



**TOWNSHIP
OF
LOWER MERION**
MONTGOMERY COUNTY

TOWNSHIP ENGINEER

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LOWM 254.78

June 16, 2020

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

**Re: 100-128, 130-198 Lancaster Avenue Development—Application NO. 3843TS
Tentative Sketch Plan Review**

Dear Mr. Leswing:

In accordance with your request for the referenced submission, we have reviewed a set of ten (10) plans dated 12-14-18, latest revision dated 06-04-20, prepared by Bohler Engineering, Inc. We have also reviewed a transportation impact study dated 03-13-20, latest revision dated 06-05-20 prepared by Traffic Planning and Design, Inc. We offer the following comments for your consideration:

A. MAJOR ENGINEERING ISSUES

- ❖ **Stormwater**—Since the principle buildings on the existing parcels have been or will be demolished, stormwater rate and volume controls must be provided considering the pre-development ground cover condition as meadow. All proposed drainage patterns have also not been clearly shown on the plan. Areas to be directed to a stormwater bed and those to be uncontrolled are not clearly defined. The requested stormwater facilities must also be demonstrate to be capable of recharging the minimum infiltration volume (Re_v) and be able to drain in the code required ninety-six (96) hours for the water quality recharge volume and twenty-four (24) hours for the rate control volume. Infiltrometer tests must be performed in the vicinity of the stormwater facility and at the required depth and must be submitted for review in order to demonstrate that code requirements have been met. If soil conditions do not permit the required operation system, waivers will be required.
- ❖ **Traffic**— A Pavement Marking and Signage Plan will be required to be submitted to clarify the stop bars, stop signs, and centerline pavement markings requested to be shown in order to provide the required vehicular controls necessary for orderly movement of traffic. Maneuverability diagrams shall be required to be submitted to demonstrate adequate dimension for proper operation. In addition, in order to improve pedestrian safety, we have requested that the applicant install an activated pedestrian beacon in a crosswalk over Ardmore Avenue, and we understand that the applicant has agreed to provide the requested flashing warning device. The applicant has agreed to this request. The design for this warning device and the other traffic related items will be required to be provided with the Preliminary Plans.

With resolution of the preceding major engineering issues and the other items in this letter adequately addressed, we recommend that the Tentative Sketch be approved.

B. ORDINANCE REQUIREMENTS

1. Section 121-5B(4A)—Since more than seventy-five(75%) percent of the principle building areas of structures on the site are being or have been demolished, the runoff Curve Number for the pre-development conditions on the site shall be considered as meadow for all rate and volume control analyses. A stormwater rate and control facility is required.
2. Section 121-4A(1b)2—As the property is located within the Darby-Cobbs Creek Act 167 Drainage Area Release Rate District, the 2-year post development peak rate of runoff shall be controlled to the 1-year pre-development peak rate of runoff. The 5-year frequency storm must be controlled to the lesser of the 2-year pre-development rate of the percentage of the pre-development rate as listed in Appendix B for the particular sub-watershed district. For the 10- and 25-year frequency storms, the post-development rate shall be controlled to the percentage of the respective pre-development rate. The 50- and 100-year storms shall be controlled to the peak discharges which occurred prior to development in the respective storm frequencies. Meadow ground cover condition shall be used as the pre-development condition in this analysis. This shall be fully evaluated with the Preliminary Plan submission.
3. Section 121-4B(2a)1—At a minimum, the increased volume of stormwater generated by the proposed development for the 25-year storm shall be recharged. Meadow cover condition must be used as the base line for determining the volume. Calculations documenting this shall be submitted with the Preliminary Plans.
4. Section 121-4B(2d)2—In addition to the recharge requirement for the 25-year storm, the calculations must demonstrate that the infiltration volume (Re_v) requirements have been met for all impervious surface shown on the site. This shall be evaluated with the Preliminary Plan submission.
5. Section 121-4B(2d)3—Field tests such as double ring infiltrometer or hydraulic conductivity tests shall be performed at the level of the soil infiltration in order to demonstrate adequate design parameters. Complete test reports must be submitted. The location of each test must be indicated on the plan. This shall be evaluated with the Preliminary Plan submission.
6. Section 121-4B(2d)4—A minimum depth of 24 inches between the bottom of the proposed seepage bed and the limiting zone must be demonstrated. Soil tests shall be submitted as required to demonstrate compliance.
7. Section 121-4B(2d)5—The seepage bed must be demonstrated to empty the Re_v volume within four (4) days. Calculations demonstrating this must be submitted with the Preliminary Plans. If the minimum Re_v volume cannot be recharged, a waiver to this code must be obtained.
8. Section 121-4B(2d)6—The water quality volume (WQ_v) must be calculated and demonstrated to be sufficient for the design. This shall be evaluated with the Preliminary Plan submission.

