TOWNSHIP
OF
LOWER MERION
MONTGOMERY COUNTY

TOWNSHIP ENGINEER

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LOWM 254.39

September 30, 2019

Christopher Leswing, Director of Building and Planning
Township of Lower Merion
75 East Lancaster Avenue
Ardmore, PA 19003

Re: 1860 Montgomery Ave and 421 Saybrook Road
Lower Merion Middle School
Preliminary Plan Review

Dear Mr. Leswing:

In accordance with your request for the above referenced submission, we have reviewed a set of twenty–eight (28) plans dated 07-15-19, latest revision dated 09-20-19, and associated stormwater management calculations dated 07-15-19, prepared by Chester Valley Engineers, Inc. We have also reviewed a Traffic Impact Study dated 03-01-19, latest revision dated 09-03-19, and a Preliminary Traffic Signal Report, dated 12-12-18, all prepared by F. Tavani and Assoc., Inc. In addition, we have reviewed roadway geometry plans, dated 07-15-19 and a Pedestrian Route Analysis, dated 07-15-19 prepared by Traffic Planning and Design, Inc. We offer the following comments for your consideration:

A. MAJOR ENGINEERING ISSUES

- Stormwater – The proposed stormwater controls greatly reduce the rate and volume of runoff that will leave the site following development in each drainage direction. However, the capacity of the existing storm sewers that are intended to receive the connections of the basin outflows have not been verified for all design storms. In addition, the township stormwater code mandates that a conservative evaluation of the basin routing be performed by requiring the exclusion of exfiltration during the storm event. This has not been performed with the current submission. A waiver of this code section would be required in order to use the present design. It has also not been demonstrated that it is impractical to adhere to the code section requiring that no more than twenty-five (25%) percent of the property be denuded at one time. The minimum required relief to this code section has also not been properly sought/demonstrated. In addition, documentation must be provided that the hydrographs for the stormwater basins that are connected in series along with the uncontrolled by-pass areas have been properly combined in the analysis. All required hydrographs must be provided for review of the summary data.

- **Traffic**- The traffic study indicates that a large impact from the increased vehicle generation will be experienced at the intersection of Spring Mill Road and Conshohocken State Road. Mitigation measures are presented in the study for this impact. The mitigation measures must be implemented as part of this submission. Detailed design of the mitigation measures must be submitted for review with sufficient detail for implementation. All necessary permits and approvals from PaDOT will be required to be obtained.

- **Sewer Capacity** – The Township is currently experiencing wet weather capacity issues at the Gulph Creek Pump Station. This station would receive the additional sewage flow generated by this development. Mitigation measures must be developed which would offset the added sewage flow prior to the Township approving any Planning Module or Exemption. The measures must be implemented prior to completion of the school and generation of the added sewage flow to the station.

With the resolution of the above Major Engineering issues, and the remaining comments in this letter addressed, we recommend that the Preliminary Plan be approved.

B. ORDINANCE REQUIREMENTS

1. Section 101-5B(2)—Disturbance or removal of vegetation occupying Environmentally Sensitive Areas as defined in the code (i.e. lands having characteristics of slopes over 15%) shall be undertaken only as permitted under the natural Features Preservation Code Section. The construction of the school building and the grading for the driveways and walks do not comply with this section. Since the amount of disturbance to sensitive slopes has increased beyond that shown on the Tentative Sketch plans, a Waiver must be obtained for the Preliminary Plans.

2. Section 101-5C(2b)—The school building, driveways, walkways, stairs, and retaining walls are constructed in slopes exceeding twenty-five (25%) percent. Since the amount of disturbance to steep slopes has increased beyond that shown on the Tentative Sketch plans, a Waiver must be obtained for the Preliminary Plans.

3. Section 101-6A(1)—All woody vegetation to be retained within twenty-five (25') feet of a building site or disturbed area shall be protected from equipment damage by fencing placed at the driplines. Accurate location of the driplines must be shown on the plan for trees with driplines within twenty-five (25') feet of disturbance. Since the tree protection fence has not been shown at the driplines of all trees to remain, the Township Arborist must approve the location of the tree protection fence shown on the plan.

4. Section 101-6A(5)—No impervious cover shall be permitted within the driplines of trees to remain without approval from the Township Arborist. The Township Arborist must approve the location and extent of the impervious surface if the impacted trees are scheduled to remain.

