

BOROUGH OF BERGENFIELD
APPLICATION FOR SITE PLAN APPROVAL

1. Applicant's name 40 Hickory Sixboro, LLC Phone (H) _____
(B) (201)239-6484
Applicant's address 95 River Street, Suite 301, Hoboken, NJ 07030
2. Name of present owner, if other than #1 _____
See attached.
3. Location of property 40, 44, 46 and 48 Hickory Avenue
4. Block(s) 30 Lot(s) 9, 10, 10.01 and 11 Zoning district R-6
5. Structural plans Yes ___ No x Front Elevation Yes x No ___
6. Name of development, if any To be determined
7. Are all lots to be approved owned by same person,
corporation, or partnership? Yes ___ No x
8. If answer to #7 is no, give names of all owners. _____
See attached Rider
9. Proposed uses of land and buildings
A. Multiple family dwelling structures x
Number of dwelling units 22
B. Commercial Use _____ C. Industrial Use _____
D. Other _____
10. If 1, 2 or 9 is in the name of a partnership or
corporation, list name and address of the attorney who
will represent the applicant. Nylema Nabbie, Esq., Cleary Jacobbe Alfieri
Jacobs, LLC, 169 Ramapo Valley Road, Phone (973)845-6700
Oakland, NJ 07436
11. Name of architect/engineer/surveyor Gerry Gesario, PE, Jarmel Kizel Architects
and Engineers Address 42 Okner Parkway, Livingston, NJ 07039
Phone (973)994-9669
12. Name & Address of site planner if other than #11 _____
To be determined Phone _____
13. Land area sq. ft. See Rider Landscape area sq. ft. _____
Impervious surface area sq. ft. _____
14. Building area sq. ft. _____ structure height 41.54' and 42.94'
stories 3
15. Parking spaces required 52 parking spaces
provided 40

16. Parking space dimensions, Width _____ Length _____ Driveway
aisle width _____ Angle of parking: Parallel _____ 45
_____ 60 _____ 90 _____ n/a
17. Loading space(s) required n/a Proposed loading
spaces n/a
18. Loading space dimensions Width n/a Length _____
19. Are any new signs proposed Yes _____ No x
20. Existing signs, None x Will Remove _____ To Remain
_____ Renovate _____
21. Are there any deed restrictions in force on this
property? Yes _____ No x If yes, include a copy
of the deed. Not to the applicant's knowledge
22. Is this or any part of this property in flood zone?
Yes _____ No x Not to the Applicant's knowledge
23. Does this property border any county road? Yes _____ No x
24. Are there presently any utilities to this property?
Gas, x Electric, x Storm drains, x
Telephone, x Cable TV, x Sanitary Sewers, x
25. Is this property within 200' of any other municipality?
Yes _____ No x
26. Are any variances required because of this application?
Yes x No _____
27. If answer to #26 was yes, state all variances required. See Rider
Use (d)(1) use variance Lot area _____ Lot frontage _____
Front yard _____ Side yard _____ Rear Yard _____
Total side yard _____ Parking _____ Buffer _____
Other _____
28. Has a previous variance application been filed on this
property? Yes _____ No x Not to the Applicant's knowledge
29. Is this application filed because of existing zoning
violation? Yes _____ No x

All questions must be answered or this application may be
deemed to be incomplete.

I, certify the above information and documents accompanying
this application are true. (Willfully false statements are in
violation of the law).

Nylema Nabbie, Esq. / 5/26/21 / See attached affidavits /
Signature of Applicant Date Signature of Owner if Date
Nylema Nabbie, Esq. other than applicant
Attorney for Applicant

Rider to Application for Site Plan Approval

This Rider is made a part of the Application for Site Plan Approval (the "Application") filed by the Applicant, 40 Hickory Sixboro, LLC, in connection with property known as 40, 44, 46 and 48 Hickory Avenue, Bergenfield, NJ, also known as Lots 9, 10, 10.01 and 11 in Block 30. This Rider is in addition to and supplements the information contained in the Application, as follows:

7. With regard to item no. 7 on the Application, the lots are owned by the following:

Block 30, Lot 9: Peter and Maria Petrillo
40 Hickory Avenue
Bergenfield, NJ 07621

Block 30, Lot 10: Petrillo, et als.
667 Blue Hill Road
River Vale, NJ 07675

Block 30, Lot 10.01: Pietro and Maria Petrillo
46 Hickory Avenue
Bergenfield, NJ 07621

Block 30, Lot 11: Maria C. Petrillo
48 Hickory Avenue
Bergenfield, NJ 07621

9. This Rider will supplement no. 9 on the Application. The Applicant is proposing a townhouse development consisting of 18 units and a garden apartment consisting of 4 garden apartments. Four of the units will be affordable. A total of 40 parking spaces are proposed in connection with the subject development. As depicted in Drawing No. C-200 of the plan prepared by Jarmel Kizel, existing improvements, as set forth in that drawing, will be removed by the Applicant in order to accommodate the proposed development. The affordable housing units consist of one one-bedroom unit, two two-bedroom units and one three-bedroom unit.
13. With regard to item no. 13 regarding the land area square footage, the site will consist of 38,578± SF. As to landscaping, see Drawing C-600 of the Jarmel Kizel plan depicting landscaping, including landscaping on the property lines and the plant schedule, which is to include, but is not limited to, 177 American arborvitaes, in order to provide screening.
16. With regard to parking, the 18 townhome units will have two parking spaces each, one in the garage and one in the driveway. A total of 40 parking spaces are proposed, of which 22 spaces will be exterior spaces and 18 parking spaces will be covered parking spaces. The affordable units will have four exterior parking spaces, consisting of one exterior space per affordable unit.

27. The property is located in the R-6 Zone District within the Borough of Bergenfield, where the proposed townhouse development and affordable housing project is not permitted, triggering a variance pursuant to N.J.S.A. 40:55d-70(d)(1). Any and all bulk deficiencies are subsumed in the (d)(1) variance. With regard to the proposed setbacks, the front yard setback that is proposed is 9.1 feet, the rear yard setback is 11.1 feet, right yard setback is 10 feet, left yard setback is 10 feet, and total side yard is 20 feet. To the extent required by the Board or its professionals, the Applicant will seek variances for floor area ratio pursuant to N.J.S.A. 40:55D-70(d)(4) and density pursuant to N.J.S.A. 40:55D-70(d)(5). The Applicant will seek preliminary and final site plan approval and a de minimis parking exception pursuant to RSIS to permit 40 spaces vs. 52 spaces required.

The documents included as part of the Application are as follows:

- Site Plan prepared by Gerard P. Gesario, PE, of Jarmel Kizel Architects and Engineers, Inc., 42 Okner Parkway, Livingston, NJ 07039, dated December 7, 2020, revised to January 21, 2021, consisting of the following:
 - Drawing C-001: Cover Sheet;
 - Drawing C-002: Property Owners Within 200 Feet;
 - Drawing C-100: Existing Conditions Plan;
 - Drawing C-200: Demolition Plan;
 - Drawing C-300: Site Layout and Utility Plan;
 - Drawing C-400: Grading and Drainage Plan;
 - Drawing C-600: Landscape Plan;
 - Drawing C-700: Lighting Plan;
 - Drawing C-800: Soil Erosion and Sediment Control Plan;
 - Drawing C-810: Soil Erosion and Sediment Control Details;
 - Drawing C-900: Detail Sheet;
 - Drawing C-901: Detail Sheet;
 - Drawing C-902: Detail Sheet;
 - Drawing C-903: Detail Sheet; and
 - Drawing C-902: Detail Sheet.
- Architectural Plan prepared by Matthew B. Jarmel, AIA, of Jarmel Kizel Architects and Engineers, Inc., dated October 29, 2020, revised to January 21, 2021, consisting of the following:
 - Drawing SD-100: Townhouse Development Site Layout;
 - Drawing SD-101: Building A Floor Plans;
 - Drawing SD-102: Building B Floor Plans;
 - Drawing SD-110: Unit Floor Plans;
 - Drawing SD-111: Unit Floor Plans;
 - Drawing SD-200: Building Elevations – 1 of 2; and
 - Drawing SD-201: Building Elevations – 2 of 2.

- Building A Front Elevation Rendering (Drawing SD-001: Building Exterior Rendering), prepared by Matthew B. Jarmel, AIA, dated January 21, 2021.
- Building A Front Elevation Rendering (Drawing SD-002: Building Exterior Rendering), prepared by Matthew B. Jarmel, AIA, dated January 21, 2021.

AFFIDAVIT OF OWNERSHIP

STATE OF NEW JERSEY,
COUNTY OF BERGEN

SS:

Pietro Petrillo of full age, duly sworn
according to the law, deposes and says that he resides at
667 Blue Hill Road in the Borough of River Vale
in the County of Bergen in the State
of New Jersey that he is the owner in fee of real
property lying in the Borough of Bergenfield, known and
designated as number 40,44 & 46 Hickory Avenue and that he
hereby authorizes 40 Hickory Six Boro, LLC to make the
within application in his behalf and that the statements in
the said application are true.

SWORN TO BEFORE ME THIS 26th
DAY OF May 2021

Pietro Petrillo
Owner
Pietro Petrillo

Dennis J. Francis, ESQ
Notary Public
Dennis J. Francis, ESQ

Note: All partnerships and corporations must supply a list of
stockholders with a 10% or greater share. They must also be
represented by an Attorney at the hearing.


AFFIDAVIT OF OWNERSHIP

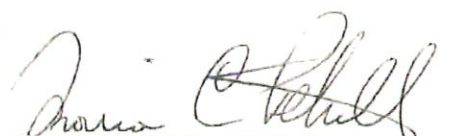
STATE OF NEW JERSEY,
COUNTY OF BERGEN

SS:

Maria C. Petrillo of full age, duly sworn
according to the law, deposes and says that he resides at
48 Hickory Avenue in the Borough of Bergenfield
in the County of Bergen in the State
of New Jersey that he is the owner in fee of real
property lying in the Borough of Bergenfield, known and
designated as number 48 Hickory Avenue and that he
hereby authorizes 40 Hickory Sixboro, LLC to make the
within application in his behalf and that the statements in
the said application are true.

SWORN TO BEFORE ME THIS 26th
DAY OF May 2021


Notary Public
Dennis J. Francis, c.s.g.


Owner
Maria C. Petrillo

Note: All partnerships and corporations must supply a list of
stockholders with a 10% or greater share. They must also be
represented by an Attorney at the hearing.



BOROUGH OF BERGENFIELD

198 NORTH WASHINGTON AVENUE
BERGENFIELD, NEW JERSEY 07621

CONSTRUCTION CODE DEPT.

(201) 387-4055 EXT. 1-4092

FAX: (201) 385-7376

March 22, 2021

Sixboro Holdings
40, 44, 46 and 48 Hickory Ave
Bergenfield, NJ 07621

RE: 18 unit townhouse development and garden apartments

Dear Mr/Mrs Petrillo

Your application for the 18 unit townhouse development and 4 garden apartments has been denied for the following reason:

- | | |
|---|---|
| 1) Change of use from R-5 & R-6 to Multifamily | |
| 2) Max lot coverage of 20%, 6,967 ft | Proposed lot coverage 42%, 14,700ft |
| 3) Max improved lot coverage of 65%, 22,642.75 ft | Proposed improved lot coverage of
85.6%, 29,820 ft |
| 4) Required front yard setback is 35 ft | Proposed is 13 ft 1 ¼ in |
| 5) Required side yard coverage is 25 ft | Proposed is 12 ft 11in. |
| 6) Required side yard coverage is 25 ft | Proposed is 10 ft. |
| 7) Required total side yard is 50 ft | Proposed total is 22 ft 11 in |
| 8) Required rear yard is 25 ft | Proposed is 9 ft 1 ½ in |
| 9) Maximum Building height 40 ft | Proposed building ht is 42 ft, 4 & 1/16 in |

You have the right to appeal my decision to the zoning board of adjustment. You must contact the Building Department to obtain the proper applications.

If you have any question on the above matter, please contact our office. You can call the Building Department at 201-387-4055 Ext. 4

Sincerely,

Michael Ravenda
Zoning Officer

tbz

Borough of Bergenfield
Site Plan Committee Minutes
March 8, 2021

1. Call to Order

The meeting was called to order at 7:00 PM

2. Roll Call:

	<u>Robert Rivas</u>	<u>Robert Mader</u>	<u>Chris Naylis</u>
		<u>John Pampaloni</u>	<u>Michael Ravenda</u>
<u>Scott Jezequel</u>	<u>Joseph Scalora</u>		<u>Hernando Rivera</u>
<u>Perry Sulich</u>	<u>Lou Turso</u>		

3. Item 1.

Sixboro Holdings
40 Hickory Avenue
Bergenfield, NJ 07621

Site Address 40, 44, 46, 48 Hickory Avenue
Seeks to build 18 unit Townhouse with 4 affordable rental units Seeking Use Change, and 5 bulk variances.

Attorney: Nylema Nabbie
Cleary-Giacobbe-Alfieri-Jacobs LLC
169 Ramapo Valley Road UL 105
Oakland, NJ 07436
973-845-6700 FAX 201-644-7601
nnabbie@cgajlaw.com

Architect: Matthew B. Jarmel
Jarmel Kizel Architects and Engineers, Inc.
42 Okner Parkway
Livingston, NJ 07039
973-994-9669 FAX 973-994-4069
www.jarmelkizel.com

Engineer: Gerard P. Gesario PE
Jarmel Kizel Architects and Engineers, Inc.
42 Okner Parkway
Livingston, NJ 07039
973-994-9669 FAX 973-994-4069
www.jarmelkizel.com

Open Meeting:

Joe Scalora opened the meeting at 7:00PM

Brian Chewcaskie:

Bruce presented the project and gave a brief yet detailed synopsis. He turned it over to Gerard Gesario from the Engineering firm

Gerard Gesario from Jarmel Kizel covered the following points:

- Description of lot size just under 39,000sqft
- Location of proposed building
- Storm water management system
- Fire Hydrant location, rear of driveway
- Underground utilities

Matthew Jarmel the architect for the project gave a description of the building:

- Approximately 1900 sqft per unit
- Above average finishes in and out
- Azak trim
- Cementous siding
- Price point is \$500,000

The meeting was opened up for comments from board members

Joe Scalora:

- Questions visitor parking spaces
- Height of building is well over limit
- Lot coverage was over limit

Matthew Jarmel:

- The height of the building on the plans is to the top of the ridge, if measured to the mean height of the roof it becomes very close to the 35 Limit for a R-M use.
- Overflow visitor parking will have to be on Hickory Avenue

John Pampaloni:

- Concerned about overwhelming the school system
- Townhomes do not fit into the area
- Any consideration given to single family homes
- Concerned about drastic changes to neighborhood and changing the character of the town.
- Questioned snow removal

- Questioned trash pick up, borough garbage trucks will not enter private property. They would need to put borough trash bins on the curb or have private garbage collection.

Edwin – Sixboro Holdings, LLC Applicant :

- When designing the building they were careful not to propose a large multi family building that would not be attractive.
- The new townhomes proposed are 2 bedroom and would not add a huge burden on the school system
- The new townhomes would add ratables
- They added the 4 affordable rental units to help Bergenfield residents
- They would have a HOA set up if the project went through.
- They have no formal plan for snow or sanitation, but are not opposed to private sanitation. If the snow needed to be removed, the maintenance contractor would handle it.

Perry Sulich:

- Questioned the door sizes and stairwell and hallway dimensions in regards to EMT bringing people in or out.
- Expressed concern and thought project is “over building” Bergenfield

Matthew Jarmel:

- Entry doors will be 36”
- Hallways and stairwells will be 42”

William Schmidt – Applicant:

- The townhome units will be sold, only the 4 affordable units will be rentals.
- The townhomes will provide entry level housing for professionals and perhaps current Bergenfield residents that want to own their own home.

Joe Scalora:

- Will the buildings have elevators?

Matthew Jarmel:

- The buildings are single family units and are not required to have an elevator.

Edwin – Applicant:

- With the price point in the \$ 500,000 range, it will be affordable to existing Bergenfield residents.

Chris Naylis:

- Questioned type of construction and construction materials
- Floor joists, roof trusses
- Will attics be separated?

- 150' maximum distance for fire truck without a turn around
- Fire hydrant at rear of property, should be closer to Hickory
- Consider flow requirements at hydrant
- Sprinkler system with a FDC at Hickory is what the FD would prefer
- Eliminate 2 rear units to accommodate turn around.

Matthew Jarmel:

- I will discuss all the recommendations with my client
- The attic spaces will be separated

Mike Ravenda Construction Official:

- The first variance needed is to change the zoning from R-5 to R-M,
- The zoning requirements for the R-M use are very different from those of an R-5, the front yard set back is 35', the side and rear setbacks are 25' and the lot coverage is 20%
- The density is 12 units per acre
- The applicant needs to look at Article VII in Chapter 186 which covers all the requirements for an R-M zone.

Brian Chewcaskie:

- He and his clients are aware of the variances needed

Robert Mader BPD:

- Concern over adequate lighting around all sides of the buildings
- Emphasized no overnight street parking
- Concerned over increased traffic close to existing intersections

Mike Ravanda:

- The lighting requirements are covered in Article VII in Chapter 186

Lou Turso:

- Fire hydrant connections are to 4" national standard
- Move hydrant to Hickory Avenue
- Hydrant must be red, not yellow

Richard Morf:

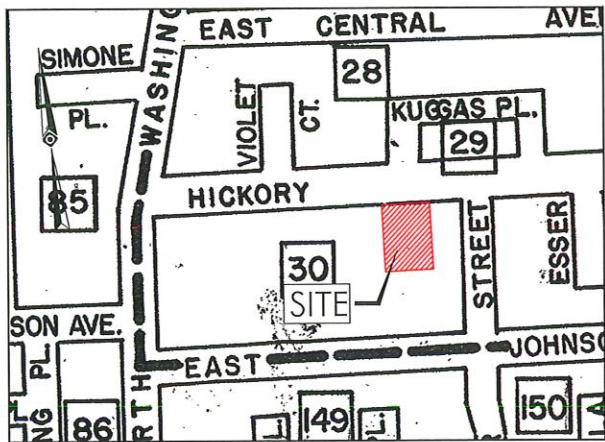
- Project is too large for area
- Opposed to granting use variance
- Project belongs in B-1 B-2 or R-M Zones
- Too many variances needed

Brian Chewcaskie:

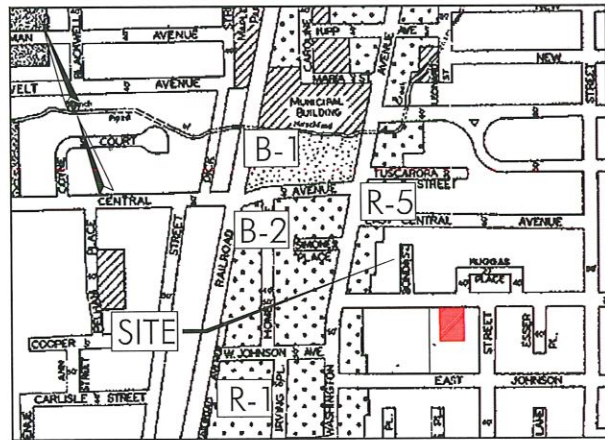
- Brian thanked everyone for their time and input. Their team will address all the concerns and technical issues raised by the committee.

Summary:

- Overall, the members were opposed to the project based on density, size and the variances needed.
- The Fire Department had major issues with the travel distance for equipment, without a turn around.
- The Fire Department would like to see the buildings reduced in size and would like to see a sprinkler system installed, with a FDC at Hickory Avenue.
- The general consensus of the committee is that they encourage development, but development which is consistent with a R-5, R-6 Zone



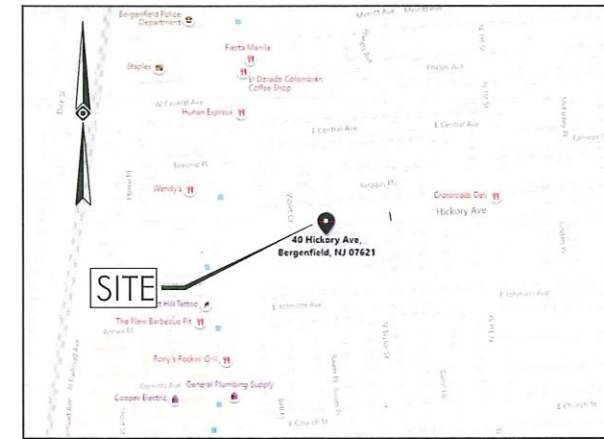
TAX MAP
SCALE : 1"=200'



ZONING MAP
SCALE : 1"=400'

PRELIMINARY / FINAL SITE PLAN FOR TOWNHOUSE DEVELOPMENT

40, 44, 46 & 48 HICKORY AVENUE
BOROUGH OF BERGENFIELD, BERGEN COUNTY, NEW JERSEY
BLOCK 30, LOTS 9, 10, 10.01 & 11



LOCATION MAP
SCALE : 1"=400'

ZONING SCHEDULE									
BLOCK 30, LOTS 9, 10, 10.01 & 11									
Bulk Regulation	Requirement	Existing	Existing	Existing	Existing	Existing	Existing	Existing	Proposed
Units	R-6	Block 30, Lot 9	Block 30, Lot 10	Block 30, Lot 10.01	Block 30, Lot 11	Block 30, Lot 10.01	Block 30, Lot 11	Block 30, Lot 10.01	Block 30, Lot 11
Principal Permitted Uses	See Note 2	1 1/2 Story Frame Dwelling	2 Story Frame Building	2 Story Masonry & Frame Dwelling	2 Story Frame Building	2 Story Masonry & Frame Dwelling	2 Story Frame Building	2 Story Masonry & Frame Dwelling	Townhouse Development & Affordable Housing
Min. Lot Area	Square Feet	6,000	4,676	18,078	11,703	18,078	11,703	18,078	38,578
Min. Lot Width	Feet	60	45.40	79.94	90.40	79.94	90.40	79.94	165.34
Min. Lot Depth	Feet	NR	103.00	233.10	129.22	233.10	129.22	233.10	232.22
Min. Front Yard	Feet	25	19.83	33.16	7.83	33.16	7.83	33.16	9.1
Min. Side Yard Setback	Feet	8	4.40	12.00	6.58	12.00	6.58	12.00	10.0
Min. Rear Yard Setback	Feet	25	47.00	170.00	105.00	170.00	105.00	170.00	11.1
Maximum Building Coverage	%	30	26.80	8.60	4.90	8.60	4.90	8.60	71.30
Max. Building Height	Stories	2	1.5	2	2	2	2	2	3
Max. Building Height	Feet	30	25' ±	26.83 ±	29.1	26.83 ±	29.1	26.83 ±	41.54, 42.94

Abbreviations	
C	Conforms
ENC	Existing Non Conformance
NR	No Requirement
V	Variance Required
Notes:	
1	Codes are based on Town of Bergenfield, Ordinance Article VI General Zoning Regulations.
2	Codes are based on Town of Bergenfield, Ordinance § 186-37 Schedule A: R-6 Residential
3	Codes are based on Town of Bergenfield, Ordinance § 186-63.2. Affordable Housing
4	Building Height is from the Normal Grade Average Elevation 93.3.

PARKING REQUIREMENTS:	
Code based on R.S.I.S.	
RESIDENTIAL MINIMUM PARKING SPACES REQUIRED	
Townhouse	
3 Bedroom = 18	x 2.4 space/bedroom = 43.2
Garden Apartment	
1 Bedroom = 1	x 1.80 space/bedroom = 1.80
2 Bedroom = 2	x 2.00 space/bedroom = 4.00
3 Bedroom = 1	x 2.10 space/bedroom = 2.10
Total Spaces Required = 51.10 = 52	
Total Spaces Provided = 40	
PARKING BREAKDOWN	
Exterior	22
Covered	18
Total	40

PROJECT CONTACTS

OWNER:
PETER PETRILLO
MARIA PETRILLO
MARIA C. PETRILLO
40-48 HICKORY AVENUE
BERGENFIELD, NJ 07621

APPLICANT:
40 HICKORY SWBORO, LLC
95 RIVER STREET, SUITE 301
HOBOKEN, NJ 07030

LAND USE ATTORNEY:
NYLEMA NABBIE, ESQ.
CLEARY GACOBBE ALFIERI JACOBS LLC
169 RAMAPO VALLEY ROAD, UL 105
OAKLAND, NEW JERSEY 07436

ENGINEER:
GERARD P. GESARIO, PE
JARMEL KIZEL ARCHITECTS AND
ENGINEERS, INC.
42 OKNER PARKWAY
LIVINGSTON, NJ 07039

ARCHITECT:
MATTHEW B. JARMEL, AIA
JARMEL KIZEL ARCHITECTS AND
ENGINEERS, INC.
42 OKNER PARKWAY
LIVINGSTON, NJ 07039

PRELIMINARY / FINAL SITE PLAN OF:
"TOWNHOUSE DEVELOPMENT"
BLOCK 30, LOTS 9, 10, 10.01, 11

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

(MUNICIPAL ENGINEER)

APPROVED BY THE ZONING BOARD

(CHAIRMAN)

(SECRETARY)

(DATE)

(DATE)

(DATE)

DRAWING INDEX

SHEET NO.	DRAWING NO.	DRAWING NAME	DATE	LAST REV. DATE
1	C-001	COVER SHEET	12-07-20	
2	C-002	PROPERTY OWNERS WITHIN 200 FEET	12-07-20	
3	C-100	EXISTING CONDITIONS PLAN	12-07-20	
4	C-200	DEMOLITION PLAN	12-07-20	
5	C-300	SITE LAYOUT & UTILITY PLAN	12-07-20	
6	C-400	GRADING AND DRAINAGE PLAN	12-07-20	
7	C-600	LANDSCAPE PLAN	12-07-20	
8	C-700	LIGHTING PLAN	12-07-20	
9	C-800	SOIL EROSION AND SEDIMENT CONTROL PLAN	12-07-20	
10	C-810	SOIL EROSION AND SEDIMENT CONTROL DETAILS	12-07-20	
11	C-900	DETAIL SHEET	12-07-20	
12	C-901	DETAIL SHEET	12-07-20	
13	C-902	DETAIL SHEET	12-07-20	
14	C-903	DETAIL SHEET	12-07-20	
15	C-904	DETAIL SHEET	12-07-20	



Jarmel Kizel
ARCHITECTS AND ENGINEERS INC.

42 OKNER PARKWAY
LIVINGSTON, NEW JERSEY 07039
TEL: 973-994-9669
FAX: 973-994-4069

www.jarmelkizel.com

Architecture
Engineering
Interior Design
Implementation Services

NJ State Board of Architects Registration No. 141
NJ State Board of Engineers & Land Surveyors Registration No. GA-275177

ISSUE

NO.	DATE	DESCRIPTION	INT.
1	01.21.2021	INITIAL ZONING BOARD SUBMISSION	GG

REVISION

NO.	DATE	DESCRIPTION	INT.
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PRINCIPALS

MATTHEW B. JARMEL, AIA, MBA
RICHARD A. JARMEL, PE
IRWIN H. KIZEL, AIA, PP

ARCHITECTS & ENGINEERS

JARMEL KIZEL ARCHITECTS AND
ENGINEERS, INC.
JARMEL KIZEL ARCHITECTS AND
ENGINEERS, INC.
JARMEL KIZEL ARCHITECTS AND
ENGINEERS, INC.
JARMEL KIZEL ARCHITECTS AND
ENGINEERS, INC.

Project:
TOWNHOUSE DEVELOPMENT
40, 44, 46 & 48 HICKORY AVENUE
BOROUGH OF BERGENFIELD
BERGEN COUNTY, NEW JERSEY
BLOCK 30, LOTS 9, 10, 10.01 & 11

Project Number: SIXBORO-S-20-214
Scale: AS NOTED
Drawn By: A.P.P.
Approved By: G.P.G.

Drawing Name:

COVER SHEET

Drawing Number:

C-001
1 OF 15

Initial Date: DECEMBER 7, 2020

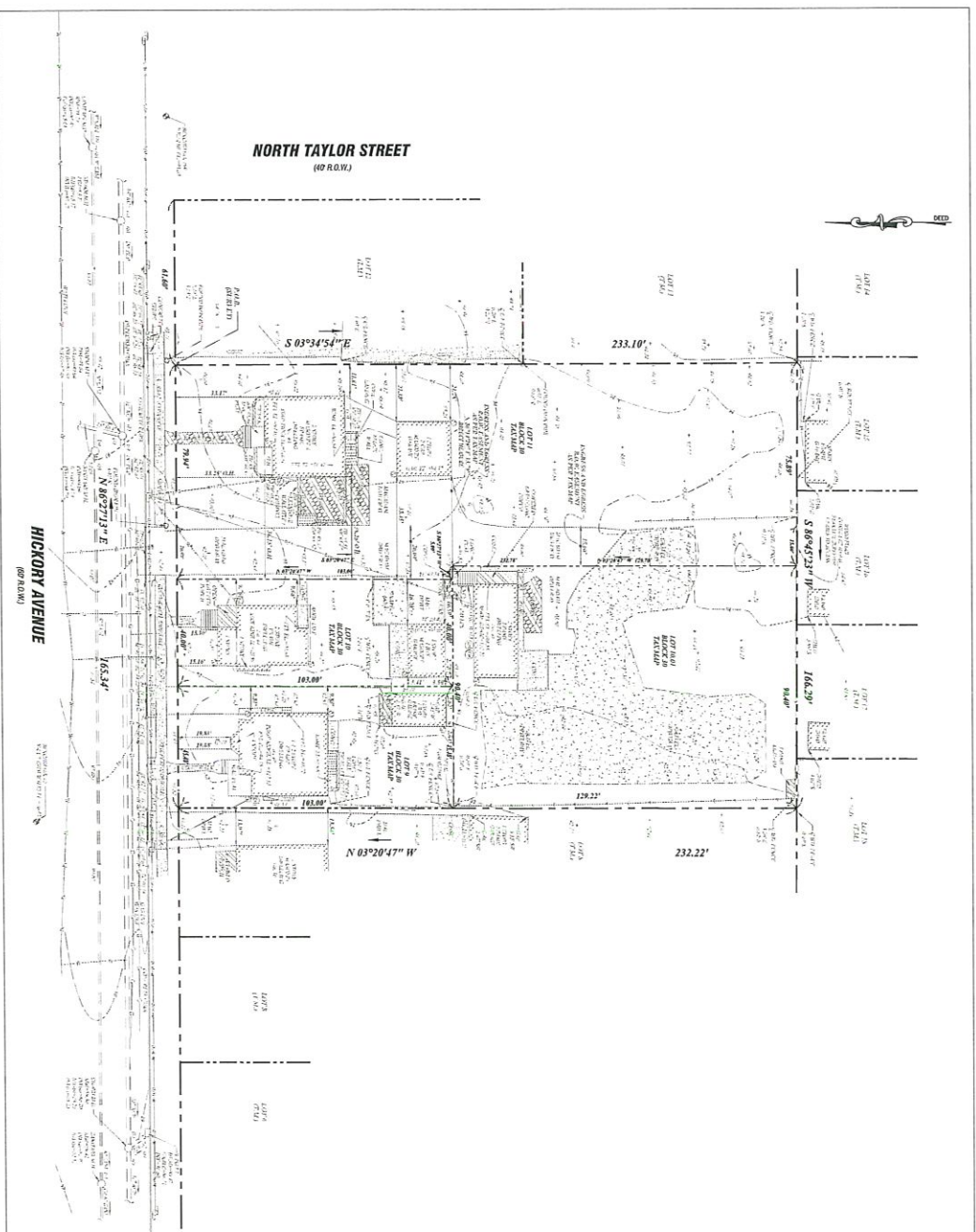
ENGINEER OF RECORD

GERARD P. GESARIO, PE
NJ LIC 2405020200
01/16/2021



SOURCE REFERENCE:

1. BOUNDARY & TOPOGRAHY INFORMATION IS BASED ON A SURVEY TITLED "BOUNDARY AND TOPOGRAPHY OF EX LOT 9, BLOCK 30, A.L.A. 40 HICKORY AVENUE, TX LOT 10, BLOCK 30, A.L.A. 44 HICKORY AVENUE, TX LOT 10, BLOCK 30, A.L.A. 44 HICKORY AVENUE, TX LOT 10, BLOCK 30, A.L.A. 44 HICKORY AVENUE, TX LOT 10, BLOCK 30, A.L.A. 44 HICKORY AVENUE, BESSIE COUNTY, NEW JERSEY," BY DICE ASSOCIATES, INC., 311 MAIN STREET, WHITE, NJ, DATED OCTOBER 05, 2020 WITH NO RESIDUAL DATE.
2. VERTICAL CURVATURE NOT BASED ON MAP RE.



