

MEMORANDUM #4

TO: Town of Southborough
Zoning Board of Appeals
9 Cordaville Road
Southborough, MA 01772

FROM: Lucas Environmental, LLC
Joseph H. Orzel, PWS, CWS
Christopher M. Lucas, PWS, CWS, RPSS

DATE: August 20, 2025

PROJECT NUMBER: 10030.382

RE: Comprehensive Permit Review
250 Turnpike Road
Southborough, MA

Lucas Environmental, LLC (LE) has completed a review of additional and revised materials submitted in support of a Comprehensive Permit application under M.G.L. c.40B, §21-23, and 760 CMR 56.00, and under the Massachusetts Wetlands Protection Act M.G.L. c. 131 §40 (WPA) and its implementing regulations 310 CMR 10.00 *et seq.*, for a project located at 250 Turnpike Road in Southborough, Massachusetts. The project has also been reviewed with respect to the Southborough Wetlands Protection By-law (Chapter 170), and the Southborough Wetland Regulations as requested by the Town of Southborough Zoning Board of Appeals (ZBA).

1.0 New or Revised Documents Reviewed

- “*Concept Plan of Low Mobility Wildlife Passage Culvert at 250 Turnpike Road in Southborough, Mass.*,” prepared by Expedited Engineering, LLC, dated June 30, 2025. Stamped by James L. Tetreault, P.E.
- “*Response to Review Memorandum #3, 250 Turnpike Road, Southborough, MA 01772 (Map: 27, Parcel: 2A)*,” prepared by Goddard Consulting, LLC, dated July 1, 2025.
- “*Compensatory Wetland Replication Plan for 250 Turnpike Road (Map 27, Lots: 46 & 2A), Southborough, MA 01772*,” prepared by Goddard Consulting, LLC, dated July 25, 2025.
- “*Site Plan of Land at 250 Turnpike Road in Southborough, Massachusetts*,” prepared by Expedited Engineering, LLC, dated May 28, 2023, and last revised July 25, 2025. Stamped by James L. Tetreault, P.E. and including Title Sheet and Sheets S1-S2, G1-G2, U1-U2, ESC1-ESC2, L1-L2, D1-D6, and P1. The Plan set includes *Existing Conditions sheets E1 and E2*, prepared by Azimuth Land Design, LLC, dated April 15, 2024 (not stamped).
- “*Swept Path Plan of Land at 250 Turnpike Road in Southborough, Mass.*,” prepared by Expedited Engineering, LLC, dated January 31, 2025, and last revised July 25, 2025. Stamped by James L. Tetreault, P.E.
- Document titled “*Re: Environmental Analysis, 250 Turnpike Road, Southborough, MA 01772, Assessor’s Map 277, Lot 27, Parcel 2, 2A, and 46*,” prepared by Goddard Consulting, LLC, dated August 1, 2025.

- *List of Requested Waivers from Applicable Town of Southborough By-laws and Regulations, Comprehensive Permit – 250 Turnpike Road, Southborough, dated August 1, 2025 (18 Pages).*

2.0 Comments and Requests for Additional Information

LE has the following comments with respect to the responses provided by Goddard Consulting, LLC (GC) to LE Review Memorandum #3, dated June 16, 2025, specific to the Vernal Pool Migration Study. The original LE comments are provided in plain text, GC responses are underlined, and new LE comments are provided in **bold** text. Additional materials submitted to the Southborough Zoning Board of Appeals during the course of the public hearing will be reviewed by LE and commented on, as needed.

2.1 VERNAL POOL MIGRATION STUDY

1. LE requests the Applicant provide the dates the Vernal Pool Study was started and ended, as this information was not found in the GC Study.

The vernal pool study began on the night of Saturday, March 15th, 2025. Based on the predicted high humidity, temperature, and potential precipitation, Goddard Consulting anticipated the first migration activity to take place on March 16th, 2025. To properly prepare for the first night, Goddard Consulting removed the pitfall trap covers one night early to resolve any unforeseen issues. The study concluded after 21 days of data collection on Friday, April 4th, 2025.

It appears that the study period was adequate to establish migration patterns. However, there could have been additional late migration of amphibians after the study ended on April 4th.

2. The GC Study refers to the pool in question as a Potential Vernal Pool. LE notes that the pool is in fact a Vernal Pool, as it has been demonstrated to provide breeding habitat for two obligate Vernal Pool species and meets both biological and physical requirements to be considered a Vernal Pool, providing Vernal Pool habitat.

Goddard Consulting acknowledges the stormwater detention basin supports breeding activity for obligate vernal pool species. We agree the basin meets the biological and physical criteria outlined by the Natural Heritage & Endangered Species Program (NHESP). Goddard agrees with the statement that Lucas Environmental made during the 6/16/25 ZBA hearing that, although the basin meets the criteria, NHESP may be unwilling to certify as a vernal pool an area that is a detention basin and part of a stormwater management system.

No further comment at this time.

3. LE acknowledges that the Vernal Pool in question is not a pristine or exemplary example of a Vernal Pool. It is a stormwater basin created approximately 35 years ago that receives parking lot runoff, that was determined to be a jurisdictional Bordering Vegetated Wetland (BVW) by the Town of Southborough Conservation Commission. However, based on observed evidence of use by two species of obligate Vernal Pool amphibians: wood frog (*Lithobates sylvaticus*) and spotted salamander (*Ambystoma maculatum*), and two species of facultative vernal pool amphibians: spring peeper (*Pseudacris crucifer*) and American toad (*Anaxyrus americanus*), it is apparent that the biological conditions at the pool are sufficient to provide Vernal Pool habitat.

In addition, the pool provides habitat for other amphibians, such as the observed green frog (*Rana clamitans*) and pickerel frog (*Lithobates palustris*), as well as other wildlife species.

Goddard Consulting has no additional comment.

No further comment at this time.

4. LE notes that the observation of nineteen egg masses (12 wood frog and 7 spotted salamander) at this pool is almost four times greater than the five egg masses required to have a Vernal Pool certified under the *Guidelines for the Certification of Vernal Pool Habitat, March 2009*, published by the Massachusetts Natural Heritage & Endangered Species Program (NHESP). Given that NHESP considers pools with five egg masses as sufficiently significant for Certification (i.e., protection), it suggests that this pool should be considered as providing more than “*minimal ecological capacity for the long-term viability of obligate vernal pool amphibian populations*,” or “*minimal reproductive activity*,” or “*little habitat value*.”

Goddard Consulting acknowledges the basin meets the criteria for vernal pool certification by the NHESP. The basin is capable of providing vernal pool breeding habitat, assuming water temperature and quality fluctuations do not interfere with the proper development of eggs and larvae. Based on the vernal pool assessment guidelines outlined in the Best Development Practices, the basin is a Tier II vernal pool due to the small percentage of adjacent ecologically intact upland forests. In comparison to similar-sized natural vernal pools with a fully intact forested buffer, the basin may have limited ecological value in an increasingly developed landscape.

Ecological values may be further limited with the proximity of the development to the wetland and Vernal Pool.

5. LE notes that the GC Study references the document “*Calhoun, A. J. K., and M. W. Klemens. 2002. Best development practices: Conserving pool-breeding amphibians in residential and commercial developments in the northeastern United States. MCA Technical Paper No. 5, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York*” (hereafter “Best Development Practices”). LE concurs that this is an appropriate reference document for Vernal Pool habitat evaluations.

