



October 7, 2022

ProTerra Design Group, LLC
Attn: Thomas Johnson
4 Bay Road, Building A; Suite 200
Hadley, MA 01035

Re: Wetland Summary Letter
48 Follette Street
Grafton, MA 01519

Dear Mr. Johnson,

On June 30, 2016 and April 28, 2017, a Professional Wetland Scientist (PWS) from Lucas Environmental, LLC (LE) conducted initial site investigations to determine if wetland resources were present at or near the property located at 58 Follette Street, in the Town of Grafton, Massachusetts. A large wetland was delineated on the site and adjacent parcels and is described in more detail below. The site investigations were limited to wetland areas within 100 feet and perennial streams within 200 feet of the property.

On August 18, 2022, LE returned to the site to review and confirm the boundary of the prior wetland delineations and to make other observations about the site as described herein. Please note that this effort was specific to wetland resources; it does not evaluate constraints related to local planning or zoning requirements, nor does it evaluate the potential for soil, air, or water contamination.

The wetland investigation was performed in accordance with the Massachusetts Wetlands Protection Act (M.G.L. Ch. 131, § 40) and regulations (310 CMR 10.00 *et seq.*); Section 404 of the Clean Water Act (33 U.S.C. 1344); Massachusetts Department of Environmental Protection (MassDEP) publication “Delineating Bordering Vegetated Wetlands” under the Massachusetts Wetlands Protection Act (1995); and the U.S. Army Corp of Engineers (USACE) Wetland Delineation Manual (1987); the Northcentral and Northeast Regional Supplement (2012); and the Town of Grafton Wetlands Protection By-Law (Article 25) and Regulations.

The following data sources were examined prior to the site investigation:

- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps;
- United States Geological Survey Topographic Quadrangle;
- MassGIS MassDEP Wetland and Hydrography Datalayers;
- MassGIS Natural Heritage Atlas Datalayers; and
- United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) Soil Survey.

1.0 EXISTING CONDITIONS

The proposed telecommunications facility is sited on a portion of a large parcel located at 58 Follette Street in Grafton, Massachusetts (Map 104, Lot 7). The property is approximately 47.7 acres and is entirely wooded and undeveloped, with the exception of trails that run through portions of the site. The proposed telecommunications facility will be located in a wooded area within the center of the property on the western saddle of Lazy Hill which comprises the northern one-half of the property. A proposed access driveway to the site to construct the telecommunications facility will be located on the eastern portion of the site, largely in the general location of an existing trail.

Lower elevation areas are found in the southern one-half of the site, portions of which contain a large wetland (described below). In addition to trails, stone walls and a boulder and cobble-strewn surface are prominent in some locations. Dominant upland species include eastern white pine (*Pinus strobus*), black cherry (*Prunus serotina*), pignut hickory (*Carya glabra*), red oak (*Quercus rubra*), white oak (*Quercus alba*), black birch (*Betula lenta*), gray birch (*Betula populifolia*), sassafras (*Sassafras albidum*), sarsaparilla (*Aralia nudicaulis*), Japanese barberry (*Berberis thunbergii*), and poison ivy (*Toxicodendron radicans*).

A review of the current MassGIS data layer for the Massachusetts Natural Heritage Atlas (effective August 1, 2021) under the Natural Heritage & Endangered Species Program (NHESP) indicates that no portion of the Study Area is located within Estimated Habitat of Rare Wildlife or Priority Habitat of Rare Species, although there is a mapped Estimated Habitat of Rare Wildlife (EH 756) and Priority Habitat of Rare Species (PH 1012) mapped on adjacent parcels of land. No Certified or Potential Vernal Pools under the jurisdiction of the Wetlands Protection Act Regulations (310 CMR 10.00 et seq.) or the Massachusetts Endangered Species Act (321 CMR 10.00 et seq.) are mapped by NHESP in the Study Area.

According to the July 4, 2011 Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for Worcester County, Massachusetts, Map Numbers 250027C0836E and 25027C0837E, the site is located within Zone X which is classified as an area determined to be outside the 0.2% annual chance floodplain (500-year flood). Therefore, the Study Area is not located within the 100-year floodplain or Bordering Land Subject to Flooding.