9. Section 121-4E(2c)—The seepage bed(s) shall be designed to empty the total design storm volume needed for peak rate control in 24 hours or less. Calculations verifying this shall be submitted with the Preliminary Plans.
10. Section 121-4E(4)—A description of how the permanent stormwater control facility 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. The plan shall be presented in recordable form as a covenant running with the land and must be approved by the Township Solicitor prior to recording the Final Plan.
11. Section 121-4E(2f)—All seepage beds must contain a sediment trap accessible for maintenance. Details shall be submitted with the Preliminary Plans
12. Section 121-4E(2d)—The minimum separation between the seepage bed and the proposed structure shall be dimensioned on the plan. The seepage bed must be located 10 feet from any basement wall. Adequate separation between the system and footings shall be provided. The recommended setback for seepage beds is also 10 feet from the property line.
13. Section 121-5B(4A)—The runoff Curve Number for the pre-development conditions on the site shall be considered as meadow for all rate and volume control analysis. This shall be fully evaluated with the Preliminary Plans.
14. Section 121-6C—The limits of disturbance shall be clearly delineated on the plan. The amount of square feet of earth disturbance shall be listed. This shall be fully evaluated with the Preliminary Plans.
15. Section 121-6D—Drainage area maps for the during construction analysis, the permanent facility analysis, and for qualification of the existing storm sewer system shall be provided with calculations. These shall be submitted with the Preliminary Plans.
16. Section 121-6J— A sequence of construction activities shall be submitted. Installation of a temporary basin, seepage bed, roof collection system, and level spreader system or connection to a Township storm sewer shall be listed. Notification of the Township Engineer shall be listed in the sequence following installation of protective barriers and prior to earth disturbance. Notification of the Township Engineer for inspection shall be listed prior to installation of the seepage bed and piping. This shall be fully evaluated with the Preliminary Plan.
17. Section 121-10—No grading changes shall be shown within 3 feet of the property line in order to ensure transition to the grading on the adjoining property. This shall be clearly demonstrated with the Preliminary Plans.
18. 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 to ensure acceptable conditions during the construction phase. This shall be fully evaluated during the Preliminary Plan review.

19. Section 135-41.1(A)—Adequate water supply must be documented for the subdivision. A letter from Aqua Pennsylvania must be submitted certifying adequate supply for the additional demand. This shall be submitted with the Preliminary Plan.
20. Section 135-16B(14), 121-4E(1b), 121-15—All proposed drainage patterns have not been clearly indicated on the tentative sketch plans. All areas to have runoff collected and conveyed to a storm facility and those to be left uncontrolled shall be clearly identified. Discharge from the stormwater basin shall be converted from concentrated flow to sheet flow conditions. The overflow shall be piped to a level spreader, bubble-up spreader, or if determined to be feasible, conveyed to an existing storm sewer system. Details must be fully evaluated with the Preliminary Plan.
21. Section 135-16B(15), 121-4A(2)—All roof drains have been noted to be connected to the stormwater facility, but have not been shown on the plan. The location of the proposed collection system shall be fully shown. Details regarding size, slope, and material shall be evaluated with the Preliminary Plan.
22. Section 135-18B(2)—Property lines to be removed shall be shown as dotted.
23. Section 135-16B(7)—The names and addresses of all adjoining properties shall be clearly provided on the plans.
24. Section 135-16B(15)—Areas set aside for during construction stormwater management have not been clearly provided. Areas must be designated during the various phases of construction to provide the required rate controls. The permanent area does not appear to be optimal for all phases of the construction project.
25. Section 135-27— An additional amount of right of way with a radius of ten (10') feet shall be shown to be dedicated at the corner of Lancaster and Greenfield Avenues.
26. Section 135-27E(4)—The 75' clear triangle has not been properly shown on the plans. The location of the proposed building is shown within the required 75-foot clear triangle limit of daylighting required for the proposed road. The building would need to be modified to remain out of this area or a waiver obtained.
27. 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. This must be provided with the Preliminary Plans.
28. Section 135-40—A Planning Module or Exemption must be approved by the City of Philadelphia and the DEP prior to recording the Final Plan.

