

# United Consultants, Inc.

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December 5, 2017

Michael Kulesza, Chairman  
Town of Norfolk Zoning Board of Appeals  
One Liberty Lane  
Norfolk, MA 02056

RE: The Preserve at Abbyville and Abbyville Commons

Dear Mr. Kulesza and Board Members,

We receive a peer review letter from Tetra Tech dated October 26, 2017. The Tetra Tech review comments are listed below with our responses immediately following the comment and are italicized. The documents for the Tetra Tech Review is listed below.

The following letter includes comments generated during the course of our review of applicant submittal materials and peer review comment letters related to the above-referenced projects (Project) as well as a status update of correspondence with the applicant's engineer United Consultants, Inc. (UCI) following the October 11, 2017 public meeting. Our comments focus on the larger issues which have not been addressed to date or whose eventual resolution may substantially impact Project design and we provide specific comments related to proposed earth removal activities and representations made by the applicant. The following is a list of specific documents reviewed:

- *The Preserve at Abbyville, Norfolk Massachusetts – Grading and Utility Plans* by United Consultants dated March 15, 2017 (Rev 2 – 8/2017) hereinafter referred to as "Preserve Grading Plans".
- *Abbyville Commons, Norfolk, Massachusetts – Grading and Utility Plans* by United Consultants dated March 15, 2017 hereinafter referred to as "Commons Grading Plans".
- *Norfolk, MA – The Preserve at Abbyville/Abbyville Commons, Comprehensive Plan – Peer Review Letter* by Beta Group, Inc. dated June 30, 2017 hereinafter referred to as "Beta Civil Peer Review".
- *Norfolk, MA – The Preserve at Abbyville and Abbyville Commons, Traffic Peer Review Letters* by Beta Group, Inc. dated July 21, 2017 (2 total) hereinafter referred to as "Beta Traffic Peer Review".
- *Supplement for Earth Removal (undated and unassigned)* hereinafter referred to as "Supplement".
- *UCI Response Letters dated June 30, 2017 and August 29, 2017*
- *Green International Affiliates, Inc. Response Letters dated August 28, 2017 (3 total)*
- *Smolak and Vaughan LLP Status Update Letter dated July 5, 2017*
- *Traffic peer review comments*

- *Misc. Comment Letters*

## Comments (Original Submittals)

The following are specific comments generated during the course of our review. Comments are generally grouped by submittal and overlapping comments are only mentioned once.

### Earth Removal

1. The Earth Removal Summary estimates a total project net cut (Total Earth Removal) of 1,327,543 cubic yards. It is unclear how this amount was calculated or what it specifically represents.

*The site design has been revised. We now agree that it is 990,000 cubic yards.*

2. If the amount reported represents the net volume change from existing finish grade to proposed finished grade then additional export volume should be considered to account for additional excavation for utility excavation and excavation to subgrade. Consideration of this volume could add roughly 100,000 cubic yards of export.

*The developer will utilize on site material and will process the material as necessary to re-use as pipe bedding and roadway gravel base. Please refer to Construction Management Plan.*

3. It is also unclear if the reported volume represents excavated or in-place volume. Excavated or "fluffed" volume can be as much as 20% higher than calculated in-place volume. Consideration of this difference could add roughly 250,000 cubic yards of export.

*It is our understanding that the applicant's construction management plan address the material based on weight not volume.*

4. The Supplement suggests 26.5 cubic yards can be removed from the site on an "average truck". While it is not unreasonable for a trailer dump to carry 26.5 cubic yards of lower weight soils, it is our experience that an average size of 24 cubic yards/load better represents an average vehicle under average loading conditions.

*Refer to the applicant's construction management plan Section 3.1.2.*

5. The Supplement estimates that earth removal trips will be spread equally over the entirety of the construction schedule. This is wholly inconsistent with typical construction operations in which bulk site excavation and earth removal is necessarily concentrated in early phases of construction to provide access and grading needed to accomplish the balance of construction. We would typically expect bulk site earth work to be concentrated in the first 10-15% of project schedule.

*Refer to the applicant's construction management plan and phasing timeline schedule.*

6. As mentioned in Michael Guidice Comment Letter (August 17, 2017) the Supplement appears to miscalculate Estimated Daily Truck Trips for Earth Removal (EDTTER). EDTTER is under-reported by in the summary column by 33%. Please note, trips for earth removal represent only a fraction of expected truck trips during construction, the actual number of truck trips is significantly greater since estimates to date include only exported soil and does not include bulk aggregate and building materials delivered to the site.

