CAMBRIDGE DEPARTMENT OF PUBLIC THE WORKS

Lisa Peterson
Commissioner

147 Hampshire Street
Cambridge, MA 02139
617-349-4800
TTD 617-349-4805

November 5, 2009

Conservation Commission
Attn: Jennifer Wright, Director
344 Broadway
Cambridge, MA 02139

RE: Notice of Intent
CAM 400 Sewer Separation and Floatables Control Project
Cambridge, Massachusetts

Dear Commissioners:

The Cambridge Department of Public Works (DPW) is pleased to submit the enclosed Notice of Intent (NOI) for the CAM 400 Sewer Separation and Floatables Control Project, which is a component of the Massachusetts Water Resources Authority's (MWRA) Long-term Combined Sewer Overflow (CSO) Control Plan (LTCP) for Alewife Brook. The objective of the LTCP is to minimize CSO discharges to the Alewife Brook and Little River, thereby improving water quality. The purpose of this project is to:

- separate common manholes (CMH) eliminating mixing of stormwater and sanitary flows in the CAM 400 area;
- convert the CAM 400 CSO regulator structure to a dedicated storm drain outfall, eliminating CSOs at this location;
- install floatable control devices within the City's existing regulator structures at CAM 001, CAM 002, and CAM 401B thus reducing solids and floatable materials in CSO discharges;
- install a new relief connection from the City combined sewer to the MWRA Alewife Brook Conduit at the CAM 002 regulator location;
- install a new 15-inch diameter sewer connection to the MWRA Alewife Brook Conduit to replace an existing collapsed 10-inch pipe; and
- reconstruct the streets and sidewalks within the CAM 400 project area.

The CAM 400 project area is primarily bounded by Whittemore Avenue to the south, Seagrave Road/Columbus Avenue to the north,

Magoun Street to the east, and the intersection of Whittemore and Alewife Brook Parkway to the west. The CAM 400 regulator structure is located within the Alewife Reservation across from the CAM 400 area and north of Alewife Brook Parkway. Alewife Reservation and the Alewife Brook Parkway are owned and operated by the MA Department of Conservation and Recreation (DCR). The CAM 002 and CAM 401B CSO regulator structures are located in close proximity to each other at the intersection of Massachusetts Avenue and Alewife Brook Parkway. The CAM 001 structure is farther north along Alewife Brook Parkway, not far from Massachusetts Avenue. The regulator structures direct sanitary flow to the MWRA sewers during dry weather and combined sanitary and stormwater flows to the Alewife Brook during large rain events through the existing outfalls.

Infrastructure work associated with the CAM 001, CAM 002, CAM 401B, and CAM 400 regulator structures and the replacement sewer connection to the MWRA 66" Alewife Brook Conduit all take place within DCR property. In addition, a small segment of street and sidewalk enhancements at the intersection of Whittemore Avenue and Alewife Brook Parkway as well as new ADA compliant pedestrian ramps at the Seagrave Road and Columbus Avenue intersection will also take place on DCR property. All other work will take place within City of Cambridge rights-of-way. As a component of the project, the City is proposing to complete street enhancements that will include removal and replacement of the full width of pavement of existing streets and, in some areas, extension of new sidewalks.

The primary resource areas within the project area are associated with Alewife Brook and were delineated early in the design process by Wetlands Preservation Inc. working with Harry R. Feldman, Inc. Much of the CAM 400 area is within the 100-year floodplain (Zone A) and as a consequence much of the roadway enhancement work will impact Bordering Land Subject to Flooding (BLSF). Work within the Alewife Reservation pertaining to modifications to the CAM 400 regulator structure and connection to the 66" MWRA sewer also takes place within BLSF. All of the infrastructure work (i.e. regulators and sewer) taking place within DCR property and rights-of-way falls within the 100-foot buffer zone associated with Alewife Brook. Work associated with the CAM 001 regulator structure will additionally require a minor encroachment on Riverfront Area within the Alewife Reservation, where we propose to reconstruct a portion of collapsed outfall pipe. The collapsed pipe segment extends approximately 23-feet from the regulator structure toward the brook. Beyond the terminus of pipe replacement, the existing pipe extends an additional 25-feet to the outlet at Alewife Brook. Several alternatives to complete

replacement of this pipe section have been considered (see alternative analysis memorandum attached to the NOI), however no adequate alternative to complete reconstruction was identified. As a consequence work will take place within a small portion of the Riverfront Area associated with the brook.

Work associated with the CAM 002 regulator will also impact a small segment of Riverfront Area. The CAM 002 location is a previously developed paved site at which roadway and utilities have existed since prior to 1995. The work involves repair and replacement of utilities specifically to enhance floatables control and water quality and will replace pipes and/or structures already at the site. The only portion of the work within Riverfront Area is a pipe segment reconnecting the regulator structure to the outfall pipe. No new paved area will be created, but existing pavement will be replaced in kind upon completion of the utility repair.

The CAM 400 Sewer Separation and Floatables Control Project is considered a redevelopment project. Attempts have been made to achieve all applicable DEP stormwater standards. When such standards could not be achieved, the project meets standards to the Maximum Extent Practicable and does improve existing conditions. Full details of these efforts are provided in the attached Stormwater Report.

If you have any questions or concerns regarding this NOI, please do not hesitate to contact Vincent Spada of S E A Consultants at (617) 498-4728 or me at 617-349-4845.

