PLANNING BOARD REGULAR AND REORGANIZATION JANUARY 5 2021 AGENDA
CONDUCTED WITH ZOOM
JANUARY 05, 2021 7:00 PM – TUESDAY

Join Zoom Meeting
https://zoom.us/j/2610095007?pwd=d01aMVlrY0hINVFGd25RcGpyZS83QT09
OR
Tel – 1-646 876 9923 US (New York)
ID # 261 009 5007
Password 281 797

Please take notice that the Manasquan Planning Board will convene a remote meeting on January 05, 2021 7:00 PM. (The Board had previously advertised the said meeting, but the within notice is being re-advertised so as to publicize the remote nature of the same.) Due to the Coronavirus/COVID-19 Borough and State Directives, the said meeting is being held remotely, through a web-meeting conference communication system. The remote meeting format will allow Board Members and the Public to simultaneously hear, listen to, participate in, digest, observe, comment on, and/or otherwise object to any and all Board decisions/actions. The remote meeting format, as aforesaid, will allow the Borough's Planning Board to conduct business, without violating any Executive Orders, without violating any COVID-19 Health and Safety Protocol, and while still complying with the spirit and intent of Prevailing Provisions of New Jersey Law. (Please note that the public access to the Municipal Building is not currently permitted).

Members of the public are welcome to, and encouraged to, participate by observing/participating in the remote meeting. The meeting will be held via Zoom. You can access the meeting through the Zoom App via a smartphone or tablet, via a special link on your computer, or by telephone. Note the information printed above.

PUBLIC MEETING

Salute to the Flag
Roll Call
Sunshine Law Announcement

OLD/NEW BUSINESS

1. OATHS OF OFFICE
2. VOUCHERS PROFESSIONAL

RESOLUTION

3. RESOLUTION MEETING DATES 2021
4. RESOLUTION DESIGNATION OF OFFICIAL NEWSPAPERS, THE STARS NEWSGROUP - THE COAST STAR - 13 BROAD STREET, MANASQUAN, NJ

   SECONDARY NEWSPAPER - ASBURY PARK PRESS
5. RESOLUTION APPOINTING CHAIRMAN NEIL B HAMILTON
6. RESOLUTION - APPOINTMENT OF VICE-CHAIRMAN - ROBERT YOUNG
7. RESOLUTION - APPOINTMENT OF ACTING CHAIRMAN - HONORABLE MARK APOSTOLOU
8. RESOLUTION - APPOINTMENT OF RECORDING AND CORRESPONDING SECRETARY - MARY C. SALERNO
9. RESOLUTION - AWARD OF CONTRACT FOR BOARD ENGINEER - ALBERT D. YODAKIS, PE, PP, CME - BORO ENGINEERING
10. RESOLUTION - AWARD OF CONTRACT FOR PLANNING PROFESSIONAL PLANNING SERVICES - ALBERT D. YODAKIS, PE, PP, CME - BORO ENGINEERING
11. RESOLUTION - AWARD OF CONTRACT FOR LEGAL SERVICES - GEORGE D. MCGILL, ESQUIRE OF MCGILL & HALL, LLC
12. RESOLUTION - ADOPTING RULES AND REGULATIONS FOR THE YEAR 2021
13. OATHS OF OFFICE
14. RESOLUTION #24-2020 - STOMA, MERIDITH & PETER - 26 PEARCE COURT

APPLICATION

15. UNION AVENUE - SEPE - AFFORDABLE HOUSING APPLICATION

OTHER BUSINESS

Comments from individual board members

ADJOURNMENT

UNION AVENUE
APARTMENTS

RESIDENTIAL DEVELOPMENT

33 UNION AVENUE
MANASQUAN, NJ

OWNER

UNION AVENUE 33, LLC

ARCHITECT

APPEL DESIGN GROUP, PA
220 SOUTH ORANGE AVE.
LIVINGSTON, NJ 07039
Phone: 973-994-1776
Fax: 973-577-4455

CIVIL ENGINEER

ENGENUITY INFRASTRUCTURE TM
12 BROAD ST. SUITE 203
RED BANK, NJ 07701
Phone: 732-741-3176

DRAWING LIST

					ISSUE PLANING BOARD	SHEET NUMBER	DESCRIPTION
					10-07-20	T-01	COVER TITTLE SHEET
					10-07-20	PB-1.1	GROUND FLOOR PLAN
					10-07-20	PB-1.2	SECOND FLOOR PLAN
					10-07-20	PB-1.3	THIRD FLOOR PLAN
					10-07-20	PB-1.4	ROOF PLAN
					10-07-20	PB-2.1	EXTERIOR ELEVATIONS
					10-07-20	PB-2.2	EXTERIOR ELEVATIONS

Residential Development **BUILDING MATRIX** DATED: 10/07/20
Township of Manasquan, NJ

Bldg.	Story	Qty. Units	Market Rate Units								Affordable Units							
				1 Bed+Den		2 Bed		3 Bedroom				1 Bedroom		2 Bedroom		3 Bedroom		
			Total	Qty.	Ratio	Qty.	Ratio	Qty.	Ratio		Total	Qty.	Ratio	Qty.	Ratio	Qty.	Ratio	
				900-1000 SF		1200-1400 SF		1200 SF			Area	700 SF		1000 SF		1200 SF		
	3	11	7	1		6		0			4	1		2		1		
	2	11	7	1		6		0			4	1		2		1		
	1	1	0	0		0		0			1			1				
Totals		23	14	2	14%	12	52%	0	0%		9	2	22%	5	56%	2	22%	

Note: Areas shown are approximate only and to be used for conceptual planning and design only

APPEL DESIGN GROUP
ARCHITECTS
220 SOUTH ORANGE AVE.- SUITE 100
LIVINGSTON, NJ 07039
TEL: (973) 994-1776
FAX: (973) 577-4455

RESIDENTIAL DEVELOPMENT
UNION AVENUE 33, LLC

33 UNION AVENUE
MANASQUAN, NJ

NO.	REVISION	BY	DATE
	ISSUE FOR PB	MPM	10-07-20

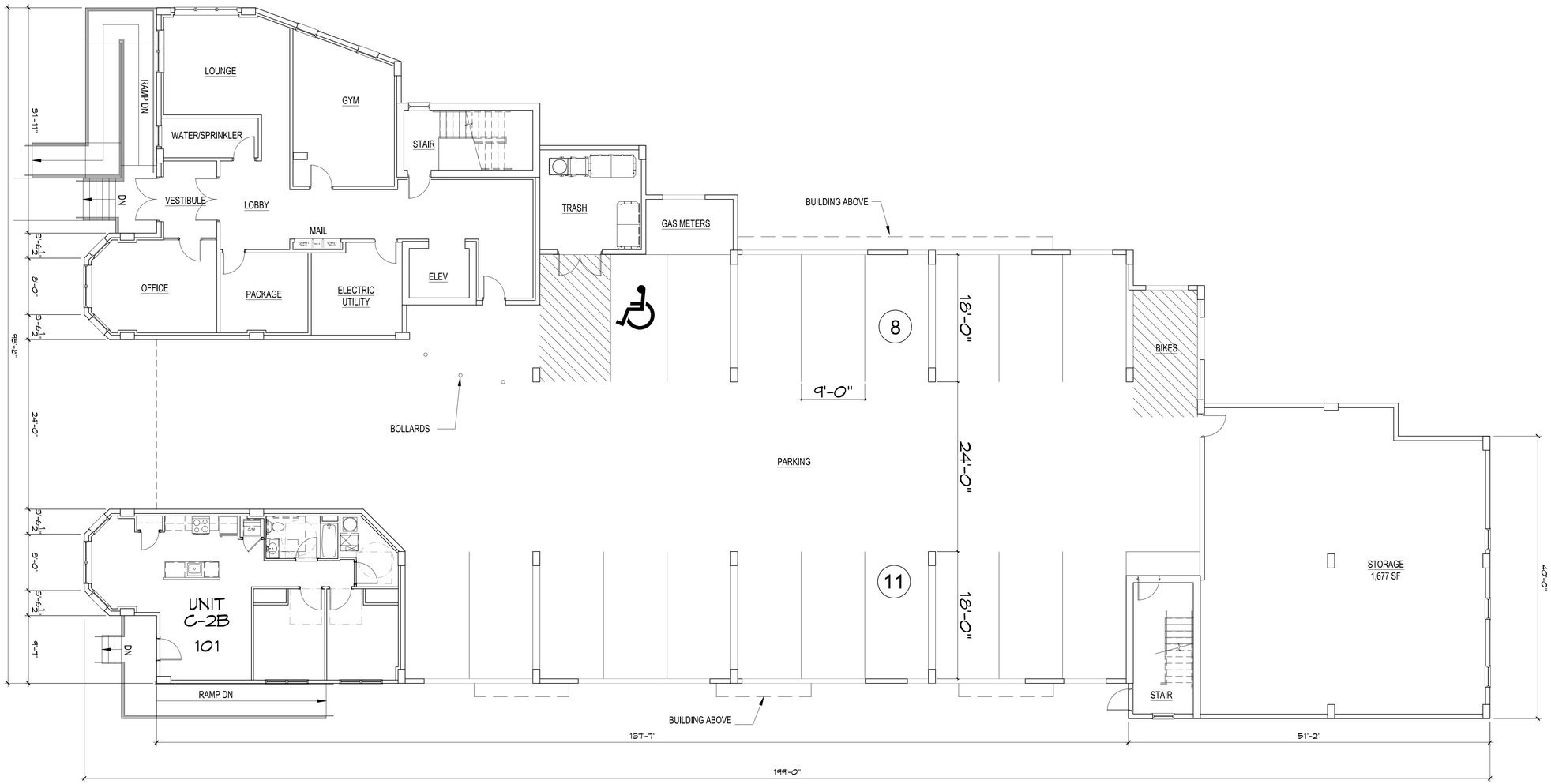
LAURANCE D. APPEL, RA, NJ • AI-12149
NY - 025018
PA - RA-014580-B

COVER SHEET

DRAWN BY: MPM
CHECKED BY: -
CLIENT: SEPE01
DATE: 06-18-20

DRAWING:
T-01

COMM. #: N/A



1 GROUND FLOOR

Scale: 1/8" = 1'-0"

AREA = +/-12,973 SF.

APPEL DESIGN GROUP
ARCHITECTS
220 SOUTH ORANGE AVE. - SUITE 100
LIVINGSTON, NJ 07039
TEL: (973) 994-1776
FAX: (973) 577-4455

RESIDENTIAL DEVELOPMENT
UNION AVENUE 33, LLC

33 UNION AVENUE
MANASQUAN, NJ

NO.	REVISION	BY	DATE
	ISSUE FOR PB	MPM	10-7-20

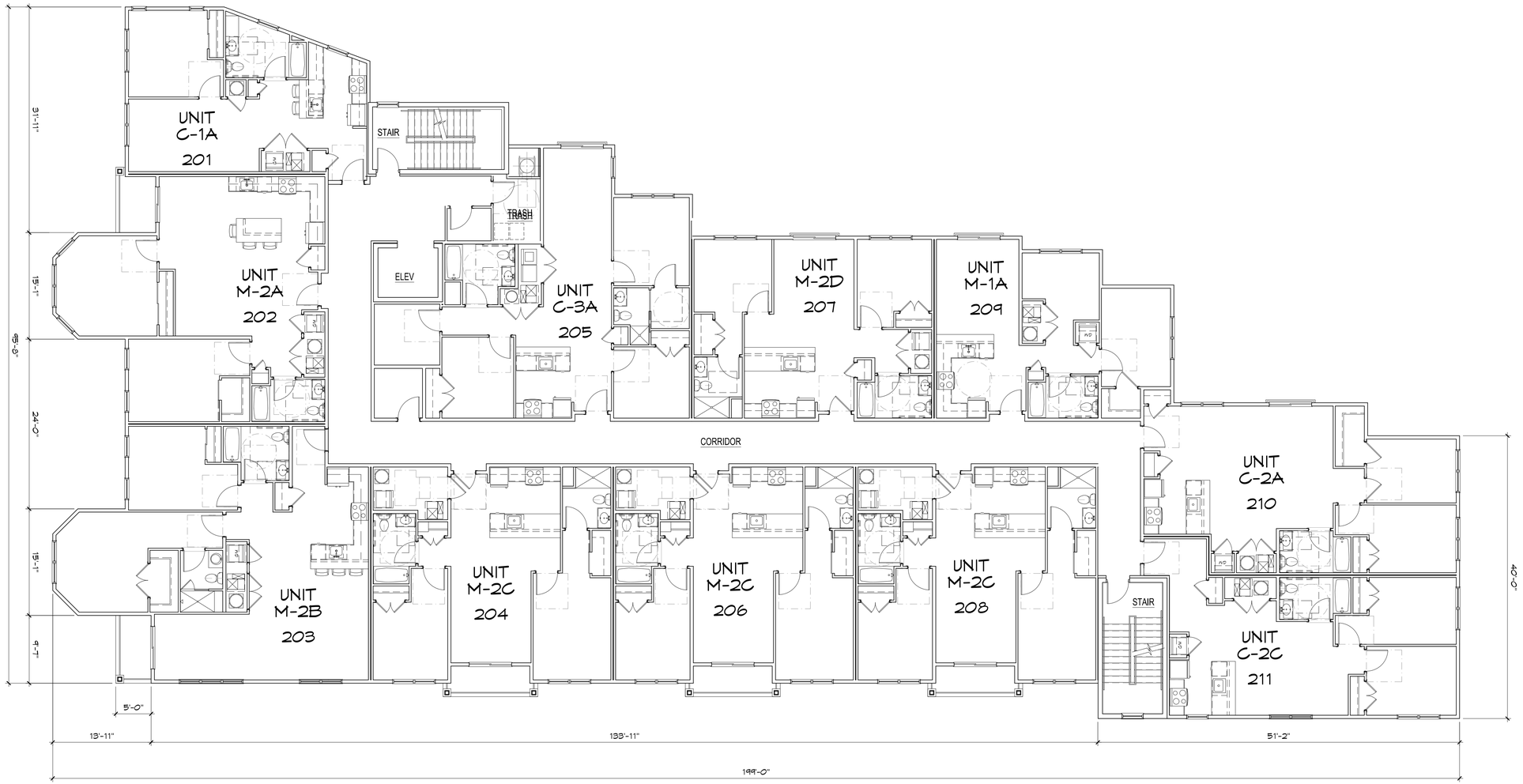
LAURANCE D. APPEL, R.A. NJ # AI-12149
NY - 025018
PA - RA-014580-B

GROUND FLOOR PLAN

DRAWN BY: MPM
CHECKED BY: -
CLIENT: SEPE02
DATE: 8/27/20

DRAWING:
PB-1.1

COMM. #: N/A



1 SECOND FLOOR

Scale: 1/8" = 1'-0"

AREA = +/-12,925 SF.

APPEL DESIGN GROUP
ARCHITECTS
220 SOUTH ORANGE AVE. - SUITE 100
LIVINGSTON, NJ 07039
TEL: (973) 994-1776
FAX: (973) 577-4455

RESIDENTIAL DEVELOPMENT
UNION AVENUE 33, LLC

33 UNION AVENUE
MANASQUAN, NJ

NO.	REVISION	BY	DATE
	ISSUE FOR PB	MPM	10-7-20

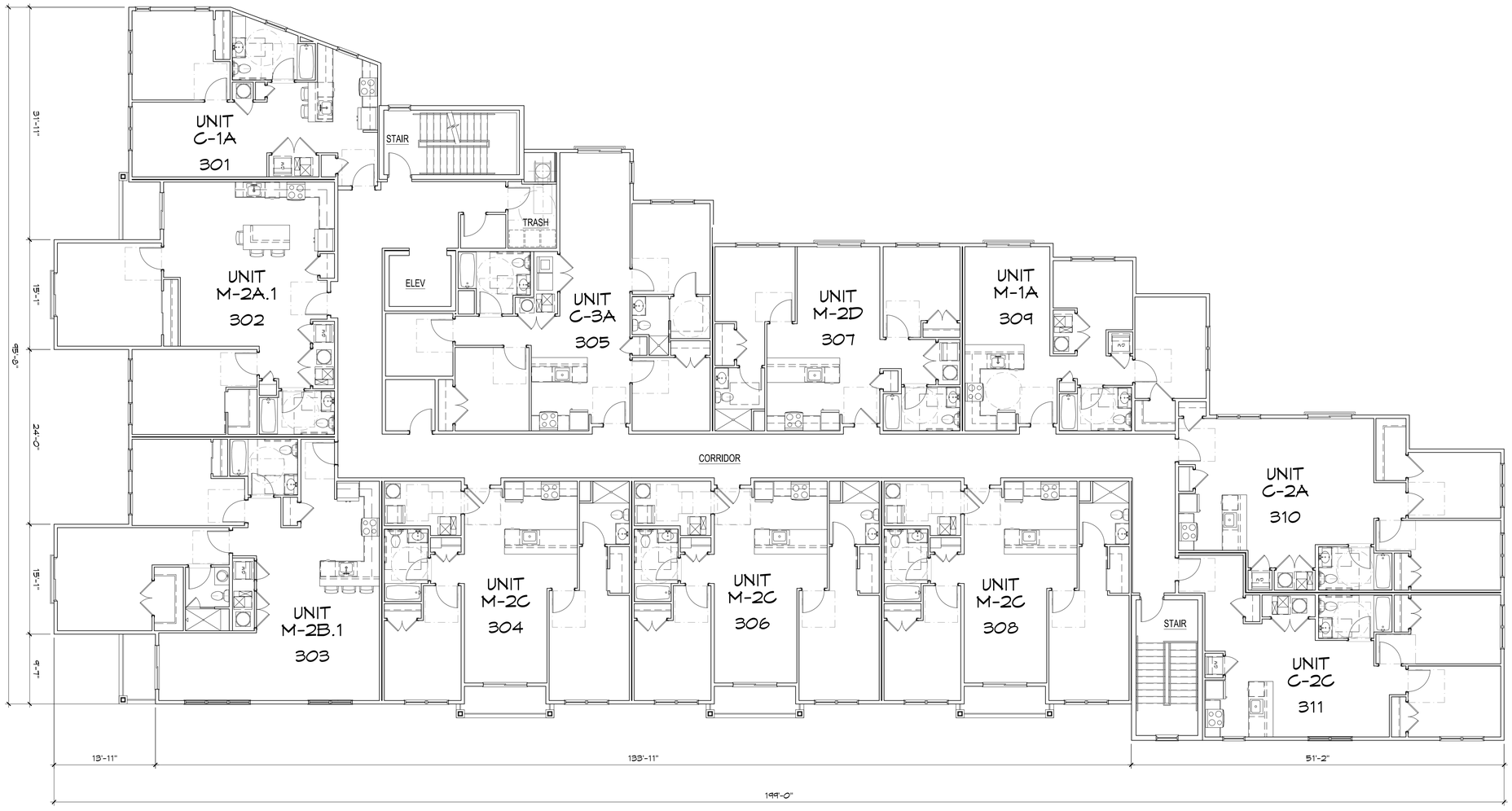
LAURANCE D. APPEL, R.A. NJ * AI-12149
NY - 025018
PA - RA-014580-B

SECOND
FLOOR PLAN

DRAWN BY: MPM
CHECKED BY: -
CLIENT: SEPE02
DATE: 8/27/20

DRAWING:
PB-1.2

COMM. #: N/A



1 THIRD FLOOR

Scale: 1/8" = 1'-0"

AREA = +/-12,925 SF.

APPEL DESIGN GROUP
ARCHITECTS
220 SOUTH ORANGE AVE.- SUITE 100
LIVINGSTON, NJ 07039
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RESIDENTIAL DEVELOPMENT
UNION AVENUE 33, LLC

33 UNION AVENUE
MANASQUAN, NJ

NO.	REVISION	BY	DATE
	ISSUE FOR PB	MPM	10-7-20

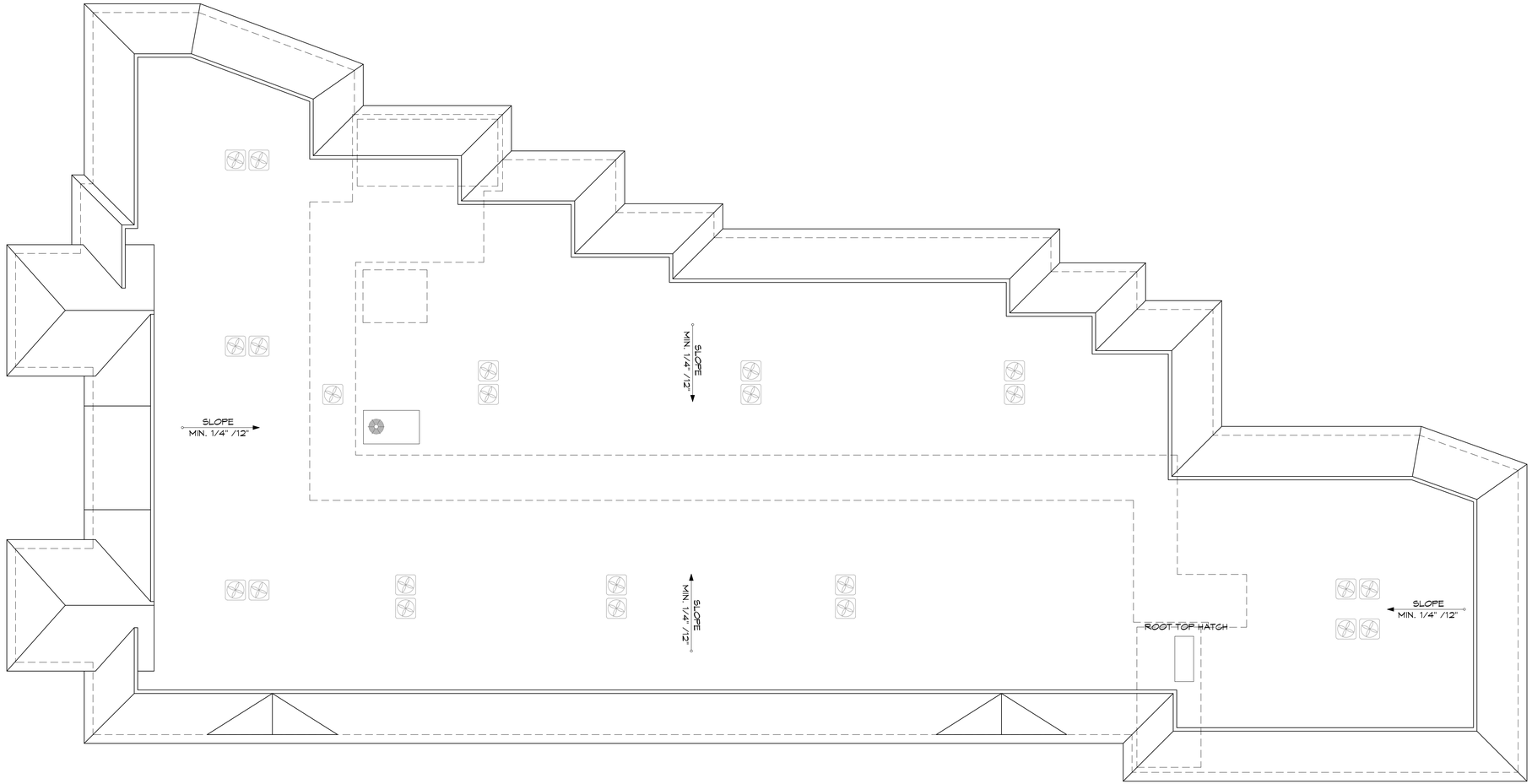
LAURANCE D. APPEL, RA, NJ * AI-12149
NY - 025018
PA - RA-014580-B

THIRD FLOOR PLAN

DRAWN BY: MPM
CHECKED BY: -
CLIENT: SEPE02
DATE: 8/27/20

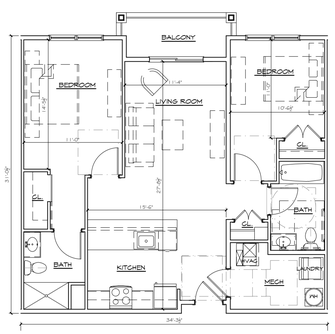
DRAWING:
PB-1.3

COMM. #: N/A



1 ROOF PLAN

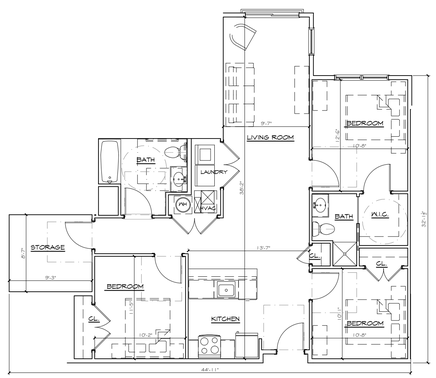
Scale: 1/8" = 1'-0"



(APPROX. 1,032 SQ. FT.)

TWO BEDROOM

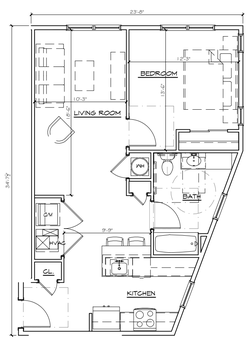
SCALE: 1/8" = 1'-0"



(APPROX. 1,196 SQ. FT.)

THREE BEDROOM

SCALE: 1/8" = 1'-0"



(APPROX. 750 SQ. FT.)

ONE BEDROOM

SCALE: 1/8" = 1'-0"

APPEL DESIGN GROUP
ARCHITECTS
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RESIDENTIAL DEVELOPMENT
UNION AVENUE 33, LLC

33 UNION AVENUE
MANASQUAN, NJ

NO.	REVISION	BY	DATE
	ISSUE FOR PB	MPM	10-7-20

LAURANCE D. APPEL, R.A. NJ # AI-12149
NY - 025018
PA - RA-014980-B

ROOF PLAN

DRAWN BY:	MPM
CHECKED BY:	-
CLIENT:	SEPE02
DATE:	8/27/20

DRAWING:

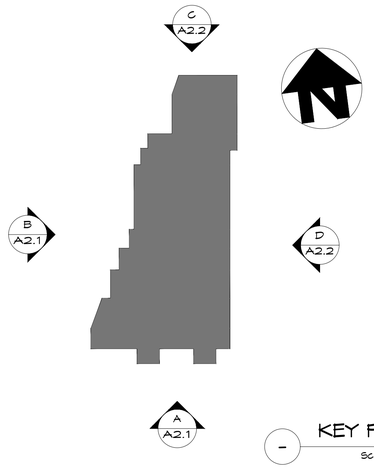
PB-1.4

COMM. #: N/A

ELEVATION KEY NOTES
NOT ALL NOTES MAY APPLY TO THIS SHEET

TAG	DESCRIPTION
1	BRICK VENEER
2	SIDING AS SELECTED
3	ARCHITECTURAL PANEL SYSTEM
4	FRIEZE BOARD TO MATCH SIDING
5	VINYL WINDOWS AS SELECTED WITH STANDARD ARCHITECTURAL GRILLES
6	ALUMINUM LEADERS AND GUTTERS
7	STANDING SEAM METAL ACCENT ROOF
8	ARCHITECTURAL DIMENSIONAL ASPHALT ROOF SHINGLES
9	PREFINISHED VENTED VINYL SOFFIT
10	BRICK ACCENT PANEL
11	DECORATIVE PREFINISHED ARCHITECTURAL BRACKETS
12	DECORATIVE CELLULAR PVC TRIM (AZEK OR EQUAL)
13	PREFINISHED ALUMINUM POST AND GUARD RAIL AT BALCONY - STYLE AS SELECTED
14	EXTERIOR METAL DOORS
15	ARCHITECTURAL EXTERIOR FIXTURE AS SELECTED
16	DECORATIVE ARCHITECTURAL GRILLES
17	FIBERGLASS SIDE DOOR - STYLE AS SELECTED

NOTES:
1) PRODUCTS MAY VARY TO SUIT ARCHITECTURAL INTENT UTILIZING OTHER PRODUCTS OF SIMILAR APPEARANCE AND QUALITY.
2) PRODUCT MANUFACTURERS MAY VARY.
3) SEE MODULE COLOR LEGEND FOR COLOR SELECTIONS.



KEY PLAN
Scale: N.T.S.

A FRONT ELEVATION (SOUTH)
Scale: 1/8" = 1'-0"

B LEFT SIDE ELEVATION (WEST)
Scale: 1/8" = 1'-0"

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RESIDENTIAL DEVELOPMENT
UNION AVENUE 33, LLC

33 UNION AVENUE
MANASQUAN, NJ

NO.	REVISION	BY	DATE
	ISSUE FOR PB	MPM	10-07-20

LAURANCE D. APPEL, RA, NJ # AI-12149
NY - 026918
PA - RA-014580-B

EXTERIOR ELEVATION

DRAWN BY: MPM/MR
CHECKED BY:
CLIENT: SEPE02
DATE: 08-27-20

DRAWING:
PB-2.1

COMM. #: N/A

C REAR ELEVATION (NORTH)

Scale: 1/8" = 1'-0"

D RIGHT SIDE ELEVATION (EAST)

Scale: 1/8" = 1'-0"

APPEL DESIGN GROUP
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FAX: (973) 577-4455

RESIDENTIAL DEVELOPMENT
UNION AVENUE 33, LLC

33 UNION AVENUE
MANASQUAN, NJ

NO.	REVISION	BY	DATE
	ISSUE FOR PB	MPM	10-07-20

LAURANCE D. APPEL, RA, NJ # AI-12149
NY - 026918
PA - RA-014580-B

EXTERIOR ELEVATION

DRAWN BY: MPM/MR
CHECKED BY:
CLIENT: SEPE02
DATE: 08-27-20

DRAWING:
PB-2.2

COMM. #: N/A

GIORDANO, HALLERAN & CIESLA, P.C.
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
WWW.GHCLAW.COM

JOHN A. SARTO, ESQ.
SHAREHOLDER
JSARTO@GHCLAW.COM
DIRECT DIAL: (732) 219-5496

Please Reply To:
125 HALF MILE ROAD
SUITE 300
RED BANK, NJ 07701
(732) 741-3900
FAX: (732) 224-6599

December 23, 2020

Client/Matter No. 19431-0001

VIA LAWYERS SERVICE AND EMAIL: msalerno@manasquan-nj.gov
Mary Salerno, Secretary
Borough of Manasquan Planning Board
201 East Main Street
Manasquan, New Jersey 08736

Re: Manasquan Planning Board Application MSPB #R-1170
Preliminary and Final Major Site Plan Approval w/ Bulk Variance ("Application")
33, 33 1/2 - 39 Union Avenue, Manasquan, New Jersey
Block 66.02, Lot 31.01 ("Property")

Dear Ms. Salerno:

This firm represents Union Avenue 33, LLC ("Applicant"), in connection with the above referenced Application. Please accept this letter in further support of the Application, and find enclosed the following:

1. Ten (10) copies of an 11" X 17" exhibit showing the existing conditions entitled "Exhibit Plan 1" consisting of one sheet, prepared by Jaclyn J. Flor, PE, PP of Engenuity Infrastructure, dated December 17, 2020;

2. Ten (10) copies of an 11" X 17" exhibit showing the proposed conditions entitled "Exhibit Plan 2" consisting of one sheet, prepared by Jaclyn J. Flor, PE, PP of Engenuity Infrastructure, dated December 17, 2020;

3. Ten (10) copies of an updated trip generation summary entitled "33 Union Avenue (NJ Route 71, MP 1.0), Manasquan, Monmouth County, NJ, Table 1 – Trip Generation Summary," prepared by Applicant's Traffic Engineer, Lee D. Klein, P.E., PTOE of Klein Traffic Consulting, LLC dated December 14, 2020;

4. Ten (10) copies of a Permit issued by the New Jersey Department of Environmental Protection approved on December 10, 2020;

GIORDANO, HALLERAN & CIESLA
A Professional Corporation
ATTORNEYS-AT-LAW

5. Ten (10) copies of a Letter of No Interest issued by the Monmouth County Planning Board, dated November 23, 2020;

If you require any additional information, please contact me or Denise Wegryniak of my office. Thank you.

Very truly yours,

JOHN A. SARTO, ESQ.

JAS/dw
Enclosures
Via email w/o Encl.
cc: Albert D. Yodakis, PE, PP
Jennifer Beahm, AICP, PP
George McGill, Esq.
Brad Sepe
Jaclyn J. Flor, PE, PP, CME

Docs #4810805-v1

MONMOUTH COUNTY PLANNING BOARD

FREEHOLD · NEW JERSEY

JAMES GIANNELL
Chairman

JOSEPH BARRIS, PP, AICP, CFM
Director of Planning

Monday, November 23, 2020

Mary C. Salerno
Planning Board
201 East Main Street
Manasquan, NJ 08736

RE: SITE PLAN FOR UNION AVENUE 33, LLC
BLOCK 66.02, LOT 31.01
MANASQUAN BOROUGH PLANNING BOARD
OUR FILE # MQSP10105

Dear Mary C. Salerno:

This letter is in reference to the above site plan which was submitted to the Monmouth County Planning Board for approval.

Since this site plan does not front on an existing County Road or affect any County facilities, County Site Plan approval is not required.

Sincerely,

Joseph Barris, PP, AICP, CFM
DIRECTOR

JB: ph

c: ENGenuity Infrastructure
John A. Sarto, Esq.
Joseph Ettore, PE

33 Union Avenue (NJ Route 71, MP 1.0), Manasquan, Monmouth County, NJ
Table 1 - Trip Generation Summary

			WEEKDAY					
			AM PEAK HOUR			PM PEAK HOUR		
CODE	LAND USE	AMOUNT	IN	OUT	TOTAL	IN	OUT	TOTAL
EXISTING SINGLE-FAMILY HOME TRIPS								
220	Multifamily Housing (Low-Rise)	4 units	1	2	3	3	1	4
712	Small Office Building	1,100 SF	3	1	3	4	9	13
TOTAL EXISTING SITE GENERATED TRIPS			3	3	6	7	11	17
PROPOSED SITE-GENERATED TRIPS								
220	**Multifamily Housing (Low-Rise)**	**23 units**	**3**	**11**	**14**	**11**	**6**	**17**
TOTAL PROPOSED CHANGE IN SITE-GENERATED TRIPS			**(0)**	**8**	**8**	**4**	**(5)**	**(1)**
					<100			**<100**
TOTAL PROPOSED SITE GENERATED TRIPS			**3**	**11**	**14**	**11**	**6**	**17**
PERMISSIBLE PEAK HOUR TRIP LIMIT		**80**			**OK**			**OK**

Source: HAPS Program, as of February 8, 2019, established by the NJDOT Access Management Code
NOT a significant increase in trips; LESS THAN an increase of 100 peak hour trips

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF LAND RESOURCE PROTECTION
Mail Code 501-02A, P.O. Box 420, Trenton, New Jersey 08625-0420
Telephone: (609) 777-0454 or Fax: (609) 777-3656
www.nj.gov/dep/landuse

PERMIT

In accordance with the laws and regulations of the State of New Jersey, the Department of Environmental Protection hereby grants this permit to perform the activities described below. This permit is revocable with due cause and is subject to the terms, conditions, and limitations listed below and on the attached pages. For the purpose of this document, "permit" means "approval, certification, registration, authorization, waiver, etc." Violation of any term, condition, or limitation of this permit is a violation of the implementing rules and may subject the permittee to enforcement action.

Approval Date
12/10/2020

Expiration Date
12/09/2025

Permit Number(s):	**Type of Approval(s):**	**Governing Rule(s):**
1327-19-0002.1 LUP200001 1327-19-0002.1 LUP190001	Flood Hazard Area Individual Permit Freshwater Wetlands Transition Area Waiver Flood Hazard Area Verification (Reissuance) Flood Hazard Area Verification (Riparian Zone only)	N.J.A.C. 7:13-1.1(b) N.J.A.C. 7:7A-1.1(a)

Permittee:

Union Avenue 3,3 LLC
126 Main St
Manasquan, NJ 08736

Site Location:

Block(s) & Lot(s): [66.02, 31.01]
Municipality: Manasquan Borough
County: Monmouth

Description of Authorized Activities:

This permit authorizes the construction of a residential development within the flood hazard area of Judas Creek, within Lot 31.01 of Block 66.02, in the Borough of Manasquan, Monmouth County. This permit also authorizes the total impact of 5,713 SF of transition area, under the Freshwater Wetland Transition Area Waiver for the development. This permit also includes a reissuance of the previously issued Flood Hazard Verification, under File#1327-19-0002.1 LUP190001, which verified the tidal flood hazard elevation onsite of 9' NAVD. This permit also verifies the regulated riparian zone along Judas Creek, as shown on the approved plans noted below.

Prepared by:

Chingwah Liang

Chingwah Liang

Received and/or Recorded by County Clerk:

If the permittee undertakes any regulated activity, project, or development authorized under this permit, such action shall constitute the permittee's acceptance of the permit in its entirety as well as the permittee's agreement to abide by the requirements of the permit and all conditions therein.

This permit is not valid unless authorizing signature appears on the last page.

STATEMENT OF AUTHORIZED IMPACTS:

The authorized activities allow for the permittee to undertake impacts to regulated areas as described below. Additional impacts to regulated areas without prior Department approval shall constitute a violation of the rules under which this document is issued and may subject the permittee and/or property owner to enforcement action, pursuant to N.J.A.C. 7:13-21.8; N.J.A.C. 7:7A-19.11

TAW - Special Activity Redevelopment	Permanent Disturbance (Acres)	Temporary Disturbance (Acres)
Freshwater wetlands	0	0
Transition areas	0.08	0.05
State open waters	0	0

Riparian Zone Vegetation	Area of riparian zone (Acres)
Permanent Disturbed	0
Temporary Disturbed	0.08

SPECIAL CONDITIONS:

1. All excavated material shall be disposed of in a lawful manner. For example, it should be placed outside of any flood hazard area, riparian zone, regulated water, freshwater wetland and adjacent transition area, and in such a way as to not interfere with the positive drainage of the receiving area.

2. For the purposes of this permit, the Department has determined that this project is not a Major Development as defined in the Stormwater Management rules at N.J.A.C. 7:8-1.2. Therefore, the Department did not review the proposed project for compliance with these rules.

3. In order to protect warmwater fish within Judas Creek, no grading, excavation, construction or clearing is permitted within 25 feet of any waters or watercourse onsite between **May 1st and July 31st**. In addition, any activity within the 100-year floodplain or flood hazard area of this watercourse or tributaries which would introduce sediment into said creek or which could cause more than a minimum increase in the natural level of turbidity is also prohibited anytime, but especially during this period. The Department reserves the right to require additional soil conservation measures if it becomes evident that additional soil conservation measures are required to protect State regulated resources or to suspend all regulated activities on-site should it be determined that the applicant has not taken proper precautions to ensure continuous compliance with this condition.

4. The decision to grant this permit did not include a structural review of the proposed activities with regard to the International Building Code; nor did it include a comparative review of any local flood ordinances which may apply. As such, the proposed structure/s may not fully comply with the provisions of the International Building Code or meet the requirements of the appropriate local flood ordinances. Consequently, the construction official for the municipality in which this project is located may reserve the right to modify the design of, or deny the erection of those structures which do not meet the appropriate flood ordinances or construction codes which are within local jurisdiction.

5. All foundations, slabs, footings and walls of the proposed structure/s shall be designed to resist uplift, flotation, collapse and displacement due to hydrostatic and hydrodynamic forces resulting from flooding up to an elevation of one foot above the flood hazard area design flood elevation. Furthermore, all structural components shall be designed to resist the same forces.

6. The floor elevation(s) as shown on the approved drawing(s) is the elevation of the lowest finished floor of the proposed building(s). The construction of any habitable area below this elevation, such as a basement, is prohibited.

7. Vegetation within 50 feet of the top of the bank shall only be disturbed in the areas specifically shown on the approved drawing/s. No other vegetation within 50 feet of the top of any stream bank onsite shall be disturbed for any reason.

8. Upon completion of the project, all temporarily disturbed areas within 50 feet of the top of any stream bank onsite shall be restored to original topography and replanted with indigenous, non-invasive vegetation in accordance with N.J.A.C. 11.2(z). In addition, the permittee shall cease mowing and maintaining the area depicted on the approved plans as the "no mow zone." This area shall be allowed to revert to a natural vegetative state.

9. Any additional un-permitted disturbance of freshwater wetlands, State open waters and/or transition areas besides that shown on the approved plans shall be considered a violation of the Freshwater Wetlands Protection Act Rules unless the activity is exempt or a permit is obtained from the Department prior to the start of the proposed disturbance.

10. The permittee will be responsible for the installation of a sediment barrier around all disturbed soils, which is sufficient to prevent the sedimentation of the remaining wetlands and transition area.

STANDARD CONDITIONS:

1. The issuance of a permit shall in no way expose the State of New Jersey or the Department to liability for the sufficiency or correctness of the design of any construction or structure(s). Neither the State nor the Department shall, in any way, be liable for any loss of life or property that may occur by virtue of the activity or project conducted as authorized under a permit.

2. The issuance of a permit does not convey any property rights or any exclusive privilege.

3. The permittee shall obtain all applicable Federal, State, and local approvals prior to commencement of regulated activities authorized under a permit.

4. A permittee conducting an activity involving soil disturbance, the creation of drainage structures, or changes in natural contours shall obtain any required approvals from the Soil Conservation District or designee having jurisdiction over the site.

5. The permittee shall take all reasonable steps to prevent, minimize, or correct any adverse impact on the environment resulting from activities conducted pursuant to the permit, or from noncompliance with the permit.

6. The permittee shall immediately inform the Department of any unanticipated adverse effects on the environment not described in the application or in the conditions of the permit. The Department may,

upon discovery of such unanticipated adverse effects, and upon the failure of the permittee to submit a report thereon, notify the permittee of its intent to suspend the permit.

7. The permittee shall immediately inform the Department by telephone at (877) 927-6337 (WARN DEP hotline) of any noncompliance that may endanger public health, safety, and welfare, or the environment. The permittee shall inform the Division of Land Resource Protection by telephone at (609) 777-0454 of any other noncompliance within two working days of the time the permittee becomes aware of the noncompliance, and in writing within five working days of the time the permittee becomes aware of the noncompliance. Such notice shall not, however, serve as a defense to enforcement action if the project is found to be in violation of this chapter. The written notice shall include:

   i. A description of the noncompliance and its cause;

   ii. The period of noncompliance, including exact dates and times;

   iii. If the noncompliance has not been corrected, the anticipated length of time it is expected to continue; and

   iv. The steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

8. Any noncompliance with a permit constitutes a violation of this chapter and is grounds for enforcement action, as well as, in the appropriate case, suspension and/or termination of the permit.

9. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the authorized activity in order to maintain compliance with the conditions of the permit.

10. The permittee shall employ appropriate measures to minimize noise where necessary during construction, as specified in N.J.S.A. 13:1G-1 et seq. and N.J.A.C. 7:29.

11. The issuance of a permit does not relinquish the State's tidelands ownership or claim to any portion of the subject property or adjacent properties.

12. The issuance of a permit does not relinquish public rights to access and use tidal waterways and their shores.

13. The permittee shall allow an authorized representative of the Department, upon the presentation of credentials, to:

   i. Enter upon the permittee's premises where a regulated activity, project, or development is located or conducted, or where records must be kept under the conditions of the permit;

   ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;

   iii. Inspect, at reasonable times, any facilities, equipment, practices, or operations regulated or required under the permit. Failure to allow reasonable access under this paragraph shall be considered a violation of this chapter and subject the permittee to enforcement action; and

iv. Sample or monitor at reasonable times, for the purposes of assuring compliance or as otherwise authorized by the Federal Act, by the Freshwater Wetlands Protection Act, or by any rule or order issued pursuant thereto, any substances or parameters at any location.

14. The permittee shall not cause or allow any unreasonable interference with the free flow of a regulated water by placing or dumping any materials, equipment, debris or structures within or adjacent to the channel while the regulated activity, project, or development is being undertaken. Upon completion of the regulated activity, project, or development, the permittee shall remove and dispose of in a lawful manner all excess materials, debris, equipment, and silt fences and other temporary soil erosion and sediment control devices from all regulated areas.

15. The permittee and its contractors and subcontractors shall comply with all conditions, site plans, and supporting documents approved by the permit.

16. All conditions, site plans, and supporting documents approved by a permit shall remain in full force and effect, so long as the regulated activity, project, or development, or any portion thereof, is in existence, unless the permit is modified pursuant to the rules governing the herein approved permits.

17. The permittee shall perform any mitigation required under the permit in accordance with the rules governing the herein approved permits.

18. If any condition or permit is determined to be legally unenforceable, modifications and additional conditions may be imposed by the Department as necessary to protect public health, safety, and welfare, or the environment.

19. Any permit condition that does not establish a specific timeframe within which the condition must be satisfied (for example, prior to commencement of construction) shall be satisfied within six months of the effective date of the permit.

20. A copy of the permit and all approved site plans and supporting documents shall be maintained at the site at all times and made available to Department representatives or their designated agents immediately upon request.

21. The permittee shall provide monitoring results to the Department at the intervals specified in the permit.

22. A permit shall be transferred to another person only in accordance with the rules governing the herein approved permits.

23. A permit can be modified, suspended, or terminated by the Department for cause.

24. The submittal of a request to modify a permit by the permittee, or a notification of planned changes or anticipated noncompliance, does not stay any condition of a permit.

25. Where the permittee becomes aware that it failed to submit any relevant facts in an application, or submitted incorrect information in an application or in any report to the Department, it shall promptly submit such facts or information.

26. The permittee shall submit written notification to the Bureau of Coastal and Land Use Compliance and Enforcement, 401 East State Street, 4th Floor, PO Box 420, Mail Code 401-04C, Trenton, NJ 08625, at least three working days prior to the commencement of regulated activities.

27. The permittee shall record the permit, including all conditions listed therein, with the Office of the County Clerk (the Registrar of Deeds and Mortgages, if applicable) of each county in which the site is located. The permit shall be recorded within 30 calendar days of receipt by the permittee, unless the permit authorizes activities within two or more counties, in which case the permit shall be recorded within 90 calendar days of receipt. Upon completion of all recording, a copy of the recorded permit shall be forwarded to the Division of Land Resource Protection at the address listed on page one of this permit.

APPROVED PLAN(S):

The drawing(s) hereby approved consist of three (3) sheet(s) prepared by Engenuity Infrastructure, dated and last revised as noted, entitled:

"TAX BLOCK 66.02, LOT 31.01, BOROUGH OF MANASQUAN, MONMOUTH COUNTY, NEW JERSEY"

"FLOOD HAZARD AREA PERMITTING PLAN", sheet 1 of 1, dated May 26, 2020, last revised October 29, 2020,

"MAJOR SITE PLAN", sheet 3 of 6, dated October 28, 2019, last revised October 19, 2020,

"TRANSITION AREA WAIVER PLAN", sheet 1 of 1, dated May 26, 2020, unrevised.

APPEAL OF DECISION:

Any person who is aggrieved by this decision may submit an adjudicatory hearing request within 30 calendar days after public notice of the decision is published in the DEP Bulletin (available at www.nj.gov/dep/bulletin). If a person submits the hearing request after this time, the Department shall deny the request. The hearing request must include a completed copy of the Administrative Hearing Request Checklist (available at www.nj.gov/dep/landuse/forms.html). A person requesting an adjudicatory hearing shall submit the original hearing request to: NJDEP Office of Legal Affairs, Attention: Adjudicatory Hearing Requests, Mail Code 401-04L, P.O. Box 402, 401 East State Street, 7th Floor, Trenton, NJ 08625-0402. Additionally, a copy of the hearing request shall be submitted to the Director of the Division of Land Resource Protection at the address listed on page one of this permit. In addition to your hearing request, you may file a request with the Office of Dispute Resolution to engage in alternative dispute resolution. Please see www.nj.gov/dep/odr for more information on this process.

If you need clarification on any section of this permit or conditions, please contact the Division of Land Resource Protection's Technical Support Call Center at (609) 777-0454.

Approved By:

Digitally signed by dennis contois
Date: 2020.12.10 16:22:58 -05'00'

Dennis Contois
Supervisor
Division of Land Resource Protection

c: Municipal Clerk,
Municipal Construction Official,
Agent (original)

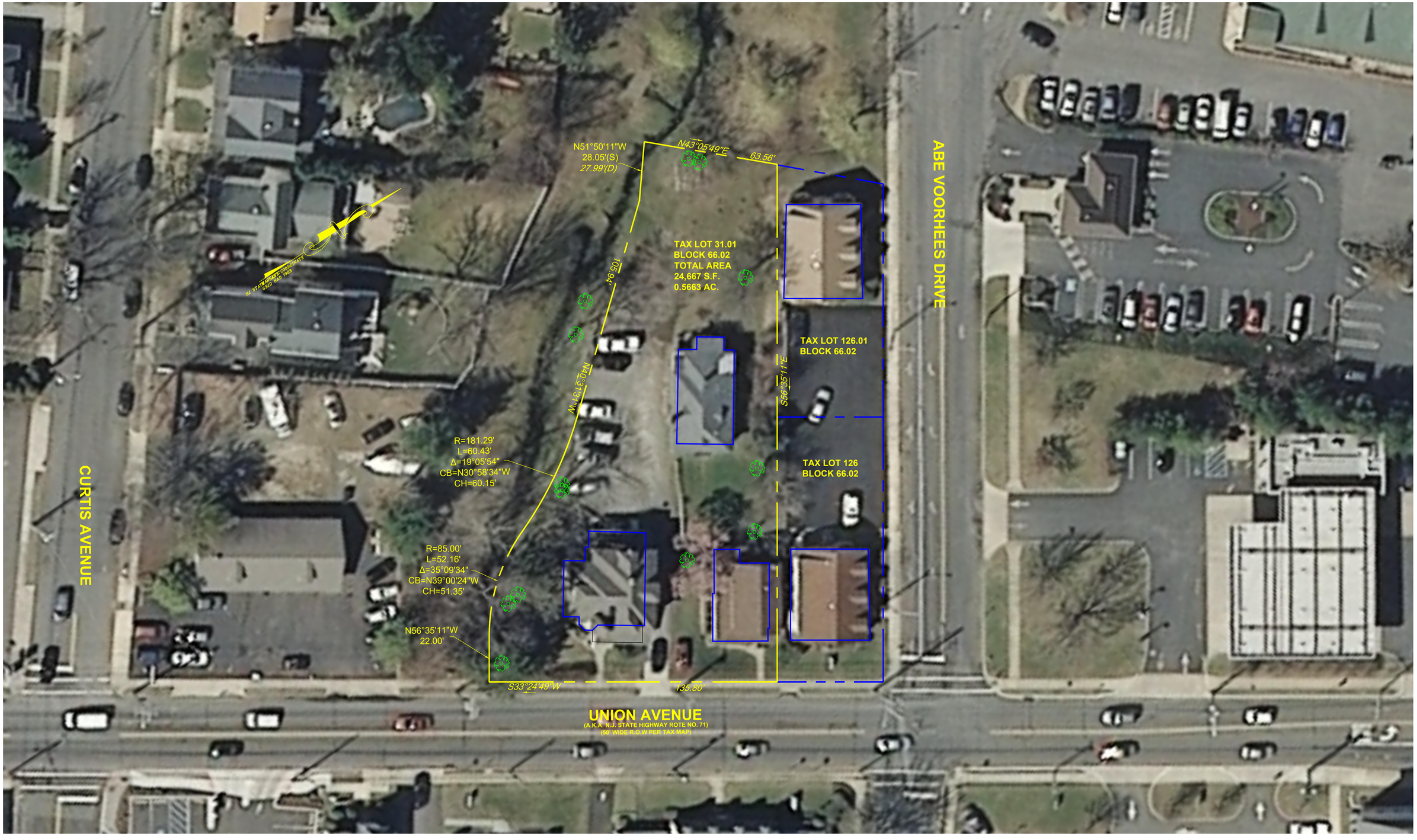

EXHIBIT PLAN 1

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: PAS
DRAWN BY: PAS
SHEET CHK'D BY: JJF
CROSS CHK'D BY:
APPROVED BY:
DATE: DECEMBER 17, 2020

ENGENUITY INFRASTRUCTURE

ENGENUITY INFRASTRUCTURE
2 BRIDGE AVENUE , SUITE 323
RED BANK, NJ 07701
732.741.3176
ENGENUITYNJ.COM

EXHIBIT PLAN 1
TAX BLOCK 66.02
LOTS 31.01
BOROUGH OF MANASQUAN
MONMOUTH COUNTY, NEW JERSEY

OWNER / DEVELOPER / APPLICANT:
BROAD STREET 34, LLC
126 MAIN STREET
MANASQUAN, NJ 08736
PHONE: (732) 522-0197

JACLYN J. FLOR, P.E., P.P., C.M.E
CONSULTING ENGINEER
LICENSED PROFESSIONAL ENGINEER
STATE OF NJ LICENCE NO. 24GE04542600
CERTIFICATE OF AUTHORIZATION 24GA28268000

12/17/2020
DATE

PROJECT NO. SEPE-00010
DRAWING
EX-1
SHEET NO.
1 OF 2

FILE NAME: N:\SEPE MANASQUAN APARTMENTS\SEPE-00010 – 33 UNION\PLANS\EXHIBITS\SEPE-00010-BASE EXHIBIT.DWG PRASANNA
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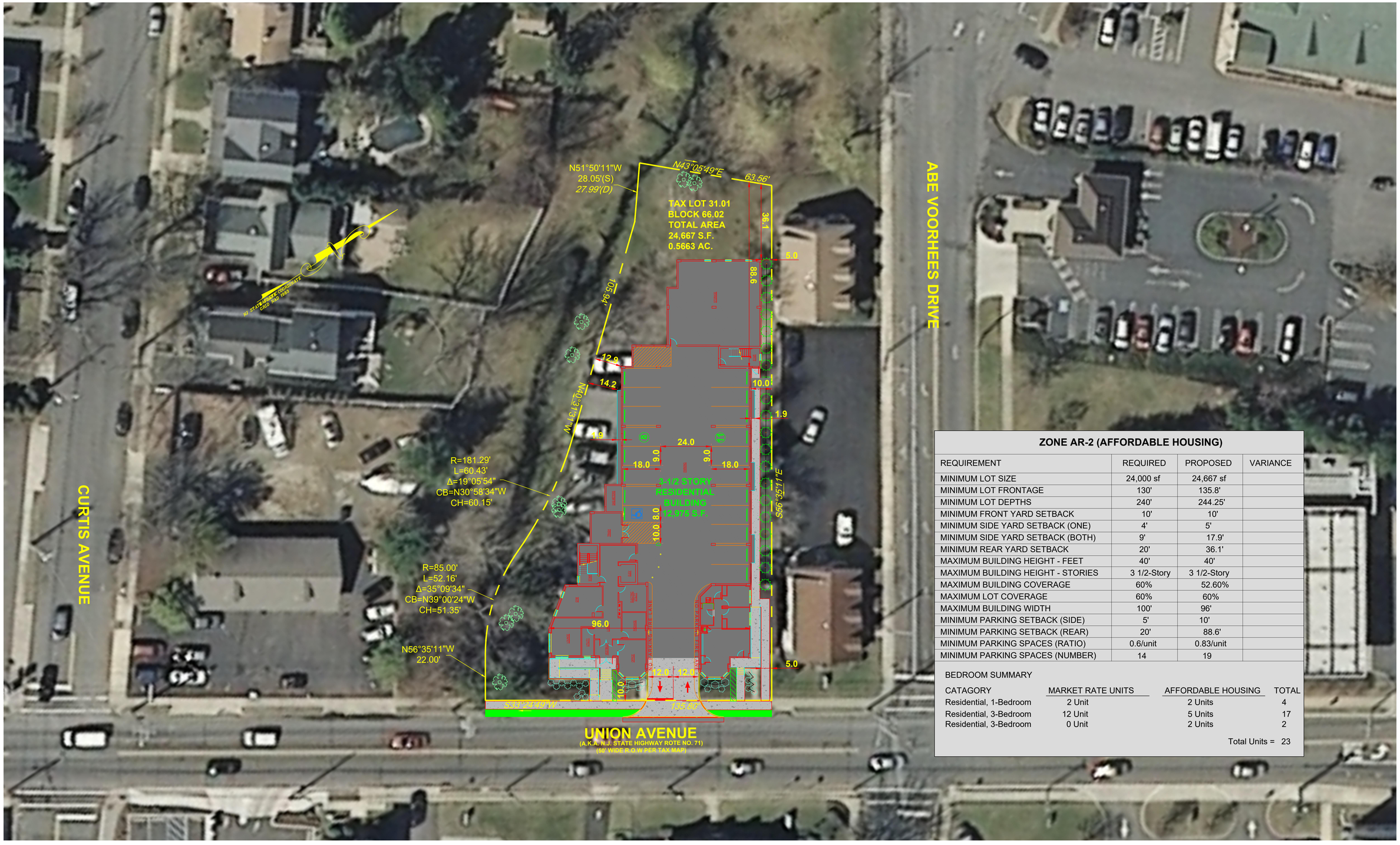
NOT FOR CONSTRUCTION



ZONE AR-2 (AFFORDABLE HOUSING)

REQUIREMENT	REQUIRED	PROPOSED	VARIANCE
MINIMUM LOT SIZE	24,000 sf	24,667 sf	
MINIMUM LOT FRONTAGE	130'	135.8'	
MINIMUM LOT DEPTHS	240'	244.25'	
MINIMUM FRONT YARD SETBACK	10'	10'	
MINIMUM SIDE YARD SETBACK (ONE)	4'	5'	
MINIMUM SIDE YARD SETBACK (BOTH)	9'	17.9'	
MINIMUM REAR YARD SETBACK	20'	36.1'	
MAXIMUM BUILDING HEIGHT - FEET	40'	40'	
MAXIMUM BUILDING HEIGHT - STORIES	3 1/2-Story	3 1/2-Story	
MAXIMUM BUILDING COVERAGE	60%	52.60%	
MAXIMUM LOT COVERAGE	60%	60%	
MAXIMUM BUILDING WIDTH	100'	96'	
MINIMUM PARKING SETBACK (SIDE)	5'	10'	
MINIMUM PARKING SETBACK (REAR)	20'	88.6'	
MINIMUM PARKING SPACES (RATIO)	0.6/unit	0.83/unit	
MINIMUM PARKING SPACES (NUMBER)	14	19	

BEDROOM SUMMARY

CATAGORY	MARKET RATE UNITS	AFFORDABLE HOUSING	TOTAL
Residential, 1-Bedroom	2 Unit	2 Units	4
Residential, 3-Bedroom	12 Unit	5 Units	17
Residential, 3-Bedroom	0 Unit	2 Units	2

Total Units = 23

EXHIBIT PLAN 2

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: PAS
DRAWN BY: PAS
SHEET CHK'D BY: JJF
CROSS CHK'D BY:
APPROVED BY:
DATE: DECEMBER 17, 2020

ENGENUITY INFRASTRUCTURE

ENGENUITY INFRASTRUCTURE
2 BRIDGE AVENUE , SUITE 323
RED BANK, NJ 07701
732.741.3176
ENGENUITYNJ.COM

EXHIBIT PLAN 2
TAX BLOCK 66.02
LOTS 31.01
BOROUGH OF MANASQUAN
MONMOUTH COUNTY, NEW JERSEY

OWNER / DEVELOPER / APPLICANT:
BROAD STREET 34, LLC
126 MAIN STREET
MANASQUAN, NJ 08736
PHONE: (732) 522-0197

JACLYN J. FLOR, P.E., P.P., C.M.E
CONSULTING ENGINEER
LICENSED PROFESSIONAL ENGINEER
STATE OF NJ LICENCE NO. 24GE045426
CERTIFICATE OF AUTHORIZATION 24GA28268000
12/17/2020
DATE

PROJECT NO. SEPE-00010
DRAWING
EX-2
SHEET NO.
2 OF 2

NOT FOR CONSTRUCTION

FILE NAME: N:\SEPE MANASQUAN APARTMENTS\SEPE-00010 – 33 UNION\PLANS\EXHIBITS\SEPE-00010-CP EXHIBIT.DWG PRASANNA
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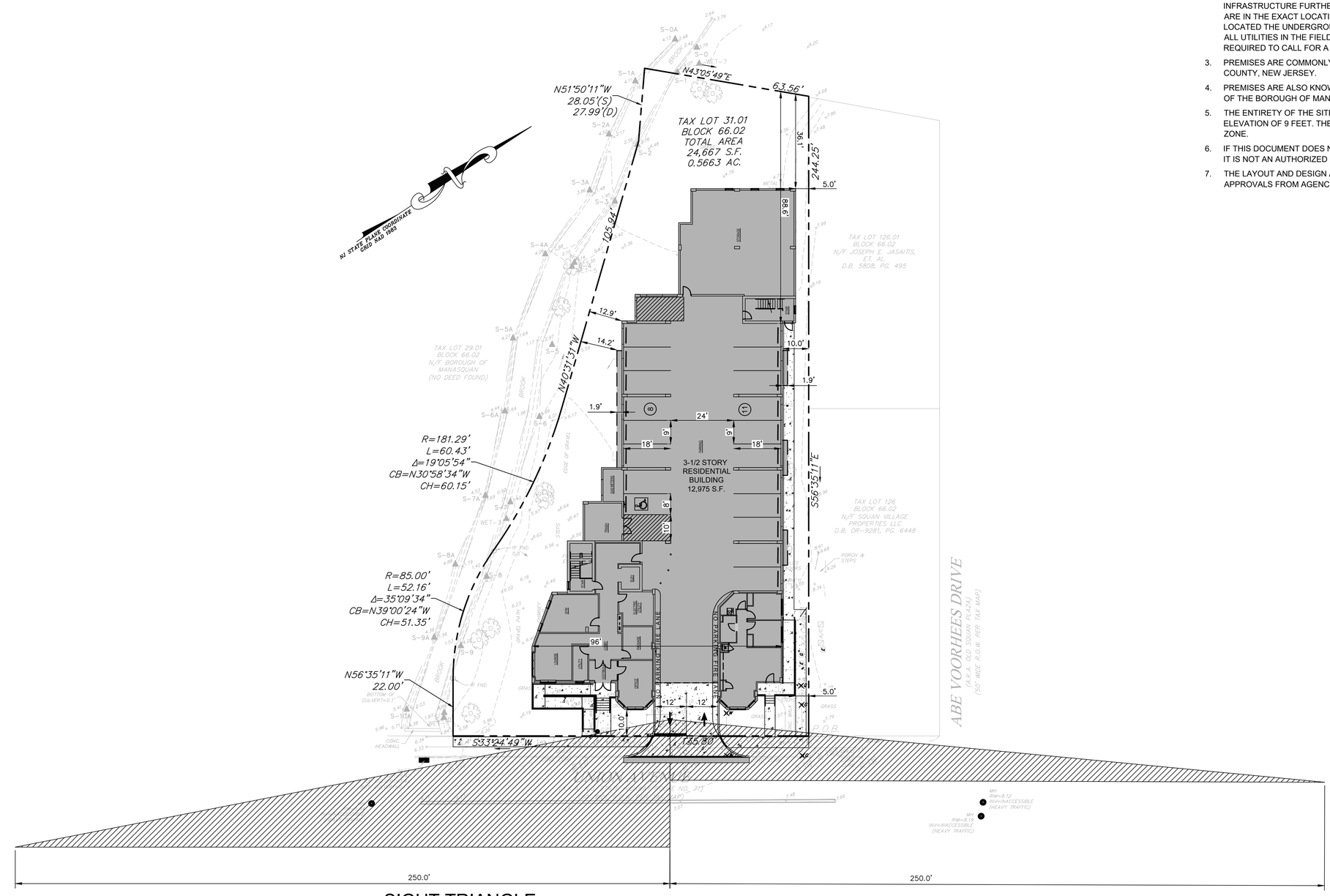

SIGHT TRIANGLE

1" = 20'
10 0 20

GENERAL NOTES:

1. SURVEY INFORMATION SHOWN HEREON BASED ON A PLAN ENTITLED "BOUNDARY & TOPOGRAPHICAL SURVEY, TAX LOT 31.01" PREPARED BY DPK CONSULTING DATED JULY 31, 2018
2. ENGENUITY INFRASTRUCTURE MAKES NO GUARANTEES THAT THE UTILITIES SHOWN HEREON COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. ENGENUITY INFRASTRUCTURE FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. ENGENUITY INFRASTRUCTURE HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL UTILITIES IN THE FIELD PRIOR TO EXCAVATION. THE CONTRACTOR SHALL ALSO BE REQUIRED TO CALL FOR A MARK-OUT PRIOR TO ANY WORK.
3. PREMISES ARE COMMONLY KNOWN AS 33 UNION AVENUE, MANASQUAN BOROUGH, MONMOUTH COUNTY, NEW JERSEY.
4. PREMISES ARE ALSO KNOWN AS BLOCK 66.02, LOT 31.01 AS SHOWN ON THE OFFICIAL TAX MAPS OF THE BOROUGH OF MANASQUAN, MONMOUTH COUNTY, NEW JERSEY.
5. THE ENTIRETY OF THE SITE IS LOCATED WITHIN A FLOOD HAZARD AREA WITH A DESIGN FLOOD ELEVATION OF 9 FEET. THE ENTIRETY OF THE SITE IS LOCATED WITHIN THE 300 FOOT RIPARIAN ZONE.
6. IF THIS DOCUMENT DOES NOT CONTAIN A RAISED SEAL OF THE UNDERSIGNED PROFESSIONAL, IT IS NOT AN AUTHORIZED ORIGINAL DOCUMENT.
7. THE LAYOUT AND DESIGN ARE SUBJECT TO FURTHER MODIFICATION TO COMPLY WITH APPROVALS FROM AGENCIES HAVING JURISDICTION OVER THE SITE.

