## **CAPIZZI LAW OFFICES**

11 Hillside Ave., Second Floor
Tenafly, NJ 07670
MATTHEW G. CAPIZZI, ESQ. 201 266 8300 (o)
N.J., N.Y., & D.C. Bars 201 266 8301 (f)
Capizzilaw.com

New York Office: 1 Blue Hill Plaza Lobby Level, Suite 1509 Pearl River, NY 10965 Reply to New Jersey Office

December 3, 2021

## Revised Engineering and Landscape Plan Submittal for December 16, 2021 Hearing

#### Via Overnight Mail

Nancy Wehmann-Board Secretary Borough of Alpine 100 Church Street Alpine, NJ 07620

Re: Blancato – Alpine BA (the "Applicant")

30 Overlook Road, Block 75; Lot 13 (the "Property")

Dear Ms. Wehmann:

As you know, this office represents the above Applicant regarding their variance application before the Alpine Board of Adjustment seeking to construct a first-floor loggia, inground pool, and other associated improvements at the Property. The Applicant's Professionals revised their respective plans to address the comments raised at the October 14, 2021 hearing. To that end, enclosed please find the following for consideration at the December 16, 2021 hearing.

- 1. Drainage Report prepared by Hubschman Engineering, P.A., dated November 30, 2021 (11 copies);
- 2. Site Plan prepared by Hubschman Engineering, P.A., dated March 19, 2021 and last revised as of December 1, 2021 consisting of two (2) sheets (11 copies); and
- 3. Landscape Plan prepared by HK Landscape Architecture dated November 29, 2021 consisting of one (1) sheet (11 copies).

This letter shall also confirm this matter is scheduled to be heard before the Alpine Zoning Board of Adjustment in-person on Thursday, December 16, 2021, at 7:30 pm.

Thank you.

Gloria Duby, Paralegal

MGC/gd Enclosures

# DRAINAGE REPORT

PROPOSED POOL, PATIO, AND RAISED TERRACE 30 OVERLOOK ROAD LOT 13, BLOCK 75 BOROUGH OF ALPINE BERGEN COUNTY, NEW JERSEY (FILE # 2020026)

PREPARED ON:

November 30, 2021

#### PREPARED FOR:

## APPLICANT/OWNER

Frank Blancato 30 Overlook Road Alpine, New Jersey 07620

MICHAEL J. HUBSCHMAN, P.C.

MICHAEL J. HUBSCHMAN, P.E., P.P. PROFESSIONAL ENGINEER AND PLANNER 263A SOUTH WASHINGTON AVENUE BERGENFIELD, NEW JERSEY 07621 PHONE: 201-384-5666

NJPE No. 29497

NJPP No. 3200

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## APPENDIX 1

- Site Location and Soil Type Map
- Time of Concentration (Tc) Nomograph
- Typical Runoff Coefficients Table
- IDF Curves and Tabulation

## INTRODUCTION:

This report has been developed to demonstrate compliance of the proposed drainage improvements on the project site with the Borough of Alpine Stormwater Control Ordinance and the Residential Site Improvement Standards (N.J.A.C. 5:21-7). This project does not qualify as a major project under either of the above listed regulations since it proposes less than one acre of overall land disturbance and less than ¼ acre of net new impervious surface coverage.

The project site is a residential property that is rectangular in shape and consists of a 26,582 square foot (0.61 acre) lot. It is located along the south westerly side of Overlook Road in the Borough of Alpine, Bergen County, New Jersey. The applicant proposes the construction of a pool, patio, raised terrace, and associated ancillary improvements.

## **EVALUATION:**

Stormwater runoff for the site was analyzed utilizing the Modified Rational Method. The property was evaluated for the 2, 10, and 100 year design storm events in the present and developed conditions.

## **CONCLUSIONS:**

One (1) 3' deep, 6' diameter concrete drywells with gravel are required to meet the established design criteria, which are shown on the Site Plan with the requisite details provided.

The additional impervious coverage on the site would require 32 cubic feet of storage to mitigate any additional runoff on the downstream neighbors. The applicant is proposing a seepage pit with 290 cubic feet of storage which will have a significant benefit to the downstream neighbors by reducing the runoff to the west.