B. ENGINEERING COMMENTS

1. Erosion control measures shall be provided with the Preliminary Plans. The proposed construction access location shall be indicated. Details that conform to Township Standards shall be shown. Certification attesting to the completeness shall be provided on the Erosion Control Plan.
2. Stop bar/signage shall be indicated on the plan at intersecting interior drive aisles. Pavement marking arrows shall be added for clarity. Stop bars, stop signs, and centerline pavement markings shall be provided as required or as directed so as to provide a more orderly movement of vehicles. A pavement marking and signage plan shall be submitted with the Preliminary Plans.
3. The sight distance triangles for the final location of the new drive on Lancaster Avenue, for the proposed road extension and for the drive access to the road extension have not been clearly shown on the plan and must be provided. The distance must be demonstrated to meet the desirable sight distance requirements as specified by PennDOT. The Traffic Safety Unit of the Lower Merion Police Department must also approve the final drive configuration/ location on Lancaster Ave and the location of the intersection configuration of the roadway extension with Greenfield Ave. These items shall be fully evaluated with the Preliminary Plans.
4. Although a Transportation Impact Study (TIS) was submitted, the study is not required at the Tentative Sketch Phase. The following issues are to be considered; however, additional comments may be issued upon completion of a comprehensive review with the Preliminary Plan application.
 - a. The TIS identifies benefits to traffic operations and mobility with the extension of West Athens Avenue to Greenfield Avenue. As recommended in the study, scenario 1 should be implemented as part of this development.
 - b. As recommended in the study, optimization of the traffic signals in the study area should be provided after the site development and occupancy, and the applicant has agreed with this condition.
 - c. The peak hour gap study for the proposed site driveway on Lancaster Avenue should identify the available capacity for left-turn entry and left-turn exit movements, for informational purposes. In addition, the total number of gaps available at the intersection of Ardmore Avenue and West Athens Avenue should be confirmed.
 - d. The TIS should include evaluation of the proposed pedestrian network, including the crossings of Ardmore Avenue, Lancaster Avenue, and Greenfield Avenue as previously outlined. The study should confirm which study intersection corners will be modified to provide ADA compliant connectivity to adjacent properties and through study intersections.