REV. NO.	DATE	DRWN	CHKD	REMARKS
2	10/19/20	PAS	MJB	REVISED PER UPDATED BUILDING FOOTPRINT
1	7/24/20	PAS	MJB	REVISED PLANS AS PER BOARD ENGINEER'S REVIEW LETTER 02/13/20

DESIGNED BY: PAS
DRAWN BY: PAS
SHEET CHK'D BY: JJF
CROSS CHK'D BY:
APPROVED BY:
DATE: MARCH 5, 2020

ENGENUITY INFRASTRUCTURE

ENGENUITY INFRASTRUCTURE
2 BRIDGE AVENUE, SUITE 323
RED BANK, NJ 07701
732.741.3176
ENGENUITYNJ.COM

MAJOR SITE PLAN
TAX BLOCK 66.02
LOT 31.01
BOROUGH OF MANASQUAN
MONMOUTH COUNTY, NEW JERSEY

OWNER / DEVELOPER / APPLICANT:
UNION AVENUE 33, LLC
126 MAIN STREET
MANASQUAN, NJ 08736
PHONE: (732) 522-0197

JACLYN J. FLOR, P.E., P.P., C.M.E
CONSULTING ENGINEER
LICENSED PROFESSIONAL ENGINEER
STATE OF NJ LICENCE NO. 24GE045426
CERTIFICATE OF AUTHORIZATION 24GA28268000

03/05/20
DATE

PROJECT NO. SEPE-00010
DRAWING
EX-1
SHEET NO.
1 OF 1

NOT FOR CONSTRUCTION

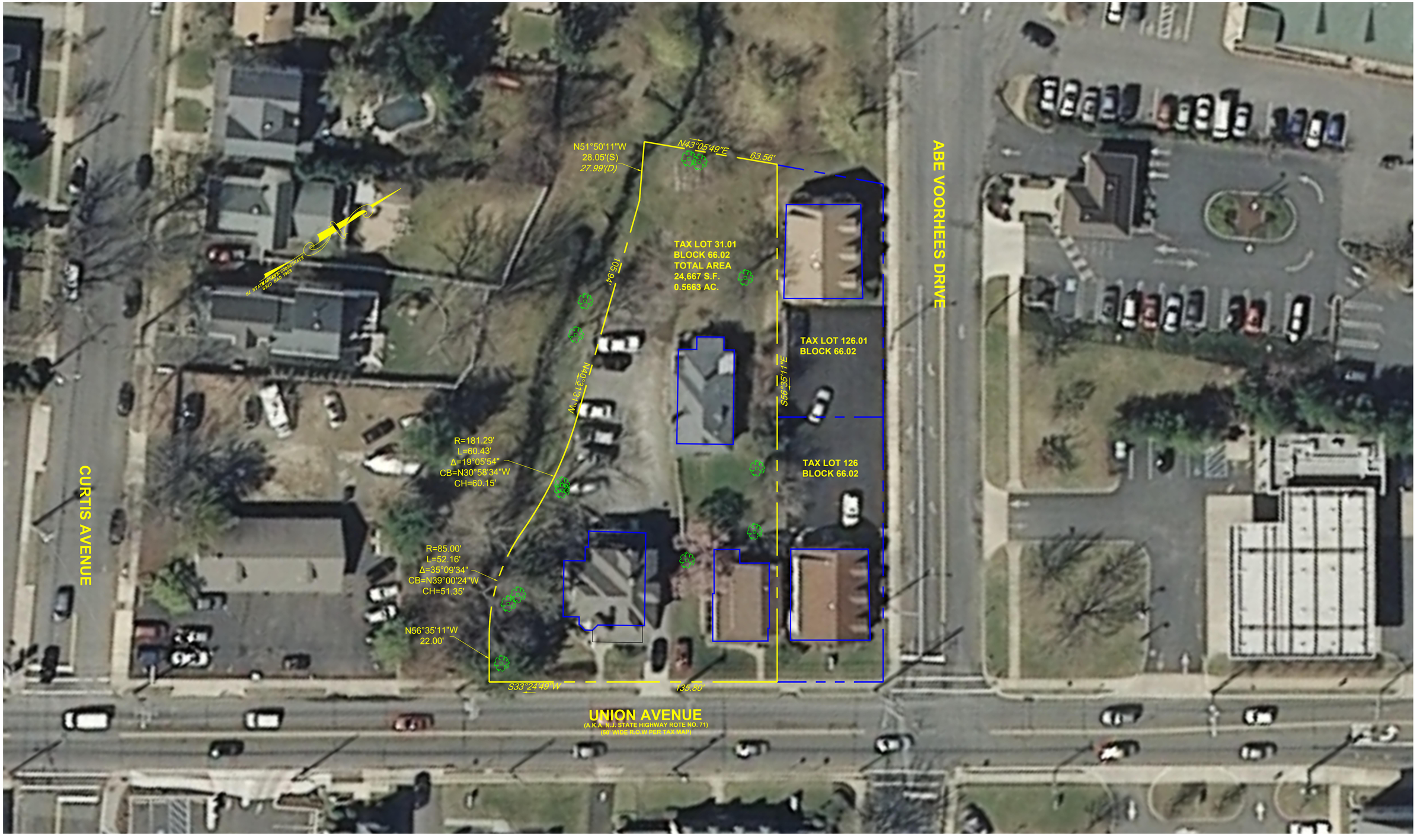

EXHIBIT PLAN 1

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: PAS
DRAWN BY: PAS
SHEET CHK'D BY: JJF
CROSS CHK'D BY:
APPROVED BY:
DATE: DECEMBER 17, 2020

ENGENUITY INFRASTRUCTURE

ENGENUITY INFRASTRUCTURE
2 BRIDGE AVENUE , SUITE 323
RED BANK, NJ 07701
732.741.3176
ENGENUITYNJ.COM

EXHIBIT PLAN 1
TAX BLOCK 66.02
LOTS 31.01
BOROUGH OF MANASQUAN
MONMOUTH COUNTY, NEW JERSEY

OWNER / DEVELOPER / APPLICANT:
BROAD STREET 34, LLC
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STATE OF NJ LICENCE NO. 24GE04542600
CERTIFICATE OF AUTHORIZATION 24GA28268000

12/17/2020
DATE

PROJECT NO. SEPE-00010
DRAWING
EX-1
SHEET NO.
1 OF 2

FILE NAME: N:\SEPE MANASQUAN APARTMENTS\SEPE-00010 – 33 UNION\PLANS\EXHIBITS\SEPE-00010-BASE EXHIBIT.DWG PRASANNA
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NOT FOR CONSTRUCTION

PROPOSED BUILDING FOR:
UNION AVENUE 33, LLC

33 UNION AVENUE, MANASQUAN, NJ

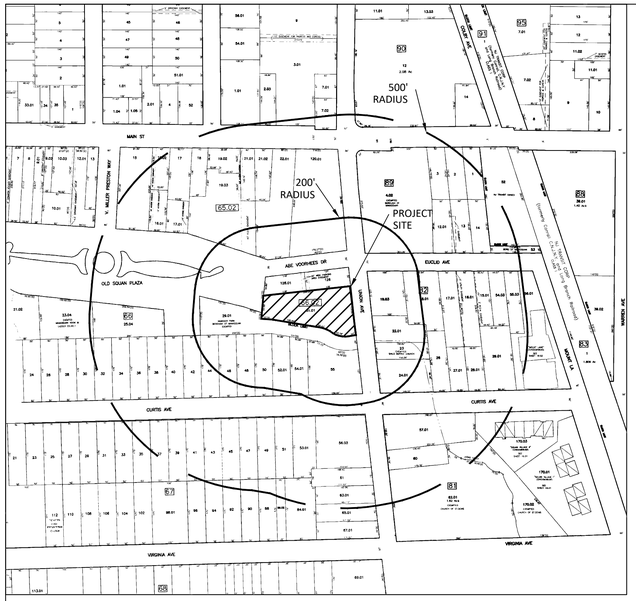
TAX MAP SHEET 12 DATED JAN. 2006

BLOCK 66.02 LOT 31.01

ZONE AR-2

MAJOR SITE PLAN

OCTOBER 28, 2019



KEY MAP
SHEETS 11, 12, 13, 16, & 17
SCALE 1"=200'

200' PROPERTY OWNERS LIST:

Block	Lot	Owner Complete Name	Property Address	Mailing Street	Mailing City, State, Zip Code
65.02	19.03	ALGONQUIN ARTS	60-62-64 ABE VOORHEES DR	171 MAIN ST SUITE 202	MANASQUAN,NJ 087363544
65.02	22.01	MANASQUAN SAVINGS BANK	185 MAIN ST	PO BOX E	MANASQUAN,NJ 087363635
65.02	120.01	R K KOCHHAR, INC	199 MAIN ST	199 MAIN ST	MANASQUAN,NJ 087363544
66	29.01	BOROUGH OF MANASQUAN	65 ABE VOORHEES DR	201 E MAIN ST	MANASQUAN,NJ 087363004
66	42	KASHEY, GEORGE M & KASHEY, GRACE M	58 CURTIS AVE	58 CURTIS AVE	MANASQUAN,NJ 087363502
66	44	CIERPIK, ALLEN R & MARJORIE S	64 CURTIS AVE	64 CURTIS AVE	MANASQUAN,NJ 087363502
66	46	66 CURTIS AVE, LLC	66 CURTIS AVE	81. N. MAIN STREET	MANASQUAN,NJ 08736
66	48	KARRON, ABRAHAM & THERESA	70 CURTIS AVE	70 CURTIS AVE	MANASQUAN,NJ 087363502
66	50	LINTOTT, JOHN T JR & GRETA K	74 CURTIS AVE	74 CURTIS AVE	MANASQUAN,NJ 087363502
66	52.01	MCCRONE, MARK & COLLEEN J	78 CURTIS AVE	78 CURTIS AVE	MANASQUAN,NJ 087363502
66	54.01	MANNI, SHARON	84 CURTIS AVE	84 CURTIS AVE	MANASQUAN,NJ 08736
66	55	53 UNION AVE, LLC C/0 HENNESSEY	53 UNION AV	619 NEW JERSEY AVE	PT PLEASANT BEACH, NJ 087423030
66.02	31.01	UNION AVENUE 33 LLC	33-33-1 /2-39 UNION AVE	126 MAIN STREET	MANASQUAN, NJ 08736
66.02	126	SQUAN VILLAGE PROPERTIES LLC	29 UNION AVE	3026 HURLEY POND ROAD	WALL, NJ 07719
66.02	126.01	JASAITIS, JOSEPH E & JOANNE C ETALS	75 ABE VOORHEES DR	75 ABE VOORHEES DR	MANASQUAN,NJ087363504
82	18.01	SHIBLA, JANICE M & ROBERT N	9 EUCLID AVE	9 EUCLID AVE	MANASQUAN,NJ087363603
82	19.03	PAPERTH, FREDERIC	28 UNION AVE	2201 RIVER RD APT 3201	PT PLEASANT, NJ 087422285
82	22.01	CAWCO CORP C/0 CARTON LAW FIRM	40 UNION AVE	40 UNION AVE	MANASQUAN,NJ 087363630
82	23	SHILOH BAPTIST CHURCH	44 UNION AVE	44 UNION AVE	MANASQUAN,NJ 087363630
82	24.01	JYOTSNA & KOKILA PROPERTIES, LLC	50 UNION AVE	50 UNION AVE	MANASQUAN,NJ 087363630
82	26	KILDARE PROPERTIES, LLC	104 CURTIS AVE	1740 BELMAR BLVD	BELMAR, NJ 07719
89	4.02	BOROUGH OF MANASQUAN	201 MAIN ST E	201 MAIN ST E	MANASQUAN,NJ08736

200' UTILITIES OWNERS LIST:

Jersey Central Power & Light Co
Customer Service PO Box 16001
Reading, PA 19612-6001

Verizon
PO Box 4833
Trenton, NJ 4833 08650-4833

NJ Natural Gas Company
1415 Wyckoff Rd
PO Box
Wall, NJ 1378 07715-0001

Cablevision
1111 Stewart Ave.
Bethpage, NY Ave 11714-3533

NJ American Water Company
Attn: Corporate Secretary
131 Woodcrest Rd
PO Box 5079
Cherry Hill, 5079 NJ 08034-5079

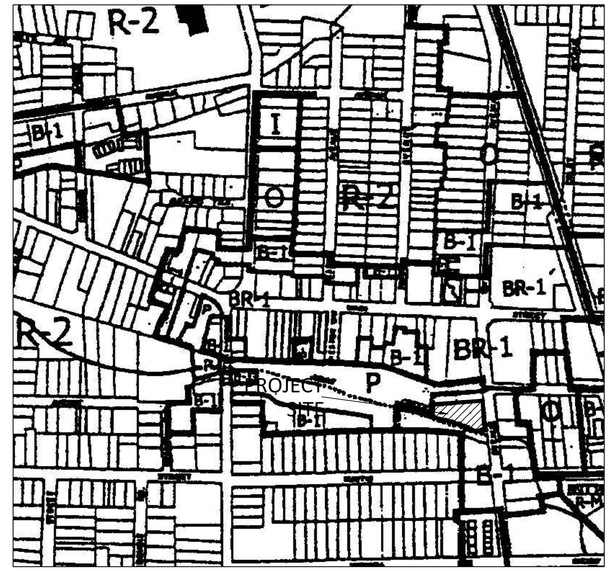
Monmouth County Highway Dep't.
250 Center St.
Freehold, NJ St 07728-2465

State of New Jersey
Attn: Commissioner of Transportation
Department of Transportation
1035 Parkway Ave
Trenton, NJ Ave 08625-2309

OWNER/APPLICANT/DEVELOPER:
UNION AVENUE 33, LLC
126 MAIN STREET
MANASQUAN, NJ 08736
PHONE:(732) 522-0197

ENGINEER:
ENGENUITY INFRASTRUCTURE, LLC
JACLYN J. FLOR, PE, PP, CME
NJ PE# 24GE04542600
NJ PP# 33LI00592000
2 BRIDGE AVENUE, SUITE 323
RED BANK, NJ 07701
PHONE: (732)741-3176
JFLOR@ENGENUITYNJ.COM

ATTORNEY:
GIORDANO, HALLERAN & CIESLA
ATTORNEYS AT LAW
JOHN A. SARTO, ESQ.
125 HALF MILE ROAD
SUITE 300
RED BANK, NJ 07701-6777
(732) 219-5496



ZONING MAP
MARCH 2009
NOT TO SCALE

GENERAL NOTES:

1. ALL WORK TO CONFORM WITH THE LATEST EDITION OF THE FOLLOWING:
   -NJDOT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
   -MONMOUTH COUNTY DESIGN STANDARDS
   -MUNICIPAL DESIGN STANDARDS
   -CURRENT MANUFACTURERS SPECIFICATIONS, STANDARDS, AND REQUIREMENTS
   -CURRENT, PREVAILING UTILITY COMPANY OR AUTHORITY SPECIFICATIONS, STANDARDS, AND REQUIREMENTS
2. ALL BARRIER FREE CONSTRUCTION TO BE IN ACCORDANCE WITH THE NJ UNIFORM CONSTRUCTION CODE, SUBCHAPTER 7: BARRIER FREE SUBCODE & ADA REQUIREMENTS AS NECESSARY.
3. CONTRACTOR IS RESPONSIBLE FOR ALL WORKER SAFETY, TRAINING, AND SAFETY DEVICE USAGE FOR AND DURING THE CONSTRUCTION OF THE IMPROVEMENTS SHOWN ON THIS PLAN.
4. THE CONTRACTOR IS DESIGNATED AS RESPONSIBLE PARTY DURING CONSTRUCTION OF THE IMPROVEMENTS HEREON. AS SUCH, CONTRACTOR WILL PROVIDE ADEQUATE SAFETY TRAINING, EQUIPMENT AND OVERSIGHT.
5. CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED PERMITS AND APPROVALS FOR CONSTRUCTION OF THE DEPICTED SITE IMPROVEMENTS.
6. ALL DISTURBED AREAS ON SITE TO BE STABILIZED IN ACCORDANCE WITH THE FREEHOLD SOIL CONSERVATION DISTRICT STANDARDS.
7. ALL AREAS NOT COVERED BY IMPERVIOUS SURFACE SHALL BE SEEDED OR OTHERWISE STABILIZED IN ACCORDANCE WITH SOIL EROSION CONTROL SPECIFICATIONS SET FORTH IN THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY, 7TH EDITION, REVISED JULY 2017.
8. THE NEW JERSEY CALL SYSTEM SHOULD BE CONTACTED PRIOR TO EXCAVATION ON-SITE OR WITHIN R.O.W. (800) 272-1000
9. ALL UTILITY CONNECTIONS AND RELOCATIONS ARE SHOWN SCHEMATICALLY. THE CONTRACTOR SHALL CONTACT AND COORDINATE WITH EACH UTILITY COMPANY TO PROVIDE THE MOST APPROPRIATE LOCATION FOR UTILITY CONNECTIONS AND/OR RELOCATIONS.
10. EXISTING SITE AND UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN COLLECTED FROM VARIOUS SOURCES AND IS NOT GUARANTEED AS TO ACCURACY OR COMPLETENESS.
11. ALL TRAFFIC SIGNS AND STRIPING SHALL CONFORM WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
12. ANY DAMAGE TO EXISTING STRUCTURES AS A RESULT OF THIS DEVELOPMENT, SHALL BE REPAIRED AT THE SOLE EXPENSE OF THE CONTRACTOR.
13. CONCRETE SHALL BE NJDOT CLASS "B" UNLESS OTHERWISE STATED HEREON OR WITHIN THE CONSTRUCTION DETAILS.
14. ALL IMPROVEMENTS SHOWN HEREON "TO BE REMOVED" SHALL BE DISPOSED OF IN A MANNER NOT CONTRARY TO LOCAL OR STATE ORDINANCES.
15. CONTRACTOR TO NOTIFY THE UNDERSIGNED PROFESSIONAL IF FIELD CONDITIONS VARY FROM THAT WHICH IS SHOWN HEREON.
16. THIS PLAN SET HAS BEEN PREPARED FOR MUNICIPAL AND AGENCY APPROVALS. THIS PLAN NOT TO BE UTILIZED FOR CONSTRUCTION UNTIL MARKED "FOR CONSTRUCTION".
17. SURVEY INFORMATION SHOWN HEREON BASED ON A PLAN ENTITLED "BOUNDARY & TOPOGRAPHICAL SURVEY, TAX LOT 31.01" PREPARED BY DPK CONSULTING DATED AUGUST 6, 2018 AND LAST REVISED ON DECEMBER 16,2019.
18. EXISTING UTILITY CONNECTIONS TO BE UTILIZED WHERE FEASIBLE & APPROVED BY UTILITY AUTHORITY.
19. ALL IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CURRENT A.D.A. STANDARDS, AS APPLICABLE.
20. ALL CURB, SIDEWALK AND PAVEMENT SHALL BE RESTORED TO THE SATISFACTION OF THE BOARD'S ENGINEER.

I HAVE REVIEWED THIS MAJOR SITE PLAN AND CERTIFY THAT IT MEETS ALL CODES AND ORDINANCES UNDER MY JURISDICTION.

BOROUGH ENGINEER DATE

APPROVED AS A MAJOR SITE PLAN BY
THE MANASQUAN BOROUGH PLANNING BOARD

ON _____.

CHAIRPERSON DATE

ATTEST:

SECRETARY DATE

I HEREBY CERTIFY THAT ALL THE REQUIRED IMPROVEMENTS HAVE BEEN INSTALLED OR A POND POSTED IN COMPLIANCE WITH ALL APPLICABLE CODES AND ORDINANCES

BOROUGH ENGINEER DATE

BOROUGH CLERK DATE

BUILDING PERMIT ISSUED DATE

I CONSENT TO THE FILING OF THIS MAJOR SITE PLAN WITH THE PLANNING BOARD OF THE BOROUGH OF MANASQUAN

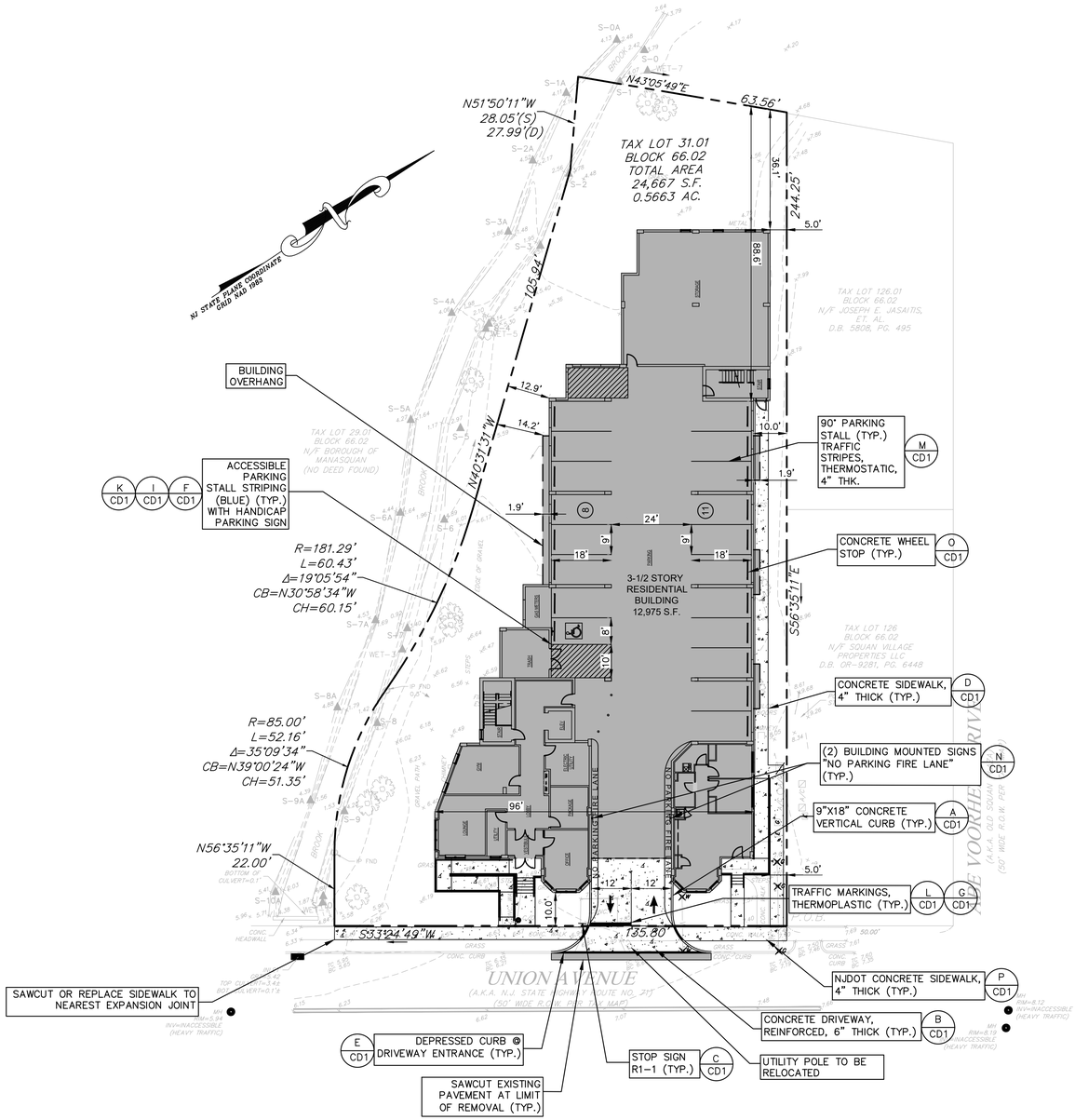
OWNER DATE

I HEREBY CERTIFY THAT I HAVE PREPARED THIS STE PLAN AND THAT ALL THE DIMENSIONS AND INFORMATION ARE CORRECT

JACLYN J. FLOR, PE, PP, CME DATE
NJ PE# 24GE04542600
NJ PP# 33LI00592000

PLAN INDEX

PROJECT NO. SEPE-00010
DRAWING T-1
SHEET NO. 1 OF 9



SITE PLAN

GENERAL NOTES:

1. SURVEY INFORMATION SHOWN HEREON BASED ON A PLAN ENTITLED "BOUNDARY & TOPOGRAPHICAL SURVEY, TAX LOT 31.01" PREPARED BY DPK CONSULTING DATED AUGUST 6, 2018 AND LAST REVISED ON DECEMBER 16, 2019
2. ENGENUITY INFRASTRUCTURE MAKES NO GUARANTEES THAT THE UTILITIES SHOWN HEREON COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. ENGENUITY INFRASTRUCTURE FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. ENGENUITY INFRASTRUCTURE HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL UTILITIES IN THE FIELD PRIOR TO EXCAVATION. THE CONTRACTOR SHALL ALSO BE REQUIRED TO CALL FOR A MARK-OUT PRIOR TO ANY WORK.
3. PREMISES ARE COMMONLY KNOWN AS 33 UNION AVENUE, MANASQUAN BOROUGH, MONMOUTH COUNTY, NEW JERSEY.
4. PREMISES ARE ALSO KNOWN AS BLOCK 66.02, LOT 31.01 AS SHOWN ON THE OFFICIAL TAX MAPS OF THE BOROUGH OF MANASQUAN, MONMOUTH COUNTY, NEW JERSEY.
5. ALL NEW UTILITIES ARE PROPOSED TO BE LOCATED UNDERGROUND.
6. THE ENTIRETY OF THE SITE IS LOCATED WITHIN A FLOOD HAZARD AREA WITH A BASE FLOOD ELEVATION OF 9 FEET.
7. IF THIS DOCUMENT DOES NOT CONTAIN A RAISED SEAL OF THE UNDERSIGNED PROFESSIONAL, IT IS NOT AN AUTHORIZED ORIGINAL DOCUMENT.
8. THE LAYOUT AND DESIGN ARE SUBJECT TO FURTHER MODIFICATION TO COMPLY WITH APPROVALS FROM AGENCIES HAVING JURISDICTION OVER THE SITE..
9. ALL NEW UTILITIES ARE PROPOSED TO BE LOCATED UNDERGROUND.

LEGEND

PRINCIPAL & ACCESSORY STRUCTURES

NEW CONCRETE

ZONE AR-2 (AFFORDABLE HOUSING)			
REQUIREMENT	REQUIRED	PROPOSED	VARIANCE
MINIMUM LOT SIZE	24,000 sf	24,667 sf	
MINIMUM LOT FRONTAGE	130'	135.8'	
MINIMUM LOT DEPTH	240'	244.25'	
MINIMUM FRONT YARD SETBACK	10'	10'	
MINIMUM SIDE YARD SETBACK (ONE)	4'	5'	
MINIMUM SIDE YARD SETBACK(BOTH)	9'	17.9'	
MINIMUM REAR YARD SETBACK	20'	36.1'	
MAXIMUM BUILDING HEIGHT - FEET	40'	40'	
MAXIMUM BUILDING HEIGHT - STORIES	3 1/2-Story	3 1/2-Story	
MAXIMUM BUILDING COVERAGE	60%	52.60%	
MAXIMUM LOT COVERAGE	60%	60%	
MAXIMUM BUILDING WIDTH	100'	96'	
MINIMUM PARKING SETBACK (SIDE)	5'	10'	
MINIMUM PARKING SETBACK (REAR)	20'	88.6'	
MINIMUM PARKING SPACES (RATIO)	0.6/unit	0.83/unit	
MINIMUM PARKING SPACES (NUMBER)	14	19	

BEDROOM SUMMARY:

CATAGORY	MARKET RATE UNITS	AFFORDABLE HOUSING	TOTAL
Residential, 1-Bedroom	2 Units	2 Units	4
Residential, 2-Bedroom	12 Units	5 Units	17
Residential, 3-Bedroom	0 Units	2 Units	2
		Total Units =	23

1" = 20'
10 0 20

REV. NO.	DATE	DRWN	CHKD	REMARKS
2	10/19/20	PAS	MJB	REVISED PLANS AS PER FINAL ARCHITECTURAL BUILDING FOOTPRINT
1	7/24/20	PAS	MJB	REVISED PLANS AS PER BOARD ENGINEER'S REVIEW LETTER 02/13/20

DESIGNED BY: PAS
DRAWN BY: PAS
SHEET CHK'D BY: JJF
CROSS CHK'D BY:
APPROVED BY:
DATE: OCTOBER 28, 2019

ENGENUITY INFRASTRUCTURE

ENGENUITY INFRASTRUCTURE
2 BRIDGE AVENUE , SUITE 323
RED BANK, NJ 07701
732.741.3176
ENGENUITYNJ.COM

MAJOR SITE PLAN
TAX BLOCK 66.02
LOT 31.01
BOROUGH OF MANASQUAN
MONMOUTH COUNTY, NEW JERSEY

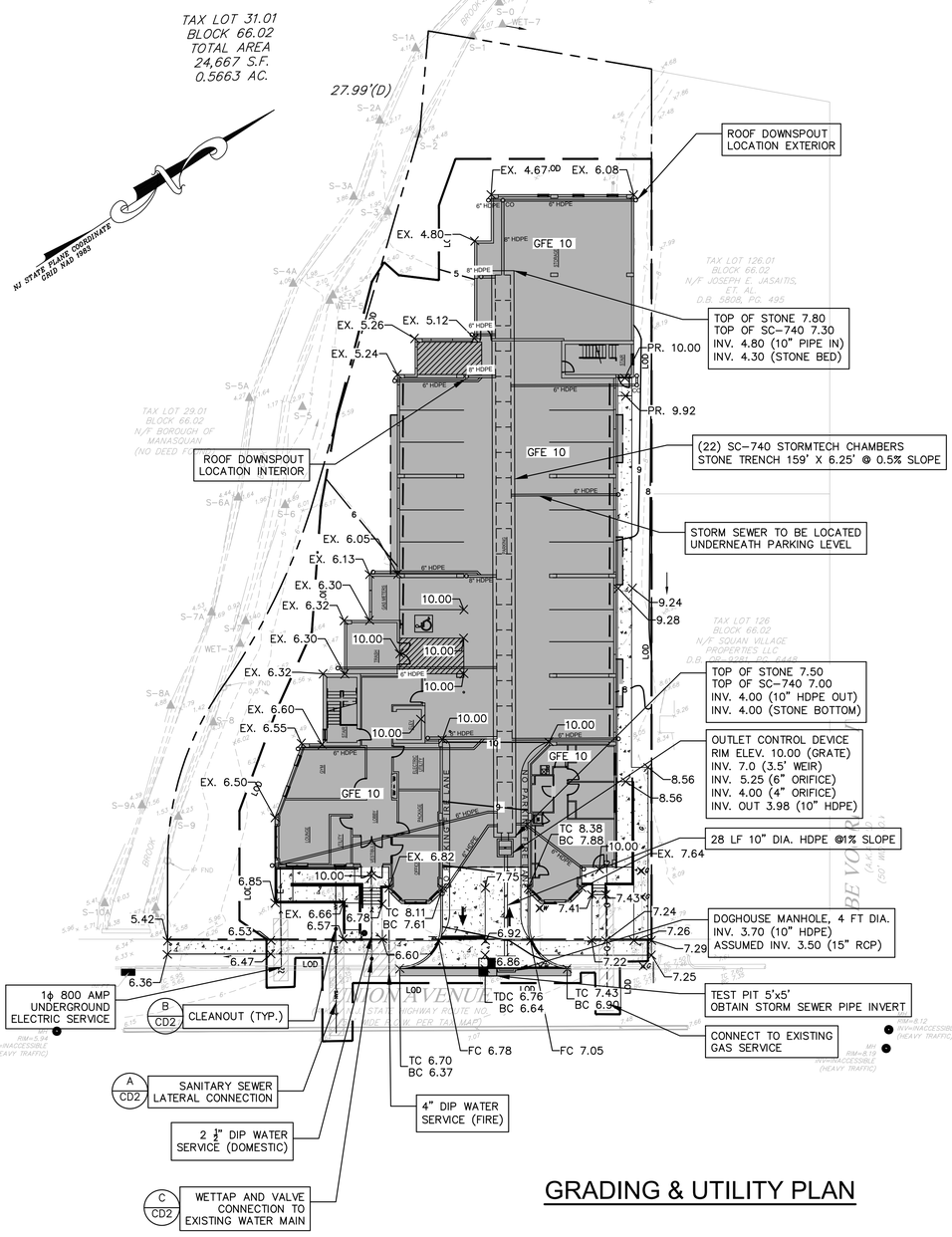
OWNER / DEVELOPER / APPLICANT:
UNION AVENUE 33, LLC
126 MAIN STREET
MANASQUAN, NJ 08736
PHONE: (732) 522-0197

JACLYN J. FLOR, P.E., P.P., C.M.E
CONSULTING ENGINEER
10/28/19
DATE
LICENSED PROFESSIONAL ENGINEER
STATE OF NJ LICENCE NO. 24GE045426
CERTIFICATE OF AUTHORIZATION 24GA28268000

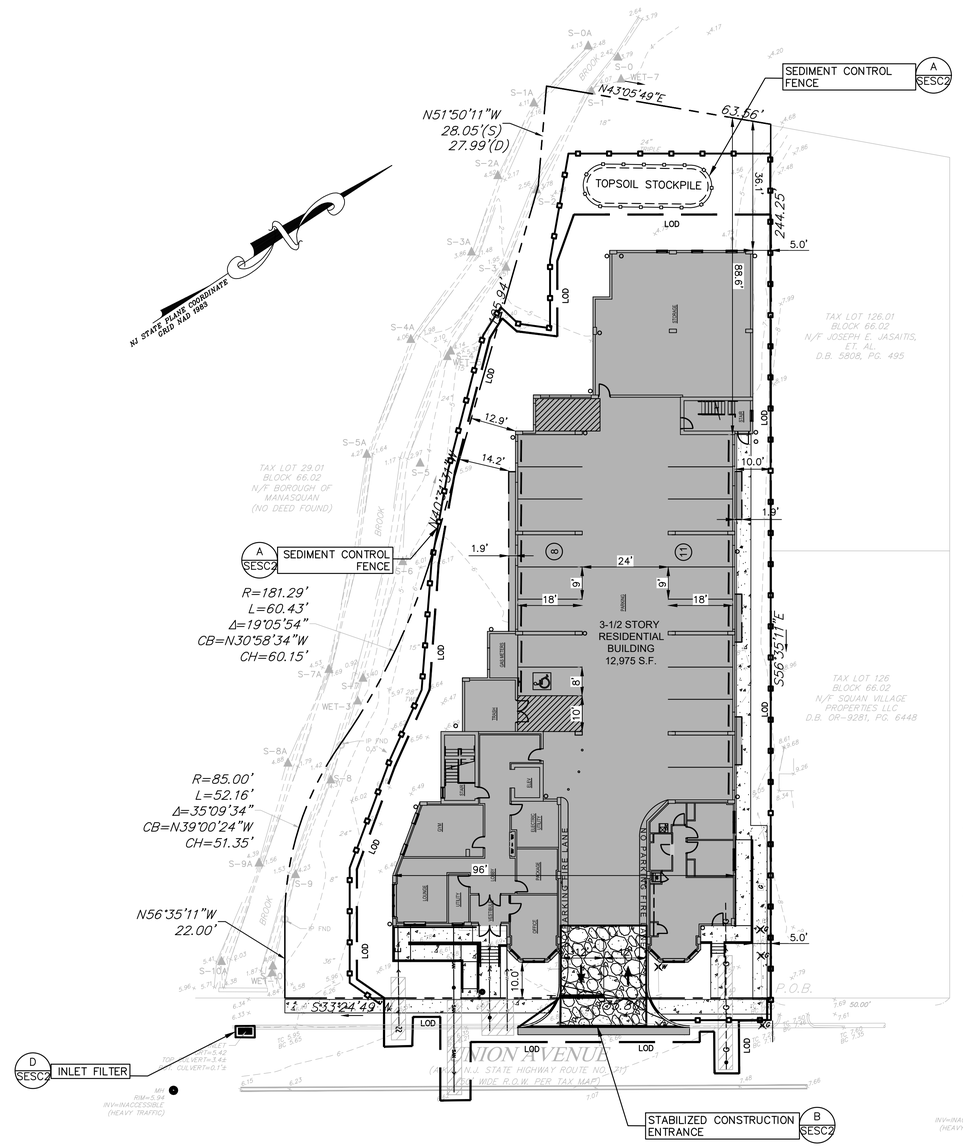
PROJECT NO. SEPE-00010
DRAWING CP-1
SHEET NO. 2 OF 9

FILE NAME: N:\SEPE MANASQUAN APARTMENTS\SEPE-00010 – 33 UNION\PLANS\REVISED-CP.DWG PRASANNA 11/11/2020 12:55 PM

NOT FOR CONSTRUCTION



GRADING & UTILITY PLAN



SESC PLAN

1" = 20'
10 0 20

REV. NO.	DATE	DRWN	CHKD	REMARKS
3	11/11/20	PAS	MJB	REVISED PLANS AS PER BOARD ENGINEER'S COMMENTS 11/04/20
2	10/19/20	PAS	MJB	REVISED PLANS AS PER FINAL ARCHITECTURAL BUILDING FOOTPRINT
1	7/24/20	PAS	MJB	REVISED PLANS AS PER BOARD ENGINEER'S REVIEW LETTER 02/13/20

DESIGNED BY: PAS
DRAWN BY: PAS
SHEET CHK'D BY: JJF
CROSS CHK'D BY:
APPROVED BY:
DATE: OCTOBER 28, 2019

ENGENUITY INFRASTRUCTURE
2 BRIDGE AVENUE , SUITE 323
RED BANK, NJ 07701
732.741.3176
ENGENUITYNJ.COM

MAJOR SITE PLAN
TAX BLOCK 66.02
LOT 31.01
BOROUGH OF MANASQUAN
MONMOUTH COUNTY, NEW JERSEY

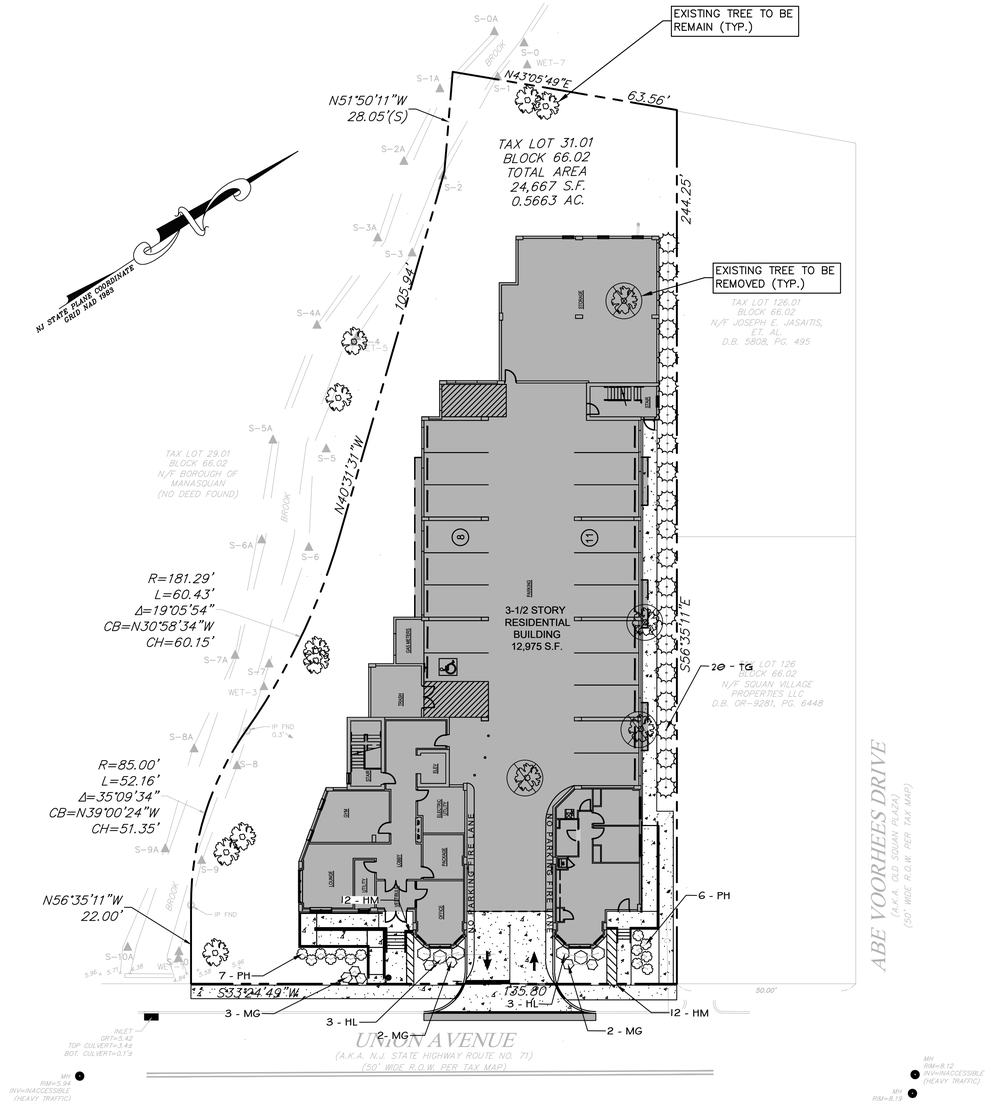
OWNER / DEVELOPER / APPLICANT:
UNION AVENUE 33, LLC
126 MAIN STREET
MANASQUAN, NJ 08736
PHONE: (732) 522-0197

JACLYN J. FLOR, P.E., P.P., C.M.E
CONSULTING ENGINEER
LICENSED PROFESSIONAL ENGINEER
STATE OF NJ LICENCE NO. 24GE045426
CERTIFICATE OF AUTHORIZATION 24GA28268000
10/28/19
DATE

PROJECT NO. SEPE-00010
DRAWING GR / SESC-1
SHEET NO. 3 OF 9

FILE NAME:

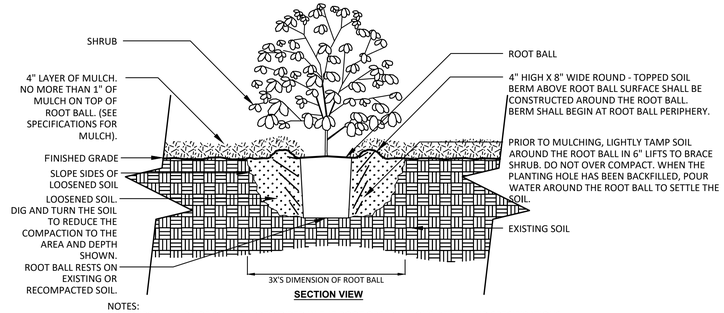
NOT FOR CONSTRUCTION



LANDSCAPE PLAN

PLANT-SCHEDULE

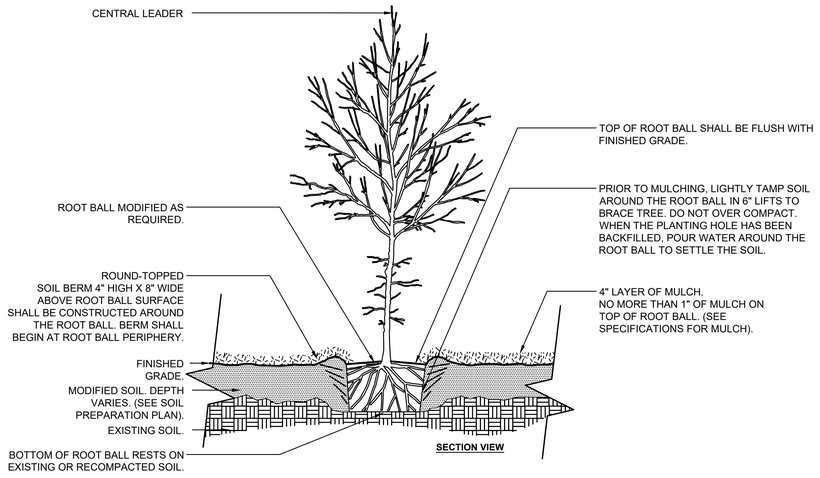
SHRUBS	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	COMMENTS	
	HL	6	Hydrangea paniculata `Little Lime`	Little Lime Hydrangea	3 gal.	Pot	3` O.C.	
	MG	7	Miscanthus sinensis `Gracillimus`	Maiden Grass	3 gal.	Pot	FULL PLANTS	
	PH	13	Pennisetum alopecuroides `Hameln`	Hameln Fountain Grass	3 gal.	Pot	FULL PLANTS	
	TG	20	Thuja occidentalis 'Green Giant'	Green Giant Arborvitae	---	6' – 7' HT.	B&B	FULL TO GROUND
GROUND COVERS	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	COMMENTS	SPACING
	HM	24	Hemerocallis x `Stella de Oro`	Stella de Oro Daylily	2 gal.	Pot	FULL PLANTS	18`` O.C.



SECTION VIEW

NOTES:
1. SHRUBS SHALL BE OF QUALITY PRESCRIBED IN THE ROOT OBSERVATIONS DETAIL AND SPECIFICATIONS.
2. SEE SPECIFICATIONS FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.

SHRUB PLANTING
DETAIL A
NTS LS-1



SECTION VIEW

TREE PLANTING
DETAIL B
NTS LS-1

1" = 20'
10 0 20

REV. NO.	DATE	DRWN	CHKD	REMARKS
3	11/11/20	PAS	MJB	REVISED PLANS AS PER BOARD ENGINEER'S COMMENTS 11/04/20
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DESIGNED BY: PAS
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APPROVED BY:
DATE: OCTOBER 28, 2019

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2 BRIDGE AVENUE , SUITE 323
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MAJOR SITE PLAN
TAX BLOCK 66.02
LOTS 31.01
BOROUGH OF MANASQUAN
MONMOUTH COUNTY, NEW JERSEY

OWNER / DEVELOPER / APPLICANT:
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126 MAIN STREET
MANASQUAN, NJ 08736
PHONE: (732) 522-0197

JACLYN J. FLOR, P.E., P.P., C.M.E
CONSULTING ENGINEER
LICENSED PROFESSIONAL ENGINEER
STATE OF NJ LICENCE NO. 24GE045426
CERTIFICATE OF AUTHORIZATION 24GA28268000
10/28/19
DATE

PROJECT NO. SEPE-00010
DRAWING LS-1
SHEET NO. 4 OF 9

FILE NAME: N:\SEPE MANASQUAN APARTMENTS\SEPE-00010 – 33 UNION\PLANS\REVISED-CP.DWG PRASANNA 11/11/2020 12:57 PM

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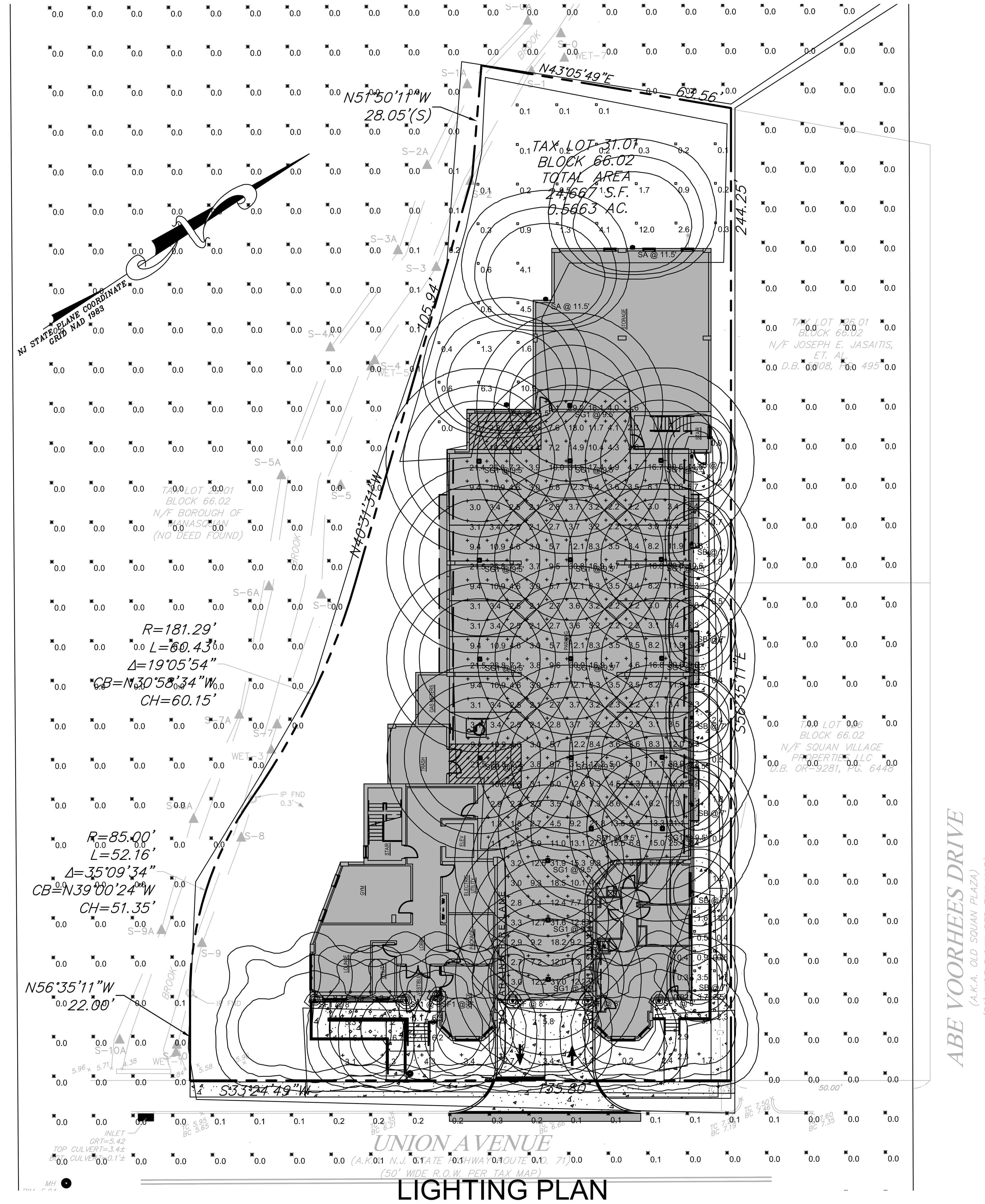
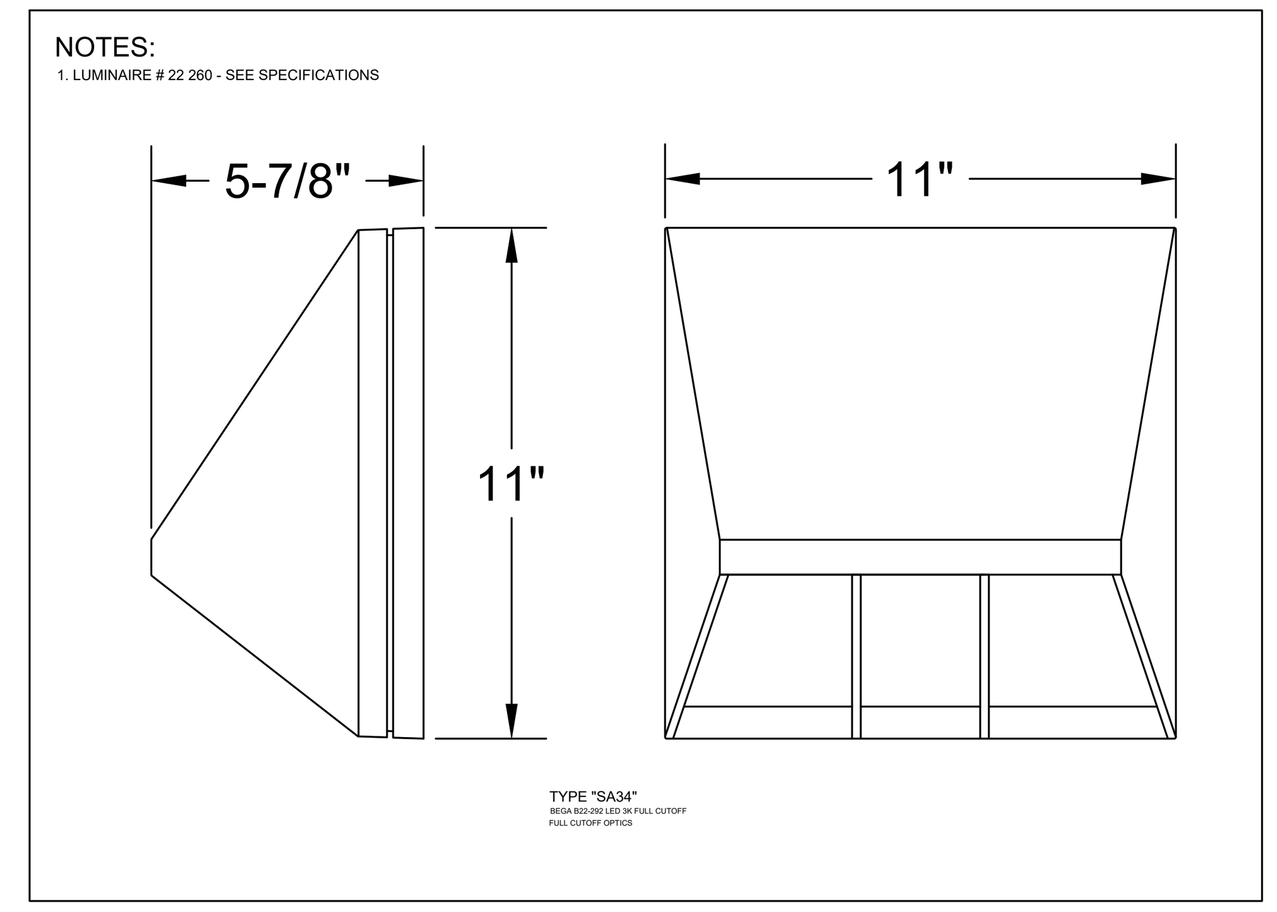
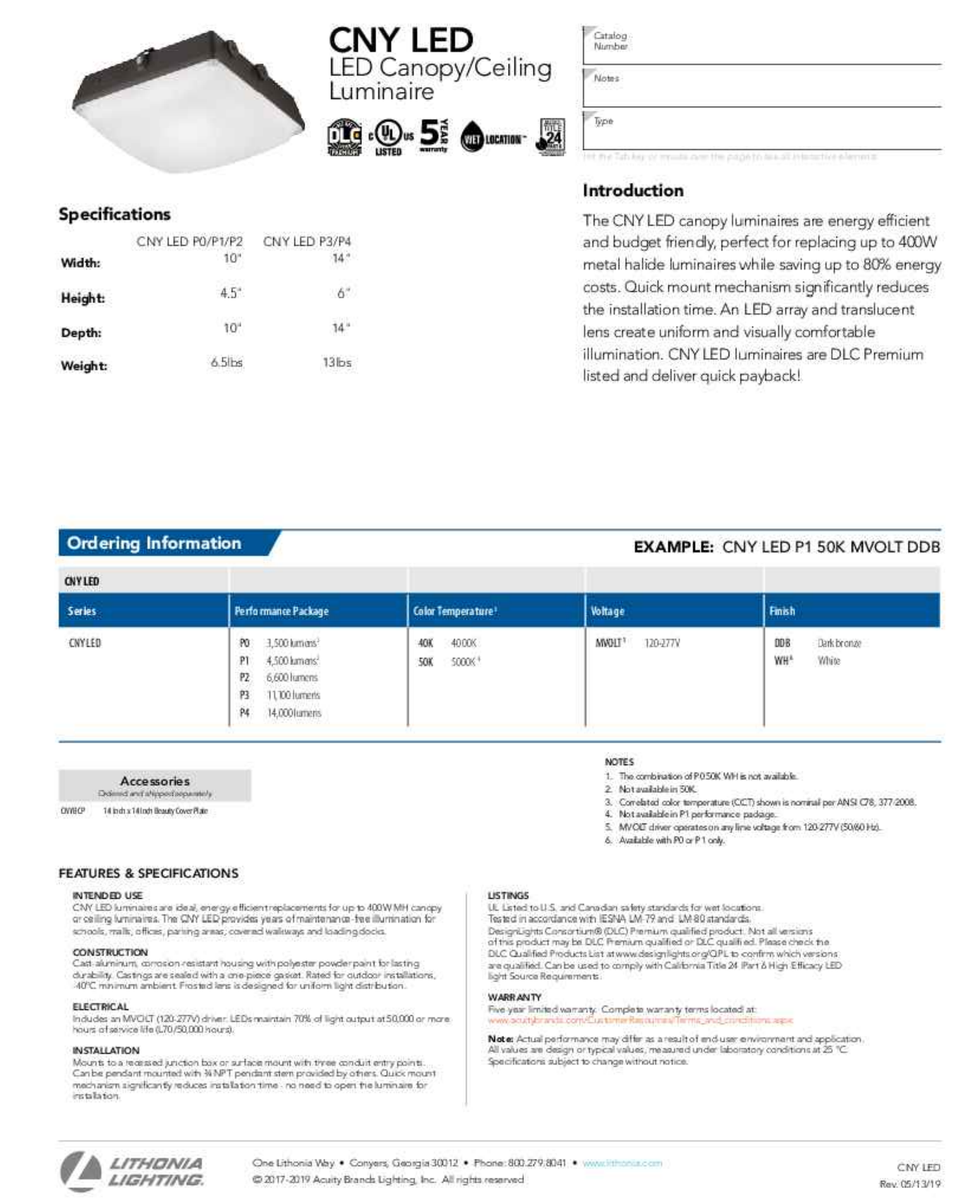


LIGHTING PLAN

NOTES:
1. LUMINAIRE # 22 260 - SEE SPECIFICATIONS





Schedule

Symbol	Label	Image	QTY	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens per Lamp	Lumen Multiplier	LLF	Wattage	Efficiency	Distribution	Polar Plot	Notes
	SA		3	BEGA USA.	1DW/22 260 3K-MV-COLOR	22260	LED 29,8W	1	22260.IES	3557	1	0.9	34	100%		Max: 2644cd	
	SB		7	BEGA Converted by LUMCat V 30.09.2016 / H.R.		24 372 K3	LED 6,1W	1	24372_BEGA_IES.ies	459	1	0.9	8	100%		Max: 231cd	
	SF		2	Sternberg Lighting	1DW/6130LED-1RND30T4-MDL03-CSA	6130LED HERITAGE, 6-Sided Post Top Lantern, Clear Seeded Acrylic, Type 4	26 LEDs	1	6130LED-1RND30T4-MDL03-CSA.ies	2712	1	0.9	30.4	100%		Max: 2439cd	
	SF1		4	Sternberg Lighting	1DW/6130LED-1RND30T4-MDL03-CSA-LHSS	6130LED HERITAGE, 6-Sided Post Top Lantern, Clear Seeded Acrylic, Type 4	26 LEDs	1	6130LED-1RND30T4-MDL03-CSA.ies	2712	1	0.9	30.4	100%		Max: 2439cd	
	SF2		0	Sternberg Lighting	1DW/6130LED-1RND30T4-MDL03-CSA-LHSS+90HSS	6130LED HERITAGE, 6-Sided Post Top Lantern, Clear Seeded Acrylic, Type 4	26 LEDs	1	6130LED-1RND30T4-MDL03-CSA.ies	2712	1	0.9	30.4	100%		Max: 2439cd	
	SG1		18	Lithonia Lighting	CNY LED P1 40K MVOLT	CNY LED Canopy P1=4,500lm		108	CNY_LED_P1_40K_MVOLT.ies	4476	1	0.9	35.36	1%	TYPE VS, CUTOFF, BUG RATING: B2 - U3 - G1		

Luminaire Locations

		Location						Aim		
No.	Label	X	Y	Z	MH	Orientation	Tilt	X	Y	Z
1	SA34	248.00	252.00	11.50	11.50	0.00	0.00	248.00	252.17	0.00
2	SA34	292.00	297.00	11.50	11.50	0.00	0.00	292.00	297.17	0.00
3	SA34	273.00	283.00	11.50	11.50	270.00	0.00	272.84	283.00	0.00
1	SF	210.30	105.10	8.00	8.00	180.00	0.00	210.30	104.98	0.00
2	SF	245.90	105.20	8.00	8.00	180.00	0.00	245.90	105.08	0.00
3	SF	272.60	104.60	8.00	8.00	180.00	0.00	272.60	104.48	0.00
1	SF1	304.60	105.40	8.00	8.00	180.00	0.00	304.60	105.28	0.00
2	SG1	244.00	157.00	9.50	9.50	0.00	0.00	244.00	157.00	0.00
3	SG1	269.00	157.00	9.50	9.50	0.00	0.00	269.00	157.00	0.00
4	SG1	294.00	157.00	9.50	9.50	0.00	0.00	294.00	157.00	0.00
5	SG1	244.00	175.00	9.50	9.50	0.00	0.00	244.00	175.00	0.00
6	SG1	269.00	175.00	9.50	9.50	0.00	0.00	269.00	175.00	0.00
7	SG1	294.00	175.00	9.50	9.50	0.00	0.00	294.00	175.00	0.00
8	SG1	244.00	193.00	9.50	9.50	0.00	0.00	244.00	193.00	0.00
9	SG1	269.00	193.00	9.50	9.50	0.00	0.00	269.00	193.00	0.00
10	SG1	294.00	193.00	9.50	9.50	0.00	0.00	294.00	193.00	0.00
11	SG1	244.00	211.00	9.50	9.50	0.00	0.00	244.00	211.00	0.00
12	SG1	269.00	211.00	9.50	9.50	0.00	0.00	269.00	211.00	0.00
13	SG1	294.00	211.00	9.50	9.50	0.00	0.00	294.00	211.00	0.00
14	SG1	244.00	229.00	9.50	9.50	0.00	0.00	244.00	229.00	0.00
15	SG1	269.00	229.00	9.50	9.50	0.00	0.00	269.00	229.00	0.00
16	SG1	294.00	229.00	9.50	9.50	0.00	0.00	294.00	229.00	0.00
17	SG1	244.00	247.00	9.50	9.50	0.00	0.00	244.00	247.00	0.00
18	SG1	269.00	247.00	9.50	9.50	0.00	0.00	269.00	247.00	0.00
19	SG1	291.00	256.00	9.50	9.50	0.00	0.00	291.00	256.00	0.00
24	SG1	265.00	139.00	9.50	9.50	0.00	0.00	265.00	139.00	0.00

Statistics: UNION AVE REV 6 7-29-20 LLG

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
FRONT WALKS	+	3.9 fc	7.6 fc	0.2 fc	38.0:1	19.5:1
GARAGE	+	8.1 fc	31.9 fc	1.1 fc	29.0:1	7.4:1
HC RAMP -PORCH 2	□	1.7 fc	3.7 fc	0.2 fc	18.5:1	8.5:1
HC RAMP-PORCH 1	◇	4.7 fc	7.1 fc	1.7 fc	4.2:1	2.8:1
OFF SITE	✳	0.0 fc	0.3 fc	0.0 fc	N/A	N/A
REAR PROPERTY	□	1.7 fc	12.0 fc	0.0 fc	N/A	N/A
SIDEWALK-RAMP EAST	×	1.1 fc	2.5 fc	0.0 fc	N/A	N/A

1" = 20'
10 0 20

REV. NO.	DATE	DRWN	CHKD	REMARKS
2	10/19/20	PAS	MJB	REVISED PLANS AS PER FINAL ARCHITECTURAL BUILDING FOOTPRINT
1	7/24/20	PAS	MJB	REVISED PLANS AS PER BOARD ENGINEER'S REVIEW LETTER 02/13/20

DESIGNED BY: PAS
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MAJOR SITE PLAN
TAX BLOCK 66.02
LOTS 31.01
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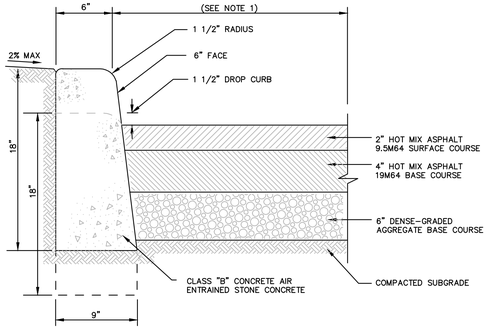
PROJECT NO. SEPE-00010
DRAWING
LI-1
SHEET NO.
5 OF 9

FILE NAME: N:\SEPE MANASQUAN APARTMENTS\SEPE-00010 - 33 UNION\PLANS\REVISED-CP.DWG PRASANNA 11/11/2020 12:57 PM

NOT FOR CONSTRUCTION



NOTE: 1) IN AREAS WHERE EXISTING PAVEMENT IS TO REMAIN, A 2' WIDE PAVEMENT REPAIR STRIP SHALL BE CONSTRUCTED ALONG PROPOSED CURB. THE FOLLOWING ITEMS OF WORK WITHIN THE REPAIR STRIP ARE INCLUDED UNDER 9" x 18" CONCRETE VERTICAL CURB:

- SAWCUT
- CONCRETE CURING AND SEALING COMPOUND
- EXCAVATION, UNCLASSIFIED
- BACKFILL MATERIAL
- COMPACTED SUBGRADE
- DENSE-GRADED AGGREGATE BASE COURSE
- HOT MIX ASPHALT 19M64 BASE COURSE - REMOVAL OF MONOLITHIC CONCRETE CURB AND GUTTER (IF REQUIRED)

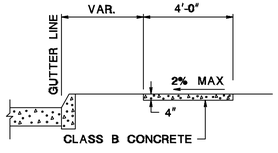
2) CURB DEPTH SHALL BE MAINTAINED AT DROP CURBS.

3) 4" THICK, COARSE AGGREGATE SIZE NO. 57 SHALL BE CONSTRUCTED UNDERNEATH PROPOSED CURB IN WET FIELD CONDITIONS AS DIRECTED BY ENGINEER.

4) TOP OF CURB SHALL NOT BE SET HIGHER THAN ADJACENT EXISTING OR PROPOSED SIDEWALK UNDER ANY CONDITION.

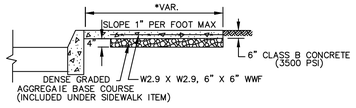
5) ALL CONCRETE SURFACES SHALL BE TREATED WITH A CONCRETE CURING AND SEALING COMPOUND.

9"X18" CONCRETE VERTICAL CURB
DETAIL A — NTS — CD-1



CONCRETE SIDEWALK, 4" THICK

NJDOT CONCRETE SIDEWALK
DETAIL P — NTS — CD-1



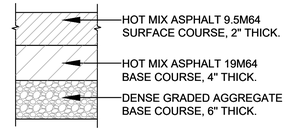
CONCRETE DRIVEWAY, REINFORCED, 6" THICK
DETAIL B — CD1

R1-1
30" x 30"
(5.5 S.F.)

GENERAL NOTES – SIGNS:

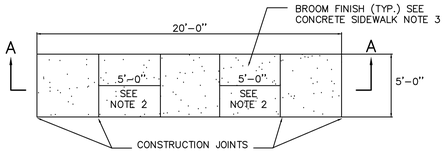
1. DIMENSIONS, COLORS, AND DETAILS OF SIGNS AND SYMBOLS TO FOLLOW STANDARDS IN THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".
2. ALL SIGNS TO BE ASTM D 4956 TYPE III SHEETING.

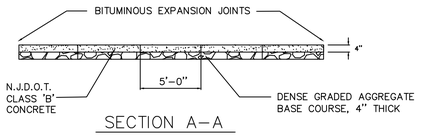
SIGN
DETAIL C — NTS — CD1



PAVEMENT DETAIL

HOT MIX ASPHALT
DETAIL H — NTS — CD-1





SECTION A–A

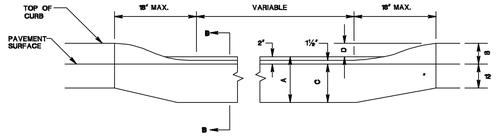
CONCRETE SIDEWALK NOTES:

1. A PREFORMED, BITUMINOUS EXPANSION JOINT ½" THICK, 4" WIDE, AND EXTENDING THE FULL WIDTH OF THE WALK, UNBROKEN, SHALL BE INSTALLED EVERY TWENTY (20) FEET.
2. CONSTRUCTION JOINTS SHALL BE INSTALLED EVERY FIVE (5) FEET THE FULL WALK WIDTH. HOWEVER, WHERE SIDEWALK IS DISTINCTLY WIDER THAN 5 FEET, THE JOINT SPACING IS TO BE INCREASED TO PROVIDE APPROXIMATELY SQUARE CONCRETE SIDEWALK FLAGS BETWEEN JOINTS. CONSTRUCTION AND EXPANSION JOINT SPACING WHERE SIDEWALK ABUTS THE EXISTING SIDEWALK IN THE COUNTY RIGHT-OF-WAY SHALL MATCH THE EXISTING JOINT SPACING.
3. THERE SHALL BE A BROOM FINISH WITH THE EDGES FINISHED WITH A SUITABLE TOOL. CONCRETE FINISHING WHERE THE SIDEWALK ABUTS THE EXISTING SIDEWALK IN THE COUNTY RIGHT-OF-WAY SHALL MATCH THE EXISTING CONCRETE FINISHING.
4. CONCRETE SIDEWALK THAT ABUT BUILDINGS SHALL PROVIDE A 6" TO 8" THICK HAUNCH FOR A WIDTH OF 6" TO 8".
5. UNLESS OTHERWISE DIRECTED BY THE ENGINEER, CONSTRUCTION WHICH DOES NOT CONFORM TO THE TOLERANCES SPECIFIED (IE. WHICH EXCEEDS THE MAXIMUM OR IS LESS THAN THE MINIMUM) WILL BE REMOVED AND REPLACED WITHOUT COST TO THE OWNER.
6. CONCRETE FOR CURBS, SIDEWALKS, CURB RAMPS AND MONOLITHIC CURB RAMP CRADLES SHALL BE NJDOT CLASS B.
7. EXPANSION JOINTS WITH PREFORMED EXPANSION JOINT FILLER FOR CONCRETE (BITUMINOUS TYPE), SHALL BE PROVIDED AS FOLLOWS.

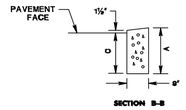
   3.1 ½" THICK AT LONGITUDINAL INTERVALS OF APPROXIMATELY TWENTY FEET (20') AND BETWEEN ALL SIDEWALK CURB RAMPS AND MONOLITHIC CURB RAMP CRADLES.

   3.2 ½" THICK BETWEEN CURB AND SIDEWALK, AROUND ALL STRUCTURES OR APPURTENANCES, SUCH AS MANHOLES, JUNCTION BOXES AND UTILITY POLES, AND ADJACENT TO ANY FIXED STRUCTURE.
8. EXPANSION JOINT MATERIAL SHALL BE TRIMMED AS TO BE SLIGHTLY BELOW THE SURFACE OF THE CONCRETE.
9. JOINT SEALER WHERE SHOWN OR REQUIRED SHALL CONFORM TO NJDOT SPECIFICATION 914. HOT-POURED JOINT SEALER SHALL CONFORM TO ASTM D 6690. COLD-APPLIED JOINT SEALER SHALL CONFORM TO ASTM D 5893, TYPE SL OR TYPE NS.
10. TOOLED JOINTS SHALL BE PROVIDED WITH A GROOVING TOOL SO AS TO DIVIDE THE CONCRETE SURFACE INTO BLOCKS AS CLOSELY APPROACHING A SQUARE AS PRACTICABLE. GROOVES SHALL BE CUT TO A DEPTH OF AT LEAST ¼ INCH AND SHALL BE FINISHED WITH AN EDGING TOOL HAVING A RADIUS OF ¼ INCH.
11. UNLESS OTHERWISE DIRECTED BY THE ENGINEER, EXPANSION AND TOOLED JOINTS IN CONCRETE SURFACES SHALL BE ALIGNED WITH JOINTS IN CURBS.
12. PUBLIC SIDEWALK CURB RAMPS, TURNING SPACES, BLENDED TRANSITIONS AND CLEAR SPACES WITHIN THE PEDESTRIAN ACCESS ROUTE SHALL NOT CONTAIN GRATINGS, COVERS, UTILITY BOXES OR SIMILAR OBSTRUCTION. OUTSIDE OF THE ABOVE AREAS, GRATINGS IN PUBLIC SIDEWALKS MAY HAVE OPENINGS NO GREATER THAN ½ INCH WIDE MEASURED PARALLEL TO DIRECTION OF TRAVEL.

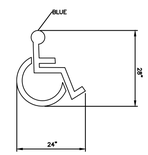
CONCRETE SIDEWALK
DETAIL D — NTS — CD-1



CURB SIZE	DIM. A	DIM. B	DIM. C	DIM. D
9" x 16"	16"	4"	14"	2"
9" x 18"	18"	6"	16"	4"



DEPRESSED CURB AT DRIVEWAY
DETAIL E — NTS — CD-1



STROKE WIDTH: MINIMUM/STANDARD = 3"

ADA SYMBOL
DETAIL F — NTS — CD-1

NOTE:
BREAKAWAY STEEL U-POST IN ACCORDANCE WITH N.J.D.O.T. STANDARD CONSTRUCTION DETAILS

NOTE: ALL TRAFFIC CONTROL SIGNAGE TO BE PER MUTCD.

GENERAL NOTES – SIGN POSTS:

1. ALL POSTS TO BE OF ADEQUATE LENGTH TO MEET THE REQUIREMENTS FOR ERECTION AS STATED IN THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AND AS INDICATED BELOW.
2. ALL SMALL SIGN SUPPORTS TO BE OF THE BREAKAWAY TYPE WITH EXCEPTION OF THOSE INSTALLED BEHIND GUIDE RAIL OR OTHER ROADSIDE BARRIER.
3. ALL STEEL POSTS AND BRACKETS TO BE CUT, BENT, AND HOLES PUNCHED AND DRILLED BEFORE GALVANIZING. GALVINIZING TO BE ACCORDING TO ASTM A123.
4. ALL STEEL U-POST SIGN SUPPORTS MUST BE INSTALLED FACING THE PREDOMINANT TRAFFIC FLOW. USE A MOUNTING BRACKET ON SIDE MOUNTED SIGNS SUCH AS "ONE WAY" SIGNS INSTALLED IN MEDIANS.
5. SIGN PANEL SIZES ARE TO DETERMINE POST TYPE AND NUMBER AS SHOWN ON THIS DETAIL.
6. BOLTS ARE NOT TO PROTRUDE MORE THAN 3/4" BEYOND THE NUT WHEN TIGHT, BUT ARE TO ENGAGE ALL THREADS IN THE NUT.
7. WHEN SIGNS ARE INSTALLED ON SLOPES 10H:1V OR FLATTER, THE MINIMUM VERTICAL CLEARANCE REQUIREMENTS FOR SIGNS ARE:

   FOR SINGLE POST INSTALLATIONS – THE MINIMUM DISTANCE BETWEEN THE EDGE OF THE PAVEMENT AND THE BOTTOM OF ANY PANEL MUST BE 7 FEET, AND THE MINIMUM DISTANCE FROM EDGE OF PAVEMENT TO THE TOP OF ANY SIGN PANEL MUST BE 9 FEET.

   WHERE GRADING OF 90H:1V OR FLATTER CANNOT BE OBTAINED, OR WHERE CURB OR BERM IS GREATER THAN 4 INCHES, THE MINIMUM VERTICAL CLEARANCE WILL BE MEASURED FROM THE GROUND LINE TO THE BOTTOM OF THE SIGN.
8. THE HORIZONTAL OFFSET FROM EDGE OF PAVEMENT TO EDGE OF SIGN IS DERIVED FROM SECTION 2A.19 OF THE MUTCD.
9. EXTRUDED ALUMINUM SIGN PANELS ARE NOT PERMITTED FOR USE WITH STEEL U-POST SIGN SUPPORTS.

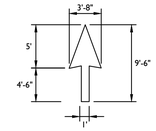
TYPICAL HANDICAP PARKING SIGN
DETAIL I — NTS — CD-1

12" x 18"
(1.5 S.F.)

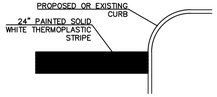
NOTES:

1. SIGN SHALL BE WHITE WITH RED TEXT AND BORDER

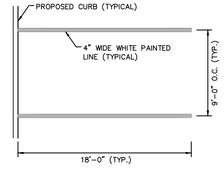
NO PARKING FIRE LANE SIGN
DETAIL N — NTS — CD-1



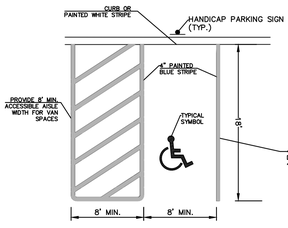
PAVEMENT MARKINGS
DETAIL L — CD-1



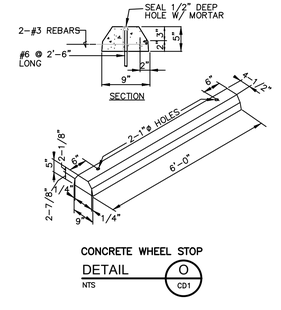
STOP BAR
DETAIL G — NTS — CD-1



90° PARKING STALL
DETAIL M — CD-1



ACCESSIBLE PARKING STALL STRIP
DETAIL K — CD-1



CONCRETE WHEEL STOP
DETAIL O — NTS — CD1

CONSTRUCTION DETIALS

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	7/24/20	PAS	MJB	REVISED PLANS AS PER BOARD ENGINEER'S REVIEW LETTER 02/13/20

DESIGNED BY: PAS
DRAWN BY: PAS
SHEET CHK'D BY: JJF
CROSS CHK'D BY:
APPROVED BY:
DATE: OCTOBER 28, 2019

ENGENUITY INFRASTRUCTURE
2 BRIDGE AVENUE , SUITE 323
RED BANK, NJ 07701
732.741.3176
ENGENUITYNJ.COM

MAJOR SITE PLAN
TAX BLOCK 66.02
LOTS 31.01
BOROUGH OF MANASQUAN
MONMOUTH COUNTY, NEW JERSEY

OWNER / DEVELOPER / APPLICANT:
UNION AVENUE 33, LLC
126 MAIN STREET
MANASQUAN, NJ 08736
PHONE: (732) 522-0197

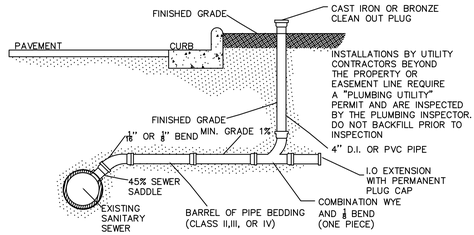
JACLYN J. FLOR, P.E., P.P., C.M.E
CONSULTING ENGINEER
LICENSED PROFESSIONAL ENGINEER
STATE OF NJ LICENCE NO. 24GE045426
CERTIFICATE OF AUTHORIZATION 24GA28268000

10/28/19
DATE

PROJECT NO. SEPE-00010
DRAWING CD-1
SHEET NO. 6 OF 9

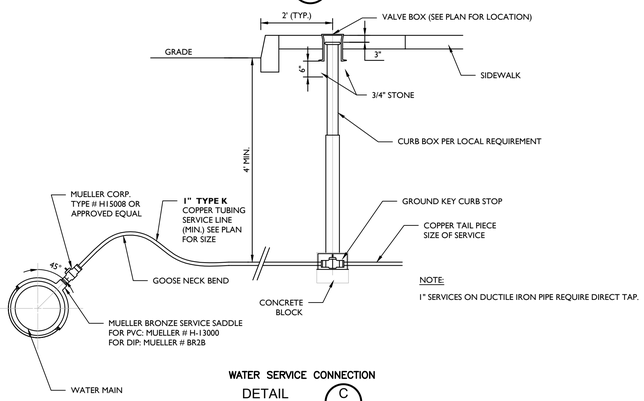
FILE NAME: N:\SEPE MANASQUAN APARTMENTS\SEPE-00010 – 33 UNION\PLANS\REVISED-CP.DWG PRASANNA 11/11/2020 12:57 PM

NOT FOR CONSTRUCTION



SANITARY SEWER LATERAL CONNECTION

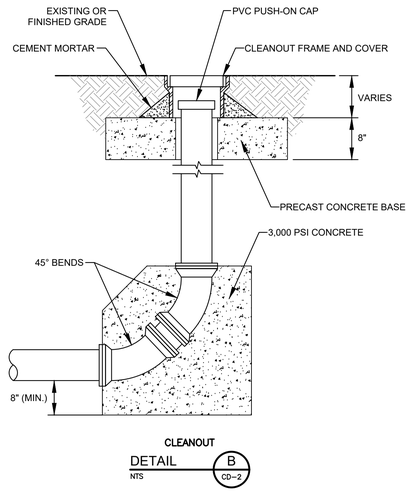
DETAIL A CD-2 NTS



NOTE:
1" SERVICES ON DUCTILE IRON PIPE REQUIRE DIRECT TAP.