## **Stormwater Management Summary**

Storm	Existing Runoff (CFS)	Proposed Runoff (CFS)	Runoff Increase (CFS)	Storage Required for Entire Site (CF)	Storage Provided (CF)
2 Year	1.593	1.624	0.031	19	290
10 Year	2.115	2.157	0.042	25	290
100 Year	2.816	2.871	0.056	32	290

## **SECTION 1**

PRESENT FLOW & DEVELOPED FLOW FOR 2, 10, & 100 - YEAR DESIGN STORMS

## MODIFIED RATIONAL METHOD

## PROPOSED POOL, PATIO, AND RAISED TERRACE

LOT AREA			_	26,582	SF	0.610	Ac
EXISTING IMPERVIOUS	AREA		=	5,377	SF	0.123	Ac
PROPOSED IMPERVIOUS			= :	6,147	SF	0.141	Ac
(INCLUDING 270 S.F. C	F PERV	IOUS PAVERS)					
SOIL TYPE	=	(WeuC) Wethersfield	- Urban	Land Comp	lex, 8-15	5% slopes	
SOIL GROUP	=	С					
C LAWN	_	0.51					
C PERVIOUS PAVER	=	0.80					
C IMPERVIOUS	_	0.99					

#### **EXISTING**

$$C = \frac{5,377}{26,582} * 0.99 + 21,205 * 0.51 = 0.607$$

## PROPOSED

$$C = \frac{5,877}{26,582} * 0.99 + 20,435 * 0.51 + 270 * 0.80}{26,582} = 0.619$$

## SITE EXISTING FLOW (CFS)

										LXISUNG	HOW
Q2	=	CıA	=	0.607	*	4.30	*	0.610	=	1.593	CFS
Q10	=	CıA	. =	0.607	*	5.71	*	0.610	=	2.115	CFS
Q100	=	CıA	=	0.607	*	7.60	*	0.610	=	2.816	CFS

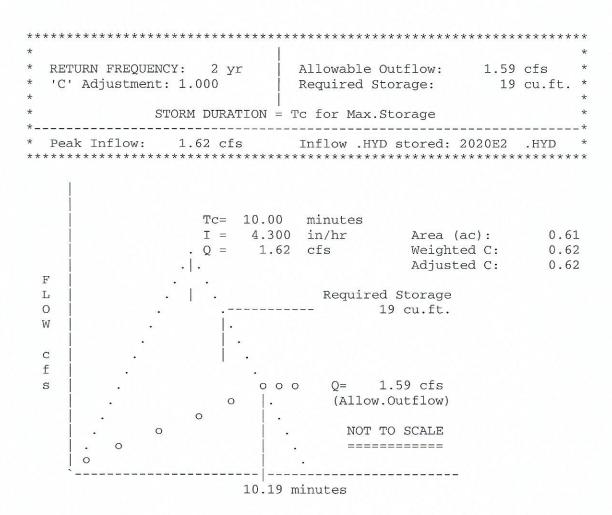
## PROPOSED FLOW (CFS)

										Proposed	Flow
Q2	=	CıA	-	0.619	*	4.30	*	0.610	=	1.624	CF5
Qio	=	CıA	·=	0.619	*	5.71	*	0.610	=	2.157	CFS
Quan	=	CIA	=	0619	*	7 60	*	0610	=	2871	CES

Quick TR-55 Ver.5.47 S/N: Executed: 09:56:45 12-01-2021

## MODIFIED RATIONAL METHOD ---- Graphical Summary for Maximum Required Storage ----

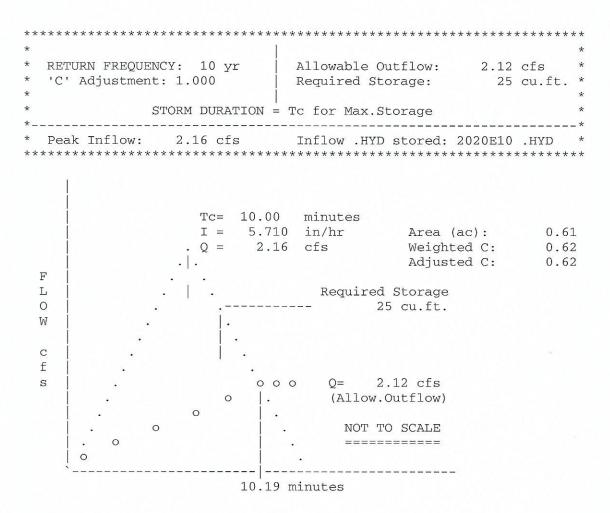
Proposed Pool, Patio, and Loggia 30 Overlook Road Borough of Alpine, Bergen County, New Jersey



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## MODIFIED RATIONAL METHOD ---- Graphical Summary for Maximum Required Storage ----