Respectfully yours,

Owen O'Riordan
City Engineer

I:\CLIENTS\CAMBRIDGE\2008288 CAM 400 SEWER SEPARATION\PERMITS\NOI\XMITTAL 10_30_09.DOC

Enclosures: Original and 9 copies

cc: Catherine Daly Woodbury, Cambridge DPW
Dan Driscoll, Departrment of Conservation and Recreation
Noel Baratta, Department of Conservation and Recreation
Vincent W. Spada, S E A
William C. Pisano, Montgomery Watson Harza
DEP/NERO - Wetlands Program – 2 copies
DEP Lock Box – Transmittal form only

WPA Forms
Notice of Intent, Fee Transmittal Form, Stormwater Report Checklist and List of Owners

Table of Contents

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

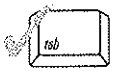
Provided by MassDEP:

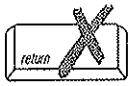
MassDEP File Number

Document Transaction Number

Cambridge
City/Town

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.





Note: Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

Whittemore Ave./ Columbus Ave./Mass Ave. (a. Street Address) | Cambridge (b. City/Town) | (c. Zip Code)

Latitude and Longitude: (d. Latitude) | (e. Longitude)

N/A (f. Assessors Map/Plat Number) | (g. Parcel /Lot Number)

2. Applicant:

Owen (a. First Name) | O'Riordan (b. Last Name)

City of Cambridge Department of Public Works (c. Organization)

147 Hampshire Street (d. Street Address)

Cambridge (e. City/Town) | MA (f. State) | 02139 (g. Zip Code)

617-349-4845 (h. Phone Number) | 617-349-4868 (i. Fax Number) | ooriordan@cambridgema.gov (j. Email Address)

3. Property owner (required if different from applicant): ☒ Check if more than one owner

See attached list. (a. First Name) | (b. Last Name)

(c. Organization)

(d. Street Address)

(e. City/Town) | (f. State) | (g. Zip Code)

(h. Phone Number) | (i. Fax Number) | (j. Email address)

4. Representative (if any):

Vincent (a. First Name) | Spada (b. Last Name)

S E A Consultants Inc. (c. Company)

215 First Street, Suite 320 (d. Street Address)

Cambridge (e. City/Town) | MA (f. State) | 02142 (g. Zip Code)

617-498-4690 (h. Phone Number) | 617-498-4630 (i. Fax Number) | vincent.spada@seacon.com (j. Email address)

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

Municipal applicant (a. Total Fee Paid) | Exempt (b. State Fee Paid) | Exempt (c. City/Town Fee Paid)

A. General Information (continued)

6. General Project Description:

Separate storm and sanitary flows in the CAM 400 area of the city and closure of the CAM400 CSO regulator; installation of floatable control devices at CAM001, CAM 002 and CAM401B and associated work; replacement of a 10" clay pipe with a new 15-inch diameter sewer connection to the MWRA Alewife Brook Conduit; and sidewalk/roadway improvements will be included.

7a. Project Type Checklist:

1. ☐ Single Family Home
2. ☐ Residential Subdivision
3. ☐ Limited Project Driveway Crossing
4. ☐ Commercial/Industrial
5. ☐ Dock/Pier
6. ☒ Utilities
7. ☐ Coastal Engineering Structure
8. ☐ Agriculture (e.g., cranberries, forestry)
9. ☒ Transportation
10. ☐ Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☒ Yes ☐ No If yes, describe which limited project applies to this project:

The largest component of the project consists of underground utilities contruction and reconstruction which qualifies as a limited project per 10.53(3)(d).

8. Property recorded at the Registry of Deeds for:

a. County
b. Certificate # (if registered land)
c. Book
d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

1. ☐ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
2. ☒ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Bank	1. linear feet	2. linear feet
b. ☐ Bordering Vegetated Wetland	1. square feet	2. square feet
c. ☐ Land Under Waterbodies and Waterways	1. square feet 3. cubic yards dredged	2. square feet

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☒ Bordering Land Subject to Flooding	4,145 (1. square feet)	(2. square feet)
	1,710 (3. cubic feet of flood storage lost)	1,838 (4. cubic feet replaced)
e. ☐ Isolated Land Subject to Flooding	(1. square feet)	
	(2. cubic feet of flood storage lost)	(3. cubic feet replaced)
f. ☒ Riverfront Area	Alewife Brook (1. Name of Waterway (if available))	

2. Width of Riverfront Area (check one):

☒ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☐ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: 500 s.f.(Two 25'L x 10'W trenches to outfall)

4. Proposed alteration of the Riverfront Area:

a. total square feet	b. square feet within 100 ft.	c. square feet between 100 ft. and 200 ft.
<120 sf	<120 sf	0

5. Has an alternatives analysis been done and is it attached to this NOI? ☒ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☒ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. ☐ Land Under the Ocean	(1. square feet)	
	(2. cubic yards dredged)	
c. ☐ Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. ☐ Coastal Beaches	(1. square feet)	(2. cubic yards beach nourishment)
e. ☐ Coastal Dunes	(1. square feet)	(2. cubic yards dune nourishment)

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

		Size of Proposed Alteration	Proposed Replacement (if any)
f. ☐	Coastal Banks	1. linear feet	
g. ☐	Rocky Intertidal Shores	1. square feet	
h. ☐	Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. ☐	Land Under Salt Ponds	1. square feet 2. cubic yards dredged	
j. ☐	Land Containing Shellfish	1. square feet	
k. ☐	Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above 1. cubic yards dredged	
l. ☐	Land Subject to Coastal Storm Flowage	1. square feet	

4. ☐ Restoration/Enhancement
If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW | b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings | b. number of replacement stream crossings

C. Other Applicable Standards and Requirements

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/priority_habitat/online_viewer.htm.

a. ☐ Yes ☒ No **If yes, include proof of mailing or hand delivery of NOI to:**

Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
Route 135, North Drive
Westborough, MA 01581

2008
b. Date of map

C. Other Applicable Standards and Requirements (cont'd)

If *yes*, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.C, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.1.d, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