GC 5. Goddard Consulting has no additional comment.

No further comment at this time.

6. LE notes that per Best Development Practices, the Vernal Pool in question meets “Tier II” criteria based on the biological assessment (i.e., use by two or more Vernal Pool indicator species) and the condition of the Critical Terrestrial Habitat (i.e., at least 75% of the Vernal Pool envelope within 100 to 750 feet of the pool is undeveloped). Best Development Practices state that for Vernal Pools meeting Tier II criteria “*Management Recommendations should be applied at these sites to the maximum extent practicable*.” The Applicant did not include that the Vernal Pool in question meets the Tier II Criteria. The project does not meet the Management Recommendations to the maximum extent practicable.

Goddard Consulting acknowledges the basin meets the “Tier II” criteria. Based on the values provided in GC 7b and GC 7f, the detention basin will continue to be a Tier II vernal pool post project completion, assuming two or more vernal pool indicator species continue to breed in the basin.

The Best Development Practices referenced in our study do not align with local or state regulations. We used this document as a guideline to assess the impacts of the proposed project, and explore potential mitigation strategies. We maximized our use of the best development practices, while also taking into account the design limitations inherent to the project.

The ZBA to discuss.

7. The following Management Recommendations are provided in Best Development Practices:

- Maintain the pool basin, associated vegetation and the pool water quality in an undisturbed state.*

This recommendation cannot be completely met as the basin is a functioning stormwater basin. However, the Southborough Conservation Commission has conditioned the maintenance of the basin to maintain Vernal Pool habitat features to the extent practicable.

Goddard Consulting agrees the vernal pool will continue to be used as a stormwater detention basin. The use of the basin will result in the disturbance of the vernal pool. The basin will be restored with woody debris to enhance the vernal pool habitat following any maintenance work. The proposed project has met this Management Recommendation to the maximum extent possible. Additionally, maintenance work on the basin may not happen between March 1st through July 1st of any given year.

No further comment at this time.

- Maintain undeveloped forested habitat within the Vernal Pool Envelope (100 feet of the pool), including both canopy and understory.*

LE notes that a portion of the undeveloped Vernal Pool Envelope is proposed to be developed. LE recommends that the Applicant provide the percentage of the undeveloped Vernal Pool Envelope that is proposed to be developed.

State jurisdictional vernal pool habitat does not exist in the case of this vernal pool because it is not located within an area subject to protection under the WPA. Local jurisdiction for this wetland extends out to 20 feet (no disturb). No work is proposed within 20 feet of this basin/wetland. The proposed project will result in the alteration of approximately 0.15 acres, or 6,620 square feet, of the undeveloped Vernal Pool Envelope (± 1.16 acres). In other words, the proposed project will alter 12.9% of the undeveloped Vernal Pool Envelope and will leave 87.1% of the undeveloped Vernal Pool Envelope undisturbed.

According to the Best Development Practices, at least 75% of the vernal pool envelope (100 ft) should remain undeveloped. Currently, 89% of the vernal pool envelope is undeveloped. Following the proposed project, 78% of the vernal pool envelope will be undeveloped. Based on these metrics, we are above the threshold to maintain an ecologically beneficial vernal pool envelope.

The proposed project has met this Management Recommendation to the maximum extent possible.

LE notes that per Best Development Practices, the referenced 75% maintenance of undeveloped area applies to the Critical Terrestrial Habitat (100 to 750 feet), not to the Vernal Pool Envelope. The desired management practices for the Vernal Pool Envelope are as indicated under 7.a., 7.b., 7.c., and 7.d.

The Applicant is proposing development of 12.9 percent of the Vernal Pool Envelope and should demonstrate that the Vernal Pool Envelope is being maintained as undeveloped to the maximum extent practicable.

- c. *Avoid barriers to amphibian dispersal (emigration, immigration) within the Vernal Pool Envelope.*

The project should be conditioned to avoid barriers to amphibian dispersal to the maximum extent practicable. LE notes that the proposed development will create barriers to amphibian dispersal within the Vernal Pool Envelope in the areas of Units 20, 21, 28, 29, and 30.

The project team is actively working on wildlife crossing concepts (between units 29 and 30) and potential layout reconfigurations to meet this Management Recommendation.

Acknowledged. Based on the most current Plans reviewed, a four-foot wide by two-foot-high by 65-foot long open bottom wildlife culvert is proposed. It does not appear that the layouts of the units noted above have been changed. NHESP generally requires four (4) foot height for wildlife movement, as the optimal standard for migration/use of wildlife. The wildlife culvert should be increased in height or well documented as to why it cannot be.

- d. *Protect and maintain pool hydrology and water quality.*

This recommendation can be met to a limited extent due to the fact that the pool is also a stormwater basin. The GC Study states that the pool water quality is poor because it functions as a stormwater basin. However, no water quality data has been provided, and the water is apparently of sufficient quality to provide Vernal Pool breeding habitat. The Applicant should provide empirical evidence that the water quality is poor.

Goddard Consulting agrees this recommendation cannot be met due to the pool's function as a stormwater detention basin. To clarify, the stormwater runoff into the basin may cause many contaminants from the parking lot (including sediment, salts, gas, oils, etc.) to enter the pool. Goddard Consulting predicts the contaminated water entering the basin may cause fluctuations in water quality.

For the proposed project, no additional drainage is proposed to enter the basin. Therefore, no new impacts are proposed to the hydrology and water quality of the basin. The proposed project has met this Management Recommendation to the maximum extent possible.

No further comment at this time.

- e. *Maintain a pesticide-free environment within the Vernal Pool Envelope.*

The project could be conditioned to meet this recommendation. However, as noted in the GC Study, much of the area within 100 feet of the pool contains dense invasive vegetation and the GC Study proposes targeted removal of invasive species and replacement with native species as potential mitigation. Therefore, any Invasive Species Management Plan (ISMP) would likely require the use of herbicides to effectively manage the invasive species at the site.

LE recommends that the existing ISMP for portions of the site issued by the Southborough Conservation Commission under MassDEP File #190-1107, including the use of herbicides, be used as a template for an ISMP for the entire site.

Goddard Consulting has previously agreed to extend the ISMP to include the entire site. This recommendation cannot be met due to the proposed restoration of the Vernal Pool Envelope. The ISMP does include provisions for the use of herbicides that are approved by the EPA for aquatic use.

The proposed project has met this Management Recommendation to the maximum extent possible.

No further comment at this time.

f. *Maintain or restore a minimum of 75% of the Critical Terrestrial Habitat (i.e., within 750 feet of the pool) in contiguous (i.e., unfragmented) forest with undisturbed ground cover.*

This recommendation cannot be met as only approximately 36 to 40 percent of the Critical Terrestrial Habitat is currently undeveloped. However, the proposed project will develop a large portion of the remaining Critical Terrestrial Habitat and will bisect the on-site Critical Terrestrial Habitat with the proposed road. LE recommends that the Applicant provide the percentage of the Critical Terrestrial Habitat that is proposed to remain undeveloped.

The proposed project will result in the alteration of approximately 3.34 acres of the undeveloped Critical Terrestrial Habitat (± 16.09 acres). In other words, the proposed project will alter 20.75% of the undeveloped Critical Terrestrial Habitat and will leave 79.25% of the undeveloped Critical Terrestrial Habitat undisturbed.

