


Legacy Farms

Hopkinton,
Massachusetts


Prepared for **Legacy Farms LLC**
Weston, Massachusetts

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ANRAD Forms



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- WPA Form 4A
 - Bylaw Filing Fee Calculation Worksheet

ANRAD Figures



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Attachment A

ANRAD Narrative



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- Introduction
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Attachment A

ANRAD Narrative

This Abbreviated Notice of Resource Area Delineation (ANRAD) is filed under the Wetlands Protection Act (MGL Chapter 131, Section 40) and the Town of Hopkinton Wetlands Protection General Bylaw (Chapter 206).

Introduction

Legacy Farms LLC, a real estate development company located in Weston, Massachusetts, recently purchased a large portion of the Weston Nurseries property in Hopkinton, Massachusetts. The property contains and abuts a variety of natural resources that are protected under combination of local, state and federal regulatory programs. To assist in ongoing planning and design efforts, the applicant is seeking to formally establish the limits of these resources. Subject to the disposition of this ANRAD, Legacy Farms LLC intends to develop the property into, a mixed use development which will enhance and preserve more than 70% of the site.

This ANRAD is submitted to obtain the Hopkinton Conservation Commission's concurrence with the boundaries and regulatory jurisdiction of wetland resources that have been delineated on the property. No site work or development activities are proposed at this time. This attachment provides a general description of the site and the resource areas. Documentation supporting the delineated boundaries and resource area characterizations is provided in subsequent attachments.

Site Description

The subject of this ANRAD is a 708-acre (\pm) site is located in Hopkinton, Massachusetts (Figure 1) that is bisected by Route 135 (East Main Street). The northern portion is approximately 407 acres and is roughly bounded by Howe Street and the Ashland town boundary to the north, Frankland Road and undeveloped land to the east and Wilson Street to the west. The southern portion is approximately 301 acres and includes land located east and west of Clinton Street. It is bounded by the Ashland town boundary to east and undeveloped land to the south and west.

The northern portion of the site consists of a broad hill. Elevation on this portion of the property ranges from approximately 500 feet to 324 feet (NGVD datum) at the summit of the hill and Howe Street, respectively. Elevation on the southern portion

ranges from approximately 364 feet to 275 feet at East Main Street and the southwest corner of the property, respectively. The southern portion slopes gently to the south and west.

According to the regional survey¹, soils mapped at the property include Udorthents and the Charlton, Freetown, Haven, Hinckley, Hollis, Merrimac, Montauk, Narragansett, Paxton, Ridgebury, Scarboro, Scituate, Swansea, Whitman, Windsor and Woodbridge series. The Freetown, Ridgebury, Scarboro, Swansea and Whitman series consist of muck or mucky loams that form in wetlands. The Charlton, Hollis and Narragansett series are part of rock outcrop complexes that develop from glacial till. The Montauk, Paxton, Scituate and Woodbridge series consist of sandy loams that are associated with glacial till. The Haven, Hinckley, Merrimac and Windsor series form in glacial outwash deposits.

The majority of the property has been actively utilized by Weston Nurseries for many decades. These areas consist of maintained plots that are used to grow stock, and flat pads that are occupied by greenhouses, gravel pits, and compost mixing areas (Figure 2). The plots and pads are encircled by a network of gravel and paved roads. Unaltered upland areas on the site consist of second growth forest. Dominant vegetation in the forested uplands includes red oak (*Quercus rubra*), white oak (*Quercus alba*), sweet birch (*Betula lenta*), paper birch (*Betula papyrifera*), quaking aspen (*Populus tremuloides*), bigtooth aspen (*Populus grandidentata*), black cherry (*Prunus serotina*), apple (*Malus sp.*), white pine (*Pinus strobus*), witch hazel (*Hamamelis virginiana*), sassafras (*Sassafras albidium*), tartarian honeysuckle (*Lonicera tatarica*), lowbush blueberry (*Vaccinium angustifolium*), wild sarsaparilla (*Aralia nudicaulis*), wild lily-of-the-valley (*Maianthemum canadense*) and hay scented fern (*Dennstaedtia punctilobula*).

