



January 17, 2019

Chris Wider, Chairman
Town of Norfolk – Zoning Board of Appeals (ZBA)
One Liberty Lane
Norfolk, MA 02056

Re: **Wetlands Peer Review**
Lakeland Hills – Townhouse Community
144 Seekonk Street
Norfolk, MA

Mr. Wider and Members of the Board:

BETA Group, Inc. (BETA) has reviewed the plans submitted to the ZBA for the proposed Lakeland Hills development located at 144 Seekonk Street in Norfolk, Massachusetts (the Site) and conducted a site visit to view the existing conditions and wetland resource areas. The purpose of our scope was to identify potential adverse impacts to the environment from the Project if the Norfolk Wetlands Protection Bylaw (Article VII, Section 2 of Town Bylaws) and its Regulations were waived by the ZBA.

Documents Reviewed and Site Visits

- *Project Plans: "Lakeland Hills" A Comprehensive Permit Plan*, Norfolk, Massachusetts, dated November 27, 2019, prepared by Andrews Survey & Engineering, Inc (24 Sheets).
- Town of Norfolk Wetlands Protection Bylaw and Regulations.

BETA's wetland scientists visited the Site on October 3, 2019 to evaluate the presence of wetland soils and stream channels upgradient of the delineated Bordering Vegetated Wetland. This visit was timed to be consistent with soil testing and observations that were scheduled by the Applicant and the Board's civil peer review engineer, Tetra Tech, Inc.. BETA collected soil data and made observations of stream channels, which were summarized in a report filed with the Board dated October 23, 2019.

BETA returned to the Site on December 12, 2019 to record observations of all wetland resource areas on the Site, for purposes of providing this evaluation of probable Project-related impacts to jurisdictional resource areas under the Bylaw and Regulations.

Site and Project Description

The Site, known by the Norfolk Assessor's Office as Map 23, Block 76, Lot 71, consists of a single 21.22± acre parcel and is located to the east of Seekonk Street. Topography onsite consists of several steep forested hills with large areas of exposed bedrock. The Site is generally forested with species including red oak (*Quercus rubra*), eastern white pine (*Pinus strobus*), and American beech (*Fagus grandifolia*) with the understory of low-bush blueberry (*Vaccinium angustifolium*) and witch-hazel (*Hamamelis virginiana*).

An internal wetland system exists in a narrow southeasterly configuration through the center of the Site. The hydrology source of the wetland system originates from groundwater discharge and runoff from the adjacent upland areas. Generally, the wetland is vegetated with species including red maple (*Acer rubrum*), highbush blueberry (*Vaccinium corymbosum*), and green brier (*Smilax rotundifolia*).

The proposed Lakeland Hills project includes constructing 3,250± feet long, 24 feet wide roadways/driveways with sidewalks on one side to provide frontage/access to 84 units (the Project). One entrance off Seekonk Street is proposed. Homes will be served by public water; a private subsurface soil adsorption system; and private electric, telephone and cable. Proposed stormwater management systems include deep sump catch basins, manholes, pipes, and stormwater basins. To achieve the development goals of the Project, significant earth moving is required, with elevation cuts of over 30 feet and fill of over 20 feet.

The project will impact wetland resource areas that are Subject to Protection under the local Bylaw and the Massachusetts Wetlands Protection Act. The Applicant has submitted a request for a Waiver from compliance with the local Wetlands Protection Bylaw and Regulations, as the Project is seeking approval for a Comprehensive Permit pursuant to M.G.L. Chapter 40B.

Protected Wetland Resource Areas - Bylaw

The boundaries to vegetated wetland areas on the Site have been approved under a Superseding Order of Resource Area Delineation (SORAD) issued by MassDEP on July 13, 2018. The SORAD confirmed the Bordering Vegetated Wetland (BVW) boundary (Wetland flags 1 through 10; Wetland Flags 51 through 90) and Isolated Vegetated Wetlands (IVW) (Wetland Flags A through E) under M.G.L. Chapter 131, Section 40 (The Wetlands Protection Act) and M.G.L. Chapter 21, Section 26-53 (the Massachusetts Clean Waters Act). Although its boundary was confirmed for accuracy, IVW is not an Area Subject to Protection under the state Act and Regulations. Further, since the Abbreviated Notice of Resource Area Delineation was not filed under the local Bylaw, the IVW boundary can be evaluated by the Conservation Commission during a Notice of Intent process as long as the application is filed under the local Bylaw and Regulations.

