



January 6, 2023

Mr. Christian Klein, Chairperson
Arlington Zoning Board of Appeals
23 Maple Street
Arlington, MA 02476

Re: Tetra Tech Comment Letter 1
Comprehensive Permit (40B) Peer Review
1021-1025 Mass Ave
Arlington, Massachusetts

Dear Mr. Chairman:

Tetra Tech (TT) has reviewed the most recent submittal materials for the above-referenced Project to assist the Town of Arlington Zoning Board of Appeals (ZBA) in its Comprehensive Permit review.

Our review is based on materials available on the ZBA's online 40B document file sharing site including the specific documents listed below.

- A plan set titled "Comprehensive Permit Plan Set" for 1021 & 1025 Massachusetts Avenue (Site Plans), dated September 19, 2022, prepared by Patriot Engineering (Patriot)
- A "Site Utility Plan, Sheet 5 of 7" for 1021 & 1025 Massachusetts Avenue (Utility Plan), dated September 19, 2022, prepared by Patriot
- A Photometric Plan dated September 14, 2022.
- Conceptual Architectural Plans for 1021-1025 Massachusetts Avenue, Arlington MA dated September 19, 2022, prepared by Harrison Mulhern Architects (HM).
- A set of landscape plans (Sheets L1-L7) for 1021-1025 Massachusetts Avenue, Arlington MA dated September 8, 2022, prepared by Kyle Zick Landscape Architects, Inc. (KZLA).
- An "Impact Analysis of the Natural and Built Environment" for 1021-1025 Massachusetts Avenue dated September 15, 2022, prepared by LEC Environmental Consultants., Inc. (LEC).
- A "Transportation Impact Assessment" for Proposed Residential Development, 1021 & 1025 Massachusetts Avenue, Arlington, Massachusetts dated June 2022, prepared by Vanasse Associates Inc. (VAI).
- A "Bylaw Notice of Intent Application" for the 1021 and 1025 Massachusetts Avenue subject property dated September 16, 2022, prepared by LEC.
- A set of consolidated comments from Town Departments compiled by the Arlington Department of Planning and Community Development and issued under memorandum dated November 27, 2022, from Assistant Director, Kelly Lynema. Department and public comments were reviewed but do not form the basis of any of our comments or opinions. Those expressed in the this letter are wholly and exclusively ours and are not intended to represent the opinions of others.

The plans and supporting documentation were very well organized, clearly presented and included most of the information needed to inform this phase of review. We have compiled the following list of comments that in our opinion should be addressed by the applicant before the Board considers issuing a decision. Each item will be tracked to its closure as it is addressed by the applicant and closed out with either a clarification or a permit condition. The comments are organized by submittal document and the more significant comments are summarized below.

Key Comments

The proposed building occupies nearly the entire parcel footprint along its frontage with Massachusetts Avenue leaving very little space east and west of the building to (1) manage and execute construction, (2) provide emergency access or (3) mitigate impacts to abutting parcels. While there may be solutions to these concerns, they are not readily apparent and warrant clarification from the applicant. The following are our most critical concerns each of which is addressed in more detail under the numbered comments sections.

- **Constructability** – It is unclear how the work will be constructed on such a constrained site at the density and layout proposed. While the rear of the site could provide some useable space it is extremely limited, is encumbered by trees that are proposed to remain and lacks means of access from a public way during building construction. In our opinion there does not appear to be adequate space to accommodate basic construction activities safely and without impacting or relying on abutting property or the public way.
- **Emergency Access** – Once constructed, the proposed building effectively precludes access to the balance of the site from Massachusetts Avenue since there is not enough space between the building and the property line to accommodate an emergency vehicle. The adjacent parking area on the property to the north provides a logical surrogate but it is unclear if the Project has secured any rights of access or that emergency vehicles can navigate reliably in/out using that property. In our opinion without the use of the abutting property the site appears to lack adequate access for emergency vehicles. Please note, in all cases we defer to your Fire and Police Departments for final determinations as to the sufficiency of access.
- **Stormwater Design Basis** – The site has some special runoff conditions that have not been addressed in the current documentation. Most notably, almost all site runoff flows across an off-locus parking lot on its way to Mill Brook and does so without any clearly defined flow path or drainage infrastructure. The Project will need to demonstrate how runoff from the developed site will be conveyed safely across the abutting property. In addition, existing site runoff is detained in wooded depressions at the rear of the site which we expect significantly reduces predevelopment runoff. At present, these depressions have not been included in the stormwater analysis and will likely require modification to the stormwater design.

