WATER & SANITARY SEWER DEMAND REPORT

For

PROVOST SQUARE – PHASE III

Tax Map 115
Block 11506, Lot 2.01

City of Jersey City
Hudson County
New Jersey

Prepared for

134 Bay Street, LLC

1000 Maxwell Lane
Hoboken, NJ 07030

Prepared by

ESE Consultants, Inc.

100 Willow Brook Road, Suite 200
Freehold, NJ 07728
NJ Certificate of Authorization No. 24GA27999900

June 27, 2018

Revised: February 8, 2019

Andrew J. Grover, P.E.

Professional Engineer
New Jersey License No. GE047123

TABLE OF CONTENTS

Introduction:

Provost Square Phase III, is located in the City of Jersey City, Hudson County, New Jersey, within Block 11506 Lot 2.01 bounded by Provost Street, Bay Street, Morgan Street & recently constructed Phase I within lot 1.01. The proposed site includes the construction of a 33-story mixed use residential structure with a footprint of approximately 31,600 SF for the 7-story portion known as "podium", and a 26-level residential tower above the podium building for a total of 33-stories. The podium portion of the building consists of a combination of retail, theater and residential use along with mechanical/utility areas and off street parking garage serving the building. The proposed site will consist of 259 residential units ranging from studio to 3-bedroom apartment as well as approximately 6,289 SF of retail space and 550 seat theater on the ground floor.

The purpose of this report is to present the water and sanitary service demand calculations and to provide a description of their design for the referenced project.

Water Supply System Demand, Strategy and Design:

The existing water supply system is operated by the SUEZ water company and owned by the Jersey City Municipal Utilities Authority. The surrounding existing water supply consists of a 12" Water Main on Bay Street, and a 12" main on Morgan Street.

The applicant proposes use the existing 8" combined water service already constructed during Phase I of the project that connects to the existing 12" main on Bay Street. Once the 8" combined service enters the building on the phase 1 side, the 6" domestic line that splits of the 8" will be redirected to service the phase III of the project. The water service shall comply with Jersey City Municipal Utility Authority Rules & Regulations and AWWA Standards.

The table below provides the breakdown of the Domestic Water Demands;

Residential Domestic Water Demand Breakdown Provost Square Phase III Hudson County, City of Jersey City, New Jersey			
Type/Size Housing	Number of Units	Residential Water Demand (GPD)	Projected Flow (GPD)
High Rise Residential (Studio)	56	80	4,480
High Rise Residential (1-Bedroom)	77	100	7,700
High Rise Residential (2-Bedroom)	96	160	15,360
High Rise Residential (3-Bedroom)	30	225	6,750
Projected Flows Based on Residential Site Improvement Standards: NJAC 5:21-5.3 Table 5.1		**Total (GPD)**	**34,290**

Non-Residential Domestic Water Demand Breakdown Provost Square Phase III Hudson County, City of Jersey City, New Jersey			
Type of Establishment	UNIT	Gallons Per Day Per	Projected Flow (GPD)
Retail/Store	6,289 SF	0.125 gallon/SF	787
Theater	550 Seats	5 gallons/ seat	2,750
Projected Flows Based on: NJAC 7:10-12.6; Table 1		**Total (GPD)**	**3,537**

Residential Flow (GPD) + Non-Residential Flow (GPD) = **Total Combined Projected Flow (GPD)**

34,290 GPD + 3,537 GPD = **37,827 GPD = 0.037 MGD**

All water service pipes 3" or greater shall be cement lined, corrosion protection coated, ductile iron pipe with mechanical joints and Pressure Class 350 psi, per JCMUA. Ductile iron water service pipe shall be laid continuously rodded with thrust blocks at all bends. A horizontal separation of ten (10) feet shall be maintained between water main and sanitary sewer lines. Where separation is not possible an eighteen (18) inch vertical separation shall be provided or the line shall be encased in concrete at crossing.

The City of Jersey City will have final approval on the location for fire hydrants and gate valves. Fire service for building will be connected internally with Phase 1 of the building, and support information showing sufficient design of fire system shall be provided by MEP Engineer under separate cover.

Sanitary Sewer System Demand, Strategy and Design:

The existing sanitary sewer system is owned and operated by the Jersey City Municipal Utilities Authority. The existing sewer system is a combined system (sanitary & storm) and the site is surrounded by following; a 36" brick pipe within Morgan Street ROW, and a 60" brick pipe within Bay Street ROW. The applicant proposes one 12" sanitary connection to the existing system; connecting to an existing manhole to the 60" pipe within Bay Street. The proposed laterals will be installed per the Jersey City Municipal Authorities Standards and will be sized by the mechanical engineer. The flow will be conveyed through the JCMUA system to the Passaic Valley Sewerage Commission Treatment Plant where the flow will be treated.

The table below provides the projected sanitary flow breakdown:

Projected Sanitary Flow Breakdown Provost Square Phase III Hudson County, City of Jersey City, New Jersey				
Unit Type	# of Unit	Unit Type	GPD per Unit	Total GPD
Apartment (Studio/1-Bedroom)	133	Bedroom	150	19,950
Apartment (2-Bedroom)	96	Bedroom	225	21,600
Apartment (3-Bedroom)	30	Bedroom	300	9,000
Retail	6,289	SF	0.10	629
Theater (indoor)	550	Seat	3	1,650
Projected Daily Average Flows Based on NJAC 7:14A -23.3			**Total (GPD)**	**52,829**
Design Flow = Average Daily Flow x 2			**Total (GPD)**	**105,658**

The design flow is 105,658 GPD and converted cubic feet per second is 0.16 CFS. Currently proposed the building has one (1) 12" diameter sewer lateral connections with a minimum slope of 1%. Using the manning's equation; the 12" lateral at 1% will have a capacity of 4.64 CFS. The design flow for the entire building (0.16 CFS) is well below this capacity of just one pipe, and will be approximately 3.5% of the full flow capacity of 12" lateral pipe.