

Residential Gas Service Installation Project  
18 Sheffield Road, Boxford, Massachusetts

## **REQUEST FOR DETERMINATION OF APPLICABILITY**

Boston Gas Company  
d/b/a National Grid

May 2020

**Tighe & Bond**

WO #1309567  
N1191-231  
May 21, 2020

Ross Povenmire, Director  
Boxford Conservation Commission  
7A Spofford Lane  
Boxford, Massachusetts 01921

Re: **Request for Determination of Applicability  
Residential Gas Service Installation Project  
Boston Gas Company d/b/a National Grid  
18 Sheffield Road, Boxford, Massachusetts**

Dear Mr. Povenmire and the Members of the Boxford Conservation Commission:

On behalf of the Boston Gas Company d/b/a National Grid, Tighe & Bond respectfully submits this Request for Determination of Applicability (RDA) for a proposed gas main installation at 18 Sheffield Road in Boxford, Massachusetts. The proposed project consists of the installation of approximately 215 linear feet of four-inch diameter plastic gas main from the existing line within Sheffield Road to service the residence located at 18 Sheffield Road. This proposed gas main will extend to the north from the existing line within the road, along the eastern edge of the driveway, where it will traverse around the front of the house and connect into the eastern side.

This RDA is being filed because the proposed work will occur within the 100-foot Buffer Zone to Bordering Vegetated Wetlands (BVW). These areas are regulated under the Massachusetts Wetlands Protection Act (WPA, M.G.L. c. 131 § 40) and the Town of Boxford Wetlands Protection Bylaw (Town Code Chapter 192) and implementing regulations. All of the proposed work will occur within previously disturbed areas with no anticipated impacts to the surrounding wetland resources. Please note, a majority of the proposed work is considered an exempt buffer zone minor activity under 310 CMR 10.02(2)(b)(2)(i), as it consists of *"Installation of underground utilities (e.g., electric, gas, water) within existing paved or unpaved roadways and private roadways/driveways, provided that all work is conducted within the roadway or driveway and that all trenches are closed at the completion of each workday."* The remaining activities are not afforded exemptions under 310 CMR or the Town of Boxford Wetlands Protection Bylaw (Town Code Chapter 192).

Tighe & Bond respectfully requests that the Boxford Conservation Commission make a Negative Determination confirming that the proposed work does not require the filing of a Notice of Intent under the WPA or the Town of Boxford Wetlands Protection Bylaw and Regulations.

This RDA application includes the following items:

- Attachment A – WPA Form 1
- Attachment B – Figures
- Attachment C – Project Drawings
- Attachment D – Site Photographs
- Attachment E – Abutter Information



- Attachment F – National Grid Best Management Practice Details

The following text discusses the wetland resource areas, proposed activities, and proposed protective measures.

## Wetland Resource Areas

Site reconnaissance and wetland resource area investigations of the project area were conducted on May 14, 2020. The reconnaissance was conducted in accordance with the Massachusetts Department of Environmental Protection (MassDEP) guidelines, 310 CMR 10.00, and the Town of Boxford Wetlands Protection Bylaw (Town Code Chapter 192). The resource area boundaries were surveyed using a Global Positioning System (GPS) unit with sub-meter accuracy. Please refer to Figure 4 in Attachment B.

### Bordering Vegetated Wetlands

**Flag series 1A-1 to 1A-13:** Wetland 1 is a BVW located to the west of the residence and south of Sheffield Road. The wetland is best classified as palustrine, forested, broad-leaved deciduous, with a seasonally flooded/saturated hydroperiod (PFO1E). Hydrologic indicators observed during the site visit included standing water, a high water table, soil saturation, water marks, a sparsely vegetated concave surface (in some areas), water stained leaves, and a hydrogen sulfide (H<sub>2</sub>S) odor. The soils displayed a sapric histic epipedon (5YR 2/1, 5YR 2/2) overlaying depleted loamy sand (5Y 6/2 matrix) with redoximorphic features. Common vegetation observed included red maple (*Acer rubrum*), yellow birch (*Betula alleghaniensis*), eastern hemlock (*Tsuga canadensis*), red oak (*Quercus rubra*), skunk cabbage (*Symplocarpus foetidus*), sphagnum moss (*Sphagnum spp.*), jack-in-the-pulpit (*Arisaema triphyllum*), jewelweed (*Impatiens capensis*), sensitive fern (*Onoclea sensibilis*), poison ivy (*Toxicodendron radicans*), and honeysuckle (*Lonicera spp.*).

**Flag series 2A-1 to 2A-8:** Wetland 2 is a BVW located to the east of the residence and south of Sheffield Road. The wetland is best classified as palustrine, emergent (with portions of forested wetland), persistent, with a seasonally flooded/saturated hydroperiod (PEM1E/PFO1E). Hydrologic indicators observed during the site visit included standing water, a high water table, soil saturation, water stained leaves, a hydrogen sulfide (H<sub>2</sub>S) odor, and drainage patterns. The soils displayed the same sapric histic epipedon (5YR 2/1, 5YR 2/2) overlaying depleted loamy sand (5Y 6/2 matrix) with redoximorphic features as found in Wetland 1. Common vegetation observed included red maple, white pine (*Pinus strobus*), yellow birch, tussock sedge (*Carex stricta*), multiflora rose (*Rosa multiflora*), horsetail (*Equisetum spp.*), cinnamon fern (*Osmunda cinnamomea*), poison ivy, skunk cabbage, sensitive fern, jewelweed, and honeysuckle.

### Bordering Land Subject to Flooding

The Federal Emergency Management Agency (FEMA) flood map (Panel No. 25009C0242F, effective July 3, 2012) was consulted to evaluate the presence of jurisdictional Land Subject to Flooding on the property. No portion of the proposed project area falls within any area subject to flooding and/or inundation by a 100-year flood.

## Rare Species

The Massachusetts Natural Heritage and Endangered Species Program (NHESP) Atlas (14th edition, effective August 2017) was reviewed during the preparation of this RDA. According to these sources, no Priority Habitats of Rare Species (PH) or Estimated Habitats of Rare Wildlife (EH) occur in any portion of the proposed project area.

## Proposed Activities

The proposed project consists of the installation of approximately 215 linear feet of four-inch diameter plastic gas line from the existing line within Sheffield Road in order to service the residence located at 18 Sheffield Road. This proposed gas service line will extend to the north from the existing line within the road, along the eastern edge of the driveway, where it will traverse around the front of the house and connect into the eastern side.

Construction of the new gas main will require the excavation of an approximately two-foot wide trench for safe installation. The trench bottom will be excavated and graded so that the pipe will be supported for its entire length on undisturbed bottom at a depth of approximately three feet below surface grade. Upon the completion of work, the trench will be backfilled and the site will be restored to pre-existing conditions. Work will be conducted by conventional construction equipment mobilized on the existing roadway and residential lawn.

