/med) LOW Time Analyzed: 1545

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	WG97628-LCSD	WG97628-3	CEI1182A	09/22/11	1218
02	WG97628-LCS	WG97628-2	CEI1186A	09/22/11	1752
03	SD-01	SE5823-1	CEI1195A	09/23/11	0319
04	SD-02	SE5823-2	CEI1196A	09/23/11	0422
05	SD-03	SE5823-3	CEI1197A	09/23/11	0524
06	SD-04	SE5823-4	CEI1198A	09/23/11	0627
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COMMENTS:

FORM IVDRO

FORM 4

SEMIVOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE ID

WG97628-BLANK

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: CAPISIC POND / 203939 SDG No.: SE5823

Lab File ID: CEI2184 Lab Sample ID: WG97628-1

Instrument ID: GC12 Date Extracted: 09/20/11

Matrix: (soil/water) SOIL Date Analyzed: 09/22/11

Level: (low/med) LOW Time Analyzed: 1545

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	WG97628-LCSD	WG97628-3	CEI2182	09/22/11	1218
02	WG97628-LCS	WG97628-2	CEI2186	09/22/11	1752
03	SD-01	SE5823-1	CEI2195	09/23/11	0319
04	SD-02	SE5823-2	CEI2196	09/23/11	0422
05	SD-03	SE5823-3	CEI2197	09/23/11	0524
06	SD-04	SE5823-4	CEI2198	09/23/11	0627
07					
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09					
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30					

COMMENTS:

FORM IVDRO

Blank Analysis

Client:	Katahdin Analytical Services	**SDG:**	SE5823
Client Sample ID:	Method Blank Sample	**Date Collected:**	
KAS Sample ID:	WG97628-1	**Date Received:**	
Analytical Method:	MA DEP EPH 04-1.1	**Date Extracted:**	20-SEP-11
Prep Method:	SW846 3540	**Date Reported:**	04-OCT-11
Matrix:	SL	**Percent Solids:**	NA

EPH Range Results	Results	PQL	Units	DF	Date Analyzed	Qual
Unadjusted C11-C22 Aromatics	20	20	mg/Kgdrywt	1	22-SEP-11 15:45	U
C9-C18 Aliphatics	20	20	mg/Kgdrywt	1	22-SEP-11 15:45	U
C19-C36 Aliphatics	20	20	mg/Kgdrywt	1	22-SEP-11 15:45	U
C11-C22 Aromatics	20.	20	mg/Kgdrywt	1	22-SEP-11 15:45	U

Targeted PAH Analytes	Results	PQL	Units	DF	Data Analyzed	Qual
Naphthalene	0.20	.2	mg/Kgdrywt	1	22-SEP-11 15:45	U
2-Methylnaphthalene	0.20	.2	mg/Kgdrywt	1	22-SEP-11 15:45	U
Phenanthrene	0.20	.2	mg/Kgdrywt	1	22-SEP-11 15:45	U
Acenaphthylene	0.20	.2	mg/Kgdrywt	1	22-SEP-11 15:45	U
Acenaphthene	0.20	.2	mg/Kgdrywt	1	22-SEP-11 15:45	U
Anthracene	0.20	.2	mg/Kgdrywt	1	22-SEP-11 15:45	U
Benzo(a)anthracene	0.20	.2	mg/Kgdrywt	1	22-SEP-11 15:45	U
Benzo(a)pyrene	0.20	.2	mg/Kgdrywt	1	22-SEP-11 15:45	U
Benzo(b)fluoranthene	0.20	.2	mg/Kgdrywt	1	22-SEP-11 15:45	U
Benzo(g,h,i)perylene	0.20	.2	mg/Kgdrywt	1	22-SEP-11 15:45	U
Benzo(k)fluoranthene	0.20	.2	mg/Kgdrywt	1	22-SEP-11 15:45	U
Chrysene	0.20	.2	mg/Kgdrywt	1	22-SEP-11 15:45	U
Dibenzo(a,h)anthracene	0.20	.2	mg/Kgdrywt	1	22-SEP-11 15:45	U
Fluoranthene	0.20	.2	mg/Kgdrywt	1	22-SEP-11 15:45	U
Fluorene	0.20	.2	mg/Kgdrywt	1	22-SEP-11 15:45	U
Indeno(1,2,3-cd)pyrene	0.20	.2	mg/Kgdrywt	1	22-SEP-11 15:45	U
Pyrene	0.20	.2	mg/Kgdrywt	1	22-SEP-11 15:45	U

EPH Surrogate Recoveries	Recovery	Acceptance Range	Date Analyzed	Qual
5-alpha androstane	81	40-140	22-SEP-11 15:45	
o-Terphenyl	61	40-140	22-SEP-11 15:45	
2-Fluorobiphenyl	73	40-140	22-SEP-11 15:45	
2-Bromonaphthalene	72	40-140	22-SEP-11 15:45	

* Fractionation Surrogates.

1 Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.

2 C11-C22 Aromatic Hydrocarbons exclude the concentration of Target PAH Analytes.

3 Diesel PAH Analytes.

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: Capisic Pond / 203939
PO No:
Sample Date:
Received Date:
Extraction Date: 09/20/11
Analysis Date: 09/22/11
Report Date: 10/04/2011
Matrix: SOIL

Lab ID: WG97628-2 & WG97628-3
Client ID: WG97628-LCS & WG97628-LCSD
SDG: SE5823
Extracted by: JMS
Extraction Method: SW846 3540
Analyst: AC
Analysis Method: MA DEP EPH 04-1.1
Lab Prep Batch: WG97628
Units: mg/Kgdrywt

COMPOUND	LCS SPIKE	LCSD SPIKE	SAMPLE CONC.	LCS CONC.	LCSD CONC.	LCS %REC.	LCSD %REC.	%RPD	%RPD LIMIT	QC. LIMITS
Unadjusted C11-C22 Aromatics	153	153	NA	114	116	74	76	2	25	40-140

FORM III DRO-2

CEI1186.d & CEI1182.d

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: Capisic Pond / 203939
PO No:
Sample Date:
Received Date:
Extraction Date: 09/20/11
Analysis Date: 09/22/11
Report Date: 10/04/2011
Matrix: SOIL

Lab ID: WG97628-2 & WG97628-3
Client ID: WG97628-LCS & WG97628-LCSD
SDG: SE5823
Extracted by: JMS
Extraction Method: SW846 3540
Analyst: AC
Analysis Method: MA DEP EPH 04-1.1
Lab Prep Batch: WG97628
Units: mg/Kgdrywt

COMPOUND	LCS SPIKE	LCSD SPIKE	SAMPLE CONC.	LCS CONC.	LCSD CONC.	LCS %REC.	LCSD %REC.	%RPD	%RPD LIMIT	QC. LIMITS
Naphthalene	9.0	9.0	NA	4.6	4.7	52	52	0.6	25	40-140
2-Methylnaphthalene	9.0	9.0	NA	4.8	4.8	53	53	1	25	40-140
Acenaphthylene	9.0	9.0	NA	4.8	4.9	53	54	1	25	40-140
Acenaphthene	9.0	9.0	NA	4.9	4.9	54	54	0.6	25	40-140
Fluorene	9.0	9.0	NA	5.2	5.5	58	61	4	25	40-140
Phenanthrene	9.0	9.0	NA	6.2	6.5	69	72	5	25	40-140
Anthracene	9.0	9.0	NA	6.7	7.0	74	77	4	25	40-140
Fluoranthene	9.0	9.0	NA	7.1	7.3	78	81	3	25	40-140
Pyrene	9.0	9.0	NA	7.0	7.2	77	80	3	25	40-140
Benzo(a)Anthracene	9.0	9.0	NA	8.4	8.6	93	95	2	25	40-140
Chrysene	9.0	9.0	NA	7.4	7.5	82	84	1	25	40-140
Benzo(b)Fluoranthene	9.0	9.0	NA	8.0	8.1	89	90	0.7	25	40-140
Benzo(k)Fluoranthene	9.0	9.0	NA	7.5	7.6	83	85	2	25	40-140
Benzo(a)Pyrene	9.0	9.0	NA	7.1	7.4	79	82	4	25	40-140
Indeno(1,2,3-cd)Pyrene	9.0	9.0	NA	7.6	7.8	85	87	2	25	40-140
Dibenzo(a,h)Anthracene	9.0	9.0	NA	7.5	7.7	84	85	2	25	40-140
Benzo(g,h,i)Perylene	9.0	9.0	NA	7.6	7.7	84	85	0.9	25	40-140

FORM III DRO-2

CEI1186a.d & CEI1182a.d

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: Capisic Pond / 203939
PO No:
Sample Date:
Received Date:
Extraction Date: 09/20/11
Analysis Date: 09/22/11
Report Date: 10/04/2011
Matrix: SOIL

Lab ID: WG97628-2 & WG97628-3
Client ID: WG97628-LCS & WG97628-LCSD
SDG: SE5823
Extracted by: JMS
Extraction Method: SW846 3540
Analyst: AC
Analysis Method: MA DEP EPH 04-1.1
Lab Prep Batch: WG97628
Units: mg/Kgdrywt

COMPOUND	LCS SPIKE	LCSD SPIKE	SAMPLE CONC.	LCS CONC.	LCSD CONC.	LCS %REC.	LCSD %REC.	%RPD	%RPD LIMIT	QC. LIMITS
C9-C18 Aliphatics	54	54	NA	41	46	75	84	12	25	40-140
C19-C36 Aliphatics	72	72	NA	55	60	76	83	9	25	40-140

FORM III DRO-2

CEI2186.d & CEI2182.d

FORM 4
PESTICIDE METHOD BLANK SUMMARY

CLIENT SAMPLE ID

| WG97400-BLANK |

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: CAPISIC POND / 203939 SDG No.: SE5823

Lab Sample ID: WG97400-1 Lab File ID: 1EI00445

Matrix (soil/water) SOIL Extraction:(SepF/Cont/Sonc) SW846 3540

Sulfur Cleanup: (Y/N) N Date Extracted: 09/15/11

Date Analyzed (1): 09/23/11 Date Analyzed (2): 09/23/11

Time Analyzed (1): 1251 Time Analyzed (2): 1251

Instrument ID (1): GC01 Instrument ID (2): GC01

GC Column (1): ZB-MULTIRESIDUE-2 ID: 0.53(mm) GC Column (2): ZB-MULTIRESIDUE-1 ID: 0.53(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	WG97400-LCS	WG97400-2	1EI00446	09/23/11	09/23/11
02	WG97400-LCSD	WG97400-3	1EI00447	09/23/11	09/23/11
03	SD-01	SE5823-1	1EI00451	09/23/11	09/23/11
04	SD-02	SE5823-2	1EI00452	09/23/11	09/23/11
05	SD-03	SE5823-3	1EI00453	09/23/11	09/23/11
06	SD-04	SE5823-4	1EI00454	09/23/11	09/23/11
07					
08					
09					
10					
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COMMENTS: _____

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client:
Project: Capisic Pond / 203939
PO No:
Sample Date:
Received Date:
Extraction Date: 09/15/11
Analysis Date: 23-SEP-2011 12:51
Report Date: 10/11/2011
Matrix: SOIL
% Solids: 100

Lab ID: WG97400-1
Client ID: WG97400-Blank
SDG: SE5823
Extracted by: KD
Extraction Method: SW846 3540
Analyst: EKC
Analysis Method: SW846 8081A
Lab Prep Batch: WG97400
Units: ug/Kgdrywt

Compound	Flags	Results	DF	PQL	Adj.PQL
alpha-BHC	U	0.34	1.0	1.7	0.34
gamma-BHC	U	0.34	1.0	1.7	0.34
Heptachlor	U	0.34	1.0	1.7	0.34
Aldrin	U	0.34	1.0	1.7	0.34
beta-BHC	U	0.34	1.0	1.7	0.34
delta-BHC	U	0.34	1.0	1.7	0.34
Heptachlor Epoxide	U	0.34	1.0	1.7	0.34
Endosulfan I	U	0.34	1.0	1.7	0.34
gamma-Chlordane	U	0.34	1.0	1.7	0.34
alpha-Chlordane	U	0.34	1.0	1.7	0.34
4,4'-DDE	U	0.66	1.0	3.3	0.66
Dieldrin	U	0.66	1.0	3.3	0.66
Endrin	U	0.66	1.0	3.3	0.66
4,4'-DDD	U	0.66	1.0	3.3	0.66
Endosulfan II	U	0.66	1.0	3.3	0.66
4,4'-DDT	U	0.66	1.0	3.3	0.66
Endrin Aldehyde	U	0.66	1.0	3.3	0.66
Endosulfan sulfate	U	0.66	1.0	3.3	0.66
Methoxychlor	U	3.4	1.0	17	3.4
Endrin Ketone	U	0.66	1.0	3.3	0.66
Toxaphene	U	6.6	1.0	33	6.6
Tetrachloro-m-Xylene		71%			
Decachlorobiphenyl		78%			

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: Capisic Pond / 203939
PO No:
Sample Date:
Received Date:
Extraction Date: 09/15/11
Analysis Date: 09/23/11
Report Date: 10/11/2011
Matrix: SOIL

Lab ID: WG97400-2 & WG97400-3
Client ID: WG97400-LCS & WG97400-LCSD
SDG: SE5823
Extracted by: KD
Extraction Method: SW846 3540
Analyst: EKC
Analysis Method: SW846 8081A
Lab Prep Batch: WG97400
Units: ug/Kgdrywt

COMPOUND	LCS SPIKE	LCSD SPIKE	SAMPLE CONC.	LCS CONC.	LCSD CONC.	LCS %REC.	LCSD %REC.		%RPD	%RPD LIMIT	QC. LIMITS
alpha-BHC	3.3	3.3	NA	2.2	2.5	68	75		10	50	31-128
gamma-BHC	3.3	3.3	NA	2.2	2.5	66	74		11	30	47- 98
beta-BHC	3.3	3.3	NA	2.3	2.6	69	79		13	50	53-106
delta-BHC	3.3	3.3	NA	2.5	2.8	74	82		11	50	34-123
Heptachlor	3.3	3.3	NA	2.2	2.0	66	60		10	50	47-101
Aldrin	3.3	3.3	NA	2.2	2.6	66	78		16	50	46- 91
Heptachlor Epoxide	3.3	3.3	NA	2.3	2.6	69	78		13	50	50- 96
gamma-Chlordane	3.3	3.3	NA	2.4	2.8	73	85		16	50	54- 96
alpha-Chlordane	3.3	3.3	NA	2.5	2.9	74	88		17	50	32-131
4,4'-DDE	3.3	3.3	NA	2.4	2.9	73	87		17	50	52-103
Endosulfan I	3.3	3.3	NA	2.2	2.2	67	67		0.4	50	23- 80
Dieldrin	3.3	3.3	NA	2.3	2.7	68	80		16	50	39-115
Endrin	3.3	3.3	NA	2.0	0.78	61	24	*	88	50	19-148
4,4'-DDD	3.3	3.3	NA	2.5	2.7	74	81		9	50	48-111
Endosulfan II	3.3	3.3	NA	2.3	2.7	70	80		13	50	33- 87
4,4'-DDT	3.3	3.3	NA	2.4	2.4	73	70		3	50	39-112
Endrin Aldehyde	3.3	3.3	NA	3.9	2.5	* 118	76		43	50	34- 91
Methoxychlor	3.3	3.3	NA	2.5	2.6	74	76		4	50	28-142
Endosulfan sulfate	3.3	3.3	NA	2.5	2.4	74	71		4	50	11-143
Endrin Ketone	3.3	3.3	NA	2.7	3.5	82	104		24	50	52-120

FORM III PESTICIDE-2

1EI00446.D & 1EI00447.D

Katahdin
ANALYTICAL SERVICES

PREPARATION BLANK REPORT

Sample ID: PBSBI21ICS1 **Batch ID:** BI21ICS1

Element Name	Result	Units	Flag	PQL	File
ALUMINUM	1.	mg/kgdrywt	U	30.0	IBI21B
ANTIMONY	0.2	mg/kgdrywt	U	0.800	IBI21B
ARSENIC	0.2	mg/kgdrywt	U	0.800	IBI21B
BARIUM	0.06	mg/kgdrywt	J	0.500	IBI21B
BERYLLIUM	0.003	mg/kgdrywt	U	0.500	IBI21B
BORON	0.3	mg/kgdrywt	J	10.0	IBI21B
CADMIUM	0.09	mg/kgdrywt	U	1.00	IBI21B
CALCIUM	14.	mg/kgdrywt	H	10.0	IBI21B
CHROMIUM	0.07	mg/kgdrywt	J	1.50	IBI21B
COBALT	0.03	mg/kgdrywt	U	3.00	IBI21B
COPPER	0.08	mg/kgdrywt	J	2.50	IBI21B
IRON	2.2	mg/kgdrywt	J	10.0	IBI21B
LEAD	0.1	mg/kgdrywt	U	0.500	IBI21B
LITHIUM	0.2	mg/kgdrywt	U	10.0	IBI21B
MAGNESIUM	4.0	mg/kgdrywt	J	10.0	IBI21B
MANGANESE	0.09	mg/kgdrywt	J	0.500	IBI21B
MOLYBDENUM	0.2	mg/kgdrywt	U	1.00	IBI21B
NICKEL	0.08	mg/kgdrywt	J	4.00	IBI21B
PALLADIUM	0.2	mg/kgdrywt	U	10.0	IBI21B
POTASSIUM	10.	mg/kgdrywt	U	100.	IBI21B
SELENIUM	0.2	mg/kgdrywt	U	1.00	IBI21B
SILICON	2.	mg/kgdrywt	J	20.0	IBI21B
SILVER	0.05	mg/kgdrywt	U	1.50	IBI21B
SODIUM	10.	mg/kgdrywt	U	100.	IBI21B
STRONTIUM	0.05	mg/kgdrywt	J	10.0	IBI21B
THALLIUM	0.2	mg/kgdrywt	U	1.50	IBI21B
TIN	3.0	mg/kgdrywt	J	10.0	IBI21B
TITANIUM	0.04	mg/kgdrywt	U	1.50	IBI21B
VANADIUM	0.04	mg/kgdrywt	U	2.50	IBI21B
ZINC	0.14	mg/kgdrywt	J	2.50	IBI21B

U The analyte was not detected in the sample at a level greater than the instrument detection limit.