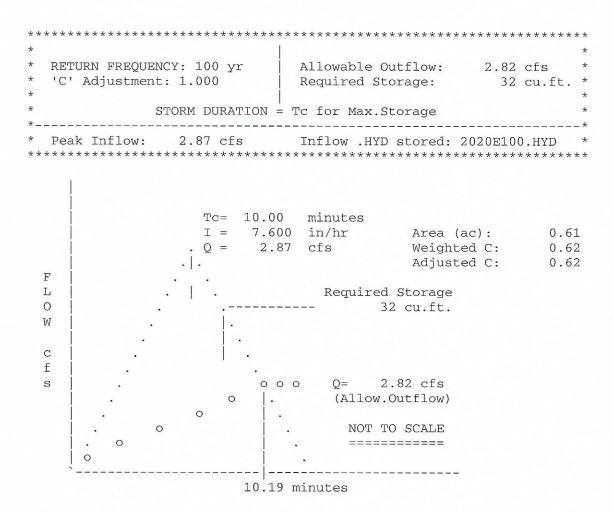
Proposed Pool, Patio, and Loggia 30 Overlook Road Borough of Alpine, Bergen County, New Jersey



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#### HUBSCHMAN ENGINEERING MICHAEL J. HUBSCHMAN, P.E., P.P. DRAINAGE REPORT

30 OVERLOOK ROAD - LOT 13, BLOCK 75 BOROUGH OF ALPINE BERGEN COUNTY, NEW JERSEY FILE # 2020026

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> Proposed Pool, Patio, and Loggia 30 Overlook Road Borough of Alpine, Bergen County, New Jersey

\*\*\*\* Modified Rational Hydrograph \*\*\*\*\*

Weighted C = 0.619 Area 0.610 acres Tc = 10.00 minutes

Adjusted C = 0.619 Td= 10.00 min. I= 4.30 in/hr Qp= 1.62 cfs

RETURN FREQUENCY: 2 year storm Adj.factor = 1.00 Output file: 2020E2 .HYD

HYDROGRAPH FOR MAXIMUM STORAGE For the 2 Year Storm

Time		ŗ	Time increme	ent = $1$ .	00 Minute	S	
Minutes	Time	on left	represents	time for	first Q	in each	row.
0.00	0.00	0.16	0.32	0.49	0.65	0.81	0.97
7.00	1.14	1.30	1.46	1.62	1.46	1.30	1.14
14.00	0.97	0.81	0.65	0.49	0.32	0.16	0.00

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\*\*\*\* Modified Rational Hydrograph \*\*\*\*\*

Weighted C = 0.619 Area = 0.610 acres Tc = 10.00 minutes

Adjusted C = 0.619 Td= 10.00 min. I= 5.71 in/hr Qp= 2.16 cfs

RETURN FREQUENCY: 10 year storm Adj.factor = 1.00

Output file: 2020E10 .HYD

#### HYDROGRAPH FOR MAXIMUM STORAGE For the 10 Year Storm

Time		${f T}$	ime increme	ent = $1.$	00 Minute	S	
Minutes	Time o	n left	represents	time for	first Q	in each	row.
-							
0.00	0.00	0.22	0.43	0.65	0.86	1.08	1.29
7.00	1.51	1.73	1.94	2.16	1.94	1.73	1.51
14.00 İ	1.29	1.08	0.86	0.65	0.43	0.22	0.00

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> Proposed Pool, Patio, and Loggia 30 Overlook Road Borough of Alpine, Bergen County, New Jersey

\*\*\*\* Modified Rational Hydrograph \*\*\*\*

Weighted C = 0.619 Area = 0.610 acres Tc = 10.00 minutes

Adjusted C = 0.619 Td= 10.00 min. I= 7.60 in/hr Qp= 2.87 cfs

RETURN FREQUENCY: 100 year storm Adj.factor = 1.00

Output file: 2020E100.HYD

#### HYDROGRAPH FOR MAXIMUM STORAGE For the 100 Year Storm

Time		7	Time increme	ent = $1$ .	00 Minute	es	
Minutes	Time	on left	represents	time for	first Q	in each	row.
0.00	0.00	0.29	0.57	0.86	1.15	1.44	1.72
7.00	2.01	2.30	2.58	2.87	2.58	2.30	2.01
14.00	1.72	1.44	1.15	0.86	0.57	0.29	0.00

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\* \* \* \* \* \* SUMMARY OF RATIONAL METHOD PEAK DISCHARGES \* \* \* \* \* \*

Q = adj \* C \* I \* A

Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years

`C' adjustment, k = 1 Adj. 'C' = Wtd.'C' x 1

					===		======	<b>:===</b> ====	=======
Subarea Descr.	Runoff 'C'	Area acres	TC (min)	Wtd. 'C'		Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
Impervious Per. Paver		0.14							
	0.800	0.01							1
Pervious	0.510	0.47	 						İ 
			10.00	0.619		0.619	4.300	0.61	1.62

HUBSCHMAN ENGINEERING, P.A. MICHAEL J. HUBSCHMAN, P.E., P.P. DRAINAGE REPORT 30 OVERLOOK ROAD - LOT 13, BLOCK 75 BOROUGH OF ALPINE BERGEN COUNTY, NEW JERSEY FILE # 2020026

