75 State Street, Suite 701
Boston, Massachusetts 02109
tel: 617 452-6000

February 7, 2017

Boston Conservation Commission
1 City Hall Square
Room 709
Boston, MA 02201-2031

Subject: Request for Determination of Applicability (RDA)
Muddy River Flood Damage Reduction and
Environmental Restoration Project – Phase 2
City of Boston Parks and Recreation Department - Applicant

Dear Conservation Commission Members:

On behalf of the City of Boston Parks & Recreation Department (BPRD), CDM Smith Inc. (CDM Smith) is pleased to submit this Request for Determination of Applicability (RDA) to request concurrence from the Boston Conservation Commission (BCC) on the field delineated wetland resource area boundaries for the Phase 2 portion of the Muddy River Flood Damage Reduction and Environmental Restoration Project under the Massachusetts Wetlands Protections Act (M.G.L. Chapt. 131, Section 40)(MWPA). In addition to the Phase 2 project areas, the BPRD is also requesting concurrence on the field delineated wetland resource area boundaries from Ward Pond upstream to Boylston Street downstream,

As the BCC may be aware, the City of Boston, in association with the Town of Brookline, and State and Federal agencies, is pursing restoration of the Muddy River system. In support of this project, wetland resource boundaries were delineated and subsequently reviewed and approved by the BCC via the issuance of an Order of Conditions (OOC) issued on February 21, 2001 (DEP File No. 006-0867). This OOC was extended four times each time 3 years, with the most recent extension approved by the BCC on April 14, 2010, extending the validity of the OOC until February 21, 2013. With the Permit Extension Act of 2012, which adds four years to any permit issued within the qualifying period of August 15, 2008 through August 15, 2012, the OOC expired on February 22, 2017.

CDM Smith wetland scientists conducted site inspections on April 20, 2017 and May 4, 2017 to review and update the previously delineated wetland resource area boundaries along the Boston side of the Muddy River corridor. Based on these site inspections and field observations, CDM Smith concluded that the wetland resource area boundaries as previously delineated remain unchanged in the field except as noted in the Wetland Field Completion Memorandum dated February 6, 2018 (see Attachment A). As such, CDM herein submits a new RDA form to seek concurrence from the BCC on the wetland resources and their boundaries. This RDA also includes a copy of the original wetland descriptions and supporting materials (refer to September 2000 ANRAD in Attachment B).

The Muddy River Restoration Project - Wetlands Delineation Drawings from 2000 have been updated to show the field changes observed during site inspections in 2017 and to show the limits of Bordering Land Subject to Flooding as shown on current FEMA Flood Insurance Rate maps (see Figures 2A, 2B, 2C, 2D, and 2E). The updated Wetland Delineation Drawings are included in Attachment E. Existing contours have also been updated based on an aerial survey in 2011 done by the City of Boston GIS Department and spot elevations have been added from a fall 2015/winter 2016 topographic survey done by Bryant Associates, Inc.

The following wetland resource areas are present within and adjacent to the Muddy River:

Bordering Vegetated Wetland

Bordering Vegetated Wetland (BVW) is defined as:

> *"freshwater wetlands which border on creeks, rivers, streams, ponds and lakes. The types of freshwater wetlands are wet meadows, marshes, swamps and bogs. Bordering Vegetated Wetlands are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants. The ground and surface water regime and the vegetational community which occur in each type of freshwater wetland are specified in M.G.L.c. 131, § 40"* [310 CMR 10.55 (2) (a)]

BVW present within the Muddy River corridor is described in the Wetland Field Completion Memorandum dated February 6, 2018 (see Attachment A) and as described in the September 2000 ANRAD (see Attachment B).

Inland Bank

Inland Bank is defined as:

> "*That portion of land surface which normally abuts and confines a water body. It occurs between a water body and a vegetated bordering wetland and adjacent floodplain, or in the absence of these, it occurs between a water body and an upland."* [310 CMR 10.55]

The boundary of Inland Bank is defined as:

> *"the first observable break in the slope or the mean annual flood level, whichever is lower."* [310 CMR 10.54(2) (c)]

The water elevations in the Muddy River from Charlesgate to Leverett Pond are regulated as part of water surface management at the Charles River dam and therefore there are no mean annual flood or mean annual low water flow levels. Therefore, an elevation for the upper and lower bank was determined from historical water elevation measurements (refer to September 2000 ANRAD in Attachment B). Based on a telephone conversation on November 30, 2017 between Mary Mancini, Project Manager at CDM Smith and William A. Gode-von Aesch, Director of Charles River Dam, there has been no change in the water management operation of the Charles River dam since the filing of the September 2000 ANRAD. The same elevations were used to describe the upper and lower bank as in the September 2000 ANRAD, and are as follows:

Water Body	Elevation (ft BCB)[1]
Back Bay Fens	7.7' lower 8.5' upper
Riverway	7.7' lower 8.6' upper
Leverett Pond	8.6'
Willow Pond	17'
Ward Pond	46'

[1](BCB: Boston City Base Datum)

Land Under Water

Land Under Water is (LUW) defined as:

> *"…The boundary of Land Under Water Bodies and waterways is the mean annual low water level."* 310 CMR 10.56(2)

Consistent with the 2000 ANRAD, stands of common reed (*Phragmites australis*) observed below the lower limit of bank was characterized as land under water.

Riverfront Area

Riverfront Area (RFA) is defined as:

> "*the area of land between a river's mean annual high water line and a parallel line measured horizontally outward from the river and a parallel line located 200 feet away, except that the parallel line is located: a) 25 feet away in Boston…* [310 CMR 10.58 (2) a]

The City of Boston has a 25-ft Riverfront Area measured from the mean annual high water line. Since the water level in the Muddy River is controlled by the Charles River dam, the 25-ft Riverfront Area was measured from the upper boundary of bank at elevation 8.5 – 8.6 ft (BCB).

Bordering Land Subject to Flooding

BLSF is defined as:

> *"an area with low, flat topography adjacent to and inundated by flood waters rising from creeks, rivers, streams, ponds or lakes. It extends from the banks of these waterways and water bodies."* [310 CMR 10.57]

The FEMA Flood Insurance Rate Map (FIRM) identifies the 100-year floodplain (Zone AE) in the project area ranging from 10 feet at Willow Pond to 6 feet by the Back Bay Fens (Figures 2A, 2B, 2C, 2D, and 2E).

The BPRD requests BCC's concurrence of the wetland resource area boundaries as shown on the plans in Attachment E. Please do not hesitate to contact me at (617) 452-6597 with any questions

or further clarification. We look forward to discussing this RDA at your next scheduled public meeting. We understand that the next public meeting is scheduled for February 21, 2018.

Sincerely,

Mary C Mancini

Mary C. Mancini, P.E.
Associate
CDM Smith Inc.

cc: Margaret Dyson, Boston Parks & Recreation Dept.
Magdalena Lofstedt, CDM Smith
Robert Button, CDM Smith
Tom Brady, Brookline Conservation Commission
Patrice Kish, DCR

Enclosures:

RDA Form
Figure 1: Project Location
Figures 2A, 2B, 2C, 2D, and 2E: FEMA Floodplain maps
Attachment A: Wetland Field Completion Memorandum dated February 6, 2018
Attachment B: September 2000 ANRAD
Attachment C: Site Photographs from April 20 and May 4, 2017
Attachment D: USGS Stream Stats Report
Attachment E: Muddy River Restoration Project - Wetlands Delineation Sheets dated February 2018

WPA Form 1

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

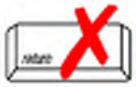
Boston
City/Town

WPA Form 1- Request for Determination of Applicability

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

A. General Information

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



1. Applicant:

Christopher Cook
Name

christopher.cook@boston.gov
E-Mail Address

BPRD 1010 Massachusetts Avenue
Mailing Address

Boston
City/Town

MA
State

02118
Zip Code

617-635-4505
Phone Number

617-635-3173
Fax Number (if applicable)

2. Representative (if any):

CDM Smith Inc.
Firm

Mary C. Mancini, P.E.
Contact Name

manciniMC@cdmsmith.com
E-Mail Address

75 State Street, Suite 701
Mailing Address

Boston
City/Town

MA
State

02109
Zip Code

617-452-6635
Phone Number

Fax Number (if applicable)

B. Determinations

1. I request the Boston (Conservation Commission) make the following determination(s). Check any that apply:

☐ a. whether the **area** depicted on plan(s) and/or map(s) referenced below is an area subject to jurisdiction of the Wetlands Protection Act.

☒ b. whether the **boundaries** of resource area(s) depicted on plan(s) and/or map(s) referenced below are accurately delineated.

☐ c. whether the **work** depicted on plan(s) referenced below is subject to the Wetlands Protection Act.

☐ d. whether the area and/or work depicted on plan(s) referenced below is subject to the jurisdiction of any **municipal wetlands ordinance** or **bylaw** of:

Name of Municipality

☐ e. whether the following **scope of alternatives** is adequate for work in the Riverfront Area as depicted on referenced plan(s).

C. Project Description

1. a. Project Location (use maps and plans to identify the location of the area subject to this request):

Wards Pond, Willow Pond, Leverett Pond, Riverway and BackBay Fens (Park)	Boston
	City/Town
N/A	N/A
Assessors Map/Plat Number	Parcel/Lot Number

b. Area Description (use additional paper, if necessary):

The project area is the Boston portion of the Emerald Necklace parklands and the Muddy River which includes starting at the upstream end: Wards Pond, Willow Pond, Leverett Pond, the Riverway, and Back Bay Fens.

c. Plan and/or Map Reference(s):

Key Plan, Sheets 1 to 34 (excluding Sheets 21 and 22)	January 2018
Title	Date
Title	Date
Title	Date

2. a. Work Description (use additional paper and/or provide plan(s) of work, if necessary):

The City of Boston Parks and Recreation Department (BPRD) is requesting concurrence of the wetland resource area boundaries as shown on Sheets 1 to 34 in Attachment E.

C. Project Description (cont.)

b. Identify provisions of the Wetlands Protection Act or regulations which may exempt the applicant from having to file a Notice of Intent for all or part of the described work (use additional paper, if necessary).

N/A

3. a. If this application is a Request for Determination of Scope of Alternatives for work in the Riverfront Area, indicate the one classification below that best describes the project.

☐ Single family house on a lot recorded on or before 8/1/96

☐ Single family house on a lot recorded after 8/1/96

☐ Expansion of an existing structure on a lot recorded after 8/1/96

☐ Project, other than a single family house or public project, where the applicant owned the lot before 8/7/96

☐ New agriculture or aquaculture project

☐ Public project where funds were appropriated prior to 8/7/96

☐ Project on a lot shown on an approved, definitive subdivision plan where there is a recorded deed restriction limiting total alteration of the Riverfront Area for the entire subdivision

☐ Residential subdivision; institutional, industrial, or commercial project

☐ Municipal project

☒ District, county, state, or federal government project

☐ Project required to evaluate off-site alternatives in more than one municipality in an Environmental Impact Report under MEPA or in an alternatives analysis pursuant to an application for a 404 permit from the U.S. Army Corps of Engineers or 401 Water Quality Certification from the Department of Environmental Protection.

b. Provide evidence (e.g., record of date subdivision lot was recorded) supporting the classification above (use additional paper and/or attach appropriate documents, if necessary.)

D. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Request for Determination of Applicability and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge.

I further certify that the property owner, if different from the applicant, and the appropriate DEP Regional Office were sent a complete copy of this Request (including all appropriate documentation) simultaneously with the submittal of this Request to the Conservation Commission.

Failure by the applicant to send copies in a timely manner may result in dismissal of the Request for Determination of Applicability.

Name and address of the property owner:

City of Boston
Name

BPRD 1010 Massachusetts Avenue
Mailing Address

Boston
City/Town

MA
State

02118
Zip Code

Signatures:

I also understand that notification of this Request will be placed in a local newspaper at my expense in accordance with Section 10.05(3)(b)(1) of the Wetlands Protection Act regulations.

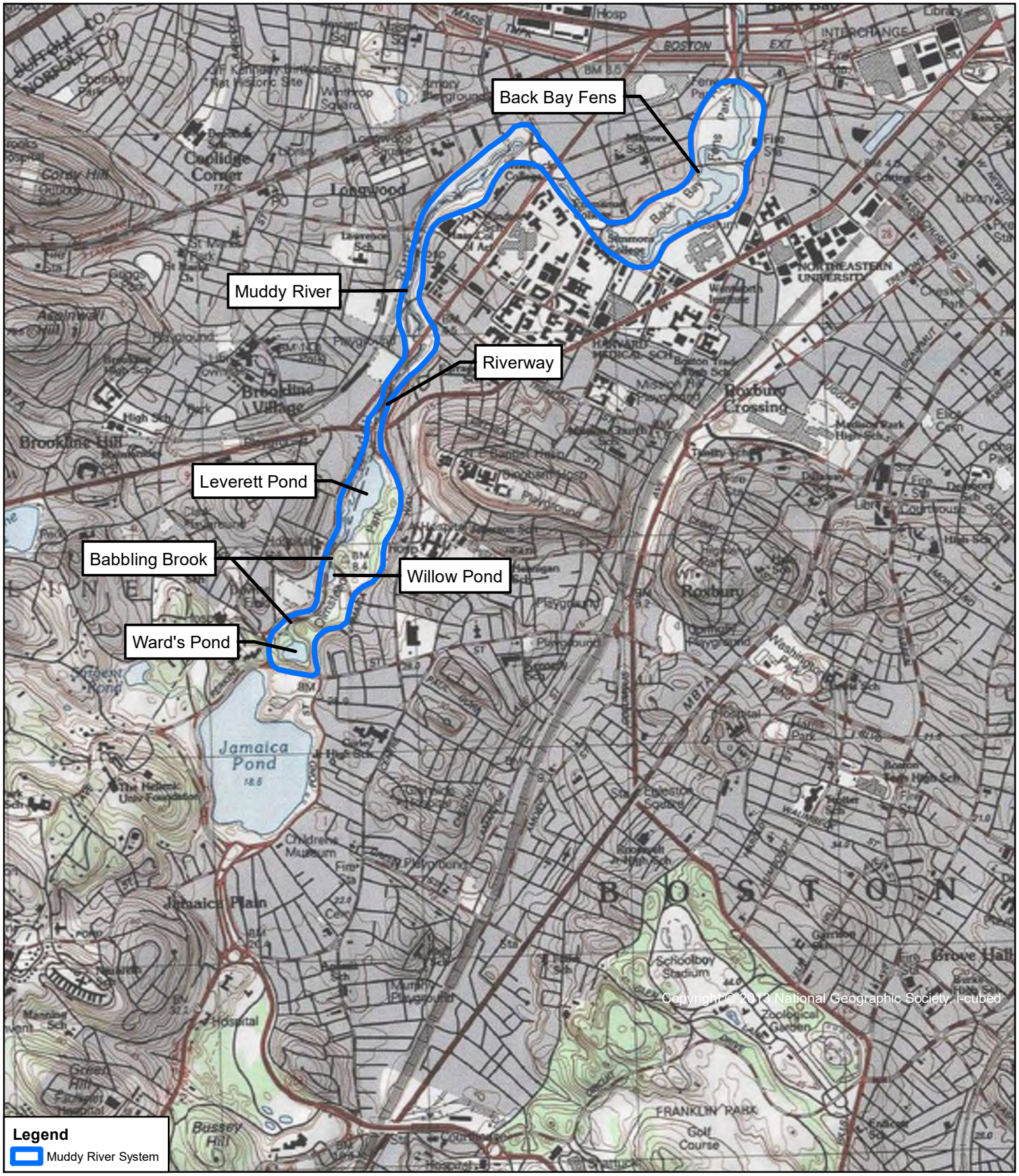
Signature of Applicant

2/7/18
Date

Mary C Mancini
Signature of Representative (if any)

2/7/18
Date

Project Figures



N

Muddy River Flood Damage Reduction and Environmental Restoration Project – Phase 2

0 1,000 2,000 Feet

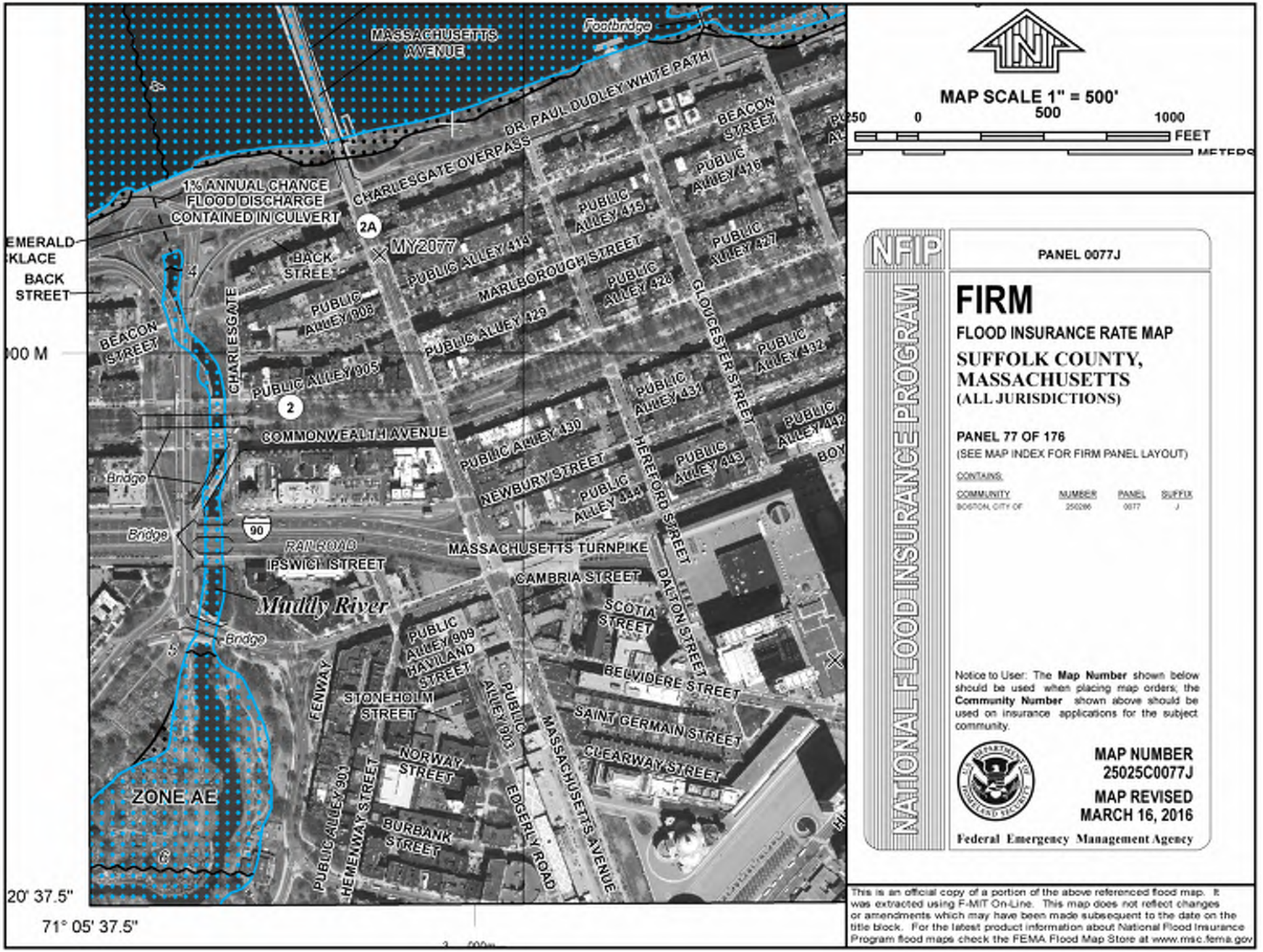
1 " = 2,000 '

Figure 1
Project Location

Basemap: USGS 7.5-minute Topographic Quadsheet
Source: ESRI ArcGIS Online, NGS Topo US
Coord. System: NAD83 Mass. State Plane Mainland (feet)

CDM Smith

BillingsMC F:\Projects\Project_data\MuddyRiver\MXD\MuddyRiver_ProjLocation.mxd 2/6/2018



MAP SCALE 1" = 500'

0 500 1000 FEET

NFIP

PANEL 0077J

FIRM

FLOOD INSURANCE RATE MAP

SUFFOLK COUNTY, MASSACHUSETTS (ALL JURISDICTIONS)

PANEL 77 OF 176

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOSTON, CITY OF	250286	0077	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
25025C0077J