J The analyte was detected in the sample at a concentration greater than the instrument detection limit, but less than the laboratory's Practical Quantitation Level.

H The analyte was detected in the sample at a concentration greater than the laboratory's acceptance limit.

Katahdin
ANALYTICAL SERVICES

LABORATORY CONTROL SAMPLE REPORT

Sample ID: LCSOBI21ICS1 **Batch ID:** BI21ICS1

Element Name	True Value	Result	Units	Recovery(%)	Flag	Limits (mg/kgdrywt)		File
ALUMINUM	200.	198.	mg/kgdrywt	99.0%		159	241	IBI21B
ANTIMONY	10.0	8.9	mg/kgdrywt	89.0%		7.95	12.0	IBI21B
ARSENIC	10.0	9.2	mg/kgdrywt	92.0%		7.95	12.0	IBI21B
BARIUM	200.	199.	mg/kgdrywt	99.5%		159	241	IBI21B
BERYLLIUM	5.00	4.97	mg/kgdrywt	99.4%		3.98	6.02	IBI21B
BORON	50.0	47.7	mg/kgdrywt	95.4%		39.8	60.2	IBI21B
CADMIUM	25.0	24.8	mg/kgdrywt	99.2%		19.9	30.1	IBI21B
CALCIUM	250.	261.	mg/kgdrywt	104.4%		199	301	IBI21B
CHROMIUM	20.0	20.1	mg/kgdrywt	100.5%		15.9	24.1	IBI21B
COBALT	50.0	50.6	mg/kgdrywt	101.2%		39.8	60.2	IBI21B
COPPER	25.0	24.7	mg/kgdrywt	98.8%		19.9	30.1	IBI21B
IRON	100.	101.	mg/kgdrywt	101.0%		79.5	120	IBI21B
LEAD	10.0	9.8	mg/kgdrywt	98.0%		7.95	12.0	IBI21B
LITHIUM	50.0	47.8	mg/kgdrywt	95.6%		39.8	60.2	IBI21B
MAGNESIUM	500.	494.	mg/kgdrywt	98.8%		398	602	IBI21B
MANGANESE	50.0	48.4	mg/kgdrywt	96.8%		39.8	60.2	IBI21B
MOLYBDENUM	30.0	29.1	mg/kgdrywt	97.0%		23.8	36.1	IBI21B
NICKEL	50.0	49.8	mg/kgdrywt	99.6%		39.8	60.2	IBI21B
PALLADIUM	50.0	47.7	mg/kgdrywt	95.4%		39.5	60	IBI21B
POTASSIUM	1000.	960.	mg/kgdrywt	96.0%		795	1200	IBI21B
SELENIUM	10.0	9.3	mg/kgdrywt	93.0%		7.95	12.0	IBI21B
SILICON	500.	423.	mg/kgdrywt	84.6%		398	602	IBI21B
SILVER	5.00	4.75	mg/kgdrywt	95.0%		3.98	6.02	IBI21B
SODIUM	750.	780.	mg/kgdrywt	104.0%		596	904	IBI21B
STRONTIUM	50.0	48.6	mg/kgdrywt	97.2%		39.8	60.2	IBI21B
THALLIUM	10.0	0.07	mg/kgdrywt	0.7%	L	7.95	12.0	IBI21B
TIN	50.0	52.7	mg/kgdrywt	105.4%		39.8	60.2	IBI21B
TITANIUM	50.0	57.0	mg/kgdrywt	114.0%		39.8	60	IBI21B
VANADIUM	50.0	48.4	mg/kgdrywt	96.8%		39.8	60.2	IBI21B
ZINC	50.0	50.5	mg/kgdrywt	101.0%		39.8	60.2	IBI21B

H Laboratory control sample recovery is greater than the laboratory's acceptance limit.

L Laboratory control sample recovery is less than the laboratory's acceptance limit.

Katahdin
ANALYTICAL SERVICES

PREPARATION BLANK REPORT

Sample ID: PBSBI26HGS1 **Batch ID:** BI26HGS1

Element Name	Result	Units	Flag	PQL	File
MERCURY	0.005	ug/gdrywt	U	0.04	HBI28A

U The analyte was not detected in the sample at a level greater than the instrument detection limit.

J The analyte was detected in the sample at a concentration greater than the instrument detection limit, but less than the laboratory's Practical Quantitation Level.

H The analyte was detected in the sample at a concentration greater than the laboratory's acceptance limit.

Katahdin
ANALYTICAL SERVICES

LABORATORY CONTROL SAMPLE REPORT

Sample ID: LCSOBI26HGS1 **Batch ID:** BI26HGS1

Element Name	True Value	Result	Units	Recovery(%)	Flag	Limits (ug/gdrywt)		File
MERCURY	0.83	0.863	ug/gdrywt	104.0%		0.663	1.00	HBI28A

H Laboratory control sample recovery is greater than the laboratory's acceptance limit.

L Laboratory control sample recovery is less than the laboratory's acceptance limit.

Katahdin
ANALYTICAL SERVICES

Cert No E87604

Quality Control Report

Blank Sample Summary Report

Chromium, Hexavalent

Samp Type	QC Batch	Anal. Method	Anal. Date	Prep. Date	Result	PQL
MBLANK	WG98085	SW846 7196A	22-SEP-11	21-SEP-11	U 0.36 mg/Kgdrywt	0.48 mg/Kgdr

Phosphorus, Total As P

Samp Type	QC Batch	Anal. Method	Anal. Date	Prep. Date	Result	PQL
MBLANK	WG97751	EPA 365.4	20-SEP-11	19-SEP-11	U 0.080 mg/L	0.10 mg/L

Total Solids

Samp Type	QC Batch	Anal. Method	Anal. Date	Prep. Date	Result	PQL
MBLANK	WG97657	ASTM D2216	21-SEP-11	20-SEP-11	U 1 %	1 %

Katahdin
ANALYTICAL SERVICES

Cert No E87604

Quality Control Report

Laboratory Control Sample Summary Report

Chromium, Hexavalent

Lab Sample Id	Samp Type	QC Batch	Analysis Date	Prep Date	Units	Spike Amt.	Result	Recovery	Acceptance Range	RPD
WG98085-2	LCS	WG98085	22-SEP-11	21-SEP-11	mg/Kgdrywt	40	40.	101	80-120	

Phosphorus, Total As P

Lab Sample Id	Samp Type	QC Batch	Analysis Date	Prep Date	Units	Spike Amt.	Result	Recovery	Acceptance Range	RPD
WG97751-2	LCS	WG97751	20-SEP-11	19-SEP-11	mg/L	.5	0.53	106	80-120	

Total Solids

Lab Sample Id	Samp Type	QC Batch	Analysis Date	Prep Date	Units	Spike Amt.	Result	Recovery	Acceptance Range	RPD
WG97657-2	LCS	WG97657	21-SEP-11	20-SEP-11	%	90	91.	101	80-120	
WG97657-3	LCSD	WG97657	21-SEP-11	20-SEP-11	%	90	91.	101	80-120	0

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

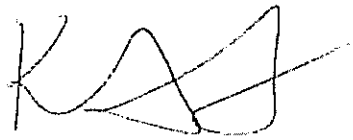
Job Number: 200-7019-1

SDG Number: SE5823

Job Description: Katahdin General Project

For:
Katahdin Analytical Services
PO BOX 540
600 Technology Way
Scarborough, ME 04074

Attention: Kelly Perkins



Approved for release.
Kathryn A Kelly
Project Manager I
9/27/2011 4:23 PM

Kathryn A Kelly
Project Manager I
kathryn.kelly@testamericainc.com
09/27/2011

CASE NARRATIVE

Client: Katahdin Analytical Services

Project: Katahdin General Project

Report Number: 200-7019-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 09/16/2011; the samples arrived in good condition. The temperature of the coolers at receipt was 17.2 C.

GRAIN SIZE
Samples SE5823-1, SE5823-2, SE5823-3 and SE5823-4 were analyzed for grain size in accordance with D422 grain size. The samples were analyzed on 09/22/2011.

No difficulties were encountered during the grain size analyses.

All quality control parameters were within the acceptance limits.

EXECUTIVE SUMMARY - Detections

Client: Katahdin Analytical Services

Job Number: 200-7019-1
Sdg Number: SE5823

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
200-7019-1	SE5823-1					
Sieve Size 3 inch - Percent Finer		100.0			% Passing	D422
Gravel		0.4			%	D422
Sieve Size 2 inch - Percent Finer		100.0			% Passing	D422
Sand		23.2			%	D422
Sieve Size 1.5 inch - Percent Finer		100.0			% Passing	D422
Coarse Sand		1.2			%	D422
Sieve Size 1 inch - Percent Finer		100.0			% Passing	D422
Medium Sand		5.6			%	D422
Sieve Size 0.75 inch - Percent Finer		100.0			% Passing	D422
Fine Sand		16.4			%	D422
Sieve Size 0.375 inch - Percent Finer		100.0			% Passing	D422
Silt		36.6			%	D422
Sieve Size #4 - Percent Finer		99.6			% Passing	D422
Clay		39.8			%	D422
Sieve Size #10 - Percent Finer		98.4			% Passing	D422
Sieve Size #20 - Percent Finer		96.2			% Passing	D422
Sieve Size #40 - Percent Finer		92.8			% Passing	D422
Sieve Size #60 - Percent Finer		90.6			% Passing	D422
Sieve Size #80 - Percent Finer		86.4			% Passing	D422
Sieve Size #100 - Percent Finer		84.1			% Passing	D422
Sieve Size #200 - Percent Finer		76.4			% Passing	D422
Hydrometer Reading 1 - Percent Finer		62.2			% Passing	D422
Hydrometer Reading 2 - Percent Finer		56.2			% Passing	D422
Hydrometer Reading 3 - Percent Finer		50.3			% Passing	D422
Hydrometer Reading 4 - Percent Finer		45.8			% Passing	D422
Hydrometer Reading 5 - Percent Finer		39.8			% Passing	D422
Hydrometer Reading 6 - Percent Finer		30.7			% Passing	D422
Hydrometer Reading 7 - Percent Finer		26.2			% Passing	D422

EXECUTIVE SUMMARY - Detections

Client: Katahdin Analytical Services

Job Number: 200-7019-1
Sdg Number: SE5823

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
200-7019-2	SE5823-2					
Sieve Size 3 inch - Percent Finer		100.0			% Passing	D422
Gravel		0.0			%	D422
Sieve Size 2 inch - Percent Finer		100.0			% Passing	D422
Sand		11.6			%	D422
Sieve Size 1.5 inch - Percent Finer		100.0			% Passing	D422
Coarse Sand		0.3			%	D422
Sieve Size 1 inch - Percent Finer		100.0			% Passing	D422
Medium Sand		2.5			%	D422
Sieve Size 0.75 inch - Percent Finer		100.0			% Passing	D422
Fine Sand		8.8			%	D422
Sieve Size 0.375 inch - Percent Finer		100.0			% Passing	D422
Silt		41.3			%	D422
Sieve Size #4 - Percent Finer		100.0			% Passing	D422
Clay		47.1			%	D422
Sieve Size #10 - Percent Finer		99.7			% Passing	D422
Sieve Size #20 - Percent Finer		98.5			% Passing	D422
Sieve Size #40 - Percent Finer		97.2			% Passing	D422
Sieve Size #60 - Percent Finer		95.6			% Passing	D422
Sieve Size #80 - Percent Finer		94.4			% Passing	D422
Sieve Size #100 - Percent Finer		93.4			% Passing	D422
Sieve Size #200 - Percent Finer		88.4			% Passing	D422
Hydrometer Reading 1 - Percent Finer		67.9			% Passing	D422
Hydrometer Reading 2 - Percent Finer		63.4			% Passing	D422
Hydrometer Reading 3 - Percent Finer		57.5			% Passing	D422
Hydrometer Reading 4 - Percent Finer		53.0			% Passing	D422
Hydrometer Reading 5 - Percent Finer		47.1			% Passing	D422
Hydrometer Reading 6 - Percent Finer		36.6			% Passing	D422
Hydrometer Reading 7 - Percent Finer		35.1			% Passing	D422

EXECUTIVE SUMMARY - Detections

Client: Katahdin Analytical Services

Job Number: 200-7019-1
Sdg Number: SE5823

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
200-7019-3	SE5823-3					
Sieve Size 3 inch - Percent Finer		100.0			% Passing	D422
Gravel		4.4			%	D422
Sieve Size 2 inch - Percent Finer		100.0			% Passing	D422
Sand		14.7			%	D422
Sieve Size 1.5 inch - Percent Finer		100.0			% Passing	D422
Coarse Sand		0.7			%	D422
Sieve Size 1 inch - Percent Finer		100.0			% Passing	D422
Medium Sand		4.5			%	D422
Sieve Size 0.75 inch - Percent Finer		100.0			% Passing	D422
Fine Sand		9.5			%	D422
Sieve Size 0.375 inch - Percent Finer		97.7			% Passing	D422
Silt		44.9			%	D422
Sieve Size #4 - Percent Finer		95.6			% Passing	D422
Clay		36.0			%	D422
Sieve Size #10 - Percent Finer		94.9			% Passing	D422
Sieve Size #20 - Percent Finer		93.3			% Passing	D422
Sieve Size #40 - Percent Finer		90.4			% Passing	D422
Sieve Size #60 - Percent Finer		89.0			% Passing	D422
Sieve Size #80 - Percent Finer		86.2			% Passing	D422
Sieve Size #100 - Percent Finer		85.3			% Passing	D422
Sieve Size #200 - Percent Finer		80.9			% Passing	D422
Hydrometer Reading 1 - Percent Finer		65.2			% Passing	D422
Hydrometer Reading 2 - Percent Finer		57.9			% Passing	D422
Hydrometer Reading 3 - Percent Finer		50.6			% Passing	D422
Hydrometer Reading 4 - Percent Finer		43.3			% Passing	D422
Hydrometer Reading 5 - Percent Finer		36.0			% Passing	D422
Hydrometer Reading 6 - Percent Finer		25.0			% Passing	D422
Hydrometer Reading 7 - Percent Finer		15.9			% Passing	D422

