Borough of Bradley Beach
Planning Board
.Attn: Kristie Dickert
Board Secretary
701 Main Street
Bradley Beach, NJ

Via Hand Delivery

February 28, 2020

Subject: **BRADLEY CENTER – PRELIMINARY & FINAL MAJOR SITEPLAN**
STORMWATER STATEMENT OF COMPLIANCE
803 & 811 Main Street
Block 32, Lots 17 & 18
Borough of Bradley Beach, Monmouth County, New Jersey

Ms. Dickert:

We are submitting this letter on behalf of the Applicant, who is proposing to demolish the existing buildings onsite and construct a 4-story mixed use building at the above referenced site in accordance with the Borough of Bradley Beach Ordinance. There are no anticipated New Jersey Department of Environmental Protection (NJDEP) land use permits required for the project, therefore the Borough of Bradley Beach has jurisdiction over the stormwater management for the site.

Ultimately, the project proposes to disturb 0.43 acres of land and results in a slight increase in impervious coverage (0.06 acres) for the site. There are no coverage variances required. In the existing condition, stormwater runoff from the roof of the existing building is discharged near neighboring properties and ROW. The intent of the proposed drainage and grading plan is to improve the drainage characteristics that exist on site and decrease predevelopment flows. In the proposed condition, all roof runoff is collected in a roof leader system and ultimately discharged to the public right-of-way (ROW) in accordance with standard design practices.

Thank you for your kind consideration of this application. If you have any questions or require further information, please feel free to contact this office anytime.

Sincerely,
InSite Engineering, LLC

Jason L. Fichter PE, PP, CFM, CME

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INTRODUCTION

The project site is located on Block 32, Lots 17 & 18, that has frontage on Main Street to the east, existing commercial developments to the south, Bradley beach fire department to the west and existing commercial developments to the north. The 0.39 acre site is currently developed with an automobile garage, in the General Business West Zone along Main Street. The proposed project consists of a retail space with 18 residential units and associated infrastructure.

The following 24-hour storm events were studied using a TR-20, Type III Storm distribution:

Storm Frequency (Years)	Rainfall (Inches)
2	3.50
10	5.42
100	9.28

STORMWATER MANAGEMENT SUMMARY:

Pre- and Post-development computations for the resultant hydrographs, routing computations, and runoff flows are appended, respectively, to this report. The following summaries were generated:

Watershed A
Pre-Development: Area (0.39 Ac)
Post-Development: Area (0.39 Ac)

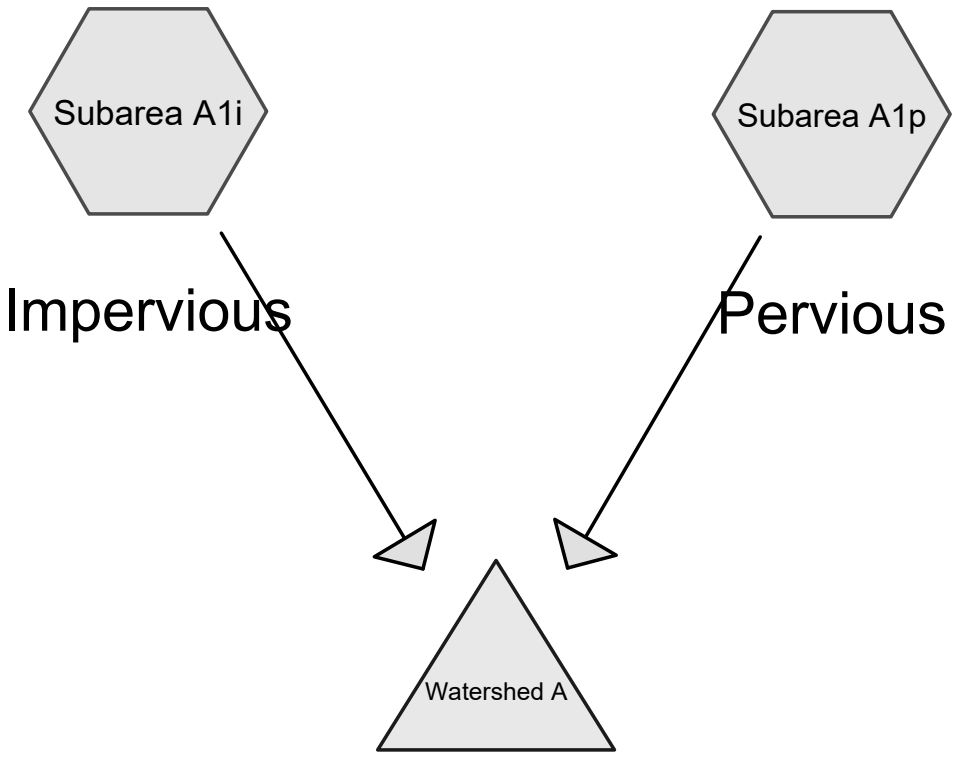
Storm (Year)	Pre-Development Peak Flow (cfs)	Total Post Development Flow (cfs)	Total Flow Difference (cfs)
2	0.9	0.5	-0.4
10	1.4	0.7	-0.7
100	2.5	2.3	-0.2

The above calculations are based on Pre and Post Development conditions.

