

Ms. Kathleen Colwell  
Planning Division Director  
City of Methuen  
41 Pleasant Street Suite 217  
Methuen, Massachusetts 01844

February 26, 2025

Re: Stormwater Peer Review  
47 Lowell Street – Methuen, MA

Dear Ms. Colwell:

On behalf of the City of Methuen, TEC, Inc. (TEC) reviewed documents as part of a stormwater peer review for the proposed duplex townhouse located at 47 Lowell Street in Methuen, Massachusetts. PJF and Associates (the "Applicant") submitted the following documents which TEC reviewed for conformance with the Town of Methuen Stormwater Bylaws, Massachusetts Stormwater Standards, and generally accepted industry standards:

- *Proposed Site Plan*; prepared by PJF and Associates; Dated December 31, 2024, revised January 22, 2025
- *Proposed Site Plan*; prepared by PJF and Associates; Dated February 3, 2025
- *Architect Summary of Changes*; prepared by LYF Architects; Dated February 4, 2025
- *Drainage Report*; prepared by Sullivan Engineering Group, LLC; Dated January 23, 2025
- *Floor Plans*; prepared by LYF Architects; Dated June 5, 2024

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

### **Stormwater Management**

- 1) Methuen Stormwater Regulations Section 9.G.4 state '*Watershed area for hydrologic analysis and BMP sizing calculations must include at a minimum the site area and all upgradient areas from which stormwater runoff flows onto the site.*' The Applicant should include the area flowing from off site to the site in their calculations to determine peak water elevations within the site.
- 2) The Drainage Report narrative states that there is no off-site runoff at this property and identifies the design point as internal to the site. Review of the surrounding topography indicates that stormwater in the existing condition has the potential to also pond within and flow through 50 Pelham Street towards the Pelham Street and Pelham Ave right-of-ways.
- 3) The Applicant claims "de minimis" conditions for subcatchment 2S\_P. The Applicant should provide the TSS weighted average calculation per Volume 3 Chapter 1 of the Massachusetts Stormwater Handbook.

- 4) Per Section 9.A.6 of the Methuen Stormwater Regulations: *'The Applicant must provide a Massachusetts Department of Environmental Protection Checklist for Stormwater Report completed, stamped and signed by a registered Professional Engineer (PE) licensed in the Commonwealth of Massachusetts to certify that the Stormwater Management Plan is in accordance with the criteria established in the Massachusetts Stormwater Management Standards, the Stormwater Ordinance, and these regulations.'*
- 5) The following comments are regarding the subsurface infiltration system:
  - a) Per Volume 2 Chapter 2 of the Massachusetts Stormwater Handbook, an Infiltration BMP distance from any building foundations shall be a minimum of 10 feet downslope or 100 feet upslope. The proposed duplex and existing neighboring foundations are within 100 feet downslope of the subsurface infiltration chambers
  - b) The soils present at the site indicate rapid infiltration conditions. Per Volume 2 Chapter 2 of the Massachusetts Stormwater Handbook 44% TSS pretreatment should be provided prior to discharge to the infiltration structure. Additionally, the Applicant should provide the Soil Test Pit logs as part of the submission.
  - c) The Applicant should provide required recharge calculations per Standard 3 of the Massachusetts Stormwater Handbook.
  - d) The subsurface infiltration system is required to fully infiltrate within 72 hours. The Applicant should provide a drawdown calculation per Volume 3 Chapter 1 of the Massachusetts Stormwater Handbook.
  - e) According to the Massachusetts Stormwater Checklist, a mounding analysis is required when the vertical separation from the bottom of an exfiltration system to seasonal high groundwater is less than four (4) feet and the recharge system is proposed to attenuate the peak discharge from a 10-year or higher 24-hour storm.
- 6) The following comments are regarding the HydroCAD model:
  - a) Only the area of Lot 2 is modelled in HydroCAD. The stormwater model should include the entirety of the subcatchments in Lots 1 and 2, as shown in the Drainage Maps.
  - b) The Applicant should include all the water this system will see, including offsite upgradient areas per Methuen Stormwater Regulations Section 9.G.4.
  - c) The Applicant should provide analysis of the ponding condition created in the back yard for the events where the infiltration chambers overflow via the primary outlet, to determine peak water elevation does not overtop the proposed wall on the northeast property line and/or flood the basement of the duplex.

- 7) The following comments address the site grading:
- a) The site grading and landscape wall design as proposed will create a ponding condition north of the proposed duplex, and should be properly modeled.
  - b) The driveway low point at Elevation 125 as proposed will create ponding across the width of the driveway. To prevent this, the pavement should be pitched north towards the proposed catch basin.
- 8) The following comments pertain to the proposed stormwater management design:
- a) TEC recommends a drainage structure or cleanout at the connection of the roof drain and 12" HDPE drain.
  - b) Methuen Stormwater Regulations Section 9.C.1: *'Stormwater management systems on new development shall be designed to meet an average annual pollutant removal equivalent to 90% of the average annual load of Total Suspended Solids (TSS) related to the total post-construction impervious area on the site and 60% of the average annual load of Total Phosphorus (TP) related to the total post construction impervious surface area on the site.'* The Applicant should provide TSS and TP removal BMPs and calculations for the proposed duplex that meet new development standards.
  - c) Methuen Stormwater Regulations Section 9.C.1: *'Stormwater management systems on redevelopment sites shall be designed to meet an average annual pollutant removal equivalent to 80% of the average annual postconstruction load of Total Suspended Solids (TSS) related to the total postconstruction impervious area on the site and 50% of the average annual load of Total Phosphorus (TP) related to the total post-construction impervious surface area on the site.'* The Applicant should provide TSS and TP removal BMPs and calculations for the historic house renovation that meet redevelopment standards.
- 9) The Applicant should provide an erosion and sedimentation control plan meeting all requirements of Standard 8 of the Massachusetts Stormwater Standards and Section 10 of the Methuen Stormwater Regulations.

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.  
"The Engineering Corporation"



David Nader, PE  
Project Manager