EXECUTIVE SUMMARY - Detections

Client: Katahdin Analytical Services

Job Number: 200-7019-1
Sdg Number: SE5823

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
200-7019-4	SE5823-4					
Sieve Size 3 inch - Percent Finer		100.0			% Passing	D422
Gravel		0.0			%	D422
Sieve Size 2 inch - Percent Finer		100.0			% Passing	D422
Sand		1.8			%	D422
Sieve Size 1.5 inch - Percent Finer		100.0			% Passing	D422
Coarse Sand		0.0			%	D422
Sieve Size 1 inch - Percent Finer		100.0			% Passing	D422
Medium Sand		0.1			%	D422
Sieve Size 0.75 inch - Percent Finer		100.0			% Passing	D422
Fine Sand		1.7			%	D422
Sieve Size 0.375 inch - Percent Finer		100.0			% Passing	D422
Silt		46.3			%	D422
Sieve Size #4 - Percent Finer		100.0			% Passing	D422
Clay		51.9			%	D422
Sieve Size #10 - Percent Finer		100.0			% Passing	D422
Sieve Size #20 - Percent Finer		99.9			% Passing	D422
Sieve Size #40 - Percent Finer		99.9			% Passing	D422
Sieve Size #60 - Percent Finer		99.9			% Passing	D422
Sieve Size #80 - Percent Finer		99.9			% Passing	D422
Sieve Size #100 - Percent Finer		99.8			% Passing	D422
Sieve Size #200 - Percent Finer		98.2			% Passing	D422
Hydrometer Reading 1 - Percent Finer		83.4			% Passing	D422
Hydrometer Reading 2 - Percent Finer		76.4			% Passing	D422
Hydrometer Reading 3 - Percent Finer		65.9			% Passing	D422
Hydrometer Reading 4 - Percent Finer		58.9			% Passing	D422
Hydrometer Reading 5 - Percent Finer		51.9			% Passing	D422
Hydrometer Reading 6 - Percent Finer		36.2			% Passing	D422
Hydrometer Reading 7 - Percent Finer		30.9			% Passing	D422

METHOD SUMMARY

Client: Katahdin Analytical Services

Job Number: 200-7019-1
Sdg Number: SE5823

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Grain Size	TAL BUR	ASTM D422	

Lab References:

TAL BUR = TestAmerica Burlington

Method References:

ASTM = ASTM International

METHOD / ANALYST SUMMARY

Client: Katahdin Analytical Services

Job Number: 200-7019-1
Sdg Number: SE5823

Method	Analyst	Analyst ID
ASTM D422	Bourdeau, Timothy P	TPB

SAMPLE SUMMARY

Client: Katahdin Analytical Services

Job Number: 200-7019-1
Sdg Number: SE5823

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
200-7019-1	SE5823-1	Solid	09/14/2011 0820	09/16/2011 0922
200-7019-2	SE5823-2	Solid	09/14/2011 0905	09/16/2011 0922
200-7019-3	SE5823-3	Solid	09/14/2011 1140	09/16/2011 0922
200-7019-4	SE5823-4	Solid	09/14/2011 1020	09/16/2011 0922

SAMPLE RESULTS

Client: Katahdin Analytical Services

Job Number: 200-7019-1
Sdg Number: SE5823

Client Sample ID: SE5823-1
Lab Sample ID: 200-7019-1
Client Matrix: Solid

Date Sampled: 09/14/2011 0820
Date Received: 09/16/2011 0922

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-25733	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	200-7019-A-1.txt
Dilution:	1.0			Initial Weight/Volume:	69.6 g
Analysis Date:	09/22/2011 0002			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (% Passing)	Qualifier	NONE	NONE
Sieve Size 3 inch - Percent Finer		100.0			
Sieve Size 2 inch - Percent Finer		100.0			
Sieve Size 1.5 inch - Percent Finer		100.0			
Sieve Size 1 inch - Percent Finer		100.0			
Sieve Size 0.75 inch - Percent Finer		100.0			
Sieve Size 0.375 inch - Percent Finer		100.0			
Sieve Size #4 - Percent Finer		99.6			
Sieve Size #10 - Percent Finer		98.4			
Sieve Size #20 - Percent Finer		96.2			
Sieve Size #40 - Percent Finer		92.8			
Sieve Size #60 - Percent Finer		90.6			
Sieve Size #80 - Percent Finer		86.4			
Sieve Size #100 - Percent Finer		84.1			
Sieve Size #200 - Percent Finer		76.4			
Hydrometer Reading 1 - Percent Finer		62.2			
Hydrometer Reading 2 - Percent Finer		56.2			
Hydrometer Reading 3 - Percent Finer		50.3			
Hydrometer Reading 4 - Percent Finer		45.8			
Hydrometer Reading 5 - Percent Finer		39.8			
Hydrometer Reading 6 - Percent Finer		30.7			
Hydrometer Reading 7 - Percent Finer		26.2			

Client: Katahdin Analytical Services

Job Number: 200-7019-1
Sdg Number: SE5823

Client Sample ID: SE5823-1

Lab Sample ID: 200-7019-1
Client Matrix: Solid

Date Sampled: 09/14/2011 0820
Date Received: 09/16/2011 0922

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-25733	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	200-7019-A-1.txt
Dilution:	1.0			Initial Weight/Volume:	69.6 g
Analysis Date:	09/22/2011 0002			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (%)	Qualifier	NONE	NONE
Gravel		0.4			
Sand		23.2			
Coarse Sand		1.2			
Medium Sand		5.6			
Fine Sand		16.4			
Silt		36.6			
Clay		39.8			

Client: Katahdin Analytical Services

Job Number: 200-7019-1
Sdg Number: SE5823

Client Sample ID: SE5823-2

Lab Sample ID: 200-7019-2
Client Matrix: Solid

Date Sampled: 09/14/2011 0905
Date Received: 09/16/2011 0922

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-25733	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	200-7019-A-2.txt
Dilution:	1.0			Initial Weight/Volume:	84.61 g
Analysis Date:	09/22/2011 0003			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (% Passing)	Qualifier	NONE	NONE
Sieve Size 3 inch - Percent Finer		100.0			
Sieve Size 2 inch - Percent Finer		100.0			
Sieve Size 1.5 inch - Percent Finer		100.0			
Sieve Size 1 inch - Percent Finer		100.0			
Sieve Size 0.75 inch - Percent Finer		100.0			
Sieve Size 0.375 inch - Percent Finer		100.0			
Sieve Size #4 - Percent Finer		100.0			
Sieve Size #10 - Percent Finer		99.7			
Sieve Size #20 - Percent Finer		98.5			
Sieve Size #40 - Percent Finer		97.2			
Sieve Size #60 - Percent Finer		95.6			
Sieve Size #80 - Percent Finer		94.4			
Sieve Size #100 - Percent Finer		93.4			
Sieve Size #200 - Percent Finer		88.4			
Hydrometer Reading 1 - Percent Finer		67.9			
Hydrometer Reading 2 - Percent Finer		63.4			
Hydrometer Reading 3 - Percent Finer		57.5			
Hydrometer Reading 4 - Percent Finer		53.0			
Hydrometer Reading 5 - Percent Finer		47.1			
Hydrometer Reading 6 - Percent Finer		36.6			
Hydrometer Reading 7 - Percent Finer		35.1			

Client: Katahdin Analytical Services

Job Number: 200-7019-1
Sdg Number: SE5823

Client Sample ID: SE5823-2

Lab Sample ID: 200-7019-2
Client Matrix: Solid

Date Sampled: 09/14/2011 0905
Date Received: 09/16/2011 0922

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-25733	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	200-7019-A-2.txt
Dilution:	1.0			Initial Weight/Volume:	84.61 g
Analysis Date:	09/22/2011 0003			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (%)	Qualifier	NONE	NONE
Gravel		0.0			
Sand		11.6			
Coarse Sand		0.3			
Medium Sand		2.5			
Fine Sand		8.8			
Silt		41.3			
Clay		47.1			

Client: Katahdin Analytical Services

Job Number: 200-7019-1
Sdg Number: SE5823

Client Sample ID: SE5823-3
Lab Sample ID: 200-7019-3
Client Matrix: Solid

Date Sampled: 09/14/2011 1140
Date Received: 09/16/2011 0922

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-25733	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	200-7019-A-3.txt
Dilution:	1.0			Initial Weight/Volume:	79.11 g
Analysis Date:	09/22/2011 0004			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (% Passing)	Qualifier	NONE	NONE
Sieve Size 3 inch - Percent Finer		100.0			
Sieve Size 2 inch - Percent Finer		100.0			
Sieve Size 1.5 inch - Percent Finer		100.0			
Sieve Size 1 inch - Percent Finer		100.0			
Sieve Size 0.75 inch - Percent Finer		100.0			
Sieve Size 0.375 inch - Percent Finer		97.7			
Sieve Size #4 - Percent Finer		95.6			
Sieve Size #10 - Percent Finer		94.9			
Sieve Size #20 - Percent Finer		93.3			
Sieve Size #40 - Percent Finer		90.4			
Sieve Size #60 - Percent Finer		89.0			
Sieve Size #80 - Percent Finer		86.2			
Sieve Size #100 - Percent Finer		85.3			
Sieve Size #200 - Percent Finer		80.9			
Hydrometer Reading 1 - Percent Finer		65.2			
Hydrometer Reading 2 - Percent Finer		57.9			
Hydrometer Reading 3 - Percent Finer		50.6			
Hydrometer Reading 4 - Percent Finer		43.3			
Hydrometer Reading 5 - Percent Finer		36.0			
Hydrometer Reading 6 - Percent Finer		25.0			
Hydrometer Reading 7 - Percent Finer		15.9			

Client: Katahdin Analytical Services

Job Number: 200-7019-1
Sdg Number: SE5823

Client Sample ID: SE5823-3

Lab Sample ID: 200-7019-3
Client Matrix: Solid

Date Sampled: 09/14/2011 1140
Date Received: 09/16/2011 0922

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-25733	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	200-7019-A-3.txt
Dilution:	1.0			Initial Weight/Volume:	79.11 g
Analysis Date:	09/22/2011 0004			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (%)	Qualifier	NONE	NONE
Gravel		4.4			
Sand		14.7			
Coarse Sand		0.7			
Medium Sand		4.5			
Fine Sand		9.5			
Silt		44.9			
Clay		36.0			

Client: Katahdin Analytical Services

Job Number: 200-7019-1
Sdg Number: SE5823

Client Sample ID: SE5823-4

Lab Sample ID: 200-7019-4
Client Matrix: Solid

Date Sampled: 09/14/2011 1020
Date Received: 09/16/2011 0922

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-25733	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	200-7019-A-4.txt
Dilution:	1.0			Initial Weight/Volume:	67.41 g
Analysis Date:	09/22/2011 0005			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (% Passing)	Qualifier	NONE	NONE
Sieve Size 3 inch - Percent Finer		100.0			
Sieve Size 2 inch - Percent Finer		100.0			
Sieve Size 1.5 inch - Percent Finer		100.0			
Sieve Size 1 inch - Percent Finer		100.0			
Sieve Size 0.75 inch - Percent Finer		100.0			
Sieve Size 0.375 inch - Percent Finer		100.0			
Sieve Size #4 - Percent Finer		100.0			
Sieve Size #10 - Percent Finer		100.0			
Sieve Size #20 - Percent Finer		99.9			
Sieve Size #40 - Percent Finer		99.9			
Sieve Size #60 - Percent Finer		99.9			
Sieve Size #80 - Percent Finer		99.9			
Sieve Size #100 - Percent Finer		99.8			
Sieve Size #200 - Percent Finer		98.2			
Hydrometer Reading 1 - Percent Finer		83.4			
Hydrometer Reading 2 - Percent Finer		76.4			
Hydrometer Reading 3 - Percent Finer		65.9			
Hydrometer Reading 4 - Percent Finer		58.9			
Hydrometer Reading 5 - Percent Finer		51.9			
Hydrometer Reading 6 - Percent Finer		36.2			
Hydrometer Reading 7 - Percent Finer		30.9			

Client: Katahdin Analytical Services

Job Number: 200-7019-1
Sdg Number: SE5823

Client Sample ID: SE5823-4
Lab Sample ID: 200-7019-4
Client Matrix: Solid

Date Sampled: 09/14/2011 1020
Date Received: 09/16/2011 0922

D422 Grain Size

Analysis Method:	D422	Analysis Batch:	200-25733	Instrument ID:	D422_import
	N/A	Prep Batch:	N/A	Lab File ID:	200-7019-A-4.txt
Dilution:	1.0			Initial Weight/Volume:	67.41 g
Analysis Date:	09/22/2011 0005			Final Weight/Volume:	
Prep Date:	N/A				

Analyte	DryWt Corrected: N	Result (%)	Qualifier	NONE	NONE
Gravel		0.0			
Sand		1.8			
Coarse Sand		0.0			
Medium Sand		0.1			
Fine Sand		1.7			
Silt		46.3			
Clay		51.9			

Particle Size of Soils by ASTM D422

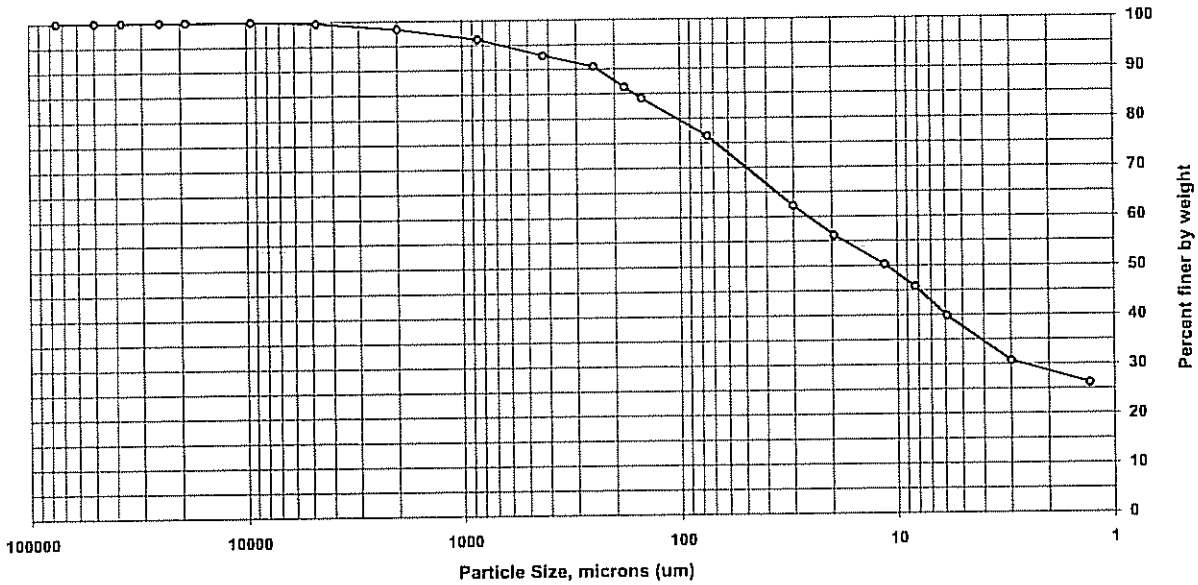
Sample ID: SE5823-1
Lab ID: 200-7019-A-1

Percent Solids: 77.3%
Specific Gravity: 2.650

Date Received: 9/16/2011
Start Date: 9/22/2011
End Date: 9/24/2011

Shape (> #10): subangular

Non-soil material: plant
Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	99.6	0.4
#10	2000	98.4	1.2
#20	850	96.2	2.2
#40	425	92.8	3.4
#60	250	90.6	2.2
#80	180	86.4	4.2
#100	150	84.1	2.3
#200	75	76.4	7.7
Hyd1	30.1	62.2	14.2
Hyd2	19.5	56.2	6.0
Hyd3	11.5	50.3	5.9
Hyd4	8.3	45.8	4.5
Hyd5	5.9	39.8	6.0
Hyd6	3	30.7	9.1
Hyd7	1.3	26.2	4.5

Soil Classification	Percent of sample
Gravel	0.4
Sand	23.2
Coarse Sand	1.2
Medium Sand	5.6
Fine Sand	16.4
Silt	36.6
Clay	39.8