EXISTING CONDITIONS PLAN
SCALE: 1"=20'



ISSUE			
NO.	DATE	DESCRIPTION	INT
1	01.21.2021	INITIAL ZONING BOARD APPROUSION	CC

REVISION			
NO.	DATE	DESCRIPTION	INT

PRINCIPALS

MATTHEW B. JAHNKE, AIA, AIAA
MICHAEL A. JARVEL, PE
BRYAN H. KYLE, AIA, PE

ARCHITECTS & ENGINEERS

JANISSE BLOCH, AIA
RONALD B. SCHWARTZ, PE
ARONCE L. BELL, AIA, PE
EDWARD G. CLAUDIO, PE
JAMES HENRIKSEN, AIA
FRANCIS KIRKMAN, AIA
DAVID L. LUTHELMAN, AIA
DAVID M. MANNING, AIA
D. GUY, ESQUIRE, AIA
WILLIAM J. TUCKER, AIA
WILLIAM J. TUCKER, AIA

Project:		TOWNHOUSE DEVELOPMENT
Address:		40, 42, 44 & 46 HICKORY AVENUE
Location:		BONHOLM OF BERKELEYPFIELD BERGEN COUNTY, NEW JERSEY
Block:		BLK 00, LOTS 8, 10, 10A1 & 11
Project Number:	Scale:	
SIX80R-S-20-214	1" = 20'	
Drawn By:	Approved By:	
A.P.P.	G.P.G.	
Drawing Name:		

EXISTING CONDITIONS PLAN

C-100
3 OF 15

ENGINEER OF RECORD

GERARDO P. GESARIO, PE
 Author, *Practical Quality Tools* (1997)



Jarmel Kizel
ARCHITECTS AND ENGINEERS INC.
42 OXNER PARKWAY
LIVINGSTON, NEW JERSEY 07039
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FAX: 973-994-0509
www.jarmelkizel.com

Architecture
Engineering
Interior Design
Implementation Services

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SURVEY REFERENCE:

- BOUNDARY & TOPOGRAPHY INFORMATION IS BASED ON A SURVEY TITLED "BOUNDARY AND TOPOGRAPHY OF TAX LOT 9, BLOCK 30, A.K.A. 40 HICKORY AVENUE, TAX LOT 10, BLOCK 30, A.K.A. 44 HICKORY AVENUE, TAX LOT 10.01, BLOCK 30, A.K.A. 46 HICKORY AVENUE, TAX LOT 11, BLOCK 30, A.K.A. 48 HICKORY AVENUE, BOROUGH OF BERGENFIELD, BERGEN COUNTY, NEW JERSEY", BY DMC ASSOCIATES, INC., 211 MAIN STREET, BUTLER, NJ, DATED OCTOBER 05, 2020, WITH NO REVISION DATES.
- VERTICAL DATUM ARE BASED ON NAVD 88.



WAE3
Washington Postite LED Series

Leasing Number		
Items		Item

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SPECIFICATIONS

General Description

The Washington Postite LED lighting system consists of a precision cast aluminum housing with a precision cast glass lens and a precision cast aluminum reflector. The housing is designed for superior light control, ease of installation, and maintenance. The Washington Postite has a precision cast glass lens system for superior light performance and a precision cast aluminum reflector system for superior light control. The housing is designed for superior light control, ease of installation, and maintenance. The Washington Postite has a precision cast glass lens system for superior light performance and a precision cast aluminum reflector system for superior light control.

Mechanical Specifications

The luminaire housing shall:
• Be heavy gauge aluminum cast and finished with a clear anodized finish.
• The clear anodized finish shall be a minimum of 0.0005 inches thick.
• The housing shall be designed to accept a standard 1/2 inch diameter mounting bracket.
• The housing shall be designed to accept a standard 1/2 inch diameter mounting bracket.
• The housing shall be designed to accept a standard 1/2 inch diameter mounting bracket.

Electrical Specifications

The driver shall meet the following requirements:
• Certified UL or CSA for wet locations.
• A programmable electronic driver with 0-10V dimming control.
• The driver shall be designed to accept a standard 1/2 inch diameter mounting bracket.
• The driver shall be designed to accept a standard 1/2 inch diameter mounting bracket.
• The driver shall be designed to accept a standard 1/2 inch diameter mounting bracket.

Optical Specifications

The optical system shall include a precision cast aluminum housing with a precision cast glass lens and a precision cast aluminum reflector. The housing is designed for superior light control, ease of installation, and maintenance. The Washington Postite has a precision cast glass lens system for superior light performance and a precision cast aluminum reflector system for superior light control. The housing is designed for superior light control, ease of installation, and maintenance. The Washington Postite has a precision cast glass lens system for superior light performance and a precision cast aluminum reflector system for superior light control.

Control System

The control system shall include the following:
• Field adjustable output to adjust output to luminaire - 0-10V.
• Long life photocell, 20 years - PCL-P4 and PCL-P4-01.
• 3 and 7 pin receptacles internally in housing (PCL, P4) or inside glass mounted (P4T).
• Night for 20000 outdoor luminaire-mounted motion and photo sensor. Features a dual relay to communicate wirelessly to other eight (8) devices for group response to motion, on/off control in response to daylight and by night, 0-10V.
• Feature embedded night for network interface for individual fixture control and dimming, 0-10V.

Certification and Standards

The luminaire shall be:
• Labeled for use in UL or CSA.
• Suitable for operation in an ambient temperature up to 40°C/105°F per UL or CSA certification.
• Labeled for use in UL or CSA.
• Suitable for operation in an ambient temperature up to 40°C/105°F per UL or CSA certification.

Warranty - 3 Year Limited

Complete warranty terms located at:
www.holophane.com/warranty
Note: Actual performance may differ as a result of site use environment and application. All values are design or typical values, measured under laboratory conditions at 25°C.

Notes

The driver shall meet the following requirements:
• Certified UL or CSA for wet locations.
• A programmable electronic driver with 0-10V dimming control.
• The driver shall be designed to accept a standard 1/2 inch diameter mounting bracket.
• The driver shall be designed to accept a standard 1/2 inch diameter mounting bracket.
• The driver shall be designed to accept a standard 1/2 inch diameter mounting bracket.

Holophane | 3100 Columbia Rd., Greenville, OH 45733 | Phone: 614-251-0000 | www.holophane.com
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Page 1 of 3

NORTH TAYLOR STREET
(40' R.O.W.)

BENCHMARK 99
P.C. 101.11 - 93.39

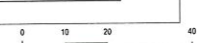
HICKORY AVENUE
(60' R.O.W.)

LIGHTING PLAN SCALE: 1"=20'

No.	Label	X	Y	Z	MH	Orientation	Tilt	X	Y	Z
1	A	-23.08	-223.22	12.00	12.00	0.00	0.00	-23.08	-223.22	0.00
2	B	-5.58	-110.29	10.00	10.00	270.00	0.00	-5.58	-110.29	0.00
3	A	-39.03	-0.86	12.00	12.00	180.00	0.00	-39.03	-0.86	0.00

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Property Line	◇	0.0 fc	0.2 fc	0.0 fc	N/A	N/A
Site Summary	□	0.5 fc	4.3 fc	0.1 fc	43.0:1	5.0:1
Spill Light Summary	+	0.2 fc	4.3 fc	0.0 fc	N/A	N/A

Symbol	Label	QTY	Manufacturer	Catalog Number	Description	Number Lamps	File Name	Lumens per Lamp	LLF	Wattage	Distribution
⊗	A	2	Holophane	WAE3 P20 30K XXXX GL3 BBR WLEDH18	Washington Glass LED III, P20 LED Performance Package, 3000K CCT, Type III, Bulb Finish, Band & Ribs	1	WAE3_P20_30K_XXXX_GL3_BBR_WLEDH18	3347	0.91	36	TYPE IV, MEDIUM, BUG RATING: B1 - US - G5
⊙	B	1	Holophane	WAE3 P40 30K XXXX GL3 BBR	Washington Glass LED III, P40 LED Performance Package, 3000K CCT, Type III, Bulb Finish, Band & Ribs	1	WAE3_P40_30K_XXXX_GL3_BBR	10081	0.91	77	TYPE III, MEDIUM, BUG RATING: B3 - US - G5



Jarmel Kizel
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FAX: 973-994-4069

www.jarmelkizel.com
Architecture
Engineering
Interior Design
Implementation Services

ISSUE

NO.	DATE	DESCRIPTION	INT.
1	01.21.2021	INITIAL ZONING BOARD SUBMISSION	GG

REVISION

NO.	DATE	DESCRIPTION	INT.
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PRINCIPALS

MATTHEW B. JARMEL, AIA, MBA
RICHARD A. JARMEL, PE
IRWIN H. KIZEL, AIA, PP
ARCHITECTS & ENGINEERS
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AMIEY SHUK, RA
MICHAEL J. VORLAND, AIA

Project:
TOWNHOUSE DEVELOPMENT
40, 44, 46 & 48 HICKORY AVENUE
BOROUGH OF BERGENFIELD
BERGEN COUNTY, NEW JERSEY
BLOCK 30, LOTS 9, 10, 10.01 & 11

Project Number:
SIXBORO-S-20-214

Scale:
1" = 20'

Drawn By:
A.P.P.

Approved By:
G.P.G.

Drawing Name:

LIGHTING PLAN

Drawing Number:

C-700
8 OF 15

Initial Date: DECEMBER 7, 2020

ENGINEER OF RECORD

GERARD P. GESARIO, PE
NJ LIC. 24502/025500
EXP. 4/2022

SURVEY REFERENCE:

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- VERTICAL DATUM ARE BASED ON NAVD 88.

BERGEN COUNTY SOIL CONSERVATION DISTRICT
SOIL EROSION AND SEDIMENT CONTROL NOTES

All soil erosion and sediment control practices will be installed in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey (NJ Standards), and will be installed in proper sequence and maintained until permanent stabilization is established.

- Any disturbed area that will be left exposed for more than thirty (30) days and not subject to construction traffic shall immediately receive a temporary seeding and mulching. If the season prohibits temporary seeding, the disturbed area will be mulched with unrattled straw at a rate of 2 tons per acre anchored by approved methods (i.e. peg and twine, mulch netting, or liquid mulch binder).
- Immediately following initial disturbance or rough grading, all critical areas subject to erosion will receive a temporary seeding in combination with straw mulch or a suitable equivalent, at a rate of 2 tons per acre, according to the NJ Standards.
- Stabilization Specifications:**
 - Temporary Seeding and Mulching:**

Ground Limestone - Applied uniformly according to soil test recommendations.

Fertilizer - Apply 11lbs. /1,000 sf of 10-20-10 or equivalent with 50% water insoluble nitrogen (unless a soil test indicates otherwise) worked into the soil a minimum of 4".

Seed - perennial ryegrass 100 lbs. /acre (2.3 lbs. /1,000 sf) or other approved seed; plant between March 1 and May 15 or between August 15 and October 1.

Mulch - Unrattled straw or hay at a rate of 70 to 90 lbs. /1,000 sf applied to achieve 95% soil surface coverage. Mulch shall be anchored by approved methods (i.e. peg and twine, mulch netting, or liquid mulch binder).
 - Permanent Seeding and Mulching:**

Topsoil - A uniform application to an average depth of 5", minimum of 4" firm in place is required.

Ground Limestone - Applied uniformly according to soil test recommendations.

Fertilizer - Apply 11 lbs. /1,000 sf of 10-20-10 or equivalent with 50% water insoluble nitrogen (unless a soil test indicates otherwise) worked into the soil a minimum of 4".

Seed - Turf type tall fescue (blend of 3 cultivars) 350 lbs. /acre (8 lbs. /1,000 sf) or other approved seed; plant between March 1 and October 1 (summer seeding requires irrigation).

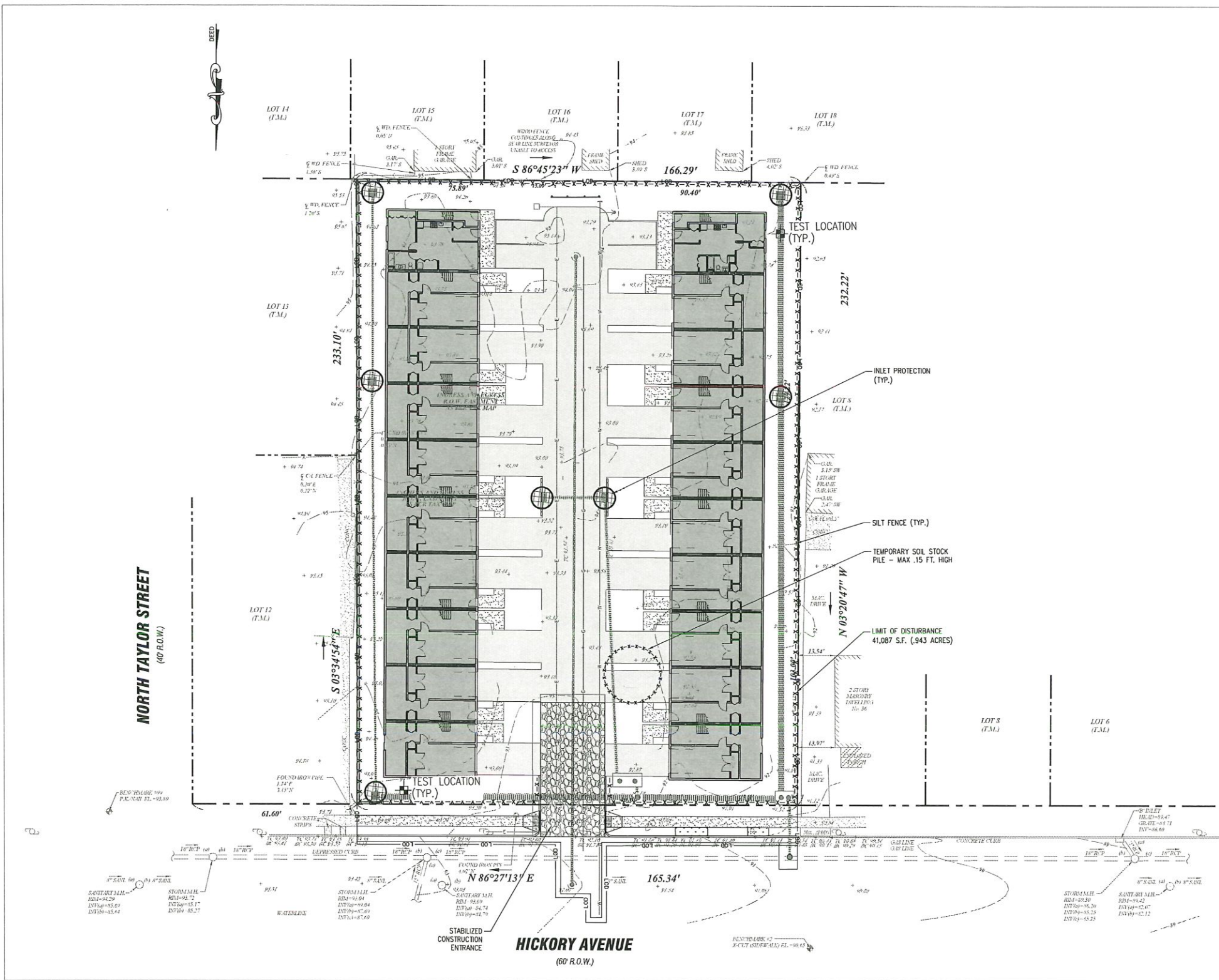
Mulch - Unrattled straw or hay at a rate of 70 to 90 lbs. /1,000 sf applied to achieve 95% soil surface coverage. Mulch shall be anchored by approved methods (i.e. peg and twine, mulch netting, or liquid mulch binder).
- The site shall at all times be graded and maintained such that all stormwater runoff is diverted to soil erosion and sediment control facilities.
- Soil erosion and sediment control measures will be inspected and maintained on a regular basis, including after every storm event.
- Stockpiles are not to be located within 50' of a floodplain, slope, roadway or drainage facility. The base of all stockpiles shall be contained by a haybale sediment barrier or silt fence.
- A crushed stone, vehicle wheel-cleaning blanket will be installed wherever a construction access road intersects any paved roadway. Said blanket will be composed of 1" - 2 1/2" crushed stone, 6" thick, will be at least 30' x 100' and should be underlain with a suitable synthetic sediment filter fabric and maintained.
- Maximum side slopes of all exposed surfaces shall not exceed 3:1 unless otherwise approved by the District.
- Driveways must be stabilized with 1" - 2 1/2" crushed stone or subbase prior to individual lot construction.
- All soil washed, dropped, spilled or tracked outside the limit of disturbance or onto public right-of-ways, will be removed immediately. Paved roadways must be kept clean at all times.
- Catch basin inlets will be protected with an inlet filter designed in accordance with Section 28-1 of the NJ Standards.
- Storm drainage outlets will be stabilized, as required, before the discharge points become operational.
- Devaler operations must discharge directly into a sediment control bag or other approved filter in accordance with Section 14-1 of the NJ Standards.
- Dust shall be controlled via the application of water, calcium chloride or other approved method in accordance with Section 16-1 of the NJ Standards.
- Trees to remain after construction are to be protected with a suitable fence installed at the drip line or beyond in accordance with Section 9-1 of the NJ Standards.
- The project owner shall be responsible for any erosion or sedimentation that may occur below stormwater outfalls or off-site as a result of construction of the project.
- Any revision to the certified Soil Erosion and Sediment Control Plan must be submitted to the District for review and approval prior to implementation in the field.
- A copy of the certified Soil Erosion and Sediment Control Plan must be available at the project site throughout construction.
- The Bergen County Soil Conservation District must be notified, in writing, at least 48 hours prior to any land disturbance. Bergen County SCD, 700 Kinderhook Road, Suite 106, Oradell, NJ 07649. Tel: 201-261-4407; Fax 201-261-7573.
- The Bergen County Soil Conservation District may request additional measures to minimize on or off-site erosion problems during construction.
- The owner must obtain a District issued report of compliance prior to the issuance of any certificate of occupancy. The District requires at least one week's notice to facilitate the scheduling of all report of compliance inspections. All site work must be completed, including temporary/permanent stabilization of all exposed areas, prior to the issuance of a report of compliance by the District.

Revised 12/7/17

SEQUENCE OF CONSTRUCTION:

ITEM	DURATION
1. INSTALL SOIL EROSION MEASURES	2
2. DEMO SITE	14
3. ROUGH GRADE SITE FOR BUILDINGS AND PAVEMENT	7
4. CONSTRUCT UTILITY MAIN EXTENSIONS AND SERVICES	20
5. CONSTRUCT STORM SYSTEM	10
6. CONSTRUCT BUILDINGS	270
7. INSTALL NEW CURB & POUR NEW WALKWAYS (PUBLIC R.O.W.)	10
8. CONSTRUCT ASPHALT BASE PAVEMENT & DRIVEWAYS	2
9. CONDUCT SOIL COMPACTION TESTING AND REMEDIATE SUBSOIL (SCARIFICATION/TILLAGE MIN. 6") AS NECESSARY	1
10. UNIFORMLY APPLY TOP SOIL (DEPTH: 5" AVERAGE, 4" MINIMUM, FIRMED IN PLACE)	1
11. PLANT NEW VEGETATION	2
12. CONSTRUCT FINAL PAVEMENT AND LINE STRIPING	2
13. INSTALL MUTCD SIGNAGE AND GUIDE	1
14. REMOVE SOIL EROSION MEASURES	1

TOTAL: 343 DAYS



SOIL EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1"=20'



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Architecture
Engineering
Interior Design
Implementation Services

NJ State Board of Architectural Examiners No. 161
NJ State Board of Engineers & Land Surveyors Authorization No. GA-278177

ISSUE

NO.	DATE	DESCRIPTION	INT.
1	01.21.2021	INITIAL ZONING BOARD SUBMISSION	GG

REVISION

NO.	DATE	DESCRIPTION	INT.

PRINCIPALS

MATTHEW B. JARMEL, AIA, MBA
RICHARD A. JARMEL, PE
IRVING H. KIZEL, AIA, FP
ARCHITECTS & ENGINEERS
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RONALD A. BROKENSHIRE, PE
JEROME LESLIE BEN, FAIA, PP
SHAMUEL G. ESTRADA, RA
GERARD P. GESARIO, PE
ANITA KHARINA, AIA
FREDERICK KNOX, AIA
DAVID L. LEESE, RA
KAROLINA POSKAWICZ, AIA
CHERYL SCHWEIKER, AIA
AMEET SINGH, RA
MICHAEL J. VORLAND, AIA

Project:
TOWNHOUSE DEVELOPMENT
40, 44, 46 & 48 HICKORY AVENUE
BOROUGH OF BERGENFIELD
BERGEN COUNTY, NEW JERSEY
BLOCK 30, LOTS 9, 10, 10.01 & 11

Project Number:
SIXBORO-S-20-214
Scale: 1" = 20'
Drawn By: A.P.P. Approved By: G.P.G.

Drawing Name:
SOIL EROSION AND SEDIMENT CONTROL PLAN

Drawing Number:
C-800
9 OF 15

Initial Date: DECEMBER 7, 2020

ENGINEER OF RECORD

GERARD P. GESARIO, PE
NJ LIC 240407020500 EXP. 4/30/22

Soil De-compaction and Testing Requirements

Soil Compaction Testing Requirements

- Subgrade soils **prior to the application of topsoil** (see permanent seeding and stabilization notes for topsoil requirements) shall be free of excessive compaction to a depth of 6.0 inches to enhance the establishment of permanent vegetative cover.
- Areas of the site which are subject to compaction testing and/or mitigation are **graphically denoted** on the certified soil erosion control plan.
- Compaction testing locations** are denoted on the plan. A copy of the plan or portion of the plan shall be used to mark locations of tests, and attached to the compaction remediation form, available from the local soil conservation district. This form must be filled out and submitted prior to receiving a certificate of compliance from the district.
- In the event that testing indicates compaction in excess of the maximum thresholds indicated for the simplified testing methods (see details below), the contractor/owner shall have the option to perform either (1) compaction mitigation over the entire mitigation area denoted on the plan (excluding exempt areas), or (2) perform additional, more detailed testing to establish the limits of excessive compaction whereupon only the excessively compacted areas would require compaction mitigation. Additional detailed testing shall be performed by a trained, licensed professional.

Compaction Testing Methods

- Probing Wire Test (see detail)
- Hand-held Penetrometer Test (see detail)
- Tube Bulk Density Test (licensed professional engineer required)
- Nuclear Density Test (licensed professional engineer required)

Note: Additional testing methods which conform to ASTM standards and specifications, and which produce a dry weight, soil bulk density measurement may be allowed subject to District approval.

Soil compaction testing is not required if/when subsoil compaction remediation (scarification/tillage (6" minimum depth) or similar) is proposed as part of the sequence of construction.

Procedures for Soil Compaction Mitigation

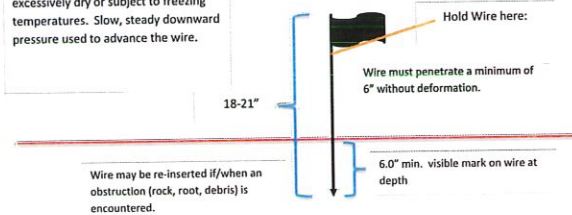
Procedures shall be used to mitigate excessive soil compaction **prior to placement of topsoil** and establishment of permanent vegetative cover.

Restoration of compacted soils shall be through deep scarification/tillage (6" minimum depth) where there is no danger to underground utilities (cables, irrigation systems, etc.). In the alternative, another method as specified by a New Jersey Licensed Professional Engineer maybe substituted subject to District Approval.

Simplified Testing Methods

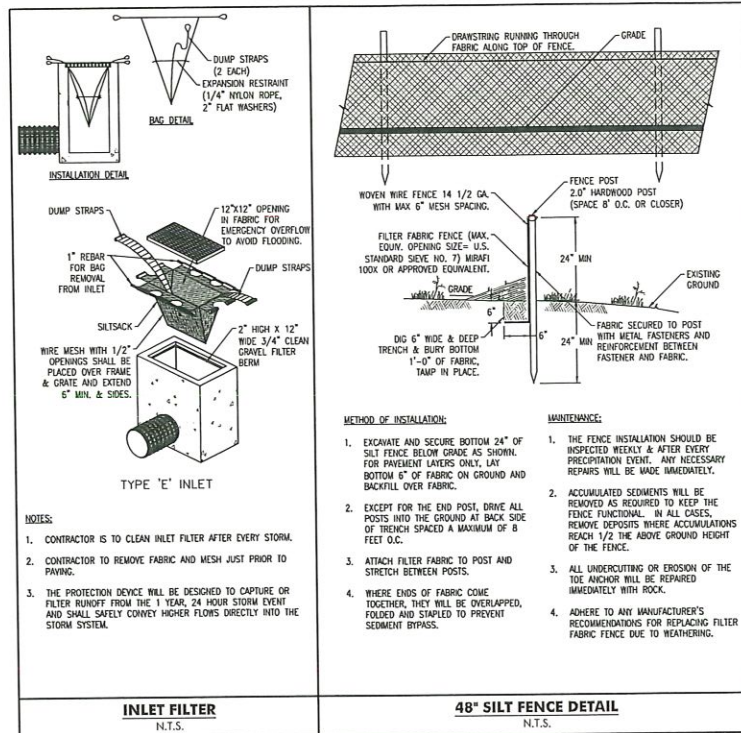
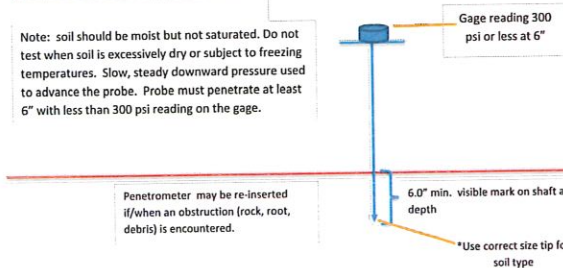
Probing Wire Test- 15.5 ga steel wire (survey flag)

Note: soil should be moist but not saturated. Do not test when soil is excessively dry or subject to freezing temperatures. Slow, steady downward pressure used to advance the wire.



Handheld Soil Penetrometer Test

Note: soil should be moist but not saturated. Do not test when soil is excessively dry or subject to freezing temperatures. Slow, steady downward pressure used to advance the probe. Probe must penetrate at least 6" with less than 300 psi reading on the gage.



Dust Control Notes

The following methods should be considered for controlling dust:

Mulches - See Standard for Stabilization with Mulches Only (pg. 5-1)

Vegetative Cover - See Standard for Temporary Vegetative Cover (pg. 7-1), Permanent Vegetative Cover for Soil Stabilization (pg. 4-1), and Permanent Stabilization with Sod (pg. 6-1)

Spray-On Adhesives - On mineral soils (not effective on muck soils). Keep traffic off these areas.

Table 16-1: Dust Control Materials

MATERIAL	WATER DILUTION	TYPE OF NOZZLE	APPLY GALLONS/ACRE
Anionic asphalt emulsion	7:1	Coarse Spray	1200
Latex emulsion	12.5:1	Fine Spray	235
Resin in water	4:1	Fine Spray	300
Polyacrylamide (PAM) - spray on	Apply according to manufacturer's instructions. May also be used as an additive to sediment basins to flocculate and precipitate suspended colloids. See Sediment Basin standard (pg. 26-1)		
Polyacrylamide (PAM) - dry spray			
Acidulated Soy Bean Soap Stick	None	Coarse Spray	1200

Tillage - To roughen surface and bring clods to the surface. This is a temporary emergency measure which should be used before soil blowing starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, and spring-toothed harrows are examples of equipment which may produce the desired effect.

Sprinkling - Site is sprinkled until the surface is wet.

Barriers - Solid board fences, snow fences, burlap fences, crate walls, bales of hay, and similar material can be used to control air currents and soil blowing.

Calcium Chloride - Shall be in the form of loose, dry granulates of flakes fine enough to feed through commonly used spreaders at a rate that will keep surface moist but not cause pollution or plant damage. If used on steeper slopes, then use other practices to prevent washing into streams, or accumulation around plants.

Stone - Cover surface with crushed stone or coarse gravel.



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102 State Board of Architects A-Registration No. 161
161 State Board of Engineers E-Registration No. 0218177

ISSUE

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NO.	DATE	DESCRIPTION	INT.
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Project:
TOWNHOUSE DEVELOPMENT
40, 44, 46 & 48 HICKORY AVENUE
BOROUGH OF BERGENFIELD
BERGEN COUNTY, NEW JERSEY
BLOCK 30, LOTS 9, 10, 10.01 & 11

Project Number: SIXBORO-S-20-214
Scale: AS NOTED
Drawn By: A.P.P.
Approved By: G.P.G.

Drawing Name:
**SOIL EROSION
AND
SEDIMENT CONTROL
DETAILS**

Drawing Number:
C-810
10 OF 15

Initial Date: DECEMBER 7, 2020

ENGINEER OF RECORD

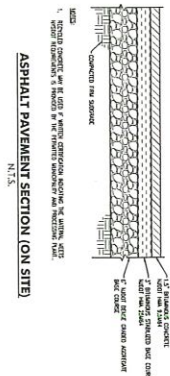
GERARD P. GESARIO, PE
N.J.C. 24580182550 EXP. 4/2022



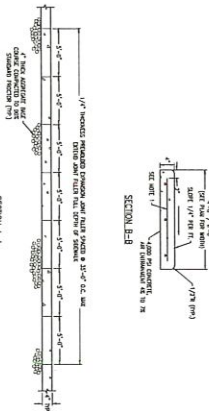
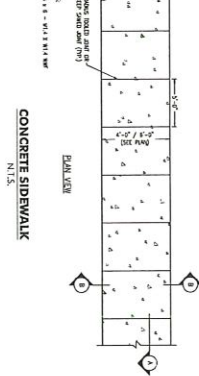
R1-1
30" x 30"

W14-2
30" x 30"

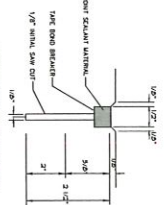
ASPHALT PAVEMENT SECTION (ON SITE)



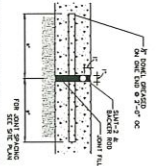
CONCRETE SIDEWALK



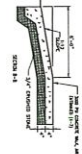
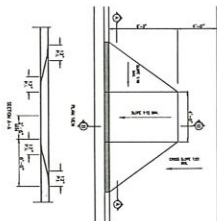
CONSTRUCTION JOINT
(MAX 20'-0\"/>



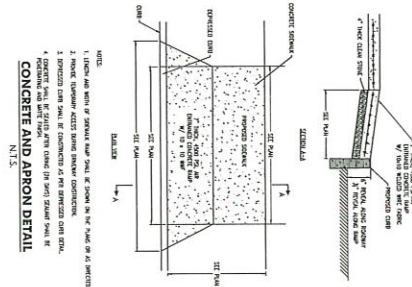
EXPANSION JOINT @ MAX 20'-0\"/>



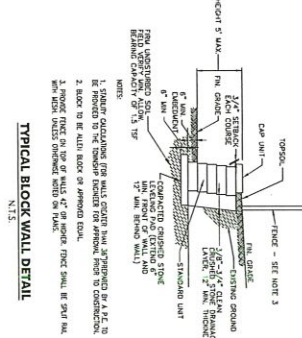
HANDICAP CURB AT SIDEWALK



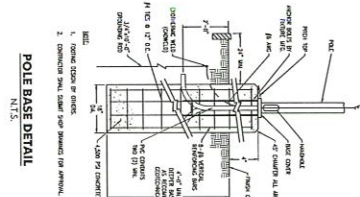
CONCRETE AND APRON DETAIL



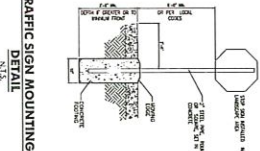
TYPICAL BLOCK WALL DETAIL



POLE BASE DETAIL

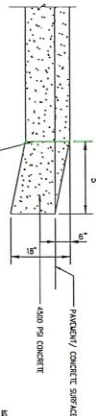
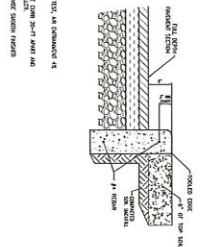
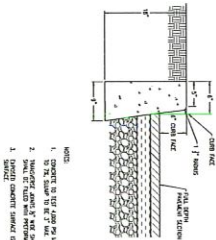


TRAFFIC SIGN MOUNTING DETAIL



6\"/>

N.T.S.

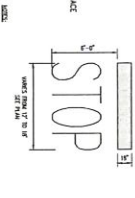


END CURB TAPER DETAIL

N.T.S.

STOP BAR DETAIL

N.T.S.



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Implementation Services

ISSUE	
NO.	DATE
1	12-2-2021

REVISION	
NO.	DATE
1	12-2-2021

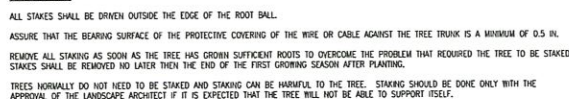
PRINCIPALS
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ARCHITECTURE
ENGINEERING
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IMPLEMENTATION SERVICES

PROJECT
TOWNHOUSE DEVELOPMENT
BERGEN COUNTY, NEW JERSEY
PROJECT LOCATION
SHEBODAS-50-214 AS NOTED
DRAWN BY
CHECKED BY
DATE

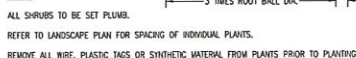
DETAIL SHEET
C-900
11 OF 15
ENGINEER OF RECORD
JARMEL KIZEL, P.E.
12-2-2021



1. WIRE OR CABLE SHALL BE AS FOLLOWS:
TREES UP TO 2.5 IN. CALIPER - 14 GAUGE
TREES 2.5 IN. TO 3 IN. CALIPER - 12 GAUGE
2. TIGHTEN WIRE OR CABLE ENOUGH TO KEEP TREE FROM SWAYING. ALLOW FOR SOME TRUNK MOVEMENT. PLYASTIC HOUSING SHALL BE LONG ENOUGH TO ACCOMMODATE 1.5 IN. OF GROWTH AND BUFFER ALL BRANCHES FROM THE WIRE.
3. TUCK ANY LOOSE ENDS OF THE WIRE OR CABLE INTO THE TREE WRAP SO THAT NO SWAYING TREE ENDS ARE EXPOSED.
4. INSTALL THREE GUY WIRES PER TREE, SPACED EVENLY AROUND THE TRUNK.
5. STAKE TREES ONLY UPON THE APPROVAL OF THE LANDSCAPE ARCHITECT



- THE FOLLOWING REASONS WHY TREES DO NOT REMAIN STRAIGHT:
- TREES WITH POOR-QUALITY ROOT BALLS OR ROOT BALLS THAT HAVE BEEN CRACKED OR DAMAGED. REJECT RATHER THAN STAKE.
 - TREES THAT HAVE GROWN TOO CLOSE TOGETHER IN THE NURSERY, RESULTING IN WEAK TRUNKS. REJECT RATHER THAN STAKE.
 - PLANTING PROCEDURES THAT DO NOT ADEQUATELY TAMP SOILS AROUND THE ROOT BALL. CORRECT THE PLANTING PROCEDURE.
 - ROOT BALLS PLACED ON SOFT SOIL. TAMP SOILS UNDER ROOT BALL PRIOR TO PLANTING.
 - ROOT BALLS WITH VERY SANDY SOIL OR VERY MUD CLAY SOIL. STAKING ADVISABLE.
 - TREES LOCATED IN A PLACE OF EXTREMELY WINDY CONDITIONS. STAKING ADVISABLE.