According to the atlas² (Figure 3) produced by the Natural Heritage & Endangered Species Program (NHESP), no Priority Habitats of Rare Species, Estimated Habitats of Rare Wildlife or Certified Vernal Pools occur on the property. NHESP data available on mapping maintained by MassGIS identify the presence of several potential vernal pools on the site. These potential pools (and other areas subject to seasonal inundation) were investigated during the course of delineating and characterizing the wetland resource areas. The outcome of this effort is provided later in this narrative and in Attachment D.

The Flood Insurance Rate Maps (FIRM)³ produced for the Town of Hopkinton indicate that the northern portion of the site is not subject to flooding during a 100-year storm event (Figure 4). Several low areas in the southern portion are



1 USDA Soil Conservation Service, 1989. *Middlesex County Soil Survey*.

2 NHESP, 2006. *Massachusetts Natural Heritage Atlas: 12th Edition*.

3 Federal Emergency Management Agency, 1982. *FIRM, Town of Hopkinton, Massachusetts, Middlesex County*. Community Panel Numbers 250196 0002B and 0004B.

identified as lying within a Zone A which is an area subject to inundation during a 100-year storm.

Wetland resources present on the property are described in detail below.



Wetland Resource Areas

Wetlands on the property were identified and delineated by environmental scientists with Vanasse Hangen Brustlin, Inc. in December of 2006 and April of 2007. The wetlands were delineated in accordance with criteria developed by the Massachusetts Department of Environmental Protection (DEP)⁴ and U.S. Army Corps of Engineers⁵. The boundaries were marked with plastic surveying tape (flags) affixed to vegetation or wire stakes. Conditions at representative transects through the wetland boundaries are summarized in the forms provided in Attachment B of this ANRAD. The flags were located in the field by survey and were plotted on the site plans included with this ANRAD.

State-regulated wetland resources areas identified on the site include Land Under Water Bodies and Waterways (LUWW), Bank, Bordering Vegetated Wetlands (BVW), Bordering Land Subject to Flooding (BLSF), Isolated Land Subject to Flooding (ILSF) and Riverfront Area. These resources are defined under the Wetlands Protection Act Regulations (310 CMR 10.00) as follows:

- **LUWW:** As defined by 310 CMR 10.56(2)(a) and (c), LUWW is the land beneath any creek, river, stream, pond or lake. The boundary of LUWW is defined as the mean annual low water level.
- **Bank:** As defined by 310 CMR 10.54(2)(a) and (c), Bank is “...the portion of the land surface that normally abuts and confines a water body.” This land surface “...may be partially or totally vegetated, or it may be comprised of exposed soil, gravel, or stone.” The upper boundary of a Bank is defined as “the first observable break in slope or the mean annual flood level, whichever is lower.”
- **BVW:** As defined by 310 CMR 10.55(2)(a) and (c), BVWs are “freshwater wetlands that border on creeks, rivers, streams, ponds, and lakes.” The boundary of BVW is determined by the presence of 50 percent or more of wetland indicator plants and saturated or inundated conditions.
- **BLSF:** As defined by 310 CMR 10.57(2)(a), BLSF is “an area with low flat topography adjacent to and inundated by flood waters rising from creeks, rivers, streams, ponds. It extends from the banks of these waterways and water bodies; where a bordering vegetated



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

5 Environmental Laboratory, 1987. *Corps of Engineers Wetlands Delineation Manual.*

wetland occurs, it extends from said wetland.” The boundary of BLSF is “the estimated maximum lateral extent of flood water which will theoretically result from the statistical 100-year frequency storm.”

- **ILSF:** As identified in 310 CMR 10.57(2)(b), ILSF is “an isolated depression or closed basin without an inlet or an outlet. It is an area which at least once a year confines standing water to a volume of at least ¼ acre-feet and to an average depth of at least six inches.”
- **Riverfront Area:** As defined by 310 CMR 10.58(2)(a), a Riverfront Area is “the area of land between a river’s mean annual high water line and a parallel line...” located 200 feet landward. “The Riverfront Area may include or overlap other resource areas or their buffer zones. The Riverfront Area does not have a buffer zone.”

In addition to resource areas described above, several isolated wetlands and intermittent streams that are not regulated under the Wetlands Protection Act (WPA) also occur on the property. These wetlands and streams are regulated under Town of Hopkinton Wetlands Protection General Bylaw (hereinafter referred to as the local bylaw). They may also be regulated under Sections 401 and 404 of the Clean Water Act.