The following are our specific comments for consideration by the Board. The comments are organized by submittal, and we recommend the Board request responses for each from the applicant.

Comments

[Preliminary Site Development Plans \(Tab 06\)](#)

The Site Development Plans were well organized and readable and include most of the information needed to conduct our review. The following are comments on each sheet included in the set.

Cover Sheet

1. Site Plans typically include a “Layout and Materials Plan” which clearly describes proposed surface treatments and critical dimensions and is usually the plan most referred to during review. It would be helpful to have a similar plan included with the set which ideally also shows the proposed parking layout within the building as well as proposed setbacks and dimensional/lot coverage summaries. One is

provided with the landscape plans which could ideally be consolidated with the site development plans into a single coordinated set.

Existing Conditions Plan

2. The site includes some special topographic conditions and very close abutters. We recommend the applicant provide contours at 1-foot intervals and that contours extend at least 4 feet past the property line to help understand how grading along the property line will be influenced by the Project.
3. Please confirm test pit information was provided by a licensed soil evaluator and provide license number if available. Please note, test pit information conflicts with that shown on the Site Demolition Plan
4. It would be helpful to include a datum reference comparing the Town of Arlington datum to the vertical datum used on the plan (NAVD88).
5. Clearly define the shape and spillover elevation of the existing depressions which currently exist in the wooded area at the rear of the property.
6. Show structures on abutting properties on all plans.
7. Include lane markings for Massachusetts Avenue.

Site Demolition Plan

8. It appears the Project intends to save trees at the rear of the property. Although certainly commendable it appears several may be negatively impacted by proposed grading or will otherwise limit area likely needed to support construction. We recommend the applicant consider the area needed to support construction and revise the tree removal limits accordingly.
9. Does the Project anticipate installation of a temporary construction fence? If so, please show its location and gates on the demolition plan along with any proposed gates.
10. The plan shows a proposed construction entrance pad at the southeast corner of the site. However, the pad appears to extend into the proposed building footprint. Please clarify if this entrance is only to be used during demolition and if so where the entrance will be located during the balance of construction.
11. Provide contour labels.
12. Correct test pit information as needed to address inconsistency with information on the Existing Conditions Plan.
13. Is the existing fence between the subject property and 1033 Mass Ave proposed to remain or will it be removed? In either case, please note its treatment on the demolition plan
14. Please show anticipated sawcut/excavation limits for work within the public right of way. A sawcut line is include landscape plans but does not consider proposed utility connections.

Grading and Drainage Plan

15. Proposed grading along the boundary with 1017 Mass. Ave creates a dam condition that channels flow but does not show how the resulting discharge is managed nor demonstrates that the flow interruption will not negatively impact the abutting property. We request the applicant explain how drainage along that boundary will be addressed so as not to negatively impact the abutting property.

