



Enter your transmittal number

X250635

Transmittal Number

Your unique Transmittal Number can be accessed online: <http://mass.gov/dep/service/online/trasmfrm.shtml>

# Massachusetts Department of Environmental Protection Transmittal Form for Permit Application and Payment

1. Please type or print. A separate Transmittal Form must be completed for each permit application.

2. Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: DEP, P.O. Box 4062, Boston, MA 02211.

3. Three copies of this form will be needed.

**Copy 1 - the original** must accompany your permit application. **Copy 2** must accompany your fee payment. **Copy 3** should be retained for your records

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

MassDEP  
P.O. Box 4062  
Boston, MA  
02211

**\* Note:**  
For BWSC Permits, enter the LSP.

## A. Permit Information

BRP WP 83

Hydrogeologic Evaluation Report

1. Permit Code: 7 or 8 character code from permit instructions  
Groundwater Discharge

2. Name of Permit Category

3. Type of Project or Activity

## B. Applicant Information – Firm or Individual

Wayland Waste Water District Commission

1. Name of Firm - Or, if party needing this approval is an individual enter name below:

2. Last Name of Individual  
41 Cochituate Road

3. First Name of Individual

4. MI

5. Street Address  
Wayland

MA

01778

508-358-3696

6. City/Town

7. State

8. Zip Code

9. Telephone #

10. Ext. #

John Moynihan, Facilities Director

jmoynihan@wayland.ma.us

11. Contact Person

12. e-mail address (optional)

## C. Facility, Site or Individual Requiring Approval

Town of Wayland Wastewater Treatment Plant

1. Name of Facility, Site Or Individual  
30 Old Sudbury Road

2. Street Address  
Wayland

MA

01778

508-358-3696

3. City/Town

4. State

5. Zip Code

6. Telephone #

7. Ext. #

8. DEP Facility Number (if Known)

9. Federal I.D. Number (if Known)

10. BWSC Tracking # (if Known)

## D. Application Prepared by (if different from Section B)\*

Tighe & Bond

1. Name of Firm Or Individual  
446 Main Street, Suite 13

2. Address  
Worcester

MA

01608

508-471-9605

3. City/Town

4. State

5. Zip Code

6. Telephone #

7. Ext. #

8. Contact Person

9. LSP Number (BWSC Permits only)

Ian B. Catlow, P.E.

## E. Permit - Project Coordination

1. Is this project subject to MEPA review?  yes  no  
If yes, enter the project's EOE file number - assigned when an Environmental Notification Form is submitted to the MEPA unit:

EOEA File Number

## F. Amount Due

### Special Provisions:

1.  Fee Exempt (city, town or municipal housing authority)(state agency if fee is \$100 or less).  
*There are no fee exemptions for BWSC permits, regardless of applicant status.*  
2.  Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).  
3.  Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).  
4.  Homeowner (according to 310 CMR 4.02).

DEP Use Only

Permit No:

Rec'd Date:

Reviewer:

Check Number

Dollar Amount

Date



**Massachusetts Department of Environmental Protection**  
Bureau of Resource Protection - Groundwater Discharge Permits  
**BRP WP 83 Hydrogeologic Evaluation Report**  
**Application Completeness Check List**

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- The MassDEP Transmittal Form is completed. If the applicant is a municipality, "Fee Exempt" has been selected from among the Special Provisions under the Amount Due section of the Transmittal Form.
- The Hydrogeologic Evaluation Report Application Form is properly filled out by the applicant and the consultant engineer and signed in ink.
- A copy of the public notice from the Environmental Monitor that the scope of work has been prepared and submitted to MassDEP in accordance with 314 CMR 5.09 .
- A copy of the Scope of Work and the MassDEP approval letter is included with the application.
- The Hydrogeologic Evaluation Report is included with the application.
- If the site is within the Zone II or Interim Wellhead Protection Area of a ground water source of potable water for a public water system, a notice has been sent to the public water system notifying them that a scope of work and, when appropriate, that the Hydrogeologic Evaluation Report has been submitted to MassDEP in accordance with 314 CMR 5.09.