The WPA and locally-regulated wetlands on the property are shown on Figure 5 and described in detail below.

WPA/Locally-Regulated Wetlands

The following sections of this narrative describe wetlands on the site that are regulated under the WPA and the local bylaw. The WPA establishes a 100-foot buffer zone that extends landward from the limits of these BVWs and Banks (if not bordered by wetland). The local bylaw establishes a 50-foot no disturb zone from the limits of these wetlands.

Wetland A

Wetland A is a large wooded swamp located in the northern portion of the property east of Wilson Street. The upper portion of this wetland system contains several areas that are characterized by a wet meadow plant community. Dominant plant species in Wetland A include red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), sweet pepperbush (*Clethra alnifolia*), common winterberry (*Ilex verticillata*), highbush blueberry (*Vaccinium corymbosum*), sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmunda cinnamomea*), New York fern (*Thelypteris noveboracensis*), and spotted touch-me-not (*Impatiens capensis*). Wetland A borders several intermittent streams that drain southward and merge near its southern limits. Overflow from this wetland is piped into a farm pond (FP4). Wetland A is underlain by mineral hydric soils.

Wetland A is delineated by flags WFA-100 to WFA-268 and WFA-300 to WFA-340. Several upland islands are located within the wooded swamp. Under the WPA, Wetland A is regulated as BVW and Bank.

Wetland B

Wetland B is a small wet meadow and scrub-shrub swamp located in the northern portion of the property east of Wilson Street. Dominant plants within this wetland system include glossy buckthorn (*Rhamnus franguls*), purple loosestrife (*Lythrum salicaria*), spotted touch-me-not and sensitive fern. Wetland B borders a drainage channel and is underlain by mineral hydric soils.

The boundary of Wetland B is demarcated by flags WFB-97 to WFB-146. Under the WPA, Wetland B is regulated as BVW and Bank.

Wetland C

Wetland C consists of a scrub-shrub swamp that is fringed by a narrow band of forested wetland. It is located in the northern portion of the site along the western property boundary. Dominant vegetation in Wetland C includes red maple, highbush blueberry, common winterberry, sweet pepperbush, swamp azalea (*Rhododendron viscosum*), tussock sedge (*Carex stricta*), cinnamon fern and sphagnum moss (*Sphagnum sp.*). Low spots within the scrub-shrub swamp are seasonally inundated with up to 24 inches of standing water. Discharge from this wetland system flows westward through an offsite intermittent stream. It is underlain by a thick layer of hemic peat.

The seasonally inundated portions of Wetland C were inspected on several occasions during the spring of 2007. Several wood frog (*Rana sylvatica*) egg masses were present during an inspection that occurred on April 24, 2007. Wood frog egg masses are identified as an “obligate” indicator of vernal pool habitat in guidelines developed by the NHESP⁶. Numerous caddisfly larvae were also observed during the inspections. Caddisfly larvae are identified as “facultative” indicators of vernal pool habitat in the above-referenced guidelines. Based on these observations, Wetland C meets the NHESP criteria for certification as a vernal pool.

Wetland C is delineated with flags WFC-100 to WFC-116. It is regulated as a BVW under the WPA. The local bylaw establishes a 125-foot no disturb zone from the boundary of the vernal pool.



⁶ NHESP, 2001. *Guidelines for the Certification of Vernal Pool Habitat: Vernal Pool Fact Sheet.*

Wetland D

Wetland D is a small wooded swamp located in the southwest corner of the northern portion of the property. Dominant plant species in this wetland include red maple, white pine, sweet pepper bush, cinnamon fern and sensitive fern. It borders an intermittent stream that flows southwest through an abutting property and into a culvert under Route 135. Wetland D is underlain by hydric mineral soils.

Wetland D is delineated with flags WFD-100 to WFD-108. Under the WPA, it is regulated as BVW and Bank.

Wetland F

Wetland F is a wooded swamp that borders an intermittent stream. It is located in the southern portion of the site along western boundary of the property. The intermittent stream flows offsite in a northwesterly direction. Dominant vegetation in Wetland F includes red maple, yellow birch (*Betula allegheniensis*), swamp white oak (*Quercus bicolor*), sweet pepper bush and cinnamon fern. It is underlain by hydric mineral soils.