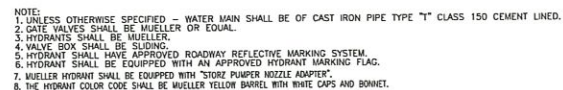
1. INVERTS ~~TO BE ELIMINATED IN BOTTOM OF TERMINAL INLETS.~~ BOTTOMS SHALL BE DISHED AND SLOPED TOWARDS THE OUTLET PIPE AT THE RATE OF A GRADE OF 2 INCHES PER FOOT.
2. PROVIDE COPOLYMER POLYPROPYLENE PLASTIC LADDER RUNS @ 12 INCHES ON CENTER.
3. CASTING TO BE CAMPBELL FOUNDRY CO. PATTERN #2618 OR EQUIVALENT WITH ECO CURB PIECE TYPE "N" AND BICYCLE SAFETY GRADE #2617. CASTING TO BE THOROUGHLY PAINTED, OR APPROVED EQUAL.
4. WHEN DEPTH IS GREATER THAN 12 FEET, THE WALLS SHALL BE 8 INCHES THICK AND THE FOOTING SHALL EXTEND TO 12 INCHES BEYOND THE OUTSIDE WALLS.
5. CLEAN STONE SHALL BE PLACED BENEATH THE STRUCTURE TO A DEPTH OF 8 INCHES.



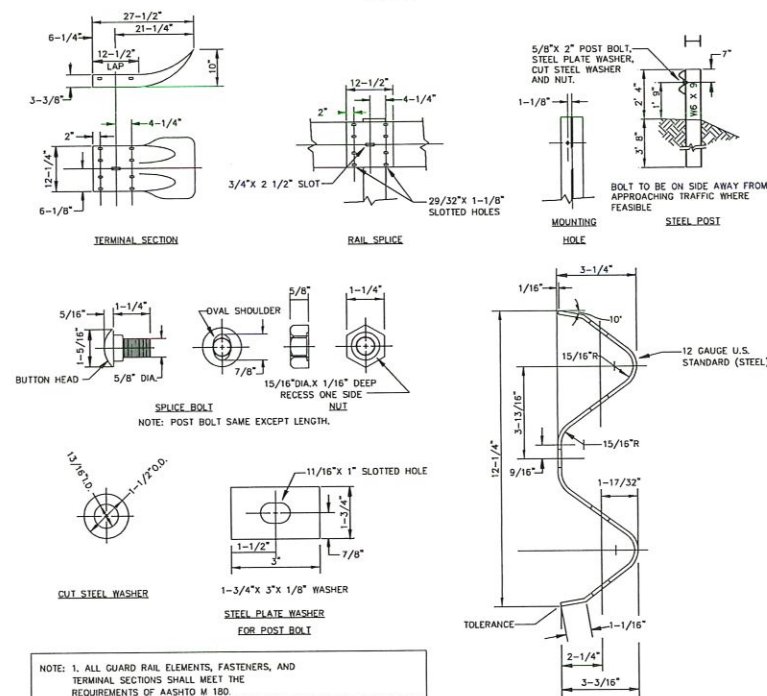
1. DIAMETER OF MANHOLE SHALL BE REVIEWED BY THE CONTRACTOR TO DETERMINE A LEGEND OF STANDARD MANHOLE DIMENSIONS WITH RESPECT TO PROPOSED PIPE SIZES, NUMBER AND GEOMETRY. OVER SIZE MANHOLES SHALL BE PROVIDED IF MINIMUM 6" HALL DIVISION BETWEEN PIPES IS NOT MANUFACTURED.
2. MANHOLES SHALL BE STANDARD PRECAST CONCRETE UNITS AND SHALL BE DESIGNED AND CONSTRUCTED BY THE MANUFACTURER TO SUPPORT TRUCK 14520 LOADING.



THRUST BLOCK DETAILS
N.T.S.



TYPICAL HYDRANT INSTALLATION WITH C.I. PIPE



STEEL BEAM GUIDE RAIL
N.T.S.

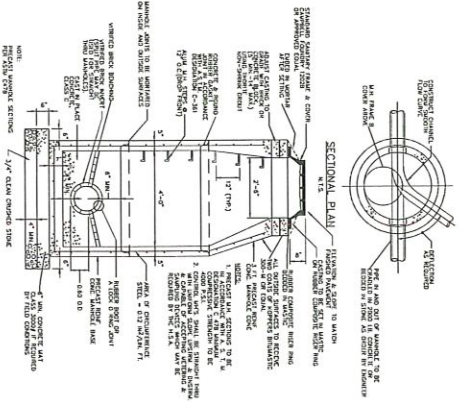


[illegible]

NO. P107 AS MANUFACTURED BY SINDSOL & TAYLOR
OR APPROVED EQUIV.

**CLEANOUT PAVEMENT
BOX DETAIL**

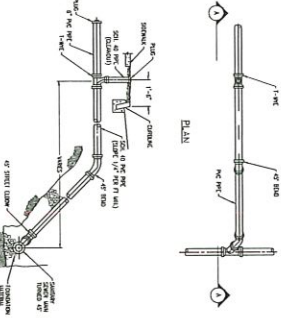
MANHOLE PRECAST (SANITARY)



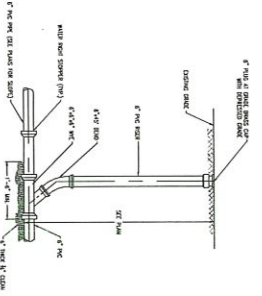
INLET & MANHOLE NOTES

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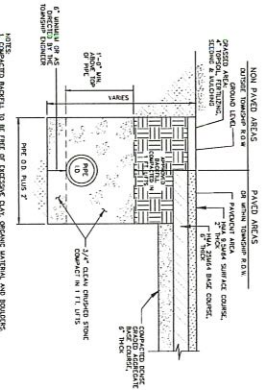
SANITARY SEWER BUILDING CONNECTION



SANITARY CLEANOUT
N.T.S.



TRENCH/BACKFILL SECTION
NTS

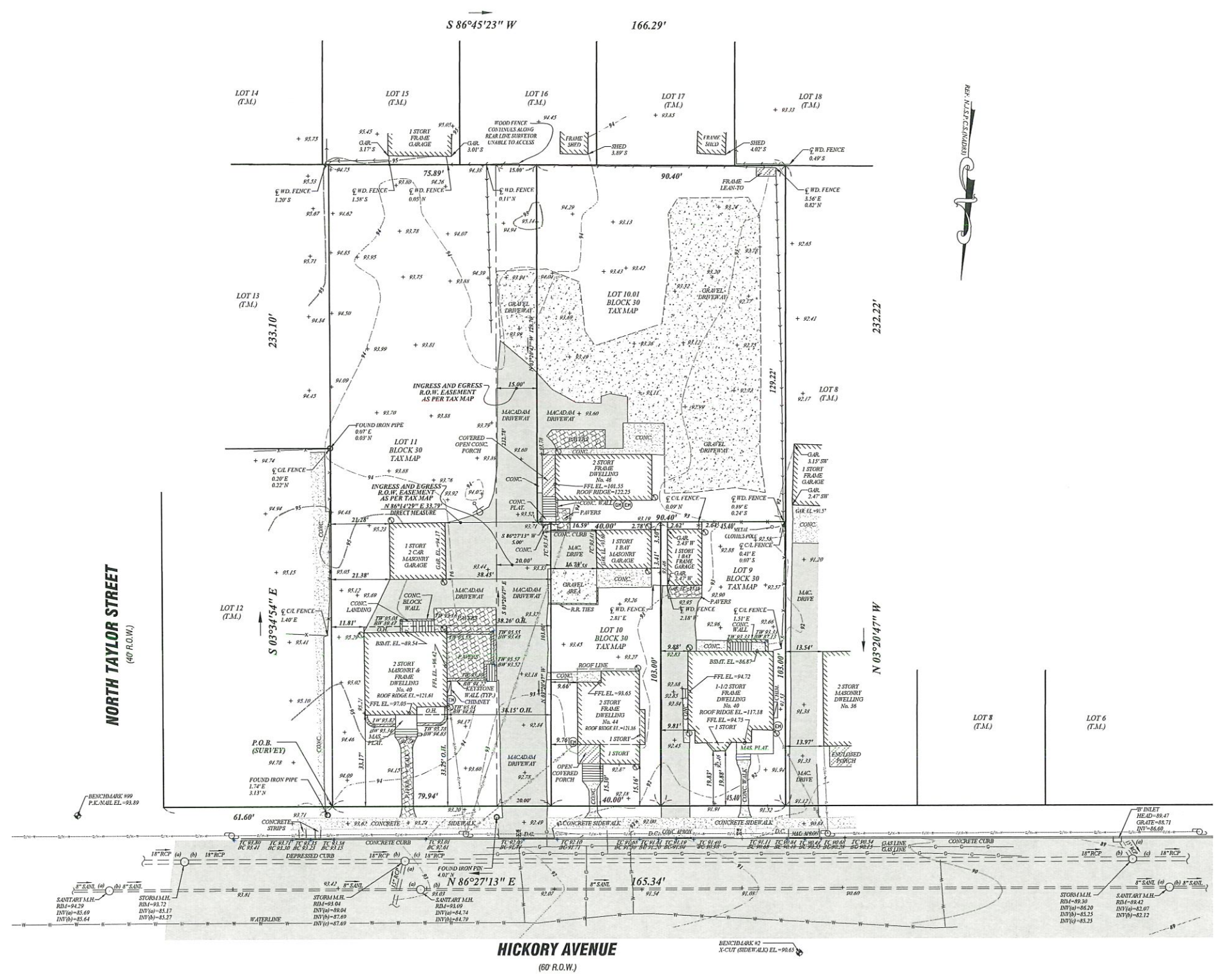
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Drawing Name
 DETAIL SHEET
 Drawing Number:
 C-903
 14 OF 15

ENGINEER OF RECORD

GERARD P. GESARIO, PE
M.E. PROFESSIONAL
Exp. 4/2022





SURVEYORS NOTES:

- A written waiver and direction not to set corner markers has been obtained from the ultimate user pursuant to "P.L. 2003, C.14 (N.J.S.A. 45:8-36.3) and N.J.A.C. 13:40-5.2(D)."
- The utilities shown have been located from evidence observed on the surface only. The surveyor makes no guarantee that the utilities shown comprise all such utilities in the area, either in-service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated. The surveyor has not physically located the underground utilities.
- Location of sub-surface improvements are not part of this survey. Example: oil tanks, sanitary-septic and cess pool systems, wells, gas lines, sewer laterals, water mains, etc.
- Riparian claims, riparian rights and conveyance map were not reviewed or considered part of this survey.
- Except as specifically stated or shown on this plat, this survey does not purport to reflect any of the following which may be applicable to the subject real estate: easements, other than those easements that were visible or on record at the time of the making of this survey; building setback lines; restrictive covenants; subdivision restrictions; zoning or other land use regulations and any other facts that an accurate and current title search may disclose.
- Declaration is made to original purchaser of the survey. It is not transferable to additional institutions or subsequent owners.
- Survey is valid only if print has original seal and signature of surveyor.
- Subsurface and environmental conditions were not examined or considered as a part of this survey.
- Subject to any and all easements or restrictions either recorded or unrecorded.
- This survey does not purport to represent or determine Flood Hazard Areas, Riparian Zones, Wetlands Location or Buffer Zones, etc. as established by the Federal Emergency Management Agency and/or the New Jersey Department of Environmental Protection and are not considered part of contractual obligations under this survey. Ultimate user shall secure the services of a certified Ecologist or Engineer.
- Flood plain maps were not reviewed or considered part of this survey.
- The retracement of the boundary depicted herein by the surveyor is based upon the evidence found and recorded and the opinion of the surveyor as to the validity of such evidence, any representation herein is not to publish disparagement of title of the subject property or adjoining land owners. The ultimate users of this survey shall have acknowledged that this survey could be made public and that the surveyor and company have no fiduciary duty or confidentiality obligation to the client or users.
- This survey represents a positional location of recorded deed lines and not to represent or determine ownership to ultimate users of this survey.

Lot Area

Tax Lot 9=	4,676± sq. ft.
Tax Lot 10=	4,120± sq. ft.
Tax Lot 10.01=	11,703± sq. ft.
Tax Lot 11=	18,672± sq. ft.
Combined Lot Area =	35,578± sq. ft.

38,578

Vertical Datum is NAVD88 utilizing dual freq. diff. GPS. Benchmarks are NGS Cor stations: LAMT, ellip. ht.= 90.181m, NT2, ellip. ht.= 179.17m, NJMT, ellip. ht.= 101.119m, NUSC, ellip. ht.= 172.957m, NYMD, ellip. ht.= 128.211m. All elevations are shown in US survey feet.

Contour Interval is 1.0 Foot.

MAP REFERENCE:

A Map Entitled "Map of Property Belonging to Mrs John Esser, Bergenfield, New Jersey" and dated September 22, 1920. Said map being filed in the Bergen County Register's Office on October 23, 1920 as Map No. 1697.

LEGEND	
BASKETBALL-HOOP	
MAILBOX	
UTILITY POLE	
WATER VALVE	
GAS METER	
ELECTRIC METER	
ROOF LEADER	
WATER LINE (UG)	
GAS LINE (UG)	
WIRES (OVERHEAD)	
WOOD STOCKADE FENCE	
CHAIN LINK FENCE	
KEYSTONE WALL	
CONC. WALL	
BENCHMARK	

REVISION DATE	DESCRIPTION	BY

BOUNDARY AND TOPOGRAPHY SURVEY OF

TAX LOT 9, BLOCK 30, A.K.A. 40 HICKORY AVENUE
TAX LOT 10, BLOCK 30, A.K.A. 44 HICKORY AVENUE
TAX LOT 10.01, BLOCK 30, A.K.A. 46 HICKORY AVENUE
TAX LOT 11, BLOCK 30, A.K.A. 48 HICKORY AVENUE
BOROUGH OF BERGENFIELD, BERGEN COUNTY, NEW JERSEY

DMC ASSOCIATES, INC.
PROFESSIONAL LAND SURVEYORS
211 MAIN STREET, BUTLER, NJ 07405
TEL: (973) 838-9187 FAX: (973) 838-4389 INFO@DMCSURVEYING.COM

PRELIMINARY

ROBERT L. CIGOL, N.J.P.L.S. No. 24GS04026100
CERTIFICATE OF AUTHORIZATION No. 24GA27919000

DRAWN BY: JAD	SCALE: 1" = 20'	DATE: 10/05/2020	SHEET No.: 1 OF 1	DMC No.: 2009080
---------------	-----------------	------------------	-------------------	------------------



BUILDING A FRONT ELEVATION RENDERING



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No. 1046 State of New Jersey Registration No. 101
No. 1046 State of New Jersey Registration No. 101

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JOHN A. BENDER, PE

JOHN A. BENDER, PE

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ANJEEET SIKSHI, RA
MICHAEL J. VORLAND, AIA

Project: SIXBORO TOWNHOUSE DEVELOPMENT
40, 44, 46, 48 HICKORY AVENUE
BLOCK 30 LOT 6, 9, 10, 11
BERGENFIELD, NEW JERSEY
BERGEN COUNTY

Project Number: SIXBORO20-214-18
Scale: AS NOTED
Drawn By: KP
Approved By: MBJ

Drawing Name:

BUILDING EXTERIOR RENDERING

Drawing Number:

SD-001

OF

Initial Date: 10.29.2020

DESIGN PROFESSIONAL OF RECORD

MATTHEW B. JARMEL, AIA, MBA
NJC-210020100 SEP 19/20



BUILDING A FRONT ELEVATION RENDERING



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Project: SIXBORO TOWNHOUSE DEVELOPMENT
40, 44, 46, 48 HICKORY AVENUE
BLOCK 30 LOT 6, 9, 10, 11
BERGENFIELD, NEW JERSEY
BERGEN COUNTY

Project Number:	Scale:
SIXBORO20-214-18	AS NOTED
Drawn By:	Approved By:
KP	MBJ

Drawing Name:
BUILDING EXTERIOR RENDERING

Drawing Number:
SD-002
OF
Initial Date: 10.29.2020

DESIGN PROFESSIONAL OF RECORD

MATTHEW B. JARMEL, AIA, MBA
N.J.C.E. 29062007 EXP 12/31/21



UNIT SQUARE FOOTAGE		
UNIT COUNT	UNIT TYPE	AREA
18	UNIT A TYPICAL LEVEL 1 LEVEL 2 LEVEL 3	1943 SQ. FT. 421 SQ. FT. 781 SQ. FT. 781 SQ. FT.
1	AFFORDABLE 1 BR LEVEL 1	642 SQ. FT.
1	AFFORDABLE 2 BR - TYPE 1 LEVEL 1	642 SQ. FT.
1	AFFORDABLE 2 BR - TYPE 2 LEVEL 1 LEVEL 2 LEVEL 3	1377 SQ. FT. 111 SQ. FT. 755 SQ. FT. 511 SQ. FT.
1	AFFORDABLE 3 BR LEVEL 1 LEVEL 2 LEVEL 3	1377 SQ. FT. 111 SQ. FT. 755 SQ. FT. 511 SQ. FT.



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Project: SIXBORO TOWNHOUSE DEVELOPMENT
40, 44, 46, 48 HICKORY AVENUE
BLOCK 30 LOT 5, 9, 10, 11
BERGENFIELD, NEW JERSEY
BERGEN COUNTY

Project Number: SIXBORO20-214-18 Scale: AS NOTED

Drawn By: KP Approved By: MBJ

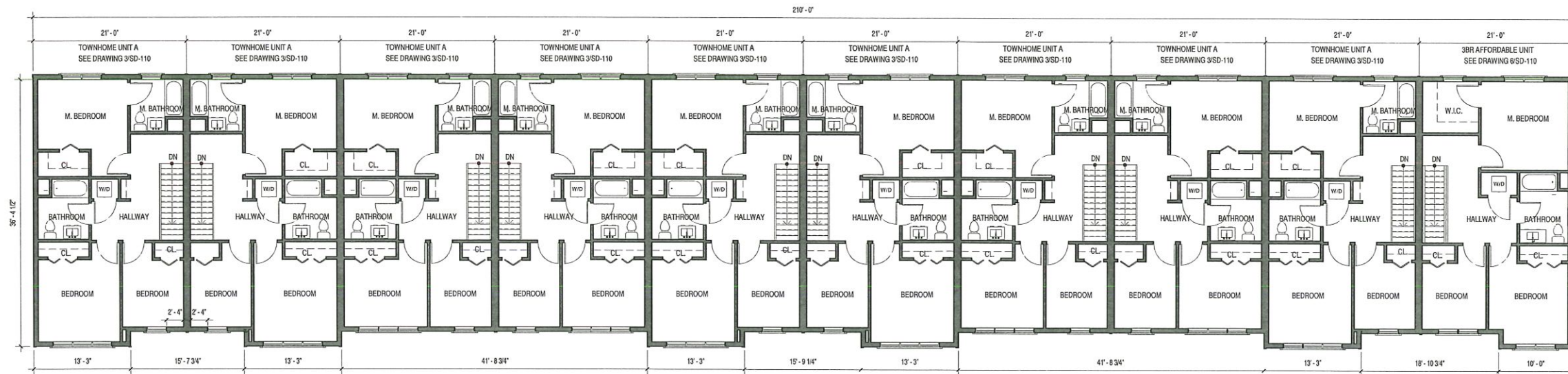
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Drawing Number: SD-100

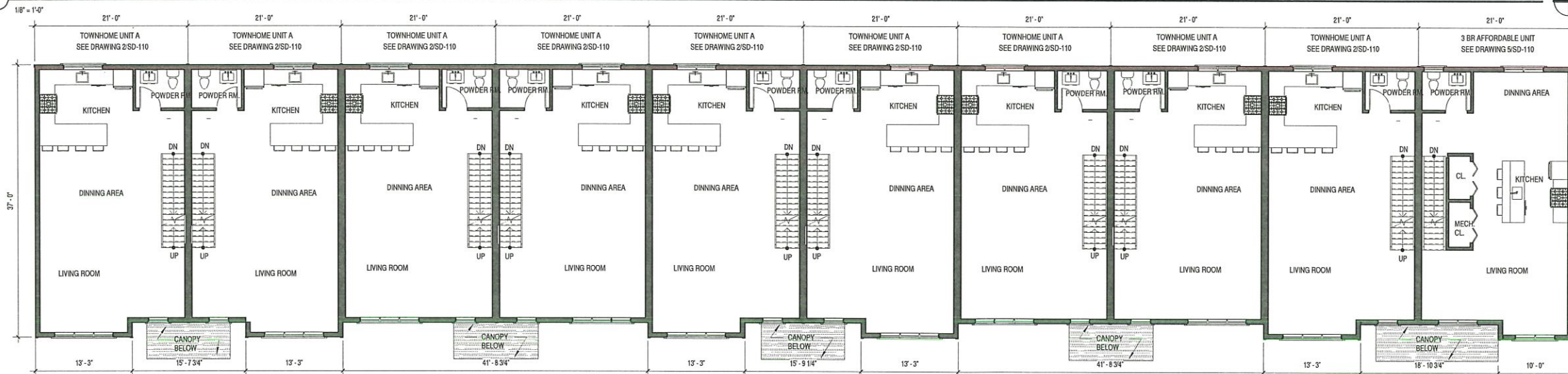
Initial Date: 10.29.2020

DESIGN PROFESSIONAL OF RECORD

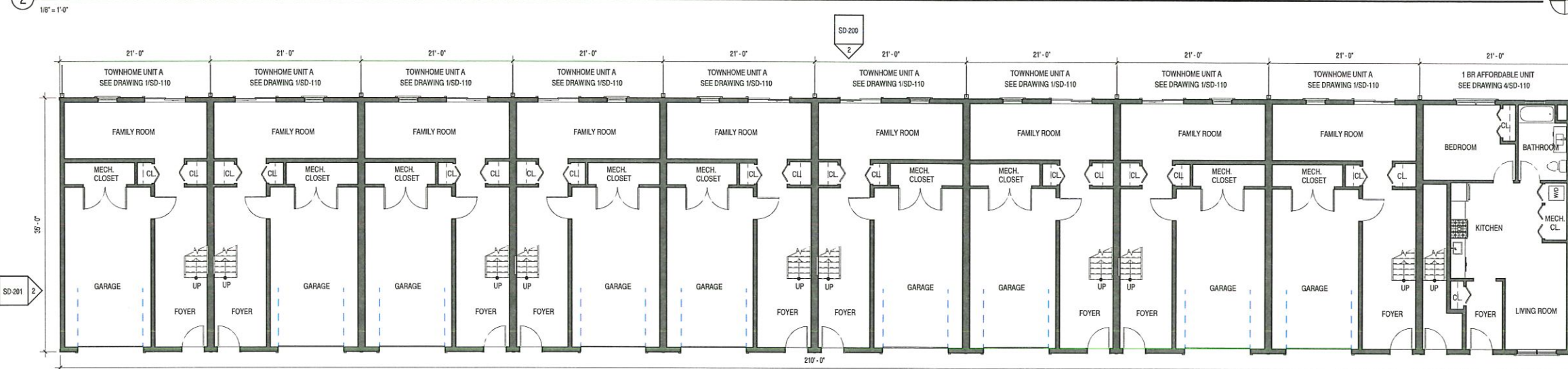
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NJ State Board Of Engineers & Land Surveyors Authorization No. GA-278177



1 BUILDING A 3RD FLOOR PLAN



2 BUILDING A 2ND FLOOR PLAN



3 BUILDING A FIRST FLOOR PLAN



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Project: SIXBORO TOWNHOUSE DEVELOPMENT
40, 44, 46, 48 HICKORY AVENUE
BLOCK 30 LOT 6, 9, 10, 11
BERGENFIELD, NEW JERSEY
BERGEN COUNTY

Project Number: SIXBORO20-214-18 Scale: AS NOTED

Drawn By: Author Approved By: MBJ

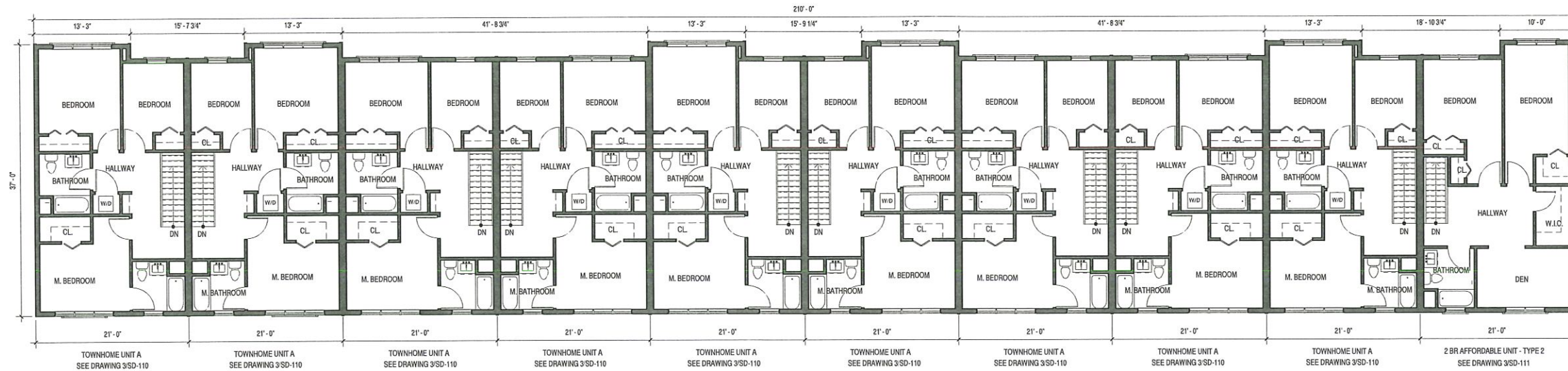
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Drawing Number: SD-101

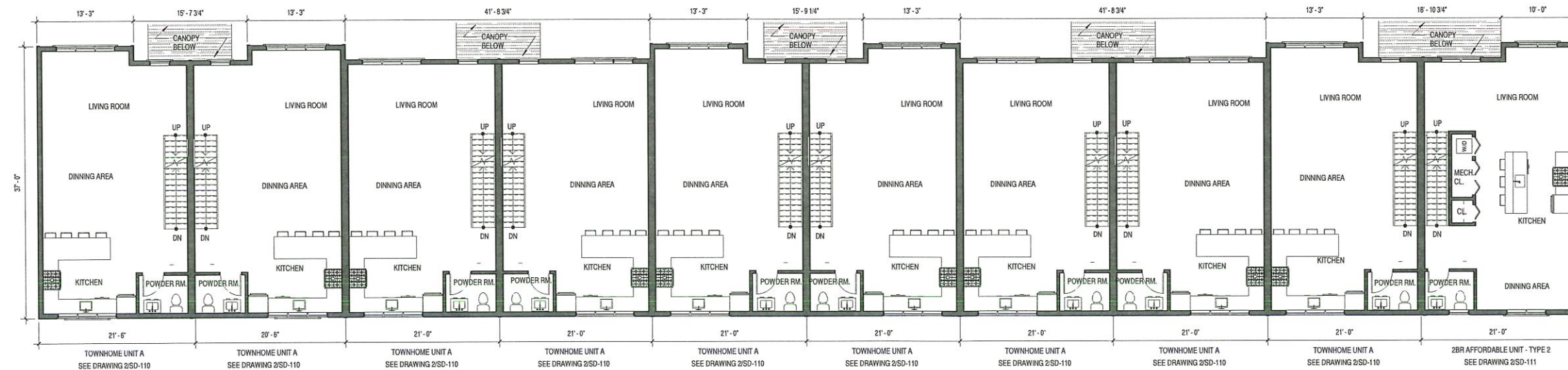
Initial Date: 10.29.2020

DESIGN PROFESSIONAL OF RECORD

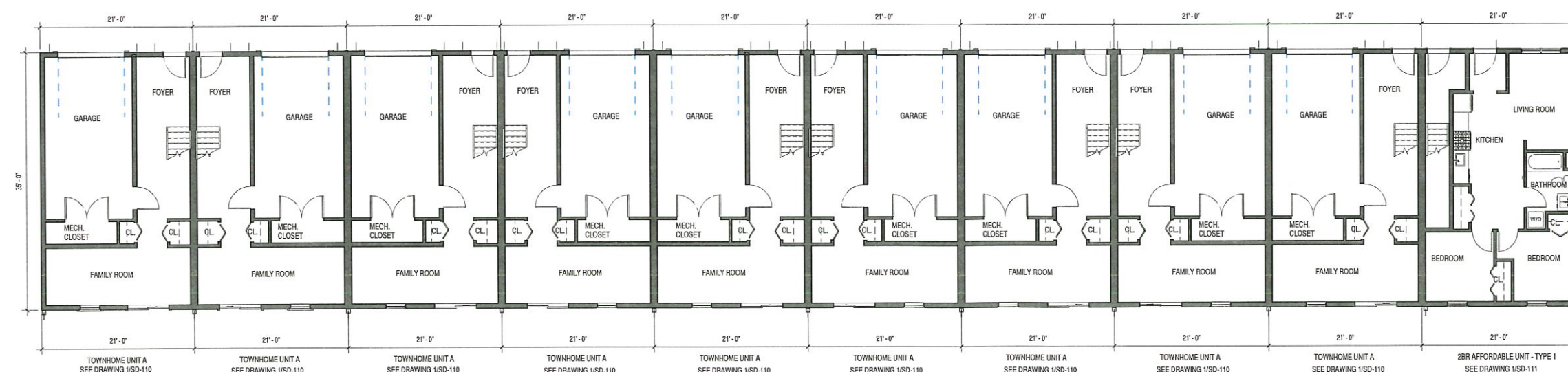
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NJ State Board Of Engineers & Land Surveyors Authorization No. GA-278177



1 BUILDING B 3RD FLOOR PLAN
1/8" = 1'-0"



2 BUILDING B 2ND FLOOR PLAN
1/8" = 1'-0"



3 BUILDING B FIRST FLOOR PLAN
1/8" = 1'-0"



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Project: SIXBORO TOWNHOUSE DEVELOPMENT
40, 44, 46, 48 HICKORY AVENUE
BLOCK 30 LOT 5, 9, 10, 11
BERGENFIELD, NEW JERSEY
BERGEN COUNTY

Project Number: SIXBORO20-214-18
Scale: AS NOTED
Drawn By: Author
Approved By: MBJ

Drawing Name:

BUILDING B FLOOR PLANS

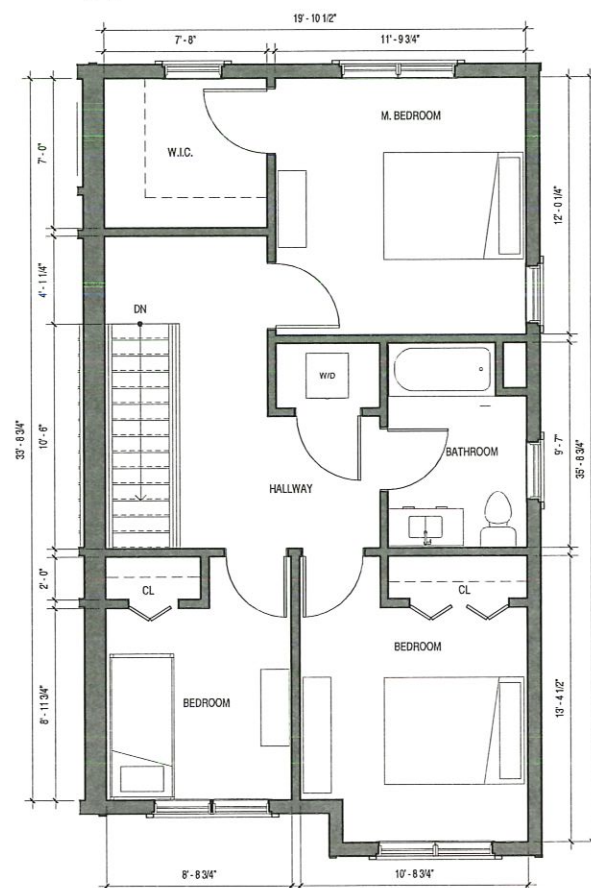
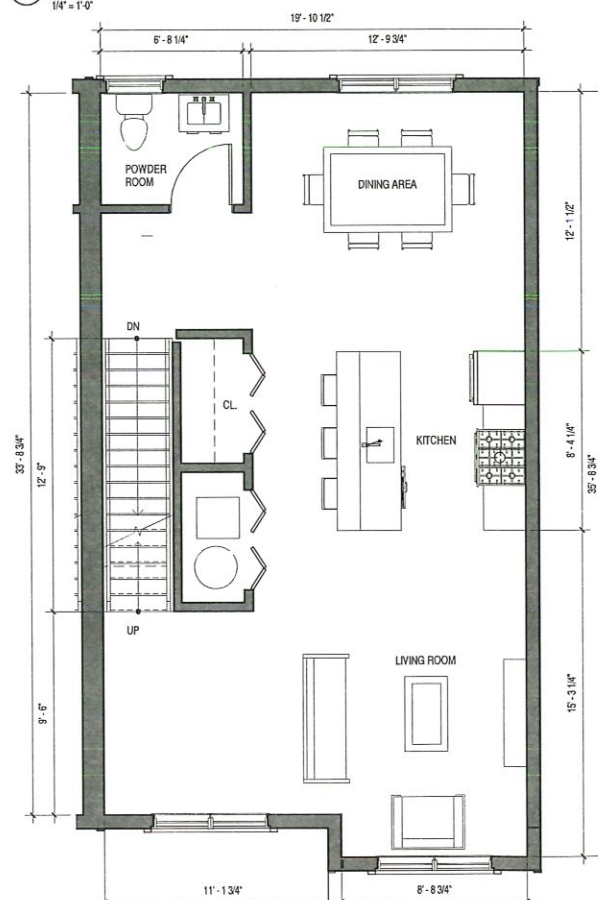
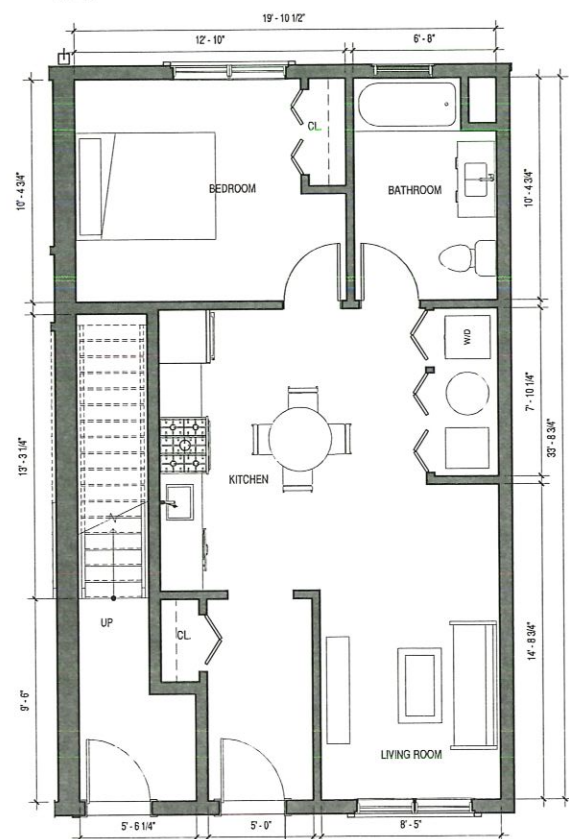
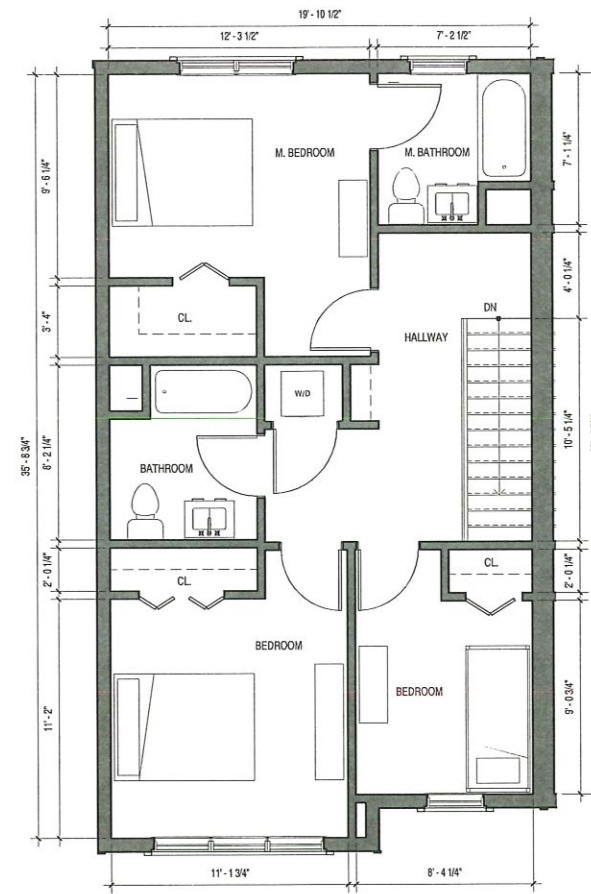
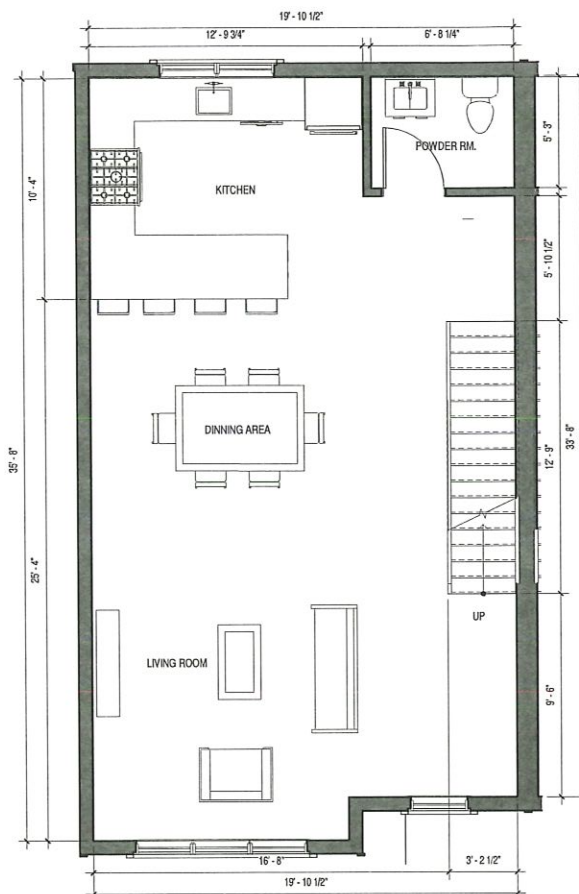
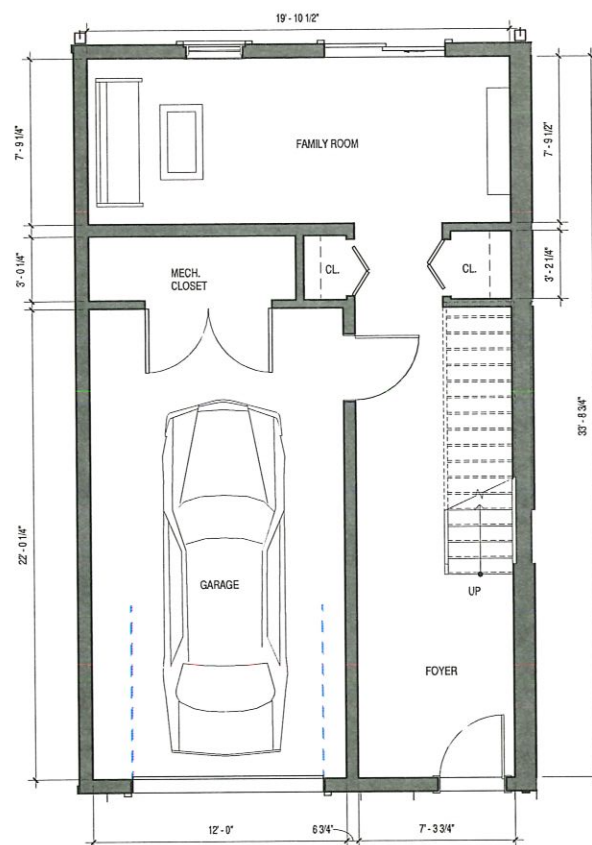
Drawing Number:

SD-102
OF

Initial Date: 10.29.2020

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[illegible][illegible]

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AMEET SINGH, RA
MICHAEL J. VORLAND, AIA

Project: **SIXBORO TOWNHOUSE
DEVELOPMENT**
40, 44, 46, 48 HICKORY AVENUE
BLOCK 30 LOT 6, 9, 10, 11
BERGENFIELD, NEW JERSEY
BERGEN COUNTY

Project Number:	Scale:
SIXBORO20-214-18	AS NOTED

Drawn By: KP	Approved By: MBJ
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RI
Drawing Name:

UNIT FLOOR PLANS

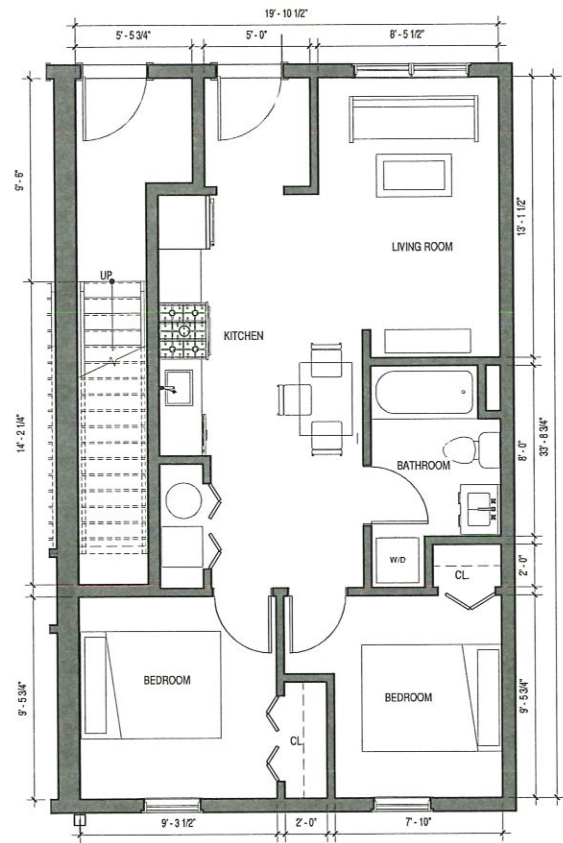
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SD-110

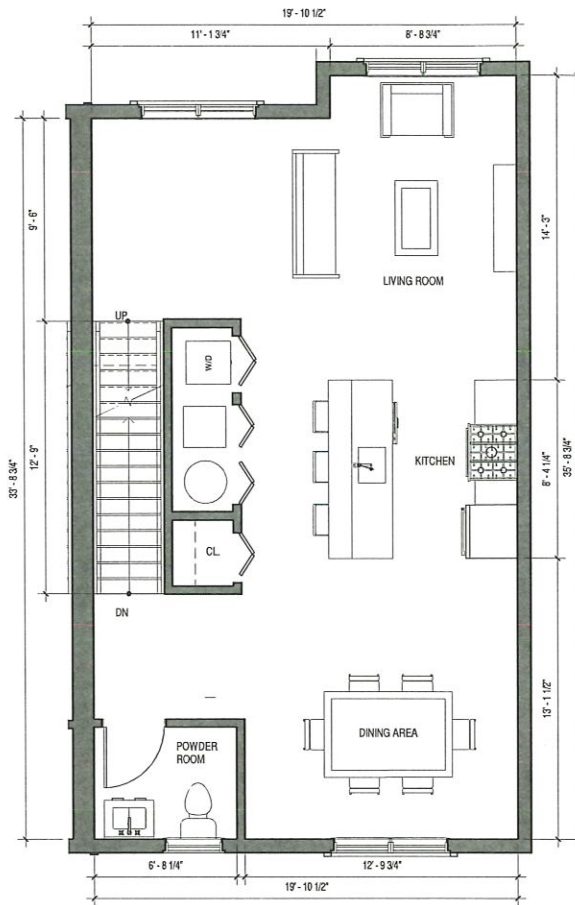
Initial Date: 10.29.2020

DESIGN PROFESSIONAL OF RECORD

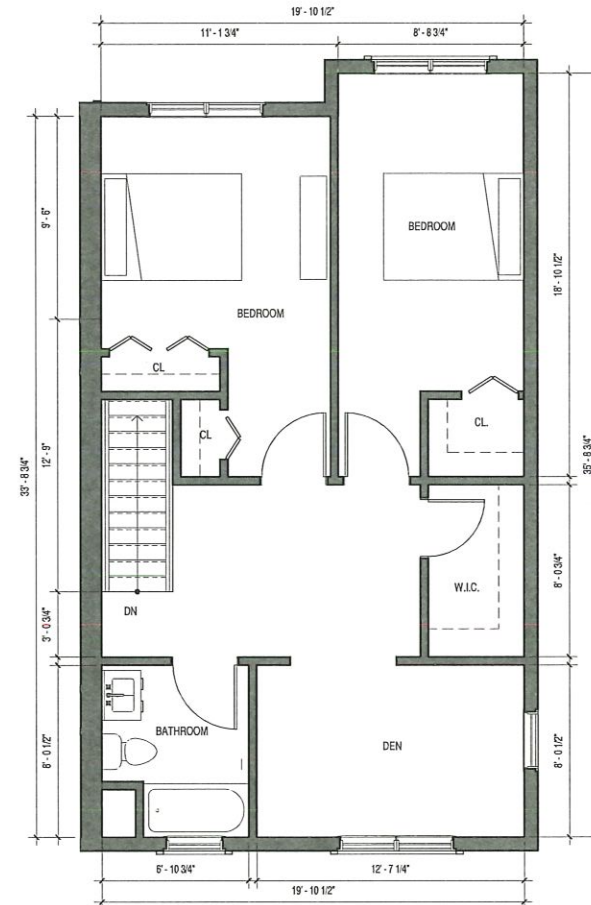
MATTHEW B. JARMEL, AIA, MBA



1 AFFORDABLE 2-BR UNIT (TYPE 1) - FLOOR PLAN
1/4" = 1'-0"



2 AFFORDABLE 2-BR UNIT (TYPE 2) - LEVEL 1
FLOOR PLAN
1/4" = 1'-0"



3 AFFORDABLE 2-BR UNIT (TYPE 2) LEVEL 2
FLOOR PLAN
1/4" = 1'-0"



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MICHAEL J. VORLAND, AIA

Project:
SIXBORO TOWNHOUSE DEVELOPMENT
40, 44, 46, 48 HICKORY AVENUE
BLOCK 30 LOT 6, 9, 10, 11
BERGENFIELD, NEW JERSEY
BERGEN COUNTY

Project Number: SIXBORO20-214-18
Scale: AS NOTED
Drawn By: Author
Approved By: MBJ

Drawing Name:

UNIT FLOOR PLANS

Drawing Number:

SD-111
OF

Initial Date: 10.29.2020

DESIGN PROFESSIONAL OF RECORD

MATTHEW B. JARMEL, AIA, MBA
NJ Lic. 210022202 EXP. 7/1/21



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Project: SIXBORO TOWNHOUSE DEVELOPMENT
40, 44, 46, 48 HICKORY AVENUE
BLOCK 30 LOT 6, 9, 10, 11
BERGENFIELD, NEW JERSEY
BERGEN COUNTY

Project Number: SIXBORO20-214-18
Scale: AS NOTED
Drawn By: KS
Approved By: MBJ

Drawing Name:

BUILDING ELEVATIONS - 1 OF 2

Drawing Number:

SD-200
OF

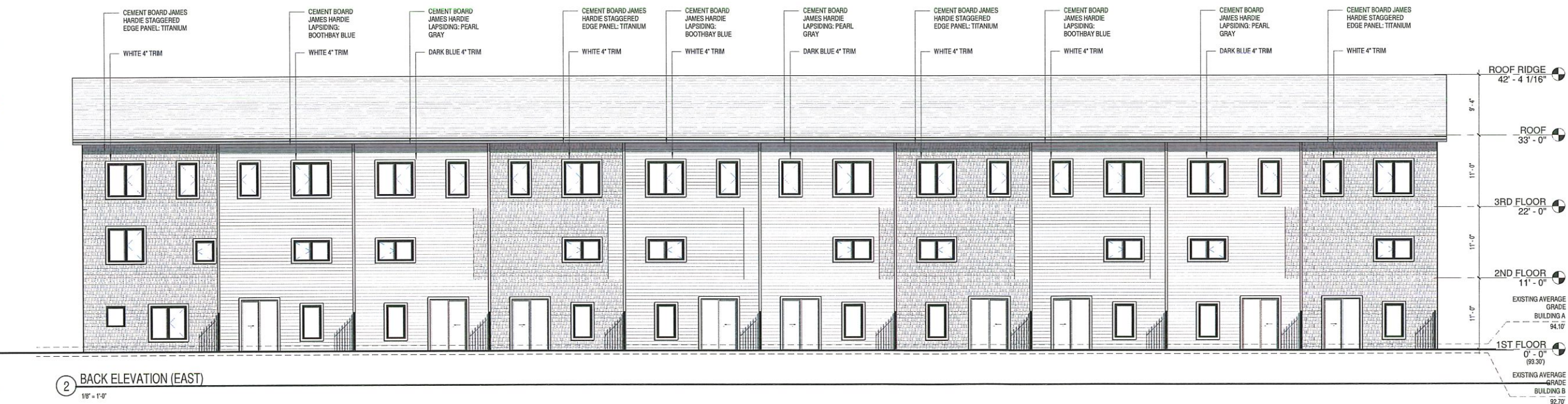
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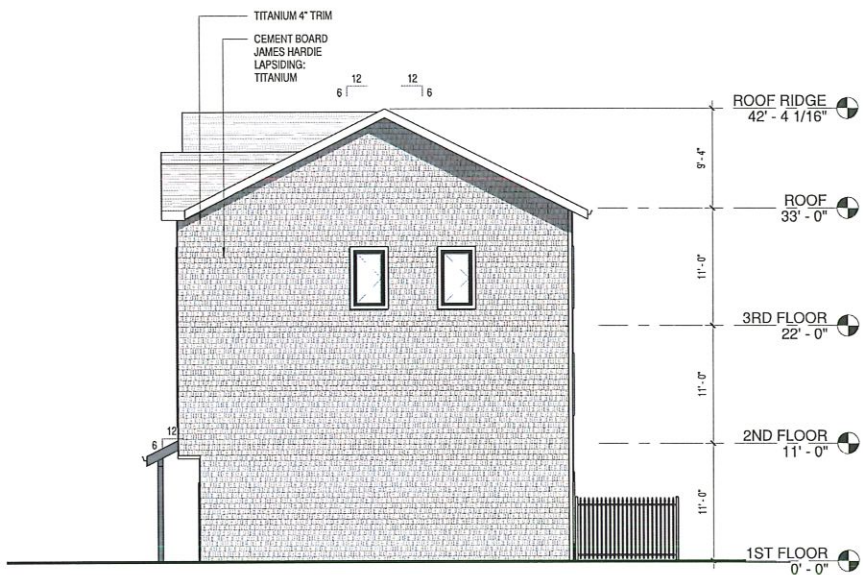
MATTHEW B. JARMEL, AIA, MBA
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NJ State Board of Engineers & Land Surveyors Authorization No. GA-276177



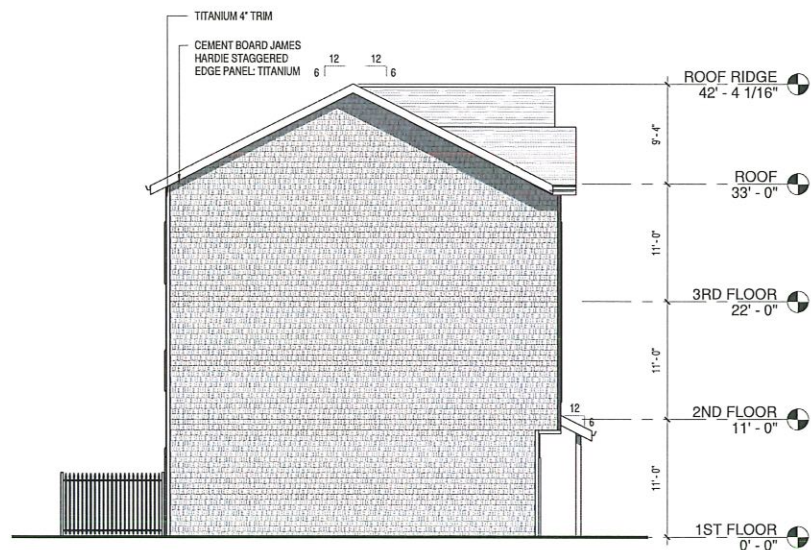
1 FRONT ELEVATION (WEST)
1/8\"/>



2 BACK ELEVATION (EAST)
1/8\"/>



① SIDE ELEVATION (SOUTH)
1/8" = 1'-0"



② STREET ADJACENT ELEVATION (NORTH)
1/8" = 1'-0"



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ISSUED

NO.	DATE	DESCRIPTION	INT
1.	01.21.2021	INITIAL ZONING BOARD MBJ SUBMISSION	

REVISIONS

NO.	DATE	DESCRIPTION	INT

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Project: SIXBORO TOWNHOUSE DEVELOPMENT
40, 44, 46, 48 HICKORY AVENUE
BLOCK 30 LOT 6, 9, 10, 11
BERGENFIELD, NEW JERSEY
BERGEN COUNTY

Project Number: SIXBORO20-214-18
Scale: AS NOTED
Drawn By: KS
Approved By: MBJ

Drawing Name:
BUILDING ELEVATIONS - 2 OF 2

Drawing Number:
SD-201
OF
Initial Date: 10.29.2020

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STORMWATER MANAGEMENT REPORT

FOR

HICKORY AVENUE TOWNHOMES

40 Hickory Sixboro, LLC

**40-48 Hickory Avenue
Block 30, Lots 9, 10, 10.01, and 11
Borough of Bergenfield
Bergen County, New Jersey**

**Report Prepared by
Jarmel Kizel Architects & Engineers, Inc.**

**Jarmel Kizel Project No. SIXBORO-S-20-214
February 10, 2021**

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- C. Proposed Peak Flow Hydrographs for 2-YR, 10-YR, 100-YR Storm Events
- D. Routed Basin Hydrographs for 2-YR, 10-YR, 100-YR Storm Events
- E. Annual Groundwater Recharge Calculations
- F. NRCS Soil Mapping Information
- G. Maps
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 - Grading & Drainage Plan
 - Existing Drainage Area Plan
 - Proposed Drainage Area Plan

INTRODUCTION

This report has been prepared on behalf of the applicant, 40 Hickory Sixboro, LLC, in support of their application for the construction of a 22-unit townhome style development to be located at 40-48 Hickory Avenue, Bergen County, New Jersey. *See Figure 1, Site Location Map.* The 22-unit development will be contained in two (2) separate buildings with each building containing nine (9) 3-bedroom townhomes. One building will also contain two (2) 2-bedroom apartment units and the other building will also contain one (1) 1-bedroom apartment unit and one (1) 3-bedroom apartment unit.

The project site consists of four (4) parcels identified on Borough Tax Maps as Lots 9, 10, 10.01, and 11 within Block 30. The purpose of this report is to present the stormwater runoff calculations performed for this development to demonstrate compliance with the Borough of Bergenfield Code Chapter 268 Stormwater Management. This report is intended to address requirements specifically with regard to the four (4) components of a major development: stormwater quantity, stormwater quality, groundwater recharge, and erosion control.

PROJECT DESCRIPTION

The four (4) parcels that make up the development site total 38,578 square feet or 0.886 acres. The properties are currently developed with four (4) single-family detached houses and three (3) detached garage structures. The existing structures are accessed via asphalt drives, grave drives, and miscellaneous concrete and paver walkways. *See Appendix H, Map of Survey*

The combined parcels have a rectangular shape with an overall width of 165.3 feet and a depth of 233.6 feet. The development fronts on the south side of Hickory Avenue between Washington Avenue and 1st Street. The development site is located within the Borough's R-5 Zone and is surrounded by single-family detached residential homes on all four (4) sides.

Each of the two (2) proposed townhouse buildings will be three (3) stories. Each unit will have an asphalt driveway that will be accessed from a proposed 24-foot wide private road off of Hickory Avenue. The site slopes mildly from south to north having roughly 4 feet of grade change across the development property. No significant grade changes are proposed and the existing slope pattern will be maintained. *See Appendix I, Grading and Drainage Plan.*

The proposed development will increase the amount of impervious surface lot coverage when compared to the existing conditions thus increasing the peak stormwater runoff rates generated from the site. The development is considered a *major development* as defined by

the New Jersey Department of Environmental Protection (NJDEP) Best Management Practices (BMP) manual for stormwater. NJDEP defines a major development as any new development that will ultimately result in the disturbance of one or more acres of land, or increase impervious surfaces by one-quarter acre (10,890 square feet) or more. A major development must comply with three (3) components of stormwater management: Stormwater quantity, stormwater quality, and groundwater recharge. To meet the requirement, a sub-surface detention and infiltration system is proposed in conjunction with an outlet control structure designed to mitigate the increase in peak stormwater runoff rates such that the developed peak flow rates for the 2, 10, and 100-year storm events leaving the site are reduced to 50%, 75%, and 80%, respectively of the predeveloped peak flow rates generated by the site. A sub-surface infiltration system is also proposed and designed to store the NJDEP one-year water quality design storm and infiltrate through a layer of clean stone. The detention and infiltration system will work in conjunction with a single proprietary Manufactured Treatment Device (MTD) to address water quality.

ENVIRONMENTAL SITE ANALYSIS

As described in the Project Description, the properties are currently developed with four (4) single-family detached houses and three (3) detached garage structures. The existing structures are accessed via asphalt drives, grave drives, and miscellaneous concrete and paver walkways. There are no trees of note within the development parcels. The underlying soils are listed as Dunellen-Urban Land Complex (DuUB), 3 to 8 percent slopes. See *Appendix F, NRCS Soil Mapping Information*.

There are no wetlands, waterways, or other environmental critical areas that would create any constraints on development of these parcels.

PROPOSED STORMWATER MANAGEMENT

Existing Site Conditions

Under existing conditions there is one (1) single watershed as the entire development area drains from south to north onto Hickory Avenue. This one (1) watershed was broken up into two (20 sub-watersheds to separate out estimated off-site area that drains onto and through the development property. These sub-watershed areas are identified as Point of Analysis (POA) 1 and POA 2. See Appendix J Existing Drainage Area Plan. All runoff currently drains via sheet flow directly to Hickory Avenue and into the existing 18-inch storm sewer within Hickory Avenue.

The Rational Method was used to calculate the existing peak runoff rates. Runoff Coefficients (C) values used were as follows:

- Buildings, Concrete, Asphalt: 0.95
- Gravel Drives: 0.65
- Paver Patios, Paver walkways: 0.65

Because the development site is small (less than 1 acre) and fully developed, a minimum Time of Concentration, Tc, of 10 minutes was assumed and used in the calculations.

A summary of the existing peak flow rates for the 2, 10, and 100-year storm events are provided in Table 1 below.

Table 1: Existing Condition Peak Flows

Storm Event	Existing Peak Flow (cfs)		
	Site Area to Hickory Avenue	Off-Site Area passing thru Development to Hickory Avenue	Total Existing Peak Runoff to Hickory Avenue
2-YR	2.12	0.35	2.47
10-YR	2.80	0.46	3.26
100-YR	3.84	0.63	4.47

See Appendix B for Existing Hydrograph calculations

Proposed Site Conditions

Under proposed conditions, the same watershed area as described under the existing conditions was examined for comparison of pre-developed to developed peak flows. In doing so, the developed watershed area site was divided into two (2) sub-watershed areas. These areas are identified as: 1) Developed area collected and conveyed via pipe to detention; 2) Developed area that bypass detention and drain directly onto Hickory Avenue. See Appendix K Proposed Drainage Area Plan. All roof drainage will be collected and piped to the detention system.

The Rational Method was used to calculate the proposed peak runoff rates. Runoff Coefficients (C) values used were as follows:

- Buildings, Concrete, Asphalt: 0.95
- Landscape\Lawn Areas: 0.35

Because the development site is small (less than 1 acre), a minimum Time of Concentration, Tc, of 10 minutes was assumed and used in the calculations.

A summary of the proposed peak flow rates for the 2, 10, and 100-year storm events are provided in Table 2 below.

Table 2: Proposed Condition Peak Flows

Storm Event	Proposed Peak Flow (cfs)		
	Runoff Collected and Conveyed to Detention	Runoff Bypassing Detention	Total Proposed Peak Runoff
2-YR	2.80	0.08	2.88
10-YR	3.69	0.10	3.79
100-YR	5.07	0.14	5.21

See Appendix C for Proposed Condition Hydrograph calculations

Detention Basin Design

The proposed detention system will consist of 370 L.F. of 30-inch HDPE pipe. The 30-inch pipe will convey runoff from two (2) directions into a 5-foot x 7-foot concrete outlet structure. Within the outlet structure will be a weir wall used to mitigate the inflow to meet the outflow design criteria. The weir wall proposed will utilize a 6-inch low flow orifice at elevation 86.80, a secondary 12-inch orifice at elevation 88.60, and a 12-inch rectangular weir set at elevation 89.40.

The outflow design criteria requires that the developed peak flow rates for the 2, 10, and 100-year storm events leaving the site are reduced to 50%, 75%, and 80%, respectively of the predeveloped peak flow rates generated by the site. The reduction factors are applied to the peak flow results presented in Column 2 of Table 1 above. Reduction factors do not get applied to the off-site runoff as that flow is allowed to be collected and pass through the detention system.

The hydrographs used for the basin model routing are computed using the Modified Rational Method. The Modified Rational Method was developed to provide a more accurate portrayal of the peak flow and volume entering into a storage facility. This method reduces the peak flow obtained via the Rational Method by approximately one-third and extends the time duration of the peak flow for 3 times the Time of Concentration used in the analysis.

Outflow from the basin will be conveyed from the proposed outlet structure with a 15-inch RCP to a new doghouse manhole structure on the existing 18-inch storm sewer within Hickory Avenue. Tables 3 and 4 below provide an overall summary relative to calculating the total allowable peak flow from the site and the actual total site peak flows, respectively.

Table 3: Summary of Peak Discharges and Allowable Site Runoff (cfs)

Storm Event	Pre-Developed Peak Flow from Project Site (Table 1, Column 2)	Applicable Reduction Factor	Adjusted Existing Peak Flow	Offsite Peak Flow to Basin (Table 1, Column 3)	Total Allowable Peak Flow (Column 4 + Column 5)
2-YR	2.12	50 %	1.06	0.35	1.41
10-YR	2.80	75 %	2.10	0.46	2.56
100-YR	3.84	80 %	3.07	0.63	3.70

Table 4: Summary of Proposed Peak Flows (cfs)

Storm Event	Total Allowable Peak Flow from Site (Table 3, Column 6)	Developed Peak Flow Bypassing Detention (Table 2, Column 3)	Allowable Detention System Routed Outflow (Column 2 – Column3)	Actual Detention System Routed Outflow	Confirm
2-YR	1.41	0.08	1.33	1.24	✓
10-YR	2.56	0.10	2.46	2.24	✓
100-YR	3.70	0.14	3.56	3.50	✓

See Appendix D for Basin Routing Hydrographs

Water Quality Design

Runoff from all paved areas will be collected by two (2) storm inlets. The water quality storm flow collected will be piped to a proprietary Manufactured Treatment Device (MTD) sized only for the runoff from the water quality storm. Larger storm flow will bypass the MTD and be piped directly to the detention system. The NJDEP water quality design storm is defined as 1.25-inches of rainfall over a 2-hour time period. The proposed MTD will be NJDEP certified to meet the required 80% total suspended solids (TSS) removal rate.

Groundwater Recharge

Groundwater recharge calculations were prepared using the NJDEP spreadsheets for calculating recharge deficits dues to development of land. See Appendix E for Recharge Spreadsheets The spreadsheets use the underlying soil with a comparison of pre and post-developed land cover to determine the annual post development recharge deficit. The post development annual recharge deficit for this development is 18,778 cubic feet. In order to address this deficit, a 110 linear feet portion of the 30-inch pipe detention system is designed as perforated pipe over a 24-inch bedding of clean stone. This system will provide for an annual recharge volume of 21,488 cubic feet. The proposed recharge volume of 21,488 cubic feet exceeds the calculated annual recharge deficit of 18,778 cubic feet thus satisfying the groundwater recharge requirement for a major development.

Nonstructural Stormwater Management Strategies (Low Impact Design)

The NJDEP list nine (9) nonstructural stormwater management strategies that a major development should strive to address. Not all strategies need to be incorporated into the development design. The development design should incorporate these strategies to the extent feasible based on the existing site conditions as well as the proposed development. In this particular case, the developer is re-purposing previously developed parcels of land that requires no clearing of vegetation, contains no environmentally sensitive areas, and no significant earthwork. By these facts alone, the proposed development is "low impact". Nonetheless, below are listed the nine (9) nonstructural strategies and a brief comment relative to same.

1. Protect areas that provide water quality benefits or are particularly susceptible to erosion. No portion of the development area falls within this low impact design strategy. The project parcels are developed with residential housing, paved drives, gravel drives and other site hardscape coverage. The site also has a mild slope of less than 2 percent across the land.
2. Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces. Impervious surface was limited to the minimum width for an access drive and driveways to each unit. There are landscape areas that separate most of the driveways helping to break up the impervious surface.
3. Maximize the protection of natural drainage features and vegetation. The existing site does not contain any natural drainage features or substantive vegetation.
4. Minimize the decrease in the time of concentration from pre-construction to post-construction. The relatively small size of the development (< 1 acre) suggests that the time of concentration difference pre-development to post-development will be de minimis. Under both conditions, the calculated time of concentration was less than the minimal suggested 10-minute minimum time to use in design computations.
5. Minimize land disturbance including clearing and grading. No clearing of vegetation is required on this site. Proposed grades are designed relatively close to existing grades to minimize need for large quantities of soil moving.
6. Minimize soil compaction. The proposed lawn and landscaped areas will be required to be prepared with hand tools and/or low impact machines.
7. Provide low maintenance landscaping that encourages the retention and planting of native vegetation and minimizes the use of lawns, fertilizers, and pesticides. No vegetation or landscaping of note exists on the current site. The proposed development will incorporate several small areas of plantings, small street trees plus an evergreen screen along the perimeter with minimal open lawn areas.
8. Provide vegetated open channel conveyance systems discharging into and through stable vegetated areas. The small nature of the site and the existing conditions in and

around the site plus the proposed development do not lend itself to this strategy. Small shallow grassed channels are incorporated in the rear of each proposed building.

9. Provide for other source controls to prevent or minimize the release of pollutants into stormwater runoff. The proposed development being residential no harmful or toxic pollutants are anticipated. Being residential, trash and recyclables will be collected regularly. In addition, the proposed storm inlets will utilize the current "Eco" castings.