1. c. Submit Supplemental Information for Endangered Species Review*

   1. ☐ Percentage/acreage of property to be altered:

      (a) within wetland Resource Area _____ percentage/acreage

      (b) outside Resource Area _____ percentage/acreage

   2. ☐ Assessor's Map or right-of-way plan of site

   3. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work ***

      (a) ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

      (b) ☐ Photographs representative of the site

      (c) ☐ MESA filing fee (fee information available at: http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/mesa/mesa_fee_schedule.htm). Make check payable to "Natural Heritage & Endangered Species Fund" and ***mail to NHESP*** at above address

      *Projects altering **10 or more acres** of land, also submit:*

      (d) ☐ Vegetation cover type map of site

      (e) ☐ Project plans showing Priority & Estimated Habitat boundaries

   d. OR Check One of the Following

   1. ☐ Project is exempt from MESA review.
      Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/mesa/mesa_exemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

   2. ☐ Separate MESA review ongoing. _____ a. NHESP Tracking # _____ b. Date submitted to NHESP

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see http://www.mass.gov/dfwele/dfw/nhesp/nhesp.htm, regulatory review tab). Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.

C. Other Applicable Standards and Requirements (cont'd)

3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

2. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

a. ☒ Not applicable – project is in inland resource area only

b. ☐ Yes ☐ No If yes, include proof of mailing or hand delivery of NOI to either:

South Shore - Cohasset to Rhode Island, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
1213 Purchase Street – 3rd Floor
New Bedford, MA 02740-6694

North Shore - Hull to New Hampshire:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.

3. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.

b. ACEC

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

4. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?

a. ☐ Yes ☒ No

5. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?

a. ☐ Yes ☒ No

6. Is this project subject to provisions of the MassDEP Stormwater Management Standards?

a. ☒ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:

1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)

2. ☒ A portion of the site constitutes redevelopment

3. ☐ Proprietary BMPs are included in the Stormwater Management System.

b. ☐ No. Check why the project is exempt:

1. ☐ Single-family house

C. Other Applicable Standards and Requirements (cont'd)

2. ☐ Emergency road repair

3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)

2. ☒ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.

3. ☒ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☒ List the titles and dates for all plans and other materials submitted with this NOI.

See attached Plan List (Section 6)
a. Plan Title

b. Prepared By

c. Signed and Stamped by

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

g. Date

5. ☒ If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. ☒ Attach NOI Wetland Fee Transmittal Form

9. ☒ Attach Stormwater Report, if needed.

E. Fees

1. ☒ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

N/A 2. Municipal Check Number	N/A 3. Check date
N/A 4. State Check Number	N/A 5. Check date
N/A 6. Payor name on check: First Name	N/A 7. Payor name on check: Last Name

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant	2. Date 11/4/09
3. Signature of Property Owner (if different)	4. Date
5. Signature of Representative (if any)	6. Date 11/5/09

For Conservation Commission:
Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:
One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:
If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

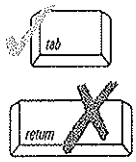
The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. Applicant Information

1. Applicant:

Owen	O'Riordan
a. First Name	b. Last Name

Department of Public Works
c. Organization

147 Hampshire Street
d. Mailing Address

Cambridge	MA	02139
e. City/Town	f. State	g. Zip Code

617-349-4845	617-349-4868	ooriordan@cambridgema.gov
h. Phone Number	i. Fax Number	j. Email Address

2. Property Owner (if different):

See attached List (Section 6)	
a. First Name	b. Last Name

c. Organization

d. Mailing Address

e. City/Town	f. State	g. Zip Code

h. Phone Number	i. Fax Number	j. Email Address

3. Project Location:

Whittemore Ave./Columbus Ave./Mass Ave.	Cambridge
a. Street Address	b. City/Town

B. Fees

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).

The fee should be calculated using the following six-step process and worksheet. **Please see Instructions before filling out worksheet.**

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract $12.50. To calculate the city/town share of the fee, divide the total fee in half and add $12.50.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee

Step 5/Total Project Fee: _____

Step 6/Fee Payments:

Total Project Fee: Exempt
a. Total Fee from Step 5

State share of filing Fee: _____
b. 1/2 Total Fee **less** $12.50

City/Town share of filling Fee: _____
c. 1/2 Total Fee **plus** $12.50

C. Submittal Requirements

a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
Box 4062
Boston, MA 02211

b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

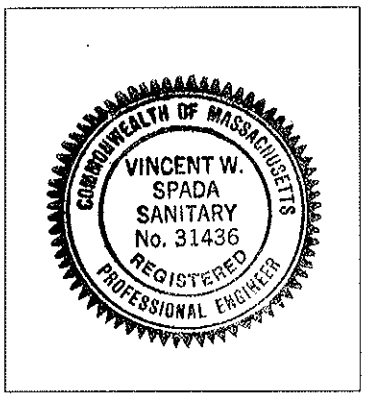
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



Signature and Date 11/5/09

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

☐ New development

☒ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☐ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☒ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
  - ☐ Credit 1
  - ☐ Credit 2
  - ☐ Credit 3
- ☐ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☒ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☐ Other (describe): _____

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☐ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☐ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☒ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☐ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☐ Soil Analysis provided.