The proposed work will result in temporary impacts to the 100-foot Buffer Zone to BVW. Approximately 430 sf of impacts will occur within the 100-foot Buffer Zone. The areas where the work is proposed consists of existing paved roadway and residential lawn. The proposed work will not change the general characteristics of the area, as the entire project is contained within previously disturbed areas.

## Protective Measures

The proposed installation will be completed within the existing roadway and residential lawn. Prior to the commencement of work, appropriate erosion control measures will be installed at the downgradient limit-of-work as deemed necessary. The erosion controls will be maintained throughout the duration of work and will be removed after disturbed areas have been stabilized. Following the completion of construction activities, any disturbed soils will be restored in-kind. Attachment F of this submittal includes details of standard erosion control measures that have been used in past projects of similar scope.

## Application Requirements

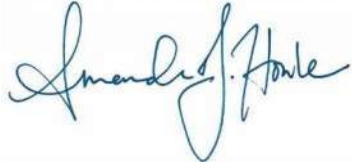
As required under the Chapter 192, a check made payable to the Town for the application filing fee (\$100) has been submitted under separate cover. Abutters to the project area will be notified via Certificate of Mailing, in accordance with the abutter notification requirements. Copies of the abutter notification form and the list of abutters have been enclosed in Attachment E.

## Summary

We look forward to having the opportunity to discuss this project with the Boxford Conservation Commission at the next available public hearing. We anticipate these materials are sufficient for the Commission to issue a Negative Determination confirming the proposed project may proceed without the filing of an NOI. Should you have any questions regarding this application or require any additional information, please do not hesitate to contact me at (508) 304-6354 or via email at [AJHoule@tighebond.com](mailto:AJHoule@tighebond.com).

Thank you in advance for your attention to this matter.

Respectfully,



Amanda J. Houle, PWS, CERP  
Senior Environmental Scientist

Enclosures

Copy: MassDEP NERO  
Andrew Shelby, National Grid  
Todd Darling, property owner

\\tighebond.com\data\Data\Projects\N\N1191 NGrid Licensing and Permitting\231 - 18 Sheffield Road,  
Boxford\RDA\Archive\18 Sheffield RDA Cover Letter - Final.docx

**ATTACHMENT A**

WPA FORM 1



Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

Boxford

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:

Boston Gas Company d/b/a National Grid
Name
40 Sylvan Road
Mailing Address
Waltham
City/Town
781.907.1867
Phone Number
drew.shelby@nationalgrid.com
E-Mail Address
MA
State
02451
Zip Code
N/A
Fax Number (if applicable)

2. Representative (if any):

Tighe & Bond
Firm
Amanda Houle
Contact Name
4 Barlows Landing Road
Mailing Address
Pocasset
City/Town
508.304.6354
Phone Number
ajhoule@tighebond.com
E-Mail Address
MA
State
02559
Zip Code
N/A
Fax Number (if applicable)

B. Determinations

1. I request the Boxford 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:

Boxford
Name of Municipality

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



# WPA Form 1- Request for Determination of Applicability

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

## C. Project Description

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

<u>18 Sheffield Road</u>	<u>Boxford</u>
Street Address	City/Town
<u>Tax Map 24</u>	<u>Block 1 / Lot 12</u>
Assessors Map/Plat Number	Parcel/Lot Number

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

A full description of the proposed project area is attached in the cover letter to this application.

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

<u>Site Location Maps (Figures 1 &amp; 2, Attachment B)</u>	<u>5/18/2020</u>
Title	Date
<u>Priority Resources Map (Figure 3, Attachment B)</u>	<u>5/18/2020</u>
Title	Date
<u>Site Plan (Figure 4, Attachment C)</u>	<u>5/20/2020</u>
Title	Date

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

A full description of work to be completed is attached in the cover letter to this application.

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## WPA Form 1- Request for Determination of Applicability

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

### 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).

310 CMR 10.02(2)(b)(2)(i).

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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.)

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# WPA Form 1- Request for Determination of Applicability

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

## 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:

Todd Darling  
Name

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18 Sheffield Road  
Mailing Address

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Boxford  
City/Town

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MA  
State


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01921  
Zip Code

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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

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5/20/2020  
Date

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Signature of Representative (if any)

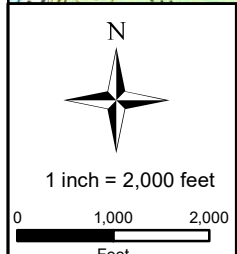
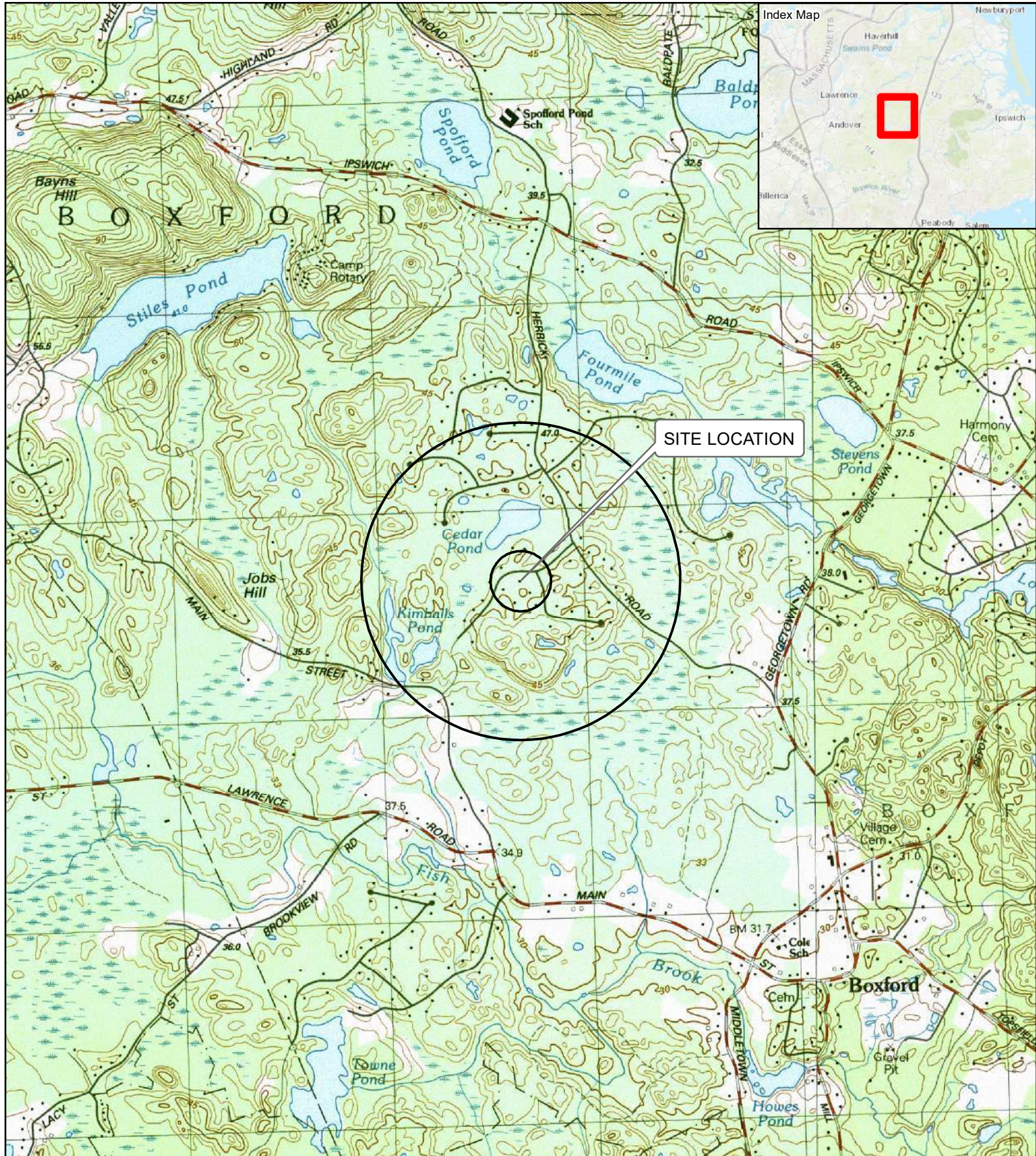
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5/20/2020  
Date

