STONEFIELD

STORMWATER MANAGEMENT STATEMENT

To: **Jersey City Municipal Utilities Authority**
City of Jersey City Planning Board

Project: **Proposed Multi-Family Residential Building**
319 4th LLC
321 4th LLC
319-321 4th Street
Block 11101, Lots 10 & 11
City of Jersey City, Hudson County, New Jersey

Dated: **June 08, 2023**

Reference: ***Preliminary & Final Major Site Plans prepared by Stonefield Engineering & Design, LLC, dated June 8, 2023***

The purpose of this statement is to assess the stormwater management impacts of the above referenced project which will consist of the construction of a proposed multi-family residential building with eight residential units consisting of five 2-bedroom and three 3-bedroom units at and above the ground floor. Additional improvements include a concrete parking area consisting of four parking spaces, a green roof, landscaping, lighting, and utilities. The proposed development site is located at 319-321 4th Street in the City of Jersey City, New Jersey, and is designated as Block 11101. The proposed development is 4,750 SF (0.109 acres), has a limit of disturbance of 5,771 SF (0.133 acres), will decrease the impervious area by 1,217 SF (0.028 acres), and will create 734 SF (0.017 acres) of regulated motor vehicle surface area. The site, fronting 4th Street, is located within the Residential Commercial District 3. As the development is defined as new construction under Jersey City Municipal Utilities Authority (JCMUA) rules and regulations, the project is subject to JCMUA review and approval. As the development disturbs less than 10,000 SF of land, the application is defined as a minor development under the City of Jersey City Stormwater Control Ordinance and as such is subject to Municipal stormwater management requirements.

PRE-DEVELOPMENT DRAINAGE CONDITIONS

The project site is located at 319-321 4th Street in the City of Jersey City, New Jersey, and is designated as Block 11101, Lots 10 & 11. The site is 0.109 acres (4,750 SF) in size consisting of two multi-story frame buildings with concrete and gravel parking in the rear of the property. The site is bounded by residential uses to the east and west, 4th street to the north, and a public alleyway to the south. The existing stormwater runoff sheet flows to 4th Street to the north, and to the public alley to the south. It is not apparent where the stormwater is conveyed to; it is assumed that the stormwater runoff drains to JCMUA combined sewer system.

The following table summarizes the existing drainage area 'E-1' utilized in the stormwater analysis:

TABLE 1: PRE-DEVELOPMENT DRAINAGE AREA

Drainage Area	*Description*	*Area Extents*	*Impervious Area*	*Impervious Coverage*	*Time of Concentration*
E-1	Existing Conditions	4,750 SF	4,484 SF	94.4%	6 Minutes*

*A minimum time of concentration was utilized.

POST-DEVELOPMENT DRAINAGE CONDITIONS

The development proposes the construction of a multi-family residential building with a green roof, a concrete parking area consisting of four parking spaces, and landscaping. The proposed conditions are designed to mimic the pre-development drainage patterns. To comply with the City of Jersey City's Stormwater Control Ordinances, Low Impact Development or "LID" (also referred to as "Green Infrastructure") practices were implemented through the use of nonstructural Best Management Practices ("BMP") consisting of 850 SF of extensive green roof.

The following table summarizes the drainage area 'P-1' utilized in the stormwater analysis:

TABLE 2: POST-DEVELOPMENT DRAINAGE AREA

Drainage Area	*Description*	*Area Extents*	*Impervious Area*	*Impervious Coverage*	*Time of Concentration*
P-1	Proposed Conditions	4,750 SF	2,417 SF	50.9%	6 Minutes*

*A minimum time of concentration was utilized.

STORMWATER RUNOFF QUANTITY

To comply with Jersey City Municipal Stormwater regulations for minor developments, 0.6 gallons of runoff per square foot of impervious surface must be retained on-site through the use of green infrastructure.

The proposed 850 SF of 6" green roof trays are designed to retain 0.6 gallons of stormwater runoff per square foot of impervious surface. The below calculations indicate the requirement parameters:

Required: 3,267 SF Impervious Area * 0.6 gallons of runoff = 1,961 gallons required (equivalent to 263 CU FT)

Proposed: 850 SF of Green Roof Area
Media Layer Depth: 6"
Drainage Layer Depth: 2"
Storage Volume: 264 CU FT (equivalent to 1,975 gallons)

The proposed calculations indicating the amount of storage in cubic feet can be found in **Appendix B.** The proposed Green Infrastructure has been designed to NJDEP BMP Manual standards and therefore complies with JCMUA regulations and the City of Jersey City Stormwater Control Ordinance.

To analyze runoff quantities between the existing and proposed drainage areas, one point of interest was selected:

TABLE 3: QUANTITY COMPARISON POINTS OF INTEREST

Point of Interest	Area Description	Existing Tributary Drainage Areas	Proposed Tributary Drainage Areas
POI - 1	Drainage To JCMUA Conveyance System	E-1	P-1

WATER & SEWER DEMAND

The projected flow rate for water and sewer were calculated using NJAC 5:21-5.2 and NJAC 7:14A-23.3, which can be found in **Appendix D.** The project proposes a total domestic water demand of 1,345 GPD and a total sanitary demand of 2,025 GPD.

CONCLUSIONS

The proposed project complies with JCMUA regulations and standards. The proposed site implements Green Infrastructure to meet the stormwater retention requirement. As such, the project is not anticipated to have any adverse drainage impacts on neighboring properties, downstream watercourses, or adjoining conveyance systems.

Prepared by:

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Stonefield Engineering and Design, LLC.

APPENDIX A
NRCS SOILS REPORT

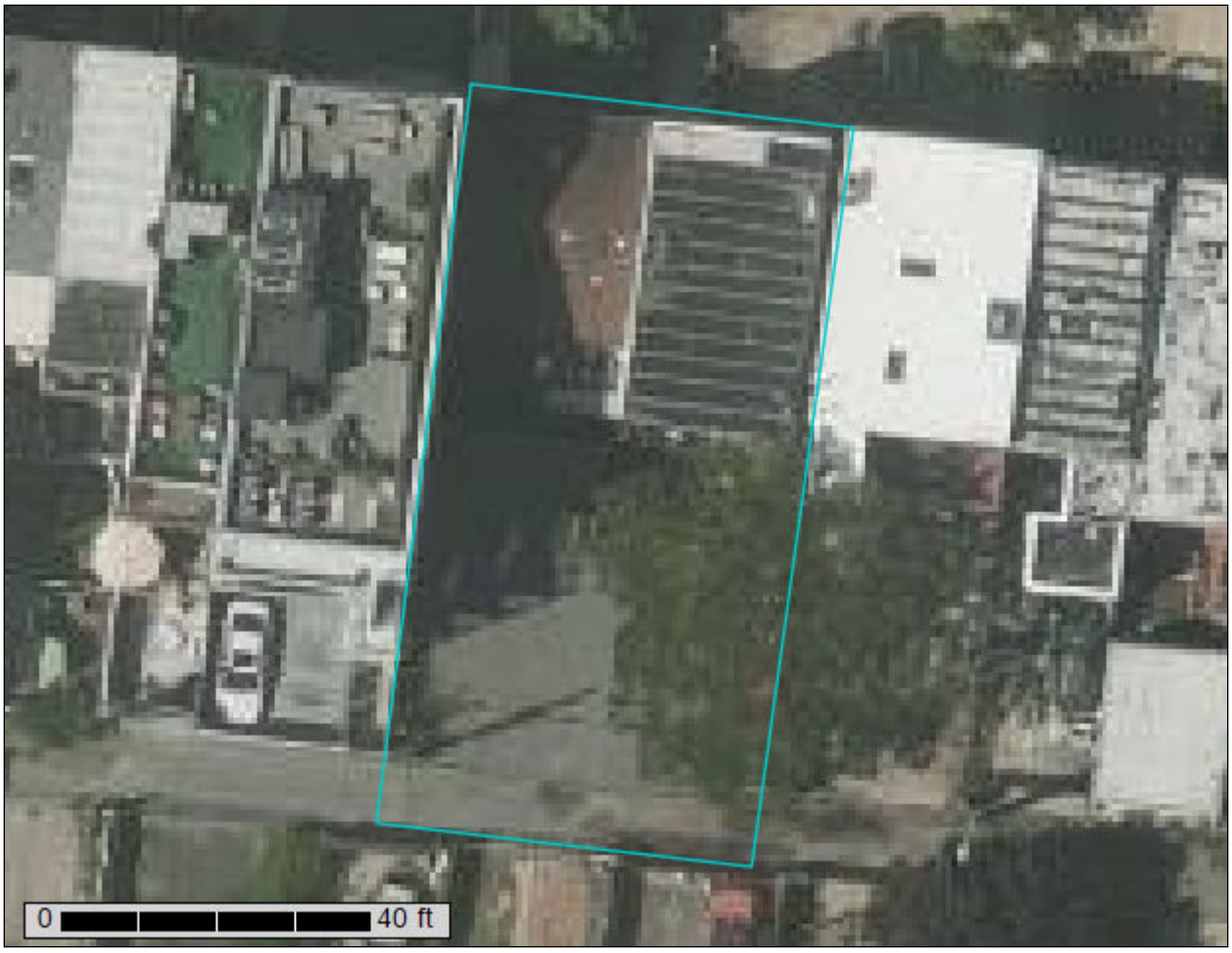
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Hudson County, New Jersey



February 13, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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Contents

Custom Soil Resource Report
Soil Map

Map Scale: 1:180 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 2 5 10 15

Feet: 0 5 10 20 30

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Hudson County, New Jersey
Survey Area Data: Version 12, Aug 29, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 12, 2020—Nov 4, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
URWETB	Urban land, wet substratum, 0 to 8 percent slopes	0.1	100.0%
Totals for Area of Interest		**0.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Hudson County, New Jersey

URWETB—Urban land, wet substratum, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 13q0j
Elevation: 0 to 520 feet
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 213 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land, wet substratum: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land, Wet Substratum