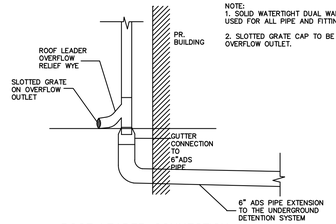
WATER SERVICE CONNECTION

DETAIL C CD-2 NTS



CLEANOUT

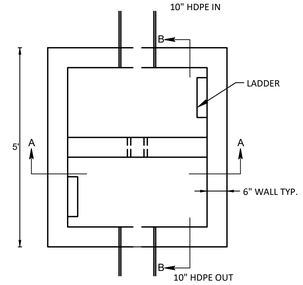
DETAIL B CD-2 NTS

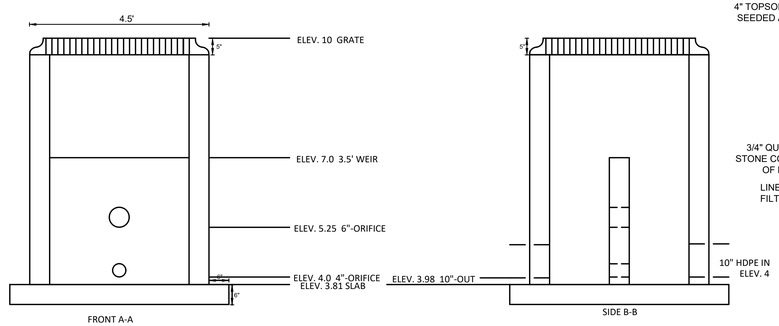


NOTE:
1. SOLID WATERTIGHT DUAL WALL ADS PIPE TO BE USED FOR ALL PIPE AND FITTINGS.
2. SLOTTED GRATE CAP TO BE PROVIDED ON OVERFLOW OUTLET.

ROOF LEADER CONNECTION TO UNDERGROUND DETENTION

NOT TO SCALE



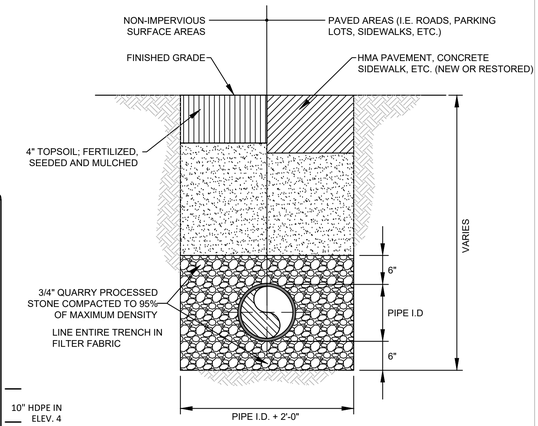


OUTLET CONTROL STRUCTURE

DETAIL E CD2 NTS

ROOF LEADER CONNECTION TO UNDERGROUND DETENTION

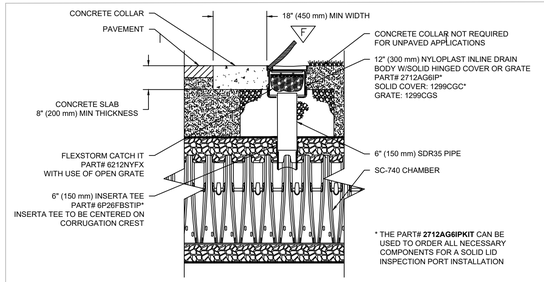
DETAIL D CD2 NTS NTS



HDPE/PVC PIPE BEDDING

DETAIL F CD2 NTS

CONSTRUCTION DETIALS



3 SC-740 6" (150 mm) INSPECTION PORT DETAIL

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

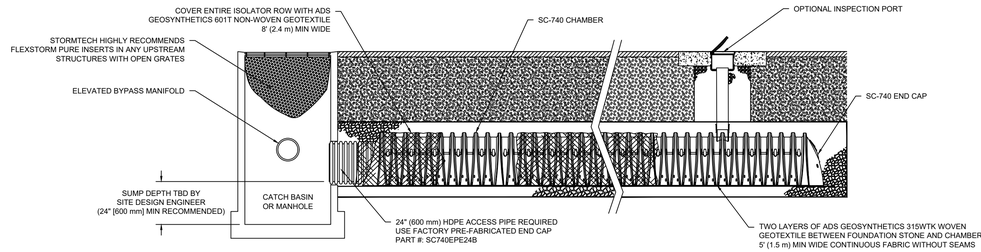
STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

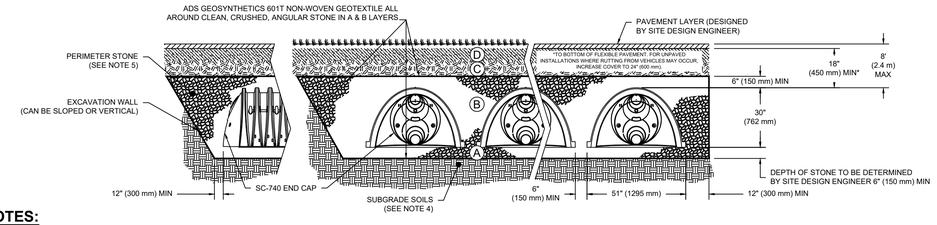


2 SC-740 ISOLATOR ROW DETAIL

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



NOTES:

1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

1 SC-740 CROSS SECTION DETAIL

REV. NO.	DATE	DRWN	CHKD	REMARKS
2	11/11/20	PAS	MJB	REVISED PLANS AS PER BOARD ENGINEER'S COMMENTS 11/04/20
1	7/24/20	PAS	MJB	REVISED PLANS AS PER BOARD ENGINEER'S REVIEW LETTER 02/13/20

DESIGNED BY: PAS
DRAWN BY: PAS
SHEET CHK'D BY: JJF
CROSS CHK'D BY:
APPROVED BY:
DATE: OCTOBER 28, 2019

ENGENUITY INFRASTRUCTURE

ENGENUITY INFRASTRUCTURE
2 BRIDGE AVENUE , SUITE 323
RED BANK, NJ 07701
732.741.3176
ENGENUITYNJ.COM

MAJOR SITE PLAN
TAX BLOCK 66.02
LOTS 31.01
BOROUGH OF MANASQUAN
MONMOUTH COUNTY, NEW JERSEY

OWNER / DEVELOPER / APPLICANT:
UNION AVENUE 33, LLC
126 MAIN STREET
MANASQUAN, NJ 08736
PHONE: (732) 522-0197

JACLYN J. FLOR, P.E., P.P., C.M.E
CONSULTING ENGINEER
LICENSED PROFESSIONAL ENGINEER
STATE OF NJ LICENCE NO. 24GE045426
CERTIFICATE OF AUTHORIZATION 24GA28268000
10/28/19
DATE

PROJECT NO. SEPE-00010
DRAWING CD-2
SHEET NO. 7 OF 9

NOT FOR CONSTRUCTION

FILE NAME: N:\SEPE MANASQUAN APARTMENTS\SEPE-00010 – 33 UNION\PLANS\REVISED-CP.DWG PRASANNA 11/11/2020 12:59 PM

STANDARD FOR TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION

Definition

Establishment of temporary vegetative cover on soils exposed for periods of two to 6 months which are not being graded, not under active construction or not scheduled for permanent seeding within 60 days.

Purpose

To temporarily stabilize the soil and reduce damage from wind and water erosion until permanent stabilization is accomplished.

Water Quality Enhancement

Provides temporary protection against the impacts of wind and rain, slows the overland movement of stormwater runoff, increases infiltration and retains soil and nutrients on site, protecting streams or other stormwater conveyances.

Where Applicable

On exposed soils that have the potential for causing off-site environmental damage.

Methods and Materials

I. Site Preparation

A. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. All grading should be done in accordance with Standards for Land Grading, p. 19–1.

B. Install needed erosion control practices or facilities such as diversions, grade stabilization structures, channel stabilization measures, sediment basins, and water–ways. See Standards 11 through 42.

C. Immediately prior to seeding, the surface should be scarified 6" to 12" where there has been soil compaction. This practice is permissible only where there is no danger to underground utilities (cables, irrigation systems, etc.).

II. Seedbed Preparation

A. Apply ground limestone and fertilizer according to soil test recommendations such as offered by Rutgers Co–operative Extension. Soil sample mailers are available from the local Rutgers Cooperative Extension offices. Fertilizer shall be applied at the rate of 500 pounds per acre or 11 pounds per 1,000 square feet of 10–20–10 or equivalent with 50% water insoluble nitrogen unless a soil test indicates otherwise. Apply limestone per soil testing. Calcium carbonate is the equivalent and standard for measuring the ability of liming materials to neutralize soil acidity and supply calcium and magnesium to grasses and legumes.

B. Work lime and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, springtooth harrow, or other suitable equipment. The final harrowing or discing operation should be on the general contour. Continue tillage until a reasonably uniform seedbed is prepared.

C. Inspect seedbed just before seeding. If traffic has left the soil compacted, the area must be retilled as above.

D. Soils high on sulfides or having a pH of 4 or less refer to Standard for Management of High Acid Producing Soils, pg. 1–1.

III. Seeding

A. Select seed from recommendations in Table.

SEED SELECTION	SEEDING RATES 1/ (pounds)		OPTIMUM SEEDING DATE 2/ Based on Plant Hardiness Zone 3/			OPTIMUM SEED DEPTH 4/ (inches)
	Per Acre	Per 1,000 Sq. Ft.	ZONE 5	ZONE 6	ZONE 7	
COOL SEASON GRASSES						
Perennial ryegrass	100	1.0	3/15–6/1 8/1–9/15	3/1–5/15 8/15–10/1	2/15–5/1 8/15–10/15	0.5
Spring Oats	86	2.0	3/15–6/1 8/1–9/15	3/1–5/15 8/15–10/1	2/15–5/1 8/15–10/15	1.0
Winter Barley	96	2.2	8/1–9/15	8/15–10/1	8/15–10/15	1.0
Annual ryegrass	100	1.0	3/15–6/1 8/1–9/15	3/1–6/1 8/1–9/15	2/15–5/1 8/15–10/15	0.5
Winter Cereal Rye	112	2. 8	8/1–11/1	8/1–11/15	8/1–12/15	1.0
WARM SEASON GRASSES						
Pearl millet	20	0.5	6/1–8/1	5/15–8/15	5/1–9/1	1.0
Millet (German or Hungarian)	30	0.7	6/1–8/1	5/15–8/15	5/1–9/1	1.0

1. Seeding rate for warm season grass, shall be adjusted to reflect the amount of Pure Line Seed (PLS) as determined by a germination test result. No adjustment is required for cool season grasses.
2. May be planted throughout summer if soil moisture is adequate or can be irrigated
3. Plant Hardiness Zone (see below)
4. Twice the depth for sandy soils

Zone 5b (–10 to –15) Portions of Sussex and Warren Counties

Zone 6a (–5 to –10) Portions of Sussex, Warren, Passaic, Morris, Somerset and Hunterdon counties.

Zone 6b (0 to –5) Portions of Bergen, Camden, Essex and Gloucester, Hunterdon, Mercer, Middlesex, Hudson, Monmouth, Ocean, Burlington, Morris, Passaic, Somerset, Union, Atlantic, Cumberland, and Cape May counties.

Zone 7a (5 to 0) Portions of Camden, Gloucester, Salem, Cumberland, Cape May, Atlantic, Burlington, Ocean, and Monmouth counties.

Zone 7b (10 to 5) Portions of Cape May, Atlantic, Ocean and Monmouth counties.

B. Conventional Seeding – Apply seed uniformly by hand, cyclone (centrifugal) seeder, drop seeder, drill or cultipacker seeder. Except for drilled, hydroseeded or cultipacked seedings, seed shall be incorporated into the soil, to a depth of 1/4 to 1/2 inch, by raking or dragging. Depth of seed placement may be 1/4 inch deeper on coarse textured soil.

C. Hydroseeding is a broadcast seeding method usually involving a truck or trailer mounted tank, with an agitation system and hydraulic pump for mixing seed, water and fertilizer and spraying the mix onto the prepared seedbed. Mulch shall not be included in the tank with seed. Short fibered mulch may be applied with a hydroseeder following seeding. (also see Section IV Mulching) Hydroseeding is not a preferred seeding method because seed and fertilizer are applied to the surface and not incorporated into the soil. Poor seed to soil contact occurs reducing seed germination and growth. Hydroseeding may be used for areas too steep for conventional equipment to traverse or too obstructed with rocks, stumps, etc.

D. After seeding, firming the soil with a corrugated roller will assure good seed–to–soil contact, restore capillarity, and improve seeding emergence. This is the preferred method. When performed on the contour, sheet erosion will be minimized and water conservation on site will be maximized.

IV. Mulching

Mulching is required on all seeding. Mulch will insure against erosion before grass is established and will promote faster and earlier establishment. The existence of vegetation sufficient to control soil erosion shall be deemed compliance with this mulching requirement.

A. Straw or Hay. Unrotted small grain straw, hay free of seeds, or salt hay to be applied at the rate of 1–1/2 to 2 tons per acre (70 to 90 pounds per 1,000 square feet), except that where a crimper is used instead of liquid mulch–binder (tackifying or adhesive agent), the rate of application is 3 tons per acre. Mulch chopper–blowers must not grind the mulch. Hay mulch is not recommended for establishing fine turf or lawns due to the presence of weed seed.

Application. Spread mulch uniformly by hand or mechanically so that approximately 95% of the soil surface will be covered. For uniform distribution of hand–spread mulch, divide area into approximately 1,000 square feet sections and distribute 70 to 90 pounds within each section.

Anchoring shall be accomplished immediately after placement to minimize loss by wind or water. This may be done by one of the following methods, depending upon the size of the area, steepness of slopes, and costs.

1. Peg and Twine. Drive 8 to 10 inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a cris–cross and a square pattern. Secure twine around each peg with two or more round turns.

2. Mulch Nettings – Staple paper, jute, cotton, or plastic nettings to the soil surface. Use a degradable netting in areas to be mowed.

3. Crimper (mulch anchoring tool). A tractor–drawn implement, somewhat like a disc harrow, especially designed to push or cut some of the broadcast long fiber mulch 3 to 4 inches into the soil so as to anchor it and leave part standing upright. This technique is limited to areas traversable by a tractor, which must operate on the contour of slopes. Straw mulch rate must be 3 tons per acre. No tackifying or adhesive agent is required.

4. Liquid Mulch–Binders – May be used to anchor salt hay or straw mulches.

   a. Applications should be heavier at edges where wind catches the mulch, in valleys, and at crests of banks. Remainder of area should be uniform in appearance.

   b. Use one of the following:

      (1) Organic and Vegetable Based Binders – Naturally occurring, powder based, hydrophilic materials when mixed with water formulates a gel and when applied to mulch under satisfactory curing conditions will form membraned networks of insoluble polymers. The vegetable gel shall be physiologically harmless and not result in a phytotoxic effect or impede growth of turfgrass. Use at rates and weather conditions as recommended by the manufacturer to anchor mulch materials. Many new products are available, some of which may need further evaluation for use in this state.

      (2) Synthetic binders – High polymer synthetic emulsion, miscible with water when diluted and following application to mulch, drying and curing shall no longer be soluble or dispersible in water. It shall be applied at rates recommended by the manufacturer and remain tacky until germination of grass.

B. Wood–fiber or paper–fiber mulch. Shall be made from wood, plant fibers or paper containing no growth or germination inhibiting materials, used at the rate of 1,500 ponds per acre (or as recommended by the project manufacturer) and may be applied by a hydroseeder. This mulch shall not be mixed in the tank with the seed. Use is limited to flatter slopes and during optimum seeding periods in spring and fall.

C. Pelletized mulch. Compressed and extruded paper and/or wood fiber product, which may contain co–polymers, tackifiers, fertilizers and coloring agents. The dry pellets, when applied to a seeded area and watered, form a mulch mat. Pelletized mulch shall be applied in accordance with the manufacturers recommendations. Mulch may be applied by hand or mechanical spreader at the rate of 60–75 lbs/1,000 square feet and activated with 0.2 to 0.4 inches of water. This material has been found to be beneficial for use on small lawn or renovation areas, seeded areas where weed–seed free mulch is desired or on sites where straw mulch and tackifier agent are not practical or desirable.

Applying the full 0.2 to 0.4 inches of water after spreading pelletized mulch on the seed bed is extremely important for sufficient activation and expansion of the mulch to provide soil coverage.

STANDARD FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION

Definition

Establishment of permanent vegatative cover on exposed soils where perennial vegetation is needed for long term protection.

Purpose

To permanently stabilize the soil, assuring conservation of soil and water, and to enhance the environment.

Who is Responsible

The Township of Howell is responsible for the maintenance of permanent soil erosion and sediment control measures after completion of construction. The contractor shall be responsible during construction.

Water Quality Enhancement

Slows the over–land movement of stormwater runoff,increases infiltration and retains soil and nutrients on site, protecting streams or other stormwater conveya nces.

Where Applicable

On exposed soils that have a potential for causing off–site environmental damage.

Methods and Materials

I. Site Preparation

A. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. All grading should be done in accordance with Standards for Land Grading.

B. Immediately prior to seeding and topsoil application, the subsoil shall be evaluated for compaction in accordance with the Standard for Land Grading.

C. Topsoil should be handled only when it is dry enough to work without damaging the soil structure . A uniform application to a depth of 5 inches (unsettled) is required on all sites. Topsoil shall be amended with organic matter, as needed, in accordance with Standard for Topsoiling.

D. Install needed erosion control practices or facilities such as diversions, grade stabilization structures, channel stabilization measures, sediment basins, and waterways.

Seedbed Preparation

A. Uniformly apply ground limestone and fertilizer to topsoil which has been spread and

II. firmed, according to soil test recommendations such as offered by Rutgers Co–operative Extension Soil sample mailers are available from the local Rutgers Cooperative Extension offices (http: //njaes.rutgers.edu/county/). Fertilizer shall be applied at the rate of 500 pounds per acre or 11 pounds 1,000 square feet of 10–10–10 or equivalent with 50% water insoluble nitrogen unless a soil test indicates otherwise and incorporated into the surface 4 inches. If fertilizer is not incorporated, apply one–half the rate described above during seed–bed preparation and repeat another one–half the rate application of the same fertilizer within 3 to 5 weeks after seeding.

B. Work lime and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, springtooth harrow, or other suitable equipment. The final harrowing or discing operation should be on the general contour. Continue tillage until a reasonable uniform seedbed is prepared.

C. High acid producing soil.
Soils having a pH of 4 or less or containing iron sulfide shall be covered with a minimum of 12 inches of soil having a pH of 5 or more before initiating seedbed preparation. See standard for Management of High Acid Producing Soils.

II. Seeding

I A. Use a mixture recommended by Rutgers Cooperative Extension or Natural Resources Conservation Service which is approved by the Soil Conservation District. The recommended seed mixture is as follows: Fine Fescue (Blend) 45 lbs. per acre ,10 lbs per 1000 sq. ft, Hard Fescue 20 lbs. per acre .50 lbs per 1,000 sq. ft, Chewing Fescue 5 lbs per .10 lbs per 1,000 sq. ft., Tall fescue 265 lbs. per acre or 6 lbs. per 1,000 sq. Ft : Perennial ryegrass (blend) 20 lbs. per acre or .5 lbs. per 1,000 sq. Ft ; Turf type tall fescue 350 lbs per acre 8 lbs per 1,000 sq. ft. : Hard fescue 175 lbs. per acre or 4 lbs. per 1,000 sq. Ft : Chewing fescue 45 lbs. per acre or 1 lbs. per 1,000 sq. Ft : Strong Creeping red fescue 45 lbs. per acre or 1 lbs. per 1,000 sq. Ft : Perennial ryegrass 10 lbs. per acre or .25 lbs. per 1,000 sq. Ft Optimal planting period 3/1–4/30 or 8/15–10/15. Seed germination shall have been tested within 12 months of the planting date. No seed shall be accepted with a germination test date more than 12 months old unless retested

1. Seeding rates specified are required when a report of compliance is requested prior to actual establishment of permanent vegetation. Up to 50% reduction in rates may be used when permanent vegetation is established prior to a report of compliance inspection. These rates apply to all methods of seeding. Establishing permanent vegetation means 80% vegetative coverage with the specified seed mixture for the seeded area and mowed once.

2. Warm–season mixtures are grasses and legumes which maximize growth at high temperatures, generally 85o F and above. See Table 4–3 mixtures 1 to 7. Planting rates for warm–season grasses shall be the amount of Pure Live Seed (PLS) as determined by germination testing results.

3. Cool–season mixtures are grasses and legumes which maximize growth at temperatures below 85oF. Many grasses become active at 65oF. See Table 4–3, mixtures 8–20. Adjustment of planting rates to compensate for the amount of PLS is not required for cool season grasses.

B. Conventional Seeding – Apply seed uniformly by hand, cyclone (centrifugal) seeder, drop seeder, drill or cultipacker seeder. Except for drilled, hydroseeded or cultipacked seedings, seed shall be incorporated into the soil within 24 hours of seedbed preparation to a depth of 1/4 to 1/2 inch, by raking or dragging. Depth of seed placement may be 1/4 inch deeper on coarse textured soil.

C. After seeding, firming the soil with a corrugated roller will assure good seed–to–soil contact, restore capillarity, and improve seeding emergence. This is the preferred method. When performed on the contour, sheet erosion will be minimized and water conservation on site will be maximized.

D. Hydroseeding is a broadcast seeding method usually involving a truck or trailer mounted tank, with an agitation system and hydraulic pump for mixing seed, water and fertilizer and spraying the mix onto the prepared seedbed. Mulch shall not be included in the tank with seed. Short fibered mulch may be applied with a hydroseeder following seeding. Hydroseeding is not a preferred seeding method because seed and fertilizer are applied to the surface and not incorporated into the soil. Poor seed to soil contact occurs reducing seed germination and growth. Hydroseeding may be used for areas too steep for conventional equipment to traverse or too obstructed with rocks, stumps, etc.

IV. Mulching

Mulching is required on all seeding. Mulch will protect against erosion before grass is established and will promote faster and earlier establishment. The existence of vegetation sufficient to control soil erosion shall be deemed compliance with this mulching requirement.

A. Straw or Hay. Unrotted small grain straw, hay free of seeds, or salt hay to be applied at the rate of 1–1/2 to 2 tons per acre (70 to 90 pounds per 1,000 square feet), except that where a crimper is used instead of liquid mulch–binder (tackifying or adhesive agent), the rate of application is 3 tons per acre. Mulch chopper–blowers must not grind the mulch. Hay mulch is not recommended for establishing fine turf or lawns due to the presence of weed seed.

Application – Spread uniformly by hand mechanically so that approximately 85% of the soil surface will be covered. For uniform distribution of hand–spread mulch, divide area into approximately 1,000 square feet sections and distribute 70 to 90 pounds within each section.

Anchoring should be accomplished immediately after placement to minimize loss by wind or water. This may be done by one of the following methods, depending upon the size of the area, steepness of slopes, and costs.

1. Peg and Twine – Drive 8 to 10 inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a criss–cross and a square pattern. Secure twine around each peg with two or more round turns.

2. Mulch Nettings – Staple paper, jute, cotton, or plastic nettings to the soil surface. Use a degradable netting in areas to be mowed.

3. Crimper (mulch anchoring tool) – A tractor–drawn implement, somewhat like a disc–harrow, especially designed to push or cut some of the broadcast long fiber mulch 3 to 4 inches into the soil so as to anchor it and leave part standing upright. This technique is limited to areas traversable by a tractor, which must operate on the contour of slopes. Straw mulch rate must be 3 tons per acre. No tackifying or adhesive agent is required.

4. Liquid Mulch–Binders – May be used to anchor salt hay or straw mulches.

   a. Applications should be heavier at edges where wind catches the mulch, in valleys, and at crests of banks. Remainder of area should be uniform in appearance.

   b. Use one of the following:

      (1) Organic and Vegetable Based Binders – Naturally occurring, powder based, hydrophilic materials when mixed with water formulates a gel and when applied to mulch under satisfactory curing conditions will form membraned networks of insoluble polymers. The vegetable gel shall be physiologically harmless and not result in a phytotoxic effect or impede growth of turfgrass. Use at rates and weather conditions as recommended by the manufacturer to anchor mulch materials. Many new products are available, some of which may need further evaluation for use in this state.

      (2) Synthetic binders – High polymer synthetic emulsion, miscible with water when diluted and following application to mulch, drying and curing shall no longer be soluble or dispersible in water. It shall be applied at rates recommended by the manufacturer and remain tacky until germination of grass.

B. Wood–fiber or paper–fiber mulch. Shall be made from wood, plant fbers or paper containing no rowth or germination inhibiting materials, used at the rate of 1,500 poun per acre (or as recommen d by the product manufacturer) and may be applied by a hydroseeder. This mulch shall not be mixed in the tank with the seed. Use is limited to flatter slopes and during optimum seeding periods in spring and fall.

C. Pelletized mulch. Compressed and extruded paper and/or wood fiber product, which may contain co–polymers, tackifiers, fertilizers and coloring agents. The dry pellets, when applied to a seeded area and watered, form a mulch mat. Pelletized mulch shall be applied in accordance with the manufacturers recommendations. Mulch may be applied by hand or mechanical spreader at the rate of 60–75 lbs/1,000 square feet and activated with 0.2 to 0.4 inches of water. This material has been found to be beneficial for use on small lawn or renovation areas, seeded areas where weed–seed free mulch is desired or on sites where straw mulch and tackifier agent are not practical or desirable.

Applying the full 0.2 to 0.4 inches of water after spreading pelletized mulch on the seed bed is extremely important for sufficient activation and expansion of the mulch to provide soil coverage.

V. Irrigation (where feasible)

If soil moisture is deficient, and mulch is not used, supply new seedings with adequate water (a minimum of 1/4 inch twice a day until vegetation is well established). This is especially true when seedings are made in abnormally dry or hot weather or on droughty sites.

VI. Topdressing

Since soil organic matter content and slow release nitrogen fertilizer (water insoluble) are prescribed in Section 2A – Seedbed Preparation in this Standard, no follow–up of topdressing is mandatory. An exception may be made where grass nitrogen deficiency exists in the soil to the extent that turf failure may develop. In that instance, topgress with 10–10–10 or equivalent at 300 pounds per acre or 7 pounds per 1,000 square feet every 3 to 5 weeks until the gross nitrogen deficiency in the turf is ameliorated.

VII. Establishing Permanent Vegetative Stabilization

The quality of permanent vegetation rests with the contractor. The timing of seeding, preparing the seedbed, applying nutrients, mulch and other management are essential. The seed application rate is required when a Report of Compliance is requested prior to actual establishment of permanent vegetation. Up to 50% reduction in application rates may be used when permanent vegetation is established prior to requesting a Report of Compliance from the district. This rate applies to all methods of seeding. Establishing permanent vegetation means 80% vegetative cover (of the seeded species) and mowed once.

B. Synthetic or organic soil stabilizers may be used under siutable conditions and in quanyities as recommended by the manufacturer.

C. Wood–fiber or paper–fiber mulch at the rate of 1,500 pounds per acre (or according to the manufacturer's requirements) may be applied by a hydroseeder.

D. Mulch netting, such as paper jute, excelsior, cotton, or plastic, may be used.

E. Woodchips applied uniformly to a minimum depth of 2 inches may be used. Woodchips will not be used on areas where flowing water could wash them into an inlet and plug it.

F. Gravel, crush stone, or slag at the rate of 9 cubic yards per 1,000 sq. ft. applied uniformly to a minimum depth of 3 inches may be used. Size 2 or 3 (ASTM C–33) is recommended.

3. Mulch anchoring should be accomplished immeadiately after placement of hay or straw mulch to minimize loss by wind or water. This may be done by one of the following methods, depending upon the size of the area and steepness of slopes.

A. Peg and Drive – Drive 8 to 10 inch peg to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before of after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a cris–cross and square pattern. Secure twine around each peg with two or more round turns.

B. Mulch nettings – Staple paper, cotton, amd plastic nettings over mulch. Use a epradable netting in areas to be mowed. Netting is usually available in rolls 4 feet wide and 300 feet long.

C. Crimper Mulch Anchoring Coulter Tool – A tractor–drawn implement espeially designed to punch and anchor mulch into the soil surface. This practice affords maximum erosion control, but its use is limited to those slopes upon which the tractor can operate safely. Soil penetration should be about 3 to 4 inches. On sloping land, the operation should be on the contour.

D. Liquid Mulch – Binders

1. Application should be havier at edge where wind catches the mulch, in valleys, and at crests of banks. Remainder of area should be uniform in appearance.

2. Use one of the following:

   a. Organic and Vegitable Based Binders – Naturally occuring, powder based hydrophilic material that mixed with water formulates a gel and when applied to mulch under satisfactory curing conditions will form membrane networks of insoluble polymers. The vegetable gel shall be physiologically harmless and not result in a phytotoxic effect of impede growth of turfgrass. Vegetable based gels shall be applied at rates and weather conditions recommendeby the manufacturer.

   b. Synthetic Binders – High polymer synthetic emulsion, miscible with water when diluted and following application to mulch, drying and curing shall no longer be soluble or dispersible in water. It shall be applied at rates and weather conditions recommended by the manufacturer and remain tacky until germination of grass.

SOIL EROSION AND SEDIMENT CONTROL NOTES

1. THE FREEHOLD SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED FORTY–EIGHT (48) HOURS IN ADVANCE OF ANY SOIL DISTURBING ACTIVITY.
2. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
3. ANY CHANGES TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLANS WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RE–CERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT STATESOIL EROSION AND SEDIMENT CONTROL STANDARDS.
4. N.J.S.A 4:24–39 ET. SEQ. REQUIRES THAT NO CERTIFICATES OF OCCUPANCY BE ISSUED BEFORE THE DISTRICT DETERMINES THAT A PROJECT OR PORTION THEREOF IS IN FULL COMPLIANCE WITH THE CERTIFIED PLAN AND STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY AND A REPORT OF COMPLIANCE HAS BEEN ISSUED. UPON WRITTEN REQUEST FROM THE APPLICANT, THE DISTRICT MAY ISSUE A REPORT OF COMPLIANCE WITH CONDITIONS ON A LOT–BY–LOT OR SECTION–BY–SECTION BASIS, PROVIDED THAT THE PROJECT OR PORTION THEREOF IS IN SATISFACTORY COMPLIANCE WITH THE SEQUENCE OF DEVELOPMENT AND TEMPORARY MEASURES FOR SOIL EROSION AND SEDIMENT CONTROL HAVE BEEN IMPLEMENTED, INCLUDING PROVISIONS FOR STABILIZATION AND SITE WORK.
5. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN SIXTY (60) DAYS, AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF 2 TO 2 ½ TONS PER ACRE, ACCORDING TO THE STANDARD FOR STABILIZATION WITH MULCH ONLY.
6. IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING, ALL CRITICAL AREAS SUBJECT TO EROSION (I.E. SOIL STOCKPILES, STEEP SLOPES AND ROADWAY EMBANKMENTS) WILL RECEIVE TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AND A MULCH ANCHOR, IN ACCORDANCE WITH STATE STANDARDS.
7. A SUB–BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS TO STABILIZE STREETS, ROADS, DRIVEWAYS, AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB–BASE SHALL BE INSTALLED WITHIN FIFTEEN (15) DAYS OF THE PRELIMINARY GRADING.
8. THE STANDARD FOR STABILIZED CONSTRUCTION ACCESS REQUIRES THE INSTALLATION OF A PAD OF CLEAN CRUSHED STONE AT POINTS WHERE TRAFFIC WILL BE ACCESSING THE CONSTRUCTION SITE. AFTER INTERIOR ROADWAYS ARE PAVED, INDIVIDUAL LOTS REQUIRE A STABILIZED CONSTRUCTION ACCESS CONSISTING OF ONE INCH TO TWO INCH (1"–2") STONE FOR A MINIMUM LENGTH OF TEN FEET (10') EQUAL TO THE LOT ENTRANCE WIDTH. ALL OTHER ACCESS POINTS SHALL BE BLOCKED OFF.
9. ALL SOIL WASHED, DROPPED, SPILLED, OR TRACKED OUTSIDE THE LIMIT OF DISTURBANCE OR ONTO PUBLIC RIGHT–OF–WAYS WILL BE REMOVED IMMEDIATELY.
10. PERMANENT VEGETATION IS TO BE SEEDED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING.
11. AT THE TIME THAT SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT IT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, NON–VEGETATIVE MEANS OF PERMANENT GROUND STABILIZATION WILL HAVE TO BE EMPLOYED,
12. IN ACCORDANCE WITH THE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS, ANY SOIL HAVING A PH OF 4 OR LESS OR CONTAINING IRON SULFIDES SHALL BE ULTIMATELY PLACED OR BURIED WITH LIMESTONE APPLIED AT THE RATE OF 10 TONS/ACRE, (OR 450 LBS/1,000 SQ FT OF SURFACE AREA) AND COVERED WITH A MINIMUM OF 12" OF SETTLED SOIL WITH A PH OF 5 OR MORE, OR 24"WHERE TREES OR SHRUBS ARE TO BE PLANTED.
13. CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.
14. UNFILTERED DEWATERING IS NOT PERMITTED. NECESSARY PRECAUTIONS MUST BE TAKEN DURING ALL DEWATERING OPERATIONS TO MINIMIZE SEDIMENT TRANSFER. ANY DEWATERING METHODS USED MUST BE IN ACCORDANCE WITH THE STANDARD FOR DEWATERING.
15. SHOULD THE CONTROL OF DUST AT THE SITE BE NECESSARY, THE SITE WILL BE SPRINKLED UNTIL THE SURFACE IS WET, TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED OR MULCH SHALL BE APPLIED AS REQUIRED BY THE STANDARD FOR DUST CONTROL.
16. STOCKPILE AND STAGING LOCATIONS ESTABLISHED IN THE FIELD SHALL BE PLACED WITHIN THE LIMIT OF DISTURBANCE ACCORDING TO THE CERTIFIED PLAN. STAGING AND STOCKPILES NOT LOCATED WITHIN THE LIMIT OF DISTURBANCE WILL REQUIRE CERTIFICATION OF A REVISED SOIL EROSION AND SEDIMENT CONTROL PLAN. CERTIFICATION OF A NEW SOIL EROSION AND SEDIMENT CONTROL PLAN MAY BEREQUIRED FOR THESE ACTIVITIES IF AN AREA GREATER THAN 5,000 SQUARE FEET IS DISTURBED.
17. ALL SOIL STOCKPILES ARE TO BE TEMPORARILY STABILIZED IN ACCORDANCE WITH SOIL EROSION AND SEDIMENT CONTROL NOTE #6.
18. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR ANY EROSION OR SEDIMENTATION THAT MAY OCCUR BELOW STORMWATER OUTFALLS OR OFFSITE AS A RESULT OF CONSTRUCTION OF THE PROJECT.

STANDARD FOR STABILIZATION WITH MULCH ONLY

Definition

Stabilizing exposed soils with non–vegetative materials exposed for periods longer than 14 days

Purpose

To protect exposed soil surfaces from erosion damage and to reduce offsite environmental damage.

Water Quality Enhancement

Provides temporary mechanical protectionagainst wind or rainfall induced soil erosion until permanent vegitative cover may be established.

Where Applicable

This practice is applicable to areas subject to erosion, where the season and other conditions may not be suitable for growing an erosion–resistant cover or where stabilization is needed for a short period until more suitable protection can be applied.

Method and Materials

1. Site Preparation

   A. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. All grading should be done in accordance with Standards for Land Grading

   B. Install needed erosion control practices or facilities such as diversions, grade stabilization structures, channel stabilization measures, sediment basins, and waterways. See Standards 11 through 42.

2. Protective Materials

   A. Unrotted small–grain straw, at 2.0 to 2.5 tons per acre, is spread uniformly at 90 to 115 pounds per 1,000 square feet and anchored with a mulch anchoring tool, liquid mulch binders, or netting tie down. Other suitable materials may be used if approved by the Soil Conservation District. The approved rates above have been met when the mulch covers the ground completely upon visual inspection, i.e. the soil cannot be seen below the mulch.

SOIL EROSION AND SEDIMENT CONTROL NOTES

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	7/24/20	PAS	MJB	REVISED PLANS AS PER BOARD ENGINEER'S REVIEW LETTER 02/13/20

DESIGNED BY: PAS
DRAWN BY: PAS
SHEET CHK'D BY: JJF
CROSS CHK'D BY:
APPROVED BY:
DATE: OCTOBER 28, 2019

ENGENUITY INFRASTRUCTURE

ENGENUITY INFRASTRUCTURE
2 BRIDGE AVENUE , SUITE 323
RED BANK, NJ 07701
732.741.3176
ENGENUITYNJ.COM

MAJOR SITE PLAN
TAX BLOCK 66.02
LOTS 31.01
BOROUGH OF MANASQUAN
MONMOUTH COUNTY, NEW JERSEY

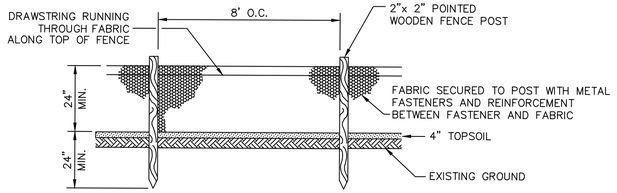
OWNER / DEVELOPER / APPLICANT:
UNION AVENUE 33, LLC
126 MAIN STREET
MANASQUAN, NJ 08736
PHONE: (732) 522-0197

JACLYN J. FLOR, P.E., P.P., C.M.E
CONSULTING ENGINEER
LICENSED PROFESSIONAL ENGINEER
STATE OF NJ LICENCE NO. 24GE045426
CERTIFICATE OF AUTHORIZATION 24GA28268000
10/28/19
DATE

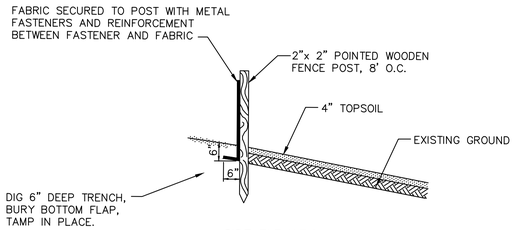
PROJECT NO. SEPE-00010
DRAWING
SESC-1
SHEET NO.
8 OF 9

NOT FOR CONSTRUCTION

FILE NAME: N:\SEPE MANASQUAN APARTMENTS\SEPE–00010 – 33 UNION\PLANS\REVISED–CP.DWG PRASANNA 11/11/2020 12:59 PM



FRONT ELEVATION

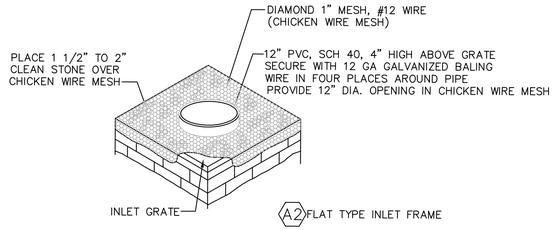


SIDE ELEVATION

PLAN SYMBOL (C1)

SEDIMENT CONTROL FENCE

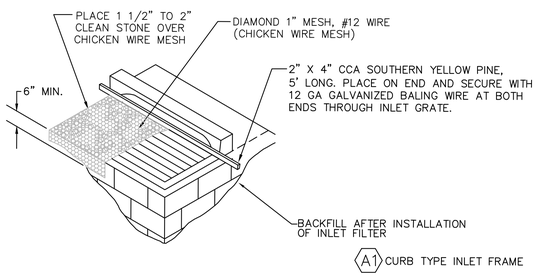
DETAIL A
NTS SESC2



(A2) FLAT TYPE INLET FRAME

GENERAL NOTES:

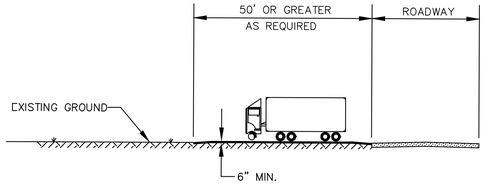
1. CONTRACTOR TO CLEAN INLET FILTER AFTER EVERY STORM.
2. FILTER FABRIC, WOOD PIECE OR PVC PIPE TO BE REMOVED AFTER PAVING OR FINAL GRADING AND ESTABLISHMENT OF VEGETATION.

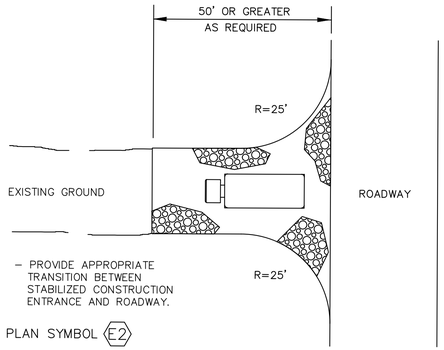


(A1) CURB TYPE INLET FRAME

INLET FILTER PROTECTION

DETAIL D
NTS SESC2





PLAN SYMBOL (E2)

Stone Size – Use ASTM C–33, size No. 2 (2 ½ to 1 ½ in) or 3 (2 to 1 in). Use clean crushed angular stone. Crushed concrete of similar size may be substituted but will require more frequent upgrading and maintenance.

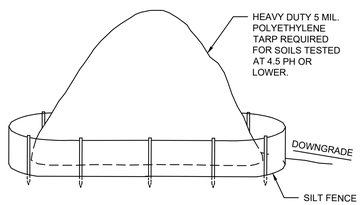
Table 29–1: Lengths of Construction Exits on Sloping Roadbeds

Percent Slope of Roadway	Length of Stone Required	
	Coarse Grained Soils	Fine Grained Soils
0 to 2%	50 Feet	100 Feet
2 to 5%	100 Feet	200 Feet
> 5%	Entire surface stabilized with Hot Mix Asphalt Base Course, Mix I–2[1]	

1. As prescribed by local ordinance or other governing authority.

STABILIZED CONSTRUCTION ENTRANCE

DETAIL B
NTS SESC2

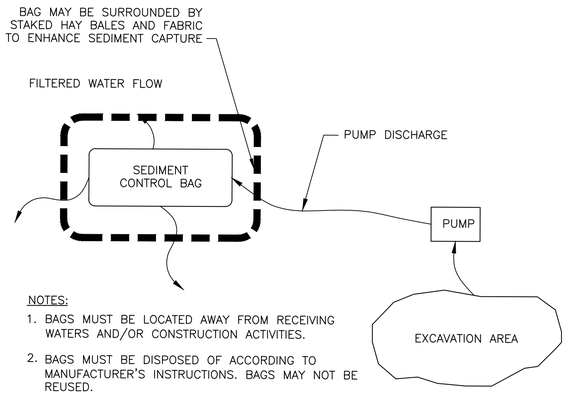


NOTES:

1. ALL STOCKPILES SHALL NOT TO BE LOCATED WITHIN 50 FEET OF A FLOODPLAIN, SLOPE, ROADWAY OR DRAINAGE FACILITY.

TOPSOIL STOCKPILE

DETAIL C
NTS SESC2



NOTES:

1. BAGS MUST BE LOCATED AWAY FROM RECEIVING WATERS AND/OR CONSTRUCTION ACTIVITIES.
2. BAGS MUST BE DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS. BAGS MAY NOT BE REUSED.

SEDIMENT CONTROL BAG FOR DEWATERING

DETAIL E
NTS SESC2

PROPOSED CONSTRUCTION SEQUENCE — APPROX. DURATION:

1. APPLICATION OF PROPER MEASURES FOR THE CONTROL OF SOIL EROSION & SEDIMENT CONTROL. — 2 DAYS
2. CLEARING OF THE SITE (INCLUDING DEMOLITION OF STRUCTURES). — 10 DAYS
3. TEMPORARY STABILIZATION OF AREAS INITIALLY DISTURBED. STABILIZATION TO BE ACCOMPLISHED BY USE OF TEMPORARY SEEDING AND/OR STRAW MULCHING OR EQUIVALENT MATERIAL AT A RATE OF TWO TONS PER ACRE, ACCORDING TO STATE STANDARDS. — 1 DAYS
4. CONSTRUCT BUILDING AND RELATED APPURTENANCES. — 180 DAYS
5. INSTALLATION OF STORMWATER SYSTEM. — 15 DAYS
6. INSTALLATION OF CURB, SIDEWALK AND OTHER MATERIALS FOR ROADWAY CONSTRUCTION. — 5 DAYS
7. INSTALLATION OF TOPSOILING, FERTILIZING, SEEDING, AND MULCHING. — 1 DAYS
8. REMOVAL OF SOIL EROSION AND SEDIMENT CONTROL DEVICES AFTER ESTABLISHED VEGETATIVE GROWTH HAS OCCURRED. — 1 DAYS

THE TOTAL ESTIMATED TIME OF CONSTRUCTION IS 215 DAYS*

* NOTE: PROPOSED CONSTRUCTION SEQUENCE IS PROVIDED FOR SOIL CONSERVATION DISTRICT USE ONLY.

TOTAL PROJECT DISTURBED AREA = 0.50 ACRES
NO LAND DISTURBING CONSTRUCTION ACTIVITIES ARE TO OCCUR OUTSIDE THE INDICATED LIMITS OF DISTURBANCE.

1. THE FREEHOLD SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED FORTY–EIGHT (48) HOURS IN ADVANCE OF ANY SOIL DISTURBING ACTIVITY.

   FREEHOLD SOIL CONSERVATION DISTRICT
   4000 KOZLOSKI RD
   FREEHOLD, NJ 07728
   TEL. (732)683–8500

2. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
3. ANY CHANGES TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLANS WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RE–CERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT STATE SOIL EROSION AND SEDIMENT CONTROL STANDARDS.
4. N.J.S.A 4:24–39 ET. SEQ. REQUIRES THAT NO CERTIFICATES OF OCCUPANCY BE ISSUED BEFORE THE DISTRICT DETERMINES THAT A PROJECT OR PORTION THEREOF IS IN FULL COMPLIANCE WITH THE CERTIFIED PLAN AND STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY AND A REPORT OF COMPLIANCE HAS BEEN ISSUED. UPON WRITTEN REQUEST FROM THE APPLICANT, THE DISTRICT MAY ISSUE A REPORT OF COMPLIANCE WITH CONDITIONS ON A LOT–BY–LOT OR SECTION–BY–SECTION BASIS, PROVIDED THAT THE PROJECT OR PORTION THEREOF IS IN SATISFACTORY COMPLIANCE WITH THE SEQUENCE OF DEVELOPMENT AND TEMPORARY MEASURES FOR SOIL EROSION AND SEDIMENT CONTROL HAVE BEEN IMPLEMENTED, INCLUDING PROVISIONS FOR STABILIZATION AND SITE WORK.
5. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN SIXTY (60) DAYS, AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF 2 TO 2 ½ TONS PER ACRE, ACCORDING TO THE STANDARD FOR STABILIZATION WITH MULCH ONLY.
6. IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING, ALL CRITICAL AREAS SUBJECT TO EROSION (I.E. SOIL STOCKPILES, STEEP SLOPES AND ROADWAY EMBANKMENTS) WILL RECEIVE TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AND A MULCH ANCHOR, IN ACCORDANCE WITH STATE STANDARDS.
7. A SUB–BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS TO STABILIZE STREETS, ROADS, DRIVEWAYS, AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB–BASE SHALL BE INSTALLED WITHIN FIFTEEN (15) DAYS OF THE PRELIMINARY GRADING.
8. THE STANDARD FOR STABILIZED CONSTRUCTION ACCESS REQUIRES THE INSTALLATION OF A PAD OF CLEAN CRUSHED STONE AT POINTS WHERE TRAFFIC WILL BE ACCESSING THE CONSTRUCTION SITE. AFTER INTERIOR ROADWAYS ARE PAVED, INDIVIDUAL LOTS REQUIRE A STABILIZED CONSTRUCTION ACCESS CONSISTING OF ONE INCH TO TWO INCH (1" – 2") STONE FOR A MINIMUM LENGTH OF TEN FEET (10') EQUAL TO THE LOT ENTRANCE WIDTH. ALL OTHER ACCESS POINTS SHALL BE BLOCKED OFF.
9. ALL SOIL WASHED, DROPPED, SPILLED, OR TRACKED OUTSIDE THE LIMIT OF DISTURBANCE OR ONTO PUBLIC RIGHT–OF–WAYS WILL BE REMOVED IMMEDIATELY.
10. PERMANENT VEGETATION IS TO BE SEEDED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING.
11. AT THE TIME THAT SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT IT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, NON–VEGETATIVE MEANS OF PERMANENT GROUND STABILIZATION WILL HAVE TO BE EMPLOYED.
12. IN ACCORDANCE WITH THE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS, ANY SOIL HAVING A PH OF 4 OR LESS OR CONTAINING IRON SULFIDES SHALL BE ULTIMATELY PLACED OR BURIED WITH LIMESTONE APPLIED AT THE RATE OF 9 TONS/ACRE, (OR 450LBS/1,000 SQ FT OF SURFACE AREA) AND COVERED WITH A MINIMUM OF 12" OF SETTLED SOIL WITH A PH OF 5 OR MORE, OR 24" WHERE TREES OR SHRUBS ARE TO BE PLANTED.
13. CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.
14. UNFILTERED DEWATERING IS NOT PERMITTED. NECESSARY PRECAUTIONS MUST BE TAKEN DURING ALL DEWATERING OPERATIONS TO MINIMIZE SEDIMENT TRANSFER. ANY DEWATERING METHODS USED MUST BE IN ACCORDANCE WITH THE STANDARD FOR DEWATERING.
15. SHOULD THE CONTROL OF DUST AT THE SITE BE NECESSARY, THE SITE WILL BE SPRINKLED UNTIL THE SURFACE IS WET, TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED OR MULCH SHALL BE APPLIED AS REQUIRED BY THE STANDARD FOR DUST CONTROL.
16. STOCKPILE AND STAGING LOCATIONS ESTABLISHED IN THE FIELD SHALL BE PLACED WITHIN THE LIMIT OF DISTURBANCE ACCORDING TO THE CERTIFIED PLAN. STAGING AND STOCKPILES NOT LOCATED WITHIN THE LIMIT OF DISTURBANCE WILL REQUIRE CERTIFICATION OF A REVISED SOIL EROSION AND SEDIMENT CONTROL PLAN. CERTIFICATION OF A NEW SOIL EROSION AND SEDIMENT CONTROL PLAN MAY BE REQUIRED FOR THESE ACTIVITIES IF AN AREA GREATER THAN 5,000 SQUARE FEET IS DISTURBED.
17. ALL SOIL STOCKPILES ARE TO BE TEMPORARILY STABILIZED IN ACCORDANCE WITH SOIL EROSION AND SEDIMENT CONTROL NOTE #6.
18. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR ANY EROSION OR SEDIMENTATION THAT MAY OCCUR BELOW STORMWATER OUTFALLS OR OFFSITE AS A RESULT OF CONSTRUCTION OF THE PROJECT.

SOIL EROSION AND SEDIMENT CONTROL DETAILS

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	7/24/20	PAS	MJB	REVISED PLANS AS PER BOARD ENGINEER'S REVIEW LETTER 02/13/20

DESIGNED BY: PAS
DRAWN BY: PAS
SHEET CHK'D BY: JJF
CROSS CHK'D BY:
APPROVED BY:
DATE: OCTOBER 28, 2019

ENGENUITY INFRASTRUCTURE

ENGENUITY INFRASTRUCTURE
2 BRIDGE AVENUE , SUITE 323
RED BANK, NJ 07701
732.741.3176
ENGENUITYNJ.COM

MAJOR SITE PLAN
TAX BLOCK 66.02
LOTS 31.01
BOROUGH OF MANASQUAN
MONMOUTH COUNTY, NEW JERSEY

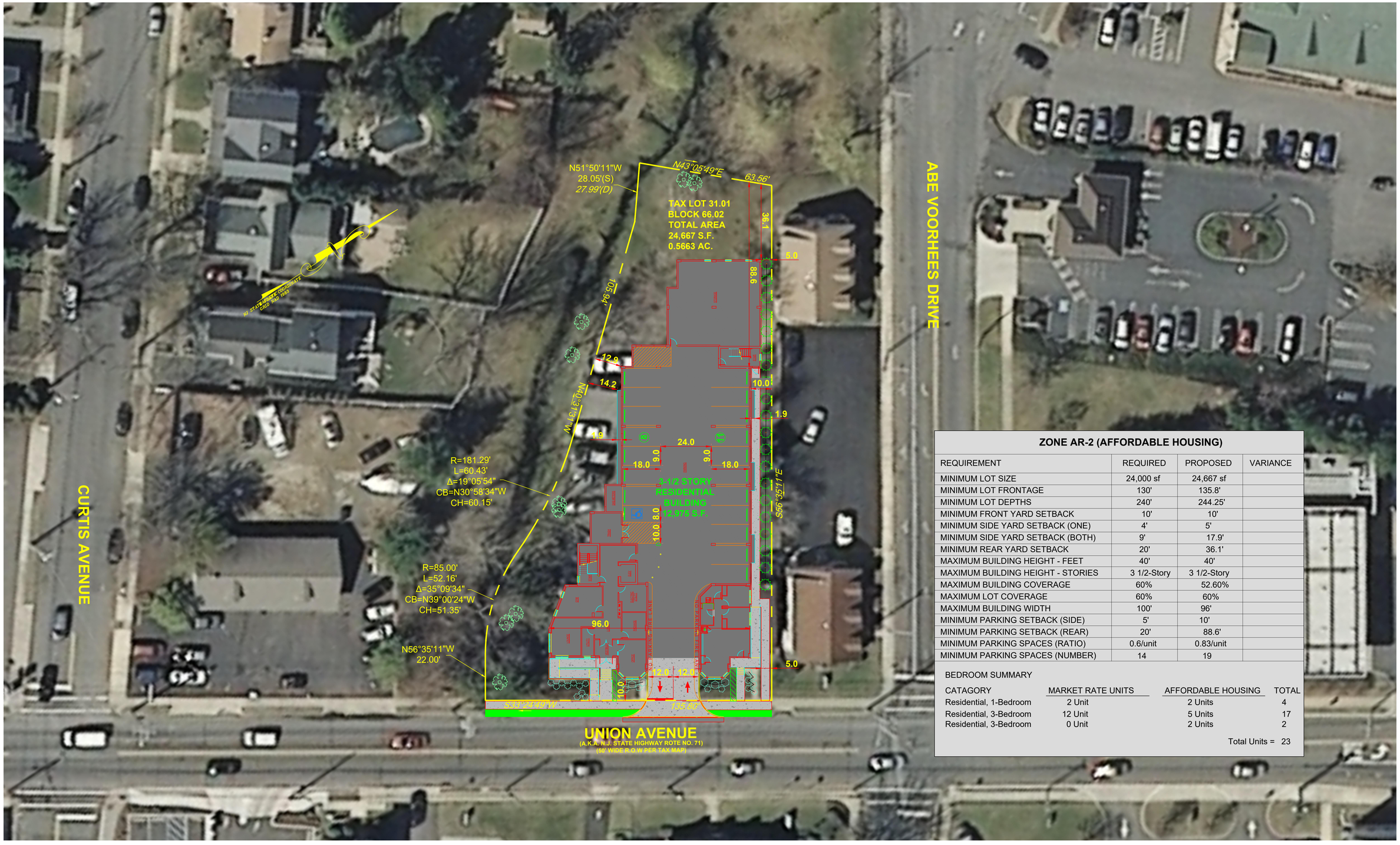
OWNER / DEVELOPER / APPLICANT:
UNION AVENUE 33, LLC
126 MAIN STREET
MANASQUAN, NJ 08736
PHONE: (732) 522-0197

JACLYN J. FLOR, P.E., P.P., C.M.E
CONSULTING ENGINEER
10/28/19
DATE
LICENSED PROFESSIONAL ENGINEER
STATE OF NJ LICENCE NO. 24GE045426
CERTIFICATE OF AUTHORIZATION 24GA28268000

PROJECT NO. SEPE-00010
DRAWING SESC-2
SHEET NO. 9 OF 9

NOT FOR CONSTRUCTION

FILE NAME: N:\SEPE MANASQUAN APARTMENTS\SEPE–00010 – 33 UNION\PLANS\REVISED–CP.DWG PRASANNA 11/11/2020 12:59 PM



ZONE AR-2 (AFFORDABLE HOUSING)

REQUIREMENT	REQUIRED	PROPOSED	VARIANCE
MINIMUM LOT SIZE	24,000 sf	24,667 sf	
MINIMUM LOT FRONTAGE	130'	135.8'	
MINIMUM LOT DEPTHS	240'	244.25'	
MINIMUM FRONT YARD SETBACK	10'	10'	
MINIMUM SIDE YARD SETBACK (ONE)	4'	5'	
MINIMUM SIDE YARD SETBACK (BOTH)	9'	17.9'	
MINIMUM REAR YARD SETBACK	20'	36.1'	
MAXIMUM BUILDING HEIGHT - FEET	40'	40'	
MAXIMUM BUILDING HEIGHT - STORIES	3 1/2-Story	3 1/2-Story	
MAXIMUM BUILDING COVERAGE	60%	52.60%	
MAXIMUM LOT COVERAGE	60%	60%	
MAXIMUM BUILDING WIDTH	100'	96'	
MINIMUM PARKING SETBACK (SIDE)	5'	10'	
MINIMUM PARKING SETBACK (REAR)	20'	88.6'	
MINIMUM PARKING SPACES (RATIO)	0.6/unit	0.83/unit	
MINIMUM PARKING SPACES (NUMBER)	14	19	

BEDROOM SUMMARY

CATAGORY	MARKET RATE UNITS	AFFORDABLE HOUSING	TOTAL
Residential, 1-Bedroom	2 Unit	2 Units	4
Residential, 3-Bedroom	12 Unit	5 Units	17
Residential, 3-Bedroom	0 Unit	2 Units	2

Total Units = 23

EXHIBIT PLAN 2

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: PAS
DRAWN BY: PAS
SHEET CHK'D BY: JJF
CROSS CHK'D BY:
APPROVED BY:
DATE: DECEMBER 17, 2020

ENGENUITY INFRASTRUCTURE

ENGENUITY INFRASTRUCTURE
2 BRIDGE AVENUE , SUITE 323
RED BANK, NJ 07701
732.741.3176
ENGENUITYNJ.COM

EXHIBIT PLAN 2
TAX BLOCK 66.02
LOTS 31.01
BOROUGH OF MANASQUAN
MONMOUTH COUNTY, NEW JERSEY

OWNER / DEVELOPER / APPLICANT:
BROAD STREET 34, LLC
126 MAIN STREET
MANASQUAN, NJ 08736
PHONE: (732) 522-0197

JACLYN J. FLOR, P.E., P.P., C.M.E
CONSULTING ENGINEER
LICENSED PROFESSIONAL ENGINEER
STATE OF NJ LICENCE NO. 24GE045426
CERTIFICATE OF AUTHORIZATION 24GA28268000
12/17/2020
DATE

PROJECT NO. SEPE-00010
DRAWING
EX-2
SHEET NO.
2 OF 2

NOT FOR CONSTRUCTION

FILE NAME: N:\SEPE MANASQUAN APARTMENTS\SEPE-00010 – 33 UNION\PLANS\EXHIBITS\SEPE-00010-CP EXHIBIT.DWG PRASANNA
12/18/2020 2:11 PM

UNION AVENUE
APARTMENTS

RESIDENTIAL DEVELOPMENT

33 UNION AVENUE
MANASQUAN, NJ

OWNER

UNION AVENUE 33, LLC

ARCHITECT

APPEL DESIGN GROUP, PA
220 SOUTH ORANGE AVE.
LIVINGSTON, NJ 07039
Phone: 973-994-1776
Fax: 973-577-4455

CIVIL ENGINEER

ENGENUITY INFRASTRUCTURE TM
12 BROAD ST. SUITE 203
RED BANK, NJ 07701
Phone: 732-741-3176

DRAWING LIST

					ISSUE PLANING BOARD	SHEET NUMBER	DESCRIPTION
					10-07-20	T-01	COVER TITTLE SHEET
					10-07-20	PB-1.1	GROUND FLOOR PLAN
					10-07-20	PB-1.2	SECOND FLOOR PLAN
					10-07-20	PB-1.3	THIRD FLOOR PLAN
					10-07-20	PB-1.4	ROOF PLAN
					10-07-20	PB-2.1	EXTERIOR ELEVATIONS
					10-07-20	PB-2.2	EXTERIOR ELEVATIONS

Residential Development — **BUILDING MATRIX** — DATED: 10/07/20
Township of Manasquan, NJ

Bldg.	Story	Qty. Units	Market Rate Units								Affordable Units							
				1 Bed+Den		2 Bed		3 Bedroom				1 Bedroom		2 Bedroom		3 Bedroom		
			Total	Qty.	Ratio	Qty.	Ratio	Qty.	Ratio		Total	Qty.	Ratio	Qty.	Ratio	Qty.	Ratio	
				900-1000 SF		1200-1400 SF		1200 SF			Area	700 SF		1000 SF		1200 SF		
	3	11	7	1		6		0			4	1		2		1		
	2	11	7	1		6		0			4	1		2		1		
	1	1	0	0		0		0			1			1				
Totals		23	14	2	14%	12	52%	0	0%		9	2	22%	5	56%	2	22%	

Note: Areas shown are approximate only and to be used for conceptual planning and design only

APPEL DESIGN GROUP
ARCHITECTS
220 SOUTH ORANGE AVE.- SUITE 100
LIVINGSTON, NJ 07039
TEL: (973) 994-1776
FAX: (973) 577-4455

RESIDENTIAL DEVELOPMENT
UNION AVENUE 33, LLC

33 UNION AVENUE
MANASQUAN, NJ

NO.	REVISION	BY	DATE
	ISSUE FOR PB	MPM	10-07-20

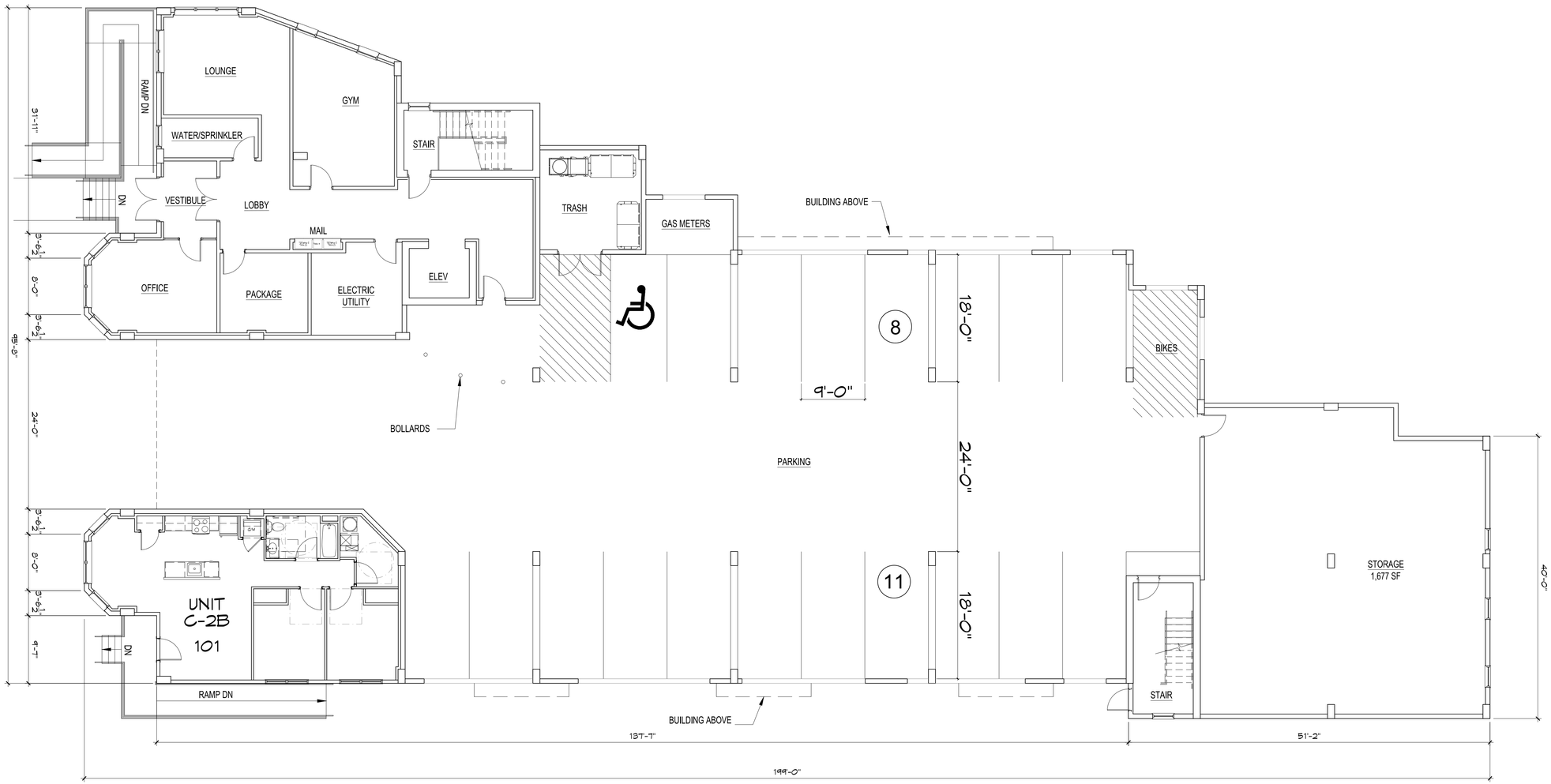
LAURANCE D. APPEL, RA, NJ • AI-12149
NY - 025018
PA - RA-014580-B

COVER SHEET

DRAWN BY: MPM
CHECKED BY: -
CLIENT: SEPE01
DATE: 06-18-20

DRAWING:
T-01

COMM. #: N/A



1 GROUND FLOOR
Scale: 1/8" = 1'-0"

AREA = +/-12,973 SF.

APPEL DESIGN GROUP
ARCHITECTS
220 SOUTH ORANGE AVE. - SUITE 100
LIVINGSTON, NJ 07039
TEL: (973) 994-1776
FAX: (973) 577-4455

RESIDENTIAL DEVELOPMENT
UNION AVENUE 33, LLC
33 UNION AVENUE
MANASQUAN, NJ

NO.	REVISION	BY	DATE
	ISSUE FOR PB	MPM	10-7-20

LAURANCE D. APPEL, R.A. NJ # AI-12149
NY - 025018
PA - RA-014580-B

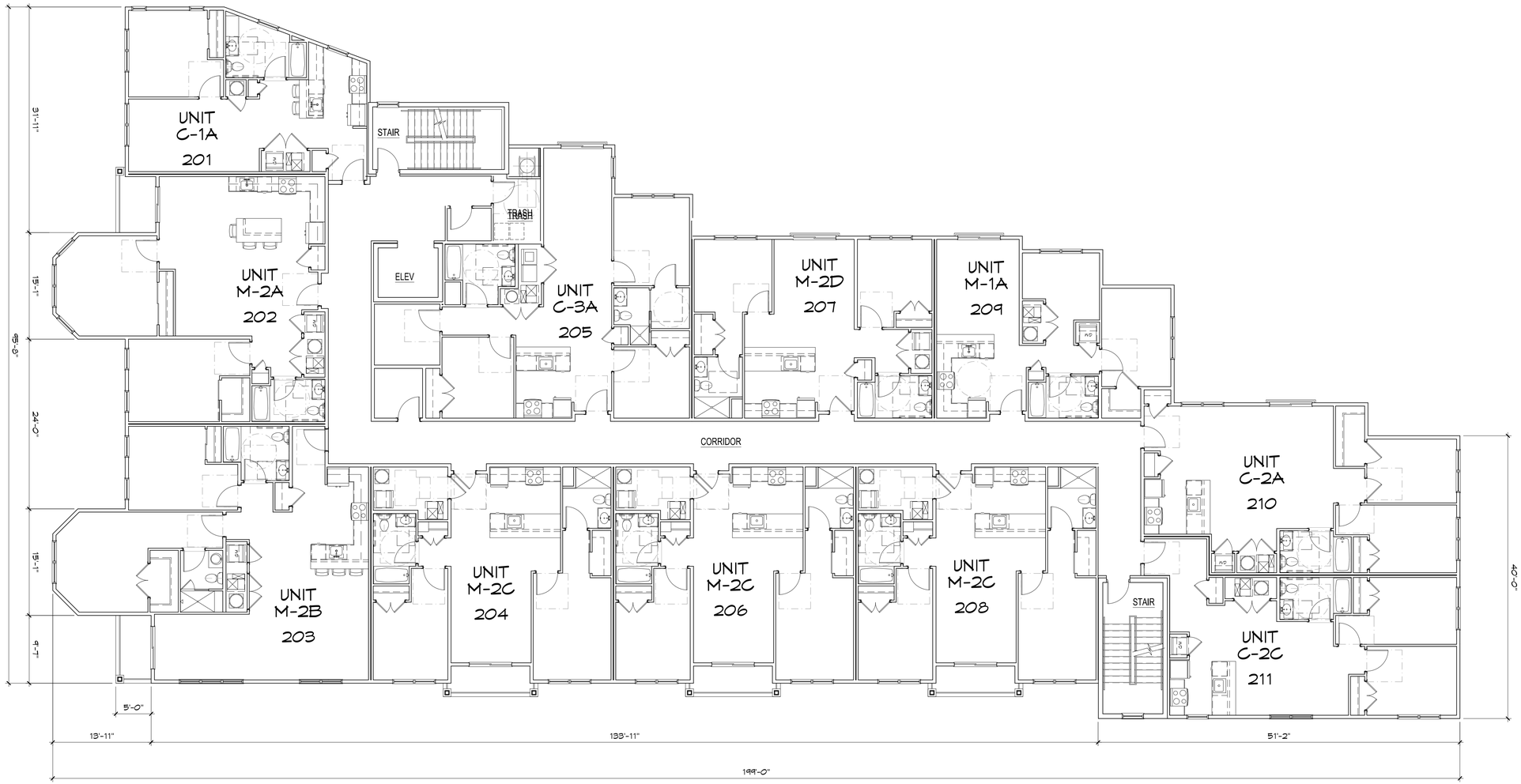
GROUND FLOOR PLAN

DRAWN BY: MPM
CHECKED BY: -
CLIENT: SEPE02
DATE: 8/27/20

DRAWING:
PB-1.1

COMM. #: N/A

APPEL DESIGN GROUP - FILENAME: P:\CLIENT\SEPE_02 (UNION AVE.)\DWG\SEPE02 PLAN_BUILDING.DWG PLOT DATE: 10/20/2020 1:57 PM BY: MPM



1 SECOND FLOOR

Scale: 1/8" = 1'-0"

AREA = +/-12,925 SF.