MAP REVISED
MARCH 16, 2016

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

FIGURE 2A: FEMA FLOODPLAIN MAP

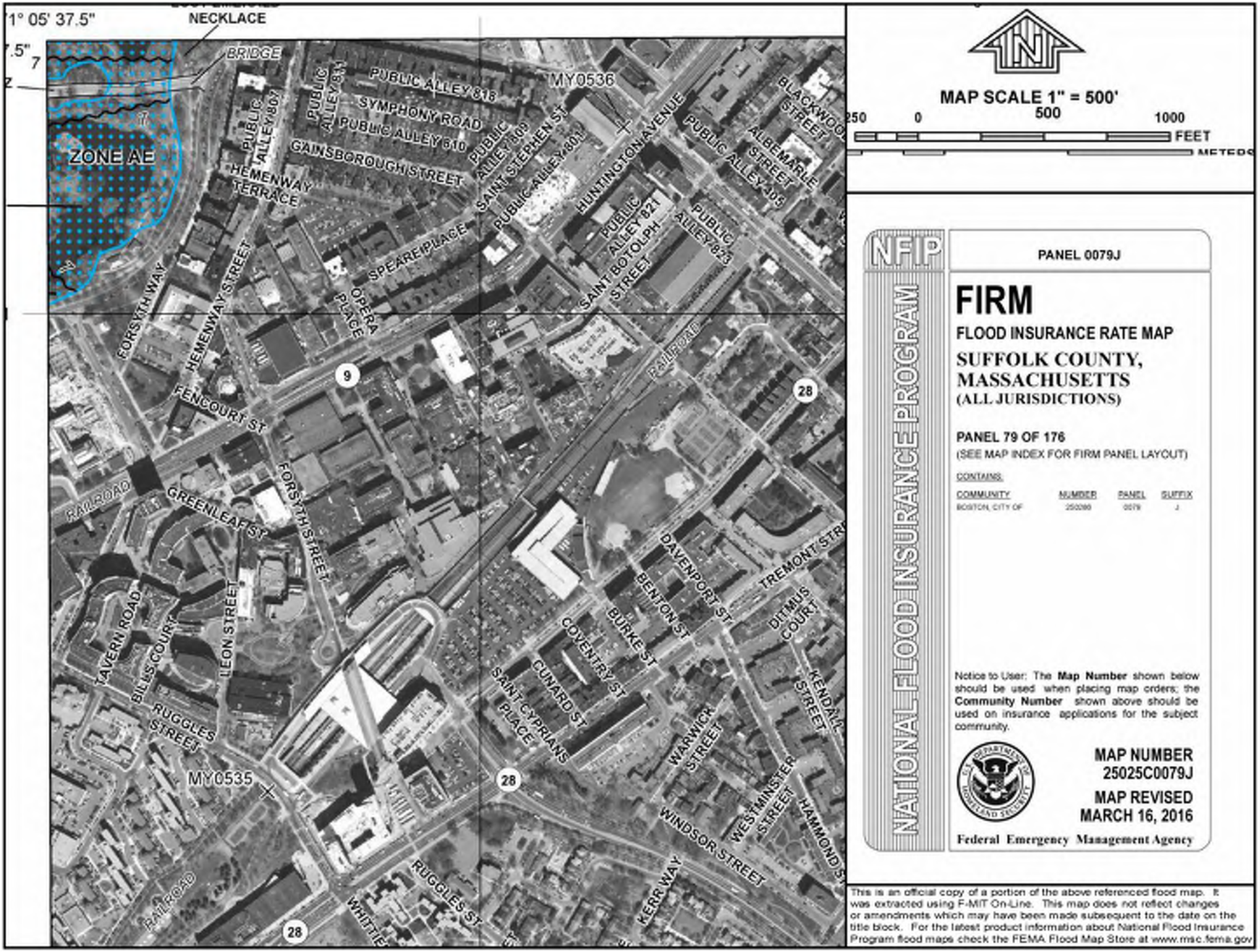


FIGURE 2B: FEMA FLOODPLAIN MAP

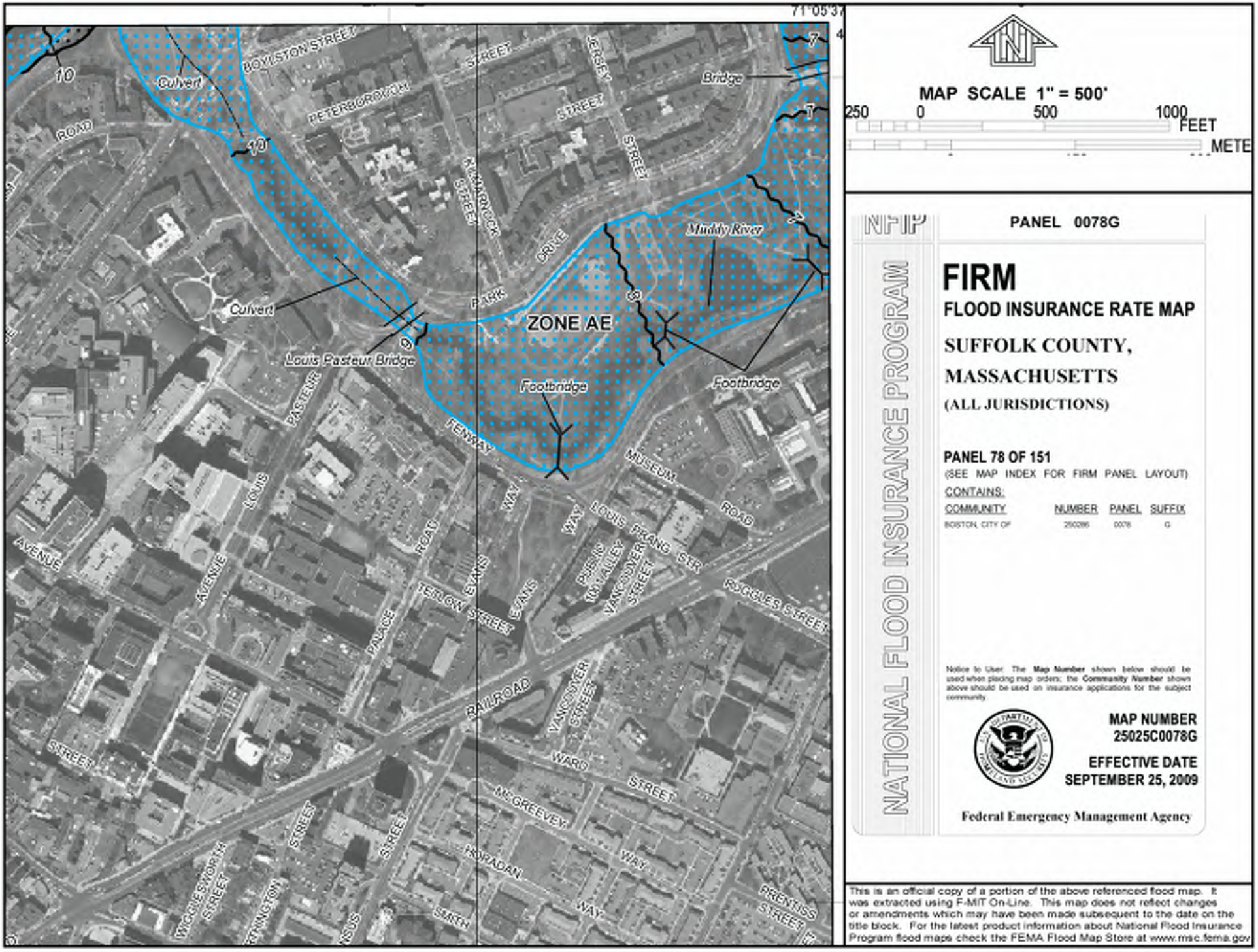


FIGURE 2C: FEMA FLOODPLAIN MAP

FIGURE 2D: FEMA FLOODPLAIN MAP

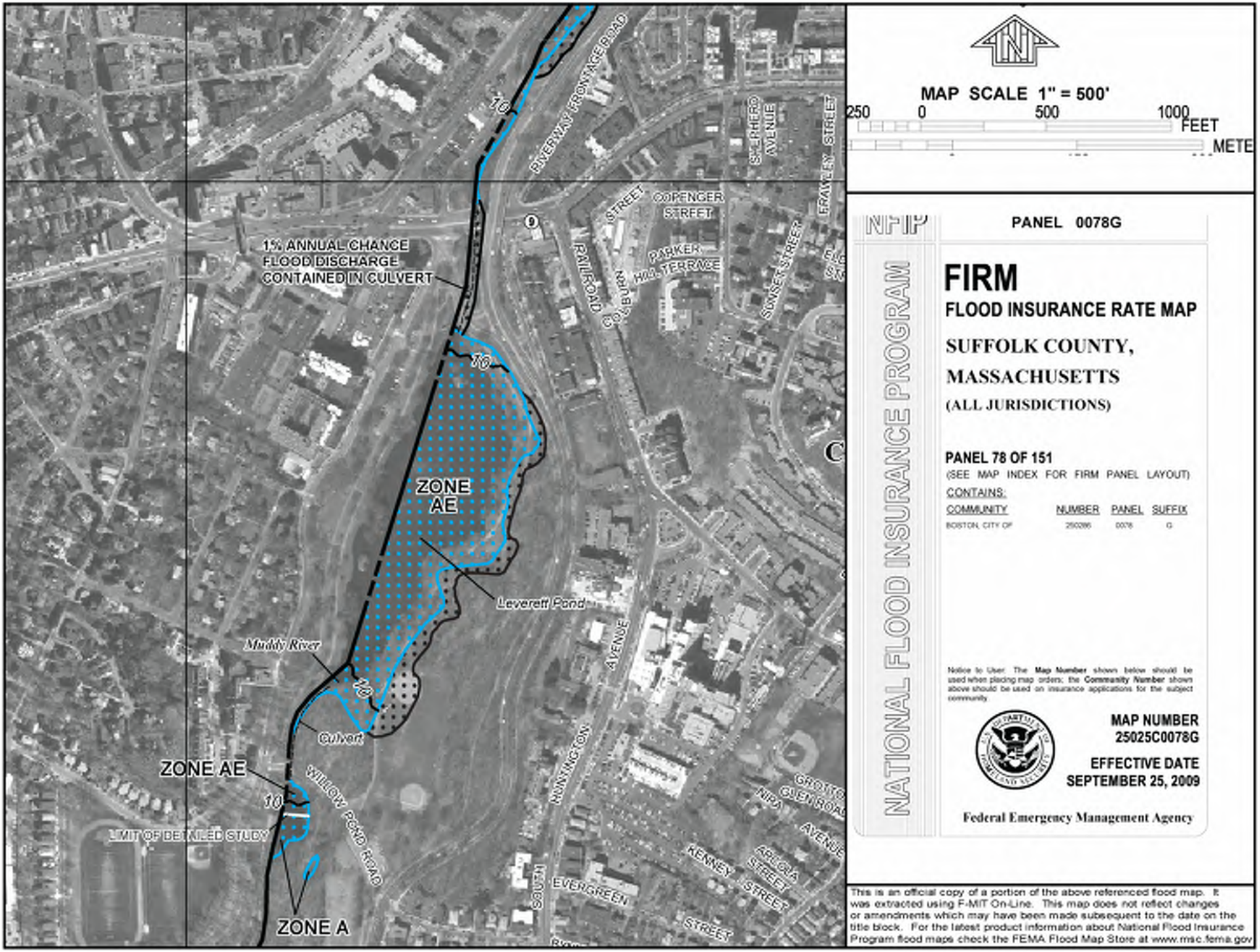


FIGURE 2E: FEMA FLOODPLAIN MAP

Attachment A

Wetland Field Completion Memorandum dated February 6, 2018

Memorandum

To: *Mary Mancini – CDM Smith Inc.*

From: *Magdalena H. Lofstedt, PWS*

Date: *February 6, 2018*

Subject: *Wetland Field Completion Memorandum for Muddy River Wetland Resource Area Boundaries Reconfirmation, Boston, MA*

Background

An Order of Conditions (OOC)(DEP File No. 006-0867) was issued by the Boston Conservation Commission (BCC) on February 21, 2001 confirming that the boundary delineations of the wetland resource areas from Wards Pond to Boylston Street per the Muddy River Restoration Project Wetlands Delineation Sheets dated 9/00. The OOC was extended four times, each time for 3 years, with the last extension approved by BCC on April 14, 2010, extending the OOC until February 21, 2013. With the Permit Extension Act of 2012, which adds four years to any permit issued within the qualifying period of August 15, 2008 through August 15, 2012, the OOC was valid until February 21, 2017.

Field Investigations

CDM Smith Inc. (CDM Smith) Wetland Scientists field inspected and reconfirmed the accuracy of the 2000 wetland resource area delineation along the Muddy River in Boston, MA, from Wards Pond to Boylston Street on April 20 and May 4, 2017. While most of the wetland system remains unchanged, wetland resource areas that were found not to be consistent with the 2000 wetland delineation were redelineated by placing additional flags in the field or by noting changes on the plans. Existing field delineated wetland resource boundaries were evaluated for conformance with the Massachusetts Wetlands Protection Act (MGL c. 131, §40)(MWPA) and Regulations (310 CMR 10.00), the U.S. Army Corps of Engineers (USACE) 1987 Wetlands Delineation Manual (Environmental Laboratory, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (v 2.0) (ERDC/EL TR-12-1 dated January 2012). The methodology used is referred to in this Memorandum as the three parameter method (i.e. presence of hydric soils, hydrology, and hydric vegetation). Field Indicators of Hydric Soils, A Guide for Identifying and Delineating Hydric Soils, Version 8.0, 2017, was used to evaluate the presence of hydric soils. The wetland boundary was determined by the limit of wetland vegetation (limit of plant community dominated, more than 50%, by species adapted to living in wetland conditions) by visual inspection, as well as indicators of hydric soils and wetland hydrology.

Field work was conducted by Magdalena H. Lofstedt, PWS, Conor H. Veeneman, WPIT, and Danielle Gallant. The limit of redelineated wetland resource area boundaries were demarcated in the field with blue survey tape; flags were located by CDM Smith staff using a handheld GPS Trimble Unit. The updated wetland resource areas boundaries are shown on Muddy River Restoration Project - Wetlands Delineation Sheets dated February 2018 in Attachment E. The purpose of this field visit was to confirm the limits of wetland resources areas subject to jurisdiction under the MWPA and Section 404/401 of the Clean Water Act (CWA).

This memorandum lists CDM Smith's findings from the field investigations by sheet number. Only described are the areas where the wetland resource area boundaries were found to differ from the 2000 delineation. Photographs from the field investigation are included as Attachment C.

The following wetland resource areas are present within and adjacent to the Muddy River:

Bordering Vegetated Wetland

Bordering Vegetated Wetland (BVW) is defined as:

> *"freshwater wetlands which border on creeks, rivers, streams, ponds and lakes. The types of freshwater wetlands are wet meadows, marshes, swamps and bogs. Bordering Vegetated Wetlands are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants. The ground and surface water regime and the vegetational community which occur in each type of freshwater wetland are specified in M.G.L.c. 131, § 40"* [310 CMR 10.55 (2) (a)]

Land Under Water

Land Under Water is (LUW) defined as:

> *"…The boundary of Land Under Water Bodies and waterways is the mean annual low water level."* 310 CMR 10.56(2)

Inland Bank

Inland Bank is defined as:

> *"the first observable break in the slope or the mean annual flood level, whichever is lower."* [310 CMR 10.54(2) (c)]

Riverfront Area

Riverfront Area (RFA) is defined as:

> "*the area of land between a river's mean annual high water line and a parallel line measured horizontally … outward from the river and a parallel line located 200 feet away, except that the parallel line is located: a) 25 feet away in Boston…"* [310 CMR 10.58 (2) a]

Bordering Land Subject to Flooding

BLSF is defined as:

> *"an area with low, flat topography adjacent to and inundated by flood waters rising from creeks, rivers, streams, ponds or lakes. It extends from the banks of these waterways and water bodies."* [310 CMR 10.57]

Results of Field Investigations

Sheet 1 – No change in wetland resource area boundaries. Photo 1 depicts overflow from a control structure and part of the pipe system constructed as part of the park/pond system. Photos 2 thru 4 depict the Bordering Vegetated Wetlands (BVW) associated with Wards Pond. Photos 5 and 6 depict the eroded banks/paths of the Muddy River at the downstream end of Wards Pond.

Sheet 2 – The 2000 wetland delineation shows BVW within the Babbling Brook channel from Wards Pond to the first foot bridge [WF 1-1 to WF 1-7 (east bank) and WF 1-43 to 1-51 (west bank)]. This area was reclassified as Land Under Water (LUW) and the WF designation of flags 1-1 to 1-7 and 1-43 to 1-51 (except 1-45) were changed to TOB. Photo 7 depicts the east bank of Babbling Brook south of Ward Pond. Photo 8 depicts the Babbling Brook south of Wards Pond.

A small area of associated BVW is present from TOB 1-44 to TOB 1-46 and extends out to WF 1-45 (see Photos 9 and 10). This area supports hydric soils. The soil profile consisted of 0 - 6 inches of loamy sand (10YR 2/1) with 5% redoximorphic features of 10YR 3/4 underlaid down to 18 inches by loamy sand (10YR 2/2) with 5% redoximorphic features of 7.5 YR 3/4 and 7% redoximorphic features of 10YR 3/4. Photos 9 and 10 depict this area.

Sheet 3 – Similarly to the segment of the Babbling Brook above the first foot bridge below Wards Pond, the segment of the Babbling Brook below the foot bridge by Willows Pond (WF 2-22 to WF 2-58) was reclassified from BVW to LUW with a number of small areas of associated BVW along the bank. TOB flags 2-32A to 2-32I, TOB 2-37A to 2-37B, TOB 2-48A to 2-48E, and TOB 2-57A to 2-57D were added to demarcate the top of inland bank. BVW is present beyond the TOB flags as shown on the revised Project Plans. Photos 11, 12, and 13 depict this segment of the Muddy River.

Sheet 4 – One of the two Olmsted designed pools demarcated on the 2000 plans by WF 3-50 to WF 3-64 does not meet the criteria of a BVW due to the lack of wetland vegetation and was therefore reclassified as LUW.

Sheet 5 –TOB 5-32A, 5-32B, and 5-32C flags were added near the outlet to Leverett Pond since this area previously flagged as BVW does not contain hydric soils and therefore does not meet the criteria of a wetland using the three parameter method (i.e. presence of hydric soils, hydrology, and hydric vegetation). Photos 15 to 16 depict this area. Photo 14 depict an existing outfall to Leverett Pond.

Sheet 6 – The BVW demarcated by WF 5-13 to WF 5-16 does not contain hydric soils and therefore does not meet the criteria of a wetland per the three parameter method; these flags were changed to TOB (top of inland bank)(refer to Photo 17).

Sheet 7 – No change

Sheet 8 – In Brookline, not reviewed

Sheet 9 - The BVW demarcated by WF 5-50 to WF 5-52 does not contain hydric soils and therefore does not meet the criteria of a wetland per the three parameter method; these flags were deleted.

Sheet 10 – No change

Sheet 11 – No change

Sheet 12 – No change

Sheet 13 – Additional BVW was demarcated by WF 7-13A to 7-13F immediately upstream of the Brookline Avenue bridge. A new outfall has been installed in this area which probably contributes to the enlargement of the BVW. This area is dominated by common reed (*Phragmites australis*). Soils consisted of sandy loam with a matrix of 10YR 2/1 with redox concretions in the top 10 inches. Photo 18 depicts this area.

Sheet 15 – No change

Sheet 16 – No change

Sheet 17 – No change

Sheet 18 – No change

Sheet 19 – WF 9-24A to 9-24F were added to demarcate additional BVW immediately upstream of existing sewer siphon crossing. This area is dominated by jewelweed (*Impatiens capensis*) and common reed. Soils consisted of fill (sandy loam) with a matrix of 10YR 2/1 with 7% redox of 7.5 YR 3/4 in the top 8 inches. Refusal was encountered at shallow depths. Soils were saturated at 8-inch depth.

Sheet 20 – No change

Sheet 21 – Not reviewed part of Phase 1 under construction/completed.

Sheet 22 - Not reviewed part of Phase 1 under construction/completed.

Sheet 23 – No change

Sheet 24 - WF 8-1 to 8-3 were added to demarcate additional BVW. This area is dominated by willows (Salix sp.), common reed, and blue flag (*Iris* sp.). Soils consisted of sandy loam with a matrix color of 10YR 2/1 with redox concretions present in the top 10 inches.

Sheet 25 – No change

Sheet 26 – WF 12-36 moved upslope 20 feet since this area now meets the three parameters of a BVW per the three parameter method. The BVW is dominated by common reed. Soils consisted of sandy loam with a matrix color of 10YR 2/1 with redox concretions present in the top 10 inches.

Sheet 27 – No change

Sheet 28 – No change

Sheet 29 – No change

Sheet 30 – No change

Sheet 31 – No change

Sheet 32 – No change

Sheets 33 to 35 not reviewed as outside of Project area.

MWPA Amendments since 2000

The following may explain why the upper portion of the Muddy River (between Ward Pond and Willow Pond), commonly referred to as Babbling Brook, has been reclassified from BVW to LUW since the 2000 BCC filing. The MWPA Regulations were amended back in 2002 for perennial vs. intermittent stream determination to rely on contributing watershed size and surficial geology, and incorporated the use of USGS Stream Stats. Prior to the 2002 amendment, the determination relied on using USGS topographical maps and field observations. Under the current MWPA regulations (310 CMR 10.58), a stream is perennial if it is shown as perennial on the USGS map of the area. Furthermore, a stream that is shown as intermittent or not shown on the current USGS map or more recent map provided by the Department, and has a watershed size less than one square mile, is intermittent unless:

i. The stream has a watershed size of at least ½ (0.50) square mile and has a predicted flow rate greater than or equal to 0.01 cubic feet per second at the 99% flow duration using the USGS Stream Stats method".

The Stream Stats Version 4 Report (see Attachment D) for the upper portion of the Muddy River (by first footbridge downstream of Ward Pond) shows that the contributory watershed is 0.78 mile and that the predicted flow rate is 0.06 at 99% flow duration, meeting the criteria of a perennial stream. Perennial streams have Land Under Water (LUW) as well as Riverfront Area.

Summary

Based on the field work conducted in 2017 described in this Memorandum, the delineated BVW along the Muddy River System decreased overall by approximately 18% from the 2000 Wetland Delineation. This is not due to a loss (i.e. placement of fill) of BVW as an approximate 5% increase in BVW (i.e. BVW being converted from upland) was observed between 2000 and 2017. The overall decrease is due to the reclassification of the Babbling Brook and one of the Olmsted pools from BVW to LUW. Babbling Brook meets the criteria of a perennial stream per 310 CMR 10.58 and therefore has LUW (refer to discussion above).

Attachment B

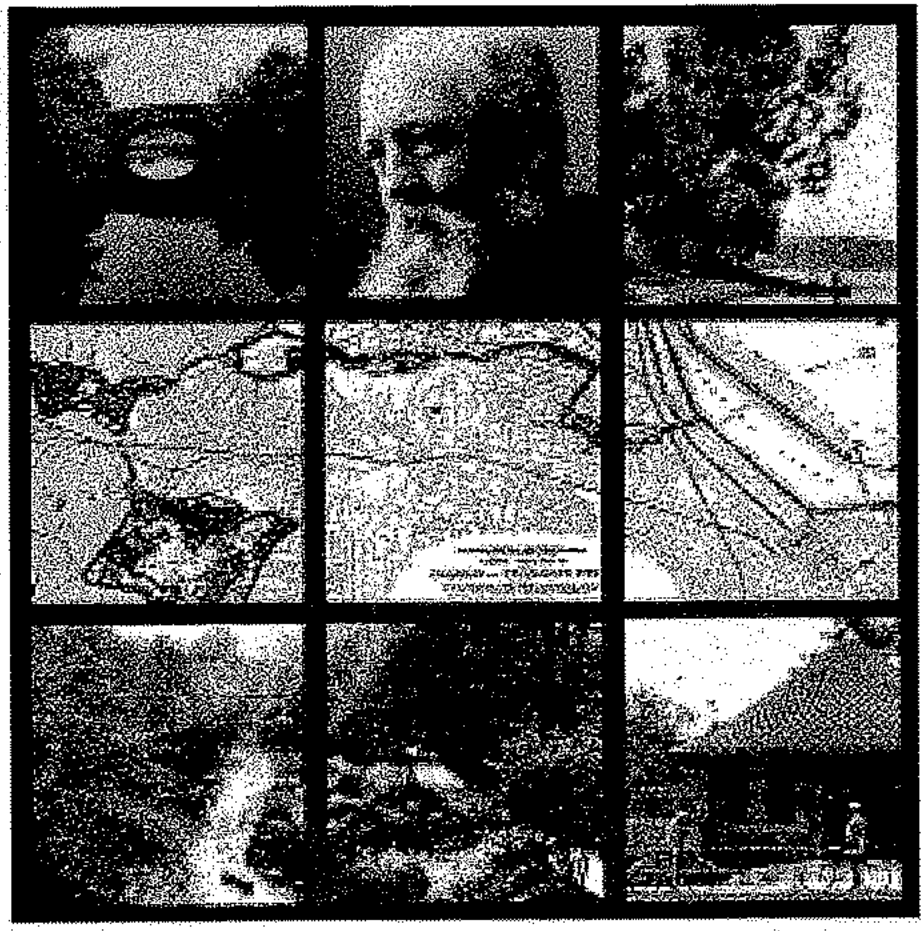
September 2000 ANRAD

Office Copy

Boston Parks and Recreation Department

The Emerald Necklace Environmental Improvements Master Plan

Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement



Abbreviated Notice of Resource Area Delineation

CAMP DRESSER & McKEE INC.

JASON M. CORTELL AND ASSOCIATES INC.

September 2000

Revised 9-25-00

Table of Contents

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List of Appendices

1.0 Introduction

The City of Boston, in association with the Town of Brookline, State, and Federal agencies, have signed a Memorandum of Understanding to undertake a collective to rehabilitate the Emerald Necklace parklands and restore the Muddy River system as the initial phase of a long range Emerald Necklace Environmental Improvements Master Plan. The Master Plan contained a proposed restoration project, which includes flood control, water quality and habitat enhancement, improved pedestrian access, landscape improvements of the Emerald Necklace, new and rehabilitated bridges, bicycle paths, and restoration of historic structures. The Muddy River dredging and associated flood control activities have been designated as Phase I of this initiative and will be the first project undertaken. Phase II will concentrate on landscape improvements, revegetation, traffic circulation improvements, and building/bridge restoration. Phase III will continue to focus on traffic circulation improvements and building/bridge restoration.

In support of the first phase of the project, The Boston Parks and Recreation Department (BPRD) and the Town of Brookline are submitting an Abbreviated Notice of Resource Area Delineation (ANRAD) to determine the applicable resource areas under the MA WPA (bordering vegetated wetlands [BVW], land under water [LUW], bordering land subject to flooding [BLSF], riverfront, and bank). Field work was conducted in the months of March and April 2000 from Ward's Pond to Charlesgate (see Figure 1) by a team comprised of wetland scientists from Camp Dresser and McKee (CDM) and Jason M. Cortell and Associates Inc. (Cortell).

2.0 Bordering Vegetated Wetland Delineation Methodology

Bordering Vegetated Wetlands (BVWs) were delineated in accordance with the criteria and methodologies contained in the Massachusetts Department of Environmental Protection (MA DEP) *Delineating Bordering Vegetated Wetlands* differ slightly from of the 1987 Army Corps of Engineer *Wetland Delineation Manual.*

In the field, boundaries were flagged by conducting transects from the Muddy River through the wetland to the upland. Delineations were based on the dominance test, i.e. the presence of 50 % or more wetland vegetation; wetland hydric soils, as defined in the *Field Indicators for Identifying Hydric Soils* in New England and the *Munsell Soil Color Charts*; and the presence of hydrology. Soil cores were sampled to ascertain the presence/absence of hydric soils and wetland hydrologic conditions. Army Corps of Engineers (ACOE) data plots were recorded in representative plant communities along each wetland/upland community. Copies of the ACOE data forms for each plot are included in Appendix A. Plots were numbered to represent the nearest wetland flag number.

Based on these investigations, both the Federal and State regulatory wetland boundaries coincide with each other.

3.0 Bank Delineation Methodology

The Wetlands Protection Act Regulations (*310 CMR 10.55*) define a bank as:

> That portion of land surface which normally abuts and confines a water body. It occurs between a water body and a vegetated bordering wetland and adjacent flood plain, or, in the absence of these, it occurs between a water body and an upland.

The upper boundary of the Bank is defined as:

> The first observable break in slope or the mean annual flood level, whichever is lower, while the lower boundary is defined as the mean annual low flow level.

Because the water elevations in the Muddy River from Charlesgate to Leverett Pond are affected by water surface management at the Charles River dam there are no mean annual flood and mean annual low flow levels. Therefore, an elevation for the upper and lower bank was determined from historical water elevation measurements. These data were gathered from Boston Parks and Recreation Department, the Town of Brookline, Massachusetts Department of Environmental Management (DEM), ACOE, and United States Geological Survey (USGS). The historical water elevation summary is summary is shown in Table 1. A copy of a typical USGS stage record of the Muddy River at Netherlands Road is included in Figure 2 as an example of the daily water level fluctuations from the water management of the Charles River.

The following elevations were used to describe the lower and upper limits of the bank for wetland delineation purposes:

Water Body	Elevation (BCB)
Back Bay Fens	7.7 and 8.5'
Riverway	7.7 and 8.6'
Leverett Pond	8.6'
Willow Pond	17'
Wards Pond	46'

4.0 Land Under Water Delineation Methodology

The wetland protection act regulations define land under water in 310CMR10.56(2)(c) as:

> The boundary of Land Under Water Bodies and Waterways is the mean annual low water level.

Therefore, land underwater is shown on the plans as land below the bank.

In many of the wetlands encountered, stands of *Phragmites* were observed below the bank. This vegetation has been classified as land underwater.

5.0 Bordering Land Subject To Flooding Delineation Methodology

BLSF is significant to flood control and storm damage prevention. BLSF provides a temporary storage area for floodwater. In accordance with 310 CMR 310.57(2)(3), the boundary of BLSF is the estimated maximum lateral extent of floodwater which will theoretically result from the statistical 100 year frequency storm. Said boundary shall be that determined by reference to the most recently available flood profile data prepared for the community within which the work is proposed under the National Flood Insurance Program (NFIP, currently administered by the Federal Emergency Management Agency, successor to the U.S. Department of Housing and Urban Development). Said boundary, so determined, shall be presumed accurate. This presumption may be overcome only by credible evidence from a registered professional engineer or other professional competent in such manners.

A copy of the plan from the Army Corps of Engineers and FEMA (Storm of October 20-21, 1996 Muddy River Flood Analysis. March 1997) is shown in Figure 3.

6.0 Riverfront Delineation Methodology

The riverfront area is the land between a river's mean annual high water line and a parallel line measured horizontally. In most cases the parallel line is located 200 feet away, except in densely developed areas as defined in the Wetland Protection Act or as designated by the Secretary of the Executive Office of Environmental Affairs where it is only 25 feet. The Wetland Protection Act lists Boston as a densely developed area resulting in a riverfront area of 25 feet, however, Brookline is not listed and therefore the riverfront area extends 200 feet landward. The riverfront areas for Boston and Brookline are shown on the wetland delineation plans, wherever possible.

7.0 Description of Bordering Vegetated Wetlands

Each section of the Muddy River system was numbered. A total of 14 sections were divided in the following two ways, 1.) an enclosed pond was identified as a section (i.e. Ward's Pond, Willow Pond); 2.) a footbridge or road was used to divide sections (i.e. Agassiz Bridge divides wetland 13 from wetland 14 along the river). The wetland areas are shown in Figure 4.

Each wetland around the section was numbered sequentially. When a wetland ended, the next wetland flag number for that section would begin by the next number by 10's. For example, around Leverett Pond, the first wetland encountered was numbered 5-1 to 5-8, the next wetland around the pond was numbered 5-10 to 5-16, and the third 5-20 to 5-24, and so forth. A table in Appendix B represents the wetland vegetation and type within each section and a set of survey plans have been provided that show the wetland boundaries and bank.

7.1 Wetland Areas Along The Muddy River

The following sections contain descriptions of each of the wetland areas and their locations are illustrated in Figure 4.

Wetland 1:
Ward's Pond and Outlet to the footbridge;
WF1-1 to 1-51

WF1-1 to WF1-8 and WF 1-43 to 1-51 marks the BVW boundary that surrounds the stream that flows out of Ward's Pond. Vegetation within this BVW includes: jewel weed (*Impatiens capensis*), some japanese knotweed (*Polygonum cuspidatum*), speckled alder (*Alnus rugosa*) and oak. An ACOE plot was recorded near WF1-47.