Setting

Landform position (two-dimensional): Summit
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Asphalt over human-transported material

Typical profile

M1 - 0 to 6 inches: material
M2 - 6 to 20 inches: material
2^Cu - 20 to 79 inches: very artifactual coarse sandy loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 0 inches to manufactured layer
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 20 inches
Calcium carbonate, maximum content: 19 percent
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Minor Components

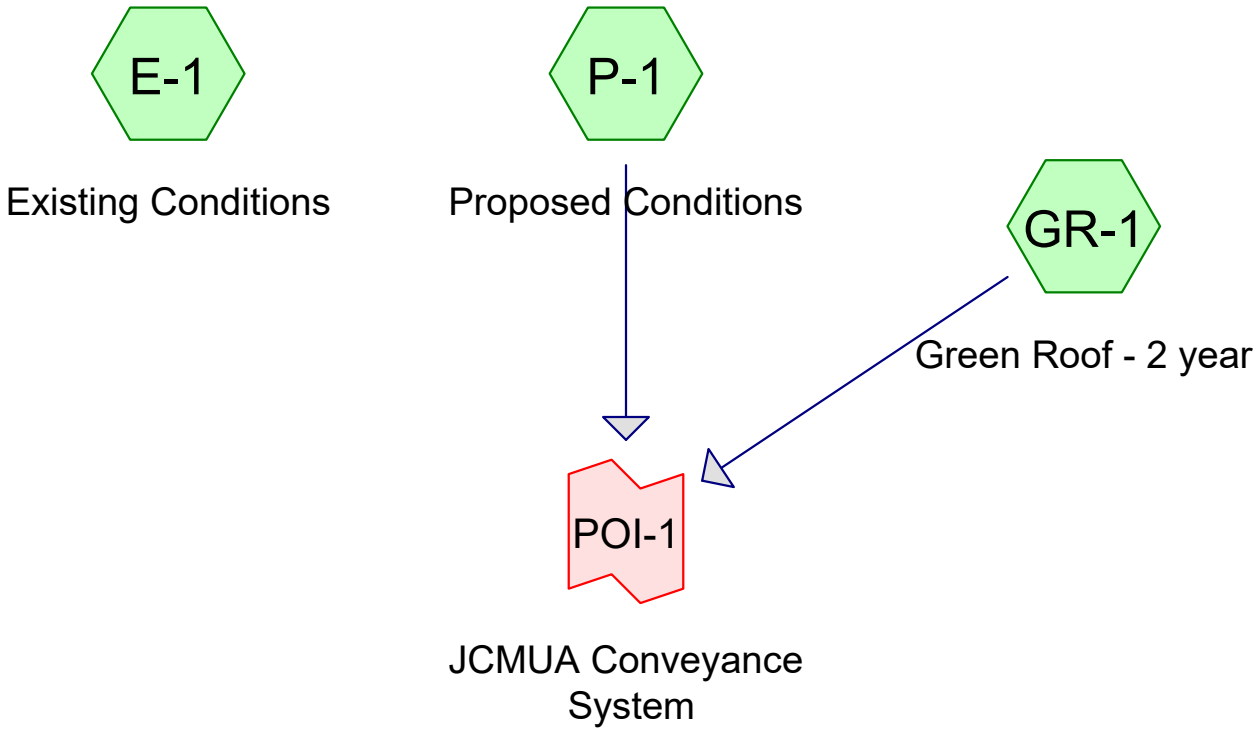
Parsippany, frequently flooded

Percent of map unit: 5 percent
Landform: Lake terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Whippany

Percent of map unit: 5 percent
Landform: Lake terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

APPENDIX B
HYDROCAD DATA & ANALYSIS RESULTS



Subcat Reach Pond Link

Routing Diagram for 2023-06-08_HydroCAD
Prepared by Stonefield Engineering & Design, Printed 6/8/2023

Summary for Subcatchment E-1: Existing Conditions

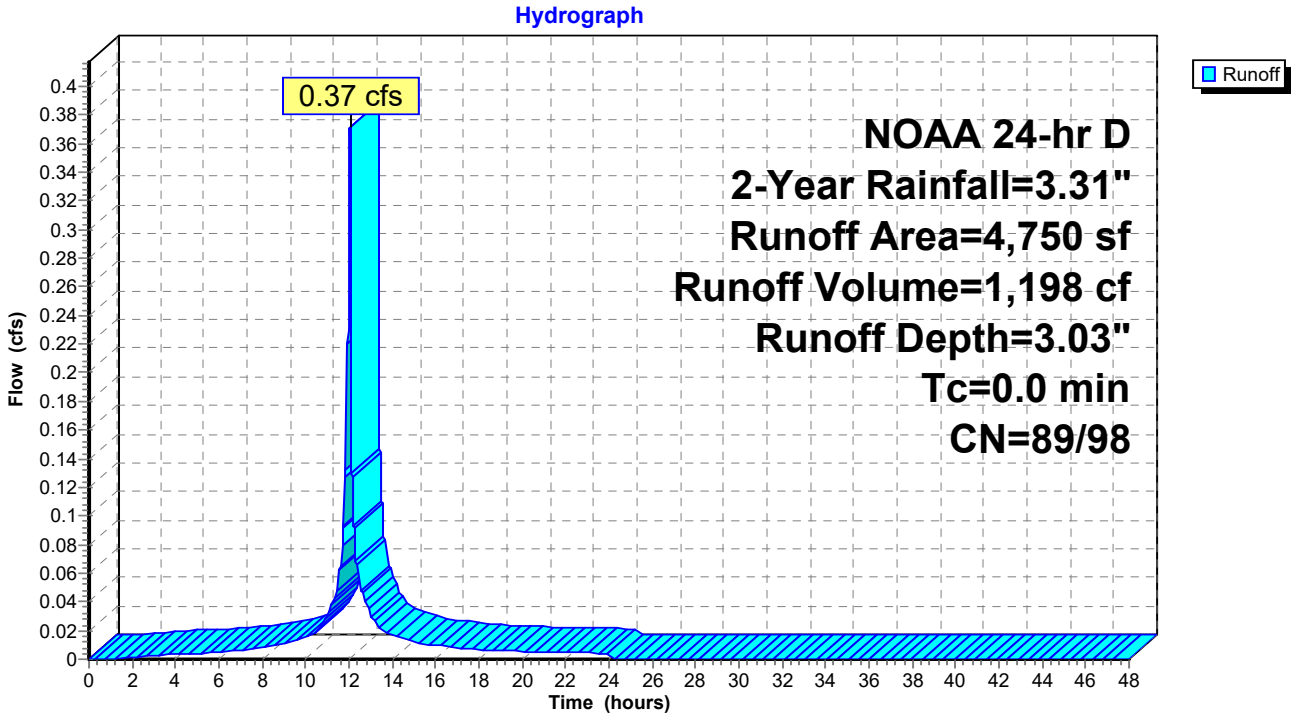
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.37 cfs @ 12.09 hrs, Volume= 1,198 cf, Depth= 3.03"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.31"

	Area (sf)	CN	Description
	266	89	<50% Grass cover, Poor, HSG D
*	4,484	98	Impervious Areas
	4,750	97	Weighted Average
	266	89	5.60% Pervious Area
	4,484	98	94.40% Impervious Area

Subcatchment E-1: Existing Conditions



Summary for Subcatchment GR-1: Green Roof - 2 year

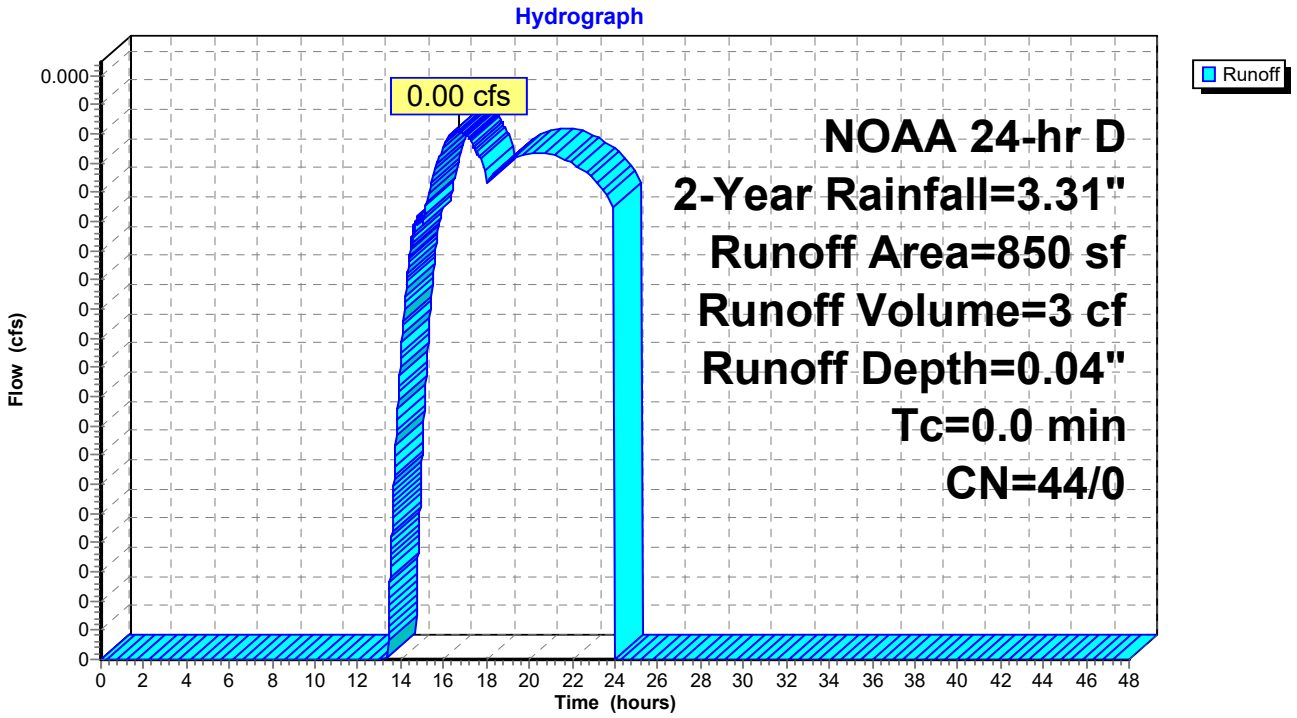
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.00 cfs @ 16.69 hrs, Volume= 3 cf, Depth= 0.04"
Routed to Link POI-1 : JCMUA Conveyance System