APPEL DESIGN GROUP - FILENAME: P:\CLIENT\SEPE_02 (UNION AVE.)\DWG\SEPE02 PLAN_BUILDING.DWG PLOT DATE: 10/20/2020 1:57 PM BY: MPM

APPEL DESIGN GROUP
ARCHITECTS
220 SOUTH ORANGE AVE. - SUITE 100
LIVINGSTON, NJ 07039
TEL: (973) 994-1776
FAX: (973) 577-4455

RESIDENTIAL DEVELOPMENT
UNION AVENUE 33, LLC

33 UNION AVENUE
MANASQUAN, NJ

NO.	REVISION	BY	DATE
	ISSUE FOR PB	MPM	10-7-20

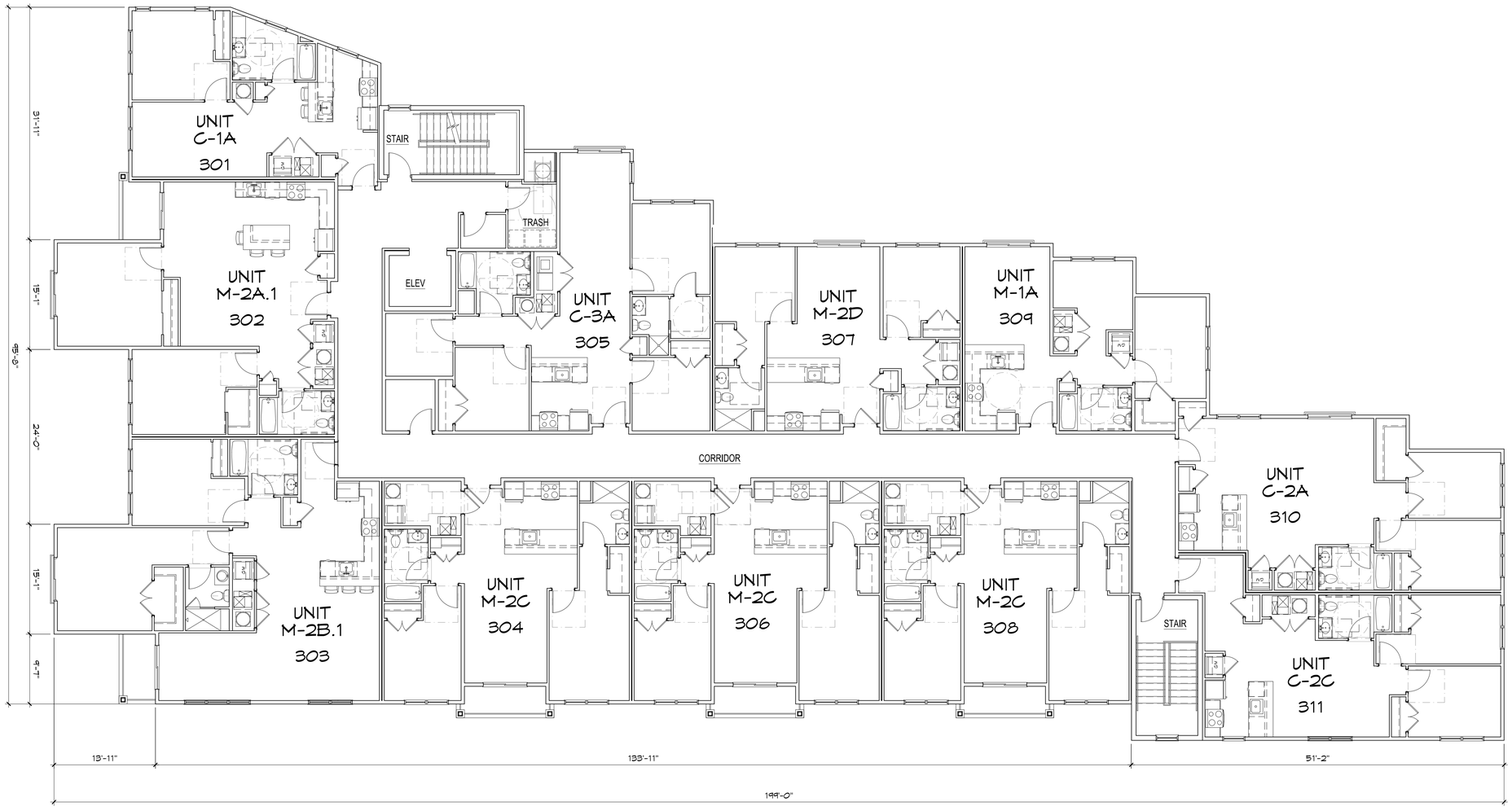
LAURANCE D. APPEL, R.A. NJ # AI-12149
NY - 025018
PA - RA-014580-B

SECOND
FLOOR PLAN

DRAWN BY: MPM
CHECKED BY: -
CLIENT: SEPE02
DATE: 8/27/20

DRAWING:
PB-1.2

COMM. #: N/A



1 THIRD FLOOR

Scale: 1/8" = 1'-0"

AREA = +/-12,925 SF.

APPEL DESIGN GROUP
ARCHITECTS
220 SOUTH ORANGE AVE.- SUITE 100
LIVINGSTON, NJ 07039
TEL: (973) 994-1776
FAX: (973) 577-4455

RESIDENTIAL DEVELOPMENT
UNION AVENUE 33, LLC

33 UNION AVENUE
MANASQUAN, NJ

NO.	REVISION	BY	DATE
	ISSUE FOR PB	MPM	10-7-20

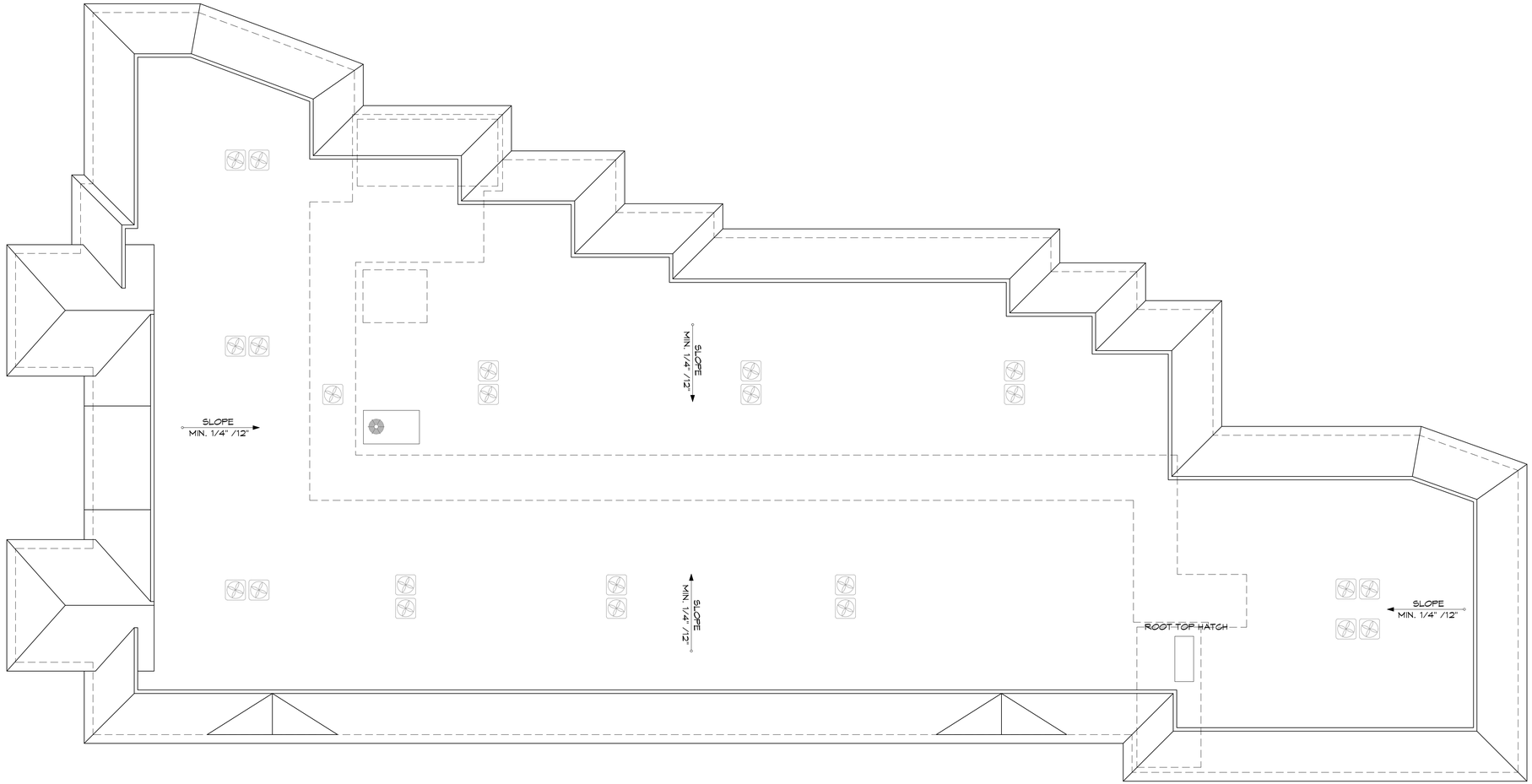
LAURANCE D. APPEL, RA, NJ * AI-12149
NY - 025018
PA - RA-014580-B

THIRD FLOOR PLAN

DRAWN BY: MPM
CHECKED BY: -
CLIENT: SEPE02
DATE: 8/27/20

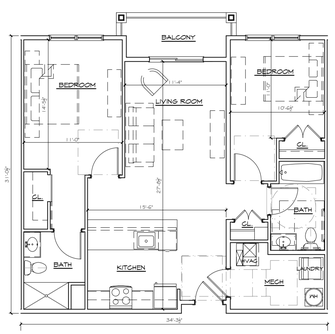
DRAWING:
PB-1.3

COMM. #: N/A



1 ROOF PLAN

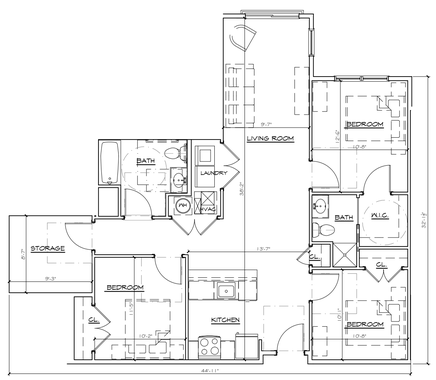
Scale: 1/8" = 1'-0"



(APPROX. 1,032 SQ. FT.)

TWO BEDROOM

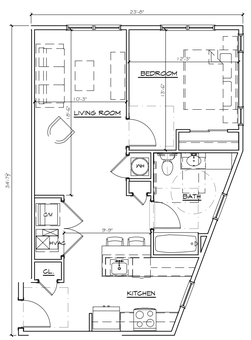
SCALE: 1/8" = 1'-0"



(APPROX. 1,196 SQ. FT.)

THREE BEDROOM

SCALE: 1/8" = 1'-0"



(APPROX. 750 SQ. FT.)

ONE BEDROOM

SCALE: 1/8" = 1'-0"

APPEL DESIGN GROUP
ARCHITECTS
220 SOUTH ORANGE AVE. - SUITE 100
LIVINGSTON, NJ 07039
TEL: (973) 994-1776
FAX: (973) 577-4455

RESIDENTIAL DEVELOPMENT
UNION AVENUE 33, LLC

33 UNION AVENUE
MANASQUAN, NJ

NO.	REVISION	BY	DATE
	ISSUE FOR PB	MPM	10-7-20

LAURANCE D. APPEL, R.A. NJ # AI-12149
NY - 025018
PA - RA-014980-B

ROOF PLAN

DRAWN BY: MPM
CHECKED BY: -
CLIENT: SEPE02
DATE: 8/27/20

DRAWING:

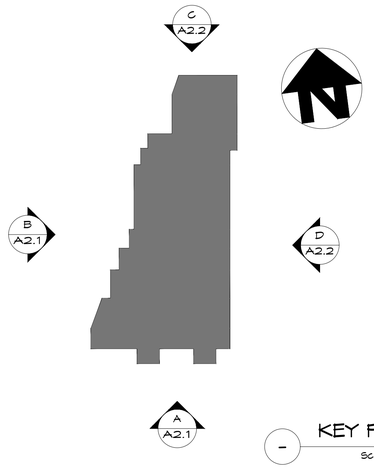
PB-1.4

COMM. #: N/A

ELEVATION KEY NOTES
NOT ALL NOTES MAY APPLY TO THIS SHEET

TAG	DESCRIPTION
1	BRICK VENEER
2	SIDING AS SELECTED
3	ARCHITECTURAL PANEL SYSTEM
4	FRIEZE BOARD TO MATCH SIDING
5	VINYL WINDOWS AS SELECTED WITH STANDARD ARCHITECTURAL GRILLES
6	ALUMINUM LEADERS AND GUTTERS
7	STANDING SEAM METAL ACCENT ROOF
8	ARCHITECTURAL DIMENSIONAL ASPHALT ROOF SHINGLES
9	PREFINISHED VENTED VINYL SOFFIT
10	BRICK ACCENT PANEL
11	DECORATIVE PREFINISHED ARCHITECTURAL BRACKETS
12	DECORATIVE CELLULAR PVC TRIM (AZEK OR EQUAL)
13	PREFINISHED ALUMINUM POST AND GUARD RAIL AT BALCONY - STYLE AS SELECTED
14	EXTERIOR METAL DOORS
15	ARCHITECTURAL EXTERIOR FIXTURE AS SELECTED
16	DECORATIVE ARCHITECTURAL GRILLES
17	FIBERGLASS SIDE DOOR - STYLE AS SELECTED

NOTES:
1) PRODUCTS MAY VARY TO SUIT ARCHITECTURAL INTENT UTILIZING OTHER PRODUCTS OF SIMILAR APPEARANCE AND QUALITY.
2) PRODUCT MANUFACTURERS MAY VARY.
3) SEE MODULE COLOR LEGEND FOR COLOR SELECTIONS.



– KEY PLAN
Scale: N.T.S.

A FRONT ELEVATION (SOUTH)
Scale: 1/8" = 1'-0"

B LEFT SIDE ELEVATION (WEST)
Scale: 1/8" = 1'-0"

APPEL DESIGN GROUP
ARCHITECTS
220 SOUTH ORANGE AVE. - SUITE 100
LIVINGSTON, NJ 07039
TEL: (973) 994-1776
FAX: (973) 577-4455

RESIDENTIAL DEVELOPMENT
UNION AVENUE 33, LLC
33 UNION AVENUE
MANASQUAN, NJ

NO.	REVISION	BY	DATE
	ISSUE FOR PB	MPM	10-07-20

LAURANCE D. APPEL, RA, NJ # AI-12149
NY - 026918
PA - RA-014580-B

EXTERIOR ELEVATION

DRAWN BY: MPM/MR
CHECKED BY:
CLIENT: SEPE02
DATE: 08-27-20

DRAWING:
PB-2.1
COMM. #: N/A

C REAR ELEVATION (NORTH)

Scale: 1/8" = 1'-0"

D RIGHT SIDE ELEVATION (EAST)

Scale: 1/8" = 1'-0"

APPEL DESIGN GROUP
ARCHITECTS
220 SOUTH ORANGE AVE.- SUITE 100
LIVINGSTON, NJ 07039
TEL: (973) 994-1776
FAX: (973) 577-4455

RESIDENTIAL DEVELOPMENT
UNION AVENUE 33, LLC
33 UNION AVENUE
MANASQUAN, NJ

NO.	REVISION	BY	DATE
	ISSUE FOR PB	MPM	10-07-20

LAURANCE D. APPEL, RA, NJ # AI-12149
NY - 026918
PA - RA-014580-B

EXTERIOR ELEVATION

DRAWN BY: MPM/MR
CHECKED BY:
CLIENT: SEPE02
DATE: 08-27-20

DRAWING:
PB-2.2

COMM. #: N/A

STORMWATER MANAGEMENT OPERATION & MAINTENANCE MANUAL

FOR:

Union Avenue 33, LLC
33 Union Avenue,
Manasquan, NJ 08736

November 10, 2020

PREPARED BY:

ENGenuity
Infrastructure
2 Bridge Avenue, Suite 323
Red Bank, New Jersey 07701
(732) 741-3176

Jaclyn J. Flor, P.E., P.P., C.M.E.
State of New Jersey License No. 24GE045426

I. Introduction

This stormwater Operation and Maintenance manual has been to support a major site plan application that is before the Manasquan planning board. The project will disturb 0.5 acres, which is less than the 1-acre threshold for Major developments. Therefore, the project does not meet the definition of a major development and does not have to meet the strict compliance of the NJDEP Stormwater Management rules N.J.A.C. 7:8.

The project site is located within the Borough of Manasquan; Lot 31.01 in Block 66.02, commonly known as 33 Union Avenue. Union Avenue 33, LLC is the owner and Applicant of the subject lot. The maintenance of the stormwater management component at this facility is the responsibility of the property owner.

The scope of the development consists of the demolition of the existing structures on the subject lots and the construction of a new 3-story residential affordable housing building. In addition to the construction of the new building, additional site improvements will also include the replacement of sidewalk and curb along the property frontage, onsite landscaping, lighting, and a reinforced concrete driveway apron. The total site area is 0.566-acres, of which 0.50-acres is proposed to be disturbed. The existing impervious area = 0.237-acres, while the proposed impervious area = 0.335-acres, or an increase of 0.098-acres of new impervious area, which is less than a ¼-acre.

II. STORMWATER MANAGEMENT SYSTEM SUMMARY

The Stormwater Management for the Site is addressed through three (3) systems as follows:

1. The roof drains from the building are connected to the underground detention system beneath the building parking level. The roof leaders have a wye type connection at the ground level to allow roof runoff to back up and drain at the ground level should the underground pipe system become clogged.

   The roof leaders shall be cleaned at least annual and after major storms that may force dirt and debris into the gutters.

2. Underground Stormwater Detention. An underground stormwater detention system is located beneath the proposed building parking level. This system is designed to store and slowly release stormwater runoff that has been collected onsite. The total system will contain twenty-two (22) SC-740 Chambers, as manufactured by StormTech. Enclosed in Appendix A is the Operation and maintenance manual for the StormTech system.

   The underground stormwater detention shall be inspected two (2) times a year for sediment accumulation and structural deficiencies. All sediment and any blockage shall be removed during routine inspections.

3. Outlet Control. There is a staged outlet control device that is connected to the underground detention system to allow runoff to be released at a specific rate. The outlet control device is located in the parking level of the building in a modified ‘E’ inlet located within the driveway. The staged outlet control device contains a 4-inch orifice, 6-inch orifice, and 3.5 ft wide weir.

The outlet control device shall be inspected two (2) times a year for sediment accumulation and structural deficiencies. All sediment and any blockage shall be removed during inspections.

III. RESPONSIBLE PARTY

William Sepe
(732) 223-6114
126 Main Street
Manasquan, NJ 08736

Appendix A

- STORMTECH Isolator Row O&M Manual
- STORM TECH Isolator Row Maintenance Log

StormTech®
Detention • Retention • Water Quality
An ADS company

Isolator® Row O&M Manual

THE MOST ADVANCED NAME IN WATER MANAGEMENT SOLUTIONS™

ADS

THE ISOLATOR® ROW

INTRODUCTION

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row is a technique to inexpensively enhance Total Suspended Solids (TSS) removal and provide easy access for inspection and maintenance.

THE ISOLATOR ROW

The Isolator Row is a row of StormTech chambers, either SC-160LP, SC-310, SC-310-3, SC-740, DC-780, MC-3500 or MC-4500 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for settling and filtration of sediment as storm water rises in the Isolator Row and ultimately passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC- 310-3 and SC-740 models) allow storm water to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row protecting the storage areas of the adjacent stone and chambers from sediment accumulation.

Two different fabrics are used for the Isolator Row. A woven geotextile fabric is placed between the stone and the Isolator Row chambers. The tough geotextile provides a media for storm water filtration and provides a durable surface for maintenance operations. It is also designed to prevent scour of the underlying stone and remain intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the perforations in the sidewall of the chamber. The non-woven fabric is not required over the SC-160LP, DC-780, MC-3500 or MC-4500 models as these chambers do not have perforated side walls.

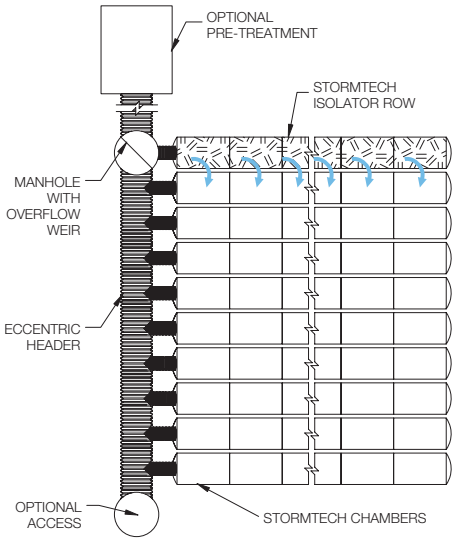
The Isolator Row is typically designed to capture the “first flush” and offers the versatility to be sized on a volume basis or flow rate basis. An upstream manhole not only provides access to the Isolator Row but typically includes a high flow weir such that storm water flowrates or volumes that exceed the capacity of the Isolator Row overtop the over flow weir and discharge through a manifold to the other chambers.

The Isolator Row may also be part of a treatment train. By treating storm water prior to entry into the chamber system, the service life can be extended and pollutants such as hydrocarbons can be captured. Pre-treatment best management practices can be as simple as deep sump catch basins, oil-water separators or can be innovative storm water treatment devices. The design of the treatment train and selection of pretreatment devices by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, the Isolator Row is recommended by StormTech as an effective means to minimize maintenance requirements and maintenance costs.

Note: See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row.

Looking down the Isolator Row from the manhole opening, woven geotextile is shown between the chamber and stone base.

StormTech Isolator Row with Overflow Spillway (not to scale)



ISOLATOR ROW INSPECTION/MAINTENANCE

INSPECTION

The frequency of inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

The Isolator Row incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.

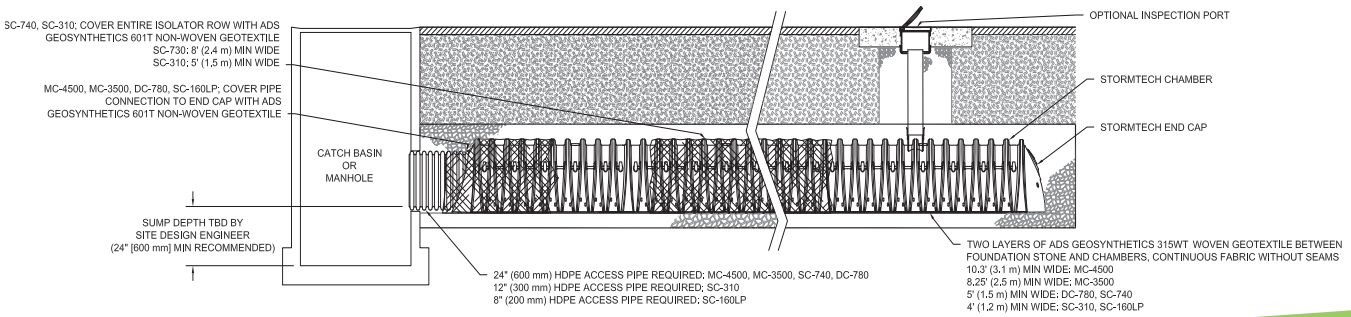
MAINTENANCE

The Isolator Row was designed to reduce the cost of periodic maintenance. By "isolating" sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" are best. Most JetVac reels have 400 feet of hose allowing maintenance of an Isolator Row up to 50 chambers long. **The JetVac process shall only be performed on StormTech Isolator Rows that have AASHTO class 1 woven geotextile (as specified by StormTech) over their angular base stone.**

StormTech Isolator Row (not to scale)

Note: Non-woven fabric is only required over the inlet pipe connection into the end cap for SC-160LP, DC-780, MC-3500 and MC-4500 chamber models and is not required over the entire Isolator Row.



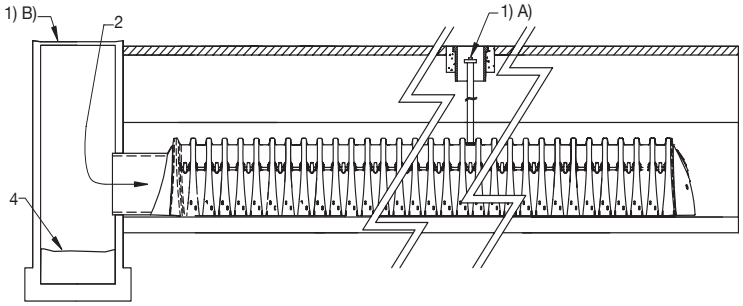
ISOLATOR ROW STEP BY STEP MAINTENANCE PROCEDURES

STEP 1
Inspect Isolator Row for sediment.
- A) Inspection ports (if present)
  - i. Remove lid from floor box frame
  - ii. Remove cap from inspection riser
  - iii. Using a flashlight and stadia rod,measure depth of sediment and record results on maintenance log.
  - iv. If sediment is at or above 3 inch depth, proceed to Step 2. If not, proceed to Step 3.
- B) All Isolator Rows
  - i. Remove cover from manhole at upstream end of Isolator Row
  - ii. Using a flashlight, inspect down Isolator Row through outlet pipe
    1. Mirrors on poles or cameras may be used to avoid a confined space entry
    2. Follow OSHA regulations for confined space entry if entering manhole
  - iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches), proceed to Step 2. If not, proceed to Step 3.

STEP 2
Clean out Isolator Row using the JetVac process.
- A) A fixed floor cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
- B) Apply multiple passes of JetVac until backflush water is clean
- C) Vacuum manhole sump as required

STEP 3
Replace all caps, lids and covers, record observations and actions.

STEP 4
Inspect & clean catch basins and manholes upstream of the StormTech system.



SAMPLE MAINTENANCE LOG

Date	Stadia Rod Readings		Sediment Depth (1)–(2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/11	6.3 ft	none		New installation. Fixed point is CI frame at grade	DJM
9/24/11		6.2	0.1 ft	Some grit felt	SM
6/20/13		5.8	0.5 ft	Mucky feel, debris visible in manhole and in Isolator Row, maintenance due	NV
7/7/13	6.3 ft		0	System jetted and vacuumed	DJM

StormTech® Detention • Retention • Water Quality
A division of ADS®

Advanced Drainage Systems, Inc.
4640 Trueman Blvd., Hilliard, OH 43026
1-800-821-6710 www.ads-pipe.com

StormTech Maintenance Log

Project Name:
Location:

	Stadia Rod Readings				
Date	**Fixed point to chamber bottom (1)**	**Fixed point to top of sediment (2)**	**Sediment Depth (1) - (2)**	**Observations / Actions**	**Inspector**

33 Union Avenue (NJ Route 71, MP 1.0), Manasquan, Monmouth County, NJ
Table 1 - Trip Generation Summary

			WEEKDAY					
			AM PEAK HOUR			PM PEAK HOUR		
CODE	LAND USE	AMOUNT	IN	OUT	TOTAL	IN	OUT	TOTAL
EXISTING SINGLE-FAMILY HOME TRIPS								
220	Multifamily Housing (Low-Rise)	4 units	1	2	3	3	1	4
712	Small Office Building	1,100 SF	3	1	3	4	9	13
TOTAL EXISTING SITE GENERATED TRIPS			3	3	6	7	11	17
PROPOSED SITE-GENERATED TRIPS								
220	**Multifamily Housing (Low-Rise)**	**23 units**	**3**	**11**	**14**	**11**	**6**	**17**
TOTAL PROPOSED CHANGE IN SITE-GENERATED TRIPS			**(0)**	**8**	**8**	**4**	**(5)**	**(1)**
					<100			**<100**
TOTAL PROPOSED SITE GENERATED TRIPS			**3**	**11**	**14**	**11**	**6**	**17**
PERMISSIBLE PEAK HOUR TRIP LIMIT		**80**			**OK**			**OK**

Source: HAPS Program, as of February 8, 2019, established by the NJDOT Access Management Code
NOT a significant increase in trips; LESS THAN an increase of 100 peak hour trips

STORMWATER MANAGEMENT REPORT

For

Union Avenue 33, LLC
33 Union Avenue,
Manasquan, NJ 08736

July 20, 2020

PREPARED BY:

Engenuity Infrastructure
2 Bridge Avenue, Suite 323
Red Bank, New Jersey 07701
(732) 741-3176

Jaclyn J. Flor, P.E., P.P., C.M.E.
State of New Jersey License No. 24GE045426

TABLE OF CONTENTS

APPENDICES

Appendix A

- NRCS SURGO Custom Soil Resource Report for Monmouth County, NJ
- Soils and Foundation Investigation (Melick-Tully & Associates)

Appendix B

- Pre-Development Runoff Curve Number (CN)
- Post-Development Runoff Curve Number (CN)
- Hydraflow Hydrographs for Pre and Post-Development Stormwater Management Analysis (2, 10, & 100-year storm events)

Appendix C

- Stormtech SC-740 Chamber Information sheet
- Stormtech SC-740 Volume worksheet

Appendix D

- Existing and Proposed Drainage Area map

I. PROJECT DESCRIPTION

This stormwater management report has been prepared to address the impacts of stormwater runoff from the development detailed in the accompanying Site Plans prepared by Engenuity Infrastructure. The project site is located within the Borough of Manasquan; Lot 31.01, Block 66.02, commonly known as 33 Union Avenue. Union Avenue 33, LLC is the owner and applicant of the subject lot.

The scope of this development includes the demolition/removal of all existing dwellings and appurtenances onsite and the construction of a new 3.5-story dwelling containing affordable housing units. Additionally, the project will also include a small area of sidewalk, landscaping, and a first-floor parking area.

The project is located in a floodplain or flood hazard area and a FHAIP is being submitted to the NJ Department of Environmental Protections (NJDEP).

II. DESIGN METHODOLOGY

The purpose of this stormwater management report is to provide hydrologic calculations and documentation demonstrating that the development will decrease stormwater runoff rates leaving the site. Based on the decrease in post-development stormwater runoff rates there will be no detrimental impacts to neighboring properties or infrastructure.

A computer generated hydrologic and hydraulic model was developed for the site utilizing the TR-55 methodology for 'Urban Hydrology for Small Watersheds'. A computer program, Hydraflow Hydrographs produced by Intelisolve, was utilized for the computational outputs of the same.

Existing and Proposed sub-drainage areas were delineated within the overall subject drainage area. Drainage areas were separated based upon drainage patterns and their relationship to disconnected and directly connected impervious coverage. Soil data was obtained from current USGS SSURGO Mapping for Bergen County. Composite Curve Numbers (CN) were calculated manually for input into the computer model, as prepared in accordance with The TR55 methodology. Times of concentration were calculated for each drainage area using TR-55 Sheet Flow, Shallow Concentrated Flow and Channel Flow parameters. Runoff hydrographs were developed using the Soil Conservation Service Type III unit hydrograph, with a shape factor of 484, to develop hydrographs for the 2-, 10-, and 100-year frequencies.

III. PRE-DEVELOPMENT CONDITIONS

The site is presently occupied by a 2-1/2 story dwelling, a 2-story dwelling, and a 1-story dwelling with associated sidewalks, driveways, and accessory structures and amenities. The property is bounded by the improved right-of-way of Union Avenue to the west. The site is separated into two distinct drainage areas. The majority of the site containing 0.524 acres (designated as EX DA-1) drains in northwesterly direction towards Judas creek. The studied analysis point #1 for drainage area EX DA-1 is located in the northwest corner of the site within the channel of Judas creek.
The second drainage area (designated as EX DA-2) drains towards the southeast towards the Union Avenue right-of-way. The studied analysis point #2 is a 'B' inlet located along the Union Avenue frontage. It is noted that the two onsite drainage areas converge off-site and flow south southeast along Judas Creek. Judas Creek then flows into a tidal inlet named the The Glimmer Glass and

ultimately flows into the Atlantic Ocean via the Manasquan Inlet.

IV. POST-DEVELOPMENT CONDITIONS

The post-development drainage areas will maintain the existing runoff pattern, with stormwater runoff being directed towards Judas creek and the Union Avenue right-of-way. The entire roof area of the dwelling indicated as PR DA-3 IMP on the enclosed drainage area map will be directed to the proposed underground stormwater detention system and then discharged through a staged outlet control device, then to the existing storm drain system along Union Avenue. The remaining grassed portions of drainage area PR DA-1 PER will be un-detained and will flow overland towards Judas Creek.

The portions of site that drain towards the Union Avenue frontage are indicated as drainage area PR DA-2. This area includes the entrance driveway and concrete sidewalk located along the eastern side of the dwelling. This drainage area will be un-detained and will ultimately flow along the Union avenue curb line to the 'B' Inlet indicated as analysis point #2 on the drainage area map.

V. DISTURBANCE AND CHANGE IN IMPERVIOUS COVERAGE

The project improvements result in approximately 0.495 acres of total lot disturbance, which does not exceed the 1.0-acre threshold limit for Major Developments. As such, the project is not considered a Major Development and does not require compliance under the Stormwater Management Rules (N.J.A.C.7:8).

The existing portions of the site contain 0.237 acres of impervious area. In the post development condition, the total impervious coverage is proposed at 0.335 acres. The proposed increase in impervious area results in an additional 0.098 acres of impervious area, which does not meet the NJDEP's threshold of 0.25 acre impervious area increase for water quality treatment under the Stormwater Management rules of N.J.A.C 7:8.

VI. SOILS

The NRCS SURGO Custom Soil Resource Report for Monmouth County, New Jersey for the site identifies the in-situ soils as DouB, 0 to 5 percent slopes. This soil type is characterized by loamy fluviomarine deposits and/or gravelly fluviomarine deposite, and is found to be a member of Hydrologic Soil Group A. A copy of the cited report is included in Appendix A.
An onsite subsurface soil investigation was prepared by Melick-Tully & Associates, included with this submission. Based upon the finding of this report infiltration is not recommended due to the relatively shallow groundwater encountered and rapid groundwater seepage encountered at depths of approximately 2.5 feet to 4 feet below the ground surface. The on-site test pits performed indicate a Seasonal High Water Table (SHWT) at elevation 2.5. The lowest portion of the proposed underground detention basin is at elevation 5.0, which meets the NJDEP's minimum 1 foot separation for underground detention BMP's

VII. RUNOFF COEFFICIENTS

The project site includes four (4) different categories of groundcover for both the existing and proposed conditions. "Runoff curve number for urban areas" from the TR-55 Urban Hydrology for Small Watersheds, Based on Hydrologic Soil Group A, the following 'CN' values were derived:

- Open space, good condition ground cover……..CN = 39
- Gravel……..CN = 76
- Roof……CN = 98
- Impervious cover (sidewalks, parking areas, roof, & sheds, etc.)……...CN = 98

VIII. TIME OF CONCENTRATION

The time of concentration or Tc is the time is takes runoff to travel from the hydraulically most distant point of the drainage area to the point of analysis in a watershed. The Tc was calculated in accordance with The NRCS Urban Hydrology for Small Watershed TR-55. The maximum sheet flow length utilized in the calculation is 100 ft.

A minimum time of concentration of 6 mins was utilized for analysis and design. This minimum Tc corresponds to the maximum runoff based on drainage area and CN values.

IX. STORMWATER MANAGEMENT DESIGN

The stormwater management strategy utilized to achieve the runoff rate reductions includes underground detention, with a multi-staged outlet control device. Stormwater runoff will be collected from the roofed areas of the dwelling. This area is indicated as PR DA-3 IMP on the included drainage area map. Roof area runoff will be collected and piped internally to the underground chamber system located beneath the first-floor parking area.

The underground detention system will be comprised of half arched polyethene pipes, as manufactured by Stormtech. The total system will include twenty-two (22) SC-740 units configured in a single row orientation. The underground chambers will be in a clean crushed stone bed measuring 159’ long by 6.25’ wide. The underground detention system will be sloped at 0.5% towards the outlet control structure to allow the system to fully drain. The outlet control structure will contain a staged 4 inch orifice at invert elevation 4.00, a 6 inch orifice at invert 5.25, and a 3.5 ft wide emergency overflow weir at invert 7.00. Outflow will then be discharged through a 10-inch HDPE pipe and will be connected to the existing storm drain system located along the Union Avenue frontage. The system provides enough storage so that flows are attenuated in the underground sealed basin and released at a rate such that there is no increase in pre-development (existing) flows directed to the receiving waters.

X. PERMIT REQUIREMENTS

There are floodplains as well as wetlands in the immediate project. The project is not located in a Historic District. Permits are required from the NJ Department of Environmental Protection (NJDEP). The total area of disturbance for the project exceeds 5,000-square feet, therefore Soil Erosion and Sediment Control Certification from the Freehold SCD will be required for the project.

XI. SUMMARY OF RESULTS

Runoff calculations for the contributing on-site areas for the proposed storm sewer collection and conveyance system are included on the Proposed Drainage Plan and Details.

The construction of the proposed dwelling and associated site improvements will result in no adverse stormwater impacts to the surrounding properties. The project will ultimately result in a net reduction in peak runoff for the site. Below is a summary of the Pre vs Post-Development Runoff rates and associated reductions for the 2, 10, and 100-year storm events.

Table 1 -Pre to Post development Peak Flow Rates			
	2- Year	**10-Year**	**100-Year**
Pre-Development	0.564 cfs	1.002 cfs	2.117 cfs
Post-Development	0.452 cfs	0.952 cfs	2.073 cfs
Percent Reduction	19.9 %	5.0 %	2.1 %

Appendix A

- NRCS SURGO Custom Soil Resource Report for Monmouth County, NJ
- Soils and Foundation Investigation (Melick-Tully & Associates)

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 Monmouth County, New Jersey

Union Avenue 33, LLC

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.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:557 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 5 10 20 30

Feet
0 25 50 100 150

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 1:24,000.

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: Monmouth County, New Jersey
Survey Area Data: Version 13, Sep 16, 2019

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

Date(s) aerial images were photographed: Aug 8, 2014—Sep 2, 2014

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
DouB	Downer-Urban land complex, 0 to 5 percent slopes	0.7	99.6%
EvuB	Evesboro-Urban land complex, 0 to 5 percent slopes	0.0	0.4%
Totals for Area of Interest		**0.7**	**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.

Monmouth County, New Jersey

DouB—Downer-Urban land complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 4j72
Elevation: 0 to 170 feet
Mean annual precipitation: 28 to 59 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 161 to 231 days
Farmland classification: Not prime farmland

Map Unit Composition

Downer and similar soils: 60 percent
Urban land: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Downer

Setting

Landform: Low hills, knolls
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear, convex
Across-slope shape: Linear
Parent material: Loamy fluviomarine deposits and/or gravelly fluviomarine deposits

Typical profile

Ap - 0 to 10 inches: sandy loam
Bt1 - 10 to 16 inches: sandy loam
Bt2 - 16 to 36 inches: sandy loam
C1 - 36 to 48 inches: loamy sand
C2 - 48 to 80 inches: stratified sand to sandy loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: A
Hydric soil rating: No

Description of Urban Land

Setting

Parent material: Surface covered by pavement, concrete, buildings, and other structures underlain by disturbed and natural soil material

Interpretive groups

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

Minor Components

Sassafras

Percent of map unit: 5 percent
Landform: Low hills, knolls
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Woodstown

Percent of map unit: 5 percent
Landform: Flats, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear, concave
Hydric soil rating: No

EvuB—Evesboro-Urban land complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 4j78
Elevation: 10 to 150 feet
Mean annual precipitation: 28 to 59 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 161 to 231 days
Farmland classification: Not prime farmland

Map Unit Composition

Evesboro and similar soils: 60 percent
Urban land: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Evesboro

Setting

Landform: Low hills
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits and/or sandy fluviomarine deposits

Typical profile

A - 0 to 4 inches: sand
AB - 4 to 17 inches: sand
Bw - 17 to 31 inches: sand
C - 31 to 80 inches: stratified loamy sand to sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (2.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Hydric soil rating: No

Description of Urban Land

Setting

Parent material: Surface covered by pavement, concrete, buildings, and other structures underlain by disturbed and natural soil material

Interpretive groups

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

Minor Components

Lakehurst

Percent of map unit: 5 percent
Landform: Flats, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Downer

Percent of map unit: 5 percent

Landform: Low hills, knolls
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

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Melick-Tully
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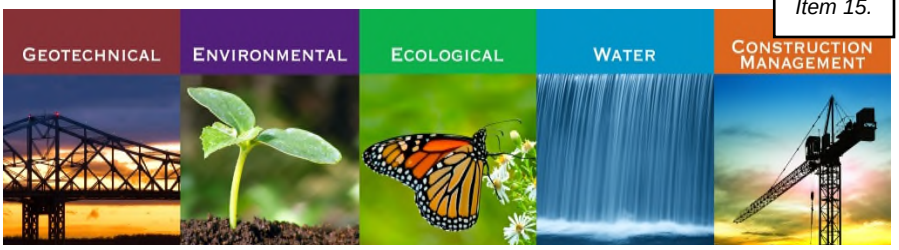
A Division of GZA



SUBSURFACE INVESTIGATION

PROPOSED BUILDING AND DRYWELLS

Mr. Brad Sepe
Manasquan, Monmouth County, New Jersey

August 21, 2019
File No. 26.0091829.00

PREPARED FOR:
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August 21, 2019
File No. 26.0091829.00

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Attention: Mr. Brad Sepe

Report
Subsurface Investigation
Proposed Building and Drywells
Manasquan, Monmouth County, New Jersey

Introduction

This report summarizes the results of the subsurface investigation performed by Melick-Tully and Associates, a Division of GZA GeoEnvironmental, Inc. (MTA) to assist in design of proposed dry wells and develop preliminary foundation design information which may be required for design of a proposed structure to be constructed on Block 66.02, Lots 31.01 in Manasquan, Monmouth County, New Jersey. The subject property is located at 33 Union Avenue. The approximate location of the site is shown on the Site Location Map, Plate 1. This report was prepared in accordance with our signed proposal dated June 13, 2019.

Proposed Construction

Information provided to us indicates that the proposed construction would consist of a two to three-story residential structure with at-grade parking and two levels above grade. There would be some storage areas constructed at-grade, as well as parking to service the residential structure. Building and floor slab loading is expected to be

relatively light. Dry well(s) would be required as part of the proposed construction. Plans indicate the dry well(s) would consist of a cast in-place structure or a bottom-less manhole, with the invert established at about 9 feet below the existing ground surface and surrounded by 12 inches of 2-1/2-inch stone.

Purpose and Scope of Work

The purpose of our services was to:

1) explore the subsurface soil and groundwater conditions within the proposed drywell areas;

2) obtain relatively undisturbed tube samples for laboratory permeability testing;

3) provide a bearing capacity for the proposed structure; and

4) summarize our findings in a brief written report.

To accomplish these purposes, a subsurface exploration program consisting of five supervised test pits was completed within accessible portions of the site. The test pits were advanced using a rubber-tire backhoe and extended to depths ranging from 5.5 to 10 feet below the existing ground surface. The approximate locations of the test pits performed for this study are shown on the Plot Plan, Plate 2.

All field work was completed under the direct technical supervision of a geologist from MTA. Our representative located the test pits in the field by tape measurement from existing features shown on the plans provided to us, maintained continuous logs of the test pits as the work proceeded and obtained representative bulk samples of the soils for identification purposes.

Detailed descriptions of the encountered subsurface conditions are presented on the Logs of Test Pits, Plates 3A and 3E. Typically test pits for stormwater purposes are classified in accordance with the USDA Textural Triangle; however, given the amount of debris and deleterious fill, the soils were visually classified in general accordance with the Unified Soil Classification System shown on Plate 4.

The following discussion of our findings are subject to the Limitations attached as an Appendix to this report.

Findings

For the purposes of this discussion, Union Avenue is considered the eastern property border. The site is occupied by three existing structures, two structures on the northern half of the property and one to the south. The northeastern dwelling is a mixed-use, two-story building, while the building to the rear is a one-story structure. Lawn is present between the two northern buildings, and a wooden fence separates the lawn area from the adjacent gravel driveway that extends between the two dwellings that front on Union Avenue. A retaining wall, about 3 feet in height is present along the northern property line. The southern building is a three-story residential building, and gravel also extends behind the building. A creek provides separation between the property and Hancock Park to the west. The creek discharges to the Glimmer Glass and Manasquan River.

The surface materials in the test pits generally consisted of fill comprised of sandy soils containing significant quantities of brick, wood, metal, plates and glass which extended to depths ranging from about 4 feet to 8 feet below the existing ground surface. A 6-inch layer of buried topsoil was encountered at 4 feet in Test Pit 4, and sands mixed with organics were encountered in Test Pit 5 at

approximately 7 feet below the ground surface and extended to 8.5 feet. Natural sandy soils were encountered below the fill and extended to the completion depths of the test pits. Explorations were not performed in the existing buildings.

Rapid groundwater seepage was encountered at depths of approximately 2.5 feet to 4 feet below the ground surface. In addition, the adjacent creek is locally known to flood Hancock Park and the property following heavy rain.

The rapid groundwater seepage, caving of the test pit sidewalls and debris within the fill prevented us from obtaining representative tube samples for permeability testing. In addition, due to the shallow water, we do not believe infiltration would be feasible.

Based on our observations of the soils encountered in the test pits, the existing fill would not suitable for direct support of the proposed structure utilizing conventional spread foundations. Given the shallow groundwater and intensity of the seepage, removal of the fill and replacement with controlled fill does not appear viable unless extensive dewatering is provided which would impact the nearby creek. We believe that driven timber piles or helical piles would be required to bypass the fill and permit new foundations to derive their support from the deeper sandy or clayey soils. The test pits performed for this study were limited in depth due to the caving and groundwater, and as such, deeper explorations comprised of test borings will be required to develop appropriate design parameters and estimate potential pile lengths.

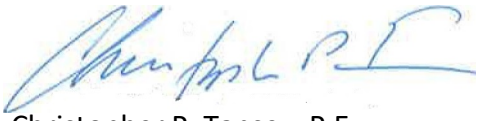
Please contact us if you have any questions regarding this information.

The following Plates and Appendix are attached and complete this report:

Plate 1 - Site Location Map
Plate 2 - Plot Plan
Plates 3A and 3E - Logs of Test Pits
Plate 4 - Unified Soil Classification System
Appendix - Limitations

Very truly yours,

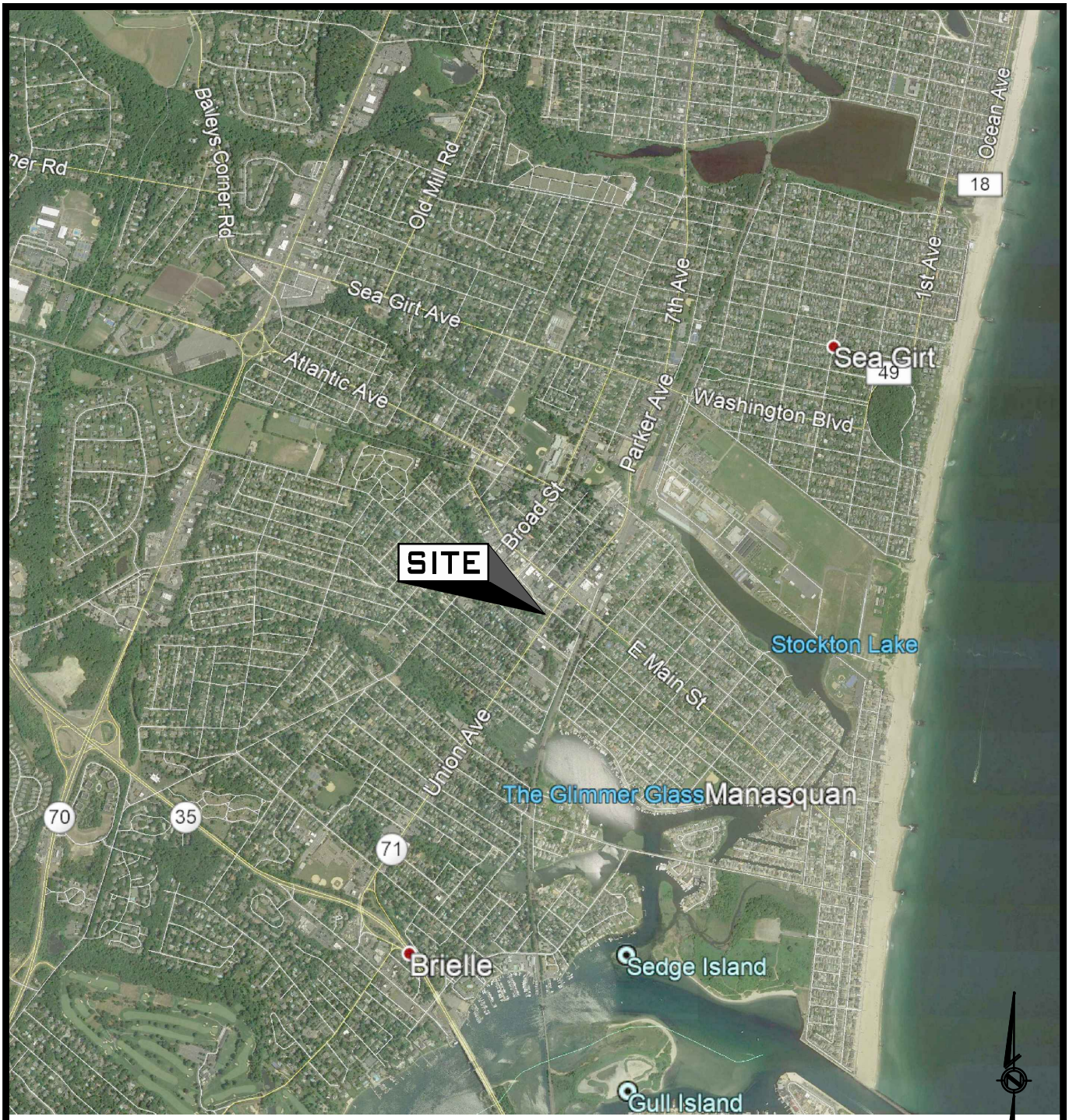
MELICK-TULLY and ASSOCIATES,
a Division of GZA GeoEnvironmental, Inc.



Christopher P. Tansey, P.E.
Associate Principal

Mark R. Denno, P.E.
Principal

CPT:MRD/mh
(1 copy submitted via e-mail)



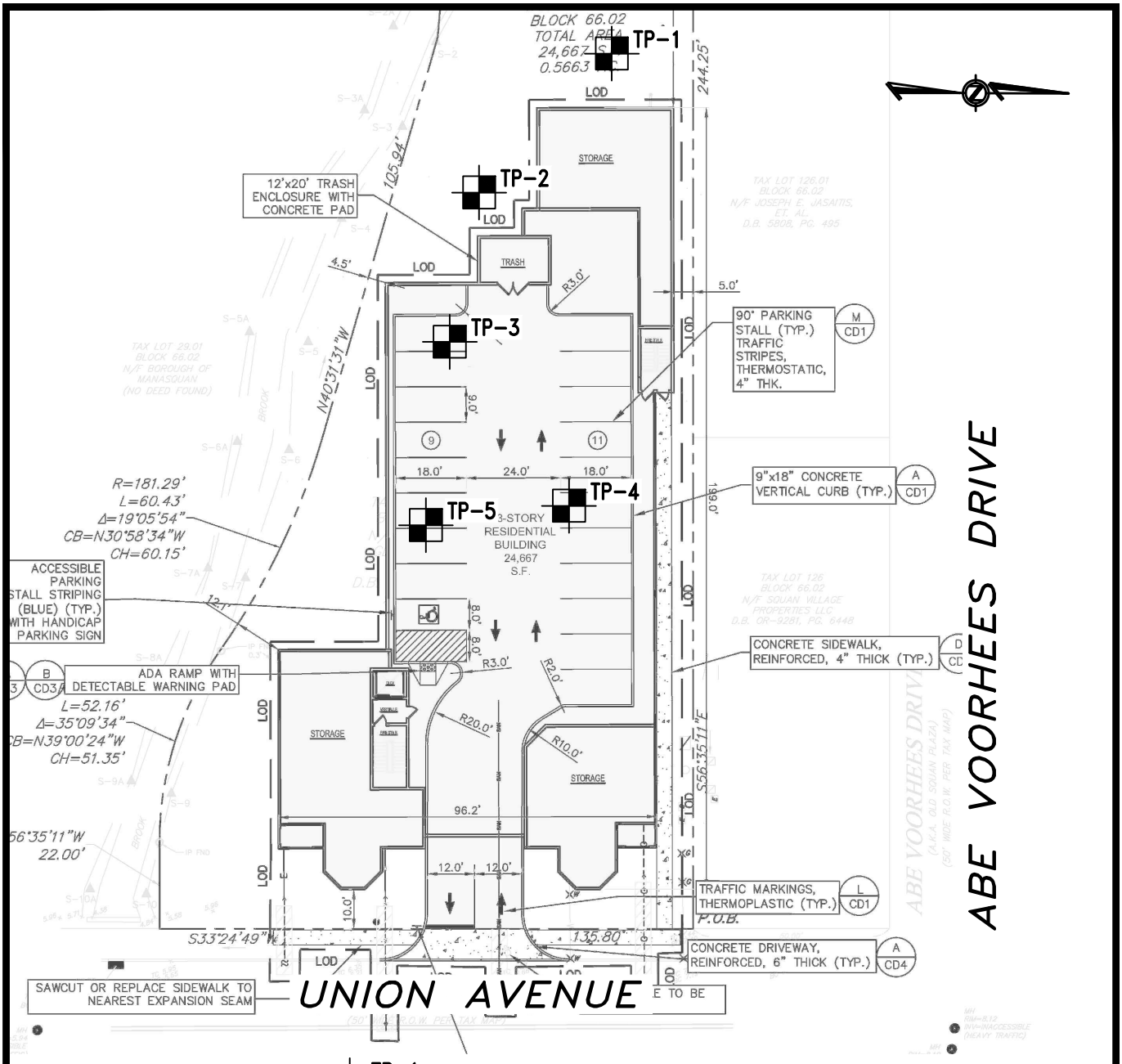
Aerial Photo courtesy of Google Earth Pro

MELICK–TULLY AND ASSOCIATES
A Division of GZA
Geotechnical Engineers & Environmental Consultants
117 Canal Road
South Bound Brook, New Jersey 08880
(732) 356-3400

SITE LOCATION MAP

PROPOSED RESIDENTIAL BUILDING
33 UNION AVENUE
MANASQUAN, NEW JERSEY
MR. BRAD SEPE

JOB NO.	FILE NO.	DR. BY	CHK. BY	DATE	SCALE	PLATE
26.0091829.00	–	VJD	CPT	6/27/19	1"=2,000'	1



KEY: TP-1 NUMBER AND APPROXIMATE LOCATION OF TEST PITS PERFORMED FOR THIS STUDY

NOTES:
1. This drawing is part of Melick–Tully and Associates, a Division of GZA, Report No. 26.0091829.00 and should be read together with the report for complete evaluation.
2. General layout was obtained from a drawing prepared by Engenuity Infrastructure, entitled "major Site Plan", dated 5/13/19 scale 1"= 20'.

MELICK–TULLY AND ASSOCIATES
A Division of GZA
Geotechnical Engineers & Environmental Consultants
117 Canal Road
South Bound Brook, New Jersey 08880
(732) 356-3400

PLOT PLAN

PROPOSED RESIDENTIAL BUILDING
33 UNION AVENUE
MANASQUAN, NEW JERSEY
MR. BRAD SEPE

JOB NO.	FILE NO.	DR. BY	CHK. BY	DATE	SCALE	PLATE
26.0091829.00	–	VJD	CPT	6/27/19	1"=40'	2

LOG OF TEST PIT

TEST PIT NO. 1

COMPLETION DATE: 6/13/19 | SURFACE ELEVATION: N/A | WATER LEVEL: 2.5'

JOB NUMBER: 26.0091829.00 | READING DATE: 6/13/19

DEPTH	SAMPLES (1)	MOISTURE CONTENT (%)	SYMBOL	DESCRIPTION	DEPTH
				FILL - Brown silty sand, with 15% bricks and wood (wet)	
				- grading with 50% wood, plates and glass @ 3'	
	S1				
5					5
	S2	21.0	SP/SM	Light yellow-brown fine to medium sand, little silt, trace fine gravel	
				Test pit completed @ 8'	
10				Groundwater seepage encountered @ 2.5'	10
15					15

NOTES FOR COLUMNS:
1. SAMPLE AT AVERAGE SAMPLING DEPTH

SOIL DESCRIPTION MODIFIERS:
TRACE 0 - 10%
LITTLE 10 - 20%
SOME 20 - 35%
AND OVER 35%

Typist/Date: CSK/pm 6/19

Sheet: 1 of 1 PLATE: 3A

MELICK-TULLY AND ASSOCIATES,
a Division of GZA GeoEnvironmental, Inc.

LOG OF TEST PIT

TEST PIT NO. 2

COMPLETION DATE: 6/13/19 | SURFACE ELEVATION: N/A | WATER LEVEL: 2.5'

JOB NUMBER: 26.0091829.00 | READING DATE: 6/13/19

DEPTH	SAMPLES (1)	MOISTURE CONTENT (%)	SYMBOL	DESCRIPTION	DEPTH
	S1			FILL - Brown silty sand, with 10% brick and metal (wet)	
5				- grading with wood, metal, plates and glass	5
			SM	Brown fine to medium sand, trace silt (wet)(medium dense)	
10				Test pit completed @ 7' Groundwater seepage encountered @ 2.5'	10
15					15

NOTES FOR COLUMNS:
1. SAMPLE AT AVERAGE SAMPLING DEPTH

SOIL DESCRIPTION MODIFIERS:
TRACE 0 - 10%
LITTLE 10 - 20%
SOME 20 - 35%
AND OVER 35%

Typist/Date: CSK/pm 6/19

Sheet: 1 of 1 PLATE: 3B

MELICK-TULLY AND ASSOCIATES,
a Division of GZA GeoEnvironmental, Inc.

LOG OF TEST PIT

TEST PIT NO. 3

COMPLETION DATE: 6/13/19 | SURFACE ELEVATION: N/A | WATER LEVEL: 3'

JOB NUMBER: 26.0091829.00 | READING DATE: 6/13/19

DEPTH	SAMPLES (1)	MOISTURE CONTENT (%)	SYMBOL	DESCRIPTION	DEPTH
				2" Stone	
				FILL - Brown silty sand, with 10% brick, metal and plates (wet)	
				- grading with 40% brick, metal and wood @ 3'	
5					5
			SM	Light yellowish brown fine to medium sand, little silt, trace gravel (wet)(medium dense)	
10				Test pit completed @ 9'	10
				Groundwater seepage encountered @ 3'	
15					15

NOTES FOR COLUMNS:
1. SAMPLE AT AVERAGE SAMPLING DEPTH

SOIL DESCRIPTION MODIFIERS:
TRACE 0 - 10%
LITTLE 10 - 20%
SOME 20 - 35%
AND OVER 35%

Typist/Date: CSK/pm 6/19

Sheet: 1 of 1 PLATE: 3C

MELICK-TULLY AND ASSOCIATES,
a Division of GZA GeoEnvironmental, Inc.

LOG OF TEST PIT

TEST PIT NO. 4

COMPLETION DATE: 6/13/19 | SURFACE ELEVATION: N/A | WATER LEVEL: 3'

JOB NUMBER: 26.0091829.00 | READING DATE: 6/13/19

DEPTH	SAMPLES (1)	MOISTURE CONTENT (%)	SYMBOL	DESCRIPTION	DEPTH
	S1			FILL - Brown silty sand, with 10% brick and ash (wet)	
				Buried topsoil	
5			SM	Yellow-brown fine to medium sand, little silt (wet)(medium dense)	5
				Test pit completed @ 5.5'	
				Groundwater seepage encountered @ 3'	
10					10
15					15

NOTES FOR COLUMNS:

1. SAMPLE AT AVERAGE SAMPLING DEPTH

SOIL DESCRIPTION MODIFIERS:

TRACE 0 - 10%
LITTLE 10 - 20%
SOME 20 - 35%
AND OVER 35%

Typist/Date: CSK/pm 6/19

Sheet: 1 of 1 PLATE: 3D

MELICK-TULLY AND ASSOCIATES,
a Division of GZA GeoEnvironmental, Inc.

LOG OF TEST PIT

TEST PIT NO. 5

COMPLETION DATE: 6/13/19 | SURFACE ELEVATION: N/A | WATER LEVEL: 4'

JOB NUMBER: 26.0091829.00 | READING DATE: 6/13/19

DEPTH	SAMPLES (1)	MOISTURE CONTENT (%)	SYMBOL	DESCRIPTION	DEPTH
	S1			FILL - Brown clayey silt (wet)	
				- grading to brown silty sand, with 40% glass, bricks and ash (wet)(loose)	
	S2				
5	S3				5
	S4	46.7			
			SM/OL	Dark brown sand, with organics	
			SP	Brown fine to coarse sand, trace silt (wet)(loose)	
10					10
				Test pit completed @ 10'	
				Groundwater seepage encountered @ 4'	
15					15

NOTES FOR COLUMNS:
1. SAMPLE AT AVERAGE SAMPLING DEPTH

SOIL DESCRIPTION MODIFIERS:
TRACE 0 - 10%
LITTLE 10 - 20%
SOME 20 - 35%
AND OVER 35%

Typist/Date: CSK/pm 6/19

Sheet: 1 of 1 PLATE: 3E

MELICK-TULLY AND ASSOCIATES,
a Division of GZA GeoEnvironmental, Inc.

MAJOR DIVISIONS			LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS More than 50% of material is LARGER than No. 200 Sieve	GRAVEL & GRAVELLY SOILS More than 50% of coarse fraction RETAINED on No. 4 Sieve	CLEAN GRAVELS (Little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines.
			GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amount of fines)	GM	Silty gravels, gravel-sand-silt mixtures.
			GC	Clayey gravels, gravel-sand-clay mixtures.
	SAND AND SANDY SOILS More than 50% of coarse fraction PASSING a No. 4 Sieve	CLEAN SAND (Little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines.
			SP	Poorly-graded sands, gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amount of fines)	SM	Silty sands, sand-silt mixtures.
			SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS More than 50% of material is SMALLER than No. 200 Sieve	SILTS AND CLAYS	Liquid limit LESS than 50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS	Liquid limit GREATER than 50	MH	Inorganic silts, micaceous or diatomaceous fine sand or silty soils.
			CH	Inorganic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			PT	Peat, humus, swamp soils with high organic contents.

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS.

GRADATION*	COMPACTNESS* sand and/or gravel	CONSISTENCY* clay and/or silt
% Finer by Weight	Relative Density	Range of Shearing Strength in Pounds per Square Foot

Trace	0% to 10%	Loose	0% to 40%	Very Soft	less than 250
Little	10% to 20%	Medium Dense	40% to 70%	Soft	250 to 500
Some	20% to 35%	Dense	70% to 90%	Medium	500 to 1000
And	35% to 50%	Very Dense	90% to 100%	Stiff	1000 to 2000
				Very Stiff	2000 to 4000
				Hard	Greater than 4000

**Values are from laboratory or field test data, where applicable. When no testing was performed, values are estimated.*

UNIFIED SOIL CLASSIFICATION SYSTEM

SOIL CLASSIFICATION CHART

Melick-Tully and Associates, a Division of GZA GeoEnvironmental, Inc. PLATE 4

APPENDIX - Limitations

APPENDIX

Limitations

A. Subsurface Information

Locations: The locations of the explorations were approximately determined by tape measurement from existing site features shown on plans provided to us. Elevations of the explorations were not available. The locations of the explorations should be considered accurate only to the degree implied by the method used.

Interface of Strata: The stratification lines shown on the individual logs of the subsurface explorations represent the approximate boundaries between soil types, and the transitions may be gradual.

Field Logs/Final Logs: A field log was prepared for each exploration by a member of our staff. The field log contains factual information and interpretation of the soil conditions between samples. Our recommendations are based on the final logs as shown in this report and the information contained therein, and not on the field logs. The final logs represent our interpretation of the contents of the field logs, and the results of the laboratory observations and/or tests of the field samples.

Water Levels: Water level readings have been made in the explorations at times and under conditions stated on the individual logs. These data have been reviewed and interpretations made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater will occur due to variations in rainfall, temperature, and other factors.

Pollution/Contamination: Unless specifically indicated to the contrary in this report, the scope of our services was limited only to investigation and evaluation of the geotechnical engineering aspects of the site conditions, and did not include any consideration of potential site pollution or contamination resulting from the presence of chemicals, metals, radioactive elements, etc. This report offers no facts or opinions related to potential pollution/contamination of the site.

Environmental Considerations: Unless specifically indicated to the contrary in this report, this report does not address environmental considerations which may affect the site development, e.g., wetlands determinations, flora and fauna, wildlife, etc. The conclusions and recommendations of this report are not intended to supersede any environmental conditions which should be reflected in the site planning.

B. Applicability of Report

This report has been prepared in accordance with generally accepted soils and foundation engineering practices for the exclusive use of Mr. Brad Sepe for specific application to the design of the proposed dry wells on 33 Union Avenue in Manasquan, New Jersey. No other warranty, expressed or implied, is made.

This report may be referred to in the project specifications for general information purposes only but should not be used as the technical specifications for the work, as it was prepared for design purposes exclusively.

C. Reinterpretation of Recommendations

Change in Location or Nature of Facilities: In the event that any changes in the nature, design or location of the dry wells are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

Changed Conditions During Construction: The findings submitted in this report are based in part upon the data obtained from five test pit excavations performed for this study. The nature and extent of variations between the explorations may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

Changes in State-of-the-Art: The findings contained in this report are based upon the applicable standards of our profession at the time this report was prepared.

D. Use of Report by Prospective Bidders

This soils engineering report was prepared for the project by Melick-Tully and Associates, a Division of GZA GeoEnvironmental Inc. (MTA) for design purposes and may not be sufficient to prepare an accurate bid. Contractors utilizing the information in the report should do so with the express understanding that its scope was developed to address design considerations. Prospective bidders should obtain the owner's permission to perform whatever additional explorations or data gathering they deem necessary to prepare their bid accurately.