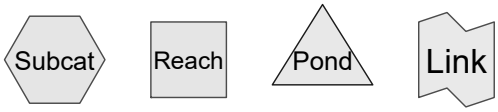
CONCLUSION

In conclusion, the project overall will comply with the storm water management requirements of the Borough of Bradley Beach for storm water rate reductions.

PREDEVELOPMENT HYDROCAD CALCULATIONS



Total Flow to Ocean
Boulevard System



Routing Diagram for Pre Development
Prepared by Insite Engineering LLC, Printed 2/13/2020
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.08	39	>75% Grass cover, Good, HSG A (Subarea A1p)
0.31	98	Paved parking, HSG A (Subarea A1i)
0.39	**86**	**TOTAL AREA**

Summary for Subcatchment Subarea A1i: Impervious

Runoff = 0.9 cfs @ 12.17 hrs, Volume= 0.084 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 2-Year Rainfall=3.50"

Area (ac)	CN	Description
0.31	98	Paved parking, HSG A
0.31		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Subcatchment Subarea A1p: Pervious

Runoff = 0.0 cfs @ 24.02 hrs, Volume= 0.000 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 2-Year Rainfall=3.50"

Area (ac)	CN	Description
0.08	39	>75% Grass cover, Good, HSG A
0.08		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Pond Watershed A: Total Flow to Ocean Boulevard System

Inflow Area = 0.39 ac, 79.49% Impervious, Inflow Depth = 2.60" for 2-Year event
Inflow = 0.9 cfs @ 12.17 hrs, Volume= 0.084 af
Primary = 0.9 cfs @ 12.17 hrs, Volume= 0.084 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

Summary for Subcatchment Subarea A1i: Impervious

Runoff = 1.4 cfs @ 12.17 hrs, Volume= 0.134 af, Depth= 5.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 10-Year Rainfall=5.42"

Area (ac)	CN	Description
0.31	98	Paved parking, HSG A
0.31		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Subcatchment Subarea A1p: Pervious

Runoff = 0.0 cfs @ 12.58 hrs, Volume= 0.002 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 10-Year Rainfall=5.42"

Area (ac)	CN	Description
0.08	39	>75% Grass cover, Good, HSG A
0.08		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Pond Watershed A: Total Flow to Ocean Boulevard System

Inflow Area = 0.39 ac, 79.49% Impervious, Inflow Depth = 4.18" for 10-Year event
Inflow = 1.4 cfs @ 12.17 hrs, Volume= 0.136 af
Primary = 1.4 cfs @ 12.17 hrs, Volume= 0.136 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

Summary for Subcatchment Subarea A1i: Impervious

Runoff = 2.4 cfs @ 12.17 hrs, Volume= 0.234 af, Depth= 9.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 100-Year Rainfall=9.28"

Area (ac)	CN	Description
0.31	98	Paved parking, HSG A
0.31		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Subcatchment Subarea A1p: Pervious

Runoff = 0.1 cfs @ 12.19 hrs, Volume= 0.012 af, Depth= 1.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 100-Year Rainfall=9.28"

Area (ac)	CN	Description
0.08	39	>75% Grass cover, Good, HSG A
0.08		100.00% Pervious Area