According to the vernal pool assessment sheet in the Best Development Practices, at least 50% of the critical terrestrial habitat (100-750 ft) should remain undeveloped to support a Tier II or Tier III vernal pool. Currently, 36.9% of the total critical terrestrial habitat is undeveloped (63.1% developed currently). Following the proposed project, 29.3% of the critical terrestrial habitat will be undeveloped (70.7% developed), resulting in a 7.6% decrease in undeveloped areas. Considering the existing conditions are already much below the threshold for a good condition critical terrestrial habitat, this change should have little effect on the value of the vernal pool.

The proposed project has met this Management Recommendation to the maximum extent possible.

LE concurs that the existing Critical Terrestrial Habitat is already less than 50% undeveloped (approximately 36.9% undeveloped). LE notes that it does not necessarily follow that disturbance of 7.6 percent of the remaining undeveloped Critical Terrestrial Habitat would therefore have little effect on the value of the vernal pool, and in fact, the contrary may be possible.

g. *Maintain or restore forested corridors connecting wetlands or vernal pools.*

LE recommends that the project be designed to maintain forested corridors between the pool and adjacent wetlands to the extent practicable, and further explore design alternatives to achieve this.

The project team is actively working on a wildlife crossing concept and potential layout reconfiguration to meet this Management Recommendation. Some of the forested areas will be restored after invasive species management.

Acknowledged. See LE Comment 19 below.

- h. *Provide suitable terrestrial habitat for pool-breeding amphibian populations by maintaining or encouraging at least a partially closed-canopy stand that will provide shade, deep litter, and woody debris.*

LE notes that the GC Study describes replanting native trees and shrubs and increasing coarse woody debris in adjacent upland and wetland areas as potential mitigation. LE supports this mitigation.

Goddard Consulting has no additional comment.

No further comment at this time.

- i. *Minimize disturbance to the forest floor.*

LE recommends that the project be conditioned to minimize disturbance to the forest floor to the extent practicable.

Goddard Consulting has no additional comment.

No further comment at this time.

- j. *Where possible, maintain native understory vegetation (e.g., shrubs and herbs).*

As noted above, the GC Study describes replanting native trees and shrubs as potential mitigation, which LE supports.

Goddard Consulting has no additional comment.

No further comment at this time.

With respect to roads, the following recommendations are provided in Best Development Practices:

- k. *Roads and driveways should be excluded from the vernal pool depression and vernal pool envelope.*

It appears that the proposed project meets this recommendation, and LE recommends that the Applicant verify that this is the case.

No roads or driveways are proposed within the vernal pool depression or vernal pool envelope.
The proposed project has met this Management Recommendation to the maximum extent possible.

No further comment at this time.

- l. *Roads and driveways with projected traffic volumes in excess of 5-10 cars per hour should not be sited within 750 feet of a vernal pool (Windmiller 1996). Regardless of traffic volumes, the total length of roads within the critical terrestrial habitat should be limited to the greatest extent possible (Egan and Paton, in prep.).*

LE recommends that the Applicant provide the projected traffic volume with respect to this Best Development Practice recommendation but notes that the entire property is located within 750 feet of the Vernal Pool; therefore, it is impossible not to site the road within 750 feet of the Vernal Pool. LE recommends that the total length of road within the critical terrestrial habitat be limited to the extent practicable and wildlife crossings be examined as previously recommended.

The project team is actively working on a wildlife crossing concept and potential layout reconfiguration to meet this Management Recommendation.

See LE Comment 19 below.

m. *Use Cape Cod-style curbing (see Figure 10) or no-curb alternatives on low capacity roads.*

LE notes that the GC Study indicates the use of Cape Cod berms throughout the development as a potential mitigation measure. LE supports this mitigation measure.

Goddard Consulting has no additional comment.

No further comment at this time.

n. *Use oversize square box culverts (2 feet wide x 3 feet high) near wetlands and known amphibian migration routes to facilitate amphibian movement under roads. These should be spaced at 20-foot intervals and use curbing to deflect amphibians toward the box culverts.*

LE notes that the GC Vernal Pool Migration Study describes the use of a wildlife crossing and fencing as a potential mitigation measure. However, the Study concludes that “large scale mitigation strategies, such as wildlife underpasses, are not warranted due to the limited ecological value or conservation benefit they would provide for the site.” See LE Comment #9.a-f. below.

See Goddard responses to LE Comment #9. a-f. below.

See LE Comment 19 and Comments 9.a. to 9.f. below.

o. *Use cantilevered roadways (i.e., elevated roads that maximize light and space underneath) to cross low areas, streams, and ravines that may be important amphibian migratory routes.*

See LE Comment #9. a-f. below.

See Goddard responses to LE Comment #9. a-f. below.

See LE Comments 9.a. to 9.f. below.

p. *Cluster development to reduce the amount of roadway needed and place housing as far from vernal pools as possible.*

LE recommends that the Applicant meet this recommendation to the maximum extent practicable.

The project team is actively working on a potential layout reconfiguration to meet this Management Recommendation.

Based on the most recent Site Plans reviewed, the project layout has not changed.

8. LE notes the following from the GC Study:

a. LE notes that the results of the drift fence and pitfall traps indicated that 21 wood frogs (*Lithobates sylvaticus*) were captured entering the pool at the drift fence around the pool. Fewer were observed exiting the pool, which is not unexpected since not all the individuals would necessarily have left the pool area at the time the Study ended. Of the wood frogs entering the pool, nine entered generally from the east (42.9%), seven generally from the south (33.3%), five generally from the west (23.8%), and two generally from the north (9.5%).

LE notes that most of the wood frogs were captured entering from the east and south, with a relatively high percentage also entering from the west. Few entered from the north, which is not unexpected since this is the most highly developed portion of the site.

Goddard Consulting has no additional comment.

No further comment at this time.

- b. The results of the drift fence and pitfall traps indicated that 13 spotted salamanders (*Ambystoma maculatum*) were captured entering the pool at the drift fence around the pool. Of these, nine entered generally from the east (69.2%), two generally from the south (15.4%), one generally from the west (7.7%), and one generally from the north (7.7%). LE notes that over two-thirds of the spotted salamanders were captured entering from the east.

Goddard Consulting has no additional comment.

No further comment at this time.

- c. In addition, 22 other amphibians including green frogs (*Rana clamitans*), pickerel frogs (*Lithobates palustris*), spring peeper (*Pseudacris crucifer*), and American toad (*Anaxyrus americanus*) were captured entering the pool at this drift fence. Of these, fourteen entered generally from the east (63.6%), one generally from the south (4.5%), six generally from the west (27.3%), and one generally from the north (4.5%). LE notes that almost two-thirds of the other amphibians were captured entering from the east.

Goddard Consulting has no additional comment.

No further comment at this time.

- d. With respect to the drift fence installed along the approximate location of the proposed road, four wood frogs, two spotted salamanders, and eighteen other amphibians were captured moving east between wetlands and toward the vernal pool.

Goddard Consulting has no additional comment.

No further comment at this time.

