



January 18, 2024

Alan Fryer, Chair
Zoning Board of Appeals
Dover Town House
P.O. Box 250
Dover, MA 02030

Re: Tetra Tech Peer Review Letter 2
Trout Brook Comprehensive Permit
Dover, Massachusetts

Dear Mr. Chairman:

The following letter updates comments provided in our November 28, 2023 letter in consideration of supplemental material provided by the applicant including responses to comments, revised site plans, supporting documentation, and clarifying testimony presented at public hearing.

Our updates are noted below in "black" with the heading "01-18-24 Update:" Text shown in gray represents information contained in previous correspondence while new information is shown in black text. Comments noted as "**Comment Resolved**" are considered addressed and will be indicated as resolved in future correspondence when/if needed.

The revised submittals address all our substantive technical concerns and comments, and we require no additional or revised documentation. The design provided is thorough and demonstrates the Projects can be built as shown in compliance with applicable state wetlands and wastewater regulations. Please note, each home location will require review by, and an Order of Conditions issued from, the Dover Conservation Commission per the requirements of the Massachusetts Wetlands Protection Regulations (310 CMR 10) and review by, and a wastewater Disposal System Construction Permit issued from, the Dover Board of Health per the requirements of the Massachusetts Title 5 Regulations (310 CMR 15) before any construction can begin.

The following is a status summary for each comment.

General Comments

1. We recommend the plans show the location of homes and driveways on adjacent lots to better understand potential impacts associated with the significant fills being proposed on all lots. Locations can be approximated based on aerial photos.

01-18-24 Update: Plans revised as requested. **Comment Resolved.**

2. Similarly, we recommend contours be extended at least 15 feet onto abutting property to better understand grading patterns and any potential impacts from proposed fills. Grading can be approximated based on LiDar data available from MassGIS if needed.

01-18-24 Update: Plans revised as requested. **Comment Resolved.**

3. Please provide a summary of required cuts and fills on each lot to estimate the volume of fill required to raise the sites as shown. If possible, include a summary of cut volume associated with the required compensatory storage mitigation as well. This information will assist the Board in addressing/qualifying any trucking related concerns.

01-18-24 Update: Plans revised as requested. **Comment Resolved.**

Site Plan Comments

The bulk of the comments provided below apply to all four development lots but have been listed under each lot to provide for possible diverging solutions or responses. Comments that substantially duplicate prior comment are *italicized* for convenience.

Lot 1A

4. Proposed grade is substantially higher than existing grade (6' fill) which blocks runoff currently flowing directly off the road and the proposed grading does not clearly show how runoff accumulating at the edge of the right-of-way will be addressed. We request the applicant clearly show how runoff will be conveyed from the roadway to the wetland without ponding in the public way. At a minimum this should include definition of a channel cross section and all associated grading including resolution of the 109 contours.

01-18-24 Update: Plans revised to address the comment. **Comment Resolved.**

5. The plan shows area drains and a trench drain collecting runoff from paved surfaces but provides no pretreatment prior to infiltration. At a minimum applicant must demonstrate how the project intends to protect the infiltration system from the inevitable fouling from sediment if no treatment is provided.

01-18-24 Update: Plans revised to address the comment. **Comment Resolved.**

6. Although the septic system design appears reasonable it barely meets minimum setback criteria in several cases but provides no basis on which the system was designed to demonstrate viability at the dimensions shown. We recommend the applicant provide enough basic design information to demonstrate system compliance with 310 CMR 15.00 (Title 5) so the Board has a factual basis on which to conclude the wastewater needs of the project can be safely met.

01-18-24 Update: Plans revised, and additional information provided as requested. **Comment Resolved.**

7. The work on Lot 1A includes creation of compensatory storage to offset flood plain fill required for the septic system on Lot 2A. While we know of no prohibition for providing compensatory storage on an adjacent lot the Board should be aware that a portion of the work shown on Lot 1A is required for development of Lot 2A.

01-18-24 Update: No action required. **Comment Resolved.**

8. Access, drainage, and utility easements are required over Lot 2A to serve Lot 1A. We recommend any required easements be clearly shown and described on the plans.