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.31"

	Area (sf)	CN	Description
*	850	44	
	850	44	100.00% Pervious Area

Subcatchment GR-1: Green Roof - 2 year



Summary for Subcatchment P-1: Proposed Conditions

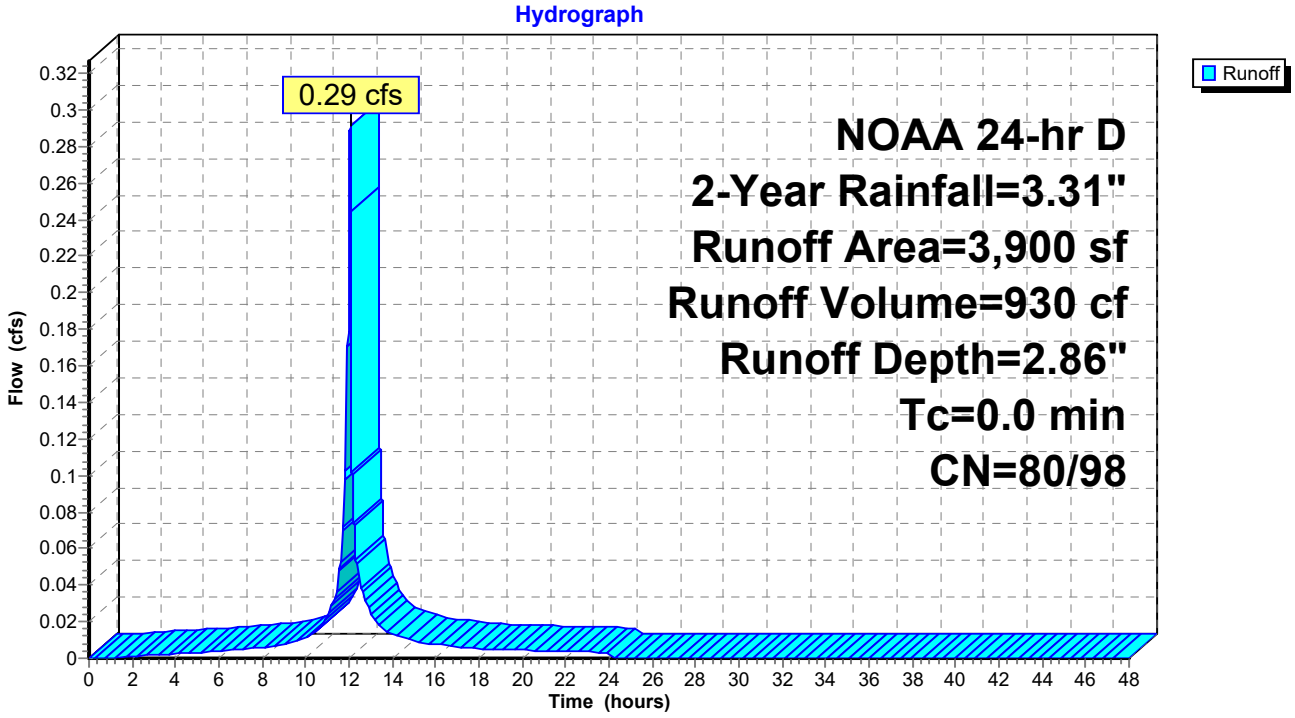
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.29 cfs @ 12.09 hrs, Volume= 930 cf, Depth= 2.86"
Routed to Link POI-1 : JCMUA Conveyance System

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 2-Year Rainfall=3.31"

	Area (sf)	CN	Description
*	2,417	98	Impervious Surface
*	955	98	Permeable Pavement
	528	80	>75% Grass cover, Good, HSG D
	3,900	96	Weighted Average
	528	80	13.54% Pervious Area
	3,372	98	86.46% Impervious Area

Subcatchment P-1: Proposed Conditions

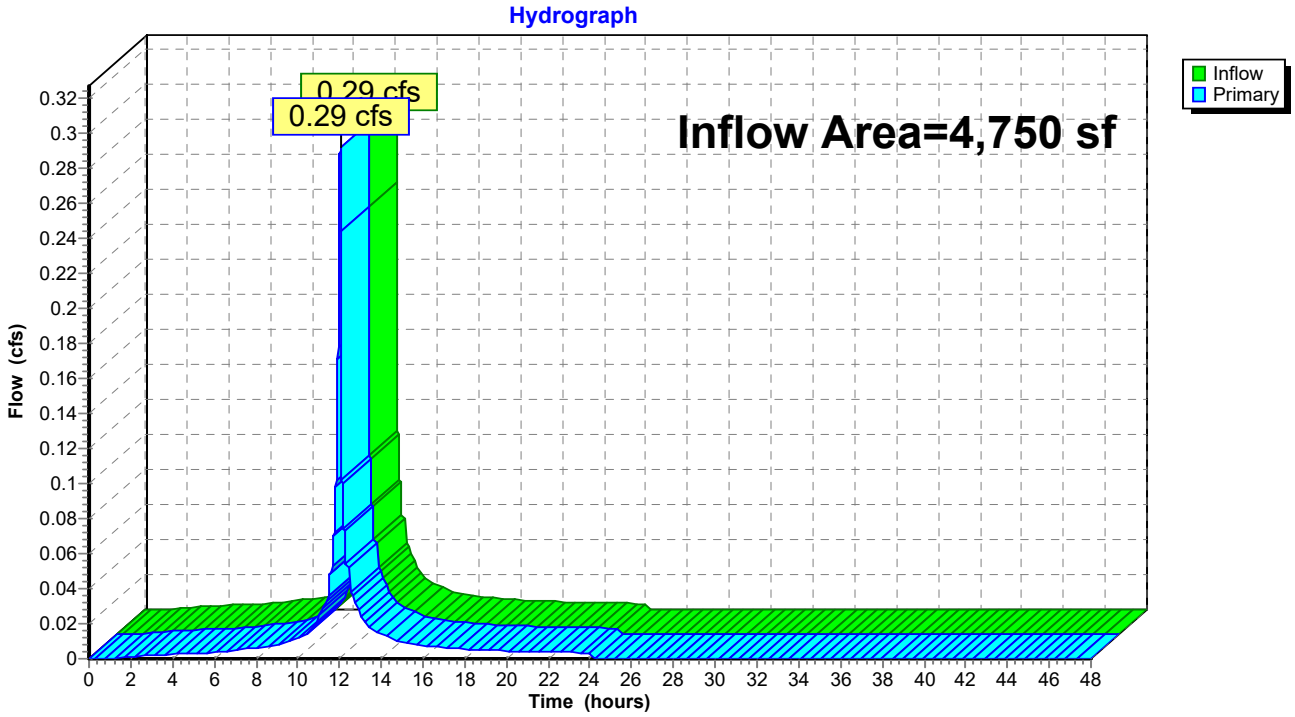


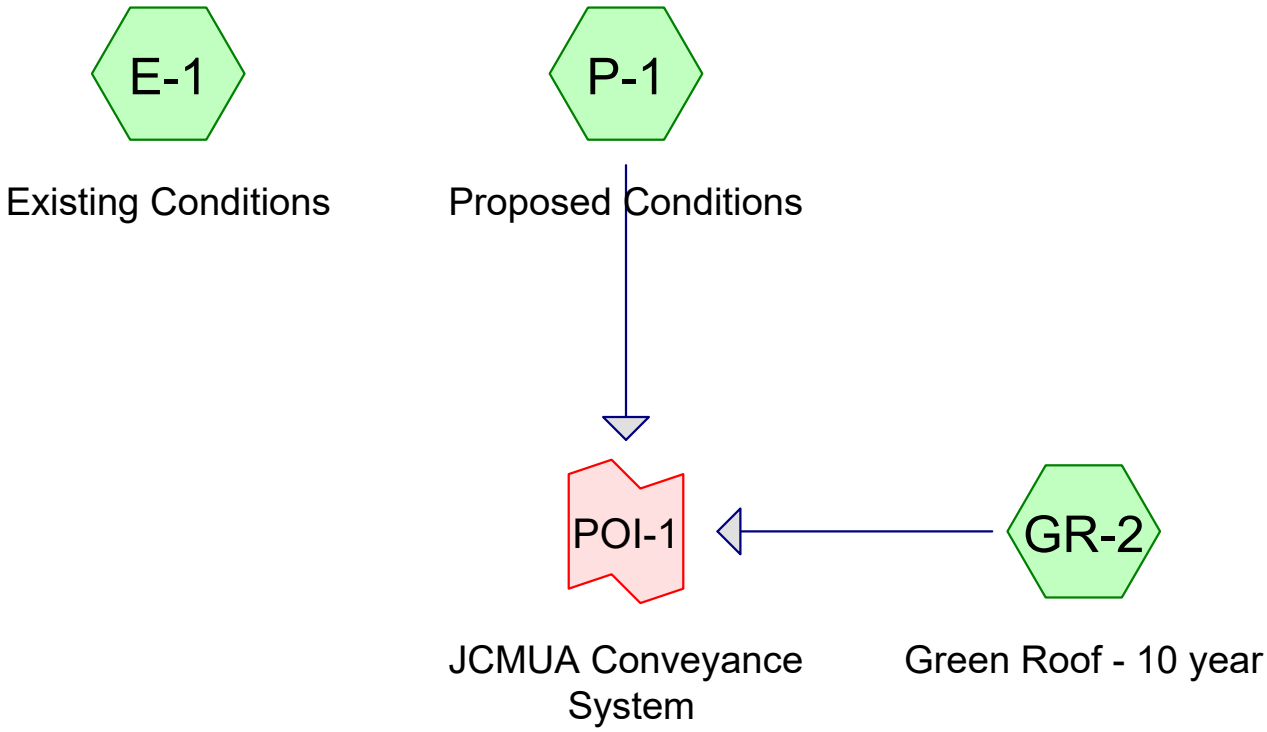
Summary for Link POI-1: JCMUA Conveyance System