- e. The above results indicate that the majority of the amphibians utilizing the Vernal Pool are entering generally from the east, with a number of those captured, primarily "other" amphibians, crossing between wetlands in the general area of the proposed road. Therefore, the data indicates that there is amphibian migration occurring from the wetlands located east of the Vernal Pool to the Vernal Pool, and to a lesser extent observed migration from the Vernal Pool back to these wetlands.

Goddard Consulting has no additional comment.

No further comment at this time.

- 9. LE has the following comments regarding the conclusions of the GC Migration Study:

- a. The GC Study concludes that the pool supports a relatively small number of obligate and facultative amphibian species. LE agrees that the number of individuals and egg masses reported in the GC Study are fairly small related to larger pools in more rural areas; however, LE also notes that the number of egg masses reported is almost four times the number of egg masses required by NHESP for Vernal Pool certification.

Goddard Consulting agrees the numbers of individuals and egg masses reported in the study are fairly small in contrast with larger pools in more rural areas. Goddard Consulting also agrees the detention basin meets the criteria for certification by the NHESP, however NHESP may not certify this because the basin is part of a stormwater management system.

No further comment at this time.

b. The GC Study concludes that the pool's "*artificial origin, degraded water quality, and fragmented surrounding habitat substantially limits its ecological value.*" LE disagrees that the pool's artificial origin necessarily limits its ecological value as there are numerous examples of created wetlands that provide Vernal Pool habitat. LE agrees that degraded water quality generally limits a pool's ecological value; however, the Applicant has not provided empirical data indicating the water quality is unsuitable, and based on its observed use appears that the water quality is sufficient to provide breeding habitat for Vernal Pool amphibians. LE agrees that the fragmented surrounding habitat limits the pool's ecological value, and further fragmentation from development will further limit the pool's ecological value.

The artificial origin of the basin limits the ecological value because as a detention basin, there must be maintenance to allow the basin to function as it was designed for stormwater management. This maintenance limits the ecological value of the pool. Although no water quality data has been taken, a detention basin is designed to collect runoff from parking lots, roadways, buildings, and other areas which often contain various contaminants (road salt, gas, oil, sediment, etc.). These contaminants degrade water quality and therefore limit the ecological value. During some breeding seasons, the contaminant load may degrade water quality to the extent it negatively affects the reproduction of the vernal pool species. The current water quality may not be negatively affecting species this breeding season, however, future water quality may create unsuitable egg development conditions. These fluctuations create an unreliable breeding pool with limited ecological value.

No further comment at this time.

c. The GC Study concludes that the "*presence of only 19 egg masses and fewer than 45 observed breeding amphibians indicates minimal reproductive activity, far below thresholds typically associated with ecologically significant Vernal Pool systems.*" LE agrees that these are modest numbers; however, as noted previously, the number of egg masses reported is almost four times the number of egg masses required by NHESP for Vernal Pool certification. In LE's opinion, this indicates that this pool should be considered to provide more than *de minimis* or minor Vernal Pool habitat value. LE requests the Applicant to provide additional information on the "*thresholds typically associated with ecologically significant Vernal Pool systems*" and provide the source/citation of the data.

The study primarily utilized information provided in the Best Development Practices for Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeastern United States by Aram J. K. Calhoun, Ph.D. and Michael W. Klemens, Ph.D. and Chapter 12 "Conserving Vernal Pool Wildlife in Urbanizing Landscapes" of the book, Science and Conservation of Vernal Pools in Northeastern North America, authored by Bryan Windmiller and Aram J.K. Calhoun. The reference to "thresholds typically associated with ecologically significant Vernal Pool systems" refers to the thresholds provided on the "Vernal Pool Assessment Sheet" from the Best Development Practices.

Acknowledged. As noted previously, based on the “Vernal Pool Assessment Sheet” from Best Development Practices, the Vernal Pool at the site meets Tier II criteria and management recommendations should be applied to the maximum extent practicable.

d. The GC Study concludes that “*the critical terrestrial habitat surrounding the pool is largely developed and fails to meet state-recommended thresholds for undeveloped support area.*” LE agrees that the critical terrestrial habitat is largely developed; however, requests that the Applicant provide additional information on the “*state-recommended thresholds*” referenced above and provide the source/citation of the data.

The study primarily utilized information provided in the Best Development Practices for Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeastern United States by Aram J. K. Calhoun, Ph.D. and Michael W. Klemens, Ph.D. and Chapter 12 “Conserving Vernal Pool Wildlife in Urbanizing Landscapes” of the book, Science and Conservation of Vernal Pools in Northeastern North America, authored by Bryan Windmiller and Aram J.K. Calhoun. The reference to “state-recommended thresholds” incorrectly refers to the state instead of the Best Development Practices.

Acknowledged. No further comment at this time.

e. The GC Study concludes that the above noted factors “*collectively suggest that the basin offers little habitat value, likely acting as a secondary or opportunistic breeding site.*” As stated previously, LE acknowledges that the Vernal Pool in question is not pristine or an exemplary example of a Vernal Pool; however, based on observed evidence it is apparent that the pool provides Vernal Pool habitat that is of sufficient value to meet NHESP certification criteria, indicating that this pool should be considered to provide more than minor habitat value.

LE agrees that the pool may act as a secondary or opportunistic breeding site, to some extent. However, LE also believes that there is likely a local population of wood frogs and spotted salamanders, as well as other amphibians, utilizing the pool. The closest mapped Certified or Potential Vernal Pool is located approximately 3,000 feet southwest of the site. As the maximum migration distances reported in Best Development Practices for spotted salamanders is up to 817 feet and for wood frogs up to 3,835 feet, in LE’s opinion it is unlikely that the numbers observed were solely individuals that came across this pool while migrating to another pool.

Goddard Consulting agrees there are no mapped Certified or Potential Vernal Pools located near the site. However, many vernal pools are unmapped by the NHESP. A large wetland system is mapped east of the site adjacent to Parkerville Road. If suitable breeding habitat is present here, an amphibian may only need to wander approximately 800 feet to encounter a potential vernal pool. Furthermore, this theory excludes additional unmapped wetlands adjacent to the site. The majority of the wetlands on our site are not mapped by MassGIS, so without surveys of surrounding parcels, Goddard Consulting cannot conclude there are no natural vernal pools within close proximity of the site.

Acknowledged. LE’s comment was provided as there are no mapped or otherwise reported Vernal Pools in the vicinity of this site. It should not be assumed that there are nearby Vernal Pools because there are nearby wetlands, although there certainly could be.

f. The GC Study concludes that “*therefore, large-scale mitigation strategies, such as wildlife underpasses, are not warranted due to the limited ecological value or conservation benefit they would provide for this site.*” LE notes that although the pool at the site is likely not significant on a regional basis since it is relatively small and is apparently not part of a larger interconnected Vernal Pool complex, it is significant for the local population of Vernal Pool organisms that breed in and otherwise utilize this pool in this developed area. Therefore, LE disagrees that mitigation strategies such as a wildlife underpass are completely unwarranted and recommends that the ZBA consider requiring a wildlife underpass at a location between the two wetlands that will be bisected by the proposed road.

The project team is actively working on a wildlife crossing concept to meet this recommendation.

See LE Comment 19 below.

2.2 WILDLIFE HABITAT EVALUATION

LE has the following comments with respect to the Wildlife Habitat Evaluation (WHE).

10. LE is in general agreement with the methodology of the Wildlife Habitat Evaluation.

Goddard Consulting has no additional comment.