- e. Although the study indicates that the overall intersection Level of Service does not degrade more than ten (10) seconds at any intersection, the study notes that several individual movements at the intersections of Lancaster Avenue & Woodside Avenue, and Lancaster Avenue & Ardmore Avenue will be detrimentally impacted. As the study is proposing total vehicular trip generation reductions due to the interaction of the mixed uses on the site, a sensitivity analysis should be performed regarding the potential impact of the development on these key adjacent intersections. We understand that the applicant's traffic engineer will prepare a sensitivity analysis.
 - f. We have received the electronic synchro files, which are under review and will be further evaluated with the Preliminary Plans.
 - g. The queue conditions outlined in Table 13 should be confirmed for the projected 2027 post-development scenario, as several 2027 values are less than 2022 values.
- 5. New or upgraded ADA ramps shall be provided at the intersection of Greenfield Ave and Lancaster Ave.
 - 6. In order to improve pedestrian safety accessing the site on the east side, a Rectangular Rapid Flashing Beacon (RRFB) is requested to be installed in the crosswalk over Ardmore Ave at West Athens Ave. The details of the design of the RRFB will be submitted and evaluated with the Preliminary Plans. The Traffic Study shall also investigate the benefits of installation of flashing warning devices for the pedestrians crossing Greenfield Ave at the new West Athens Avenue roadway extension intersection, or upgrading the existing pedestrian crossing on Greenfield Avenue to the south of the new roadway extension. It shall also investigate the need for a pedestrian flashing warning device across Lancaster Ave at the new site driveway. These items shall be fully evaluated with the Preliminary Plans.
 - 7. The number of parking spaces required for the development must be approved by the Zoning Officer.
 - 8. Should the proposed site driveway to Lancaster Avenue remain right-in/right-out, physical measures to prevent the restricted movements must be investigated. This item shall be further evaluated during the Preliminary Plan review.
 - 9. Details for the design of the bump-outs for the parking on the frontage of Lancaster Ave must be properly evaluated including coordination with SEPTA. Impacts to drainage conditions, location of street lighting, bus stops, and lane use control signage must be fully investigated. This shall be performed with the Preliminary Plans.
 - 10. A Lighting Plan shall be submitted with the Preliminary Plan. The Director of Building and Planning must approve the lighting plan.
 - 11. A full reveal and depressed concrete and granite curb detail shall be provided with the Preliminary Plans. Depressed curb shall be clearly shown and labeled at all driveway/roadway

connections. The length of depressed curb for the new driveways and any curb to be raised to full reveal shall be dimensioned on the plan.

12. Granite curb must be clearly shown to be used for the roadway extension. This shall be a condition of approval. Details that conform with township standards must be provided with the Preliminary Plans.
13. The location, size, material, and slope of the proposed sanitary lateral shall be shown.
14. The location of all proposed utility services shall be provided. This must be indicated on the Preliminary Plan.
15. A fill material and topsoil stockpile location shall be provided.
16. A note shall be added to the plan indicating that the Township Engineer shall be notified 48 hours prior to the installation of the seepage bed and prior to the start of earthmoving activities.
17. A Planting Plan must be approved by the Planning Department and the Township Arborist.
18. Sidewalk and curb shall be noted on the plan to be repaired/replaced at the direction of the Township.
19. Concrete apron shall be shown at all driveway/roadway connections. Sidewalk shall be shown to cross all driveways at grade. Details of the concrete apron and sidewalk shall be provided. Details must conform to Township Standards. These shall be submitted with the Preliminary Plans.
20. Details for the crosswalks shall be provided and comply with township design standards. If Development Option No. 1 is adopted, a raised crosswalk over the roadway extension shall be considered/evaluated in order to provide additional traffic calming and safety for pedestrians. Dimensions on the West Athens Avenue extension is to be shown. The length of the proposed crosswalk to the loading area should be decreased and will be fully evaluated with the Preliminary Plan.
21. Pavement marking and proper signage shall be indicated in the area of the residential access doors near Lancaster Ave. "No Parking" / "Loading Unloading Only" etc. signage as appropriate shall be provided. This shall be fully evaluated with the Preliminary Plans.
22. "No Parking by Order of the Fire Marshall" signs shall be provided where directed by the Chief Fire Officer.
23. The mean grade of the structure shall be calculated and shown on the plan. The architectural plans must be coordinated with and must comply with the grading proposed with this application. This shall be fully evaluated with the Preliminary Plans.

24. Adequate maneuverability for cars in the garage and for delivery/service vehicles that will access the roadway extension and the loading dock shall be documented. Adequate maneuverability for fire truck access through the road extension shall be documented. The radii at all road and driveway access/egress must be adequate. This shall be fully evaluated with the Preliminary Plans.
25. A profile of the parking ramps shall be provided. The maximum grade shall be indicated.
26. A Pennsylvania Department of Transportation (PennDOT) Highway Occupancy Permit (HOP) will be required for this development. The Township must be involved with any meetings and copied on any correspondence pertaining to the PennDOT HOP.
27. 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,

Joseph A. Mastronardo, P.E.

PENNONI ASSOCIATES

Township Engineer

Cc: Robert E. Duncan, Assistant Township Manager
Bohler Engineering, Inc.

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