The Study Area is not located within an Area of Critical Environmental Concern (ACEC) or within an Outstanding Resource Water (ORW). A small portion of the site adjacent to Follette Street is located within a MassDEP Approved Zone II Wellhead Protection Area.

2.0 ENVIRONMENTAL RESOURCE AREAS

Wetland resource areas identified near the Study Area include Bordering Vegetated Wetland (BVW). The BVW meanders off and onto the site and the adjacent properties and the 100-Foot Buffer Zone to BVW extends into the Study Area. Under the Massachusetts Wetlands Protection Act (WPA) and Bylaw, BVW is regulated as follows.

2.1 Bordering Vegetated Wetlands – 310 CMR 10.55

Section 310 CMR 10.55 of the WPA defines BVW as *freshwater wetlands which border on creeks, rivers, streams, ponds and lakes. The types of freshwater wetlands are wet meadows, marshes, swamps and bogs. Bordering Vegetated Wetlands are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants. The boundary of Bordering Vegetated Wetlands is the line within which 50% or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist. Wetland indicator plants are also those classified in the indicator categories of Facultative, Facultative+, Facultative Wetland-, Facultative Wetland, Facultative Wetland+, or Obligate Wetland in the National List of Plant Species That Occur in Wetlands: Massachusetts (Fish & Wildlife Service, U.S. Department of the Interior, 1988) or plants exhibiting physiological or morphological adaptations to life in saturated or inundated conditions.*

The delineated BVW is described below. MassDEP Wetland Delineation Field Data Forms were completed during the prior delineation and were reviewed and verified for the wetland described below and are enclosed.

Wetland A

Wetland A is a large, forested area of BVW located immediately north of Follette Street. The wetland was delineated in the field using pink nylon survey tape numbered sequentially as WFA-1 through WFA-100. This wetland can be characterized primarily as a red maple swamp. Near the central portion of the site, the trail from the western part of the site crosses through the Wetland A between wetland flags WFA-62 and WFA-63. Nearby, to the west of the crossing, a depressional area holds water and is a potential vernal pool. The depressional area is located behind a berm and stone wall that extend along the trail and the potential vernal pool discharges across the road at the wetland crossing.

The wetland tree canopy is vegetated with red maple (*Acer rubrum*), American elm (*Ulmus americana*), and eastern white pine. The shrub layer is vegetated with winterberry (*Ilex verticillata*), highbush blueberry (*Vaccinium corymbosum*), northern spicebush (*Lindera benzoin*), silky dogwood (*Cornus amomum*), pussy willow (*Salix discolor*), Japanese barberry, and young growth of the tree layer. The herbaceous community is vegetated with poison ivy, sensitive fern (*Onoclea sensibilis*), jewelweed (*Impatiens capensis*), Jack-in-the-pulpit (*Arisaema triphyllum*), New York fern (*Thelypteris noveboracensis*), and cinnamon fern (*Osmundastrum cinnamomea*).

2.2 Wetlands Protection Bylaw and Regulations

The Town of Grafton Wetlands Protection By-Law (Article 25) and Regulations provide additional protection to wetland resources and Buffer Zones beyond the WPA. The Bylaw establishes performance standards for work in or near wetlands and other resource areas, including the following:

- Alteration and disturbance of the first 25 feet of the 100-Foot Buffer Zone to wetlands and other resources.
- Allowing for loss of up to 5,000 square feet of wetlands and other resources when areas are replaced, replicated, or restored.

- Construction of a roadway or driveway to upland on the property where no alternative exists, replication may be required.

Waivers of specific performance standards may be granted in situations when “*the applicant has demonstrated that there is an overriding need to impose alternative conditions that will otherwise contribute to the protection of the interests identified in the Bylaw.*”

2.3 Stormwater Management

Although LE has not conducted a Zoning review, it is noted that the Town of Grafton has a Stormwater Management Bylaw (Article 36) and Regulations requiring a permit for any activity resulting in land disturbance of equal to or greater than 40,000 square feet. This Bylaw and other Zoning Bylaws should be further evaluated to ensure the design complies.

2.4 Alternative Access

Alternative means of access to upland locations that avoid the proposed wetland crossing were evaluated. There are two locations where the subject property has frontage on Follette Street: 1) the location currently proposed, and 2) an existing cart path located along the western property line between 74 and 76 Follette Street.

