



HUDSON  
ENGINEERING  
&  
CONSULTING, P.C.

May 7, 2024

Joseph M. Cermele, P.E., CFM  
Kellard Sessions Consulting  
Consulting Town Engineers  
500 Main Street  
Armonk, NY 10504

Re: Bashkim Kukaj  
203 Beech Street  
Section 72, Block 3, Lots 13 and 15.2 &  
Section 79.B, Block 6, Lot 10

Dear Mr. Cermele,

Regarding the above referenced project, enclosed herewith are:

- 1.) One (1) signed and sealed 24x36 set of subdivision plans entitled "Proposed 11-Lot Subdivision, 203 Beech Street, Town of Eastchester, Westchester County - New York" last revised May 7, 2024, all as prepared by Hudson Engineering & Consulting, P.C.

As you are aware, our initial submission before the Planning Board was a proposal for an 8-lot subdivision, which included the construction of a 300-foot roadway and cul-de-sac providing access to six (6) proposed lots from Beech Street and two (2) separate lots with access directly from Highland Avenue. During the Town's Planning and Zoning review process, along with comments from the public, it was made clear that it was the Town's desire to eliminate roadway access from Beech Street and provide access to the site from Highland Avenue. At that time, it was determined that this was not possible due to the existing site constraints which would not allow for a code compliant roadway to provide access from this direction.

With that being said, our client has since purchased the neighboring property at 108 Highland Avenue, immediately to the east of the site. With the addition of this property, the project has been revised to provide for a 300-foot code complaint roadway and cul-de-sac extending into the site from Highland Avenue, providing access to nine (9) proposed fully compliant lots, with two (2) additional code compliant lots having direct access from Beech Street for a total of eleven (11) code compliant lots. An additional Non-Building lot is also being proposed at the entrance to the subdivision for proposed stormwater mitigation.



### **Overall Subdivision Stormwater Design:**

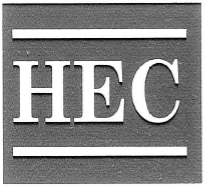
The proposed subdivision layout proposes disturbing approximately +/-2.36-acres of land overall, which requires that both the plans and report be prepared to meet the requirements of the New York State Department of Environmental Conservation (NYSDEC) and the Town of Eastchester. This is required by the New York State Department of Environmental Conservation (NYSDEC) pursuant to the Phase II regulations under General Permit GP-0-20-001.

The proposed stormwater design includes both regional and localized stormwater practices to treat the runoff from the roadway, as well as the residences and driveways for each individual lot. The proposed design incorporates traditional stormwater practices, which act to provide water quality treatment, as well as to provide a means to safely and effectively convey the treated runoff from each tributary area.

The runoff generated from the proposed roadway and cul-de-sac, as well as from Lots 7, 8 and 9, flows overland to the where it is captured via a series of catch basins and trench drains and conveyed to a proposed hydrodynamic separator located within the proposed Non-Building lot. The hydrodynamic separator has been designed to pretreat the entire water quality volume from the watershed, as well as bypass the flows of higher intensity. The runoff is then conveyed to a proposed attenuation gallery, consisting of Thirty (30) concrete Retain-It units, which controls the flows from all storm events up to and including the 100-year extreme storm event to be less than what currently exits the property. The controlled flows are then conveyed to a proposed Upflow Filter cartridge practice, which treats the Water Quality Volume (WQv) prior to discharging to an existing catch basin located within Highland Avenue.

On each individual lot, where percolation tests yielded positive results and the required separation from groundwater and/or ledge rock could be obtained, the runoff from all impervious areas is to be conveyed to an exfiltration gallery located on each property. Each residential exfiltration system will treat the calculated water quality volume for each lot, as well as treat the entire runoff volume of the 100-year storm, where possible.

As previously mentioned, all proposed stormwater practices will be designed to meet the requirements of the New York State Department of Environmental Conservation (NYSDEC). Therefore, it is not anticipated that there will be any negative impacts to the receiving waters downstream of the site. Additionally, it is expected that the construction of the proposed roadway, utilities, and regional stormwater practice will be completed prior to the construction of each individual residence. Once this work is finished and fully stabilized, construction will commence for the proposed residences on each individual lot to minimize any impacts downstream of the site. A full Stormwater Pollution Prevention Plan (SWPPP) report and analysis will be provided as the project progresses.



### **Sewer and Water Main Extension Design:**

In addition to the proposed stormwater improvements, the proposed subdivision includes the installation of both water and sewer main extensions from Highland Avenue to service the proposed lots. The proposed water main extension includes the installation of approximately  $\pm 313$ -linear feet of 8-inch diameter Class 52 cement lined DIP water main pipe with class 350 fittings and mechanical joints with mega lug fittings, one (1) 10-inch x 8-inch wet tap with one (1) 8-inch gate valve, one (1) 8-inch x 6-inch reducer, one (1) 6-inch gate valve, and one (1) new fire hydrant to be located at the end of the proposed cul-de-sac to be constructed as part of the subdivision. The proposed 8-inch water main will connect to the existing 10-inch water main located within Highland Avenue with a 10-inch x 8-inch wet tap and 8-inch gate valve. The alignment of the proposed water main will extend in a southerly direction from the connection point in Highland Avenue along the western side of the proposed roadway, until it reaches the cul-de-sac and bends to the southwest, where it terminates at the end the proposed cul-de-sac. At this point the water main ends with a proposed 8-inch x 6-inch reducer, 6-inch gate valve and a new fire hydrant. This allows for periodic flushing of the main and adequate fire protection services for the entire development. Lots 10 and 11 are proposed to have an individual water service connection directly from the existing water main located within Beech Street.