# SECTION 2 RUNOFF STORAGE CALCULATIONS

## **RUNOFF STORAGE REQUIREMENTS**

## DRYWELL CALCULATIONS

3' Deep, 6' Diameter

## DRYWELL VOLUME

3'  $(\pi)(6^2/4)$ 

= 84.82 cf

### STONE AROUND DRYWELL

3' OF STONE, 40% VOIDS

HEIGHT = 3 ft INNER DIA. = 6 ft OUTER DIA. = 6.5 ft STONE DIA. = 12.5 ft

 $0.4(3')(\pi)(12.5^2-6.5^2)/4$  = 107.44 cf

#### STONE AT BOTTOM

2' OF STONE, 40 % VOIDS

 $0.4(2')(\pi)(12.5^2/4)$  = 98.17 cf

Storage provided by one seepage pit with gravel = 290.44 cf

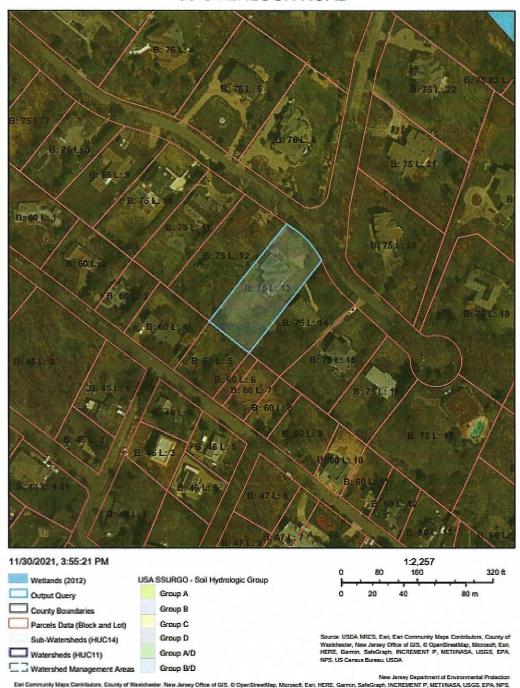
\*USE ONE (1) DRYWELLS WITH STONE

1 \* 290.44 cf = 290.44 cf

## **APPENDIX 1**

- Site Location and Soil Type Map
- Typical Runoff Coefficients Table
- Time of Concentration (Tc) Nomograph
- IDF Curves and Tabulation

## 30 OVERLOOK ROAD



## Soils (SSURGO)

Rec	Map Unit Symbol	Map Unit Name
1	WeuC	Wethersfield-Urban Land Complex, 8-15% slopes

# Recommended Coefficient of Runoff Values for Various Selected Land Uses

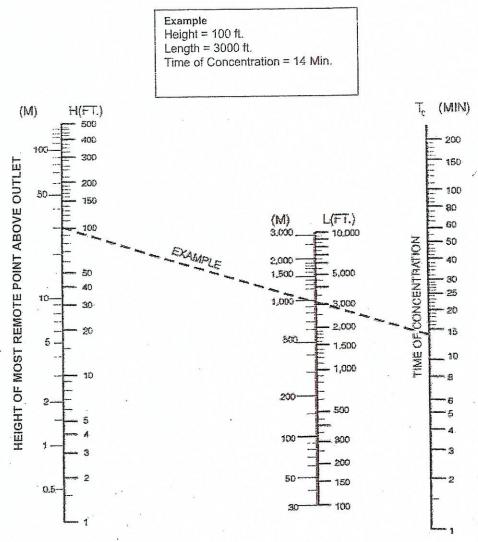
Land Use	Description	Ну	drologic	Soils G	roup
Land Ose	Description	A	В	С	D
Cultivated Land	without conservation treatment	0.49	0.67	0.81	0.88
	with conservation treatment	0.27	0.43	0.67	0.67
Pasture or Range Land Meadow	poor condition	0.38	0.63	0.78	0.84
	good condition		0.25	0.51	0.65
	good condition			0.41	0.61
Wood or Forest Land	thin stand, poor cover, no mulch		0.34	0.59	0.70
	good cover			0.45	0.59
Open Spaces, Lawns, Parks, Golf					
Courses, Cemeteries				111	
Good Condition	grass cover on 75% or more		0.25	0.51	0.65
Fair Condition	grass cover on 50% to 75%		0.45	0.63	0.74
Commercial and Business Area	85% impervious	0.84	0.90	0.93	0.96
Industrial Districts	72% impervious	0.67	0.81	0.88	0.92
Residential	average % impervious				
Average Lot Size (acres)					
1/8	65	0.59	0.76	0.86	0.90
1/4	38	0.29	0.55	0.70	0.80
1/3	30		0.49	0.67	0.78
1/2	25		0.45	0.65	0.76
1	20		0.41	0.63	0.74
Paved Areas	parking lots, roofs, driveways, etc.	0.99	0.99	0.99	0.99
Streets and Roads	paved with curbs & storm sewers	0.99	0.99	0.99	0.99
	gravel	0.57	0.76	0.84	0.88
	dirt	0.49	0.69	0.80	0.84

NOTE: Values are based on NRCS (formerly the SCS) definitions and are average values.