16. Similarly, proposed grading along the boundary with 1033 Mass. Ave appears to direct site runoff from the Project toward that property when just the opposite occurs under current conditions. Applicant should address how runoff patterns will be maintained permanently and during construction to prevent negative impacts on abutting properties.
17. The proposed garage entrance is aligned in a manner that forces vehicles to drive over an existing catchbasin. We recommend either the entrance be shifted slightly, or the catchbasin be relocated to keep it out of the path of vehicles accessing the garage.
18. The plan suggests the catchbasin rim may be adjusted to accommodate the driveway but any changes to the catchbasin rim will impact gutter slope and roadway cross-slope of Mass Avenue. The entrance should be designed to maintain the existing grading of Mass Ave or otherwise plans should show the extent of change to Mass Ave.
19. The proposed infiltration system is almost 10 feet higher than grade. Please describe how the Project intends to address potential hydrostatic loading of the wall by the infiltration system and how weeping through the wall will be avoided.
20. The infiltration system relies on the soils beneath it to be protected from compaction to maintain its ability to infiltrate water as represented in the design. Given the proposed infiltration system is the only unoccupied area available for construction staging, please describe how the soils below the system will be protected from compaction during construction.
21. Please quantify the volume of excavation and disposal required to construct the proposed building foundation and describe how excess material will be managed and removed from the site.
22. Its unclear how runoff from the site will be discharged onto the abutting property and how that flow will be conveyed across the paved surface to the stream. Please clarify how the discharge will be managed so that flow will be safely and reliably conveyed from the site to the stream. Include any channel or spillway details and threshold elevation on the plan.
23. Proposed grading appears to exceed maximum allowable slopes for accessible routes. Please clarify which site amenities are accessible and identify any required accessible routes.

Site Utility Plan

24. This plan is similar if not the same as that included under Tab 11. Recommend it continue to be provided as part of this plan set exclusively to avoid any confusion and reduce document production.
25. Please provide inverts of the existing sewer and proposed site discharge to confirm required minimum slopes can be met using gravity infrastructure and that main line flow is not impacted by flow from the site due to excessive drops.
26. Will electric service come from underground lines in the street or from a drop off existing overhead lines?
27. Although we expect public water and sewer infrastructure would have adequate capacity to serve the Project, the Project represents an increase in demand on municipal water and sewer infrastructure above the current use and is likely much larger than would have been forecasted during original design of municipal services since it is so much larger than otherwise allowed under zoning. We recommend the applicant provide a simple memorandum or similar documentation by a licensed Massachusetts engineer demonstrating the Project can be served adequately without impacts to existing or proposed infrastructure or its users. At a minimum the documentation should describe and quantify proposed

demand, describe existing infrastructure serving the site, provide calculations demonstrating available capacity/service and describing improvements, if any, needed to town infrastructure to serve the Project. If offsite infrastructure improvements are required to serve the Project, please note them clearly in the memorandum. Documentation is requested as factual basis on which the Board can rely in determining the Project can be safely served by local infrastructure. It is not intended to suggest issues may exist.

28. Please describe how/if the Project plans to address Inflow/Infiltration removal requirements for new or expanded sewer connections.

Site Details II

29. The details for the underground infiltration system seem to show conflicting information. System section indicates the chambers will be 45" tall but are 57" per elevations provided in the plan view above. Please clarify and confirm the model uses the same dimensions shown on the details.
30. The sheet includes a detail for a chain link fence and no other fence detail is provided. Is it the intent to install chain link fence at the locations noted on the Grading and Drainage Plan?

Lighting Photometric Plan (Tab 07)

31. The plan indicates several wall packs will be installed along the western building face and appear to spill light onto the abutting property creating a potential adverse impact on the lower-level windows of the abutting property. At a minimum the lighting plan should be modified to eliminate any light spill onto abutting parcels.
32. Is the intent of these lights to provide a lit path from the street to the rear of the site. If so, please explain how the lights will be controlled and the expected times they will be lit.
33. The Photometric Plan was difficult to read. Please provide an electronic version that is clearer and with readable light levels.
34. No lighting is shown for the common courtyard proposed on level 2. Please include on the plan and explain how/if this area will be lit and its anticipated hours of operation.

Conceptual Architectural Plans (Tab 09)

The following comments are offered on civil-related items. We defer to the Town's architectural peer reviewer for all other architectural design comments.