Inflow Area = 4,750 sf, 70.99% Impervious, Inflow Depth = 2.36" for 2-Year event
Inflow = 0.29 cfs @ 12.09 hrs, Volume= 933 cf
Primary = 0.29 cfs @ 12.09 hrs, Volume= 933 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI-1: JCMUA Conveyance System





Subcat Reach Pond Link

Routing Diagram for 2023-06-08_HydroCAD
Prepared by Stonefield Engineering & Design, Printed 6/8/2023

Summary for Subcatchment E-1: Existing Conditions

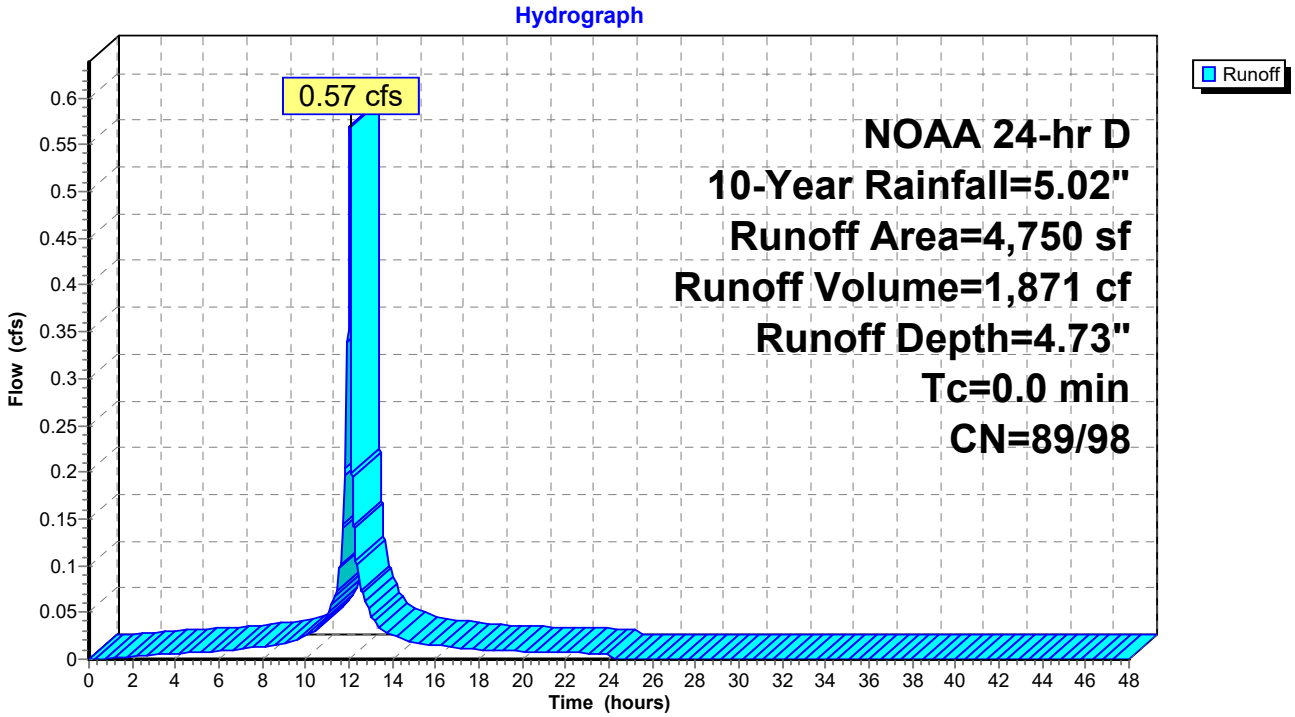
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.57 cfs @ 12.09 hrs, Volume= 1,871 cf, Depth= 4.73"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.02"

	Area (sf)	CN	Description
	266	89	<50% Grass cover, Poor, HSG D
*	4,484	98	Impervious Areas
	4,750	97	Weighted Average
	266	89	5.60% Pervious Area
	4,484	98	94.40% Impervious Area

Subcatchment E-1: Existing Conditions



Summary for Subcatchment GR-2: Green Roof - 10 year

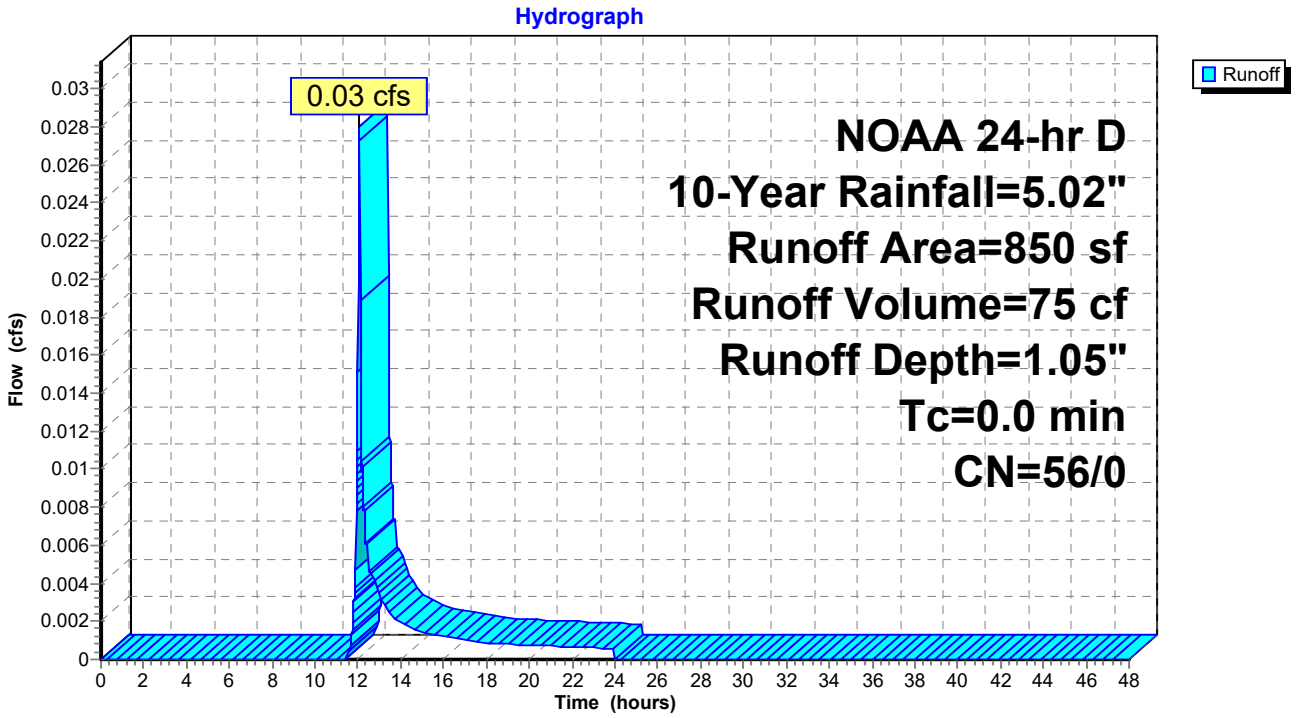
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.03 cfs @ 12.09 hrs, Volume= 75 cf, Depth= 1.05"
Routed to Link POI-1 : JCMUA Conveyance System

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.02"

	Area (sf)	CN	Description
*	850	56	
	850	56	100.00% Pervious Area

Subcatchment GR-2: Green Roof - 10 year



Summary for Subcatchment P-1: Proposed Conditions

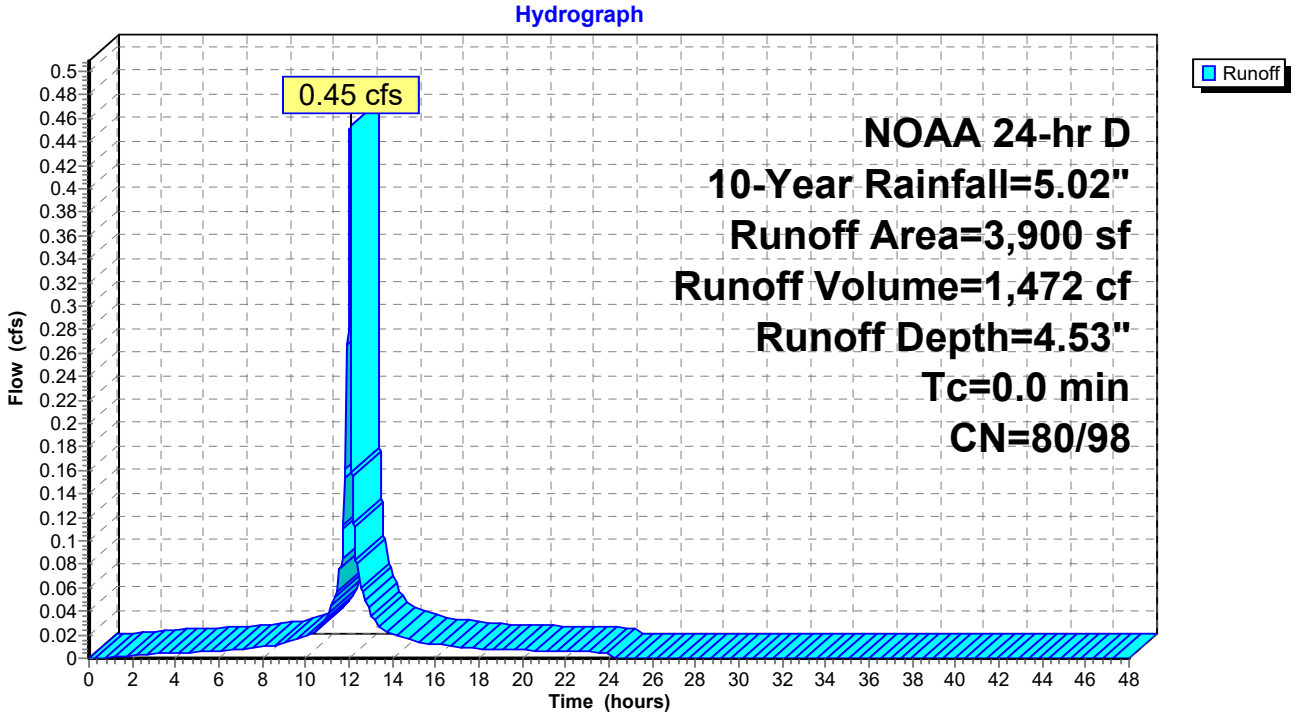
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.45 cfs @ 12.09 hrs, Volume= 1,472 cf, Depth= 4.53"
Routed to Link POI-1 : JCMUA Conveyance System