5. Section 101-6A(6)—Grade changes around the driplines of trees to be retained shall be minimized. Impacted trees shall be clearly identified on the plan. Treatment of the impacted trees prior to construction to protect the root system shall be performed if/as directed by the Township Arborist. The Township Arborist must also approve the procedure.

6. Section 101-6B(2)—Since trenches for storm facilities and possibly some utilities are proposed within the driplines of trees, all disturbed roots must be cut as cleanly as possible. The trench must be backfilled as quickly as possible, avoiding compaction. Tree limbs must be cut back in proportion to the root area loss. Adequate watering of the root systems must be performed. This shall be noted on the plan and made a condition of permit issuance.

7. Section 121-4A, 121-6D—Sufficient documentation shall be provided with the calculations that demonstrates that the outflow hydrographs for the basins have been properly routed through other basins in series and have been combined properly with other applicable post development hydrographs.

8. Section 121-4A(1)—Additional supporting documentation must be provided for the during construction stormwater management controls shown. It must be clearly documented that the worst cover condition has been analyzed in the calculations. Additional phasing of the construction may be required depending upon the evaluation.

9. Section 121-4A(2)—All roof drains shall be clearly noted to be directly connected to a seepage bed. The location, material, size and slope of all lines must be indicated. The applicable contributory roof area must be confirmed to have been routed in accordance with the areas used in the final stormwater calculations. The capacity of the roof collection piping design must be documented clearly in the calculations.

10. Section 121-4A(4)—The responsibility for the continued maintenance and operation of the detention basin and other facilities shall be the obligation of the property owner. This note shall be clearly indicated on the plan.

11. Section 121-4E(2c)—Design consideration shall not include infiltration rates in computing storage volume of a seepage bed. The rates shall be used only to meet the requirements that the rate control volume in the seepage bed empties in twenty-four (24) hours or less. The basin designs that consider exfiltration must be re-designed to exclude the exfiltration in the routing.

12. Section 121-4E(2d)—All seepage bed details shall be modified as required to clearly note a minimum twelve (12) inches of cover

13. Section 121-4E(2f)—All seepage beds must contain a sediment trap accessible for maintenance. It is not clear in the present submission if a sediment trap is proposed for all stormwater directed to the basins.

14. Section 121-4E(2L)—Seepage beds shall not receive runoff until the entire contributory area to the BMP has been stabilized. This note shall be clearly indicated on the plan and in the construction sequence. Approval from the Township Engineer shall be listed as being required prior to introduction of runoff into any permanent stormwater basin.

15. Section 121-4E(4)—A description of how the permanent stormwater control facilities will be operated and maintained shall be submitted by the design engineer. The frequency of inspection shall be listed on the plan. The contact information for the party responsible for the operation and maintenance of the facility shall be listed.

16. Section 121-4G—Landscaping of the surface basins will be required since the surface area is greater than 1,000 SF. A landscape plan shall be submitted and must be approved by the Planning Department.

17. Section 121-5A(1)—The maximum bare areas shall not exceed twenty-five (25%) percent of the total area at any one time. It has not been demonstrated that it is not practical to fully honor this code section requirement or at least only request a partial relaxation of the required disturbance limits. Additional phasing of the construction will be required if a waiver is not obtained.

18. Section 121-5A(2)—The maximum time of exposure for bare soil areas shall be twenty (20) days before stabilization measures are implemented. This shall be clearly noted on the plan.

19. Section 121-5A(6)—Newly graded slopes of over twenty-five (25%) percent must be stabilized with sod or jute netting and seed. This shall be noted on the Grading Plan and those areas meeting this criterion clearly delineated with shading on the plan.

20. Section 121-6D—Drainage area maps for the during construction analysis shall be provided with the calculations for verification of data used.

21. Section 121-6D(6)- The actual hydrographs for the outflow of the basins and for the necessary combined flows shall be provided in the analysis for verification of the summary information tabulated in the stormwater report.

22. Section 121-6H—The size and species of trees on the property with driplines within twenty-five (25') feet of disturbance shall be included on the grading and utility plans.