EROSION CONTROL

The minimum design and performance standards for erosion control are established by the State of New Jersey under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq. and the latest edition of The Standards for Soil Erosion and Sediment Control in New Jersey. The proposed development incorporates such measures as inlet protection filters, silt fencing, and a stabilized construction entrance. In addition, the proposed development will seek and require approval from the Bergen County Soil Conservation District.

CONCLUSION

As stated in the Introduction section of this report, the purpose of this report is to present the stormwater runoff calculations performed for this development and to demonstrate compliance with the Borough of Bergenfield Code Chapter 268 Stormwater Management. This report is intended to address requirements specifically with regard to the four (4) components of a major development: stormwater quantity, stormwater quality, groundwater recharge, and erosion control. The design provided herein and as shown on the Preliminary\Final Site Plan drawings submitted as part of this application and which should be referenced when reading this report are intended to prevent or limit the impact of the proposed development on the site and the surrounding areas with respect to stormwater and erosion control.

It is our opinion, the provided narrative, summary tables, and attachments demonstrate compliance with the both the Borough of Bergenfield Code on stormwater management and NJDEP rules and regulations for a major development. Specifically, based on the results achieved through the detention basin routings and peak flow analysis, the development of this site is in compliance with the 50, 75, 80% reductions in the pre-developed peak flow rates for the 2, 10, and 100-year storm events, respectively, as well as compliance with the groundwater recharge standards demonstrated in Appendix E to this report, and compliance with the water quality standards through the use of a proprietary manufactured treatment device certified by the NJDEP.

FIGURE 1
SITE LOCATION MAP

The map displays the following locations and streets:

- Streets:** Sunnyside Ave, Dulles Dr, New York Ave, Merritt Ave, Tuscarora St, W Central Ave, E Central Ave, E Johnson Ave, Deerfield St, Christie St, Bradley Ave, Jacone St, E Main St, Grove St, S Woodside Ave, S Taylor St, Portland Ave, Long Ave, 1st St, 2nd St, Oak Pl, 4th St, 5th St, 6th St, 7th St, 8th St, 9th St, 10th St, 11th St, 12th St, 13th St, 14th St, 15th St, 16th St, 17th St, 18th St, 19th St, 20th St, 21st St, 22nd St, 23rd St, 24th St, 25th St, 26th St, 27th St, 28th St, 29th St, 30th St, 31st St, 32nd St, 33rd St, 34th St, 35th St, 36th St, 37th St, 38th St, 39th St, 40th St, 41st St, 42nd St, 43rd St, 44th St, 45th St, 46th St, 47th St, 48th St, 49th St, 50th St.
- Businesses and Landmarks:**
 - Domino's Pizza
 - Walgreens
 - Chase Bank
 - Staples
 - Love & Truth Church
 - Wendy's
 - TD Bank
 - Washington Avenue Pediatrics
 - Cooper Electric
 - 7-Eleven
 - St John Evangelist Roman Catholic
 - Johnson and Son
 - Sariling Atin
 - H&R Block
 - Applegate Park
 - Jefferson Elementary School
 - Energy Conservation Contractor
 - Ramirez German
 - Herb's Carpet & Upholstery
 - Stop & Shop
 - Burger King
- Other Labels:**
 - 40 Hickory Ave, Bergenfield, NJ 07621
 - Metzler Brook
 - Accu R
 - A Cle
 - partments
 - part
 - Free
 - States Service
 - American Mart
 - W Church St
 - E Church St
 - Carroll Ln
 - Hudson St
 - Willer St
 - Bogert Pl
 - Buon St
 - Ch



Initial Date: 2/10/2021

APPENDIX A

DRAINAGE SYSTEM CALCULATIONS SPREADSHEET

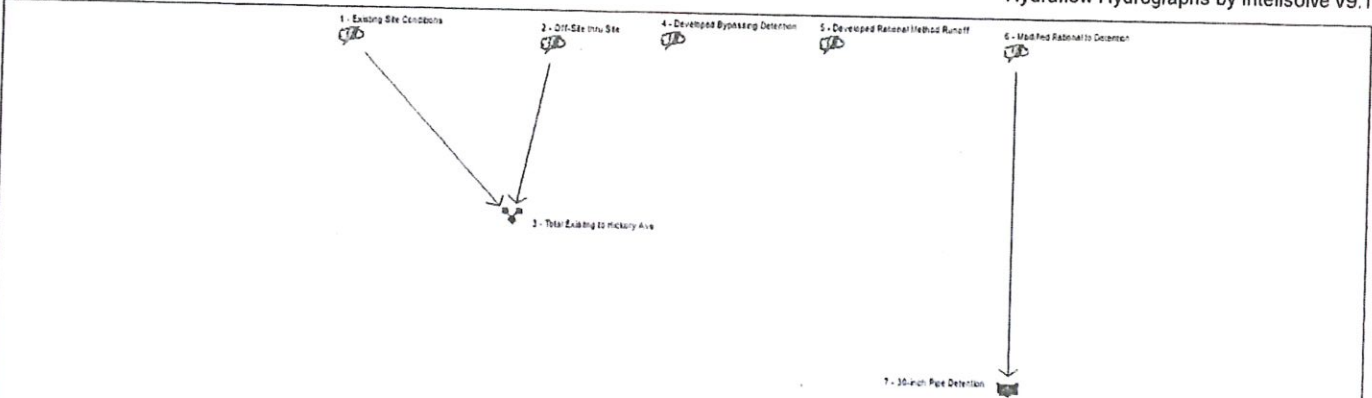
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CHKD BY: <u>GPG</u> DATE: <u>02/10/21</u>												DRAINAGE SYSTEM										PROJECT: <u>HICKORY AVENUE TOWNHOMES</u>																			
																						PROJ. NO.: <u>SIXBORO-S-20-214</u>																			
SUBAREA DATA												DESIGN DATA										DESIGN FLOW										PIPE DATA									
LOCATION FROM	TO	AREA	"C"	CxA	SUM CxA	TC	SUM TC	DES STM	"I"	INLET Qi	FLOW Qa	PIPE TYPE	SIZE IN	SLOPE %	CAP Qi	VEL Vi	%FULL Qa/Qi	VEL Va	DPH INCH	FLOW TIME	LGTH I-I	TOP GRATE	INVERTS			UPPER	LOWER	COVER													
AD-1	AD-2	0.136	0.57	0.08	0.08	6	6.0	25	7.50	0.58	0.58	SPP	12	2.00	5.46	6.95	11	4.5	2.6	0.3	70	92.00	90.00	88.60			1.00														
AD-2	AD-3	0.194	0.71	0.14	0.22	6	6.3	25	7.50	1.03	1.61	SPP	12	0.67	3.15	4.01	51	4.0	6.1	0.6	150	90.80	88.50	87.50			1.30														
AD-3	SMH-1	0.022	0.35	0.01	0.22	6	6.9	25	7.22	0.06	1.61	SPP	30	0.25	22.22	4.53	7	2.5	5.1	0.7	100	91.10	87.35	87.10			1.25														
INLET-1	INLET-2	0.218	0.9	0.20	0.20	6	6.0	25	7.50	1.47	1.47	RCP	15	1.00	6.46	5.26	23	4.2	4.8	0.1	23	91.00	88.55	88.32			1.20														
INLET-2	WQ-MTD	0.218	0.9	0.20	0.39	6	6.1	25	7.50	1.47	2.94	RCP	15	0.67	5.29	4.31	56	4.4	8.0	0.4	100	91.00	88.22	87.55			1.53														
SMH-1	OCS	0	0	0.00	0.62	6	7.5	25	7.08	0.00	4.36	SPP	30	0.25	22.22	4.53	20	3.5	9.0	0.2	50	92.50	87.03	86.90			2.97														
INLET-4	INLET-5	0.099	0.68	0.07	0.07	6	6.0	25	7.50	0.50	0.50	SPP	30	0.25	22.22	4.53	2	1.8	3.0	0.6	70	92.00	87.50	87.32			2.01														
INLET-5	OCS	0.155	0.8	0.12	0.19	6	6.6	25	7.22	0.90	1.38	SPP	30	0.25	22.22	4.53	6	2.4	4.7	1.0	150	90.80	87.27	86.90			1.03														

APPENDIX B

EXISTING PEAK FLOW HYDROGRAPHS 2, 10, AND 100-YEAR STORM EVENTS

Watershed Model Schematic

Hydraflow Hydrographs by Intellisolve v9.1



Legend

Hyd.	Origin	Description
1	Rational	Existing Site Conditions
2	Rational	Off-Site thru Site
3	Combine	Total Existing to Hickory Ave
4	Rational	Developed Bypassing Detention
5	Rational	Developed Rational Method Runoff
6	Mod. Rational	Modified Rational to Detention
7	Reservoir	30-inch Pipe Detention

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.1

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	Rational	2.125	1	10	1,275	---	----	----	Existing Site Conditions
2	Rational	0.348	1	10	209	---	----	----	Off-Site thru Site
3	Combine	2.474	1	10	1,484	1, 2	----	----	Total Exisitng to Hickory Ave
4	Rational	0.078	1	10	47	---	----	----	Developed Bypassing Detention
5	Rational	2.804	1	10	1,682	---	----	----	Developed Rational Method Runoff
6	Mod. Rational	1.944	1	10	2,566	---	----	----	Modified Rational to Detention
7	Reservoir	1.244	1	26	2,565	6	88.75	1,113	30-inch Pipe Detention
2021-01-22 GPG Model.gpw				Return Period: 2 Year			Tuesday, Feb 23, 2021		

Hydrograph Report

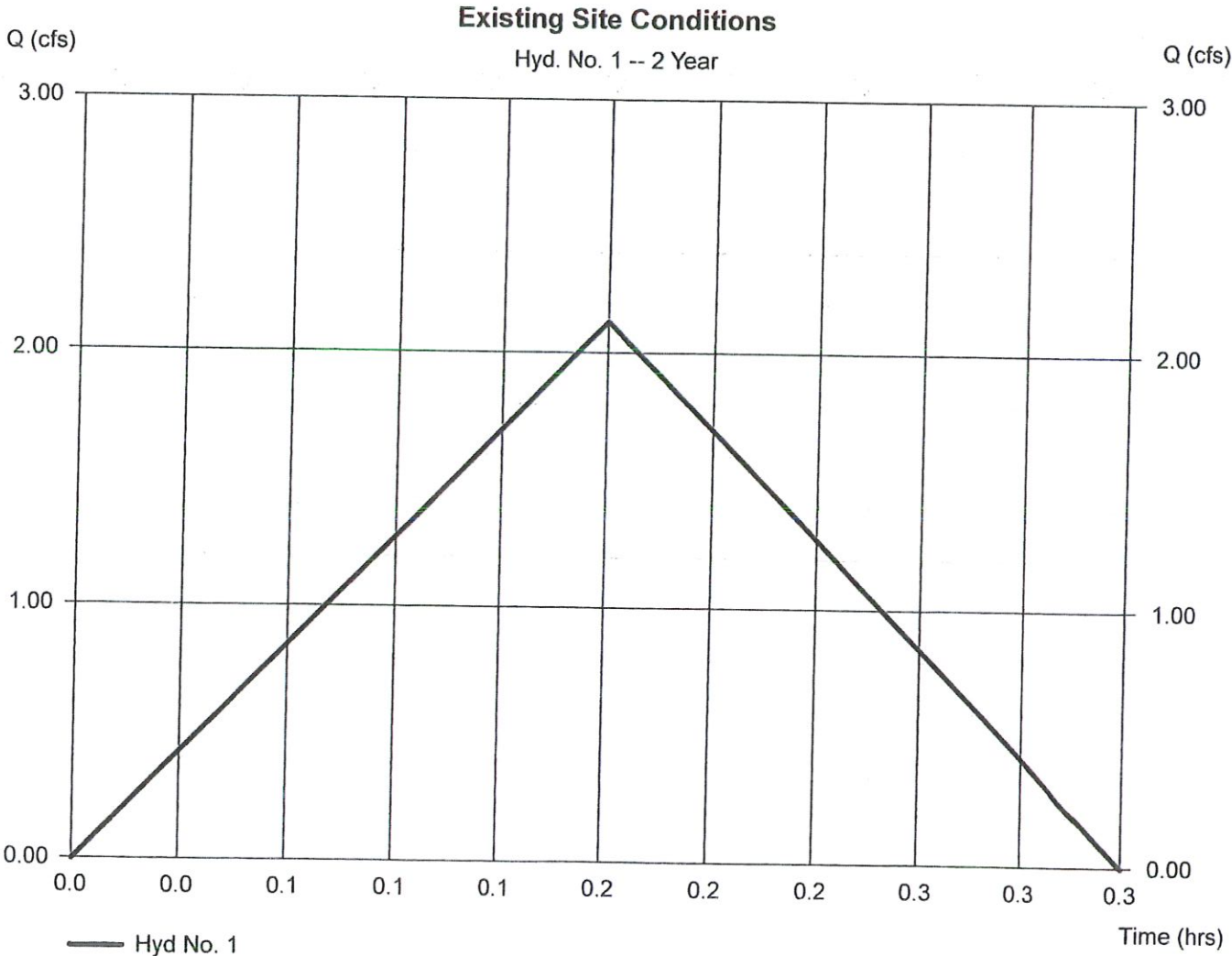
Hydraflow Hydrographs by Intelisolve v9.1

Tuesday, Feb 23, 2021

Hyd. No. 1

Existing Site Conditions

Hydrograph type	= Rational	Peak discharge	= 2.125 cfs
Storm frequency	= 2 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 1,275 cuft
Drainage area	= 0.886 ac	Runoff coeff.	= 0.57
Intensity	= 4.208 in/hr	Tc by User	= 10.00 min
IDF Curve	= Trenton, New Jersey.idf	Asc/Rec limb fact	= 1/1

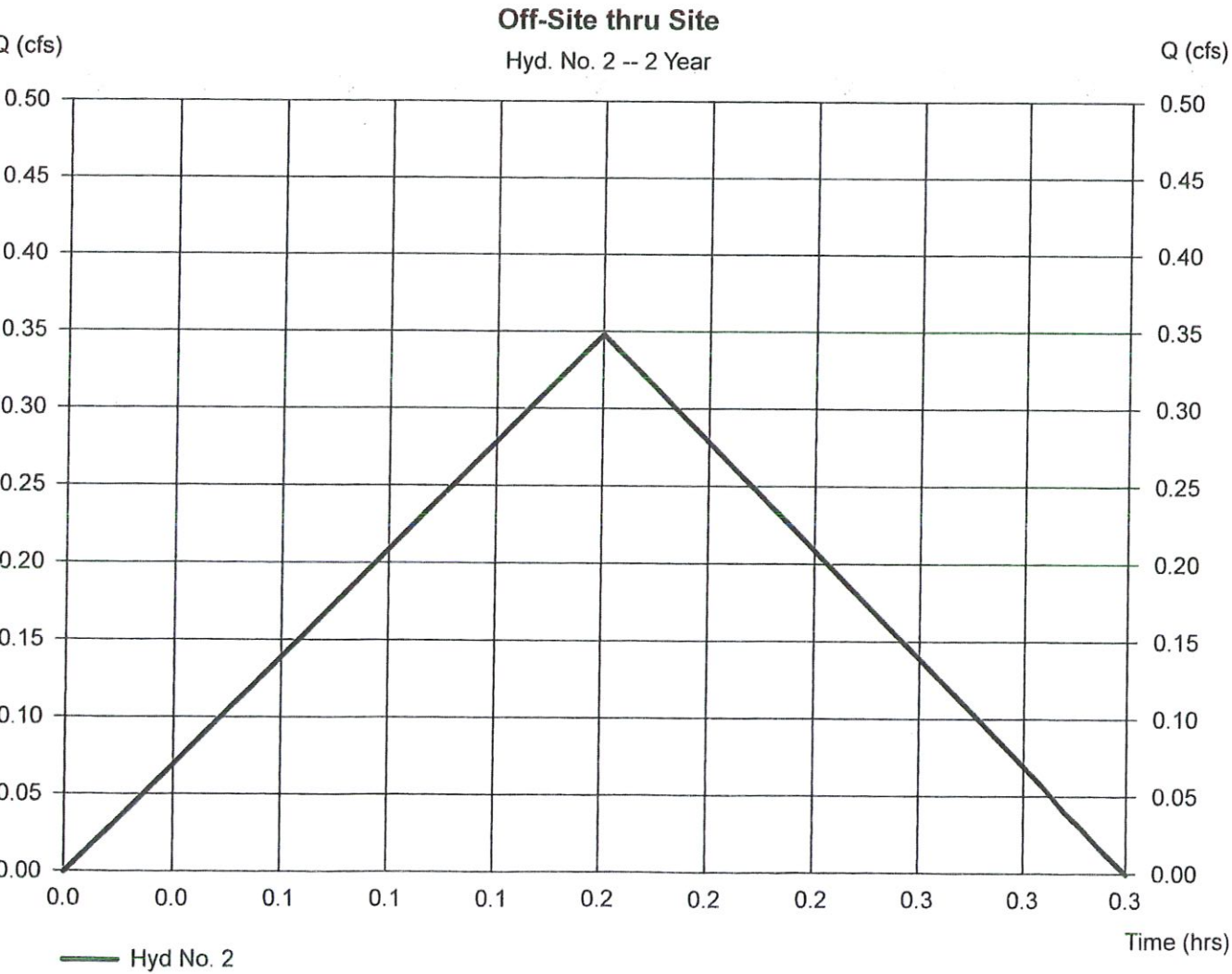


Hydrograph Report

Hyd. No. 2

Off-Site thru Site

Hydrograph type	=	Rational	Peak discharge	=	0.348 cfs
Storm frequency	=	2 yrs	Time to peak	=	0.17 hrs
Time interval	=	1 min	Hyd. volume	=	209 cuft
Drainage area	=	0.202 ac	Runoff coeff.	=	0.41
Intensity	=	4.208 in/hr	Tc by User	=	10.00 min
IDF Curve	=	Trenton, New Jersey.idf	Asc/Rec limb fact	=	1/1



Hydrograph Report

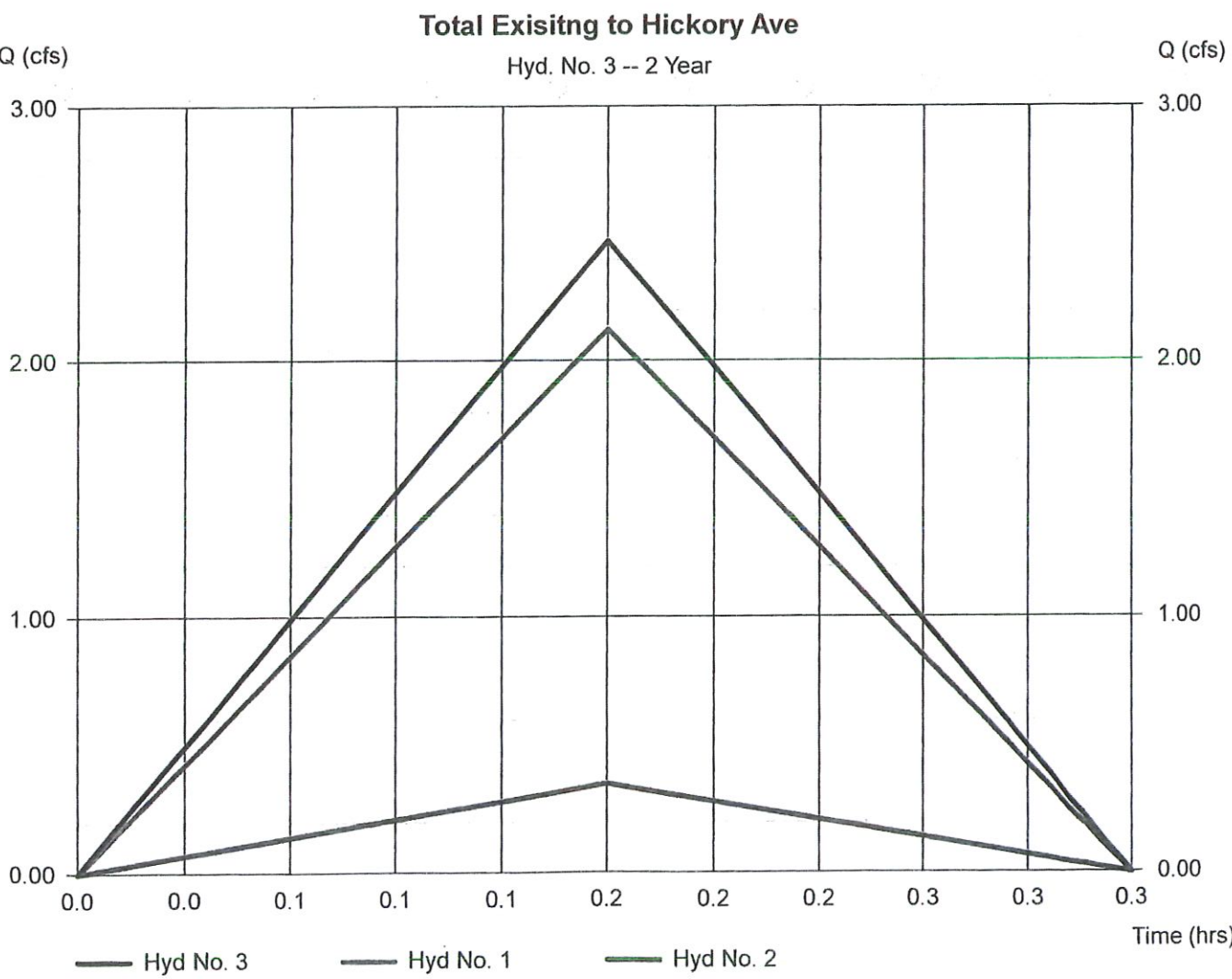
Hydraflow Hydrographs by Intelisolve v9.1

Tuesday, Feb 23, 2021

Hyd. No. 3

Total Exisitng to Hickory Ave

Hydrograph type	= Combine	Peak discharge	= 2.474 cfs
Storm frequency	= 2 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 1,484 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 1.088 ac



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.1

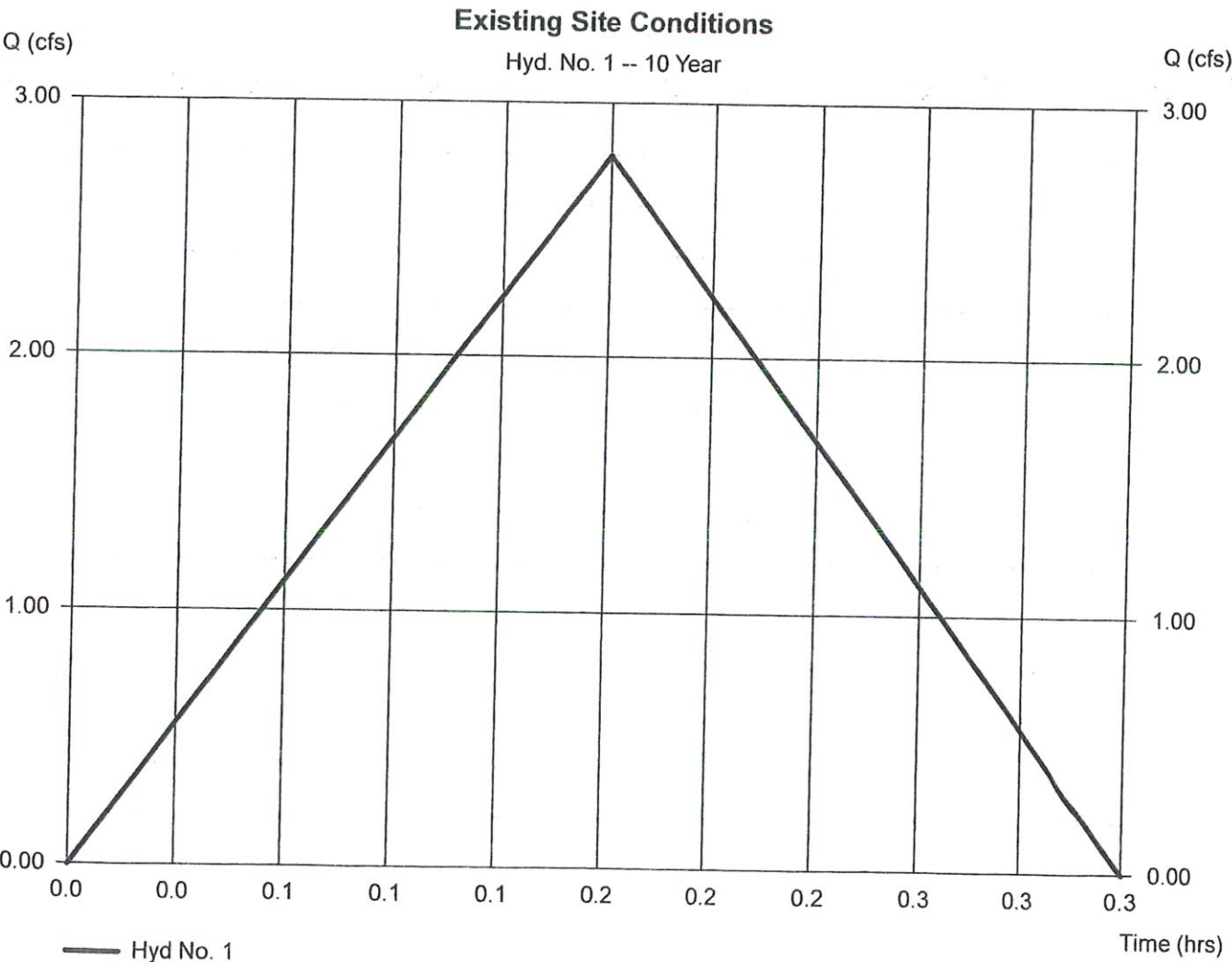
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	Rational	2.796	1	10	1,678	---	-----	-----	Existing Site Conditions
2	Rational	0.459	1	10	275	---	-----	-----	Off-Site thru Site
3	Combine	3.254	1	10	1,953	1, 2	-----	-----	Total Exisitng to Hickory Ave
4	Rational	0.103	1	10	62	---	-----	-----	Developed Bypassing Detention
5	Rational	3.689	1	10	2,214	---	-----	-----	Developed Rational Method Runoff
6	Mod. Rational	2.916	1	10	3,149	---	-----	-----	Modified Rational to Detention
7	Reservoir	2.242	1	20	3,149	6	89.11	1,416	30-inch Pipe Detention
2021-01-22 GPG Model.gpw					Return Period: 10 Year			Tuesday, Feb 23, 2021	

Hydrograph Report

Hyd. No. 1

Existing Site Conditions

Hydrograph type	= Rational	Peak discharge	= 2.796 cfs
Storm frequency	= 10 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 1,678 cuft
Drainage area	= 0.886 ac	Runoff coeff.	= 0.57
Intensity	= 5.536 in/hr	Tc by User	= 10.00 min
IDF Curve	= Trenton, New Jersey.idf	Asc/Rec limb fact	= 1/1



Hydrograph Report

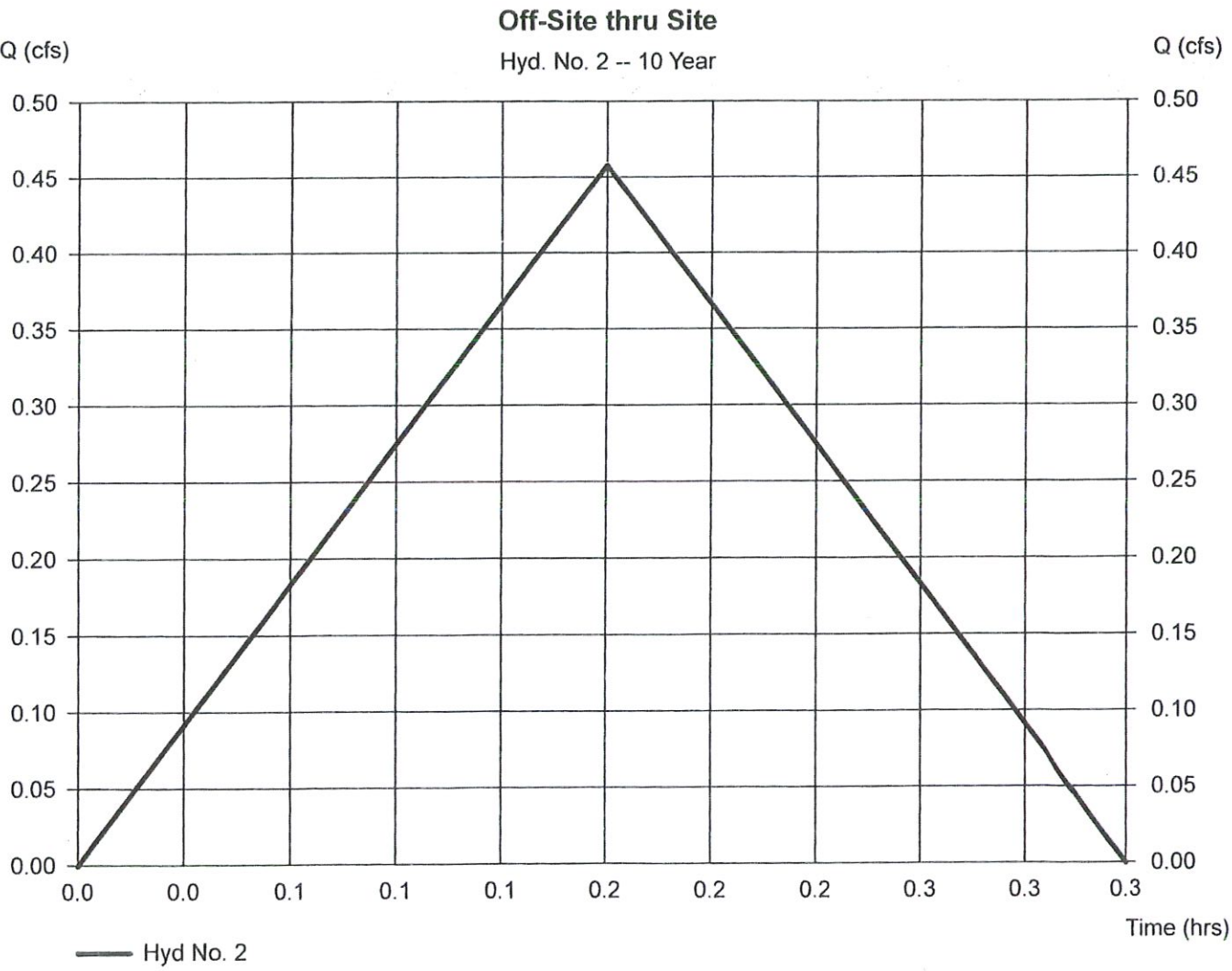
Hydraflow Hydrographs by Intelisolve v9.1

Tuesday, Feb 23, 2021

Hyd. No. 2

Off-Site thru Site

Hydrograph type	=	Rational	Peak discharge	=	0.459 cfs
Storm frequency	=	10 yrs	Time to peak	=	0.17 hrs
Time interval	=	1 min	Hyd. volume	=	275 cuft
Drainage area	=	0.202 ac	Runoff coeff.	=	0.41
Intensity	=	5.536 in/hr	Tc by User	=	10.00 min
IDF Curve	=	Trenton, New Jersey.idf	Asc/Rec limb fact	=	1/1



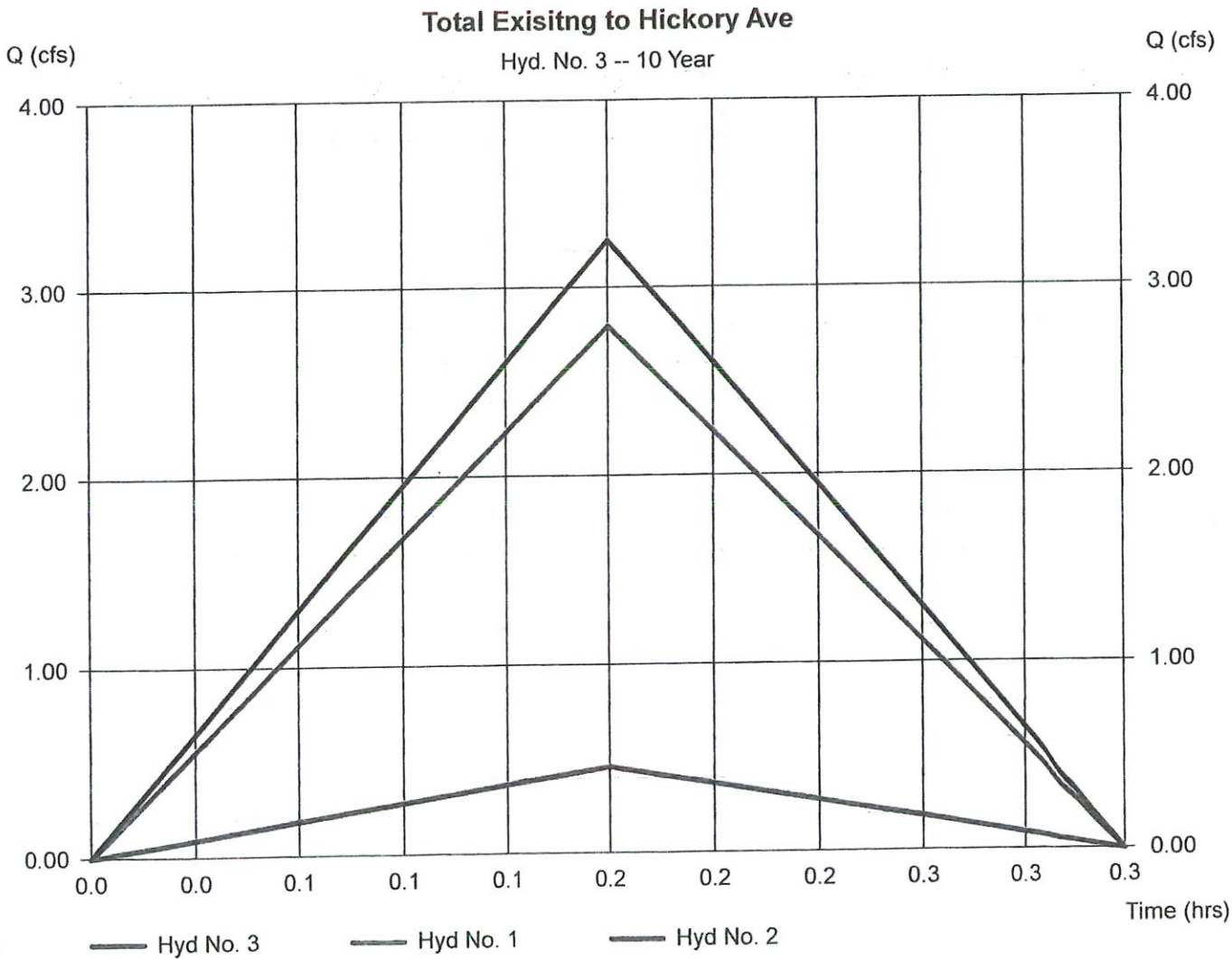
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1 Tuesday, Feb 23, 2021