Particle Size of Soils by ASTM D422

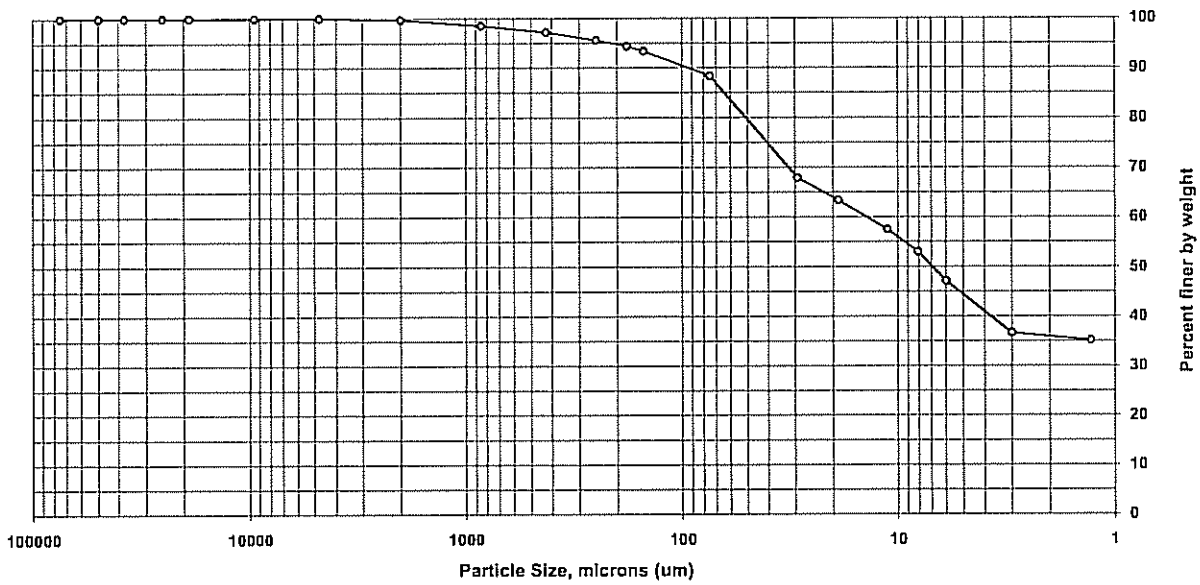
Sample ID: SE5823-2
Lab ID: 200-7019-A-2

Percent Solids: 63.9%
Specific Gravity: 2.650

Date Received: 9/16/2011
Start Date: 9/22/2011
End Date: 9/24/2011

Shape (> #10): subangular

Non-soil material: N/A
Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	99.7	0.3
#20	850	98.5	1.2
#40	425	97.2	1.3
#60	250	95.6	1.6
#80	180	94.4	1.2
#100	150	93.4	1.0
#200	75	88.4	5.0
Hyd1	29.3	67.9	20.5
Hyd2	18.9	63.4	4.5
Hyd3	11.2	57.5	5.9
Hyd4	8.1	53.0	4.5
Hyd5	6	47.1	5.9
Hyd6	3	36.6	10.5
Hyd7	1.3	35.1	1.5

Soil Classification	Percent of sample
Gravel	0.0
Sand	11.6
Coarse Sand	0.3
Medium Sand	2.5
Fine Sand	8.8
Silt	41.3
Clay	47.1

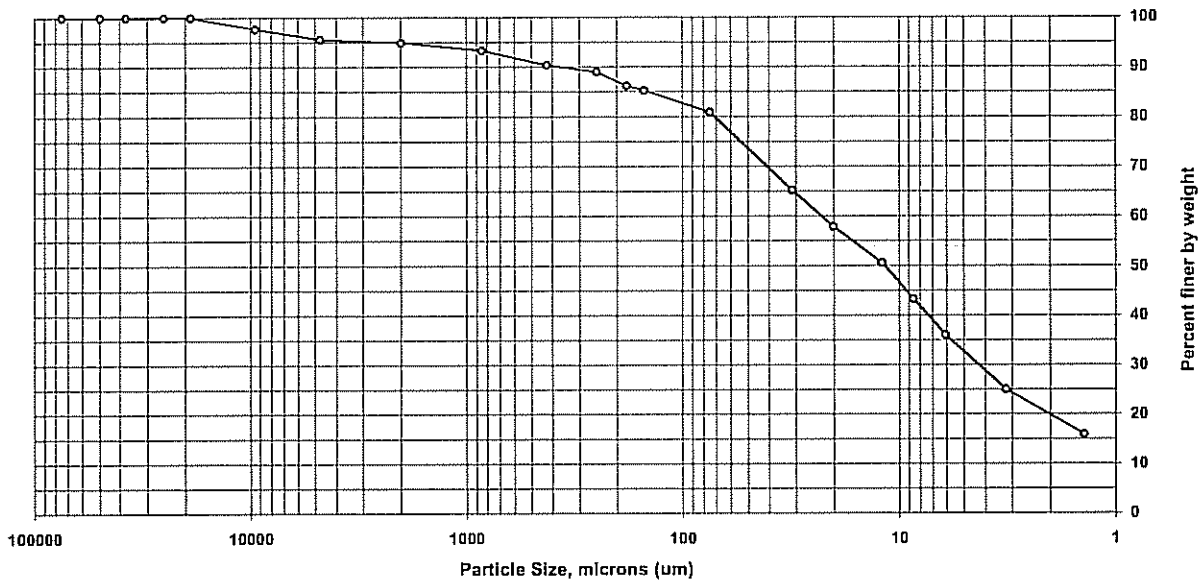
Particle Size of Soils by ASTM D422

Sample ID:	SE5823-3	Percent Solids:	55.5%	Date Received:	9/16/2011
Lab ID:	200-7019-A-3	Specific Gravity:	2.650	Start Date:	9/22/2011
				End Date:	9/24/2011

Shape (> #10): subangular

Non-soil material: plant,shell

Hardness (> #10): hard



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	97.7	2.3
#4	4750	95.6	2.1
#10	2000	94.9	0.7
#20	850	93.3	1.6
#40	425	90.4	2.9
#60	250	89.0	1.4
#80	180	86.2	2.8
#100	150	85.3	0.9
#200	75	80.9	4.4
Hyd1	31.2	65.2	15.7
Hyd2	20.2	57.9	7.3
Hyd3	12	50.6	7.3
Hyd4	8.6	43.3	7.3
Hyd5	6.1	36.0	7.3
Hyd6	3.2	25.0	11.0
Hyd7	1.4	15.9	9.1

Soil Classification	Percent of sample
Gravel	4.4
Sand	14.7
Coarse Sand	0.7
Medium Sand	4.5
Fine Sand	9.5
Silt	44.9
Clay	36.0

Particle Size of Soils by ASTM D422

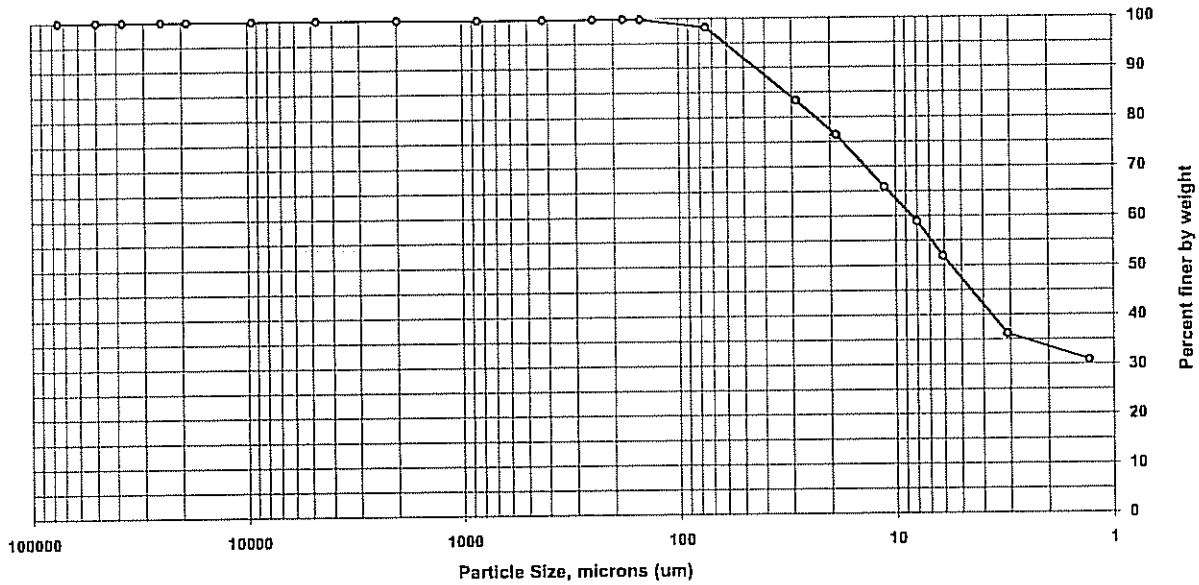
Sample ID: SE5823-4
Lab ID: 200-7019-A-4

Percent Solids: 68.1%
Specific Gravity: 2.650

Date Received: 9/16/2011
Start Date: 9/22/2011
End Date: 9/24/2011

Shape (> #10): N/A

Non-soil material: N/A
Hardness (> #10): N/A



Sieve size	Particle size, um	Percent finer	Incremental percent
3 inch	75000	100.0	0.0
2 inch	50000	100.0	0.0
1.5 inch	37500	100.0	0.0
1 inch	25000	100.0	0.0
3/4 inch	19000	100.0	0.0
3/8 inch	9500	100.0	0.0
#4	4750	100.0	0.0
#10	2000	100.0	0.0
#20	850	99.9	0.1
#40	425	99.9	0.0
#60	250	99.9	0.0
#80	180	99.9	0.0
#100	150	99.8	0.1
#200	75	98.2	1.6
Hyd1	26.8	83.4	14.8
Hyd2	18.8	76.4	7.0
Hyd3	11.3	65.9	10.5
Hyd4	8	58.9	7.0
Hyd5	6.1	51.9	7.0
Hyd6	3.1	36.2	15.7
Hyd7	1.3	30.9	5.3

Soil Classification	Percent of sample
Gravel	0.0
Sand	1.8
Coarse Sand	0.0
Medium Sand	0.1
Fine Sand	1.7
Silt	46.3
Clay	51.9

Sediment Grain Size - D422

Client	
Client Sample ID	SE5823-1
Lab Sample ID	200-7019-A-1

Date Received	9/16/2011
Start Date	09/22/2011 0:02
End Date	09/24/2011 0:17

Dry Weight Determination

Tin Weight	0.99 g
Wet Sample + Tin	31.98 g
Dry Sample + Tin	24.94 g
% Moisture	22.72 %

Non-soil material:	plant
Shape (> #10):	subangular
Hardness (> #10):	hard
Date/Time in oven	09/22/2011 0:03
Date/Time out of oven	09/22/2011 17:43

Sample Weights	Tare (g)	Pan+Samp (g)	Samp (g)
Sample Weight (Wet)		69.60	69.6
Sample Weight (Oven Dried)			53.8

Sample Split (oven dried)	Tare (g)	Pan+Samp (g)	Samp (g)
Sample >=#10			0.88
Sample <#10			52.9
% Passing #10			76

Hydrometer Data

Serial Number	741402
Calib. Date (mm/dd/yyyy)	12/21/2010
Low Temp (C)	17.0
Reading at Low Temp	1.0035
High Temp (C)	23.0
Reading at High Temp	1.0030
Hydrometer Cal Slope	-8.33333E-05
Hydrometer Cal Intercept	1.004916667
Default Soil Gravity	2.6500

Gravel/Sand Fraction (Sieves)

Sample Fraction	Size (um)	Pan Tare (g)	Pan+Sample (g)	Sample	% Finer	Classification	Sub Class
3 inch	75000			0.00 g	100.0	Gravel	
2 inch	50000			0.00 g	100.0	Gravel	
1.5 inch	37500			0.00 g	100.0	Gravel	
1 inch	25000			0.00 g	100.0	Gravel	
3/4 inch	19000			0.00 g	100.0	Gravel	
3/8 inch	9500			0.00 g	100.0	Gravel	
#4	4750	488.23	488.45	0.22 g	99.6	Gravel	
#10	2000	462.94	463.60	0.66 g	98.4	Sand	Coarse
#20	850	390.53	391.71	1.18 g	96.2	Sand	Medium
#40	425	355.31	357.14	1.83 g	92.8	Sand	Medium
#60	250	335.53	336.71	1.18 g	90.6	Sand	Fine
#80	180	312.89	315.17	2.28 g	86.4	Sand	Fine
#100	150	331.37	332.60	1.23 g	84.1	Sand	Fine
#200	75	320.78	324.92	4.14 g	76.4	Sand	Fine
				0.00 g	76.4		

Adjusted Hydrometer Sample Mass

Hydrometer Sample Mass (g)	53.8

Silt/Clay Fraction (Hydrometer Test)

Hydrometer Test Time (min)	Actual		Spec. Gravity	Temp C	Particle Size (Micron)	% Finer	Classification	Sub Class
	2	2	1.0240	21.0	30.1	62.2	Silt	
	5	5	1.0220	21.0	19.5	56.2	Silt	
	15	15	1.0200	21.0	11.5	50.3	Silt	
	30	30	1.0185	21.0	8.3	45.8	Silt	
	60	63	1.0165	21.0	5.9	39.8	Silt	
	250	253	1.0135	20.5	3	30.7	Clay	
	1440	1400	1.0120	20.5	1.3	26.2	Clay	

Sediment Grain Size - D422

Client	
Client Sample ID	SE5823-2
Lab Sample ID	200-7019-A-2

Date Received	9/16/2011
Start Date	09/22/2011 0:03
End Date	09/24/2011 0:28

Dry Weight Determination

Tin Weight	1.01 g
Wet Sample + Tin	45.36 g
Dry Sample + Tin	29.33 g
% Moisture	36.14 %

Non-soil material:	N/A
Shape (> #10):	subangular
Hardness (> #10):	hard

Date/Time in oven	09/22/2011 0:04
Date/Time out of oven	09/22/2011 17:43

Sample Weights	Tare (g)	Pan+Samp (g)	Samp (g)
Sample Weight (Wet)		84.61	84.61
Sample Weight (Oven Dried)			54

Sample Split (oven dried)	Tare (g)	Pan+Samp (g)	Samp (g)
Sample >=#10			0.18
Sample <#10			53.8
% Passing #10			63.6

Hydrometer Data

Serial Number	741402
Calib. Date (mm/dd/yyyy)	12/21/2010
Low Temp (C)	17.0
Reading at Low Temp	1.0035
High Temp (C)	23.0
Reading at High Temp	1.0030
Hydrometer Cal Slope	-8.33333E-05
Hydrometer Cal Intercept	1.004916667
Default Soil Gravity	2.6500

Gravel/Sand Fraction (Sieves)

Sample Fraction	Size (um)	Pan Tare (g)	Pan+Sample (g)	Sample	% Finer	Classification	Sub Class
3 inch	75000			0.00 g	100.0	Gravel	
2 inch	50000			0.00 g	100.0	Gravel	
1.5 inch	37500			0.00 g	100.0	Gravel	
1 inch	25000			0.00 g	100.0	Gravel	
3/4 inch	19000			0.00 g	100.0	Gravel	
3/8 inch	9500			0.00 g	100.0	Gravel	
#4	4750			0.00 g	100.0	Gravel	
#10	2000	462.94	463.12	0.18 g	99.7	Sand	Coarse
#20	850	384.04	384.69	0.65 g	98.5	Sand	Medium
#40	425	353.79	354.50	0.71 g	97.2	Sand	Medium
#60	250	341.77	342.65	0.88 g	95.6	Sand	Fine
#80	180	330.82	331.48	0.66 g	94.4	Sand	Fine
#100	150	327.03	327.57	0.54 g	93.4	Sand	Fine
#200	75	312.66	315.35	2.69 g	88.4	Sand	Fine
				0.00 g	88.4		

Adjusted Hydrometer Sample Mass

Hydrometer Sample Mass (g)	54

Silt/Clay Fraction (Hydrometer Test)

Hydrometer Test Time (min)	Actual	Spec. Gravity	Temp C	Particle Size (Micron)	% Finer	Classification	Sub Class
2	2	1.0260	21.0	29.3	67.9	Silt	
5	5	1.0245	21.0	18.9	63.4	Silt	
15	15	1.0225	21.0	11.2	57.5	Silt	
30	30	1.0210	21.0	8.1	53	Silt	
60	57	1.0190	21.0	6	47.1	Silt	
250	247	1.0155	20.5	3	36.6	Clay	
1440	1394	1.0150	20.5	1.3	35.1	Clay	