01-18-24 Update: Plans revised as requested. **Comment Resolved.**

9. Test pits indicate Estimated Seasonal High Groundwater (ESHG) several feet below the adjacent wetland elevation which seems counterintuitive as we would expect groundwater to flow toward the wetland rather than away from it. Records indicate test pits were performed by a licensed soil evaluator and approved by the Dover Board of Health and as such we have no reason to question the results. However, we request a brief explanation for the results and confirmation the test pits were witnessed as part of the BOH approval.

01-18-24 Update: Response adequately addresses our comment. **Comment Resolved.**

10. Recommend the Lot 2A sewer line be shown on the plans for Lot 1A.

01-18-24 Update: Plans revised as requested. **Comment Resolved.**

11. The proposed stormwater infiltration system is located approximately 55' from the proposed well location which does not meet the minimum 100' setback requirement from private wells as noted in Table RR – Rules for Groundwater Recharge in Volume 1 of the Massachusetts Stormwater Handbook. We recommend the applicant consider NOT connecting paved surfaces to the infiltration systems if possible.

01-18-24 Update: Plans revised as requested and response adequately addresses the comment.
Comment Resolved.

Lot 2A

12. *Proposed grade is substantially higher than existing grade (6' fill) which blocks runoff currently flowing directly off the road and the proposed grading does not clearly show how runoff accumulating at the edge of the right-of-way will be addressed. We request the applicant clearly show how runoff will be conveyed from the roadway to the wetland without ponding within the public way. At a minimum this should include definition of a channel cross section and all associated grading including resolution of the 109 contour which is currently unaddressed.*

01-18-24 Update: Plans revised to address the comment. **Comment Resolved.**

13. *The plan shows area drains and a trench drain collecting runoff from paved surfaces but provides no pretreatment prior to infiltration. At a minimum applicant must demonstrate how the project intends to protect the infiltration system from the inevitable fouling from sediment if inadequate treatment is provided.*

01-18-24 Update: Plans revised to address the comment. **Comment Resolved.**

14. *Although the septic system design appears reasonable it barely meets minimum setback criteria in several cases but provides no basis on which the system was designed to demonstrate viability at the dimensions shown. We recommend the applicant provide enough basic design information to demonstrate system compliance with 310 CMR 15.00 (Title 5) so the Board has a factual basis on which to conclude the wastewater needs of the project can be safely met.*

01-18-24 Update: Plans revised, and additional information provided as requested. **Comment Resolved.**

15. *The work on Lot 2A includes proposed filling of the flood plain for the septic system with compensatory storage proposed on Lot 1A to offset the flood plain fill required on Lot 2A. While we know of no prohibition for providing compensatory storage on an adjacent lot the Board should be aware that development of Lot 2A is predicated on compensatory storage on Lot 1A.*

01-18-24 Update: No action required. **Comment Resolved.**

16. The plans should include enough detail on the proposed grading plan to demonstrate the actual limits of work required to provide compensatory storage. None of the proposed compensatory storage extends beyond the flood plain boundary which suggests no connection. We recommend plans be revised to show spot grades and actual extent of required disturbance to offset proposed flood plain fills.

01-18-24 Update: Plans revised as requested. **Comment Resolved.**

17. *Access, drainage, and utility easements are required over Lot 2A to serve Lot 1A. We recommend any required easements be clearly shown and described on the plans.*

01-18-24 Update: Plans revised as requested. **Comment Resolved.**

18. *Test pits indicate Estimated Seasonal High Groundwater (ESHG) several feet below the adjacent wetland elevation which seems counterintuitive. Records indicate test pits were performed by a licensed soil evaluator and approved by the Dover Board of Health and as such we have no reason to question the results. However, we request a brief explanation for the results and confirmation the test pits were witnessed as part of the BOH approval.*

01-18-24 Update: Response adequately addresses the comment. **Comment Resolved.**

19. *Recommend the Lot 2A sewer line be shown on the plans for Lot 1A.*

01-18-24 Update: Plans revised as requested. **Comment Resolved.**

20. *The proposed stormwater infiltration system is located approximately 45' from the proposed well location which does not meet the minimum 100' setback requirement from private wells as noted in Table RR – Rules for Groundwater Recharge in Volume 1 of the Massachusetts Stormwater Handbook. We recommend the applicant consider NOT connecting paved surfaces to the infiltration systems if possible.*