No further comment at this time.

11. The WHE states that the proposed project is not expected to significantly disrupt ecological connectivity with adjacent natural habitats. LE concurs, as several potential wooded connections would remain outside the property bounds. However, it is LE’s opinion that the proposed project will disrupt the connectivity of habitats within the property bounds as it will bisect the property.

Goddard Consulting agrees the proposed project may disrupt ecological connectivity with adjacent natural habitats. However, with the proposed native landscaping and the restoration of the remaining forested areas, the ecological connectivity will be maintained to the greatest extent possible.

See LE Comment 19 below.

12. The WHE states “*The proposed residential development will impact a portion of the remaining undisturbed upland forest; however, these areas are limited and already affected by surrounding development. With careful planning, including selective clearing, invasive species control, and restoration of native vegetation, the project can minimize its impact on local wildlife habitat while supporting the overall ecological health of the site.*” LE concurs and recommends that all the above mitigation measures be implemented.

Goddard Consulting has no additional comment.

No further comment at this time.

13. The WHE states that the northernmost BVW on-site is bisected by a pedestrian bridge. This area was excluded from the Undeveloped Critical Terrestrial Habitat. LE notes that this is an elevated bridge over the wetland and does not create a barrier to wildlife movement through this area, and although there is development on three sides, the pedestrian bridge should not exclude this area from being considered Undeveloped Critical Terrestrial Habitat.

Goddard Consulting agrees this area may be considered undeveloped Critical Terrestrial Habitat. The addition of this area would result in less than half an acre of changes to the calculations. This area is not proposed to be developed due to the area being almost entirely Bordering Vegetated Wetlands.

No further comment at this time.

14. The WHE states “*By designing the development within previously disturbed areas and maintaining natural vegetation along site edges, the project can preserve what remains of these localized migratory pathways and ecological connections.*” LE notes that maintaining natural vegetation along the road edges does not fully preserve localized migration pathways and would require crossing of the roadway by species utilizing these pathways.

The project team is actively working on a wildlife crossing concept and potential layout reconfiguration to address migratory barriers.

See LE Comment 19 below.

15. The WHE stated that no special or unique habitats or habitat features were found on or proximal to the areas of impact. LE would argue that the Vernal Pool is considered a special habitat.

Goddard Consulting agrees the potential vernal pool is a unique habitat feature. The limit of work is not located within the potential vernal pool and is largely outside of the vernal pool envelope. The proposed work also meets all local and state regulations for work near vernal pools.

No further comment at this time.

16. The WHE states that “*Overall, the effects on amphibians are likely small.*” LE disagrees, based on the large area of upland Critical Habitat that is proposed to be impacted and the migration corridor impacted with the proposed roadway.

The proposed project will alter approximately 3.34 acres of the total ±43.58-acre Critical Terrestrial Habitat. In other words, the proposed project will impact 7-8% of the total vernal pool’s Critical Terrestrial Habitat. Approximately 16.09 acres of the total Critical Terrestrial Habitat is currently undeveloped. Post-development, approximately 20.8% of this area will be developed. Compared to larger-sized developments, these numbers are small and will most likely not have major impacts on the amphibian populations, especially considering the implementation of Best Development Practices.

The project team is actively working on a wildlife crossing concept to address any potential migratory barriers which would further decrease any negative effects on amphibians and other wildlife.

To clarify, based on the numbers provided, the project will result in a decrease from approximately 36.9 percent to 29.3 percent of the Critical Terrestrial Habitat that will remain undeveloped. See also LE Comment 19 below.

17. LE agrees that the potential mitigation measures listed in the WHE are acceptable, which include replanting native trees and shrubs, placement of nest boxes, targeted removal of invasive species, and increasing coarse woody debris in upland and wetland areas.

Goddard Consulting has no additional comment.

No further comment at this time.

18. The WHE summary states “*The loss of some upland forest cover, including mature trees and understory vegetation, will reduce local habitat quality, primarily affecting small and large mammals as well as some forest-nesting birds.* LE concurs and recommends the mitigation measures described in the WHE.

Goddard Consulting has no additional comment.

No further comment at this time.

19. The WHE summary states “*The proposed access road may slightly disrupt amphibian movement between upland areas and potential vernal pool habitats, though these effects are limited in scale and can be mitigated. While the site does contribute to localized ecological connectivity, the project is not expected to significantly alter migratory patterns or the site's overall ability to support common wildlife species.*” LE disagrees. The proposed project will bisect the site, requiring alterations in migratory pathways, and although many common wildlife species may not be significantly impacted, it is LE’s opinion that the Vernal Pool amphibian species, particularly the spotted salamander and wood frog which require suitable upland habitat, will be impacted. Therefore, the project should meet Best Development Practices management recommendations to the maximum extent practicable.

The project team is actively working on a wildlife crossing concept and potential layout reconfiguration to address migratory barriers and ensure the project has met the Best Development Practices recommendations to the greatest extent practicable.

Based on the current Plans, a four-foot wide by two-foot-high by 65-foot-long open bottom wildlife culvert is proposed. A two-foot by two-foot grate is proposed at the top of the culvert near the middle to allow more consistent light, moisture, and temperature conditions within the tunnel. A proposed retaining wall will help direct amphibians to the west side of the culvert, and wing walls are proposed to help direct amphibians to the east side of the culvert.

- a. LE agrees with the use of an open bottom box culvert for the amphibian tunnel. LE notes that NHESP generally recommends a four-foot-high tunnel to allow access by various species of wildlife. In addition, a four-foot by four-foot culvert was initially mentioned as a possible wildlife tunnel by GC during a ZBA meeting. LE recommends that the Applicant provide a four-foot-high wildlife culvert or describe why it is not feasible for this site.
- b. LE recommends that amphibian fencing be extended from the wing walls further north and south along the east side of the culvert to direct migrating amphibians. The extended amphibian fencing should be a minimum height of 16 inches and have a smooth vertical face. The ends of the fencing should have a “U” shape to help prevent amphibians from going around the ends of the fencing.
- c. LE recommends that the Applicant investigate the possibility of adding an additional grate(s) to the culvert.

20. Based upon the potential impacts to the Vernal Pool amphibian species with the proposed roadway bisecting a migratory corridor, and the impacts to the undeveloped areas of the site and Vernal Pool Envelope, the ZBA should consider the importance of maintaining the Conservation Commission’s local 20-Foot No Work Zone for this site.

No work is proposed within 20 feet of the vernal pool.

LE notes that work remains proposed within 20 feet of wetlands and it is stated in the revised Waiver Request List that the Applicant is unable to relocate the proposed units out of the 20-Foot No Work Zone and is proposing a compensatory wetland as mitigation.

2.3 COMPENSATORY WETLAND REPLICATION PLAN

LE has reviewed the Compensatory Wetland Replication Plan (“Replication Plan”) and has the following comments. Note that LE’s current comments are provided here in plain text (not bold).