23. Section 121-6J—Additional detail is required in the sequence of construction activities. Prior to conversion of the temporary basins, notification of the Township Engineer shall be listed. Approval from the Township Engineer is required prior to removal of any temporary basins and introduction of runoff into a permanent facility. A notice of forty-eight (48) hours is required by the Township Engineer prior to any required inspection.

24. Section 121-12—An NPDES Permit must be obtained from the Montgomery County Soil Conservation District prior to issuance of any permit.

25. Section 121-15—The runoff crossing to the adjacent properties during the construction phase of the project shall be managed so that the water quality/quantity impact is minimized to the adjacent properties. Diversion berms, stoned construction staging areas, and inlets/piping shall be noted to be provided as required or as directed by the township so as to ensure acceptable conditions during the construction phase.

26. Section 135-17B(13)—All proposed utility service locations shall be shown from the building to the mains. All mains shall be shown to within 200' of the property.

27. Section 135-17B(13)—The existing storm sewers, inlets and any other manhole or other structure shall be shown within three hundred (300') feet of the property. Invert, rim, and grate elevations shall be indicated. This size and material of all storm sewers shall be provided. This has not been provided for the sewers in Montgomery Ave.

28. Section 19B(8)- The width of the bus loop drive shall be reduced to twenty-four (24') feet unless demonstrated that the additional width is necessary for maneuverability and safe/efficient operation.

29. Section 135-19B(8) - Double-yellow centerline pavement markings shall be provided at stop locations where two-way traffic operation is planned in order to provide safe and efficient movement of traffic. Informational and wayfinding signage shall also be provided and shall be clearly shown on the Signage and Pavement Marking Plan.

30. Section 135-19B(8) -The revised traffic study includes information regarding the anticipated circulation routes for bus and parent pick-up and drop-off traffic. Figure 9 must be amended to show the anticipated back-of-queue on the site for both the bus traffic and parent vehicular traffic in order to determine if there will be any conflict with turning movements or maneuverability.

31. Section 135-19B(8)- The traffic study has documented that the development will meet the warrants for installation of a traffic signal at the drive. A traffic signal is therefore proposed to be installed at the site driveway. This signal will require PaDOT review and approval and shall be further investigated/reviewed. Traffic signal permit and construction plans shall be submitted for evaluation with the Preliminary Plan submission.

32. Section 135-19B(8)- The revised traffic study has considered the possible future cut-through traffic to the surrounding streets, including N. Stoneridge Lane, Saybrook Road, and Clairemont Road on the south side of Montgomery Avenue and Spruce, Cedar and Willowbrook Lanes on the north side of Montgomery Avenue. The study also indicates that traffic calming measures on these streets is recommended in order to mitigate the effects of the cut-through traffic as noted on Figure 10. These or other acceptable mitigation measures are recommended be included as part of this project. Additional detail and investigation shall be performed as required for full review by the Township and proper consideration. Installation of acceptable measures if/as directed by the Township is recommended to be made a condition of Preliminary Plan Approval.

33. Section 135-19B(8)- ITE trip generation values were provided based on the "fitted curve" methodology. As the R^2 value is below the recommended 0.75 for use of the fitted curve, the study must address the impact of using the "average rate" methodology of the trip generation calculations.

34. Section 135-19B(8)- The revised traffic study indicates the largest impact is expected to be at the intersection of Spring Mill Road and Montgomery Ave, and outlines several recommendations for the intersection to mitigate the impact of the school traffic. We concur that these measures are necessary and must be included for implementation as part of this project. Detailed analysis and plans sufficient for implementation must be provided with the plan submission. Any and all required permits and approvals from PaDOT must be obtained. The township shall be included in all communications with PaDOT.

35. Section 135-19B(8)- The road geometry Construction plan shows the crosswalk along the northbound approach to be diagonal across the Montgomery Ave. The crosswalk location shall be shifted to be perpendicular to the cartway and the stop bar shall be adjusted to provide the necessary clearance to the crosswalk.

36. Section 135-19B(8)- A detail shall be provided for the crosswalks. "Continental" design for pavement markings in accordance with the preferred Township standard shall be shown on all plans.

37. Section 135-19B(8)- Roadway Construction plan, sheet No. 8, shows center gore striping to be 24" white. All center gore striping shall be noted to be 24" yellow.