☐ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☐ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☐ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

☐ Site is comprised solely of C and D soils and/or bedrock at the land surface

☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000

☐ Solid Waste Landfill pursuant to 310 CMR 19.000

☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☐ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

[1] 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour) .
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☐ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

☐ The BMP is sized (and calculations provided) based on:

- ☐ The ½" or 1" Water Quality Volume or
- ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☐ Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

☒ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☒ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☒ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☒ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☐ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☒ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☒ Description and delineation of public safety features;
- ☒ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☒ An Illicit Discharge Compliance Statement is attached;

☐ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

Property Owners (in addition to applicant – City of Cambridge)

1. Massachusetts Department of Conservation and Recreation, 251 Causeway Street, Boston, MA. Phone: 617-626-1491 FAX: 617-626-1370

Section 1
Introduction

The Cambridge Department of Public Works (DPW) is seeking an Order of Conditions to perform sewer separation and storm drain upgrades in the northwest part of the City, referred to as the CAM 400 area (see Figure 1.1 Locus Map). In addition to the utility upgrades, the project includes removal and replacement of pavement across the full width of the roads in the project area and some enhancements such as improved and/or new sidewalks. A portion of the project will take place within the Alewife Reservation and Alewife Brook Parkway, owned and maintained by the Massachusetts Department of Conservation and Recreation (DCR). This project is being proposed to enable sewer separation in the area through elimination of common storm drain and sanitary sewer manholes. CAM 400 is a predominately residential area that lies in the northwest corner of the City.

This project is one component of the Massachusetts Water Resources Authority's (MWRA) Long-term Combined Sewer Overflow (CSO) Control Plan for Alewife Brook, which was developed to reduce the frequency and volume of CSO discharges to the Alewife Brook and Little River. The Long Term CSO Control Plan for Alewife Brook calls for the MWRA and the City of Cambridge to jointly implement a series of projects that significantly reduce the annual volume and frequency of CSO discharges. The CAM 400 sewer separation and floatables control project is an integral element to achieving water quality improvements in Alewife Brook. Design and construction of the sewer separation package for the CAM 400 area, including surface improvements, is anticipated to start in February 2010 and to be completed in July 2011.

1.1 ELEMENTS OF THE PROJECT

The main elements of the CAM 400 sewer separation and floatables control project consist of the following components:

- Internal modifications to an existing CAM 400 regulator structure in the Alewife Reservation north of the intersection of Alewife Brook Parkway and Columbus Avenue (see Sheet C-11, Attachment APP-7);

- Abandonment of an existing 10" diameter vitrified clay (VC) sewer from manholes on Columbus and Harrison Avenues to the CAM 400 regulator, and from the regulator to the existing 66" diameter precast concrete MWRA Alewife Brook Conduit (see Sheet C-11);
- Construction of a new 15" diameter polyvinyl chloride (PVC) sanitary sewer from an existing manhole structure on Columbus Avenue to the MWRA Alewife Brook Conduit (includes a crossing of Alewife Brook Parkway – see Sheet C-11);
- Modifications to three (3) sewer regulator structures (CAM 001, CAM 002 and CAM 401B) to reduce the discharge of floatable materials in CSOs to the Alewife Brook as follows:
    - Internal modifications to the CAM 001 structure including installation of a baffle, and replacement of approximately 25' of damaged 15" diameter VC outfall pipe extending northwest from the regulator structure to within approximately 23' of the outfall at Alewife Brook (see Sheet C-16, Attachment APP-7). The CAM 001 structure is just north of the Massachusetts Avenue/Alewife Brook Parkway intersection in Alewife Reservation.
    - Installation of a new connection from the City's combined sewer to the MWRA Alewife Brook Conduit at the site of the existing CAM 002 regulator to improve level of service and reduce CSO's (see Sheet C-14, Attachment APP-7). CAM 002 is located at the intersection of Alewife Brook Parkway and Massachusetts Avenue within the Mass. Ave. right-of-way. Work is to include installation of a new 36-inch diameter connection from the City's 38"x42" combined sewer to the MWRA 66-inch diameter Alewife Brook Conduit; a new 12'x 8' precast regulator structure with baffles installed for floatables control; replacement of a portion of the City combined sewer; reconnections to the CAM 002 A/B outfalls; and a reconnection to an existing 15-inch diameter City sewer that connects to the MWRA 29"x37" sewer. The new combined sewer connection will serve as a relief connection to reduce CSOs at this location and improve level of service due to the inadequate hydraulic capacity of the existing 15-inch connection to the MWRA 29"x37" sewer. The work will include minor re-pointing of the brick outfall to regulator structure CAM 002 (Outfall CAM 002A). The re-pointing

