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Ms. Kathleen Colwell
Planning Division Director
City of Methuen – Community Development Board
41 Pleasant Street
Methuen, Massachusetts 01844

May 11, 2022

Ref.: T0222.90

Re: Traffic Engineering Peer Review
600 Griffin Brook Drive – Methuen, Massachusetts

Dear Ms. Colwell:

On behalf of the City of Methuen, TEC, Inc. (TEC) reviewed documents as part of the civil and traffic engineering peer review for the proposed site development located on 501 & 600 Griffin Brook Drive in Methuen, Massachusetts. Griffin Brook Drive Owner LLC (the "Applicant") submitted the following documents, which TEC reviewed for conformance with the City of Methuen Comprehensive Zoning Ordinance and accepted industry standards:

- *Application for Site Plan Approval for 501 & 600 Griffin Brook Drive in Methuen, MA;* prepared by The Morin-Cameron Group, Inc.; Dated April 5, 2022
- *Traffic Impact and Access Study (TIAS) – Proposed Industrial/Warehouse Building– 600 Griffin Brook Drive– Methuen, Massachusetts*; prepared by Bayside Engineering, dated April 30, 2022.
- *Technical Report in Support of Site Plan Approval for 501 & 600 Griffin Brook Drive in Methuen, MA;* prepared by The Morin-Cameron Group, Inc.; Dated April 6, 2022
- Site Development Plans for 501 & 600 Griffin Brook Drive in Methuen, MA; prepared by The Morin-Cameron Group, Inc.; Dated April 6, 2022

Upon review of the documents and plans, TEC has compiled the following comments for the Board's consideration:

**Traffic Impact and Access Study**

1. The traffic study area includes three (3) intersections in the vicinity of the site: Lowell Street (Route 110) and Griffin Brook Drive; Lowell Boulevard and Wheeler Street; and Griffin Brook Drive and Driveway to 400 Griffin Brook Drive. Based upon the size and scope of the development, TEC finds that the study area as provided in the Traffic Impact and Access Study (TIAS) is sufficient to capture the effects of the project on surrounding roadways based on the *Traffic Impact Assessment (TIA) Guidelines* (Section 3.I.C) set forth by the Massachusetts Department of Transportation (MassDOT). This includes an evaluation of intersections in which the site generated trips increase the peak hour traffic by more than 5 percent and/or by more than 100 vehicles per hour.

2. Traffic volume counts were conducted at all study intersections in March and April 2022 when schools were in session. Traffic volumes were expected to be lower than a typical April and March due to changes in travel patterns associated with the continued presence of the COVID-19

pandemic. The volumes were adjusted to account for any COVID-19 pandemic impacts by upward by a factor of 1.0513 percent. MassDOT recent guidance to TEC has indicated that counts performed after March 1, 2022 are considered "the new normal" and adjustment is not necessary. Therefore, including a COVID-19 adjustment is a conservative approach to creating a baseline condition and TEC concurs with this methodology.

3. A seasonal adjustment factors of 1.065 and 1.044 were applied to the counted volumes to reflect an average month condition, based upon an appropriate MassDOT permanent count station. TEC finds this methodology consistent with the MassDOT Traffic Impact Assessment (TIA) Guidelines and standard engineering practice.

4. The weekday morning and weekday evening peak commuter hours were studied to determine the project's overall effect on the roadway. TEC concurs that the selected time periods are appropriate for the warehousing/industrial development land use and the timeframes counted – 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM are in accordance with the MassDOT Traffic Impact Assessment (TIA) Guidelines (Section 3.II.D).

5. The TIAS presents motor vehicle crash data for the study area intersections. The crash data between 2015 and 2021 were reviewed. The calculated rates show lower values for the project in compared to the District and Statewide average crash rates. TEC concurs with the methodology used to estimate the crash rates.

6. The TIAS identifies a 0.5 percent per year growth rate of traffic, based on the discussions with the Central Transportation Planning Staff (CTPS) at the Metropolitan Planning Organization (MPO). TEC concurs with the general growth ambient factor used in stablishing future conditions.

