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February 23, 2022
VIA EMAIL

Ipswich Planning Board
Town Hall
25 Green Street
Ipswich, MA 01938

RE: 50-56 Market Street - Site Plan Review & Special Permit Applications
Third Engineering Review - Task 2A

Mr. Ethan Parsons and Planning Board Members:

As requested, I have continued an engineering review of the above referenced project with respect to drainage and stormwater management, parking, loading, and vehicular circulation. In response to the second (Task 2) review, I have received the following pertinent revised and/or supplemental plans and documents as prepared by the Morin-Cameron Group, Inc., of Danvers, MA (unless otherwise noted).

- Copy of correspondence to the Ipswich Planning Board, dated February 1, 2022 regarding ‘Response to Second Engineering Review...’
- “Site Improvement Plans for Market Street Station located at 50-56 Market Street...” consisting of eleven (11) sheets (numbered 1 to 7 and 9 to 12), all dated September 22, 2021 and revised to February 1, 2022.
- “Stormwater Management Report...” dated September 22, 2021, and revised to February 1, 2022, including appendices for MA DEP Stormwater Management Report Checklist, Hydrologic Analysis, Supplemental Stormwater Management Calculations, Construction Phase Pollution Prevention Plan, Long Term Best Management Practices O&M Plan, and an Illicit Discharge Statement.
- Copy of correspondence to the Ipswich Planning Board from the Morin-Cameron Group, dated January 26, 2022 summarizing the ‘exception and reductions being requested’ for the project Application.

At this time, the following remaining comments and opinions are offered for your consideration. Except as noted below, the issues identified in the ‘Task 2’ (second) review have been suitably addressed and/or resolved.

Parking, Loading, and Vehicular Circulation:

1. Requested relief from loading/parking design requirements: The Applicant has submitted correspondence seeking specific relief from Sections VII.J, VII.M.2, VII.M.3, and VII.M.5 regarding designated loading space, tandem parking, and parking setback from front and side lot lines. Should the Planning Board elect to enforce any combination of these design requirements, a notable change to the site design and unit/bedroom count should be anticipated. While it is acknowledged that relief from these requirements is at the discretion of the Planning Board, the following opinions are offered.

- a. The revised dumpster location improves service vehicle access and turning movements when compared to prior proposals. While not designated as such on the plans, the paved area adjacent to the dumpster could readily be specified as a service/loading space with dimensions of approximately 9 feet in width and 30 feet in length.
 - b. With respect to tandem parking and setbacks, reference should be made to item 5 in this Section, relative to the adequacy of snow storage. If the Board chooses to enforce the design requirement for parking setback to side lot lines, an enlarged area for snow storage could then be provided at the northerly end of the vehicle access aisle. Such a location could be accessed easily by snow removal apparatus without the need for on-site vehicles to be moved.
 - c. Tandem parking near the project entrance (i.e., westerly of the existing building) could create vehicle conflict in a situation where tandem parked vehicles are being moved while another vehicle is trying to enter/exit the site.
2. Project Entrance: The Applicant states that the project driveway entrance has been revised to reduce the slope to approximately 15 percent, consistent with their discussions with the Fire Department. No objection is made to this approach or the revised driveway grading, however, the plans should be revised to include a note specifying the Fire Department requirements and the area of 15 percent maximum slope requirement should be identified on the grading plan.
 - a. In addition to the above, should the Planning Board determine that the Application is ready to be voted upon, and should the Board vote to approve the project, it is suggested that the Fire Department request be incorporated as a condition of approval (i.e., that the Fire Department successfully field test the regraded driveway with their apparatus prior to final surfacing and that the completion of the tests be required prior to issuance of a Certificate of Occupancy).
3. Driveway Curb Cut: The Applicant states that on-street parking has been revised per their discussion with the DPW Director. No objection is taken to the proposed revision, except to suggest that the southernmost parking space be reduced in length from 20 feet to 18 feet (since this is an end space and a parallel parking maneuver is not necessarily required for this space). Such a reduction will increase the spacing between the curb cut and the parking stall.
 - a. In addition to the above, should the Planning Board determine that the Application is ready to be voted upon, and should the Board vote to approve the project, it is suggested that a condition of approval be included to require that street parking realignment be authorized and conducted in accordance with the requirements of the DPW Director.
4. Vehicle Aisle Width: The aisle width between the two buildings has been increased to 22 feet and is in keeping with local requirements, however, previously noted concern regarding separation between the easterly building corners (of the existing building) and the pavement edge remains unchanged and unsatisfactory in my opinion. In general, a separation/buffer of 1 or 2 feet (as proposed) provides an inadequate landscaping area and creates the potential for building damage from turning vehicles.
5. Snow Storage: The Applicant indicates that while 'excessive snow storage areas' are not proposed, they believe storage is adequate for most storm events and that any excess snow will be removed from the property. Adequacy of the snow storage areas is left to the discretion of the Planning Board, however, it is noted that the main snow storage area located northwesterly of the existing building provides the largest storage area but will be inaccessible during a snow event unless four vehicles are moved from the tandem parking area. Furthermore, the two remaining storage areas provide only minimal capacity (each being approximately the size of a parking space). In my opinion, if the main storage area is not accessible during snow removal operations, the proposal will accommodate only small/routine snow events. Also, refer back to item 1.b in this Section for additional comment.

