

DRESDNER ROBIN

STORMWATER MANAGEMENT & ENGINEERING REPORT

155 NEWARK AVE

BLOCK 11405, LOT 6

CITY OF JERSEY CITY, HUDSON COUNTY, NJ, 07302

DRESDNER ROBIN PROJECT NO.: 11892-001

PREPARED FOR

155 NEWARK AVE LLC
155 NEWARK AVENUE
JERSEY CITY, NEW JERSEY 07302

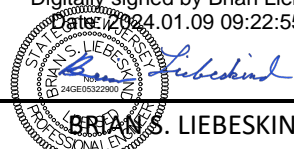
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DATE

NOVEMBER 2022
REVISED JANUARY 2024

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1.0 INTRODUCTION

The development project consists of a 6-story mixed-use building including retail space on the cellar and first floor levels and residential space from the second floor to the 6th floor and penthouse. The project site is located between Christopher Columbus Drive and Newark Avenue in Jersey City's Newark Avenue Redevelopment Plan. The development is to contain retail space on the cellar and ground floor situated along Christopher Columbus Drive and Newark Avenue with retail entrance situated at both north and south sides of the building. The development does not include an internal parking garage, although on-street parking space will be available along project frontage on Christopher Columbus Drive.

The project site contains 4,584.8 square-feet (0.105 acres), which the entire site is anticipated to be disturbed during construction. The existing site currently consists of a vacant building, with sparse vegetation and mostly gravel coverage. The project site will be disturbed by the construction and ancillary improvements discussed above. The applicant is seeking Preliminary and Final Site Plan approval for the proposed development at 155 Newark Avenue. The project plans have been prepared in compliance with the provisions of the Newark Avenue Redevelopment Plan adopted by the City of Jersey City on September 24, 2008, last amended May 8, 2019.

2.0 UTILITY SERVICES

The Project Site will be serviced by existing electric and telecommunication services on Newark Avenue and new utility infrastructure on Christopher Columbus Drive.

Gas service will be provided via PSE&G's gas main along Christopher Columbus Drive. Sanitary sewage collection and water service is handled by the Jersey City Municipal Utilities Authority (JCMUA). Telephone and digital broadband services are provided by Verizon, among other available providers. Electrical utility service is provided by PSE&G.

3.0 POTABLE WATER SERVICE

Potable water service for the project will be provided by way of connection to an existing 6-inch water main on Christopher Columbus Drive. The proposed building will be serviced by one 4-inch lateral entering the building underneath the retail space fronting Christopher Columbus Drive.

The estimated average total water demand for the development is 3,146 gallons per day with an anticipated peak water demand of 9,439 gallons per day. Nonresidential potable water demand is based upon New Jersey's Safe Drinking Water Act which is codified at N.J.A.C. 7:10-12.6 – TABLE 1. See Appendix A for the Water Demand Estimate which has been prepared for this application.

4.0 SANITARY SEWER SERVICE

Anticipated sewage flows from the proposed building will be handled by an existing 24" combined sewer pipe on Christopher Columbus Drive via a 6-inch PVC lateral. Based upon the New Jersey Department of Environmental Protection (NJDEP) Treatment Works Regulations at N.J.A.C. 7:14A-23.3 and the current architectural design of the building, the estimated new daily sewage flow to be generated by the project is 5,061 gallons per day. Based on the analysis provided in Appendix B, a proposed 6" PVC sanitary sewer laterals will have capacity for this demand. Since the anticipated new sewage flow from the proposed development does not exceed 8,000 gallons per day, NJDEP Treatment Works Approval will not be required.

5.0 STORMWATER MANAGEMENT

The proposed development at 155 Newark Avenue will disturb 4,962 square feet (0.114 acres). Since the development will disturb less than 1 acre and create less than a quarter of an acre of new impervious surface, the project is not classified as a "Major Development" per N.J.A.C. 7:8.