The proposed sanitary sewer extension to service the proposed subdivision includes the installation of approximately  $\pm 316$ -linear feet of 8-inch diameter SDR-35 PVC pipe gravity main, one (1) new 4-foot diameter pre-cast concrete manhole, and one (1) new 4-foot diameter pre-cast doghouse manhole structure. The proposed sewer extension will connect to an existing 8-inch sanitary main located within Highland Avenue via a new 4-foot diameter doghouse manhole structure (SMH-1) at the intersection of Highland Avenue and the proposed roadway and will extend in a southerly direction along the east side of the proposed roadway alignment, terminating at a proposed manhole structure (SMH-2) located in the landscaped area at the end of the proposed cul-de-sac between the driveways of Lots 5 and 6.

Using the NYSDEC Intermediate Sized Wastewater System Design Standards (2014), the average sewer flow per residential bedroom per day is approximately 110 gallons per day. Since each of the proposed nine (9) residences to be connected to the proposed sewer main are all estimated to be four (4) bedroom homes, the average sewer flow per residence would be approximately 440 gallons per day. As a result, the total expected flow rate from the subdivision tributary to Beech Street would be approximately 3,960 gal/day (11.96-gpm Peak Hourly Flowrate) with a maximum calculated velocity through the system of approximately 2.664-fps. Since the proposed sewer main has been sized to handle the flows from all proposed residences included within the subdivision, it is not anticipated that any additional flows will be added to the proposed sewer main in the future.



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Additionally, it should be noted that a two (2) family residence previously existed on the 104 Highland Avenue property, along with the existing three (3) family residence on the 108 Highland Avenue property. Using the aforementioned sewer flow rate of 110 gallons per day per bedroom, it is estimated that the two existing multifamily residences, totaling 5-units, discharged a flow rate of approximately 1,100-gallons per day into the existing system. With the construction of the subdivision, there will be a net increase of 2,860-gallons per day into the system over what currently exists. Lots 10 and 11 are proposed to have an individual sewer service connection directly from the existing sewer main located within Beech Street, for a total flow rate of 880-gallons per day. Since an existing four (4) bedroom residence previously existed on the 203 Beech Street property, there will only be an increase in flows of 440-gallons per day into the sewer system within Beech Street over what previously existed.

We believe the revised plan addresses the majority of your concerns, and we look forward to continuing to work with the Town towards the approval of this project. If you should have any additional questions or comments, please do not hesitate to contact our office at (914) 909-0420, or via email at [daniel@hudsonec.com](mailto:daniel@hudsonec.com).

Sincerely,

Daniel Collins, P.E.  
Project Engineer

**FLOW CALCULATIONS  
Sewer Main Extension**

**Maximum Pipe Capacity - Manning Equation**

<b>Flow Rate per property (Average) =</b>	440	gal/day (based on 110 gal/day per bedroom per NYSDEC)
<b>Existing Flows From 104 &amp; 108 Highland =</b>	1,100	gal/day (based on 110 gal/day per bedroom per NYSDEC)
<b>Number of New Properties =</b>	9	
<b>Average Daily Flow Rate =</b>	3,960	gal/day
<b>Net Daily Flow Rate =</b>	2,860	gal/day
<b>Population of Area Served (Estimated) =</b>	36	
<b>Ratio of Peak Hourly to Ave =</b>	4.35	
<b>Average Hourly Flow Rate =</b>	2.75	gpm
<b>Peak Hourly Flow Rate =</b>	11.96	gpm
<b>Peak Hourly Flow Rate =</b>	717.75	gph

SMH		Diameter	Area	Perimeter	Hydraulic	Length	Invert		Slope	n	Design Flow	Design Flow (Full)	
FROM	TO	(Inches)	(sf)	(feet)	Radius (Ft)	(feet)	Upstream	Downstream	(ft/ft)		(Full) (cfs)	(gpm)	
		8	0.35	2.09	0.167	288	205.73	189.1	0.0526	0.01	3.603	1617.09	
SMH-2	SMH-1	<b>Velocity Full (fps)</b>		<b>Pipe Flow (gpm)</b>			<b>Flow Depth (inches)</b>			<b>Pipe Velocity (fps)</b>			
				<b>Min.</b>	<b>Average</b>	<b>Peak Hrly</b>	<b>Min.</b>	<b>Average</b>	<b>Peak Hrly</b>	<b>Min.</b>	<b>Average</b>	<b>Peak Hrly</b>	<b>Full Flow</b>
		10.32		0	2.75	11.96	0	0.268	0.534	0	1.701	2.664	10.322