The boundary of Wetland F is marked by flags WFF-100 to WFF-117. WPA-regulated resources associated with this wetland system include BVW and Bank.

Wetland G

Wetland G consists of a large wooded swamp, several ponds and an intermittent stream channel. It is located in the northern portion of the site, south of the Howe Street. Dominant plant species in the wooded swamp include red maple, green ash, highbush blueberry, cinnamon fern, jack-in-the-pulpit (*Arisaema triphyllum*), spotted touch-me-not and poison ivy (*Toxicodendron radicans*). The swamp is underlain by hydric mineral soils. The margins of the ponds are vegetated with broad-leaved cattail (*Typha latifolia*) and woolgrass (*Scirpus cyperinus*).

The intermittent stream originates in a small wetland located off the property and flows southward into one of the ponds. Overflow from the pond travels through a channel within the wooded swamp and empties into a culvert under Howe Street.

The boundaries of the wetland are demarcated by flags WFG-100 to WFG-135, WFG-200 to WFG-285 and WFG-300 to WFG-411. Reaches of the intermittent stream channel that are not bordered by wetlands are delineated with flags BFG-100 through BFG-112 and BFG-200 through BFG-213. Under the WPA, Wetland G is regulated as LUWW, Bank and BVW.



Wetland J

Wetland J is a wooded swamp located in northern portion of the site along the northern property boundary. Plant species present in this swamp include red maple, highbush blueberry, spotted touch-me-not, cinnamon fern and poison ivy. An intermittent stream originates in the lower reaches of this wetland. The stream flows offsite in a northerly direction. Wetland J is underlain by hydric mineral soils.

Wetland J is delineated with flags WFJ-100 to WFJ-121. It is regulated as BVW and Bank under the WPA.

Wetland K

Wetland K is a small pond located along the eastern boundary of northern portion of the property. The margins of the pond are vegetated with broad-leaved cattail, pickerel weed (*Pontideria cordata*), and arrow arum (*Peltandra virginica*). Wetland K is delineated by flags WFK-100 through WFK-106. It is regulated as LUWW and Bank under the WPA.

The pond was inspected on several occasions during the spring of 2007. Several wood frog and spotted salamander (*Ambystoma maculatum*) egg masses were present during an inspection that occurred on April 24, 2007. Both of these types of egg masses are considered to be obligate indicators of vernal pool habitat under the NHESP guidelines. Accordingly, Wetland C meets the NHESP criteria for certification as a vernal pool. The local bylaw establishes a 125-foot no disturb zone from the boundary of Wetland K.

Wetland M

Wetland M consists of a large wetland system that extends through the southern portion of the site. It includes several farm ponds and areas of wooded swamp, wet meadow and marsh plant communities. Dominant plant species that occur in wooded swamps include red maple, green ash, swamp azalea, common winterberry, sweet pepper bush, cinnamon fern, sensitive fern and spotted touch-me-not. The wet meadows and marshes are vegetated with purple loosestrife, woolgrass, soft rush (*Juncus effusus*), tussock sedge and broad-leaved cattail. Wetland M is underlain by a thick layer of hemic peat.

Wetland M is fed by several intermittent streams that originate offsite to the north of Route 135. These streams flow southward through branches of the wetland and merge in the interior of the property. According to the quadrangle map of the area produced by the US Geological Survey (USGS), an unnamed perennial stream begins at the outlet of the easternmost pond and flows southwestward through Wetland M.

A seasonally inundated depression occurs in the southern portion of Wetland M. Several wood frog egg masses were present in this area during an inspection that

occurred on April 24, 2007. As wood frog egg masses are identified as obligate indicators of vernal pool habitat in guidelines developed by the NHESP, the seasonally inundated portion of Wetland M meets the NHESP criteria for certification as a vernal pool.

Flags WFM-240 through WFM-305, WFM-300 through WFM-334, WFM-500 through WFM-520, WFM-600 through WFM-744, WFM-800 through WFM-825, WFM-900 through WFM-915, WFM-1000 through WFM-1016, WFM-1100 through WFM-1105 and WFM-1200 through WFM-1218 demarcate the limits of BVW associated with Wetland M. The ponds (where not bordered by wetlands are delineated with flags WFP7-400 through WFP7-416 and WFP8-100 through WFP8-137. WPA-regulated resource areas associated with Wetland M include LUWW, Bank and BVW. A 200-foot wide Riverfront Area extends outwards from the mean annual high water line (MAHWL) of the unnamed perennial stream. As identified at 310 CMR 10.58(2)(a)1.h, the Riverfront Area stops at the inlets of the downstream ponds and resumes at their outlets.