01-18-24 Update: Plans revised as requested and response adequately addresses the comment. **Comment Resolved.**

Lot 4

21. *Proposed grade is substantially higher than existing grade including as much as 3' of fill over an existing gas line. Please provide documentation or response that the resulting change in soil load is within gas company accepted tolerances.*

01-18-24 Update: Plans revised to address the comment. **Comment Resolved.**

22. *The proposed contours suggest a portion of the Project runoff will be directed toward the Gordon property with no obvious outlet in contrast to what happens under existing conditions where runoff appears to flow from the Gordon property through the subject property to the wetlands. This change in runoff pattern is further complicated by the proposed use of a portion of the drainage path for compensatory storage to offset flood plain fills elsewhere no site.*

01-18-24 Update: Plans revised to address the comment. **Comment Resolved.**

23. *The plan shows a french drain collecting runoff from paved surfaces but provides no pretreatment prior to infiltration. At a minimum applicant must demonstrate how the project intends to protect the infiltration system from the inevitable fouling from sediment if inadequate treatment is provided.*

01-18-24 Update: Plans revised to address the comment. **Comment Resolved.**

24. *Although the septic system design appears reasonable it barely meets most minimum setback criteria and does not meet minimum 25' Soil Absorption System to downhill slope setback requirements. The system is located within a constrained area where any required design changes will likely impact other site features, and nothing is provided to demonstrate viability at the dimensions shown. We recommend the applicant provide enough basic design information to demonstrate system compliance with 310 CMR 15.00 (Title 5) so the Board has a factual basis on which to conclude the wastewater needs of the project can be safely met.*

01-18-24 Update: Plans revised, and additional information provided as requested. **Comment Resolved.**

25. *The plans should include enough detail on the proposed grading plan to demonstrate the actual limits of work required to provide compensatory storage. None of the proposed compensatory storage extends*

beyond the flood plain boundary which suggests no connection. We recommend plans be revised to show spot grades and actual extent of required disturbance to offset proposed flood plain fills.

01-18-24 Update: Plans revised as requested. **Comment Resolved.**

26. *Test pits indicate Estimated Seasonal High Groundwater (ESHGW) several feet below the adjacent wetland elevation which seems counterintuitive. Records indicate test pits were performed by a licensed soil evaluator and approved by the Dover Board of Health and as such we have no reason to question the results. However, we request a brief explanation for the results and confirmation the test pits were witnessed as part of the BOH approval.*

01-18-24 Update: Response adequately addresses our comment. **Comment Resolved.**

27. *The proposed stormwater infiltration system is located approximately 35' from the proposed well location which does not meet the minimum 100' setback requirement from private wells as noted in Table RR – Rules for Groundwater Recharge in Volume 1 of the Massachusetts Stormwater Handbook. We recommend the applicant consider NOT connecting paved surfaces to the infiltration systems if possible.*

01-18-24 Update: Plans revised as requested and response adequately addresses the comment.

Comment Resolved.

Lot 45

28. *Proposed grade is substantially higher than existing grade (3' fill) which blocks runoff currently flowing directly off the road and appears to result in additional flow being directed to the catchbasin in the street. We request the applicant clearly show how runoff will be conveyed from the roadway to the wetland without ponding within the public way (see low spot created near catch basin). At a minimum this should include resolution of the 109 contour which is currently unaddressed.*

01-18-24 Update: Plans revised to address the comment. **Comment Resolved.**

29. *The plan shows a french drain collecting runoff from paved surfaces but provides no pretreatment prior to infiltration. At a minimum applicant must demonstrate how the project intends to protect the infiltration system from the inevitable fouling from sediment if inadequate treatment is provided.*

01-18-24 Update: Plans revised to address the comment. **Comment Resolved.**

30. *Although the septic system design appears reasonable it barely meets minimum setback criteria in several cases but provides no basis on which the system was designed to demonstrate viability at the dimensions shown. We recommend the applicant provide enough basic design information to demonstrate system compliance with 310 CMR 15.00 (Title 5) so the Board has a factual basis on which to conclude the wastewater needs of the project can be safely met.*

01-18-24 Update: Plans revised, and additional information provided as requested. **Comment Resolved.**