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 10-Year Rainfall=5.02"

	Area (sf)	CN	Description
*	2,417	98	Impervious Surface
*	955	98	Permeable Pavement
	528	80	>75% Grass cover, Good, HSG D
	3,900	96	Weighted Average
	528	80	13.54% Pervious Area
	3,372	98	86.46% Impervious Area

Subcatchment P-1: Proposed Conditions

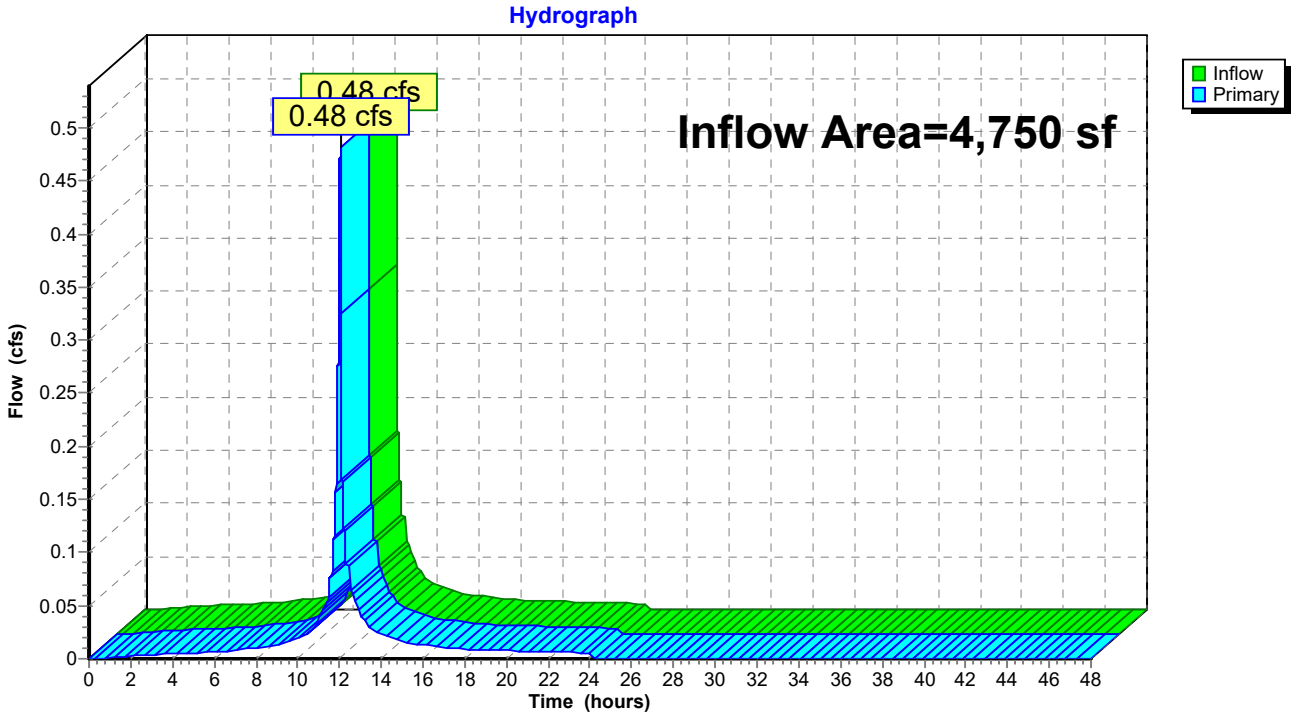


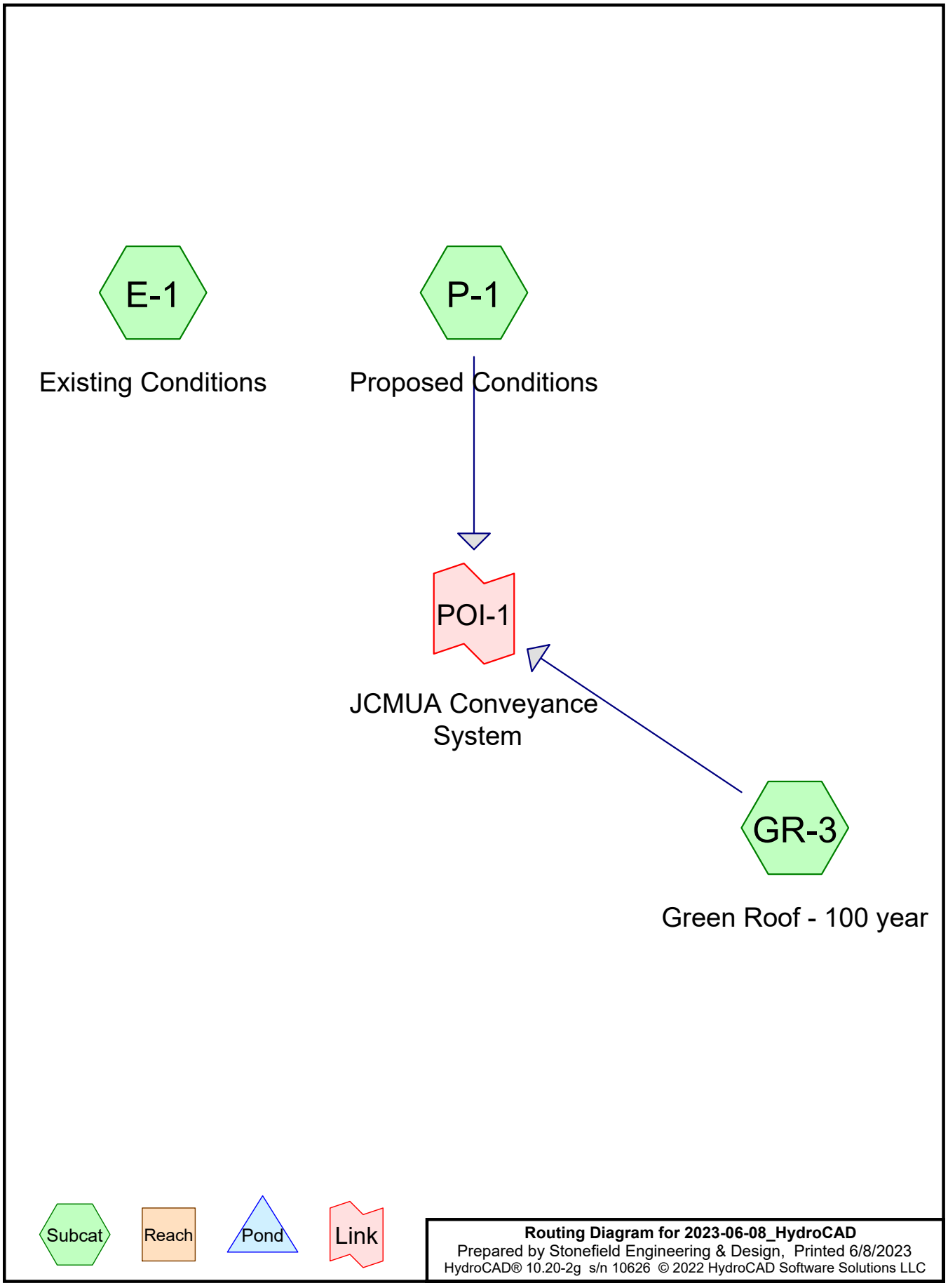
Summary for Link POI-1: JCMUA Conveyance System

Inflow Area = 4,750 sf, 70.99% Impervious, Inflow Depth = 3.91" for 10-Year event
Inflow = 0.48 cfs @ 12.09 hrs, Volume= 1,547 cf
Primary = 0.48 cfs @ 12.09 hrs, Volume= 1,547 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI-1: JCMUA Conveyance System





Routing Diagram for 2023-06-08_HydroCAD
Prepared by Stonefield Engineering & Design, Printed 6/8/2023