38. Section 135-19B(8)- We recommend that a post development study of the analyzed intersections, site drive and analyzed streets be made in order to determine the accuracy of the trip projections and distributions and to determine if any added mitigation measures are needed.

39. Section 135-32—Concrete road control monuments shall be shown to be installed at the right-of-way at the intersection of each property line and at all changes in direction. Iron pins or other survey monumentation shall be permitted if concrete monuments cannot be installed. Approval from the Township Engineer is required for the substitution.

40. Section 135-40—A Planning Module or Exemption must be approved by Lower Merion Township, the City of Philadelphia and the DEP prior to recording the Final Plan. As there is currently wet weather capacity concerns at the Gulph Creek Pump Station that would receive the added sewage flow from the school, mitigation measures must be proposed that would offset the proposed increased sewage flow and enable approval of a planning module by the Township. These mitigation measures must be fully developed as part of the Preliminary Plan Submission and must be adequately implemented prior to completion of the project and introduction of the increased sewage flow into the township system.

41. Section 145-41F, Section 121-15 -- The invert drop across inlet Nos. SWD 21 and SWD 22 shall be adjusted to provide for additional head loss caused by the pipe diameter change.

42. Section 155-167.7(B)—Wooded lot calculations shall be provided on the plans. The total number of trees removed for the proposed construction shall be indicated.

C. ENGINEERING COMMENTS

1. A detail of the retaining walls shall be provided. Additional top and bottom of wall elevations shall be provided. Calculations must be provided for wall heights exceeding four (4') feet.

2. A Lighting Plan must be submitted and approved by the Director of Building and Planning prior to recording the Final Plan.

3. A Planting Plan must be approved by the Planning Department and the Township Arborist prior to issuance of the permit/recording the Final Plan.

4. All inlets in non-paved areas shall be shown to be graded in a sufficiently deep sump condition in order to increase the efficiency of runoff collection. The final sump condition must be noted to be approved in the field by the Township Engineer. Additional spot elevations shall be added to the plan to clarify grading.

5. Details of the porous pave walkways shall be provided. Details must conform to township standards.

6. Sidewalks, handicap ramps and crosswalks shall be added for the property frontages if/as required by the Board of Commissioners.

7. The construction entrance detail shall be modified to indicate placement of the AASHTO No. 1 stone starting five (5') feet from the cartway. Crushed stone shall be shown in the area between the start of the entrance and the curb line.

8. The mean grade of the structure shall be calculated and shown on the grading and utility plan. The architectural plans must be coordinated with and must comply with the grading proposed with this application.

9. The slope of the private sewer run between MH SS 101 and MH SS 102 must be increased to a minimum .6% in accordance with DEP guidelines.

10. A detail for the sanitary sewer manhole, lid and frame shall be provided.

11. The connection of the sanitary sewer into the township sewer manhole shall be noted to be performed in accordance with township standards. A formed channel shall be provided at the receiving manhole. The existing manhole shall be noted to be replaced/repaired if/as necessary or as required by the Township Engineer.

12. The township storm sewer structures receiving the proposed connections shall be noted to be replaced/repaired if/as required or as directed by the Township Engineer.

13. The stormwater basin routing analysis shall consider tailwater effects if/as appropriate.

14. The conveyance capacity of the existing storm sewers receiving the proposed pipe connections shall be verified in the stormwater calculations.

15. Adequate isolation distance shall be maintained between the proposed sanitary sewers and the proposed potable water services. The minimum separation distances shall be dimensioned on the plan.

16. All stairs, landings and railings shall be noted to comply with the appropriate building code.

17. "No Parking by Order of the Fire Marshal" signs shall be noted to be placed where directed by the Chief Fire Officer.

18. The locations of all proposed fire hydrants must be approved by the Fire Marshal.

19. A copy of the revised plan shall be submitted with any changes highlighted. A letter shall also be provided with the revised plan indicating how each requested revision has been addressed in the re-submission.

Please advise if we may be of further assistance in this matter.

Very truly yours,

Kevin J. Bowers, P.E.
PENNONI ASSOCIATES
Township Engineer

Cc: Robert E. Duncan, Assistant Township Manager
Chester Valley Engineers, Inc.
F.Tavani and Associates, Inc.
Traffic Planning and Design, Inc.
Lower Merion School District