Sediment Grain Size - D422

Client	
Client Sample ID	SE5823-3
Lab Sample ID	200-7019-A-3

Date Received	9/16/2011
Start Date	09/22/2011 0:04
End Date	09/24/2011 0:31

Dry Weight Determination

Tin Weight	0.99 g
Wet Sample + Tin	35.54 g
Dry Sample + Tin	20.18 g
% Moisture	44.46 %

Non-soil material:	plant,shell
Shape (> #10):	subangular
Hardness (> #10):	hard
Date/Time in oven	09/22/2011 0:05
Date/Time out of oven	09/22/2011 17:43

Sample Weights	Tare (g)	Pan+Samp (g)	Samp (g)
Sample Weight (Wet)		79.11	79.11
Sample Weight (Oven Dried)			43.9

Sample Split (oven dried)	Tare (g)	Pan+Samp (g)	Samp (g)
Sample >=#10			2.23
Sample <#10			41.7
% Passing #10			52.7

Hydrometer Data	
Serial Number	741402
Calib. Date (mm/dd/yyyy)	12/21/2010
Low Temp (C)	17.0
Reading at Low Temp	1.0035
High Temp (C)	23.0
Reading at High Temp	1.0030
Hydrometer Cal Slope	-8.33333E-05
Hydrometer Cal Intercept	1.004916667
Default Soil Gravity	2.6500

Gravel/Sand Fraction (Sieves)

Sample Fraction	Size (um)	Pan Tare (g)	Pan+Sample (g)	Sample	% Finer	Classification	Sub Class
3 inch	75000			0.00 g	100.0	Gravel	
2 inch	50000			0.00 g	100.0	Gravel	
1.5 inch	37500			0.00 g	100.0	Gravel	
1 inch	25000			0.00 g	100.0	Gravel	
3/4 inch	19000			0.00 g	100.0	Gravel	
3/8 inch	9500	447.50	448.53	1.03 g	97.7	Gravel	
#4	4750	488.23	489.14	0.91 g	95.6	Gravel	
#10	2000	462.94	463.23	0.29 g	94.9	Sand	Coarse
#20	850	390.53	391.22	0.69 g	93.3	Sand	Medium
#40	425	355.31	356.57	1.26 g	90.4	Sand	Medium
#60	250	335.53	336.13	0.60 g	89.0	Sand	Fine
#80	180	312.89	314.11	1.22 g	86.2	Sand	Fine
#100	150	331.37	331.77	0.40 g	85.3	Sand	Fine
#200	75	320.78	322.72	1.94 g	80.9	Sand	Fine
				0.00 g	80.9		

Adjusted Hydrometer Sample Mass

Hydrometer Sample Mass (g)	43.9

Silt/Clay Fraction (Hydrometer Test)

Hydrometer Test Time (min)	Actual	Spec. Gravity	Temp C	Particle Size (Micron)	% Finer	Classification	Sub Class
2	2	1.0210	21.0	31.2	65.2	Silt	
5	5	1.0190	21.0	20.2	57.9	Silt	
15	15	1.0170	21.0	12	50.6	Silt	
30	30	1.0150	21.0	8.6	43.3	Silt	
60	63	1.0130	21.0	6.1	36	Silt	
250	241	1.0100	21.0	3.2	25	Clay	
1440	1388	1.0075	21.0	1.4	15.9	Clay	

Sediment Grain Size - D422

Client	
Client Sample ID	SE5823-4
Lab Sample ID	200-7019-A-4

Date Received	9/16/2011
Start Date	09/22/2011 0:05
End Date	09/24/2011 0:43

Dry Weight Determination

Tin Weight	1.00 g
Wet Sample + Tin	30.86 g
Dry Sample + Tin	21.32 g
% Moisture	31.95 %

Non-soil material:	N/A
Shape (> #10):	N/A
Hardness (> #10):	N/A

Date/Time in oven	09/22/2011 0:06
Date/Time out of oven	09/22/2011 17:43

Sample Weights	Tare (g)	Pan+Samp (g)	Samp (g)
Sample Weight (Wet)		67.41	67.41
Sample Weight (Oven Dried)			45.9

Sample Split (oven dried)	Tare (g)	Pan+Samp (g)	Samp (g)
Sample >=#10			0
Sample <#10			45.9
% Passing #10			68.1

Hydrometer Data

Serial Number	741402
Calib. Date (mm/dd/yyyy)	12/21/2010
Low Temp (C)	17.0
Reading at Low Temp	1.0035
High Temp (C)	23.0
Reading at High Temp	1.0030
Hydrometer Cal Slope	-8.33333E-05
Hydrometer Cal Intercept	1.004916667
Default Soil Gravity	2.6500

Gravel/Sand Fraction (Sieves)

Sample Fraction	Size (um)	Pan Tare (g)	Pan+Sample (g)	Sample	% Finer	Classification	Sub Class
3 inch	75000			0.00 g	100.0	Gravel	
2 inch	50000			0.00 g	100.0	Gravel	
1.5 inch	37500			0.00 g	100.0	Gravel	
1 inch	25000			0.00 g	100.0	Gravel	
3/4 inch	19000			0.00 g	100.0	Gravel	
3/8 inch	9500			0.00 g	100.0	Gravel	
#4	4750			0.00 g	100.0	Gravel	
#10	2000			0.00 g	100.0	Sand	Coarse
#20	850	384.04	384.10	0.06 g	99.9	Sand	Medium
#40	425	353.79	353.80	0.01 g	99.9	Sand	Medium
#60	250	341.77	341.78	0.01 g	99.9	Sand	Fine
#80	180	330.76	330.76	0.00 g	99.9	Sand	Fine
#100	150	327.03	327.07	0.04 g	99.8	Sand	Fine
#200	75	312.66	313.38	0.72 g	98.2	Sand	Fine
				0.00 g	98.2		

Adjusted Hydrometer Sample Mass

Hydrometer Sample Mass (g)	45.9

Silt/Clay Fraction (Hydrometer Test)

Hydrometer Test Time (min)	Actual		Spec. Gravity	Temp C	Particle Size (Micron)	% Finer	Classification	Sub Class
	2	2	1.0270	21.0	28.8	83.4	Silt	
	5	5	1.0250	21.0	18.8	76.4	Silt	
	15	15	1.0220	21.0	11.3	65.9	Silt	
	30	31	1.0200	21.0	8	58.9	Silt	
	60	57	1.0180	21.0	6.1	51.9	Silt	
	250	235	1.0135	21.0	3.1	36.2	Clay	
	1440	1382	1.0120	21.0	1.3	30.9	Clay	

DATA REPORTING QUALIFIERS

Lab Section	Qualifier	Description

QUALITY CONTROL RESULTS

Client: Katahdin Analytical Services

Job Number: 200-7019-1
Sdg Number: SE5823

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Geotechnical					
Analysis Batch:200-25733					
200-7019-1	SE5823-1	T	Solid	D422	
200-7019-2	SE5823-2	T	Solid	D422	
200-7019-3	SE5823-3	T	Solid	D422	
200-7019-4	SE5823-4	T	Solid	D422	

Report Basis
T = Total

Katahdin ANALYTICAL SERVICES
600 Technology Way
Scarborough, ME 04074
Tel: (207) 874-2400
Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND PRINT LEGIBLY IN PEN

Client: Katahdin Analytical | Contact: Kelly Perkins | Phone #: ( ) | Fax #: ( )

Address | City | State | Zip Code

Purchase Order # | Proj. Name / No.: Capisic Pond / 203939 | Katahdin Quote #

Bill (if different than above) | Address

Sampler (Print / Sign) | Copies To:

LAB USE ONLY | WORK ORDER #: SE5823 | KATAHDIN PROJECT NUMBER

REMARKS: To: Test America, VT

SHIPPING INFO: ☐ FED EX ☐ UPS ☐ CLIENT

AIRBILL NO:

TEMP°C ____ ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

*	Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	Grain Size	ANALYSIS AND CONTAINER TYPE PRESERVATIVES: Filt. ☐Y ☐N
	SE5823-1	9/14/11 8:20	SL	1	✓	
	SE5823-2	/09:05	↓	↓	↓	
	SE5823-3	/11:40				
	SE5823-4	/10:20				
		/				
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		/				

COMMENTS: QC II Results by 10/3/11 please!

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Dr Medlin	9/15/11 0930	C 09/16/11 mBur 0922			
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

ORIGINAL

Login Sample Receipt Checklist

Client: Katahdin Analytical Services

Job Number: 200-7019-1
SDG Number: SE5823

List Source: TestAmerica Burlington

Login Number: 7019
List Number: 1
Creator: Marion, Greg T

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	NO SEAL NUMBERS
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	17.5°C IR GUN ID 96/CF=0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Not requested on COC.
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

From:
WILLARD WARREN
KATAHDIN ANALYTICAL SERVICES
600 TECHNOLOGY WAY

SCARBOROUGH, ME 04074
(207) 874-2400

Ship Date: 15SEP11
ActWgt: 6.3 LB
CAD: 6B32B7/CAFE2472

TO SAMPLE RECEIPT
TEST AMERICA
30 COMMUNITY DR STE 11

SOUTH BURLINGTON, VT 05403 (US)

FedEx
Ground

G

Ref:
INV:
PO: Dept:

1 of 1

(9612019) 8146969 60043208

GND
Prepaid

THIS PACKA... APPROVAL ... 49 CFR

SGS

Laboratory Report of Analysis

To: Kelly Perkins
Katahdin Analytical Services
600 Technology Way
Scarborough, ME 04074

Report Number: **31102529**

Client Project: **Capisic Pond/203939**

Dear Kelly Perkins,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or services performed during this project, please call Amy J. Boehm at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Digitally signed by: Amy Boehm
Date: 2011.10.03 14:32:22 -05'00'

Amy J. Boehm — Date
Project Manager
amy.boehm@sgs.com

Laboratory Qualifiers

Report Definitions

DL	Method, Instrument, or Estimated Detection Limit per Analytical Method
CL	Control Limits for the recovery result of a parameter
LOQ	Reporting Limit
DF	Dilution Factor
RPD	Relative Percent Difference
LCS(D)	Laboratory Control Spike (Duplicate)
MS(D)	Matrix Spike (Duplicate)
MB	Method Blank

Qualifier Definitions

*	Recovery or RPD outside of control limits
B	Analyte was detected in the Lab Method Blank at a level above the LOQ
U	Undetected (Reported as ND or < LOD)
V	Recovery is below quality control limit. The data has been validated based on a favorable signal-to-noise and detection limit
A	Amount detected is less than the Lower Method Calibration Limit
J	Amount detected is between the Method Detection Limit and the Lower Calibration Limit
O	The recovery of this analyte in the OPR is above the Method QC Limits and the reported concentration in the sample may be biased high
E	Amount detected is greater than the Upper Calibration Limit
S	The amount of analyte present has saturated the detector. This situation results in an underestimation of the affected analyte(s)
Q	Indicates the presence of a quantitative interference. This situation may result in an underestimation of the affected analyte(s)
I	Indicates the presence of a qualitative interference that could cause a false positive or an overestimation of the affected analyte(s)
DPE	Indicates the presence of a peak in the polychlorinated diphenylether channel that could cause a false positive or an overestimation of the affected analyte(s)
TIC	Tentatively Identified Compound
EMPC	Estimated Maximum possible Concentration due to ion ratio failure
ND	Not Detected
K	Result is estimated due to ion ratio failure in High Resolution PCB Analysis
P	RPD > 40% between results of dual columns
D	Spike or surrogate was diluted out in order to achieve a parameter result within instrument calibration range

Samples requiring manual integrations for various congeners and/or standards are marked and dated by the analyst. A code definition is provided below:

M1	Mis-identified peak
M2	Software did not integrate peak
M3	Incorrect baseline construction (i.e. not all of peak included; two peaks integrated as one)
M4	Pattern integration required (i.e. DRO, GRO, PCB, Toxaphene and Technical Chlordane)
M5	Other - Explained in case narrative

Note Results pages that include a value for "Solids (%)" have been adjusted for moisture content.

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
SE5823-1	31102529001	09/14/2011 08:20	09/16/2011 09:45	Soil-Solid as dry weight
SE5823-2	31102529002	09/14/2011 09:05	09/16/2011 09:45	Soil-Solid as dry weight
SE5823-3	31102529003	09/14/2011 11:40	09/16/2011 09:45	Soil-Solid as dry weight
SE5823-4	31102529004	09/14/2011 10:20	09/16/2011 09:45	Soil-Solid as dry weight

	A	B	C	D	E	F
1	TEQ Calculations using tables in Chapter 405 of the ME Solid Waste Rules					
2						
3	Compound Name	Reporting TEF Table 405.1	Compliance TEF Table 405.2	Lab Result	Calculated TEQ for Reporting	Calculated TEQ for Compliance
4	2,3,7,8 TCDF	0.1	0.1	**0.000**	0.000	0.000
5	Other TCDF**	0	0.001	**1.08**	0.000	0.00108
6	2,3,7,8 TCDD	1	1	**0.000**	0.000	0.000
7	Other TCDD**	0	0.01	**0.000**	0.000	0.000
8	1,2,3,7,8 PeCDF	0.05	0.1	**0.000**	0.000	0.000
9	2,3,4,7,8 PeCDF	0.5	0.1	**0.688**	0.344	0.0688
10	Other PeCDF***	0	0.001	**6.09**	0.000	0.00540
11	1,2,3,7,8 PeCDD	0.5	0.5	**0.000**	0.000	0.000
12	Other PeCDD***	0	0.005	**0.707**	0.000	0.00354
13	1,2,3,4,7,8 HxCDF	0.1	0.01	**0.000**	0.000	0.000
14	1,2,3,7,8,9-HxCDF	0.1	0.01	**0.000**	0.000	0.000
15	2,3,4,6,7,8 HxCDF	0.1	0.01	**0.605**	0.0605	0.00605
16	1,2,3,6,7,8-HxCDF	0.1	0.01	**0.333**	0.0333	0.00333
17	Other HxCDF***	0	0.0001	**5.84**	0.000	0.000490
18	1,2,3,4,7,8 HxCDD	0.1	0.04	**0.496**	0.0496	0.0198
19	1,2,3,6,7,8 HxCDD	0.1	0.04	**1.14**	0.114	0.0456
20	1,2,3,7,8,9 HxCDD	0.1	0.04	**1.22**	0.122	0.0488
21	Other HxCDD***	0	0.0004	**11.8**	0.000	0.00358
22	1,2,3,4,6,7,8 HpCDF	0.01	0.001	**2.86**	0.0286	0.00286
23	1,2,3,4,7,8,9 HpCDF	0.01	0.001	**0.000**	0.000	0.000
24	Other HpCDF***	0	0.00001	**7.70**	0.000	0.0000484
25	1,2,3,4,6,7,8 HpCDD	0.01	0.001	**79.0**	0.790	0.0790
26	Other HpCDD***	0	0.00001	**191**	0.000	0.00112
27	1,2,3,4,6,7,8,9 OCDF	0.001	0.001	**6.16**	0.00616	0.00616
28	1,2,3,4,6,7,8,9 OCDD	0.001	0	**2170**	2.170	0.000
29	Totals:				**3.72**	**0.296**
30		EPA 89				
31	*** Use lab result for "total" and the spreadsheet will calculate "other"					

Results of **SE5823-1**

Client Sample ID: **SE5823-1**
Client Project ID: **Capisic Pond/203939**
Lab Sample ID: 31102529001-A
Lab Project ID: 31102529

Collection Date: 09/14/2011 08:20
Received Date: 09/16/2011 09:45
Matrix: Soil-Solid as dry weight
Solids (%): 76.40