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**ATTACHMENT B**

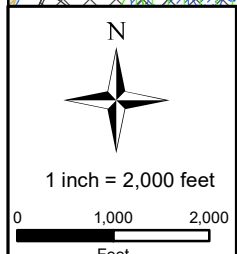
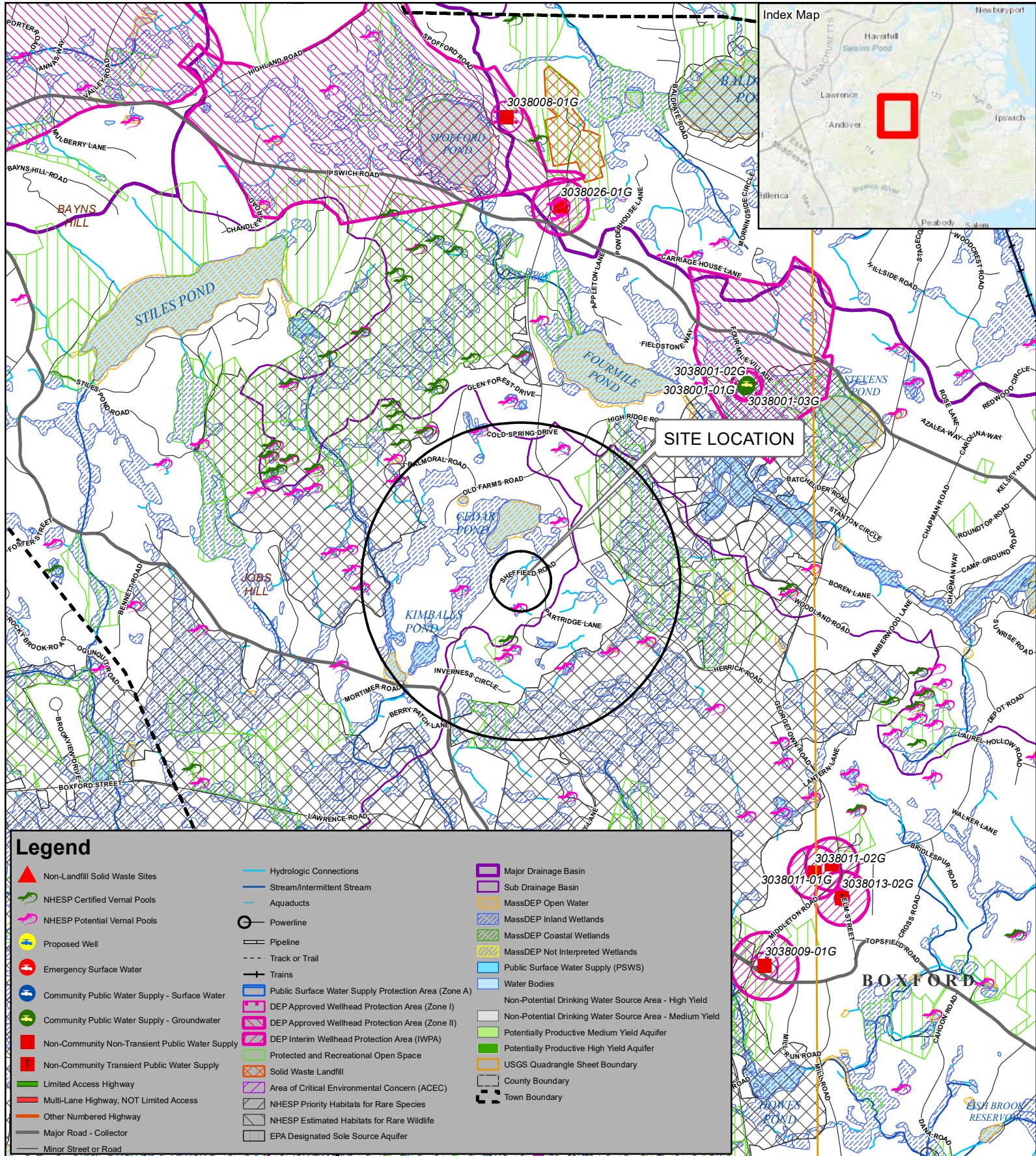
FIGURES



**FIGURE 1**  
**Site Location**  
Gas Main Installation  
18 Sheffield Road  
Boxford, Massachusetts

Based on USGS Topographic Map for South Groveland, MA Revised 1987. Contour Interval Equals 3 Meters. Circles indicate 500-foot and half-mile radii.





**FIGURE 2**  
**Priority Resources**  
 Gas Main Installation  
 18 Sheffield Road  
 Boxford, Massachusetts

Data source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology, as of May 2020.