Summary for Subcatchment E-1: Existing Conditions

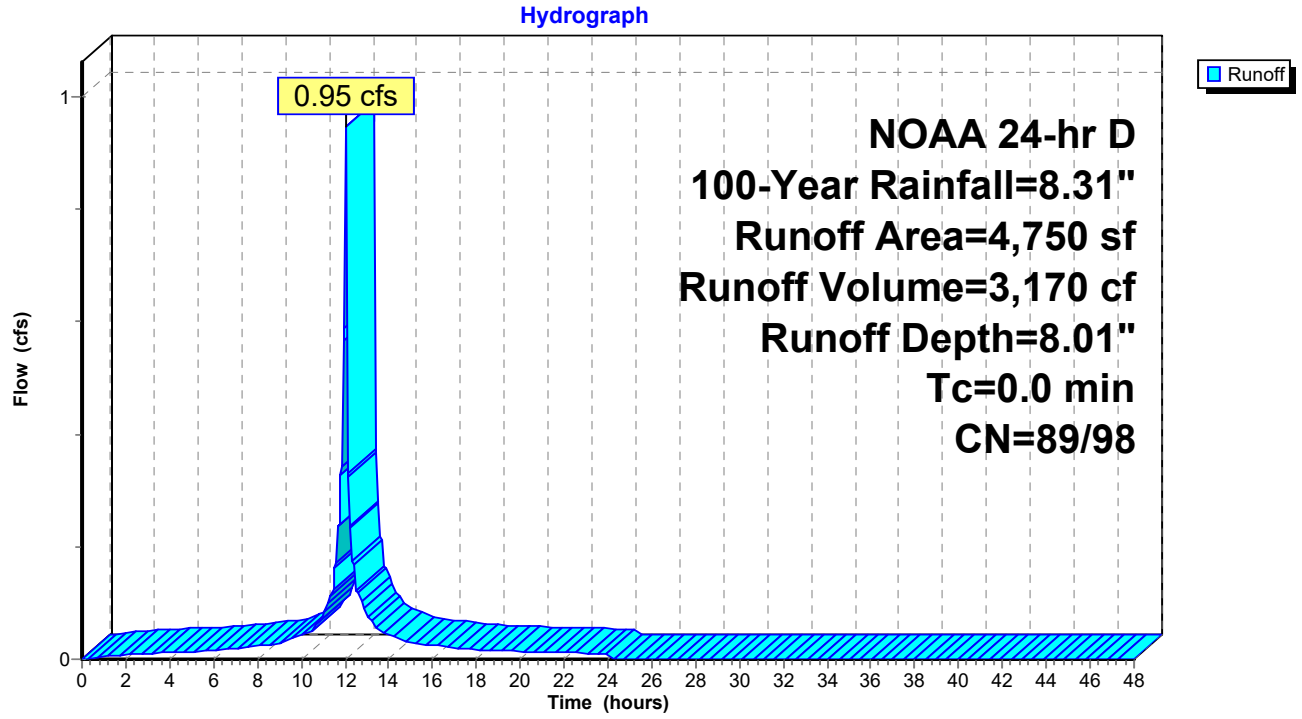
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.95 cfs @ 12.09 hrs, Volume= 3,170 cf, Depth= 8.01"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=8.31"

	Area (sf)	CN	Description
	266	89	<50% Grass cover, Poor, HSG D
*	4,484	98	Impervious Areas
	4,750	97	Weighted Average
	266	89	5.60% Pervious Area
	4,484	98	94.40% Impervious Area

Subcatchment E-1: Existing Conditions



Summary for Subcatchment GR-3: Green Roof - 100 year

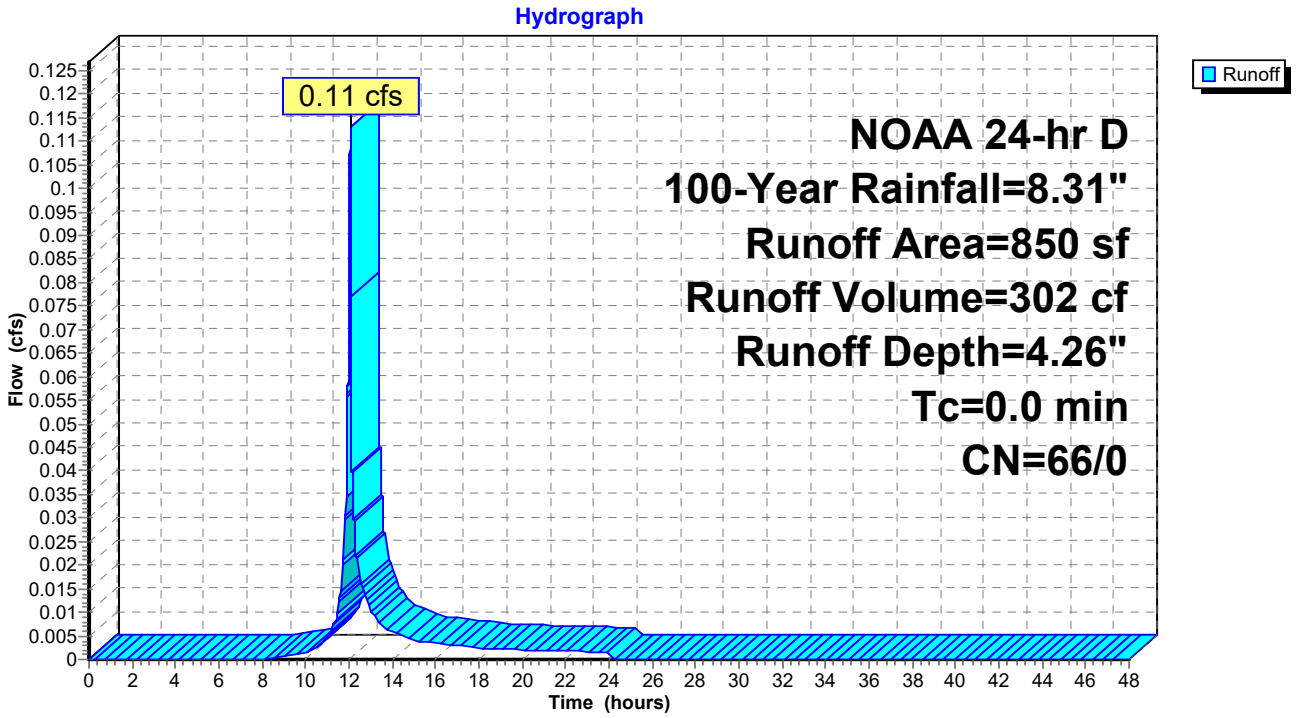
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.11 cfs @ 12.09 hrs, Volume= 302 cf, Depth= 4.26"
Routed to Link POI-1 : JCMUA Conveyance System

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=8.31"

	Area (sf)	CN	Description
*	850	66	
	850	66	100.00% Pervious Area

Subcatchment GR-3: Green Roof - 100 year



Summary for Subcatchment P-1: Proposed Conditions

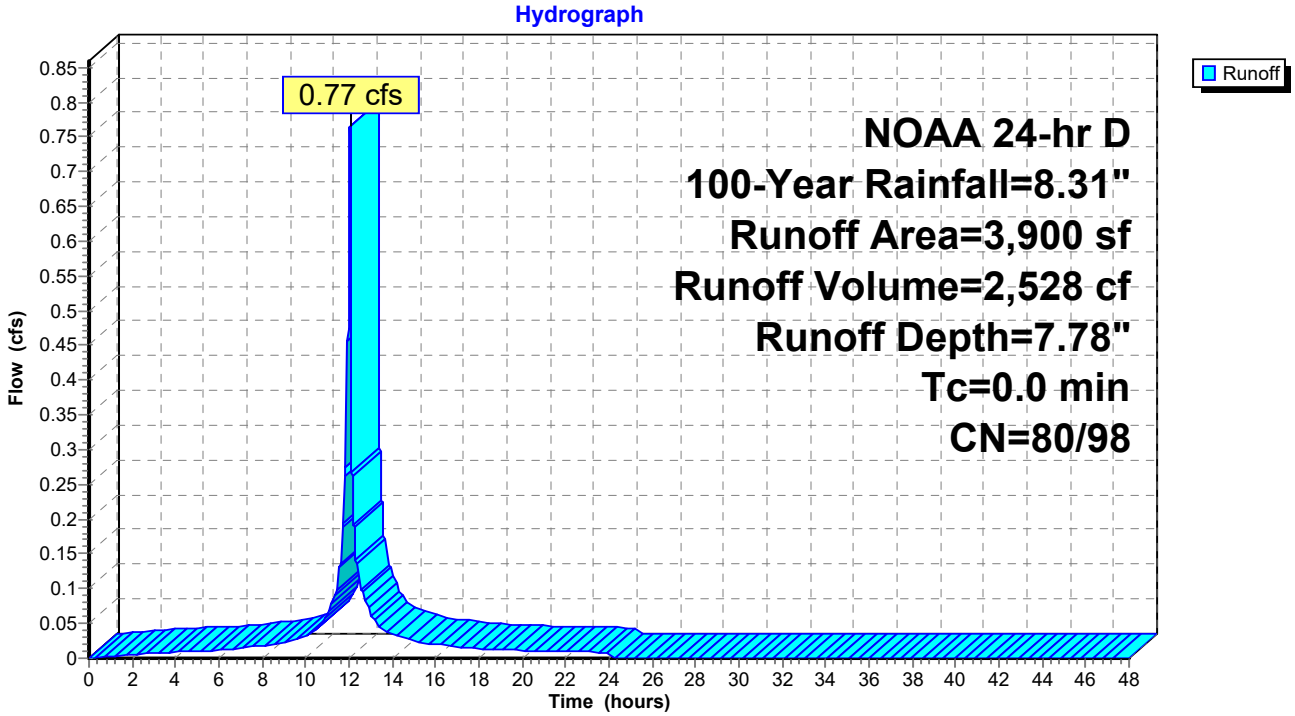
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.77 cfs @ 12.09 hrs, Volume= 2,528 cf, Depth= 7.78"
Routed to Link POI-1 : JCMUA Conveyance System

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NOAA 24-hr D 100-Year Rainfall=8.31"

	Area (sf)	CN	Description
*	2,417	98	Impervious Surface
*	955	98	Permeable Pavement
	528	80	>75% Grass cover, Good, HSG D
	3,900	96	Weighted Average
	528	80	13.54% Pervious Area
	3,372	98	86.46% Impervious Area

