282 Merrimack Street, 2nd Floor
Lawrence, MA 01843
978.794.1792

TheEngineeringCorp.com
Create | Design | Innovate

Ms. Kathleen Colwell
Planning Division Director
Department of Economic and Community Development
41 Pleasant Street
Methuen, MA 01844

July 19, 2022

Re: 46 Old Ferry Road, Methuen, MA
Civil Engineering Peer Review

Dear Ms. Colwell and Members of the Planning Board:

On behalf of the City of Methuen, TEC, Inc. reviewed documents as part of the civil engineering peer review for the project proposed at 46 Old Ferry Road. Triple G, LLC ("Applicant") submitted the following documents prepared by Fieldstone Land Consultants, PLLC ("Fieldstone"), which were reviewed by TEC for conformance with the City of Methuen Zoning Ordinance, Massachusetts Stormwater Handbook, and industry standards and best management practices:

- Site Construction Plans for "Pie Hill Warehousing", 46 Old Ferry Road, Methuen, MA 01844, prepared by Fieldstone, dated April 4, 2022; revised June 29, 2022.
- Stormwater Management Report, prepared by Fieldstone, dated April 4, 2022; revised June 28, 2022.
- Revised Traffic Assessment, prepared by Vanasse & Associates, Inc., dated April 1, 2022
- Pie Hill Warehousing Noise Review, prepared by Cross-Spectrum Acoustics, dated July 11, 2022.

For consistency, the original comment numbers have been retained from the most recent TEC Peer Review letter on May 20, 2022. The Applicant's responses to the comments are shown as **bold**; TEC's responses are shown as *italic.*

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

Site Plan Review

1. The Site Plans call for 134 proposed parking spaces, however, 136 proposed parking spaces are shown. TEC recommends the parking calculations be updated.

Fieldstone: Note #14 on sheet MP-1 detailing parking calculations has been revise to state there are 136 proposed parking spaces.
TEC: Comment addressed.

2. Labels should be added on the Site Plans detailing the width of proposed parking spaces.

Fieldstone: The parking spaces are 9' wide and labeled as 9' on sheets SP-1 and SP-2.
TEC: Comment addressed.

3. An adequate buffer has not been provided between the project and the existing residential property at Lots 1008-79-11A and 1008-79-11F. TEC recommends updating the Site Plans to show a 60-foot buffer from the property line in conformance with Section VI-B (12.a) of the Zoning Ordinance.

Fieldstone: ***The location of the site drive has been revised to maximize the buffering to residential properties. The design now provides a minimum of a 30' natural buffer to adjacent residential properties with a stockade fence and additional landscaping to provide the best buffer possible. The existing gas mains and other site features require the site drive to be located where it is currently proposed. We are actively working on the final design for the screening and landscaping with the City, abutting property owners and the Community Development Board.***

TEC: Comment not resolved. TEC acknowledged the revision of the site drive, and additional complications. In conformance with Section VI-B (12.a) a 60-foot buffer from the property is still recommended. TEC ultimately defers to the Community Development Board for approval of the site drive location.

4. The Site Plans call out *"Snow Storage"* with no delineation of areas. TEC recommends updating the Site Layout to include delineated areas for snow storage.

Fieldstone: ***The snow storage areas are delineated showing intended areas for storage.***

TEC: Comment not resolved. TEC notes snow storage area above proposed concrete pad on SP-1 is not delineated. TEC recommends this area be delineated showing intended areas for snow storage.

5. The Site Plans call out a *"50' Wetland Buffer"*, this label should be updated on multiple sheets.

Fieldstone: ***This label has been revised.***

TEC: Comment addressed.

6. The Lighting Plan sheets are both labeled "LT-1", the sheets labels should be updated.

Fieldstone: ***The sheet for Lighting Plan South has been revised to LT-2.***

TEC: Comment addressed.

7. Multiple drainage structure labels on the Grading and Drainage Plans reference connections to numerous structures that do not match structure shown. For example:

    1. CB4 is proposed to DMH8 when it is shown to be routed to DMH6
    2. DMH6 is proposed to DMH9 when it is shown to be routed to DMH5
    3. CB3 is proposed to DMH8 when it is shown to be routed to DMH2

Fieldstone: ***The structure labels on sheet GR-1 and GR-2 have been revised. CB4 is proposed to DMH6, DMH6 is proposed to DMH5, and CB3 is proposed to DMH2 along***

with other changes.