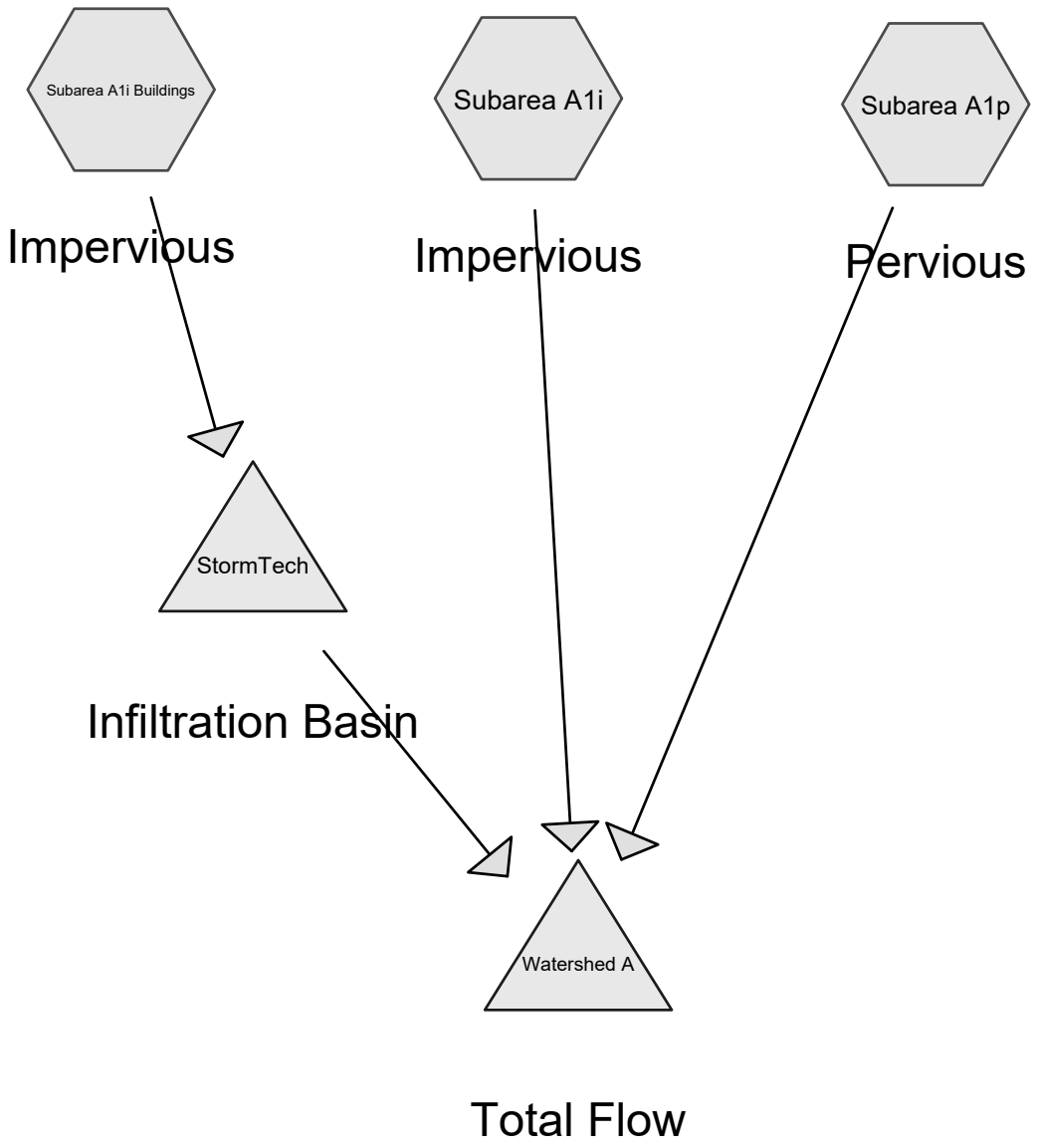
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

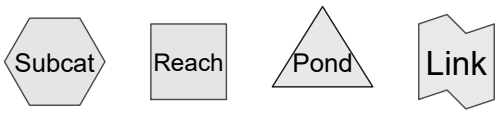
Summary for Pond Watershed A: Total Flow to Ocean Boulevard System

Inflow Area = 0.39 ac, 79.49% Impervious, Inflow Depth = 7.54" for 100-Year event
Inflow = 2.5 cfs @ 12.17 hrs, Volume= 0.245 af
Primary = 2.5 cfs @ 12.17 hrs, Volume= 0.245 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

POSTDEVELOPMENT HYDROCAD CALCULATIONS





Routing Diagram for Post Development
Prepared by Insite Engineering LLC, Printed 2/27/2020
HydroCAD® 10.00-24 s/n 03018 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.02	39	>75% Grass cover, Good, HSG A (Subarea A1p)
0.37	98	Paved parking, HSG A (Subarea A1i, Subarea A1i Buildings)
0.39	**95**	**TOTAL AREA**

Summary for Subcatchment Subarea A1i: Impervious

Runoff = 0.5 cfs @ 12.17 hrs, Volume= 0.044 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 2-Year Rainfall=3.50"

Area (ac)	CN	Description
0.16	98	Paved parking, HSG A
0.16		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Subcatchment Subarea A1i Buildings: Impervious

Runoff = 0.6 cfs @ 12.17 hrs, Volume= 0.057 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 2-Year Rainfall=3.50"

Area (ac)	CN	Description
0.21	98	Paved parking, HSG A
0.21		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Subcatchment Subarea A1p: Pervious

Runoff = 0.0 cfs @ 24.02 hrs, Volume= 0.000 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 2-Year Rainfall=3.50"

Area (ac)	CN	Description
0.02	39	>75% Grass cover, Good, HSG A
0.02		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Pond StormTech: Infiltration Basin

Inflow Area = 0.21 ac,100.00% Impervious, Inflow Depth = 3.27" for 2-Year event
Inflow = 0.6 cfs @ 12.17 hrs, Volume= 0.057 af
Outflow = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs / 2
Peak Elev= 19.72' @ 24.58 hrs Surf.Area= 0.02 ac Storage= 0.057 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.80'	0.032 af	**22.75'W x 41.55'L x 5.50'H Field A**
			0.119 af Overall - 0.040 af Embedded = 0.079 af x 40.0% Voids
#2A	16.55'	0.040 af	**ADS_StormTech MC-3500 d +Cap** x 15 Inside #1
			Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
			Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
			15 Chambers in 3 Rows
			Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf
#3	19.80'	0.001 af	**0.50'D x 40.00'H Vertical Cone/Cylinder** x 4
		0.072 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	23.90'	**6.0" Vert. Orifice/Grate X 4.00** C= 0.600

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=15.80' (Free Discharge)
└─**1=Orifice/Grate** (Controls 0.0 cfs)