E. Construction Observation

We recommend that MTA be retained to provide on-site soils engineering services during the earthwork construction and foundation phases of the work. This is to observe compliance with the design concepts and to allow changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

Appendix B

- Pre-Development Runoff Curve Number (CN)
- Post-Development Runoff Curve Number (CN)
- Hydraflow Hydrographs for Pre- and Post-Development Stormwater Management Analysis (2, 10, & 100-year storm events)

Project	33 Union Avenue
Job Number	SEPE-00010
Location	Manasquan, NJ

By MJB Date: 3/13/2020
Checked TCS Date 4/7/2020

PRE Development

Drainage Sub-area **EX DA-1 IMP**

Runoff Curve Number					
ID	Hydrologic Soil Group	Cover Description	CN	Area (Acres)	Product of CN x area
1	A	Parking lots, roofs, concrete	98	0.114	11.172
2	A	Gravel driveway	76	0.115	8.74
3					
4					
5					
6					
			Totals	**0.229**	**19.912**

CN (weighted) = Product of CN x area / Total area **CN 87**

Project	33 Union Avenue
Job Number	SEPE-00010
Location	Manasquan, NJ

By MJB Date: 3/13/2020
Checked TCS Date 4/7/2020

PRE Development

Drainage Sub-area **EX DA-1 PER**

Runoff Curve Number					
ID	Hydrologic Soil Group	Cover Description	CN	Area (Acres)	Product of CN x
1	A	Open Space (Good cond.)	39	0.295	11.505
2					
3					
4					
5					
6					
			Totals	**0.295**	**11.505**

CN (weighted) = Product of CN x area / Total area **CN 39**

Project: 33 Union Avenue		By:	MJB	Date:	3/13/2020
Job Number: SEPE-00010		Checked:	TCS	Date:	4/7/2020
Location: Manasquan					

PRE Development Drainage area: EX DA-1 PER

SHEET FLOW	Segment ID:	AB	`BC		
1	Surface Descripton	Grass			
2	Manning Roughness Coefficent, n	0.24	0.24		
3	Flow Length (100 ft MAX)	8	85		
4	2-Year 24 hour rainfall, P	3.38	3.38		
5	Land Slope (Ft/Ft)	0.25	0.023		
6	Time (Hours)	0.011	0.192		0.203 Hr

SHALLOW CONCENTRATED FLOW	Segment ID:				
7	Surface Description (paved or unpaved)				
8	Flow Length, L (ft)				
9	Watercourse slope, s (ft/ft)				
10	Average Velocity, V (figure 3-1)				
11	Time (hr)				

CHANNEL FLOW	Segment ID:				
12	Cross sectional flow area, a (ft^2)				
13	wetted perimeter, pw (ft)				
14	Hydarulic radius, r= a/ pw (ft)				
15	Channel Slope, s (ft/ft)				
16	Manning's roughness coefficent, n				
17	Velocity (ft/S) (USE 3.5 ft/s for DESIGN)				
18	Flow Length (ft)				
19	Time (hr)				

TOTAL TIME OF CONCENTRATION IN DRAINAGE SUBAREA 0.203 Hr

OR

12 Min

Project	33 Union Avenue
Job Number	SEPE-00010
Location	Manasquan, NJ

By MJB Date: 3/13/2020
Checked TCS Date 4/7/2020

PRE Development

Drainage Sub-area **EX DA-2 IMP**

Runoff Curve Number					
ID	Hydrologic Soil Group	Cover Description	CN	Area (Acres)	Product of CN x area
1	A	Concrete	98	0.008	0.784
2					
3					
4					
5					
6					
			Totals	**0.008**	**0.784**

CN (weighted) = Product of CN x area / Total area **CN 98**

Project	33 Union Avenue
Job Number	SEPE-00010
Location	Manasquan, NJ

By MJB Date: 3/13/2020
Checked TCS Date 4/7/2020

PRE Development

Drainage Sub-area **EX DA-2 PER**

Runoff Curve Number					
ID	Hydrologic Soil Group	Cover Description	CN	Area (Acres)	Product of CN x area
1	A	Open Space (Good cond.)	39	0.027	1.053
2					
3					
4					
5					
6					
			Totals	**0.027**	**1.053**

CN (weighted) = Product of CN x area / Total area **CN 39**

Project	33 Union Avenue
Project Number	SEPE-00020
Location	Manasquan, NJ

By PAS Date: 7/15/2020
Checked MJB Date 7/16/2020

POST Development

Drainage Sub-area **PR DA-1 PER**

Runoff Curve Number					
ID	Hydrologic Soil Group	Cover Description	CN	Area (Acres)	Product of CN x
1	A	Open Space (Good Cond.)	39	0.195	7.605
2					
3					
4					
5					
6					
			Totals	**0.195**	**7.605**

CN (weighted) = Product of CN x area / Total area **CN 39**

Project	33 Union Avenue
Project Number	SEPE-00020
Location	Manasquan, NJ

By PAS Date: 7/15/2020
Checked MJB Date 7/16/2020

POST Development

Drainage Sub-area **PR DA-2 IMP**

Runoff Curve Number					
ID	Hydrologic Soil Group	Cover Description	CN	Area (Acres)	Product of CN x
1	A	Asphalt, Concrete	98	0.023	2.254
2					
3					
4					
5					
6					
			Totals	**0.023**	**2.254**

CN (weighted) = Product of CN x area / Total area

CN	**98**

Project	33 Union Avenue
Project Number	SEPE-00010
Location	Manasquan, NJ

By PAS Date: 7/15/2020
Checked MJB Date 7/16/2020

POST Development

Drainage Sub-area **PR DA-2 PER**

Runoff Curve Number					
ID	Hydrologic Soil Group	Cover Description	CN	Area (Acres)	Product of CN x
1	A	Open Space (Good Cond.)	39	0.029	1.131
2					
3					
4					
5					
6					
			Totals	**0.029**	**1.131**

CN (weighted) = Product of CN x area / Total area **CN 39**

Project	33 Union Avenue
Project Number	SEPE-00010
Location	Manasquan, NJ

By PAS Date: 7/15/2020
Checked MJB Date 7/16/2020

POST Development

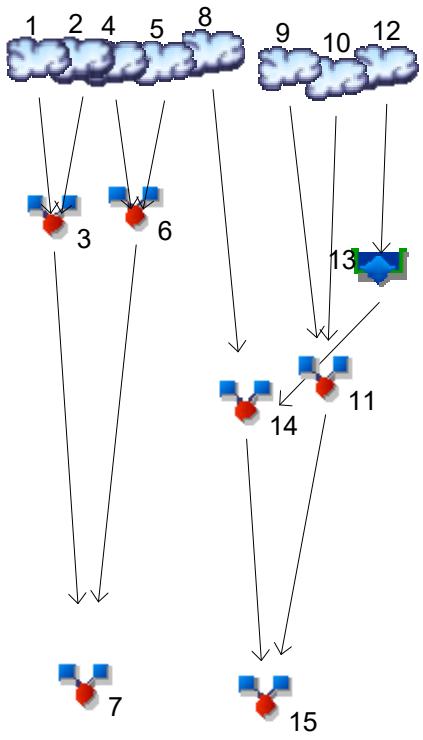
Drainage Sub-area **PR DA-3 IMP**

Runoff Curve Number					
ID	Hydrologic Soil Group	Cover Description	CN	Area (Acres)	Product of CN x
1	A	Roof area	98	0.312	30.576
2					
3					
4					
5					
6					
			Totals	**0.312**	**30.576**

CN (weighted) = Product of CN x area / Total area

CN	**98**

Watershed Model Schematic



Hydrograph Report

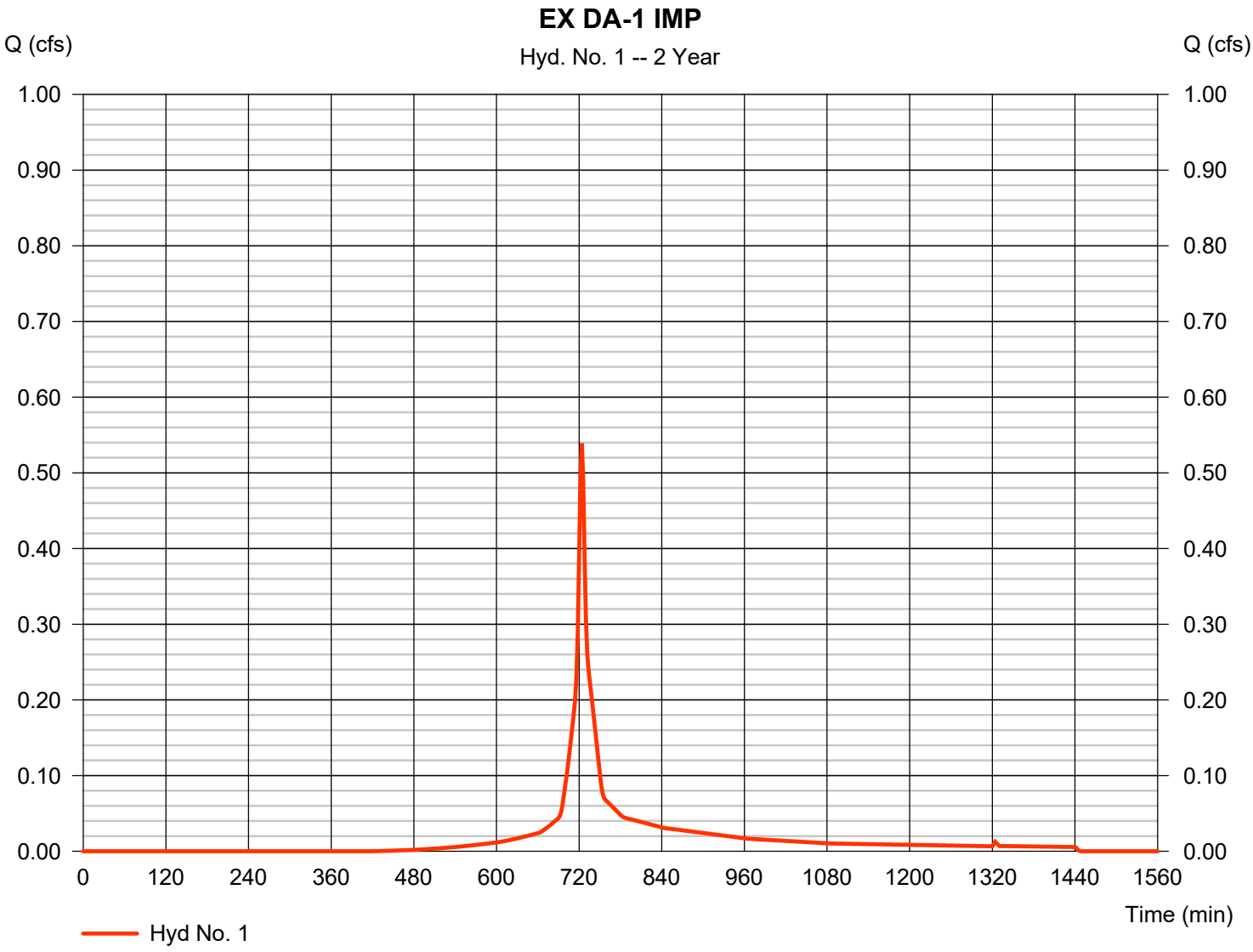
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020 Tuesday, 07 / 21 / 2020

Hyd. No. 1

EX DA-1 IMP

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.539 cfs
Storm frequency	=	2 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	1,617 cuft
Drainage area	=	0.229 ac	Curve number	=	87*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.38 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.113 x 98) + (0.117 x 76) + (0.336 x 39)] / 0.229

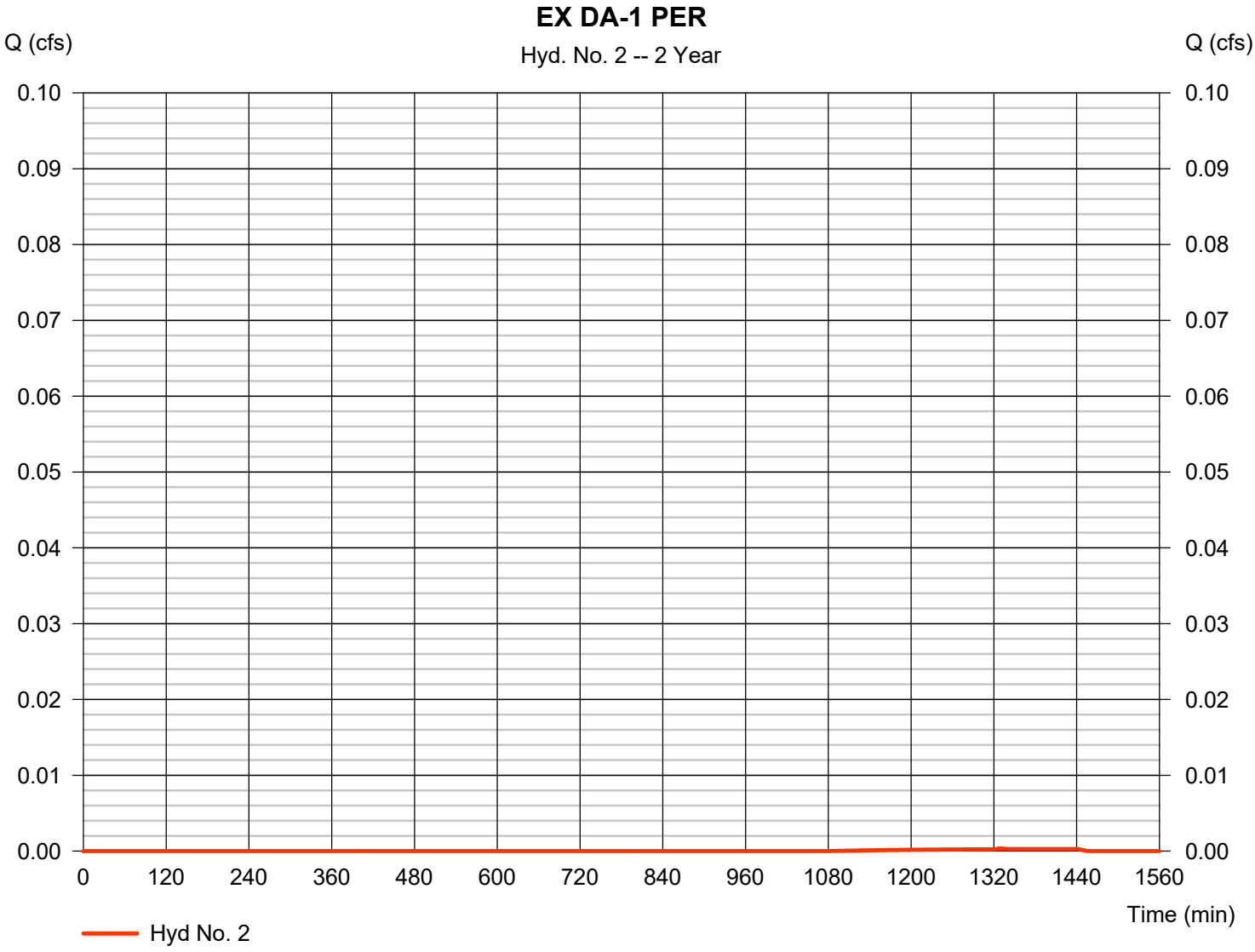


Hydrograph Report

Hyd. No. 2

EX DA-1 PER

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= 1328 min
Time interval	= 2 min	Hyd. volume	= 4 cuft
Drainage area	= 0.295 ac	Curve number	= 39
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 12.00 min
Total precip.	= 3.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

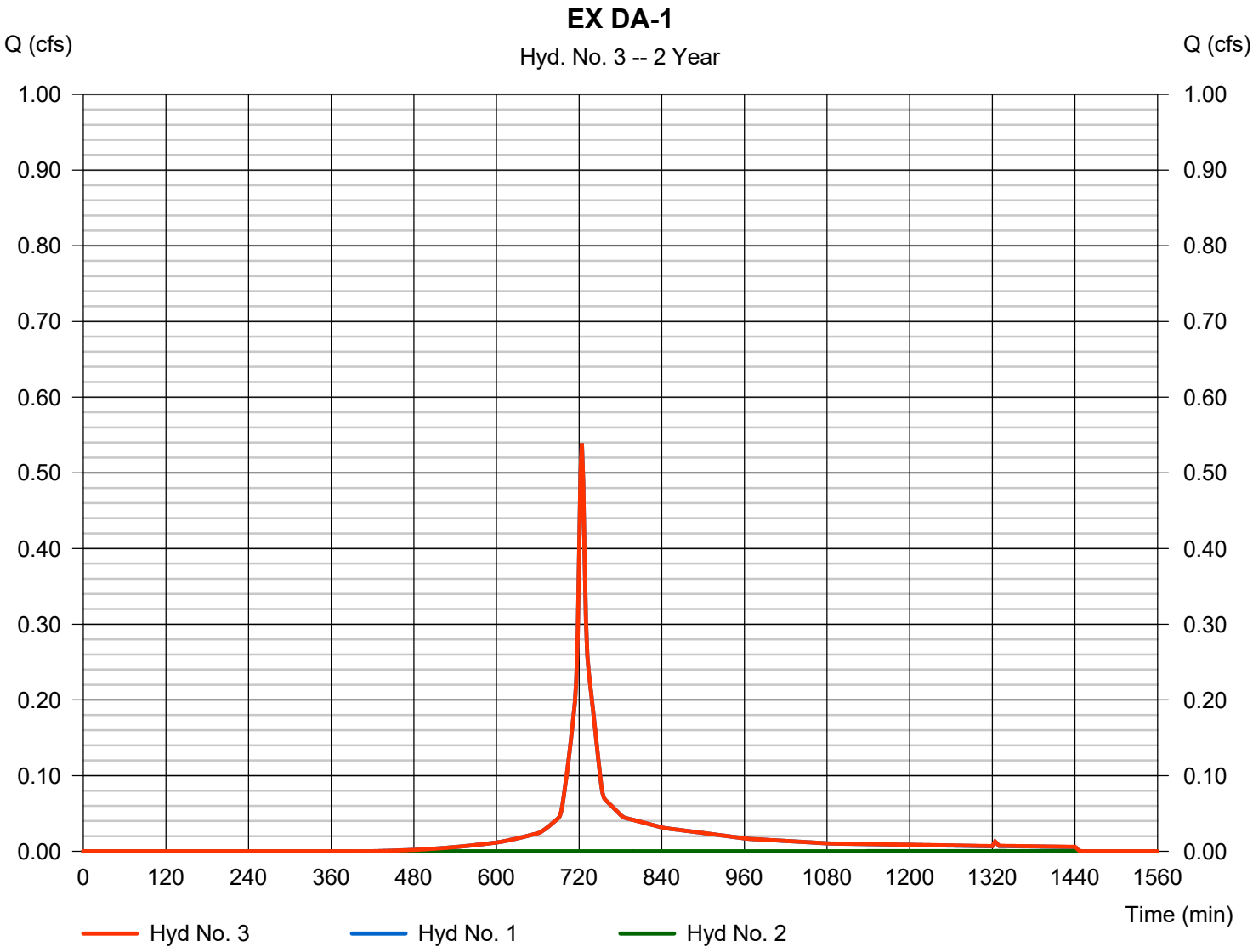


Hydrograph Report

Hyd. No. 3

EX DA-1

Hydrograph type	= Combine	Peak discharge	= 0.539 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,621 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 0.524 ac

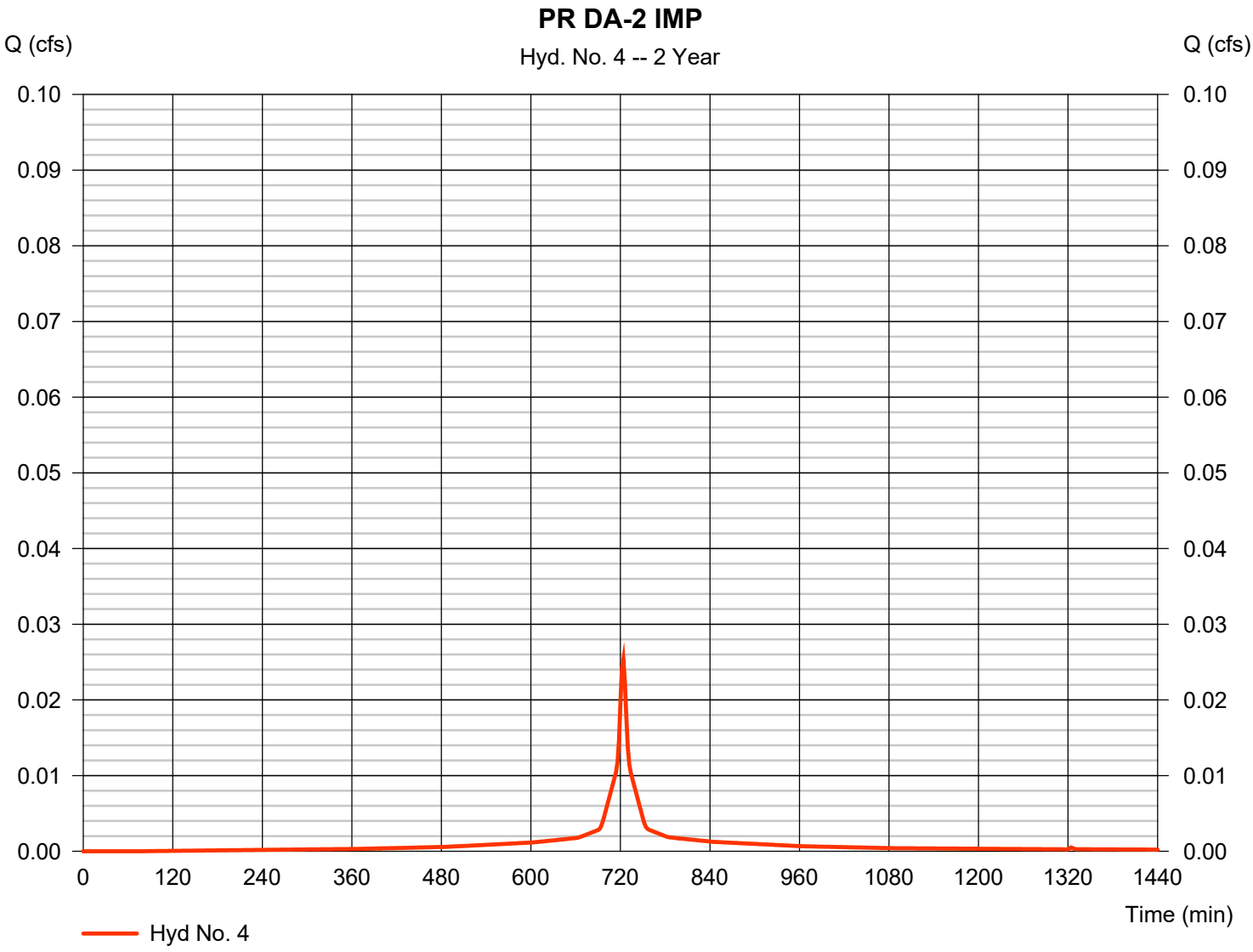


Hydrograph Report

Hyd. No. 4

PR DA-2 IMP

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.025 cfs
Storm frequency	=	2 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	86 cuft
Drainage area	=	0.008 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.38 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

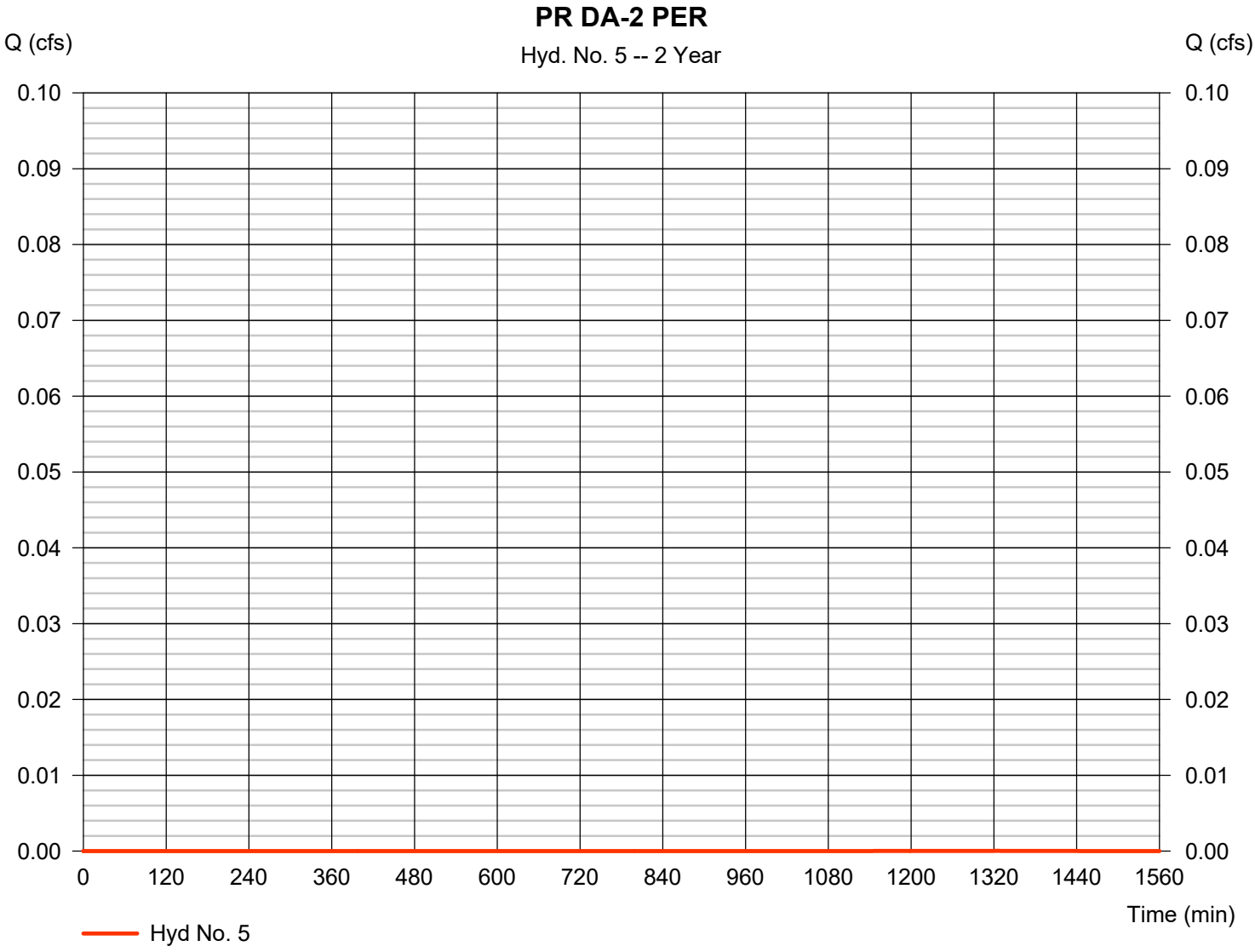


Hydrograph Report

Hyd. No. 5

PR DA-2 PER

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= 1324 min
Time interval	= 2 min	Hyd. volume	= 0 cuft
Drainage area	= 0.027 ac	Curve number	= 39
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

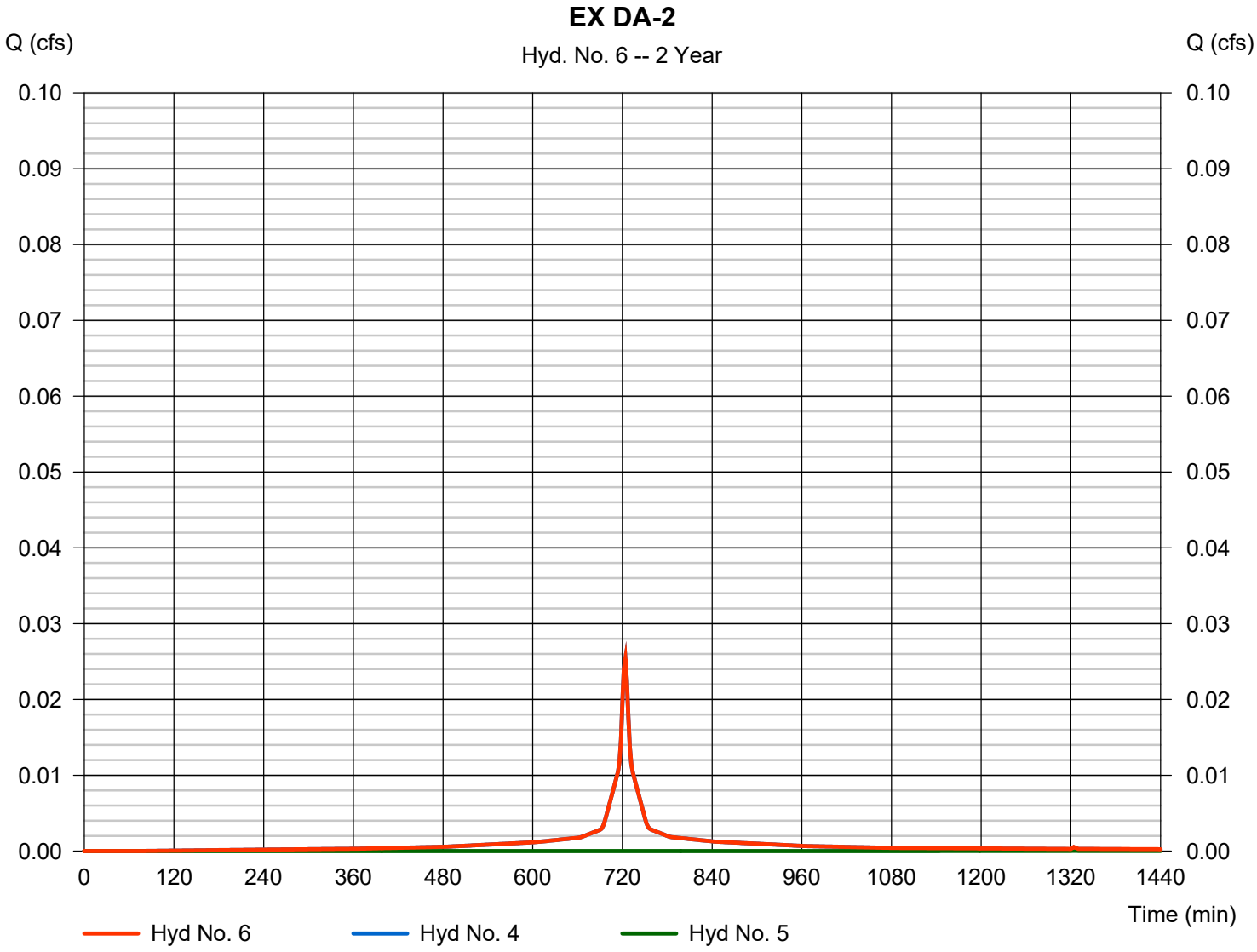


Hydrograph Report

Hyd. No. 6

EX DA-2

Hydrograph type	=	Combine	Peak discharge	=	0.025 cfs
Storm frequency	=	2 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	86 cuft
Inflow hyds.	=	4, 5	Contrib. drain. area	=	0.035 ac

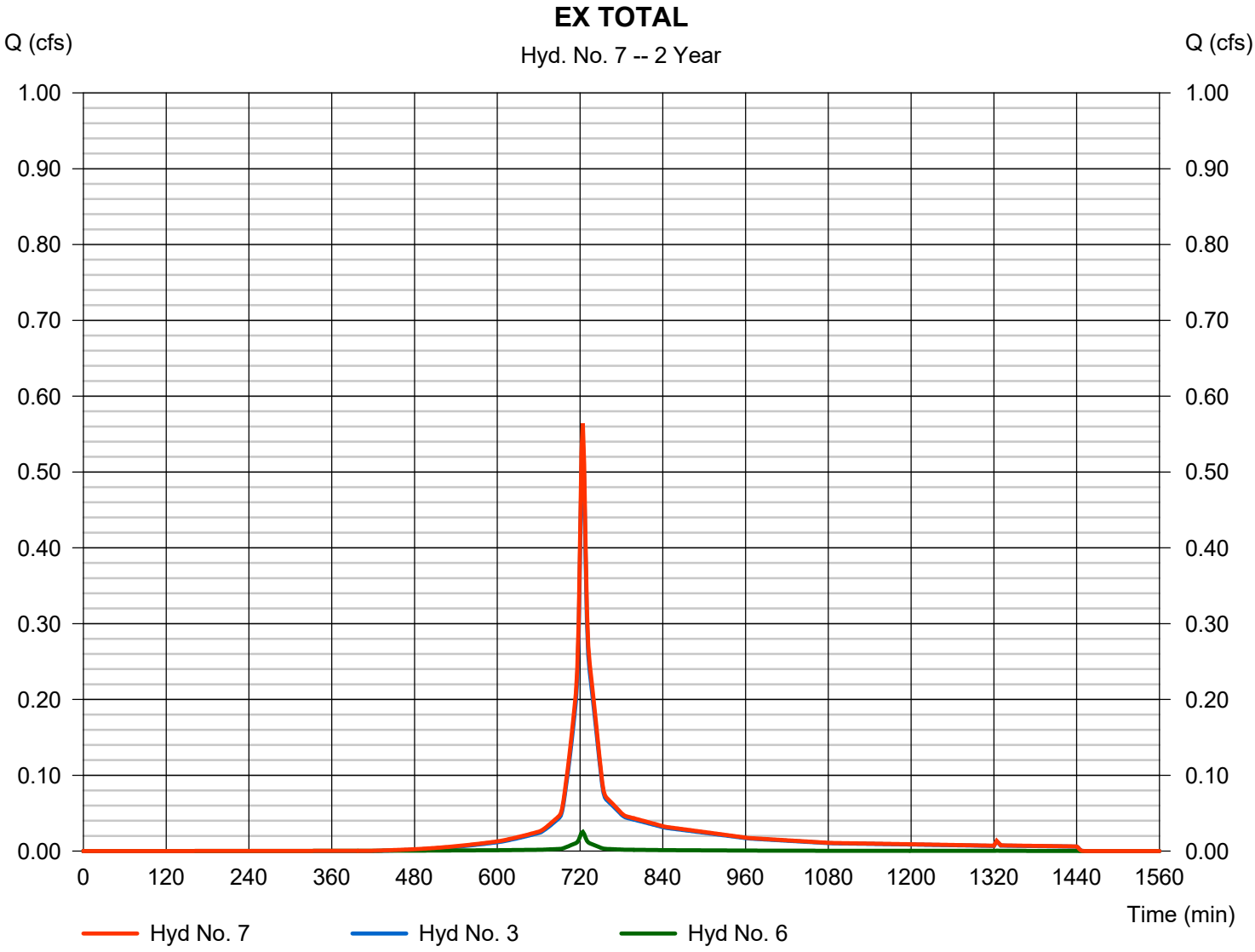


Hydrograph Report

Hyd. No. 7

EX TOTAL

Hydrograph type	= Combine	Peak discharge	= 0.564 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,707 cuft
Inflow hyds.	= 3, 6	Contrib. drain. area	= 0.000 ac

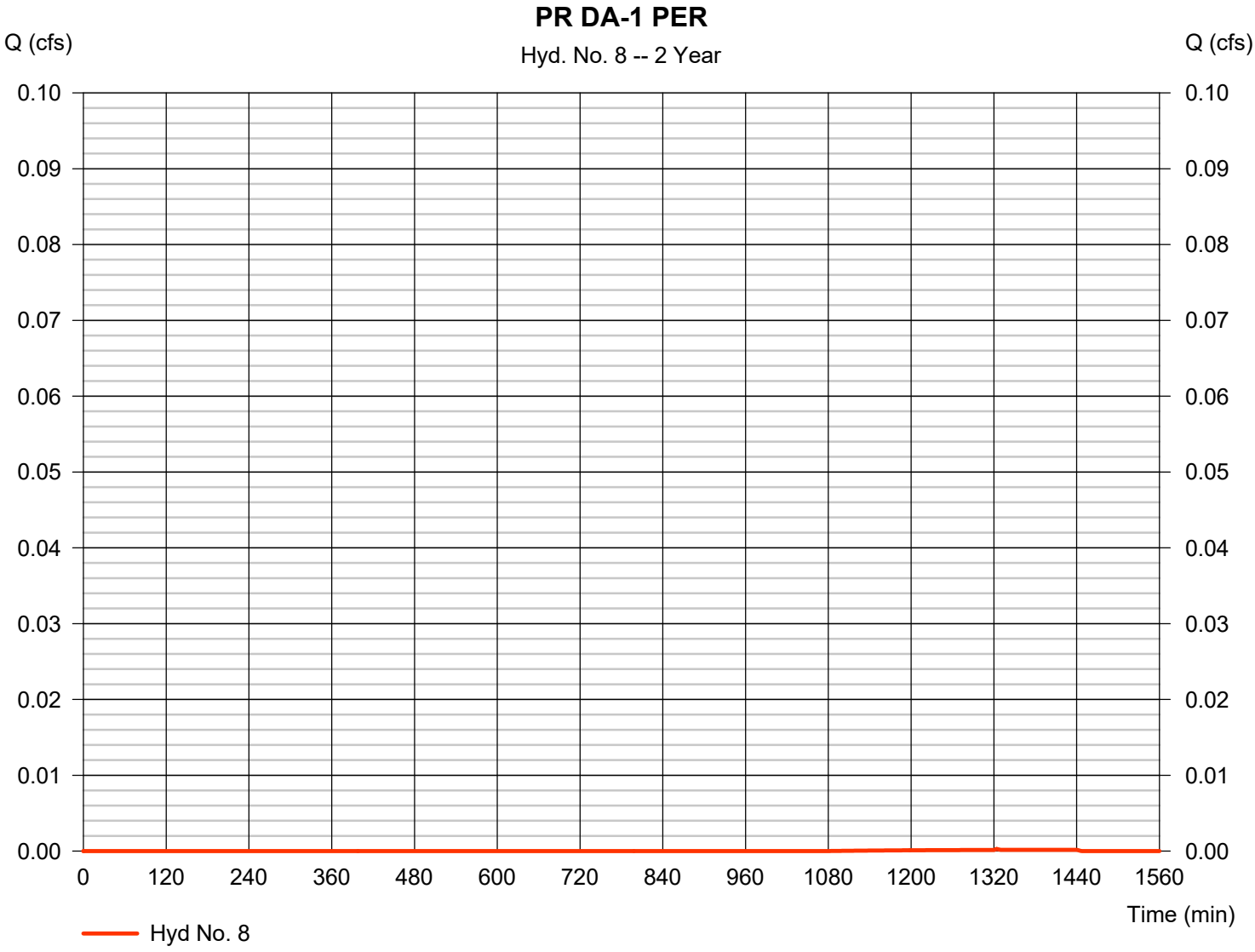


Hydrograph Report

Hyd. No. 8

PR DA-1 PER

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= 1324 min
Time interval	= 2 min	Hyd. volume	= 3 cuft
Drainage area	= 0.195 ac	Curve number	= 39
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

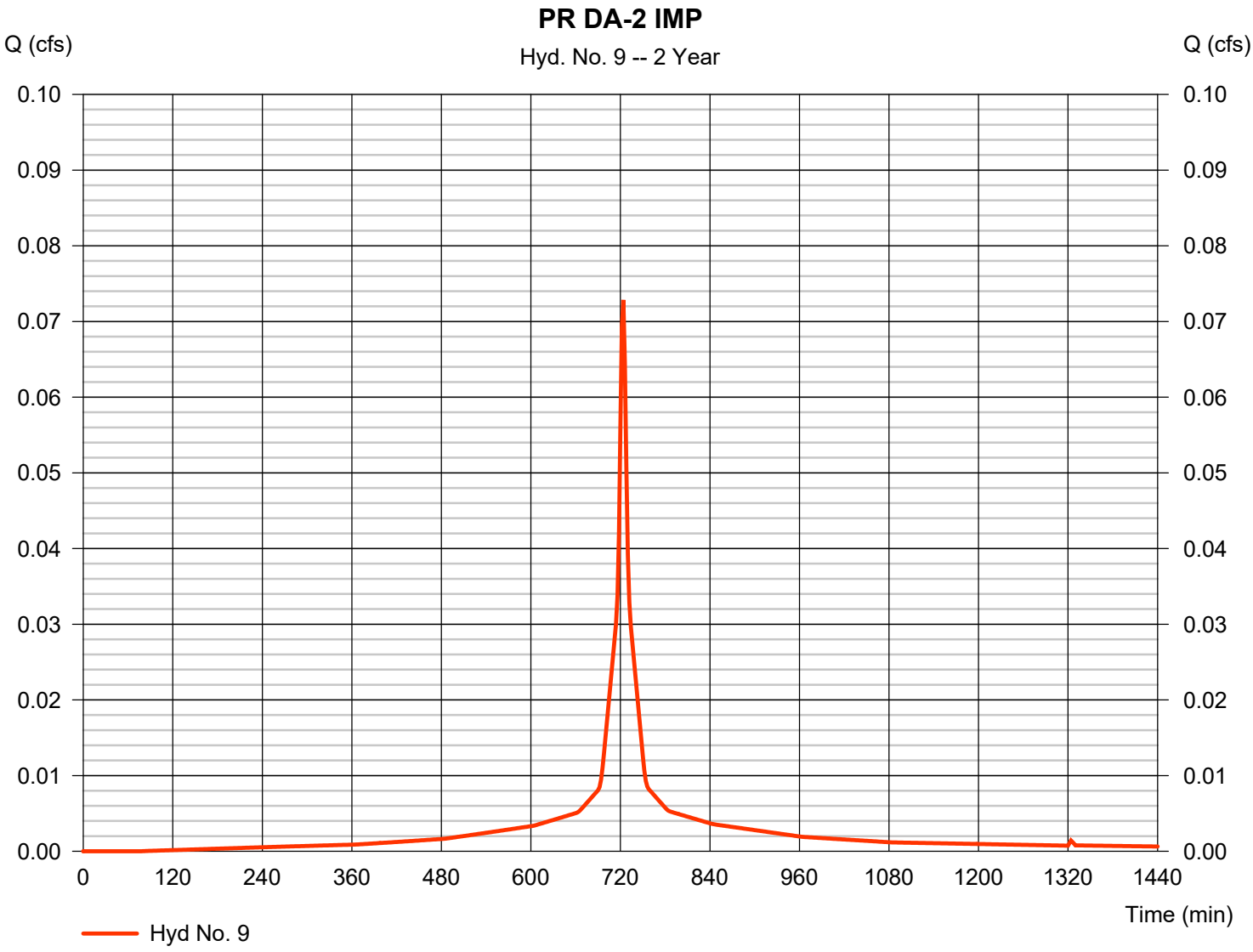


Hydrograph Report

Hyd. No. 9

PR DA-2 IMP

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.073 cfs
Storm frequency	=	2 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	246 cuft
Drainage area	=	0.023 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.38 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

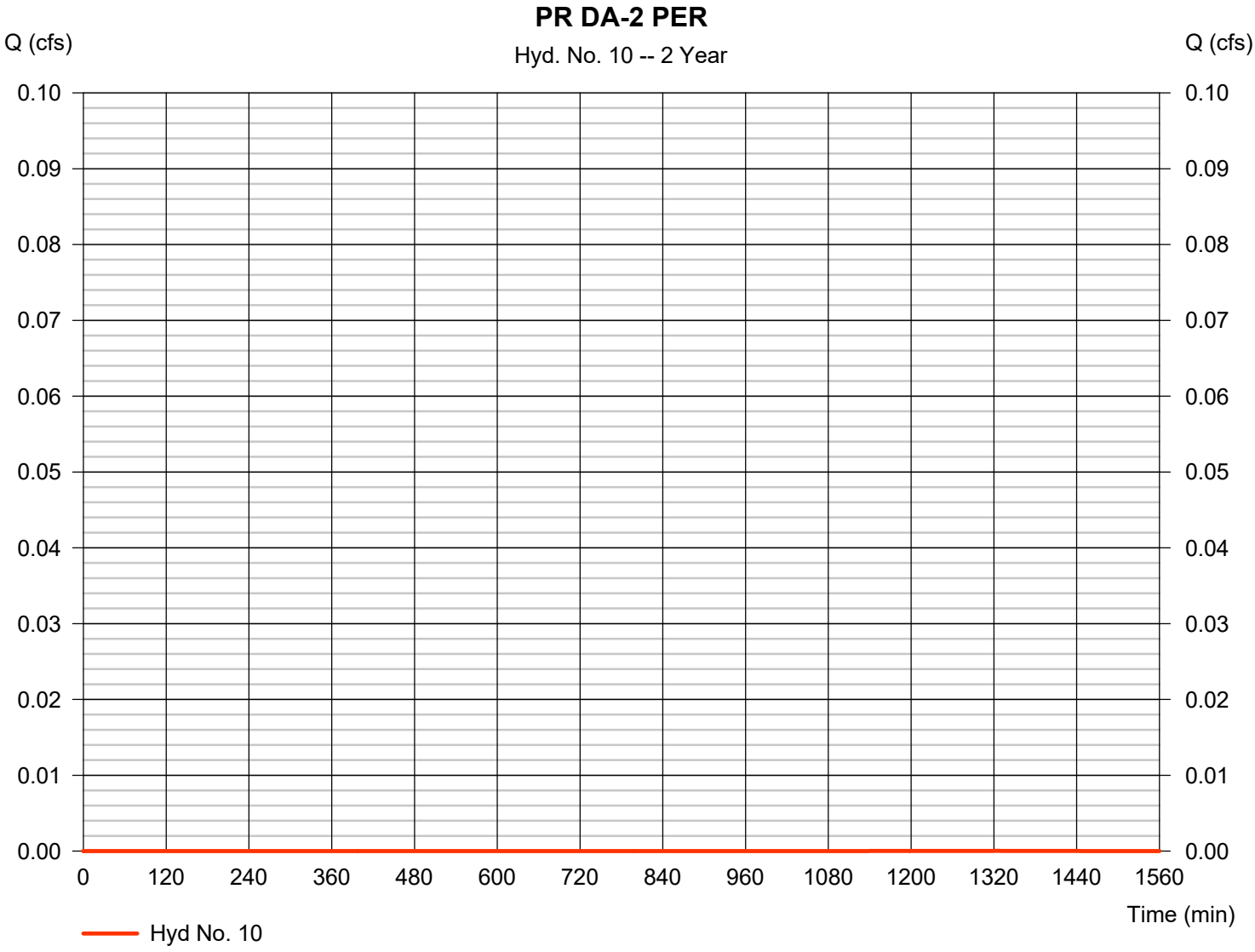


Hydrograph Report

Hyd. No. 10

PR DA-2 PER

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= 1324 min
Time interval	= 2 min	Hyd. volume	= 0 cuft
Drainage area	= 0.029 ac	Curve number	= 39
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.38 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

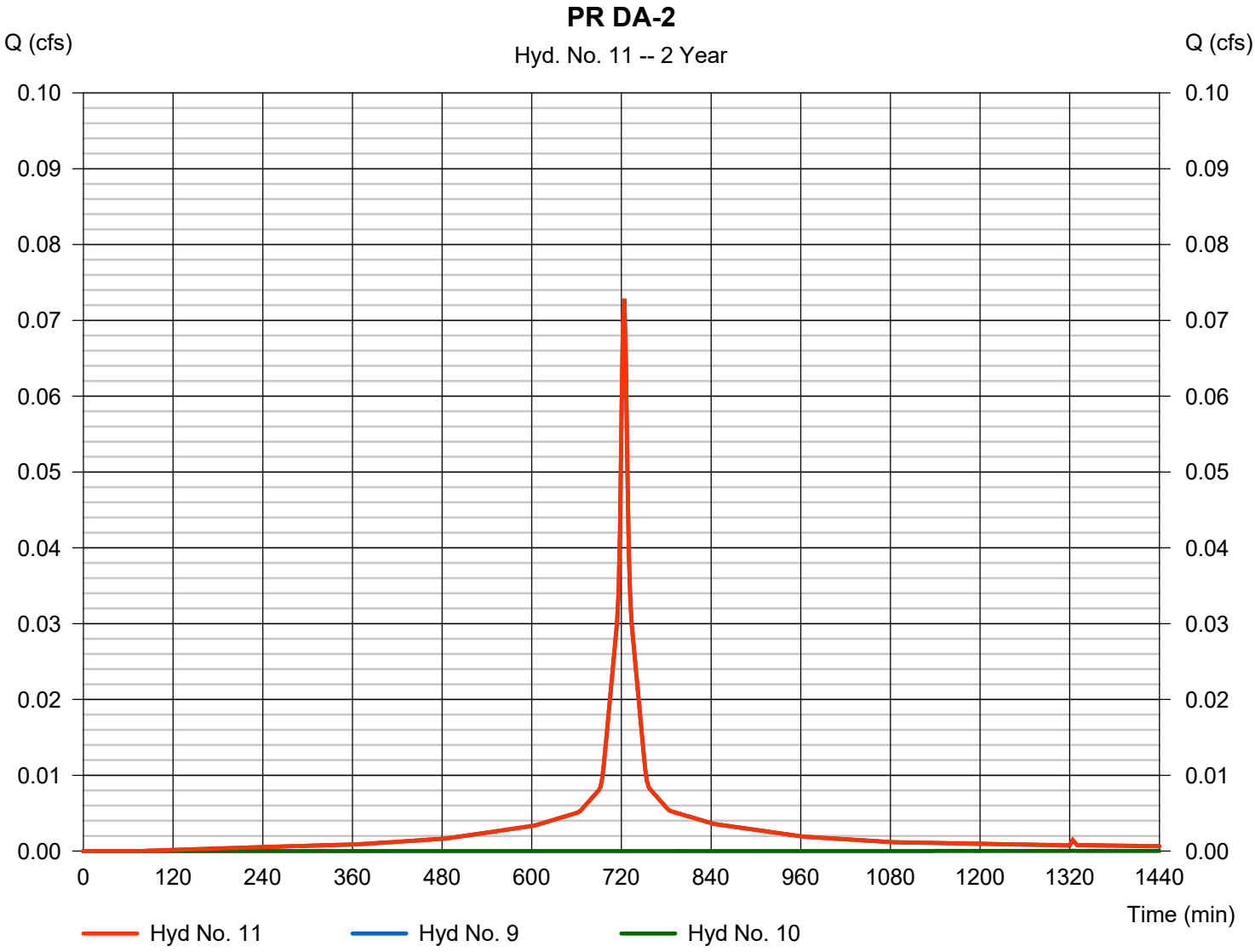


Hydrograph Report

Hyd. No. 11

PR DA-2

Hydrograph type	=	Combine	Peak discharge	=	0.073 cfs
Storm frequency	=	2 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	247 cuft
Inflow hyds.	=	9, 10	Contrib. drain. area	=	0.052 ac

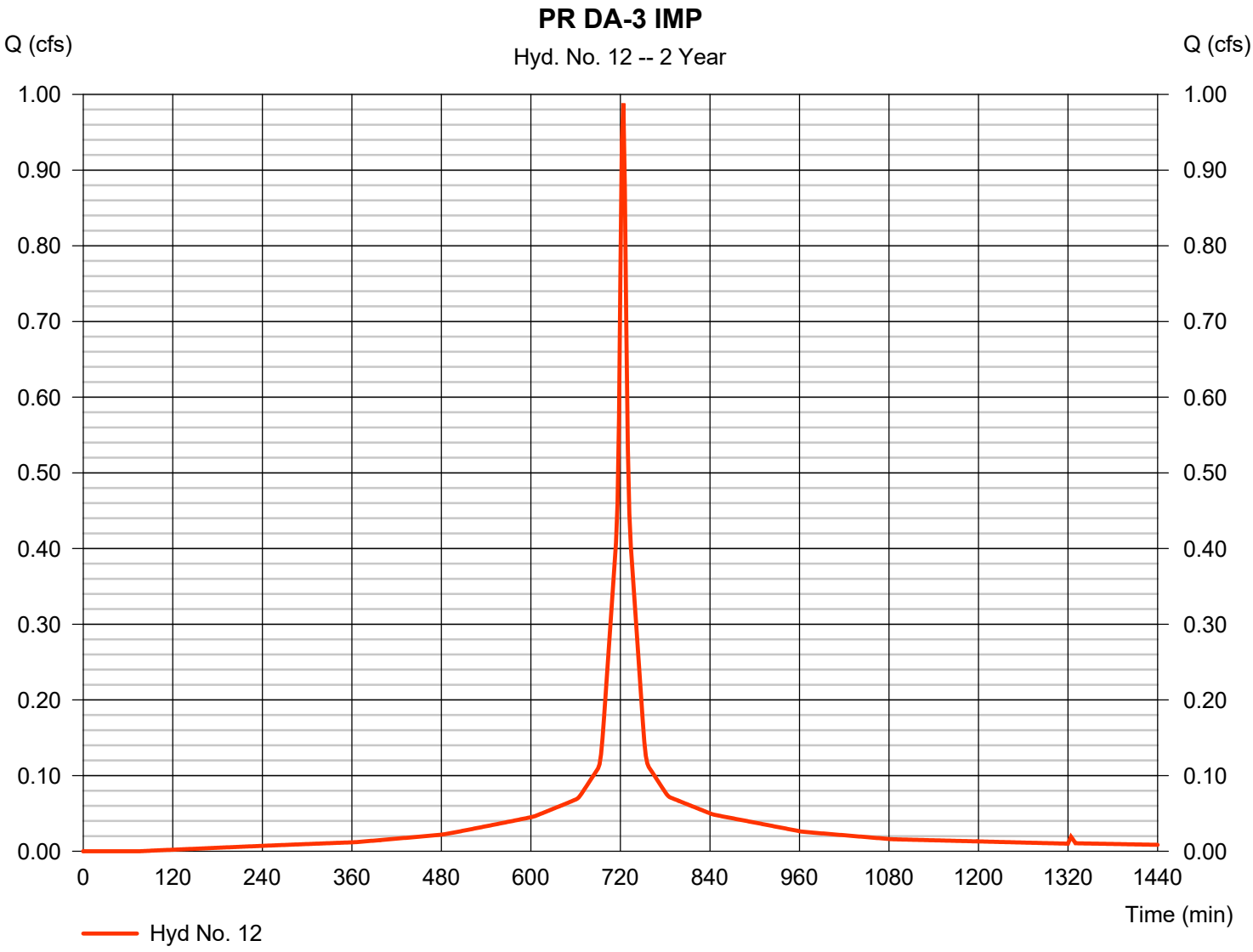


Hydrograph Report

Hyd. No. 12

PR DA-3 IMP

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.988 cfs
Storm frequency	=	2 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	3,341 cuft
Drainage area	=	0.312 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.38 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

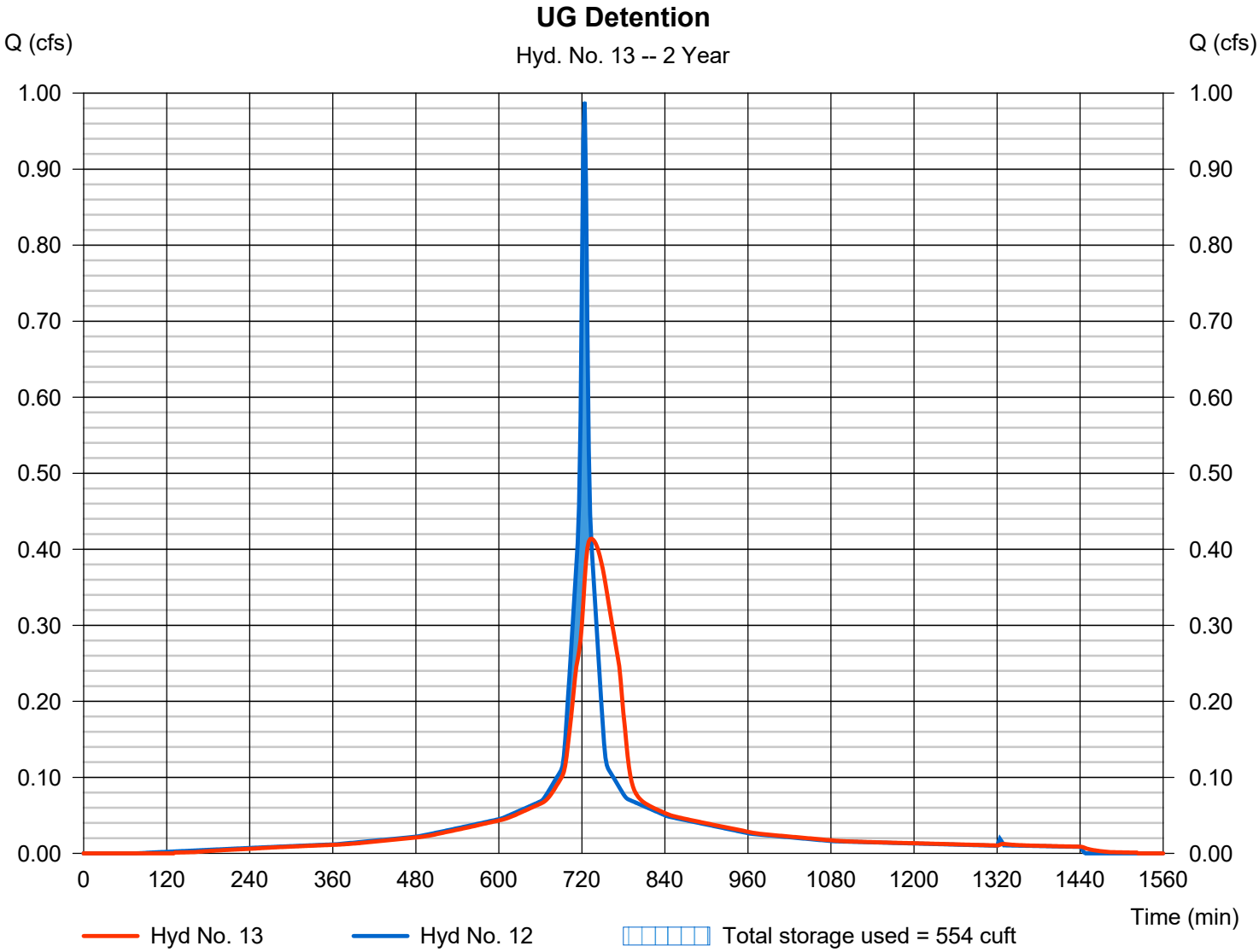
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020 Tuesday, 07 / 21 / 2020

Hyd. No. 13

UG Detention

Hydrograph type	= Reservoir	Peak discharge	= 0.414 cfs
Storm frequency	= 2 yrs	Time to peak	= 734 min
Time interval	= 2 min	Hyd. volume	= 3,337 cuft
Inflow hyd. No.	= 12 - PR DA-3 IMP	Max. Elevation	= 5.14 ft
Reservoir name	= (22) SC-740	Max. Storage	= 554 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020 Tuesday, 07 / 21 / 2020

Pond No. 8 - (22) SC-740

Pond Data

Pond storage is based on user-defined values.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	4.00	n/a	0	0
0.25	4.25	n/a	74	74
0.50	4.50	n/a	74	149
0.75	4.75	n/a	161	310
1.00	5.00	n/a	159	469
1.25	5.25	n/a	155	624
1.50	5.50	n/a	151	775
1.75	5.75	n/a	146	921
2.00	6.00	n/a	139	1,060
2.25	6.25	n/a	132	1,192
2.50	6.50	n/a	121	1,313
2.75	6.75	n/a	106	1,418
3.00	7.00	n/a	81	1,499
3.25	7.25	n/a	74	1,573
3.50	7.50	n/a	74	1,648
4.50	8.50	n/a	0	1,648

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 10.00	4.00	6.00	0.00
Span (in)	= 10.00	4.00	6.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 3.00	4.00	5.25	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .011	.011	.011	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

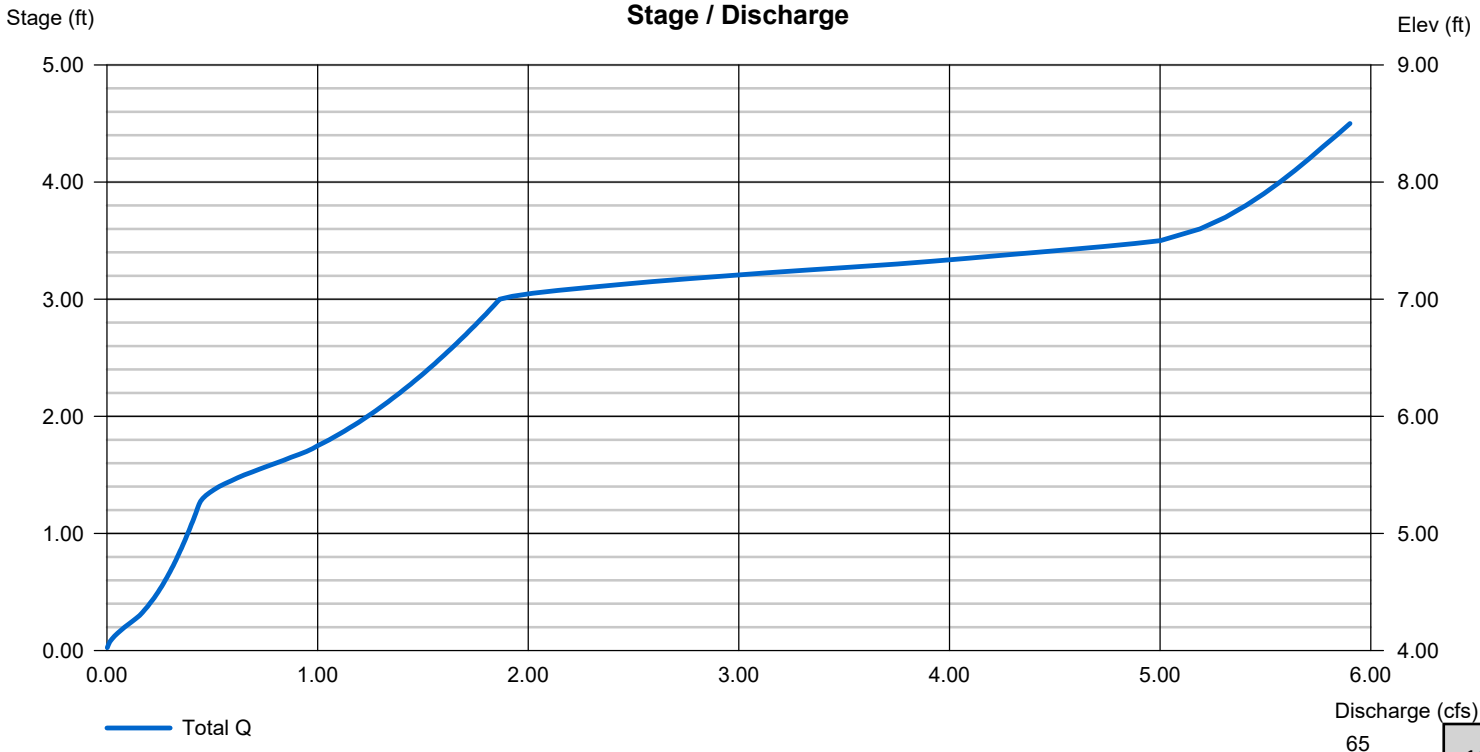
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 3.50	0.00	0.00	0.00
Crest El. (ft)	= 7.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

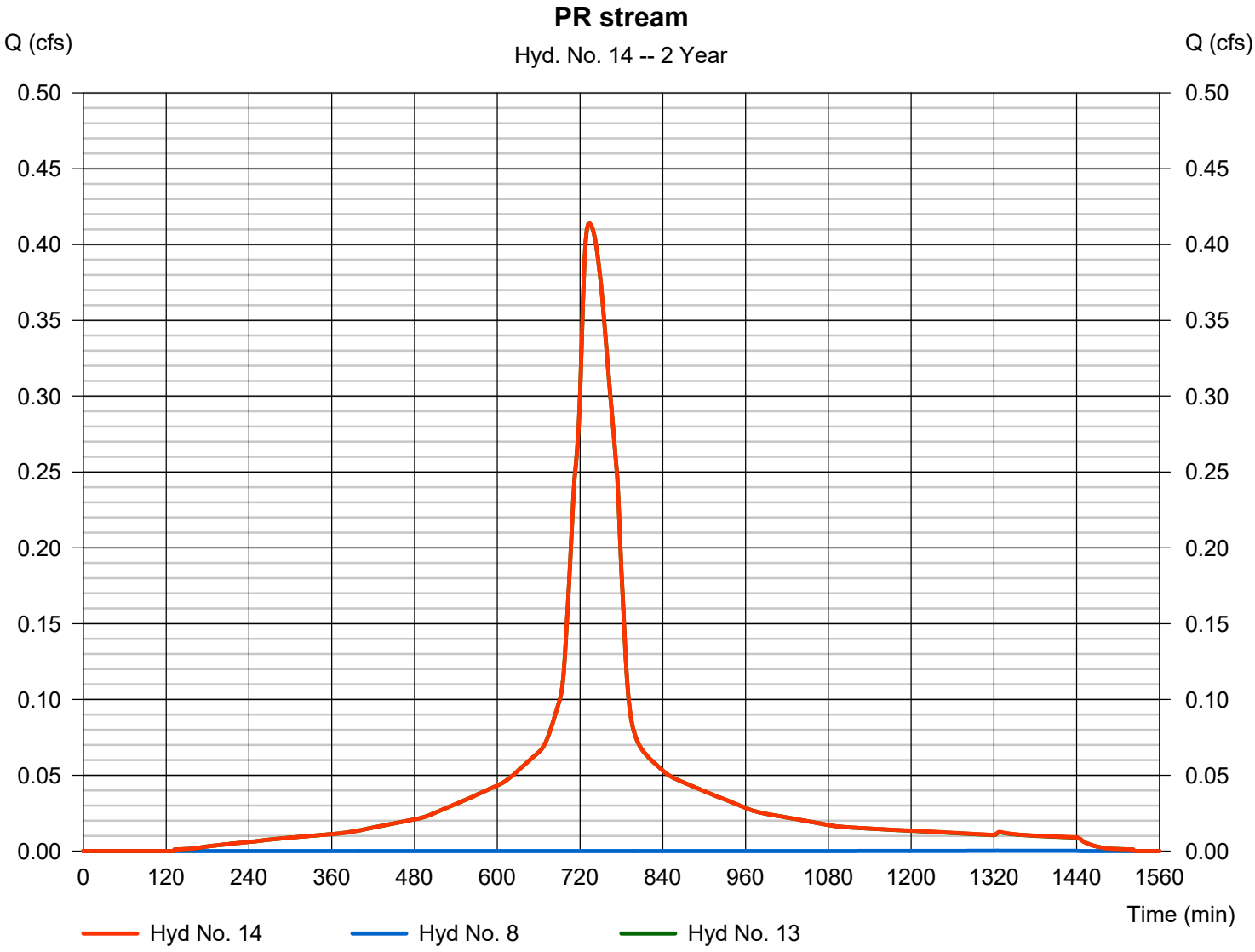


Hydrograph Report

Hyd. No. 14

PR stream

Hydrograph type	=	Combine	Peak discharge	=	0.414 cfs
Storm frequency	=	2 yrs	Time to peak	=	734 min
Time interval	=	2 min	Hyd. volume	=	3,340 cuft
Inflow hyds.	=	8, 13	Contrib. drain. area	=	0.195 ac

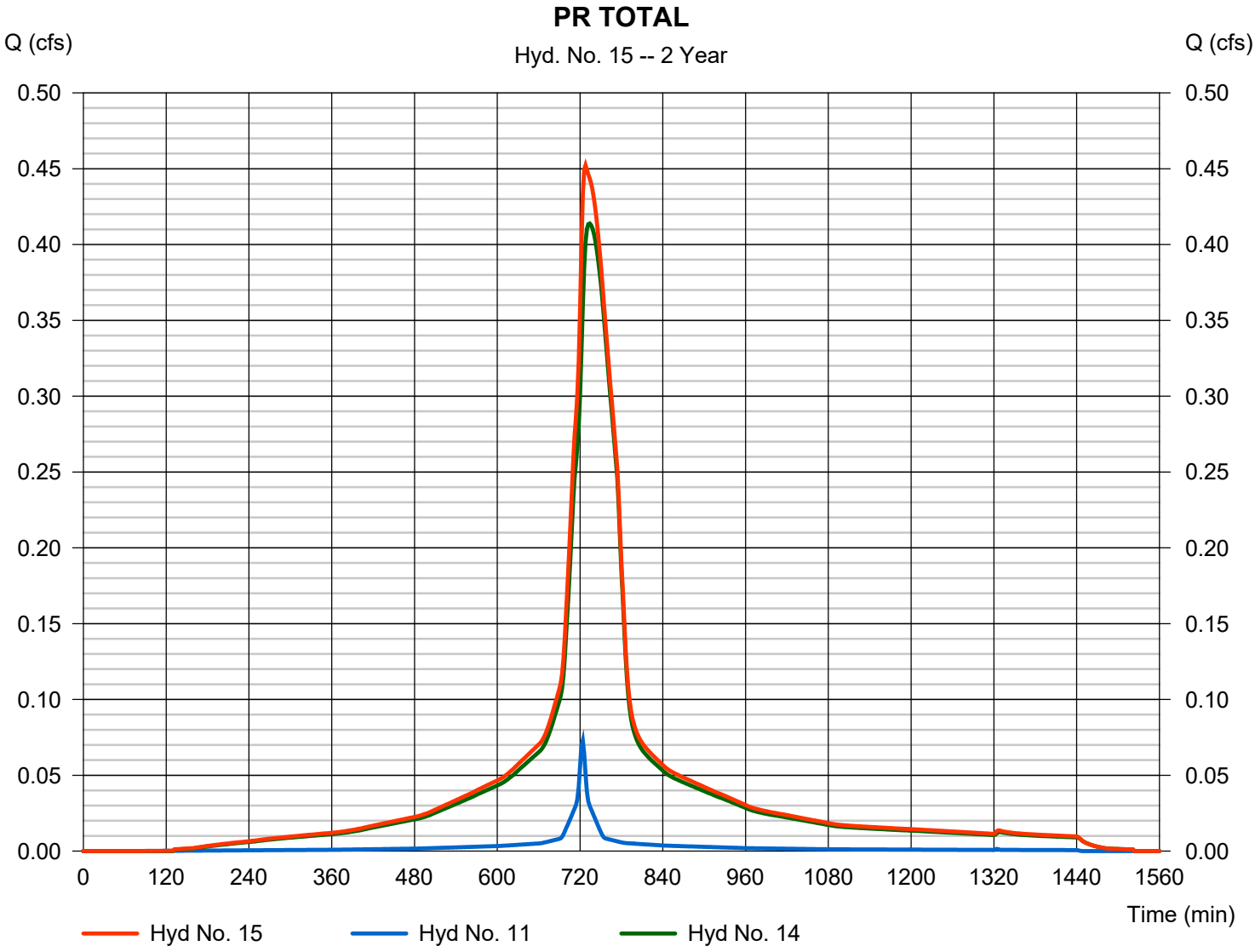


Hydrograph Report

Hyd. No. 15

PR TOTAL

Hydrograph type	=	Combine	Peak discharge	=	0.452 cfs
Storm frequency	=	2 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	3,586 cuft
Inflow hyds.	=	11, 14	Contrib. drain. area	=	0.000 ac



Hydrograph Report

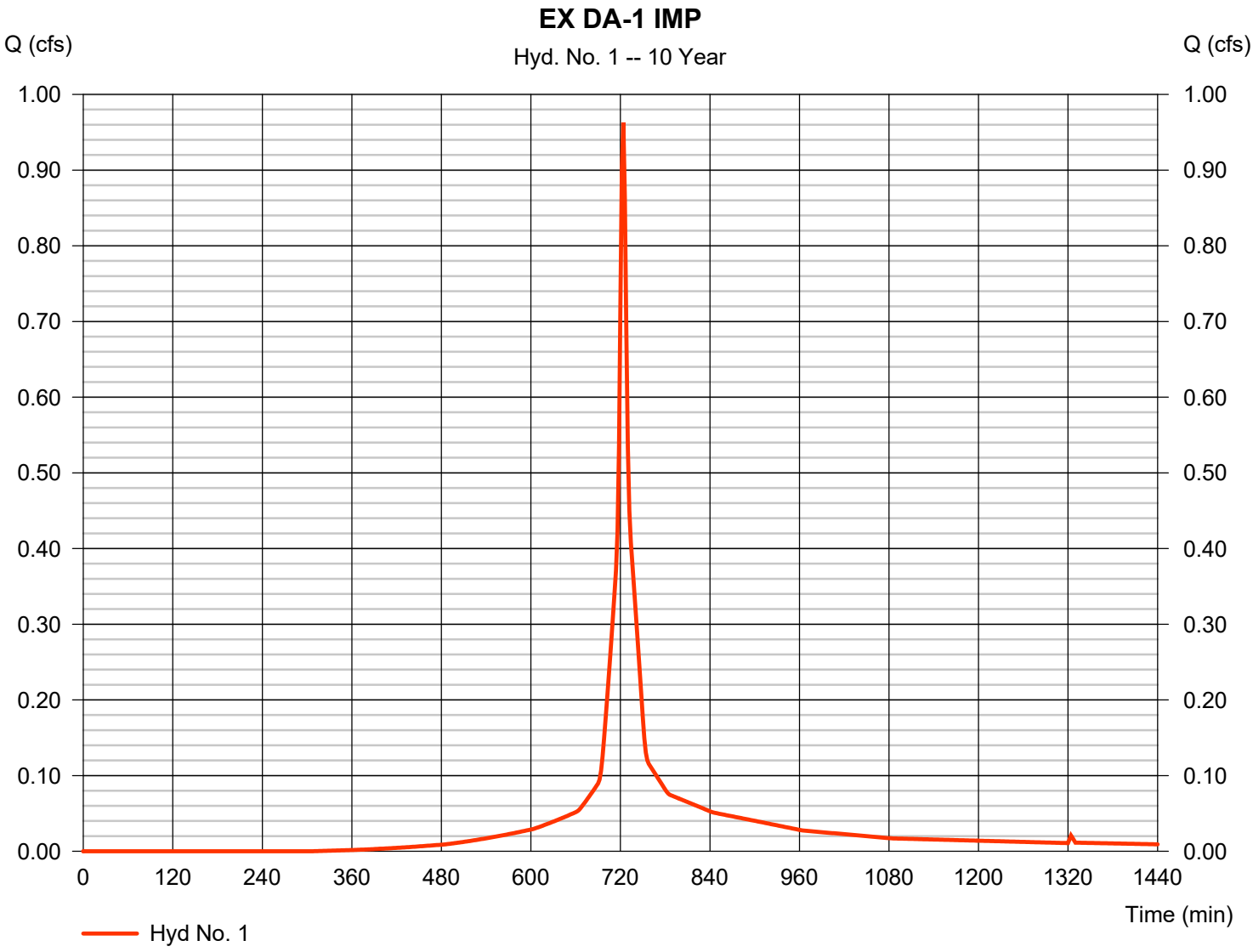
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020 Tuesday, 07 / 21 / 2020

Hyd. No. 1

EX DA-1 IMP

Hydrograph type	= SCS Runoff	Peak discharge	= 0.963 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 2,949 cuft
Drainage area	= 0.229 ac	Curve number	= 87*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.23 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.113 x 98) + (0.117 x 76) + (0.336 x 39)] / 0.229

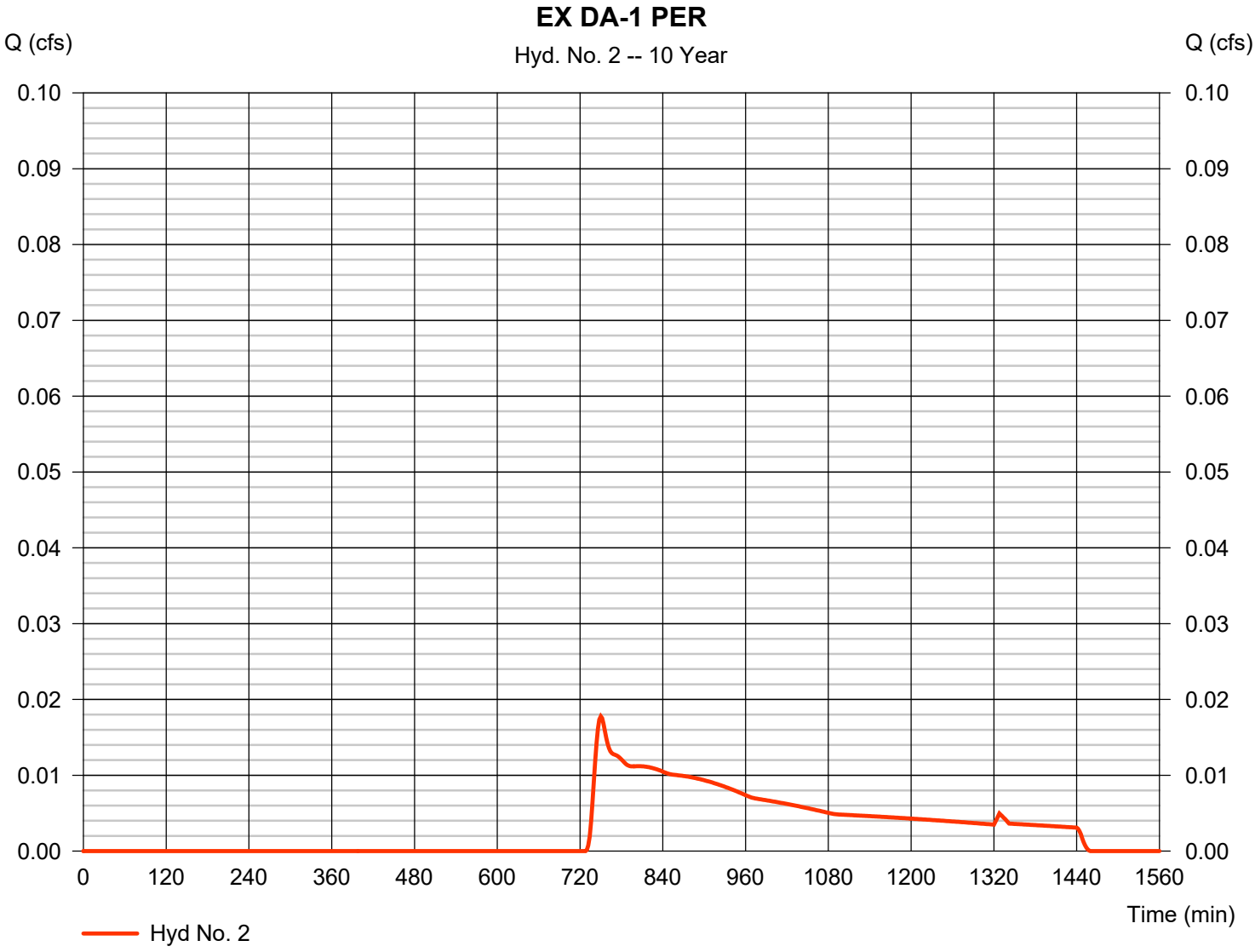


Hydrograph Report

Hyd. No. 2

EX DA-1 PER

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.018 cfs
Storm frequency	=	10 yrs	Time to peak	=	750 min
Time interval	=	2 min	Hyd. volume	=	275 cuft
Drainage area	=	0.295 ac	Curve number	=	39
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	12.00 min
Total precip.	=	5.23 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