TEC: Comment not resolved. CB-6 is proposed to DMH-7 when it is shown to be routed to DMH-8. DMH-7 is proposed to DMH-6 when it is shown to be routed to DMH-5. Based on the structure label for DMH-6, an invert in is detailed from DMH-7. DMH-7 is not shown being connected to DMH-6. TEC recommends the applicant revise GR-2 drainage plan.

8. TEC recommends that the Applicant label both contours around the drain inlets on the south side of the site for consistency on the Drainage and Grading Plans.

Fieldstone: The contours around the catch basins (catch basins 3 and 4) on the south side of the site have been labeled with their corresponding elevation, 240'.

TEC: Comment addressed.

9. There is limited lighting proposed along the access driveway. TEC recommends that the Applicant update the Site Plans to provide light along the entire length of the access driveway.

Fieldstone: *The proposed lighting has been designed to be as minimal as possible while still providing enough light to illuminate the drive and meet safety standards. The purpose of this is to minimize lighting to be sensitive to adjacent properties. There is also no pedestrian access that would require additional lights along the drive. We believe the design addresses all safety concerns and addresses the minimum lighting requirements for site operations while finding good balance for the neighbors.*

TEC: Comment not resolved. TEC acknowledges lighting sensitivity for adjacent properties. TEC continues to recommend the Applicant update the Site Plans to provide light along the entire length of the access driveway for safety. TEC ultimately defers to the City of Methuen planning and development board for approval of lighting plan along the access drive.

10. The Applicant should coordinate with the City of Methuen Fire Department for preferred locations for fire hydrants.

Fieldstone: *Plans have been submitted to the City of Methuen Fire Department for review.*

TEC: Comment addressed.

11. The water connection should be coordinated with the Methuen Department of Public Works.

Fieldstone: The water connection will be coordinated with the Department of Public Works and is noted on sheets UT-1 and UT-2, note #15.

TEC: Comment addressed.

12. Per Section XII-C.3.a., the Applicant should submit a study to document that the project will minimize the volume of cut and fill, the number of removed trees 6” caliper or larger, the length of removed stone walls, the area of wetland vegetation displaced, the extent of stormwater flow increase from the site, soil erosion, and threat of air and water pollution.

Fieldstone: ***Documentation regarding cut/fill, trees to be removed, vegetation, etc. has*** **been submitted in response to Community Development comments on June 1, 2022. The following is an excerpt from the submission: "The site has been designed and graded to try and balance the cuts and fills. The front of the development is in a cut while the back of the development is in a fill to provide essentially a level site without requiring excessive transportation of material on or off the site. Large portions of the site were cleared when the gas and electrical utilities were installed in the past, and those areas are filled with brushy vegetation and trees with smaller than 6". The stormwater runoff and erosion and sedimentation controls have been designed to meet local and state standards. The development of this site will ultimately yield an improvement as to adjacent properties and Old Ferry Road as there is currently no stormwater management on- site."**

TEC: Comment addressed. TEC defers to the City of Methuen Community Development Board to approve of documentation provided by the Applicant. No further response required.

13. Per Section XII-C.3.d., the Applicant should submit documentation to prove the project will minimize visual intrusion by controlling the visibility of parking, storage, or other outdoor service areas viewed from public ways and places.

Fieldstone: ***Documentation regarding visual intrusion was submitted in response to Community Development comments on June 1, 2022. The following is an excerpt from the submission: "The site plan proposes a mixture of fencing and landscaping which will greatly reduce visual intrusion of the development. There is also existing buffering between properties that will be maintained and the Summit Place apartments has an existing 120-150 foot vegetated buffer and we will be proposing some fencing and landscaping on top of that to help minimize visual intrusion." Renderings have also been provided to the City for the proposed development depicting additional details addressing this comment. From Old Ferry Road (the public way) the development will be 90+ feet in elevation so this will also minimize visual intrusion to parking and the bay doors are situated on the back side of the building. In general the site in our opinion will minimize visual*** **intrusion.**

TEC: Comment addressed. TEC defers to the City of Methuen Community Development Board to approve of documentation provided by the Applicant. No further response required.

14. Per Section XII-C.3.f., the Applicant should submit documentation to prove the project will minimize unreasonable departure from the character, materials, and scale of buildings in the vicinity, as viewed from public ways and places.

Fieldstone: ***Documentation regarding the character of the buildings in the vicinity was***

submitted in response to Community Development comments on June 1, 2022. The following is an excerpt from the submission: "The architectural drawings have been submitted with the design package. The site is large and has been designed to minimize impacts. There are no buildings in the vicinity of the site and the design for the project is modern."