The FIRM (Figure 4) indicates that the lower reaches of Wetland M are flooded during a 100-year storm. In the event that this flooding rises above the limits of the ponds and BVWs, such areas would be regulated as BLSF. Because the FIRM does not identify an elevation of the 100-year floodplain, it is not possible to determine if BLSF occurs in this portion of the site without conducting a flood study. Because of this limitation, the applicant is not requesting to confirm the presence or limits of BLSF as part of this ANRAD.

The local bylaw establishes a 125-foot no disturb zone from the boundary of the vernal pool within this wetland.

Wetland N

Wetland N is a forested swamp that is located on the eastern boundary of the northern portion of the site. Dominant vegetation in this wetland includes red maple, green ash, highbush blueberry, cinnamon fern and sensitive fern. An intermittent stream originates near the northern limit of Wetland N. The stream flows south and east into offsite properties. Wetland N is underlain by mineral hydric soils.

Wetland N is delineated by wetland flags WFN-100 to WFN-147. It is regulated as BVW and Bank under the WPA.

Wetland O

Wetland O consists of a wooded swamp and several interconnected swales that are located in the southern portion of the property east of Clinton Street. Dominant plant species in the swamp include red maple, duckweed (*Lemna sp.*), skunk cabbage (*Symplocarpus foetidus*), and cinnamon fern. According to the USGS quadrangle map,

an unnamed perennial stream originates in Wetland O. The stream flows southward through the swales and drains into a culvert beneath Clinton Street. The swamp is underlain by a thick layer of hemic peat.

The swamp is delineated by flags WFO-100 to WFO-180. The swales are marked by flags WFP5-100 through WFP5-115, WFP5-200 through WFP5-211 and WFP5-300 through WFP5-328. The majority of the swales are located immediately east of the Ashland town boundary. Under the WPA, Wetland O is regulated as LUNW and BVW and Bank. A 200-foot Riverfront Area extends landward from the MAHWL (coincident with the top of Bank) of the perennial stream.

Wetland Q

Wetland Q is a wooded swamp located along the eastern boundary of the northern portion of the property. This wetland is vegetated with red maple, sweet pepperbush skunk cabbage, royal fern (*Osmunda regalis*) and cinnamon fern. Several intermittent streams originate in Wetland Q. The streams flow offsite to the east. The swamp is underlain by hydric mineral soils.

Under the WPA, Wetland Q is regulated as BVW and Bank. It is delineated by flags WFQ-100 to WFQ-125, and WFQ-200 to WFQ-205.

Wetland R

Wetland R is a small wet meadow located on the eastern side of the northern portion of the property. Dominant plant species in this wetland include spotted touch-me-not and soft rush. It is underlain by mineral hydric soils. Wetland R connects with an offsite and unnamed intermittent stream.

The boundary of Wetland R is marked by flags WFR-100 to WFR-106. It is regulated as BVW under the WPA.

Wetland T

Wetland T consists of several wet meadows/scrub-shrub swamps and a pond that are connected by a stream. It is located in the southeast corner of the southern portion of the site. The stream is shown as a perennial watercourse on the USGS map. It extends between Wetland O and Wetland M. The wet meadows and scrub-shrub swamps are vegetated red maple, glossy buckthorn, soft rush, woolgrass and purple loosestrife. They are underlain by mineral hydric soils

Wetland M is delineated by flags WFT-100 to WFT-157, WFT-200 to 240, WFT-300 to 309, WFT-350 to WFT-360, WFT-375 to WFT-385, and WFT-400 to WFT-445.

WPA-regulated resource areas associated with this wetland system include LUWW, Bank and BVW. A 200-foot Riverfront Area extends landward from the MAHWL (coincident with the top of Bank) of the perennial stream.



Wetland U

Wetland U is a wet meadow/marsh located in the southern portion of the site immediately south of Route 135 to the north. This wetland is vegetated with broadleaved cattail, purple loosestrife, reed canary grass (*Phalaris arundinacea*), tussock sedge and soft rush. It borders an unnamed intermittent stream that originates north of Route 135. The stream flows in a southwesterly direction off the property.

