

August 5, 2024

Methuen Community Development Board
41 Pleasant Street
Methuen, MA 01844

SUBJECT: Brookview Heights
Definitive Subdivision Review

Dear Chairman DeFeo and members of the Methuen Community Development Board:

Greenman-Pedersen, Inc. (GPI) is in receipt of a memo dated March 21, 2024 from Stephen J. Gagnon, CPWP-M, Engineering Department Administrator containing comments related to his review of the above referenced project. His comments, followed by our responses in **bold**, are as follows:

GENERAL

1. *The documentation provided for review does not indicate the intended final disposition of the subdivision, i.e. public or private.*
Washington Street is currently a public way. The intended disposition of Edgewater Drive is to offer it to the City of Methuen for dedication as a public way.
2. *Sheet two of the plan set provides a list of requested waivers, however the list is incomplete. Additional waivers include:*
 - Section 4.2.2.8 – Dead Ends
 - Section 4.2.4.1 – Centerline Grades**These waivers have been added to Sheet 2.**
3. *The plan set depicts retaining walls, as high as 14', on several lots. Who will be responsible for the care and maintenance of these walls?*
Care and maintenance of the retaining walls will be the responsibility of the homeowner's association.
4. *A complete design of the retaining walls should be provided.*
A typical retaining wall detail has been added to the plans. The applicant requests that submittal of final engineered design plans for the retaining walls to the City prior to construction of the walls be a condition of approval of the subdivision plans.
5. *The intersection of Washington Street, Currier Street, and Old Ferry Drive has been an area of concern for the neighborhood, due to poor drainage, icing and pavement deterioration. Perhaps the Developer could provide off-site improvements in this area.*
It is our understanding that a long-term solution will likely require the construction of additional drainage infrastructure with an appropriate outfall at a currently undetermined location. The survey, design, and permitting of such an undertaking goes beyond what can be reasonably expected from this project applicant. If during construction any reasonable interim measures such as pavement shimming to reduce pavement icing, the applicant is open to those discussions.

ROADWAY

1. *The proposed roadway layout will provide a 2,800-foot-long dead end, exceeding the 500' maximum dead-end length by 2,300'.*
A waiver for the length of dead-end roadway has been requested. The property is surrounded by conservation land, so there is no opportunity for connection to other roadways. The water main is being looped through an easement back out to Old Ferry Drive, so there will not be any dead-end water mains.

2. *The plan proposes a 24' pavement width for Washington Street and a 22' pavement width for Edgewater Drive. In my opinion, 22' pavement is not sufficient to service the 23 homes proposed on Edgewater Drive. Any roadway that carries less than 400 vehicles per day (vpd) is classified as a low-volume roadway. AASHTO and other design guidance documents cite lane widths of 9 feet with a 2-foot shoulder as appropriate for rural low-volume roadways. The proposed paved width of 22 feet for Edgewater Drive exceeds AASHTO recommendations. The reduction in pavement width has environmental benefit by reducing stormwater runoff and reducing the need for processed and manufactured materials (base gravels, asphalt, etc.). A sidewalk will be constructed along one side of Edgewater Drive to provide separation between vehicles and pedestrians.*
The grading plans have been updated to depict a graded shoulder in conformance with the roadway cross-sections shown on the detail sheets.
3. *The roadway cross-section throughout the development should be constructed to provide an appropriately graded shoulder area to allow the future construction of sidewalks without the need for any earthwork or relocating features.*
The existing elevation profiles along the right and left edges of the travel ways have been added to the profiles as requested.
4. *The profile drawings provided depict the existing grades for only the centerline. Existing elevation profiles should be provided for left and right also.*
The existing elevation profiles along the right and left edges of the travel ways have been added to the profiles as requested.

WATER

1. *The plan depicts the water main on Edgewater Drive running around each catch basin. The plan should be revised to depict the water main in an appropriate location.*
The utility layout within Edgewater Drive has been revised to provide a better layout for the water main.
2. *The hydrant spacing on Edgewater Drive should be adjusted slightly to not exceed the 500' maximum spacing.*
The hydrant spacing on Edgewater Drive has been adjusted as requested.
3. *A second gate valve should be provided at the intersection of Washington Street and Old Ferry Drive.*
A second gate valve has been added to the water main on Washington Street as requested.
4. *Three-way gating should be provided where the cross-country water main connects to Old Ferry Drive.*
The plans have been revised to show three-way gate valving in Old Ferry Drive.
5. *The location of the water main and/or sewer force main, in Washington Street, should be adjusted to provide a minimum separation of 10'.*
The location of the sewer force main has adjusted to provide a minimum of 10 feet of separation from the water main.