Results by **EPA 1613B**

Parameter	Result	EMPC	Qual	DL	LOQ/CL	Units	RT	Ratio
2,3,7,8-TCDD	ND		U	0.177	0.463	pg/g		
1,2,3,7,8-PeCDD	ND		U	0.185	2.31	pg/g		
1,2,3,4,7,8-HxCDD	**0.496**		J	0.219	2.31	pg/g	34.44	1.15
1,2,3,6,7,8-HxCDD	**1.14**		J	0.276	2.31	pg/g	34.55	1.42
1,2,3,7,8,9-HxCDD	**1.22**		J	0.251	2.31	pg/g	34.62	1.14
1,2,3,4,6,7,8-HpCDD	**79.0**			0.734	2.31	pg/g	38.47	1.03
OCDD	**2170**			1.52	4.63	pg/g	43.67	0.91
2,3,7,8-TCDF	ND		U	0.426	0.463	pg/g		
1,2,3,7,8-PeCDF	ND		U	0.0737	2.31	pg/g		
2,3,4,7,8-PeCDF	**0.688**		J	0.0594	2.31	pg/g	31.30	1.59
1,2,3,4,7,8-HxCDF	ND		U	0.124	2.31	pg/g		
1,2,3,6,7,8-HxCDF		0.333	J	0.153	2.31	pg/g	33.71	1.97
2,3,4,6,7,8-HxCDF	**0.605**		J	0.160	2.31	pg/g	34.29	1.28
1,2,3,7,8,9-HxCDF	ND		U	0.199	2.31	pg/g		
1,2,3,4,6,7,8-HpCDF	**2.86**			0.213	2.31	pg/g	36.95	0.95
1,2,3,4,7,8,9-HpCDF	ND		U	0.271	2.31	pg/g		
OCDF	**6.16**			0.473	4.63	pg/g	44.00	0.94
Total TCDD	ND		U	0.177	0.463	pg/g		
Total TCDF	ND	1.08		0.426	0.463	pg/g		
Total PeCDD	**0.707**		J	0.213	2.31	pg/g		
Total PeCDF	**6.09**			3.46	3.46	pg/g		
Total HxCDD	**9.94**	11.8		0.276	2.31	pg/g		
Total HxCDF	**4.95**	5.84		0.199	2.31	pg/g		
Total HpCDD	**191**			0.939	2.31	pg/g		
Total HpCDF	**7.70**			0.318	2.31	pg/g		

World Health Organization Summary

	Units	ND=0	ND=½	ND=DL
WHO-2005 TEQ	pg/g	2.02	2.25	2.48
WHO-2005 TEQ w/EMPC	pg/g	2.06	2.28	2.50

Results of **SE5823-1**

Client Sample ID: **SE5823-1**
Client Project ID: **Capisic Pond/203939**
Lab Sample ID: 31102529001-A
Lab Project ID: 31102529

Collection Date: 09/14/2011 08:20
Received Date: 09/16/2011 09:45
Matrix: Soil-Solid as dry weight
Solids (%): 76.40

Results by **EPA 1613B**

Parameter	Result	EMPC	Qual	DL	LOQ/CL	Units	RT	Ratio
Labeled Standards								
13C-2378-TCDD	92.0				25.0-164	%		
13C-12378-PeCDD	90.0				25.0-181	%		
13C-123478-HxCDD	107				32.0-141	%		
13C-123678-HxCDD	97.0				28.0-130	%		
13C-1234678-HpCDD	90.0				23.0-140	%		
13C-OCDD	97.0				17.0-157	%		
13C-2378-TCDF	87.0				24.0-169	%		
13C-12378-PeCDF	79.0				24.0-185	%		
13C-23478-PeCDF	97.0				21.0-178	%		
13C-123478-HxCDF	99.0				26.0-152	%		
13C-123678-HxCDF	84.0				26.0-123	%		
13C-234678-HxCDF	86.0				29.0-147	%		
13C-123789-HxCDF	87.0				28.0-136	%		
13C-1234678-HpCDF	81.0				28.0-143	%		
13C-1234789-HpCDF	101				26.0-138	%		
37Cl-2378-TCDD	94.0				35.0-197	%		

Batch Information

Analytical Batch: HRD1307
Analytical Method: EPA 1613B
Instrument: HRMS2
Analyst: JHL
Analytical Date/Time: 09/29/2011 07:42
Dilution: 1

Prep Batch: HXA1279
Prep Method: EPA 1613 PREP S/D/T
Prep Date/Time: 09/20/2011 17:00
Prep Initial Wt./Vol.: 14.14 g
Prep Extract Vol: 20 uL

	A	B	C	D	E	F
1	TEQ Calculations using tables in Chapter 405 of the ME Solid Waste Rules					
2						
3	Compound Name	Reporting TEF Table 405.1	Compliance TEF Table 405.2	Lab Result	Calculated TEQ for Reporting	Calculated TEQ for Compliance
4	2,3,7,8 TCDF	0.1	0.1	**0.391**	0.0391	0.0391
5	Other TCDF**	0	0.001	**2.70**	0.000	0.00231
6	2,3,7,8 TCDD	1	1	**0.000**	0.000	0.000
7	Other TCDD**	0	0.01	**0.000**	0.000	0.000
8	1,2,3,7,8 PeCDF	0.05	0.1	**0.000**	0.000	0.000
9	2,3,4,7,8 PeCDF	0.5	0.1	**0.800**	0.400	0.0800
10	Other PeCDF***	0	0.001	**7.21**	0.000	0.00641
11	1,2,3,7,8 PeCDD	0.5	0.5	**0.000**	0.000	0.000
12	Other PeCDD***	0	0.005	**0.547**	0.000	0.00274
13	1,2,3,4,7,8 HxCDF	0.1	0.01	**0.000**	0.000	0.000
14	1,2,3,7,8,9-HxCDF	0.1	0.01	**0.000**	0.000	0.000
15	2,3,4,6,7,8 HxCDF	0.1	0.01	**0.860**	0.0860	0.00860
16	1,2,3,6,7,8-HxCDF	0.1	0.01	**0.558**	0.0558	0.00558
17	Other HxCDF***	0	0.0001	**9.16**	0.000	0.000774
18	1,2,3,4,7,8 HxCDD	0.1	0.04	**0.499**	0.0499	0.0200
19	1,2,3,6,7,8 HxCDD	0.1	0.04	**1.44**	0.144	0.0576
20	1,2,3,7,8,9 HxCDD	0.1	0.04	**1.07**	0.107	0.0428
21	Other HxCDD***	0	0.0004	**9.10**	0.000	0.00244
22	1,2,3,4,6,7,8 HpCDF	0.01	0.001	**6.56**	0.0656	0.00656
23	1,2,3,4,7,8,9 HpCDF	0.01	0.001	**0.473**	0.00473	0.000
24	Other HpCDF***	0	0.00001	**18.2**	0.000	0.000112
25	1,2,3,4,6,7,8 HpCDD	0.01	0.001	**25.7**	0.257	0.0257
26	Other HpCDD***	0	0.00001	**55.6**	0.000	0.000299
27	1,2,3,4,6,7,8,9 OCDF	0.001	0.001	**14.5**	0.0145	0.01450
28	1,2,3,4,6,7,8,9 OCDD	0.001	0	**225**	0.225	0.000
29	Totals:				**1.45**	**0.316**
30		EPA 89				
31	*** Use lab result for "total" and the spreadsheet will calculate "other"					

Results of **SE5823-2**

Client Sample ID: **SE5823-2**
Client Project ID: **Capisic Pond/203939**
Lab Sample ID: 31102529002-A
Lab Project ID: 31102529

Collection Date: 09/14/2011 09:05
Received Date: 09/16/2011 09:45
Matrix: Soil-Solid as dry weight
Solids (%): 62.50

Results by **EPA 1613B**

Parameter	Result	EMPC	Qual	DL	LOQ/CL	Units	RT	Ratio
2,3,7,8-TCDD	ND		U	0.186	0.465	pg/g		
1,2,3,7,8-PeCDD	ND		U	0.229	2.33	pg/g		
1,2,3,4,7,8-HxCDD	**0.499**		J	0.168	2.33	pg/g	34.44	1.20
1,2,3,6,7,8-HxCDD	**1.44**		J	0.219	2.33	pg/g	34.59	1.20
1,2,3,7,8,9-HxCDD		1.07	J	0.195	2.33	pg/g	34.81	1.01*
1,2,3,4,6,7,8-HpCDD	**25.7**			0.455	2.33	pg/g	38.46	1.05
OCDD	**225**			0.943	4.65	pg/g	43.06	0.87
2,3,7,8-TCDF		0.391	J	0.240	0.465	pg/g	27.09	1.01*
1,2,3,7,8-PeCDF	ND		U	0.106	2.33	pg/g		
2,3,4,7,8-PeCDF	**0.800**		J	0.0925	2.33	pg/g	31.27	1.52
1,2,3,4,7,8-HxCDF	ND		U	0.101	2.33	pg/g		
1,2,3,6,7,8-HxCDF	**0.558**		J	0.119	2.33	pg/g	33.72	1.06
2,3,4,6,7,8-HxCDF	**0.860**		J	0.134	2.33	pg/g	34.20	1.14
1,2,3,7,8,9-HxCDF	ND		U	0.160	2.33	pg/g		
1,2,3,4,6,7,8-HpCDF	**6.56**			0.203	2.33	pg/g	36.94	1.01
1,2,3,4,7,8,9-HpCDF		0.473	J	0.246	2.33	pg/g	39.24	0.80*
OCDF	**14.5**			0.458	4.65	pg/g	43.09	0.90
Total TCDD	ND		U	0.186	0.465	pg/g		
Total TCDF	**1.51**	2.70		0.240	0.465	pg/g		
Total PeCDD	**0.547**		J	0.263	2.33	pg/g		
Total PeCDF	**6.96**	7.21		3.87	3.87	pg/g		
Total HxCDD	**5.44**	9.10		0.219	2.33	pg/g		
Total HxCDF	**9.16**			0.160	2.33	pg/g		
Total HpCDD	**55.6**			0.581	2.33	pg/g		
Total HpCDF	**17.7**	18.2		0.296	2.33	pg/g		

World Health Organization Summary

	Units	ND=0	ND=½	ND=DL
WHO-2005 TEQ	pg/g	0.970	1.22	1.46
WHO-2005 TEQ w/EMPC	pg/g	1.12	1.34	1.57

Results of **SE5823-2**

Client Sample ID: **SE5823-2**
Client Project ID: **Capisic Pond/203939**
Lab Sample ID: 31102529002-A
Lab Project ID: 31102529

Collection Date: 09/14/2011 09:05
Received Date: 09/16/2011 09:45
Matrix: Soil-Solid as dry weight
Solids (%): 62.50

Results by **EPA 1613B**

Parameter	Result	EMPC	Qual	DL	LOQ/CL	Units	RT	Ratio
Labeled Standards								
13C-2378-TCDD	88.0				25.0-164	%		
13C-12378-PeCDD	88.0				25.0-181	%		
13C-123478-HxCDD	109				32.0-141	%		
13C-123678-HxCDD	93.0				28.0-130	%		
13C-1234678-HpCDD	90.0				23.0-140	%		
13C-OCDD	81.0				17.0-157	%		
13C-2378-TCDF	80.0				24.0-169	%		
13C-12378-PeCDF	81.0				24.0-185	%		
13C-23478-PeCDF	96.0				21.0-178	%		
13C-123478-HxCDF	100				26.0-152	%		
13C-123678-HxCDF	85.0				26.0-123	%		
13C-234678-HxCDF	85.0				29.0-147	%		
13C-123789-HxCDF	87.0				28.0-136	%		
13C-1234678-HpCDF	79.0				28.0-143	%		
13C-1234789-HpCDF	96.0				26.0-138	%		
37Cl-2378-TCDD	85.0				35.0-197	%		

Batch Information

Analytical Batch: HRD1397
Analytical Method: EPA 1613B
Instrument: HRMS2
Analyst: JHL
Analytical Date/Time: 09/29/2011 08:30
Dilution: 1

Prep Batch: HXX1279
Prep Method: EPA 1613 PREP S/D/T
Prep Date/Time: 09/26/2011 17:00
Prep Initial Wt./Vol.: 17.19 g
Prep Extract Vol: 20 uL

	A	B	C	D	E	F
1	TEQ Calculations using tables in Chapter 405 of the ME Solid Waste Rules					
2						
3	Compound Name	Reporting TEF Table 405.1	Compliance TEF Table 405.2	Lab Result	Calculated TEQ for Reporting	Calculated TEQ for Compliance
4	2,3,7,8 TCDF	0.1	0.1	0.619	0.0619	0.0619
5	Other TCDF**	0	0.001	8.54	0.000	0.00792
6	2,3,7,8 TCDD	1	1	0.000	0.000	0.000
7	Other TCDD**	0	0.01	0.000	0.000	0.000
8	1,2,3,7,8 PeCDF	0.05	0.1	0.258	0.0129	0.0258
9	2,3,4,7,8 PeCDF	0.5	0.1	2.18	1.09	0.218
10	Other PeCDF***	0	0.001	18.3	0.000	0.0159
11	1,2,3,7,8 PeCDD	0.5	0.5	0.350	0.175	0.175
12	Other PeCDD***	0	0.005	3.35	0.000	0.0150
13	1,2,3,4,7,8 HxCDF	0.1	0.01	0.595	0.0595	0.00595
14	1,2,3,7,8,9-HxCDF	0.1	0.01	0.000	0.000	0.000
15	2,3,4,6,7,8 HxCDF	0.1	0.01	1.34	0.134	0.0134
16	1,2,3,6,7,8-HxCDF	0.1	0.01	0.961	0.0961	0.00961
17	Other HxCDF***	0	0.0001	16.7	0.000	0.00138
18	1,2,3,4,7,8 HxCDD	0.1	0.04	0.552	0.0552	0.0221
19	1,2,3,6,7,8 HxCDD	0.1	0.04	2.19	0.219	0.0876
20	1,2,3,7,8,9 HxCDD	0.1	0.04	1.38	0.138	0.0552
21	Other HxCDD***	0	0.0004	14.7	0.000	0.0042
22	1,2,3,4,6,7,8 HpCDF	0.01	0.001	5.48	0.0548	0.00548
23	1,2,3,4,7,8,9 HpCDF	0.01	0.001	0.372	0.00372	0.000
24	Other HpCDF***	0	0.00001	15.0	0.000	0.0000915
25	1,2,3,4,6,7,8 HpCDD	0.01	0.001	35.7	0.357	0.0357
26	Other HpCDD***	0	0.00001	79.3	0.000	0.000436
27	1,2,3,4,6,7,8,9 OCDF	0.001	0.001	11.5	0.0115	0.0115
28	1,2,3,4,6,7,8,9 OCDD	0.001	0	447	0.447	0.000
29	Totals:				2.92	0.773
30		EPA 89				
31	*** Use lab result for "total" and the spreadsheet will calculate "other"					

Results of **SE5823-3**

Client Sample ID: **SE5823-3**
Client Project ID: **Capisic Pond/203939**
Lab Sample ID: 31102529003-A
Lab Project ID: 31102529

Collection Date: 09/14/2011 11:40
Received Date: 09/16/2011 09:45
Matrix: Soil-Solid as dry weight
Solids (%): 51.80

Results by **EPA 1613B**

Parameter	Result	EMPC	Qual	DL	LOQ/CL	Units	RT	Ratio
2,3,7,8-TCDD	ND		U	0.236	0.489	pg/g		
1,2,3,7,8-PeCDD	**0.350**		J	0.180	2.45	pg/g	31.48	1.37
1,2,3,4,7,8-HxCDD		0.552	J	0.280	2.45	pg/g	33.44	0.63*
1,2,3,6,7,8-HxCDD	**2.19**		J	0.341	2.45	pg/g	34.64	1.22
1,2,3,7,8,9-HxCDD	**1.38**		J	0.314	2.45	pg/g	34.81	1.26
1,2,3,4,6,7,8-HpCDD	**35.7**			0.502	2.45	pg/g	38.47	1.01
OCDD	**447**			0.811	4.89	pg/g	43.66	0.90
2,3,7,8-TCDF	0.666			0.359	0.489	pg/g	27.05	0.86
2,3,7,8-TCDF [confirm]		0.619		0.218	0.489	pg/g	11.92	1.00*
1,2,3,7,8-PeCDF		0.258	J	0.123	2.45	pg/g	30.59	2.16*
2,3,4,7,8-PeCDF		2.18	J	0.0975	2.45	pg/g	31.30	1.20*
1,2,3,4,7,8-HxCDF		0.595	J	0.175	2.45	pg/g	33.61	1.05*
1,2,3,6,7,8-HxCDF		0.961	J	0.219	2.45	pg/g	33.72	1.99*
2,3,4,6,7,8-HxCDF		1.34	J	0.221	2.45	pg/g	34.28	1.06*
1,2,3,7,8,9-HxCDF	ND		U	0.286	2.45	pg/g		
1,2,3,4,6,7,8-HpCDF	**5.48**			0.271	2.45	pg/g	36.94	1.06
1,2,3,4,7,8,9-HpCDF	**0.372**		J	0.315	2.45	pg/g	39.24	0.92
OCDF	**11.5**			0.462	4.89	pg/g	43.99	0.89
Total TCDD	ND		U	0.236	0.489	pg/g		
Total TCDF	**5.46**	8.54		0.389	0.489	pg/g		
Total PeCDD	**1.75**	3.35	J	0.207	2.45	pg/g		
Total PeCDF	**15.1**	18.3		9.66	9.66	pg/g		
Total HxCDD	**13.7**	14.7		0.341	2.45	pg/g		
Total HxCDF	**13.8**	16.7		0.286	2.45	pg/g		
Total HpCDD	**79.3**			0.642	2.45	pg/g		
Total HpCDF	**15.0**			0.386	2.45	pg/g		

