



Griffin
Engineering
Group, LLC

January 5, 2021

MPM Companies
Attn: Michael McNiff
30 Woodbury Street
Beverly, MA 01915

**Subject: Sewage Disposal Feasibility
Lynnfield Zoning Board of Appeals Application for
Harvey Park Redevelopment**

Dear Mr. McNiff:

As requested, this letter addresses the feasibility of subsurface sewage disposal system construction at the subject property. Currently, four older residential buildings exist on the property; the owner reports no trouble with the existing sewage disposal systems.

We anticipate abandoning the existing systems due primarily to their age and location. New Title 5 compliant septic systems will be constructed for each building as part of site redevelopment.

Please find enclosed Figure 1 –Test Pit Plan and DEP Form 11 – Soil Suitability Assessment for On-Site Sewage Disposal describing unofficial soil testing we conducted at the subject property on August 4, 2020.

Soils Map

Site soils are mapped by the United States Department of Agriculture – Soil Conservation Service and NRCS web based soil survey as being Merrimac-Urban land ('A' Hydrologic Soil Group (HSG)). According to the USDA Soil Survey, Merrimac soil group consists of deep, excessively-drained soils with a substratum that is typically gravelly sand to depth of 60-inches or more.

On-Site Soil Tests

Six soil test pits were performed at the site on August 4, 2020, to observe subsurface soil conditions. The native soil was primarily characterized as gravelly-sand to approximately 110-inches below existing grade as indicated in test pit TP-2. This is consistent with the USDA soil maps. Greater than 48-inches of naturally occurring pervious material was observed in all six test pits. No mottles or standing water was observed in any of the test pits indicating that the estimated seasonal high groundwater table (ESHGWT) was below the bottom of the excavation in each test pit. Past experience indicates that this

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type of soil will have a percolation rate greater than 5 minutes per inch (mpi).

On-site Sewage Disposal System

The soil evaluation indicates that conventional four-bedroom on-site sewage disposal systems for the single family dwellings and a six-bedroom on-site sewage disposal systems for the two-family dwellings are feasible at the site. The Utility Plan (Sheet C-2) shows conceptual septic systems that were sized based on the observed soil conditions and assumed percolation rate greater than 5 mpi. Due to the deep ESHGWT and fast percolation rate, we anticipate the proposed systems will be trench-type systems with reserve trenches located between primary trenches. Each existing on-site sewage disposal systems (these appear to be cesspools) must be properly abandoned per Title 5.

Should you have any questions or comments, or require additional information, please do not hesitate to contact the undersigned.

Very truly yours,
Griffin Engineering Group



Robert H. Griffin, P.E.

Enclosures: DEP Soil Suitability Forms 11 & 12
Figure 1 – Test Pit Plan



Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (continued) HARVEY PARK

TP-1 Date: 8/4/20

Deep Observation Hole Number:

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)		Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color		Percent	Gravel			
0-16	Ap	10YR 2/2	---	---	FSL	<2.0%	<2.0%	Granular	Friable	
16-21	Bw	10YR 3/6	---	---	GrFSL	25-35%	2.0%	Massive	Friable	
21-69	C1	10YR 5/6	---	---	GrS	40-50%	5-10%	S. Grain	Friable	

Additional Notes:

- 1) No water.
- 2) No Refusal.
- 3) Roots to 58".



Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (continued) HARVEY PARK

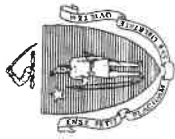
Deep Observation Hole Number: TP-2

Date: 8/4/20

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)		Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color		Percent	Gravel			
0-10	Ap	10YR 2/2	---	---	FSL	<2.0%	<2.0%	Granular	Friable	
10-22	Bw	10YR 5/8	---	---	GrFSL	25-35%	<2.0%	Massive	Friable	
22-68	C1	10YR 5/6	---	---	GrS	40-50%	2.0%	S. Grain	Friable	
68-110	C2	10YR 5/3	---	---	S	10-15%	2.0%	S. Grain	Friable	

Additional Notes:

- 1) No water.
- 2) No Refusal.
- 3) Roots to 44".



Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (continued) HARVEY PARK

Deep Observation Hole Number: TP-3

Date: 8/4/20

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)		Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color		Percent	Gravel			
0-10	Ap	10YR 2/2	---	---	FSL	<2.0%	<2.0%	Granular	Friable	
10-25	Bw	10YR 5/8	---	---	FSL	5-10%	<2.0%	Massive	Friable	
25-63	C1	10YR 5/6	---	---	GrS	40-50%	15-25%	S. Grain	Friable	
63-75	C2	10YR 6/4	---	---	S	10-15%	2.0%	S. Grain	Friable	

Additional Notes:

- 1) No water.
- 2) No Refusal.
- 3) Roots to 32"



Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (continued) HARVEY PARK

Deep Observation Hole Number: TP-4

Date: 8/4/20

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)		Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color		Percent	Gravel			
0-12	Ap	10YR 2/2	---	---	FSL	<2.0%	<2.0%	Granular	Friable	
12-24	Bw	10YR 5/8	---	---	GrFSL	15-20%	<2.0%	Massive	Friable	
24-64	C1	10YR 5/4	---	---	GrS	40-50%	15-25%	S. Grain	Friable	
64-76	C2	10YR 5/4	---	---	S	20-30%	<2.0%	S. Grain	Friable	

Additional Notes:

- 1) No water.
- 2) No Refusal.
- 3) Roots to 53"



Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (continued) HARVEY PARK

Deep Observation Hole Number: TP-5

Date: 8/4/20

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features (mottles)		Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color		Percent	Gravel			
0-10	Ap	10YR 2/2	---	---	FSL	<2.0%	<2.0%	Granular	Friable	
10-23	Bw	10YR 5/8	---	---	GrFSL	10-15%	<2.0%	Massive	Friable	
23-87	C1	10YR 5/4	---	---	GrS	40-50%	15-25%	S. Grain	Friable	
87-97	C2	10YR 7/2	---	---	FSL	<2.0%	<2.0%	Massive	Friable	

Additional Notes:

- 1) No water.
- 2) No Refusal.
- 3) Roots to 69".



Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (continued) HARVEY PARK

Deep Observation Hole Number: TP-6

Date: 8/4/20

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)		Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color		Percent	Gravel			
0-9	Ap	10YR 2/2	---	---	FSL	<2.0%	<2.0%	Granular	Friable	
9-19	Bw	10YR 5/8	---	---	GrFSL	20-25%	<2.0%	Massive	Friable	
19-50	C1	10YR 5/4	---	---	GrSL	40-50%	15-25%	S. Grain	Friable	
50-56	C2	10YR 7/2	---	---	FSL	<2.0%	<2.0%	Massive	Friable	
56-96	C3	10YR 3/6	---	---	GrS	40-50%	5-10%	S. Grain		

Additional Notes:

- 1) No water.
- 2) No Refusal.
- 3) Roots to 67"