To submit the application package:

- Checklist items have been completed.
- Send one copy of the application along with one copy from the MassDEP Transmittal form to:

Department of Environmental Protection  
\_\_\_\_\_ \* Regional Office  
Wastewater Management Program  
\*Find your region: [www.mass.gov/dep/about/region/findyour.htm](http://www.mass.gov/dep/about/region/findyour.htm)

- Send one copy of the application along with a photocopy of the MassDEP Transmittal page to:

Department of Environmental Protection  
Wastewater Management Program  
1 Winter Street, Boston, MA 02108

- Send fee of:

\$9,250 for BRP WP 83;

in the form of a check or money order made payable to *Commonwealth of Massachusetts*, along with one copy from the MassDEP Transmittal Form to:

Department of Environmental Protection  
P.O. Box 4062  
Boston, MA 02211





Massachusetts Department of Environmental Protection

Bureau of Resource Protection—Groundwater Discharge Permit Program

BRP WP 83 Application to Prepare a Hydrogeological Evaluation

x250635

Transmittal Number #

Facility ID/Permit # (if known)

B. Project Information (cont.)

4. Improvements - Are you required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to; permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

[x] Yes [ ] No

If yes, answer the following:

Description of order or agreement (include enforcement document number, if applicable):

Groundwater discharge will provide additional flow beyond the existing surface

water discharge permit for the Wayland WWTF. Groundwater discharge will be

constructed and utilized if WWTP capacity exceeds NPDES permitted flow.

Identification No. of Affected Treatment Facility

NPDES Permit No. MA0039853

Description of Project

Final Compliance Date

C. Site Information

1. GPS Coordinates:

a) Enter Latitude and Longitude to the nearest whole second for the proposed site.

Latitude: 42° 21' 38.01" N

Longitude: 71° 21' 34.61" W

b) Provide a narrative description of the site and the feature to be permitted. As an example: "The site is on the west side of Main Street, the third building north of High Street. The disposal field lies 100 feet off the southwest corner of the building."

The site is located at 41 Cochituate Road, to the southeast of the baseball field.

c) Attach a site map based on the MassGIS Coordinate Information Tool that clearly indicates the site. The Coordinate Information Tool is available at http://maps.massgis.state.ma.us/images/dep/xyinfo/get\_xy.html.



**MassDEP**

Massachusetts Department of Environmental Protection

## Coordinate Information Tool

Click on the map and get coordinate information in NAD83 [UTM](#) and WGS84 (Lat/Lon).

Enter Address:

1. Enter a complete street address then click the Search button.
2. If the address search is correct, click to get coordinate information for that location.
3. To refine the map display use the [Map Tools](#) then click on location with the tool.

### Helpful Links

[Priority Resource Map Viewer](#)

[Commonwealth of Massachusetts Office of Geographic Information \(MassGIS\)](#)

**Map Tools:**

**Select Base Map:**



**Massachusetts Department of Environmental Protection**

Bureau of Resource Protection—Groundwater Discharge Permit Program

**BRP WP 83 Application to Prepare a Hydrogeological Evaluation**

X250635

Transmittal Number #

Facility ID/Permit # (if known)

**C. Site Information (cont.)**

- 2. Provide a topographic map or maps of the area extending at least to one mile beyond the property boundaries of the site which clearly show the following:
  - 1) The legal boundaries of the site;
  - 2) All hazardous waste management facilities;
  - 3) All springs and surface water bodies in the area, plus all drinking water wells within one mile of the facility which are identified in the public record or otherwise known to you.
  - 4) All Zone II's or IWPA's.
- 3. Please list any public or private drinking water supply wells within 2,500 feet of the proposed site:

Well Location	Type of Well (Public/Private)	Status (Active/Inactive)	Safe Yield
See Attached Table			

**D. Certification**

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I will be responsible for publication of public notice of the applicable permit proceedings identified under 314 CMR 2.06(1)(a) through (d)."

Signature of Applicant	Fred Knight, Chairman WWMDC
Date Signed	Printed Name of Applicant
Ian B. Catlow, P.E.	508-471-9605
Name of Preparer Project Manager, Tighe & Bond	Telephone ibcatlow@tighebond.com
Title of Preparer	email