Additionally, because the project's disturbance is below 5,000 square feet nor create more than 1,000 square feet of impervious surface, the project does not meet the threshold for a Minor Development as outlined in the Jersey City Stormwater Control Ordinance. Because the project is not classified as a Major Development, requirements for Water Quality, Water Quantity, and Groundwater Recharge outlined in N.J.A.C. 5:21-7 are not applicable. Because the project is not classified as a Minor Development, no drainage detention measures are required.

In the present condition, the project site consists of a vacant building, with compacted gravel. The proposed development includes the proposed building, covering the majority of the site, along with compacted gravel area transition to sidewalks along Christopher Columbus Drive. Drainage from the roof will be collected and routed internally, and shall be discharged into the existing 24" combined sewer in Christopher Columbus Drive. Stormwater discharge will be combined with sanitary sewer discharge before being routed to the existing combined main, as shown in the Preliminary and Final Site Plan engineering set.

5.1 Water Quality

Per NJDEP, "Stormwater management measures shall only be required for water quality control if an additional one-quarter acre of impervious surface is being proposed on a development site." (N.J.A.C. 7:8-5.5). Water quality treatment measures are not necessary for compliance with this requirement, because there is less than one-quarter acre of impervious surface is being proposed, and because the project is not qualified as a Major Development. The proposed onsite impervious surface coverage consists of the building rooftop. No new impervious surface areas on the project site are subject to vehicular traffic. Runoff generated over rooftops and areas not subject to vehicular traffic is considered clean and need not be treated.

5.2 Water Quantity

Runoff Peak Flow Reduction: The site does not require peak runoff reduction because the increase in impervious surface coverage is less than one-quarter acre, and because the project is not classified as a Major Development.

5.3 Groundwater Recharge

The site is exempt from groundwater recharge requirements because it is located within New Jersey's designated Metropolitan Planning Area (PA1) based on the State Planning Policy Map (SPPM), and because the project is not classified as a Major Development. The applicable regulation reads: "This groundwater recharge requirement does not apply to projects that qualify as within the urban redevelopment area" (N.J.A.C. 7:8-5.4(a)2ii). An "Urban Redevelopment Area" is defined as: "delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (PA1), Designated Centers, Cores or Nodes" (N.J.A.C. 7:8-1.2).

6.0 CONCLUSION

This report has been prepared as required by the local municipality and demonstrates the proposed development will meet the objectives of minimizing impacts to environmentally sensitive areas, stormwater quality, stormwater quantity and flood-related matters at the source by land management and source control whenever possible.

APPENDIX 1 – WATER DEMAND CALCULATIONS

WATER DEMAND CALCULATIONS 155 NEWARK AVE BLOCK 11405, LOT 6 JERSEY CITY, NEW JERSEY DR PROJECT NO. 11892-001								
Residential Demand ¹								
Type of Establishment	Measurement	# Units	GPD/Unit	Daily Demand (GPD)	Daily Demand (MGD)	Peaking Factor	Peak Daily Demand (GPD)	Peak Daily Demand (MGD)
Studio	Per Dwelling	14	65	910	0.001	3	2,730	0.003
1-Bedroom	Per Dwelling	11	80	880	0.001	3	2,640	0.003
2-Bedroom	Per Dwelling	2	140	280	0.000	3	840	0.001
3-Bedroom	Per Dwelling	0	245	0	0.000	3	0	0.000
Total Units		27						
Total Residential Demand				2,070	0.002		6,210	0.006

Non-Residential Demand ²								
Type of Establishment	Measurement	# Units	GPD/Unit	Daily Demand (GPD)	Daily Demand (MGD)	Peaking Factor	Peak Daily Demand (GPD)	Peak Daily Demand (MGD)
Office/Retail	SF	8,610	0.125	1,076	0.001	3	3,229	0.003
Banquet Hall	Per Person		20	0	0.000	3	0	0.000
Worship Area	Per Seat		3	0	0.000	3	0	0.000
Total Non-Residential Demand				1,076	0.001		3,229	0.003