The boundary of Wetland U is marked by flags WFU-100 through WFU-112. Under the WPA, Wetland U is regulated as BVW and Bank.

Wetland V

Wetland V is a wooded swamp located immediately to the west of the northern portion of the property. Dominant vegetation in the swamp includes red maple, highbush blueberry and royal fern. Wetland V contains drainage patterns and is underlain by mineral hydric soils. It connects with an offsite intermittent stream.

The swamp is delineated with flags WFV-100 to WFV-108. Under the WPA, Wetland-V is regulated as BVW.

Wetland WS

Wetland WS is a large wooded swamp located on western side of the southern portion of the property. It includes a branch of wet meadow that extends between several maintained plots. Dominant plant species present in the swamp include red maple, yellow birch, highbush blueberry, swamp azalea, sweet pepper bush, royal fern, sensitive fern and cinnamon fern. The wet meadow is vegetated with purple loosestrife, soft rush, lurid sedge (*Carex lurida*) and reed canary grass. The swamp and wet meadow contain stained leaves and drainage patterns. Wetland WS is underlain by a thick layer of hemic peat.

Wetland WS is delineated by flags WFWS-100 to WFWS-149. Under the WPA, Wetland WS is regulated as BVW.

Wetland Z

Wetland Z is a wooded swamp located on the west side of the northern portion of the property. The swamp is vegetated with red maple, green ash, highbush blueberry and sensitive fern. Wetland Z contains stained leaves and connects to an offsite drainage swale that borders Wilson Street. It is underlain by hydric mineral soils.

Wetland Z is delineated by flags WFZ-100 to WFZ-108. It is regulated as a BVW under the WPA.

Wetland FP1

Wetland FP1 consists of a pond and series of interconnected swales located in the interior of the northern portion of the site. The pond contains more than 10,000 square feet of open water. Where vegetated, plant species present in swales include red maple, grey birch (*Betula populifolia*), purple loosestrife, wool grass, lurid sedge, meadowsweet (*Spiraea latifolia*), and broad-leaved cattail. The swales are underlain by hydric mineral soils. Overflow from the pond travels northward through the swales and is piped into Wetland G

The pond and swales are delineated by flags WFP1-100 to WFP1-112, WFP1-200 to WFP1-216, WFP1-300 to WFP1-305, WFP1-400 to WFP1-403, WFP1-500 to WFP1-503, WFP1-600 to WFP1-603 and WFP1-700 to WFP1-705. Under the WPA, The pond in Wetland WFP1 is regulated as LUWW and Bank. The swales are regulated as Bank.

Wetland FP2

Wetland FP2 is pond located in the interior of the northern parcel. The pond is greater than 10,000 square feet and is encircled by a rip rap bank. The pond is demarcated by flags WFP2-100 through WFP2-109. WPA-regulated resource areas associated with Wetland FP2 include LUWW and Bank.

Wetland FP3

Wetland FP3 consists of a pond and series of interconnected swales located north of Route 135 in the northern portion of the site. The pond contains more than 10,000 square feet of open water. Where vegetated, plant species present in swales include grey birch, glossy buckthorn, purple loosestrife, and broad-leaved cattail. The swales are underlain by mineral hydric soils. Overflow from the pond travels southward through the swales and enters into a culvert under Route 135.

The pond and swales are delineated by flags WFP3-100 to WFP3-110, WFP3-200 to WFP3-206, WFP3-300 to WFP3-309, WFP3-400 to WFP3-410 and WFP3-500 to WFP3-515, WFP3-600 to WFP3-603 and WFP3-700 to WFP3-705. Under the WPA, The pond in Wetland WFP3 is regulated as LUWW and Bank. The swales are regulated as Bank.

Wetland FP4

Wetland FP4 is a pond located to the west of Wetland FP3 in the northern portion of the property. The pond is greater than 10,000 square feet and is encircled by a rip rap bank. The pond is demarcated by flags WFP4-100 through WFP4-113. WPA-regulated resource areas associated with Wetland FP4 include LUWW and Bank.