During our December 12, 2019 site visit with the Applicant's representative, Ecotec, Inc., BETA observed nearly-continuous concentrated flow moving due to hydraulic gradient within a defined pathway (Photos 1 and 3) upgradient of the IVW, generally in the area of the proposed roadway from proposed Station 26+50 to 24+00. The defined pathway observed had very minor disrupted flow through the BVW to the project limits in the southeast portion of the Site.



Within the BVW downgradient of the concentrated flow documented in Photo 1, the flow path separates into a more braided system. BETA believes that the channel of concentrated surface flow both

upgradient and within the IVW/BVW meets the definition of a stream under the Bylaw.¹ Unlike the definition of stream within the MA Wetland Regulations, the stream segment upgradient of the BVW is jurisdictional and protected under the Bylaw (Photo 3). Further, BETA believes that since the IVW is hydraulically connected to the downgradient BVW at least once a year, it should have been defined as BVW. If the local Bylaw and Regulations are waived, then the IVW and stream above the BVW boundary would not be protected.

An area of ponded water, that was approximately 18" deep at the time of our December site visit, was observed between WF63 and WF80 (Photo 2). This ponded area may meet the definition of a Vernal Pool under the Bylaw². Additional study of this ponded area is required to determine whether the area holds water for the required duration to meet the definition of a vernal pool. Since this area of ponded water is not currently certified as a Vernal Pool by the Massachusetts Division of Fisheries and Wildlife, its habitat is not currently protected under the state regulations but is protected under the local Bylaw and Regulations. This pool should be evaluated during the month of April, when vernal pool activity can be observed, and if appropriate, certified as a Vernal Pool with the Division of Fisheries and Wildlife.



¹ In accordance with Section 5 (36) of the Town of Norfolk Wetland Protection Regulations, a stream is defined 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.”

² In accordance with Section 5 (38) of the Town of Norfolk Wetland Protection Regulations, a “Vernal pool and its habitat shall include a confined basin depression which, at least in most years, holds water for a minimum of two continuous months during the spring and/or summer and which is during most years free of adult fish populations, as well as the area within 100 feet of the mean annual boundary of such a depression, regardless of whether the site has been certified by the Massachusetts Division of Fisheries and Wildlife.”

The Project, as proposed, will also result in clearing most of the Site, including substantial area within the 100-foot buffer zone to the vegetated wetlands. Under the Bylaw (Section 2.B.1) and local Regulations (Section 2(1)(b)), the buffer zone to a wetland is a Resource Area Subject to Protection and can therefore be regulated by the Commission to protect the interests in Section 1(2) of the Bylaw. Under the state Wetland Regulations, the 100-foot buffer zone is only an Area Subject to Jurisdiction.

Evaluation of Compliance with Bylaw Performance Standards and Protection of Interests

The Regulations, at Section 7(2), list the following performance standards that are applied to any proposed activity within a Resource Area, which includes the 100-foot buffer to the water bodies and wetlands enumerated in the Bylaw and Regulations:

- No net change in runoff volumes or peak flows
- No adverse impacts in runoff water quality
- No adverse impacts to groundwater recharge
- No adverse impacts to wildlife and wildlife habitat as a result of change of runoff flows

The Bylaw and Regulations prohibit the “alteration” of Resource Areas, which include uncertified Vernal Pools, without a permit and only after a consideration of the above performance standards. The term “alter” is defined under the Bylaw (Section I.2) as including the following, which are relevant here:

- a) Removal, excavation or dredging of soil, sand, gravel, or aggregate materials of any kind;
- b) Changing of preexisting drainage characteristics, flushing characteristics, sedimentation patterns, flow patterns, or flood retention characteristics;
- c) Drainage or other disturbance of water level or water table;
- e) Placing of fill, or removal of material, which would alter elevation;
- f) Driving of piles, erection or repair of buildings, or structures of any kind;
- h) Destruction of plant life including cutting of trees;
- i) Changing water temperature, biochemical oxygen demand, or other physical or chemical characteristics of water;
- j) Any activities, changes or work which may cause or tend to contribute to pollution of any body of water or groundwater; and
- k) Application of pesticides or herbicides.