TEC: Comment addressed. TEC defers to the City of Methuen Community Development Board to approve of documentation provided by the Applicant. No further response required.

Stormwater Management Review

15. The pre-development watershed maps show that there is greater than 2 acres of gravel surface at the site. Based on review of historical aerial maps, TEC believes that there should be significantly less gravel surface in the pre-development modeling. TEC recommends that the watershed map be updated with ground covers using aerial imagery from 2016. Additional detail is required on the watershed map to prove the ground covering.

Fieldstone: ***The City of Methuen G/5 mapping website was used, and a "pictometry (2014)" basemap imagery was used as a reference for pre-development ground covers. There is approximately 1.1± acres of gravel per*** **the** ***image, mostly the drive to access the power lines. The pre- development analysis of the site has been revised accordingly.***

TEC: Comment addressed.

16. The Proposed weir for P14: SC-740 chambers is 5.6' above the bottom elevation of the pond. Given use of SC-740 "which use 6 in. of stone and 2.5' chamber height" the weir is positioned 2.1' above the top of the system. TEC does not recommend designing the lowest outlet above the top of the basin. Typically, underground systems are designed to keep the peak water elevation below the top of the basin.

Fieldstone: ***The primary outlet is a*** $12^{"}$ ***culvert out of DMH2 at an elevation of 237.0, which is the 1' below the top of the 2.5' system. This outlet allows for the peak elevation of both the 2 year and 10-year storm within the top of the system. The weir*** **5.6' above the pond is modeled to represent overflow in larger storms.**

TEC: Comment not resolved. The primary outlet is an 18" culvert instead of a 12" culvert, as stated in HydroCAD calculations. The primary outlet elevations in HydroCAD do not match those on-site plans. The applicant should update the HydroCAD calculations to reflect intended pipe sizing, and to revise elevations of the 18" culvert.

17. Infiltration basins should be placed at a minimum 50 feet away from any slope greater than 15% per the Infiltration Basins BMP in the Massachusetts Stormwater Handbook.

Fieldstone: ***The large infiltration chamber system on the south side of the site has been moved to maintain a 50' separation from the retaining wall and any slopes steeper than***

15%. The smaller infiltration chamber system under the parking area has also been relocated to meet this requirement.

TEC: Comment addressed.

18. Infiltration basin P14 is proposed within 5-feet of a proposed retaining wall and 2:1 slope. The construction detail of the retaining wall shows grid reinforcement that would directly conflict with the subsurface basin. Additionally, the design would either promote a hydrostatic pressure on the retaining wall, or allow the stormwater to breakout and flow through the retaining wall's drain system. TEC does not find that this is an acceptable design practice.

Fieldstone: ***The chamber system has been revised to be a minimum of 50' from the retaining wall.***

TEC: Comment addressed.

19. The following comments relate to the test pits conducted for the Stormwater Management Report:
    a) The location of test pits detailed in the report are unclear on the Site Plans. TEC recommends that the Applicant update test pit information to match both the Site Plans and Stormwater Management Report.

Fieldstone: ***Sheets GR-1 and GR-2 show all test pits done on site and the test pit write up includes all test pit information.***

TEC: Comment addressed.

    b) The Applicant should also include existing surface elevations on delineated test pits.

Fieldstone: Notes on sheets GR-1 and GR-2 includes a list of approximate surface elevations for delineated test pits.

TEC: Comment addressed.

    c) The Applicant should differentiate the nomenclature used for "DH" markings and "TP" markings.

Fieldstone: ***A "DH" is a deep hole which has been witnessed*** **by the city, generally for the purpose of a septic design. A "TP" is a test pit, for the purpose of stormwater management areas and not witnessed by the city. The legend on sheets GR-1 and GR-2 include the differentiation.**

TEC: Comment addressed.

    d) Additional test pit data is required within the location of each stormwater BMP, consistent with Volume 2 Chapter 2, "One soil sample for every 5000 ft. of basin area is recommended".

Fieldstone: ***Additional test pits have been done as needed to provide a minimum of three***

(3) test pits in areas proposed for infiltration. Additional test pits near the wet basins have been done as well.

TEC: Comment addressed.

20. Multiple proposed drainage structures (catch basins, drain manholes, subsurface infiltration chambers, etc.) show peak elevations during 2 & 10 year storm events well above proposed rim and inlet elevations. The applicant should revise their stormwater modeling to prevent peak elevations from exceeding the "top" of proposed drainage structures.

Fieldstone: ***The proposed drainage pipes have been revised. A number of pipes required a larger diameter pipe, so they can convey the 2 and 10 year storm without overtopping structure rims.***

TEC: Comment addressed.