Total Site Demand				Daily Demand (GPD)	Daily Demand (MGD)		Peak Daily Demand (GPD)	Peak Daily Demand (MGD)
				3,146	0.003		9,439	0.009

Notes:

¹ Residential demand as per N.J.A.C. 5:21-5.1 (November 2, 2020)

² Non-residential demand as per N.J.A.C. 7:10-12.6 (Table 1)

APPENDIX 2 – SANITARY SEWER CALCULATIONS

SANITARY SEWER CALCULATIONS

155 NEWARK AVE
BLOCK 11405, LOT 6
JERSEY CITY, NEW JERSEY
DR PROJECT NO. 11892-001

Type of Establishment	Measurement	# Units	GPD/Unit	GPD
Studio	Per Dwelling	14	150	2,100
1 Bedroom	Per Dwelling	11	150	1,650
2 Bedroom	Per Dwelling	2	225	450
3 Bedroom	Per Dwelling	0	300	0
Retail	Sq. Ft.	8,610	0.100	861
_blank	0		0.000	0
_blank	0		0.000	0
_blank	0		0.000	0
_blank	0		0.000	0

Projected Estimates per N.J.A.C. 7:14A-23.3

Flow Received	100%
Total Flow (GPD) (Q _{projected})	5,061
Total Flow (CFS) (Q _{projected})	0.008

Pipe Length (LF)	Diameter (in)	Material	Slope	n*
20	6	PVC	4.00%	0.013

* Per JCMUA Rules and Regulations, Section 5.01

Half Flow Pipe Capacity	
Depth of Flow, h (in)	3
h/D	0.500
Pipe Radius, r (ft)	0.250
Circ. Segment Height, h (ft)	0.250
Central Angle, θ (radians)	3.142
Cross-Sectional Area, A (ft ²)	0.098
Wetted Perimeter, P (ft)	0.785
Hydraulic Radius, R (ft)	0.125
Discharge, Q (cfs)	0.563
Q _{projected} (x2) (cfs)	0.016
Pipe % Full [(A/A _{full})*100%]	50.00%
Average Velocity, V (ft/sec)	5.731
Max. Capacity (MGD)	0.303
Q _{pipe} > 2xQ _{projected}	TRUE
V ≥ 2.2 ft/sec	TRUE
Design is	ADEQUATE

Actual Pipe Velocity	
**Depth of Flow, h (in)	0.350
Pipe Radius, r (ft)	0.250
Circ. Segment Height, h (ft)	0.029
Central Angle, θ (radians)	0.976
Cross-Sectional Area, A (ft ²)	0.005
Wetted Perimeter, P (ft)	0.244
Hydraulic Radius, R (ft)	0.019
Pipe % Full [(A/A _{full})*100%]	2.35%
Actual Velocity, V (ft/sec)	1.627
V < 10 ft/sec	TRUE

**Must have h < r

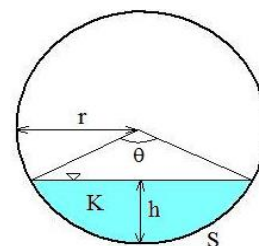
Compare	
Discharge, Q (cfs)	0.008
Q _{projected} (cfs)	0.008

Equations used for calculations:

Manning's Formula:

$$Q = \left(\frac{1.49}{n} \right) A R^{2/3} \sqrt{S}$$

Q = Flow Rate, (ft³/s)
n = Manning's Coefficient
A = Flow Area, (ft²)
R = Hydraulic Radius, (ft)
S = Channel Slope, (ft/ft)



$$\theta = 2 \arccos \left(\frac{r-h}{r} \right)$$

$$A = \frac{r^2 (\theta - \sin \theta)}{2}$$

$$P = r \theta$$