World Health Organization Summary

	Units	ND=0	ND=½	ND=DL
WHO-2005 TEQ	pg/g	1.26	1.46	1.67
WHO-2005 TEQ w/EMPC	pg/g	2.33	2.46	2.59

Results of **SE5823-3**

Client Sample ID: **SE5823-3**
Client Project ID: **Capisic Pond/203939**
Lab Sample ID: 31102529003-A
Lab Project ID: 31102529

Collection Date: 09/14/2011 11:40
Received Date: 09/16/2011 09:45
Matrix: Soil-Solid as dry weight
Solids (%): 51.80

Results by **EPA 1613B**

Parameter	Result	EMPC	Qual	DL	LOQ/CL	Units	RT	Ratio
Labeled Standards								
13C-2378-TCDD	76.0				25.0-164	%		
13C-12378-PeCDD	87.0				25.0-181	%		
13C-123478-HxCDD	104				32.0-141	%		
13C-123678-HxCDD	92.0				28.0-130	%		
13C-1234678-HpCDD	90.0				23.0-140	%		
13C-OCDD	87.0				17.0-157	%		
13C-2378-TCDF	56.0				24.0-169	%		
13C-12378-PeCDF	80.0				24.0-185	%		
13C-23478-PeCDF	96.0				21.0-178	%		
13C-123478-HxCDF	99.0				26.0-152	%		
13C-123678-HxCDF	82.0				26.0-123	%		
13C-234678-HxCDF	84.0				29.0-147	%		
13C-123789-HxCDF	86.0				28.0-136	%		
13C-1234678-HpCDF	78.0				28.0-143	%		
13C-1234789-HpCDF	98.0				26.0-138	%		
37Cl-2378-TCDD	81.0				35.0-197	%		

Batch Information

Analytical Batch: HRD1397
Analytical Method: EPA 1613B
Instrument: HRMS2
Analyst: JHL
Analytical Date/Time: 09/29/2011 09:16
Dilution: 1

Prep Batch: HXX1279
Prep Method: EPA 1613 PREP S/D/T
Prep Date/Time: 09/26/2011 17:00
Prep Initial Wt./Vol.: 19.73 g
Prep Extract Vol: 20 uL

Analytical Batch: HRD1401
Analytical Method: EPA 1613B
Instrument: HRMS3
Analyst: JHL
Analytical Date/Time: 09/29/2011 12:52
Dilution: 1

Prep Batch: HXX1279
Prep Method: EPA 1613 PREP S/D/T
Prep Date/Time: 09/26/2011 17:00
Prep Initial Wt./Vol.: 19.73 g
Prep Extract Vol: 20 uL

	A	B	C	D	E	F
1	TEQ Calculations using tables in Chapter 405 of the ME Solid Waste Rules					
2						
3	Compound Name	Reporting TEF Table 405.1	Compliance TEF Table 405.2	Lab Result	Calculated TEQ for Reporting	Calculated TEQ for Compliance
4	2,3,7,8 TCDF	0.1	0.1	0.000	0.000	0.000
5	Other TCDF**	0	0.001	1.67	0.000	0.00167
6	2,3,7,8 TCDD	1	1	0.000	0.000	0.000
7	Other TCDD**	0	0.01	0.000	0.000	0.000
8	1,2,3,7,8 PeCDF	0.05	0.1	0.000	0.000	0.000
9	2,3,4,7,8 PeCDF	0.5	0.1	0.435	0.218	0.0435
10	Other PeCDF***	0	0.001	3.65	0.000	0.00322
11	1,2,3,7,8 PeCDD	0.5	0.5	0.000	0.000	0.000
12	Other PeCDD***	0	0.005	0.000	0.000	0.000
13	1,2,3,4,7,8 HxCDF	0.1	0.01	0.000	0.000	0.000
14	1,2,3,7,8,9-HxCDF	0.1	0.01	0.000	0.000	0.000
15	2,3,4,6,7,8 HxCDF	0.1	0.01	0.000	0.000	0.000
16	1,2,3,6,7,8-HxCDF	0.1	0.01	0.200	0.0200	0.00200
17	Other HxCDF***	0	0.0001	2.72	0.000	0.000252
18	1,2,3,4,7,8 HxCDD	0.1	0.04	0.000	0.000	0.000
19	1,2,3,6,7,8 HxCDD	0.1	0.04	0.451	0.0451	0.0180
20	1,2,3,7,8,9 HxCDD	0.1	0.04	0.453	0.0453	0.0181
21	Other HxCDD***	0	0.0004	4.74	0.000	0.00153
22	1,2,3,4,6,7,8 HpCDF	0.01	0.001	0.665	0.00665	0.000665
23	1,2,3,4,7,8,9 HpCDF	0.01	0.001	0.000	0.000	0.000
24	Other HpCDF***	0	0.00001	2.18	0.000	0.0000152
25	1,2,3,4,6,7,8 HpCDD	0.01	0.001	32.7	0.327	0.0327
26	Other HpCDD***	0	0.00001	84.8	0.000	0.000521
27	1,2,3,4,6,7,8,9 OCDF	0.001	0.001	1.19	0.00119	0.00119
28	1,2,3,4,6,7,8,9 OCDD	0.001	0	1210	1.21	0.000
29	Totals:				1.87	0.123
30		EPA 89				
31	*** Use lab result for "total" and the spreadsheet will calculate "other"					

Results of **SE5823-4**

Client Sample ID: **SE5823-4**
Client Project ID: **Capisic Pond/203939**
Lab Sample ID: 31102529004-A
Lab Project ID: 31102529

Collection Date: 09/14/2011 10:20
Received Date: 09/16/2011 09:45
Matrix: Soil-Solid as dry weight
Solids (%): 68.40

Results by **EPA 1613B**

Parameter	Result	EMPC	Qual	DL	LOQ/CL	Units	RT	Ratio
2,3,7,8-TCDD	ND		U	0.174	0.495	pg/g		
1,2,3,7,8-PeCDD	ND		U	0.157	2.47	pg/g		
1,2,3,4,7,8-HxCDD	ND		U	0.221	2.47	pg/g		
1,2,3,6,7,8-HxCDD	**0.451**		J	0.276	2.47	pg/g	34.53	1.40
1,2,3,7,8,9-HxCDD	**0.453**		J	0.252	2.47	pg/g	34.61	1.31
1,2,3,4,6,7,8-HpCDD	**32.7**			0.549	2.47	pg/g	38.46	1.07
OCDD	**1210**			1.17	4.95	pg/g	43.65	0.89
2,3,7,8-TCDF	ND		U	0.180	0.495	pg/g		
1,2,3,7,8-PeCDF	ND		U	0.0837	2.47	pg/g		
2,3,4,7,8-PeCDF	**0.435**		J	0.0730	2.47	pg/g	31.28	1.54
1,2,3,4,7,8-HxCDF	ND		U	0.134	2.47	pg/g		
1,2,3,6,7,8-HxCDF	**0.200**		J	0.166	2.47	pg/g	33.71	1.11
2,3,4,6,7,8-HxCDF	ND		U	0.173	2.47	pg/g		
1,2,3,7,8,9-HxCDF	ND		U	0.213	2.47	pg/g		
1,2,3,4,6,7,8-HpCDF		0.665	J	0.209	2.47	pg/g	36.93	1.26*
1,2,3,4,7,8,9-HpCDF	ND		U	0.261	2.47	pg/g		
OCDF		1.19	J	0.413	4.95	pg/g	44.00	1.95*
Total TCDD	ND		U	0.174	0.495	pg/g		
Total TCDF	**0.869**	1.67		0.180	0.495	pg/g		
Total PeCDD	ND		U	0.157	2.47	pg/g		
Total PeCDF	**2.55**	3.65		2.11	2.47	pg/g		
Total HxCDD	**4.34**	4.74		0.276	2.47	pg/g		
Total HxCDF	**2.41**	2.72	J	0.213	2.47	pg/g		
Total HpCDD	**84.8**			0.703	2.47	pg/g		
Total HpCDF	**1.52**	2.18	J	0.308	2.47	pg/g		

World Health Organization Summary

	Units	ND=0	ND=½	ND=DL
WHO-2005 TEQ	pg/g	0.931	1.15	1.36
WHO-2005 TEQ w/EMPC	pg/g	0.938	1.15	1.37

Results of **SE5823-4**

Client Sample ID: **SE5823-4**
Client Project ID: **Capisic Pond/203939**
Lab Sample ID: 31102529004-A
Lab Project ID: 31102529

Collection Date: 09/14/2011 10:20
Received Date: 09/16/2011 09:45
Matrix: Soil-Solid as dry weight
Solids (%): 68.40

Results by **EPA 1613B**

Parameter	Result	EMPC	Qual	DL	LOQ/CL	Units	RT	Ratio
Labeled Standards								
13C-2378-TCDD	88.0				25.0-164	%		
13C-12378-PeCDD	88.0				25.0-181	%		
13C-123478-HxCDD	109				32.0-141	%		
13C-123678-HxCDD	95.0				28.0-130	%		
13C-1234678-HpCDD	92.0				23.0-140	%		
13C-OCDD	98.0				17.0-157	%		
13C-2378-TCDF	84.0				24.0-169	%		
13C-12378-PeCDF	83.0				24.0-185	%		
13C-23478-PeCDF	99.0				21.0-178	%		
13C-123478-HxCDF	101				26.0-152	%		
13C-123678-HxCDF	85.0				26.0-123	%		
13C-234678-HxCDF	86.0				29.0-147	%		
13C-123789-HxCDF	90.0				28.0-136	%		
13C-1234678-HpCDF	84.0				28.0-143	%		
13C-1234789-HpCDF	101				26.0-138	%		
37Cl-2378-TCDD	88.0				35.0-197	%		

Batch Information

Analytical Batch: HRD1397
Analytical Method: EPA 1613B
Instrument: HRMS2
Analyst: JHL
Analytical Date/Time: 09/29/2011 10:05
Dilution: 1

Prep Batch: HXX1379
Prep Method: EPA 1613 PREP S/D/T
Prep Date/Time: 09/26/2011 17:00
Prep Initial Wt./Vol.: 14.79 g
Prep Extract Vol: 20 uL

Batch Summary

Analytical Method: EPA 1613B

Prep Method: EPA 1613 PREP S/D/T
Prep Batch: HXX1279
Prep Date: 09/26/2011 17:00

Client Sample ID	Lab Sample ID	Analysis Date	Analytical Batch	Instrument	Analyst
OPR for HBN 12239 [HXX/1279]	41227	09/29/2011 02:02	HRD1397	HRMS2	JHL
OPRD for HBN 12239 [HXX/1279]	41228	09/29/2011 02:49	HRD1397	HRMS2	JHL
LMB for HBN 12239 [HXX/1279]	41226	09/29/2011 03:37	HRD1397	HRMS2	JHL
SE5823-1	31102529001	09/29/2011 07:42	HRD1397	HRMS2	JHL
SE5823-2	31102529002	09/29/2011 08:30	HRD1397	HRMS2	JHL
SE5823-3	31102529003	09/29/2011 09:18	HRD1397	HRMS2	JHL
SE5823-4	31102529004	09/29/2011 10:05	HRD1397	HRMS2	JHL
SE5823-3	31102529003	09/29/2011 12:52	HRD1401	HRMS3	JHL

Method Blank Summary

Blank ID: LMB for HBN 12239 [HXX/1279]
Blank Lab ID: 41226
QC for Samples:
31102529001, 31102529002, 31102529003, 31102529004

Matrix: Soil-Solid as dry weight

Results by **EPA 1613B**

Parameter	Result	EMPC	Qual	DL	LOQ/CL	Units	RT	Ratio
2,3,7,8-TCDD	ND		U	0.134	0.500	pg/g		
1,2,3,7,8-PeCDD	ND		U	0.119	2.50	pg/g		
1,2,3,4,7,8-HxCDD	ND		U	0.127	2.50	pg/g		
1,2,3,6,7,8-HxCDD	ND		U	0.160	2.50	pg/g		
1,2,3,7,8,9-HxCDD	ND		U	0.145	2.50	pg/g		
1,2,3,4,6,7,8-HpCDD	ND		U	0.210	2.50	pg/g		
OCDD	ND		U	0.556	5.00	pg/g		
2,3,7,8-TCDF	ND		U	0.110	0.500	pg/g		
1,2,3,7,8-PeCDF	ND		U	0.0652	2.50	pg/g		
2,3,4,7,8-PeCDF	ND		U	0.0554	2.50	pg/g		
1,2,3,4,7,8-HxCDF	ND		U	0.0698	2.50	pg/g		
1,2,3,6,7,8-HxCDF	ND		U	0.0842	2.50	pg/g		
2,3,4,6,7,8-HxCDF	ND		U	0.0900	2.50	pg/g		
1,2,3,7,8,9-HxCDF	ND		U	0.116	2.50	pg/g		
1,2,3,4,6,7,8-HpCDF	ND		U	0.137	2.50	pg/g		
1,2,3,4,7,8,9-HpCDF	ND		U	0.178	2.50	pg/g		
OCDF	ND		U	0.386	5.00	pg/g		
Total TCDD	ND		U	0.134	0.500	pg/g		
Total TCDF	ND		U	0.110	0.500	pg/g		
Total PeCDD	ND		U	0.119	2.50	pg/g		
Total PeCDF	ND		U	0.0652	2.50	pg/g		
Total HxCDD	ND		U	0.160	2.50	pg/g		
Total HxCDF	ND		U	0.116	2.50	pg/g		
Total HpCDD	ND		U	0.210	2.50	pg/g		
Total HpCDF	ND		U	0.178	2.50	pg/g		
Labeled Standards								
13C-2378-TCDD	84.0				25.0-164	%		
13C-12378-PeCDD	85.0				25.0-181	%		
13C-123478-HxCDD	100				32.0-141	%		
13C-123678-HxCDD	87.0				28.0-130	%		
13C-1234678-HpCDD	86.0				23.0-140	%		
13C-OCDD	79.0				17.0-157	%		
13C-2378-TCDF	79.0				24.0-169	%		
13C-12378-PeCDF	78.0				24.0-185	%		
13C-23478-PeCDF	91.0				21.0-178	%		
13C-123478-HxCDF	91.0				26.0-152	%		
13C-123678-HxCDF	78.0				26.0-123	%		
13C-234678-HxCDF	78.0				29.0-147	%		
13C-123789-HxCDF	79.0				28.0-136	%		
13C-1234678-HpCDF	75.0				28.0-143	%		
13C-1234789-HpCDF	88.0				26.0-138	%		

Method Blank Summary

Blank ID: LMB for HBN 12239 [HXX/1279]
Blank Lab ID: 41226
QC for Samples:
31102529001, 31102529002, 31102529003, 31102529004

Matrix: Soil-Solid as dry weight

Results by **EPA 1613B**

Parameter	Result	EMPC	Qual	DL	LOQ/CL	Units	RT	Evlp
37Cl-2378-TCDD	85.0				35.0-197	%		

Batch Information

Analytical Batch: HRD1397
Analytical Method: EPA 1613B
Instrument: HRMS2
Analyst: JHL
Analytical Date/Time: 09/29/2011 03:37
Dilution: 1

Prep Batch: HXX1279
Prep Method: EPA 1613 PREP S/D/T
Prep Date/Time: 09/26/2011 17:00
Prep Initial Wt./Vol.: 10 g
Prep Extract Vol: 20 uL

