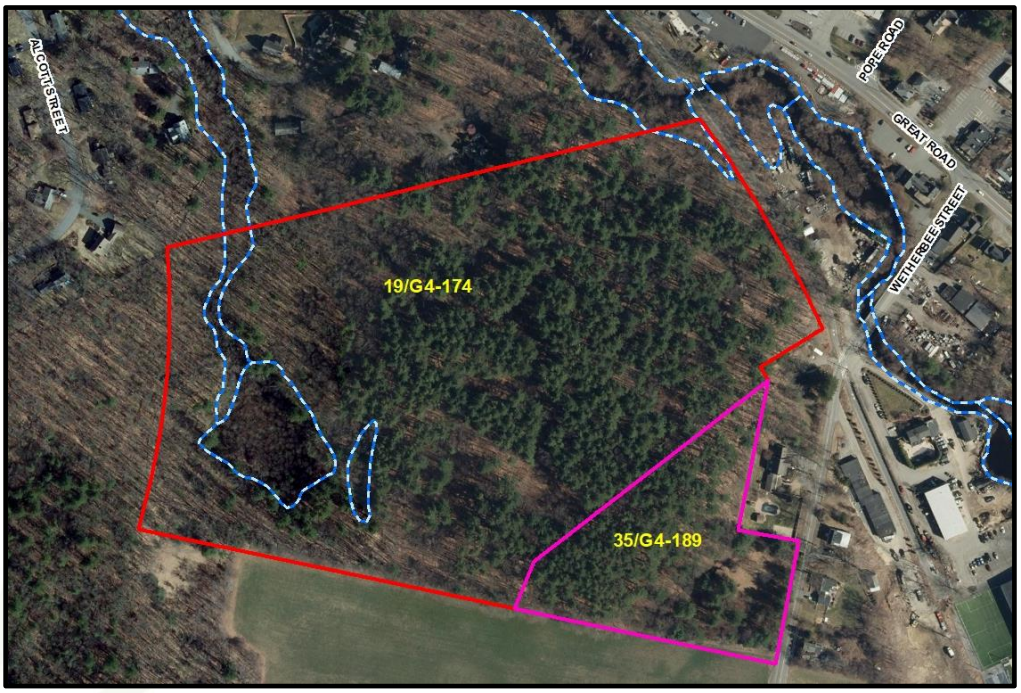
OXBOW ASSOCIATES, INC.

Wetlands Delineation & Permitting Wildlife Studies Herpetology Vernal Pool Ecology Botany Aerial Imagery

Site Evaluation

19 and 35 Wetherbee Street
Parcels G4-174 & G4-189



Wetherbee Street, Acton, MA – 2021 MassGIS Orthophotograph

Prepared for:

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Introduction and Site Context

The Area of Interest consists of two Assessor's parcels located west of Wetherbee Street; parcels G4-174, 19 Wetherbee St., and G4-189, 35 Wetherbee St. The aggregate acreage of the properties (the premises) is 33.11+/- acres according to Acton Assessor's data. The properties are largely in a natural state of successional second growth forest with the exception of a small outbuilding on the 19 Wetherbee Street parcel and the remnants of several HAM radio towers and accessory features that remain within the premises.

The premises occurs contiguous with, or near parcels that enjoy varying degrees of protection totaling approximately 320 aces in Acton and adjacent Concord (Figure 3). Contiguous, conserved or partially protected land within Acton includes the 72.7-acre Wetherbee Conservation Area immediately to the south of the subject properties consisting of permanently protected land, with 31 acres under lease for agricultural use by the Massachusetts Northeast Correctional Facility. The remainder of the property is forested with established trails and wetlands. The open portion of the Wetherbee Conservation Area is mapped as Priority Habitat by the Massachusetts Division of Fisheries and Wildlife and supports Vesper Sparrow (*Pooecetes gramineus*) a grassland bird listed as "Threatened" by Massachusetts Division of Fisheries and Wildlife (MDFW) under the Massachusetts Endangered Species Act (MESA; MGL Ch. 131A).