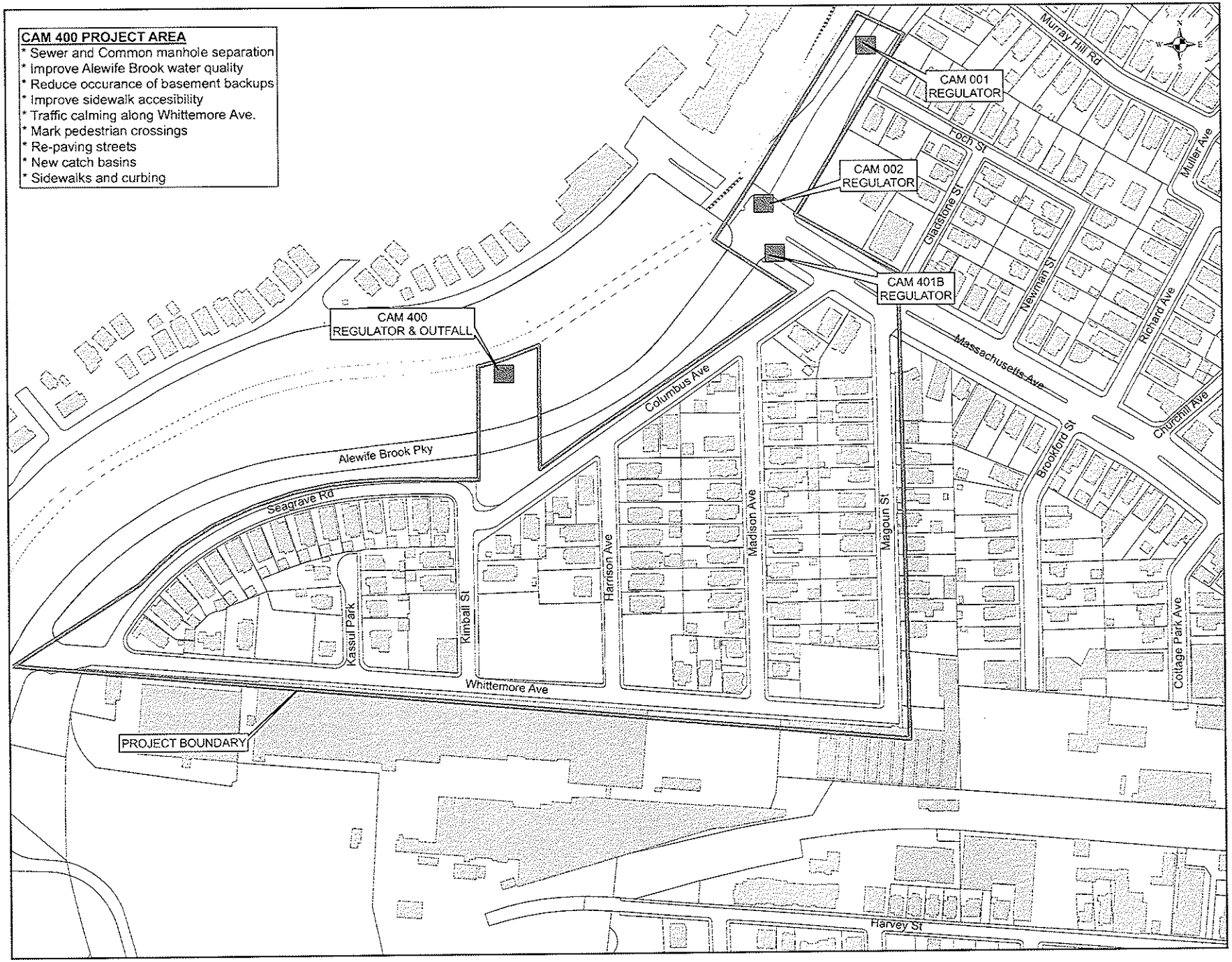
will consist of hand masonry work to replace loose bricks and mortar at the outfall pipe end and headwall. The work will be performed from the interior of the pipe which can be accessed a short distance upgradient.

A small portion of the work related to the CAM 002B outfall extends into Riverfront Area (Sheet C-14, Attachment APP-7). Riverfront Area in this segment is previously developed and degraded (i.e. paved roadway with underground utilities). The roadway and utilities have been in existence since well prior to 1996 and repair work here constitutes a grandfathered maintenance activity. All work will be done in accordance with the performance standards for work in buffer zone.

- At CAM 401B (located on the south side of Massachusetts Avenue at the Alewife Brook Parkway), the proposed work consists of: a new 6'x6' precast regulator structure with baffles installed for floatables control; a new 5-foot diameter manhole to replace the existing regulator structure; a new 30-inch diameter sewer connection between the two structures; a reconnection to the CAM 401B outfall; and a reconnection to an 18-inch diameter City sewer that connects to the MWRA 66-inch diameter Alewife Brook Conduit. See Sheet C-15, Attachment APP-7 for details.

- Surface enhancements include pavement removal and replacement across the full width of roadway of existing city-owned roadways within the project area, and re-construction of sidewalks and some limited new sidewalks for public safety purposes on the west end of Whittemore Avenue at the western extents of the project limits, which is on DCR property. This extension will connect the sidewalk with an existing sidewalk along Alewife Brook Parkway (see Sheet R-2, APP-7). At the intersection of Seagrave Road and Columbus Avenue, the proposed improvements include two new ADA compliant pedestrian ramps at the existing concrete walk serving a playground on DCR land (see Sheet R-15, APP-7). As much of the area falls within the 100-year floodplain for Alewife Brook, this latter work constitutes work in Bordering Land Subject to Flooding (BLSF). Surface improvements were designed to have minimal impacts on flood storage capacity within the area. Unavoidable impacts have been addressed through street

grading modifications to create compensatory storage. See Roadway Grading Plans, Sheets R-5, R-17, R-25, R-36 and R-40, APP-7 for roadway project limits with grading to create compensatory storage within the BLSF delineation. Calculations for flood storage lost and recreated as compensatory storage are also provided in Attachment APP-7.



CAM 400 SEWER SEPARATION/ FLOATABLES CONTROL PROJECT AREA

CITY OF CAMBRIDGE, MA

SEA

MWH

THE WORKS

1.2 RESOURCE AREAS

Portions of the project site located in the Alewife Reservation are regulated as Resource Areas under the Massachusetts Wetland Protection Act (MA WPA). Resource Areas were delineated early in the project and they include Bank, Land under Water (LUW), Bordering Land Subject to Flooding (BLSF), and Riverfront Area. A copy of the wetland delineation report is provided as Attachment APP-1. With the exception of BLSF, all resource areas are located within the Alewife Reservation. Buffer zones for these resource areas extend into City of Cambridge rights-of-way.

Work related to the CAM 400 regulator structure and connections to the MWRA conduit take place within the 100-foot buffer zone to resource areas (i.e. bank), as well as within BLSF (Sheet C-11).