7. Site trip generation for the proposed use were generated using the Institute of Transportation Engineers' (ITE) publication *Trip Generation, 11th Edition* for Land Use Codes (LUC) 140- General Light Industrial and LUC 150- Warehousing. Further, the number of trucks projected to be generated by the site was determined using the same manual. TEC concurs that this methodology and the use of these land use codes are consistent with the MassDOT *Traffic Impact Assessment (TIA) Guidelines* and the methods found in the ITE *Trip Generation Handbook*, an industry standard publication for projecting future traffic to be generated by a new development.

8. The trip distribution for the site generated traffic was based on current travel patterns entering and exiting Griffin Brook Drive from Lowell Street presuming that the existing industrial/commercial uses within Griffin Brook Park exhibit a similar travel pattern as can be expected for the Project. For the subject Project, TEC concurs with this methodology.

9. TEC concurs with the TIAS methodology for using the Highway Capacity Manual (HCM) 6th Edition methodology which is the current industry standard.

10. TEC concurs that overall, the project is not expected to significantly cause a noticeable impact to the operation of the study area intersections as reported. TEC concurs with the on-site recommendations outlined in the TIAS for the internal site roadway that include:

    a. Provide Stop-control on the site driveway approach to the two access way approaches to Griffin Brook Drive. TEC notes that this signage is provided on the current site plans.

b. Maintain and design site vegetation to not impede the sight triangle area at the intersection of the site access with Griffin Brook Drive. TEC recommends requiring this maintenance as a condition of any approval.

11. The TIAS outlines a Transportation Demand Management (TDM) plan that includes:

    a. Assign a transportation coordinator to coordinate and promote the TDM plan.

    b. Promote public transportation use by posting commuter rail and local bus schedules.

    c. Promote ridesharing via carpool for employees and designate two (2) carpool/vanpool parking spaces.

    d. Provide site amenities including a break room, direct deposit of paychecks, allowing for telecommuting or flex work opportunities.

    e. Providing bicycle racks throughout the site.

    TEC generally agrees with the proposed TDM measures but encourages the Applicant to consider the following additional measures:

    a. Locate a safe, efficient pick up/drop off location for rideshare services that is outside of any heavy truck traffic flow.

    b. Consideration should be given to installing electric vehicle (EV) charging stations.

**Parking**

12. The Site Layout Plan dated April 6, 2022, indicates that 200 parking spaces are required for the existing building and 131 parking spaces are required for the proposed building. TEC counted 184 parking spaces in the vicinity of the existing building, including 14 new spaces adjacent to the loading docks, and 135 parking spaces in the vicinity of the proposed building. Twelve additional parking spaces are located along the 20' wide emergency access gravel drive positioned around the sides and rear of the proposed building. Overall, the Zoning requirements are met, with 331 required and 331 provided throughout the site. However, the parking is not allocated proportionally to the required Zoning supply. The Applicant should discuss the anticipated parking demand for each building and whether sufficient parking supply is provided to each building.

13. The twelve parking spaces along the emergency access gravel do not provide protected pedestrian access to either building and will conflict with the loading areas of the proposed building. TEC recommends these parking spaces be relocated.

14. Fourteen new parking spaces are designated immediately adjacent to the loading docks of the existing building. The passenger vehicles using these parking spaces will conflict with the large trucks using the loading areas of both buildings. Further, there is no protection for the pedestrians exiting these parking spaces to enter either building. TEC recommends these parking spaces be relocated.

**Site Plan - Zoning**

15. Regarding the Table of Dimensional Requirements detailed on Page 168 of the City of Methuen Comprehensive Zoning Ordinance (further referenced as the "Zoning Ordinance"): the minimum lot width requirement & the lot width provided should be added to the Zoning Matrix table on Sheet C-5 of the Site Development Plans (further referenced as the "Site Plans").

16. Sheet C-5 of the Site Plans lists the proposed lot coverage as exactly 35%, matching the maximum allowed coverage. TEC requests that a graphic be provided to confirm the site does not exceed the 35% threshold.