LE walked the cart path and noted at least two locations where a wetland crossing would be necessary. One of the crossing locations would be immediately adjacent to a portion of the wetland that appears to function as a vernal pool (near flags WFA-63 through WFA-66). Given the ecological sensitivity of this location and the fact that two wetland crossings would be required, this alternative access point was not deemed viable. Further, utilizing the alternative access location would result in a longer roadway, which would result in far greater land disturbance.

3.0 REGULATORY COMPLIANCE

Proposed impacts to regulated resource areas include approximately 1,680 square feet of permanent fill of BVW for which compensation will include construction of two wetland replication areas, totaling approximately 4,200 square feet (2.5:1).

3.1 Limited Project

Note that the project would qualify as a Limited Project per Section 310 CMR 10.53(3)(e) of the WPA per the following: *The construction and maintenance of a new roadway or driveway of minimum legal and practical width acceptable to the planning board, where reasonable alternative means of access from a public way to an upland area of the same owner is unavailable...*As the project fully complies with the performance standards for work within BVW as detailed in the following sections, the Applicant is not seeking Limited Project status for the project at this time.

3.2 Wetlands Protection Act

Section 310 CMR 10.55(4) of the WPA describes the performance standards for BVW. The work within BVW must not impair the following applicable performance standards to the maximum extent practical, per 310 CMR 10.55(4). The performance standard is listed in italics and the compliance statement is listed in standard format.

- (a) *...any proposed work in a Bordering Vegetated Wetland shall not destroy or otherwise impair any portion of said area.*

The proposed project will permanently alter BVW. Impacts to wetlands are mitigated in accordance with 310 CMR 10.55(4)(b) as demonstrated below.

- (b) *Notwithstanding the provisions of 310 CMR 10.55(4)(a), the issuing authority may issue an Order of Conditions permitting work which results in the loss of up to 5,000 square feet of Bordering Vegetated Wetland when said area is replaced in accordance with the following general conditions and any additional, specific conditions the issuing authority deems necessary to ensure that the replacement area will function in a manner similar to the area that will be lost.*

This standard is met. Less than 5,000 square feet of impacts to BVW are proposed and have been mitigated by the construction of two wetland replication areas.

1. *The surface of the replacement area to be created ("the replacement area") shall be equal to that of the area that will be lost ("the lost area").*

This standard is met. The project will result in the loss of approximately 1,680 square feet of BVW, mitigated by the construction of two replication areas totaling approximately 4,200 square feet, providing a 2.5:1 ratio of mitigation to impact.

2. *The ground water and surface elevation of the replacement area shall be approximately equal to the lost area.*

This standard is met. The replication area has been designed such that the ground water and surface elevation of the replication area will be approximately equal to the lost area, as shown on the Site Plans. The replication areas are located immediately adjacent to the impact area.

3. *The overall horizontal configuration of the replacement area with respect to bank shall be similar to the lost area.*

This standard is met. The replication areas are located in the same horizontal configuration to the wetland.

4. *The replacement area shall have an unrestricted hydraulic connection to the same water body or reach of waterway associated with the lost area.*

This standard is met. As shown on the Site Plans, the replication areas have been designed to provide an unrestricted hydraulic connection to the same wetland system as the impacted areas. The replication areas are located immediately adjacent to the impact area.

5. *The replacement area shall be located within the same general area of the water body or waterway as the lost area.*

This standard is met. The wetland replication areas have been designed in the same general watershed and immediately adjacent to the impacted wetland area as shown on the Site Plans.

6. *At least 75 percent of the surface of the replacement area shall be reestablished with indigenous wetland plant species within two growing seasons, and prior to said vegetative reestablishment any exposed soil in the replacement area shall be temporarily stabilized to prevent erosion in accordance with standard U.S. Soil Conservation Service methods.*

This standard will be met. The surface hydrology and plantings in the wetland replication area have been designed to allow at least 75 percent of the replacement area to be vegetated by indigenous plant species within two growing seasons. Prior to the establishment of 75-percent vegetative cover, erosion and sedimentation controls will be implemented to stabilize any exposed soils.