Pond StormTech: Infiltration Basin - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)
Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

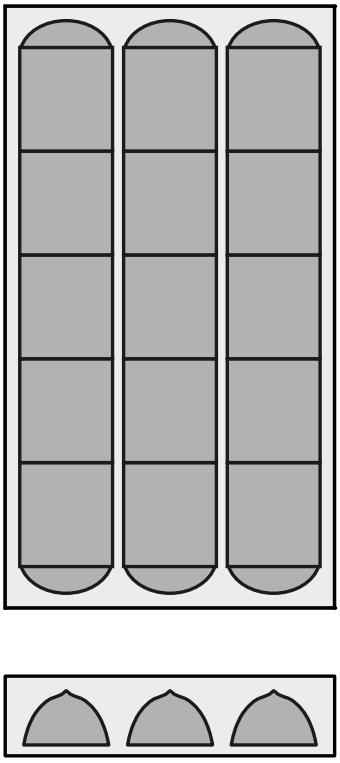
5 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 39.55' Row Length +12.0" End Stone x 2 = 41.55' Base Length
3 Rows x 77.0" Wide + 9.0" Spacing x 2 + 12.0" Side Stone x 2 = 22.75' Base Width
9.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.50' Field Height

15 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 3 Rows = 1,738.7 cf Chamber Storage

5,198.9 cf Field - 1,738.7 cf Chambers = 3,460.3 cf Stone x 40.0% Voids = 1,384.1 cf Stone Storage

Chamber Storage + Stone Storage = 3,122.8 cf = 0.072 af
Overall Storage Efficiency = 60.1%
Overall System Size = 41.55' x 22.75' x 5.50'

15 Chambers
192.6 cy Field
128.2 cy Stone



Summary for Pond Watershed A: Total Flow

Inflow Area = 0.39 ac, 94.87% Impervious, Inflow Depth = 1.34" for 2-Year event
Inflow = 0.5 cfs @ 12.17 hrs, Volume= 0.044 af
Primary = 0.5 cfs @ 12.17 hrs, Volume= 0.044 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

Summary for Subcatchment Subarea A1i: Impervious

Runoff = 0.7 cfs @ 12.17 hrs, Volume= 0.069 af, Depth= 5.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 10-Year Rainfall=5.42"

Area (ac)	CN	Description
0.16	98	Paved parking, HSG A
0.16		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Subcatchment Subarea A1i Buildings: Impervious

Runoff = 0.9 cfs @ 12.17 hrs, Volume= 0.091 af, Depth= 5.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 10-Year Rainfall=5.42"

Area (ac)	CN	Description
0.21	98	Paved parking, HSG A
0.21		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Subcatchment Subarea A1p: Pervious

Runoff = 0.0 cfs @ 12.58 hrs, Volume= 0.000 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 10-Year Rainfall=5.42"

Area (ac)	CN	Description
0.02	39	>75% Grass cover, Good, HSG A
0.02		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Pond StormTech: Infiltration Basin

Inflow Area = 0.21 ac,100.00% Impervious, Inflow Depth = 5.18" for 10-Year event
Inflow = 0.9 cfs @ 12.17 hrs, Volume= 0.091 af
Outflow = 0.0 cfs @ 14.82 hrs, Volume= 0.018 af, Atten= 96%, Lag= 159.2 min
Primary = 0.0 cfs @ 14.82 hrs, Volume= 0.018 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs / 2
Peak Elev= 23.91' @ 14.82 hrs Surf.Area= 0.02 ac Storage= 0.072 af

Plug-Flow detention time= 644.1 min calculated for 0.018 af (19% of inflow)
Center-of-Mass det. time= 344.5 min (1,096.1 - 751.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.80'	0.032 af	**22.75'W x 41.55'L x 5.50'H Field A**
			0.119 af Overall - 0.040 af Embedded = 0.079 af x 40.0% Voids
#2A	16.55'	0.040 af	**ADS_StormTech MC-3500 d +Cap** x 15 Inside #1
			Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
			Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
			15 Chambers in 3 Rows
			Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf
#3	19.80'	0.001 af	**0.50'D x 40.00'H Vertical Cone/Cylinder** x 4
		0.072 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	23.90'	**6.0" Vert. Orifice/Grate X 4.00** C= 0.600

Primary OutFlow Max=0.0 cfs @ 14.82 hrs HW=23.91' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.0 cfs @ 0.39 fps)

Pond StormTech: Infiltration Basin - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)
Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

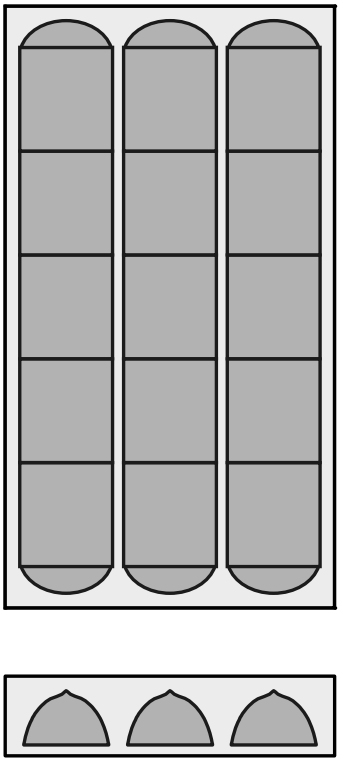
5 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 39.55' Row Length +12.0" End Stone x 2 = 41.55' Base Length
3 Rows x 77.0" Wide + 9.0" Spacing x 2 + 12.0" Side Stone x 2 = 22.75' Base Width
9.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.50' Field Height