17. The Technical Report calls out the areas where the proposed fire hydrants location will be situated with the final location to be coordinated with the Methuen Fire Department. These proposed locations for the fire hydrants and associated leaders calling out these locations should be added to the Site Plans.

18. Erosion control methods and temporary sediment forebays are detailed within or directly abutting proposed grading/wall construction throughout the site. The applicant should provide sufficient room for construction, especially with walls that directly abut the buffer zone.

19. On Sheet C-6 of the Site Plans, it appears that there are multiple proposed 1H:1V (or 1.5H:1V) rock slopes leading to 4' tall boulder walls. A 12' grade change is proposed from the drive aisle to existing grade. The Applicant should confirm if this slope/wall will be stamped by a geotechnical engineer. Also, TEC recommends providing a construction sequence narrative for this area.

20. On the Detail Sheets of the Site Plans, several issues were noted:
    a. On Sheet C-10, the accessible parking space states the handicap parking space to be 8 feet in width and 18 feet in length. Methuen's Zoning Ordinance requires off-street parking to be 9 feet in width and 18 feet in length.
    b. On Sheet C-11, the outfall rip rap title detail is misspelled.
    c. On Sheet C-12, the 100-year storm elevation is lower than the 10-year storm elevation on the subsurface retention system (P3).
    d. On Sheet C-14, the elevation label for OCS-1 rim appears to be too high for any proposed basin. Also, the title is duplicated from a similar detail on Sheet C-13.

**Technical Report**

21. Pipe capacity calculations should be provided for the proposed drainage and sewer networks throughout the proposed site.

22. Regarding the design of retention basin P1, the basin details a maximum storage elevation of 81', but no 81' contour is shown on any plan or detail provided in the Site Plans. Along with this, the "limit" of the basin is not shown on these plans, so there is no direct manner to calculate basin area based on the provided information.

23. Regarding the design of retention basin P2, the following concerns are present:

a. Similar to comment 21.a. above, the maximum storage elevation is detailed at 63', but no contour is shown in the Site Plans. Without this contour being present, there is no direct way to calculate basin area.
b. No test pit is provided within or near the limits of this basin. Typically, a test pit within the footprint of the basin is required to confirm that adequate separation to groundwater has been provided. TEC performed a site visit to review field conditions. Basin P2 is located within a densely wooded area and is fenced off preventing access for an excavator. TEC recommends that the Board include a special condition requiring a test pit in this location prior to the start of construction.

24. Regarding the design of retention basin P4, the following concerns are present:

a. No detail is provided for this proposed basin. A detail should be added to the Site Plans.
b. According to the Stormwater Handbook, any infiltration basin should be located a minimum of 50' away from any slope greater than 15%. The basin is shown approximately 15' from multiple 1H:1V & 1.5H:1V rock slopes/rock walls.

25. No rip rap sizing calculations are detailed for any of the newly proposed outfalls located across the proposed site. These calculations, and their associated details, should be completed to ensure no erosion is created by these proposed outlets, per Standard 1 of the Stormwater Handbook.

26. The following discrepancies and errors are present in Standard 3 recharge to groundwater calculations:

a. The Bottom of Infiltration for basin P5 is labeled at 140' when it is shown at 60'.
b. The highlighted stage area storage for Pond P1 (page 96 of the provided Technical Report) labels an elevation that is not used in the required recharge calculations on Page 95.

27. Within the Construction Phase Best Management Practices (BMP's), a section should be added detailing refueling and maintenance of on-site vehicles and equipment, storing/disposal of hazardous chemicals and materials, and methods of handling on-site oils spills.

Please do not hesitate to contact me directly if you have any questions concerning our comments at 978-794-1792. Thank you for your consideration.

Sincerely,
TEC, Inc.
*"**T**he **E**ngineering **C**orporation"*

Elizabeth Oltman, PE
Director of Transportation Planning

Peter F. Ellison, PE
Director of Strategic Land Planning