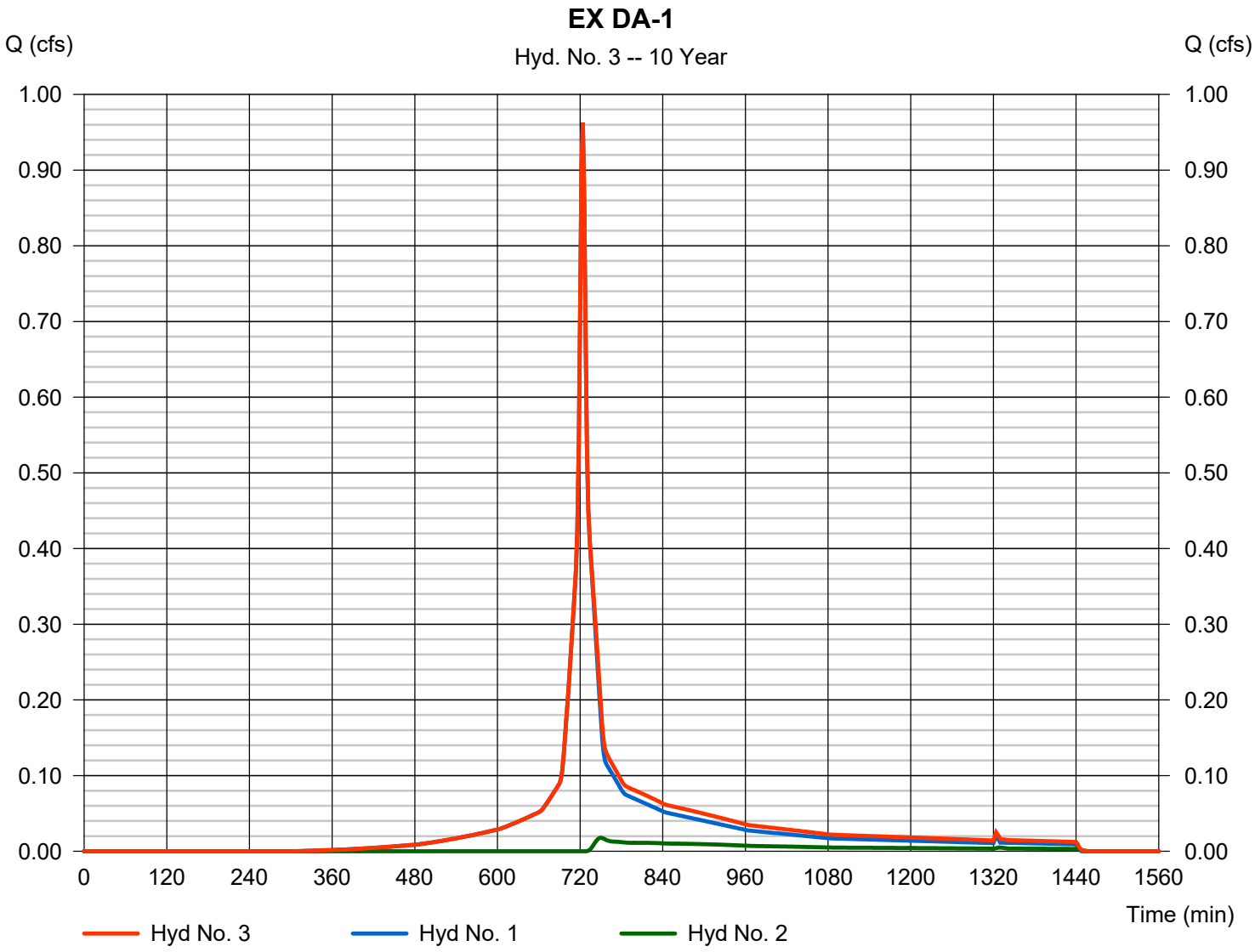


Hydrograph Report

Hyd. No. 3

EX DA-1

Hydrograph type	=	Combine	Peak discharge	=	0.963 cfs
Storm frequency	=	10 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	3,224 cuft
Inflow hyds.	=	1, 2	Contrib. drain. area	=	0.524 ac

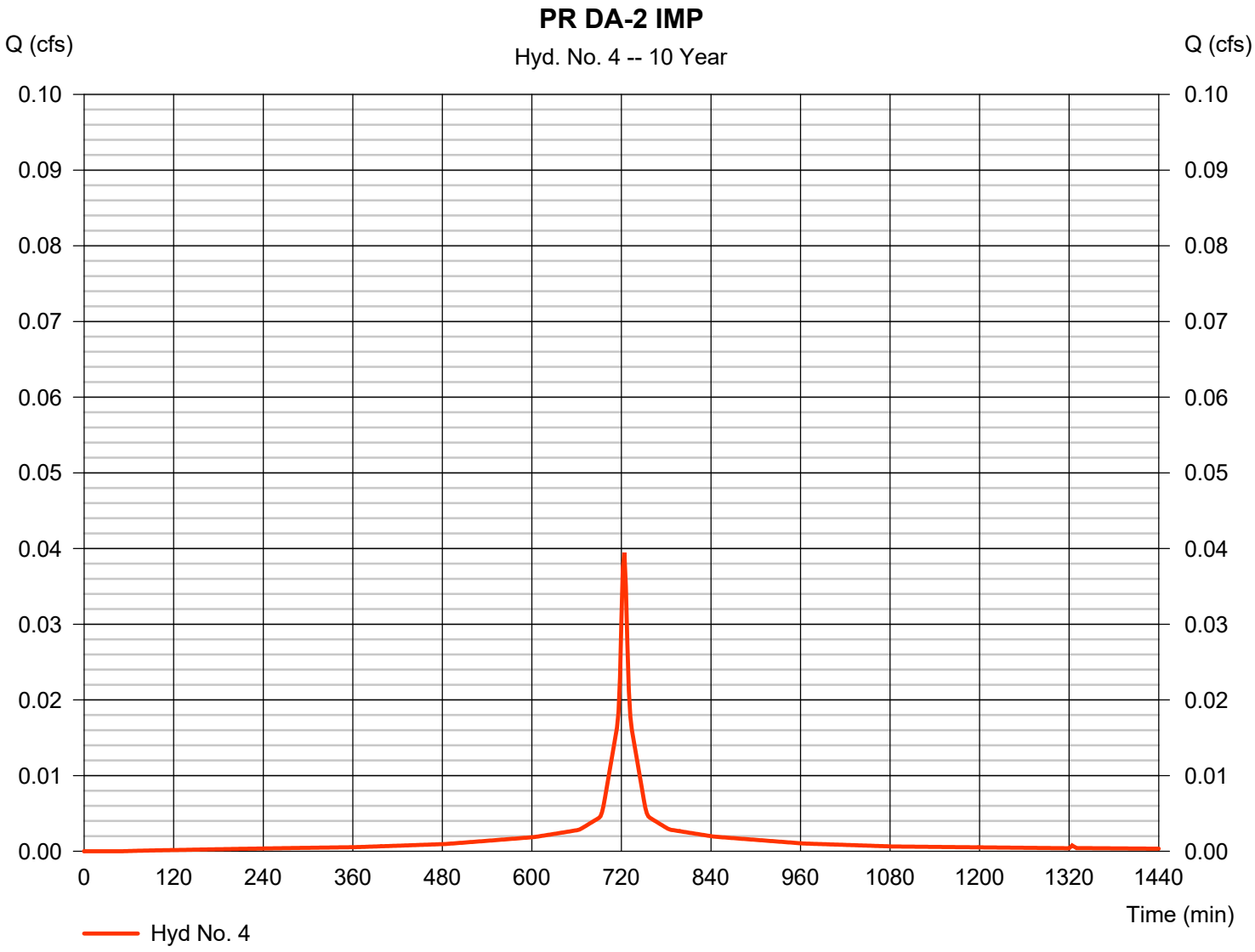


Hydrograph Report

Hyd. No. 4

PR DA-2 IMP

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.039 cfs
Storm frequency	=	10 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	136 cuft
Drainage area	=	0.008 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.23 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

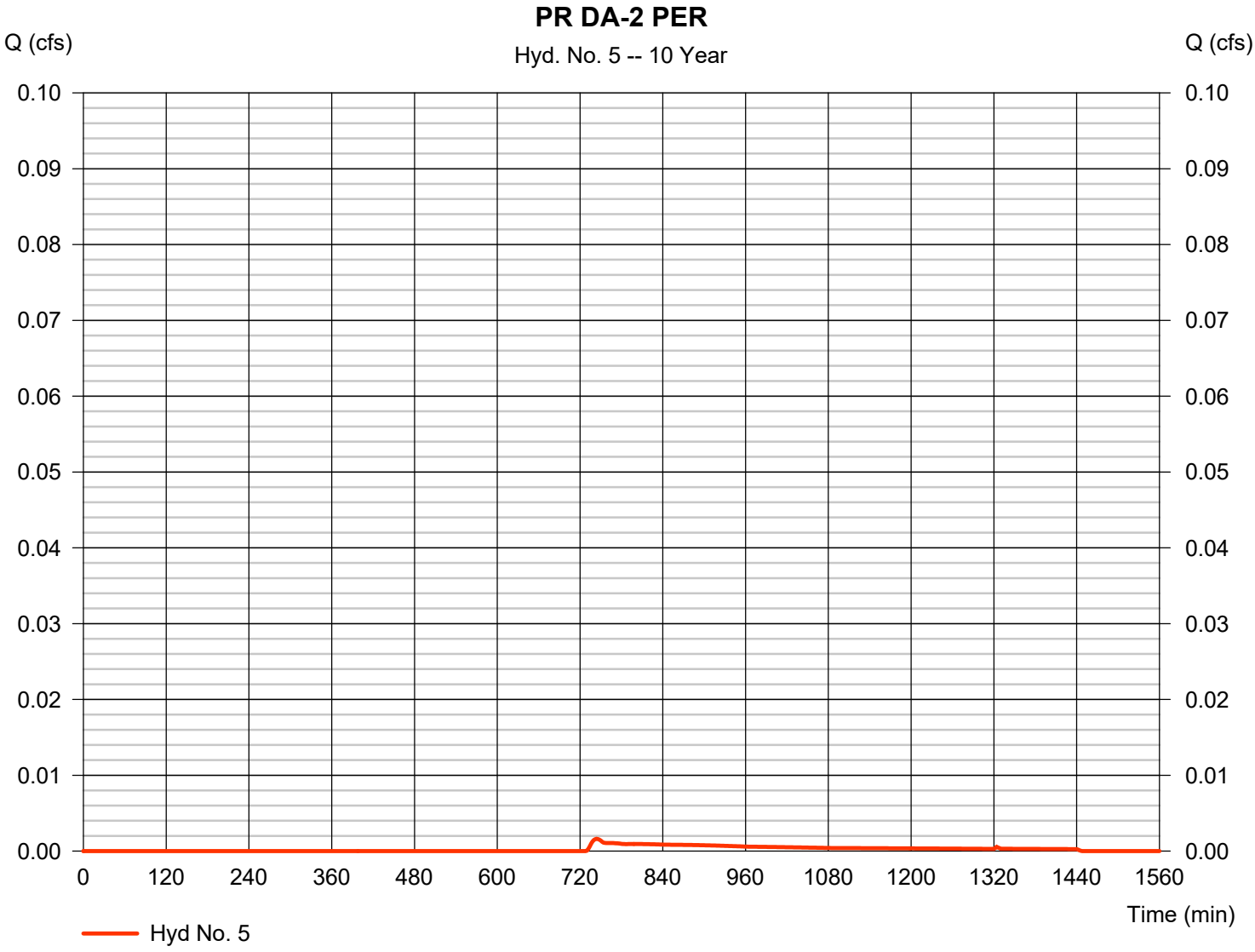


Hydrograph Report

Hyd. No. 5

PR DA-2 PER

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.002 cfs
Storm frequency	=	10 yrs	Time to peak	=	744 min
Time interval	=	2 min	Hyd. volume	=	23 cuft
Drainage area	=	0.027 ac	Curve number	=	39
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.23 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

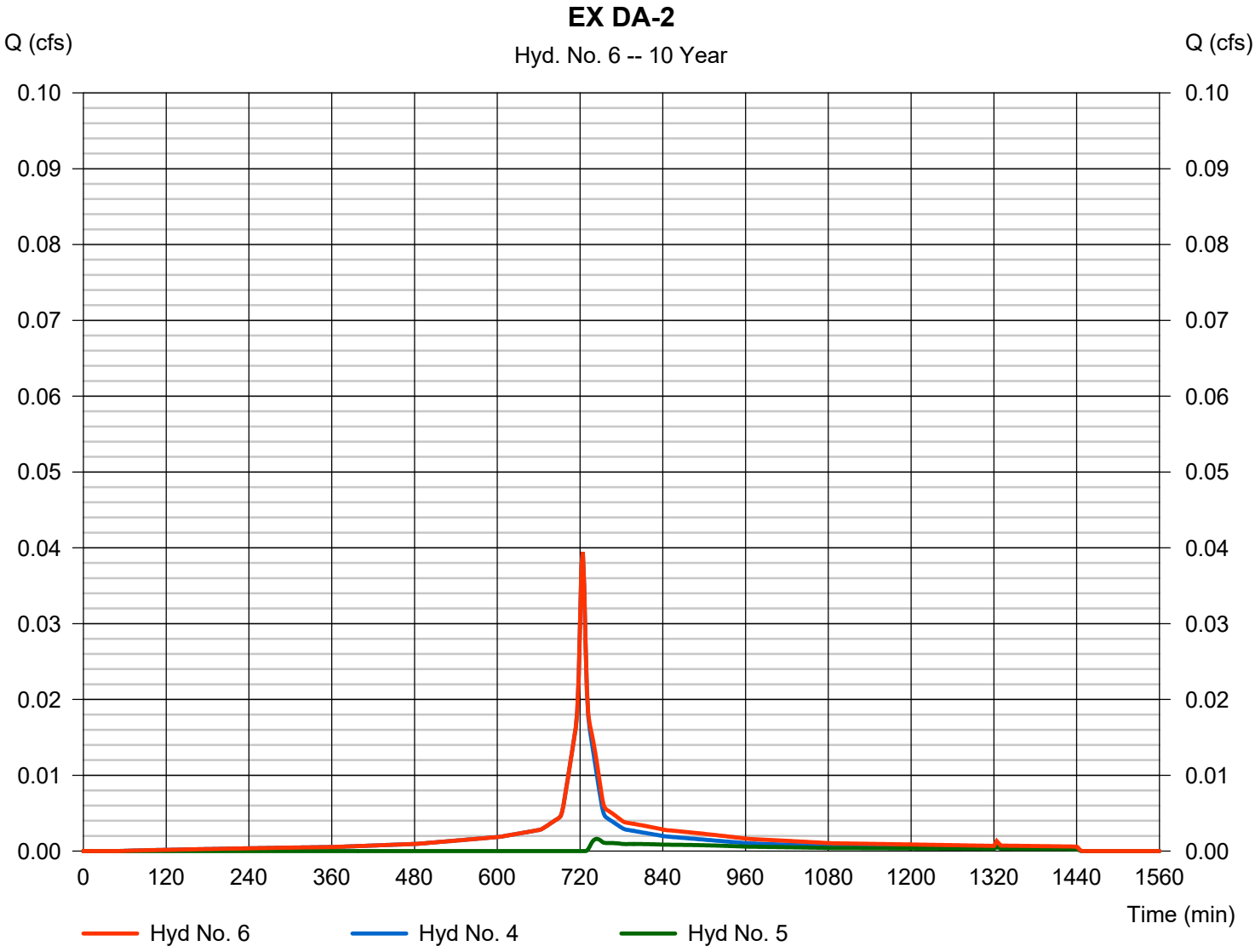


Hydrograph Report

Hyd. No. 6

EX DA-2

Hydrograph type	= Combine	Peak discharge	= 0.039 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 159 cuft
Inflow hyds.	= 4, 5	Contrib. drain. area	= 0.035 ac

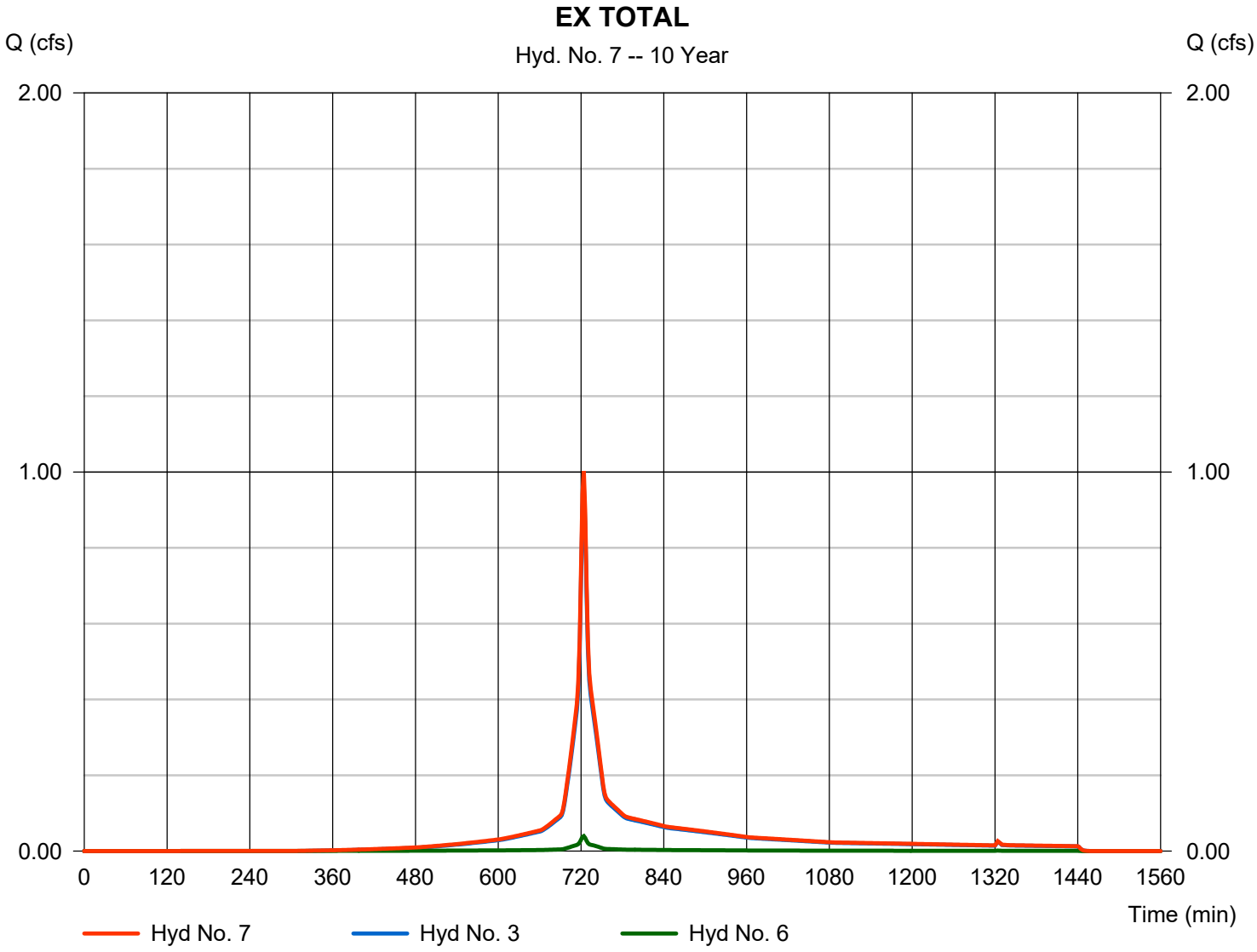


Hydrograph Report

Hyd. No. 7

EX TOTAL

Hydrograph type	=	Combine	Peak discharge	=	1.002 cfs
Storm frequency	=	10 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	3,383 cuft
Inflow hyds.	=	3, 6	Contrib. drain. area	=	0.000 ac

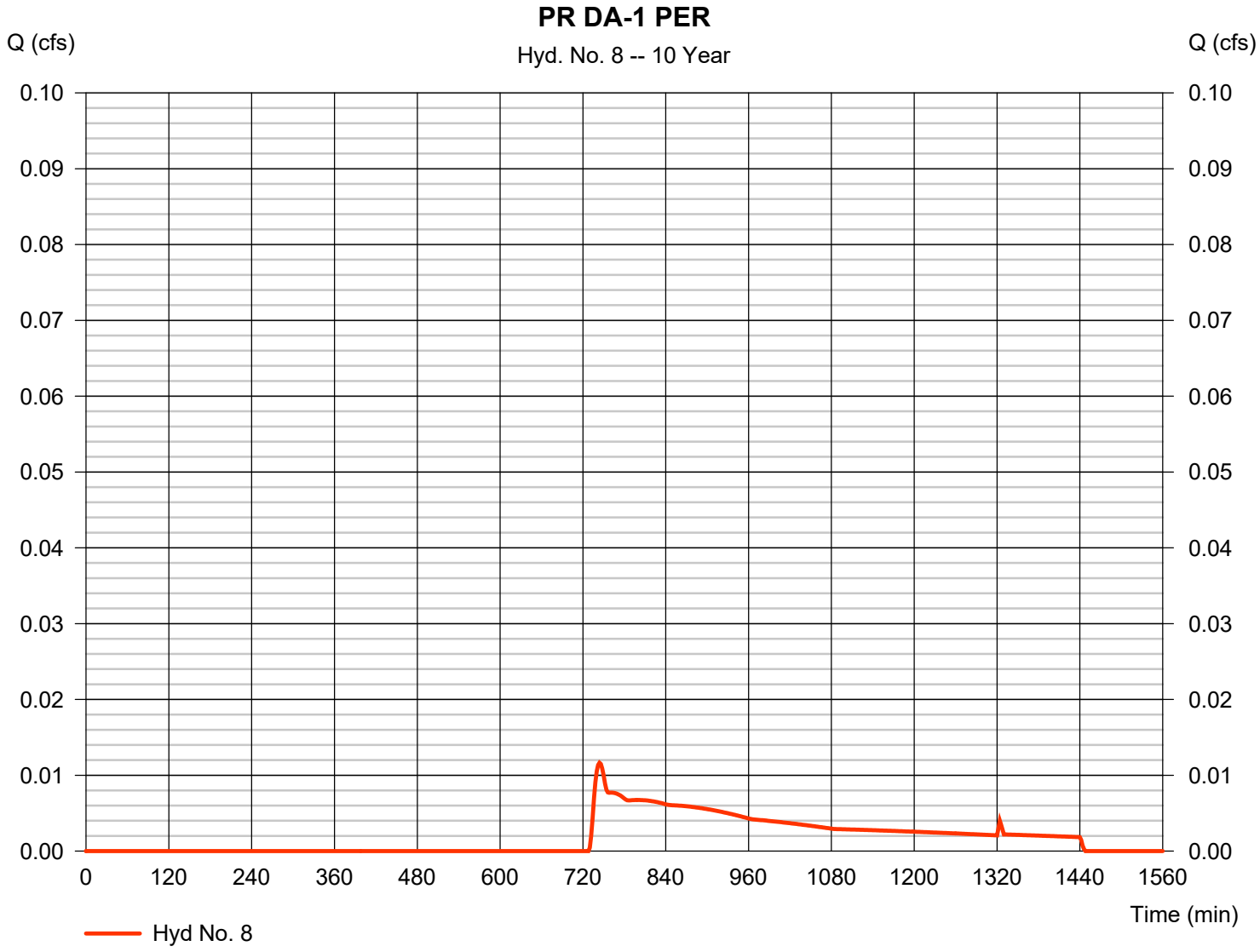


Hydrograph Report

Hyd. No. 8

PR DA-1 PER

Hydrograph type	= SCS Runoff	Peak discharge	= 0.012 cfs
Storm frequency	= 10 yrs	Time to peak	= 744 min
Time interval	= 2 min	Hyd. volume	= 165 cuft
Drainage area	= 0.195 ac	Curve number	= 39
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 5.23 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

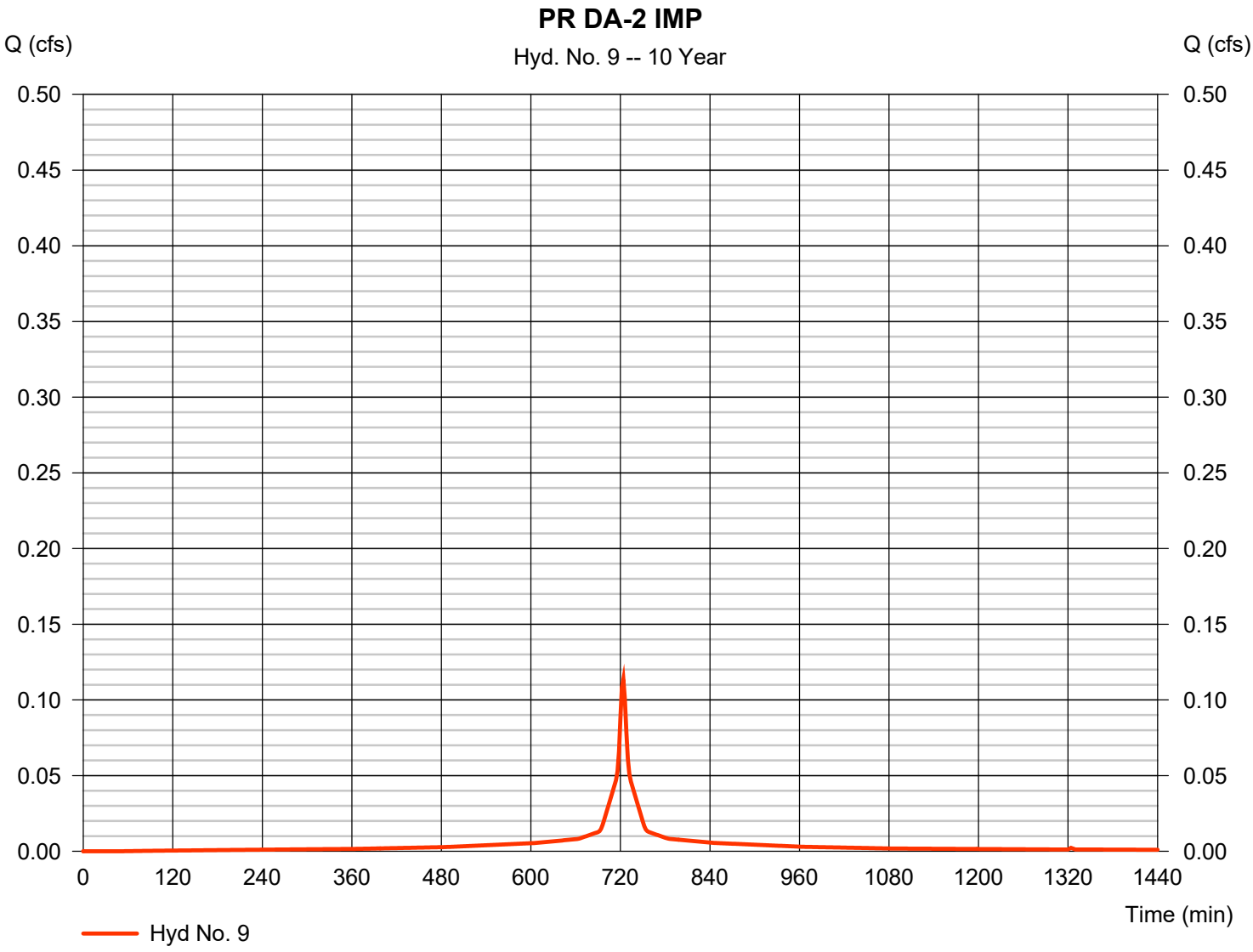


Hydrograph Report

Hyd. No. 9

PR DA-2 IMP

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.113 cfs
Storm frequency	=	10 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	391 cuft
Drainage area	=	0.023 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.23 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

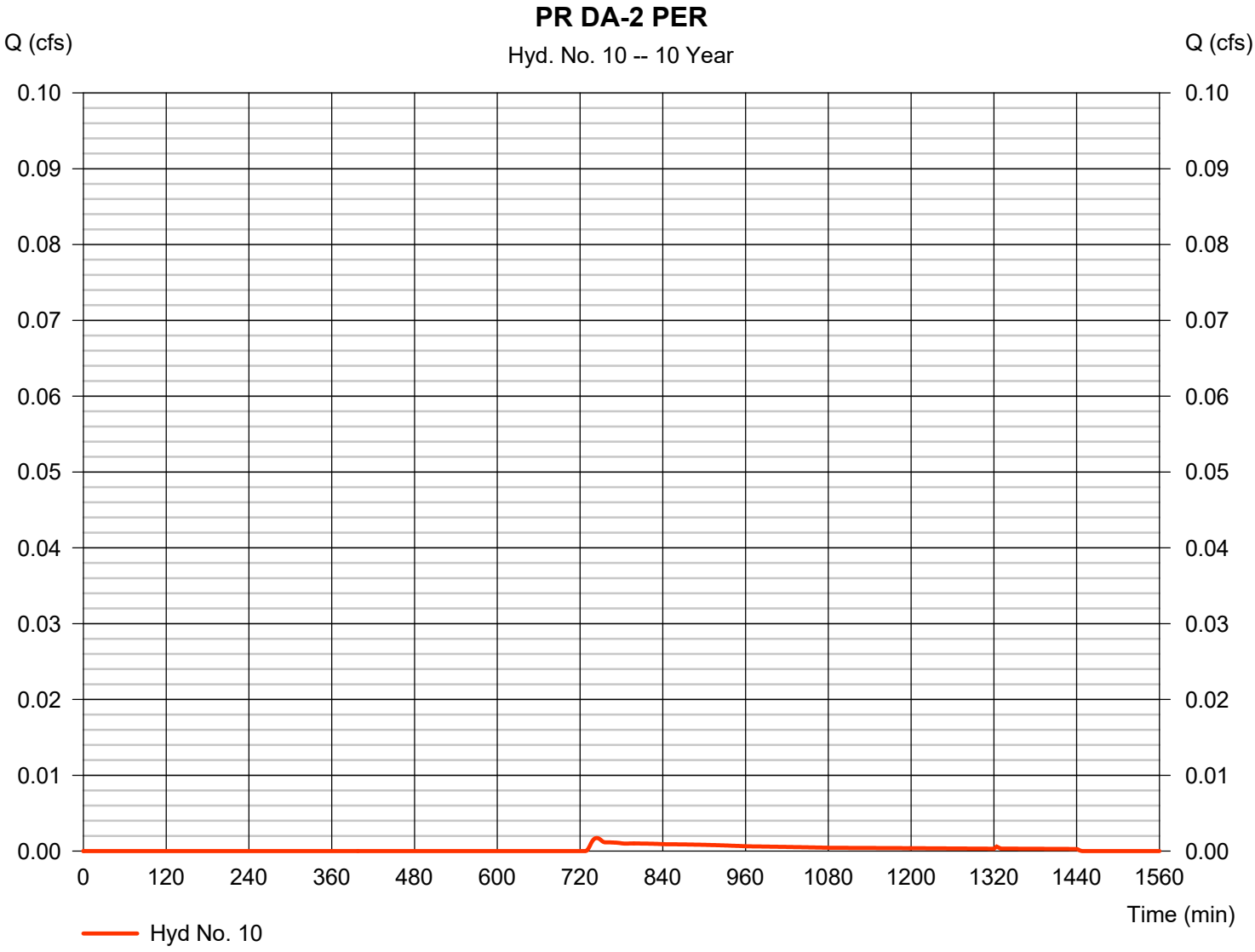


Hydrograph Report

Hyd. No. 10

PR DA-2 PER

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.002 cfs
Storm frequency	=	10 yrs	Time to peak	=	744 min
Time interval	=	2 min	Hyd. volume	=	25 cuft
Drainage area	=	0.029 ac	Curve number	=	39
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.23 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

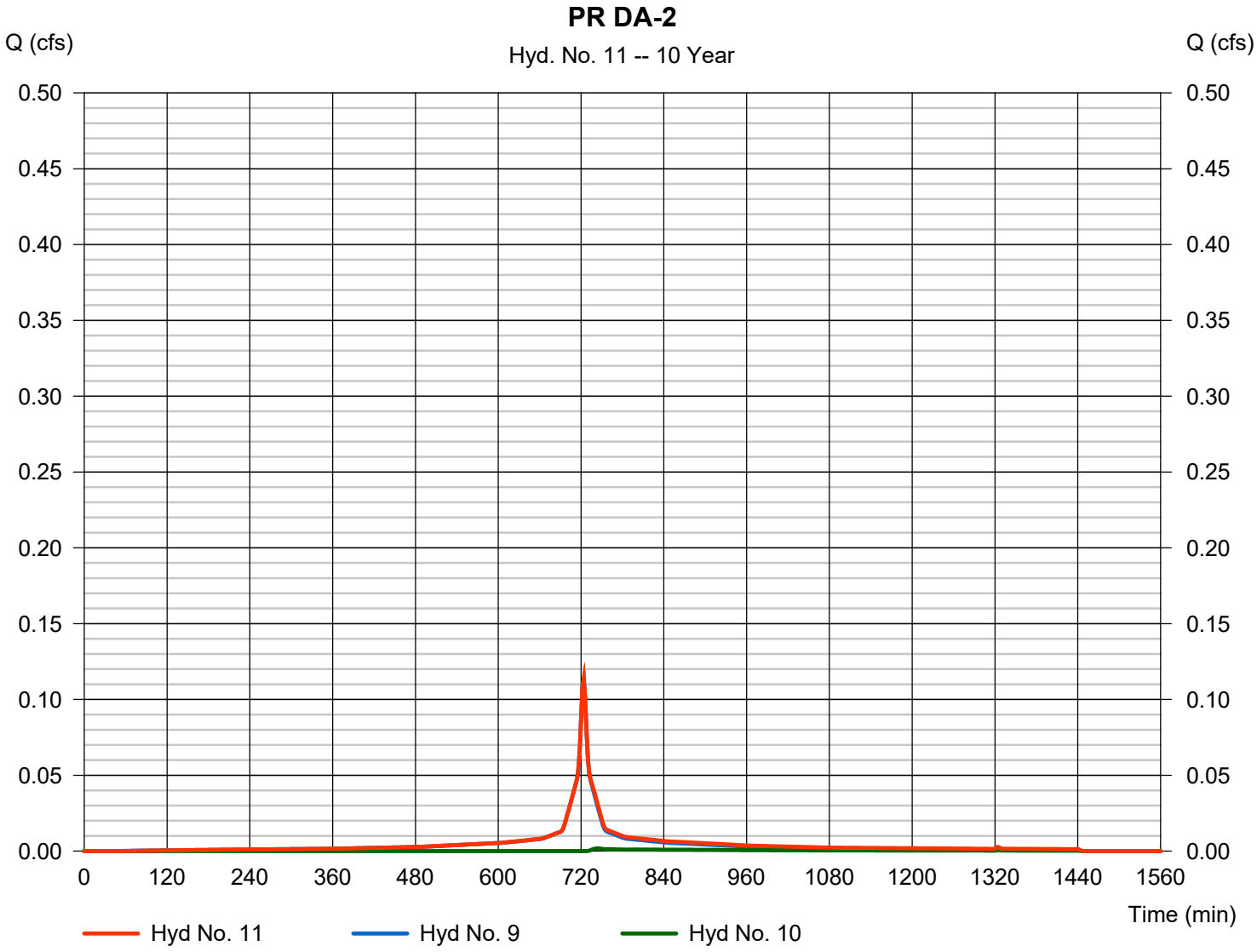


Hydrograph Report

Hyd. No. 11

PR DA-2

Hydrograph type	=	Combine	Peak discharge	=	0.113 cfs
Storm frequency	=	10 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	415 cuft
Inflow hyds.	=	9, 10	Contrib. drain. area	=	0.052 ac

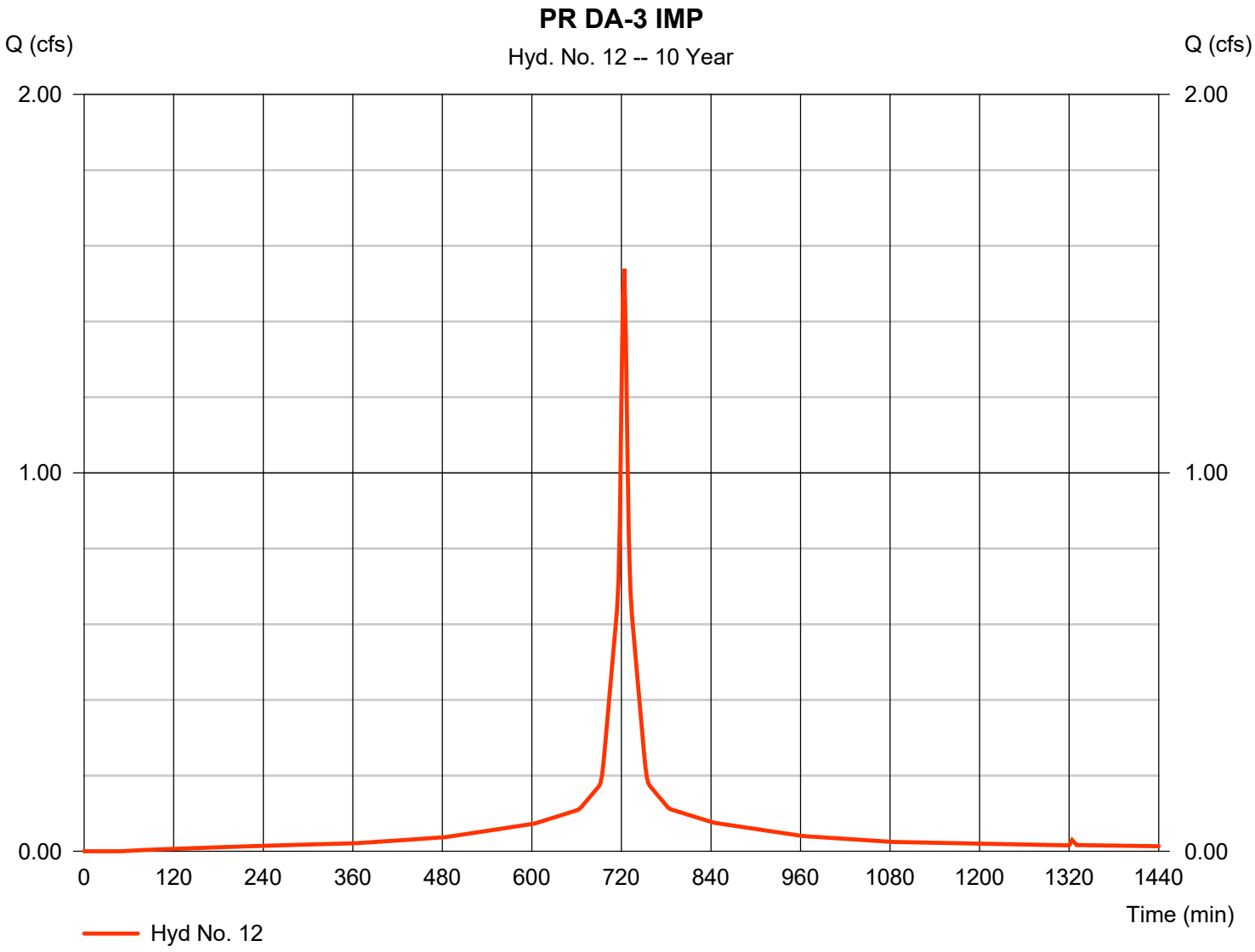


Hydrograph Report

Hyd. No. 12

PR DA-3 IMP

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.539 cfs
Storm frequency	=	10 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	5,301 cuft
Drainage area	=	0.312 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.23 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



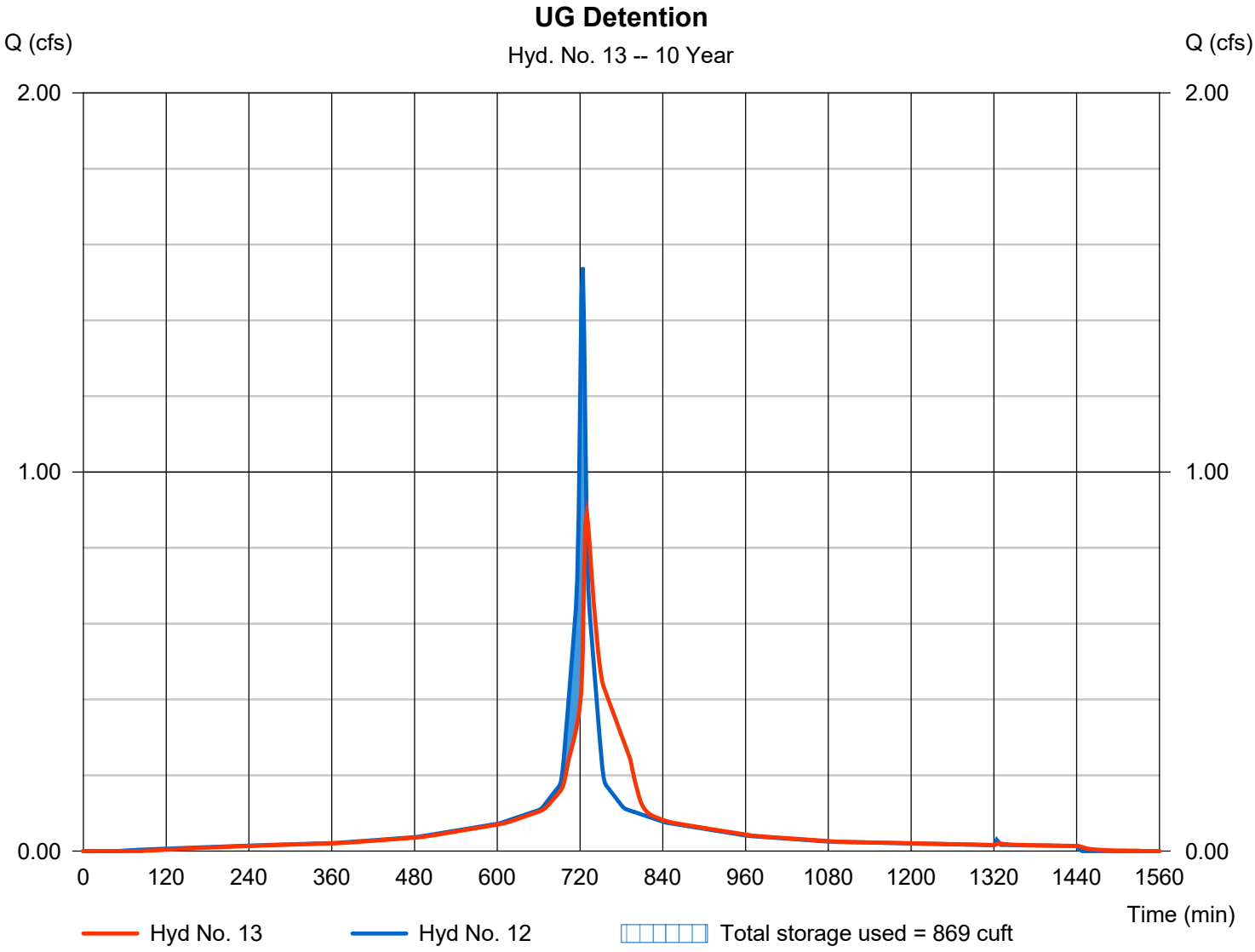
Hydrograph Report

Hyd. No. 13

UG Detention

Hydrograph type	=	Reservoir	Peak discharge	=	0.891 cfs
Storm frequency	=	10 yrs	Time to peak	=	730 min
Time interval	=	2 min	Hyd. volume	=	5,297 cuft
Inflow hyd. No.	=	12 - PR DA-3 IMP	Max. Elevation	=	5.66 ft
Reservoir name	=	(22) SC-740	Max. Storage	=	869 cuft

Storage Indication method used.

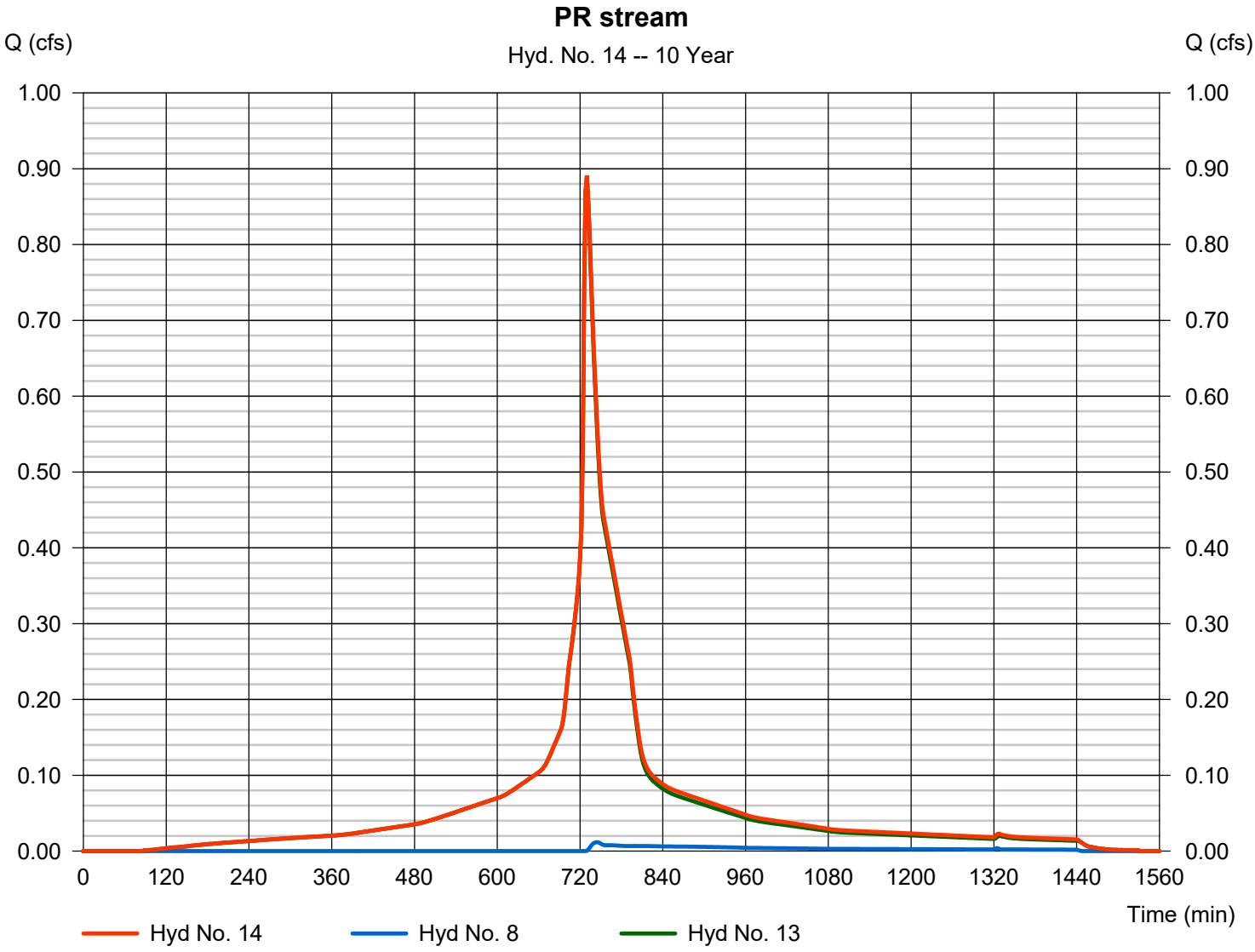


Hydrograph Report

Hyd. No. 14

PR stream

Hydrograph type	=	Combine	Peak discharge	=	0.891 cfs
Storm frequency	=	10 yrs	Time to peak	=	730 min
Time interval	=	2 min	Hyd. volume	=	5,462 cuft
Inflow hyds.	=	8, 13	Contrib. drain. area	=	0.195 ac

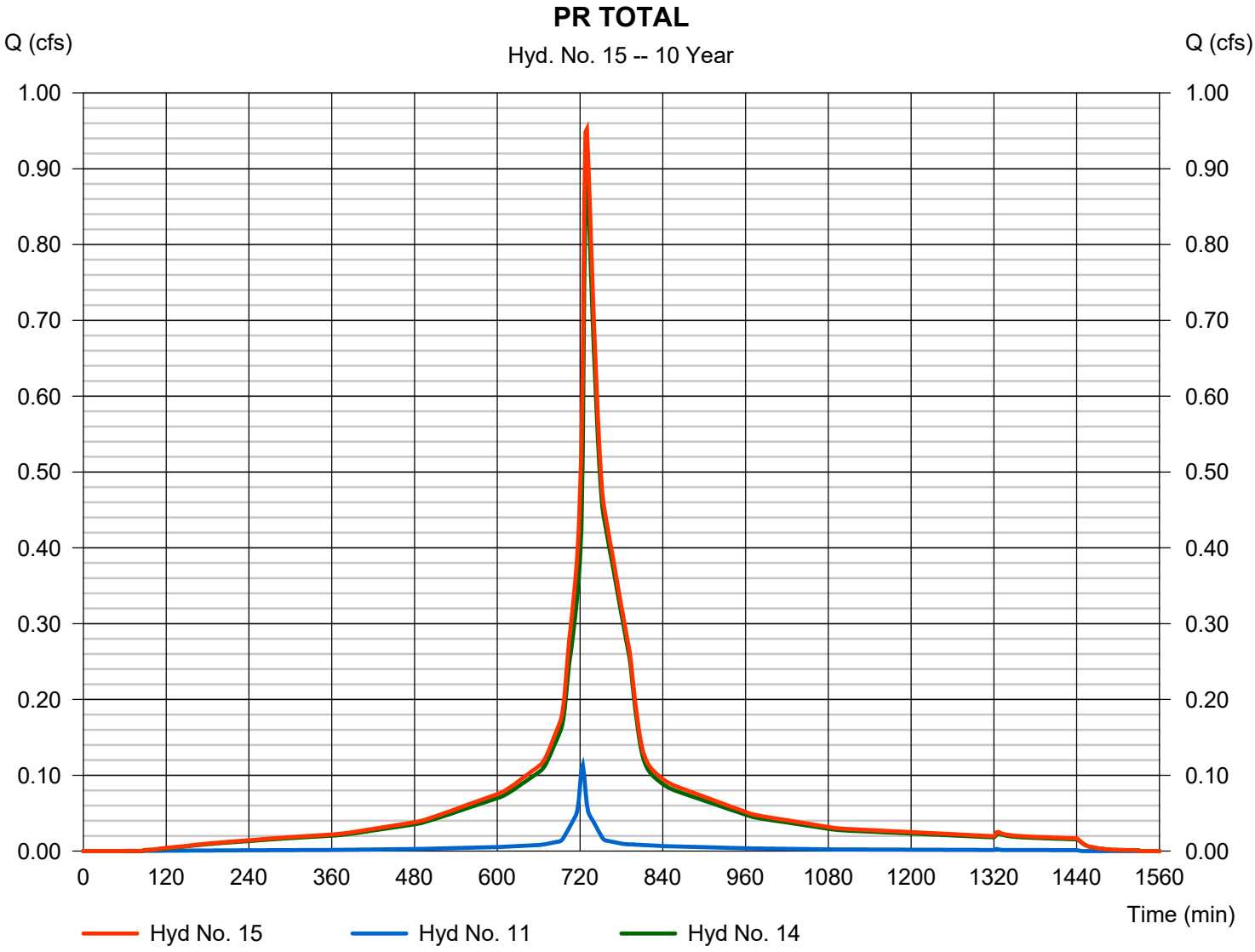


Hydrograph Report

Hyd. No. 15

PR TOTAL

Hydrograph type	=	Combine	Peak discharge	=	0.952 cfs
Storm frequency	=	10 yrs	Time to peak	=	730 min
Time interval	=	2 min	Hyd. volume	=	5,878 cuft
Inflow hyds.	=	11, 14	Contrib. drain. area	=	0.000 ac



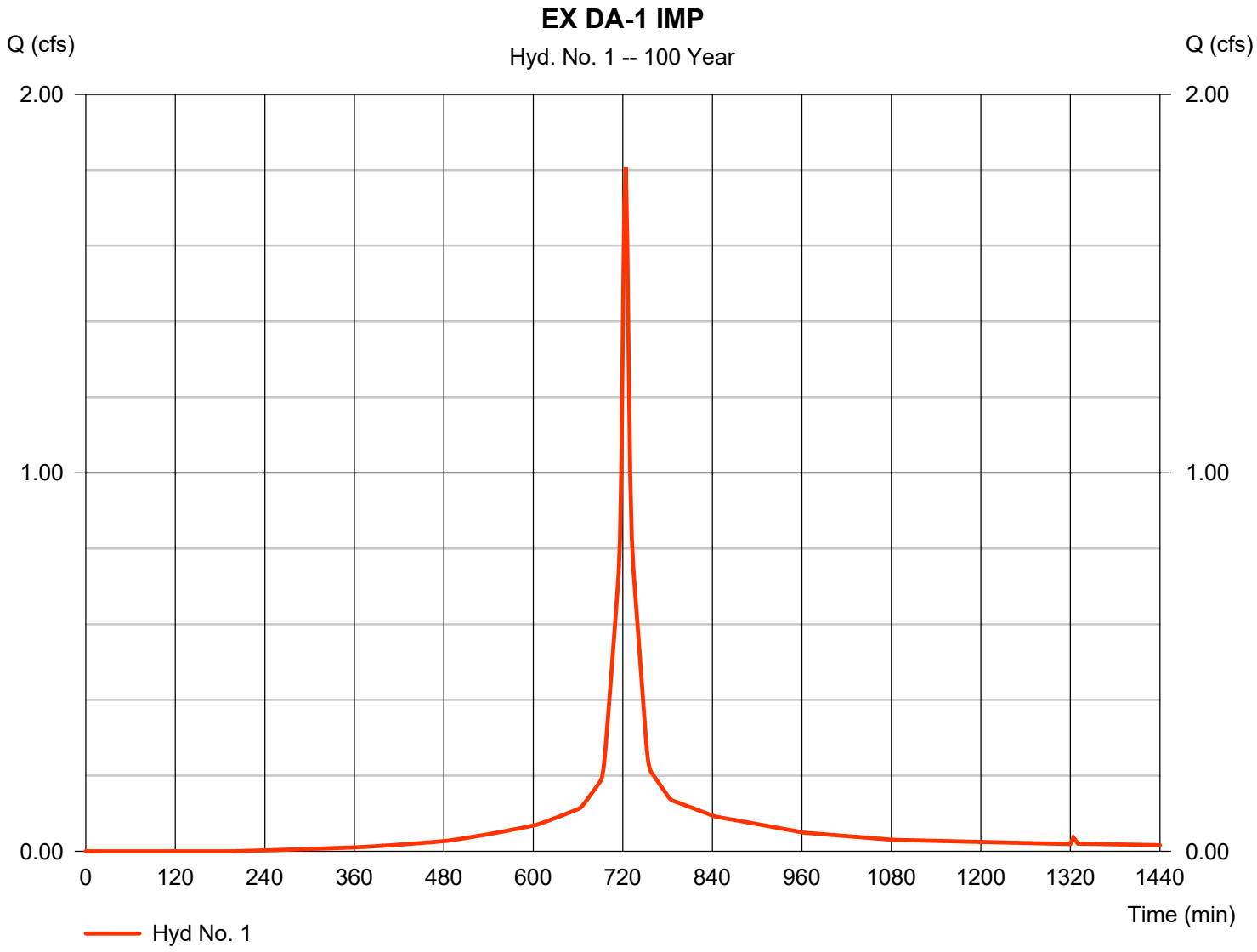
Hydrograph Report

Hyd. No. 1

EX DA-1 IMP

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.808 cfs
Storm frequency	=	100 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	5,741 cuft
Drainage area	=	0.229 ac	Curve number	=	87*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	8.94 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.113 x 98) + (0.117 x 76) + (0.336 x 39)] / 0.229

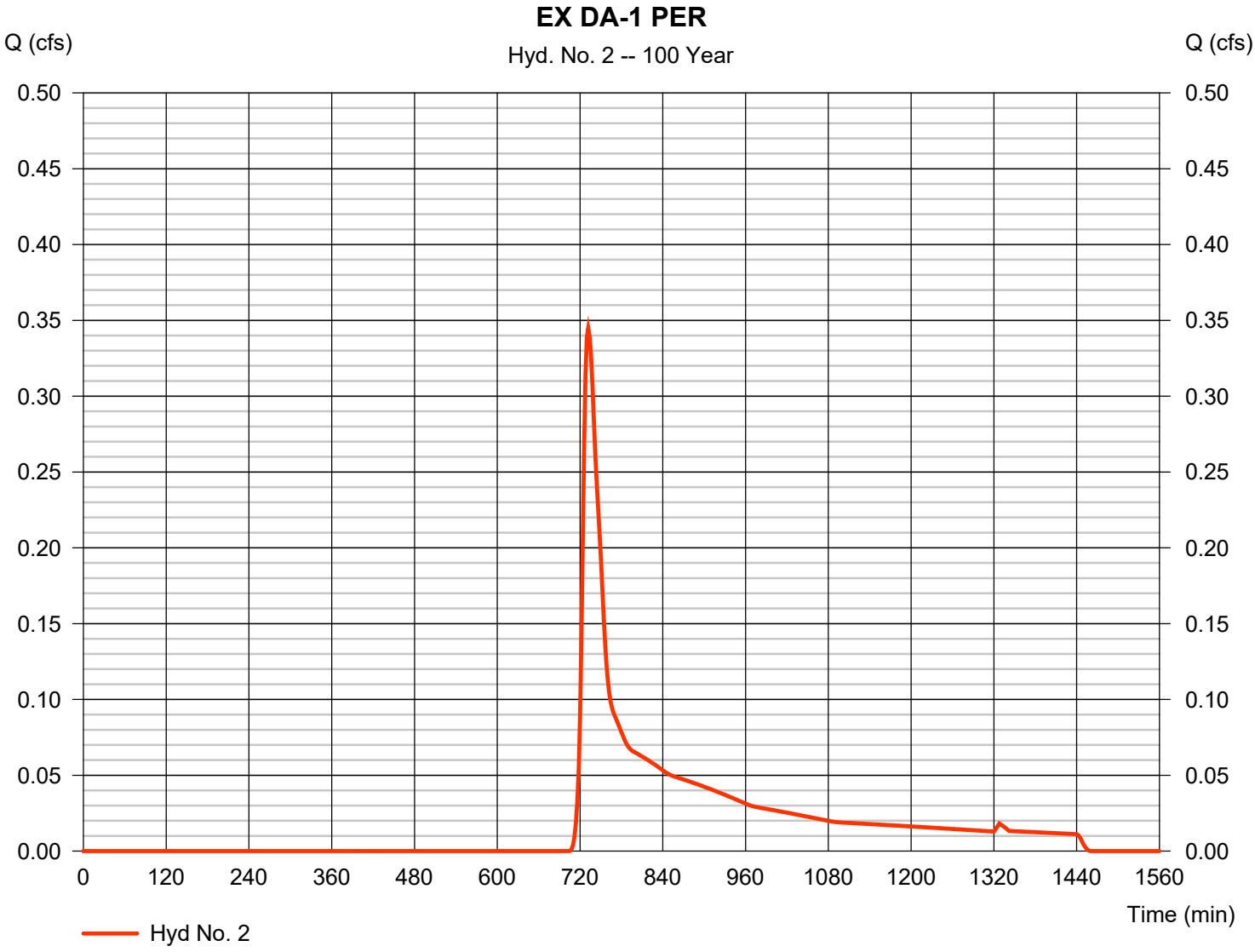


Hydrograph Report

Hyd. No. 2

EX DA-1 PER

Hydrograph type	= SCS Runoff	Peak discharge	= 0.345 cfs
Storm frequency	= 100 yrs	Time to peak	= 732 min
Time interval	= 2 min	Hyd. volume	= 1,739 cuft
Drainage area	= 0.295 ac	Curve number	= 39
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 12.00 min
Total precip.	= 8.94 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

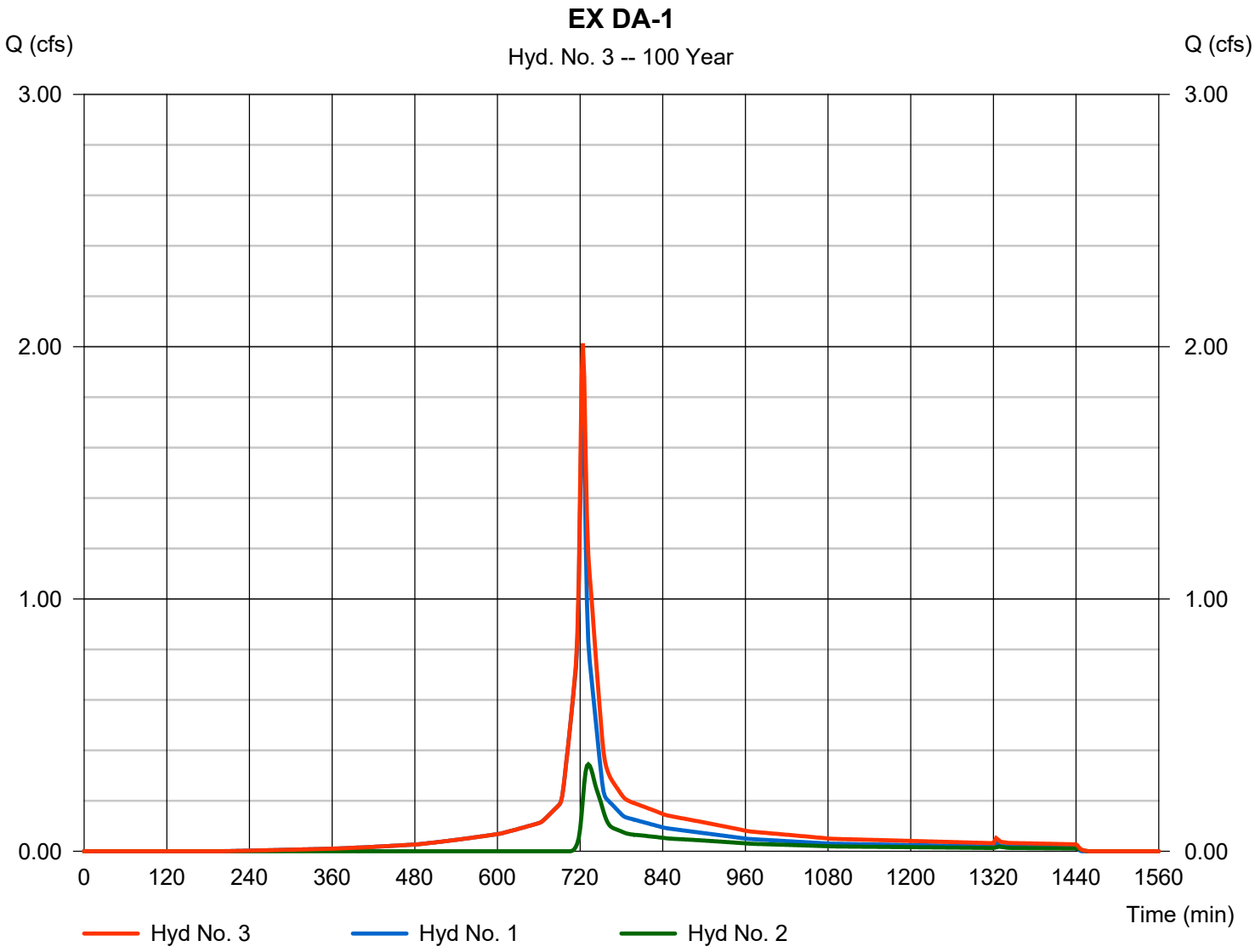


Hydrograph Report

Hyd. No. 3

EX DA-1

Hydrograph type	=	Combine	Peak discharge	=	2.013 cfs
Storm frequency	=	100 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	7,480 cuft
Inflow hyds.	=	1, 2	Contrib. drain. area	=	0.524 ac

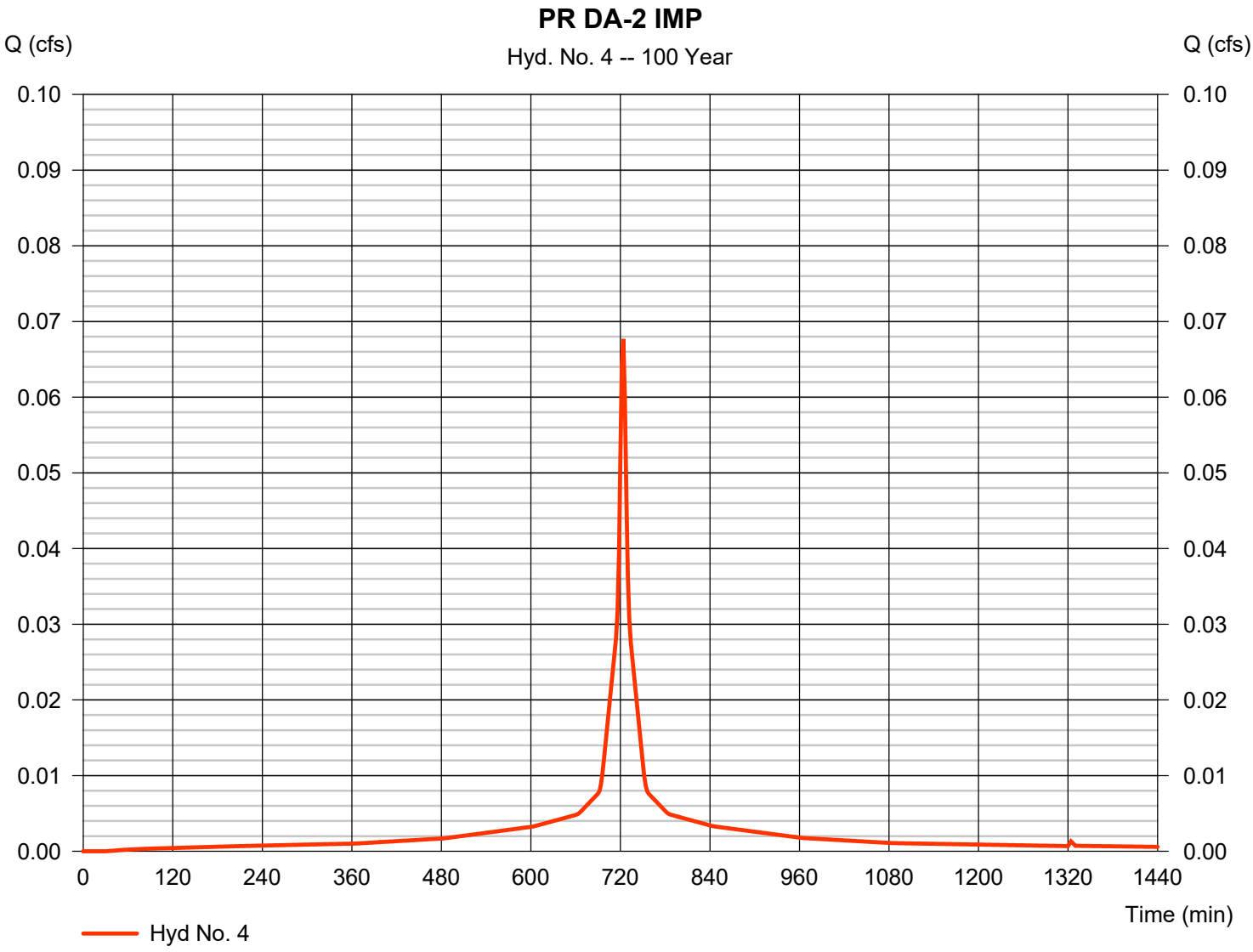


Hydrograph Report

Hyd. No. 4

PR DA-2 IMP

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.068 cfs
Storm frequency	=	100 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	237 cuft
Drainage area	=	0.008 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	8.94 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



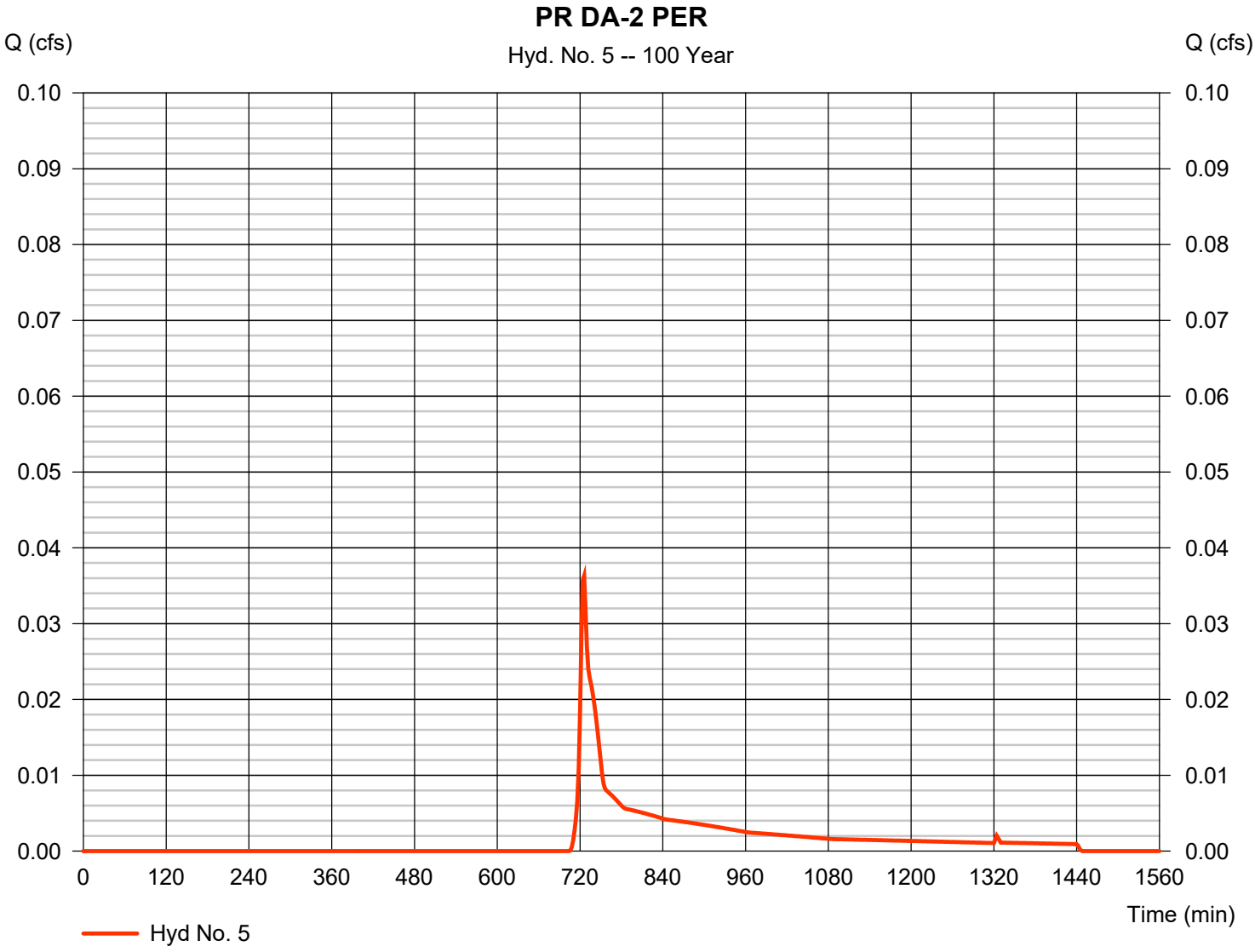
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020 Tuesday, 07 / 21 / 2020

Hyd. No. 5

PR DA-2 PER

Hydrograph type	= SCS Runoff	Peak discharge	= 0.036 cfs
Storm frequency	= 100 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 145 cuft
Drainage area	= 0.027 ac	Curve number	= 39
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.94 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

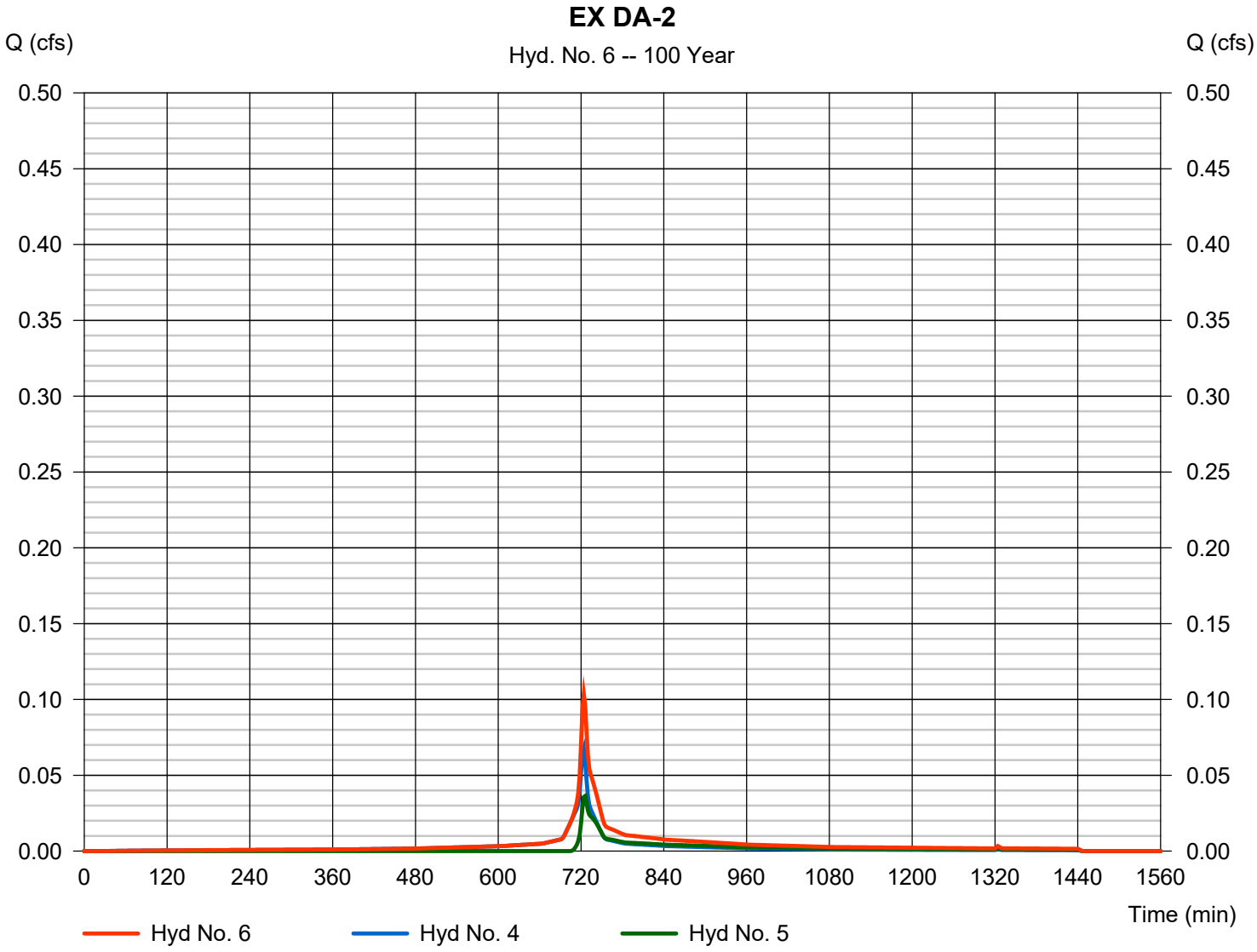


Hydrograph Report

Hyd. No. 6

EX DA-2

Hydrograph type	= Combine	Peak discharge	= 0.103 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 382 cuft
Inflow hyds.	= 4, 5	Contrib. drain. area	= 0.035 ac