SEWER

1. *The sewer pump station, as currently proposed, does not conform to the City's Sewer Pump Station Design Standards, which require a wet well/dry pit configuration. The design should be revised to conform to the design standards. A complete design package, including but not limited to system curves, pump curves buoyance calculations and component submittals should be provided.*
The sewer pump station is intended to remain private, owned and maintained by the homeowner's association.
2. *The sewer pump station should be located within a fenced parcel or easement of sufficient size to contain all the associated components. Paved off street parking for two vehicles and site lighting is required.*
The sewer pump station layout has been revised as requested.

3. *The Sewer Pump Station will be subject to Municipal Code Chapter 14 Article XI Sewer Pump Station Maintenance Fee.*
The applicant intends to have the pump station remain private with maintenance being the responsibility of the homeowner's association.
4. *On page 31 of the plan set the pump station wet well is depicted as 6' diameter, the adjacent notes specify 8' diameter.*
The detail has been revised to specify an 8' diameter wet well.
5. *The Engineer should confirm the actual velocity of each sewer main segment falls within minimum velocity of 2% FPS and maximum 15 FPS.*
The calculated velocity in the sewer force main is 2.55 feet per second based on a pumping rate of 100 GPM at 98 feet TDH.

DRAINAGE

1. *The Stormwater Manage Report provides a full report for the pre and post development 25-year storms and summaries for the 2, 10 and 100-year storms. Full reports should be provided for the 2, 10 and 100-year storms.*
The revised Stormwater Management Report includes full printouts for all storms.
2. *The Stormwater Manual requires 1' of freeboard over the peak water surface elevation. As designed, the infiltration basins will discharge out the emergency spillways in a 100-year storm, 0 freeboard provided.*
The one foot of freeboard required by the Stormwater Manual is measured from the top of the basin embankment, not the spillway. The spillways serve as primary spillways and are intended to pass water for the larger storms. The freeboard provided in each basin during a 100-year storm is as follows:

Basin #1	1.0 feet
Basin #2	1.2 feet
Basin #3	1.2 feet
3. *The Stormwater regulations require underdrains to be provided in infiltration basins to allow for future maintenance.*
Underdrains have been added to each infiltration basin.
4. *The Stormwater Manual requires a 15' wide access to be provided around the pond.*
As we have done on other projects in Methuen in the past, we are showing 10' wide graded access paths from the road to each basin.
5. *The proposed access route for maintenance equipment should be identified on the plan.*
Initial access paths for each basin are now shown on the plans. Maintenance will likely be performed by a rubber tire backhoe, which has the ability to move in and around any part of the basin once it is approached from the street. The basins themselves along with all access paths are within easements to be dedicated to the City of Methuen.
6. *While it is understood that the houses and driveways depicted on the plan set are generic, the final site plans should not depict any catch basins falling within driveways.*
We have made the necessary adjustments so that the future driveways are not located such that the catch basins within the roads are located outside the driveway limits.
7. *Corrugated polyethylene pipe is proposed for the drainage system. As of this date corrugated polyethylene has not been approved for use in public roadways in the city.*
We have revised the plans to specify reinforced concrete pipe within the roadways.

CONSTRUCTION DETAILS

1. *A ladder should be depicted in manhole structures.*
The details have been revised to depict steps in the drain and sewer manhole structures.
2. *The manhole and catch basin details should be revised to depict a minimum of 2 courses, maximum of 4 courses of brick under the casting frames.*
The manhole and catch basin details have been revised to depict a minimum of 2 courses, maximum of 4 courses of brick under the casting frames as requested.

Sincerely,

GREENMAN-PEDERSEN, INC.



David R. Jordan, P.E., P.L.S., LEED AP
Vice President
Director of Project Delivery – Land Development

enclosure(s)

cc: Aaron Orso, DHB Homes