21. As described in the Replication Plan, a total of 4,027 square feet of the Wetlands Bylaw 20-Foot No Work Zone will be altered by the proposed project. As mitigation, the Applicant is proposing creating a 4,045 square foot wetland replication area.
22. LE concurs that the proposed species and plant numbers for the replication area are appropriate.
23. The Replication Plan states that prior to any work, the wetland flags will be confirmed by a wetland scientist. LE recommends that the previously approved wetland flag locations near the replication area be reestablished by survey.
24. The Replication Plan states that the topsoil and subsoil will be removed from the area to either be reused or removed from the site. LE recommends that if the area from which the soil is obtained contains invasive species, that it not be reused in the replication area. In addition, if the subsoil is to be reused, it should be stockpiled separately from the top soil.
25. LE recommends that the As-Built Plan as described in the Replication Plan also be submitted to the Conservation Commission and MassDEP.
26. LE recommends that the Replication Plan include a note and narrative that the area is included in the overall site Invasive Species Management Plan.
27. LE notes that the proposed replication area will impact mature forested uplands that provide important upland habitat for Vernal Pool species and other wildlife. Construction of the Replication Area will also temporarily impact the 20-Foot No Work Zone to a wetland. The timing of this work should avoid potential impacts to amphibian movement during the Vernal Pool breeding season.
28. LE recommends that the Applicant describe how the replication area site will be accessed for construction, as it appears that a new cleared access through wooded land or a wetland crossing may be required.
29. The proposed replication area is located within the 100-Foot Vernal Pool Envelope. Any work in this area should not occur during the Vernal Pool breeding season.
30. LE recommends that the Southborough Conservation Commission be consulted on the appropriateness of the proposed replication area as mitigation for work within the 20-Foot No Work Zone.
31. LE recommends that the Applicant submit a more detailed wetland replication plan, including soil profiles, proposed elevations, and cross-section details.

2.4 COMMENTS FROM LE MEMORANDUM #2 (MARCH 12, 2025)

LE notes that there are a number of comments from Memorandum #2, dated March 12, 2025, which remain unaddressed to LE's knowledge, and these are included here below. Many of these are regarding responses from the Applicant that the revisions would be incorporated into future Plans; however, remain missing on the revised Plans. Previous LE comments are provided in plain text, GC responses are underlined, and new LE comments are provided in **bold** text. The comment numbers have been revised and incorporated herein with the original comment numbers from LE Memorandum #2 included in parentheses for reference. Previous comments that LE had no further comment have been removed.

32. (2) LE notes that the ORAD established the wetland boundaries for Parcels A and B at the site. The 40B Application includes a copy of the ORAD, but also describes the wetland boundaries as being confirmed through the Order of Conditions issued under DEP File #290-1109. LE recommends that the language in the Application be revised to be consistent in describing the jurisdictional wetland boundaries as being confirmed through the ORAD, which included both Lot A and Lot B, and not the OOC, for which the approved Site Plans did not include all of the wetlands located on Lot B, which would have been confirmed through the valid ORAD at the time.

The 40B Application can be revised to describe the jurisdictional wetland boundaries as being confirmed through the ORAD and not the OOC.

Acknowledged. The ZBA to confirm this revision is incorporated into the project.

LE notes that the Detail Sheet D4 of the Site Plans still references the wetland boundaries as being confirmed through the OOC, not the ORAD. LE recommends that this be corrected.

33. (4) LE has not inspected the area of the proposed 20-foot-wide water line easement located on the southern portion of the 125 Parkerville Road lot (Parcel ID: 27-0000-002-0), as this parcel was not included in the previously reviewed filings under the above noted ORAD and OOC. LE anticipates reviewing this location once a Notice of Intent is filed with the Conservation Commission for the current project; however, LE can inspect it for the ZBA review if requested.

Goddard Consulting has no additional comment.

Comment remains.

Comment still remains.

34. (5) LE notes that the submitted Plans do not show the ORAD approved location of revised wetland flag B3R, but rather the original location of flag B3. Although this flag does not apparently impact the Buffer Zone in areas of proposed work, LE recommends that the Plans be revised to show the correct approved location for wetland flag B3R and associated Buffer Zones.

The plans will be revised to show the correct location for wetland flag B3R and associated Buffer Zone.

Acknowledged. Current Plans do not include this revision. The ZBA to confirm this revision is incorporated into the project.

The revision has been included on the current Plans. No further comment.

35. (6) LE notes that during the course of the ANRAD review, in May of 2022, evidence of breeding by wood frogs (*Rana sylvatica*) was reported within the western stormwater basin, identified by the A-series wetland flags. Therefore, although maintenance of the basin was approved by the Southborough Conservation Commission under MassDEP File#290-1109, the basin is considered jurisdictional BVW and provides Vernal Pool habitat. The adjacent upland areas also provide important upland habitat for this Vernal Pool species. This should be identified on all Site Plans.

Wetland A may provide vernal pool habitat for wood frogs during parts of the year. However, the maintenance approved under the Order of Conditions (DEP File #290-1109) issued by the Southborough Conservation Commission may make this wetland not a suitable option for these species. Wetland A is a working detention basin apart of the existing stormwater infrastructure on-site. Material can be removed from this detention basin as normal maintenance. This effectively would remove the suitable breeding habitat for vernal pool species.

Wetland A is considered a Bordering Vegetated Wetland (BVW) and has a jurisdictional 100-foot buffer zone under the Massachusetts Wetland Protection Act (WPA) and an additional 20-foot No Disturb buffer zone under the Southborough Wetland Bylaw. The WPA does not have specific performance standards for work within buffer zone. Work is not proposed to encroach within the 20-foot buffer zone of this wetland.

The plans will be updated to note Wetland A as a Potential Vernal Pool.

Although maintenance within Wetland A was approved by the Southborough Conservation Commission under MassDEP File #290-1109, the work was conditioned to prohibit any stump and root removal and restrict work in Wetland A between March 1st and July 1st of any given year due to the presence of Vernal Pool habitat and species (Special Conditions #45 and #46). Therefore, the work was conditioned to maintain as much of the Vernal Pool habitat function as possible while allowing maintenance of stormwater functions.

Current Plans do not include this revision. The ZBA to confirm this revision is incorporated into the project. Comment still remains.

36. (7) LE notes that the project is proposed as a single phase. Given the area of ground disturbance proposed, LE recommends that the Applicant investigate alternative phasing to minimize the area of active ground disturbance.

Multiple phases would reduce the area of active ground disturbance and significantly extend the length of the construction period for the proposed project. The prolonged disturbance in the area would more likely negatively impact the surrounding area than the area of active disturbance.

Comment remains. The ZBA to discuss.

Comment still remains.

37. (8) LE notes that there are several areas of relatively steep slopes to be created adjacent to wetland areas. LE recommends additional erosion control be installed at these locations, such as a minimum size of 12 inches for the straw wattles (which are to be installed along with silt fencing) or a double row of wattles and silt fence.

Goddard Consulting agrees to add additional erosion controls to steep slopes adjacent to wetland areas.

Acknowledged. Current Plans do not include this revision. The ZBA to confirm this revision is incorporated into the project.

Comment remains.

38. (9) LE notes that the Erosion and Sediment Control Plan does not indicate areas where erosion control blankets are proposed. LE recommends that these areas be indicated on the Erosion Control Plan.

The Erosion and Sediment Control Plan will be revised to show proposed erosion control blankets.

Acknowledged. Current Plans do not include this revision. The ZBA to confirm this revision is incorporated in the project.

Comment remains.

39. (10) The proposed erosion control blankets (Tensar North American Green SC150BN) apparently do not contain plastic netting. LE recommends that the Applicant confirm this. LE also recommends that Erosion Control Notes have language added that states any erosion control blanket used shall not contain plastic netting, in case a substitute product is proposed.

The Erosion Control Notes will be revised to include language that states any erosion control blankets shall not contain plastic netting.

Acknowledged. Current Plans do not include this revision. The ZBA to confirm this revision is incorporated into the project.

Comment remains.

40. (11) As the BVWs are classified as tributary to a Class A Public Water Supply and ORW, the Applicant should evaluate the Title V minimum setback requirements of 100 feet to the soil absorption system per 310 CMR 15.000.

Goddard Consulting will work with the project civil engineer to review the Title V standards setbacks.

Comment remains. At the ZBA hearing on February 26, 2025, there was discussion regarding the status of this wetland, with the Applicant's representative stating that this wetland was isolated. For further information on this point LE notes the following.

During the Conservation Commission review of the ANRAD filed for the site (MassDEP File #290-1091) the wetland in question (delineated by wetland flags GCC1 through GCC20) was originally not delineated by the Applicant. Although a stream is present, the Applicant thought the stream was located upgradient of any wetland and therefore not jurisdictional under the WPA or By-law. However, upon peer review it was determined that there are wetlands bordering on this stream thereby making both the stream and the wetland jurisdictional (i.e., BVW) under the WPA and the By-law.

During the course of the ANRAD review, LE commented that if the Applicant wished to have all resource areas on the site delineated then the interior streams should also be delineated. However, the Applicant opted to only have the wetland boundary of these areas confirmed (see LE Review Memorandum #2 to the Southborough Conservation Commission, dated June 20, 2022).

The stream within this wetland is unusual in that the stream channel (as well as the wetland) disappears in the area of wetland flag GCC18. Although there is no jurisdictional wetland or stream connection downgradient of wetland "C" there evidence of a flow path was observed between wetland flag GCC18 and the downgradient wetland near wetland flag 25. It appeared that at during certain times water flows from wetland C to the downgradient wetland, but the flow path did not meet regulatory requirements to be jurisdictional. The downgradient wetland also contains an interior stream; however, it is not clear whether this downgradient wetland (flags 1 through 60) has a surface water connection via culverts to the public water supply.

Comment remains.

41. (12) Per the MA Stormwater Management Standards, the *stormwater discharges to ORWs must be set back from the receiving water or wetland and receive the highest and best practical method of treatment*. Infiltration structures require a minimum setback of 50 feet. LE recommends that the 50-foot setback from wetlands be included on the Site Plans.

The Site Plans will be revised to include the 50-foot setback from wetlands.

Acknowledged. Current Plans do not include this revision. The ZBA to confirm this revision is incorporated into the project.

Comment remains.

42. (13) As work is proposed within close proximity to the wetlands, the Applicant should demonstrate and document that the proposed work will not alter the hydrology feeding Wetland A, to ensure that there is no adverse effect to the BVW and Vernal Pool.

The hydrology feeding Wetland A will not be altered by the proposed work.

The Applicant's response does not contain sufficient information to support their response. LE recommends that the Applicant provide sufficient information to support their conclusion that the hydrology feeding Wetland A will not be altered.

Comment remains.

43. (14) LE recommends that the Landscape Plan indicate seeding areas on the Plan and the proposed seed mix(es).

The Landscape Plan will be revised to indicate seeding areas and the proposed seed mix(es).

Acknowledged. Current Plans do not include this revision. The ZBA to confirm this revision is incorporated into the project.

Comment remains.

44. (15) LE notes that no connection is indicated on the Site Plans from the sewer line to the proposed septic leach field. LE recommends this be added to the Plan.

The Site Plans will be revised to indicate the connection from the sewer line to the proposed soil absorption system.

Acknowledged. Current Plans do not include this revision. The ZBA to confirm this revision is incorporated into the project.

Comment remains.

45. (17) The Applicant should provide further details on how the retaining walls near the wetlands will be constructed without impacts to the wetland, particularly within the limit of work/erosion controls.

The limit of work includes all the proposed retaining walls. The proposed work will occur upgradient of the wetland boundary. Erosion controls along the limit of work will ensure the wetland is protected from erosion and sedimentation-related impacts. Additionally, the limit of work demarcation will ensure no vehicles or equipment enter the wetland resource areas.

LE recommends that the Applicant provide a detail on the proposed retaining walls to demonstrate that excavation for the wall footing will not require additional disturbance than indicated. LE has experience with other retaining wall projects that required greater than anticipated excavation for construction of the wall footings.

Comment remains.

46. (18) Snow storage areas are not apparent on the Plans, LE recommends that these be added to the Plans.

The Site Plans will be revised to include snow storage areas.

Acknowledged. Current Plans do not include this revision. The ZBA to confirm this revision is incorporated into the project.

Comment remains.

47. (19) LE notes that invasive species are present on the site and recommends that the Applicant provide an Invasive Species Management Plan for the proposed project, as was required by the Conservation Commission under MassDEP File #290-1109.

An Invasive Species Management Plan (ISMP) was provided as a part of the most recent Notice of Intent (DEP File #190-1107) filing for the site filed on July 18th, 2023. Lucas reviewed the ISMP during the Notice of Intent. The issued Order of Conditions for this project lists the ISMP as an approved document. The scope of this ISMP was the area within the Conservation Commission jurisdiction. The ISMP can be updated to encompass the whole site as needed.

LE agrees that the existing ISMP should be used as a template for an ISMP for the entire site. In addition, LE recommends the ISMP be incorporated where appropriate into the “Sequence of Installation & Construction” notes on Plan Sheet D4.

Comment remains.

48. (20) LE notes that an impermeable barrier is proposed for the septic leach field. LE recommends the location of the barrier be included on the Plan.

The Plan will be revised to include the location of the impermeable barrier associated with the septic leach field.

Acknowledged. Current Plans do not include this revision. The ZBA to confirm this revision is incorporated into the project.

Comment remains.

49. (21) LE recommends that the Applicant provide information on whether an impermeable/clay barrier is needed for proposed underground utilities in areas of shallow groundwater.

Goddard Consulting will work with the project civil engineer to provide information on whether an impermeable/clay barrier is needed for proposed underground utilities in areas of shallow groundwater.

Comment remains.

50. (24) For brevity, LE has not included the entire comment for #24a-c and e. The Migration Study and Habitat Mitigation Plan have been provided. Comments on these reports/evaluations are provided in previous sections. No further comment here.

51. (24.d.) Due to the extent of the Buffer Zone impacts on the site, and location of the Vernal Pool within Wetland A, the Applicant is required to demonstrate that there will be no adverse effect to the Vernal Pool.

According to the Wildlife Habitat Protection Guidance for Inland Wetlands document from DEP, “the standard of “no adverse effect” applies to alterations in resource areas only and not activities proposed within the buffer zone.” No part of the proposed project is taking place within a potential vernal pool or associated vernal pool habitat.

LE notes that under the By-law, wildlife habitat is a protected wetland value, and as stated in Section 1.2 of the By-law Regulations, “The purpose of the By-law is to protect the wetland water related resources *and the adjoining land areas* [emphasis added] in the Town of Southborough by controlling activities deemed by the Commission to have a significant or cumulative effect upon wetland values...” Therefore, an activity within the adjoining land area (Buffer Zone) that may impact a wetland value (such as wildlife habitat) is subject to local jurisdiction and the burden of proof is on the Applicant to demonstrate that the proposed Buffer Zone activities will not impact protected wetland values.