35. The parking layout provided does not show the anticipated location of structural columns that have the potential to limit, if not preclude, use of certain spaces. Please indicate where columns are anticipated.
36. The layout does not include provision for accessible spaces. Please indicate what spaces are intended as accessible and include required loading areas and signage.
37. Does the Project anticipate providing charging stations for electric vehicles? If so, please note those spaces on the plan so charging station and electric vehicle locations are known in case of fire.
38. The parking layout does not provide backing space for vehicles parked at the end of aisles. Typically, an area approx. 5' deep is provided so vehicles exiting those end spaces have an area to maneuver when exiting. If no backing area is provided, we recommend those spaces be dedicated for compact vehicles.

39. The architectural plans do not include reference or any specific accommodation for the “Green Roof” described in the environmental impact analysis and draft wetland application. If a green roof is proposed, it should be shown on the architectural plans.
40. The parking layout indicates “Hanging Bike Racks” at many of the parking space locations. Please provide dimensions of the proposed parking spaces and describe how/if the hanging bike storage will restrict use of any of the parking space.
41. The plans do not indicate location of mechanical equipment (air handlers, air conditioners, etc) and no space appears to be allocated or available on the site. Please confirm all exterior mechanical equipment will be located on the roof and show where it will likely be placed.
42. Provide a description of how excavation for the basement level will be accomplished without impacting adjacent property or the public way.

Utility Plan (Tab 11)

43. This plan is essentially a duplicate of a similar plan included under Tab 06. No additional comments. Suggest this plan be removed as a standalone drawing to avoid confusion with similar plan at Tab 06.

Landscape Plans L1-L7 (Tab 12)

44. Landscape Plans include duplicate or conflicting information with that included in the Preliminary Site Development Plans. We recommend the Landscape Plans be coordinated and included with the Site Plans and any duplicate content be removed.
45. The Plans indicate several trees at the rear of the property will be maintained. Given the lack of available space on site to support construction and the extent of anticipated grading within that area protection of those trees does not appear possible. Please confirm if the project intends to protect those trees and if so, how it plans to accomplish its work with them in place.
46. The Planting Plan indicates several new trees will be planted in the northern portion of the site. Please confirm if the Planting Plan contemplates infilling among the existing trees. If infill, please distinguish between trees designated to remain in place and those intended to be removed. Suggest any trees scheduled to be removed not be shown on the Planting Plan.
47. Grades shown on the walkway appear to exceed the maximum allowed for accessible paths. Please confirm if the outdoor amenity space is intended to be accessible and if so, confirm the grading meets accessible standards.
48. Please indicate which side of the Screen Fence will face the abutter.

LEC Impact Analysis of the Natural and Built Environment (Tab 15)

49. The analysis indicates there are no stormwater measures to attenuate peak flows from the existing site. Although there are no measures that appear to be specifically built with that intention, there appear to be two large natural depressions in the rear of the property that we expect provide substantial peak flow mitigation and infiltration. Additional related comments are included in later section related to stormwater.
50. The depressions have not been included in the analysis of pre-development conditions and as such any representation that the proposed stormwater design meets performance standards is premature in our

opinion. However, we do expect the standards can be met with design changes but recommend those changes be included in any plans approved by the Board.

51. We agree with methodology used to document the location of Mill Brook and the corresponding Riverfront Area and have no reason to believe an approved delineation would vary significantly from that shown on the plans.
52. We agree that the onsite state-regulated resource areas are limited to Riverfront Area.

Stormwater Management Report (Tab 15)

The analysis underlying the Stormwater Report includes some errors/omission which when addressed are likely to change the results. As such any representation that the Project has met peak rate attenuation requirements is premature. Our specific comments are listed below.