15 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 3 Rows = 1,738.7 cf Chamber Storage

5,198.9 cf Field - 1,738.7 cf Chambers = 3,460.3 cf Stone x 40.0% Voids = 1,384.1 cf Stone Storage

Chamber Storage + Stone Storage = 3,122.8 cf = 0.072 af
Overall Storage Efficiency = 60.1%
Overall System Size = 41.55' x 22.75' x 5.50'

15 Chambers
192.6 cy Field
128.2 cy Stone



Summary for Pond Watershed A: Total Flow

Inflow Area = 0.39 ac, 94.87% Impervious, Inflow Depth = 2.68" for 10-Year event
Inflow = 0.7 cfs @ 12.17 hrs, Volume= 0.087 af
Primary = 0.7 cfs @ 12.17 hrs, Volume= 0.087 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

Summary for Subcatchment Subarea A1i: Impervious

Runoff = 1.2 cfs @ 12.17 hrs, Volume= 0.121 af, Depth= 9.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 100-Year Rainfall=9.28"

Area (ac)	CN	Description
0.16	98	Paved parking, HSG A
0.16		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Subcatchment Subarea A1i Buildings: Impervious

Runoff = 1.6 cfs @ 12.17 hrs, Volume= 0.158 af, Depth= 9.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 100-Year Rainfall=9.28"

Area (ac)	CN	Description
0.21	98	Paved parking, HSG A
0.21		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Subcatchment Subarea A1p: Pervious

Runoff = 0.0 cfs @ 12.19 hrs, Volume= 0.003 af, Depth= 1.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
NOAA 24-hr D 100-Year Rainfall=9.28"

Area (ac)	CN	Description
0.02	39	>75% Grass cover, Good, HSG A
0.02		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Pond StormTech: Infiltration Basin

Inflow Area = 0.21 ac,100.00% Impervious, Inflow Depth = 9.04" for 100-Year event
Inflow = 1.6 cfs @ 12.17 hrs, Volume= 0.158 af
Outflow = 1.0 cfs @ 12.18 hrs, Volume= 0.066 af, Atten= 36%, Lag= 0.4 min
Primary = 1.0 cfs @ 12.18 hrs, Volume= 0.066 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs / 2
Peak Elev= 24.24' @ 12.18 hrs Surf.Area= 0.02 ac Storage= 0.072 af

Plug-Flow detention time= 353.8 min calculated for 0.066 af (41% of inflow)
Center-of-Mass det. time= 177.3 min (921.2 - 743.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.80'	0.032 af	**22.75'W x 41.55'L x 5.50'H Field A** 0.119 af Overall - 0.040 af Embedded = 0.079 af x 40.0% Voids
#2A	16.55'	0.040 af	**ADS_StormTech MC-3500 d +Cap** x 15 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 15 Chambers in 3 Rows Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf
#3	19.80'	0.001 af	**0.50'D x 40.00'H Vertical Cone/Cylinder** x 4
		0.072 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	23.90'	**6.0" Vert. Orifice/Grate X 4.00** C= 0.600

Primary OutFlow Max=1.1 cfs @ 12.18 hrs HW=24.23' (Free Discharge)
└─**1=Orifice/Grate** (Orifice Controls 1.1 cfs @ 1.97 fps)

Pond StormTech: Infiltration Basin - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)
Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
Cap Storage= +14.9 cf x 2 x 3 rows = 89.4 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

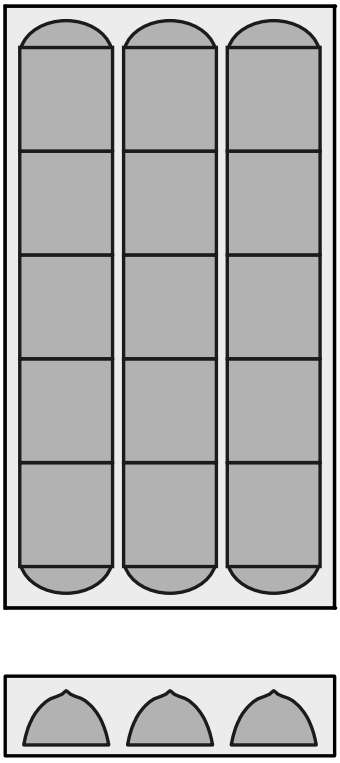
5 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 39.55' Row Length +12.0" End Stone x 2 = 41.55' Base Length
3 Rows x 77.0" Wide + 9.0" Spacing x 2 + 12.0" Side Stone x 2 = 22.75' Base Width
9.0" Base + 45.0" Chamber Height + 12.0" Cover = 5.50' Field Height