Subcatchment P-1: Proposed Conditions

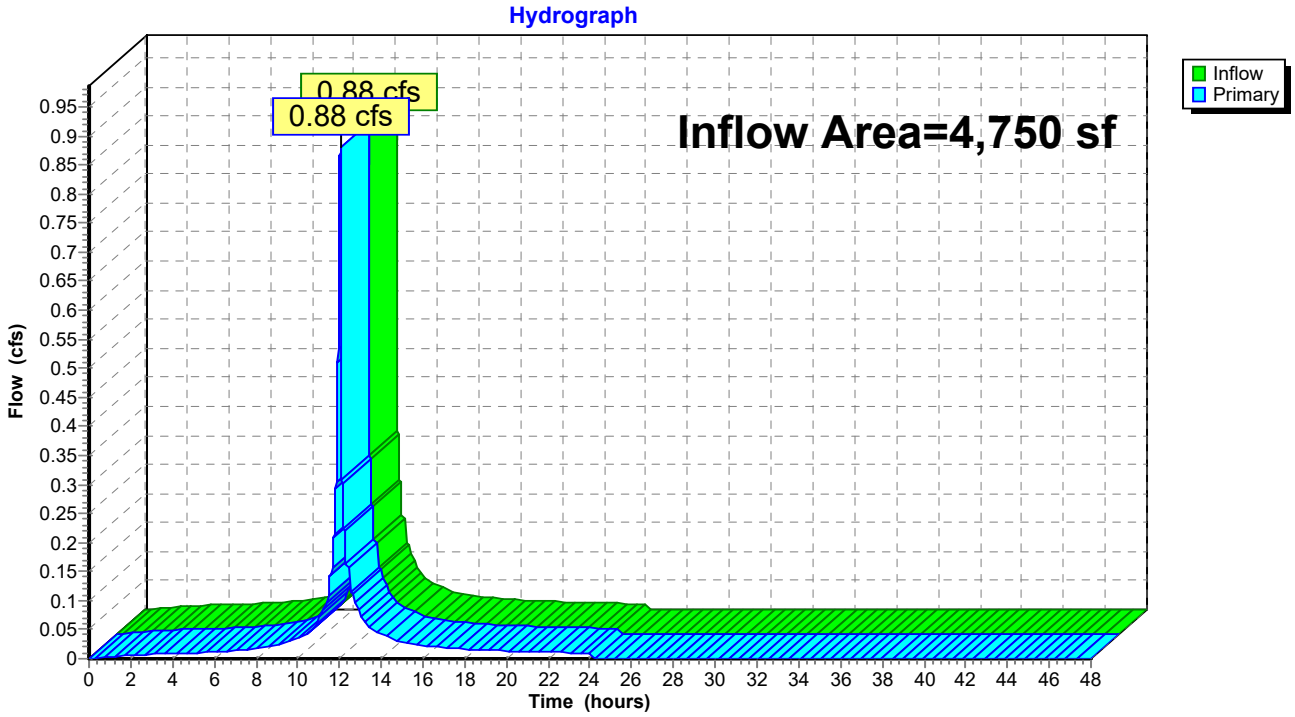


Summary for Link POI-1: JCMUA Conveyance System

Inflow Area = 4,750 sf, 70.99% Impervious, Inflow Depth = 7.15" for 100-Year event
Inflow = 0.88 cfs @ 12.09 hrs, Volume= 2,830 cf
Primary = 0.88 cfs @ 12.09 hrs, Volume= 2,830 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link POI-1: JCMUA Conveyance System

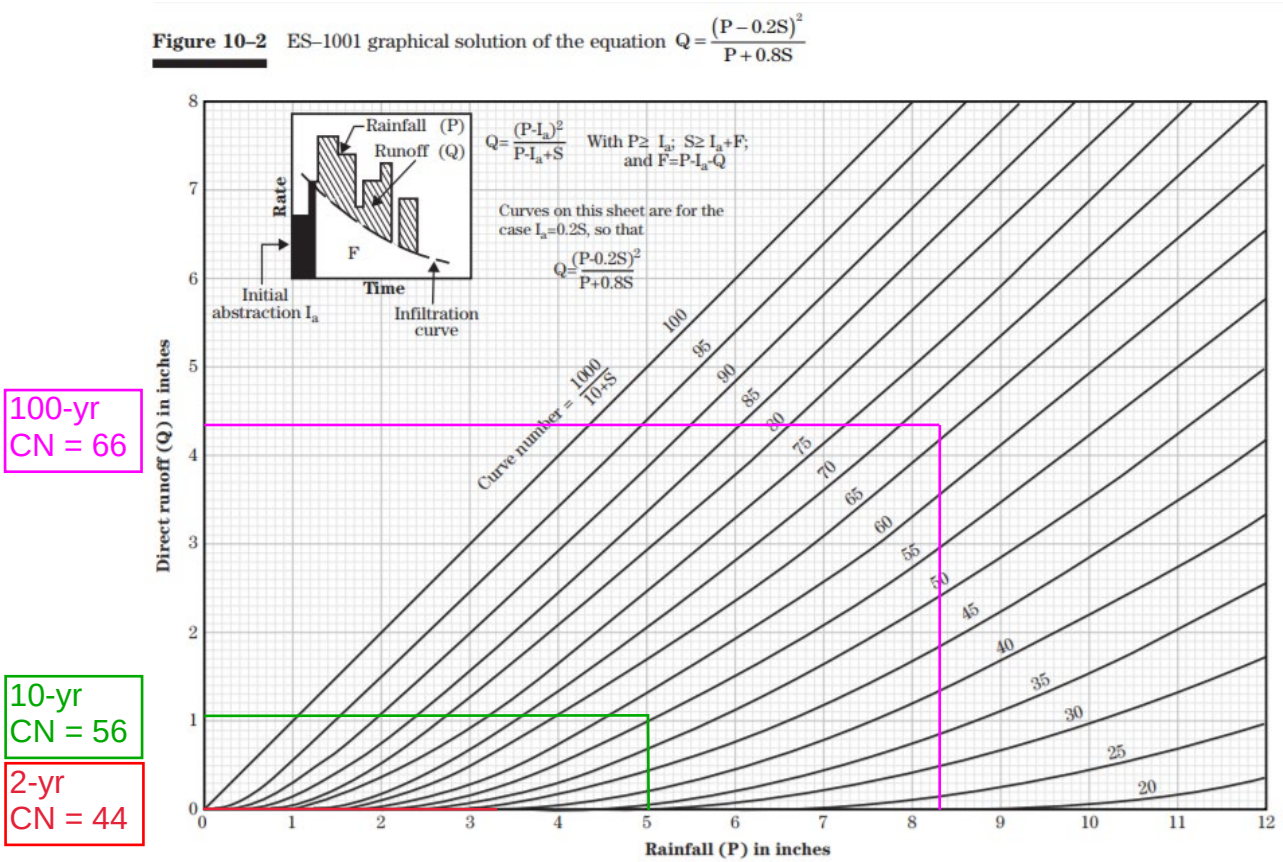


Green Roof - Adjusted CN Value Calculations			
Project Number:	NYC-220374	**Created By:**	MPZ
		Checked By:	MPZ
Project Address:	319-321 4th Street	**Date:**	6/2/2023

Growing Medium and Composition (% by Volume)	70% 4-10 mm Pumice / 10% Zeolite <3mm / 15% Pine Bark Fines + Mushroom Compost / 5% Sphagnum Peat
Maximum Capacity for Runoff Retention (cf/cf)	0.289
Drainage Layer Field Capacity (cf/cf)	0.358

Storm Events	Rainfall Depth (in) - From NOAA Chart
2-YR	3.31
10-YR	5.02
100-YR	8.31

POI-1	**Green Roof Area (sf)**	850				
	Media Depth (in)	6				
	Drainage Layer Depth (in)	2				
	Storage Volume (cf)	264				
Storm Event	**Traditional Roof Runoff Volume (cf) - CN=98**	**Storage Volume (cf)**	**Discharge Runoff Area (cf)**	**Direct Runoff Depth (in)**	**Adjusted CN Value**	
2-YR	218	264	0	0.00	44	
10-YR	339	264	75	1.05	56	
100-YR	572	264	308	4.34	66	