**nationalgrid**  
**Tighe&Bond**



N

1 inch = 80 feet

0 40 80  
Feet

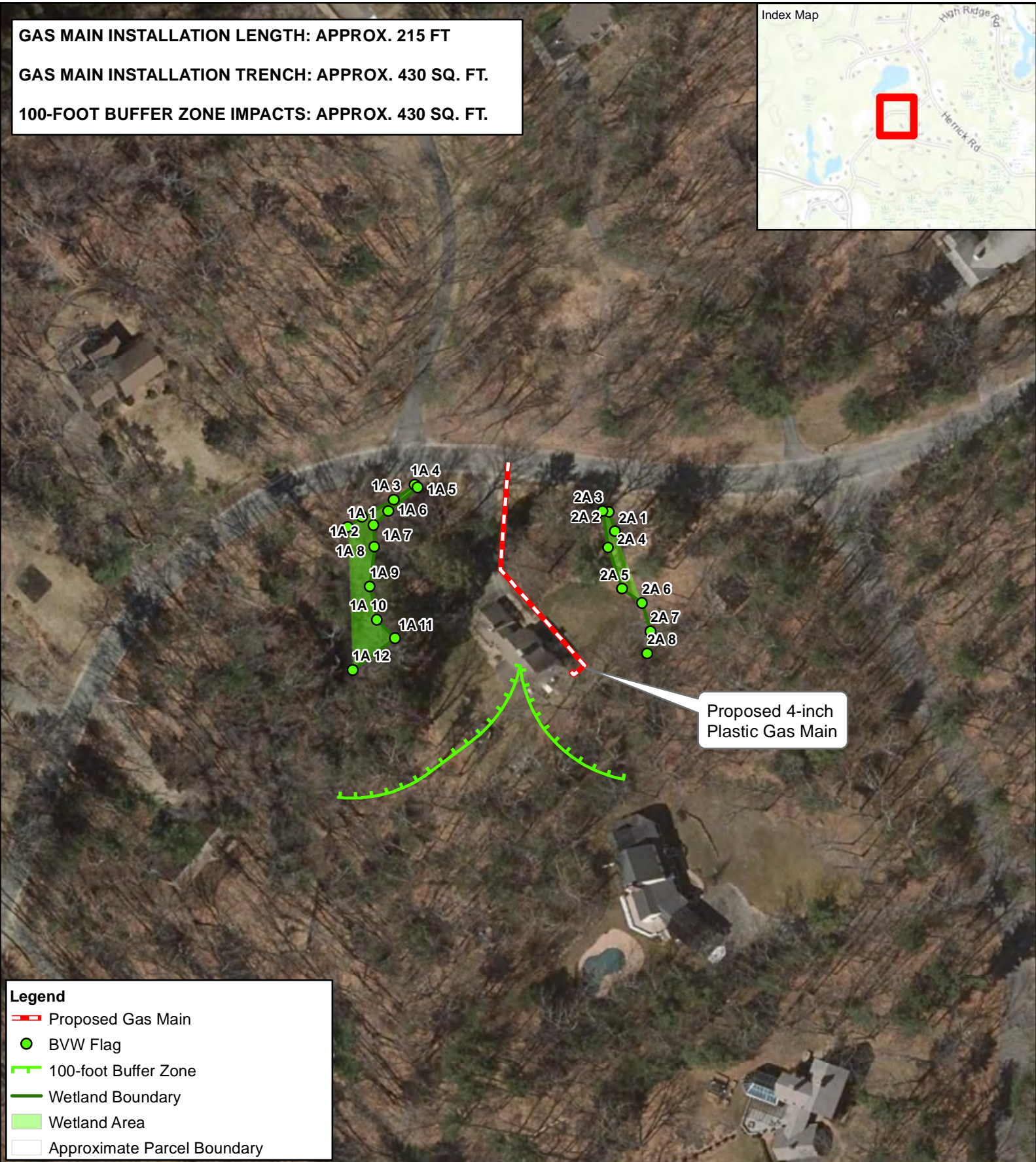
**FIGURE 3**  
**Orthophotograph**  
Gas Main Installation  
18 Sheffield Road  
Boxford, Massachusetts

Based on MassGIS Color  
Orthophotography (2019).

**ATTACHMENT C**

SITE PLAN

**GAS MAIN INSTALLATION LENGTH: APPROX. 215 FT**  
**GAS MAIN INSTALLATION TRENCH: APPROX. 430 SQ. FT.**  
**100-FOOT BUFFER ZONE IMPACTS: APPROX. 430 SQ. FT.**



**Legend**

- Proposed Gas Main
- BVW Flag
- 100-foot Buffer Zone
- Wetland Boundary
- Wetland Area
- Approximate Parcel Boundary

1 inch = 100 feet

0 50 100  
Feet

**FIGURE 4**  
**Site Plan**  
Gas Main Installation  
18 Sheffield Road  
Boxford, Massachusetts

Based on MassGIS Color Orthophotography (2019).



**ATTACHMENT D**  
SITE PHOTOGRAPHS

# Photographic Log

**Client:** Boston Gas Company d/b/a National Grid

**Job Number:** N1191-231

**Site:** Gas Main Installation Project - 18 Sheffield Road, Boxford, Massachusetts

<b>Photograph No.:</b> 1	<b>Date:</b> 05/14/2020	<b>Direction Taken:</b> South
<b>Description:</b> Overview of the gas main installation project to service 18 Sheffield Road in Boxford, Massachusetts. The location of the gas main will be along the driveway (red line) to the residence.		
		

<b>Photograph No.:</b> 2	<b>Date:</b> 05/14/2020	<b>Direction Taken:</b> Southwest
<b>Description:</b> View of the location of Wetland 1 (blue arrow), to the west of the residence.		
		

# Photographic Log

**Client:** Boston Gas Company d/b/a National Grid

**Job Number:** N1191-231

**Site:** Gas Main Installation Project - 18 Sheffield Road, Boxford, Massachusetts

<b>Photograph No.:</b> 3	<b>Date:</b> 05/14/2020	<b>Direction Taken:</b> West
<b>Description:</b> Overview of Wetland 1 (PFO1E).		
		

<b>Photograph No.:</b> 4	<b>Date:</b> 05/14/2020	<b>Direction Taken:</b> Northeast
<b>Description:</b> Overview of Wetland 1 (PFO1E). Wetland 1 drains to the north beneath Sheffield Road via a culvert (red arrow) where it continues into a large wetland system and Cedar Pond.		
		

# Photographic Log

**Client:** Boston Gas Company d/b/a National Grid

**Job Number:** N1191-231

**Site:** Gas Main Installation Project - 18 Sheffield Road, Boxford, Massachusetts

<b>Photograph No.:</b> 5	<b>Date:</b> 05/14/2020	<b>Direction Taken:</b> South
<b>Description:</b> View of the location of Wetland 2 (blue arrow), to the east of the residence.		
		

<b>Photograph No.:</b> 6	<b>Date:</b> 05/14/2020	<b>Direction Taken:</b> South
<b>Description:</b> Overview of Wetland 2 (PEM1E/PFO1E).		
		