Wetland FP7

Wetland FP7 consists of pond, wet meadow and scrub-shrub swamp located near the southern limit of the property. Plant species present in the wet meadow and scrub-shrub swamp include glossy buckthorn, speckled alder (*Alnus rugosa*), purple loosestrife, soft rush, lurid sedge and reed canary grass. The wet meadow borders portions of the pond. The scrub-shrub swamp borders an intermittent stream that flows out of the pond.

This wetland system is delineated by wetland flags WFP7-100 to WFP7-121, WFP7-200 to WFP7-219, and WFP7-300 to WFP7-307. Under the WPA, the pond in Wetland FP7 is regulated as LUWW and Bank. The intermittent stream channel is regulated as Bank. The wet meadow and scrub-shrub swamp are regulated as BVW.

Wetland IWA

Wetland IWA is a wooded swamp located in the northern portion of the site east of Wetland A. Dominant vegetation in the swamp includes red maple, highbush blueberry, cinnamon fern and sensitive fern. It is underlain by a layer of hemic peat. This wetland is delineated by wetland flags IWA-100 to IWA-116. Wetland IWA appears to confine enough standing water to be regulated as ILSF under the WPA. It is also regulated as an isolated wetland under the local bylaw and is bordered by a 100-foot buffer zone.

Wetland IWO

Wetland IWO is a small scrub-shrub swamp wetland located in the southern portion of the property. It is surrounded by areas that have been excavated and graded as part of past agricultural activities. Dominant plant species in this swamp include willow (*Salix sp.*), purple loosestrife and broad-leaved leaf cattail. Wetland IWO is seasonally inundated with up to 24 inches of standing water. It is underlain by hydric mineral soils and is delineated with wetland flags IWO-100 to IWO-111. Wetland IWO appears to confine enough standing water to be regulated as ILSF.

An obligate (fairy shrimp) and facultative (breeding American toad) indicator of vernal pool habitat was observed in Wetland IWO during an inspection that occurred on April 24, 2007. For these reasons, Wetland IWO meets the NHESP criteria for certification as a vernal pool. The local bylaw establishes a 125-foot no disturb zone from the limits of the vernal pool.

Other Locally-Regulated Wetlands

Several wetland resources (described below) that were identified and delineated on the property are not regulated under the WPA. These resources are regulated under the local bylaw and may also be regulated under Sections 401 and 404 of the Clean

Water Act. The local bylaw establishes a 100-foot buffer zone and 50-foot no disturb zone from the boundaries of these resource areas.

Wetland BFS

Wetland BFS consists of an intermittent stream located in the northern portion of the property. It originates at the edge of a maintained plot and flows northward (through a rock-lined channel) off the site into Ashland. It is not bordered by wetland and does not originate within a resource area. For these reasons, it is not regulated as a stream under the WPA. The local bylaw protects this wetland as an intermittent stream. It is delineated by flags BFS-100 to BFS-108 and BFS-200 to BFS-210.

Wetland BFX

Wetland BFX consists of an intermittent stream located in the northern portion of the property. It originates at the edge of a series of greenhouses maintained and flows southward (through an eroded channel) off the site. Because it is not bordered by wetland and does not originate within a resource area, it is not regulated as a stream under the WPA. The local bylaw protects this wetland as an intermittent stream. It is delineated by flags BFX-100 to BFX-112 and BFX-200 to BFX-210.

Wetland IWD

Wetland IWD is a wooded swamp and wet meadow located in the interior of the southern portion of the property. Plant species that occur in this wetland include red maple, glossy buckthorn, purple loosestrife, soft rush, reed canary grass and sensitive fern. This wetland is seasonally inundated with up to 12 inches of standing water and is underlain by hydric mineral soils. It is delineated by wetland flags IWD-100 to IWD-121

Wetland IWD does not appear to confine enough standing water to be regulated as ILSF under the WPA. It is regulated as an isolated wetland under the local bylaw. Two facultative indicators of vernal pool habitat (breeding American toads and caddisfly larvae) were observed in Wetland IWD during an inspection that occurred on April 24, 2007. For these reasons, Wetland IWD meets the NHESP criteria for certification as a vernal pool. The local bylaw establishes a 125-foot no disturb zone from the limits of this wetland.