6. Retaining Walls & Grading: Proposed patio grading (located to the rear of the proposed building) creates a trapped drainage area that will require revision to the top elevation of the retaining wall, drain inlets/piping, or alternative design methods. Modification is suggested to avoid ponding within the patio areas.
7. Prior comment regarding the building egress at the rear of the existing building and the potential conflict between the stairway landing and the vehicle aisle remain unchanged and unresolved. It appears that no plan revision was conducted in this area and the exterior stairway landing would remain within the vehicle aisle. Based on the Applicant's response, previous suggestion to discuss and solicit an opinion from the Building Inspection has not been conducted.

Stormwater Management & Drainage/DEP Stormwater Management Standards:

1. Concern regarding proximity of Infiltration System 2 to existing building foundation: In my opinion, the engineering response to this concern is insufficient. The engineer's response states, in part, that after consultation with the chamber manufacturer (i.e., Cultec, Inc.) "...the manufacturer stated that a minimum setback of 10 feet from a foundation wall is typical..." My further discussion with Dan Gera, Senior Technical and Product Development Manager for Cultec revealed that the issue is not as simplistic as a minimum setback requirement. Other factors relating to the lateral movement of water and its impact on the building foundation are considerations to be made. As such, the comments presented in the Task 2 (second) review remain (i.e., concern regarding the potential for stormwater from the infiltration chambers to migrate into the existing building foundation and concern regarding potential impact that the infiltration chamber stormwater may have on the building foundation). In order to resolve this issue to my satisfaction, it is suggested that additional dialogue be conducted with the design engineer to consider the following options:
 - a. Provide an impermeable membrane between the buildings and the infiltration chamber such that lateral water movement will not adversely impact the building foundations, and to ensure that lateral water movement will not enter the existing building basement.
 - b. Alternatively, the Applicant could engage a geotechnical engineer to determine what, if any, measures should be taken to protect against the stated concerns.

Additional Planning Board Considerations: Should the Planning Board determine that the Application is ready to be voted upon, the following items are suggested for incorporation as conditions of approval (should the Board vote to approve the project) to ensure quality assurance of construction and long term care of the drainage and stormwater management infrastructure.

1. To confirm soil and groundwater conditions at the site, an additional soil test should be conducted within the boundary of Infiltration System #2. This test should be conducted prior to construction of the drainage system to confirm assumptions made in the calculations. A report should also be submitted to the Planning Board summarizing the findings/conclusions of the testing relative to the design assumptions.
2. A summary report prepared by a professional engineer should be submitted to the Planning Board documenting all excavation and fill activities conducted in association with the removal of existing fill material beneath and adjacent to the area occupied by Infiltration System #2. The report should address the limits of excavation, quantity and composition of earthen material removed, depth of excavation, composition of new fill material placed, and the in-place permeability rate of new fill material placed. The report should also establish whether the work performed, and the new fill material placed, is consistent with the stormwater management design assumptions and the Massachusetts DEP Stormwater Handbook guidelines.

3. To ensure that installation of the stormwater management system is conducted in accordance with the design, an as-built plan of the completed system should be submitted to the Planning Board, along with a report from the Engineer of Record indicating whether or not the installation complies with the design intent. The as-built plan and engineering report should be appended to the 'Long Term Stormwater Best Management Practices Operation and Maintenance Plan' prepared for the stormwater management system for future reference by the property owner.
4. To ensure that future maintenance responsibilities and actions are clear, the 'Long Term Stormwater Best Management Practices Operation and Maintenance Plan' should be incorporated as part of any Planning Board approval.
5. The 'Construction Period Pollution Prevention Plan' should be incorporated as part of any Planning Board approval to provide guidance relative to construction requirements and expectations at the site.
6. Consistent with the stormwater management design intent, the following requirements should be included as part of any Planning Board approval:
 - a. All runoff from the existing building roof shall be conveyed to Infiltration System 1.
 - b. All runoff from the proposed building roof shall be conveyed to Infiltration System 2.

Please feel free to contact me if you have any questions or require any clarification of the above comments and opinions.

Very truly yours,

R.E. Puff

Robert E. Puff, Jr., PE

cc: John Morin, PE (via email)
Will Schkuta, PE (via email)
Dan Powers (via email)