Series WF1-8 to WF1-43 marks the BVW around Ward's Pond. The wetlands around this pond are narrow (10 to 25 feet) due to the topography. Around the southern portion of the pond, the wetland widens to approximately 75 to 100 ft. Due to the low grade and hydrologic seepage through the hill from Jamaca Pond, the area becomes more of a marsh community. There is a boardwalk through this area. An ACOE 1-41 represent the wetlands around the pond. Wetland vegetation consists of purple loosestrife (*Lythrum salicaria*), iris sp. (*Iris sp.*), swamp loosestrife (*Lysimachia terrestis*), red maple (*Acer rubrum*), grey dogwood (*Cornus racemosa*), and glossy buckthorn (*Rhamnus frangula*).

Wetland 2:
Footbridge to Willow Pond;
WF2-1 to 2-58

Wetland 2 consists of a narrow band of BVW surrounding a stream that leads from Ward's Pond to Willow Pond. The upstream-left bank is fairly steep with vegetation, while the right bank is not as steep and consists mainly of mowed grass. The stream is man-made, though it looks very natural in the landscape. Representative wetland species in the area consists of skunk cabbage (*Symplocarpus foetidus*), sweet pepperbush (*Clethra anifolia*), glossy buckthorn, honey suckle (*Lonicera spp.*), red maple and american elm (*Ulmus americana*). Two ACOE plots were recorded, one near WF 2-15 and the other WF 2-52.

Wetland 3:
Wetland South West of the History Pool, the History Pool and outlet to Willow Pond; WF3-1 to 3-15; WF3-20 to 3-43; WF3-50 to 3-64

BVW (WF-1 to 15 and WF 20-43) was flagged around a wetland which flows into a History Pool. This is a scrub/shrub type wetland consisting of a variety of wetland plants including red-osier dogwood *(Cornus stolonifera)*, and cattails (*Typha sp.*). ACOE plot 3-24 is representative of this area.

This wetland drains into a pooling area. This area is thought to be groundwater fed as well as receiving water from the upgrading wetland. The area has no wetland vegetation around it. All vegetation growing around the pond is on the bank. This pond drains into Willow Pond via a small channel. Wetland vegetation around this channel has been flagged with the series WF50-64. An ACOE plot was taken at WF 3-51 that is representative of the area.

Wetland 4:
Willow Pond
WF 4-1 to 4-30

In general, there is approximately 3-4 feet of BVW around all of Willow Pond. Water enters the pond from two sources, from the pooling area in wetland Section 3, and from the brook leading from Ward's Pond. The vegetation primarily consists of multiflora rose (*Rosa multiflora*), red-osier dogwood, northern arrowwood (*Viburnum recognitum*) and purple loosestrife.

Wetland 5:
Willow Pond Road to Huntington Avenue (Leverett Pond);
WF5-1 to 5-8, WF5-10 to 5-16, WF5-20 to 5-24, WF5-30 to 5-37, WF5-40 to 5-43, WF5-50 to 5-55; WF5-61 to 5-65, WF5-70 to 5-71 and WF5-80 to 5-84.

Willow Pond flows into Leverett Pond via a culvert. Most of Leverett Pond is surrounded by a bank that transitions directly to upland, without any BVW. The BVW around the pond are, in general, small, 2-3 feet wide, and consist of scrub shrub species and some marsh community species. There are mostly gabions along the Brookline side which have a narrow and intermittent band of purple loosestrife. ACOE plots were taken in two locations, one near WF 5-7 and the other representative of the bank conditions.

Wetland 6:
Brookline Avenue to Netherlands Road;
WF6-1 to 6-41

Vegetation along wetland 6 consists of purple loosestrife, common reed (*Phagmites australis*), red-oiser dogwood and red maple. ACOE plots were taken at the bank (upstream of Longwood Ave) and at WF 6-27.

Wetland 7;
Huntington Avenue to Brookline Ave;
WF7-1 to 7-22; WF –30 to 7-31; WF7-40 to 7-42

Wetlands along this section consist of patches of *Phragmites*.

Wetland 8;
Longwood Avenue to the Footbridge on the Riverway;
WF8-1 to 8-4; WF8-10 to 8-15, WF8-20 to 8-22; WF 8-30 to 8-34.

Similar to wetland 7, wetland 8 consists of patches of *Phragmites*. An ACOE plot was logged near WF 8-3.

Wetland 9:
Footbridge on the Riverway to Park Avenue;
WF9-1 to 9-5, WF9-10 to 9-31, WF9-50 to 9-52,WF 9-60 to 9-65, WF9-70 to 9-80

WF 9-10 through 9-31 consists of *Phragmites*, pussy willow (*Salix discolor*), specked alder (*Alnus rugosa*), sweet pepperbush, iron wood (*Carpinus caroliniana*) and red maple. Many of the other flag series consists of patches of *Phragmites*. Two ACOE plots were taken to represent the area, ACOE 9-4 and ACOE 9-52.

Wetland 10:
Fenway South - South of Brookline Ave. to Avenue of Louis Pasteur;
WF 10-1 to 10-6 and 10-10 to 10-16,

Vegetation includes glossy buckthorn, red-osier dogwood, northern arrowwood, lily sp. An ACOE plot was taken near WF 10-2 that was representative of the area.

Wetland 11:
Back Bay Fens - Avenue of Louis Pasteur to footbridge near Yawley;
WF 11-1 to 11-4; WF 11-10 to 11-12, WF 11-20 to 11-44; WF 11-50 to 11-53; WF 11-60 to 11-72

Many areas consist of patches of *Phragmites*. BVW along WF 11-10 to 11-12 and WF 11-20 to 11-44 was approximately 1 to 3 feet in width. Vegetation in this area includes: willows (*Salicaceae sp.*), glossy buckthorn, red-osier dogwood, northern arrowwood, and red maple. One ACOE plot was taken near WF 11-1.

Wetland 12:
Back Bay Fens- Footbridge near Yawley Road to Footbridge near Forsyth Way.
WF 12-1 to 12-8, WF 12-10 to 12-12, WF 12-20 to 12-25 to WF 12-30 to 12-46

Species observed in wetland 12 were similar to that of wetland 11 with the exception of wetland 12 having purple loosestrife. The BVW extends 2-3 ft beyond the top of bank.

Wetland 13:
Back Bay Fens - Footbridge near Forsyth Way to Agassiz Road.
WF 13-1 to 13-4; WF 13-10 to 13-12; WF 13-20 to 13-41; WF 13-50 to 13-66, WF 13-70 to 13-80

Phragmites were the dominant species in this wetland area. Other vegetation includes cattails, purple loostrife, and glossy buckthorn. Two ACOE plots were taken at WF 13-36 and 13-61.

Wetland 14:
Back Bay Fens - Agassiz Road to Boylston Street.
WF 14-1 to 14-44, WF 12-100 to 14-143

Similar to wetland 13, *Phragmites* were the dominant vegetation. ACOE plots were taken at WF 14-16 and 14-139. Vegetation at plot 14-39 includes buckthorn, and elm.

7.2 Amount of Resource Areas Along The Muddy River

Based on the resource area delineation the area of Land Under Water, Bordering Vegetated Wetlands and Bank were measured and are presented in Table 2.

Table 1

Summary of Historic Water Elevations

Location	Water Elevation (feet at BCB)	Bottom Elevation (feet at BCB)	Source
Charlesgate @			
• Masspike	8.0	-	ACOE, 9/67
• Ipswich Street	8.0	-	ACOE, 9/67
Back Bay Fens @			
• Boylston Street	8.2	0.7-2.1	BPRD, 6/1921
• Boylston Street	8.2	0.7	BPRD, 6/21
• Victory Gardens	8.4(±)	-	BPRD, 3/24/27
• Victory Gardens	8.5	-	DEM, 6/17/86
• Victory Gardens	8.0	-	BPRD, 3/25/99
• Duck House	-	1.7-2.2	BPRD, 7/21
• Agassiz Bridge	8.0	-	ACOE, 9/67
• Agassiz Bridge	8.5	-	DEM, 6/17/86
• Boston Gatehouses	8.2	1.2	BPRD, 6/21
• Boston Gatehouses	8.0	-	BPRD, 3/25/99
• Along edge of Clemete Field	8.5	-	DEM, 6/17/86
• Along edge of Clemete Field	7.7 (varies)	-	3/25/99
• Downstream of Avenue Louis Pasteur	8.0	-	ACOE, 9/67
• Downstream of Avenue Louis Pasteur	8.2	1.0-2.4	BPRD, 6/21
• Between Ave. Louis Pasteur/Brookline Ave.	8.2	0.7-1.9	6/21
• Between Ave. Louis Pasteur/Brookline Ave.	8.5	-	6/17/86
• Between Ave. Louis Pasteur/Brookline Ave.	7.7 (varies)	-	BPRD, 3/25/99
• Sears Lot Gate Chamber	8.0	-	ACOE, 9/67
Riverway @			
• Chapel Street Foot Bridge	8.6	-	ACOE, 9/67
• Chapel Street Foot Bridge	8.0	-	BPRD, 10/7/96
• Nederlands Road	8.6	-	ACOE, 9/67
• Nederlands Road	7.7 (0.5' variation)	-	USGS, 4/2 to 4/6/00
• Nederlands Road	7.8 (0.4' variation)	-	USGS, 5/29 to 6/2/00
• Route 9	8.6	-	ACOE, 9/67
Leverett Pond @			
• Outlet	9.0 (±)	-	BPRD, 10/7/96
• Outlet	9.2	-	ACOE, 9/67
• Allerton Overlook	8.22	-	Brookline, 8/25/00*

Table 1 (continued)

Summary of Historic Water Elevations

Willow Pond			
• Middle	10.35	2.35	Olmsted 20 April 1893
Wards Pond @			
• Outlet	44 (±)	-	DEM, No Date
• Middle	42.65	34.35	Olmsted 20 April 1893

* The Town of Brookline felt that the water level of Leverett Pond was similar to that at the USGS gage at Netherlands Road. On August 25, 2000 Brookline surveyed the water elevation at 8.22 feet. The water level at the gage was also 8 feet.

Water Elevation Summary

• Back Bay Fens	7.7' (BPRD, 3/25/99) to 8.5' (DEM, 6/7/86)
• Riverway	7.7' (USGS 4/2 to 4/6/00 to 8.6' (ACOE, 9/67)
• Leverett Pond	Same as the Riverway
• Willow Pond	10.35' (Olmsted 20 April 1893)
• Wards Pond	44' (±) (DEM, no date)

Table 2
Amount of Resource Areas Along the Muddy River

Resource Areas Along the Muddy River			
	Bank	Land Under Water (Vegetated)	Bordering Vegetated Wetlands
Boston	25,945 linear ft.	5.27 acres	2.93 acres
Brookline	9,205 linear ft.	0.51 acres	0.59 acres

WETLAND	FLAG NUMBER	Flag Number Series Delineates Vegetation in the Follow Resource Area:*		
		BVW	BANK	LUW
	WF 6-8 to 6-9		X	X
	WF 6-9 to 6-16	X	X	X
	WF 6-17 to 6-19		X	X
	WF 6-19 to 6-20		X	X
	WF 6-20 to 6-21		X	X
	WF 6-21 to 6-23		X	X
	WF 6-23 to 6-25	X	X	X
	WF 6-25 to 6-27		X	X
	WF 6-27 to 6-30	X	X	X
	WF 6-31 to 6-32		X	X
	WF 6-32 to 6-33	X	X	X
	WF 6-33 to 6-40		X	X
	WF 6-40 to 6-41	X	X	X
Huntington Avenue to Brookline Ave	WF7-1 to 7-22	X	X	X
	WF7-30 to 7-31	X	X	X
	WF7-40 to 7-42	X	X	X
Longwood Avenue to the Footbridge on the Riverway	WF8-10 to 8-15	X	X	X
	WF8-20 to 8-22	X	X	X

* See Muddy River Restoration Project – Wetland Delineation Plans, Sheets 1-34 for Location and Extent of Wetland Resource Area.

Table 3
Resource Area Delineaton

WETLAND	FLAG NUMBER	Flag Number Series Delineates Vegetation in the Follow Resource Area:*		
		BVW	BANK	LUW
Wards Pond and Outlet to the footbridge	WF1-1 to 1-51	X	X	X
Footbridge to Willow Pond	WF2-1 to 2-58	X	X	X
South west of the Pool and outlet to willow Pond	WF3-1 to 3-15	X	X	
	WF3-20 to 3-43	X	X	
	WF3-50 to 3-64	X	X	X
Willow Pond	WF4-1 to 4-30	X	X	X
Willow Pond Road to Huntington Avenue (Leverett Pond)	WF5-1 to 5-8	X	X	X
Leverett Pond	WF5-10 to 5-16	X	X	X
Leverett Pond	WF5-20 to 5-24	X	X	X
Leverett Pond	WF5-30 to 5-37	X	X	X
Leverett Pond	WF5-40 to 5-43	X	X	X
Leverett Pond	WF5-50 to 5-55	X	X	X
Leverett Pond	WF5-61 to 5-65	X	X	X
Leverett Pond	WF5-70 to 5-71	X	X	X
Leverett Pond	WF 5-80 to 5-84	X	X	X
Brookline Avenue to Netherlands Road	WF6-1 to 6-6	X	X	X
	WF 6-6 to 6-8		X	X

* See Muddy River Restoration Project – Wetland Delineation Plans, Sheets 1-34 for Location and Extent of Wetland Resource Area.

WETLAND	FLAG NUMBER	Flag Number Series Delineates Vegetation in the Follow Resource Area:*		
		BVW	BANK	LUW
	WF8-30 to 8-34		X	X
Footbridge on the Riverway to Park Avenue	WF9-1 to 9-5	X	X	X
	WF9-10 to 9-31	X	X	X
	WF9-50 to 9-52	X	X	X
	WF9-60 to 9-65	X	X	X
	WF9-70 to 9-80	X	X	X
Fenway South – South of Brookline Ave to Avenue of Louis Pasteur	WF10-1 to 10-2	X	X	X
	WF10-2 to 10-6	X	X	X
	WF10-10 to 10-16	X	X	X
Back Bay Fens-Avenue of Louis Pasteur to footbridge near Yawley	WF11-1 to 11-4		X	X
	WF11-10 to 11-12	X	X	X
	WF11-20 to 11-44	X	X	X
	WF11-20 to 11-21	X	X	X
	WF11-21 to 11-23	X	X	X
	WF11-31 to 11-24	X	X	X
	WF11-24 to 11-25	X	X	X
	WF11-25 to 11-26	X	X	X

* See Muddy River Restoration Project – Wetland Delineation Plans, Sheets 1-34 for Location and Extent of Wetland Resource Area.

WETLAND	FLAG NUMBER	Flag Number Series Delineates Vegetation in the Follow Resource Area:*		
		BVW	BANK	LUW
	WF11-26 to 11-27	X	X	X
	WF11-27 to 11-30		X	X
	WF11-30 to 11-32	X	X	X
	WF11-32 to 11-33	X	X	X
	WF11-33 to 11-37	X	X	X
	WF11-37 to 11-40		X	X
	WF11-41 to 11-43		X	X
	WF11-43 to 11-44		X	X
	WF11-50 to 11-52	X	X	X
	WF11-60 to 11-63	X	X	X
	WF11-63 to 11-64		X	X
	WF11-64 to 11-66	X	X	X
	WF11-66 to 11-67		X	X
	WF11-67 to 11-71	X	X	X
	WF11-71 to 11-72	X	X	X
Back Bay Fens-Footbridge near Yawley Road to Footbridge near Forsyth Way	WF12-1 to 12-12	X	X	X
	WF12-20 to 12-25	X	X	X
	WF12-30 to 12-31		X	X

* See Muddy River Restoration Project – Wetland Delineation Plans, Sheets 1-34 for Location and Extent of Wetland Resource Area.

WETLAND	FLAG NUMBER	Flag Number Series Delineates Vegetation in the Follow Resource Area:*		
		BVW	BANK	LUW
	WF12-31 to 12-32		X	X
	WF12-32 to 12-34	X	X	X
	WF12-34 to 12-40	X	X	X
	WF12-40 to 12-45	X	X	X
	WF12-45 to 12-46	X	X	X
Back Bay Fens-Fotbridge near Forsyth Way to Agassiz Road	WF13-1 to 13-4	X	X	X
	WF13-10 to 13-12	X	X	X
	WF13-20 to 13-41		X	X
	WF13-50 to 13-66	X	X	X
	WF-13-70 to 13-71	X	X	X
	WF13-71 to 72	X	X	X
	WF13-73 to 13-75	X	X	X
	WF13-75 to 80		X	X
Back Bay Fens- Agassiz Road to Bolston Street	WF14-1 to 14-44	X	X	X
	WF14-1 to 14-7	X	X	X
	WF14-7 to 14-8		X	X
	WF14-8 to 14-9		X	X
	WF114-10 to 14-24	X	X	X

* See Muddy River Restoration Project – Wetland Delineation Plans, Sheets 1-34 for Location and Extent of Wetland Resource Area.

WETLAND	FLAG NUMBER	Flag Number Series Delineates Vegetation in the Follow Resource Area:*		
		BVW	BANK	LUW
	WF14-24 to 14-25	X	X	X
	WF14-25 to 14-26	X	X	X
	WF14-26 to 14-28		X	X
	WF14-28 to 14-35		X	X
	WF 14-35 to 14-37		X	X
	WF14-38 to 14-44		X	X
	WF14-109 to 14-110		X	X
	WF14-110 to 14-111		X	X
	WF14-111 to 14-112		X	X
	WF14-112 to 14-113		X	X
	WF14-113 to 14-121		X	X
	WF14-122 to 143	X	X	X

**All areas along the River not demarcated by wetland flags are protected as Inland Bank and Land Under Water. In addition, Inland Bank, Land Under Water, and Bordering Vegetated Wetlands have a 100-foot Buffer Zone. Rivers and perennial streams are protect by the Riverfront Area (25 feet in Boston and 200 feet in Brookline). Land Subject to Flooding are shown on the FEMA Flood Maps.

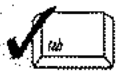
* See Muddy River Restoration Project – Wetland Delineation Plans, Sheets 1-34 for Location and Extent of Wetland Resource Area.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 4A – Abbreviated Notice of Resource Area Delineation
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:
Provided by DEP

A. General Information

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



1. Applicant:

Boston Parks and Recreation Department	Beatty@ci.boston.ma.us	
Name	E-Mail Address (if applicable)	
1010 Massachusetts Avenue		
Mailing Address		
Boston	MA	02118
City/Town	State	Zip Code
617-635-4505 (Fran Beatty)	617-635-3173	
Phone Number	Fax Number (if applicable)	

2. Representative (if any):

Jason M. Cortell and Associates Inc		
Firm		
Carlton L. Noyes	Cortell@Cortell.com	
Contact Name	E-Mail Address (if applicable)	
244 Second Avenue		
Mailing Address		
Waltham	MA	02451
City/Town	State	Zip Code
781-890-3737 x128	781-890-3430	
Phone Number	Fax Number (if applicable)	

3. Property Owner (if different from applicant):

Name		
Mailing Address		
City/Town	State	Zip Code

4. Total Fee:

Exempt
(from Appendix B: Wetland Fee Transmittal Form)

5. Project Location:

Muddy River (Ward's Pond, Willow Pond, Leverett Pond, Riverway, Backbay Fens, Charlesgate)	Boston/Brookline
	City/Town
Assessors Map/Plat Number	Parcel /Lot Number

6. Registry of Deeds:

County	Book	Page
Certificate (if Registered Land)		

B. Area(s) Delineated

1. Bordering Vegetated Wetland (BVW):

Linear Feet of Boundary Delineated

2. Check all methods used to delineate the Bordering Vegetated Wetland (BVW) boundary:

☐ DEP BVW Field Data Form (attached)

☒ Other Methods for Determining the BVW boundary (attach documentation):

- ☒ 50% or more wetland indicator plants
- ☒ Saturated/inundated conditions exist
- ☒ Groundwater indicators
- ☒ Direct observation
- ☒ Hydric soil indicators
- ☐ Credible evidence of conditions prior to disturbance.

3. Indicate if any other resource area(s) are delineated:

Resource Area(s):

Bordering Vegetated Wetlands	Riverfront Area
Bank	
Bordering Land Subject to Flooding	
Land Under Water	

C. Additional Information

Include the following with this Abbreviated Notice of Resource Area Delineation:

- 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.
- Plans identifying the boundaries of the Bordering Vegetated Wetlands (BVW) (and other resource areas, if applicable).
- Other material identifying and explaining the determination of resource area boundaries shown on plans (e.g., a DEP BVW Field Data Form).
- List the titles and final revision dates for all plans and other materials submitted with this Abbreviated Notice of Resource Area Delineation.

D. Fees

The fee for work proposed under each Abbreviated Notice of Resource Area Delineation must be calculated and submitted to the Conservation Commission and the Department (see Instructions and Appendix B: Wetland Fee Transmittal Form).

E. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Abbreviated Notice of Resource Area Delineation 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 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.

Signature of Applicant — Date: 5 September 2000

Signature of Property Owner (if different) — Date

Signature of Representative (if any) — Date

For Conservation Commission:
Two copies of the completed Abbreviated Notice of Resource Delineation (WPA Form 4A), including supporting plans and documents; two copies of pages 1 and 2 of Appendix B; and the city/town fee payment must be sent to the Conservation Commission by certified mail or hand delivery.

For DEP:
Two copies of the completed Abbreviated Notice of Resource Delineation (WPA Form 4A), including supporting plans and documents; two copies of pages 1 and 2 of Appendix B; and a **copy** of the state fee payment must be sent to the DEP Regional Office (see Appendix A) by certified mail or hand delivery. The DEP copies must be sent at the same time as the application submission to the Conservation Commission. Failure by the applicant to send copies in a timely manner may result in dismissal of the Abbreviated Notice of Resource Area Delineation.

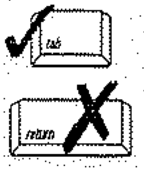
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Appendix B – Wetland Fee Transmittal Form

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

A. Applicant Information

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



1. Applicant:

Boston Parks and Recreation Department
Name

1010 Massachusets Ave
Mailing Address

Boston | MA | 02118
City/Town | State | Zip Code

617-635-4505 (Fran Beatty)
Phone Number

2. Property Owner (if different):

Name

Mailing Address

City/Town | State | Zip Code

Phone Number

3. Project Location:

Muddy River (Ward's Pond, Willow Pond, Leverett Pond, Riverway, Backbay Fens, and Charlesgate) | Boston/Brookline
City/Town

B. Fees

To calculate filing fees, refer to the category fee list and examples in Section D of this form.

Abbreviated Notice of Resource Area Delineation (Form 4A):

The fee is calculated as follows (check applicable project type):

☐ single family house project

_____ X $1.00= _____
(feet of BVW) | Total fee (not to exceed $100)

☐ all other projects

_____ X $1.00= _____
(feet of BVW) | EXEMPT--No Fee for City or Towns

State share of filing fee: EXEMPT
(1/2 of total fee less $12.50)

City/Town share of filing fee: EXEMPT
(1/2 of total fee plus $12.50)

B. Fees (cont.)

Abbreviated Notice of Intent (Form 4) or Notice of Intent (Form 3):

The fee should be calculated using the following six-step process and worksheet:

Step 1/Type of Activity: Describe each type of activity (see Section D for a list of activities) 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 in Section D.

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.

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Abbreviated Notice of Resource Area Delineation			Exempt
BVW, Bank, LUW, BLSF, Riverfront Area			

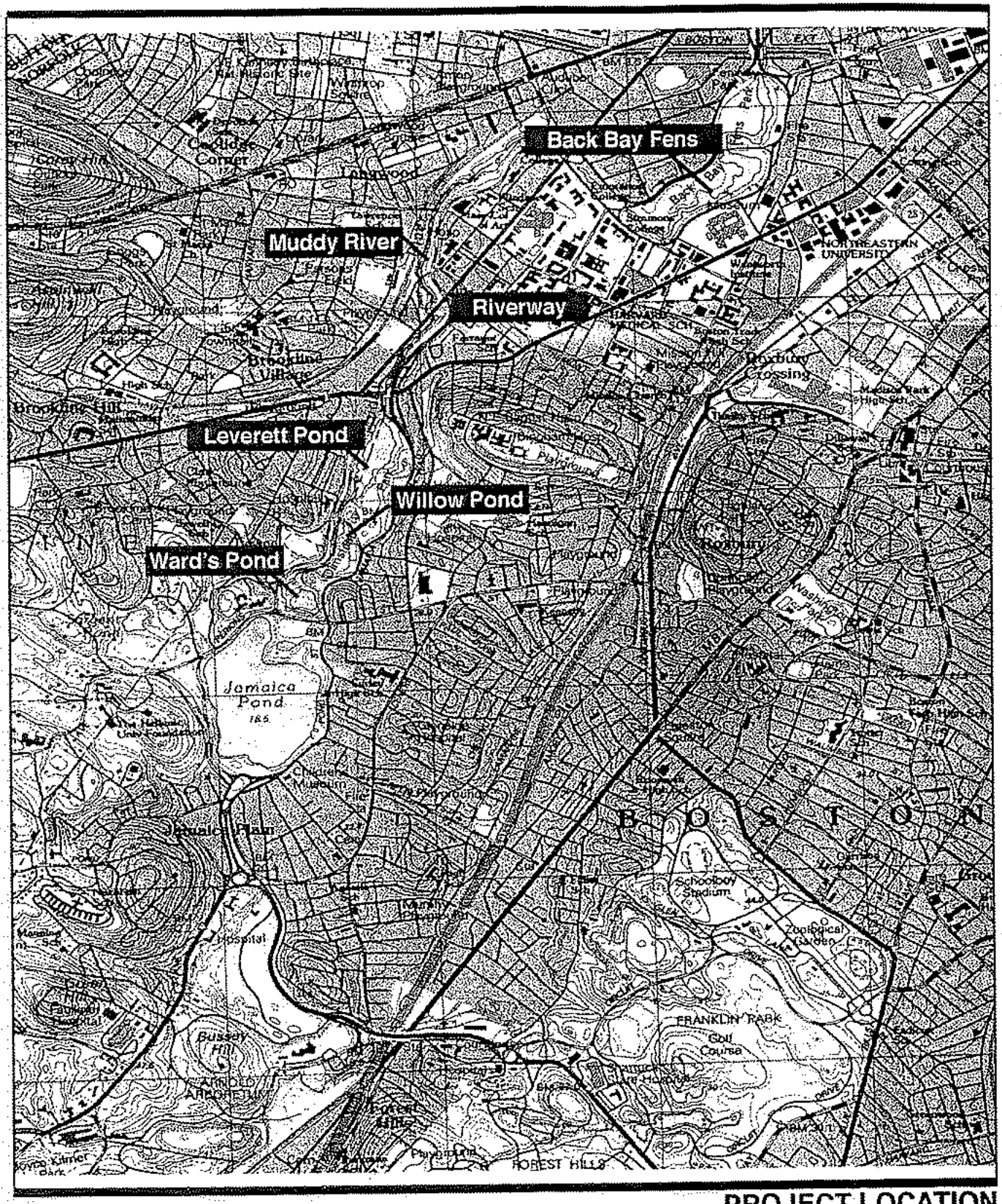
Step 5/Total Project Fee: _____

Step 6/Fee Payments:

Total Project Fee: Exempt
(Total fee from Step 5)

State share of filing fee: _____
(1/2 total fee less $12.50)

City/Town share of filing fee: _____
(1/2 total fee plus $12.50)



PROJECT LOCATION

SOURCE: U.S.G.S. (1987)

Boston Parks and Recreation Department

Muddy River Phase I Improvements & Habitat Enhancement Project

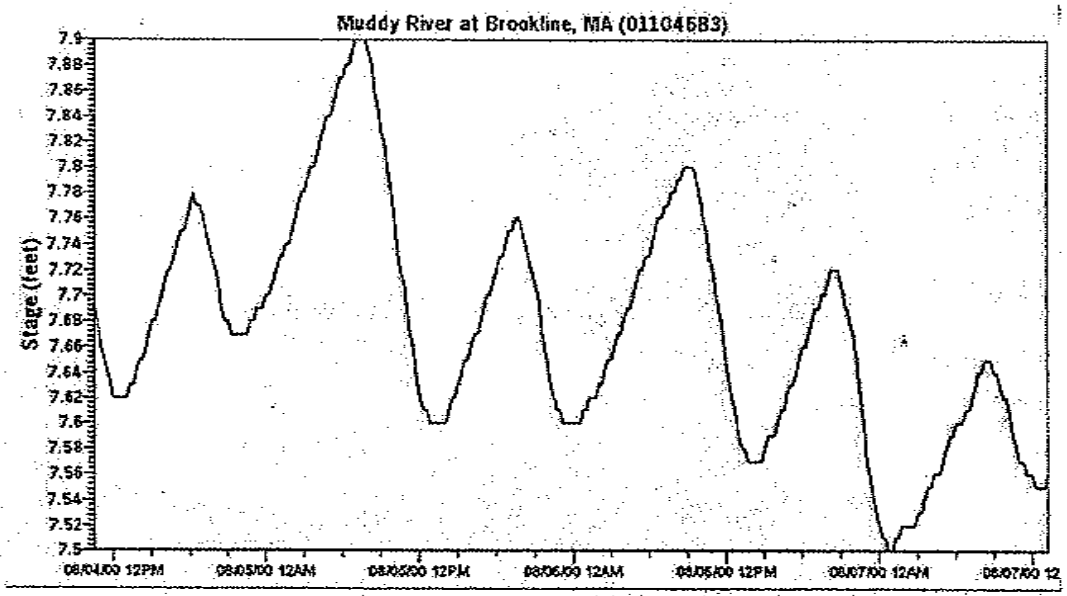
Boston and Brookline, Massachusetts

0' 2083'

Figure 1

CORTELL ASSOCIATES

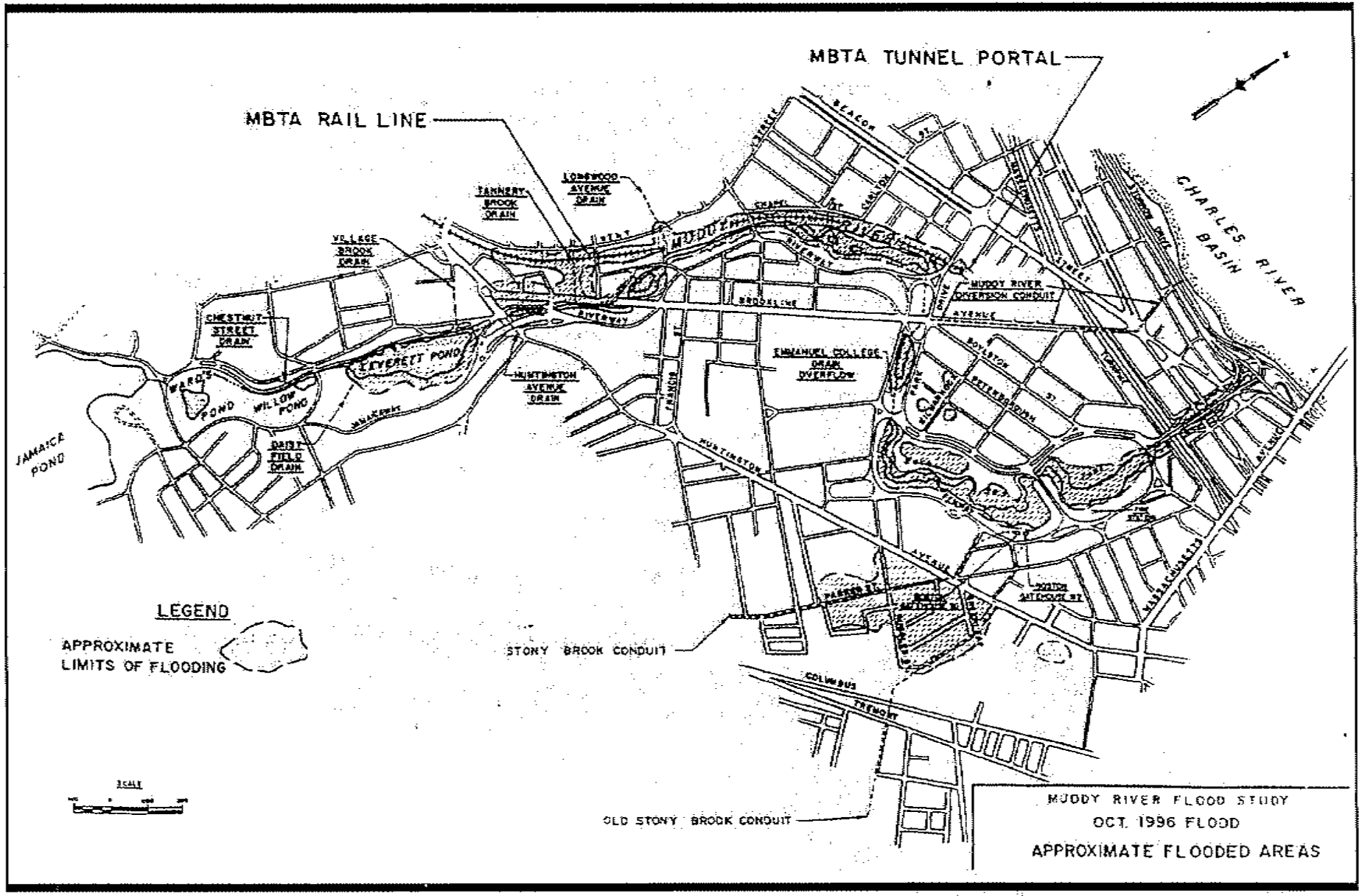
PROVISIONAL DATA SUBJECT TO REVISION



U.S. Department of the Interior, U.S. Geological Survey
10 Bearfoot Road
Northborough, MA 01532
(508) 490-5000

Maintainer: GS-W-MAmrl_Webmaster@usgs.gov
Last modified: Wednesday, March 22, 2000
URL: http://ma.water.usgs.gov/charles_river/loads/MONITORING_STATIONS/Muddy_River/mrstage.html

Typical USGS Stage Recording at Netherlands Road



Muddy River Flood Study, Oct. 1996 Flood, Approximate Flooded Areas

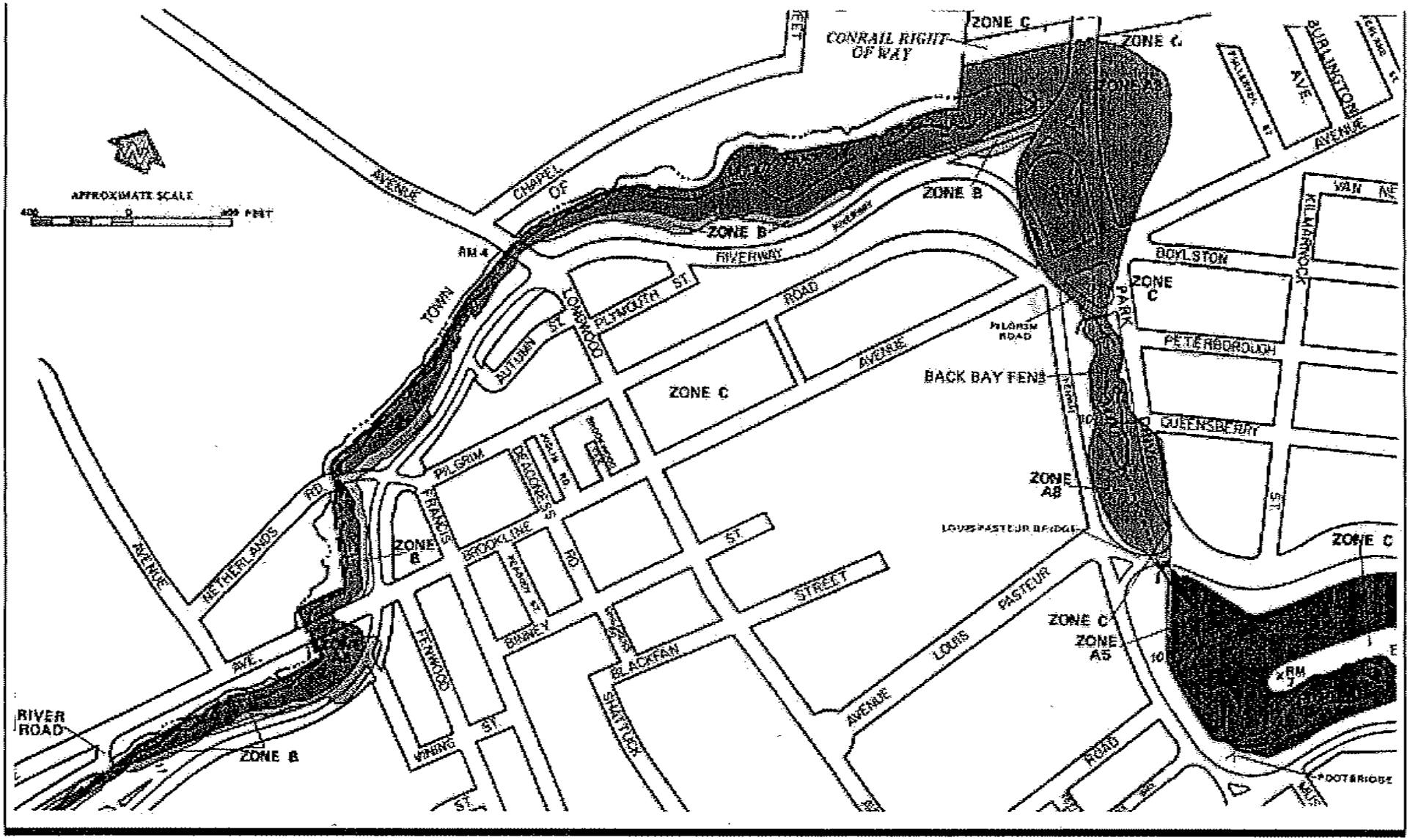
Boston Parks and Recreation Department

Muddy River Phase 1 Improvements & Habitat Enhancement Project

City of Boston/Town of Brookline, Massachusetts

Figure

3



Flood Insurance Rate Map, Boston, MA, FEMA

Boston Parks and Recreation Department

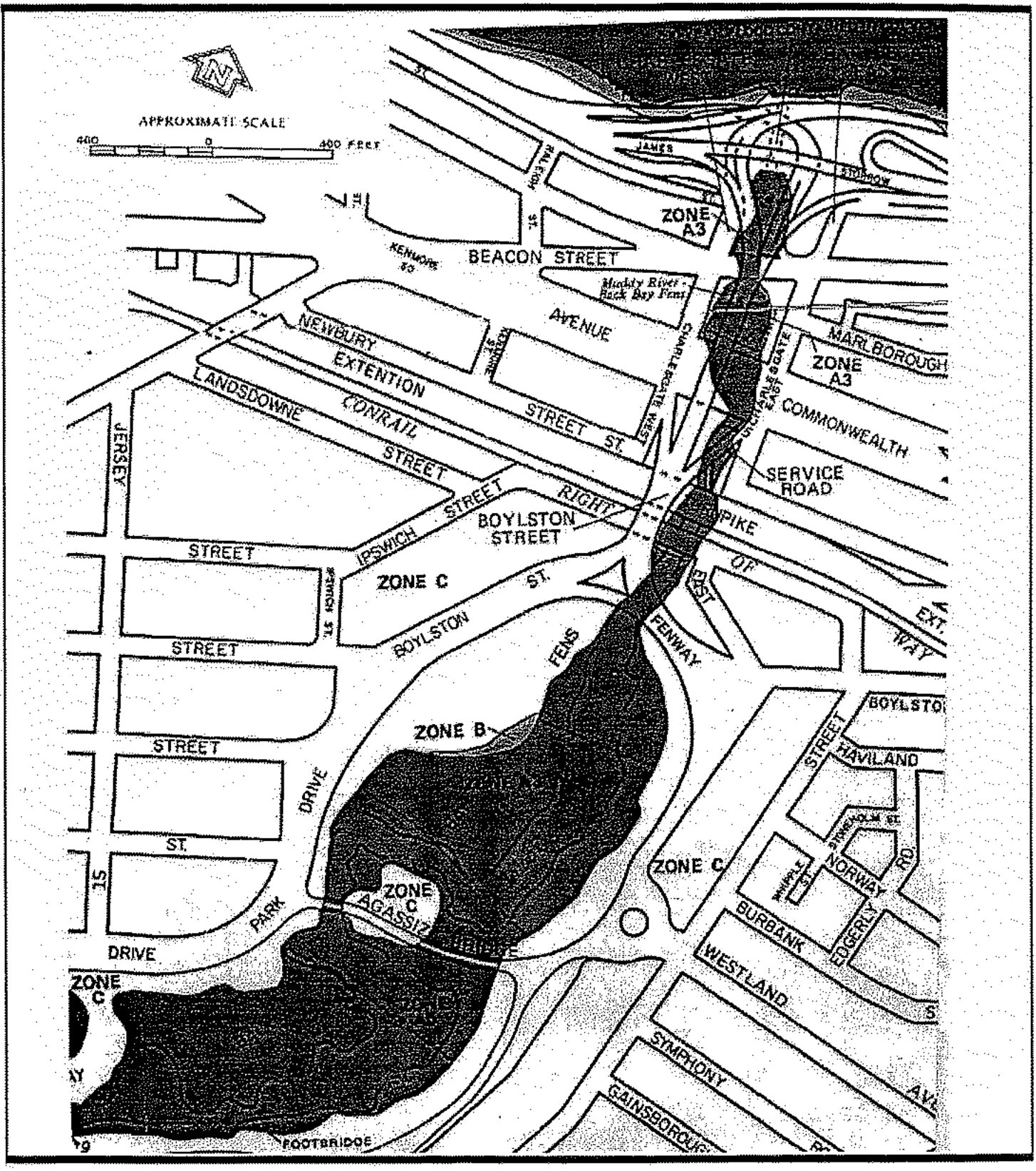
Muddy River Phase 1 Improvements & Habitat Enhancement Project

City of Boston/Town of Brookline, Massachusetts

Figure

3a

JA 4. CO AND ICIAT C. (R 9/25/(



Flood Insurance Rate Map, Boston, MA, FEMA

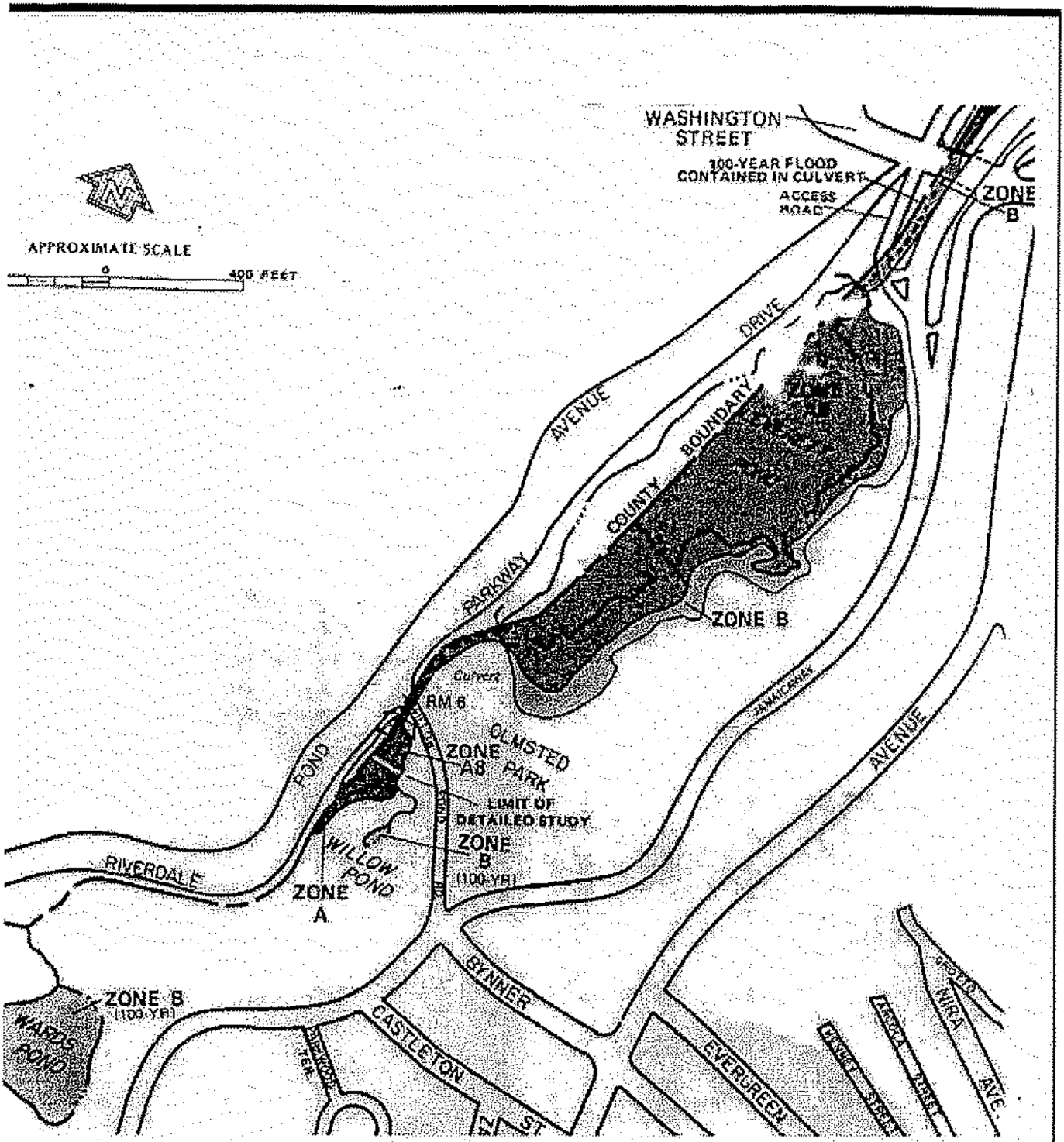
Boston Parks and Recreation Department

Muddy River Phase 1 Improvements & Habitat Enhancement Project

City of Boston/Town of Brookline, Massachusetts

Figure

3b



Flood Insurance Rate Map, Boston, MA, FEMA

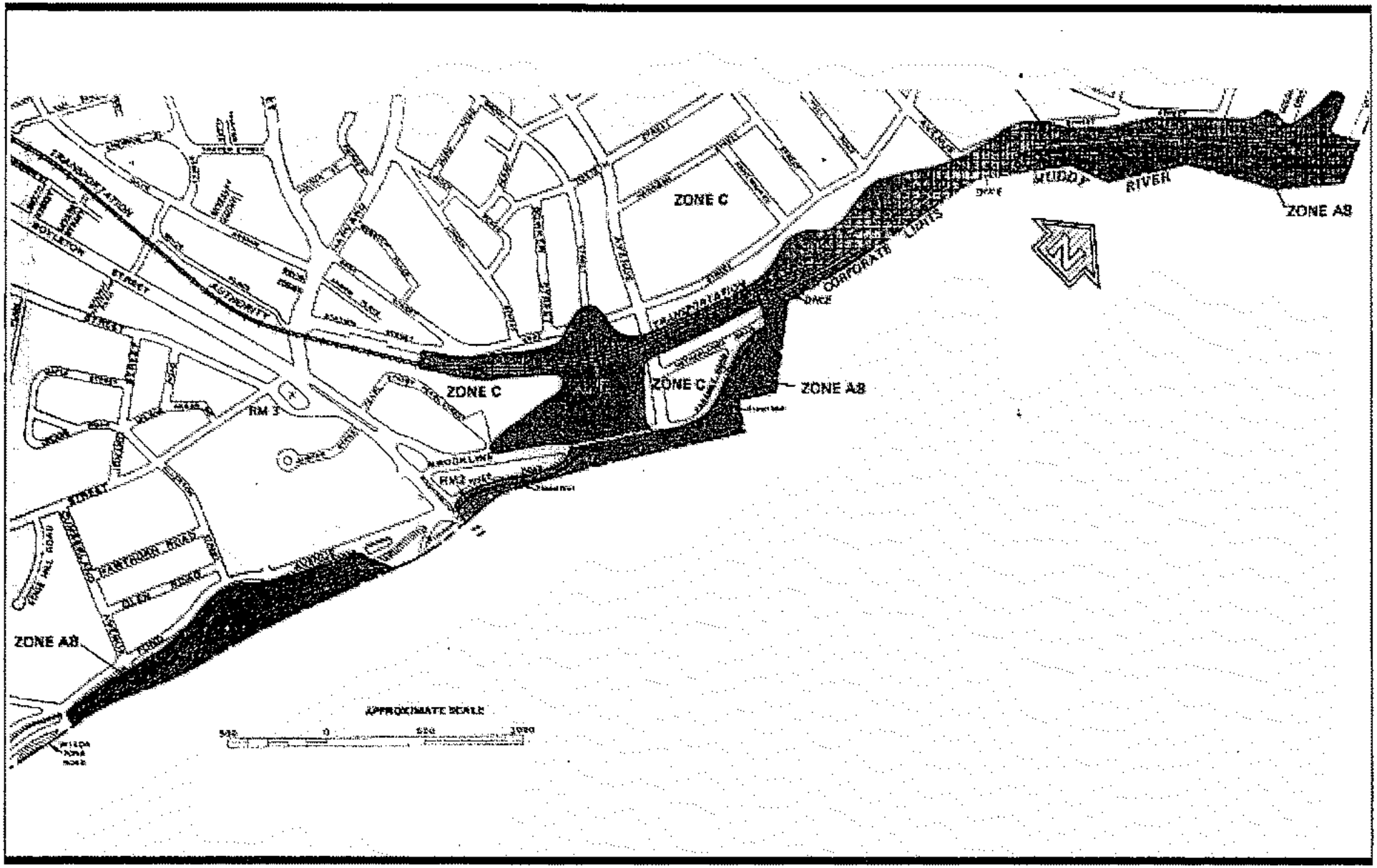
Boston Parks and Recreation Department

Muddy River Phase 1 Improvements & Habitat Enhancement Project

City of Boston/Town of Brookline, Massachusetts

Figure

3c



Flood Insurance Rate Map, Brookline, MA, FEMA

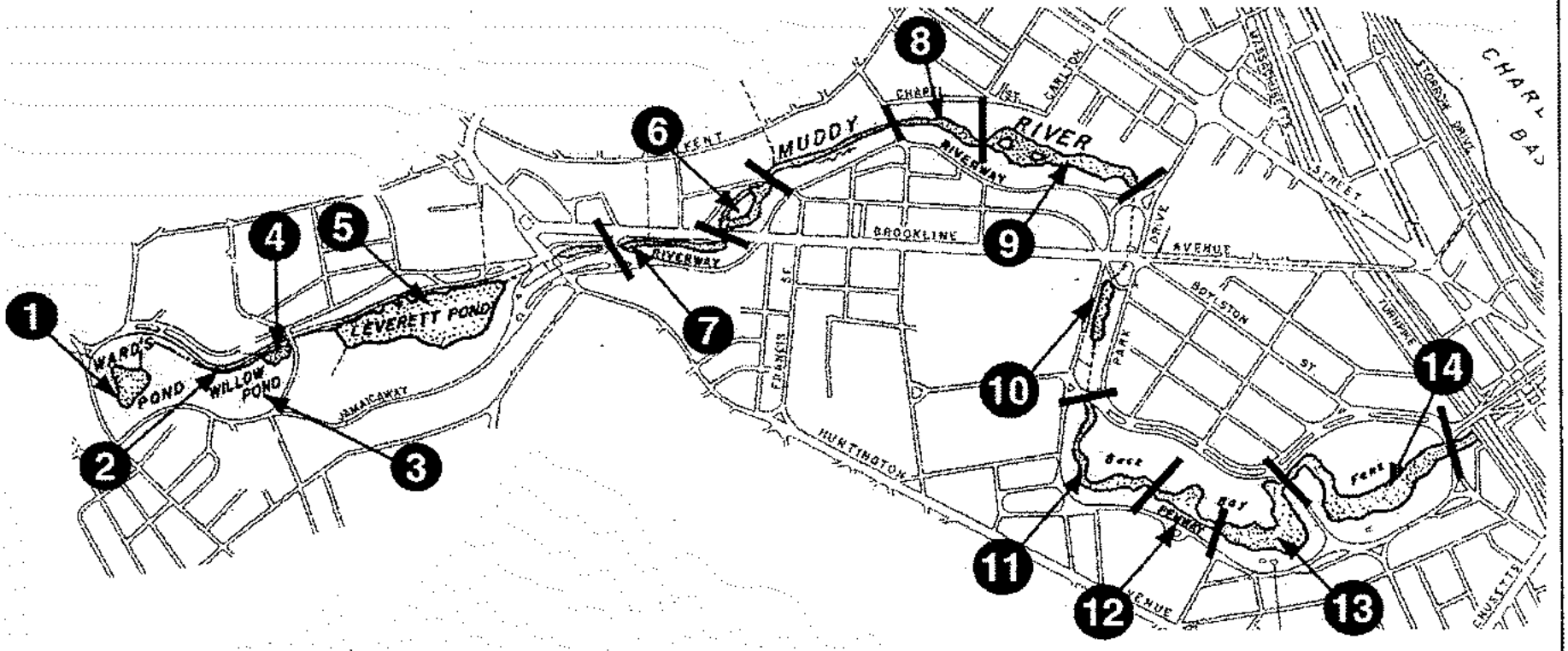
Boston Parks and Recreation Department

Muddy River Phase 1 Improvements & Habitat Enhancement Project

City of Boston/Town of Brookline, Massachusetts

Figure

3d



Wetland Locations

Boston Parks and Recreation Department

Muddy River Phase 1 Improvements & Habitat Enhancement Project

City of Boston/Town of Brookline, Massachusetts

Figure

4

Appendix A

ACOE Data Forms

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Muddy River - Ducthouse
Applicant/Owner: BRD
Investigator: J. Gensel, I. Simoes, M. Vissichelli

Date: 4-3-00
County: Suffic
State: MA

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: Wetland
Transect ID:
Plot ID: CDM 14-16 Wetland

VEGETATION

100% #3 #5

Dominant Plant Species	Stratum	Indicator
1. [redacted] Giant Ragweed	Herb.	
2. Gray Birch	Tree	
3. Oak	Tree	
4.		
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-):

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 2 (in.)

Depth to Free Water in Pit: 2 (in.)

Depth to Saturated Soil: ___ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ✓ Inundated
- ✓ Saturated in Upper 12 Inches at Surface
- ✓ Water Marks stained leaves
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
		10YR 2/1			
0-+		2.5Y 2.5/1			

Phag. (Root mat) all the way down.

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ✓ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)
Is this Sampling Point Within a Wetland? Yes No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Meadow River North Basin
Applicant/Owner:
Investigator:

Date: 4-4.
County:
State:

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID:
Transect ID:
Plot ID:

Wetland (Bank)
14-139

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Rose.	Her.	
2. Buckthorn (Glossy)	shrub	
3. Elm	Tree	
4. Ornimental Tree.	Tree	
5. DA, M. Grass.	Herb.	
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

P.
10%
3
1

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 16 (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
No ___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1	A	10YR 2/1			Loam.

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No

(Circle)
Is this Sampling Point Within a Wetland? Yes No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Muddy River, North Basin, across Applicant/Owner: Brookline/Boston River from Dick Investigator: MU IS / DG House	Date: 4/4/00 County: State: MA
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? (Yes) No Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: Upland Transect ID: Plot ID: Fig. 14-139

VEGETATION

100%

Dominant Plant Species	Stratum	Indicator
1. mantained grass	herb	
2.		
3.		
4.		
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY N/A

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____(in.)

Depth to Free Water in Pit: _____(in.)

Depth to Saturated Soil: _____(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3	A	10 yr 3/2			fine sandy loam
3-8	B	10 yr 5/4			
8-+	~~B~~ C	10yr 4/2			

Hydric Soil Indicators: n/A

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes ~~No~~

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Downstream Wash Pond Applicant/Owner: D Investigator:	Date: County: State:
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the erea a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: Transect ID: Plot ID: 2-SC

VEGETATION

	Dominant Plant Species	Stratum	Indicator
25	1. Jewelweed	Herb.	
15	2. Red Osier Stokesia	Shrub	
15	3. Common Buckthorn		
	4.		
	5.		
	6.		
	7.		
	8.		
	9.		
	10.		
	11.		
	12.		
	13.		
	14.		
	15.		
	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0+ (in.)

Depth to Free Water in Pit: ____ (in.)

Depth to Saturated Soil: ____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ✓ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6	A	10yr 3/2			
6-+	Refusal				

Hydric Soil Indicators: N/A

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

'ATOR(S): MHL, Jennifer DATE: 4/6/00 Down

ATION	Stratum and Species (Dominants Only)		Dominance Ratio	Percent Dominance	NWI STATUS
	ees ---				
	rab Apple	4			
	rubs				
	ed-osier dogwood	5%			
	opean buckthorn	5%			
	n. arrowwood	10%			
	d maple	15%			
	p. knotweed	20%			
	rbs				
	Jewelweed	10%			

Use asterisk * to indicate plants with observed adaptations to wetland hydrology.
Plants recorded with asterisks should be considered as "other hydrophytes" in the tally below.

ecies with NA or NI status are reported, but are not calculated in the tally below.

OBL	FACW	FAC	*OTHER HYDROPHYTES	FAC-	FACU	UPL

Hydrophytes SUBTOTAL: ______ NON-hydrophytes SUBTOTAL: ______

100 x Subtotal Hydrophytes / Subtotal Hydrophytes + Subtotal Non-hydrophytes = PERCENT HYDROPHYTES = ______

LOGY
1. Hydrology is often the most difficult feature to observe.
2. Interpretation must consider the validity of the observation in light of the season, recent weather conditions, watershed alterations, etc.
3. Interpretation of hydrology may require repeated observations over more than one season.

RECORDED DATA
- Stream, lake or tidal gage Identification: ______
- Aerial Photograph Identification: ______
- Other Identification: ______

NO RECORDED DATA

BSERVATIONS:

- Depth to Free Water: 7"
- Depth to Saturation (including capillary fringe): 7"
- Describe Altered Hydrology: ______

☐ Inundated ☑ Saturated in upper 12 inches ☐ Water Marks ☐ Drift Lines ☐ Sediment Deposits ☑ Drainage Patterns within Wetland

☑ OTHER (explain): silt stained leaves.

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES Color, Abundance, Size & Contrast	USDA Texture; and nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.
0-4"	Ap	10YR 2/2		Mucky
4" – 12"	B	2.5Y 2.5/1		Sandy loam
Refusal at 12"				

'DRIC SOIL INDICATOR(S)

REFERENCE:

'TIONAL SOIL DATA:

XONOMIC SUBGROUP :

REFERENCES:

IL DRAINAGE CLASS:

PTH TO ACTIVE WATER TABLE:

CHS HYDRIC SOIL CRITERION:

NCLUSIONS

	Yes	No
eater than 50% Hydrophytes?	☐	☐
dric Soils Criterion Met?	☐	☐
etland Hydrology Met?	☐	☐

IS THIS DATAPOINT WITHIN A WETLAND? Yes ☐ No ☐

REMARKS:

NEATOR(S): DATE: 7/6/00

TATION	Stratum and Species (Dominants Only)	Dominance Ratio	Percent Dominance	NWI STATUS
	Trees			
	Red Oak 1			
	Acer rubrum 1			
	Flowering dogwood 1			
	Shrubs / Saplings			
	Eu. Burkthorn 30%			
	Pl. Cherry 10%			
	Rosa multiflora 15%			
	Herbs			
	~~Aster sp.~~ goldenrod sp. < 1%			
	wood aster < 1%			

Use asterisk * to indicate plants with observed adaptations to wetland hydrology.
Plants recorded with asterisks should be considered as "other hydrophytes" in the tally below.

ecies with NA or NI status are reported, but are not calculated in the tally below.

OBL	FACW	FAC	*OTHER HYDROPHYTES	FAC-	FACU	UPL

Hydrophytes SUBTOTAL: _____ NON-hydrophytes SUBTOTAL: _____

100 x Subtotal Hydrophytes / Subtotal Hydrophytes + Subtotal Non-hydrophytes = PERCENT HYDROPHYTES = _____

)LOGY

1. Hydrology is often the most difficult feature to observe.
2. Interpretation must consider the validity of the observation in light of the season, recent weather conditions, watershed alterations, etc.
3. Interpretation of hydrology may require repeated observations over more than one season.

☐ RECORDED DATA

Stream, lake or tidal gage — Identification: _____
Aerial Photograph — Identification: _____
Other — Identification: _____

☐ NO RECORDED DATA

)BSERVATIONS: None

Depth to Free Water: _____
Depth to Saturation (including capillary fringe): _____
Describe Altered Hydrology: _____

☐ Inundated ☐ Saturated in upper 12 inches ☐ Water Marks ☐ Drift Lines ☐ Sediment Deposits ☐ Drainage Patterns within Wetland

☐ OTHER (explain):

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES Color, Abundance, Size & Contrast	USDA Texture; and nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.
0-4"	Ap	2.5Y 2.5/1		Loam
4"-16"	B	2.5Y 4/2	50% mottles 2.5Y 6/6	Loamy sand

Note: upland plot is across from path kept hitting refusal near path.

YDRIC SOIL INDICATOR(S)

REFERENCE:

TIONAL SOIL DATA:

XONOMIC SUBGROUP:

REFERENCES:

IL DRAINAGE CLASS:

PTH TO ACTIVE WATER TABLE:

CHS HYDRIC SOIL CRITERION:

NCLUSIONS

	Yes	No
eater than 50% Hydrophytes?	☐	☐
dric Soils Criterion Met?	☐	☐
etland Hydrology Met?	☐	☐

IS THIS DATAPOINT WITHIN A WETLAND? Yes ☐ No ☐

REMARKS:

OJECT TITLE:

TRANSECT:

PLOT:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: _____ Date: _____
Applicant/Owner: Willows Pond County: _____
Investigator: _____ State: _____

Do Normal Circumstances exist on the site?	Yes	No
Is the site significantly disturbed (Atypical Situation)?	Yes	No
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No

Community ID: _____
Transect ID: _____
Plot ID: Wetland

4-28

VEGETATION

	Dominant Plant Species	Stratum	Indicator
10	1. Purple loosestrife		
15	2. Arrowwood		
16	3. Common Buckthorn		
1	4. Elm	Tree	
1	5. Apple Tree (com.)	Tree	
	6.		
	7.		
	8.		
	9.		
	10.		
	11.		
	12.		
	13.		
	14.		
	15.		
	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). _____

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: Surface (in.)

Depth to Free Water in Pit: 8 (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ✓ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8		2.5Y 4/1			
8-+		2.5Y 3/1			

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes No (Circle)	(Circle)
Wetland Hydrology Present?	Yes No	Is this Sampling Point Within a Wetland? Yes No
Hydric Soils Present?	Yes No	

Remarks:

Picture 11

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Muddy River, Willow Pond Applicant/Owner: Brookline/Boston Investigator: MV, JS, JG	Date: 4/4/00 County: State:
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? (Yes) No Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: Upland Transect ID: Plot ID: Flag 426

VEGETATION

	Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
100%	1. [illegible] grass	herb		9.		
10%	2. Buckthorn/common	shrub		10.		
present	3. ash sapling	tree		11.		
	4. Common buckthorn			12.		
4	5. Oak	tree		13.		
	6.			14.		
	7.			15.		
	8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY n/A

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: ________ (in.)

Depth to Free Water in Pit: ________ (in.)

Depth to Saturated Soil: ________ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	A	10YR 2/2			
2-6	B	10YR 4/3			
6-+	B	4/			

Hydric Soil Indicators: N/A

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streeking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	(Circle)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	
Is this Sampling Point Within a Wetland?	Yes (No)	(Circle)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Willow Pond Brookline Applicant/Owner: _____ Investigator: _____	Date: _____ County: _____ State: _____
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: 4-14.

Wetland.

VEGETATION

Dominant Plant Species	Stratum	Indicator
40 1. Red Osier Dogwood	herb	
10 2. Purple loosestrife	herb	
1 3. Maple	Tree	
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). _____

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ✓ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4	A	2.5Y 3/1			Sandy
4-+	B	5Y 5/1			Sandy

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No

Is this Sampling Point Within a Wetland? (Circle) Yes No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Muddy River, Leverett Pond
Applicant/Owner: Brookline / Boston
Investigator: MU, IS, DG

Date: 4/4/00
County:
State: MA

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? (Yes) No
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: Upland
Transect ID:
Plot ID: Flag 4-19

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Mainland grass	herb	
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY n/A

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____(in.)

Depth to Free Water in Pit: _____(in.)

Depth to Saturated Soil: _____(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-7	A	10yR 4/3			
to base					

Hydric Soil Indicators: n/A

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Avenata Pond Applicant/Owner: _____ Investigator: _____	Date: 4- ✓ County: _____ State: _____
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____ S-7

Wetland

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
60 1. Purple loosestrife	Herb		9.		
10 2. Cattail	Herb		10.		
5 3. Knotweed	Herb		11.		
30 4. Soft Rush	Herb		12.		
2 5. Oak	Tree		13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 4 (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ✓ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-	A	2.5Y H/1			

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: High Chroma

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No

(Circle)
Is this Sampling Point Within a Wetland? Yes No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Meddy River, Leverett Pond, Boatline Site Applicant/Owner: Investigator: MV, IS, JV	Date: 4/4/00 County: State: MA
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? (Yes) No Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: upland Transect ID: Plot ID: Flag 5-7

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Maintained grass			9.		
2.			10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY N/A

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____(in.)

Depth to Free Water in Pit: _____(in.)

Depth to Saturated Soil: _____(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8	A	bYR 4/3			fine sandy loam
8-+	refusal				

Hydric Soil Indicators: n/a

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streeking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

Picture #16

ISW

Not flagged
Area also Wetland
Rd + Longwood Ave

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Muddy River, upstream of Longwood Ave Applicant/Owner: Boadline / Boston Investigator: MV, JS, JC	Date: 4/3/00 County: _____ State: MA
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? (Yes) No Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: Pond Transect ID: _____ Plot ID: _____

VEGETATION

100%

Dominant Plant Species	Stratum	Indicator
1. maintained grass	herb	
2. Oak	tree	3
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). _____

Remarks:

HYDROLOGY n/A

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____(in.)

Depth to Free Water in Pit: _____(in.)

Depth to Saturated Soil: _____(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4	A	2.5Y 2.5/1			
4-8	A	10YR 3/3			
8-7	B	10YR 4/4			
No Core					

Hydric Soil Indicators: N/A

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Longwood Ave Upstream Applicant/Owner: BPRD Investigator:	Date: 4/3/00 County: State: MA
Do Normal Circumstances exist on the site? Yes (No) Is the site significantly disturbed (Atypical Situation)? (Yes) No Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: Upstream Longwood 2 Transect ID: Plot ID: Bank

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Bank Waterweed			9.		
2. Oak tree	Tree		10.		
3. Grass	Herb.		11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____(in.)

Depth to Free Water in Pit: _____(in.)

Depth to Saturated Soil: _____(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5		10YR2/1			
5-9		10YR3/3	10YR 4/6	10%d	
11		10YR3/3	10YR 4/6	10% d	
9+		10YR4/3	10YR 4/6	10% d	

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No

Is this Sampling Point Within a Wetland? (Circle) Yes No

Remarks:

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Longwood Ave downstream Applicant/Owner: _____ Investigator: _____	Date: 4-3 County: _____ State: _____
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: 8-3 Wetland

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Plantain-leaf	Herb	
2. Buckthorn	Shrub	
3. Oak		
4. Cherry		
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

80% 15 7 2

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: 3 (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
		10YR 2/1			

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No

(Circle)
Is this Sampling Point Within a Wetland? Yes No

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Muddy River, Downstream of Longwood T Stop
Applicant/Owner: Brookline
Investigator:
Date: 4/13/00
County:
State: MA

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? (Yes) No
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: upland
Transect ID:
Plot ID: Flag 8-3

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Maintained grass (90%)	herb	
2. Japanese Knotweed (5%)	shrub	
3. Sweet pepperbush (5%)	shrub	
4. Northern arrowwood (5%)	shrub	
5. Black Cherry	tree 3	
6. oaks	tree 6	
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY N/A

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____(in.)

Depth to Free Water in Pit: _____(in.)

Depth to Saturated Soil: _____(in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	O	2.5y 2.5/1	—		
2-6	A	10yR 4/3	—		
6-+	B	10yr 3/3	—		

Hydric Soil Indicators: n/a

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streeking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION n/a

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: _____ Applicant/Owner: Back Bay Yard - Boston Site Investigator: _____	Date: 4-3-00 County: Suf. State: MA
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: 9-4

W2Plan.

VEGETATION

100% Plot 35

Dominant Plant Species	Stratum	Indicator
1. Phragmites Grant Reed	Herb	
2. Dogwood	Sap.	
3. Willow	Sapling	
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). _____

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: With bin. (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ✓ Saturated in Upper 12 Inches
- ✓ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-+		10YR 2/1	1		mucl.

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No

(Circle)
Is this Sampling Point Within a Wetland? Yes No

Remarks:

N Muy 1st
2:30 5/16/305

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Muddy Run / upstream Pardee Yard Applicant/Owner: Brockway / Boston Investigator: MJ 15 06	Date: 4/3/00 County: _____ State: _____
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? (Yes) No Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: Upland Transect ID: _____ Plot ID: Pkg 9-4 C

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. 60% Maintained grass	herb	
2. 30-35 Wilkes Saplings	trees	
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). _____

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____(in.)

Depth to Free Water in Pit: _____(in.)

Depth to Saturated Soil: _____(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	A	10yR 3/2			
2-#D	#B	10yR 4/4			
D-refusal					

Hydric Soil Indicators: N/A

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No) (Circle)	(Circle)
Wetland Hydrology Present?	Yes (No)	Is this Sampling Point Within a Wetland? Yes (No)
Hydric Soils Present?	Yes (No)	

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: _____ Applicant/Owner: _____ Investigator: Upstream Bank Bay Yard.	Date: _____ County: _____ State: _____
Do Normal Circumstances exist on the site? Yes (No) Is the site significantly disturbed (Atypical Situation)? (Yes) No Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: 9-52.

Wetland

VEGETATION

15
2
Plot

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Blackthorn	Shrub		9.		
2. Ash	Tree		10.		
3. Grass	Herb		11.		
4. Arund.	Shrub		12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). _____

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 12 (in.)

Depth to Free Water in Pit: Bank. NO. (in.) *

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ✓ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8	A	10YR 3/1			
8	B	2.5Y 3/1			Sand.

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)
Is this Sampling Point Within a Wetland? Yes No

Remarks:

Picture #14

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Muddy River (Stream Back Bay yard)
Applicant/Owner: c/Brookline, Boston
Investigator: MU, LS, JC

Date: 4/3/00
County:
State: MA

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? (Yes) No
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: Upland
Transect ID:
Plot ID: Flag 9-SA

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. maintained grass lawn		
2. Northern arrowwood shrub		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

100% Present

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY N/A

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____(in.)

Depth to Free Water in Pit: _____(in.)

Depth to Saturated Soil: _____(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3	A	10yr 3/2			
3-7	A	10yr 4/3			
7-+	B	10yr 5/6			

Hydric Soil Indicators: n/A

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No) (Circle)	(Circle)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: War Memorial Applicant/Owner: BPRD Investigator:	Date: 4-3-00 County: Jos State: OR
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: Transect ID: 13-61 Plot ID: Wetland

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. ~~Grass Sod~~		
2. Purple loose	Herb	
3. Cattail	Herb	
4. Thorn ~~Ess~~ Hawthorn Tree		
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

10 ~~25~~ 75 ~~75~~ 11

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____(in.)

Depth to Free Water in Pit: _____(in.)

Depth to Saturated Soil: _____(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ✓ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ✓ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-+	A	10YR2/1			muck

Hydric Soil Indicators:

- ✓ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)
Is this Sampling Point Within a Wetland? Yes No

Remarks:

Picture #18
Potential Building

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Muddy River near Veteran War Memorial
Applicant/Owner: Brookline / Boston
Investigator: MV, JS, JG

Date: 4/3/00
County:
State: MA

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? (Yes) No
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: Upland
Transect ID:
Plot ID: Flag 13-1

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Mantained grass (ornamental)	herb	100%
2. Deciduous Honey locust tree	1	
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY N/A

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____(in.)

Depth to Free Water in Pit: _____(in.)

Depth to Saturated Soil: _____(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
[illegible]		[illegible]			
0-2	O	10yR 3/2			
2-6	A	10yR 4/2	10yR 5/6	30% frequent	sandy loam
6-10	A	10yR 4/3	"	50% Abundant	"
10"+	A	10yR 3/3	"		"

Hydric Soil Indicators: N/A

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Mettly River Across Street from Dutchess Applicant/Owner: BPRD Investigator: J. Gensel, F Simes, M Missichelli	Date: 4-3-00 County: Sul. State: MA
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: _____ Transect ID: CDM 13-36 Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Giant Reed	Herb.	
2. Black locus	Tree	
3. Star Briarus.	Shrub	
4. Buckthorn.	Shrub.	
5. Grey Birch.	Tree.	
6. Ash.	Shrub	
7. Oak	Tree.	
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

#2 ea. 5% #1 #1

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). _____

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____(in.)

Depth to Free Water in Pit: _____(in.)

Depth to Saturated Soil: _____(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ✓ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-+		2.5Y 2.5/1			

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes No (Circle)	(Circle)
Wetland Hydrology Present?	Yes No	Is this Sampling Point Within a Wetland? Yes No
Hydric Soils Present?	Yes No	

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Muddy River, in front of Duckhouse
Applicant/Owner: Brookline / Boston
Investigator: MV, JS, JG

Date: 4/3/00
County:
State: MA

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? (Yes) No
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: upland
Transect ID:
Plot ID: Dsg 13-36

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Maintained grass	herb	100%
2. Unidentified shrub	shrub	
3. Rosa Rubrose	shrub	5%
4. Unidentified shrub	shrub	
5. Black Locust	shrub	Present
6. Black Locust	tree	3
7. Grey Birch	tree	1
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

bush 5%

+ stub present

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY N/A

___ Recorded Date (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Date Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	O	10YR 2/1	—		
2-6	A	10YR 3/1	—		
6-+	A	10YR 3/1	—		

Hydric Soil Indicators: A/A

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Everett Pond Bank
Applicant/Owner:
Investigator:

Date:
County:
State:

Do Normal Circumstances exist on the site?	Yes	No	Community ID:
Is the site significantly disturbed (Atypical Situation)?	Yes	No	Transect ID:
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No	Plot ID:

Bank Everett Pond Boston side.

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Meadow grass	herb	
2. Maple	tree	
3. Oak	Tree	
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

100
2
1

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 5

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 4 (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6	A	2.5Y3/1			Loam
6-10	B	2.5Y4/1			
10+	B	5Y6/1			Sandy

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No

Is this Sampling Point Within a Wetland? (Circle) Yes No

Remarks:

#5

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Neddy River, Leverett Pond Applicant/Owner: DBre Investigator: MV, IS, JG	Date: 4/4/00 County: _____ State: MA
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? (Yes) No Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: Upland Transect ID: _____ Plot ID: Boston side

VEGETATION

100% 3

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. maintained grass	herb		9.		
2. maple	tree		10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). _____

Remarks:

HYDROLOGY n/a

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____(in.)

Depth to Free Water in Pit: _____(in.)

Depth to Saturated Soil: _____(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

picture

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3	A	10YR 3/1			
3-6	B	10YR 4/2			
6-+	B	10YR 3/2			

Hydric Soil Indicators: n/A

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	(Circle)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	
Is this Sampling Point Within a Wetland?	Yes (No)	(Circle)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Muddy River - Wetland Below Wards Pond
Applicant/Owner: BRRD
Investigator:

Date: 4-4-00
County:
State: MA

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID:
Transect ID:
Plot ID: 1-47 Wetland

VEGETATION

	Dominant Plant Species	Stratum	Indicator
10	1. Jewel Weed	Herb	
15	2. Knotweed	Herb.	
Pres	3. Wild Chervil	Herb.	
4	4. Box Alder	Tree	
12	5. Oak	Tree	
	6.		
	7.		
	8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY

___ Recorded Date (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 4 (in.)
Depth to Free Water in Pit: 8 (in.)
Depth to Saturated Soil: ____ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
✓ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
✓ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5	A	10YR 4/1			
5-8	B	10YR 3/1			
8-+	B	10YR 3/2			

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No

(Circle)
Is this Sampling Point Within a Wetland? Yes No

Remarks:

p. clue #15?

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Muddy River, wetland area below Wards Applicant/Owner: Metropolitan / Boston Investigator: MV, LS, JG	Date: 4/4/00 County: State: MA
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? (Yes) No Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: Upland Transect ID: Plot ID: Eag 1-47 upland

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Japanese Knotweed	herb	FACU-	9.		
2. Box Elder	tree		10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
9.			16.		

100%
7

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY n/a

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____(in.)

Depth to Free Water in Pit: _____(in.)

Depth to Saturated Soil: _____(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	A	10YR 2/1			sandy loam
2-10	A	10YR 3/2			
10-+	"	"			

Hydric Soil Indicators: none

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Muddy River - BPRP
Applicant/Owner:
Investigator:

Date: 4-4-00
County: Suffolk
State: MA

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID:
Transect ID:
Plot ID: T-4 Upland

Wetland

VEGETATION

	Dominant Plant Species	Stratum	Indicator
10	1. Purple loosestrife	Herb	
20	2. Iris	Herb	
20	3. Swamp loosestrife	Herb	
15	4. Oak	Shrub	
1	5. Red maple	Tree	
10	6. Red Maple	Shrub	
15	7. Grey Dogwood	Shrub	
10	8. Glossy Buckthorn	shrub	

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY

___ Recorded Date (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Dbearvations:

Depth of Surfeca Water: edge of Pond - (in.)

Depth to Free Water in Pit: ___ (in.)

Depth to Saturated Soil: 3 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- ___ Inundated
- ✓ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Date
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4	A	7.5YR 2.5/1			
4-1	B	7.5YR 3/1			

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No

Is this Sampling Point Within a Wetland? (Circle) Yes No

Remarks:

Photo #6

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Muddy River Woods Pond
Applicant/Owner: Brookline/Boston
Investigator: MW IS JG

Date: 4/4/00
County:
State: MA

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? (Yes) No
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: upland
Transect ID:
Plot ID: Flag 1-41

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. maintained grass (100%)	herb	
2. European Buckthorn (5%)	shrub	
3. Oaks (2)	tree	
4. Common buckthorn (10%)	shrub	
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY n/a

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____(in.)

Depth to Free Water in Pit: _____(in.)

Depth to Saturated Soil: _____(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES Color, Abundance, Size & Contrast	USDA Texture; and nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.
0-5	10YR5/2			
5-+	10YR3/1	10YR 5/6	10% mottles.	

HYDRIC SOIL INDICATOR(S)

REFERENCE:

OPTIONAL SOIL DATA:

REFERENCES:

TAXONOMIC SUBGROUP :

SOIL DRAINAGE CLASS:

DEPTH TO ACTIVE WATER TABLE:

NTCHS HYDRIC SOIL CRITERION:

CONCLUSIONS

	Yes	No
Greater than 50% Hydrophytes?	☐	☐
Hydric Soils Criterion Met?	☐	☐
Wetland Hydrology Met?	☐	☐

IS THIS DATAPOINT WITHIN A WETLAND? Yes ☐ No ☐

REMARKS:

PROJECT TITLE: TRANSECT: PLOT:

NEATOR(S): DATE:

GETATION Stratum and Species (Dominants Only)	Dominance Ratio	Percent Dominance	NWI STATUS
[illegible]			
[illegible] spruce herb	90		
pie sapling shrub	10		
hydrocotyle - shrub	10		

Use asterisk * to indicate plants with observed adaptations to wetland hydrology.
Plants recorded with asterisks should be considered as "other hydrophytes" in the tally below.

Species with NA or NI status are reported, but are not calculated in the tally below.

OBL	FACW	FAC	*OTHER HYDROPHYTES	FAC-	FACU	UPL

Hydrophytes SUBTOTAL: _____ NON-hydrophytes SUBTOTAL: _____

100 x Subtotal Hydrophytes / Subtotal Hydrophytes + Subtotal Non-hydrophytes = PERCENT HYDROPHYTES = _____

YDROLOGY

1. Hydrology is often the most difficult feature to observe.
2. Interpretation must consider the validity of the observation in light of the season, recent weather conditions, watershed alterations, etc.
3. Interpretation of hydrology may require repeated observations over more than one season.

☐ RECORDED DATA
- Stream, lake or tidal gage — Identification: _____
- Aerial Photograph — Identification: _____
- Other — Identification: _____

☐ NO RECORDED DATA

☐ OBSERVATIONS:

Depth to Free Water: _____
Depth to Saturation (including capillary fringe): _____
Describe Altered Hydrology: _____

☐ Inundated ☐ Saturated In upper 12 Inches ☐ Water Marks ☐ Drift Lines ☐ Sediment Deposits ☐ Drainage Patterns within Wetland

☐ OTHER (explain):

Recopy from field data

DEPTH	HORIZON	MATRIX COLOR	REDOXIMORPHIC FEATURES Color, Abundance, Size & Contrast	USDA Texture; and nodules, concretions, masses, pore linings, restrictive layers, root distribution, soil water, etc.
0-8	10YR 3/1			Loam
8-±	10YR 3/2	10YR 5/6	10%	

HYDRIC SOIL INDICATOR(S)

REFERENCE:

OPTIONAL SOIL DATA:

REFERENCES:

TAXONOMIC SUBGROUP :

SOIL DRAINAGE CLASS:

DEPTH TO ACTIVE WATER TABLE:

NTCHS HYDRIC SOIL CRITERION:

CONCLUSIONS

	Yes	No
Greater than 50% Hydrophytes?	☐	☐
Hydric Soils Criterion Met?	☐	☐
Wetland Hydrology Met?	☐	☐

IS THIS DATAPOINT WITHIN A WETLAND? Yes ☐ No ☐

REMARKS:

PROJECT TITLE: **TRANSECT:** **PLOT:**

Attachment C

Site Photographs from April 20 and May 4, 2017

WETLAND DELINEATION FIELD VERIFICATION, APRIL 20 and MAY 4, 2017

Photo 1: Overflow from the pipe system between Jamaica Pond and Wards Pond

Photo 2: Bordering Vegetated Wetlands (BVW) at upstream end of Wards Pond, below wooden bridge

Photo 3: BVW on northwest side of Wards Pond (WF 1-21 to WF 1-22)

Photo 4: BVW at Wards Pond, southeast of wooden bridge

Photo 5: Foot path at northern end of Wards Pond, view facing northwest, source of sediment

Photo 6: Foot path at northern end of Wards Pond, view facing north east.

Photo 7: View of east bank of Muddy River south of Ward Pond, facing WF 1-6

Photo 8: View of Muddy River (LUW) below Ward Pond, from WF 1-3 facing upstream

Photo 9: View from WF 1-47 of Muddy River (LUW) and footbridge, facing downstream.

Photo 10: Area reflagged as TOB 1-48A, area of BVW reduced.

Photo 11: View of Muddy River downstream of footbridge, from WF 2-43 facing upstream. Top of Bank was flagged along the stream which reduced the area of BVW.

Photo 12: View of Muddy River from WF 2-38, facing upstream

Photo 13: View of Muddy River from footbridge facing upstream (WF 2-22). Stream is LUW not as previously categorized BVW.

Photo 14: Outfall to Leverett Pond

Photo 15: Leverett Pond, previously flagged as BVW, does not meet the criteria, reflagged as top of bank TOB 5-32A, B, C

Photo 16: Leverett Pond, view of area previously flagged as BVW at WF 5-32 from outfall facing west

Photo 17: Area along Leverett Pond (WF 5-13 to 5-16) previously flagged as BVW.

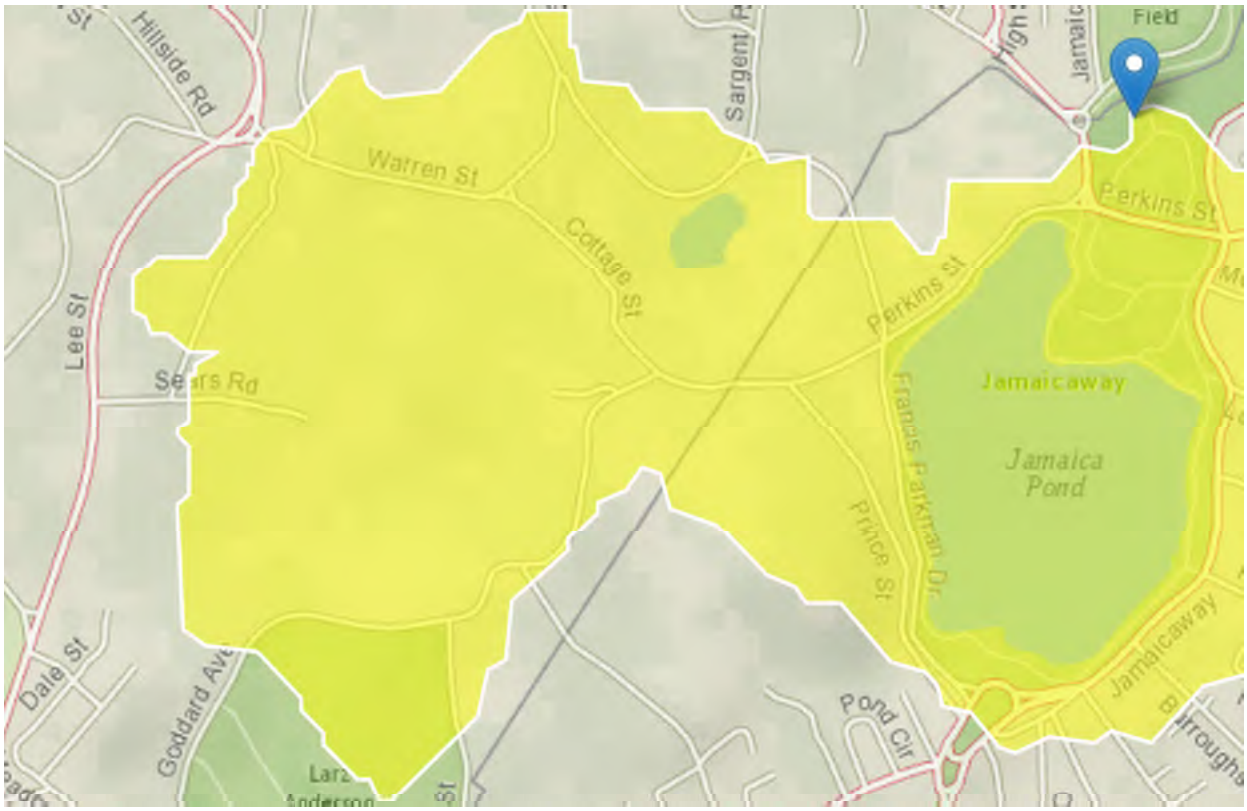
Photo 18: Additional BVW flagged as WF 7-13A to 7-13F

Attachment D

USGS Stream Stats Report

StreamStats Report

Region ID:
MA
Workspace ID:
MA20170519065223049000
Clicked Point (Latitude, Longitude):
42.32280, -71.11851
Time:
2017-05-19 08:52:51 -0400

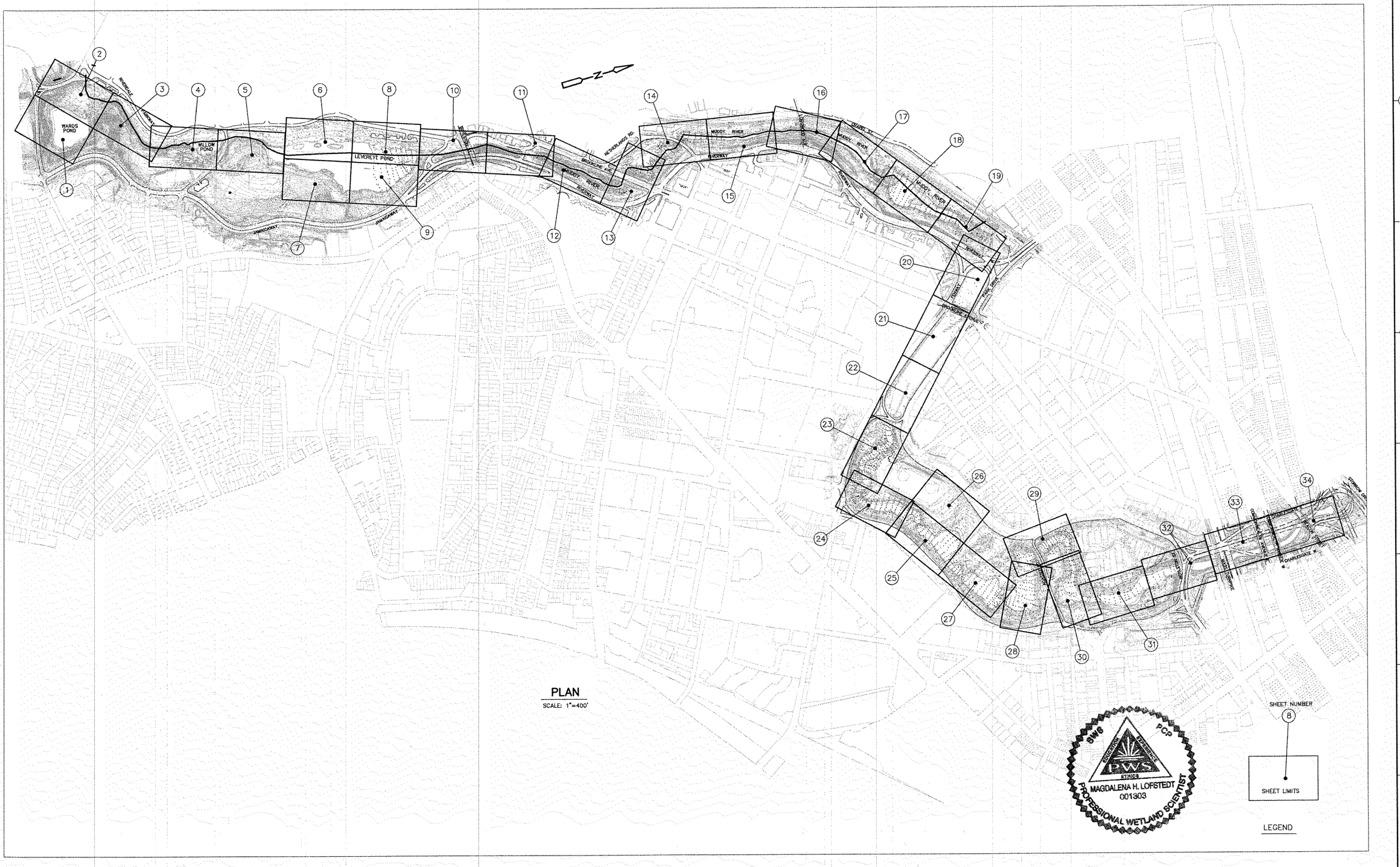


Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.78	square miles
DRFTPERSTR	Area of stratified drift per unit of stream length	0.49	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Attachment E

Muddy River Restoration Project - Wetlands Delineation Sheets dated February 2018



PLAN
SCALE: 1"=400'

SHEET NUMBER 8

SHEET LIMITS

LEGEND

MAGDALENA H. LOFSTEDT
601303
PROFESSIONAL WETLAND SCIENTIST
PWS
SWE PCP
ETHICS

1" = 400'
200 0 400

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

CDM Smith
75 State Street
Boston MA 02139
Tel: (617) 452-6000

MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

KEY PLAN

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
KEY

LAND UNDER WATER

WARDS POND

N

APPROXIMATE TOP OF BANK (EL. 46')

100'

LIMIT OF VEGETATED WETLANDS

LIMIT OF 100' BUFFER ZONE

PERKINS STREET

GRAVEL DRIVE

LEGEND

- LIMIT OF RIVER FRONT AREA
- LIMIT OF 100' BUFFER ZONE
- LIMIT OF WETLAND VEGETATION
- BOTTOM OF INLAND BANK
- TOP OF INLAND BANK
- CITY/TOWN BOUNDARY
- SHADED AREA = BORDERING VEGETATED WETLANDS

MAGDALENA H. LOFSTEDT
601303
PROFESSIONAL WETLAND SCIENTIST
PWS SWS PCP

1" = 20'
10 0 20

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

CDM Smith
75 State Street
Boston MA 02139
Tel: (617) 452-6000

MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 1

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
1

LEGEND

- LIMIT OF RIVER FRONT AREA
- LIMIT OF 100' BUFFER ZONE
- LIMIT OF WETLAND VEGETATION
- BOTTOM OF INLAND BANK
- TOP OF INLAND BANK
- CITY/TOWN BOUNDARY
- SHADED AREA = BORDERING VEGETATED WETLANDS

LIMIT OF RIVERFRONT AREA (200' IN BOSTON)

200'

TOWN OF BROOKLINE
CITY OF BOSTON

100'

LIMIT OF RIVER FRONT AREA

LIMIT OF 100' BUFFER ZONE

LIMIT OF RIVERFRONT AREA (25' IN BOSTON)

100'

25'

25'

100'

LIMIT OF VEGETATED WETLANDS

APPROXIMATE TOP OF BANK (EL. 46')

INLET STREAM

CHESTNUT STREET

GRANITE CURB

GRAVEL FOOTPATH

WF#1-30 WF#1-49 WF#1-50 WF#1-51 WF#1-1 WF#1-2 WF#1-3 WF#1-4 WF#1-44 WF#1-45 WF#1-46 WF#1-47 WF#1-48 WF#1-39 WF#1-40 WF#1-41 WF#1-42 WF#1-43 WF#1-38 WF#1-37 WF#1-36 WF#1-31 WF#1-32

TOB 1-44C TOB 1-44B TOB 1-44A TOB 1-45 TOB 1-46 TOB 1-47 TOB 1-48 TOB 1-49 TOB 1-50 TOB 1-51 TOB 1-1 TOB 1-2 TOB 1-3 TOB 1-4 TOB 1-4A

MAGDALENA H. LOFSTEDT
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PWS SWS PCP

REV. NO.	DATE	DRWN	CHKD	REMARKS

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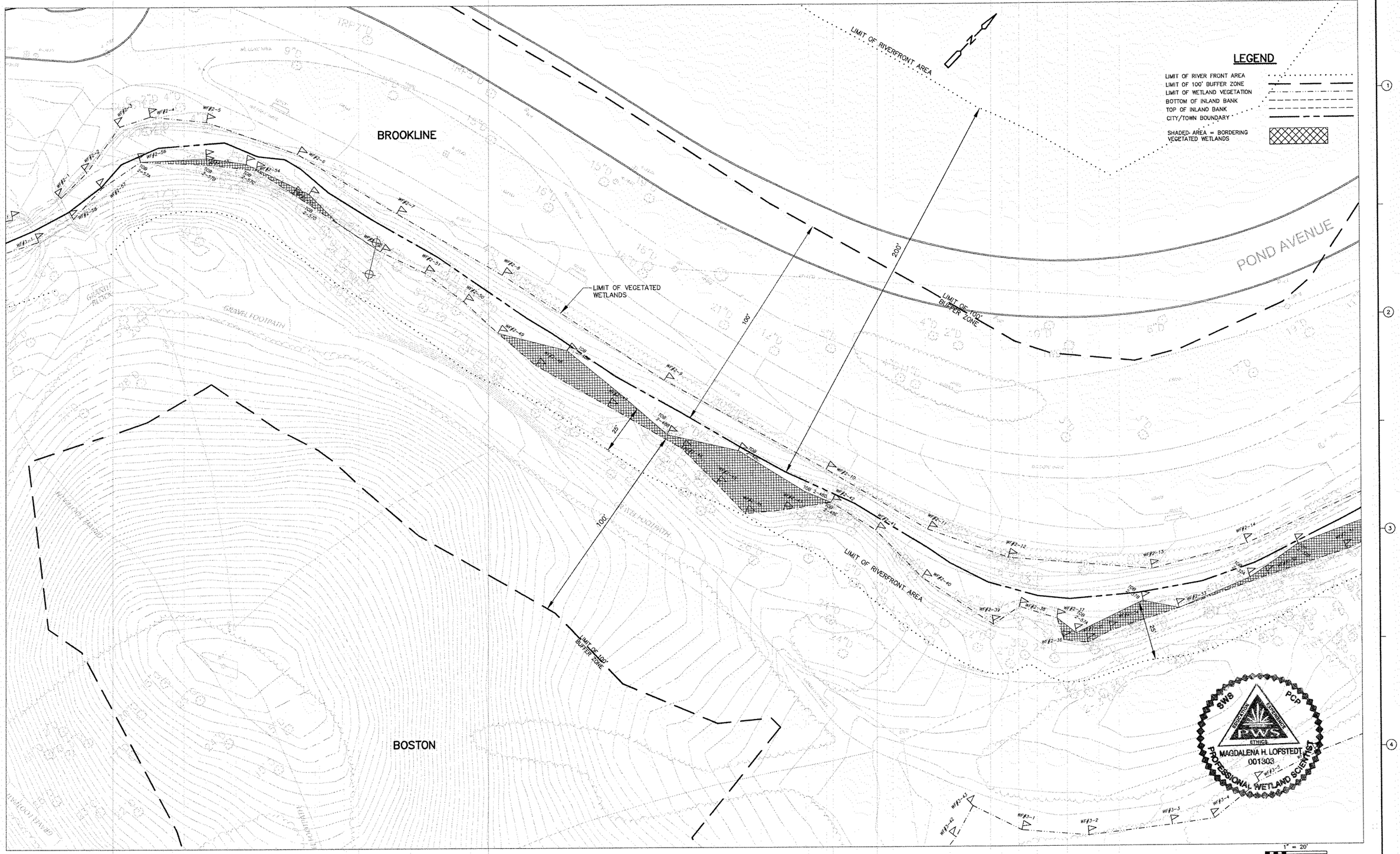
MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 2

PROJECT NO. 1517-91478
FILE NAME: C002STPL

SHEET NO.
2



SWS PWS PCP DELINEATION SITE EVALUATION ETHICS
MAGDALENA H. LOFSTEDT
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REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
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SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
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MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 3

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
3

LEGEND

- LIMIT OF RIVERFRONT AREA
- LIMIT OF RIVER FRONT AREA
- LIMIT OF 100' BUFFER ZONE
- LIMIT OF WETLAND VEGETATION
- BOTTOM OF INLAND BANK
- TOP OF INLAND BANK
- CITY/TOWN BOUNDARY
- SHADED AREA = BORDERING VEGETATED WETLANDS

POND AVENUE

GRANITE CURB

BROOKLINE

BOSTON

LIMIT OF 100' BUFFER ZONE

100'

LIMIT OF RIVERFRONT AREA

LIMIT OF VEGETATED WETLANDS

TOP OF BANK (EL. 17')

WILLOW POND

LAND UNDER WATER

LIMIT OF VEGETATED WETLANDS

INT STREAM

LAND UNDER WATER

TOP OF BANK

BWS EDUCATION EXPERIENCE ETHICS PCP

MAGDALENA H. LOFSTEDT
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PROFESSIONAL WETLAND SCIENTIST

1" = 20'
10 0 20

REV. NO.	DATE	DRWN	CHKD	REMARKS

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SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
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MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 4

PROJECT NO. 1517-91478
FILE NAME: C004STPL

SHEET NO.
4

BROOKLINE

BOSTON

WILLOW POND ROAD

WILLOW POND

TOP OF BANK
(EL. 17')(TYP.)

LIMIT OF VEGETATED WETLANDS

WF#4-20

WF#4-23

WF#4-24

100'

LIMIT OF 100' BUFFER ZONE

UNNAMED CURB

WF#5-1 WF#5-2 WF#5-3 WF#5-4 WF#5-5 WF#5-6 WF#5-7 WF#5-8

BROOKLINE
BOSTON

LEVERETT POND

LAND UNDER WATER

WF#5-84

TOB 5-32B

TOB 5-32A

TOB 5-32C

WF#5-80

WF#5-83

WF#5-88

LIMIT OF BLSF
EL. 16.47'

LEGEND

- LIMIT OF RIVER FRONT AREA
- LIMIT OF 100' BUFFER ZONE
- LIMIT OF WETLAND VEGETATION
- BOTTOM OF INLAND BANK
- TOP OF INLAND BANK
- CITY/TOWN BOUNDARY
- SHADED AREA = BORDERING VEGETATED WETLANDS

SWS PWS PCP
EDUCATION EXPERIENCE ETHICS
MAGDALENA H. LOFSTEDT
001303
PROFESSIONAL WETLAND SCIENTIST

1" = 20'
10 0 20

REV. NO.	DATE	DRWN	CHKD	REMARKS

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CROSS CHK'D BY:
APPROVED BY:
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MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 5

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
5

LEGEND

- LIMIT OF RIVER FRONT AREA
- LIMIT OF 100' BUFFER ZONE
- LIMIT OF WETLAND VEGETATION
- BOTTOM OF INLAND BANK
- TOP OF INLAND BANK
- CITY/TOWN BOUNDARY
- SHADED AREA = BORDERING VEGETATED WETLANDS

BROOKLINE

LIMIT OF 100' BUFFER ZONE

LIMIT OF VEGETATED WETLAND

BIT. CONC. WALK

GRASS

100'

WF#5-9

WF#5-10

WF#5-11

WF#5-12

WF#5-13

WF#5-14

WF#5-15

WF#5-16

12"OUTLET

TOP OF BANK
EL. 8.6 (TYP.)

LAND UNDER WATER

LEVERETT POND

BOSTON

BROOK

BOST

MAGDALENA H. LOFSTEDT
001303
PROFESSIONAL WETLAND SCIENTIST
PWS
EWB
PCP
EDUCATION
EXPERIENCE
ETHICS

1" = 20'
10 0 20

REV. NO.	DATE	ORWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
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MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 6

PROJECT NO. 1517-9147B
FILE NAME:

SHEET NO.
6

LEVERETT POND

TOP OF BANK
EL. 8.6 (TYP.)

LIMIT OF BLSF
EL. 16.47'

100'

GRASS

GRASS

LEVERETT POND

LAND UNDER WATER

OLMSTED PARK

100'

100'

GRANITE WALKWAY

GRANITE WALKWAY

LEGEND

- LIMIT OF RIVER FRONT AREA
- LIMIT OF 100' BUFFER ZONE
- LIMIT OF WETLAND VEGETATION
- BOTTOM OF INLAND BANK
- TOP OF INLAND BANK
- TOP OF INLAND BANK
- SHADED AREA = BORDERING VEGETATED WETLANDS

SWS PCP CERTIFIED WETLAND SCIENTIST PWS ETHICS
MAGDALENA H. LOFSTEDT
001303
PROFESSIONAL WETLAND SCIENTIST

1" = 20'
10 0 20

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

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MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 7

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
7

LEGEND

- LIMIT OF RIVER FRONT AREA
- LIMIT OF 100' BUFFER ZONE
- LIMIT OF WETLAND VEGETATION
- BOTTOM OF INLAND BANK
- TOP OF INLAND BANK
- CITY/TOWN BOUNDARY
- SHADED AREA = BORDERING VEGETATED WETLANDS

BROOKLINE

GRANITE CURB

GRANITE CURB

POND AVENUE

LIMIT OF 100' BUFFER ZONE

100'

BIT. CONC. PARKING LOT

LANDSCAPE

GATE

7.5' ARCH CULVERT VILLAGE BROOK

7.5' ARCH CULVERT

CONC. WALK

BIT. CONC. PARKING LOT

GRASS

BENCH

GRANITE CURB

STEPS

GRANITE HEADWALL

TOP OF BANK EL. 8.6 (TYP.)

LIMIT OF VEGETATED WETLANDS

10"OUTLET

LAND UNDER WATER

BROOKLINE

BOSTON

BOSTON

LEVERETT POND

SEDIMENT ISLAND

6" TREE

SWS PCS PWS ETHICS

MAGDALENA H. LOFSTEDT
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1" = 20'
10 0 20

REV. NO.	DATE	DRWN	CHKD	REMARKS

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MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 8

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
8

LEGEND

- LIMIT OF RIVER FRONT AREA
- LIMIT OF 100' BUFFER ZONE
- LIMIT OF WETLAND VEGETATION
- BOTTOM OF INLAND BANK
- TOP OF INLAND BANK
- CITY/TOWN BOUNDARY
- SHADED AREA = BORDERING VEGETATED WETLANDS

LEVERETT POND

LAND UNDER WATER

TOP OF BANK
EL. 8.6 (TYP.)

LIMIT OF BLSF
EL. 16.47'

LIMIT OF
VEGETATED
WETLANDS

100'

GRANITE CURB

12"OUTLET

1" = 20'
10 0 20

MAGDALENA H. LOFSTEDT
001303
PROFESSIONAL WETLAND SCIENTIST

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
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CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

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MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 9

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
9

LEGEND

- LIMIT OF RIVER FRONT AREA
- LIMIT OF 100' BUFFER ZONE
- LIMIT OF WETLAND VEGETATION
- BOTTOM OF INLAND BANK
- TOP OF INLAND BANK
- CITY/TOWN BOUNDARY
- SHADED AREA = BORDERING VEGETATED WETLANDS

BROOKLINE

BOSTON

POND AVENUE

WASHINGTON ROW

CONC WALK

LANDSCAPE

GRASS

SHRUBS

15'W ARCH STONE CULVERT

GRANITE STONE WALL

GRANITE CURB

JAMAICAWAY

RIVERWAY

LIMIT OF 100' BUFFER ZONE

BOTTOM OF BANK (EL. 7.7')(TYP.)

TOP OF BANK (EL. 8.5')(TYP.)

100'

LAND UNDER WATER

MUDDY RIVER

LIMIT OF RIVER FRONT AREA

LIMIT OF BLSF EL. 16.47'

GRANITE CURB

CONCRETE CURB

GRANITE SLOPE

CONCRETE PAVEMENT

CONCRETE WALK

CONCRETE FILL

RIP RAP

CLEARING LIMIT

CONCRETE

CONCRETE CURB

GUARDRAIL

GUARDRAIL URAN. FILL

1" = 20'

10 0 20

SWS PCP PWS EDUCATION EXPERIENCE ETHICS

MAGDALENA H. LOFSTEDT
001303
PROFESSIONAL WETLAND SCIENTIST

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

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MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 10

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO. 10

R:\1517\28449\CIVL\CSTPL410

BROOKLINE

BOSTON

RIVER STREET

RIVERWAY

MUDDY RIVER

LIMIT OF RIVER FRONT AREA

LIMIT OF 100' BUFFER ZONE

LIMIT OF BLSF EL. 16.47

TOP OF BANK (EL. 8.5')(TYP.)

BOTTOM OF BANK (EL. 7.7')(TYP.)

LIMIT OF VEGETATED WETLANDS

LAND UNDER WATER

17'W ARCH STONE CULVERT

GRANITE CURB

BIT. CONC. WALK

GRANITE STONE WALL

8" GAS

DIRT PATH

GUARDRAIL

GRASS

LEGEND

- LIMIT OF RIVER FRONT AREA
- LIMIT OF 100' BUFFER ZONE
- LIMIT OF WETLAND VEGETATION
- BOTTOM OF INLAND BANK
- TOP OF INLAND BANK
- CITY/TOWN BOUNDARY
- SHADED AREA = BORDERING VEGETATED WETLANDS

1" = 20'

10 0 20

MAGDALENA H. LOFSTEDT
001809
PROFESSIONAL WETLAND SCIENTIST
SWS PCP
SOCIETY OF WETLAND SCIENTISTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

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MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 11

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
11

LEGEND

- LIMIT OF RIVER FRONT AREA
- LIMIT OF 100' BUFFER ZONE
- LIMIT OF WETLAND VEGETATION
- BOTTOM OF INLAND BANK
- TOP OF INLAND BANK
- CITY/TOWN BOUNDARY

SHADED AREA = BORDERING VEGETATED WETLANDS

BROOKLINE

BROOKLINE AVE

GRANITE CURB

LIMIT OF 100' BUFFER ZONE

8" GAS

4" GAS

40"W

PARKING METER

HH

BUS STOP

BIT. CONC. WALK

LIMIT OF VEGETATED WETLANDS

2-CONC. HEADWALL

BOTTOM OF BANK (EL. 7.7')(TYP.)

MUDDY RIVER

TOP OF BANK (EL. 8.5')(TYP.)

LAND UNDER WATER

25'

100'

LIMIT OF RIVER FRONT AREA

GRASS

DIRT PATH

LIMIT OF BLSF EL. 16.47'

CABOR ROAD

RIVERWAY

BOSTON

MAGDALENA H. LOFSTEDT
001303
PROFESSIONAL WETLAND SCIENTIST

1" = 20'

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

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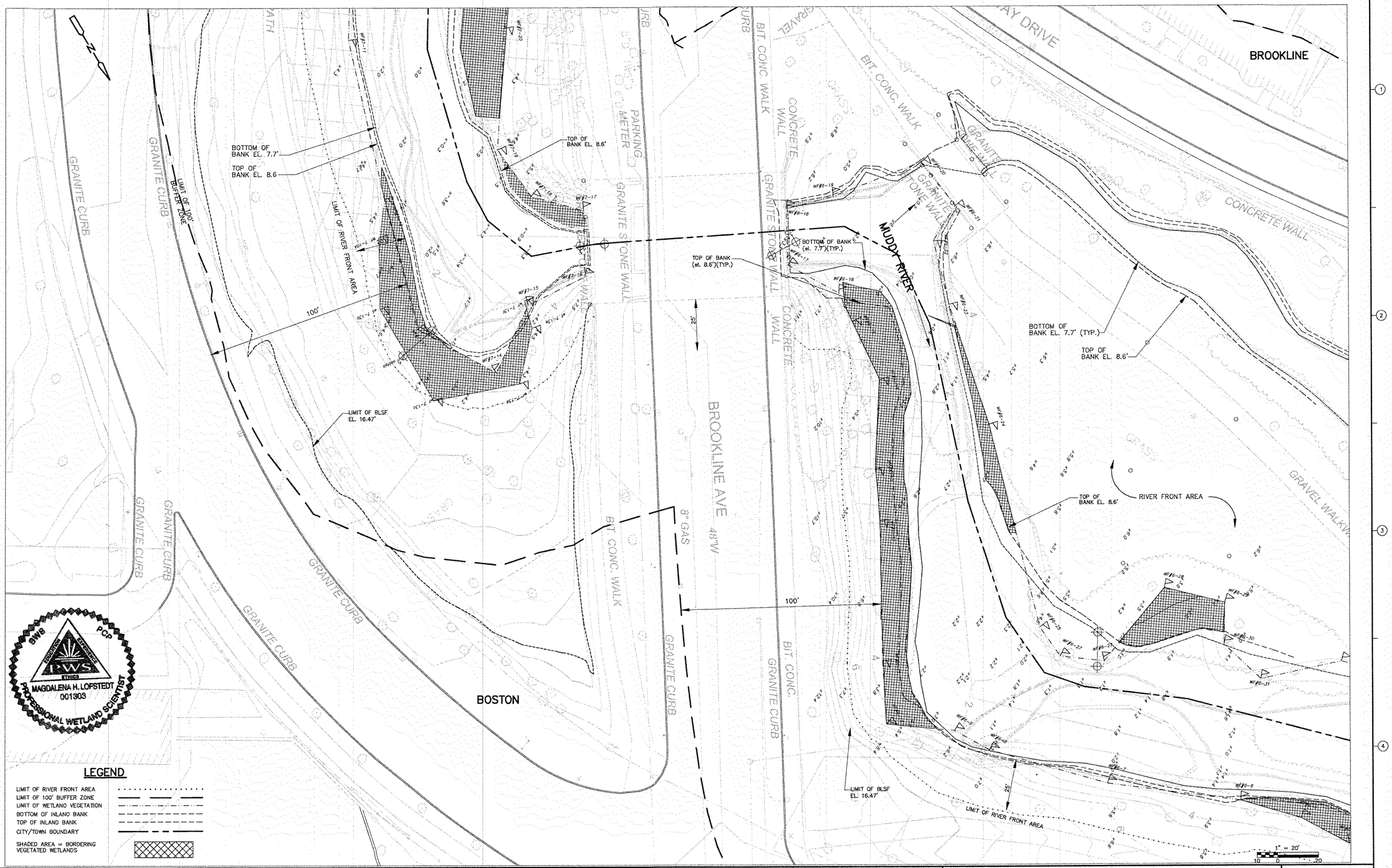
MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 12

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
12



MAGDALENA H. LOFSTEDT
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PROFESSIONAL WETLAND SCIENTIST
PWS
BWB PCP

LEGEND

- LIMIT OF RIVER FRONT AREA
- LIMIT OF 100' BUFFER ZONE
- LIMIT OF WETLAND VEGETATION
- BOTTOM OF INLAND BANK
- TOP OF INLAND BANK
- CITY/TOWN BOUNDARY
- SHADED AREA = BORDERING VEGETATED WETLANDS

REV. NO.	DATE	DRWN	CHKD	REMARKS

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DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

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MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO.13

PROJECT NO. 1517--91478
FILE NAME:

SHEET NO.
13

LEGEND

- LIMIT OF RIVER FRONT AREA
- LIMIT OF 100' BUFFER ZONE
- LIMIT OF WETLAND VEGETATION
- BOTTOM OF INLAND BANK
- TOP OF INLAND BANK
- CITY/TOWN BOUNDARY
- SHADED AREA = BORDERING VEGETATED WETLANDS

BROOKLINE

BOSTON

MBTA TRACKS

NETHERLANDS ROAD

MUDDY RIVER

3" GAS

LIMIT OF 100' BUFFER ZONE

6' CHAIN LINK FENCE

WOODEN FENCE

BIT. CONC. WALK

GRASS

12"D

5'X5' CULVERT

12" OUTLET

STONE ARCH CULVERT

OUTLET(R)

CONCRETE HEADWALL

GRAVEL WALKWAY

PLANTER

LIMIT OF VEGETATED WETLANDS

TOP OF BANK (EL. 8.6')

BOTTOM OF BANK (EL. 7.7')

TOP OF BANK (EL. 8.6')(TYP.)

BOTTOM OF BANK (EL. 7.7')(TYP.)

LIMIT OF RIVER FRONT AREA

LIMIT OF 100' BUFFER ZONE

MAGDALENA H. LOFSTEDT
001303
PROFESSIONAL WETLAND SCIENTIST

1" = 20'
10 0 20

REV. NO.	DATE	DRWN	CHKD	REMARKS

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MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO.14

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
14

BROOKLINE
MBTA GREEN LINE

MBTA GREEN LINE

LIMIT OF 100' BUFFER ZONE

100'

6" CHAIN LINK FENCE

CONC. PAD

BIT. CONC. WALK

SHRUB

BROOKLINE
BOSTON

LAND UNDER WATER

TOP OF BANK (EL. 8.6')(TYP.)

BOTTOM OF BANK (EL. 7.7')(TYP.)

MUDDY RIVER

25'

LIMIT OF RIVER FRONT AREA

STONE DUST WALKWAY

COBBLES

GRASS

LIMIT OF BLSF EL. 16.47

100'

LIMIT OF 100' BUFFER ZONE

GUARDRAIL

GRANITE CURB

GRANITE CURB

GRANITE CURB

GRANITE CURB

GRANITE CURB

BOSTON

THE RIVERWAY

LEGEND

- LIMIT OF RIVER FRONT AREA
- LIMIT OF 100' BUFFER ZONE
- LIMIT OF WETLAND VEGETATION
- BOTTOM OF INLAND BANK
- TOP OF INLAND BANK
- CITY/TOWN BOUNDARY
- SHADED AREA = BORDERING VEGETATED WETLANDS

MAGDALENA H. LOFSTEDT
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PROFESSIONAL WETLAND SCIENTIST
PWS
PCP

1" = 20'
10 0 20

REV. NO.	DATE	DRWN	CHKD	REMARKS

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DATE: FEBRUARY 2018

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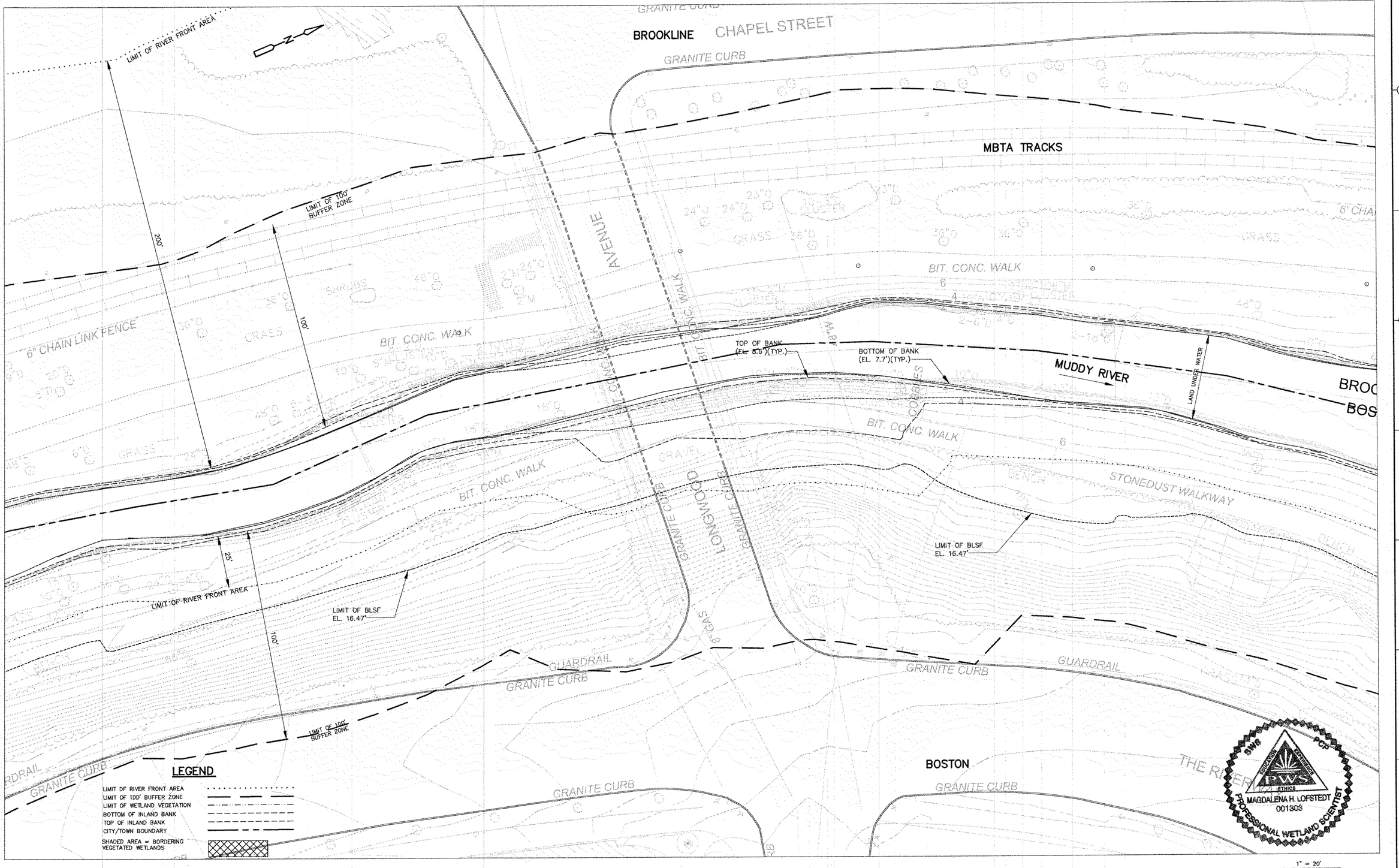
MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO.15

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
15



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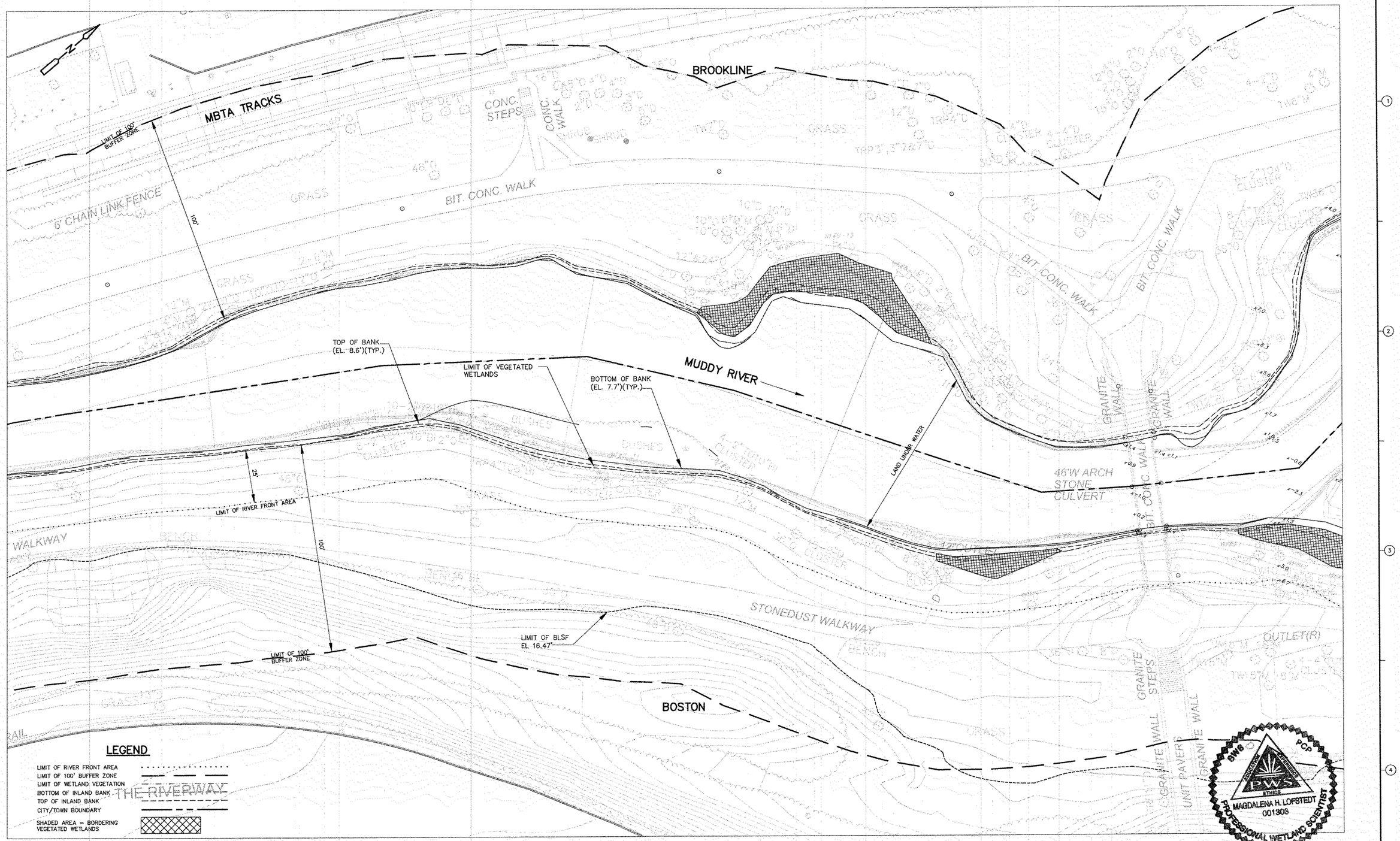
MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO.16

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
16



1" = 20'
10 0 20

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

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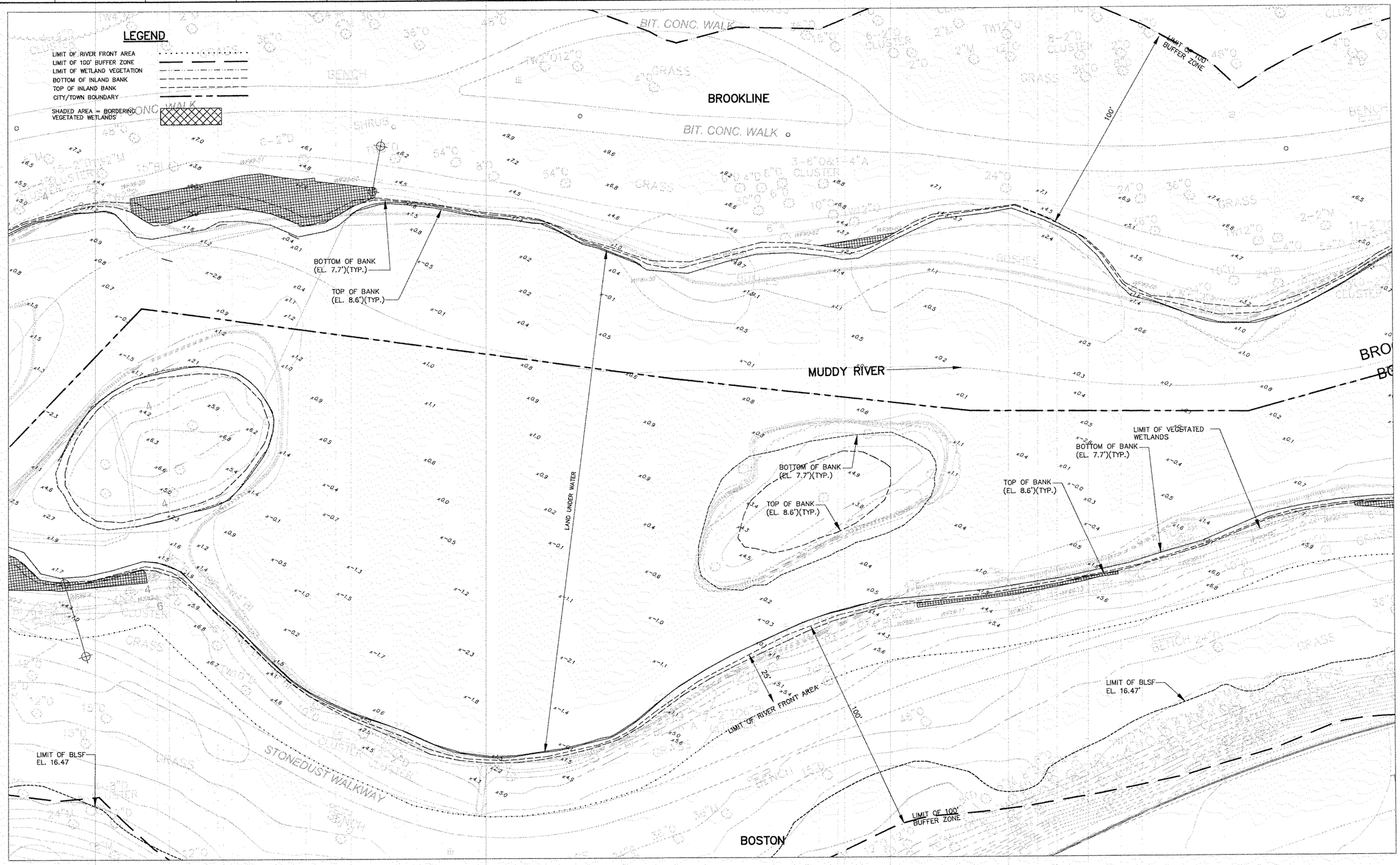
MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO.17

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
17



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SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

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MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 18

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
18

LEGEND

- LIMIT OF RIVER FRONT AREA
- LIMIT OF 100' BUFFER ZONE
- LIMIT OF WETLAND VEGETATION
- BOTTOM OF INLAND BANK
- TOP OF INLAND BANK
- TOWN/CITY BOUNDARY
- SHADED AREA = BORDERING VEGETATED WETLANDS

MUDDY RIVER

BROOKLINE

BOSTON

LAND UNDER WATER

LIMIT OF VEGETATION IN CHANNEL

NO TIME VISIBLE

LIMIT OF VEGETATED WETLANDS

TOP OF BANK (EL. 8.6')(TYP.)

BOTTOM OF BANK (EL. 7.7')(TYP.)

LIMIT OF RIVER FRONT AREA (25' IN BOSTON)

LIMIT OF RIVER FRONT AREA

LIMIT OF BLSF EL. 15.47'

LIMIT OF 100' BUFFER ZONE

100'

25'

BIT. CONC. WALK

BIT. CONC. RETAINING WALL

GRANITE CURB

GUARDRAIL

STONEDUST WALKWAY

THE RIVERWAY

106" MDC

66" MDC

MAGDALENA H. LOFSTEDT
001303
PROFESSIONAL WETLAND SCIENTIST

1" = 20'

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

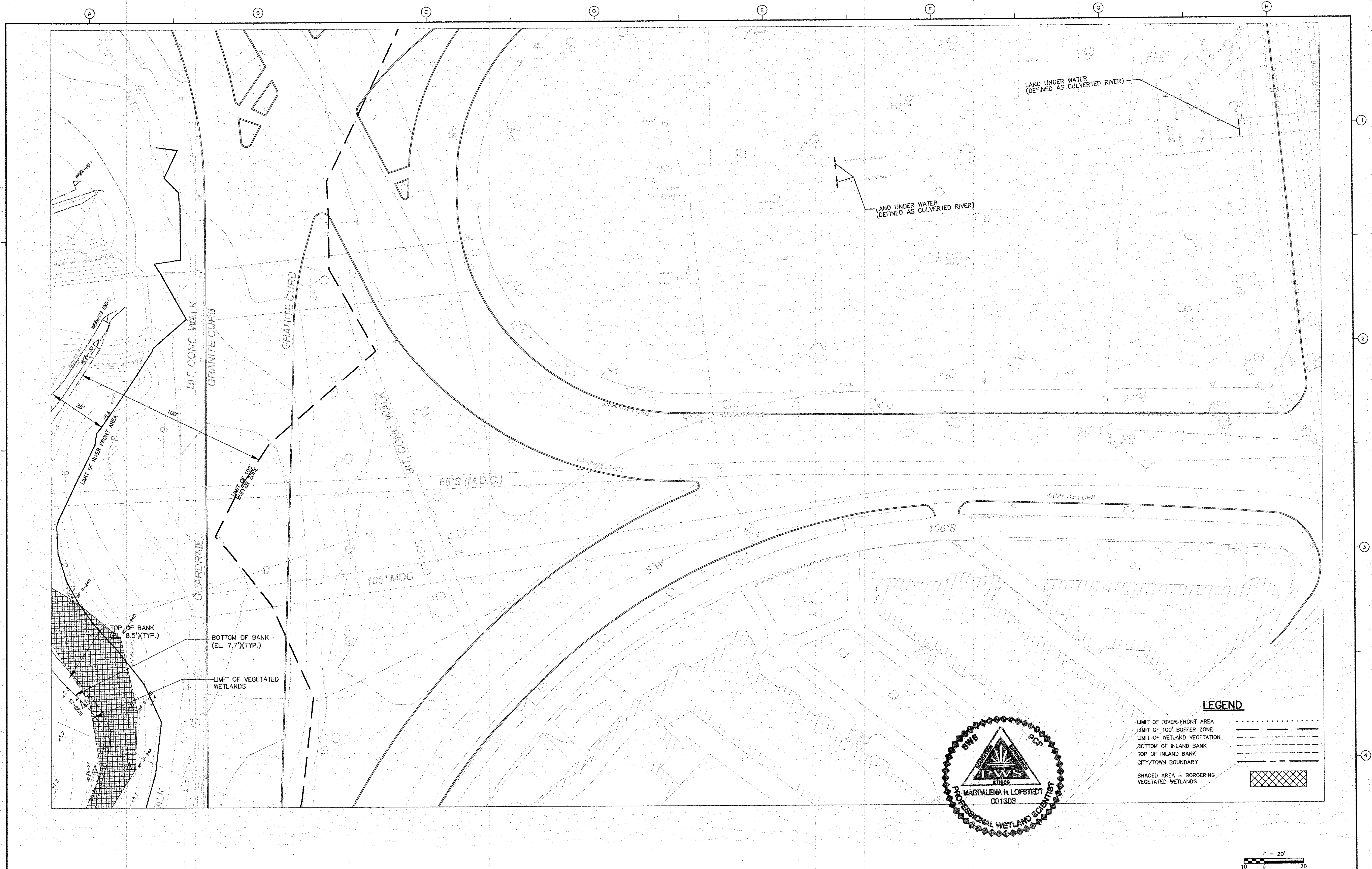
CDM Smith
75 State Street
Boston MA 02139
Tel: (617) 452-6000

MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 19

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
19



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

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75 State Street
Boston MA 02139
Tel: (617) 452-6000

MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 20

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
20

LEGEND

- LIMIT OF RIVER FRONT AREA
- LIMIT OF 100' BUFFER ZONE
- LIMIT OF WETLAND VEGETATION
- BOTTOM OF INLAND BANK
- TOP OF INLAND BANK
- SHADED AREA = BORDERING VEGETATED WETLANDS

LIMIT OF BLSF EL 15.47'

LIMIT OF VEGETATION IN CHANNEL

MUDDY RIVER

LIMIT OF 100' BUFFER ZONE

100'

LIMIT OF RIVER FRONT AREA

25'

LIMIT OF VEGETATED WETLANDS

TOP OF BANK (EL. 8.5')(TYP.)

BOTTOM OF BANK (EL. 7.7')(TYP.)

LAND UNDER WATER

LIMIT OF BLSF EL 15.47'

LIMIT OF 100' BUFFER ZONE

100'

HEADWALL

CONC/STONE WALL OVER CULVERT

CONC PAD W/BENCH

GRAN CURB

12"RCP

LP#51

LP#52

EHH

HH

MH

1" = 20'

10 0 20

MAGDALENA H. LOFSTEDT
001303
PROFESSIONAL WETLAND SCIENTIST
BWS
PCD

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

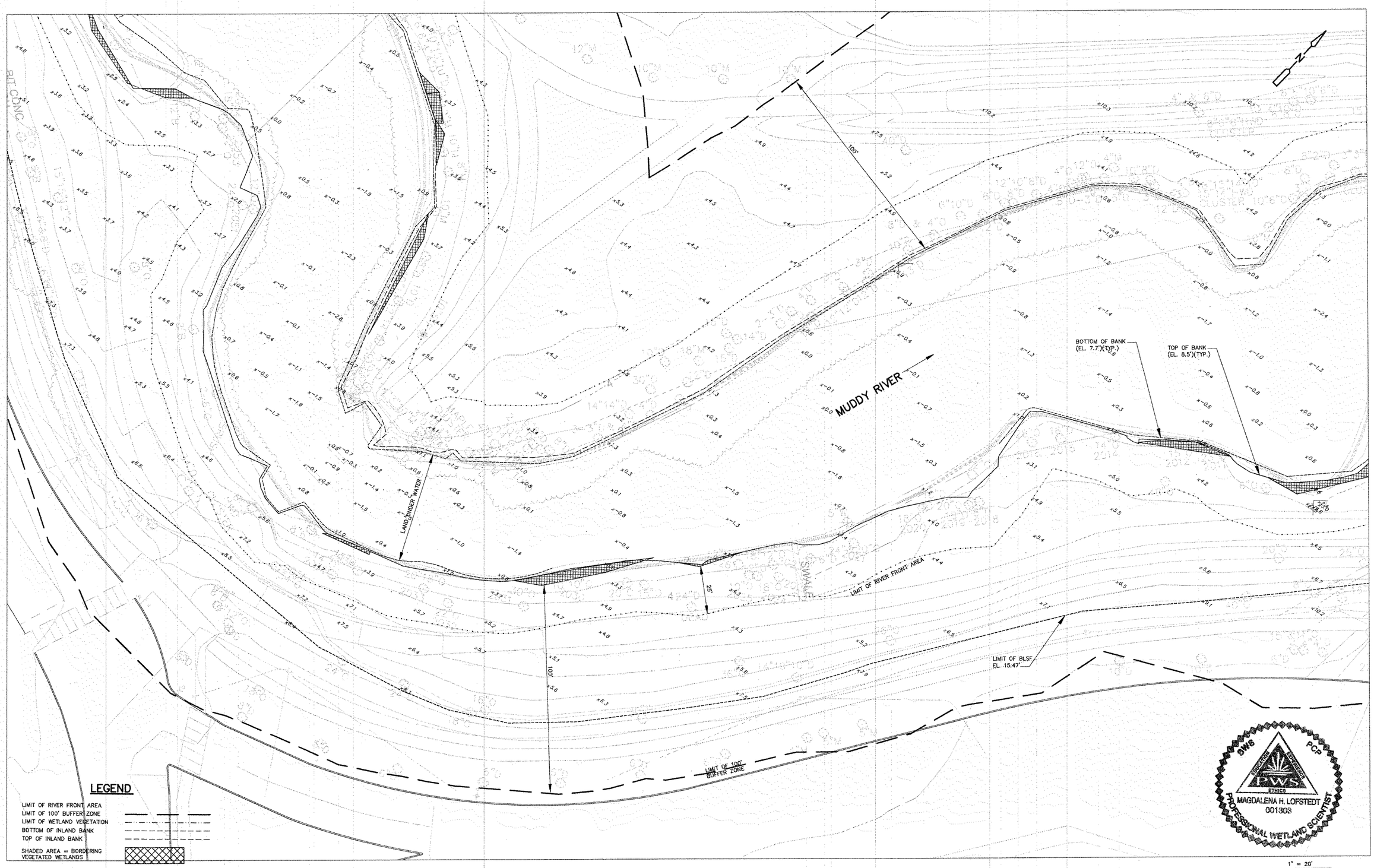
CDM Smith
75 State Street
Boston MA 02139
Tel: (617) 452-6000

MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 23

PROJECT NO. 1517-91478
FILE NAME: C023STPL

SHEET NO.
23



MAGDALENA H. LOFSTEDT
001303
PROFESSIONAL WETLAND SCIENTIST

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

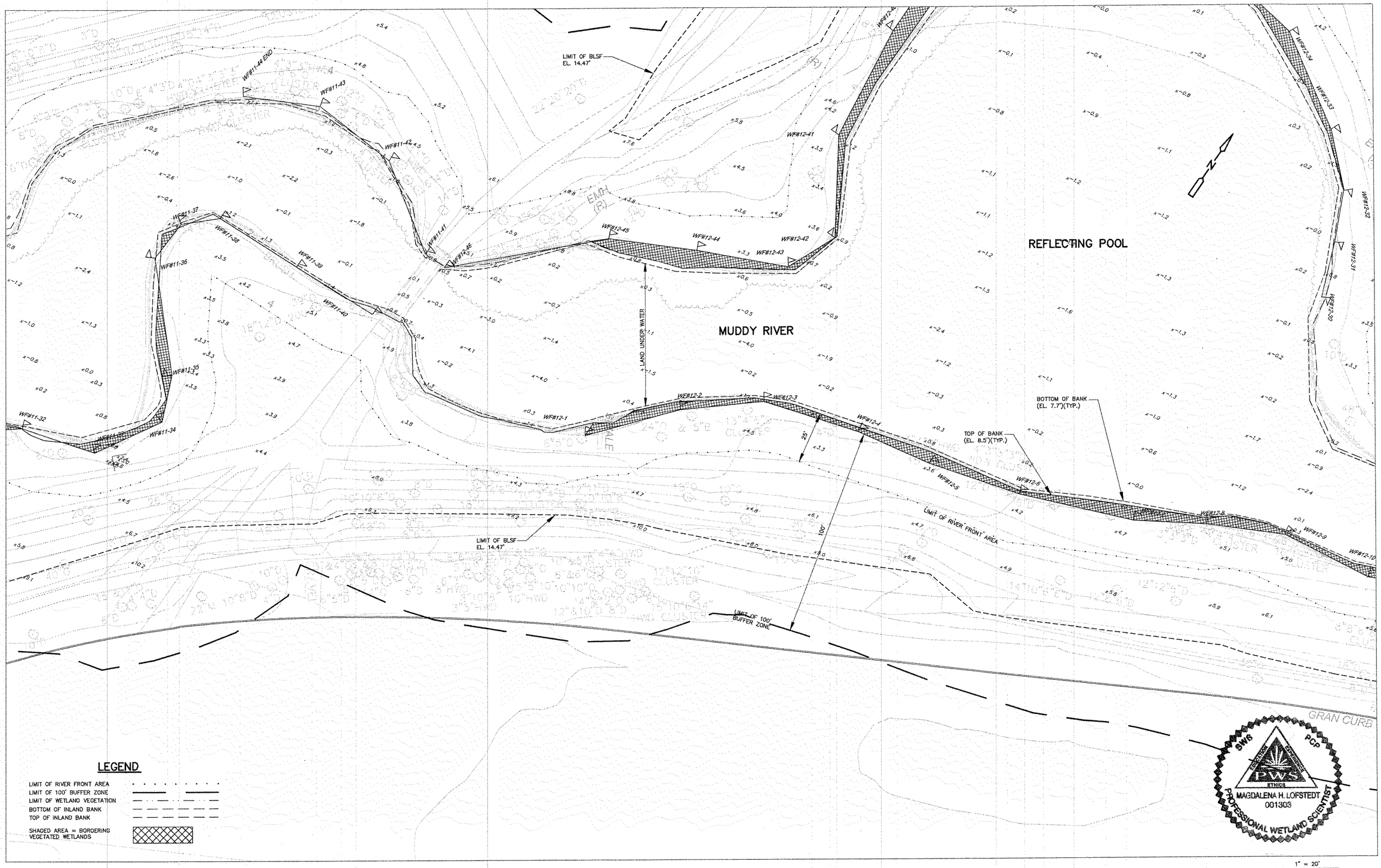
CDM Smith
75 State Street
Boston MA 02139
Tel. (617) 452-6000

MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 24

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
24



LEGEND

- LIMIT OF RIVER FRONT AREA
- LIMIT OF 100' BUFFER ZONE
- LIMIT OF WETLAND VEGETATION
- BOTTOM OF INLAND BANK
- TOP OF INLAND BANK
- SHADED AREA = BORDERING VEGETATED WETLANDS

MAGDALENA H. LOFSTEDT
001303
PROFESSIONAL WETLAND SCIENTIST
PWS PCP
ETHICS EDUCATION EXPERIENCE

1" = 20'
10 0 20

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEOT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

CDM Smith
75 State Street
Boston MA 02139
Tel: (617) 452-6000

MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 25

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
25

LEGEND

- LIMIT OF RIVER FRONT AREA
- LIMIT OF 100' BUFFER ZONE
- LIMIT OF WETLAND VEGETATION
- BOTTOM OF INLAND BANK
- TOP OF INLAND BANK
- SHADED AREA = BORDERING VEGETATED WETLANDS

PARK DRIVE
GRAN CURB
CONC WALK
COBBLE STONE
HCAP RAMP
LIMIT OF BLSF EL. 14.47
BIT CONC
BASKETBALL HOOP
BLACKTOP
BIT CONC WALK
BENCH
LILAC BUSHES
HWD CLUSTER
12"RCP
10"CIP
LIMIT OF 100' BUFFER ZONE
LIMIT OF VEGETATED WETLANDS
LIMIT OF RIVER FRONT AREA
TOP OF BANK (el. 8.5')(TYP.)
BOTTOM OF BANK (el. 7.7')(TYP.)
MUDDY RIVER
25'
100'

SWS PCP
WETLAND RESOURCES
PWS
ETHICS
MAGDALENA H. LOFSTEDT
001303
PROFESSIONAL WETLAND SCIENTIST

1" = 20'
10 0 20

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

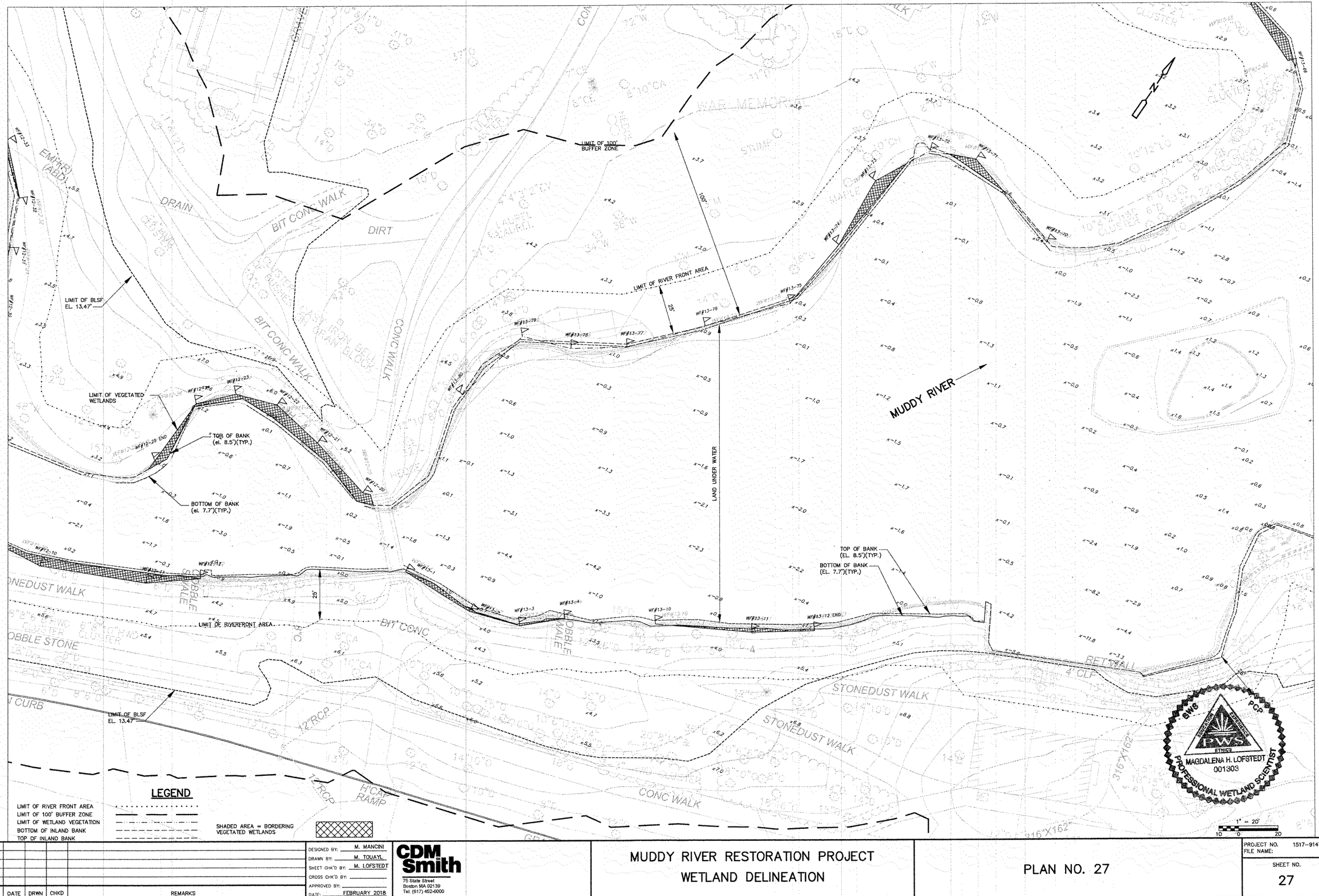
CDM Smith
75 State Street
Boston MA 02139
Tel: (617) 452-6000

MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 26

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
26



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

CDM Smith
75 State Street
Boston MA 02139
Tel: (617) 452-6000

MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 27

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
27

REV. NO.	DATE	ORWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

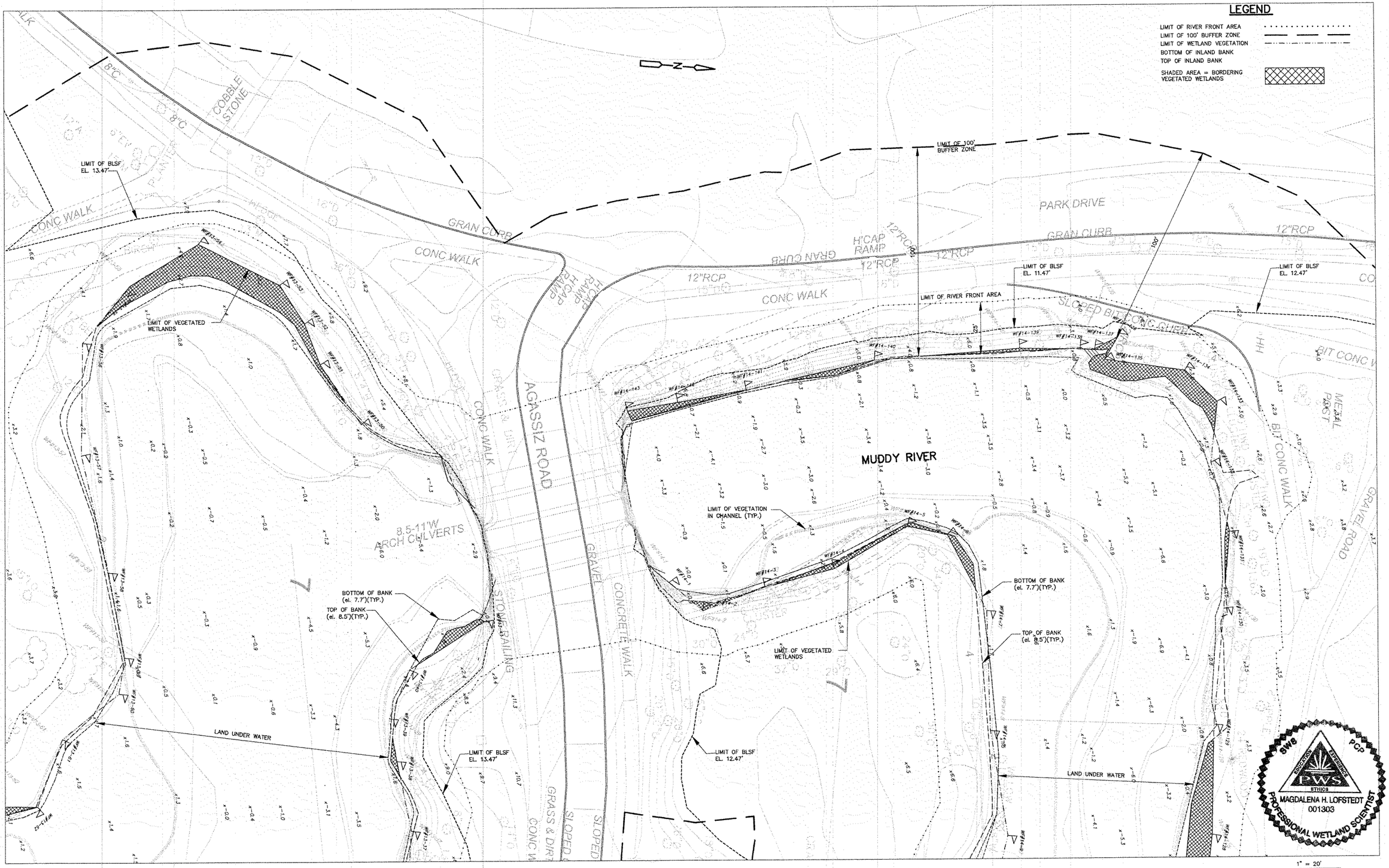
CDM Smith
75 State Street
Boston MA 02139
Tel: (617) 452-6000

MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 28

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
28



MAGDALENA H. LOFSTEDT
001303
PROFESSIONAL WETLAND SCIENTIST
PWS
PCP
SWS
EDUCATION EXPERIENCE ETHICS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

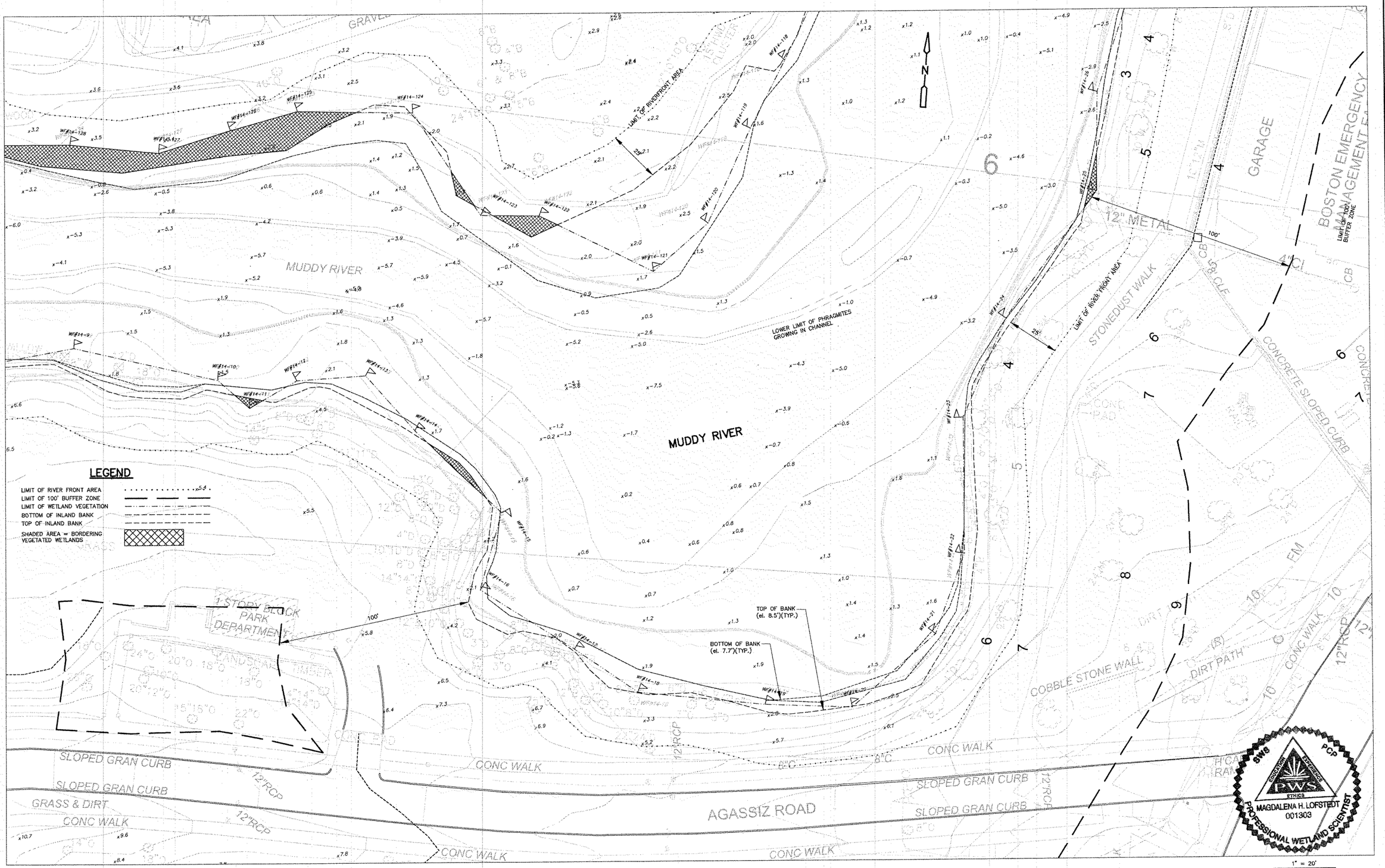
CDM Smith
75 State Street
Boston MA 02139
Tel: (617) 452-6000

MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 29

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
29



MAGDALENA H. LOFSTEDT
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PROFESSIONAL WETLAND SCIENTIST

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

CDM Smith
75 State Street
Boston MA 02139
Tel: (617) 452-6000

MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 30

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
30

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

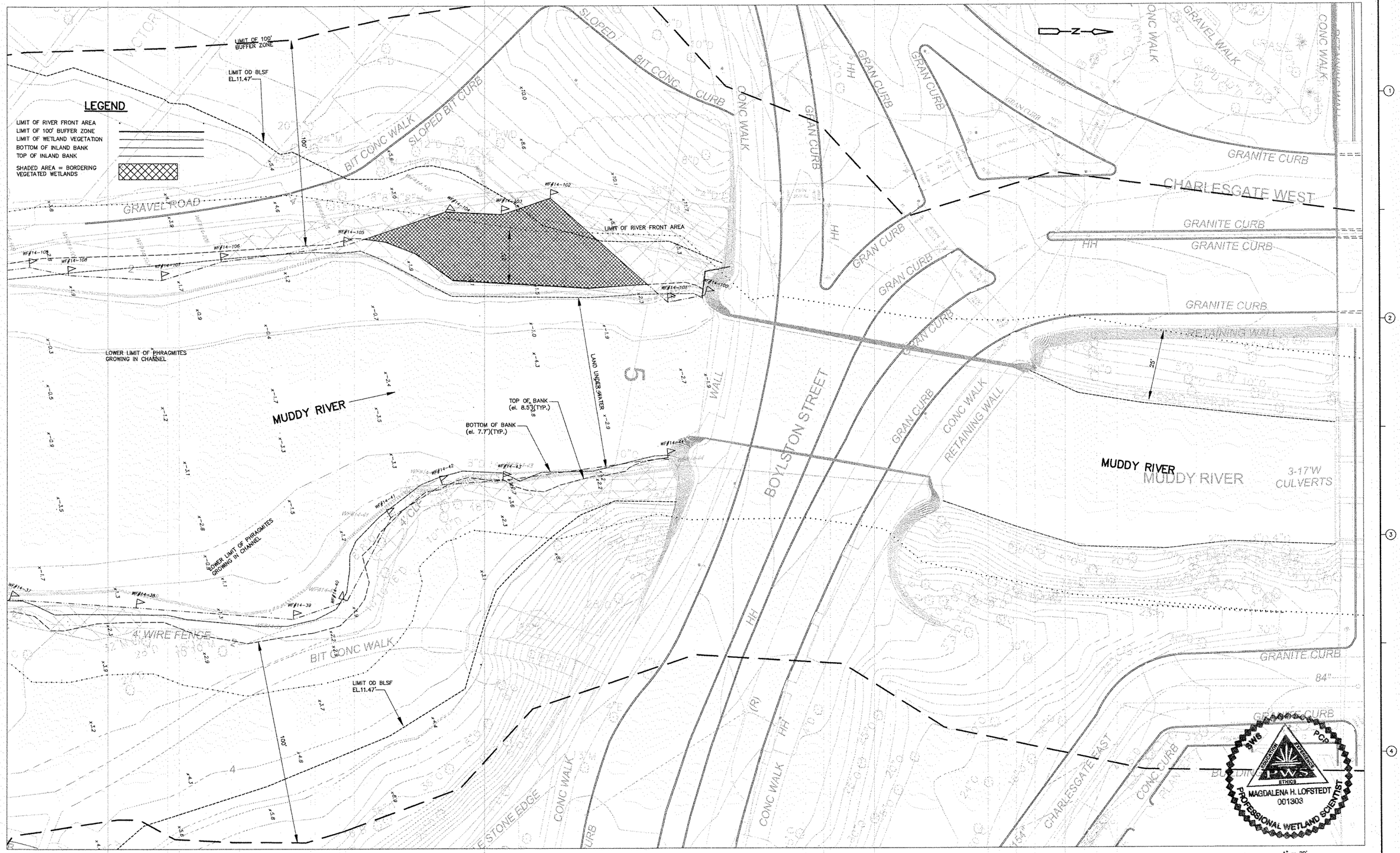
CDM Smith
75 State Street
Boston MA 02139
Tel: (617) 452-6000

MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 31

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
31



MAGDALENA H. LOFSTEDT
001303
PROFESSIONAL WETLAND SCIENTIST
PWS
EDUCATION EXPERIENCE ETHICS

1" = 20'
1D 0 2D

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. MANCINI
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: M. LOFSTEDT
CROSS CHK'D BY:
APPROVED BY:
DATE: FEBRUARY 2018

CDM Smith
75 State Street
Boston MA 02139
Tel: (617) 452-6000

MUDDY RIVER RESTORATION PROJECT
WETLAND DELINEATION

PLAN NO. 32

PROJECT NO. 1517-91478
FILE NAME:

SHEET NO.
32