*Refer to the applicant's construction management plan Section 3.1.*

7. Given our comments above, specific conditions limiting truck trips is the only reasonable way to ensure actual trip frequencies align with those suggested in the Supplement. Otherwise we suggest residents be prepared for actual truck volume during earth removal that is 10-20 times higher than projected in the Supplement.

*Refer to the applicant's construction management plan.*

### Site Plans

8. Roundabout geometry does not appear to comply with MassDOT design guidance. We recommend any approval include a condition that roadway geometry meet minimum standards prescribed by MassDOT and local regulations and that required right of way is provided.

*The roundabout geometry was revised and roundabout detail plan dated October 17, 2017 was submitted to the ZBA.*

9. It is unclear how the two projects are severable. Care is required to ensure approvals consider contingent improvements of each project. For example, both the Preserve and Common Plans show the same entry and access improvements. It is unclear which project has responsibility for completing the improvements.

*The latest phasing plan addresses the roadway construction sections. The phasing plan is part of the construction management plan. Both projects will be responsible for the construction. Costs will be allocated appropriately.*

10. The development appears to be served by an 8-inch extension/connection to an existing water main in Lawrence Street. Given the number of homes proposed and the length of on-site water main we recommend the Board require the applicant to provide a water system evaluation showing safe water supply (volume and pressure) can be maintained during fire events. The evaluation should address issues identified in the March 7, 2017 Water Supply Assessment Memo prepared by Environmental Partners Group.

*Portions of the project are proposed to be serviced by a 12" water main and portions are proposed to be serviced by an 8" water main.*

*Please refer to the Environmental Partners "Norfolk Water System Subdivision Reviews" dated July 28, 2017.*

11. Septic systems are shown on each lot and appear to only meet minimum requirements for sizing and spacing without on-site testing to support those assumptions. Additionally, no reserve areas are identified. If actual field conditions (percolation rates, depth to groundwater) vary from assumed conditions it will likely result in changes to home and lot layout.

*Septic systems are no longer proposed. A waste water treatment plan is proposed.*

12. The project will include nearly 200 homes served by on-site Title 5 subsurface wastewater disposal systems in what appears to be naturally pervious soils. This aggregation of flows in such a small area may result in elevated down gradient nitrogen levels and the project should be considered and evaluated based on its total impact.

*Septic systems are no longer proposed. A waste water treatment plan is proposed.*

13. The plans indicate site and septic design plans will be prepared for each lot (Notes: 1). Septic designs must be in compliance with Title 5 but it is unclear what, if any, site plan review is required. We recommend any approval be conditioned in a manner that maintains impervious coverage at or below what is shown on the approved plans.

*Septic systems are no longer proposed. A waste water treatment plan is proposed.*

14. It is unclear how visitor parking will be accommodated. Many driveways shown on the Preserve Plans are not long enough to accommodate a parked vehicle and the Commons Plans do not show parking accommodations. Given the relatively narrow roadway widths proposed any overflow onto streets could impact emergency vehicle access or otherwise result in unsafe vehicle/pedestrian travel conditions. We recommend the applicant clearly indicate where on-site parking will be provided and justify the sufficiency to serve the development.

*Driveways have been revised to increase parking. Visitor parking spaces have been proposed. The street pavement widths have been revised and vary from 24 feet wide and 26 feet wide.*

15. Proposed roadway geometry includes several dead end street without adequate access for emergency vehicles or normal activity. We recommend the Board require the applicant to provide documentation showing how emergency vehicles and normal traffic will safely maneuver dead end streets when parking spaces are full.

*With the exception of Green Circle all of the dead end streets have either been eliminated or made into through streets.*

16. In general roadway layouts appear to be narrow and include small curve radii. We recommend the Board require the applicant to show how truck traffic and emergency vehicles will safely navigate internal roadways. In particular, documentation should show how a large truck or fire apparatus can navigate roads without trespass into travel ways of opposing traffic.

*The street pavement widths have been revised and vary from 24 feet wide and 26 feet wide.*

17. We did not notice any provisions for pedestrian crossings. Although not likely to impact development we suggest the Board require the applicant to provide a plan showing safe pedestrian accommodation throughout the site and how it connects to local pedestrian accommodations off-site.

*Sidewalks and walkways are provided throughout the development. The design of pedestrian access along Lawrence Street from Park Street to the Eastern site entrance is being included in the Town of Norfolk's Lawrence Street design being prepared by Green International.*

18. Given the expectation that roadways will eventually be accepted as public ways we recommend the applicant be required to provide roadway and utility designs meeting the minimum requirements of the Town of Norfolk

Subdivision Plans and that no waivers be granted that reduce the quality of construction or the scope of review related to rights of way that are to become the responsibility of the Town.