7. *The replacement area shall be provided in a manner consistent with all other General Performance Standards for each resource area [BVW]....*

This standard is met. The replication areas have been designed to comply with the performance standards for BVW. There are no impacts to other resource areas.

- (c) *Notwithstanding the provisions of 310 CMR 10.55(4), the issuing authority may issue an Order of Conditions permitting work which results in the loss of a portion of Bordering Vegetated Wetlands when;*

1. *said portion has surface area less 500 square feet*
2. *said portion extends in a distinct linear configuration into adjacent uplands; and*
3. *in the judgment of the issuing authority it not reasonable to scale down, redesign or otherwise change the proposed work so that it could be completed without loss of said wetland.*

This standard is not applicable. The impact areas do not meet the special conditions listed under this standard (e.g., linear configuration, less than 500 square feet, etc.).

- (d) *...no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species...*

Not applicable – The site is not located within specified habitat of rare species.

- (e) *Any proposed work shall not destroy or otherwise impair any portion of a Bordering Vegetated Wetland that is within an Area of Critical Environmental Concern...*

Not applicable – the site is not located within an ACEC.



3.3 Grafton Wetlands Protection By-Law

Section C of the Grafton Wetlands Protection Regulations describes the performance standards for BVW and requirements for replication. The Applicant has directly addressed these standards under separate cover.

The project complies with the WPA and Town of Grafton Wetlands Protection By-law and Regulations for work within BVW.

4.0 MITIGATION

The project proposes to mitigate for impacts to wetlands required for access to the site by replicating 4,200 square feet for the permanent wetland loss in two locations immediately adjacent to the impact area.

The intent of the proposed mitigation plan is to create a functional wetland replication that maintains wildlife habitat values, as well as other wetland values associated with the impact areas. The replication areas will be established adjacent to the existing wetland at a similar elevation, creating a surficial hydrologic connection to the existing wetlands.

The mitigation design includes specifications for grading, soils, hydrology, and plant materials as shown on the Site Plans. The wetland replication areas have been designed to replace the existing vegetation cover types, and functions and values. The restored wetland will be graded to create a hydrologic gradient that supports a range of cover types, providing a diversity of vegetation structure and composition. After the grading is complete, the wetland replication areas will be planted with wetland trees and shrubs and seeded with a wetland seed mix. In addition to the wetland species that will be planted and seeded, it is anticipated that a broad diversity of indigenous wetland species will become established once appropriate wetland hydrology is created.

As required by state and federal wetland mitigation guidance and the WPA performance standards for wetlands, a qualified Wetland Scientist will supervise the construction and plant installation of the wetland replication areas. The wetland replication areas will be monitored following completion of work.

If you have any questions, please do not hesitate to contact me at 617.405.4053 or tel@lucasenviro.com. Thank you for your consideration in this matter.

Sincerely,
LUCAS ENVIRONMENTAL, LLC

A handwritten signature in black ink that reads 'Thomas E. Liddy'.

Thomas E. Liddy, PWS/CWS/RPSS
Environmental Consultant/Wetland & Soil Scientist

Enclosures: MassDEP Delineation Field Data Forms



WETLAND DELINEATION FIELD DATA FORM

Observation Plot Number: WFA-6

Transect Number: WET-1

Applicant: Cellco Partnership, d/b/a Verizon Wireless Prepared by: Lucas Environmental, LLC Project Location: 58 Follette Street, Grafton

- Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- Method other than dominance test used (attach additional information)

SECTION I. VEGETATION

Date of Delineation: **June 30, 2016**
Verified August 18, 2022

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
<u>Tree</u>				
Red Maple (<i>Acer rubrum</i>)	85.5	86.6%	Yes	FAC*
White Pine (<i>Pinus strobus</i>)	10.5	10.6%	No	FACU
American Elm (<i>Ulmus americana</i>)	3.0	3.0%	No	FACW*
<u>Saplings</u>				
<u>Shrubs</u>				
American Elm (<i>Ulmus americana</i>)	63.0	65.0%	Yes	FACW*
Winterberry (<i>Ilex verticillata</i>)	20.5	21.1%	Yes	FACW*
Silky Dogwood (<i>Cornus amomum</i>)	10.5	10.8%	No	FACW*
Japanese barberry (<i>Berberis thunbergii</i>)	3.0	3.1%	No	FACU
<u>Herbaceous</u>				
Poison ivy (<i>Toxicodendron radicans</i>)	63.0	67.0%	Yes	FAC*
Sensitive fern (<i>Onoclea sensibilis</i>)	20.5	21.8%	Yes	FACW*
Cinnamon fern (<i>Osmundastrum cinnamomeum</i>)	10.5	11.1%	No	FACW*
<u>Vines</u>				
None				