Source: <u>Technical Manual for Land Use Regulation Program</u>, Bureau of Inland and Coastal Regulations, Stream Encroachment Permits, <u>New Jersey Department of Environmental Protection</u>

Figure 7.1

TIME OF CONCENTRATION



#### Notes:

Use Nomograph  $T_{\rm c}$  for natural basins with well-defined channels, for overland or bare earth, and for mowed grass roadside channels.

For overland flow, grassed surfaces, multiply Tc by 2.

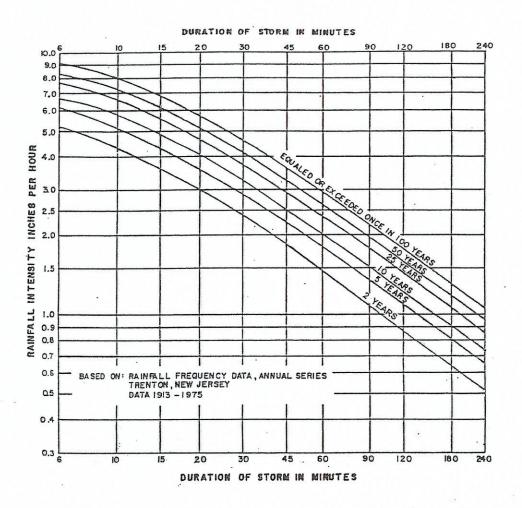
For overland flow, concrete or asphalt surfaces, multiply  $T_{\text{c}}$  by 0.4.

For concrete channels, multiply  $T_c$  by 0.2 overland flow.

Based on a study by P.Z. Kirpich, Civil Engineering, Vol.10, No.6, June 1940, p. 362.

N.J.A.C. 5:21-7.2

FIGURE 7.2 RAINFALL INTENSITY CURVES



Note: Adapted from Figure 2.1-2 in the NJDEP Technical Manual for Stream Encroachment Permits.

#### HUBSCHMAN ENGINEERING, P.A. MICHAEL J. HUBSCHMAN, P.E., P.P. DRAINAGE REPORT

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Northern New Jersey One Year Storm

Recurrence Frequency = 1

DURATION	INTENSITY
(Minutes)	(inches/hour)
6	3.7
10	3.59
15	2.95
20	2.13
30	1.98
45	1.42
60	1.22
90	0.79
120	0.76

NJDEP Curve 10 Year Storm Recurrence Frequency = 10

DURATION	INTENSITY	
(Minutes)	(inches/hour)	
6	6.8	
10	5.71	1
15	4.74	•
20	4	
30	3.35	
45	2.5	
60	2	
90	1.5	
120	1.34	

NJDEP Curve 100 Year Storm

Recurrence Frequency = 100

DURATION	INTENSITY
(Minutes)	(inches/hour)
6	9
10	7.6
15	6.33
20	5.8
30	4.68
45	3.8
60	3.17
90	2.3
120	2.02