Hyd. No. 3

Total Exisitng to Hickory Ave

Hydrograph type	= Combine	Peak discharge	= 3.254 cfs
Storm frequency	= 10 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 1,953 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 1.088 ac



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.1

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	Rational	3.839	1	10	2,304	----	-----	-----	Existing Site Conditions
2	Rational	0.630	1	10	378	----	-----	-----	Off-Site thru Site
3	Combine	4.469	1	10	2,681	1, 2	-----	-----	Total Exisitng to Hickory Ave
4	Rational	0.141	1	10	85	----	-----	-----	Developed Bypassing Detention
5	Rational	5.066	1	10	3,040	----	-----	-----	Developed Rational Method Runoff
6	Mod. Rational	3.726	1	10	4,694	----	-----	-----	Modified Rational to Detention
7	Reservoir	3.498	1	22	4,694	6	89.54	1,692	30-inch Pipe Detention
2021-01-22 GPG Model.gpw					Return Period: 100 Year			Tuesday, Feb 23, 2021	

Hydrograph Report

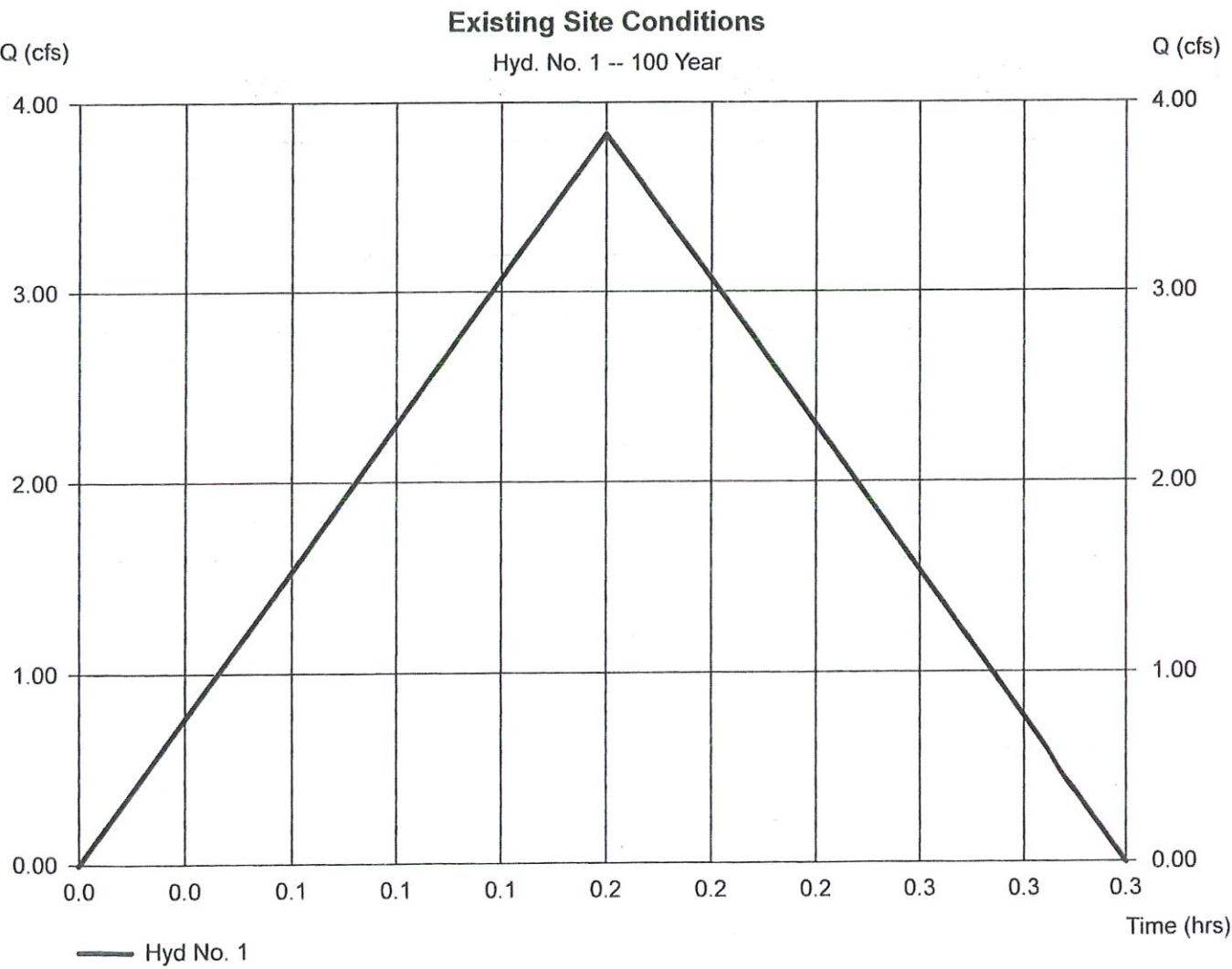
Hydraflow Hydrographs by Intelisolve v9.1

Tuesday, Feb 23, 2021

Hyd. No. 1

Existing Site Conditions

Hydrograph type	= Rational	Peak discharge	= 3.839 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 2,304 cuft
Drainage area	= 0.886 ac	Runoff coeff.	= 0.57
Intensity	= 7.603 in/hr	Tc by User	= 10.00 min
IDF Curve	= Trenton, New Jersey.idf	Asc/Rec limb fact	= 1/1



Hydrograph Report

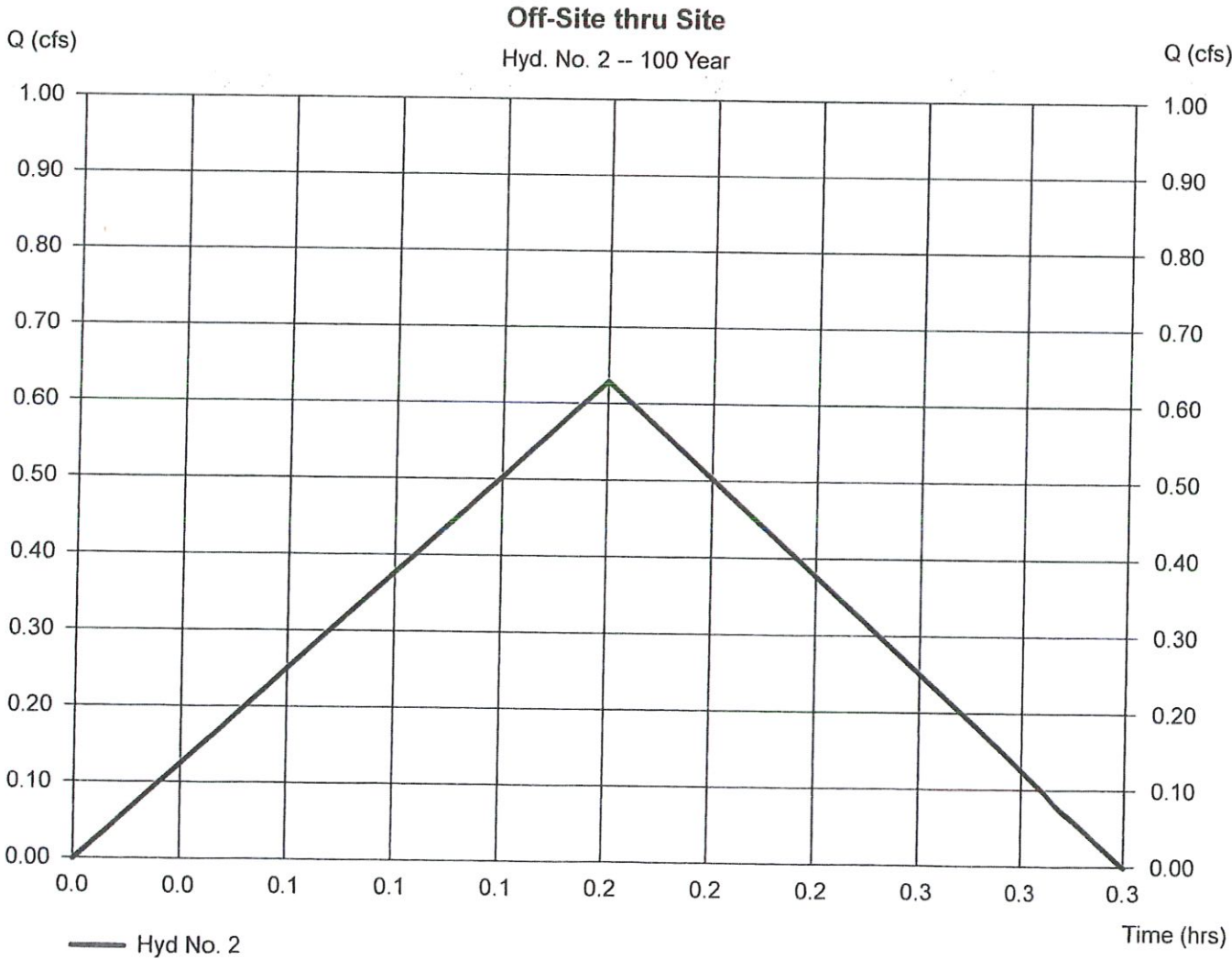
Hydraflow Hydrographs by Intelisolve v9.1

Tuesday, Feb 23, 2021

Hyd. No. 2

Off-Site thru Site

Hydrograph type	= Rational	Peak discharge	= 0.630 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 378 cuft
Drainage area	= 0.202 ac	Runoff coeff.	= 0.41
Intensity	= 7.603 in/hr	Tc by User	= 10.00 min
IDF Curve	= Trenton, New Jersey.idf	Asc/Rec limb fact	= 1/1



Hydrograph Report

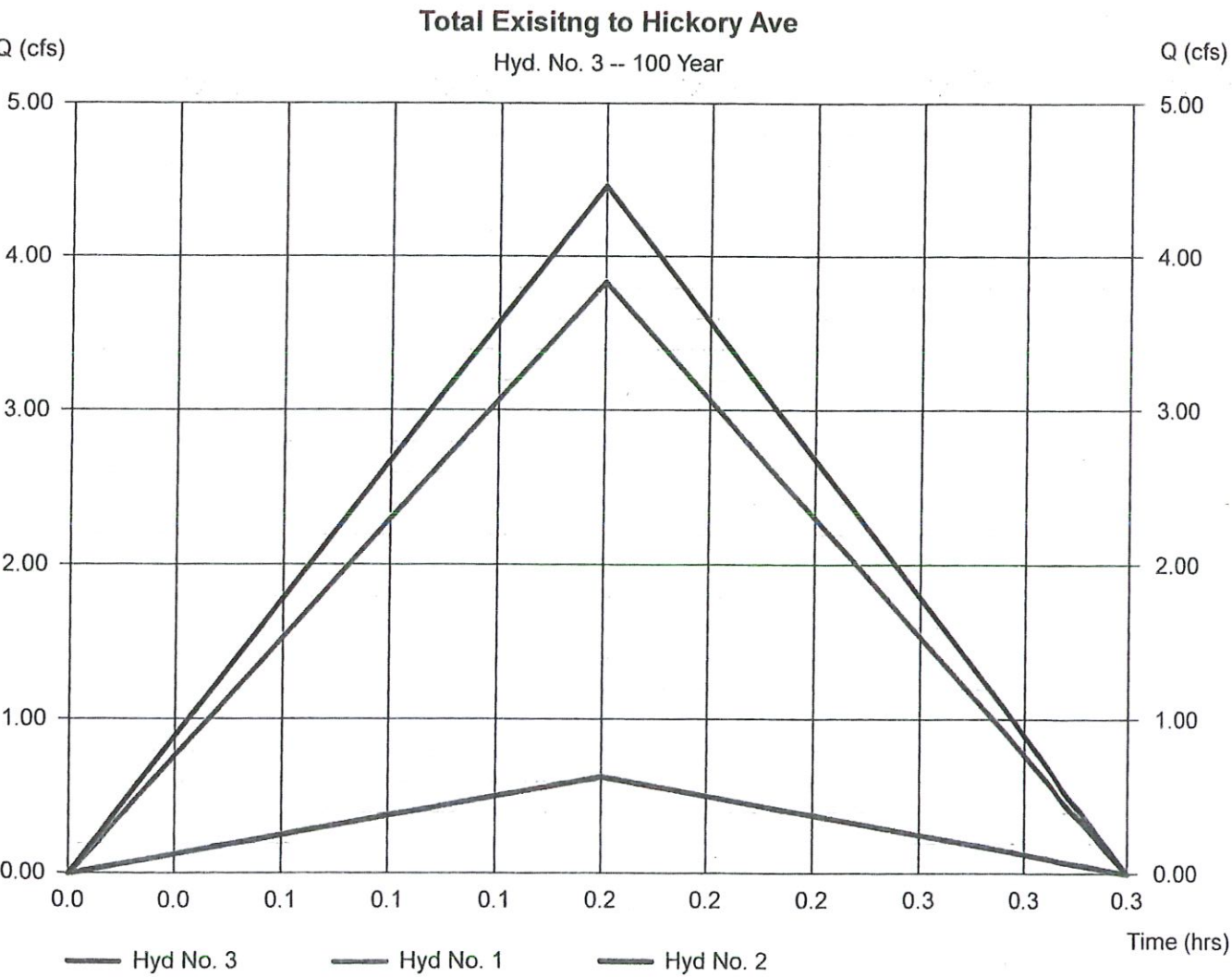
Hydraflow Hydrographs by Intelisolve v9.1

Tuesday, Feb 23, 2021

Hyd. No. 3

Total Exisitng to Hickory Ave

Hydrograph type	= Combine	Peak discharge	= 4.469 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 2,681 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 1.088 ac



APPENDIX C
PROPOSED PEAK FLOW HYDROGRAPHS
2, 10, AND 100-YEAR STORM EVENTS

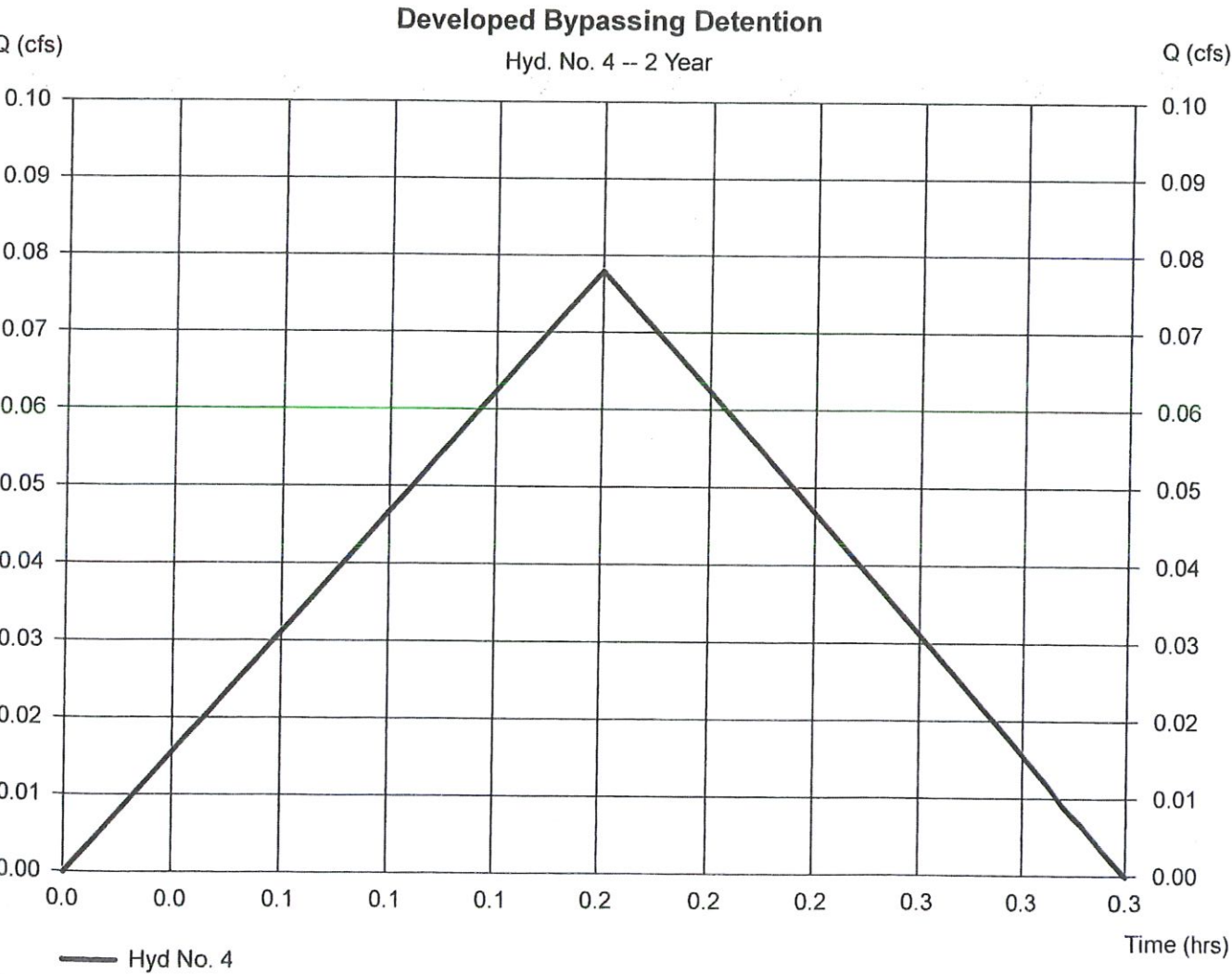
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1 Tuesday, Feb 23, 2021

Hyd. No. 4

Developed Bypassing Detention

Hydrograph type	= Rational	Peak discharge	= 0.078 cfs
Storm frequency	= 2 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 47 cuft
Drainage area	= 0.053 ac	Runoff coeff.	= 0.35
Intensity	= 4.208 in/hr	Tc by User	= 10.00 min
IDF Curve	= Trenton, New Jersey.idf	Asc/Rec limb fact	= 1/1



Hydrograph Report

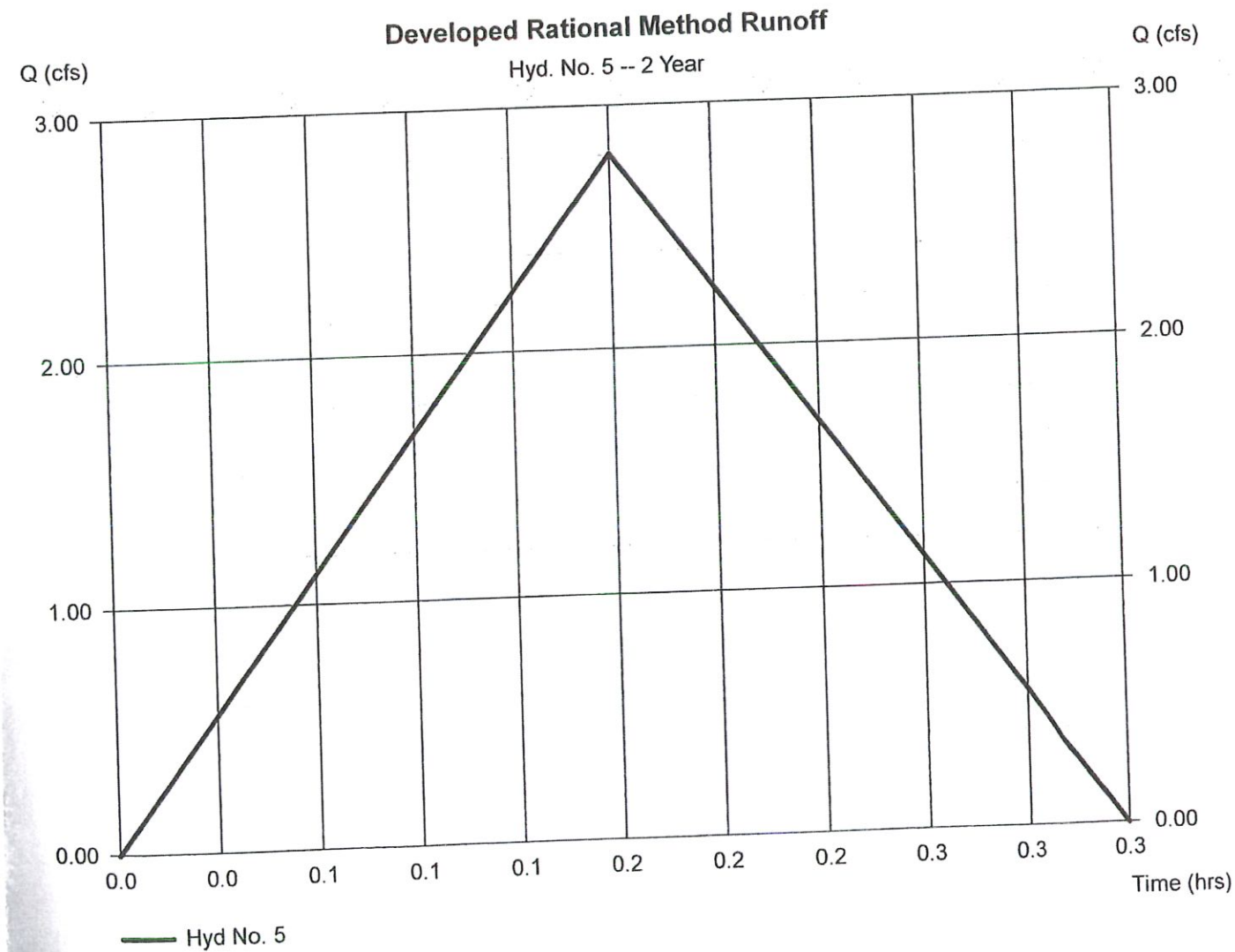
Hydraflow Hydrographs by Intelisolve v9.1

Tuesday, Feb 23, 2021

Hyd. No. 5

Developed Rational Method Runoff

Hydrograph type	= Rational	Peak discharge	= 2.804 cfs
Storm frequency	= 2 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 1,682 cuft
Drainage area	= 0.833 ac	Runoff coeff.	= 0.8
Intensity	= 4.208 in/hr	Tc by User	= 10.00 min
IDF Curve	= Trenton, New Jersey.idf	Asc/Rec limb fact	= 1/1



Hydrograph Report

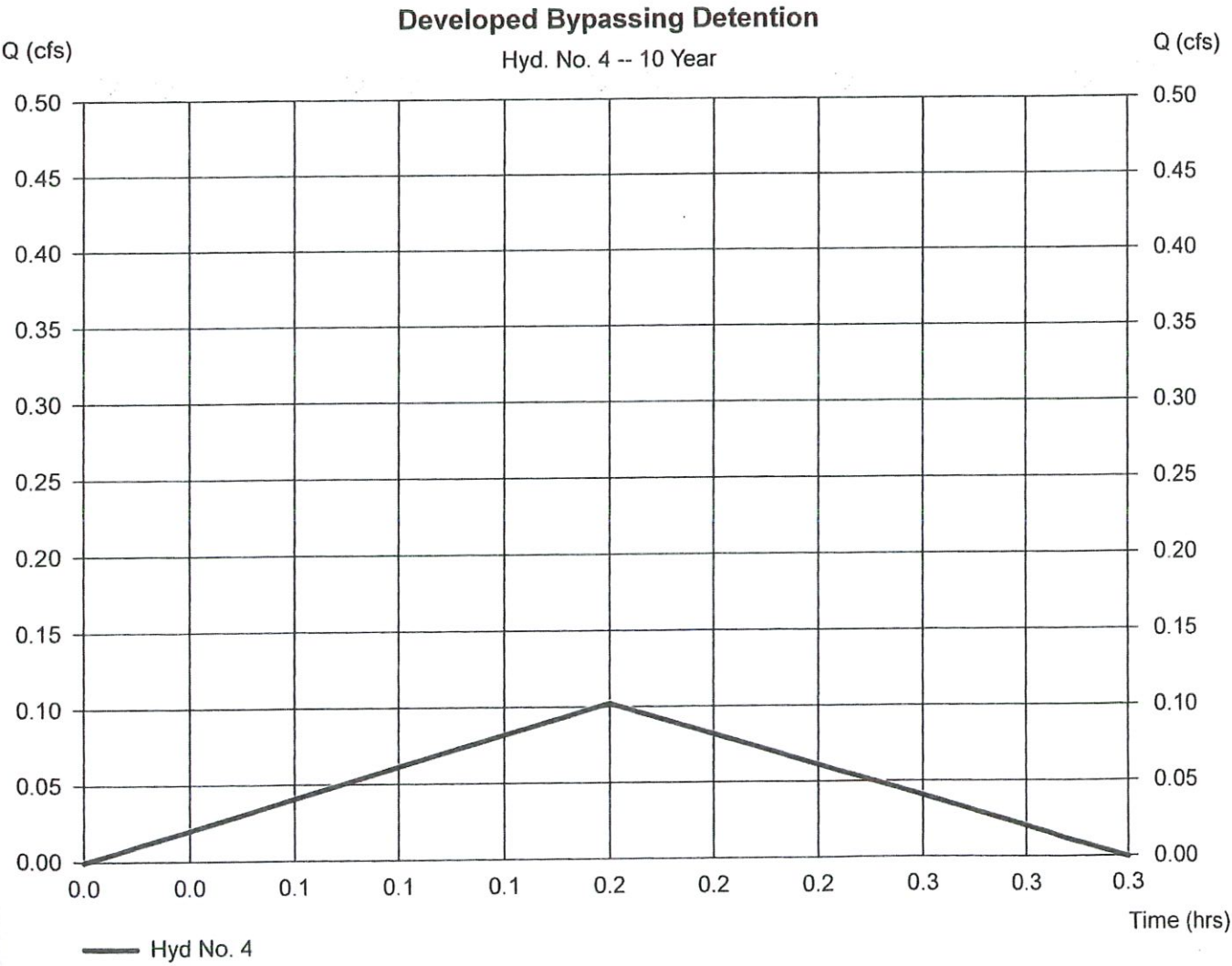
Hydraflow Hydrographs by Intelisolve v9.1

Tuesday, Feb 23, 2021

Hyd. No. 4

Developed Bypassing Detention

Hydrograph type	= Rational	Peak discharge	= 0.103 cfs
Storm frequency	= 10 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 62 cuft
Drainage area	= 0.053 ac	Runoff coeff.	= 0.35
Intensity	= 5.536 in/hr	Tc by User	= 10.00 min
IDF Curve	= Trenton, New Jersey.idf	Asc/Rec limb fact	= 1/1



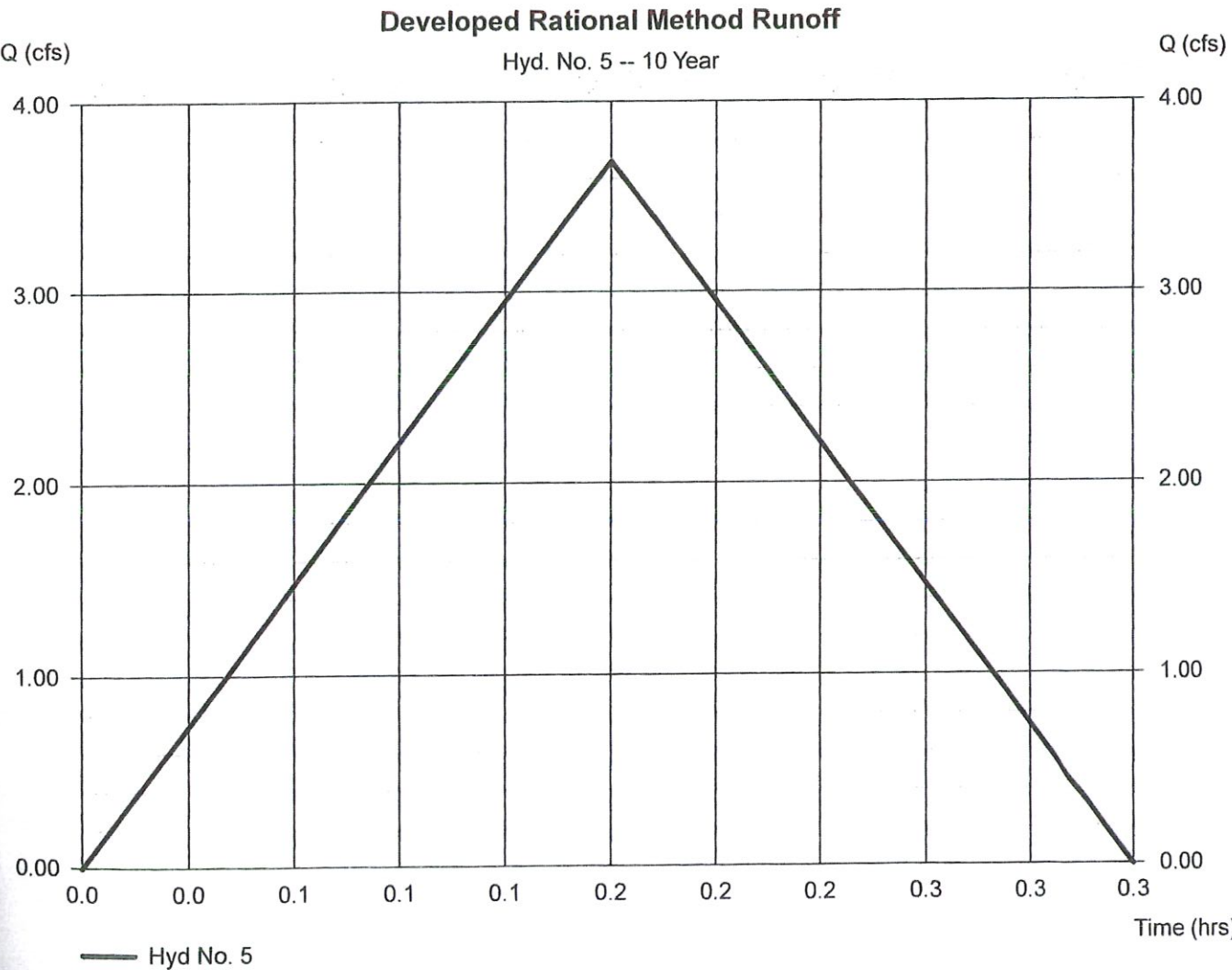
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1 Tuesday, Feb 23, 2021

Hyd. No. 5

Developed Rational Method Runoff

Hydrograph type	= Rational	Peak discharge	= 3.689 cfs
Storm frequency	= 10 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 2,214 cuft
Drainage area	= 0.833 ac	Runoff coeff.	= 0.8
Intensity	= 5.536 in/hr	Tc by User	= 10.00 min
IDF Curve	= Trenton, New Jersey.idf	Asc/Rec limb fact	= 1/1



Hydrograph Report

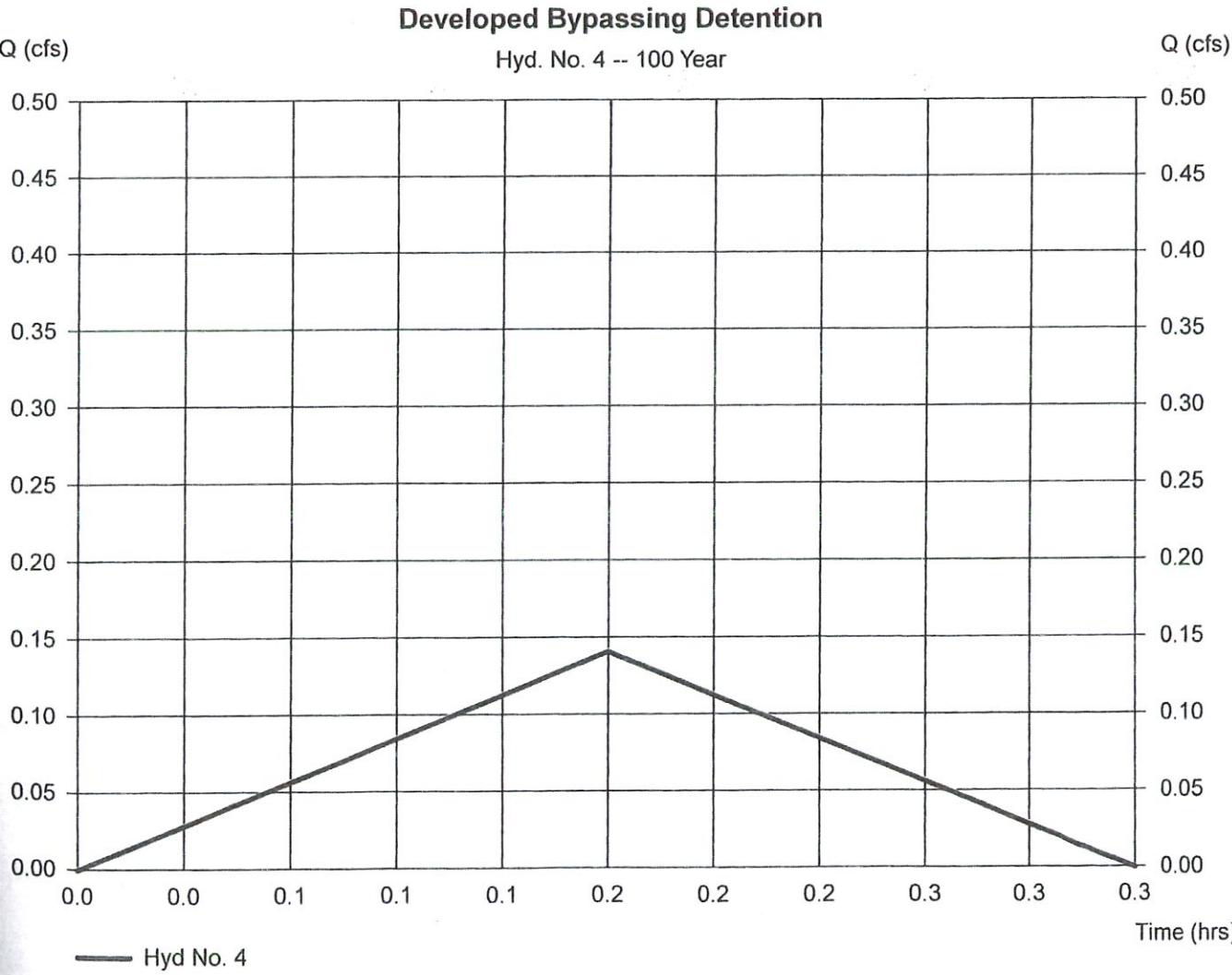
Hydraflow Hydrographs by Intelisolve v9.1