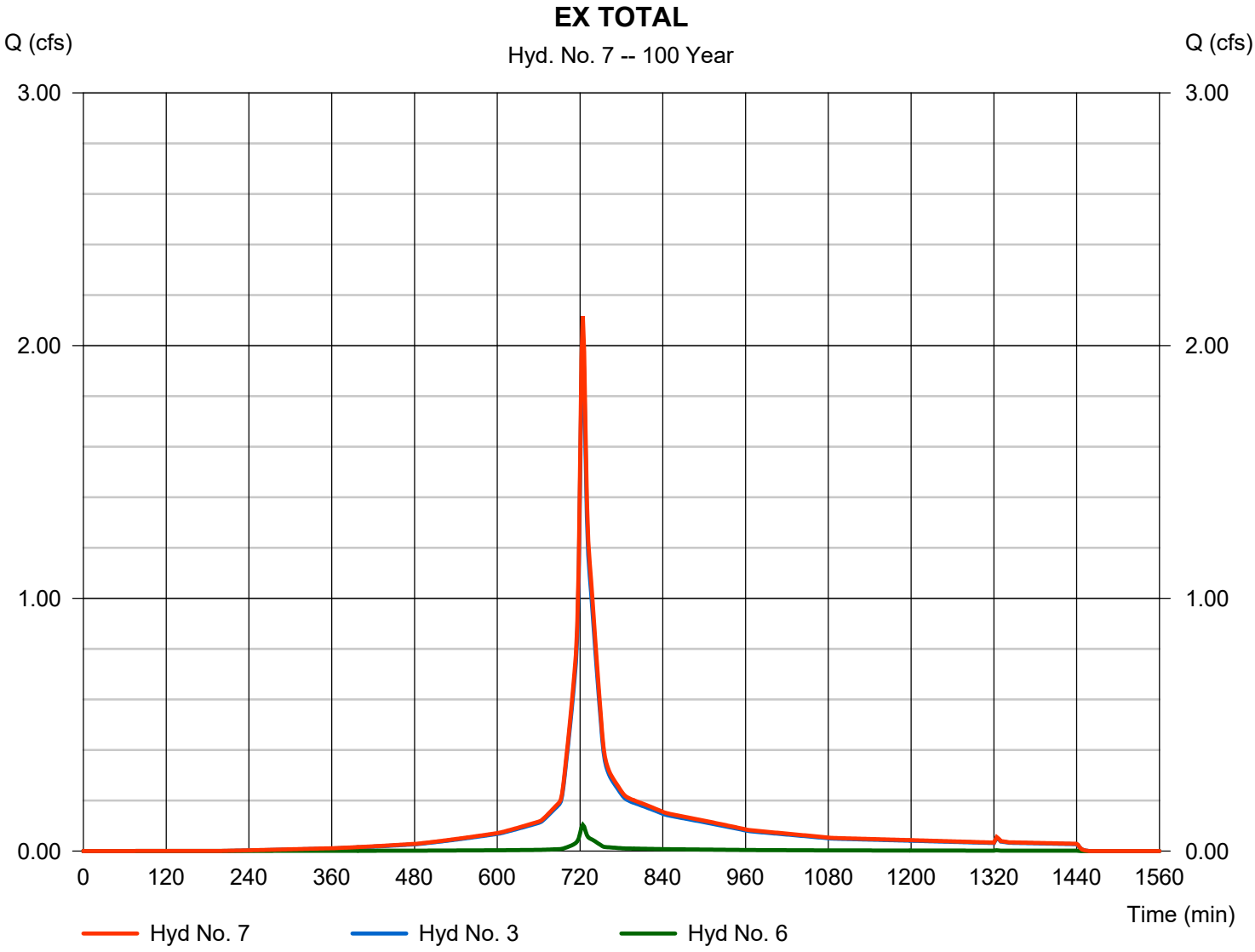


Hydrograph Report

Hyd. No. 7

EX TOTAL

Hydrograph type	=	Combine	Peak discharge	=	2.117 cfs
Storm frequency	=	100 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	7,862 cuft
Inflow hyds.	=	3, 6	Contrib. drain. area	=	0.000 ac

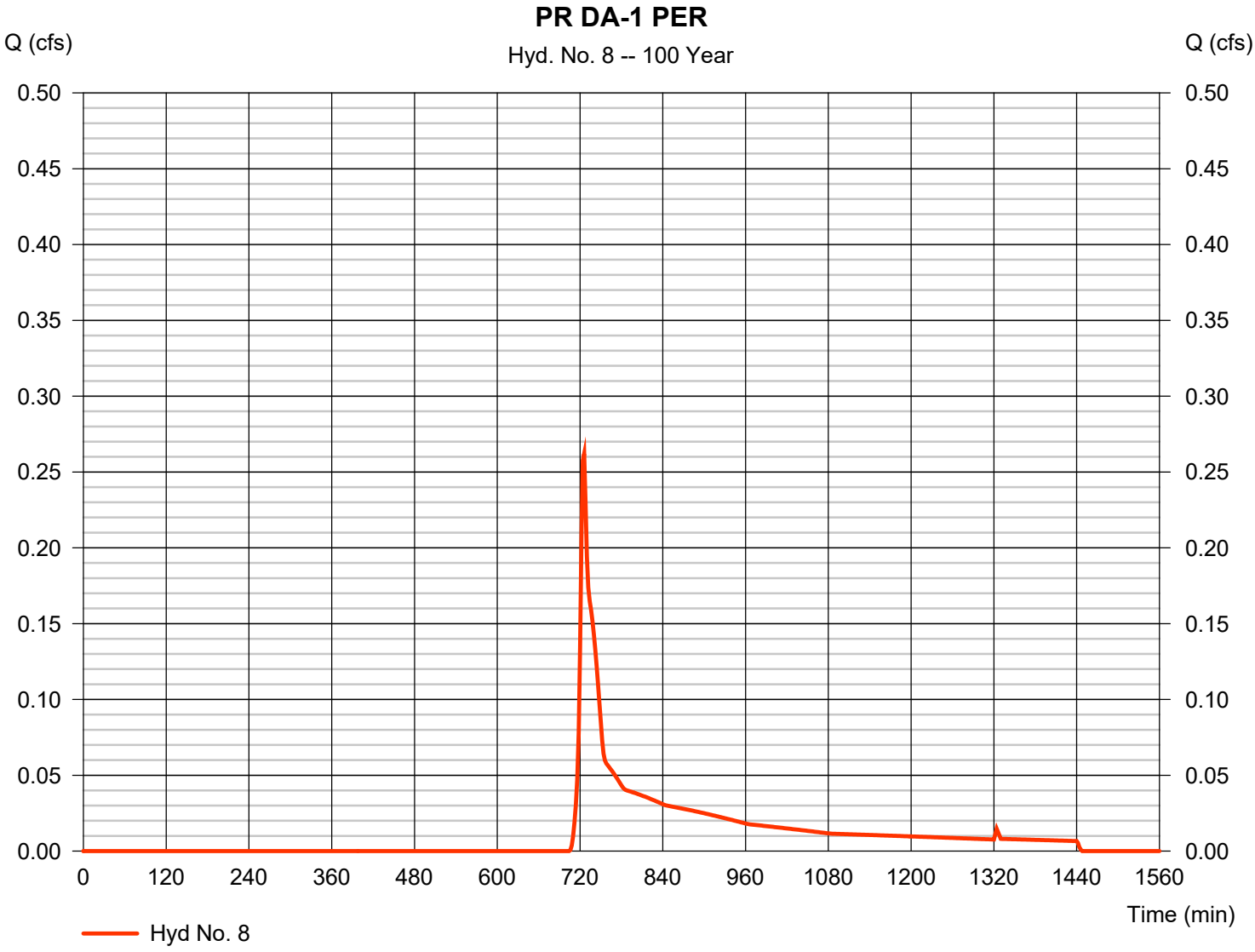


Hydrograph Report

Hyd. No. 8

PR DA-1 PER

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.262 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	1,045 cuft
Drainage area	=	0.195 ac	Curve number	=	39
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	8.94 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

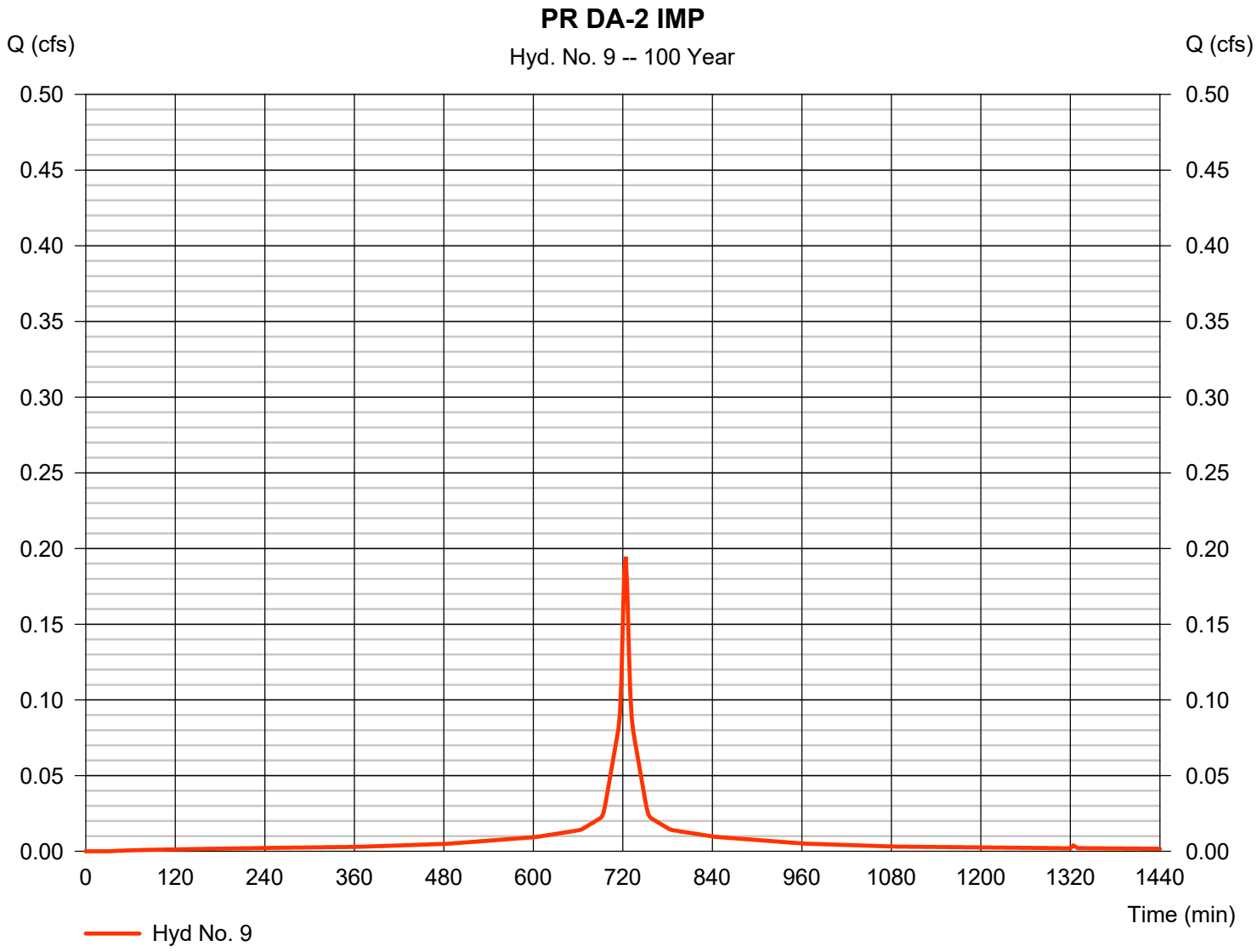


Hydrograph Report

Hyd. No. 9

PR DA-2 IMP

Hydrograph type	= SCS Runoff	Peak discharge	= 0.195 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 681 cuft
Drainage area	= 0.023 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 8.94 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

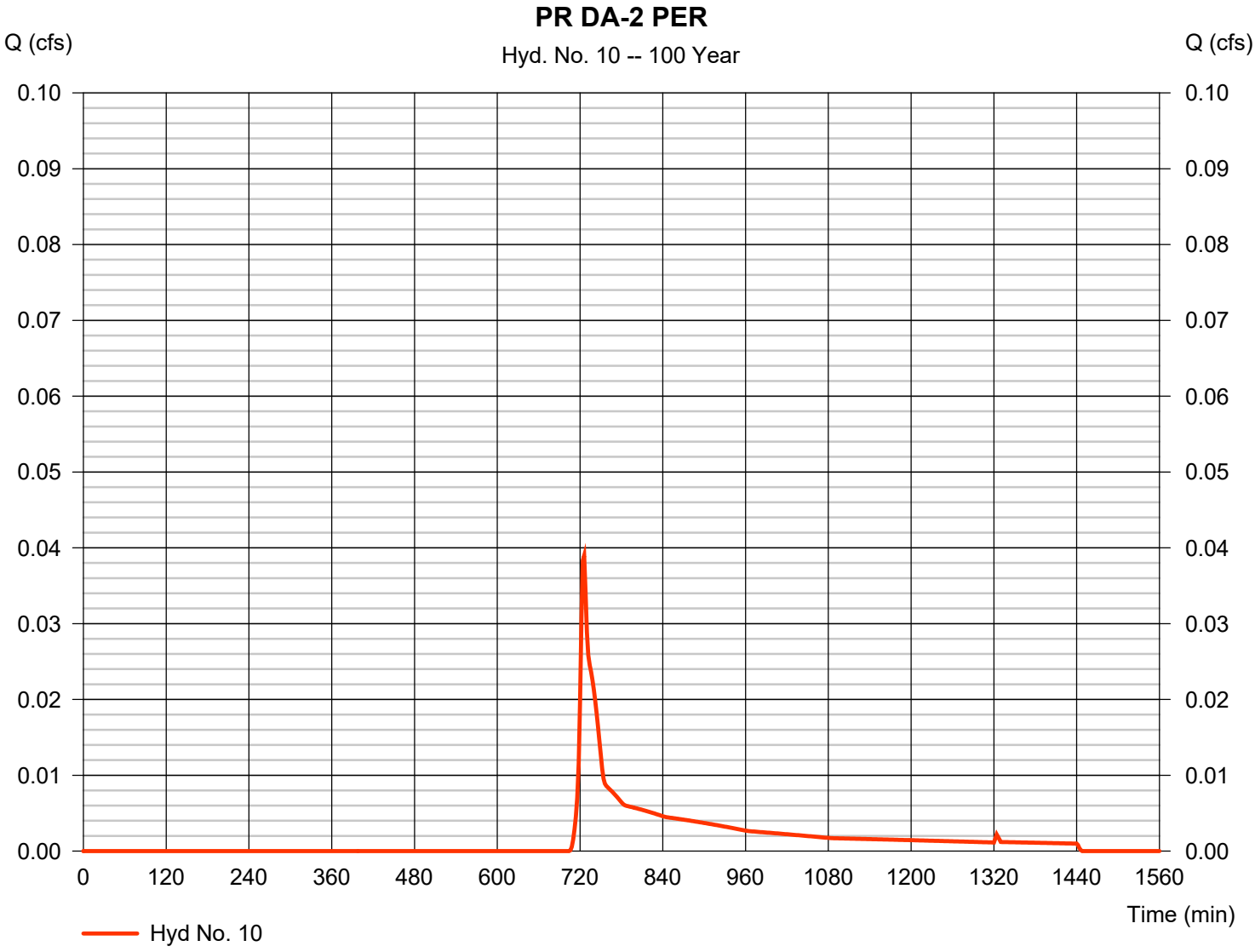


Hydrograph Report

Hyd. No. 10

PR DA-2 PER

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.039 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	155 cuft
Drainage area	=	0.029 ac	Curve number	=	39
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	8.94 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

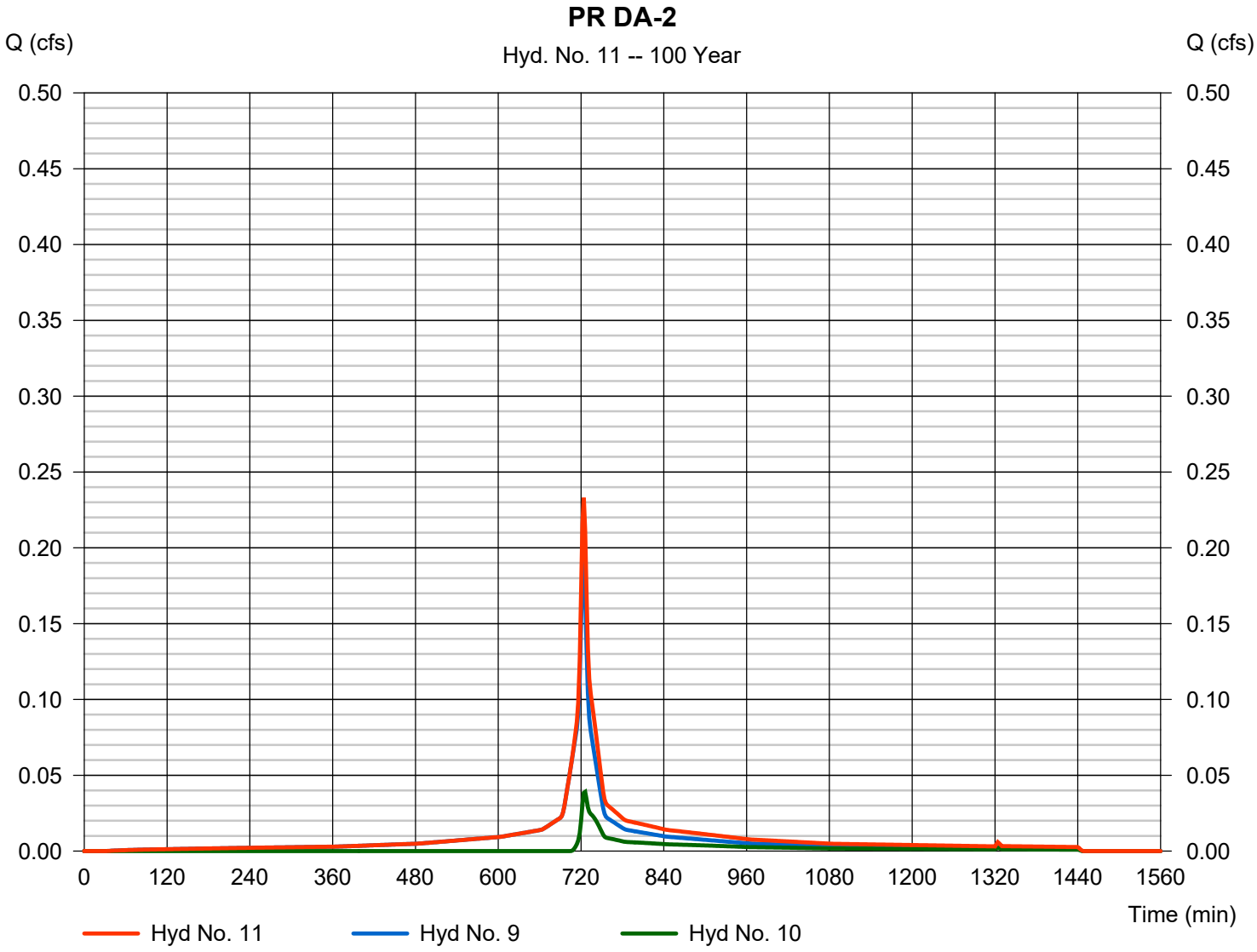


Hydrograph Report

Hyd. No. 11

PR DA-2

Hydrograph type	=	Combine	Peak discharge	=	0.233 cfs
Storm frequency	=	100 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	836 cuft
Inflow hyds.	=	9, 10	Contrib. drain. area	=	0.052 ac

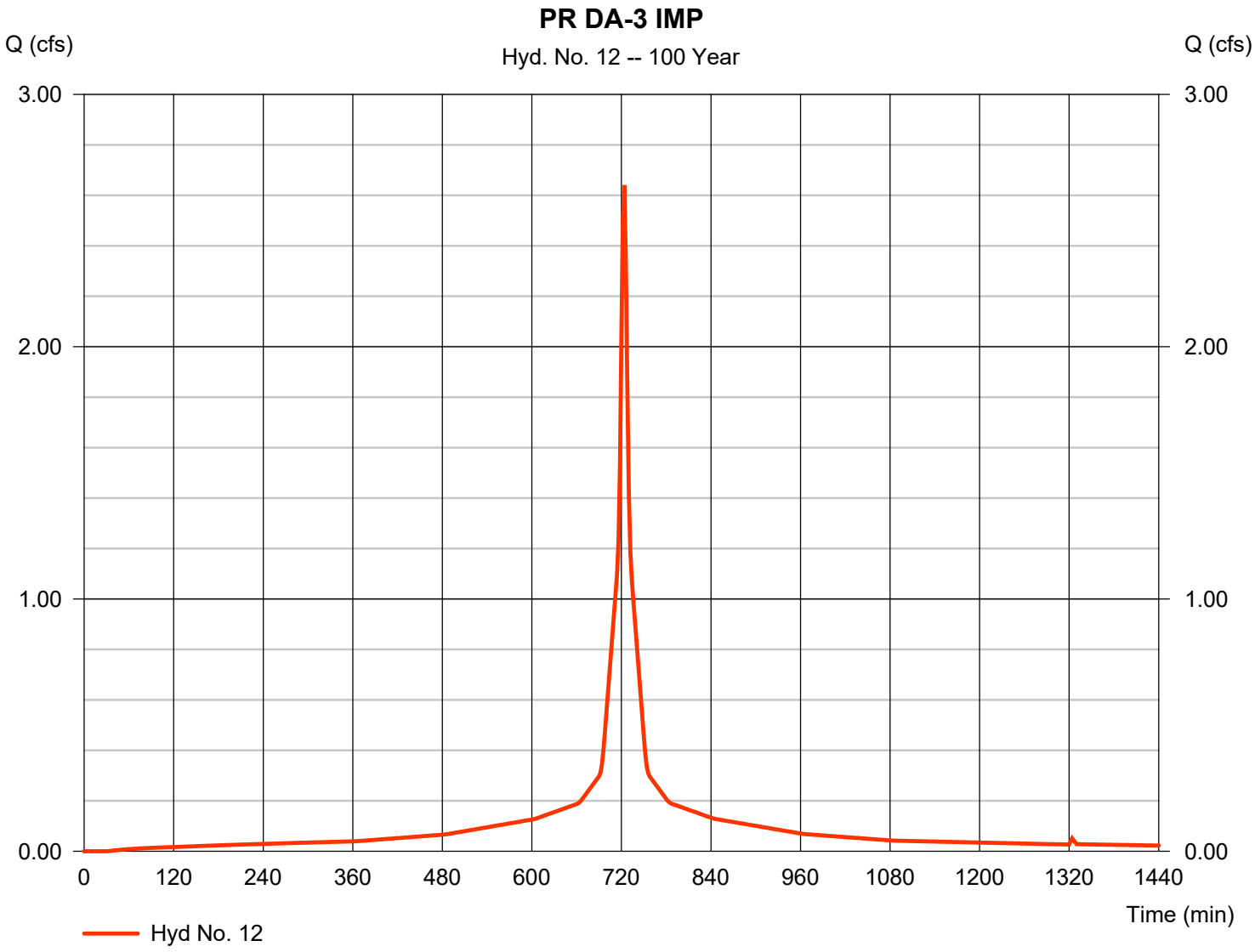


Hydrograph Report

Hyd. No. 12

PR DA-3 IMP

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.640 cfs
Storm frequency	=	100 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	9,237 cuft
Drainage area	=	0.312 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	8.94 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

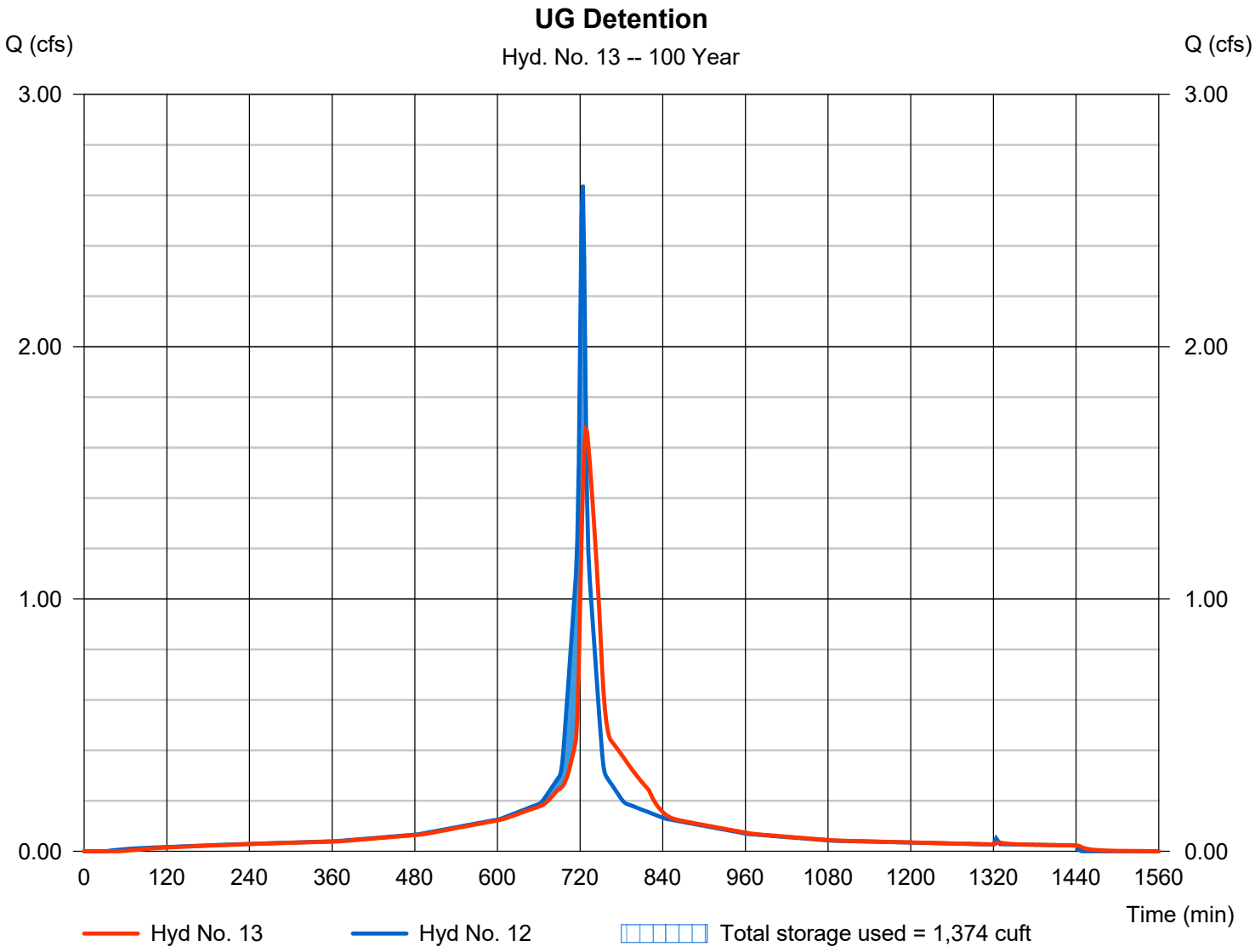
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020 Tuesday, 07 / 21 / 2020

Hyd. No. 13

UG Detention

Hydrograph type	= Reservoir	Peak discharge	= 1.673 cfs
Storm frequency	= 100 yrs	Time to peak	= 728 min
Time interval	= 2 min	Hyd. volume	= 9,233 cuft
Inflow hyd. No.	= 12 - PR DA-3 IMP	Max. Elevation	= 6.64 ft
Reservoir name	= (22) SC-740	Max. Storage	= 1,374 cuft

Storage Indication method used.

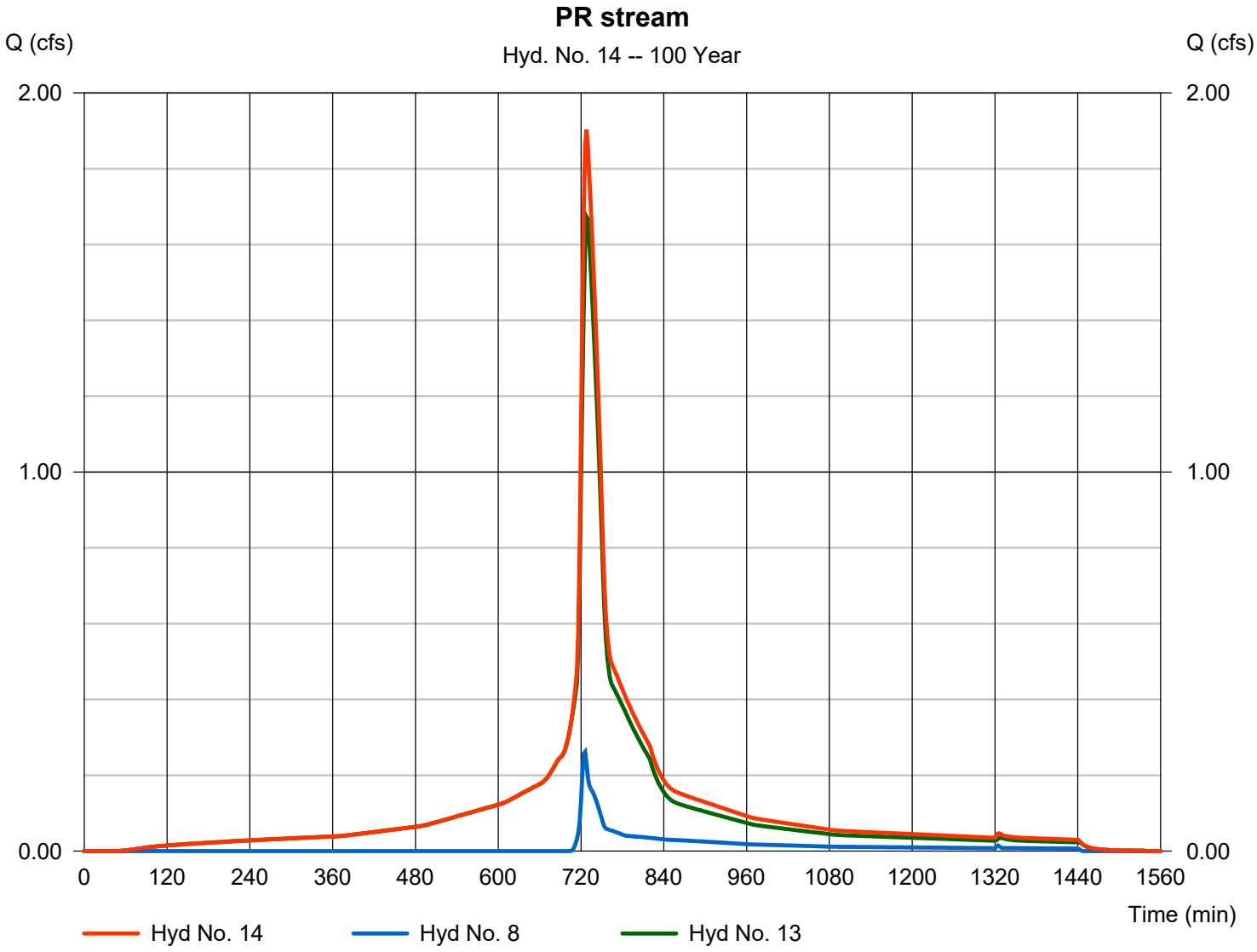


Hydrograph Report

Hyd. No. 14

PR stream

Hydrograph type	=	Combine	Peak discharge	=	1.903 cfs
Storm frequency	=	100 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	10,278 cuft
Inflow hyds.	=	8, 13	Contrib. drain. area	=	0.195 ac

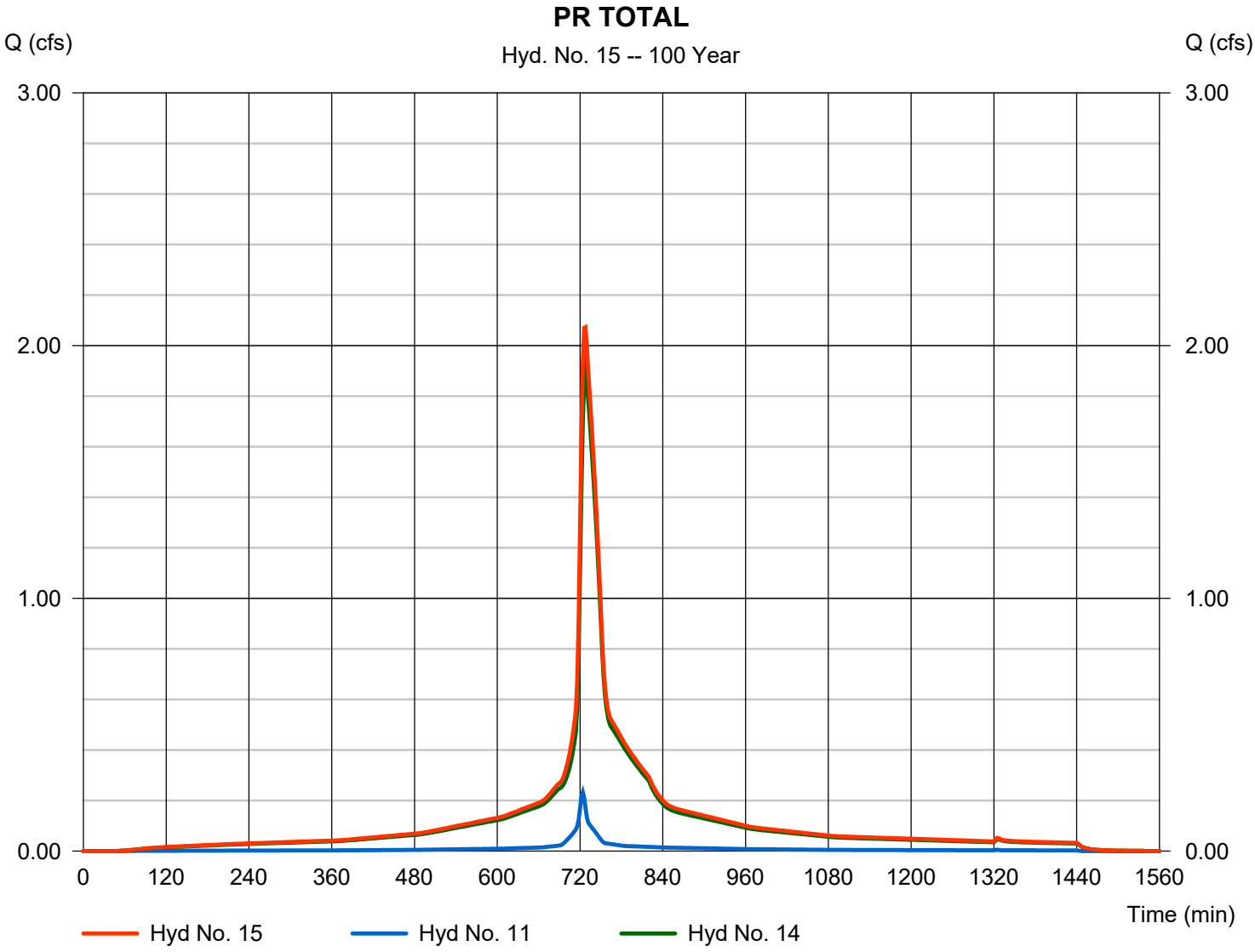


Hydrograph Report

Hyd. No. 15

PR TOTAL

Hydrograph type	=	Combine	Peak discharge	=	2.073 cfs
Storm frequency	=	100 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	11,114 cuft
Inflow hyds.	=	11, 14	Contrib. drain. area	=	0.000 ac

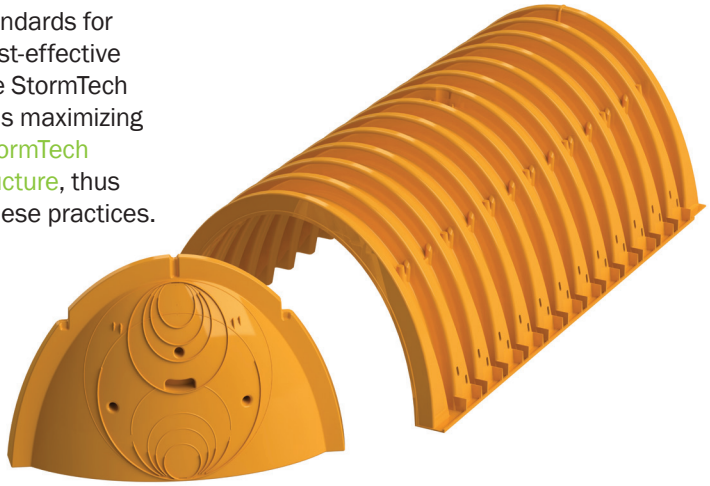


Appendix C

- Stormtech SC-740 Chamber Information sheet
- Stormtech SC-740 Volume worksheet

STORMTECH SC-740 CHAMBER

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for private (commercial) and public applications. StormTech chambers can also be used in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.



STORMTECH SC-740 CHAMBER
(not to scale)

Nominal Chamber Specifications

Size (L x W x H)
85.4" x 51" x 30"
2,170 mm x 1,295 mm x 762 mm

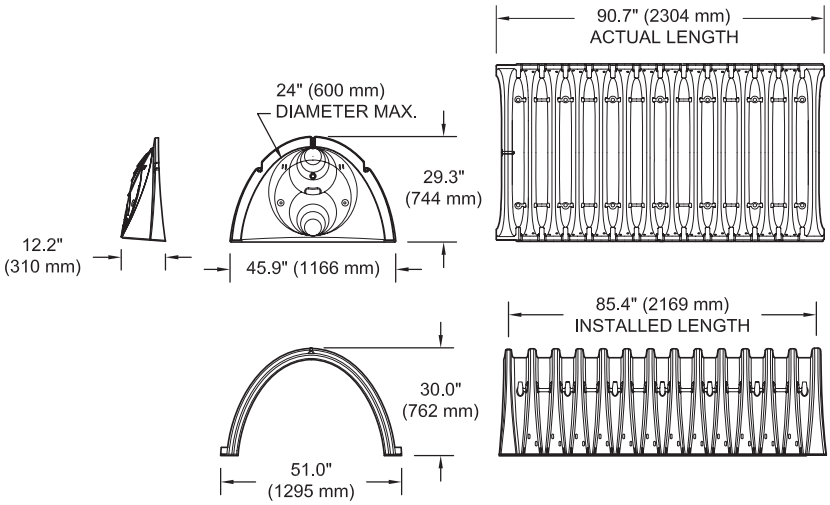
Chamber Storage
45.9 ft³ (1.30 m³)

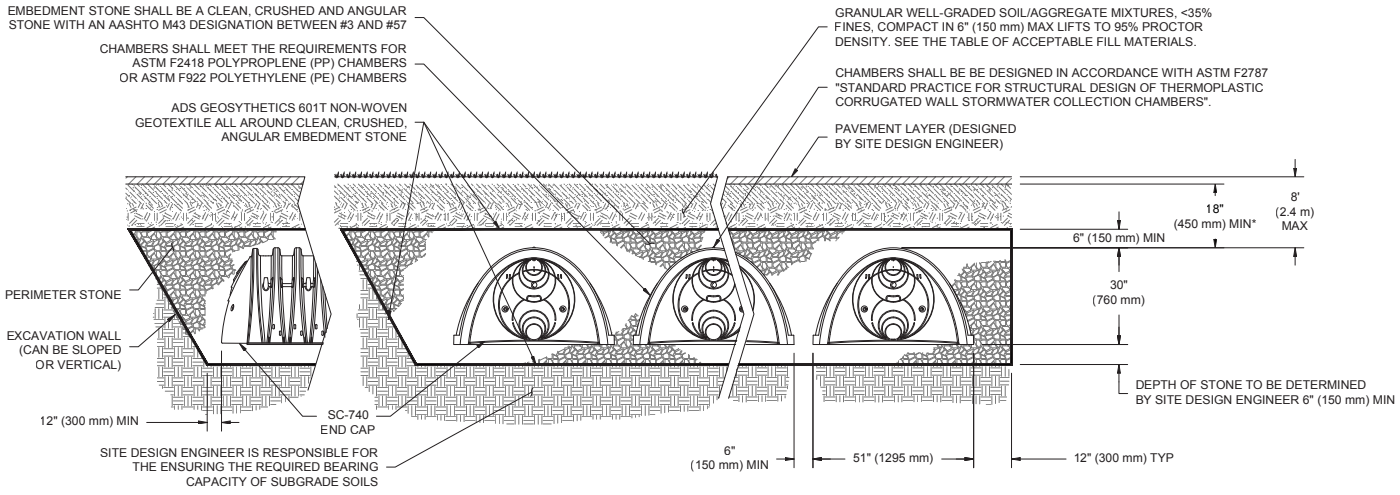
Min. Installed Storage*
74.9 ft³ (2.12 m³)

Weight
74.0 lbs (33.6 kg)

Shipping
30 chambers/pallet
60 end caps/pallet
12 pallets/truck

*Assumes 6" (150 mm) stone above, below and between chambers and 40% stone porosity.





*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 24" (600 mm).

SC-740 CUMULATIVE STORAGE VOLUMES PER CHAMBER

Assumes 40% Stone Porosity. Calculations are Based Upon a 6" (150 mm) Stone Base Under Chambers.

Depth of Water in System Inches (mm)	Cumulative Chamber Storage ft³ (m³)	Total System Cumulative Storage ft³ (m³)
42 (1067)	45.90 (1.300)	74.90 (2.121)
41 (1041)	45.90 (1.300)	73.77 (2.089)
40 (1016)	Stone 45.90 (1.300)	72.64 (2.057)
39 (991)	Cover 45.90 (1.300)	71.52 (2.025)
38 (965)	45.90 (1.300)	70.39 (1.993)
37 (940)	45.90 (1.300)	69.26 (1.961)
36 (914)	45.90 (1.300)	68.14 (1.929)
35 (889)	45.85 (1.298)	66.98 (1.897)
34 (864)	45.69 (1.294)	65.75 (1.862)
33 (838)	45.41 (1.286)	64.46 (1.825)
32 (813)	44.81 (1.269)	62.97 (1.783)
31 (787)	44.01 (1.246)	61.36 (1.737)
30 (762)	43.06 (1.219)	59.66 (1.689)
29 (737)	41.98 (1.189)	57.89 (1.639)
28 (711)	40.80 (1.155)	56.05 (1.587)
27 (686)	39.54 (1.120)	54.17 (1.534)
26 (660)	38.18 (1.081)	52.23 (1.479)
25 (635)	36.74 (1.040)	50.23 (1.422)
24 (610)	35.22 (0.977)	48.19 (1.365)
23 (584)	33.64 (0.953)	46.11 (1.306)
22 (559)	31.99 (0.906)	44.00 (1.246)
21 (533)	30.29 (0.858)	1.85 (1.185)
20 (508)	28.54 (0.808)	39.67 (1.123)
19 (483)	26.74 (0.757)	37.47 (1.061)
18 (457)	24.89 (0.705)	35.23 (0.997)
17 (432)	23.00 (0.651)	32.96 (0.939)
16 (406)	21.06 (0.596)	30.68 (0.869)
15 (381)	19.09 (0.541)	28.36 (0.803)
14 (356)	17.08 (0.484)	26.03 (0.737)
13 (330)	15.04 (0.426)	23.68 (0.670)
12 (305)	12.97 (0.367)	21.31 (0.608)
11 (279)	10.87 (0.309)	18.92 (0.535)
10 (254)	8.74 (0.247)	16.51 (0.468)
9 (229)	6.58 (0.186)	14.09 (0.399)
8 (203)	4.41 (0.125)	11.66 (0.330)
7 (178)	2.21 (0.063)	9.21 (0.264)
6 (152)	0 (0)	6.76 (0.191)
5 (127)	0 (0)	5.63 (0.160)
4 (102)	Stone 0 (0)	4.51 (0.128)
3 (76)	Foundation 0 (0)	3.38 (0.096)
2 (51)	0 (0)	2.25 (0.064)
1 (25)	0 (0)	1.13 (0.032)

Note: Add 1.13 ft³ (0.032 m³) of storage for each additional inch (25 mm) of stone foundation.

STORAGE VOLUME PER CHAMBER FT³ (M³)

	Bare Chamber Storage ft³ (m³)	Chamber and Stone Foundation Depth in. (mm)		
		6 (150)	12 (300)	18 (450)
SC-740 Chamber	45.9 (1.3)	74.9 (2.1)	81.7 (2.3)	88.4 (2.5)

Note: Assumes 6" (150 mm) stone above chambers, 6" (150 mm) row spacing and 40% stone porosity.

AMOUNT OF STONE PER CHAMBER

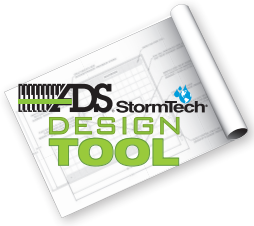
ENGLISH TONS (yds³)	Stone Foundation Depth		
	6"	12"	16"
SC-740	3.8 (2.8)	4.6 (3.3)	5.5 (3.9)
METRIC KILOGRAMS (m³)	**150 mm**	**300 mm**	**450 mm**
SC-740	3,450 (2.1)	4,170 (2.5)	4,490 (3.0)

Note: Assumes 6" (150 mm) of stone above and between chambers.

VOLUME EXCAVATION PER CHAMBER YD³ (M³)

	Stone Foundation Depth		
	6 (150)	12 (300)	18 (450)
SC-740	5.5 (4.2)	6.2 (4.7)	6.8 (5.2)

Note: Assumes 6" (150 mm) of row separation and 18" (450 mm) of cover. The volume of excavation will vary as depth of cover increases.



Working on a project?
Visit us at www.stormtech.com
and utilize the StormTech Design Tool

For more information on the StormTech SC-740 Chamber and other ADS products, please contact our Customer Service Representatives at 1-800-821-6710

Advanced Drainage Systems, Inc.
4640 Trueman Blvd., Hilliard, OH 43026
1-800-821-6710 www.ads-pipe.com

Project: **33 Union Avenue ; SEPE-00010**

StormTech® Detention • Retention • Water Quality
A division of ADS

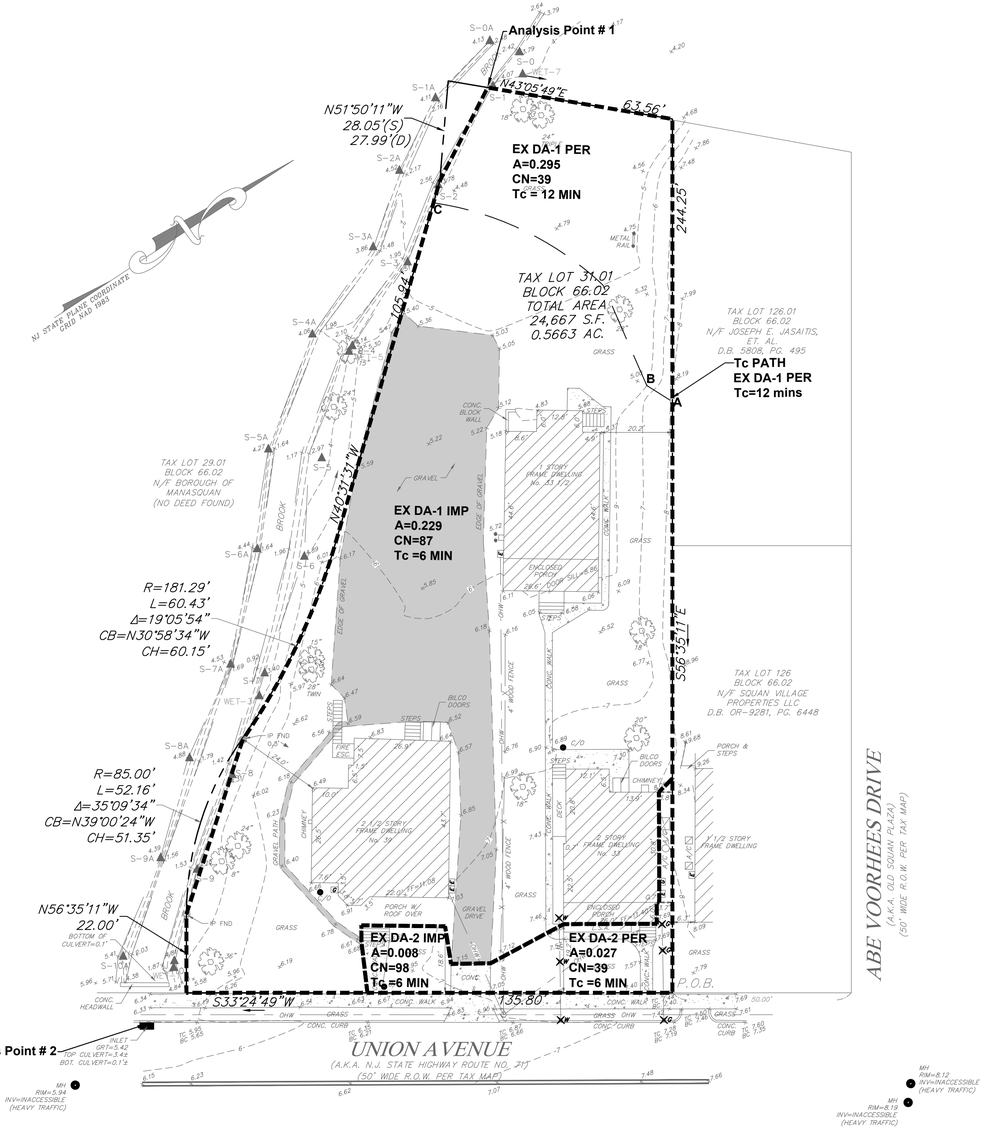
Chamber Model -	SC-740	
Units -	Imperial	Click Here for Metric
Number of chambers -	22	
Voids in the stone (porosity) -	40	%
Base of Stone Elevation -	4.00	ft
Amount of Stone Above Chambers -	6	in
Amount of Stone Below Chambers -	6	in

☐ Include Perimeter Stone in Calculations

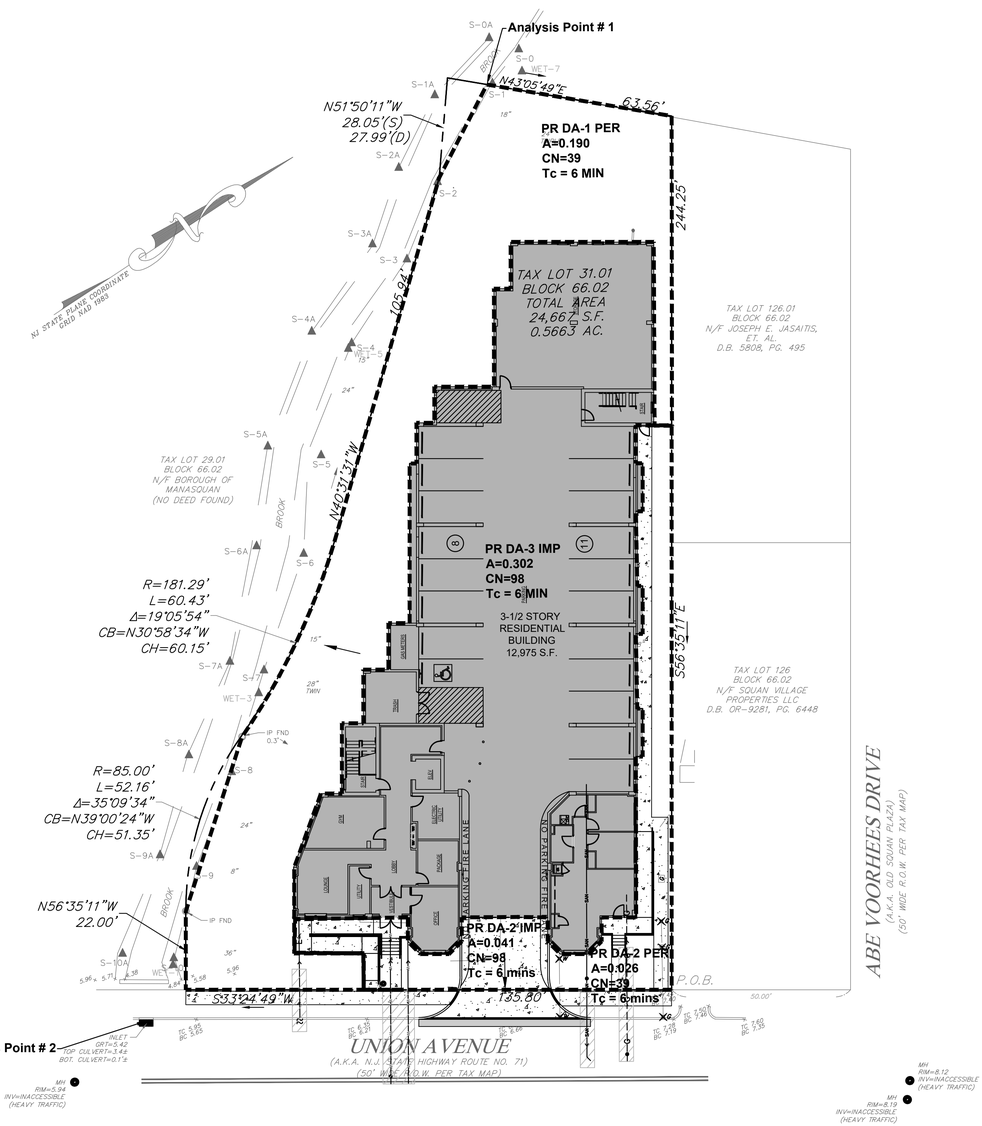
Height of System *(inches)*	Incremental Single Chamber *(cubic feet)*	Incremental Total Chamber *(cubic feet)*	Incremental Stone *(cubic feet)*	Incremental Ch & St *(cubic feet)*	Cumulative Chamber *(cubic feet)*	Elevation *(feet)*
42	0.00	0.00	24.79	24.79	1647.72	7.50
41	0.00	0.00	24.79	24.79	1622.93	7.42
40	0.00	0.00	24.79	24.79	1598.14	7.33
39	0.00	0.00	24.79	24.79	1573.35	7.25
38	0.00	0.00	24.79	24.79	1548.56	7.17
37	0.00	0.00	24.79	24.79	1523.77	7.08
36	0.05	1.21	24.31	25.52	1498.98	7.00
35	0.16	3.58	23.36	26.94	1473.47	6.92
34	0.28	6.20	22.31	28.51	1446.53	6.83
33	0.60	13.29	19.47	32.76	1418.01	6.75
32	0.80	17.64	17.73	35.37	1385.25	6.67
31	0.95	20.91	16.42	37.34	1349.88	6.58
30	1.07	23.64	15.33	38.97	1312.54	6.50
29	1.18	25.97	14.40	40.37	1273.57	6.42
28	1.27	27.84	13.65	41.50	1233.20	6.33
27	1.36	29.81	12.87	42.68	1191.70	6.25
26	1.45	31.99	11.99	43.98	1149.02	6.17
25	1.52	33.54	11.37	44.92	1105.04	6.08
24	1.58	34.81	10.87	45.68	1060.12	6.00
23	1.64	36.13	10.34	46.47	1014.45	5.92
22	1.70	37.39	9.83	47.22	967.98	5.83
21	1.75	38.56	9.36	47.93	920.76	5.75
20	1.80	39.66	8.92	48.59	872.83	5.67
19	1.85	40.81	8.47	49.28	824.24	5.58
18	1.89	41.65	8.13	49.78	774.96	5.50
17	1.93	42.55	7.77	50.32	725.19	5.42
16	1.97	43.45	7.41	50.86	674.87	5.33
15	2.01	44.22	7.10	51.32	624.01	5.25
14	2.04	44.99	6.79	51.78	572.69	5.17
13	2.07	45.65	6.53	52.18	520.90	5.08
12	2.10	46.31	6.27	52.57	468.72	5.00
11	2.13	46.90	6.03	52.93	416.15	4.92
10	2.15	47.38	5.84	53.22	363.22	4.83
9	2.18	47.90	5.63	53.53	310.00	4.75
8	2.20	48.36	5.44	53.81	256.47	4.67
7	2.21	48.56	5.37	53.93	202.66	4.58
6	0.00	0.00	24.79	24.79	148.74	4.50
5	0.00	0.00	24.79	24.79	123.95	4.42
4	0.00	0.00	24.79	24.79	99.16	4.33
3	0.00	0.00	24.79	24.79	74.37	4.25
2	0.00	0.00	24.79	24.79	49.58	4.17
1	0.00	0.00	24.79	24.79	24.79	4.08

Appendix D

- Existing and Proposed Drainage Area map



EXISTING DRAINAGE MAP



PROPOSED DRAINAGE MAP

1" = 20'

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: PAS
DRAWN BY: PAS
SHEET CHK'D BY: MJB
CROSS CHK'D BY: JJF
APPROVED BY:
DATE: JULY 20, 2020

ENGENUITY INFRASTRUCTURE
2 BRIDGE AVENUE, SUITE 323
RED BANK, NJ 07701
732.741.3176
ENGENUITYNJ.COM

DRAINAGE AREA MAP
TAX BLOCK 66.02
LOT 31.01
BOROUGH OF MANASQUAN
MONMOUTH COUNTY, NEW JERSEY

OWNER / DEVELOPER / APPLICANT:
UNION AVENUE 33, LLC
126 MAIN STREET
MANASQUAN, NJ 08736
PHONE: (732) 522-0197

JACLYN J. FLOR, P.E., P.P., C.M.E
CONSULTING ENGINEER
LICENSED PROFESSIONAL ENGINEER
STATE OF NJ LICENCE NO. 24GE045426
CERTIFICATE OF AUTHORIZATION 24GA28268000
7/20/20
DATE

PROJECT NO. SEPE-00010
DRAWING DR-1
SHEET NO. 1 OF 1

NOT FOR CONSTRUCTION

FILE NAME:

KLEIN
TRAFFIC CONSULTING, LLC

156 Walker Road
West Orange, NJ 07052
973-985-3464
leekleintraffic@gmail.com

June 18, 2019

Mr. Brad Sepe
Union Avenue 33, LLC
126 Main Street
Manasquan, NJ 08736

VIA EMAIL: bradcp7@gmail.com

Re: Professional Traffic Engineering and Parking Evaluation
Proposed 23 Apartment Units with 20 On-Site Parking Spaces
33 Union Avenue (NJ Route 71), Manasquan Borough, Monmouth County, NJ

Dear Mr. Sepe:

INTRODUCTION

The purpose of this Traffic Engineering Evaluation is to assess the traffic impacts associated with the development of the subject property known as Block 66.02, Lot 31.01 located at 33 Union Avenue (NJ Route 71) in the Borough of Manasquan, Monmouth County. The site is occupied by three homes. There is a full-movement driveway providing vehicular access to Union Avenue (NJ Route 71).

It is proposed to construct three stories with 23 apartments over ground level parking of 20 parking spaces. Access to the site would continue to be provided by one full-movement driveway on Union Avenue.

EXISTING CONDITIONS

The site, located at 33 Union Avenue (NJ Route 71), is situated south of the unsignalized intersection of Union Avenue with Abe Voorhees Drive/Euclid Avenue. The site is occupied by three homes. The surrounding properties generally consist of a mix of commercial and residential uses. The adjacent roadways serving the site are described as follows:

Union Avenue (Route 71) is an urban principal arterial roadway, under the jurisdiction of NJDOT. There are sidewalks on both sides of the street and parking is prohibited on both sides of the street in the vicinity of the subject site. Union Avenue provides one travel lane in each direction, intersecting with Abe Voorhees Drive/Euclid Avenue. The posted speed limit is 30 miles per hour (MPH).

KLEIN
TRAFFIC CONSULTING, LLC

Mass Transportation Options
The subject site is located 2-minute/0.1-mile walk from the Manasquan NJ Transit Train Station of the North Jersey Coast Line, which stops frequently throughout the AM and PM commuter hours and provides access to and from Newark Penn Station, New York Penn Station, and Hoboken. With frequent service during the AM and PM peak commuting hours, mass transportation service is an attractive alternative to commuting via automobile or owning an automobile.

Traffic Observations
We visited the site on Thursday, August 2, 2018 and on Wednesday, June 12, 2019 between 5:00 PM and 6:00 PM to observe the PM peak period traffic conditions and operations of the intersection of Union Avenue with Abe Voorhees Drive/Euclid Avenue. We observed traffic to flow freely during this time period. However, traffic would queue on the northbound approach of Union Avenue from the signalized intersection of Main Street during the red phase of the traffic signal and generally clear out during each green phase. This occurred two to three times between 5:00 PM and 5:15 PM, and two to three time between 5:45 PM and 6:00 PM. Traffic would be considered "moderate" to "heavy" in this area.

DEVELOPMENT PROPOSAL
The proposed development consists constructing 23 multifamily housing (low-rise) units in two floors over ground level parking with 20 parking spaces including 1 ADA parking space. The existing driveway access on Union Avenue will be modified to accommodate two-way traffic.

TRIP GENERATION
According to the *Trip Generation Manual, 10th Edition* published by the Institute of Transportation Engineers, Multifamily Housing (Low-Rise) includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have one or two levels (floors). Table 1 -Trip Generation Summary, summarizes the trip generation for the proposed 23 apartment units in two floors over one level of parking. As shown in Table 1, the proposed 23-unit apartment building would generate 14 vehicle trips during the AM peak hour, and 17 vehicle trips during the PM peak hour.

Table 1 – Trip Generation Summary, attached shows the trip generation for the existing three homes as well as the proposed apartments. Based on the *Trip Generation, 10th Edition*, during the AM peak hour, the existing three homes would generate 4 trips during the AM peak hour, and 4 trips during the PM peak hour. The Trip Generation of the proposed 23 multifamily housing (low-rise) units would generate 14 trips during the AM peak hour and 17 trips during the PM peak hour. The proposed condition would not generate a significant increase in trips than the existing use on the subject site. Also, it should be noted that these trip generation values would be considered conservative. Since the site is situated so close to the Manasquan NJ Transit Rail station, many tenants may choose to live at 33 Union Avenue to take advantage of the NJ Transit Rail service and walk to the train station rather than drive to work.

According to *Transportation Impact Analysis for Site Development*, published by the Institute of Transportation Engineers (ITE), an increase of less than 100 vehicle trips would not change the level of service of the local street network nor appreciably increase the volume-to-capacity ratio of an intersection approach. Also, NJDOT Access Management Code considers a significant increase in trips greater than 100 peak hour trips AND greater than a 10 percent increase in previously anticipated daily trips. The proposed 23 multifamily housing (low-rise) would not generate a significant increase in trips more than the three single-family homes. Therefore, the redevelopment of the subject property into 23 multifamily housing (low-rise) units is not anticipated to significantly impact the operations of Union Avenue.

SITE PLAN REVIEW

The site is proposed with approximately 9-foot wide by 18-foot long parking spaces. The drive aisle is adequate at 24-feet wide to provide access into and out of each parking space. The driveways are designed to accommodate ease of maneuvering for appropriate vehicle types.

The project is proposed with 20 parking spaces, where 14 parking spaces or 0.6 parking spaces per unit are currently permitted. The proposed site provides 20 parking spaces, or 0.87 parking spaces per apartment unit. Due to the proximity of Manasquan NJ Transit Rail station, as well as shopping, dining and entertainment options within the immediate area, it is anticipated that some of the potential residents of this proposed apartment building would not own a vehicle or at least would not own a second vehicle and take advantage of the commuting options.

In my opinion, the proposed parking supply is sufficient and would not significantly impact the neighborhood.

The on-site ADA parking space is designed to be accessible.

Adequate sight distances are provided from the existing exit driveway on Union Avenue. The posted speed limit near Union Avenue is 30 MPH; therefore, the design speed of Union Avenue is 35 miles per hour, thus resulting in a recommended stopping sight distance of 250 feet, in accordance with A Policy on Geometric Design of Highways and Streets (AASHTO). This required sight distance is exceeded on Union Avenue.

KLEIN
TRAFFIC CONSULTING, LLC

CONCLUSIONS

Based upon our trip generation evaluation, it is our professional opinion that the proposed 23 multifamily housing (low-rise) units would have no significant impact on traffic conditions during the AM and PM peak commuter traffic hours. It is projected that the proposed 23 multifamily housing (low-rise) units would generate less than a significant amount of traffic according to industry standards.

The design of the site will more than adequately serve the needs of the project's residents and visitors. The proposed parking supply of 20 parking spaces exceeds the permitted parking requirement of 14 parking spaces. The site plan has been designed with adequate parking and circulation for the residents and visitors of the project. The proposed parking supply would be sufficient and would not have a negative impact on the surrounding neighborhood.

In conclusion, the development of this project will have a minimal impact on the traffic operations of area roadways and intersections.

The foregoing is a true representation of my findings.

Very truly yours,

Lee D Klein

Lee D. Klein, P.E., PTOE
NJPE 24GE03710400
PTOE Certification 1627
C:\LeeWork\ENGENUITY\Manasquan-33UnionRt71\KleinTraffic_TEE_23Apts33UnionRt71_061819R.docx

33 Union Avenue (NJ Route 71, MP 1.0), Manasquan, Monmouth County, NJ
Table 1 - Trip Generation Summary

			WEEKDAY						
			AM PEAK HOUR			PM PEAK HOUR			
CODE	LAND USE	AMOUNT	IN	OUT	TOTAL	IN	OUT	TOTAL	ADT
EXISTING SINGLE-FAMILY HOME TRIPS									
210	Single Family Detached Housing	3 units	2	2	4	3	2	5	41
TOTAL EXISTING SITE GENERATED TRIPS			2	2	4	3	2	5	41
PROPOSED SITE-GENERATED TRIPS									
220	**Multifamily Housing (Low-Rise)**	**23 units**	**3**	**11**	**14**	**11**	**6**	**17**	**133**
TOTAL PROPOSED CHANGE IN SITE-GENERATED TRIPS					**10**			**12**	
					<100			**<100**	**621%**
TOTAL PROPOSED SITE GENERATED TRIPS			**3**	**11**	**14**	**11**	**6**	**17**	**133**
PERMISSIBLE PEAK HOUR TRIP LIMIT		**80**			**OK**			**OK**	

Source: HAPS Program, as of March 18, 2018, established by the NJDOT Access Management Code

NOT a significant increase in trips: more than a 10 percent increase in previously anticipated daily trips; HOWEVER, NOT an increase of 100 peak hour trips

LOT CONFORMANCE CALCULATION

16:47-3.5 (b) 2
Lot 31.01, Block 66.02
33 Union Ave (NJ Route 71, MP 1.0)
Manasquan Boro, Monmouth County, NJ

V	**80**	**Permissible Peak Hour Trips**	
	50		
S	125	Feet	
L	87.9	Feet	
R	92.9	Feet	Max = S
A	0.566	Acres	
L	87.9	Feet	
R	92.9	Feet	Max = S

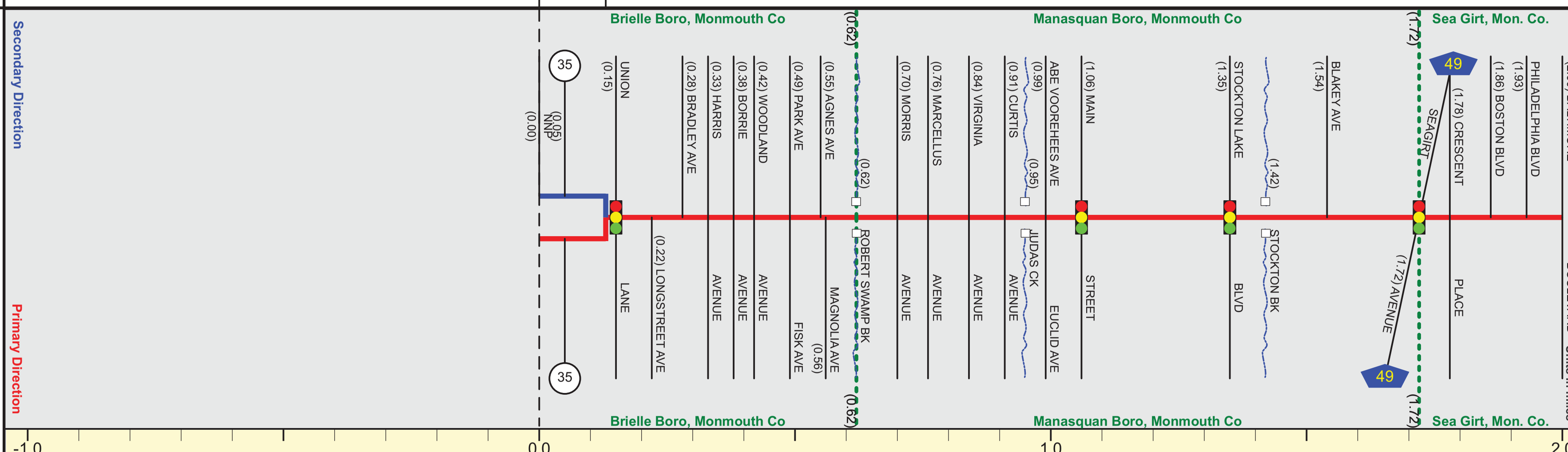
NJ 71 (South to North)

Mile Posts: 0.000 - 2.000

Secondary Direction (blue line)
Primary Direction (red line)

Secondary Direction	MP 0.00 – 0.15
Pavement	30
Shoulder	0
Number of Lanes	1
Speed Limit	30
Street Name	Union Avenue

Legend: Interstate Route (287); US Route (22); NJ Route (33); County Road (689); Interchange Number (2); Grade Separated Interchange; Traffic Signal; Traffic Monitoring Sites (WIM, AVC, VOL); Road Underpass; Road Overpass



Field	MP 0.00 – 2.00 (segments)
Street Name	Union Avenue (0.00–1.72); Seventh Avenue (1.72–2.00)
Jurisdiction	N.J.D.O.T.
Functional Class	Urban Principal Arterial
Federal Aid - NHS Sy	NHS
Control Section	1320
Speed Limit	30; 35
Number of Lanes	2
Med. Type	Curbed; None
Med. Width	4; 0
Pavement	20; 28; 34; 24
Shoulder	8; 10; 0; 6; 10; 12; 8
Traffic Volume	13,885 (2012)
Traffic Sta. ID	6-7-018
Structure No.	1320155; 1320150; 1320156
Enlarged Views	See Enlarged View #20

Begin NJ 71 MP=0.00

SRI = 00000071__

Date last inventoried: July 2014

Page Crea

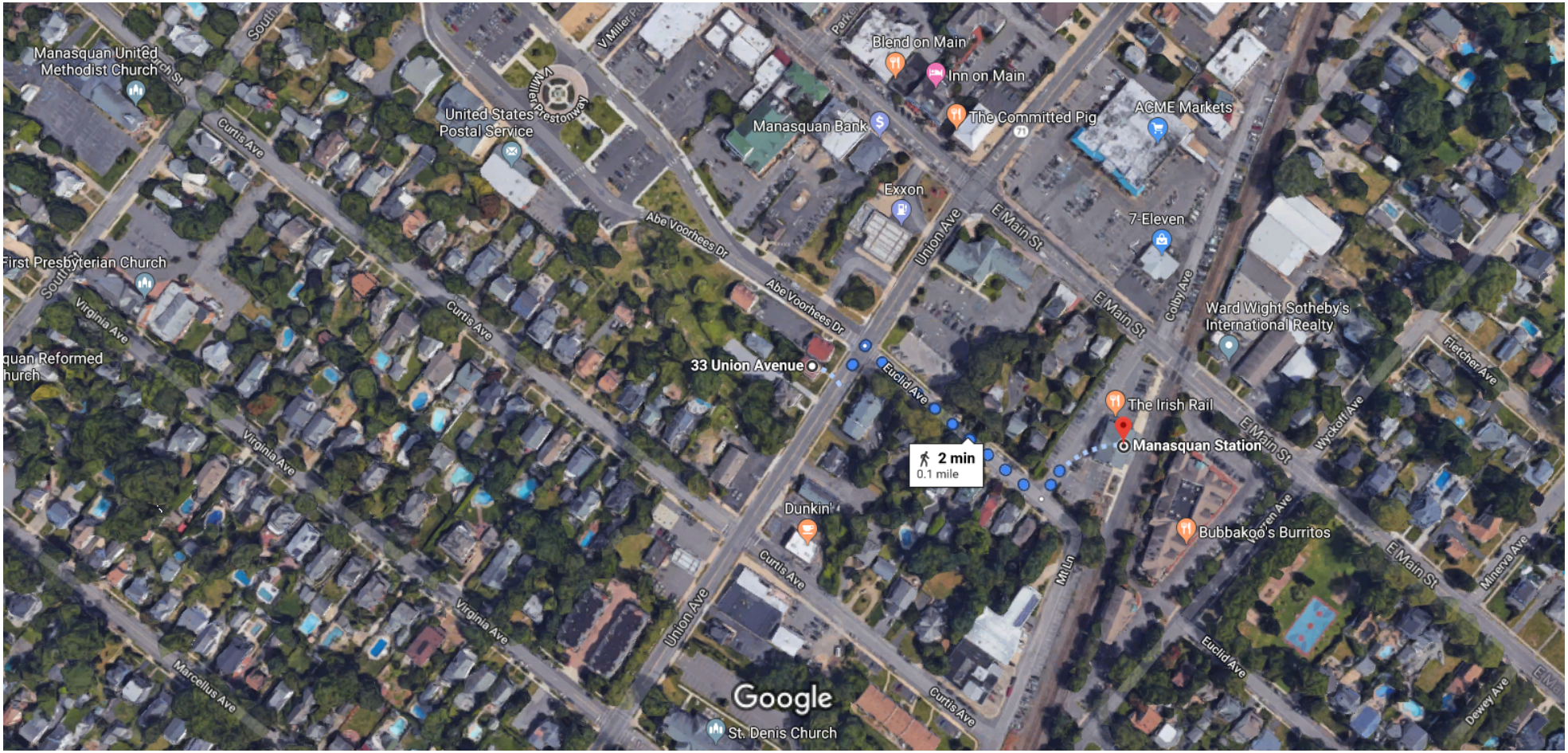
Item 15.