# Photographic Log

**Client:** Boston Gas Company d/b/a National Grid

**Job Number:** N1191-231

**Site:** Gas Main Installation Project - 18 Sheffield Road, Boxford, Massachusetts

<b>Photograph No.:</b> 7	<b>Date:</b> 05/14/2020	<b>Direction Taken:</b> North-Northeast
<b>Description:</b> Overview of Wetland 2 (PEM1E/PFO1E). Wetland 2 drains to the north beneath Sheffield Road via a culvert (red arrow) where it continues into a large wetland system and Cedar Pond.		
		

**ATTACHMENT E**

ABUTTER INFORMATION

(TO BE PROVIDED UNDER SEPARATE COVER)

**ATTACHMENT F**

NATIONAL GRID BEST MANAGEMENT PRACTICES

**SUBJECT**

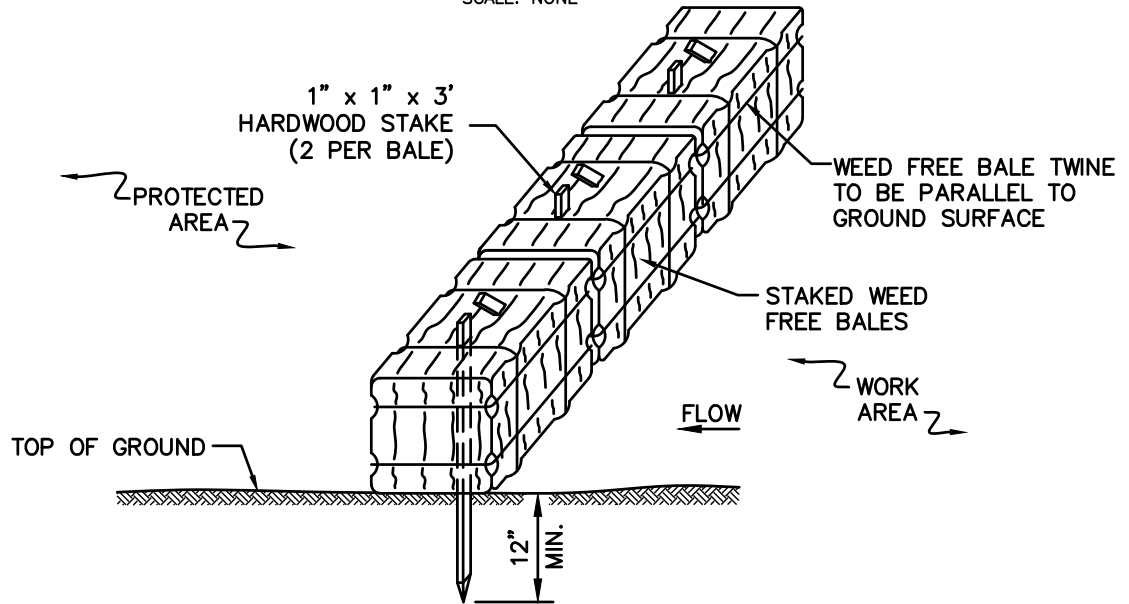
Access, Maintenance and Construction  
Best Management Practices

**Reference**

EP No. 3 - Natural Resource  
Protection (Chapter 6)

**BMP DETAIL**

SCALE: NONE



**NOTES:**

1. THE GROUND SHALL BE PREPARED TO PROVIDE COMPLETE CONTACT WITH THE BALES.

**BMP PICTURE**



File: BALE\_BARRIER.DWG

**APPROVED BY: VICE PRESIDENT, ENVIRONMENTAL SERVICES**  
PRINTED COPIES ARE NOT DOCUMENT CONTROLLED. FOR LATEST AUTHORIZED  
VERSION PLEASE REFER TO THE NATIONAL GRID ENVIRONMENTAL INFONET SITE.

**SEC-1**  
**WEED FREE BALE BARRIER**



**SUBJECT**

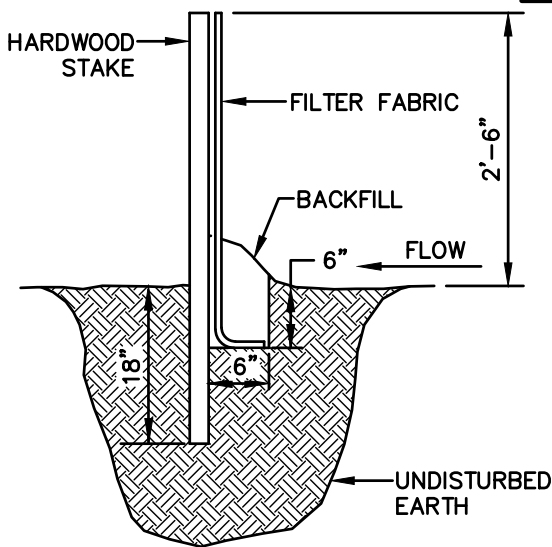
Access, Maintenance and Construction  
Best Management Practices

**Reference**

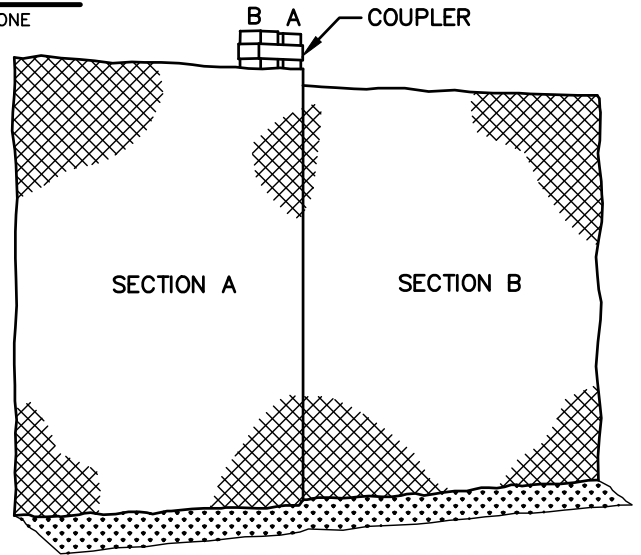
EP No. 3 - Natural Resource  
Protection (Chapter 6)

**BMP DETAIL**

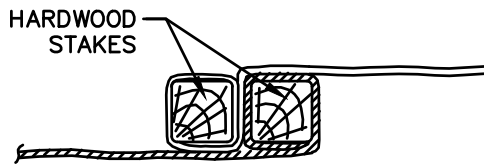
SCALE: NONE



PROFILE



SECTION



PLAN

**BMP PICTURE**



File: Sediment\_Fence.dwg

**APPROVED BY: VICE PRESIDENT, ENVIRONMENTAL SERVICES**  
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**SEC-2**  
**SEDIMENT CONTROL FENCE**