15 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 3 Rows = 1,738.7 cf Chamber Storage

5,198.9 cf Field - 1,738.7 cf Chambers = 3,460.3 cf Stone x 40.0% Voids = 1,384.1 cf Stone Storage

Chamber Storage + Stone Storage = 3,122.8 cf = 0.072 af
Overall Storage Efficiency = 60.1%
Overall System Size = 41.55' x 22.75' x 5.50'

15 Chambers
192.6 cy Field
128.2 cy Stone

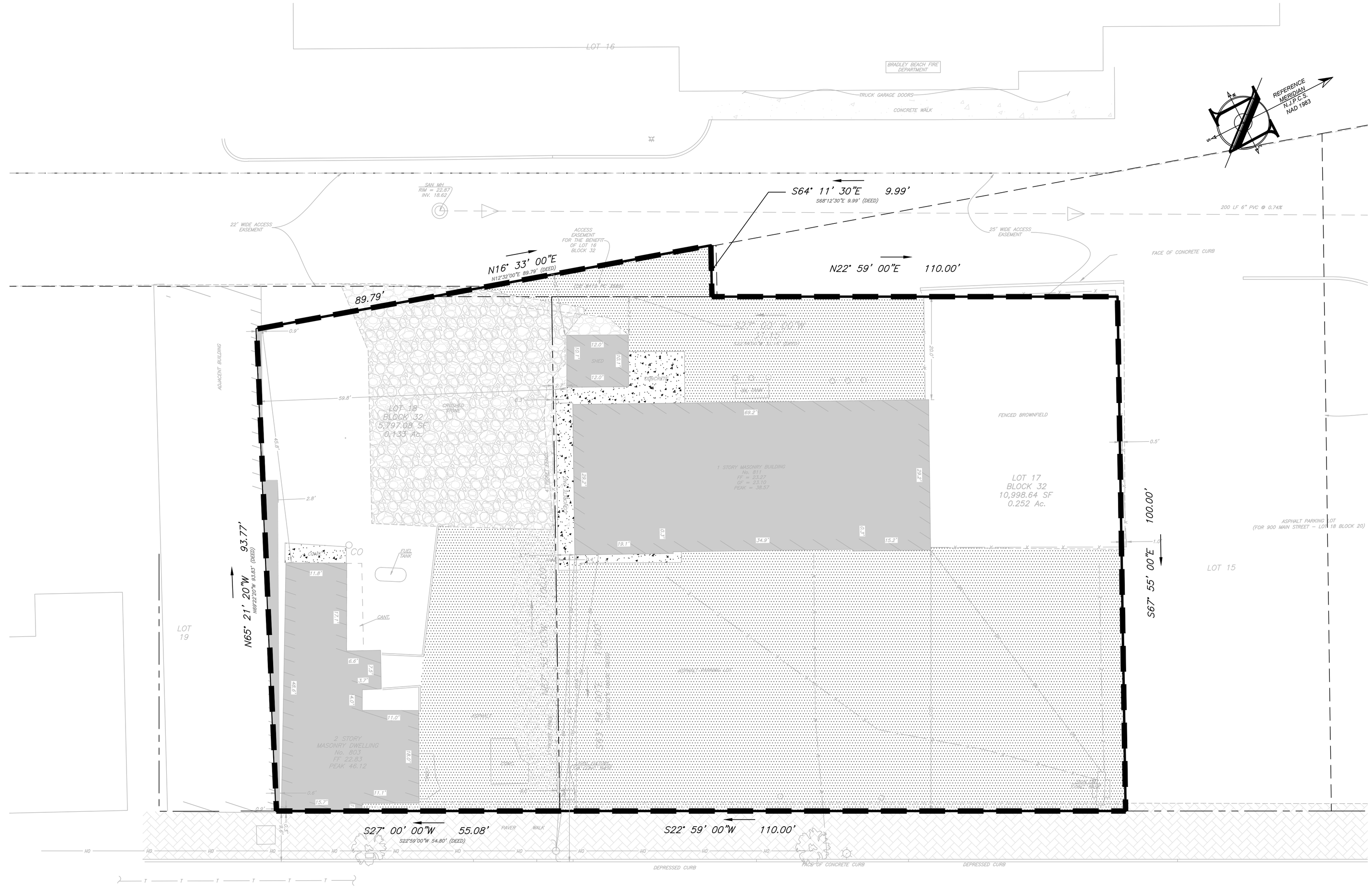


Summary for Pond Watershed A: Total Flow

Inflow Area = 0.39 ac, 94.87% Impervious, Inflow Depth = 5.82" for 100-Year event
Inflow = 2.3 cfs @ 12.17 hrs, Volume= 0.189 af
Primary = 2.3 cfs @ 12.17 hrs, Volume= 0.189 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

COVERAGE MAPS



10 0 10 20

SCALE : 1" = 10'

SOIL GROUP
URBAN LAND
(UR)