Tuesday, Feb 23, 2021

Hyd. No. 4

Developed Bypassing Detention

Hydrograph type	= Rational	Peak discharge	= 0.141 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 85 cuft
Drainage area	= 0.053 ac	Runoff coeff.	= 0.35
Intensity	= 7.603 in/hr	Tc by User	= 10.00 min
IDF Curve	= Trenton, New Jersey.idf	Asc/Rec limb fact	= 1/1



Hydrograph Report

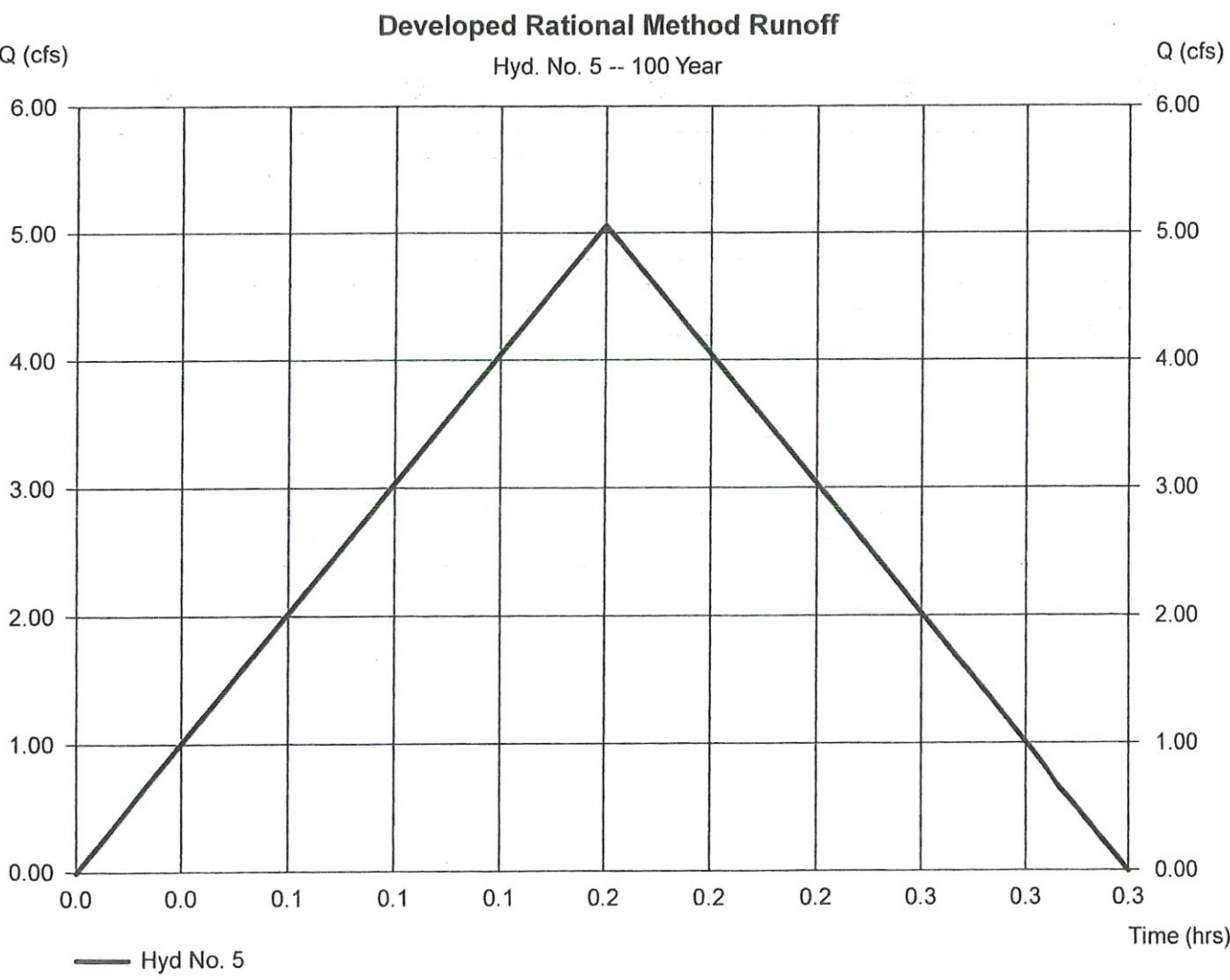
Hydraflow Hydrographs by Intelisolve v9.1

Tuesday, Feb 23, 2021

Hyd. No. 5

Developed Rational Method Runoff

Hydrograph type	= Rational	Peak discharge	= 5.066 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.17 hrs
Time interval	= 1 min	Hyd. volume	= 3,040 cuft
Drainage area	= 0.833 ac	Runoff coeff.	= 0.8
Intensity	= 7.603 in/hr	Tc by User	= 10.00 min
IDF Curve	= Trenton, New Jersey.idf	Asc/Rec limb fact	= 1/1



APPENDIX D

ROUTED BASIN HYDROGRAPHS
2, 10, AND 100-YEAR STORM EVENTS

Pond Report

Pond No. 1 - 30-INCH PIPE DETENTION

Pond Data

UG Chambers - Invert elev. = 86.80 ft, Rise x Span = 2.50 x 2.50 ft, Barrel Len = 370.00 ft, No. Barrels = 1, Slope = 0.25%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	86.80	n/a	0	0
0.34	87.14	n/a	25	25
0.69	87.49	n/a	96	120
1.03	87.83	n/a	206	327
1.37	88.17	n/a	277	604
1.71	88.51	n/a	305	908
2.06	88.86	n/a	305	1,214
2.40	89.20	n/a	277	1,490
2.74	89.54	n/a	206	1,696
3.08	89.88	n/a	95	1,792
3.43	90.23	n/a	25	1,817

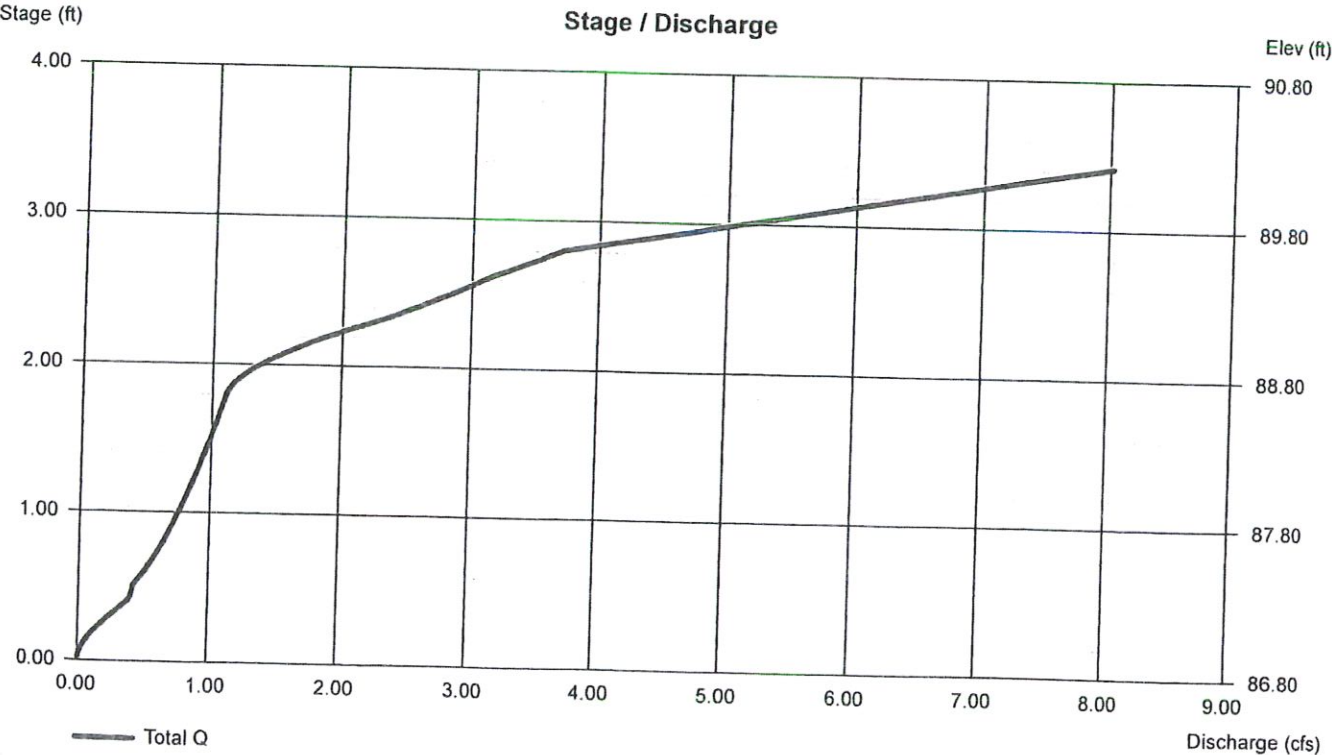
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	6.00	12.00	0.00
Span (in)	= 0.00	6.00	12.00	0.00
No. Barrels	= 0	1	1	0
Invert El. (ft)	= 0.00	86.80	88.60	0.00
Length (ft)	= 0.00	20.00	20.00	0.00
Slope (%)	= 0.00	1.00	1.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 1.00	0.00	0.00	0.00
Crest El. (ft)	= 89.40	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= No	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).



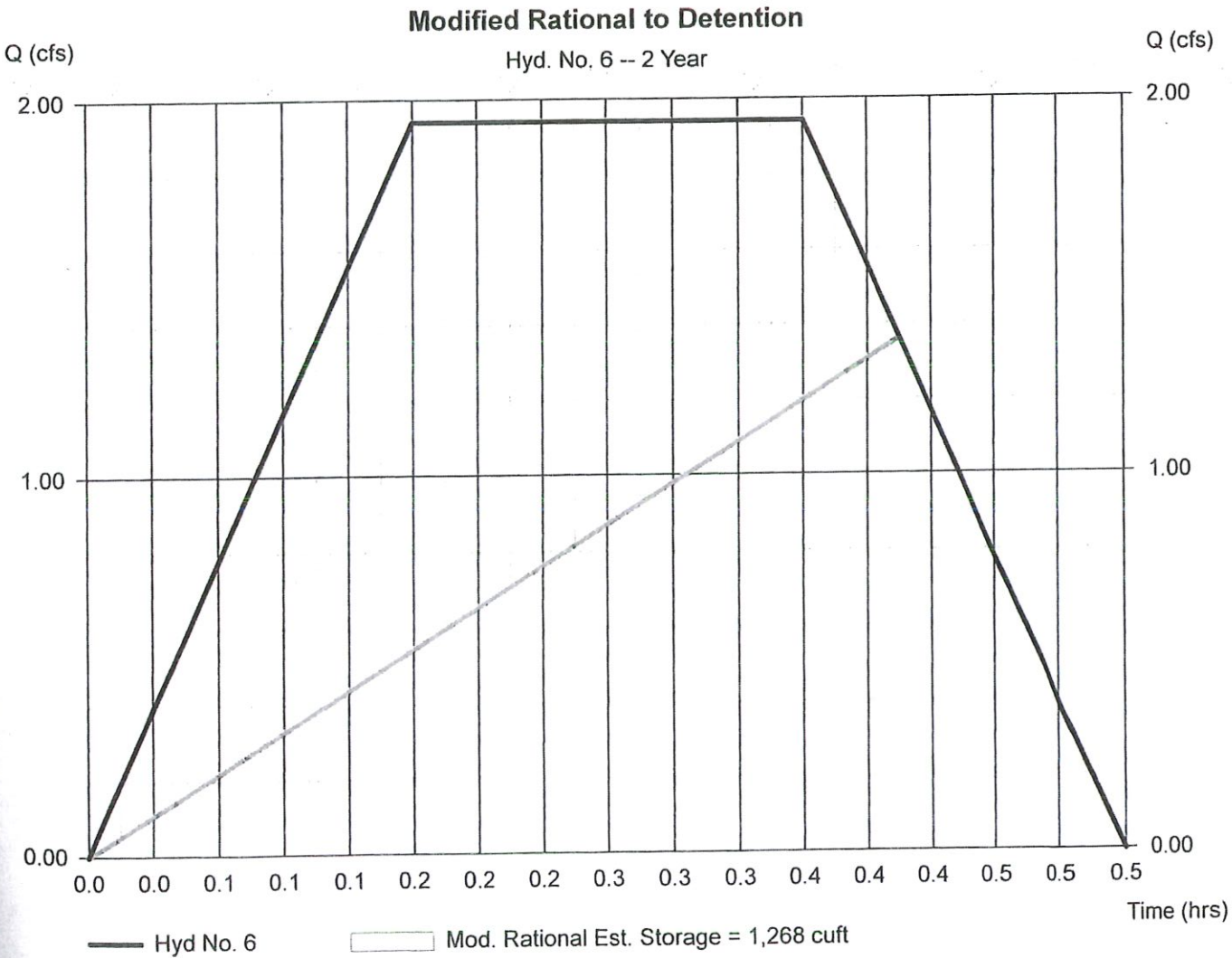
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1 Tuesday, Feb 23, 2021

Hyd. No. 6

Modified Rational to Detention

Hydrograph type	=	Mod. Rational	Peak discharge	=	1.944 cfs
Storm frequency	=	2 yrs	Time to peak	=	0.17 hrs
Time interval	=	1 min	Hyd. volume	=	2,566 cuft
Drainage area	=	0.833 ac	Runoff coeff.	=	0.8
Intensity	=	2.917 in/hr	Tc by User	=	10.00 min
IDF Curve	=	Trenton, New Jersey.idf	Storm duration	=	2.2 x Tc
Target Q	=	1.300 cfs	Est. Req'd Storage	=	1,268 cuft



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

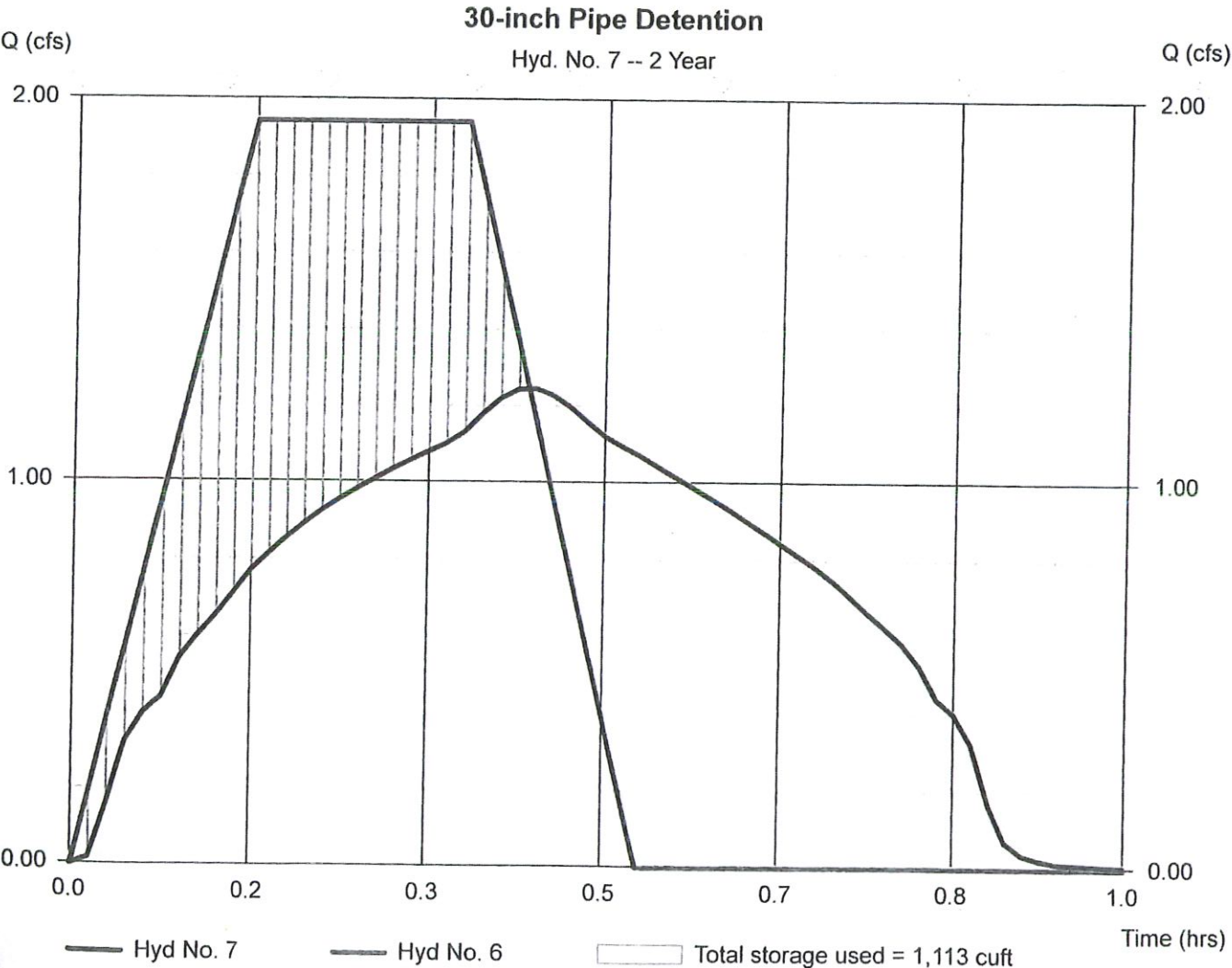
Tuesday, Feb 23, 2021

Hyd. No. 7

30-inch Pipe Detention

Hydrograph type	= Reservoir	Peak discharge	= 1,244 cfs
Storm frequency	= 2 yrs	Time to peak	= 0.43 hrs
Time interval	= 1 min	Hyd. volume	= 2,565 cuft
Inflow hyd. No.	= 6 - Modified Rational to Detention	Max. Elevation	= 88.75 ft
Reservoir name	= 30-INCH PIPE DETENTION	Max. Storage	= 1,113 cuft

Storage Indication method used.

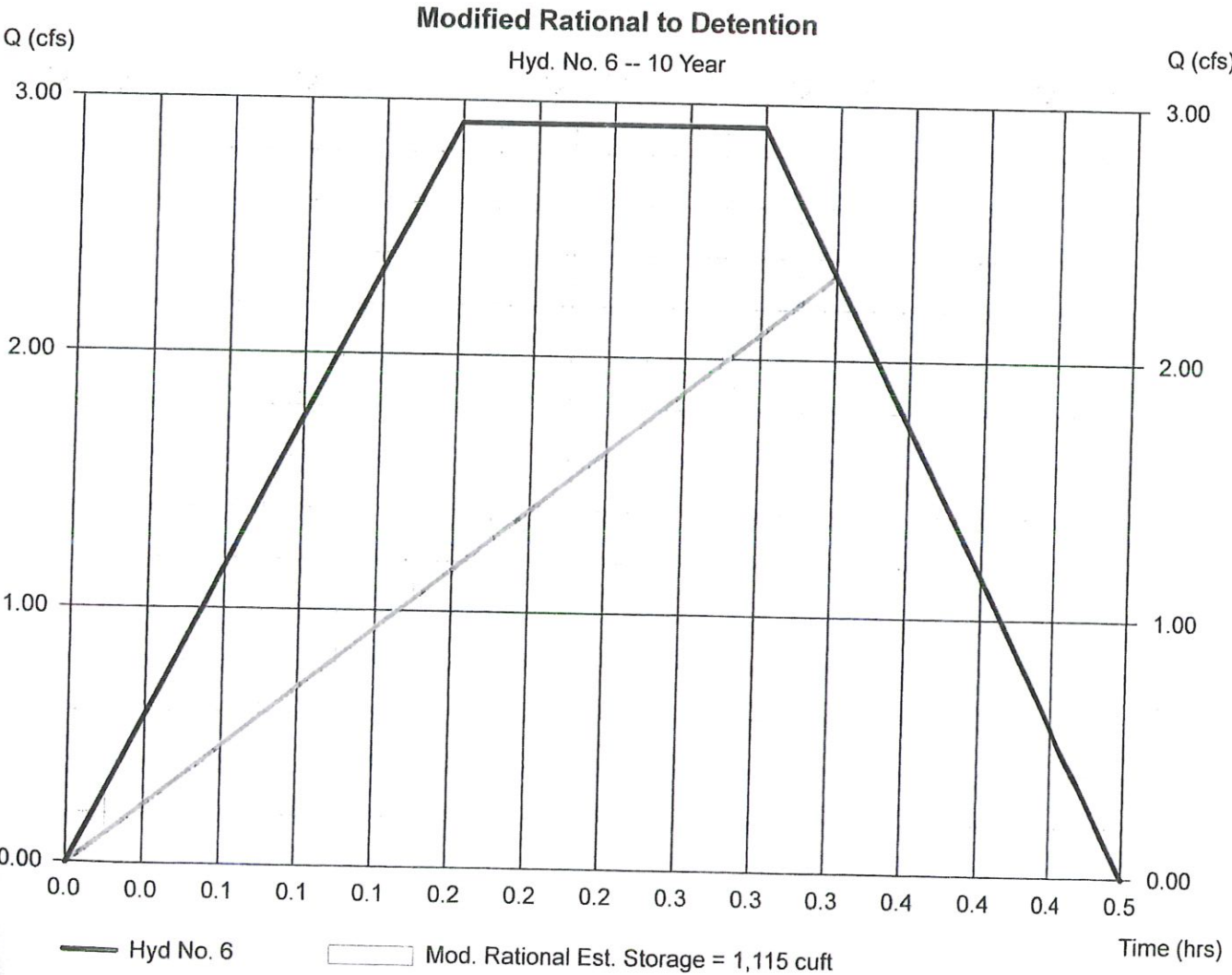


Hydrograph Report

Hyd. No. 6

Modified Rational to Detention

Hydrograph type	=	Mod. Rational	Peak discharge	=	2.916 cfs
Storm frequency	=	10 yrs	Time to peak	=	0.17 hrs
Time interval	=	1 min	Hyd. volume	=	3,149 cuft
Drainage area	=	0.833 ac	Runoff coeff.	=	0.8
Intensity	=	4.376 in/hr	Tc by User	=	10.00 min
IDF Curve	=	Trenton, New Jersey.idf	Storm duration	=	1.8 x Tc
Target Q	=	2.400 cfs	Est. Req'd Storage	=	1,115 cuft



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

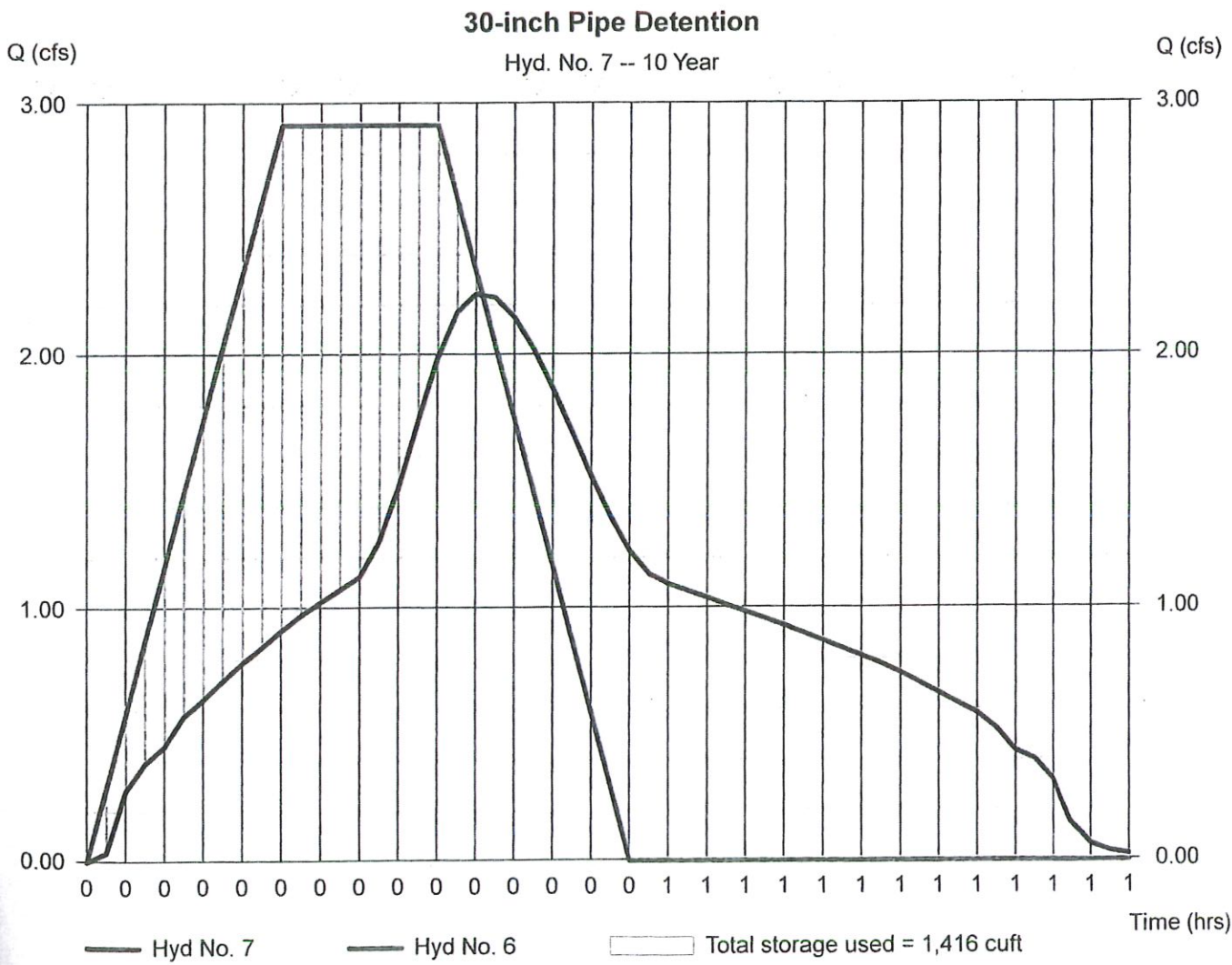
Tuesday, Feb 23, 2021

Hyd. No. 7

30-inch Pipe Detention

Hydrograph type	= Reservoir	Peak discharge	= 2.242 cfs
Storm frequency	= 10 yrs	Time to peak	= 0.33 hrs
Time interval	= 1 min	Hyd. volume	= 3,149 cuft
Inflow hyd. No.	= 6 - Modified Rational to Detention	Max. Elevation	= 89.11 ft
Reservoir name	= 30-INCH PIPE DETENTION	Max. Storage	= 1,416 cuft

Storage Indication method used.



Hydrograph Report

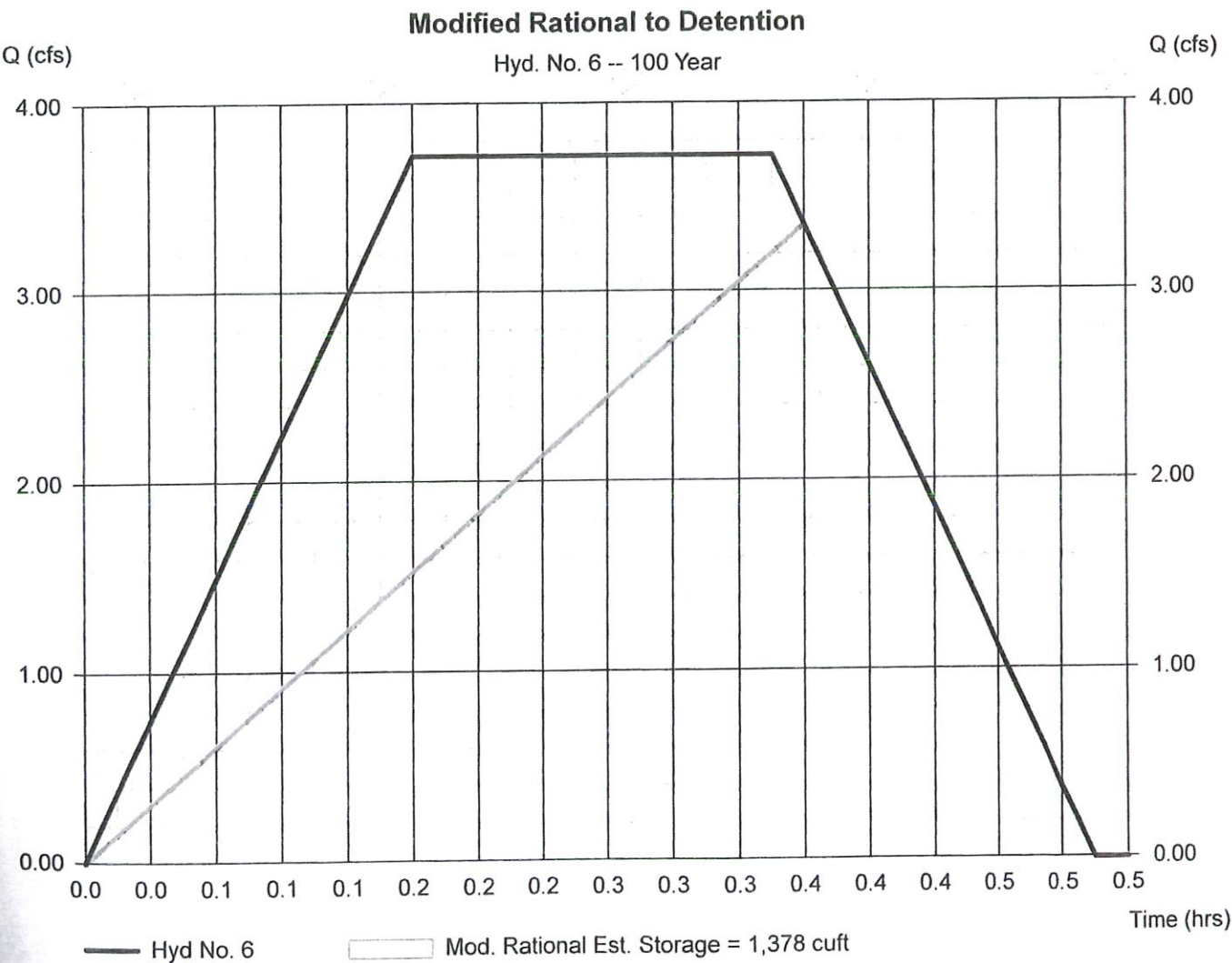
Hydraflow Hydrographs by Intelisolve v9.1

Tuesday, Feb 23, 2021

Hyd. No. 6

Modified Rational to Detention

Hydrograph type	=	Mod. Rational	Peak discharge	=	3.726 cfs
Storm frequency	=	100 yrs	Time to peak	=	0.17 hrs
Time interval	=	1 min	Hyd. volume	=	4,694 cuft
Drainage area	=	0.833 ac	Runoff coeff.	=	0.8
Intensity	=	5.591 in/hr	Tc by User	=	10.00 min
IDF Curve	=	Trenton, New Jersey.idf	Storm duration	=	2.1 x Tc
Target Q	=	3.500 cfs	Est. Req'd Storage	=	1,378 cuft



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

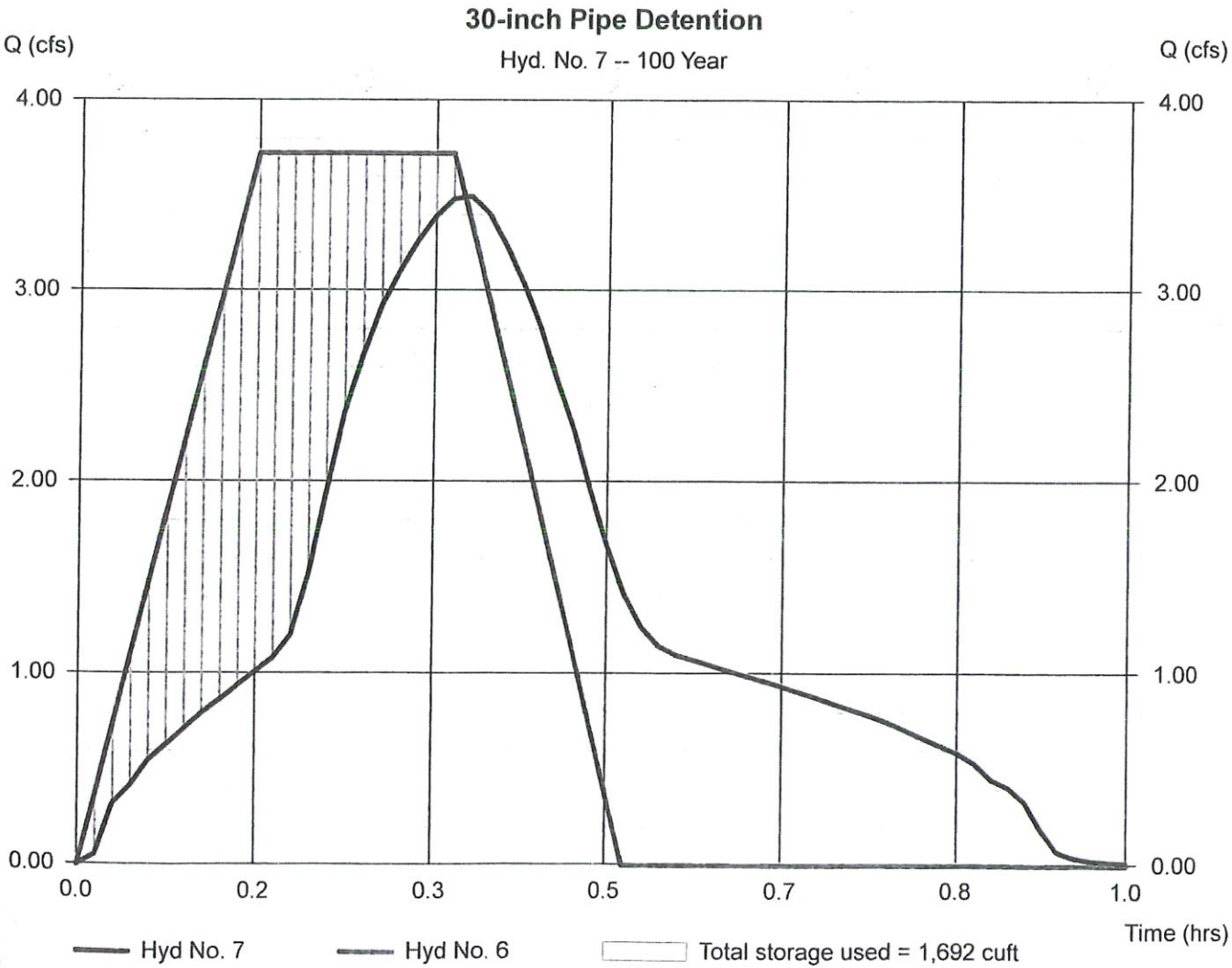
Tuesday, Feb 23, 2021

Hyd. No. 7

30-inch Pipe Detention

Hydrograph type	= Reservoir	Peak discharge	= 3.498 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.37 hrs
Time interval	= 1 min	Hyd. volume	= 4,694 cuft
Inflow hyd. No.	= 6 - Modified Rational to Detention	Max. Elevation	= 89.54 ft
Reservoir name	= 30-INCH PIPE DETENTION	Max. Storage	= 1,692 cuft

Storage Indication method used.