NJDEP Curve 2 Year Storm

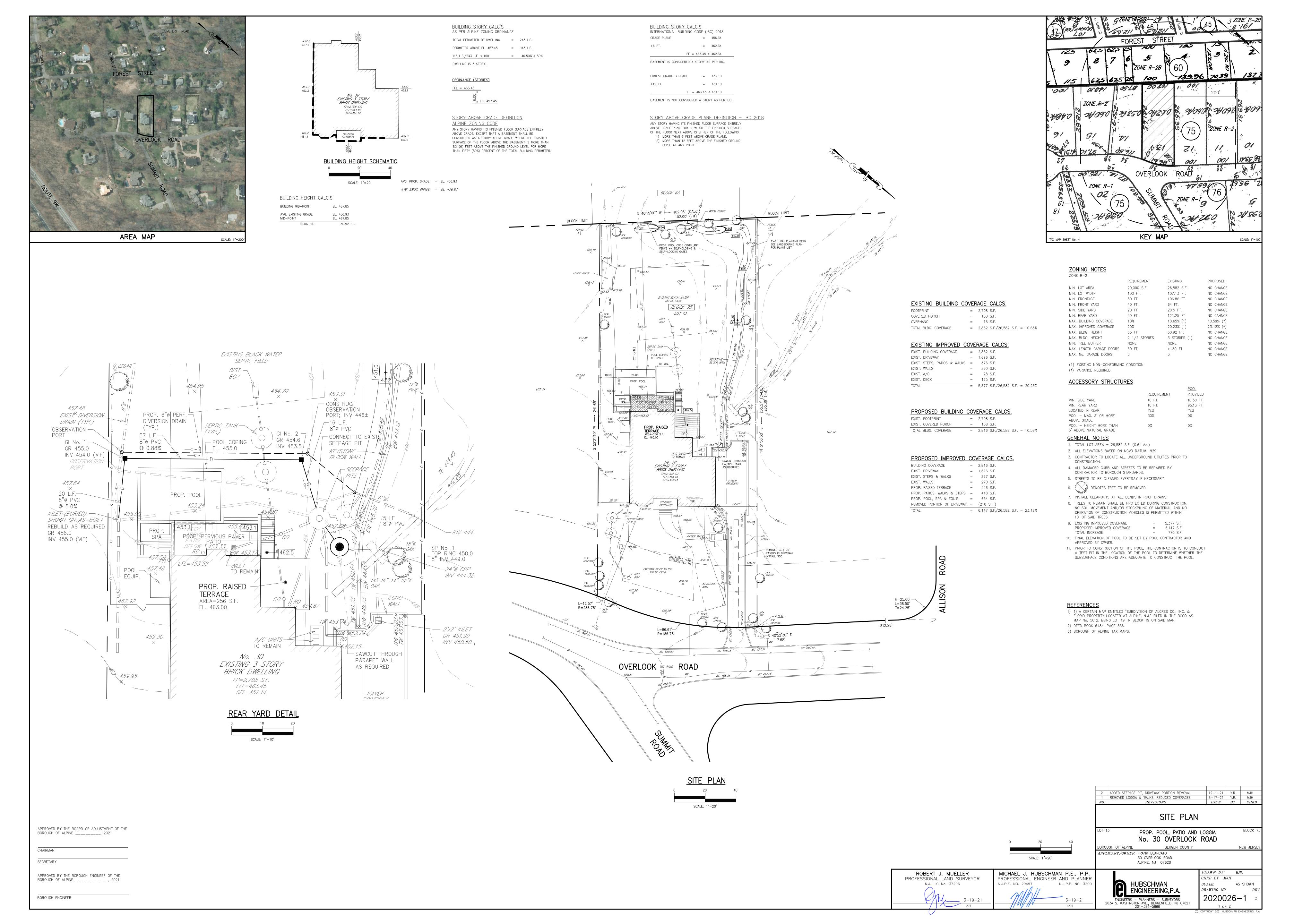
Recurrence Frequency = 2

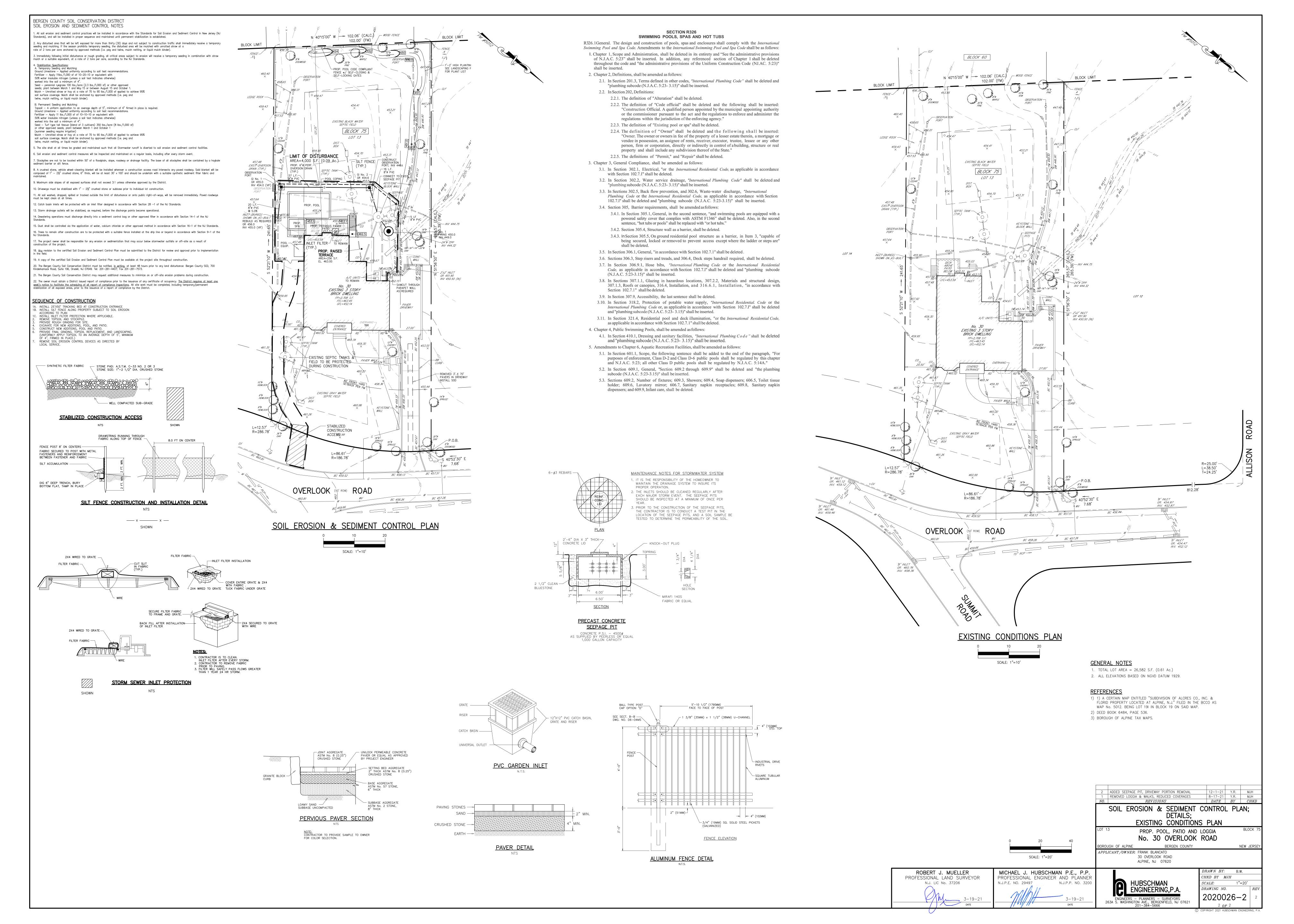
DURATION (Minutes)	INTENSITY (inches/hour)
` 6	5.2
10	4.3
15	3.55
20	3
30	2.4
45	1.8
60	1.49