Print Date: 10/03/2011

N.C. Certification # 481

SGS North America Inc.
5500 Business Drive, Wilmington, NC 28405
t 910.350.1903 f 910.350.1557 www.us.sgs.com
Member of SGS Group

Blank Spike Summary

Blank Spike ID: OPR for HBN 12239 [HXX/1279]
Blank Spike Lab ID: 41227
Date Analyzed: 09/29/2011 02:02

Spike Duplicate ID: OPRD for HBN 12239 [HXX/1279]
Spike Duplicate Lab ID: 41228
Date Analyzed: 09/29/2011 02:49
Matrix: Soil-Solid as dry weight

QC for Samples: 31102529001, 31102529002, 31102529003, 31102529004

Results by **EPA 1613B**

	Blank Spike (pg/g)			Spike Duplicate (pg/g)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
2,3,7,8-TCDD	20.0	19.3	96	20.0	19.0	95	67-158	1.6	20.00
1,2,3,7,8-PeCDD	100	99.0	99	100	95.5	95	70.0-142	3.6	20.00
1,2,3,4,7,8-HxCDD	100	79.1	79	100	78.4	78	70.0-164	0.89	20.00
1,2,3,6,7,8-HxCDD	100	102	102	100	96.7	97	76.0-134	5.3	20.00
1,2,3,7,8,9-HxCDD	100	90.5	91	100	87.9	88	64.0-162	3.4	20.00
1,2,3,4,6,7,8-HpCDD	100	94.0	94	100	90.7	91	70.0-140	4.1	20.00
OCDD	200	191	96	200	186	93	78.0-144	2.7	20.00
2,3,7,8-TCDF	20.0	20.5	103	20.0	19.6	98	75.0-158	4.5	20.00
1,2,3,7,8-PeCDF	100	92.5	92	100	87.3	87	80.0-134	5.8	20.00
2,3,4,7,8-PeCDF	100	75.4	75	100	75.1	75	68.0-160	0.40	20.00
1,2,3,4,7,8-HxCDF	100	79.9	80	100	77.5	77	72.0-134	3.0	20.00
1,2,3,6,7,8-HxCDF	100	99.0	99	100	93.2	93	84.0-130	6.0	20.00
2,3,4,6,7,8-HxCDF	100	97.3	97	100	95.0	95	70.0-156	2.4	20.00
1,2,3,7,8,9-HxCDF	100	94.5	95	100	94.6	95	78.0-130	0.11	20.00
1,2,3,4,6,7,8-HpCDF	100	98.2	99	100	99.1	99	82.0-122	0.10	20.00
1,2,3,4,7,8,9-HpCDF	100	83.8	84	100	78.4	78	78.0-138	6.7	20.00
OCDF	200	181	90	200	180	90	63.0-170	0.55	20.00
Labeled Standards									
13C-2378-TCDD			82			82	25.0-164		
13C-12378-PeCDD			84			88	25.0-181		
13C-123478-HxCDD			103			103	32.0-141		
13C-123678-HxCDD			88			89	28.0-130		
13C-1234678-HpCDD			84			85	23.0-140		
13C-OCDD			73			86	17.0-157		
13C-2378-TCDF			69			78	24.0-169		
13C-12378-PeCDF			76			81	24.0-185		
13C-23478-PeCDF			89			94	21.0-178		
13C-123478-HxCDF			90			92	26.0-152		
13C-123678-HxCDF			77			77	26.0-123		
13C-234678-HxCDF			79			79	29.0-147		
13C-123789-HxCDF			79			78	26.0-136		
13C-1234678-HpCDF			72			74	28.0-143		
13C-1234789-HpCDF			87			94	26.0-138		
37Cl-2378-TCDD			86			82	35.0-197		

Print Date: 10/03/2011

N.C. Certification # 481

Blank Spike Summary

Blank Spike ID: OPR for HBN 12239 [HXX/1279]
Blank Spike Lab ID: 41227
Date Analyzed: 09/29/2011 02:02

Spike Duplicate ID: OPRD for HBN 12239 [HXX/1279]
Spike Duplicate Lab ID: 41228
Date Analyzed: 09/29/2011 02:49
Matrix: Soil-Solid as dry weight

QC for Samples: 31102529001, 31102529002, 31102529003, 31102529004

Results by **EPA 1613B**

		Blank Spike (%)			Spike Duplicate (%)				
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Batch Information									
Analytical Batch: HRD1397					Prep Batch: HXX1279				
Analytical Method: EPA 1613B					Prep Method: EPA 1613 PREP 2/03/T				
Instrument: HRMS2					Prep Date/Time: 09/26/2011 17:00				
Analyst: JHL					Spike Init Wt./Vol.: 10 g Default Vol: 20 uL				
					Dupe Init Wt./Vol.: 10 g Default Vol: 20 uL				

Print Date: 10/03/2011

N.C. Certification # 481

Katahdin ANALYTICAL SERVICES
600 Technology Way
Scarborough, ME 04074
Tel: (207) 874-2400
Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND PRINT LEGIBLY IN PEN

31102529

Page ____ of ____

Client	Contact	Phone #	Fax #
Katahdin Analytical	Kelly Perkins	( )	( )

Address	City	State	Zip Code

Purchase Order #	Proj. Name / No.	Katahdin Quote #
	Capisic Pond/203939	

Bill (if different than above)	Address

Sampler (Print / Sign)	Copies To:

LAB USE ONLY

WORK ORDER #: SE5823

KATAHDIN PROJECT NUMBER _____

REMARKS: _____

SHIPPING INFO: ☐ FED EX ☐ UPS ☐ CLIENT

AIRBILL NO: _____

TEMP°C _____ ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

*	Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	ANALYSIS AND CONTAINER TYPE PRESERVATIVES: Filt. ☐Y ☐N
	SE5823-1	9-14-11/0820	SL	1	✓
	SE5823-2	/0905			✓
	SE5823-3	/1140			✓
	SE5823-4	/1020			✓
		/			
		/			
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		/			
		/			
		/			
		/			
		/			

Dioxin Method 1613

w/ confirmation - US TEF Equivalent Maine 1987 Reg + II TEF 1989 Maine Factors

COMMENTS

1.4°C - seal intact

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Don Medin	9/14/11 1530			9/16/11 9:45	
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

ORIGINAL

KAS-COC1

SGS North America Inc.

Sample Receipt Checklist (SRC)

Client: **Katahdin** Work Order No.: **31102529**

Notes:

1. x Shipped
   ___ Hand Delivered
2. x COC Present on Receipt
   ___ No COC
   ___ Additional Transmittal Forms
3. x Custody Tape on Container
   ___ No Custody Tape
4. x Samples Intact
   ___ Samples Broken / Leaking
5. x Chilled on Receipt Actual Temp.(s) in °C: 1.4
   ___ Ambient on Receipt
   ___ Walk-in on Ice; Coming down to temp.
   ___ Received Outside of Temperature Specifications
6. x Sufficient Sample Submitted
   ___ Insufficient Sample Submitted
7. ___ Chlorine absent — NA
   ___ HNO3 < 2
   ___ HCL < 2
   ___ Additional Preservatives verified (see notes)
8. x Received Within Holding Time
   ___ Not Received Within Holding Time
9. x No Discrepancies Noted
   ___ Discrepancies Noted
10. ___ No Headspace present in VOC vials
    ___ Headspace present in VOC vials >6mm

Comments:

Inspected and Logged in by: TP

Date: Mon-9/19/11 00:00

Katahdin Analytical Services, Inc. — Sample Receipt Condition Report

Client:	Woodard + Curran	KAS PM:	KAP	Sampled By:	Client
Project:		KIMS Entry By:	DM	Delivered By:	Client
KAS Work Order#:	SE5823	KIMS Review By:	MAP	Received By:	DM
SDG #:		Cooler: 1 of 1		Date/Time Rec.:	9/14/11 1250

Receipt Criteria	Y	N	EX*	NA	Comments and/or Resolution
1. Custody seals present / intact?		✓			
2. Chain of Custody present in cooler?	✓				
3. Chain of Custody signed by client?	✓				
4. Chain of Custody matches samples?	✓				
5. Temperature Blanks present? If not, take temperature of any sample w/ IR gun.	✓				Temp (°C): 3.3
Samples received at <6 °C w/o freezing?	✓				Note: Not required for metals analysis.
Ice packs or ice present?	✓				The lack of ice or ice packs (i.e. no attempt to begin cooling process) may not meet certain regulatory requirements and may invalidate certain data.
If temp. out, has the cooling process begun (i.e. ice or packs present) and sample collection times <6hrs., but samples are not yet cool?				✓	Note: No cooling process required for metals analysis.
6. Volatiles free of headspace: **Aqueous:** No bubble larger than a pea				✓	
Soil/Sediment: Received in airtight container?				✓	
Received in methanol?				✓	
Methanol covering soil?				✓	
7. Trip Blank present in cooler?				✓	
8. Proper sample containers and volume?	✓				
9. Samples within hold time upon receipt?	✓				
10. Aqueous samples properly preserved? Metals, COD, NH3, TKN, O/G, phenol,				✓	
TPO4, N+N, TOC, DRO, TPH – pH <2				✓	
Sulfide - >9 Cyanide – pH >12				✓	

* Log-In Notes to Exceptions: document any problems with samples or discrepancies or pH adjustments

Katahdin ANALYTICAL SERVICES
600 Technology Way
Scarborough, ME 04074
Tel: (207) 874-2400
Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND PRINT LEGIBLY IN PEN

Client	Contact	Phone #	Fax #
WOODARD & CURRAN	ZACH HENDERSON	(207) 774-2112	( )

Address	City	State	Zip Code
41 HUTCHINS Dr.	PORTLAND	ME	04102

Purchase Order #	Proj. Name / No.	Katahdin Quote #
	CAPISIC POND / 203939	

Bill (if different than above) Address

Sampler (Print / Sign) David Dinsmore / David Dinsmore

Copies To: Dave Dinsmore

LAB USE ONLY WORK ORDER #: SE5823

KATAHDIN PROJECT NUMBER

REMARKS:

SHIPPING INFO: ☐ FED EX ☐ UPS ☐ CLIENT

AIRBILL NO:

TEMP°C ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

*	Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	ANALYSIS AND CONTAINER TYPE PRESERVATIVES: Filt. DIOXIN	Filt. Metals, Total P	Filt. PAH, Pest, PCB	Filt. EPH	Filt. Grain Size	Filt.	Filt.	Filt.	Filt.	Filt.
					☐Y ☒N	☐Y ☒N	☐Y ☒N	☐Y ☒N	☐Y ☒N	☐Y ☐N	☐Y ☐N	☐Y ☐N	☐Y ☐N	☐Y ☐N
	SD-01	9/14/11 / 0820	SED	5	1	1	1	1	1					
	SD-02	9/14/11 / 0905	"	5	1	1	1	1	1					
	SD-03	9/14/11 / 1140	"	5	1	1	1	1	1					
	SD-04	9/14/11 / 1020	↓	5	1	1	1	1	1					
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COMMENTS

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
David Dinsmore	9/14/11 1245	Dan Medlin			
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

ORIGINAL

KAS COC1

Katahdin
ANALYTICAL SERVICES

Katahdin Analytical Services

Login Chain of Custody Report (lno1)

Sep. 15, 2011
11:55 AM

Login Number: SE5823

Account: WOODAR001
Woodard & Curran

Project:

Web

Quote/Incoming:

Primary Report Address:
Zach Henderson
Woodard & Curran
41 Hutchins Drive

Portland,ME 04102
zhenderson@woodardcurran.com

Primary Invoice Address:
Accounts Payable
Woodard & Curran
41 Hutchins Drive

Portland,ME 04102

Report CC Addresses:

Invoice CC Addresses:

Login Information:

ANALYSIS INSTRUCTIONS	:	merge results for EDD
CHECK NO.	:	
CLIENT PO#	:	
CLIENT PROJECT MANAGE	:	
CONTRACT	:	
COOLER TEMPERATURE	:	3.3
DELIVERY SERVICES	:	Client
EDD FORMAT	:	KAS027-XLS and KAS064-XLS
LOGIN INITIALS	:	GN
PM	:	KAP
PROJECT NAME	:	Capisic Pond / 203939
QC LEVEL	:	II
REGULATORY LIST	:	
REPORT INSTRUCTIONS	:	email pdf and EDD to Zach and Dave Dinsmore. No HC
SDG ID	:	
SDG STATUS	:	

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Mailed
SE5823-1	SD-01	14-SEP-11 08:20	14-SEP-11			04-OCT-11	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	ASTM-D422-SUB		50g Glass		
Solid	S	E365.4-TOTAL-PHOS	12-OCT-11	100g Glass		
Solid	S	MA-EPH	28-SEP-11	100g Glass		
Solid	P	RCRA-METALS				
		SW3050-PREP	SW6010-ARSENIC	SW6010-CADMIUM		
		SW6010-CHROMIUM	SW6010-LEAD	SW7471-MERCURY		
Solid	S	SW7196A-CRVI	12-OCT-11	50g Glass		
Solid	S	SW8081	28-SEP-11	100g Glass		
Solid	S	SW8082	28-SEP-11	100g Glass		
Solid	S	SW8270SIM	28-SEP-11	100g Glass		
Solid	S	SW8290-DIOXIN-SUB		50g Glass		
Solid	S	TS	14-OCT-11			

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Mailed
SE5823-2	SD-02	14-SEP-11 09:05	14-SEP-11			04-OCT-11	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	ASTM-D422-SUB		50g Glass		
Solid	S	E365.4-TOTAL-PHOS	12-OCT-11	100g Glass		
Solid	S	MA-EPH	28-SEP-11	100g Glass		
Solid	P	RCRA-METALS				
		SW3050-PREP	SW6010-ARSENIC	SW6010-CADMIUM		
		SW6010-CHROMIUM	SW6010-LEAD	SW7471-MERCURY		
Solid	S	SW7196A-CRVI	12-OCT-11	50g Glass		
Solid	S	SW8081	28-SEP-11	100g Glass		
Solid	S	SW8082	28-SEP-11	100g Glass		
Solid	S	SW8270SIM	28-SEP-11	100g Glass		
Solid	S	SW8290-DIOXIN-SUB		50g Glass		
Solid	S	TS	14-OCT-11			

Katahdin ANALYTICAL SERVICES

Katahdin Analytical Services

Login Chain of Custody Report (lno1)

Sep. 15, 2011
11:55 AM

Login Number: SE5823

Quote/Incoming:

Account: WOODAR001 Web
Woodard & Curran

Project:

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Mailed
SE5823-3	SD-03	14-SEP-11 11:40	14-SEP-11			04-OCT-11	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	ASTM-D422-SUB		50g Glass		
Solid	S	E365.4-TOTAL-PHOS	12-OCT-11	100g Glass		
Solid	S	MA-EPH	28-SEP-11	100g Glass		
Solid	P	RCRA-METALS				
SW3050-PREP		SW6010-ARSENIC		SW6010-CADMIUM		
SW6010-CHROMIUM		SW6010-LEAD		SW7471-MERCURY		
Solid	S	SW7196A-CRVI	12-OCT-11	50g Glass		
Solid	S	SW8081	28-SEP-11	100g Glass		
Solid	S	SW8082	28-SEP-11	100g Glass		
Solid	S	SW8270SIM	28-SEP-11	100g Glass		
Solid	S	SW8290-DIOXIN-SUB		50g Glass		
Solid	S	TS	14-OCT-11			

SE5823-4	SD-04	14-SEP-11 10:20	14-SEP-11			04-OCT-11	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Solid	S	ASTM-D422-SUB		50g Glass		
Solid	S	E365.4-TOTAL-PHOS	12-OCT-11	100g Glass		
Solid	S	MA-EPH	28-SEP-11	100g Glass		
Solid	P	RCRA-METALS				
SW3050-PREP		SW6010-ARSENIC		SW6010-CADMIUM		
SW6010-CHROMIUM		SW6010-LEAD		SW7471-MERCURY		
Solid	S	SW7196A-CRVI	12-OCT-11	50g Glass		
Solid	S	SW8081	28-SEP-11	100g Glass		
Solid	S	SW8082	28-SEP-11	100g Glass		
Solid	S	SW8270SIM	28-SEP-11	100g Glass		
Solid	S	SW8290-DIOXIN-SUB		50g Glass		
Solid	S	TS	14-OCT-11			

Total Samples: *4* ***Total Analyses:*** *40*