SUBJECT

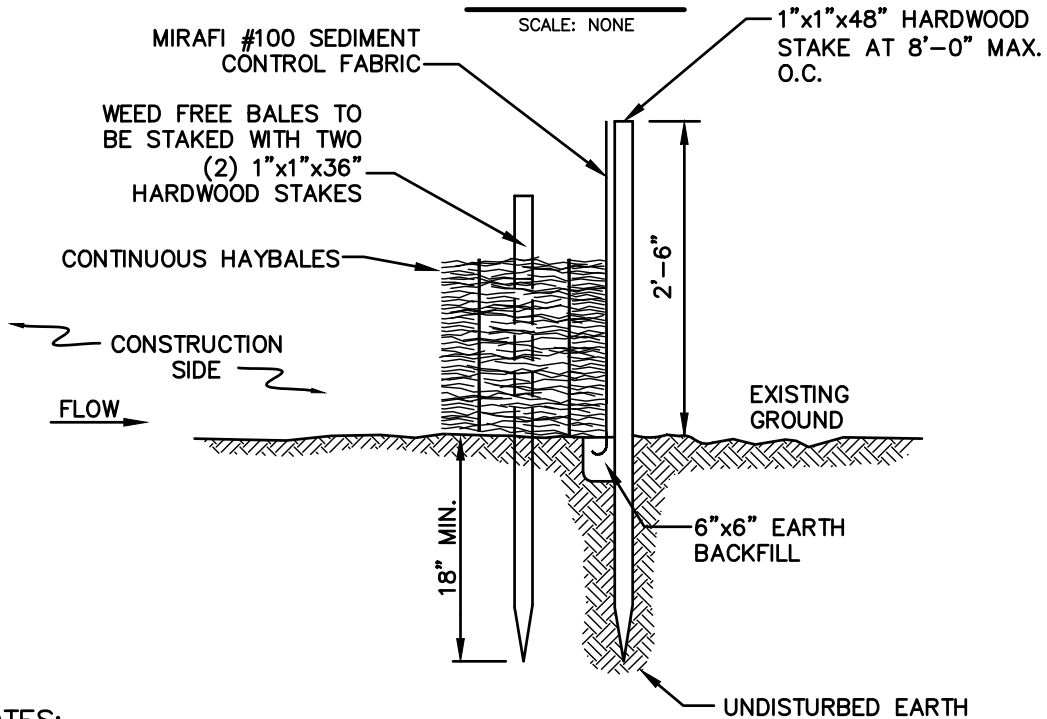
Access, Maintenance and Construction  
Best Management Practices

Reference

EP No. 3 - Natural Resource  
Protection (Chapter 6)

**BMP DETAIL**

SCALE: NONE



**NOTES:**

1. BALES SHALL BE PLACED IN A ROW WITH THE ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. BALES SHALL BE SECURELY ANCHORED IN PLACE BY TWO (2) 1"x1"x36" HARDWOOD STAKES DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
3. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
4. BALES SHALL BE REMOVED AND REPLACED WHEN THEY BECOME FILLED WITH SEDIMENT AND BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
5. BALES SHALL BE REMOVED WHEN THE EMBANKMENTS STABILIZE.
6. BALES TO BE TWINE BOUND.

**BMP PICTURE**



File: Silt\_Fence\_&\_Barrier.dwg

**APPROVED BY: VICE PRESIDENT, ENVIRONMENTAL SERVICES**  
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VERSION PLEASE REFER TO THE NATIONAL GRID ENVIRONMENTAL INFONET SITE.

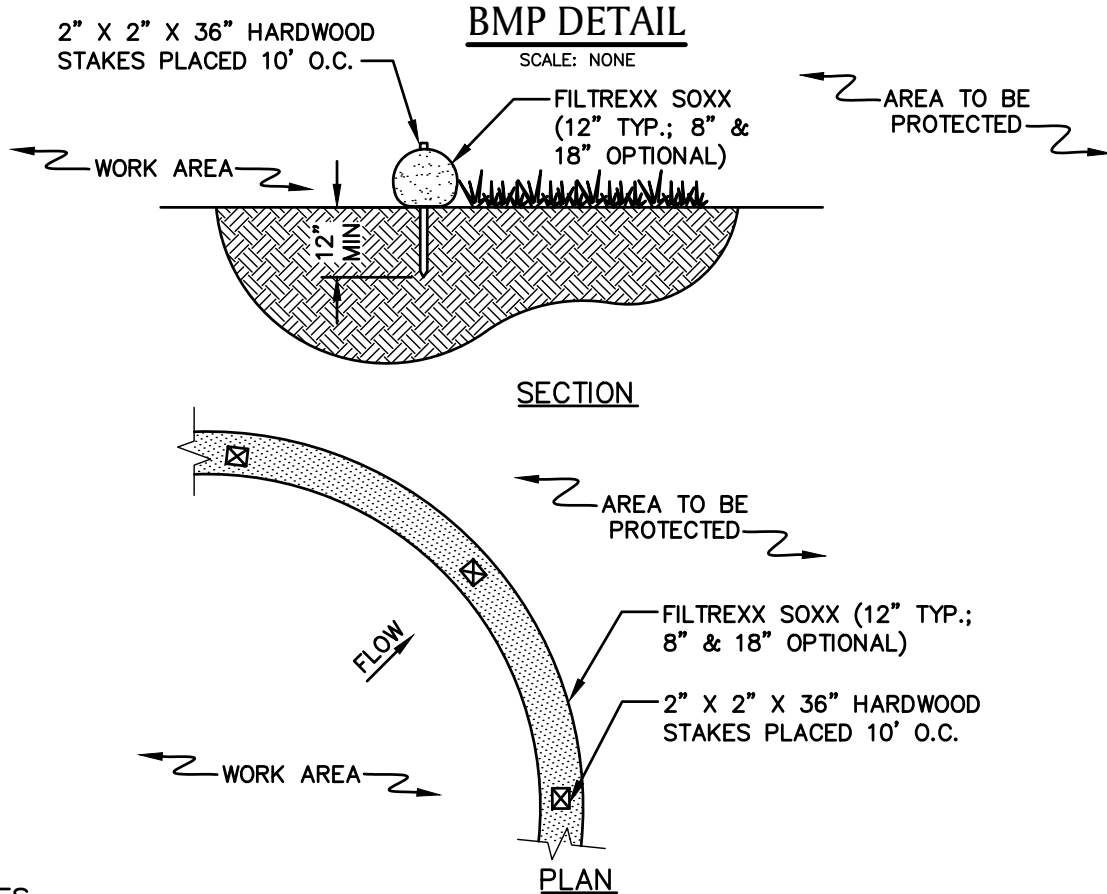
**SEC-3**  
**SILT FENCE /**  
**WEED FREE BARRIER**

SUBJECT

Access, Maintenance and Construction  
Best Management Practices

Reference

EP No. 3 - Natural Resource  
Protection (Chapter 6)



**NOTES**

1. PRODUCT TO BE FILTREXX SILT SOXX OR APPROVED EQUAL BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.
2. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
3. FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
4. MESH CONTAINMENT MATERIAL SHOULD BE KNITTED PHOTODEGRADABLE OR BIODEGRADABLE MATERIAL, WITH OPENING SIZES BETWEEN 1/8" - 3/8".
5. COMPOST MEDIA SHOULD HAVE PARTICLE SIZE WHERE 99% < 2", 50% > 1/2".
6. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.