Infrastructure work at or near the intersection of Massachusetts Avenue and Alewife Brook Parkway (regulator structures CAM 002, CAM 001 and CAM 401B) is considered to be within the DCR right of way for Alewife Brook Parkway. Detailed mapping of the Zone A (100-year floodplain) indicates that this intersection does not fall within BLSF, however, it is within the 100-foot buffer zone of the Alewife Brook bank resource area (see Sheets C-14, 15, and 16). The Riverfront Area extends in a parallel line from Alewife Brook to 25 feet on either side per 310 CMR 10.58. During field investigations, a 25-foot segment of the outfall pipe extending from the CAM 001 regulator structure to the brook was determined to be deficient and partially collapsed. Upon evaluation of pipe condition and rehabilitation alternatives, it was determined that replacement of the damaged pipe segment was the only practical alternative. Additional details associated with this analysis are provided in Attachment APP-2. This repair/replacement will extend trenching work that entails minimal encroachment upon the 25-foot Riverfront Area. No further work is anticipated at the outfall structure itself.

Proposed work at the CAM 002 regulator site also extends for several feet into Riverfront Area. The roadway and utilities have been in existence for decades and, as such, maintenance activities are exempt from Riverfront Area regulations, except for those standards associated with work within a buffer zone. The work involves repair and replacement of utilities specifically to enhance floatables control and water quality and will replace pipes and/or structures already at

the site. The only portion of the work within Riverfront Area is a pipe segment reconnecting the regulator structure to the outfall pipe. No new paved area will be created, but existing pavement will be replaced in kind upon completion of the utility repair. Minor work to re-point the bricks at the end of the outfall structure associated with CAM 002A is also anticipated (see description in Section 1.1). CAM 002A is one of two outfalls extending from the CAM 002 regulator structure and discharges to the brook at the Massachusetts Avenue bridge.

Surface enhancements include repair of existing roadways in the CAM 400 area and improvements to existing sidewalk and curb cut areas, much of which lies within BLSF. Consequently, the City has needed to limit design modifications that could influence flooding characteristics (e.g. traffic calming measures) and minimized either new impervious surface and/or elevation changes to those required for public safety. Drainage characteristics remain essentially unchanged. No surface enhancement work is proposed outside of the existing roadway rights-of-way (either DCR or City of Cambridge). Street improvements and pedestrian safety enhancements result in the loss of approximately 1,710 cubic feet of flood storage. In order to account for the lost storage volume (due primarily to the addition or extension of sidewalks in portions of the project), the roadway grading was modified to recreate compensatory storage within the project limits. Total compensatory storage provided is approximately 1,838 cubic feet.

1.3 COMPLIANCE WITH DEP STORMWATER MANAGEMENT STANDARDS

The purpose of the project is to reduce CSO discharges, improve water quality at receiving water bodies and to improve stormwater management (i.e. reduce flooding). The utilities repair component qualifies as a limited project. No new development is proposed and the project meets criteria as a re-development project. Therefore, the project is required to meet the DEP Stormwater Management Standards to the maximum extent practicable. The standards and level of compliance are presented in Table 1.1.

Table 1.1
Compliance with DEP Stormwater Management Standards

Stormwater Management Standard	Proposed Project
1. No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.	No new outfalls are proposed.
2. Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.	Project consists of re-development of previously developed property. Stormwater controls are proposed in part to mitigate flooding in areas currently experiencing back-ups. This will improve existing conditions. See Section 2 and the full Hydraulics Analysis provided as Attachment APP-3.
3. Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to the maximum extent practicable. The annual recharge from the post-development site should approximate the annual recharge from the pre-development or existing site conditions, based on soil types.	No loss of existing recharge area. Post development recharge will approximate the existing recharge. The project includes replacing and improving existing sidewalks and roadways.

Stormwater Management Standard	Proposed Project
4. For new development, stormwater management systems must be designed to remove 80% of the average annual load (post-development conditions) of Total Suspended Solids (TSS). It is presumed that this standard is met when: a) Suitable nonstructural practices for source control and pollution prevention are implemented; b) Stormwater management best management practices (BMPs) are sized to capture the prescribed runoff volume; and c) Pretreatment is provided in accordance with the MA Stormwater Handbook.	As required for redevelopment projects, the project meets requirements of long term pollution prevention plan implementation. System improvements eliminate combined sewer overflows at the CAM 400 regulator improving the existing water quality condition. The City will additionally be replacing approximately 40 catch basis with new deep sump catch basins with hoods. Grit chambers will be installed to further reduce TSS. Filterra brand tree box filters will be used at several locations. These BMPs provide a plant/soil/microbe complex that removes TSS and pollutants, including phosphorus, Nitrogen and hydrocarbons. See APP-4, Good Housekeeping Manual for further details on system operations and maintenance. APP-4 has been provided to the Conservation Commission under separate cover.
5. Stormwater discharges from areas with higher potential pollutant loads require the use of specific stormwater management BMPs. The use of infiltration practices without pretreatment is prohibited.	Project consists of a re-development of an existing utility system. Standard is not applicable.
6. Stormwater discharges to critical areas must utilize certain stormwater management BMPs approved for critical areas. Critical areas are Outstanding Resource Waters (ORWs), shellfish beds, swimming beaches, cold water fisheries and recharge areas for public water supplies.	Not applicable.
7. Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable. However, if it is not practicable to meet all the Standards, new (retrofitted or expanded) stormwater management systems must be designed to improve existing conditions.	This project is a redevelopment project. The stormwater management system has been designed to meet the DEP's stormwater management standards to the maximum extent practicable.

Stormwater Management Standard	Proposed Project
8. Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities.	Erosion/sediment control plans and details to be implemented during construction are included in the NOI. Refer to Section 3 and plans, APP-7.
9. All stormwater management systems must have an operation and maintenance plan to ensure that systems function as designed.	See APP-4, Good Housekeeping Manual for further details on system operations and maintenance. APP-4 has been provided to the Conservation Commission under separate cover. DPW will have responsibility for maintenance of the Regulator Structures including the structure on DCR property. Refer to Section 4.
10. The Long Term Pollution Prevention Plan must include a prohibition of illicit discharges.	The City's NPDES MS4 permit explicitly prohibits illicit discharges and this project included an illicit discharge investigation and remedial actions. Seven (7) illicit connections were identified during pre-design field investigations and will be removed as result of the project. See APP-4 relative to long term pollution prevention and the Final Preliminary Design Report (relevant sections provided as APP-5) for details of the illicit connection investigations.