To the adjacent west of the Wetherbee Conservation Area parcel is approximately 8.4 acres of unimproved land of the Commonwealth of Massachusetts extending 1,400 feet west along Route 2 to Hosmer Street. South of Route 2 from the Wetherbee Conservation Area lies approximately 90 acres of property of the Massachusetts Department of Corrections consisting predominantly of agricultural fields with lesser amounts of upland forest and floodplain meadow to Fort Pond Brook. The MDOC parcels are contiguous with the 80 acres of Laws Brook Well Fields (Acton Water District) and an additional 6-acre Wagner Conservation Restriction bounded by the Concord-Acton municipal boundary.

The premises are partially occupied by a kame terrace, with the highest elevation (app. 190') west of its geographic center and the lowest near Nashoba Brook in the northeast portion at approximately 130 feet elevation. Soils extant on the properties consist of fine sandy loams of the Paxton series at higher elevations tapering east and west to Whitman, Canton, and Woodbridge series; Hinckley Loamy Find Sand, that also underlies much of the Wetherbee Conservation Area agricultural field, occurs in the southeast corner of the premises also. Swansea Muck belies the westerly wetlands where palustrine forest and several vernal pools occur.

Most of the site would have been poorly suited for cropland during the agricultural period and was presumably utilized predominantly for pasturage prior to its abandonment during the early-to-mid-century period. In the intervening decades the

premises have developed into predominantly mature, second growth mixed coniferous and coniferous/deciduous forest. A modest area of old field habitat remains in association with the single existing (garage/workshop) structure (Figure 1, Photo 5) near Wetherbee Street, in the easterly part of 35 Wetherbee Street.

Anthropogenic Features

The Site is predominantly in a natural, second growth forest successional state typical of abandoned lands in the eastern commonwealth. Persistent features indicative of the premises' use history are sparse, but widely distributed across the properties.

A relict outbuilding (Photo 5, Figure 1) is the only building improvement, now shrowded in vegetation, remaining on the premises. There are crude remnants of fieldstone walls along the southern boundary and elsewhere within the Site, but the property limits are not defined by remnant boundary walls throughout. A wide path, previously used by mechanical vehicles, parallels the southerly property boundary (Photo 1). Other paths and road features appear largely overgrown, with little evidence of consistent contemporary foot traffic across the properties.

A pair of notable anthropogenic modifications on the premises include an improved, natural spring and a rectangular, stone-lined excavated pool near the westerly boundary of the premises (Figure 1, Photo 2). Approximately forty feet from the westerly property boundary, a groundwater-breakout feature lies on the subtle, wooded slope. This natural spring has been historically excavated, including the addition of a ditched channel that consolidates the outflow so as to drain to the pool, excavated within the wetland below. There may have been a spring house enclosing this feature, but there are no obvious foundation remnants if so.

The ditch that services the spring drains by way of the arced channel about 65 feet to the rectangular pool. The man-made pool has standing water to a depth of about five feet with significant muck and detritus accumulated over the decades. An outlet on the north side of the rectangular pool conveys flow to the palustrine woodland that the pool is embedded within.

The pool is roughly 15 feet wide (E – W) and 25 feet long (N – S). There is a break in the stone border in the southeast corner, perhaps used for access or for a mechanical pump or other device. How the pool, excavated at considerable effort and stone-bounded supported the farming uses of the premises is unclear. Regardless, it would provide a year-round supply of surface water long after the adjacent vernal pools and forested swamp were reduced to muck during the summer months.

Other features worthy of note but not of extraordinary significance to the ecology of the properties include several HAM (High Amplitude Modulation) antennas; remnants of four HAM towers are extant on the premises (Fig. 1). Of the four antennas, two appear fully intact and upright, one is partially collapsed, and one is disassembled in place. The erect towers have guy wires that extend outward into the forest. There is also significant length of wire spread through parts of the Site, some supported by metal

poles, others hanging at chest height. Some of the wire may have served to moderate static or other function supportive of the radio towers; some may have been electrified for animal containment at one point. The wires are not overly pervasive, but depending on their height from ground they present a tripping hazard to wildlife and humans. Presumably all of the towers were ganged via buried or elevated cable to the garage structure remaining near Wetherbee Street.

Two abandoned vehicle chasis are present on the Site (Fig. 1), both apparently identical Plymouth vehicles estimated of 1940's or 1950's vintage, that have likely been in place for greater than fifty years. Two or more empty, 55 gallon drums were observed within the premises. These do not appear to have been abandoned there with their contents and are likely relicts of the agricultural use of the properties, or the HAM installation.

A boulder pile (Fig. 1) is the single other anthropogenic relic on the premises. This pile appears to simply be a repository for fieldstones displaced from other parts of the site.

Natural Features

The properties are predominantly forested upland with rolling topography. Wetlands occur in the westerly portion and in the extreme northeast part of the Site. There are about thirty acres of upland; predominantly occupied by mature second growth forest. The forest composition is typical of post-agricultural land in eastern Massachusetts.

Tree species of significant occurrence include eastern white pine, red oak, white oak, red maple and black birch. Swamp white oaks also occur within the forested wetland system in the western portions of the Site. Within the upland forest, invasive understory vegetation such as European buckthorn and honeysuckle (Taratrian, Morrow's or related) are present, but not occurring at high densities over large areas of the forest floor as can be found in many second growth woodland settings. A patch of Japanese knotweed, a pernicious non-native species, occurs in the easterly corner near Wetherbee Road where the canopy is open and there is history of disturbance spanning a tangent of the Site as well as the adjacent property. The Japanese knotweed is largely self-contained where it now occurs since it does not compete well within the dominant intact forest canopy pervading the Site.

Tangles of Asiatic bittersweet as well as Japanese honeysuckle vine occur in the small patch of old field habitat between the outbuilding and Wetherbee Road (Photo 5). This area would historically been mowed lawn associated with the outbuilding that has been left untended for many years.

A large white oak wolf tree (Fig. 1, Photos 6, 7), normally found along property boundaries or corners on old farm properties, occurs unassociated with any property or boundary feature in the northern part of the Site. The tree may have been retained to provide shade for pasture animals when the site was cleared for agriculture. It is about fifty inches dbh and estimated at greater than 150 years old. Its interior is hollow (Photo 7), both in its base and among the remaining upper limbs, potentially providing habitat for mammal and bird species.

Vernal Pools

There are two, "Certified" vernal pools (CVP #4757 and #4758; Fig. 1) on the premises, both certified on the basis of "Obligate Species" and both certified by MA DFW on July 28, 2008. It is unclear whether the certification loci are inaccurately mapped; many mapped locations submitted without, or prior to GPS data are found to be mis-mapped in the field, sometimes significantly so. This Site appears to contain up to four, more or less distinct vernal pools, including the man-made stone pool and three additional areas of ponding within or adjacent the palustrine woodland drainage. At extreme high water the pools are interconnected by surface water, but during the growing season are normally distinct.

The vernal pool complex may be visited by specialist finfishes such as redfinpickerel and banded sunfish. These species are capable of seemingly inordinate migrations from permanent waters, up tenuous streamlets and seeps but typically occur as annual species in remote, ephemeral pools.

In addition to the two certified pools, two "Potential" vernal pools (PVP # 0099 and # 0100) are also mapped by MDFW in the southwesterly part of the premises. Typically, when a PVP becomes certified by the Division the PVP designation and iconography is removed from the PVP database. In this case, two certified and two potential pools remain mapped; this may be deliberate on the part of the Program or an oversight. A relatively discrete vernal pool lies south of all of the mapped potential and certified vernal pools, and also beyond the limit of wetlands mapped by MA DEP (Fig. 1).

The drainage that the vernal pools occur within is fed in part by the spring mentioned above as well as surface flow and groundwater interception. Among the pools is palustrine forest that intergrades with the pools during seasonal high water conditions. The wooded swamp ultimately consolidates into a subtle channel that conveys surface water off Site into adjoining private property to the north of the premises. This drainage discharges to Nashoba Brook, which subsequently drains south to merge with Fort Pond Brook and thereafter to Warner's Pond in Concord.

The small area of forested wetland located in the extreme northeast part of Parcel G4-174 (Fig. 1) also drains to Nashoba Brook, slightly lower in the watershed than the more westerly Site drainage discussed above.

General Features

The Site itself, combined with adjacent protected open space or backlots of bordering private land supports about 90 contiguous acres of mature second growth forest. The forest is separated from significant additional areas of open space and forest by primary (MA Rte. 2) and secondary roads (Fig. 2), but is not entirely isolated from animal transmission between and among properties. No formal inventory of species presence was attempted, but the properties are capable of supporting diverse mammal species ranging from fossorial shrews and voles to coyote and white-tailed deer. Intermediate

species such as mink, red fox, opossum, eastern skunk and raccoons presumably utilize the properties; some species likely enjoying subsidization by the presence of residential and commercial properties around the perimeter of the parcels. Seasonal use by one to several species of bats can also be assumed based on the dimensions of contiguous woodland with suitable roost trees and adjacency to expanses of field, forest edge and the Fort Pond and Nashoba Brook corridors. These landscape features provide preferable foraging conditions for native bat species.

Bird species including owls and raptors, and diverse migratory and resident Passerines utilize any woodland of similar attributes in eastern Massachusetts. The forest is likely sub-threshold for forest-interior specialist birds, but warblers, vireos, and others can utilize this forest land adjacent to the Nashoba Brook drainage corridor. The westerly wetlands have sufficient characteristics to provide stopovers for migratory waterfowl, particularly during the spring migration season.

Native herptiles, amphibian and reptile species expected to utilize the premises include garter, ribbon, ring-neck, norther water and milk snakes. Less anticipated is the presence of red-belly and little brown snake, neither of which is common in Acton.

The palustrine wetland and vernal pool matrix is sufficiently sizeable and experiences an open canopy in spring to potentially support spotted turtle; a species with occurrences in Acton and adjacent towns. The vernal pools and shallow swamp habitat observed in the western portion provide suitable conditions to support spotted turtles, including for hibernation. The habitat is poorly suited for eastern painted and musk turtles, but similar habitats support small numbers of aged snapping turtles, particularly with the connectivity to Nashoba Brook. The stone pool could support hibernation by common snapping and/or spotted turtle.

Amphibians that are likely extant on the properties include common, terrestrial, lung-less red-back salamanders throughout the upland forested habitat. Spotted salamanders are implicitly present owing to the high quality and diverse (re. hydroperiods and other attributes) qualities of the vernal pools that range from roughly two feet to over five feet in depth and thus are presumed to have diverse annual hydroperiods.

Whereas the pools exhibit a range of characteristics concentrated in a several-acre footprint the presence of blue-spotted (hybrid) salamander within the premises is very plausible. *Ambystoma laterale* complex (polyploid hybrids of Jefferson and Blue-spotted Salamander) animals have been documented in recent decades in several locations in Acton, Concord and adjacent Westford. These property's long histories of being unperturbed and contiguity with Nashoba Brook further support the Site's potential to support this State-listed (MDFW "Special Concern") species.

The westerly pool complex undoubtedly supports wood frog, gray treefrog, spring peeper and green frog. American toads would be expected to breed in the shallower surface waters on the Site, and potentially in suitable off-site ephemeral wetlands. Due to the persistence of some of the pools both green frog and potentially northern pickerel

frog are likely to take advantage of the deep stone pool and one of the pools that measures in excess of three feet depth.

Conservation Value

In the Metrowest region of Massachusetts the natural landscape has been, and continues to be, fragmented and compound-fragmented. Ever escalating land values in the area confound the timely acquisition and protection of meaningful conservation parcels, which in turn makes the protection of properties that are contiguous with already conserved properties more paramount and more urgent.

The subject properties possess the attributes of being ecologically intact, contiguous acreage (+/-33 acres), bordering on similarly intact (forests) or managed (agricultural fields) habitats of approximately 70 acres (existing Wetherbee Land) enjoying perpetual protection from development. The acre-for-acre value of lands annexed to existing conserved parcels cannot be over-valued, particularly where the development of the prospective parcel acquisitions would ultimately diminish the qualitative values of the already conserved adjacent property(ies).

These premises have no obvious liabilities that might compromise their value as conservation land. The landscape is fully recovered from its long-standing agricultural use and infestation by post-agricultural adventitious exotic vegetation is modest; certainly of lesser significance than many similar properties in the area. There is no imminent need to mount a restoration or management campaign in order to salvage the habitat values of these parcels, though the properties could benefit from moderate future vegetation management, as could most conservation parcels in the region.

The localized occurrences of Japanese knotweed and Asiatic bittersweet referenced above belie one percent of the properties and do not present a threat of overtaking significant additional landscape. The moderate-density occurrences of European/glossy buckthorn are unlikely to significantly advance beneath an intact forest canopy and any proposal for management can be deferred without rapidly losing ground to this understory species.

The vernal pool complex is unusual in that several distinct basins exist with differing annual hydroperiods, in an interconnected context within a wooded swamp. Two of the pool features appear to have been anthropogenically improved; the stone pool and the most southerly, unmapped pool. Closer study would likely reveal partitioning by species among these pools by amphibian and potentially invertebrate species. The pools and interconnected forested wetland have a relatively high probability of supporting blue-spotted (complex) salamander (MDFW-listed) and spotted turtle (formerly listed, of uncommon occurrence in Acton). And, with diverse hydroperiods between pools this complex can be assumed to be highly productive of multiple obligate and facultative vernal pool breeders that in turn rely upon, and radiate outward to populate the adjacent forested landscape.

The prospective acquisition of these parcels will effectively increase the proportion of non-managed forest land (currently 60/40) of the extant Wetherbee Conservation Land while preserving nearly all of the existing forest land supporting the vernal pool complex. This is an uncommon opportunity in the contemporary Acton landscape.

Representative Site Photographs

Photo 1. (top) View to the west along an old cart road; the Wetherbee Conservation Land agricultural field can be seen to the left of the photo. Photo 2. (bottom) The anthropogenic stone pool adjoining the vernal pool and forested swamp complex in the SW of the premises.

Photo 3. (top) Metal “J” poles supporting wires in some parts of the premises.
Photo 4. (bottom) Square posts with metal junction or similar boxes in the SE part of the premises.

Photo 5. (top) Relict outbuilding on 35 Wetherbee Street with overgrown lawn and bittersweet and Japanese honeysuckle (vine). View to the west from near Wetherbee St.

Photo 6. (L) Large white, "Wolf" oak in northern part of the premises. Photo 7. (R) Interior view of the wolf oak in Photo 6.

Photo 8-10 (clockwise) 8. Erect HAM tower. 9. Dis-assembled HAM tower southeast. 10. Old empty drum.

Photo 11. Japanese knotweed in easterly corner of 19 Wetherbee Street.

FIGURE 1. Existing Conditions, 2021 Orthophotograph

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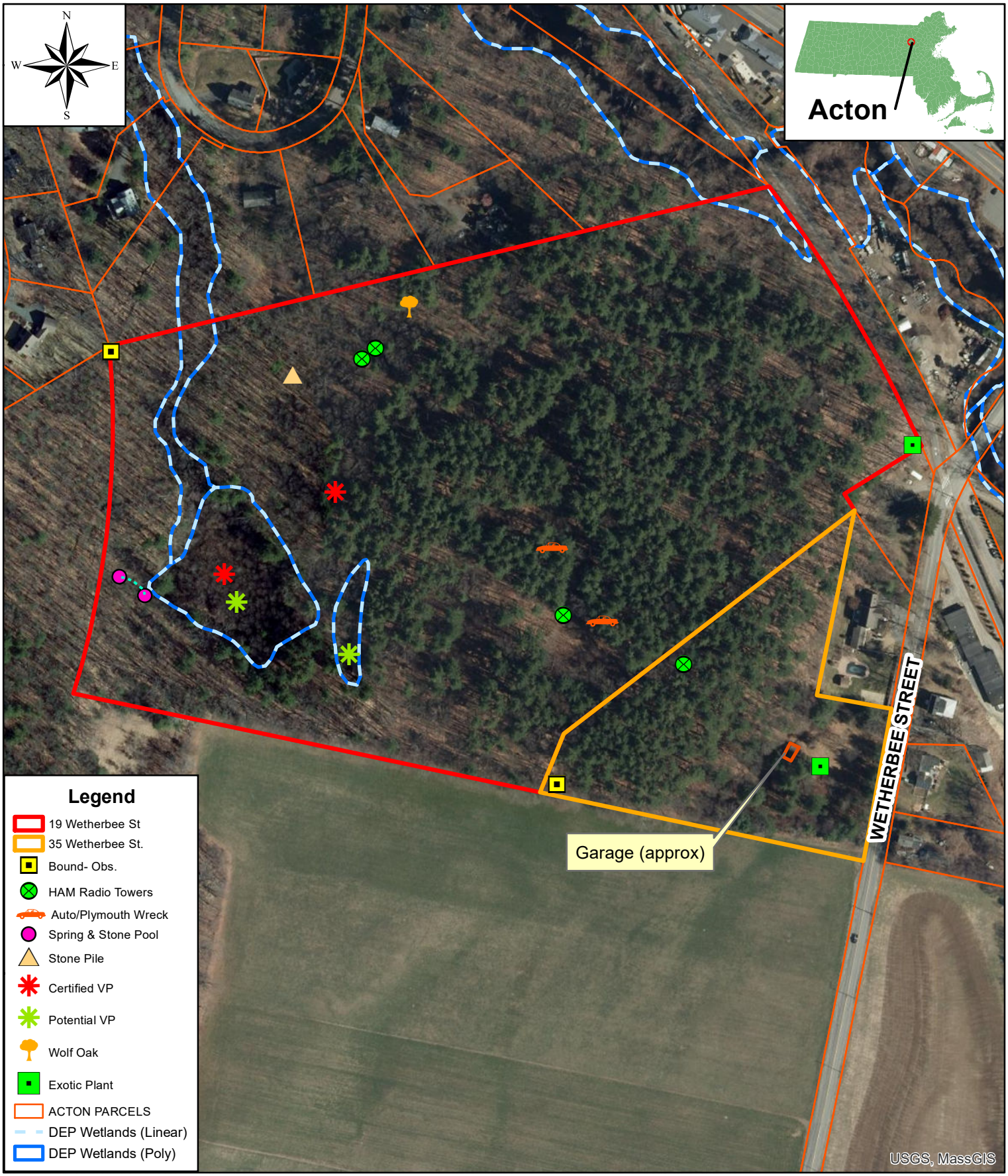

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1:3,000

1 inch = 250 feet

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Figure 1. Existing Conditions
19 & 35 Wetherbee Street
Acton, MA

December 28, 2023

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FIGURE 2. USGS Quadrangle; 1:12,000

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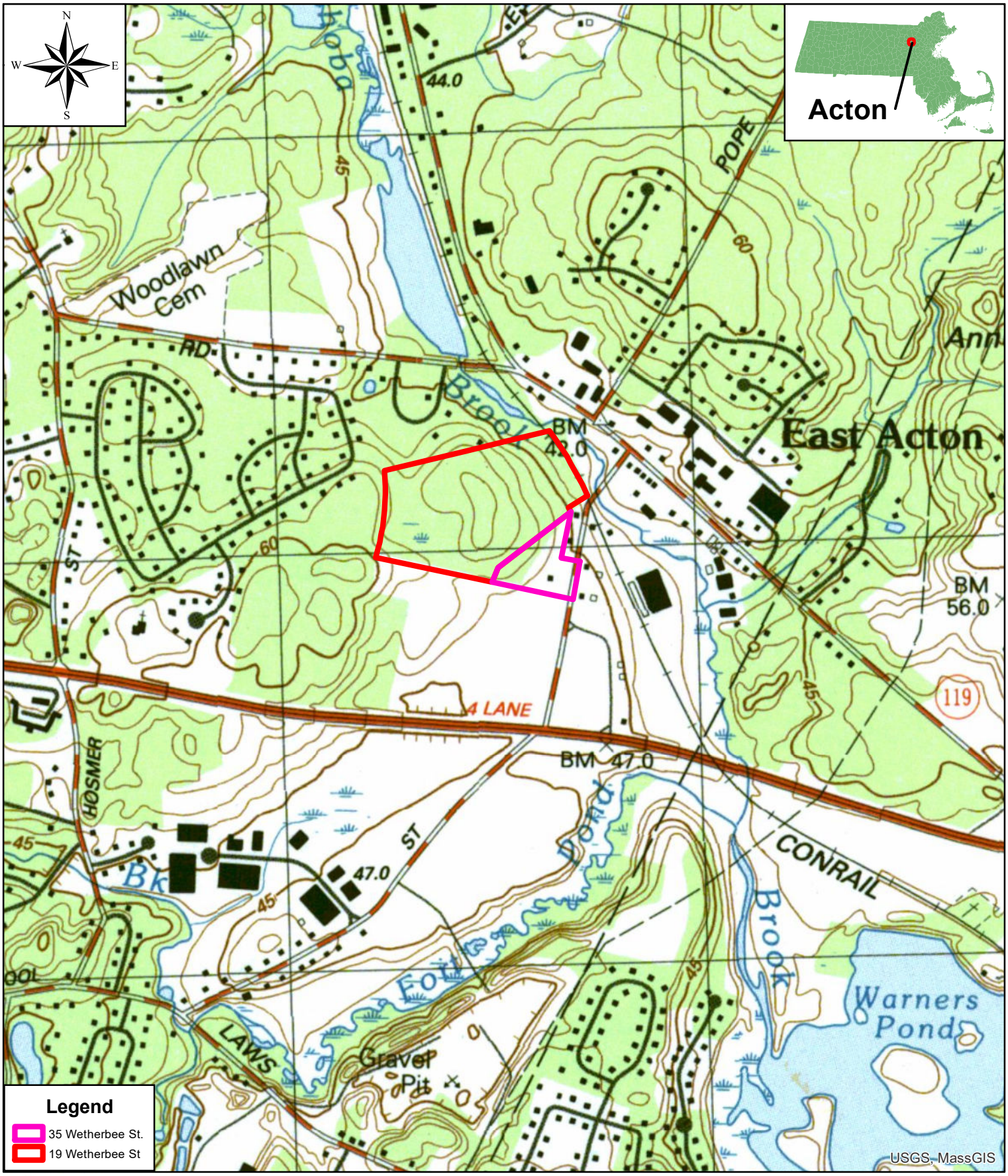

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1:12,000

1 inch = 1,000 feet

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Figure 2. USGS Quad
19 & 35 Wetherbee Street
Acton, MA

December 27, 2023

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FIGURE 3. Open Space Context, 2021 Orthophotograph

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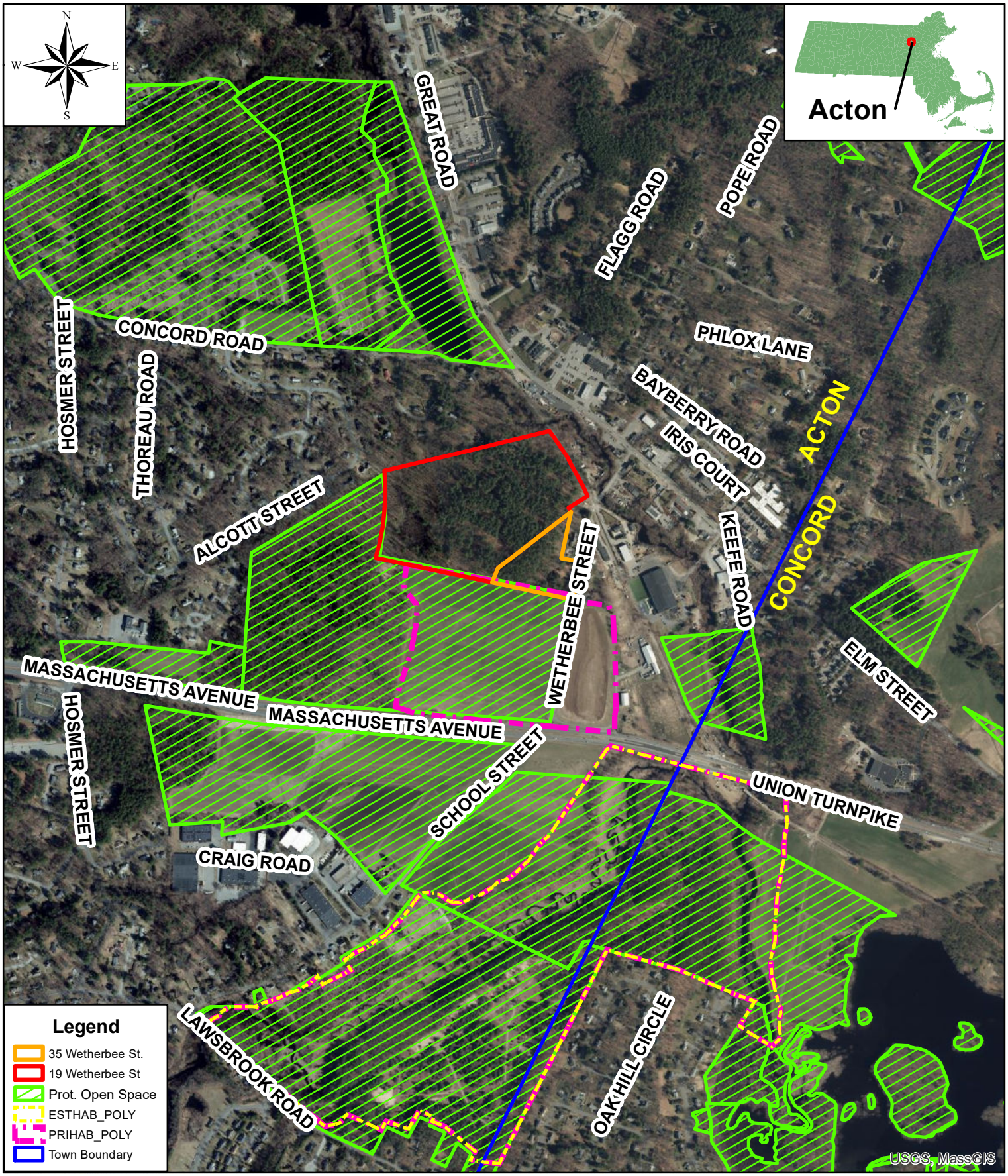

OXBOW ASSOCIATES, INC.

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Figure 3. Open Space Context
19 & 35 Wetherbee Street
Acton, MA

December 27, 2023

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