APPENDIX E

ANNUAL GROUNDWATER RECHARGE CALCULATIONS

Annual Groundwater Recharge Analysis (based on GSR-32)

Select Township ↓		Average Annual P (in)	Climatic Factor
BERGEN CO., BERGENFIELD BORO		48.3	1.58

Pre-Developed Conditions					
Land Segment	Area (acres)	TR-55 Land Cover	Soil	Annual Recharge (in)	Annual Recharge (cu.ft)
1	0.248	Impervious areas	Dunellen	0.0	-
2	0.153	Gravel, dirt	Dunellen	10.2	5,665
3	0.485	Open space	Dunellen	16.2	28,518
4	0				
5	0				
6	0				
7	0				
8	0				
9	0				
10	0				
11	0				
12	0				
13	0				
14	0				
15	0				
Total =	0.9			Total Annual Recharge (in)	Total Annual Recharge (cu.ft)
				10.6	34,184

Post-Developed Conditions					
Land Segment	Area (acres)	TR-55 Land Cover	Soil	Annual Recharge (in)	Annual Recharge (cu.ft)
1	0.624	Impervious areas	Dunellen	0.0	-
2	0.262	Open space	Dunellen	16.2	15,406
3	0				
4	0				
5	0				
6	0				
7	0				
8	0				
9	0				
10	0				
11	0				
12	0				
13	0				
14	0				
15	0				
Total =	0.9			Total Annual Recharge (in)	Total Annual Recharge (cu.ft)
				4.8	15,406

Annual Recharge Requirements Calculation ↓	
% of Pre-Developed Annual Recharge to Preserve =	100%
Post-Development Annual Recharge Deficit= 18,778 (cubic feet)	
Recharge Efficiency Parameters Calculations (area averages)	
RWC= 3.63 (in)	DRWC= 0.00 (in)
ERWC = 0.76 (in)	EDRWC= 0.00 (in)

Procedure to fill the Pre-Development and Post-Development Conditions Tables

For each land segment, first enter the area, then select TR-55 Land Cover, then select Soil. Start from the top of the table and proceed downward. Don't leave blank rows (with A=0) in between your segment entries. Rows with A=0 will not be displayed or used in calculations. For impervious areas outside of standard lots select "Impervious Areas" as the Land Cover. Soil type for impervious areas are only required if an infiltration facility will be built within these areas.

Project Name

Hickory Ave Townhomes

Description

Recharge Analysis

Analysis Date

01/22/21

BMP or LID Type

Recharge BMP Input Parameters

Parameter	Symbol	Value	Unit
BMP Area	ABMP	495.0	sq.ft
BMP Effective Depth, this is the design variable Upper level of the BMP surface (negative if above ground)	dBMP	7.2	in
Depth of lower surface of BMP, must be >= dBMPu	dBMPu	36.0	in
Post-development Land Segment Location of BMP	dEXC	78.0	in
Input Zero if Location is distributed or undetermined	SegBMP	0	unitless

Root Zone Water capacity Calculated Parameters

Parameter	Symbol	Value	Unit
Empty Portion of RWC under Post-D Natural Recharge	ERWC	0.76	in
ERWC Modified to consider dEXC	EDRWC	0.00	in
Empty Portion of RWC under Infiltr. BMP	RERWC	0.00	in

Recharge Design Parameters

Parameter	Symbol	Value	Unit
Inches of Runoff to capture	Qdesign	0.13	in
Inches of Rainfall to capture	Pdesign	0.19	in
Recharge Provided Avg. over Imp. Area		9.5	in
Runoff Captured Avg. over Imp. Area		9.5	in

Parameters from Annual Recharge Worksheet

Post-D Deficit Recharge (or desired recharge volume)	Vdef	18,778	cu.ft
Post-D Impervious Area (or target Impervious Area)	Aimp	27,181	sq.ft
Root Zone Water Capacity	RWC	3.63	in
RWC Modified to consider dEXC	DRWC	0.00	in
Climatic Factor	C-factor	1.58	no units
Average Annual P	Pavg	48.8	in
Recharge Requirement over Imp. Area	dr	8.3	in

How to solve for different recharge volumes: By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP. To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration click the "Default Vdef & Aimp" button.

BMP Calculated Size Parameters

ABMP/Aimp BMP Volume	Aratio VBMP	0.02	unitless
System Performance Calculated Parameters		297	cu.ft
Annual BMP Recharge Volume		21,488	cu.ft
Avg BMP Recharge Efficiency		100.0%	% Infiltration Recharged
%Rainfall became Runoff		78.5%	%
%Runoff infiltrated		24.8%	%
%Runoff Recharged		24.8%	%
%Rainfall Recharged		19.4%	%

CALCULATION CHECK MESSAGES

Volume Balance-> Solve Problem to satisfy Annual Recharge

dBMP Check-> OK

dEXC Check-> OK

BMP Location-> Location is selected as distributed or undetermined

OTHER NOTES

Design is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensitive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses.

Post-D Deficit Recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP. To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration click the "Default Vdef & Aimp" button.

APPENDIX F
NRCS SOIL MAPPING INFORMATION

STONEFIELD

July 16, 2021

Borough of Bergenfield
Zoning Board of Adjustment
Construction Code Office
198 North Washington Avenue
Bergenfield, NJ 07621

**RE: Traffic & Parking Assessment Report
Proposed Townhouse Development
40-48 Hickory Avenue
Block 30, Lots 9, 10, 10.01 & 11
Borough of Bergenfield, Bergen County,
New Jersey, 07621
SE&D Job No. RUT-210217**

Dear Board Members:

Stonefield Engineering and Design, LLC ("Stonefield") has prepared this analysis to examine the potential traffic and parking impacts of the proposed townhouse development on the adjacent roadway network. The subject property is located along the southerly side of Hickory Avenue in the Borough of Bergenfield, Bergen County, New Jersey. The subject property is designated as Block 30, Lots 9, 10, 10.01, & 11 as depicted on the Borough of Bergenfield Tax Map; The site has approximately 165 feet of frontage along Hickory Avenue. The existing site contains four (4) single-family homes with existing access provided via two (2) full-movement driveways along Hickory Avenue.

Under the proposed development program, the existing structures would be razed and a 22-unit townhouse development would be constructed. Access is proposed to be consolidated to one (1) full-movement driveway along Hickory Avenue.

Existing Conditions

The subject property is located along the southerly side of Hickory Avenue in the Borough of Bergenfield, Bergen County, New Jersey. The subject property is designated as Block 30, Lots 9, 10, 10.01, & 11 as depicted on the Borough of Bergenfield Tax Map. The site has approximately 165 feet of frontage along Hickory Avenue. Land uses in the area are primarily residential, religious, educational, and commercial.

Hickory Avenue is a local roadway with a general east-west orientation and is under the jurisdiction of the Borough of Bergenfield. The roadway generally provides one (1) lane in each direction and has a posted speed limit of 25 mph. Along the site frontage, curb and sidewalk are provided along both sides of the roadway, shoulders are not provided along either side of the roadway, and on-street parking is permitted along both sides of the roadway. Hickory Avenue provides connection between North Washington Avenue at its westerly terminus and Westerly Drive at its easterly terminus for predominantly residential and educational uses along its length.

The proposed development is located within 700 feet (2-minute walk) from six (6) NJ Transit bus routes. NJ Transit Bus Routes 166, 167, 177, 186, 772, & 753 provide service to the Port Authority Bus Terminal, George Washington Bridge Bus Terminal and various points of interest throughout Bergen and Hudson counties. The

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92 PARK AVENUE, RUTHERFORD, NJ 07070 201.340.4468 T. 201.340.4472 F.

non-vehicular transportation modes available in the general vicinity of the subject site are summarized on **Table I**.

TABLE I – MULTI-MODAL TRANSPORTATION OPTIONS

Location/Intersection	Proximity to Site	Transit Routes	Major Destinations
North Washington Avenue & Hickory Avenue	700 feet	NJ Transit Bus Routes 166, 167, 177, 186, 772, 753	Port Authority Bus Terminal George Washington Bridge Bus Terminal Weehawken Teaneck Englewood Fort Lee Teterboro

Trip Generation

Trip generation projections for the proposed townhouse development were prepared utilizing the Institute of Transportation Engineers’ (ITE) Trip Generation Manual, 10th Edition. Trip generation rates associated with Land Use 220 “Multifamily Housing (Low-Rise)” were cited for the proposed 22-unit townhouse development. **Table 2** provides the weekday morning peak hour, weekday evening peak hour and Saturday midday midday peak hour trip generation volumes associated with the proposed development.

TABLE 2 – PROPOSED TRIP GENERATION

Land Use	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Saturday Midday Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
22-Unit Multifamily Housing (Low-Rise) <i>ITE Land Use 220</i>	2	8	10	8	4	12	6	6	12

The proposed development is expected to generate 10 total new trips during the weekday morning peak hour, 12 total new trips during the weekday evening peak hour and 26 total new trips during the Saturday midday peak hour. Based on Transportation Impact Analysis for Site Development published by ITE, a trip increase of less than 100 vehicle trips would likely not change the level of service of the adjacent roadway system or appreciably increase the volume-to-capacity ratio of an intersection approach. As such, the proposed development is not anticipated to significantly impact the operations of the adjacent roadway network.

Site Circulation/Parking Supply

A review was conducted of the proposed townhouse development using the Site Plan prepared by Jarmel Kizel Architects and Engineers Inc., dated January 21, 2021. In completing this review, particular attention was focused on the site access, circulation, and parking supply.

Access is proposed to be consolidated to one (1) full-movement driveway along Hickory Avenue. The townhouses will be positioned along the easterly and westerly property lines, with vehicular access provided via a 24-foot two (2)-way drive aisle located in the center of the property. Parking will be provided in the center of the property along each townhouse frontage.

Regarding the parking requirements for the proposed development, the New Jersey Administrative Code Residential Site Improvements Standards (RSIS) (NJAC 5:21) requires 2.4 parking spaces per three (3)-bedroom townhouse unit, 2.1 parking spaces per three (3)-bedroom garden apartment, two (2) parking spaces per two (2)-bedroom garden apartment, and 1.8 parking spaces per one (1)-bedroom garden apartment. For the proposed 22-unit townhouse development consisting of 18 three (3)-bedroom townhouse units, one (1) three (3)-bedroom garden apartment, two (2) two (2)-bedroom garden apartments and one (1) one (1)-bedroom garden apartment, this equates to 52 required spaces. The site would provide 40 total parking spaces, and therefore a variance is required. Please note that 22 of the proposed 40 spaces would be exterior spaces and the remaining 18 spaces would be covered spaces located in a garage space on the first floor of the townhouse buildings. The exterior spaces would be minimum 9 feet wide by minimum 18 feet deep in accordance with industry standards. It is important to note that on-street parking is available along both sides of Hickory Avenue.

Additionally, Section 5:21-4.14(c) of the RSIS intends for there to be flexibility in the parking requirements. Specifically:

“Alternative standards to those shown in Table 4.4 shall be accepted if the applicant demonstrates these standards better reflect local conditions. Factors affecting minimum number of parking spaces include household characteristics, availability of mass transit, urban versus suburban location, and available off-site parking.”

It is important to consider the urban/suburban setting of the proposed development, the availability of nearby transit options, and the characteristics of the proposed use when assessing the adequacy of parking supply. Based on the ITE Journal article, “Do Land Use, Transit, and Walk Access Affect Residential Parking Demand,” there is a direct correlation between land use (i.e., rural/suburban/urban) and parking utilization, which “suggests that low auto ownership households often self-select locations than can support their transportation needs without a private vehicle.”

Based on American Community Survey data provided by the U.S. Census Bureau, approximately 19% of Bergenfield residents living in Census Tract 32, where the site is located, use public transportation, walk, or use means other than single-passenger vehicles to commute to work, and approximately 6% work from home. The location of the proposed development is particularly suited to provide transit options for its occupants as it is located within an approximate three (3)-minute walk from bus stops serving NJ Transit Bus Routes 166, 167, 177, 186, 772 & 753. These bus routes provide access to the Port Authority Bus Terminal, George Washington Bridge Bus Terminal and various points of interest throughout Bergen and Hudson counties. It should be noted that 22.1% of Bergenfield residents living in Census Tract 32 work in New York State. These available transit options within walking distance of the proposed development would likely reduce vehicular travel by residents to and from the subject property, thus reducing the parking demand of the proposed development.

The parking supply was evaluated with respect to data published within the ITE's Parking Generation, 5th Edition, for Land Use 220 “Multifamily Housing (Low-Rise).” Specifically, parking generation rates for general urban/suburban locations were utilized. Average rate parking demand rate for Land Use 220 “Multifamily Housing (Low-Rise)” is 1.22 vehicles per unit during the weekday peak period and is 1.28 vehicles per unit during the Saturday peak period. For the proposed 22-unit townhouse development, this equates to 27 vehicles during the weekday peak period and 28 during the Saturday peak period. As such, the proposed parking supply of 40 spaces would be sufficient to support the parking demand of the site.

Based on nearby transit options for the site's residents, ITE Journal article research, published ITE parking demand rates, and the availability of on-street parking along Hickory Avenue, the proposed parking supply of 40 spaces would be sufficient to support the expected parking demand of the proposed development.

Conclusions

This report was prepared to examine the potential traffic impact of the proposed townhouse development. The analysis findings, which have been based on industry standard guidelines, indicate that the proposed development would not have a significant impact on the traffic operations of the adjacent roadway network. The site driveway and on-site layout have been designed to provide for effective access to and from the subject property. The site's proximity to NJ Transit bus routes would contribute to a reduction in automobile use and reduce the need for automobile ownership by residents. Based on industry data and local characteristics of the site and surrounding area, the parking supply would be sufficient to support this project.

Please do not hesitate to contact our office if there are any questions.

Best regards,



Andrew J Villari, PE
Stonefield Engineering and Design, LLC



Matthew J Seckler PE, PP, PTOE
Stonefield Engineering and Design, LLC

cc: William Schmitt – Sixboro Holdings

\\us.stonefieldeng.com\Shares\Rutherford\RT\2021\RT-210217 Sixboro Holdings - 40, 44, 46 & 48 Hickory Street, Bergenfield, NJ\Calculations & Reports\Traffic\Reports\2021-07 TAR\2021-07 TAR.docx



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ARCHITECTS CERTIFICATE OF
AUTHORIZATION NUMBER 161

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PROFESSIONAL ENGINEERS
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www.jarmelkizel.com

June 28, 2021

**Borough of Bergenfield
Zoning Board of Adjustment**
198 N Washington Avenue
Bergenfield, NJ 07621

**RE: Completeness Review Submission 2
Hickory Avenue 18-Unit Townhome Development
40 Hickory Sixboro, LLC
Jarmel Kizel Project Number: SIXBORO20-214**

Dear Chairman, members of the Board, and Board Professionals:

Enclosed please find revised Preliminary\Final Site Plans for the above referenced project. The drawings have been revised to address the review comments provided by Pennoni Engineering in their Completeness Review Letter #1 dated April 30, 2021. For ease of review, each comment that required a response is repeated below in *italics* and our responses are in **bold**.

Pennoni Completeness Review #1 dated April 30, 2021

Completeness

4. *A copy of any covenants or deed restrictions that cover or are intended to cover the tract or any part thereof. Incomplete: Existing ingress and egress right of way easements are shown in the submitted boundary and topographic survey. Applicant shall indicate if the easements are to remain.*
Response: Drawing C-300 has been amended to include a note stating it is the intent of the Applicant to consolidate all lots and remove the existing ingress and egress right of way easements.
9. *The location and layout of off-street loading areas and parking areas, showing the number of spaces required for the proposed building and number of spaces to be required. Aisles, fire lanes, spaces and driveways shall be clearly dimensioned, as well as designated snow removal equipment storage areas. Off-street parking areas are clearly shown. Incomplete: Applicant has provided location and layout of all off-street parking areas and aisles. Aisles, spaces, and driveways are clearly dimensioned. Given the proposed use, the requirement for off-street loading areas is not applicable. Fire lanes and snow removal equipment storage areas are not included in the submitted application documents.*
Response: A new drawing has been created, Sheet C-950, that indicates designated snow removal areas. No snow removal equipment will be stored on site. Drawing C-300 has also been revised to indicate "No Parking Fire Lane signage to be provided on both sides of the access drive to the buildings.

Completeness Review Submission 2
Hickory Avenue 18-Unit townhome Development
40 Hickory Sixboro, LLC
Jarmel Kizel Project Number: SIXBORO20-214
June 28, 2021

10. The proposed location, direction, type of fixture, power, and time of proposed outdoor lighting, including façade lighting and lighted signs. *Incomplete: The time of the proposed outdoor lighting operation has not been included in the application documents.*
Response: Drawing C-700 has been amended to include a note indicating that lights will be operated with a photocell sensor and will operate from dawn to dusk.

Additional Information

Due to the scope of the proposed improvements, our office recommends the following additional items be provided:

- *Traffic Impact Study analyzing the impact of the proposed development on the existing traffic on Hickory Avenue and nearby intersections.*
Response: A Traffic Impact Study is being prepared and will be submitted in advance of the public hearing yet to be scheduled.
- *Emergency Vehicle Circulation Plan, analyzing the access and circulation of emergency vehicles to and through the site.*
Response: Newly created Drawing C-950 also includes an Emergency Vehicle Plan that indicates the ability of a Fire Rescue Truck to access the site off of Hickory Avenue. If a rescue truck were to enter the site, it would be required to back out to return to Hickory Avenue. Refuse trucks would be able to perform a K-turn movement to return to Hickory Avenue.
- *Snow Removal Plan analyzing and locating areas of proposed snow storage on the site.*
Response: Newly created Drawing C-950 indicates three (3) areas of proposed snow storage on site.

Lastly, with regard to the "Recommendations" section of the review letter, we note that no identification sign is currently proposed for the development. If such a sign is proposed in the future, the applicant understands the need to return to the Board for approval.

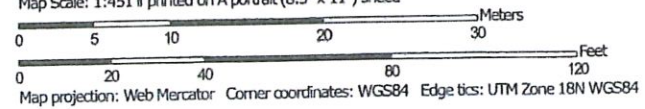
Should you have any questions or require additional information, please do not hesitate to contact our office.

Very truly yours,
Jarmel Kizel Architects and Engineers, Inc.

Gerard P. Gesario, PE
Director of Civil Engineering



Map Scale: 1:451 if printed on A portrait (8.5" x 11") sheet.



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



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

1/22/2021
Page 1 of 3

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
- Water Features
Streams and Canals
- Transportation
Rails
Interstate Highways
US Routes
Major Roads
Local Roads
- Background
Aerial Photography
- Soil Area
Stony Spot
Very Stony Spot
Wet Spot
Other
Special Line Features

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: Bergen County, New Jersey
Survey Area Data: Version 17, Jun 1, 2020

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

Date(s) aerial images were photographed: Jul 23, 2014—Aug 15, 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
DuuB	Dunellen-Urban land complex, 3 to 8 percent slopes	0.9	100.0%
Totals for Area of Interest		0.9	100.0%

**APPENDIX G
MAPS**

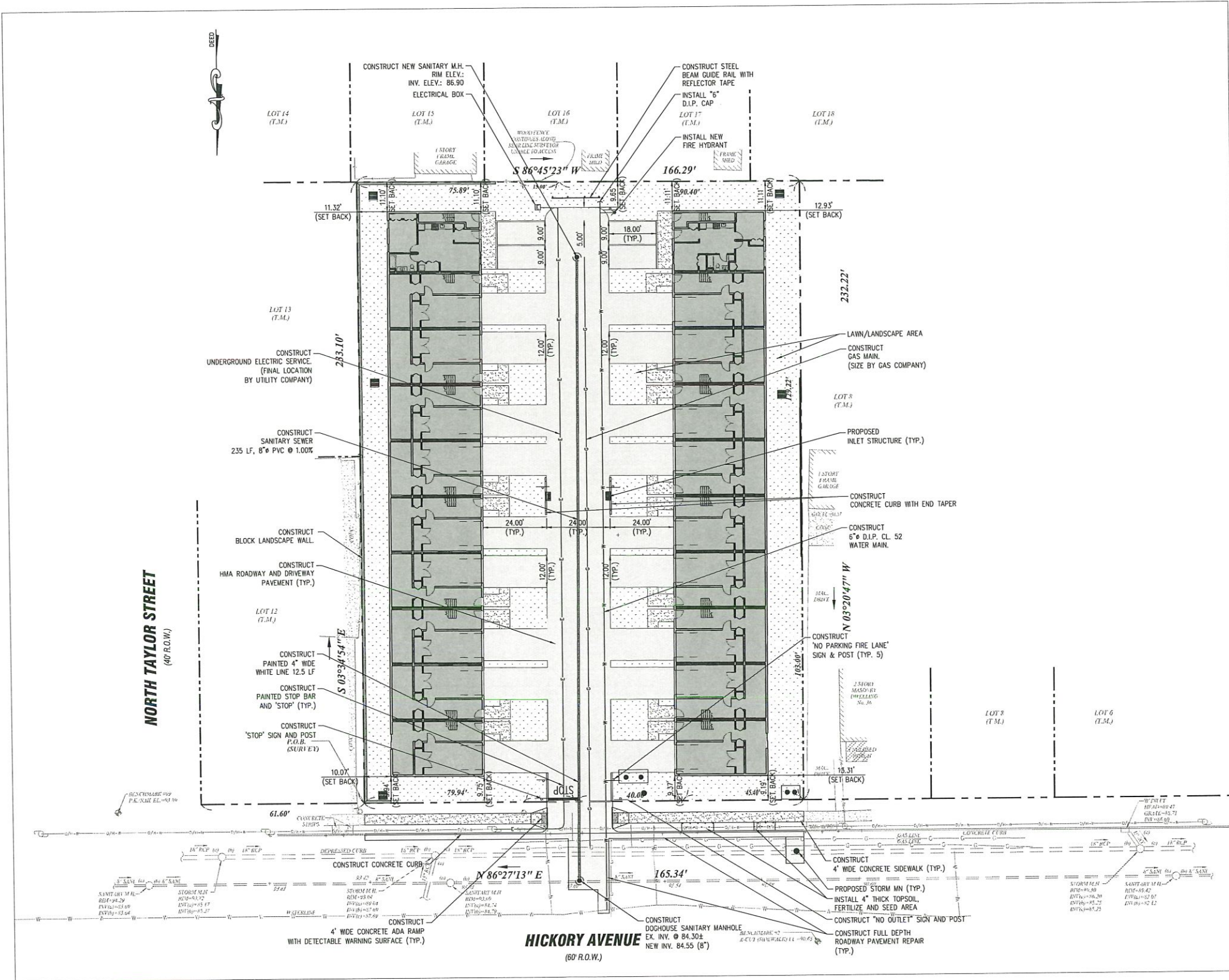
**MAP OF SURVEY
GRADING & DRAINAGE PLAN
EXISTING DRAINAGE AREA PLAN
PROPOSED DRAINAGE AREA PLAN**

SURVEY REFERENCE:

1. BOUNDARY & TOPOGRAPHY INFORMATION IS BASED ON A SURVEY TITLED "BOUNDARY AND TOPOGRAPHY OF TAX LOT 9, BLOCK 30, A.K.A. 40 HICKORY AVENUE, TAX LOT 10, BLOCK 30, A.K.A. 44 HICKORY AVENUE, TAX LOT 10.01, BLOCK 30, A.K.A. 46 HICKORY AVENUE, TAX LOT 11, BLOCK 30, A.K.A. 48 HICKORY AVENUE, BOROUGH OF BERGENFIELD, BERGEN COUNTY, NEW JERSEY," BY DMC ASSOCIATES, INC., 211 MAIN STREET, BUTLER, NJ, DATED OCTOBER 05, 2020, WITH NO REVISION DATES.
2. VERTICAL DATUM ARE BASED ON NAVD 88.

GENERAL NOTES:

1. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT DOOR LOCATIONS.
2. ALL CONSTRUCTION IS TO BE PERFORMED IN CONFORMANCE WITH ALL APPLICABLE LOCAL, COUNTY, STATE, AND FEDERAL CODES.
3. CONSTRUCTION MATERIALS AND METHODS NOT OTHERWISE SPECIFIED OR SHOWN HEREIN SHALL CONFORM TO NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION AND AMENDMENTS).
4. THESE PLANS DEPICT THE SITE WORK IMPROVEMENTS FOR THIS PROJECT. THE GENERAL CONTRACTOR (G.C.) SHALL FURNISH, INSTALL, TEST AND COMPLETE ALL WORK TO THE SATISFACTION OF THE ENGINEER AND OWNER IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE G.C. SHALL BE SOLELY RESPONSIBLE FOR MEANS AND METHODS, TECHNIQUES, SEQUENCE OF CONSTRUCTION AND PROJECT SITE SAFETY. AS SUCH, THESE PLANS ARE NOT INTENDED TO REPRESENT SPECIFIC INSTRUCTIONS REQUIRED FOR SITE WORK CONSTRUCTION. THE G.C. SHALL BE RESPONSIBLE TO CONSTRUCT ALL IMPROVEMENTS DEPICTED ON THESE PLANS IN ACCORDANCE WITH ALL APPLICABLE RULES, REGULATIONS AND LAWS IN EFFECT AT THE TIME OF CONSTRUCTION.
5. THE G.C. SHALL ACCEPT THE SITE AS IS. THE G.C. SHALL ASSESS CONDITIONS, AND THE KIND, QUALITY AND QUANTITY OF WORK REQUIRED. THE OWNER MAKES NO GUARANTEE IN REGARD TO THE ACCURACY OF ANY AVAILABLE INFORMATION WHICH WAS OBTAINED DURING INVESTIGATIONS. THE G.C. SHALL MAKE A THOROUGH INSPECTION OF THE SITE IN ORDER TO REVEAL EXISTING CONDITIONS, CORRELATE CONDITIONS WITH THE DRAWINGS AND RESOLVE ANY POSSIBLE CONSTRUCTION CONFLICTS WITH THE OWNER AND ENGINEER PRIOR TO BIDDING, ORDERING MATERIALS, AND COMMENCEMENT OF WORK. THE G.C. SHALL MAKE ADDITIONAL TOPOGRAPHIC SURVEYS THEY DEEM NECESSARY, PROVIDED THEY ARE COORDINATED WITH THE OWNER. ANY CONDITIONS DETERMINED BY THE G.C. THAT DIFFER FROM THE INFORMATION SHOWN ON THE DRAWINGS THAT ARE NOT BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER PRIOR TO THE START OF WORK SHALL NOT BE CONSIDERED GROUNDS FOR ADDITIONAL PAYMENT OR CHANGES TO THE CONTRACT DURATION, OR ANY OTHER CLAIMS AGAINST THE OWNER OR OWNER'S ENGINEER.
6. THE G.C. SHALL PROVIDE WRITTEN REQUESTS FOR INFORMATION (RFI) TO THE OWNER AND ENGINEER PRIOR TO THE CONSTRUCTION OF ANY SPECIFIC SITE WORK ITEM. THE (RFI) SHALL BE IN A FORM ACCEPTABLE TO OWNER AND ENGINEER AND SHALL ALLOW FOR A MINIMUM OF TWO WORK DAYS OR ADDITIONAL REASONABLE TIME FOR A WRITTEN REPLY. RFIS SHALL BE NUMBERED CONSECUTIVELY BY DATE SUBMITTED. THE G.C. SHALL BE SOLELY RESPONSIBLE FOR SITE WORK ITEMS CONSTRUCTED DIFFERENTLY THAN INTENDED OR AS DEPICTED ON THE PLANS.
7. THE G.C. IS RESPONSIBLE TO CONTACT NEW JERSEY ONE CALL NOT LESS THAN 3 BUSINESS DAYS AND NOT MORE THAN 10 BUSINESS DAYS PRIOR TO THE BEGINNING OF ANY EXCAVATION OR DEMOLITION. NEW JERSEY ONE CALL INFORMATION - PHONE: 1-800-272-1000, WEB: WWW.NJ1-CALL.ORG.
8. THE G.C. SHALL SUPERVISE AND DIRECT THE WORK, USING THE G.C.'S BEST SKILL AND ATTENTION. THE G.C. SHALL BE SOLELY RESPONSIBLE AND HAVE CONTROL OVER CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND JOB SITE SAFETY.
9. THE MUNICIPAL ENGINEER MUST BE NOTIFIED ONE WEEK PRIOR TO THE CONSTRUCTION OF ANY CURBING, SIDEWALKS, PAVEMENT GRADING, OR OTHER UTILITIES.
10. THE G.C. MUST NOTIFY THE DESIGN ENGINEER IN WRITING OF ANY CONDITION OF CONFLICTS THAT WILL ALTER THE INTENT OF THE DESIGN HEREIN.
11. THE G.C. IS REQUIRED TO REMOVE ALL UNSUITABLE MATERIALS FROM THE SITE IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL REGULATIONS.
12. ALL PROPOSED IMPROVEMENTS TO BE IN ACCORDANCE WITH CURRENT ADA AND NJ BARRIER FREE CODE REQUIREMENTS.
13. THE G.C. IS SUBJECT TO ALL APPLICABLE RULES, REGULATIONS, ORDINANCES AND STATUTES OF THE BOROUGH OF BERGENFIELD, BERGEN COUNTY AND STATE OF NEW JERSEY AND ANY OTHER JURISDICTION.
14. THE G.C. SHALL REPLACE ALL CURBING ALONG THE SITE FRONTAGE THAT THEY DAMAGE (AS DIRECTED BY THE TOWNSHIP OR COUNTY, AS APPLICABLE).



SITE LAYOUT AND UTILITY PLAN

SCALE: 1"=20'

LOT CONSOLIDATION NOTE:

1. APPLICANT PROPOSES TO CONSOLIDATE THE LOTS AS A CONDITION OF FINAL APPROVAL. A NEW LOT NUMBER WILL BE OBTAINED FROM THE OFFICE OF THE TAX ASSESSOR. THE EXISTING INGRESS AND EGRESS R.O.W. EASEMENTS SHOWN ON THE SURVEY WITHIN LOT 11 OF BLOCK 30 WILL BE REMOVED AS PART OF THE PROPOSED LOT CONSOLIDATION.



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ISSUE

NO.	DATE	DESCRIPTION	INT.
1	01.21.2021	INITIAL ZONING BOARD SUBMISSION	GG

REVISION

NO.	DATE	DESCRIPTION	INT.
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MICHAEL J. VORLAND, AIA

Project:
TOWNHOUSE DEVELOPMENT
40, 44, 46 & 48 HICKORY AVENUE
BOROUGH OF BERGENFIELD
BERGEN COUNTY, NEW JERSEY
BLOCK 30, LOTS 9, 10, 10.01 & 11

Project Number:
SIXBORO-S-20-214

Scale:
1" = 20'

Drawn By:
A.P.P.

Approved By:
G.P.G.

Drawing Name:
**SITE LAYOUT
AND
UTILITY PLAN**

Drawing Number:
C-300
5 OF 15

Initial Date: DECEMBER 7, 2020

ENGINEER OF RECORD

GERARD P. GESARIO, PE
NJ LIC #468025599 EXP. 4/30/22