1.4 REPORT ORGANIZATION

This document is organized into the following sections:

- Section 2 – Hydrologic and Hydraulic Analysis. This Section presents a summary of the hydrologic and hydraulic analyses of conditions for both the sanitary sewer and drain infrastructure in the project area. The full Technical Memorandum is provided as Attachment APP-3.

- Section 3 – Construction Sequencing Plan. This Section presents the sequencing of construction for the CAM 400 Sewer Separation and Floatables Control Project, and describes construction phase sedimentation and erosion control practices.
- Section 4 – Operations and Maintenance Plan. This Section describes the anticipated operation and maintenance procedures to be implemented upon completion of the project.
- Section 5 – Illicit Discharge Compliance Statement. This Section provides a summary of activities undertaken to meet the Standard and serves as the required Illicit Discharge Compliance Statement.
- Section 6 – Plans and Figures. This Section lists all plan sheets and details provided with this NOI.

Section 2
Summary of Hydraulic Analysis

This section provides a brief summary of the results of the hydrologic and hydraulic modeling analysis of the proposed project and the impacts of the proposed project to the Alewife Brook. The purpose of the analysis was to design the project to meet Massachusetts Department of Environmental Protection Stormwater Management Standards and the Wetland Protection Act. The standards and the manner in which the project will comply with those standards are presented in Table 1.1 in Section 1. The full Hydrologic and Hydraulic Analysis, which addresses both sanitary and storm drain systems, is provided in Attachment APP-2.

The proposed separated storm drain system was modeled such that the CAM 400 regulator weir (which allows CSOs to occur) was removed and the outlet operated as a dedicated stormwater outfall. A progressive series of design storms (2 year, 5 year, 10 year and 25 year 24-hour NCRS) were simulated to determine the level of service such that adequate freeboard remained within the system. Drain size, inverts, and connectivity within the CAM 400 catchment area were updated based on the findings of the survey and manhole inspections performed as an element of this project. Other than the separation of common manholes, construction of proposed additional drains or upsizing of existing drains was minimized. For the development of the separated storm drain model, it was assumed that 100% of the impervious area within the catchment area was tributary to the storm drain system.

Both storm and sanitary flows within the CAM 400 area are tributary to the regulator structure at Harrison and Columbus Avenues. Overflows are regulated by a weir (7.25' wide and 4' high). After full separation of the common manholes and minor upgrades to the systems, the overflow at the CAM 400 regulator will be eliminated and it will serve as a dedicated storm outfall.

Several segments of the storm drain and combined sewer system are below the river elevation. The CAM 400 outlet elevation is approximately 10.34' CCB, while the river elevation at its

lowest is 11.34' CCB. Consequently, even prior to a rain event, much of the system capacity is utilized with at least 1 foot of standing water. Along Columbus Avenue there is also a section of adversely sloped drain for which the depth of the submergence is greater on sections of Kimball Street, Harrison Avenue, and Seagrave Road.

Simulations were performed assuming a high river elevation occurred after the peak of the storm, thereby creating a favorable backwater condition for the system, typical of fall and summer seasons. The coincidence of the peak of the storm with high elevation is an unfavorable condition which would create the most severe back water conditions, such as the spring season. Selected simulations were performed using unfavorable conditions for the 2- and 5-year 24 hour storm design events. During wet weather events, the elevation of the river rises 13.8', 14.3' and 16.3' CCB for the 2 year, 5 year, and 10 year 24-hour design storms respectively. It was determined that a second outfall would not provide additional relief for the storm drain system due to the back water conditions of the river.

Level of service for the proposed separated storm drain system was assessed. A critical low elevation area was identified along Harrison Avenue which receives local area flows as well as flows from Magoun Street, Madison Avenue, and the eastern end of Whittemore Avenue. LOS at this location was 2.6 feet for the 2 year 24 hour design storm with favorable river elevation. For the 5 year 24 hour design storm with unfavorable river elevation influence, the LOS at this location was 2.1 feet. Overall LOS for the separated storm drain system will therefore be on the order of the 5 year 24 hour storm, even with unfavorable river elevation conditions.

Section 3
Construction Sequencing Plan

The anticipated construction start date for CAM 400 Sewer Separation and Floatables Control Project is February 2010. The subsurface infrastructure component is anticipated to be complete by March 2011, including surface restoration. The roadway and sidewalk improvements are expected to commence in the spring of 2011 and all construction is anticipated to be completed by July 2011.

The construction sequence for new utility construction (i.e. new sanitary sewer connection to 66" MWRA Alewife Conduit) crossing Alewife Brook Parkway, and the outlet pipe repair/replacement associated with CAM 001, is expected to be as follows:

- check and replace as necessary wetland flagging
- delineate (stake) edge of excavation
- place erosion and sedimentation control (hay bales and siltation fence)
- prepare truck access road and wash station
- install security fencing and signage for pedestrian and bicyclist protection
- clear and grub utility alignment
- stabilize excavated area by revegetating with hay and rye grass

Sedimentation and erosion controls have been stipulated in the contract documents and consist of the following:

A. The Contractor is required to plan and execute all operations, particularly those associated with excavation and backfilling, in such a manner as to minimize the amount of excavated and exposed fill or other foreign material that is washed or otherwise carried into waterways. The water quality of waterways shall not be degraded due to construction operations. Waterways shall include all conveyance system taking drainage and runoff to an eventual waterway.