The Project will impact Resource Areas Subject to Protection under the local Bylaw. Specifically, construction of the roadway and grading and the proposed BVW and stream crossing near roadway Sta. 10+00 will impact inland Bank (to intermittent stream) and IVW along with the state and locally protected BVW. Clearing and grading associated with the Project will significantly permanently alter 100-Foot buffer zone Bylaw resource area.

The 100-foot buffer zone on the Site plays a significant role in wildlife habitat protection, as the area is vegetated with hard mast tree species, fruit-producing shrub species, and flowering vegetation. Many studies document that amphibians, reptiles, birds and mammals regularly use upland buffer zones for

nesting, feeding, over-wintering and reproducing.³ Removing the natural features of the 100-foot buffer zone, as currently proposed, will remove wildlife cover resulting in a permanent adverse impact to wildlife escape and migration pathways, nesting, and forage. The Bylaw Regulations protect the wildlife habitat interest of the Buffer Zone, presuming that a 50-foot vegetated buffer is the minimum buffer necessary to protect the interests of the Act (Section 3(1)(a)) and that new subdivisions should provide a 100-foot vegetated buffer (Section 3(2)(b)(1)).⁴

Buffer zone width is one of the most important variables for water quality protection, especially when a Project will result in intense use of the adjacent land³. Since the current Project will result in a high-density residential neighborhood, migration of nutrients and sediment are likely, therefore a minimum of a 50-foot undisturbed buffer is recommended, however, because the slopes adjacent to the wetlands onsite are generally around 20 to 30% slopes, a wider buffer zone may be necessary to properly protect the wetland. Under the local Bylaw, the Conservation Commission would be able to require buffer zone protection beyond their 50-foot no disturb zone.

In addition to providing wildlife habitat, upland buffer zones help control the rate at which water enters and leaves a wetland system and regulates stream base flows during dry times. The Site's steep topography and varied subsurface soil conditions are features that provide and maintain the hydrology required to support the wetland system and the potential vernal pool habitat. The source of concentrated flow observed by BETA is groundwater discharge and to a lesser extent runoff. The Project will result in significant changes to the current watershed to the BVW, IVW and stream system. Therefore, a reduction in local recharge upgradient and cross-gradient of the wetland system may have a significant adverse effect on its water budget.

Wetlands, and especially Vernal Pools, are sensitive to hydrologic alterations. The proposed construction of impervious surfaces within the drainage area to the BVW on the Site will likely prevent groundwater recharge that currently provides baseflow to the BVW. This could result in lowered water levels and drying of any vernal pool and its habitat in the BVW.

Further, proposed Infiltration Basin #3 is sited directly north of the IVW, and approximately 240 feet upgradient of the potential Vernal Pool. The outflow from this detention basin during storm events will likely increase post-development, and effluent from the stormwater basins will likely contain pollutants, including higher pH, salts, hydrocarbons and herbicides/pesticides. These predictable impacts could "change... preexisting drainage characteristics, flushing characteristics, sedimentation patterns, flow patterns, or flood retention characteristics," and "change water temperature, biochemical oxygen demand, or other physical or chemical characteristics of water." They could also materially alter the habitat of any Vernal Pool that is located within the downgradient BVW.

Findings and Recommendations

At this time, the applicant has not submitted enough information to describe the site, the work or the effect of the work on the public and environmental interests identified in the Norfolk Wetlands Protection Bylaw (Article VII, Section 2 of Town Bylaws) and its Regulations. Based on review of the current project plans and observations made at the site, BETA recommends that the ZBA consider the

³ MACC Buffer Zone Guidebook, dated June 6, 2019

⁴ Based on Site observations, the buffer zone onsite is providing the following interests protected by under the Bylaw: groundwater and groundwater supply; surface water quality in the numerous ponds, rivers, lakes and streams of the Town; erosion and sedimentation control; storm damage prevention; water pollution prevention; wildlife and wildlife habitat; passive recreation; and aesthetics.

Norfolk Zoning Board of Appeals

January 17, 2020

Page 6 of 4

importance of the local wetland protection Bylaw and Regulations to the protection of public interests afforded by the Site's resource areas. Waiving the Bylaw would likely result in adverse impact to resource areas and their ability to protect the interests of the Bylaw.

Thank you. If you have any questions, please contact us at your convenience.

Sincerely,

BETA Group, Inc.

A handwritten signature in black ink that reads "Marta J. Nover". The signature is written in a cursive style with a long horizontal flourish at the end.

Marta J. Nover

Vice President

Job No: 19.06850.00