Google Maps

33 Union Avenue, Manasquan, NJ to Manasquan Station

Walking Distance and Time

Walk 0.1 mile, 2 min



Imagery ©2019 Google, Map data ©2019 Google 200 ft

via Euclid Ave 2 min

0.1 mile

Mostly flat

BORO ENGINEERING

February 13, 2020

Mary Salerno, Secretary
Manasquan Borough Planning Board
201 East Main Street
Manasquan, NJ 08736

Re: Boro File No. MSPB-R1170
Site Plan – Union Avenue 33, LLC
Block 66.02, Lot 31.01
33 Union Avenue
AR-2 Affordable Housing
Borough of Manasquan, Monmouth County, NJ

Dear Ms. Salerno:

As per your request, I have reviewed the above-referenced application in accordance with the provisions of the Borough Land Development Ordinance. The documents reviewed in conjunction with this application include:

1. Preliminary and Final Major Site Plan prepared by Jaclyn Flor, PE, PP, of Engenuity Infrastructure, LLC, dated October 28, 2019.

2. Architectural Layout and Elevations prepared by Michael Monroe, RA, dated July 30, 2019.

3. Stormwater Management Report prepared by Jaclyn Flor, PE, PP, of Engenuity Infrastructure, LLC, dated October 28, 2019.

4. Boundary & Topographic Survey prepared by James Heiser, PLS, of DPK Consulting, dated August 6, 2018.

5. Traffic and Parking Evaluation prepared by Lee Klein, PE, PTOE, of Klein Traffic Consulting, LLC, dated June 18, 2019.

The property is located in the AR-2 Affordable Housing Zone with frontage on Union Avenue. With this application, the applicant is proposing to construct an approximately 24,667 square foot, three story, apartment building, with 23 total units described as follows:

Market Rate Units	- One Bedroom	3
	- Two Bedroom	7
	- Three Bedroom	4
Affordable Housing	- One Bedroom	1
	- Two Bedroom	4
	- Three Bedroom	4

BORO ENGINEERING

Re: Boro File No. MSPB-R1170
Site Plan – Union Avenue 33 LLC
Block 66.02, Lot 31.01

February 13, 2020
Sheet 2

The application is deemed complete as of February 13, 2020.

The following are our comments and recommendations regarding this application:

Zoning

1. The property is located in the AR-2 Affordable Housing Zone. The proposed multi-unit residential use of is permitted in the zone.

2. The AR-2 Zone was created for this project as part of a settlement agreement with the borough and zoning standards which reflect the layout are included as part of the agreement. The following items were shown as proposed on the settlement exhibits. These standards are normally requirements for this type of multi-unit project, but are not met with this application:

3.
   a. A minimum parking space size of 9'x19' is required, whereas 9'x18' spaces are proposed.

   b. A minimum 80 square feet of exterior deck porch or patio is required for each unit, whereas exterior decks are proposed for eighteen of the twenty three units.

   c. A minimum of 80 square feet of storage space is required for each apartment, whereas no dedicated storage space is provided. Common storage space is proposed on the first floor but the applicant should explain how these spaces will be utilized and divided between the units.

4. The settlement agreement outlines allowable exterior material for the proposed building. The architectural plans should be detailed to demonstrate conformance with this requirement.

5. The architectural floorplan/parking layout differs from the engineer's site plan. The correct layout must be clarified.

6. The building height is measured from the top of curb per the borough ordinance. The applicant's engineer should confirm that this was the basis utilized for the building height measurement.

Drainage/Utilities

7. It is our understanding that the NJDEP has indicated that the proposed location of the bioretention area is unacceptable in relation to the adjacent stream. The drainage plan and calculations must be revised and resubmitted to conform to any DEP requirements for their permits.

8. The drainage calculations must be revised to show pre and post development flows and demonstrate there will be no increase in flows for the 2, 10 and 100 year design storms. The calculations must also demonstrate that the system will drain within 72 hours.

9. Infiltration cannot be utilized for the sizing of the proposed recharge system.

10. The rainfall intensity for the 100 year storm should be 8.94 in/hr per the Monmouth County Rainfall Frequency Data.

11. A two foot separation from the bottom of the basin to the seasonal high water table should be shown.

12. The sizing of the 8" pvc pipe to the proposed basin should be shown in the drainage calculations. End treatment and outlet protection for the pipe should also be shown and details provided.

13. There is only one proposed outlet to the basin which appears to collect all of the roof gutters for the entire project. An additional collection pipe for the opposite side of the building may be necessary. If an additional pipe and outlet are proposed, sizing and outlet protection will be necessary.

14. Roof drain overflows at grade with slotted covers should be provided and a detail provided.

15. A stormwater maintenance manual for the perpetual maintenance of the entire stormwater system should be provided for review.

16. The proposed sanitary sewer connection point should be clarified as it appears to terminate in the proposed parking area.

17. Specifications on the bioretention soil mix must be provided. Any specifics on the subgrade treatment (non-compacted, etc.) should also be indicated on the detail.

Traffic

18. Applicable sight triangles should be shown on the plan.

19. Fire lanes and marking should be provided per the borough fire inspector.

20. The applicant's traffic engineer should be prepared to discuss the proposed traffic functioning of the site and the site's impact on the surrounding roadways during the summer months.

Landscaping/Lighting

21. I suggest additional plantings be provided on the sides of the proposed building.

22. A revised landscaping plan must be provided once the drainage improvements have been revised per the NJDEP requirements.

23. The light spillage onto the adjacent lot in the north east corner of the property must be addressed. The lighting plan should be revised accordingly.

BORO ENGINEERING

Re: Boro File No. MSPB-R1170
Site Plan – Union Avenue 33 LLC
Block 66.02, Lot 31.01

February 13, 2020
Sheet 4

24. Details for the trash enclosure and gate must be provided.

Miscellaneous

25. Proposed spot elevations should be provided for the proposed handicap ramps to demonstrate compliance with ADA requirements.

26. Details for the improvements within the NJDOT right-of-way must be included on the plan.

27. All new utilities are proposed to be located underground.

28. Any trees which will be removed as part of the application should be shown on the plan.

29. Any sidewalk must be replaced as necessary on Union Avenue.

30. All necessary outside agency approvals must be obtained for this project. These may include, but not be limited to the following:

    a. Monmouth County Planning Board
    b. NJDOT Access Permit
    c. NJDEP
    d. Freehold Soil Conservation District

Should you have any questions or desire any additional information, please do not hesitate to contact me.

Very truly yours,

ALBERT D. YODAKIS, P.E., P.P.
PLANNING BOARD ENGINEER
BOROUGH OF MANASQUAN

ADY:jy

cc: George McGill, esq., Planning Board Attorney
John Sarto, esq.
Giordano, Halleran & Ciesla, 125 Half Mile Road, Suite 300, Red Bank, NJ 07701-6777
Jaclyn Flor, PE, PP
Engenuity Infrastructure, 12 Broad Street, Suite 203, Red Bank, NJ 07701
Union Avenue 33, LLC
126 Main Street, Manasquan, NJ 08736

Office: (732) 223-1599
Fax: (732) 223-8802

Board Members:
Chairman John White
Secretary Carmen Triggiano
1st Vice Chairman Drew Coder
2nd Vice Chairman Brian Wick
Treasurer Jack Herbert

Manasquan Fire District #1
Office of the Board of Fire Commissioners
38 Taylor Ave
Manasquan, NJ 08736
Member of the New Jersey State
Fire District Association

Hook & Ladder Co. #1
Volunteer Engine Co. #2

Chief Paul Samuel
Deputy Chief Tom Schofield
Fire Director Chris Barkalow

To: Mary C. Salerno, Planning Board Secretary

From: Christopher Barkalow, Fire Marshal

Date: January 24, 2020

Re: Plan Review – 33 Union Ave. (Block: 31.01 – Lot: 66.02)

As you requested, I have reviewed the planning board application package for 33 Union Ave. Ave. (Block: 33.01 Lot: 66.02) and the site plan prepared by James Michael Monroe, dated 7/30/19. The Manasquan Fire Bureau would like to make the following requests;

1. We would like to ensure that the proposed structure is fully suppressed, including any exterior porch, balcony, or covered area.
2. We would also like to ensure that the water mains in the area are capable of supplying an adequate flow for fire suppression operations in a building of that size.

If you have any questions or comments, please feel free to contact me.

Sincerely,

Christopher Barkalow
Fire Marshal

BORO ENGINEERING

November 20, 2020

Mary Salerno, Secretary
Manasquan Borough Planning Board
201 East Main Street
Manasquan, NJ 08736

Re: Boro File No. MSPB-R1170
Site Plan – Union Avenue 33, LLC
Block 66.02, Lot 31.01
33 Union Avenue
AR-2 Affordable Housing
Borough of Manasquan, Monmouth County, NJ

Dear Ms. Salerno:

As per your request, I have reviewed the above-referenced application in accordance with the provisions of the Borough Land Development Ordinance. The documents reviewed in conjunction with this application include:

1. Preliminary and Final Major Site Plan prepared by Jaclyn Flor, PE, PP, of Engenuity Infrastructure, LLC, dated October 28, 2019, last revised November 11, 2020.

2. Architectural Layout and Elevations prepared by Laurance Appel, RA, of the Appel Design Group, dated June 18, 2020, last revised October 7, 2020.

3. Stormwater Management Report prepared by Jaclyn Flor, PE, PP, of Engenuity Infrastructure, LLC, dated July 20, 2020.

4. Boundary & Topographic Survey prepared by James Heiser, PLS, of DPK Consulting, dated August 6, 2018, last revised December 16, 2019.

5. Traffic and Parking Evaluation prepared by Lee Klein, PE, PTOE, of Klein Traffic Consulting, LLC, dated June 18, 2019.

6. Stormwater Management Operation & Maintenance Manual, prepared by Jaclyn Flor, PE, PP, of Engenuity Infrastructure, LLC, dated November 10, 2020.

The property is located in the AR-2 Affordable Housing Zone with frontage on Union Avenue. With this application, the applicant is proposing to construct an approximately 12,975 square foot, three and a half story, apartment building, with 23 total units. The unit count has been revised and is now described as follows:

Market Rate Units	- One Bedroom	2
	- Two Bedroom	12
Affordable Housing	- One Bedroom	2

BORO ENGINEERING

Re: Boro File No. MSPB-R1170
Site Plan – Union Avenue 33 LLC
Block 66.02, Lot 31.01

November 20, 2020
Sheet 2

- Two Bedroom 5
- Three Bedroom 2

The application was previously deemed complete on of February 13, 2020.

The following are our comments and recommendations regarding this application:

Zoning

1. The property is located in the AR-2 Affordable Housing Zone. The proposed multi-unit residential use of is permitted in the zone.

2. The AR-2 Zone was created for this project as part of a settlement agreement with the borough which included a site plan layout. Zoning standards which reflect the site plan layout were also included as part of the settlement agreement. The following items were addressed in the settlement agreement and in the AR-2 zoning ordinance. These standards are normally requirements for this type of multi-unit project, but are not required with this application:

   a. A minimum parking space size of 9'x19' is required, whereas 9'x18' spaces are proposed.

   b. A minimum 80 square feet of exterior deck porch or patio is required for each unit, whereas exterior decks are proposed for ten of the units.

3. A minimum of 80 square feet of storage space is required for each apartment, whereas no dedicated storage space appears to be provided. However common storage space is proposed on the first floor. Thus, the applicant should explain how this space will be utilized and divided between the units.

4. Addressed. The architectural plans have been revised to include the proposed finishes and materials.

5. The architectural plans have been revised as requested, however there is a significant change in appearance from the architectural rendering included in the settlement agreement. The applicant should be prepared to discuss these proposed revisions.

6. Addressed. The architectural plans detail the building height which is measured from one foot above the BFE in the AR-2 Zone.

Drainage/Utilities

7. Addressed. The plans have been revised to provide an underground recharge system under the proposed parking area. The drainage plan and calculations must still conform to any DEP requirements for their permits.

8. Addressed. The drainage calculations have been revised to show pre and post development flows with no increase.

BORO ENGINEERING

Re: Boro File No. MSPB-R1170
Site Plan – Union Avenue 33 LLC
Block 66.02, Lot 31.01

November 20, 2020
Sheet 3

9. Addressed. Infiltration has been discounted in the revised underground detention system.

10. Addressed. The rainfall intensity has been corrected.

11. Addressed. The separation to groundwater has been provided.

12. Addressed. The locations and sizes of the roof drains have been shown on the plans.

13. Addressed.

14. Addressed. Slotted covers have been provided.

15. Addressed. A stormwater maintenance manual has been provided.

16. Addressed. The proposed sanitary sewer connection point has been revised.

17. Addressed.

18. Addressed. A detail for the proposed outlet structure has been provided.

19. Addressed. A grate is now proposed on the outlet structure.

Traffic

20. Addressed. Sight triangles have been provided. A deed and deed description for the sight triangle easement area will be required.

21. Addressed. Fire lanes have been provided.

22. The applicant's traffic engineer should be prepared to discuss the proposed traffic functioning of the site and the site's impact on the surrounding roadways, especially during the summer months.

Landscaping/Lighting

23. Addressed. Additional plantings have been provided. A fence also appears warranted on the north side of the project as an additional buffer.

24. Addressed. The basin has been changed to the underground detention system.

25. Addressed. The lighting has been revised. The applicant should confirm that the lights, especially on the north side will have shielded luminaires that will not be visible to adjacent properties.

26. Addressed. The trash area has been moved inside the building on the first floor.

BORO ENGINEERING

Re: Boro File No. MSPB-R1170
Site Plan – Union Avenue 33 LLC
Block 66.02, Lot 31.01

November 20, 2020
Sheet 4

Miscellaneous

27. Addressed. The spot elevations have been provided

28. Addressed. Details for the improvements within the NJDOT right-of-way have been provided.

29. Addressed. All new utilities are proposed to be located underground.

30. Addressed. All trees which will be removed are shown on the plan.

31. Addressed. The sidewalk is proposed to be replaced on Union Avenue.

32. All necessary outside agency approvals must be obtained for this project. These may include, but not be limited to the following:

    a. Monmouth County Planning Board
    b. NJDOT Access Permit
    c. NJDEP
    d. Freehold Soil Conservation District

Should you have any questions or desire any additional information, please do not hesitate to contact me.

Very truly yours,

ALBERT D. YODAKIS, P.E., P.P.
PLANNING BOARD ENGINEER
BOROUGH OF MANASQUAN

ADY:jy

cc: George McGill, esq., Planning Board Attorney
John Sarto, esq.
Giordano, Halleran & Ciesla, 125 Half Mile Road, Suite 300, Red Bank, NJ 07701-6777
Jaclyn Flor, PE, PP
Engenuity Infrastructure, 12 Broad Street, Suite 203, Red Bank, NJ 07701
Union Avenue 33, LLC
126 Main Street, Manasquan, NJ 08736

AGREEMENT TO RESOLVE ISSUES BETWEEN THE BOROUGH OF MANASQUAN AND FAIR SHARE HOUSING CENTER CONCERNING THE BOROUGH'S MOUNT LAUREL FAIR SHARE OBLIGATIONS AND THE MEANS BY WHICH THE BOROUGH SHALL SATISFY SAME.

In the Matter of the Borough of Manasquan, County of Monmouth, Docket No. MON-L-2508-15

THIS SETTLEMENT AGREEMENT ("Agreement") made this _____ day of _____, 2018, by and between:

BOROUGH OF MANASQUAN, a municipal corporation of the State of New Jersey, County of Monmouth, having an address at 201 East Main Street, Manasquan, New Jersey 08736 (hereinafter the "Borough" or "Manasquan");

And

FAIR SHARE HOUSING CENTER, having an address at 510 Park Boulevard, Cherry Hill, New Jersey 08002, (hereinafter "FSHC");

WHEREAS, pursuant to In re N.J.A.C. 5:96 and 5:97, 221 N.J. 1 (2015) (Mount Laurel IV), the Borough filed the above-captioned matter on July 2, 2015 seeking, among other things, a judicial declaration that its Housing Element and Fair Share Plan (hereinafter "Fair Share Plan"), as may be further amended in accordance with the terms of this settlement, satisfies its "fair share" of the regional need for low and moderate income housing pursuant to the Mount Laurel doctrine; and

WHEREAS, the Borough simultaneously sought and ultimately secured an Order protecting Manasquan from all exclusionary zoning lawsuits while it pursues approval of its Fair Share Plan; and

WHEREAS, the immunity secured by Manasquan remains in place as of the date of this Agreement; and

WHEREAS, the Trial Court appointed Michael Bolan, P.P., A.I.C.P., as the "Special Master" in this case as is customary in Mount Laurel matters; and

WHEREAS, with Mr. Bolan's assistance, Manasquan and FSHC have engaged in good faith negotiations and have reached an amicable accord on the various substantive provisions, terms and conditions delineated herein; and

WHEREAS, through that process, the Borough and FSHC agreed to settle the litigation and to present that settlement to the Trial Court, recognizing that the settlement of Mount Laurel litigation is favored because it avoids delays and the expense of trial and results more quickly in the construction of homes for lower-income households; and

WHEREAS, at this time and at this particular point in the process resulting from the Mount Laurel IV decision, when fair share obligations have yet to be definitively determined, it is appropriate for the parties to arrive at a settlement regarding a municipality's present and prospective need, instead of doing so through plenary adjudication of the present and prospective need.

NOW, THEREFORE, in consideration of the promises, the mutual obligations contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by each of the parties, the parties hereto, each binding itself, do hereby covenant and agree, each with the other, as follows:

Settlement Terms

The Borough and FSHC hereby agree to the following general terms, subject to any relevant conditions set forth in more detail below:

1. Manasquan's "Rehabilitation Obligation" is 6.

2. Manasquan's "Prior Round (1987-1999) Obligation" is 149.

3. Manasquan's "Gap (1999-2015) + Prospective Need (2015-2025) Obligation" is 382.

4. FSHC and the Borough agree that Manasquan does not accept the basis of the methodology or calculations proffered by FSHC's consultant, David N. Kinsey, PhD, P.P., F.A.I.C.P. The Parties agree to the terms in this agreement solely for purposes of settlement of this action. Although the Borough does not accept the basis of the methodology or calculations proffered by FSHC's consultant, FSHC contends, and is free to take the position before the Court, that the 382-unit obligation should be accepted by the Court because it is based on the Prior Round methodology and reflects a thirty percent (30%) reduction of Dr. Kinsey's April 2017 calculation of the Borough's Gap (1999-2015) + Prospective Need (2015-2025) fair share obligations.

5. Pursuant to N.J.A.C. 5:93-4.2, and as confirmed by Special Master Bolan, Manasquan's Realistic Development Potential (hereinafter "RDP") is 12. This leaves the Borough with a remaining combined Prior Round (1987-1999) and Gap + Prospective Need (1999-2025) "unmet need" of 519.

6. **Satisfaction of Rehabilitation Obligation**: The Borough has fully satisfied its Rehabilitation Obligation of six (6) as follows:

- The Borough has been participating in the Monmouth County Rehabilitation Program since 1995, and thirty-six (36) units have been rehabilitated in the Borough since that time.
- Of the Thirty-six (36) units rehabilitated since 1995, eight (8) have been rehabilitated after April 1, 2010, and are therefore creditworthy for the purposes of this Agreement.
- Thus, the Borough has fully satisfied its current Rehabilitation Obligation of six (6) and actually has two (2) surplus rehabilitation credits that can be applied to Round 4, should applicable law allow such credits to be counted in the future.

7. **Satisfaction of the Borough's RDP**: The Borough has a combined Prior Round (1987-1999) and Gap + Prospective Need (1999-2025) RDP of 12, which it will satisfy as follows:

- **Nine (9) family rental units from the Broad Street & Union Avenue Projects**: Developer Sepe will construct two residential projects. The two projects will produce a combined total of forty-five (45) units, which will consist of thirty-six (36) market rate units and nine (9) family rental units affordable to very-low, low- and moderate-income households. The nine (9) affordable rental units is a twenty percent (20%) set-aside of the forty-five (45) total units in the two residential projects. The first residential project will be located at 34, 36, 40 and 44 Broad Street (Block 64, Lots 25.01, 25.02, 26 and 27), and will consist of twenty-two (22) market rate units. No affordable units will be located on this site. The second site will be located on 33, 33.5 and 38 Union Avenue (Block 66.02, Lot 31.01), and will consist of twenty-three (23) total units, made up of fourteen (14) market rate units and nine (9) family rental units affordable to very-low, low- and moderate-income households. In the event that less than twenty-two (22) total units are generated on the Broad Street site and/or less than twenty-three (23) total units are generated on the Union Avenue site, Sepe will maintain a twenty percent (20%) affordable housing set-aside on the total number of units created, and the Borough will have the right to adjust its RDP downwards from 12. Certificates of occupancy shall be issued in accordance with the phasing schedule provided within N.J.A.C. 5:93-5.6(d) to ensure that the affordable units are constructed. Construction permits may be issued and closed out at either site, independently, and this requirement shall not act as a limitation on the timing of construction at either site. The nine (9) affordable units will be broken down as follows: One (1) very-low-income unit, four (4) low-income units and four (4) moderate-income units. The bedroom mix on the affordable units will be as follows: At least two (2) three-bedroom units, no more than one (1) one-bedroom unit and the remaining six (6) units will be two-bedroom units. Each affordable unit will be subject to a thirty (30) year affordable housing deed restriction in accordance with UHAC. Developer Sepe will also contract with an experienced Administrative Agent, which may or may not be the Borough's Administrative Agent, to ensure that all of the affordable units are properly affirmatively marketed.

- **Three (3) rental bonus credits**.

8. **Satisfaction of "unmet need"**: For the purposes of settlement, the Borough agrees to address its 519 combined Prior Round (1987-1999) and Gap + Prospective Need (1999-2025) "unmet need" through the following mechanisms:

- **Up To Ten (10) Accessory Apartments**: The Borough has already adopted an Accessory Apartment Ordinance that permits the development of accessory apartments in the Borough's R-1, R-2, and R-M Zones, subject to the bulk and yard requirements of the zone in which the unit is located. The Ordinance

contains provisions for the design, accessibility, affordability, marketing, and administration of the Accessory Apartment units generated as a result of the Ordinance. The Borough will amend the Ordinance to (1) allow accessory apartments to be created throughout the Borough instead of just in the R-1, R-2 and R-M zones, and (2) increase the subsidies for Accessory Apartment program from $10,000 for all units to $25,000 for a moderate-income unit, $35,000 for a low-income unit and $50,000 for a very-low income unit. The Borough will use Affordable Housing Trust Fund monies to pay for the increased subsidies.

- **Affordable Housing Overlay Over The R-M Zone**: As part of achieving Prior Round Substantive Certification, the Borough established an affordable housing overlay zone in the R-M zone to provide an opportunity to develop additional affordable housing. Any affordable units generated in the R-M Zone will be applied towards satisfying "unmet need." The R-M Zone overlay currently requires a twenty percent (20%) affordable housing set-aside, and will be modified to ensure that all sites in the R-M Zone can be developed at ten (10) units per acre.

- **Affordable Housing Overlay Over The B-1, BR-1, O and B-3 Zones**: The Borough will establish an affordable housing overlay over the B-1, BR-1, O and B-3 Zones in the Borough, as depicted in the map attached hereto as Exhibit A. The density proposed for the overlay zone will be fourteen (14) units per acre for those properties fronting on Main Street west of Route 71, and ten (10) units per acre for those properties that front on Route 71 itself. Any affordable units generated in the B-1, BR-1, O and B-3 zones will be applied towards satisfying "unmet need." The overlay zone will require a twenty percent (20%) affordable housing set-aside.

- **Mandatory Set-Aside Ordinance ("MSO")**: The Borough already has an adopted Borough-wide Mandatory Set-Aside Ordinance ("MSO") in place. The MSO currently requires a twenty percent (20%) affordable housing set-aside for residential developments comprised of five (5) or more dwelling units. The MSO will be amended to bring it up to date with currently applicable law in collaboration with the Special Master and FSHC prior to the Final Compliance Hearing in this matter. The amended MSO will not apply to the R-M, B-1, BR-1, O and B-3 Zones.

9. The Borough's RDP shall not be revisited by FSHC or any other interested party absent a substantial changed circumstance and, if such a change in circumstance occurs with the RDP, the Borough shall have the right to address the issue without negatively affecting its continuing entitlement to immunity from all Mount Laurel lawsuits through July 2, 2025.

10. The Borough agrees to require thirteen percent (13%) of all the affordable units referenced in this plan, with the exception of units constructed prior to July 1, 2008, and units subject to preliminary or final site plan approval prior to July 1, 2008, to be very-low-income units (defined as units affordable to households earning thirty percent (30%) or less of the

regional median income by household size), with half of the very-low income units being available to families.

11. Manasquan will apply "rental bonus credits" in accordance with N.J.A.C. 5:93-5.15(d).

12. At least fifty percent (50%) of the units addressing the Borough's RDP shall be affordable to a combination of very-low-income and low-income households, while the remaining affordable units shall be affordable to moderate-income households.

13. At least twenty-five percent (25%) of the Borough's RDP shall be met through rental units, including at least half in rental units available to families.

14. At least half of the units addressing the Borough's RDP in total must be available to families.

15. The Borough agrees to comply with COAH's Round 2 age-restricted cap of twenty-five percent (25%), and to not request a waiver of that requirement. This shall be understood to mean that in no circumstance may the Borough claim credit toward its fair share obligation for age-restricted units that exceed twenty-five percent (25%) of all units developed or planned to meet its Prior Round obligation and twenty-five percent (25%) of all units developed or planned to meet its combined Gap + Prospective Need obligation.

16. The Borough and/or its administrative agent shall add the following entities to the list of community and regional organizations in its affirmative marketing plan, pursuant to N.J.A.C. 5:80-26.15(f)(5): Fair Share Housing Center (510 Park Boulevard, Cherry Hill, NJ 08002); the New Jersey State Conference of the NAACP; the Latino Action Network (P.O. Box 943, Freehold, NJ 07728); STEPS, OCEAN, Inc.; the Greater Red Bank, Asbury Park/Neptune, Bayshore, Greater Freehold, Greater Long Branch, and Trenton branches of the NAACP; and the Supportive Housing Association. As part of its regional affirmative marketing strategies during implementation of its Fair Share Plan, the Borough and/or its administrative agent shall also provide notice of all available affordable housing units to the above-referenced organizations.

17. All affordable housing units created pursuant to the measures set forth in this Agreement shall comply with the Uniform Housing Affordability Controls ("UHAC"), N.J.A.C. 5:80-26.1 et. seq. or any successor regulation, with the exception that in lieu of ten percent (10%) of affordable units in rental projects being required to be affordable to households earning at or below thirty-five percent (35%) of the regional median household income by household size, thirteen percent (13%) of affordable units in such projects shall be required to be affordable to households earning at or below thirty percent (30%) of the regional median household income by household size subject to Paragraph 10 herein, and all other applicable law. All new construction units shall be adaptable in conformance with P.L.2005, c.350/N.J.S.A. 52:27D-311a and -311b and all other applicable law. The Borough, as part of the Housing Element and Fair Share Plan that will be prepared, adopted and endorsed as a result of this Agreement, shall adopt and/or update appropriate implementing ordinances in conformance with standard ordinances and guidelines developed by COAH to ensure that this provision is satisfied.

18. Upon full execution of this Agreement, Manasquan shall notify the Court so that a Fairness Hearing can be scheduled to approve the Agreement. Manasquan will place this

Agreement on file in the Borough's municipal building and file a copy with the Court 30 days prior to the Fairness Hearing, at which the Borough will seek judicial approval the terms of this Agreement pursuant to the legal standard set forth in Morris Cty. Fair Hous. Council v. Boonton Twp., 197 N.J. Super. 359, 367-69 (Law Div. 1984), aff'd o.b., 209 N.J. Super. 108 (App. Div. 1986); East/West Venture v. City of Fort Lee, 286 N.J. Super. 311, 328-29 (App. Div. 1996). Notice of the Fairness Hearing shall be published at least 30 days in advance of the Hearing. Within 120 days of the approval of this Agreement by the Court after a Fairness Hearing, Manasquan will adopt a Housing Element and Fair Share Plan, along with a Spending Plan, and will adopt all ordinances required to be adopted as part of this Agreement, and will submit same to the Court, the Court Master, and FSHC for review. The Borough, FSHC, the Court Master and the Court may agree to extend this period of time for good cause shown. The Borough will then apply to the Court for the scheduling of a "Compliance Hearing" seeking judicial approval of Manasquan's adopted Housing Element and Fair Share Plan and other required documents. Although it is expected that the Special Master will provide the majority of the required testimony at both the Fairness Hearing and the Compliance Hearing, Manasquan shall also make its consulting planner and any other relevant witnesses available for testimony at the Hearings. FSHC shall not challenge the validity of any of the documents attached hereto, or the validity of the Borough's Fair Share Plan so long as adopted in conformance with this Agreement. If the Fairness and Compliance Hearings result in approval of this Agreement and the Borough's Fair Share Plan, the parties agree that the Borough will be entitled to either a "Judgment of Compliance and Repose" ("JOR") or the "judicial equivalent of substantive certification and accompanying protection as provided under the FHA," 221 N.J. at 6, which shall be determined by the trial judge. Each party may advocate regarding whether substantive certification or repose should be provided by the Court, with each party agreeing to accept either form of relief and to not appeal an order granting either repose or substantive certification. Among other things, the entry of such an Order shall maintain Manasquan's immunity from all Mount Laurel lawsuits through July 2, 2025.

19. Subsequent to the signing of this Agreement, if a binding legal determination by the Judiciary, the Legislature, or any administrative subdivision of the Executive Branch determines that Manasquan's Gap (1999-2015) + Prospective Need (2015-2025) obligation is decreased to 306 or less, with any relevant appeal periods having passed, the Borough may file a proposed form of Order, on notice to FSHC and the Borough's Service List, seeking to reduce its Gap (1999-2015) + Prospective Need (2015-2025) obligation accordingly. Such relief shall be presumptively granted. Notwithstanding any such reduction, the Borough shall be obligated to implement the Fair Share Plan prepared, adopted and endorsed as a result of this Agreement, including by leaving in place any site specific zoning adopted or relied upon in connection with the Plan approved pursuant to this settlement agreement, maintaining all mechanisms to continue to address the Borough's "unmet need", and otherwise fulfilling fully the fair share obligations as established herein. The reduction of the Borough's obligation below what is established in this Agreement does not provide a basis for seeking leave to amend this Agreement or the Fair Share Plan adopted pursuant to this Agreement or seeking leave to amend an order or judgment pursuant to R. 4:50-1. If the Borough prevails in reducing its Gap + Prospective Need for Round 3, the Borough may carry over any resulting surplus credits to Round 4.

20. The Borough shall prepare a Spending Plan for approval by the Court during, or prior to, the duly-noticed Compliance Hearing. FSHC reserves its right to provide any comments or objections on the Spending Plan to the Court upon review. Upon approval by the Court, the Borough and FSHC agree that the expenditures of funds contemplated in the Borough's Spending Plan shall constitute the "commitment" for expenditure required pursuant to

N.J.S.A. 52:27D-329.2 and -329.3, with the four-year time period contemplated therein commencing in accordance with the provisions of In re Tp. Of Monroe, 442 N.J.Super. 565 (Law Div. 2015) (aff'd 442 N.J.Super. 563). Upon approval of its Spending Plan, the Borough shall also provide an annual Mount Laurel Trust Fund accounting report to the New Jersey Department of Community Affairs, Council on Affordable Housing, Local Government Services, or other entity designated by the State of New Jersey, with a copy provided to FSHC and posted on the municipal website, using forms developed for this purpose by the New Jersey Department of Community Affairs, Council on Affordable Housing, or Local Government Services.

21. On the first anniversary of the approval of this Agreement after a Fairness Hearing, and every anniversary thereafter through the end of this Agreement, the Borough agrees to provide annual reporting of the status of all affordable housing activity within the municipality through posting on the municipal website with a copy of such posting provided to FSHC, using forms previously developed for this purpose by the Council on Affordable Housing or any other forms endorsed by the Special Master and FSHC. In addition to the foregoing, the Borough may also post such activity on the CTM system and/or file a copy of its report with the Council on Affordable Housing or its successor agency at the State level.

22. The Fair Housing Act includes two provisions regarding actions to be taken by the Borough during the ten-year period of protection provided in this agreement. The Borough agrees to comply with those provisions as follows:

a. For the midpoint realistic opportunity review due on July 1, 2020, as required pursuant to N.J.S.A. 52:27D-313, the Borough will post on its municipal website, with a copy provided to FSHC, a status report as to its implementation of its Plan and an analysis of whether any unbuilt sites or unfulfilled mechanisms continue to present a realistic opportunity and whether the mechanisms to meet unmet need should be revised or supplemented. Such posting shall invite any interested party to submit comments to the municipality, with a copy to FSHC, regarding whether any sites no longer present a realistic opportunity and should be replaced and whether the mechanisms to meet "unmet need" should be revised or supplemented. Any interested party may by motion request a hearing before the Court regarding these issues.

b. For the review of very-low-income housing requirements required by N.J.S.A. 52:27D-329.1, within 30 days of the third anniversary of the approval of the Borough's Housing Element and Fair Share Plan at a Compliance Hearing, and every third year thereafter, the Borough will post on its municipal website, with a copy provided to FSHC, a status report as to its satisfaction of its very-low income requirements, including the family very-low-income requirements referenced herein. Such posting shall invite any interested party to submit comments to the municipality and FSHC on the issue of whether the municipality has complied with its very-low-income housing obligation under the terms of this settlement.

c. In addition to the foregoing postings, the Borough may also elect to file copies of its reports with the Council on Affordable Housing or its successor agency at the State level.

23. This Agreement may be enforced by the Borough or FSHC through a motion to enforce litigant's rights or a separate action filed in Superior Court, Monmouth County. If FSHC determines that such action is necessary, the Borough consents to the entry of an order providing FSHC party status as an intervenor solely for purposes of its motion to enforce litigant's rights.

24. All Parties shall have an obligation to fulfill the intent and purpose of this Agreement. However, if an appeal of the Court's approval or rejection of the Settlement Agreement is filed by a third party, the Parties agree to defend the Agreement on appeal, including in proceedings before the Superior Court, Appellate Division, and New Jersey Supreme Court, and to continue to implement the terms of the Settlement Agreement if the Agreement is approved by the Trial Court unless and until an appeal of the Trial Court's approval is successful, at which point the Parties reserve their right to return to the *status quo ante*. In this regard, the Borough and FSHC acknowledge that the Parties have entered into this Agreement to settle the litigation and that each is free to take such position as it deems appropriate should the matter return to the *status quo ante*.

25. The Borough agrees to pay $5,000 to FSHC, payable within 10 days of judicial approval of this Agreement pursuant to a duly-noticed Fairness Hearing.

26. Unless otherwise specified, it is intended that the provisions of this Agreement are to be severable. The validity of any article, section, clause or provision of this Agreement shall not affect the validity of the remaining articles, sections, clauses or provisions hereof. If any section of this Agreement shall be adjudged by a court to be invalid, illegal, or unenforceable in any respect, such determination shall not affect the remaining sections.

27. This Agreement shall be governed by and construed by the laws of the State of New Jersey.

28. This Agreement may not be modified, amended or altered in any way except by a writing signed by both the Borough and FSHC.

29. This Agreement may be executed in any number of counterparts, each of which shall be an original and all of which together shall constitute but one and the same Agreement.

30. The Borough and FSHC acknowledge that each has entered into this Agreement on its own volition without coercion or duress after consulting with its counsel, that each person to sign this Agreement is the proper person and possesses the authority to sign the Agreement, that this Agreement contains the entire understanding of the Borough and FSHC and that there are no representations, warranties, covenants or undertakings other than those expressly set forth herein.

31. The Borough and FSHC acknowledge that this Agreement was not drafted by the Borough and FSHC, but was drafted, negotiated and reviewed by representatives of the Borough and FSHC and, therefore, the presumption of resolving ambiguities against the drafter shall not apply. The Borough and FSHC expressly represent that: (a) it has been represented by counsel in connection with negotiating the terms of this Agreement; and (b) it has conferred due authority for execution of this Agreement upon the persons executing it.

32. Any and all Exhibits and Schedules annexed to this Agreement are hereby made a part of this Agreement by this reference thereto. Any and all Exhibits and Schedules now

and/or in the future are hereby made or will be made a part of this Agreement with prior written approval of both the Borough and FSHC.

33. This Agreement constitutes the entire Agreement between the Borough and FSHC hereto and supersedes all prior oral and written agreements between the Borough and FSHC with respect to the subject matter hereof except as otherwise provided herein.

34. Anything herein contained to the contrary notwithstanding, the effective date of this Agreement shall be the date upon which representatives of the Borough and FSHC have executed and delivered this Agreement.

35. All notices required under this Agreement ("Notice[s]") shall be written and shall be served upon the Borough and FSHC by certified mail, return receipt requested, or by a recognized overnight or by a personal carrier. In addition, where feasible (for example, transmittals of less than fifty pages) shall be served by facsimile or e-mail. All Notices shall be deemed received upon the date of delivery. Delivery shall be affected as follows, subject to change as to the person(s) to be notified and/or their respective addresses upon ten (10) days' notice as provided herein:

TO FSHC:

Adam M. Gordon, Esq.
Fair Share Housing Center
510 Park Boulevard
Cherry Hill, NJ 08002
Phone: (856) 665-5444
Telecopier: (856) 663-8182
Email: adamgordon@fairsharehousing.org

TO THE BOROUGH:

Erik C. Nolan, Esq.
Jeffrey R. Surenian & Associates, LLC
707 Union Avenue, Suite 301
Brielle, NJ 08730
Phone: (732) 612-3100
Telecopier: (732) 612-3101
Email: EN@Surenian.com

Mark G. Kitrick, Esq.
King, Kitrick, Jackson and McWeeney, LLC
2329 Highway 34, Suite 104
Manasquan, NJ 08736
Phone: (732) 630-0405
Telecopier: (732) 477-1304
Email: mkitrick@kkjlawfirm.com

WITH A COPY TO THE BOROUGH ADMINISTRATOR:

Thomas Flarity, Administrator
Borough of Manasquan
201 East Main Street
Manasquan, NJ 08736
Phone: (732) 223-0544

Telecopier: (732) 223-1300
Email: tflarity@manasquan-nj.gov

WITH A COPY TO THE SPECIAL MASTER:

Michael Bolan, PP/AICP
104 Howard Way
PO Box 295
Pennington, NJ 08534
Phone: (609) 466-4259
Telecopier: (609) 466-1588
Email: michaelbolan@verizon.net

In the event any of the individuals identified above has a successor, the individual identified shall name the successor and notify all others identified of their successor.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be properly executed, their corporate seals affixed and attested and this Agreement to be effective as of the Effective Date.

Witness/Attest:

FAIR SHARE HOUSING CENTER:

By: _____
Adam M. Gordon, Esq.
On Behalf of Fair Share Housing Center

Dated: June 22, 2018

Witness/Attest:

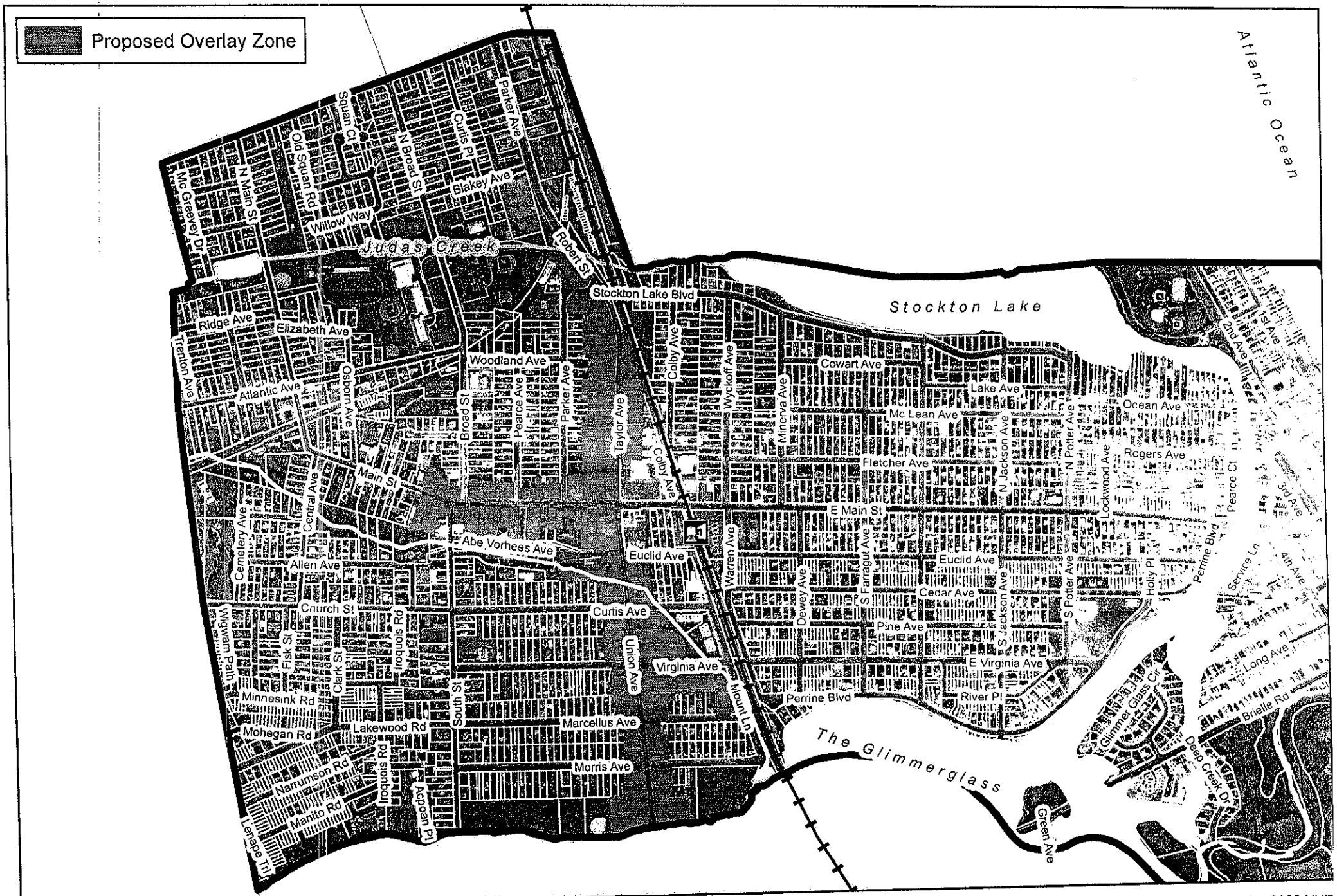
BOROUGH OF MANASQUAN:

By: Edward J Donovan
Edward Donovan, Mayor
On Behalf of the Borough of Manasquan

Dated: July 3, 2018

EXHIBIT A

Overlay Zone Map



LEON S. AVAKIAN, Inc.
Consulting Engineers
Created Mar-19-2018

Proposed Affordable Housing Overlay Zone

Borough of Manasquan
Monmouth County, New Jersey

Source: parcels NJGIN, Waterbodies 2002 NHD

0 0.1 0.2 0.4 Mil

BOROUGH HALL, 201 EAST MAIN STREET
Incorporated December 30, 1887
732-223-0544
Fax 732-223-1300

GEORGE R. DEMPSEY, JR.
Mayor

BARBARA ILARIA
Municipal Clerk

JOSEPH R. DeIORIO
Municipal Administrator/
Chief Financial Officer

BOROUGH OF MANASQUAN
COUNTY OF MONMOUTH
NEW JERSEY 08736

APPLICATION TO THE PLANNING BOARD

SECTION I

Property Location: 33 Union Avenue; Lot 31.01, Block 66.02

Applicant: Union Avenue 33, LLC
(If a Corporation, attach list of principals)

Address: 27 Colby Avenue, Manasquan, New Jersey 08736

Telephone 732-741-3900 **Cell** 732-219-5496 **Fax** 732-224-6599

Section II – Type of Application (Please check)

☐ **Variance** ☐ **Non-Permitted Use** ☐ **Conditional Use**

☐ **Subdivision – Minor** ☐ **Subdivision – Major**

☒ **Site Plan Approval**

Section III – Appeal of Zoning Officer's Decision

Date of Denial: _____

Zoning Permit Application Attached.

Section IV

Plot plan (Survey) – not older than five (5) years, clearly indicating all buildings and setbacks.

Section V – Miscellaneous

1. **Is the Applicant the Landowner?** Yes

Section V – Miscellaneous

1. **Is the Applicant the Landowner?** Yes
   (Attached authorization)

2. **Does the Applicant own any adjoining land?** No

3. **Are the property taxes paid to date?** Yes

4. **Have there been any previous applications to the Planning Board or the Board of Adjustment concerning this property?** No
   (Attach copies)

5. **Is there any deed restrictions, easements or covenants affecting the property?** No **(Attach copies)**

The applicant agrees to be responsible for and pay the costs entailed in the review of this application by any experts retained by the Planning Board for advice in this matter, if necessary.

(Signature of Applicant or Agent) **Date:** 12-13-19

PLANNING BOARD USE ONLY

Submitted: _____

Fees Paid: _____

Hearing Date: _____

Preliminary Approval: _____

Final Approval: _____

Denied: _____

Conditions of Approval: _____

BOROUGH HALL, 201 EAST MAIN STREET

GEORGE R. DEMPSEY, JR.
Mayor

Incorporated December 30, 1887

BOROUGH OF MANASQUAN
COUNTY OF MONMOUTH
NEW JERSEY 08736

732-223-0544
Fax 732-223-1300

BARBARA ILARIA
Municipal Clerk

JOSEPH R. DeIORIO
Municipal Administrator/
Chief Financial Officer

NOTICE TO APPLICANT FOR PLANNING BOARD HEARING

Members of the Manasquan Planning Board will individually conduct a Site visit of your property prior to the public hearing. This is necessary so they fully understand the case.

Your property will be visited during day light hours and the members will carry identification.

Please sign this notice and return it to our office along with your application.

Thank you in advance for your consent in this matter.

Union Avenue 33, LLC **Applicant**

33 Union Avenue, Manasquan, NJ **Address**

October , 2019 **Date**

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF LAND RESOURCE PROTECTION
Mail Code 501-02A, P.O. Box 420, Trenton, New Jersey 08625-0420
Telephone: (609) 777-0454 or Fax: (609) 777-3656
www.nj.gov/dep/landuse

PERMIT

In accordance with the laws and regulations of the State of New Jersey, the Department of Environmental Protection hereby grants this permit to perform the activities described below. This permit is revocable with due cause and is subject to the terms, conditions, and limitations listed below and on the attached pages. For the purpose of this document, "permit" means "approval, certification, registration, authorization, waiver, etc." Violation of any term, condition, or limitation of this permit is a violation of the implementing rules and may subject the permittee to enforcement action.

Approval Date
12/10/2020

Expiration Date
12/09/2025

Permit Number(s):	**Type of Approval(s):**	**Governing Rule(s):**
1327-19-0002.1 LUP200001 1327-19-0002.1 LUP190001	Flood Hazard Area Individual Permit Freshwater Wetlands Transition Area Waiver Flood Hazard Area Verification (Reissuance) Flood Hazard Area Verification (Riparian Zone only)	N.J.A.C. 7:13-1.1(b) N.J.A.C. 7:7A-1.1(a)

Permittee:

Union Avenue 3,3 LLC
126 Main St
Manasquan, NJ 08736

Site Location:

Block(s) & Lot(s): [66.02, 31.01]
Municipality: Manasquan Borough
County: Monmouth

Description of Authorized Activities:

This permit authorizes the construction of a residential development within the flood hazard area of Judas Creek, within Lot 31.01 of Block 66.02, in the Borough of Manasquan, Monmouth County. This permit also authorizes the total impact of 5,713 SF of transition area, under the Freshwater Wetland Transition Area Waiver for the development. This permit also includes a reissuance of the previously issued Flood Hazard Verification, under File#1327-19-0002.1 LUP190001, which verified the tidal flood hazard elevation onsite of 9' NAVD. This permit also verifies the regulated riparian zone along Judas Creek, as shown on the approved plans noted below.

Prepared by:

Chingwah Liang

Chingwah Liang

Received and/or Recorded by County Clerk:

If the permittee undertakes any regulated activity, project, or development authorized under this permit, such action shall constitute the permittee's acceptance of the permit in its entirety as well as the permittee's agreement to abide by the requirements of the permit and all conditions therein.

This permit is not valid unless authorizing signature appears on the last page.

STATEMENT OF AUTHORIZED IMPACTS:

The authorized activities allow for the permittee to undertake impacts to regulated areas as described below. Additional impacts to regulated areas without prior Department approval shall constitute a violation of the rules under which this document is issued and may subject the permittee and/or property owner to enforcement action, pursuant to N.J.A.C. 7:13-21.8; N.J.A.C. 7:7A-19.11

TAW - Special Activity Redevelopment	Permanent Disturbance (Acres)	Temporary Disturbance (Acres)
Freshwater wetlands	0	0
Transition areas	0.08	0.05
State open waters	0	0

Riparian Zone Vegetation	Area of riparian zone (Acres)
Permanent Disturbed	0
Temporary Disturbed	0.08

SPECIAL CONDITIONS:

1. All excavated material shall be disposed of in a lawful manner. For example, it should be placed outside of any flood hazard area, riparian zone, regulated water, freshwater wetland and adjacent transition area, and in such a way as to not interfere with the positive drainage of the receiving area.

2. For the purposes of this permit, the Department has determined that this project is not a Major Development as defined in the Stormwater Management rules at N.J.A.C. 7:8-1.2. Therefore, the Department did not review the proposed project for compliance with these rules.

3. In order to protect warmwater fish within Judas Creek, no grading, excavation, construction or clearing is permitted within 25 feet of any waters or watercourse onsite between **May 1st and July 31st**. In addition, any activity within the 100-year floodplain or flood hazard area of this watercourse or tributaries which would introduce sediment into said creek or which could cause more than a minimum increase in the natural level of turbidity is also prohibited anytime, but especially during this period. The Department reserves the right to require additional soil conservation measures if it becomes evident that additional soil conservation measures are required to protect State regulated resources or to suspend all regulated activities on-site should it be determined that the applicant has not taken proper precautions to ensure continuous compliance with this condition.

4. The decision to grant this permit did not include a structural review of the proposed activities with regard to the International Building Code; nor did it include a comparative review of any local flood ordinances which may apply. As such, the proposed structure/s may not fully comply with the provisions of the International Building Code or meet the requirements of the appropriate local flood ordinances. Consequently, the construction official for the municipality in which this project is located may reserve the right to modify the design of, or deny the erection of those structures which do not meet the appropriate flood ordinances or construction codes which are within local jurisdiction.

5. All foundations, slabs, footings and walls of the proposed structure/s shall be designed to resist uplift, flotation, collapse and displacement due to hydrostatic and hydrodynamic forces resulting from flooding up to an elevation of one foot above the flood hazard area design flood elevation. Furthermore, all structural components shall be designed to resist the same forces.

6. The floor elevation(s) as shown on the approved drawing(s) is the elevation of the lowest finished floor of the proposed building(s). The construction of any habitable area below this elevation, such as a basement, is prohibited.

7. Vegetation within 50 feet of the top of the bank shall only be disturbed in the areas specifically shown on the approved drawing/s. No other vegetation within 50 feet of the top of any stream bank onsite shall be disturbed for any reason.

8. Upon completion of the project, all temporarily disturbed areas within 50 feet of the top of any stream bank onsite shall be restored to original topography and replanted with indigenous, non-invasive vegetation in accordance with N.J.A.C. 11.2(z). In addition, the permittee shall cease mowing and maintaining the area depicted on the approved plans as the "no mow zone." This area shall be allowed to revert to a natural vegetative state.

9. Any additional un-permitted disturbance of freshwater wetlands, State open waters and/or transition areas besides that shown on the approved plans shall be considered a violation of the Freshwater Wetlands Protection Act Rules unless the activity is exempt or a permit is obtained from the Department prior to the start of the proposed disturbance.

10. The permittee will be responsible for the installation of a sediment barrier around all disturbed soils, which is sufficient to prevent the sedimentation of the remaining wetlands and transition area.

STANDARD CONDITIONS:

1. The issuance of a permit shall in no way expose the State of New Jersey or the Department to liability for the sufficiency or correctness of the design of any construction or structure(s). Neither the State nor the Department shall, in any way, be liable for any loss of life or property that may occur by virtue of the activity or project conducted as authorized under a permit.

2. The issuance of a permit does not convey any property rights or any exclusive privilege.

3. The permittee shall obtain all applicable Federal, State, and local approvals prior to commencement of regulated activities authorized under a permit.

4. A permittee conducting an activity involving soil disturbance, the creation of drainage structures, or changes in natural contours shall obtain any required approvals from the Soil Conservation District or designee having jurisdiction over the site.

5. The permittee shall take all reasonable steps to prevent, minimize, or correct any adverse impact on the environment resulting from activities conducted pursuant to the permit, or from noncompliance with the permit.

6. The permittee shall immediately inform the Department of any unanticipated adverse effects on the environment not described in the application or in the conditions of the permit. The Department may,

upon discovery of such unanticipated adverse effects, and upon the failure of the permittee to submit a report thereon, notify the permittee of its intent to suspend the permit.

7. The permittee shall immediately inform the Department by telephone at (877) 927-6337 (WARN DEP hotline) of any noncompliance that may endanger public health, safety, and welfare, or the environment. The permittee shall inform the Division of Land Resource Protection by telephone at (609) 777-0454 of any other noncompliance within two working days of the time the permittee becomes aware of the noncompliance, and in writing within five working days of the time the permittee becomes aware of the noncompliance. Such notice shall not, however, serve as a defense to enforcement action if the project is found to be in violation of this chapter. The written notice shall include:

   i. A description of the noncompliance and its cause;

   ii. The period of noncompliance, including exact dates and times;

   iii. If the noncompliance has not been corrected, the anticipated length of time it is expected to continue; and

   iv. The steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

8. Any noncompliance with a permit constitutes a violation of this chapter and is grounds for enforcement action, as well as, in the appropriate case, suspension and/or termination of the permit.

9. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the authorized activity in order to maintain compliance with the conditions of the permit.

10. The permittee shall employ appropriate measures to minimize noise where necessary during construction, as specified in N.J.S.A. 13:1G-1 et seq. and N.J.A.C. 7:29.

11. The issuance of a permit does not relinquish the State's tidelands ownership or claim to any portion of the subject property or adjacent properties.

12. The issuance of a permit does not relinquish public rights to access and use tidal waterways and their shores.

13. The permittee shall allow an authorized representative of the Department, upon the presentation of credentials, to:

   i. Enter upon the permittee's premises where a regulated activity, project, or development is located or conducted, or where records must be kept under the conditions of the permit;

   ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;

   iii. Inspect, at reasonable times, any facilities, equipment, practices, or operations regulated or required under the permit. Failure to allow reasonable access under this paragraph shall be considered a violation of this chapter and subject the permittee to enforcement action; and

iv. Sample or monitor at reasonable times, for the purposes of assuring compliance or as otherwise authorized by the Federal Act, by the Freshwater Wetlands Protection Act, or by any rule or order issued pursuant thereto, any substances or parameters at any location.

14. The permittee shall not cause or allow any unreasonable interference with the free flow of a regulated water by placing or dumping any materials, equipment, debris or structures within or adjacent to the channel while the regulated activity, project, or development is being undertaken. Upon completion of the regulated activity, project, or development, the permittee shall remove and dispose of in a lawful manner all excess materials, debris, equipment, and silt fences and other temporary soil erosion and sediment control devices from all regulated areas.

15. The permittee and its contractors and subcontractors shall comply with all conditions, site plans, and supporting documents approved by the permit.

16. All conditions, site plans, and supporting documents approved by a permit shall remain in full force and effect, so long as the regulated activity, project, or development, or any portion thereof, is in existence, unless the permit is modified pursuant to the rules governing the herein approved permits.

17. The permittee shall perform any mitigation required under the permit in accordance with the rules governing the herein approved permits.

18. If any condition or permit is determined to be legally unenforceable, modifications and additional conditions may be imposed by the Department as necessary to protect public health, safety, and welfare, or the environment.

19. Any permit condition that does not establish a specific timeframe within which the condition must be satisfied (for example, prior to commencement of construction) shall be satisfied within six months of the effective date of the permit.

20. A copy of the permit and all approved site plans and supporting documents shall be maintained at the site at all times and made available to Department representatives or their designated agents immediately upon request.

21. The permittee shall provide monitoring results to the Department at the intervals specified in the permit.

22. A permit shall be transferred to another person only in accordance with the rules governing the herein approved permits.

23. A permit can be modified, suspended, or terminated by the Department for cause.

24. The submittal of a request to modify a permit by the permittee, or a notification of planned changes or anticipated noncompliance, does not stay any condition of a permit.

25. Where the permittee becomes aware that it failed to submit any relevant facts in an application, or submitted incorrect information in an application or in any report to the Department, it shall promptly submit such facts or information.

26. The permittee shall submit written notification to the Bureau of Coastal and Land Use Compliance and Enforcement, 401 East State Street, 4th Floor, PO Box 420, Mail Code 401-04C, Trenton, NJ 08625, at least three working days prior to the commencement of regulated activities.

27. The permittee shall record the permit, including all conditions listed therein, with the Office of the County Clerk (the Registrar of Deeds and Mortgages, if applicable) of each county in which the site is located. The permit shall be recorded within 30 calendar days of receipt by the permittee, unless the permit authorizes activities within two or more counties, in which case the permit shall be recorded within 90 calendar days of receipt. Upon completion of all recording, a copy of the recorded permit shall be forwarded to the Division of Land Resource Protection at the address listed on page one of this permit.

APPROVED PLAN(S):

The drawing(s) hereby approved consist of three (3) sheet(s) prepared by Engenuity Infrastructure, dated and last revised as noted, entitled:

"TAX BLOCK 66.02, LOT 31.01, BOROUGH OF MANASQUAN, MONMOUTH COUNTY, NEW JERSEY"

"FLOOD HAZARD AREA PERMITTING PLAN", sheet 1 of 1, dated May 26, 2020, last revised October 29, 2020,

"MAJOR SITE PLAN", sheet 3 of 6, dated October 28, 2019, last revised October 19, 2020,

"TRANSITION AREA WAIVER PLAN", sheet 1 of 1, dated May 26, 2020, unrevised.

APPEAL OF DECISION:

Any person who is aggrieved by this decision may submit an adjudicatory hearing request within 30 calendar days after public notice of the decision is published in the DEP Bulletin (available at www.nj.gov/dep/bulletin). If a person submits the hearing request after this time, the Department shall deny the request. The hearing request must include a completed copy of the Administrative Hearing Request Checklist (available at www.nj.gov/dep/landuse/forms.html). A person requesting an adjudicatory hearing shall submit the original hearing request to: NJDEP Office of Legal Affairs, Attention: Adjudicatory Hearing Requests, Mail Code 401-04L, P.O. Box 402, 401 East State Street, 7th Floor, Trenton, NJ 08625-0402. Additionally, a copy of the hearing request shall be submitted to the Director of the Division of Land Resource Protection at the address listed on page one of this permit. In addition to your hearing request, you may file a request with the Office of Dispute Resolution to engage in alternative dispute resolution. Please see www.nj.gov/dep/odr for more information on this process.

If you need clarification on any section of this permit or conditions, please contact the Division of Land Resource Protection's Technical Support Call Center at (609) 777-0454.

Approved By:

Digitally signed by dennis contois
Date: 2020.12.10 16:22:58 -05'00'

Dennis Contois
Supervisor
Division of Land Resource Protection

c: Municipal Clerk,
Municipal Construction Official,
Agent (original)

ENGENUITY
INFRASTRUCTURE

ENGenuity Infrastructure™
2 Bridge Avenue, Suite 323, Red Bank, NJ 07701
732.741.3176 | engenuitynj.com

SEPE-00010 October 19, 2020

Attn: Mary Salerno, Secretary
Manasquan Borough Planning Board
201 East Main Street
Manasquan, New Jersey 08736

Re: Boro File No. MSPB-R1170
Site Plan – Union Avenue 33, LLC
Block 66.02, Lot 31.01
33 Union Avenue
AR-2 Affordable Housing
Borough of Manasquan, Monmouth County, NJ

Dear Ms. Salerno:

Please accept this letter in response to the Planning Board Engineer, Albert Yodakis, PE, PP. memo dated February 13, 2020. And the Fire Marshal review dated January 24, 2020. We offer the following responses for the Board's consideration; the Board Engineer's comments are in *italics* and our comments are in **bold**:

Project Description

As per your request, I have reviewed the above-referenced application in accordance with the provisions of the Borough Land Development Ordinance. The documents reviewed in conjunction with this application include:

1. *Preliminary and Final Major Site Plan prepared by Jaclyn Flor, PE, PP, of Engenuity Infrastructure, LLC, dated October 28, 2019.* **Updated plans last revised October 19, 2020 submitted herewith.**

2. *Architectural Layout and Elevations prepared by Michael Monroe, RA, dated July 30, 2019.* **Updated Architecural plans dated June 18, 2020, last revised October 7, 2020 prepared by Appel Design Group submitted herewith.**

3. *Stormwater Management Report prepared by Jaclyn Flor, PE, PP, of Engenuity Infrastructure, LLC, dated October 28, 2019.* **Updated report dated July 20, 2020 submitted herewith.**

4. *Boundary & Topographic Survey prepared by James Heiser, PLS, of DPK Consulting, dated August 6, 2018.* **Last revised on December 16, 2020.**

5. *Traffic and Parking Evaluation prepared by Lee Klein, PE, PTOE, of Klein Traffic Consulting, LLC, dated June 18, 2019.*

Attn: Mary Salerno, Secretary
Manasquan Borough Planning Board
Re: Boro File No. MSPB-R1170
Site Plan – Union Avenue 33, LLC
Block 61.01, Lot 31.01
33 Union Avenue
AR-2 Affordable Housing
Borough of Manasquan, Monmouth County, NJ

The property is located in the AR-2 Affordable Housing Zone with frontage on Union Avenue. With this application, the applicant is proposing to construct an approximately 24,667 square foot **12,975 SF***, three story* **three and half story***, apartment building, with 23 total units described as follows:*

Market Rate Units	*- One Bedroom*	*3*	**2**
	- Two Bedroom	*7*	**12**
	- Three Bedroom	*4*	**0**
Affordable Housing	*- One Bedroom*	*1*	**2**
	- Two Bedroom	*4*	**5**
	- Three Bedroom	*4*	**2**

The application is deemed complete as of February 13, 2020. **Informational.**

The following are our comments and recommendations regarding this application:

Zoning

1. *The property is located in the AR-2 Affordable Housing Zone. The proposed multi- unit residential use of is permitted in the zone.* **Informational.**

2. *The AR-2 Zone was created for this project as part of a settlement agreement with the borough and zoning standards which reflect the layout are included as part of the agreement. The following items were shown as proposed on the settlement exhibits. These standards are normally requirements for this type of multi-unit project, but are not met with this application:*

3.

a. *A minimum parking space size of 9'x19' is required, whereas 9'x18' spaces are proposed.* **A design waiver is requested from this design standard. The parking space dimensions comply with R.S.I.S.**

b. *A minimum 80 square feet of exterior deck porch or patio is required for each unit, whereas exterior decks are proposed for eighteen of the twenty three units.* **Section 8 of the AR-2 zoning ordinance provides that section 35-7.9(b) and 35-7.9(e) shall not apply.**

c. *A minimum of 80 square feet of storage space is required for each apartment, whereas no dedicated storage space is provided. Common storage space is proposed on the first floor but the applicant should explain how these spaces will*

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be utilized and divided between the units. **Testimony shall be provided regarding same.**

4. *The settlement agreement outlines allowable exterior material for the proposed building. The architectural plans should be detailed to demonstrate conformance with this requirement.* **The plans have been revised to include same.**

5. *The architectural floorplan/parking layout differs from the engineer's site plan. The correct layout must be clarified.* **The plans have been revised to address the discrepancy.**

6. *The building height is measured from the top of curb per the borough ordinance. The applicant's engineer should confirm that this was the basis utilized for the building height measurement.* **The building height of 40'-0" was measured from 1 ft above the base flood elevation (BFE 9.0) to the highest point on the structure consistant with the revision to the AR-2 Ordinance.**

Drainage/Utilities

7. *It is our understanding that the NJDEP has indicated that the proposed location of the bioretention area is unacceptable in relation to the adjacent stream. The drainage plan and calculations must be revised and resubmitted to conform to any DEP requirements for their permits.***We have revised the Grading and Drainage plans to show an underground stormwater detention system in leu of a biorientation basin. The underground stormwater detention system is set more than 1 foot above the seasonal highwater table (SHWT). All previous references to a bioretention system have been removed from the plans.**

8. *The drainage calculations must be revised to show pre and post development flows and demonstrate there will be no increase in flows for the 2, 10 and 100 year design storms. The calculations must also demonstrate that the system will drain within 72 hours.* **We have provided pre and post development hydrographs for the site. The proposed condition decrease peak stormwater runoff rates for the the 2, 10, and 100 year storm events.**

9. *Infiltration cannot be utilized for the sizing of the proposed recharge system.* **The infiltration for the proposed underground recharge has been excluded from the runoff hydrographs. Therefore, the volume of the underground recharge does not consider infiltration for sizing.**

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10. *The rainfall intensity for the 100 year storm should be 8.94 in/hr per the Monmouth County Rainfall Frequency Data.* **The Monmouth County 24 hour rainfall frequency data has been used for the computation of the runoff hydrographs in the revised stormwater report. Precipitation values for the storm events include: 2-year 3.38 in, 10-year 5.23 in, and 100-year 8.94 in.**

11. *A two foot separation from the bottom of the basin to the seasonal high water table should be shown.* **Based upon the groundwater seepage encountered in the soil borings the seasonal high water table (SHWT) is less than elevation 3.0. The bottom of the stone in the underground recharge system is provided at elevation 4.0, therefore meeting the minimum 1 ft separation requirement for underground detention without infiltration.**

12. *The sizing of the 8" pvc pipe to the proposed basin should be shown in the drainage calculations. End treatment and outlet protection for the pipe should also be shown and details provided.* **This Outlet pipe has been removed from the plans. All stormwater from the underground system will be discharged into the storm sewer system located along Union Avenue.**

13. *There is only one proposed outlet to the basin which appears to collect all of the roof gutters for the entire project. An additional collection pipe for the opposite side of the building may be necessary. If an additional pipe and outlet are proposed, sizing and outlet protection will be necessary.* **All roof leader downspouts will be internally piped into the underground stormwater detention system.**

14. *Roof drain overflows at grade with slotted covers should be provided and a detail provided.* **Emergency roof leader overflows will be provided for each downspout location. A detail showing a wye connection with a grade has been provided on the construction plans.**

15. *A stormwater maintenance manual for the perpetual maintenance of the entire stormwater system should be provided for review.* **Stormwater maintenance requirements have been provided on detail sheet (CD-2) for the underground detention system.**

16. *The proposed sanitary sewer connection point should be clarified as it appears to terminate in the proposed parking area.* **The proposed sanitary sewer connection point has been revised to show a connection to the proposed building. Additionally, a cleanout, with a brass cap has also been provided within the public right-of-way between the curb and sidewalk.**

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17. *Specifications on the bioretention soil mix must be provided. Any specifics on the subgrade treatment (non-compacted, etc.) should also be indicated on the detail.* **The drainage design has been revised to remove the biorientation system. This comment is no longer applicable.**

Traffic

18. *Applicable sight triangles should be shown on the plan.* **An exhibit has been provided showing same.**

19. *Fire lanes and marking should be provided per the borough fire inspector.* **The plan has been revised to include Fire lane and markings.**

20. *The applicant's traffic engineer should be prepared to discuss the proposed traffic functioning of the site and the site's impact on the surrounding roadways during the summer months.* **The Applicant's Traffic Engineer, Lee Klein, PE, PTOE, shall provide testimony.**

Landscaping/Lighting

21. *I suggest additional plantings be provided on the sides of the proposed building.* **The landscape plan were revised to provide plantings on the side of the building that is not within the wetlands buffer.**

22. *A revised landscaping plan must be provided once the drainage improvements have been revised per the NJDEP requirements.* **The Landscape plan has been revised.**

23. *The light spillage onto the adjacent lot in the north east corner of the property must be addressed. The lighting plan should be revised accordingly.* **The Lighting plan has been revised.**

24. *Details for the trash enclosure and gate must be provided.* **The Trash enclosure room is located within the building on the first floor elevation. The details for same are shown on the architectural floor plans.**

Miscellaneous

25. *Proposed spot elevations should be provided for the proposed handicap ramps to demonstrate compliance with ADA requirements.* **The plans have been revised to provide spot elevations for all ADA accessible spaces and ramps.**

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26. *Details for the improvements within the NJDOT right-of-way must be included on the plan.* **Details have been provided for all improvements within the NJDOT right-of-way (CD-1).**

27. *All new utilities are proposed to be located underground.* **Confirmed. A note has been added to the construction plan, see general note #9.**

28. *Any trees which will be removed as part of the application should be shown on the plan.* **All trees to be removed are shown on the landscaping plan (LS-1).**

29. *Any sidewalk must be replaced as necessary on Union Avenue* **The plans have been revised to show curb and sidewalk replacement on Union Avenue (sheet CD-1).**

30. *All necessary outside agency approvals must be obtained for this project. These may include, but not be limited to the following:*
    a. Monmouth County Planning Board
    b. NJDOT Access Permit
    c. NJDEP
    d. Freehold Soil Conservation District

    All required approvals will be provided to the Board

Fire Marshals Review letter dated 1/24/20

1. *We would like to ensure that the proposed structure is fully suppressed, including any exterior porch, balcony, or covered area.* **The building will be fully suppressed including any exterior porch, balcony, or any covered area. A dedicated 4" diameter ductile iron fire service will be provided to service the buildings fire suppression system.**

2. *We would also like to ensure that the water mains in the area are capable of supplying an adequate flow for fire suppression operations in a building of that size.* **Testimony will be provided that a hydrant flow test will be conducted on a nearby hydrant that is connected to the Union Avenue water main. This flow test will be coordinated with the Manasquan Fire Department**

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AR-2 Affordable Housing
Borough of Manasquan, Monmouth County, NJ

Should you have any questions or require any additional information, please do not hesitate to contact this office.

Sincerely,

Jaclyn J. Flor, PE, PP, CME
President & CEO

cc: