

Leicester Fire and EMS Headquarters Stormwater Improvements

Leicester, Massachusetts

PREPARED FOR

Town of Leicester
3 Washburn Square,
Leicester, MA 01524

PREPARED BY



120 Front Street, #500
Worcester, MA 01608
508.752.1001

March 2021

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March 2021



Table of Contents

| | | |
|----------|---|-----------|
| 1 | Request for Determination of Applicability Forms | v |
| 2 | Request for Determination of Applicability Figures | vi |
| 3 | Attachment A - Request for Determination of Applicability Narrative..... | 1 |
| | Introduction | 1 |
| | Site Description | 2 |
| | Wetland Resource Areas..... | 2 |
| | Wetland 1..... | 3 |
| | Buffer Zone | 3 |
| | Work Description..... | 3 |
| | Project Impacts..... | 4 |
| | Mitigation Measures | 5 |
| | Erosion and Sediment Control | 5 |
| | Stormwater Management | 5 |
| | Regulatory Compliance..... | 6 |
| | Work in Buffer Zone | 6 |
| | Summary..... | 6 |



Request for Determination of Applicability Forms

› WPA Form 1



Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

Leicester

City/Town

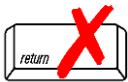
WPA Form 1- Request for Determination of Applicability

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:

David A. Genereux - Town of Leicester Town Administrator

Name

genereuxd@leicesterma.org

E-Mail Address

3 Washburn Square

Mailing Address

Leicester

City/Town

MA

State

01524

Zip Code

(508) 892-7000

Phone Number

(508) 892-7070

Fax Number (if applicable)

2. Representative (if any):

VHB

Firm

Jay Quattrocchi

Contact Name

jquattrocchi@vhb.com

E-Mail Address

101 Walnut Street, PO Box 9151

Mailing Address

Watertown, MA

City/Town

MA

State

02472

Zip Code

(617)-607-1708

Phone Number

Fax Number (if applicable)

B. Determinations

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

- ☐ 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).



Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

Leicester

City/Town

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):

3 Paxton Street, Gleason Way, and Warren Ave.

Street Address

Leicester

City/Town

19B

Assessors Map/Plat Number

E9.1.0

Parcel/Lot Number

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

The Project Site is approximately 1.91 acres and located along Paxton Street. The Leicester Fire and EMS Headquarters (approximately 20,000 square feet) is located on-site. Topography on-site generally slopes in a westerly direction. The surrounding area is generally characterized by residential properties. Gleason Way and Warren Avenue are located approximately 250 feet to the west/northwest.

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

Town of Leicester Fire & EMS Headquarters Stormwater Improvements

Title

March 25, 2021

Date

Title

Date

Title

Date

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

The Applicant is proposing stormwater improvements to the Leicester Fire and EMS Headquarters property located at 3 Paxton Street (the Project Site) and additional improvements to Warren Avenue and Gleason Way (the Project). Improvements to the Project site will include raising the bottom of the on-site stormwater basins above seasonal high groundwater; lateral expansion of on-site stormwater basins; designing the basins as detention basins, including installation of a new pipe discharging from the Project Site through an easement on 22 Warren Avenue; and installation of a drainage trunkline on Warren Ave and Gleason Way, discharging through an easements on 5 Gleason Way and 14 Harberton Drive. Proposed work will occur in the 100-foot buffer zone (buffer zone) to Bordering Vegetated Wetlands (BVW).



Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

Leicester

City/Town

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).

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.)



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

Leicester
City/Town

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:

David A. Genereux - Town of Leicester Town Administrator

Name

3 Washburn Square

Mailing Address

Leicester

City/Town

Massachusetts

State

01524

Zip Code

Signatures:

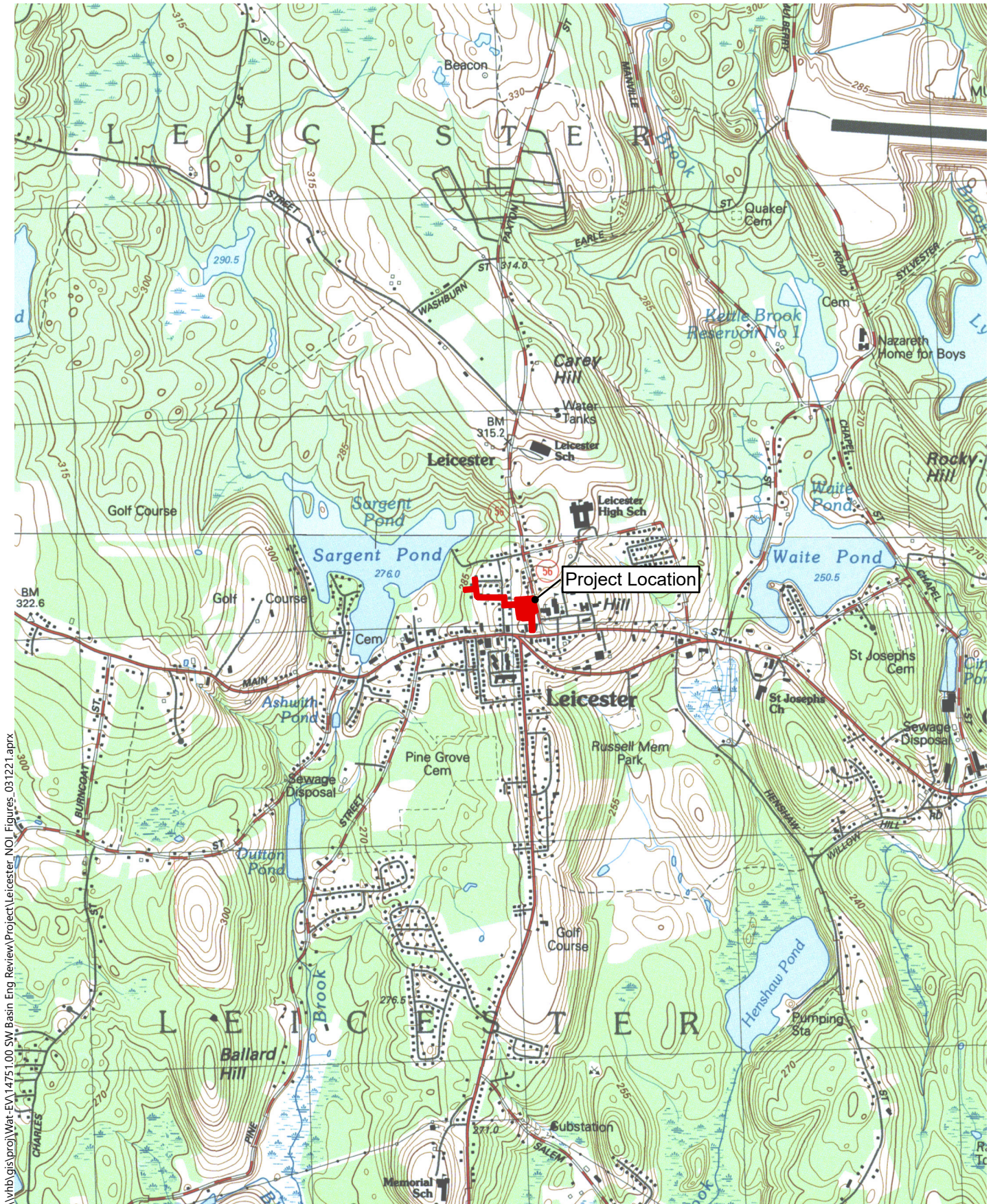
I also understand that notification of this Request will be placed in a local newspaper at my expense in accordance with Section 10.05(3)(b)(1) of the Wetlands Protection Act regulations.

Signature of Applicant

Date

Signature of Representative (if any)

Date



\\vhb\gis\proj\Wat-EV\14751.00 SW Basin Eng Review\Project\Leicester NOI Figures_031221.aprx



0 1000 2000 4000 Feet

Fire & EMS Headquarters Stormwater Improvements | Leicester, MA

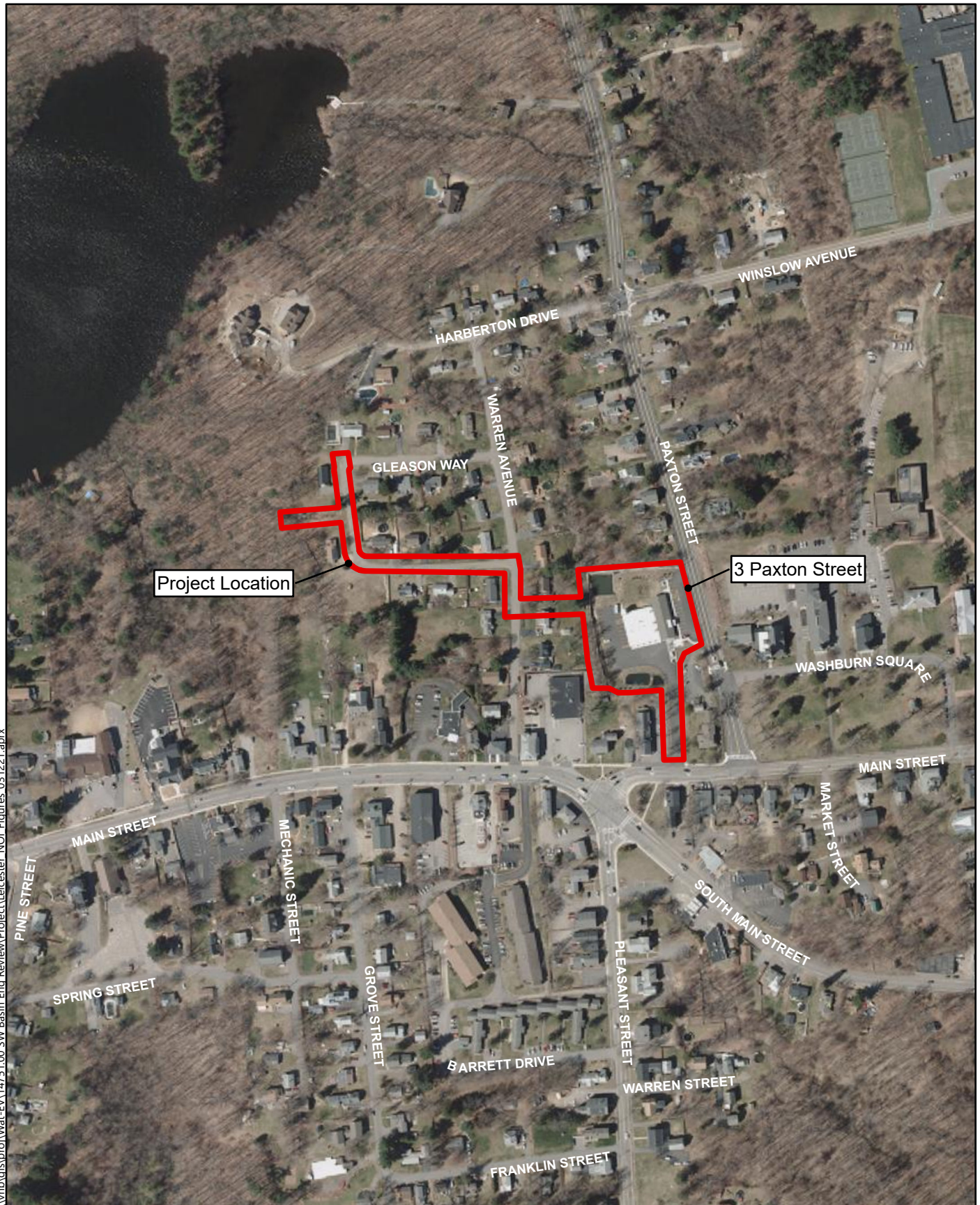
Legend



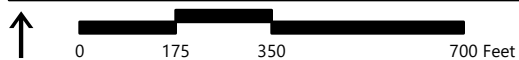
Project Location

Figure 1 - USGS Locus Map

Source Info: USGS, MassGIS, VHB



\\vhb\gis\pro\Wat-EV\14751.00 SW Basin Eng Review\Project\Leicester NOI Figures 031221.aprx



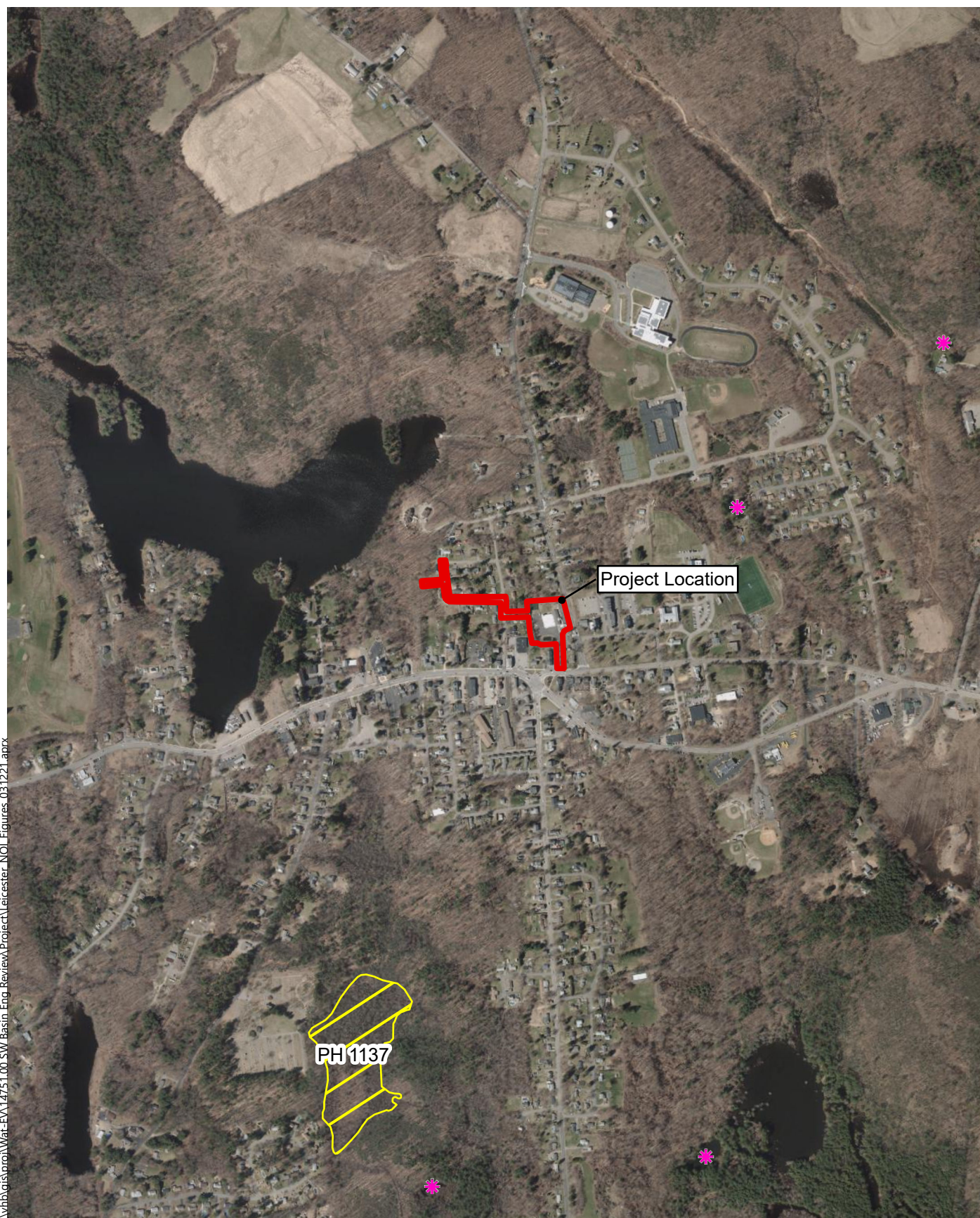
Fire & EMS Headquarters Stormwater Improvements | Leicester, MA

Legend

 Project Location

Figure 2 - Aerial Map

Source Info: USGS, MassGIS, VHB



0 500 1000 2000 Feet

Fire & EMS Headquarters Stormwater Improvements | Leicester, MA

Legend

Project Location

NHESP Priority Habitats of Rare Species

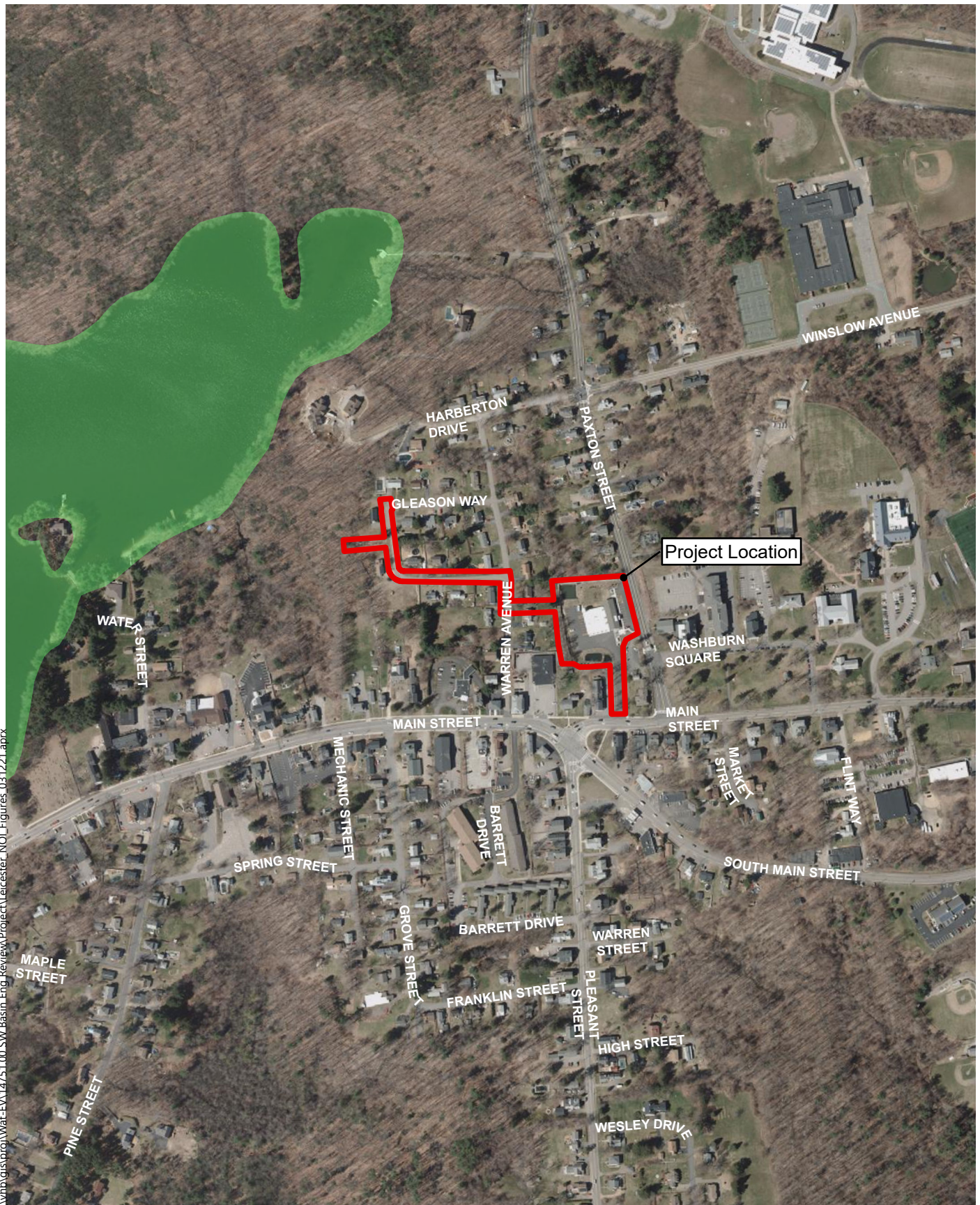
NHESP Estimated Habitats of Rare Wildlife - None Present

NHESP Potential Vernal Pools

NHESP Certified Vernal Pools - None Present

Figure 3 - NHESP Map

Source Info: USGS, MassGIS, VHB



Fire & EMS Headquarters Stormwater Improvements | Leicester, MA

Legend

 Project Location

FEMA Flood Zone Designations


 A: 1% Annual Chance of Flooding, no BFE

Figure 4 - FEMA Map
Source Info: USGS, MassGIS, VHB

Attachment A

Request for Determination of Applicability Narrative

- › Introduction
- › Site Description
- › Wetland Resource Areas
- › Work Description
- › Project Impacts
- › Mitigation Measures
- › Regulatory Compliance
- › Summary

Attachment A - Request for Determination of Applicability Narrative

On behalf of the Town of Leicester (the Applicant), Vanasse Hangen Brustlin, Inc. (VHB) is submitting this Request for Determination of Applicability (RDA) pursuant to the Massachusetts Wetlands Protection Act (WPA) (MGL Chapter 131, Section 40) and its implementing regulations (310 CMR 10.00).

Introduction

The Applicant is proposing stormwater improvements to the Leicester Fire and EMS Headquarters located at 3 Paxton Street (the Project Site) and additional stormwater improvements to Warren Avenue and Gleason Way (the Project).

Proposed improvements to the Project site will include raising the bottom of the two stormwater basins above seasonal high groundwater; lateral expansion of the stormwater basins; redesigning the basins as detention basins, which will include installation of a new pipe discharging from the Project Site through an easement on 22 Warren Avenue; and installation of a drainage trunkline on Warren Ave and Gleason Way, discharging through easements on 5 Gleason Way and 14 Harberton Drive. Proposed work will occur in the 100-foot buffer zone (buffer zone) to Bordering Vegetated Wetlands (BVW). No work is proposed in wetland resource areas.

Since the completion of the Project Site in 2017, the two on-site infiltration basins and sediment forebays have been unable to dewater through infiltration, resulting in permanent pools of water in the basins. As a result, less storage is available during storm events, and stormwater overtops the basin in the northwest corner of the site, discharging onto adjacent properties. Owners of the adjacent properties west of the site have reported an increase in water on these properties. To minimize discharge onto the adjacent properties and to maximize storage available during storm events, Fire & EMS staff have utilized submersible pumps to dewater the basins, pumping the water into catch basins located in Paxton Street and Main Street.

In 2020, the Applicant hired VHB to perform extensive testing and review of the existing stormwater system. VHB determined that the above issues resulted from high groundwater and impermeable soils below the basins. VHB has been contracted by the Applicant to redesign the existing on-site stormwater system to eliminate the standing water.

Wetland resource areas will be protected from impacts during construction through the implementation of an erosion and sedimentation control plan. The erosion and sedimentation controls will minimize areas of disturbance, as will phasing and sequencing of the work. Runoff generated from the Project will be collected and treated in accordance with design guidelines developed by the Massachusetts Department of Environmental Protection (MassDEP) and standards contained within the WPA Regulations.

Site Description

The Project Site is approximately 1.91 acres and located along Paxton Street. The Leicester Fire and EMS Headquarters consists of an approximately 19,000-square-foot building, parking areas, and landscaping. Topography on-site typically slopes in a westerly direction. The surrounding area is generally characterized by residential properties. Gleason Way and Warren Avenue are located approximately 250 feet to the west/northwest.

The existing stormwater management system includes two infiltration basins, one in the northwest corner of the site (Infiltration Basin 1) and one to the south of the building (Infiltration Basin 2).

The Natural Resources Conservation Service¹ (NRCS) soil survey has mapped the soils on the Project Site as Paxton fine sandy loam. The most recently issued Flood Insurance Rate Map (FIRM) for the area indicates that proposed work will not occur in a 100-year floodplain (Figure 2)². Wetland resource areas within the Project Limits are described below.

According to the MassGIS website³, proposed work will not occur within Natural Heritage and Endangered Species Program (NHESP) Estimated Habitat of Rare Wildlife or Priority Habitat for Rare Species (Figure 3). There are no potential or certified vernal pools within 100 feet of the Project. No portion of the Project Limits is located within an Area of Critical Environmental Concern (ACEC). According to MassDEP, the Project is not located in an area designated as an Outstanding Resource Water⁴.

Wetland Resource Areas

Wetland resource areas in the vicinity of the Project Limits were delineated on 05/15/2020 and 12/03/2020 by VHB wetland scientists in accordance with methods developed by the DEP⁵ and the U.S. Army Corps of Engineers⁶. The following sections of this narrative describe the wetlands and identify resource areas that are regulated under the WPA Regulations (310 CMR 10.00). Wetlands adjacent to the Project Site are summarized in the table below and are described in more detail in the following sections

¹ Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey.

² FEMA Floodway Map Number 25027C0781E, dated July 4, 2011, Federal Emergency Management Agency, National Hazard Flood Layer, Digital Flood Insurance Rate Map (DFIRM).

³ MassGIS (Bureau of Geographic Information), Commonwealth of Massachusetts EOTSS, December 2018 (http://maps.massgis.state.ma.us/map_ol/oliver.php)

⁴ DEP, 2010. Designated Outstanding Resource Waters of Massachusetts.

⁵ DEP, 1995. *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act*.

⁶ USACE, 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0*.

of this attachment. These resource areas are defined under the WPA Regulations as follows:

Bordering Vegetated Wetland (BVW): As defined at 310 CMR 10.55 (2), BVWs are freshwater wetlands, which border on creeks, rivers, streams, ponds, and lakes. The boundary of BVW is determined by 50 percent or more wetland indicator plants and evidence of hydrology.

Table 1: Wetland Resource Areas

| Wetland | Type | Resource Areas |
|---------|---|----------------|
| 1. W1 | Forested wetland and an intermittent stream | BVW and Bank |

Source: VHB, 2021.

Wetland 1

Wetland 1 is a forested palustrine wetland abutting the Project Site to the north. The wetland is between the residences on Warren Avenue, Harberton Drive, and Paxton Street. The wetland is connected to an unnamed intermittent stream via culvert, which is between 7 Harberton Drive and 32 Warren Avenue. The stream then crosses Harberton Drive at the east side of 13 Harberton Drive and eventually discharges into Sargent Pond.

The wetland receives stormwater drainage from the adjacent residences and Warren Avenue. The tree layer is dominated by red maple (*Acer rubrum*). The shrub layer is dominated by highbush blueberry (*Vaccinium corymbosum*), and silky dogwood (*Cornus amomum*). The wetland was demarcated with pink survey flagging. Observed wetland soils consisted of fine sandy loam with a chroma of 2 or less, which is consistent with the soil type listed by NRCS (Paxton fine sandy loam). Topography was generally flat throughout the wetland with a slight gradient to the north/northwest.

Bank of the unnamed intermittent stream was demarcated with blue survey flagging.

Resource areas regulated under the WPA.

Buffer Zone

The WPA regulations (310 CMR 10.02(2)(b)) establish a 100-foot buffer zone from the limits of BVW. The buffer zone within the project limits is comprised of forested uplands, impervious paved roadway, stormwater management structures, and residences.

Work Description

The Applicant is proposing to retrofit the existing stormwater management system at the Project Site to help alleviate the flooding on-site and on abutting properties.

Proposed work will include raising the bottom of both the infiltration basins to be above the groundwater table and installing outlet control structures to manage the basin

overflow, effectively converting the infiltration basins into detention basins. Infiltration Basin 2 (now Detention Basin 2) is to be retrofitted with an outlet control structure to discharge to the closed drainage on the Site. Infiltration Basin 1 (now Detention Basin 1) is to be expanded to create additional storage required to attenuate peak flows and has an outlet control structure that discharges to the closed drainage on site. The closed drainage will be routed through an abutting property via an easement, out to Warren Avenue and Gleason Way, through additional easements, and eventually to a flared end outfall with riprap apron and level spreader to distribute the flow and dissipate velocities to the wooded area adjacent to Sargent Pond.

In addition to the basin modifications, VHB proposes to minimize the flows to DP-1 by collecting runoff from the upper parking lot, east of the building, via a new catch basin and connecting it to the municipal drainage system in Paxton Street. VHB also proposes re-routing a portion of the roof runoff from the drainage swale on the northern side of the site to the municipal drainage system in Paxton Street. Diverting this flow will reduce the rate and quantity of flow tributary to the lower end of the site, which will minimize the amount of earthwork required to create additional storage required in the basin in the northwest corner of the site.

Project Impacts

Proposed work within buffer zone will include temporary and permanent improvements. No work is proposed within wetland resource areas.

Permanent improvements within buffer zone are related to improvements to the stormwater basins and include the following:

- Removal of approximately 540 cubic yards of soils and material from the on-site basins and
- Addition of approximately 900 cubic yards of soil and stone

Temporary impacts within buffer zone include the following:

- Excavation associated with the installation of 55 linear feet of the new 18-inch pipe, connecting the stormwater basins to a new drainage trunkline on Warren Avenue, through the property located at 22 Warren Avenue. Work will occur within grassed areas, which will be reseeded upon installation of the pipe.
- Excavation associated with the drainage trunkline on Warren Ave and Gleason Way, discharging through easement on 5 Gleason Way and 14 Harberton Drive. Work within buffer zone related to this task will be restricted to previously developed areas within the roadways.

Heavy equipment (excavators, dump trucks, etc.) will be utilized in the removal, excavation, and installation activities.

There will be no degradation of the existing functions and values of on-site wetland resources or buffer zone. No new impervious surface is proposed. Mitigation Measures

The Applicant is proposing a suite of mitigation measures to prevent short- and long-term impacts to buffer zone and wetland resource areas during construction. Mitigation measures proposed for this project include structural and non-structural practices.

Erosion and Sediment Control

The Applicant will implement an erosion and sedimentation control program to minimize temporary impacts to wetland resource areas during the construction phase of the Project. The program incorporates BMPs specified in guidelines developed by the MassDEP⁷ and the U.S. Environmental Protection Agency (EPA).⁸

Proper implementation of the erosion and sedimentation control program will:

- minimize exposed soil areas through sequencing and temporary stabilization;
- place structures to manage stormwater runoff and erosion; and,
- establish a permanent vegetative cover or other forms of stabilization as soon as practicable.

Non-structural practices to be used during construction will include permanent seeding. Structural erosion and sedimentation controls to be used on the site will include erosion control barriers consisting of compost filter tubes and silt fence and catch basin inlet protection (silt sacks). Erosion and sediment controls will be installed prior to commencement of construction activities and removed once the project has been completed. In addition, spill kits will be on-hand at all times during construction.

Stormwater Management

The Project is considered a redevelopment as it is a retrofit and fully comply with Stormwater Standards 1, 7, 8, 9 & 10 and to the maximum extent practicable with Stormwater Standards 2 thru 6. All proposed Project stormwater outlets and conveyances have been designed to not cause erosion or scour to wetlands or receiving waters. The outlet from the closed drainage system has been designed with flared end sections, stone protection, and a level spreader to dissipate discharge velocities and protect downgradient areas from erosion. The Project is seeking relief under Stormwater Management Standard 7 and as such complies with Standard 2 (Peak Attenuation Rate) to the maximum extent practicable.

⁷ DEP, 1997. *Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas: A Guide for Planners, Designers, and Municipal Officials*.

⁸ EPA, 2007. *Interim Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Sites*. Office of Water. Report EPA 833-R-060-04.

Table 2: Peak Discharge Rates (cfs)

| Design Point | 2-year | 10-year | 25-year | 100-year |
|-------------------------------------|--------|---------|---------|----------|
| Design Point 1: Sargent Pond | | | | |
| Existing | 10.63 | 16.79 | 21.44 | 62.10 |
| Proposed | 13.81 | 23.31 | 30.64 | 50.97 |
| Design Point 2: Main Street | | | | |
| Existing | 0.80 | 1.64 | 2.34 | 3.80 |
| Proposed | 0.12 | 0.23 | 0.32 | 0.51 |

The Stormwater Memorandum and supporting calculations are included in Attachment C.

Regulatory Compliance

Proposed construction activities will occur within buffer zone to BVW. No work is proposed within wetland resources. The Project complies with the general provisions of the regulations as they pertain to work in buffer zone.

Work in Buffer Zone

As identified in 310 CMR 10.53(1) of the WPA regulations, *“the issuing authority should consider the characteristics of the buffer zone, such as the presence of steep slopes, that may increase the potential for adverse impacts on resource areas. Conditions may include limitations on the scope and location of work in the buffer zone as necessary to avoid alteration of resource areas. The issuing authority may require erosion and sedimentation controls during construction, a clear limit of work, and the preservation of natural vegetation adjacent to the resource area and/or other measures commensurate with the scope and location of the work within the buffer zone to protect the interests of the Act.”*

The proposed Project has been designed to address these requirements. As identified in the Mitigation Measures section of the narrative, an erosion and sedimentation control program will be implemented to prevent adverse impacts during construction. Areas of temporary disturbance will be minimized to the maximum extent practicable and will be restored in place to their original conditions and stabilized to prevent future erosion and degradation.

A clear limit of work is shown on the Project plans and natural vegetation in the vicinity of wetland resources will be retained.

In addition, the proposed stormwater improvements will result in increased storage capacity within buffer zone. No new impervious surfaces are proposed in buffer zone.

Summary

The Applicant is proposing stormwater improvements to the Leicester Fire and EMS Headquarters and adjacent portions of Warren Avenue and Gleason Way. The proposed

stormwater improvements will help increase on-site stormwater storage capacity on the Project Site and alleviate flooding on adjacent properties.

Proposed work will occur in buffer zone; however, no work is proposed within wetland resource areas. There will be no degradation of the existing functions and values of the buffer zone or wetland resources. No new impervious surfaces are proposed, and the Project has been designed comply with the applicable WPA regulations. Erosion and sedimentation controls will be utilized throughout construction to help prevent impacts to buffer zone and wetland resource areas.

The Applicant respectfully requests that the Leicester Conservation Commission find these measures adequately protective of the interests identified in the WPA and issue a negative determination allowing the work to proceed as described in this RDA and shown on the accompanying plans.

Attachment B

Project Plans (Attached Separately)

› Leicester Fire and EMS Plans

Attachment C
Stormwater Memorandum (Attached
Separately)