## Private Wells

Town	Address	Well Type	Total Depth	Depth to Bedrock	Water Level
Wayland	412 Commonwealth Road	Monitoring	52	14	45
Wayland	Route 20	Monitoring	24	0	14
Wayland	18 Black Oak Road	Irrigation	951	2	30
Wayland	130 Main Street	Monitoring	15	0	8.5
Wayland	6 Barley Lane	Monitoring	16	0	8
Wayland	East Plain Street	Monitoring	8	0	.5
Wayland	Route 20	Monitoring	33	0	31
Wayland	12 Charles Street	Monitoring	35	0	28
Wayland	131 Boston Post Road	Monitoring	27	0	19
Wayland	Route 20	Monitoring	15	0	6
Wayland	533 Boston Post Road	Monitoring	25	0	7
Wayland	Oak Street	Monitoring	53.5	0	6
Wayland	310 Cochituate Road	Monitoring	14	0	7
Wayland	533 Boston Post Road	Monitoring	17	0	6.4
Wayland	19 Main Street	Monitoring	15	0	7
Wayland	9 Gennaro Circle	Domestic	138	117	25
Wayland	11 Gennaro Circle	GTCL	105	90	15
Wayland	10 Gennaro Circle	GTCL	131	118	36
Wayland	356 Boston Post Road	Monitoring	15		8
Wayland	400 Boston Post Road	Monitoring	30		15
Wayland	95 Claypit Hill Road	Irrigation	320	92	30
Wayland	32 Claypit Hill Road	Domestic	685	117	11
Wayland	8 Bennett Road	Irrigation	500	90	35
Wayland	325 Boston Post Road	Monitoring	13	0	6
Wayland	51 Plain Road	Irrigation	260	91	6
Wayland	61 Old Sudbury Road	Irrigation	160	93	40
Wayland	304 Boston Post Road	Monitoring	20	0	12
Wayland	397 Boston Post Road	Irrigation	900	60	20
Wayland	4 Plain Road	Monitoring	18		11

Source: MassDEP SearchWell website (<http://public.dep.state.ma.us/searchwell/>), 2012

W-1396  
November 16, 2011

Mr. H. Criss Stephens  
Massachusetts Department of Environmental Protections  
Northeast Regional Office  
205B Lowell Street  
Wilmington, MA 01887

Re: **Groundwater Discharge Permitting Services  
Wayland, Massachusetts**

Dear Mr. Stephens:

Tighe & Bond is submitting the following scope of work, description of project, and conceptual layout of the effluent disposal area, on behalf of the Town of Wayland. The project site is located under the playing fields adjacent to the Town offices off of Cochituate Road. This area has been identified as a potential effluent discharge site due to its proximity to the Town's new treatment facility, mapped soil conditions, and Town ownership of the land. Enclosed please find Figure 1: USGS Site Locus identifying the site location.

This effluent disposal area is intended to accommodate flows in excess of the existing wastewater treatment facility's NPDES permitted flow rate of 52,000 gpd. In order to accommodate the flows exceeding the NPDES flow rate, the disposal area will need to handle approximately 30,000 gallons per day. However, the entire site will be evaluated to determine the total discharge capacity.

The wastewater will be discharged from the wastewater treatment plant that is currently under construction. This facility is designed utilizing membrane bioreactor (MBR) technology. As discussed in our scoping meeting on November 15, 2011, due to the high level of treatment from the MBR, the reserve area for the disposal area can be reduced by fifty percent (50%).

According to 310 CMR 15.0, projects with flows in excess of 10,000 gpd are required to permit discharge facilities under the Groundwater Discharge Program. Since the projected flow of this project exceeds the 10,000 gpd threshold, it is subject to the Groundwater Discharge Program and the program's regulations found at 314 CMR 5.0.

### **Scope of Hydrogeologic Evaluation**

Tighe & Bond will be performing the following scope of study in preparation of a Hydrogeologic Evaluation Report and Groundwater Discharge Permit application.

Tighe & Bond will initiate the project by performing a site visit and evaluate existing test pit logs and percolation test data from adjacent parcels to make a preliminary determination regarding the potential suitability and location of an on-site wastewater discharge facility. This characterization will be supplemented by a single day of test pit excavation performed at the site in the presence of a DEP inspector and the local Health Agent. Enclosed please find Figure 2: Test Pit Locations for proposed test pit locations, which are subject to change upon commencement of work. Percolation tests will be performed in areas where suitable soils are encountered. We anticipate collecting soil samples for laboratory grain size



distribution analysis that will later be used to estimate hydraulic conductivity and groundwater mounding potential.

Published soils and geologic data will be reviewed to characterize regional soil conditions and identify potential downgradient receptors.

Following the initial round of test pitting, we will utilize the collected field data to develop a conceptual leachfield layout which will establish the preliminary wastewater disposal capacity of the Site. After consultation with the Town and DEP, we will refine the conceptual layout and perform the additional work necessary for the Hydrogeologic Evaluation Report. The evaluation will be performed in accordance with the requirements of the Massachusetts Groundwater Discharge Permit Regulations (314 CMR 5.00), Title 5 (310 CMR 15.00), and the Guidelines for the Permitting, Design, Construction, and Operation of Small Wastewater Treatment Plants (DEP, 2004). The following tasks will be performed to complete the hydrogeologic evaluation.

Soil Borings and Monitoring Wells - Up to five (5) soil borings will be performed in the vicinity of the proposed soil absorption system and reserve area to better evaluate conditions under the proposed discharge system. The purpose of these borings and wells will be to obtain information on the subsurface geology, including the character of the overburden, the water table elevation, the groundwater flow direction and the depth to bedrock. All drilling will be performed using continuous split spoon sampling and all borings will be completed as monitoring wells in accordance with DEP guidelines.

Well Survey and Groundwater Level Monitoring - Tighe & Bond will coordinate a survey of the relative locations and elevations of the monitoring wells and test pits with the Town Surveyor. Water levels in the wells will be measured by Tighe & Bond staff and a groundwater contour map will be developed from the data. This information will be used to evaluate the depth to seasonal high groundwater and the direction of regional groundwater flow. In-situ permeability testing will be performed in each of the wells for use in determining the ultimate effluent discharge capacity. Data developed under this task will be used in conjunction with soil boring logs to develop geologic cross sections through the proposed disposal area.

Groundwater Quality Analysis - Groundwater samples will be collected from the wells in the vicinity of the primary disposal area. Laboratory analysis will evaluate the following parameters in all four wells: total alkalinity, specific conductance, total dissolved solids, total suspended solids, chloride, pH, ammonia, nitrite nitrogen, nitrate nitrogen, Total Kjeldahl Nitrogen, total phosphorous and orthophosphate. In addition to these compounds, one (1) well will be sampled for EPA Priority Pollutant Metals and volatile organic compounds (EPA 624).

This information will be used to characterize existing groundwater conditions and establish a water quality baseline. Information related to nitrogen based compounds will be used to evaluate the potential for the groundwater transport of nitrogen compounds once the wastewater treatment plant is operational on the site.

Identification of Downgradient Receptors - Down gradient groundwater receptors will be identified through a review of existing information and by communicating with MADEP, the Wayland Board of Health and the Wayland Water Department. Specific items of interest will

include existing and proposed public water supplies, private groundwater supplies, and surface water features.

Hydrogeologic Evaluation Report - The data gathered during the completion of the above tasks will be used to characterize groundwater quality and assess the capacity of the site for the subsurface disposal of treated wastewater. Potential impacts of the discharge and methods to mitigate these impacts will be developed from this information. Groundwater mounding potential under the recharge area will be evaluated using the Hantush Method and the aerial extent of the mound will be determined using the Glover Method. The results of the site investigation and hydrogeologic analysis will be presented in a Hydrogeologic Evaluation Report. This report will be prepared in a format that is acceptable for submission to DEP as part of the Groundwater Discharge Permit Application.

Please contact the undersigned if you have any questions or issues at (508) 471-9644 or [KLKing@tighebond.com](mailto:KLKing@tighebond.com).