90	1.1
120	0.92

NJDEP Curve 25 Year Storm

Recurrence Frequency = 25

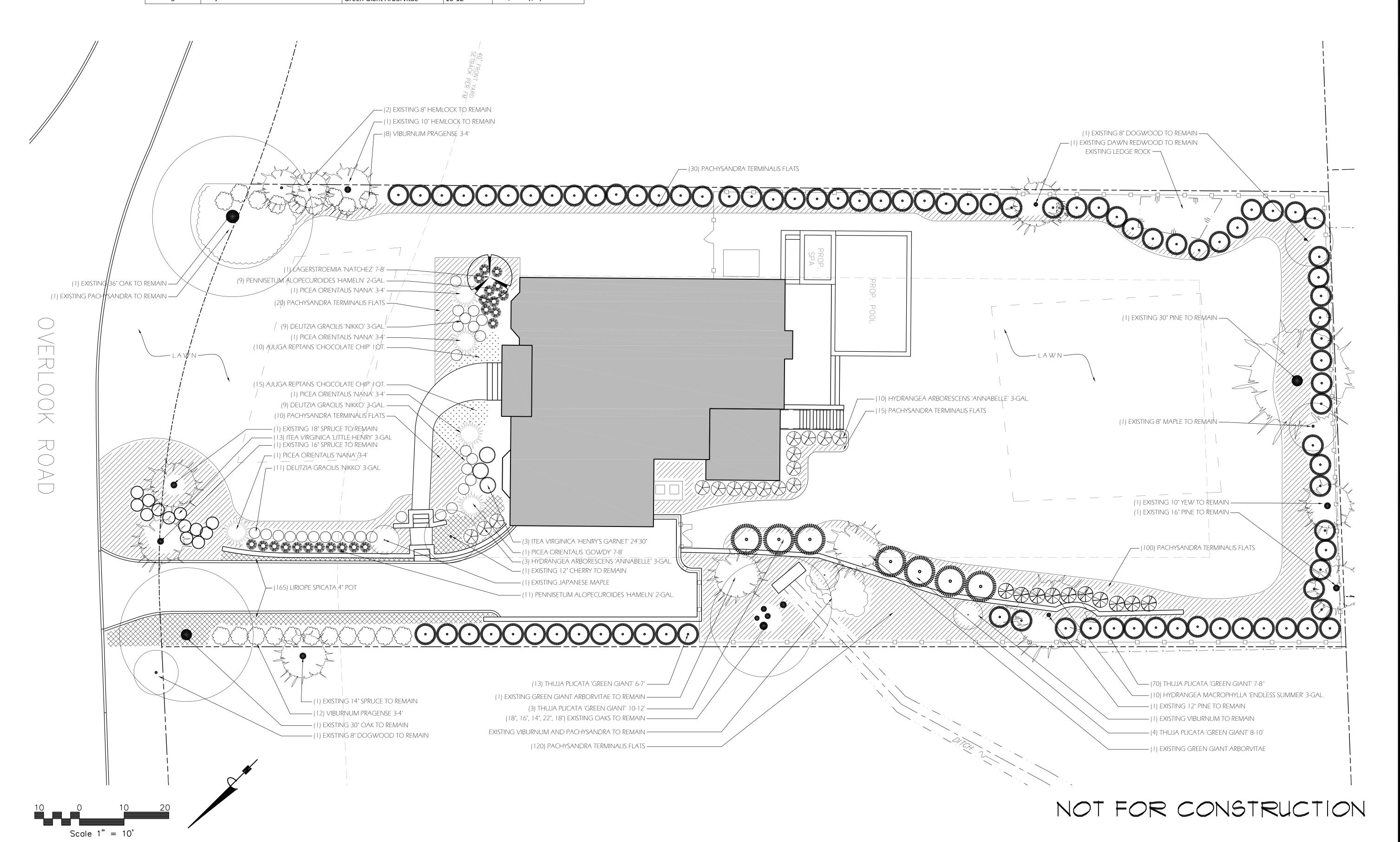
DURATION	INTENSITY
(Minutes)	(inches/hour)
6	7.7
10	6.47
15	5.38
20	4.6
30	3.88
45	3
60	2.54
90	1.8
120	1.6