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:
 Number of dominant wetland indicator plants: **5** Number of non-wetland indicator plants: **0**
 Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: YES NO



WETLAND DELINEATION FIELD DATA FORM

Observation Plot Number: WFA-6

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SECTION II. INDICATORS OF HYDROLOGY

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? YES NO

Title/Date: **Custom Soil Resource Report for Worcester County, Southern Part, Massachusetts. (GIS Data from the Soil Survey Geographic - SSURGO data base produced by the USDA, NRCS) Accessed online October 24, 2017**

Map Number/Soil Type Mapped:

- 254B – Merrimac Fine Sandy Loam, 3-8% slopes**
- 420B – Canton Fine Sandy Loam, 3-15% slopes**
- 307E – Paxton Fine Sandy Loam, 15-35% slopes, extremely stony**

Hydric Soil Inclusions: **YES**

Are field observations consistent with soil survey? YES NO

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
Oe	1-0"		
A	0-14"	10YR 3/2	
Bg	14-18"	10YR 6/1	

Remarks: **soil texture consists of fine sandy loam.**

3. Other:

Conclusion: Is soil hydric? YES NO

Other Indicators of Hydrology:

- Site inundated: _____
- Depth to free water in observation hole: _____
- Depth to soil saturation in observation hole: _____
- Water marks: _____
- Drift lines: _____
- Sediment deposits: _____
- Drainage patterns in BVW: _____
- Oxidized rhizospheres: _____
- Water-stained leaves: _____
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- Other: **Buttressed tree roots** _____

Vegetation and Hydrology Conclusion	YES	NO
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hydric soils present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>



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Tree				
White Pine (<i>Pinus strobus</i>)	38.0	36.5%	Yes	FACU
Red Oak (<i>Quercus alba</i>)	63.0	60.5%	Yes	NL
Norway Spruce (<i>Picea abies</i>)	3.0	2.8%	No	NL
Saplings				
Red Oak (<i>Quercus alba</i>)	10.5	100.0%	No	NL
Shrubs				
White Pine (<i>Pinus strobus</i>)	38.0	78.3%	Yes	FACU
Shagbark Hickory (<i>Carya ovata</i>)	10.5	21.6%	Yes	FACU
Herbaceous				
Low bush blueberry (<i>Vaccinium angustifolium</i>)	38.0	61.8%	Yes	FACU
Lady Fern (<i>Athyrium filix-femina</i>)	20.5	33.3%	Yes	FAC*
Cinnamon fern (<i>Osmundastrum cinnamomea</i>)	3.0	4.9%	No	FACW*
Vines				
None				

* Use an asterisk to mark indicator plants: plant species listed in the wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusion:
 Number of dominant wetland indicator plants: **1** Number of non-wetland indicator plants: **5**
 Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants: YES NO



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- 307E – Paxton Fine Sandy Loam, 15-35% slopes, extremely stony**

Hydric Soil Inclusions: **YES**

Are field observations consistent with soil survey? YES NO

Remarks:

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	0-3"	10YR 3/2	
Bw1	3-8"	10YR 5/4	
Bw2	8-16"	10YR 5/6	

Remarks: **Fine Sandy Loam**

3. Other:

Conclusion: Is soil hydric? YES NO

Other Indicators of Hydrology:

- Site inundated: _____
- Depth to free water in observation hole: _____
- Depth to soil saturation in observation hole: _____
- Water marks: _____
- Drift lines: _____
- Sediment deposits: _____
- Drainage patterns in BVW: _____
- Oxidized rhizospheres: _____
- Water-stained leaves: _____
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- Other: _____

Vegetation and Hydrology Conclusion	YES	NO
Number of wetland indicator plants greater than or equal to number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Hydric soils present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in BVW	<input type="checkbox"/>	<input checked="" type="checkbox"/>