21. Multiple proposed drainage structures show rim and invert information that do not match the site plans.

Fieldstone: ***Rim elevations for structures have been added to the HydoCAD model.***

TEC: Comment not resolved. Multiple structures on the HydroCAD model do not have rim elevations.

22. The Applicant should show pipe sizing and velocity checks for all proposed drainage connections.

Fieldstone: ***A pipe chart and pipe analysis are included in the drainage report which includes velocities in the design storm.***

TEC: Comment addressed.

23. Based on the information from *"TP21B"* and proposed basin contours, the proposed top of basin "approximately 160" is 3' below the Estimated Seasonal High Water Table. The applicant should address how groundwater will be handled.

Fieldstone: ***The proposed stormwater basin is a wet basin, and is intended to have a permanent pool depth of 3'.***

TEC: Comment not resolved. Wet basins 1 and 2 show no prevention methods for groundwater exfil or infiltration. TEC recommends exfil or infiltration methods be provided. TEC also recommends construction details of both wet basins to be included in the site plans.

24. The Applicant should include mosquito control in the Operation and Maintenance Plan in accordance with the Massachusetts Stormwater Handbook.

Fieldstone: ***The Operation and Maintenance Manual includes a section on mosquito control per Volume 2 Chapter 5 of the Massachusetts Stormwater Handbook.***

TEC: Comment addressed.

Massachusetts Stormwater Standards

25. Along with providing discharge velocities for each outlet, the Applicant should include rip-rap sizing calculations to be fully in compliance with the Stormwater Standard 1.

Fieldstone: ***A rip-rap apron design sheet is included in the stormwater management report.***

TEC: Comment addressed.

26. Updates to the proposed Stormwater Management systems may occur. TEC in unable to confirm if the Applicant has fully complied with Stormwater Standard 2.

Fieldstone: ***The revised design meets the requirement of standard 2, with post development discharge rates not exceeding pre-development rates.***

TEC: Comment addressed.

27. To be in full compliance with Stormwater standard 3 the Applicant should provide:

    a) A Storage table detailing the storage volume below each infiltration structure,

Fieldstone: ***A storage table for the infiltration chamber systems is included in the drainage report.***

TEC: Comment addressed.

    b) A 72-hour Drawdown Analysis to confirm each infiltration BMP will drain within 72 hours,

Fieldstone: ***A BMP worksheet showing the infiltration chamber systems will drain within 72 hours of the storm event is included in the drainage report.***

TEC: Comment addressed.

    c) A Mounding Analysis for all infiltration BMPs within 4-feet of seasonal high groundwater.

Fieldstone: ***The infiltration BMP's are located in areas where ground water is believed to be well below the systems. We have enclosed a geotechnical report which shows that groundwater was not encountered in any of the borings. Additional test pits have also been performed and our soil scientists have clarified the test pit results for this project. This information can be found in our revised stormwater management report.***

TEC: Comment not addressed. Portions of the bottom of the proposed chamber system on the south side of the site is above existing ground surface. TEC recommends including a specification on what type of soils will be used for fill.

28. The Applicant should provide a Water Quality Volume computation to confirm their compliance with Stormwater Standard 4.

Fieldstone: ***A BMP worksheet for the infiltration chamber systems and wet ponds shows the calculations for water quality volume.***

TEC: Comment addressed.

29. The Applicant should confirm the proposed use of the building. It is unclear if the project would be considered a LUHPPL under Standard 5. If the building is proposed as general "industrial" use, then it would be considered a LUHPPL and will need to provide a stormwater system that meets the higher standard.

Fieldstone: ***The proposed building use is a warehouse use. A warehouse is not considered a Land Use with Higher Potential Pollutant Loads (LUHPPL). There will be no vehicle maintenance on site, no heavy equipment stored on site, no storage of hazardous materials, and there anticipated to be only 278 vehicle trips per day.***

TEC: The Applicant should confirm that the proposed use will be limited to warehousing only. Industrial uses are allowed within the "IL" zoning district, however, those uses would qualify the site as a LUHPPL with higher level of stormwater treatment requirements. TEC agrees that a warehouse does not qualify as a LUHPPL. If only warehousing is proposed as a use, TEC would recommend that the Community Development Board include a condition of approval limiting other industrial uses at the property.

30. To comply with Stormwater Standards the Applicant should include pretreatments in the TSS removal form for each BMP.

Fieldstone: ***The pretreatment for the wet basins are sediment forebays and are included in the TSS removal worksheet. The infiltration chamber systems pretreatment are deep sump catch basins/manholes in conjunction with an isolator row. Deep sump catch basins have been modeled in the TSS worksheet to depict the removal rate of solids from the use of this BMP.***

TEC: Comment addressed.

31. The Applicant should provide a figure in their Stormwater Management Report detailing various critical areas that could be present on site to comply with Stormwater Standard 6.

Fieldstone: There are no critical areas on site per MassMapper gis. A reference image showing no special resource areas, outstanding resource areas, Wellhead areas, shellfish growing areas, or fisheries near the proposed discharges on site.

TEC: Comment addressed.

32. The Applicant says, on page 2 of the Stormwater Management Report, *"As a redevelopment project it falls under stormwater standard 7 of the Massachusetts Stormwater Handbook."* The proposed work is designed to take place on an undeveloped site, therefore does not meet the redevelopment criteria.

Fieldstone: ***The front of the site is a redevelopment of the existing access way. The top of the site is not considered a redevelopment as we are designing the site based on ground cover conditions from 2014. The site as a whole will meet the requirements of the***

Massachusetts Stormwater handbook, including standards 2, 3, and 4 as shown by the HydroCAD model, Groundwater recharge volume worksheet, and Total Suspended Solids worksheet.

TEC: Comment addressed.

33. The Applicant should include both a Construction Period Pollution Prevention Plan within their Stormwater Management Report to comply with Stormwater Standard 8.

Fieldstone: ***A construction period pollution prevention plan is included in the stormwater report.***

TEC: Comment addressed.

34. The Applicant should include an Illicit Discharge Statement within their Stormwater Management Report to be in full compliance with Stormwater Standard 10.

Fieldstone: ***An illicit discharge statement has been included in the stormwater report, to be signed by the developer.***

TEC: Comment addressed.

New Comments - 7/19/2022

35. *Building size shown in plan view (147,840 square feet) differs from what is in the general notes and parking calculations (150,976 square feet), please clarify.*

36. *Location and extents of retaining walls on plans is unclear. The legend on SP-1 and SP-2 denotes two different linetypes as retaining walls and the width of the lines used in the plan view appears to vary in width for each wall. For example, the wall along the entrance road is difficult to distinguish from the linetype used for stormwater pipe (not included in legend). TEC recommends clearly indicating the retaining walls on the SP sheets and providing additional elevation information on the GR sheets.*

37. *TEC recommends showing the location of both underground stormwater systems on the SP sheets and giving each one a unique designation to avoid confusion. Additionally, TEC recommends correcting the product name from Stormceptor, a hydrodynamic separation device, to StormTech, the underground chamber product.*

38. *TEC recommends creating specific details from DMH-3 and DMH-10 showing rim, invert, and interior weir elevations.*

39. *Callouts for DMH-10 and DMH-11 do not point to any structure, please correct callout location and ensure proper rim elevations.*

40. *TEC recommends correcting DMH number callouts on the StormTech detail sheets.*

41. *TEC recommends the Applicant correct numbering for DH10 on the Test Pit Surface Elevations table on GR-1 and GR-2.*

42. *Volume #3 for pond P14 in the Hydrocad analysis does not appear to reflect contours shown on GR-2. TEC recommends the Applicant revise the contours on GR-2, and include a BMP map and detail.*

43. *The location for volume #3 for pond P16 in the HydroCAD analysis is unclear. Please clarify on the plans where this additional volume is stored.*

44. *TEC recommends the Applicant revise "Proposed Stormceptor Chamber System" callout location on MG-1.*

45. *Pavement sections for the site entrance and parking lot are unclear. A 2.5" binder and 1.5" wearing course are specified along with a callout for 3.5" bituminous concrete. Please clarify if a total 7.5" is to be used or if the bituminous concrete callout is intended to be a total and should read 4".*

46. *Multiple proposed drainage structures (catch basins, drain manholes, subsurface infiltration chambers, etc.) show peak elevations during 100-year storm events well above proposed rim and inlet elevations. The applicant should revise their stormwater modeling to prevent peak elevations from exceeding the "top" of proposed drainage structures in order to correctly size downstream BMPs.*

47. *The location of the rectangular weir, Device #3 for pond 14, is not clear on-site plans. TEC recommends a callout for the rectangular weir on site plans and BMP map.*

48. *TEC recommends close coordination with owner of utility poles on-site. Plans depict grading on top of and several site features directly abutting power pole locations.*

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"*

Peter F. Ellison, PE
Director of Strategic Land Planning