### BMP PICTURE



\* PICTURE AND DETAIL PROVIDED BY FILTREXX LAND IMPROVEMENT SYSTEMS  
**APPROVED BY: VICE PRESIDENT, ENVIRONMENTAL SERVICES**  
 PRINTED COPIES ARE NOT DOCUMENT CONTROLLED. FOR LATEST AUTHORIZED  
 VERSION PLEASE REFER TO THE NATIONAL GRID ENVIRONMENTAL INFONET SITE.

SEC-4  
SILT SOXX \*

**SUBJECT**

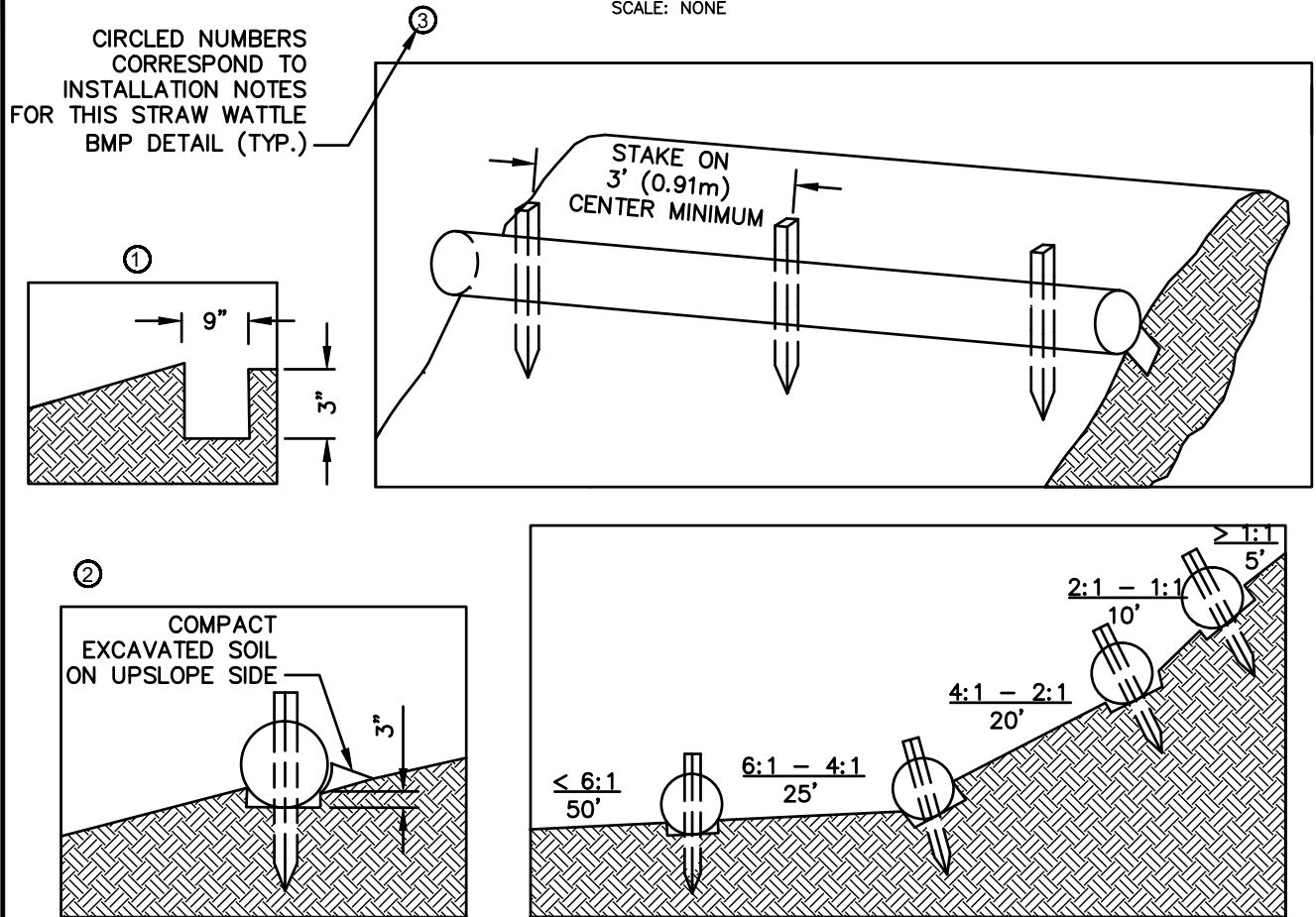
Access, Maintenance and Construction  
Best Management Practices

**Reference**

EP No. 3 - Natural Resource  
Protection (Chapter 6)

**BMP DETAIL**

SCALE: NONE



TYPICAL WATTLE SPACING DETAIL

**NOTES:**

1. PRODUCT TO BE TENSAR NORTH AMERICAN GREEN STRAW WATTLE OR APPROVED EQUAL BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.
2. TYPICAL WATTLE SPACING BASED ON SLOPE GRADIENT. COORDINATE SPACING AND LOCATION WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST.
3. MINIMUM 12" DIAMETER WATTLES SHOULD BE USED FOR HIGHLY DISTURBED AREAS (I.E., HEAVILY USED ACCESS ROAD WITH ADJACENT WETLAND) AND MINIMUM 9-10" WATTLES SHOULD BE USED FOR LESS DISTURBED SOILS.

**INSTALLATION NOTES:**

1. BEGIN AT THE LOCATION WHERE THE WATTLE IS TO BE INSTALLED BY EXCAVATING A 2-3" DEEP X 9" WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE. EXCAVATED SOIL SHOULD BE PLACED UPSLOPE FROM THE ANCHOR TRENCH.
2. PLACE THE WATTLE IN THE TRENCH SO THAT IT CONTOURS TO THE SOIL SURFACE. COMPACT SOIL FROM THE EXCAVATED TRENCH AGAINST THE WATTLE ON THE UPHILL SIDE. ADJACENT WATTLES SHOULD TIGHTLY ABUT.
3. SECURE THE WATTLE WITH 18-24" HARDWOOD STAKES EVERY 3-4' AND WITH A STAKE ON EACH END. STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE WATTLE LEAVING AT LEAST 2-3" OF STAKE EXTENDING ABOVE THE WATTLE. STAKES SHOULD BE DRIVEN PERPENDICULAR TO THE SLOPE FACE.