53. The analysis does not consider the existing wooded depressions in its pre-development runoff calculations. The depressions appear to provide significant mitigation of site runoff and excluding them from the analysis may significantly over-estimate pre-development runoff. We recommend the depressions be clearly shown on the existing conditions plans and incorporated into the pre-development runoff model and that post-development mitigation be modified accordingly.
54. Similarly, the model does not include the post-development depression to which the infiltration system discharges nor describes how flow leaves the site. Please update the model to include the proposed depression and its anticipated outlet configuration.
55. The model should also account for runoff originating off locus such as that flowing through the site from properties east and west.
56. The stormwater model includes a significant lag between peak runoff from at grade portions of the site and peak runoff from the roof/infiltration system which appears to be a bit counter-intuitive given runoff from the roof would be expected to be much faster than runoff from the site. The lag creates a gap between the two peak discharges resulting in a significant benefit to the Project's post-development peak discharge rate. We request the applicant explain the lag and provide analysis results demonstrating how it was calculated.
57. The drainage report uses 6-minute time of concentration (T_c) for all model scenarios which doesn't accurately distinguish between runoff patterns. We understand Hydrocad model instructions recommend a 6 min. minimum T_c but would appreciate a justification for T_c used in the analysis.
58. The model does not include any description or consideration for the specific method of discharge from the site but rather aggregates all flows leaving the site. The work will certainly result in modification of drainage patterns to the adjacent parking lot given the changes to grading and distribution of stormwater along the property boundary. Analysis should include clearly defined outlet conditions showing how flow leaves the site and crosses the abutting property under each storm.
59. There appears to be no stormwater collection system serving the adjacent parking lot. As such all flow leaving the site will travel across a parking lot potentially creating an unsafe condition. We recommend the applicant clearly describe how flow leaving their site will traverse the neighboring parking lot and confirm the abutter accepts those changes.

60. The analysis does not appear to take credit for any mitigation due to implementation of a green roof as described in the LEC reports/applications. As such, stormwater performance represented in the analysis should not be impacted if the green roof was not constructed. We would still appreciate clarification of the project's intentions and commitment to installing and maintaining a green roof.

Transportation Impact Assessment (Tab 16)

The TIAS has generally been prepared in accordance with industry standards. We agree with the methodology used to estimate traffic volume and its distribution and consider added volume from the Project is relatively small and generally insignificant in comparison to current roadway volumes. The following comments address our non-capacity related issues.

61. Town guidelines recommend traffic studies include intersections within 1,000 feet of the development site. The traffic study did not include all intersections within 1,000 feet. However, additional intersection capacity analyses beyond those evaluated in the traffic study is not warranted since Project traffic is less than 2% of existing volume. Such a nominal increase is not anticipated to materially change peak hour levels of service at intersections not included in the study.
62. The building program shown in the traffic study varies slightly from that shown on architectural plans and site plans. The discrepancies are not considered material but should be addressed in future submittals to the extent possible.
63. The traffic study indicates that nine surface parking spaces are proposed in the rear of the site. However, the site plan does not show any surface parking on the site. Please confirm proposed parking layout and supply.
64. The traffic study included a crash analysis of the study intersections. However, crash data for the Massachusetts Avenue/Menotomy Road intersection and the crash rate calculations for all study intersections were not included in the Appendix. Please provide.
65. No documentation is provided to support the proposed parking space to unit ratio. We recommend the Board request the applicant to provide a simple justification for the ratio proposed.
66. Based on the site plan, emergency vehicle access will be limited to the front (Massachusetts Avenue) side of the building. Tetra Tech recommends that the Applicant describe anticipated emergency vehicle access at the site and explore the feasibility of expanding emergency vehicle access to the sides and rear of the property. The Applicant should review the site plan with the Arlington Fire Department to ensure accommodations provided are acceptable to the Fire Department.
67. It's unclear how delivery/trash pickup/moving trucks will be accommodated. We recommend the Board request the applicant describe how these activities will be accommodated and provide AutoTurn analysis, if needed, to confirm services/vehicles can circulate without impeding on-street parking, bicycle lane operations or site access/circulation.
68. We agree with the TIAS's suggested site access improvements to provide a Stop bar and sign at the site driveway approach to Massachusetts Avenue. Tetra Tech recommends that all proposed traffic signage and pavement markings for the project be MUTCD-compliant.
69. The traffic study assumed 20% of residents will use non-vehicle modes of travel to/from the site. Based largely on its MBTA access and the bus stop on the north side of Massachusetts Avenue. We

recommend the Applicant coordinate with the Town and the MBTA to evaluate the feasibility and appropriateness of providing a bus shelter to encourage transit usage to/from the site.

