EcoTec, Inc.

ENVIRONMENTAL CONSULTING SERVICES
102 Grove Street
Worcester, MA 01605-2629
508-752-9666 – Fax: 508-752-9494

October 27, 2019

Mr. Edward O'Harte
Lakeland Hills, LLC
136 Seekonk Street
Norfolk, MA 02056

RE: Findings of Site Visit, 144 Seekonk Street, Norfolk, Massachusetts

Dear Mr. O'Harte:

At your request, on October 25, 2019, John P. Rockwood, Ph.D., PWS of EcoTec met on-site with David Crossman of B & C Associates. The purpose of the site visit was to evaluate the area of land located between so called Area 2 and the approved wetland boundaries on the site for the presence of a jurisdictional stream under the Town of Norfolk Wetlands Protection Bylaw. The Bylaw does not define the term stream; stream is defined in the Town of Norfolk Wetlands Protection Regulations at Section 5(36) as:

> *"a body of running water, including brooks and creeks, which moves in a definite channel in or under the ground due to hydraulic gradient. A portion of a stream may flow through a culvert or beneath a bridge. A stream may be intermittent (i.e., does not flow throughout the year). A stream may also be man-made."*

As background, in his February 19, 2018 and August 8, 2019 letters, Patrick Garner identified an intermittent stream located between Area 2 and the previously approved Bordering Vegetated Wetlands boundary. In the unattributed BETA Group memorandum dated October 23, 2019, BETA concurred with Garner's finding that a jurisdictional stream under the Bylaw occurs in this area. Neither Garner nor BETA identified or confirmed the presence of a definite channel in or under the ground in this area as is required under the Bylaw Regulation definition of stream. The latter Garner letter states "…that the stream has either banks or scouring along a definable hydraulic gradient from the upper reach at Area 2 to the wetland points IVW A-E" and the BETA memorandum states "…that water flows both on and below the ground at least once a year within this clear drainage pattern in a hydraulic gradient, ultimately hydraulically connecting to the resource areas depicted on the SORAD final plan-of-record." Again, the terms "definable hydraulic gradient" and "clear drainage pattern" are not the same as a definite channel.

As further history on this matter, during the initial peer review for the Norfolk Conservation Commission during the Order of Resource Area review conducted by Edward Hutchinson, PWS of Tetra Tech on October 23, 2017 and during the review for the Superseding Order of Resource Area Delineation conducted by Gary Dulmaine of MassDEP on February 28 and May 10, 2018, no such stream was identified. During the latter inspection, MassDEP required an Isolated Vegetated Wetland be delineated along the path of the alleged stream about 30 feet upgradient from the Bordering Vegetated Wetlands boundary; if a stream were present in the area between the Isolated Vegetated Wetland and Bordering Vegetated Wetlands, MassDEP would have characterized the newly delineated wetland as Bordering Vegetated Wetlands not Isolated

Vegetated Wetlands due to the stream connection and MassDEP would have required the stream connection between the areas to have been delineated and shown on the site plan.

Based upon EcoTec's observations on October 25, 2019, the subject area between Area 2 and the approved wetland boundaries consists of upland forest with northern red oak, white oak, eastern white pine, pig-nut hickory, sassafras, and red maple trees, saplings, and/or shrubs; common greenbrier climbing woody vines; American witch-hazel and highbush blueberry shrubs; and lowbush blueberry, hay-scented fern, New York Fern, bracken fern, and tree clubmoss ground cover. Just downslope of Area 2, a trail segment marked with faded blue paint on trees was noted. Within the subject area, this trail segment is about 100 feet long; the first 50 feet of the trail slopes downhill while the latter 50 feet curves to the right and slopes uphill away from the approved wetland boundaries. The first 50 feet of this trail is a discernable feature with compacted soil with less vegetation than the adjacent areas through which water can flow along a hydraulic gradient. The latter 50 feet of the trail is also a discernable feature with compacted soils with less vegetation than adjacent areas but lacks the above hydraulic gradient. No evidence of water flow, such as leaf dams, was noted within the former trail segment and stream banks and bed were not observed within the marked trail. Any water that moves down this trail ponds shallowly at the low point as evidenced by lightly stained leaf litter in this area, and then overtops a slight topographic rise and continues via sheet flow downgradient toward the approved wetland boundaries. A definite channel or definite braided channel in or under the ground was not observed in the area between the trail and the Isolated Vegetated Wetlands boundary. A definite channel in or under the ground was not observed in the area between the approved Isolated Vegetated Wetland and Bordering Vegetated Wetlands boundaries; instead this area represents a vegetative and hydraulic discontinuity, as determined by MassDEP, between the approved Isolated Vegetated Wetland and the Bordering Vegetated Wetlands boundaries.

In conclusion, it is EcoTec's opinion that a stream subject to jurisdiction under the Town of Norfolk Wetlands Protection Bylaw does not exist within the area located between Area 2 and the approved wetland boundaries. As discussed above, a marked trail occurs in this area. A portion of this trail follows a hydraulic gradient; however, the trail then turns upslope and lacks a hydraulic gradient. Again, there is no definite channel in or under the ground in the subject area through which water flows along a hydraulic gradient from Area 2 to the approved wetland boundary.

EcoTec hopes that you find this information useful. A brief description of my experience and qualifications is attached. If you have any questions or require additional information, please feel free to contact me at any time.

Cordially,
ECOTEC, INC.

John P. Rockwood

John P. Rockwood, Ph.D., PWS
Chief Environmental Scientist

Attachment (1: Resume)

18: NORFOLK144SEEKONKLETTER10272019

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John P. Rockwood, Ph.D., PWS
Chief Environmental Scientist

Dr. John P. Rockwood has been with EcoTec, Inc. since October 1999. Dr. Rockwood was previously a Chief Environmental Scientist at Sanford Ecological Services, Inc. of Southborough, Massachusetts from September 1990 to October 1999. Dr. Rockwood was certified in August 2002 and recertified in March 2008, January 2013, and June 2018 as a Professional Wetland Scientist (PWS) by the Society of Wetland Scientists, the leading professional organization in the field. His project experience includes wetland resource evaluation, delineation, and permitting at the local, state, and federal levels; wildlife habitat evaluation; pond and stream evaluation; vernal pool evaluation, certification, construction/replication, and monitoring; rare species habitat and impact assessment; wetland replacement, replication, and restoration area design, construction, and monitoring; and expert testimony preparation. He has served as a consultant to municipalities, conservation commissions, the development community, engineering and survey firms, industry, and citizen's groups. He has managed and participated in a wide variety of wetlands-related projects ranging in scope from single-family house lots to subdivisions, commercial developments, golf courses, a water park, and a regional mall. He has assessed the potential impacts of stormwater runoff, landfill leachate, and/or hazardous waste disposal sites on rare vertebrate and/or invertebrate species, and has conducted and/or directed surveys, delineated actual habitat, conducted habitat evaluations, and/or developed mitigation strategies necessary to protect rare vertebrate, invertebrate, and plant species and their habitats from proposed development-related impacts. He has conducted a drift fence study for the marbled salamander. He has conducted and led preconstruction sweeps for the spotted turtle, wood turtle, and eastern box turtle. He has filed MESA Project Review Checklists and has prepared applications for Conservation and Management Permits under MESA. He has conducted environmental impact assessments and has prepared MEPA documentation related to an office park, an MBTA commuter train station, water park, residential subdivisions, skating rink facility, landfill, and regional mall. Dr. Rockwood also has extensive experience in environmental site assessment related to possible oil and/or hazardous material contamination. He has conducted numerous environmental assessments, several including subsurface investigations, for sites located in Massachusetts, and has conducted preliminary environmental assessments for properties located in New York, New Hampshire, and Rhode Island. He has conducted ecological risk assessments (i.e., Stage I Environmental Screenings and Stage II Environmental Risk Characterizations) for a number of disposal sites in Massachusetts, including several disposal sites that had the potential to affect state-listed vertebrate and invertebrate species, and has utilized the EPA Rapid Bioassessment Protocol for macroinvertebrates to assess potential impacts of disposal sites and hazardous material releases on streams and rivers in Massachusetts and New York. He has served as the environmental contractor to the Franklin Consolidated Office of the Federal Deposit Insurance Corporation (FDIC-FCO) for 16 months, where he reviewed environmental reports, prepared scopes-of-work for site assessments, and provided technical advice to FDIC employees related to environmentally compromised assets. Dr. Rockwood has designed, conducted, and evaluated numerous surface water and groundwater monitoring programs. His prior research includes a laboratory study of the effects of low pH and aluminum on dragonfly nymphs and a field survey of the impact of chlorinated sewerage effluent on algal periphyton community dynamics. Dr. Rockwood is the co-author of a text book on aquatic biology and is the principal author of three peer-reviewed research publications in the field of aquatic toxicology that address the effect of low pH and aluminum on nymphs of the dragonfly *Libellula julia*. Dr. Rockwood served as the as the Editor of the AMWS Newsletter from November 2004 to October 2010 and as Assistant Editor from May 2003 to November 2004 and October 2010 to January 2012. He served as President of the Association of Massachusetts Wetland Scientists from November 2013 to December 2015 and as Immediate Past President from December 2015 to December 2017.

Education:
Doctor of Philosophy (Ph.D.): Aquatic Pollution Biology – Plant and Soil Sciences
University of Massachusetts at Amherst, 1989
Bachelor of Science (B.S.): Environmental Sciences, *Summa Cum Laude*
University of Massachusetts at Amherst, 1984

Professional Affiliations:
Society for Freshwater Science
Sigma Xi, Full Member
Association of Massachusetts Wetland Scientists, Voting Member
Society of Wetland Scientists
Massachusetts Association of Conservation Commissions

Certifications:
Society of Wetlands Scientists Professional Wetland Scientist, Certification Number 1349
OSHA Health and Safety Training, 40-Hour Training, 29 CFR 1910.120
OSHA Health and Safety Training, 8-Hour Supervisor Training
OSHA Health and Safety Training, 8-Hour Refresher Training