31. *The plans should include enough detail on the proposed grading plan to demonstrate the actual limits of work required to provide compensatory storage. The compensatory storage does not extend far enough into the flood plain to mitigate fills near elevation 105. We recommend plans be revised to show spot grades and actual extent of required disturbance to offset proposed flood plain fills.*

01-18-24 Update: Plans revised as requested. Please note, the 2,570 (sf) noted in the "107.6" row of the compensatory storage summary table appears to be an error and more likely should be slightly larger

than the 8.080 (sf) fill area based on the revised plans. This is a minor issue that can be address in later documentation or Notice of Intent review. **Comment Resolved.**

32. *Test pits indicate Estimated Seasonal High Groundwater (ESHGW) several feet below the adjacent wetland elevation which seems counterintuitive. Records indicate test pits were performed by a licensed soil evaluator and approved by the Dover Board of Health and as such we have no reason to question the results. However, we request a brief explanation for the results and confirmation the test pits were witnessed as part of the BOH approval.*

01-18-24 Update: Response adequately addresses our comment. **Comment Resolved.**

33. *The proposed stormwater infiltration system is located approximately 36' from the proposed well location which does not meet the minimum 100' setback requirement from private wells as noted in Table RR – Rules for Groundwater Recharge in Volume 1 of the Massachusetts Stormwater Handbook. We recommend the applicant consider NOT connecting paved surfaces to the infiltration systems if possible.*

01-18-24 Update: Plans revised as requested and response adequately addresses the comment. **Comment Resolved.**

Storm Water Report

Lot 1A

34. The stormwater model does not include flow from the street that results from the damming effect of the site fills noted in prior comments. We recommend the model be modified to match design conditions.

01-18-24 Update: Model revised as requested and response adequately addresses the comment. **Comment Resolved.**

35. The model suggests the infiltration system is designed to overflow to the public way by surcharging the trench/area drains near the driveway. In our opinion this is unacceptable and exacerbates the damming conditions created by the site fills. We recommend the design be modified so that infiltration system surcharges are directed toward the wetland and not toward the public way.

01-18-24 Update: Plans revised as requested. **Comment Resolved.**

Lot 2A

36. The model applies an exfiltration rate of 2.41 in/hr when test pit results indicate sandy loams beneath the infiltration system rather than loamy sands. Model should incorporate an exfiltration rate for sandy loams of 1.04 in/hr.

01-18-24 Update: Model revised as requested and response adequately addresses the comment. **Comment Resolved.**

37. *The model suggests the infiltration system is designed to overflow to the public way by surcharging the trench/area drains near the driveway. In our opinion this is unacceptable and exacerbates the damming conditions created by the site fills. We recommend the design be modified so that infiltration system surcharges are directed toward the wetland and not toward the public way.*

01-18-24 Update: Plans revised as requested. **Comment Resolved.**

Lot 4

38. *The model suggests the infiltration system is designed to overflow to the public way by surcharging the trench/area drains near the driveway. In our opinion this is unacceptable and exacerbates the damming conditions created by the site fills. We recommend the design be modified so that infiltration system surcharges are directed toward the wetland and not toward the public way.*

01-18-24 Update: Plans revised as requested. **Comment Resolved.**

39. The outlet geometry used in the model does not match design conditions. The model shows a 288" x 12" horizontal orifice grate when the french drain is installed on a slope with only a very small portion of it being at elevation 110.3 resulting in the model understating the depth of discharge at the street. We expect this problem to be addressed in response to prior comment, but the model must accurately reflect as-shown design conditions.

01-18-24 Update: Plans and model revised as requested. **Comment Resolved.**

Lot 45

40. *The model suggests the infiltration system is designed to overflow to the public way by surcharging the trench/area drains near the driveway. In our opinion this is unacceptable and exacerbates the damming conditions created by the site fills. We recommend the design be modified so that infiltration system surcharges are directed toward the wetland and not toward the public way.*

01-18-24 Update: Plans revised as requested. **Comment Resolved.**

41. The elevations shown for pond 16P do not appear to reflect elevations noted on the site plans. Please address as needed.

01-18-24 Update: Plans and model revised as requested. **Comment Resolved.**

The responses and documentation provided to date satisfactorily address our comments and we require no further information. We appreciate the thoughtfulness of the responses and the clarity of the documentation provided and find it suitably complete to serve as Preliminary Plans for a Comprehensive Permit decision. 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