Comment remains. See LE Comment 19 above.

52. (25) LE recommends that the Applicant provide calculation of the proposed areas of disturbance within the 100-Foot Buffer Zone and within the By-law 20-Foot No Work Zone.

The proposed project will result in approximately 61,124.08 sf of disturbance within the 100-foot Buffer Zone. Of the proposed Buffer Zone disturbance, approximately 6,987.23 sf of the area of disturbance is within the 20-foot No Work Zone.

LE notes that this is a significant area of disturbance proposed within both the 100-Foot Buffer Zone and the By-law 20-Foot No Work Zone. The Applicant should also provide the total area of the site in the 100-Foot Buffer Zone and within the By-law 20-Foot No Work Zone to review the percentage of the areas being impacted. LE recommends that the Applicant investigate additional alternatives to reduce the proposed disturbance within the 20-Foot No Work Zone.

Comment remains.

53. (26) Per the By-law, the Conservation Commission presumes “*all activities that involve removal of vegetation (except routine lawn and garden maintenance), grading, filling, excavation, erection of permanent structures, application of inorganic fertilizers (excluding lime and other soil treatments approved by the Commission) or application of pesticides whose labels indicate they are toxic to aquatic organisms, is presumed to alter the adjacent resource areas.*”

The Applicant seeks a Waiver from the Wetlands By-law for work proposed within 20 feet of wetlands. The By-law establishes performance standards for work within 20 feet of a wetland.

LE also notes that the Conservation Commission has the authority to consider a wider undisturbed buffer to ensure the protection of wetland resource areas under the By-law.

Based upon the proposed work and location of the Vernal Pool, LE recommends the ZBA request that the Applicant evaluate alternatives for the proposed work in the 20-Foot No Work Zone associated with the grading, retaining walls, and townhouses to reduce impacts, particularly in areas proximal to Wetland A, which has been found to provide Vernal Pool habitat. Currently, Units 2 and 29-32 are proposed in the 20-Foot No Work Zone, and Unit 20 requires work within 20 feet of the wetland.

The most recent submittal is the alternative design for the project. The project was reduced in scale from a 56-unit apartment building with large parking areas to 32 condominium units with individual driveway or garage parking. This alternative to the originally proposed project will result in less impervious surfaces proposed. Retaining walls associated with Units 20 and 29 will prevent any further encroachment towards the wetland within the 20-foot buffer zone.

The project is not proposed to be within 20-feet of Wetland A. The project will not directly impact the potential vernal pool or habitat. Stormwater collected from the condos and the proposed access drive is not proposing to discharge water towards Wetland A. No further alternative analysis is required for work within buffer zone under the WPA.

As stated under Section 3.2.3. General Performance Standards of the Town of Southborough Wetlands By-law Regulations, “*the Commission may allow work within 20 ft. of a resource area if the applicant demonstrates:*

- (1) Alternatives have been considered and in the judgment of the Commission no practical alternative is available;*
- (2) Project scope and design minimize work in close proximity to resource areas;*
- (3) Site conditions (including but not limited to slope, soil type and hydrology) will allow prevention of wetland damage from such work; and*
- (4) Such work will not lead to encroachment on the resource area after completion of the project.”*

LE recommends that the Applicant demonstrate that no practical alternative is viable that could reduce the amount of work proposed within the 20-Foot No Work Zone.

LE notes that in the revised Waiver Request List it is stated that the Applicant is unable to relocate the proposed units out of the 20-Foot No Work Zone and is proposing a compensatory wetland as mitigation. The Applicant should provide discussion of other site design alternatives that were evaluated to further reduce the amount of work proposed within the 20-Foot No Work Zone, and why they are not viable.

54. (27) The Waiver Request seeks a Waiver as to the use of native species, stating that the Applicant proposes plantings that are not native, but better suited for the proposed development. As general policy, the Southborough Conservation Commission and MassDEP require planting native, non-cultivar species within the 100-Foot Buffer Zone.

LE notes that the list of plants provided on the Landscape Plan includes several species that are considered non-native in eastern Massachusetts on the Go Botany website but considered native in eastern Massachusetts on the USDA Plants Database website. None of the plants included on the Landscape Plan are considered invasive; however, LE recommends that the Applicant verify that only native straight species are proposed within the 100-Foot Buffer Zone.

According to Go Botany, the only proposed species considered non-native to Massachusetts are Washington Hawthorn, White Spruce, Eastern Arborvitae, and Common Ninebark. Three Washington Hawthorn plantings are proposed adjacent to Unit 22, outside the 100-foot Buffer Zone. Of the eight proposed White Spruce plantings, only one individual is located partially within the 100-foot Buffer Zone. Of the 45 proposed Eastern Arborvitae plantings, only six individuals are located with the 100-foot Buffer Zone. All four of the proposed Common Ninebark plantings are not within the 100-foot Buffer Zone. Overall, the majority of the proposed plant species are native to Massachusetts. Of the four non-native species, only seven non-native plantings of the 230 total plantings are within the 100-foot Buffer Zone.

In addition to the plant species described in the above Goddard response, two additional proposed species are listed by Go Botany as non-native to Massachusetts, Golden St. Johnswort (*Hypericum frondosum*) and Bushy St. Johnswort (*Hypericum densiflorum*). However, both of these species are considered native in Massachusetts based on the USDA Plants Database. It is good practice to avoid the use of non-native plantings. The ZBA to discuss. In addition, it appears that only straight species are proposed within the 100-Foot Buffer Zone based on the project Landscape Plan.

Comment remains.

55. (28) Per the Town of Southborough's ZBA CPRG, Section 4.1.12.7, the Applicant is required to assess impacts from road salt and fertilizer loading. The Environmental Analysis provided discusses this criteria; however, has no reference or discussion of the use of road salt or fertilizer. As work is located in close proximity to a Vernal Pool, this should be further evaluated.

No roadways are proposed in close proximity to the potential vernal pool, or Wetland A. Road salt is not expected to enter the potential vernal pool habitat. In order to prevent any harm to the potential vernal pool, an eco-friendly fertilizer and road salt may be used on the property.

LE notes that the Applicant is required to assess impacts from road salt and fertilizer loading to all the wetland areas, not just Wetland A. As noted previously, LE recommends that the Plans be revised to include proposed snow storage areas. LE recommends that the use of fertilizers be excluded within 20 feet of wetlands and conditioned within the 100-Foot Buffer Zone.

The revised Environmental Analysis includes a section for road salt and fertilizer loading; however, snow storage areas are not addressed. Comments remain.

56. (29) LE notes that on Detail Sheet 01 it is stated that there are no mapped Vernal Pools at the site. While it is correct that there are no *mapped* Vernal Pools, the Conservation Commission has determined that Wetland A contains a Vernal Pool. LE recommends that the language of the note be revised to indicate this.

Comment remains.

57. (30) LE notes that the Pollution Prevention Plan on Sheet D4 describes the use of “hay/straw mulch”. LE recommends that this be revised to state straw mulch only to avoid any confusion.

Comment remains.

The comments provided above are based on the plans, documentation, and supporting information received at the time of this review. Any revision to the plans, documentation, and supporting information will require additional review. LE has no further comments as this time.