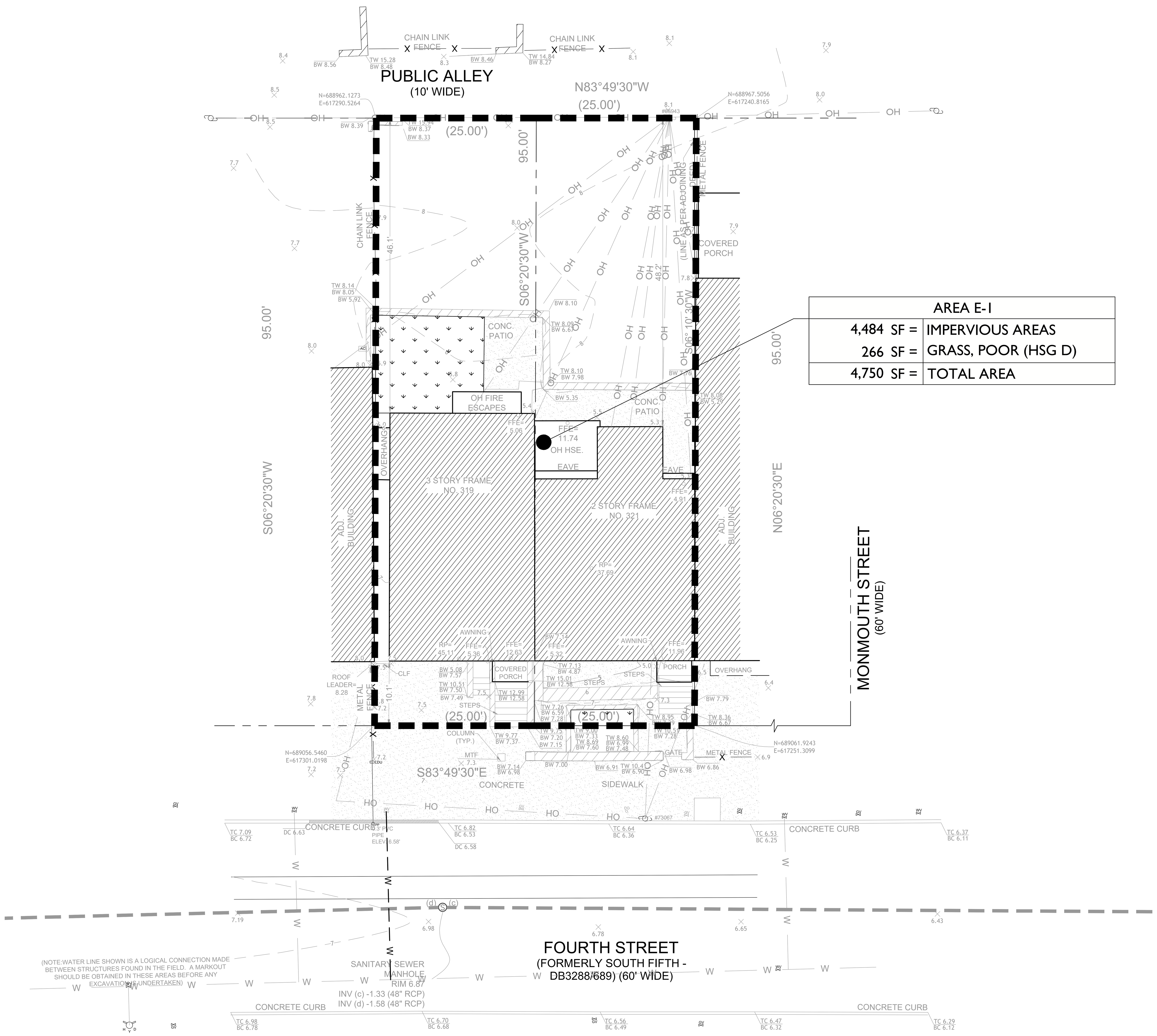


Step 5: Caculate Peak Flow Rates by Adjusted Curve Number

Calculate the time of concentration and use it along with the adjusted curve numbers determined in Step 4 to calculate the peak flow rates of each of the storm events using NRCS methodology.

Note that the time of concentration of a green roof must be calculated based on the vegetation condition, roof slope and drainage path. A green roof with dense vegetation and a milder slope may provide a longer time of concentration, which will slow down the discharge of the roof runoff and lower the peak rate of the runoff. The time of concentration must be calculated in accordance with the velocity method described in the *NEH, Chapter 15 - Time of Concentration.*

APPENDIX C
DRAINAGE AREA MAPS



AREA E-1	
4,484 SF =	IMPERVIOUS AREAS
266 SF =	GRASS, POOR (HSG D)
4,750 SF =	TOTAL AREA

SYMBOL	DESCRIPTION
— - - —	PROPERTY LINE
▬ ▬ ▬	EXISTING DRAINAGE AREA
(pattern)	EXISTING PERVIOUS AREA

GRAPHIC SCALE IN FEET
1" = 10'

ISSUE	DATE	BY	DESCRIPTION
02	06/08/2023	MPZ	FOR MUNICIPAL SUBMISSION
01	02/24/2023	AS	FOR 100% SET

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Rutherford, NJ · New York, NY · Boston, MA
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com
Headquarters: 92 Park Avenue, Rutherford, NJ 07070
Phone 201.340.4468 · Fax 201.340.4472

DRAINAGE AREA MAPS

319 4TH LLC
321 4TH LLC
PROPOSED MULTI-FAMILY RESIDENTIAL BUILDING

BLOCK 11101, LOTS 10 & 11
319-321 4TH STREET
CITY OF JERSEY CITY
HUDSON COUNTY, NEW JERSEY

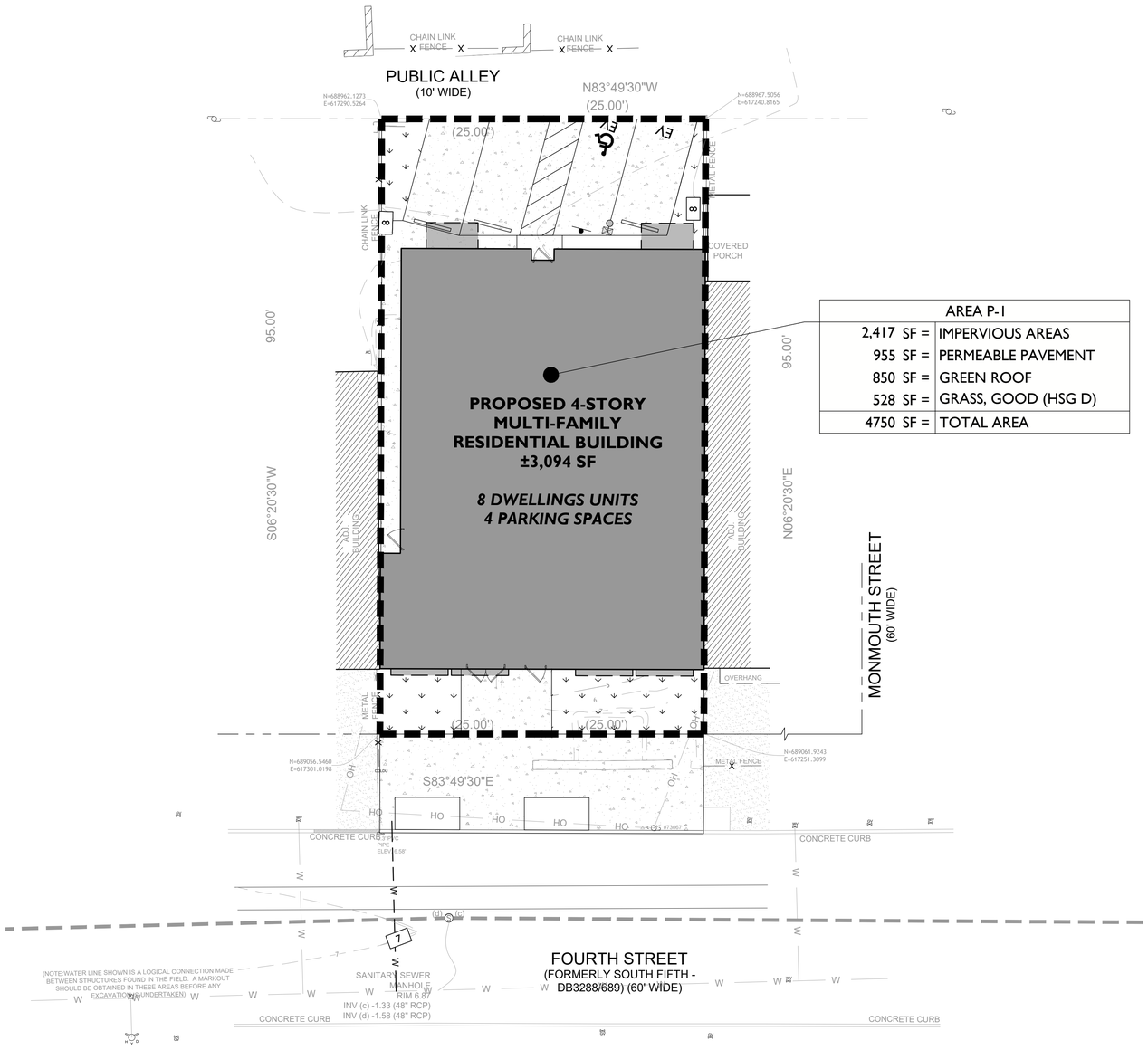
JONATHAN R. ISTRANYI, P.E.
NEW JERSEY LICENSE No. 51968
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 10' | PROJECT ID: NYC-220374

TITLE:
EXISTING DRAINAGE AREA MAP

DRAWING:
1 OF 2



SYMBOL	DESCRIPTION
— - - —	PROPERTY LINE
▬ ▬ ▬	PROPOSED DRAINAGE AREA
▭	PROPOSED PERVIOUS AREA

AREA P-1	
2,417 SF =	IMPERVIOUS AREAS
955 SF =	PERMEABLE PAVEMENT
850 SF =	GREEN ROOF
528 SF =	GRASS, GOOD (HSG D)
4750 SF =	TOTAL AREA

Z:\LIC\NYC\2022\NYC-220374 319 4TH LLC - 319-321 4TH STREET, JERSEY CITY NJ\CADD\EXHIBITS\DRAINAGE AREA MAPS\2023-06-08_DRAINAGE AREA MAPS.DWG

ISSUE	DATE	BY	DESCRIPTION
02	06/08/2023	MPZ	FOR MUNICIPAL SUBMISSION
01	02/24/2023	AS	FOR 100% SET

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DRAINAGE AREA MAPS

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NEW JERSEY LICENSE No. 51968
LICENSED PROFESSIONAL ENGINEER

STONEFIELD
engineering & design

SCALE: 1" = 10' | PROJECT ID: NYC-220374

TITLE:

PROPOSED DRAINAGE AREA MAP

DRAWING:

2 OF 2

APPENDIX D
WATER & SEWER DEMAND

WATER & SEWER DEMAND SPREADSHEET

(SPREADSHEET UPDATED: AUGUST 13, 2018)

PROJECT:	319-321 4th Street		**LAST REVISED:**	2/24/2023	
PERFORMED BY:	AS	**CHECKED BY:**	MGM	**JOB REFERENCE:**	NYC-220374

NJDEP DOMESTIC WATER PROJECTED DEMAND

USE TYPE	*UNIT TYPE*	*GPD PER UNIT*	*UNITS*	*GPD*
Low & Mid-Rise: 2 Bedroom	Dwelling	140	5	700
Low & Mid-Rise: 3 Bedroom	Dwelling	215	3	645

All flow values are based on N.J.A.C. Title 5, Chapter 21, Subchapter 5.2 "Capacity"

TOTAL:	**1,345 GPD**

NJDEP SANITARY SEWER PROJECTED DEMAND

USE TYPE	*UNIT TYPE*	*GPD PER UNIT*	*UNITS*	*GPD*
Residential Dwelling: 2 Bedroom Unit	Dwelling	225	5	1,125
Residential Dwelling: 3 Bedroom Unit	Dwelling	300	3	900

All flow values are based on N.J.A.C. Title 7, Chapter 14A, Subchapter 23.3 "Projected Flow Criteria"

TOTAL:	**2,025 GPD**