70. The Applicant commits to providing bike storage based on the architectural plans. The proposed bike rack locations should be shown on the site plans. Tetra Tech recommends that the Applicant consider providing a mix of indoor, secured long-term bike parking for residents and outdoor, short-term bike parking for guests and retail customers. The bike mitigation should be developed in accordance with the Town's Bicycle Parking Guidelines.
71. The traffic study indicates that adequate ISD would be provided at the proposed site driveway on Massachusetts Avenue. However, the available ISD would be restricted when taking on-street parking into account. Tetra Tech recommends that the Applicant work with the Town to evaluate the feasibility of providing a painted buffer (on-street parking restriction) between the proposed driveway and the beginning of on-street parking to the south of the driveway to enhance sight lines.
72. As part of the project, a new driveway will be constructed for vehicles entering/exiting the proposed covered parking area. This new driveway will be located within approximately 15 feet of the existing bus lane. The minimum length for an on-street parking space (end space) is 20 feet. Therefore, Tetra Tech recommends the Applicant prepare a restriping plan to extend the end of the bus lane or provide hatched pavement markings to provide a no parking zone between the bus lane and the proposed driveway, subject to Town review and approval. The plan should also show the proposed restriping for the on-street parking to the south of the driveway.
73. Approximately 425 feet south of the site, a midblock crossing is provided across Massachusetts Avenue. Tetra Tech recommends that the Applicant assess conditions at this location (i.e., pavement striping, wheelchair ramp design, crosswalk width and pavement markings, traffic control, sight lines, etc.) and determine if any improvements are warranted to enhance safety.
74. We recommend the Applicant describe anticipated delivery and moving truck operations and confirm that these services/vehicles can be adequately accommodated on-site without impeding site access, circulation and/or parking.

LEC Bylaw Notice of Intent Application (Tab 19)

75. The Arlington Conservation Commission maintains its review responsibility under the state wetlands regulations (310 CMR 10) which includes strict performance standards for work within Riverfront Area and compliance with Massachusetts Stormwater Management Standards and Handbook. Given the Commission maintains review responsibility under state regulations we recommend the Applicant request, and the Board consider, waiving filing requirements under the local bylaw to avoid the Board having to conduct a parallel review with the Commission. If the Commission is concerned that waiving the local bylaw removes a needed control, they can request the Board include it as a condition in their decision.
76. The application asserts no work is proposed within an Adjacent Upland Resource Area however it is our understanding the Adjacent Upland Resource Area associated with the Mill Brook Bank would extend into the site (generally coincides with the 0-100' riparian zone) and work is proposed within that area.
77. The proposed construction period stormwater control measures are relatively sparse and include a single line of staked compost filter tube, a single catch basin filter and a proposed construction entrance that can logically only serve the demolition phase of the project given it is shown in a location within the proposed building footprint and in an area of deeper excavation needed to construct the basement level. In our

opinion the proposed measures shown will not be sufficient to prevent sediment from leaving the site. We recommend the Board request the applicant to describe how it plans to execute construction and how proposed erosion control measures will be modified to serve each phase of construction. For example, we see no way the Project can be constructed using exclusively the entrance shown on the plans and that a rear entrance is likely required. We expect the rear of the site will be the most heavily used during construction given the lack of any available space between the building, the abutting properties, and the street yet no accommodations are shown at the rear of the site to manage construction traffic, soil stockpiles or construction parking/laydown. Without careful planning of construction activity and robust erosion and sedimentation controls there is a significant potential for impact to Mill Brook.

These comments are offered as guides for use during the Town's review and additional comments are likely to be generated as additional or revised documentation is submitted. If you have any questions or comments, please feel free to contact me at (508) 786-2230.

Very truly yours,



Sean P. Reardon, P.E.
Vice President

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