B. The Contractor is required to line all catch basins with silt sacks and other materials necessary for erosion and sedimentation control as required. Silt Sacks used to line

catch basins will be inspected prior to and following any inclement weather and cleaned/replaced at the direction of the project resident engineer.

C. Hay bales must consist of hay from acceptable grasses and legumes, free from weeds, reeds, twigs, chaff, debris, other objectionable material or excessive amounts of seeds and grain. It must be free from rot or mold and the moisture content can not exceed 15 percent by weight at the time of weighing.

D. Baled hay will be placed to form temporary water stops, dams, diversions, dikes, berms and for other uses connected with water pollution control; bales will be disposed of by the Contractor upon completion.

E. The hay must be securely baled with biodegradable twine of adequate size to allow for possible rusting while in use and to permit rehandling when the bale is in a saturated condition.

F. Individual bales shall be of a longitudinal shape not exceeding 100 pounds when weighed.

G. Existing natural drainage patterns and vegetative cover shall be preserved to the maximum possible extent.

H. The Contractor must use temporary vegetation, mulching, and paving to protect areas exposed during construction. He will minimize the amount of bare earth exposed at any one time during construction, and he must also minimize the length of time bare earth is exposed.

I. On sloping terrain, hay bales may be used to trap sediment until vegetation has become established. The details of their placement will be as approved by the project resident engineer.

J. Water that is being pumped from the trenches or excavations shall not be pumped directly into water courses or pipe conveyance systems. At a minimum, sedimentation control measures must include portable sedimentation tanks, pumps, and piping, or other means acceptable to the City to meet the water quality parameters specified in both the NPDES Dewatering Permits and contract documents, whichever is more stringent.

K Spoil resulting from the trench excavation will be leveled or removed to permit free entry of water from adjacent land surfaces without excessive erosion or harmful ponding.

Most of the work associated with floatable control structures will take place within DCR rights-of-way. Controls will be employed and silt sacks will be used to line catch basins which may be impacted by construction activity.

No trucks or construction equipment, except for soil moving equipment (i.e. bull dozers and excavators), will be staged overnight within the work zone. Temporary soil stockpiling areas will be established within the work zone as needed for soil management (i.e. reuse, testing, and disposal).

The contractor will be required to submit their work plan prior to start of construction. The actual sequence of work is expected to generally follow the above sequence but may differ in certain activities. Any substantial changes from the above will be submitted to the Conservation Commission Director for review.

Section 4
Operations and Maintenance Plan

This redevelopment project includes internal modifications to existing regulator structures, repair and/or replacement of existing pipe, and construction of new pipe at discrete locations to achieve sanitary and storm drain separation objectives. The infrastructure improvements do not present unusual or complex operation and maintenance challenges, and these drain system assets will be incorporated into existing maintenance protocols. Typical routine procedures to maintain drain system elements (pipelines, catch basins and structures) are provided in Section 3 of the Cambridge DPW Good Housekeeping Manual. Specifically, BMP No.'s 10 and 11 address these elements. Please refer to the Manual (copy provided under separate cover) for further details.

Section 5
Illicit Discharge Compliance Statement

In preparation for the design of the CAM 400 Sewer Separation and Floatables Control Project, the project team collected and reviewed existing data, completed a new topographic survey of the project area, and conducted inspections of buildings, catch basins, manholes, sewers and drains throughout the project area. The work of collecting the data started in March 2009. Field investigations continued thereafter between April and August of 2009. A Preliminary Design Field Report was prepared and a copy of relevant sections of the report has been attached to this NOI in conformance with requirements stipulated in Standard 10 relative to illicit discharges.

The Field Report provides a comprehensive collection of pertinent data and field observations that describe existing conditions of the sewer and drainage systems. Sections 6 and 7 of the report specifically detail illicit connection investigations performed for both residential and commercial buildings throughout the project area. Conclusions from the investigation determined that six residential buildings were identified with sanitary sewer connections to the storm drain systems and one residential building was identified with a sanitary sewer connection to the combined sewer on Kimball Street which will be converted to a storm drain. As part of the project, these seven service connections will be reconnected to the sanitary sewers which exist in front of those buildings.

This investigation and complementary activities performed in support of the City's NPDES Phase II MS4 permit demonstrate compliance with the illicit discharge stormwater management standard.

Section 6
List of Supporting Plans And Other Documentation

The following Plans have been provided in support of this Notice of Intent:

- Sheets R-2, R-5, R-15 through 18, R-23 through R-26, R-35, R-36, R-39 and R-40 (Roadway construction and grading plans within BLSF delineation with calculations for flood storage lost and regained)
- Sheet C-11 Columbus Ave. Plan (CAM 400 Regulator Structure and MWRA sewer connection) with wetland resource delineations
- Sheet GC-5 Detail Sheet (CAM 400 Regulator)
- Sheet C-14 CAM 002 Regulator and Floatables Control Plan with wetland resource delineations
- Sheet C-15 CAM 401B Regulator and Floatables Control Plan with wetland resource delineations
- Sheet C-16 CAM 001 Regulator and Floatables Control Plan with wetland resource delineations
- Sheet 1500.1 Silt Fence Detail Sheet

The following reports or other documentation have been provided in support of this Notice of Intent:

- Wetlands Delineation Report
- Alternatives Analysis for work in Riverfront Area
- Technical Memorandum – Final Hydraulics Analysis
- City of Cambridge DPW Good Housekeeping Manual (equivalent to Long Term Pollution Prevention Plan) – Previously Provided Under Separate Cover
- Sections of Final Preliminary Design Report
- Copy of Notification and List of Abutters