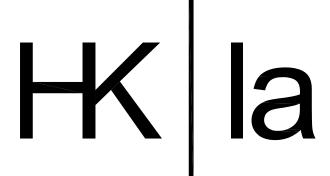




	PLANT SCHEDULE			
Qty	Latin Name	Common Name	Size	Comments
Deciduous an	d Flowering Trees:			
1	Lagerstroemia 'Natchez'	Natchez Crape Myrtle	7-8'	B&B, Heavy, Symmetrica
Evergreen Tre	ees:			
4	Picea Orientalis 'Nana'	Dwarf Ornamental Spruce	3-4'	Heavy, Symmetrical
1	Picea Orientalis 'Gowdy'	Oriental Spruce	7-8'	Heavy, Symmetrical
13	Thuja Plicata 'Green Giant'	Green Giant Arborvitae	6-7'	B&B, Heavy, Symmetrica
70	Thuja Plicata 'Green Giant'	Green Giant Arborvitae	7-8'	B&B, Heavy, Symmetrica
4	Thuja Plicata 'Green Giant'	Green Giant Arborvitae	8-10'	B&B, Heavy, Symmetrica
3	Thuja Plicata 'Green Giant'	Green Giant Arborvitae	10-12'	B&B, Heavy, Symmetrica

rubs, Grass	ses:			
29	Deutzia Gracilis 'Nikko'	Slender Deutzia	3-Gal.	Heavy, Symm
10	Hydrangea Macrophylla 'Endless Summer'	Endless Summer Hydrangea	3-Gal.	Heavy, Symm
13	Hydrangea Arborescens 'Annabelle'	Annabelle Hydrangea	3-Gal.	Heavy, Symm
3	Itea Virginica 'Henry's Garnet'	Henry's Garnet Itea	24-30"	Heavy, Symm
13	Itea Virginica 'Little Henry'	Little Henry Itea	3-Gal.	Heavy, Symm
20	Pennisetum Alopecuroides 'Hameln'	Dwarf Fountain Grass	2-Gal	Well Rooted
20	Viburnum Pragnese	Pragnese Viburnum	10-Gal.	Heavy, Symm
roundcover	rs, Perennials, Bulbs:			
25	Ajuga Reptans 'Chocolate Chip'	Chocolate Chip Bugleweed	Bulbs	Spring, Purple
165	Liriope Spicata	Creeping Lilyturf	4" Pot	Summer, Green/Blue
344	Pachysandra terminalis	Japanese Spurge	Flats	Well rooted plants





LANDSCAPE ARCHITECTURE PROJECT MANAGEMENT

po box 553 tenafly, nj 07670 p. 201.568.1660 LIC# 21MH00013000

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BLANCATO RESIDENCE 30 Overlook Road Alpine, NJ 07620

DATE: 11.29.21

## landscape plan

PAGE 1 OF 1 DRAWN BY: BRH CHECKED BY: PK REVISED:

Benjamin Ross Heller

Landscape Architect Lic# 21AS00124600