*The applicant intends to comply with the Town of Norfolk Subdivision regulations for roadway construction with the exception of a waiver request for Monolithic Berm Curb. Construction of the roadway and sidewalk sub-base, base and pavement materials will be consistent with the Town standards.*

#### Traffic Study/Comments

19. The Applicant's traffic consultant has identified several changes to roadway/driveway layout to accommodate emergency vehicle access. These changes should be shown on the site plans and property lines and septic systems adjusted accordingly.

The site plans have been revised including property line adjustments. The roadway and lot layouts have been revised. Septic systems are no longer proposed.

20. Based on information reviewed in correspondence related to intersection site distances there appears to be some concern related to adequacy of site distances at proposed driveways. This is a critical safety issue as inadequate sight distance can increase potential for and severity of accidents at proposed driveways. We recommend site distances be calculated based on proposed/existing vertical and horizontal roadway layout and 85<sup>th</sup> percentile speed. Site distance triangles should be shown clearly on the plans and provisions made to ensure maintenance.

Refer to Green International report which includes site distance calculations. Site grading and vegetation removal areas have been depicted on the site plans.

21. We recommend the Board clearly define expected completion sequence for off-site mitigation and certificates of occupancy to ensure traffic safety concerns are addressed prior to residents occupying the homes.

*Lawrence Street improvements and schedule will be coordinated with the Town of Norfolk under a separate development agreement.*

#### Beta Comment Letter (June 30, 2017)

We agree with and support the comments offered with the following exceptions:

1. Comment 18: Basin infiltration rates will degrade over time and we do not recommend adjusting design infiltration rates unless the adjustment is based on an adequately supported "Saturated Hydraulic Conductivity" and includes provisions for reduced effectiveness over time.  
*Soil permeability testing was conducted in the areas of the proposed infiltration basins. The results can be found in the May 2017 Report. To summarize the design rates were based on 50 percent of the observed filed permeability test rates which is consistent with the Town of Norfolk Subdivision Rules and Regulations as well as the Massachusetts Storm water regulations.*

**Status Update** (October 26, 2017)

Following community comments and general discussion at the meeting, the Board requested Tetra Tech review the applicant's earthwork calculations and verify accuracy. UCI has provided electronic files of existing and proposed conditions (October 17) and backup calculations showing how estimates were developed (October 23).

We have reviewed documents provided and cannot, at this time, verify estimates provided as they are not derived from the current program of improvements and have been developed using methods/calculations that can only provide an approximate estimate. We have suggested standard design tools UCI can use to provide accurate cut/fill volumes and are working cooperatively to develop reliable estimates based on the current design.

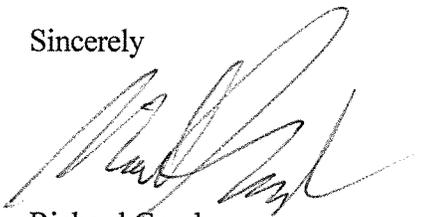
We have also identified simple ways in which the project can better balance site cuts and fills without major changes to lot or roadway layouts. In particular, the current design includes a main entrance that slopes down from Lawrence Street to the roundabout which is 9-10 feet lower resulting in significant slopes at the back of properties along Lawrence Street and driving the balance of the site to a lower elevation generating large excess cut volumes that will require offsite disposal. If instead, the entry was made flat, step cuts would be reduced and site cuts and fills would be more in balance without any changes to roadway layouts or vertical geometry.

Once UCI provides updated cut/fill estimates we can further evaluate expected trucking patterns. As mentioned in earlier sections and discussed at the meeting, we do not agree with projections provided by the applicant but will continue to work with UCI and the applicant to derive a more representative estimate of the trucking impacts. Given current access limits created by the narrow roadway width crossing Bush Pond (with no guardrail or pedestrian accommodation) and the limited capacity and residential nature of Mill Street, inadequate truck access to and from the project can represent a significant public safety risk and should be accurately estimated and managed accordingly.

*The revised site grading files have been provided to Tetra Tech. Tetra Tech has completed volume calculations.*

We anticipate that the review consultant's comments have been addressed. Should your Consultant or any Board members have any questions, please do not hesitate to contact our office.

Sincerely

A handwritten signature in black ink, appearing to read 'Richard Goodreau', written over a light blue horizontal line.

Richard Goodreau  
Project Manager