Very truly yours,

**TIGHE & BOND, INC.**



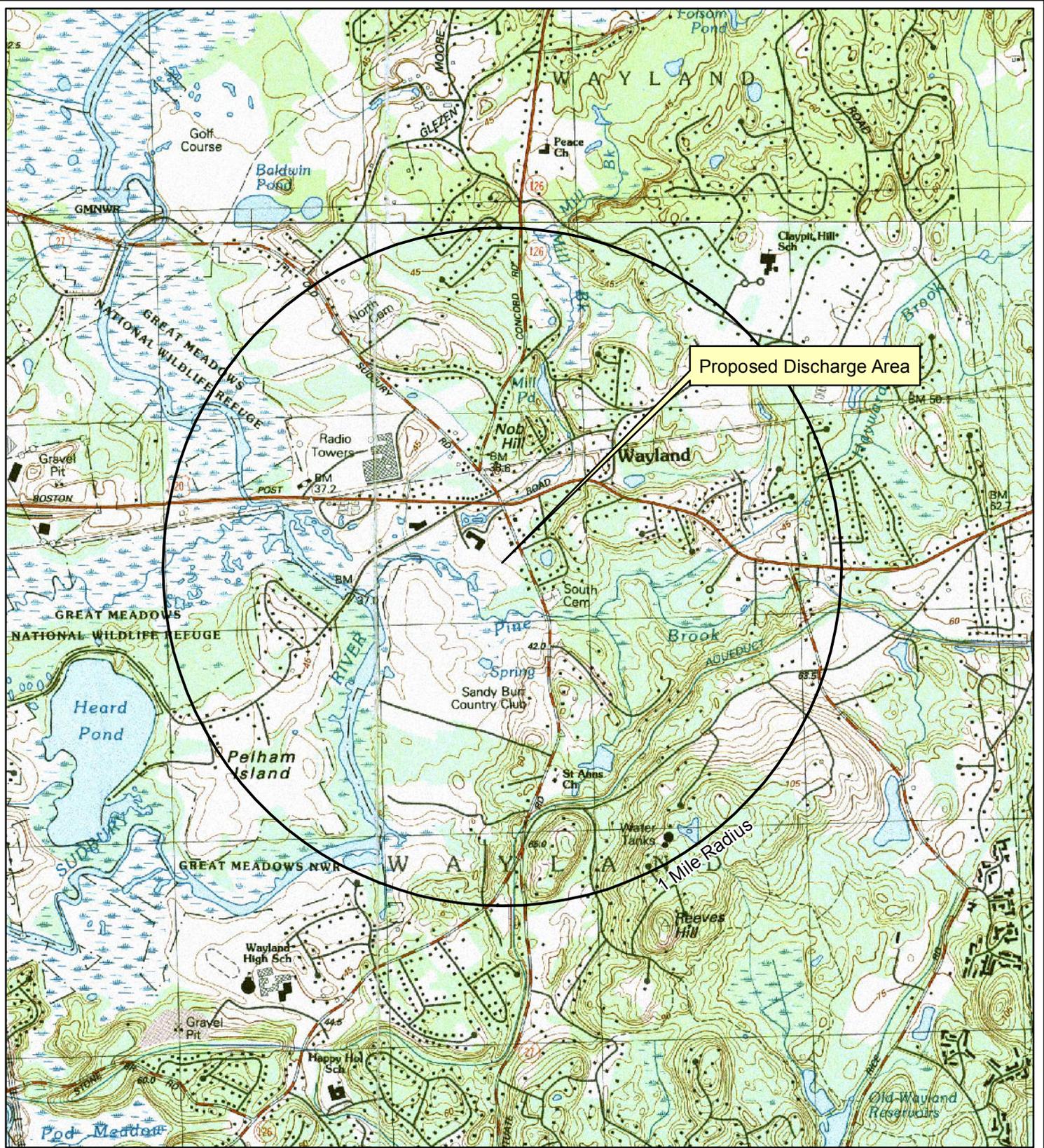
Karla L. King, P.E.  
Project Engineer

Enclosures: Figure 1: USGS Site Locus Map  
Figure 2: Test Pit Locations

Copy: Ian Catlow, P.E., Tighe & Bond (w/encl)  
John Moynihan, Public Buildings Director, Town of Wayland

J:\W\W1396 Wayland\Hydrogeologic Report\Ltr Massdep H Criss Stephens\_Groundwater Discharge\_110611.Doc

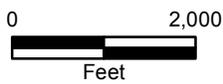




Proposed Discharge Area

1 Mile Radius

1:25,000



### FIGURE 1 SITE LOCUS MAP

Wayland Town Offices  
Wayland, Massachusetts

**Tighe&Bond**

November, 2011

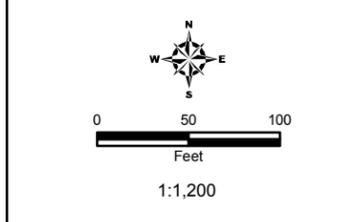
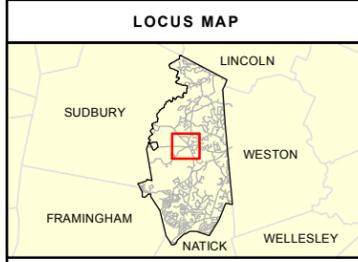
Based on USGS Topographic Map for Natick, MA Quadrangle. Revised 1987  
Circle indicates a 1 mile radius



**FIGURE 2  
TEST PIT LOCATIONS**

**LEGEND**

 Test Pits



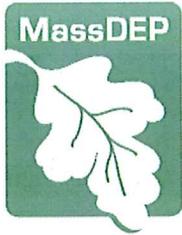
**NOTES**

1. Based on MassGIS Color Orthophotography (April 2008)  
Orthophoto Sheet ID # 21179020

Wayland Town Offices  
Wayland, Massachusetts

August 2011





Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

## Department of Environmental Protection

Northeast Regional Office • 205B Lowell Street, Wilmington MA 01887 • 978-694-3200

DEVAL L. PATRICK  
Governor

TIMOTHY P. MURRAY  
Lieutenant Governor

RICHARD K. SULLIVAN JR.  
Secretary

KENNETH L. KIMMELL  
Commissioner

Karla L. King, P.E.  
Project Engineer  
Tighe & Bond, Inc.  
446 Main Street  
Worcester, MA 01608

January 23, 2012

RE: Hydrogeologic Scope of Work/Approval  
Town Office Ball Fields  
Wayland, Massachusetts

Dear Ms. King:

The Massachusetts Department of Environmental Protection (MassDEP) has completed its review of the hydrogeologic scope of work prepared and submitted by your office to support a future groundwater discharge application for wastewater effluent disposal at the Town Office Ball Fields located off Cochituate Road in Wayland, Massachusetts. The document is dated November 16, 2011 and outlines the tasks that will be completed to assess the soil and groundwater conditions at the proposed discharge location. The information gathered during this investigation will be used to determine the suitability of the site for a discharge of approximately 30,000 gallons per day of treated sanitary effluent.

A public notice announcing the preparation of the scope of work and its submission to MassDEP was published in the *Environmental Monitor* on December 21, 2011. As of this date, MassDEP has not received any public comments regarding the submitted scope of work. Additionally, a pre-application/pre-scoping meeting to discuss the proposed project and scope of work was conducted at the Northeast Regional Office on November 15, 2011.

MassDEP has determined that the Tighe & Bond, Inc. (T&B) submission is complete and hereby approves its scope of work subject to the following conditions:

- Upon the completion of the activities outlined in the approved scope of work, T&B shall prepare and submit a hydrogeologic evaluation report to MassDEP. A MassDEP Transmittal Form and a complete BRPWP 83 application shall accompany the report.

The report shall comply with the requirements outlined in the Hydrogeologic Evaluation Report Guidance that accompanies the BRPWP 83 application packet. T&B shall contact MassDEP to discuss hydrogeologic report requirements that may not be applicable to this project.

- T&B shall identify potential downgradient sensitive receptors that may be impacted by the proposed discharge and assess the current groundwater and surface water quality in the vicinity of the proposed discharge. Additionally, T&B shall discuss any anticipated impacts to these receptors and to overall downgradient groundwater/surface water quality.
- T&B shall evaluate the potential groundwater mounding impacts to basements and septic systems of nearby residences located north, east and west of the proposed discharge location.
- T&B's hydrogeological evaluation report documenting the results of the proposed investigation shall include the following:
  - A surveyed site plan prepared and stamped by a professional engineer. At a minimum the surveyed site plan will identify and document;
    - The locations/footprints of the primary and reserve disposal areas,
    - The locations of all test pits and percolation tests conducted as part of the hydrogeological investigation,
    - The locations and top-of-casing/top-of-PVC elevations of all borings/monitoring wells installed as part of the investigation, and
    - The proposed locations of monitoring wells to be installed as part of the approved groundwater monitoring plan.

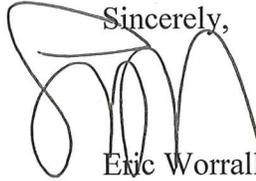
This surveyed site plan, along with an approved maximum daily discharge volume, will be referenced in MassDEP's Site Approval Letter. Any soil absorption system installed at the site shall be constructed within the footprint indicated on the plan and the discharge volume limited to that contained within the Site Approval Letter.

- A groundwater monitoring well plan capable of identifying and assessing any impacts to groundwater flow and quality resulting from a discharge of effluent at the approved location. Monitoring wells installed as part of the site investigation may be utilized provided they are appropriately located and constructed in accordance with MassDEP's *Standard References for Monitoring Wells*. Additional well locations shall be proposed if needed to monitor impacts to nearby sensitive receptors.

- T&B shall notify the Northeast Regional Office at least one week prior to conducting any significant, on-site field work so that a MassDEP representative may be present if necessary.

If you have questions regarding the comments and conditions of this approval, please contact Criss Stephens of my staff at 978-694-3241.

Sincerely,



Eric Worrall  
Deputy Regional Director  
Bureau of Resource Protection

EW/HS/hs

cc: Fred Turkington/Town of Wayland  
John Moynihan/Town of Wayland  
Fred Knight/Wayland Wastewater Management District Commission  
Marybeth Chubb/MassDEP/Boston  
Greg Tomaszewski/MassDEP/NERO