STORMWATER MANAGEMENT REPORT

127 DELAWARE
127 DELAWARE AVE, JERSEY CITY NJ.

Proposed New 5-Story Residential Building With 26 Residential Units
Block 16202, Lots 19
City of Jersey City, New Jersey

July 10, 2020
Revised: January 28, 2021
Revised: July 22, 2022

John C. Inglese, AIA, PE, LEED AP

632 Pompton Av, Cedar Grove, NJ | phone 201.438.0081 | www.inglese-ae.com

Table of Contents

Introduction

I. Project Description and Location

The property to be developed is designated as Block 16202, Lot 19. The property is outside of any tidal flood zone. The proposed scope of work is the construction of a new 5-story structure, to create 26-unit residential building.

II. Existing Site Conditions

The property is located on Delaware Ave in Jersey City, NJ. It is 12,920 sq. ft. (0.297-acre) site that is currently occupied with an existing building scheduled to be demolished. The site topography ranges between 34.01 ft to 31.63 ft. The soil type for this site is classified as Urban land, Eolian Substratum (UREOLB), 0 to 8 percent slopes.

III. Stormwater Management Description

The pre- and post-development runoff flows were calculated in accordance with the City of Jersey City Stormwater Ordinance and the Stormwater Best Management Practices (BMP). The proposed site is 12,920 sq. ft. (0.297-acre), and the development exceeds ¼ acre of new impervious coverage. Storm water runoff quality management will be discussed in this report. Storm water runoff management system is in accordance with Jersey City stormwater management plan dated august 2008.

Pre & Post Development Runoff Conditions

It is the purpose of this report to provide information on the methods and techniques employed in the stormwater management analysis that demonstrate that the stormwater runoff will not be increased due to the development.

Accordingly, stormwater management analysis in this report consists of:

1. Calculating runoff from the rainfall for 2, 10- and 100-year storm events for the pre- and post-development conditions of each drainage area
2. Comparing the results of the pre-developed vs. post-developed conditions to ensure that all stormwater regulations have been met

I. Predevelopment Conditions

The total drainage area for the site is 12,920 sq. ft. (0.297-acre) which is currently an occupied lot with two (2) 1-Story Garage buildings, One (1) Two story dwelling and paved driveway. The design parameters for pre-developed condition are as follows: The rainfall intensities for the 2, 10- and 100-year storm events are 4.3 in/hour, 5.8 in/hour and 8 in/hour, respectively.

Total Site Drainage Area	Existing Area (SF)	Area (ac)	C
Lot	12920	0.297	*0.96*
Building	6280.91	0.144	0.99
Paved	6363.38	0.146	0.95
Landscape	275.71	0.006	0.30

Total Site Drainage Area	Existing Flows (cfs)
Q(2 year)	1.219
Q(10 year)	1.644
Q(100 year)	2.267

II. Post Development Conditions

The proposed site drainage area is 12,920 sq. ft. (0.297-acre) which consists of a 5-story Residential Building with ground floor parking garage. The proposed drainage area will be detained in a non-perforated detention basin, which releases the storm water to the city's sewer system in accordance with the City of Jersey City Storm Water Ordinance and BMP guidelines. See Drainage and Utility Site Plan for exact location of new basins, inlets and manhole. The rainfall intensities for the 2, 10- and 100-year storm events are 4.3 in/hour, 5.8 in/hour and 8.0 in/hour, respectively.

Total Site Drainage Area	Proposed Area (SF)	Area (ac)	C
Lot	12920	0.297	*0.99*
Building	11928.35	0.277	0.99
Paved	991.65	0.023	0.95
Landscape	0.00	0.000	0.30

Total Site Drainage Area	Unreduced Proposed Flows (cfs)
Q(2 year)	1.259
Q(10 year)	1.698
Q(100 year)	2.342

III. Basin Discussion and Design

Building: Detention Basin Design

The proposed detention basin has been designed to accept stormwater runoff from the building's roof. Stormwater will be conveyed from the roof drains with leaders at the roof deck to the detention basin. The detention basin is located below the first/ground floor garage level. The detention basin will discharge the stormwater to the manhole on Delaware Avenue. A summary of the required storage, peak inflow and outflow for existing, allowable and proposed conditions, and basin peak elevations will be provided below.

Storm Event (Yr.)	Inflow	Allowable Outflow (cfs)	Unreduced Proposed Outflow (cfs)	Total Inflow Volume (cf)
2	0.92	0.609	1.259	3223.44
10	1.26	1.233	1.698	4922.27
100	1.72	1.814	2.342	8102.15

Storm Event (Yr.)	Allowable outflow (cfs)	Computed Outflow (cfs)	Maximum Pond Storage (cf)	Pond Storage Depth (ft)
2	0.609	0.48	435.60	1.15
10	1.233	0.60	696.96	1.72
100	1.814	0.78	1,176.12	2.87

As demonstrated above, the post development computed stormwater discharge for all 3 storm events are less than or equal to the allowable discharge rates as regulated by the City of Jersey City Stormwater Ordinance and BMP. The allowable stormwater discharge is a factored existing stormwater discharge as defined in the BMP. As a result, this design satisfies the NJDEP Stormwater Management rules for the stormwater quantity reduction.

The discharge pipe from the outlet structure to the manhole was designed to handle the proposed outflow from the 100-year storm event. A 12" diameter RCP pipe with a 0.5% slope exceeds the allowable 100-year storm event flow.

IV. Soil Erosion and Sediment Control

To minimize the effects of erosion, the proposed design and construction concepts and practices incorporate the standards for Soil Erosion and Sediment Control in New Jersey as provided by the New Jersey State Soil Conservation Committee. The soil erosion is controlled predominantly by one factor:

- The building occupies 93% of the lot, and the stormwater runoff is collected with roof leaders and inlets and directed to the stormwater storage chambers. The runoff from this area mostly percolate into the ground and the soil erosion is controlled by the landscape.

Other erosion deterrents include but are not limited to the use of silt fence or other sediment barriers around the property. In addition, dust control measures, stone tracking mats, and temporary and permanent vegetative cover will be utilized. General notes and guidelines are provided on the Soil Erosion Plan for the contractor in order to ensure against soil erosion on the site while construction is in progress.

V. Water Quality Treatment

The proposed site development area is 12,920 sq. ft. (0.297-acre) and although the proposed development's lot area exceeds 1/4 Ac, most of the rain runoff will be captured at the roof level (11,932 sf), and therefore no water quality treatment is required prior to discharge.

Summary

In conclusion, the stormwater management system for this project has been designed in accordance with the City of Jersey City Storm Water Ordinance and the BMP. This project is not located in the Tidal flood zone. We have demonstrated that our detention basin exceeds the minimum requirements set forth by the City of Jersey City Water Ordinance and the BMP. Furthermore, in our design, we have also demonstrated that the stormwater drainage systems reduce the proposed site drainage impact of the storm water runoff into the city's sewer system.

As a result of these measures, the total developed impact of the proposed storm water drainage system on the city's sewer system is significantly less than the existing storm drainage discharge.

Therefore, it is our professional opinion that the proposed stormwater drainage design has no negative impacts on the existing stormwater system.