\* DETAIL AND PICTURE PROVIDED BY TENSAR NORTH AMERICAN GREEN  
**APPROVED BY: VICE PRESIDENT, ENVIRONMENTAL SERVICES**  
 PRINTED COPIES ARE NOT DOCUMENT CONTROLLED. FOR LATEST AUTHORIZED  
 VERSION PLEASE REFER TO THE NATIONAL GRID ENVIRONMENTAL INFONET SITE.

**SEC-5**  
**STRAW WATTLE \* (1 OF 2)**

**SUBJECT**

Access, Maintenance and Construction  
Best Management Practices

**Reference**

EP No. 3 - Natural Resource  
Protection (Chapter 6)

**BMP PICTURE**



**STRAW WATTLE – SHALLOW SLOPE ( $\leq 4:1$ )  
(ALTERNATE STAKING)**

**ALTERNATE STAKING INSTALLATION NOTES:**

1. ON SHALLOW SLOPES ( $\leq 4:1$ ), STRAW WATTLE MAY BE SECURED WITH 18–24” HARDWOOD STAKES DRIVEN AGAINST THE SIDES OF THE WATTLE INSTEAD OF THROUGH. STAKES SHALL ALTERNATE SIDES, AND BE SPACED 3–4’ MAX.
2. TWINE SHALL BE TIED FROM STAKE TO STAKE, CRISS–CROSSING THE STRAW WATTLE. TIE TWINE TO STAKES BELOW THE HEIGHT OF THE WATTLE.

**\* DETAIL AND PICTURE PROVIDED BY TENSAR NORTH AMERICAN GREEN  
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**SEC-5  
STRAW WATTLE \* (2 OF 2)**

**SUBJECT**  
Access, Maintenance and Construction  
Best Management Practices

Reference  
EP No. 3 - Natural Resource  
Protection (Chapter 6)

**BMP PICTURE**

SCALE: NONE



**NOTES:**

1. PRODUCT TO BE ALTURNAMATS' PREFABRICATED MATS OR APPROVED EQUAL BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.
2. PRODUCT AVAILABLE IN 4X8' UNITS.
3. IF MATS ARE INSTALLED IN A WETLAND AREA, INSTALL EROSION CONTROLS TO CONTAIN MATERIAL UTILIZED IN THE MAT TRANSITIONS.

\* PICTURE PROVIDED BY ALTURNAMATS  
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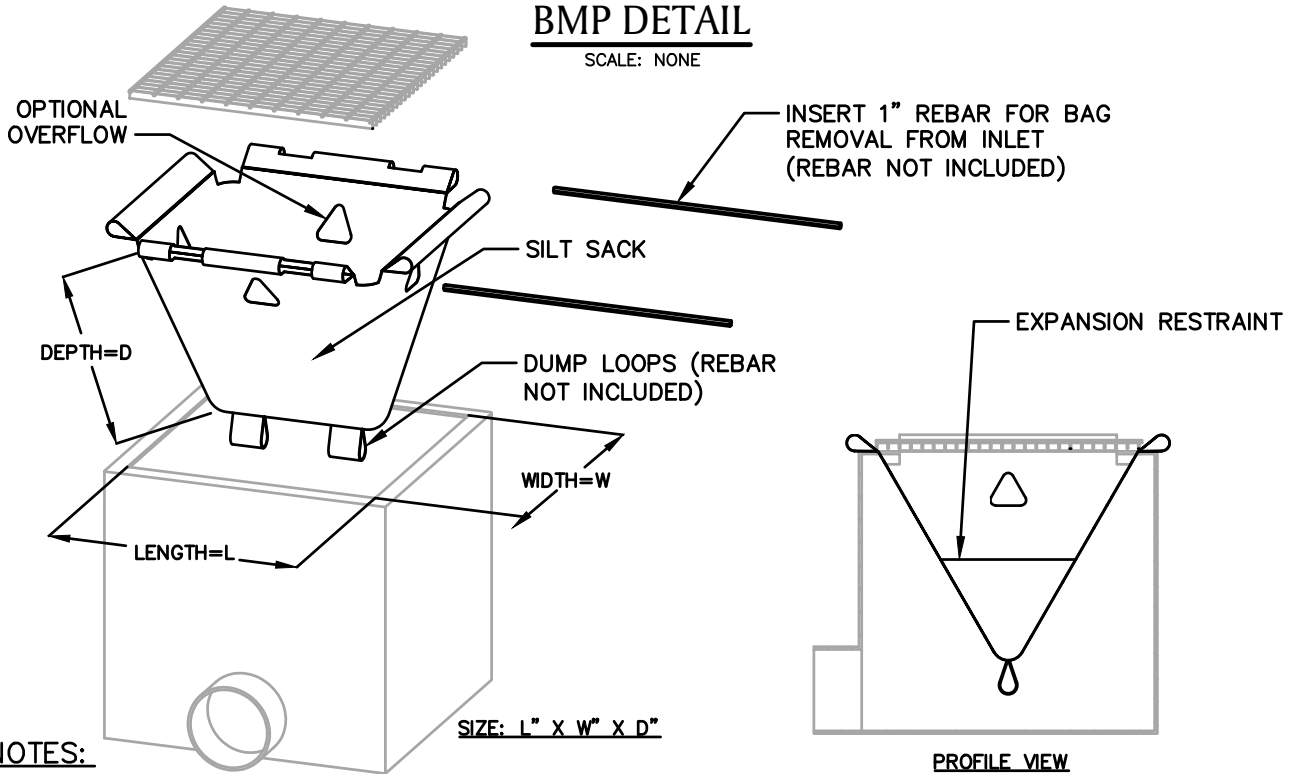
**CM-1**  
**PREFABRICATED MATS \***

**SUBJECT**  
Access, Maintenance and Construction  
Best Management Practices

Reference  
EP No. 3 - Natural Resource  
Protection (Chapter 6)

**BMP DETAIL**

SCALE: NONE



**NOTES:**

1. PRODUCT TO BE SILT SACK OR APPROVED EQUAL BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.
2. THE USE OF A SILT SACK OPTIONAL OVERFLOW AND OVERALL DIMENSIONS ARE TO BE COORDINATED WITH A NATIONAL GRID ENVIRONMENTAL SCIENTIST.


**BMP PICTURE**



\* **DETAIL PROVIDED BY ACF ENVIRONMENTAL**  
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**AA-20**  
**SILT SACK \***



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