LEGEND

EXISTING		PROPOSED
	BOUNDARY LINE	
100	CONTOUR LINE	100
+ 46.80	SPOT ELEVATION	+46.80
	BUILDING	
	WALL	
G G	GAS	GAS
W W	WATER	WTR
	INLET	
	STORM	D
	SANITARY MAIN	S
SAN CO	SANITARY LATERAL	SAN CO
OH	OVERHEAD WIRE	O/H
E E	ELECTRIC	E
T T	TELEPHONE	TEL
	UTILITY POLE	
	HYDRANT	
	SIGN POST	
X X	FENCE	X X
TP-1	LIGHT FIXTURE	
	TEST PIT LOCATION	TP-1
	GRADE FLOW ARROW	
	SWALE CENTER LINE	℄

LEGEND

ANALYSIS AREA: 16,796 SF (0.39 AC)

- HARDSCAPE/WALKWAYS: 2.0% 342 SF
- VEHICULAR PAVEMENT: 49.6% 8,332 SF
- GRAVEL AREA: 9.7% 1,619 SF
- BUILDINGS: 18.1% 3,042 SF
- NO HATCH — PERVIOUS AREA: 20.6% 3,461 SF
- PROJECT LIMIT

TOTAL AREA: 100% 16,796 SF (0.39 AC)

TOTAL IMPERVIOUS: 79.4% 13,335 SF (0.31 AC)

TOTAL PERVIOUS: 20.6% 3,461 SF (0.08 AC)

PROJECT INFORMATION

PROJECT NAME:

BRADLEY WEST

PROJECT LOCATION:
BLOCK 32, LOTS 17 & 18
803 & 811 MAIN STREET
BOROUGH OF BRADLEY BEACH,
MONMOUTH COUNTY, NJ

OWNER LOT 18:
JOHN NAPLES
506 B OCEAN AVENUE
BRADLEY BEACH, NJ 07720

OWNER LOT 17:
CHECKK PROPERTIES, LLC
6930 SUMMERHILL ROAD
TEXARKANA, TX 75503

APPLICANT:
COASTAL CUSTOM BUILDERS, LLC
506 B OCEAN AVENUE
BRADLEY BEACH, NJ 07720

APPLICANT'S PROFESSIONALS

ATTORNEY:
THOMAS HIRSCH, ESQ.
1001 DEAL RD
OCEAN TOWNSHIP, NJ 07712

ARCHITECT:
GRASSO DESIGN GROUP
231 HIGHWAY 71
MANASQUAN, NJ 07762

SURVEYOR:
INSITE SURVEYING, LLC
1955 ROUTE 34, SUITE 1A
WALL, NJ 07719

INSITE ENGINEERING, LLC
SINCE 2009

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ELECTRIC	RED
GAS / OIL	YELLOW
COMMUNICATION / TV	ORANGE
WATER	BLUE
SEWER	GREEN
TEMP SURVEY MARKINGS	MAGENTA
PROPOSED EXCAVATION	WHITE

INSITE Engineering • Surveying • Planning

InSite Engineering, LLC
CERTIFICATE OF AUTHORIZATION: 24GA28083200
1955 ROUTE 34, SUITE 1A, WALL, NJ 07719
732-531-7100 (Ph) 732-531-7344 (Fax)
InSite@InSiteEng.net www.InSiteEng.net

LICENSED IN: NEW JERSEY, NEW YORK, PENNSYLVANIA
DELAWARE, CONNECTICUT, NORTH CAROLINA
COLORADO, & DISTRICT OF COLUMBIA

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JASON L. FICHTER, PE, PP, CFM, CME
NJPE 43118 NJPP 5726 PAPE 61968
DEPE 3813 NYPE 802295 CTPE 23291
NCPE 33336 DCPE 900682 COPE 36605

REVISIONS

Rev. #	Date	Comment
0	03/17/20	INITIAL RELEASE

SCALE: 1" = 10'	DESIGNED BY: DDC
DATE: 03/17/20	DRAWN BY: JLS
JOB #: 19-979-02	CHECKED BY: JLF
CAD ID: 19-979-02r0	

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APPROVED BY:

FOR CONSTRUCTION

PLAN INFORMATION

DRAWING TITLE:
PRELIMINARY & FINAL MAJOR SITE PLAN

SHEET TITLE:
EXISTING COVERAGE MAP

SHEET NO.
1 OF 2

File: X:\Jobs\979 – John Naples\19-979-02 – 14th Street_Bradley Beach, NJ\1997902CAD\dwg\Support\Coverage Map.dwg, ---> Existing Coverage Map
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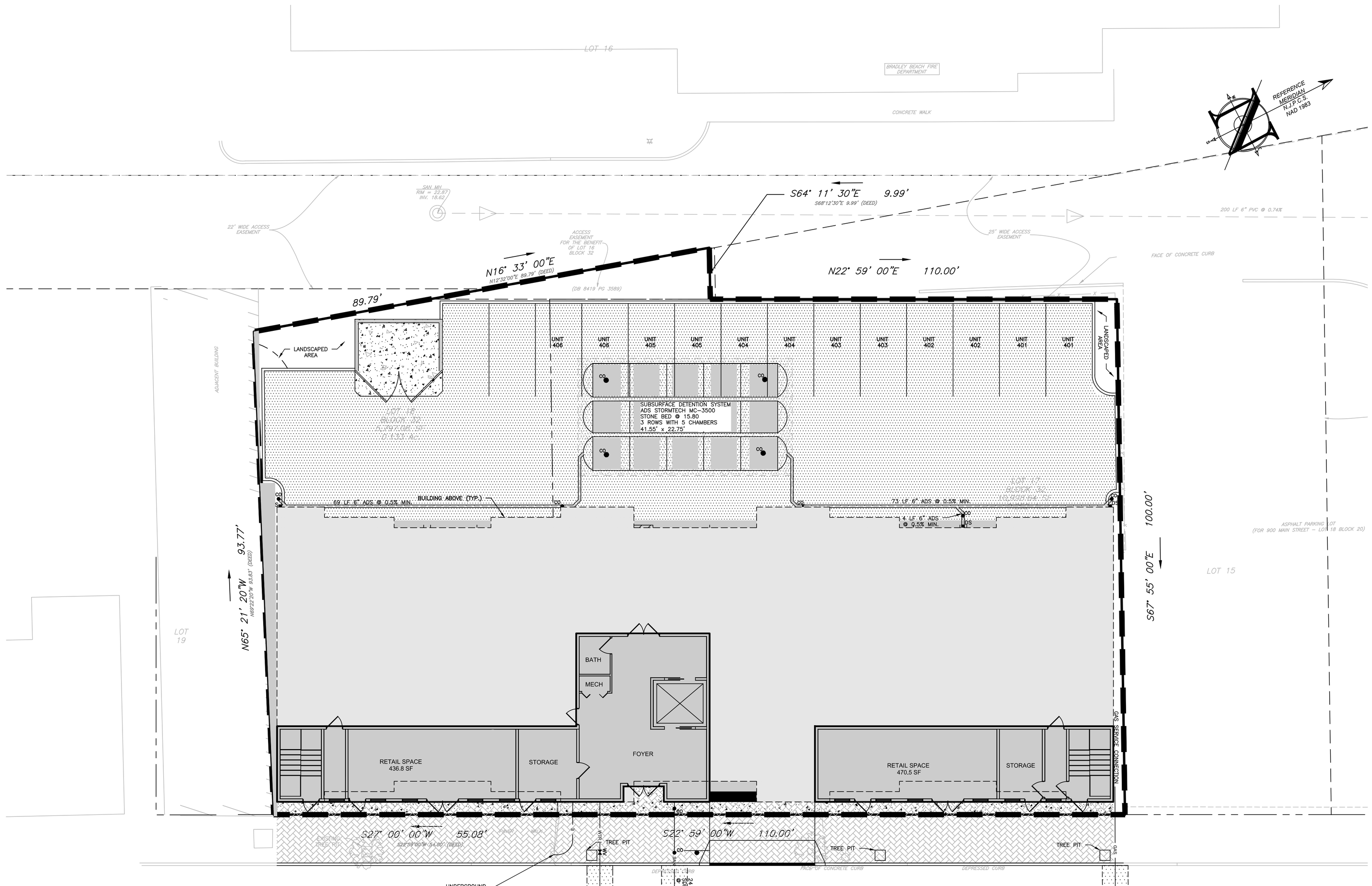

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SCALE : 1" = 10'

LEGEND

EXISTING		PROPOSED
	BOUNDARY LINE	
70	CONTOUR LINE	70
+ 46.80	SPOT ELEVATION	+46.80
	BUILDING	
	WALL	
G G	GAS	GAS
W W	WATER	WTR
	INLET	
	STORM	D
	SANITARY MAIN	S
SAN CO	SANITARY LATERAL	SAN CO
OH	OVERHEAD WIRE	O.H.
E E	ELECTRIC	E
T T	TELEPHONE	TEL
	UTILITY POLE	
	HYDRANT	
	SIGN POST	
	FENCE	
	LIGHT FIXTURE	
TP-1	TEST PIT LOCATION	TP-1
	GRADE FLOW ARROW	
	SWALE CENTER LINE	℄

LEGEND

ANALYSIS AREA: 16,796 SF (0.39 AC)

- HARDSCAPE/WALKWAYS: 4.0% 668 SF
- VEHICULAR PAVEMENT: 36.6% 6,147 SF
- GRAVEL AREA: 0% 0 SF
- BUILDINGS: 54.3% 9,120 SF
- NO HATCH — PERVIOUS AREA: 5.1% 861 SF
- PROJECT LIMIT

TOTAL AREA: 100% 16,796 SF (0.39 AC)

TOTAL IMPERVIOUS: 94.9% 15,935 SF (0.37 AC)

TOTAL PERVIOUS: 5.1% 861 SF (0.02 AC)

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FOR CONSTRUCTION

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SHEET TITLE:
PROPOSED COVERAGE PLAN

SHEET NO:
2 OF 2

File: X:\Jobs\979 – John Naples\19-979-02 – Main Street,_Bradley Beach, NJ\19979CDCAD\Xrefs\Support\Coverage Map-dwg, --> Proposed Coverage Map
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