Wetland IWE

Wetland IWE is a seasonally flooded depression that is lined by rock located in the interior of the southern portion of the property next to IWE. The depression is sparsely vegetated and is underlain by hemic peat. It is delineated by wetland flags IWE-100 to IWE-108

Wetland IWE does not appear to confine enough standing water to be regulated as ILSF under the WPA. It is regulated as an isolated wetland under the local bylaw. Two facultative indicators of vernal pool habitat (breeding American toads and caddisfly larvae) were observed in Wetland IWE during an inspection that occurred on April 24, 2007. For these reasons, Wetland IWE meets the NHESP criteria for certification as a vernal pool. The local bylaw establishes a 125-foot no disturb zone from the limits of this wetland.

Wetland IWL

Wetland IWL is a small wet meadow located in northern portion of the property immediately south of Howe Street. This wetland is vegetated with soft rush and sensitive fern. It is underlain by mineral hydric soils and intermittently confines several inches of standing water. It is delineated with flags IWL-100 to IWL-104. Wetland IWL does not appear to confine enough standing water to be regulated as ILSF. It is regulated as an isolated wetland under the local bylaw.

Wetland IWM

Wetland IWM is a small forested swamp located in the northern portion of the site immediately east of a pipeline easement. Vegetation in this wetland includes red maple, green ash, cinnamon fern and spotted touch-me-not. Wetland IWM is underlain by mineral hydric soils and is occasionally saturated to the surface. The boundary is marked by flags IWM-100 to IWM-112. Wetland IWM does not appear to confine enough standing water to be regulated as ILSF under the WPA. It is regulated as an isolated wetland under the local bylaw.

Wetland IWQ

Wetland IWQ is a wet meadow located in the interior of the southern portion of the property. Dominant vegetation in this wetland consists of purple loosestrife and reed canary grass. It is seasonally inundated with up to 0.5 feet of standing water. Wetland IWQ is underlain by hydric mineral soil and is delineated with flags IWQ-100 through IWQ-116. It does not appear to confine enough standing water to be regulated as ISLF under the WPA. It is regulated as an isolated wetland under the local bylaw.

Wetland IWT

Wetland IWT is a small forested swamp located in the southern portion of the site east of Wetland F. Vegetation in this wetland includes red maple, green ash, sweet pepperbush, cinnamon fern and spotted touch-me-not. Wetland IWT is underlain by mineral hydric soils and is occasionally saturated to the surface. The boundary is marked by flags IWT-100 to IWT-115. Wetland IWT does not appear to confine enough standing water to be regulated as ILSF under the WPA. It is regulated as an isolated wetland under the local bylaw.



Wetland IWY

Wetland IWY is a small scrub-shrub swamp located just offsite of the northeast corner of the southern portion of the property. Vegetation in this wetland includes glossy buckthorn, cinnamon fern and spotted touch-me-not. Wetland IWT is underlain by a layer of hemic peat and is occasionally inundated with up to 6 inches of standing water. The boundary is marked by flags IWY-100 to IWY-103. Wetland IWY does not appear to confine enough standing water to be regulated as ILSF under the WPA. It is regulated as an isolated wetland under the local bylaw.

Wetland IWX

Wetland IWX is a sloping wooded swamp that drains internally. It is located in the northern portion of the site south of Wetland J. Dominant plant species within this wetland include red maple, green ash, cinnamon fern, spotted touch-me-not, skunk cabbage and poison ivy. Wetland IWX is underlain by mineral hydric soils and is periodically saturated to the surface. It was delineated with wetland flags IWX-100 to IWX-115. Wetland IWX does not appear to confine enough standing water to be regulated as ILSF under the WPA. It is regulated as an isolated wetland under the local bylaw.

Summary

The property contains a variety of wetland and other natural resources that are protected under several regulatory programs. The boundaries of these resources have been delineated in accordance with criteria developed by the state and federal agencies.

This ANRAD is filed to confirm the limits of state and locally-regulated wetland resources area on the site. No site work or development is proposed at this time. The applicant respectfully requests the Hopkinton Conservation Commission verify that the delineated wetland boundaries and resource designations are accurate and issue an Order of Resource Area Delineation referencing this document and the accompanying plans.

Attachment B

Abutter Information



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- Notice to Abutters
 - Affidavit of Service
 - List of Abutters

Attachment C

Field Delineation Forms



Attachment D Vernal Pool Memo

