

# Pinelands Commission Rain Garden Installation



July 8, 2022

# What is a rain garden?

Rain gardens are shallow depressions filled with plants.

Considered green infrastructure, they collect and hold stormwater from roof downspouts, parking lots, lawns and other surfaces, allowing plants and soil to filter out harmful pollutants that may otherwise flow into storm drains and enter streams, rivers, lakes, and other water bodies.

They also recharge groundwater and help to mitigate climate change impacts such as flooding.

# Project Background

The Commission budgeted for the installation of a rain garden in FY 2022. The project is being funded by the Kathleen M. Lynch-van de Sande (“Katie”) Fund for the Reforestation of the New Jersey Pinelands.

The fund was established in memory of Ms. Lynch-van de Sande, a Pinelands Commission Environmental Specialist who died in a car accident in June 1989.

In December 2021, the Commission entered into an agreement with the Rutgers Cooperative Extension Water Resources Program to design the rain garden.



# Surveying the site



# Finalizing the plan

## PINELANDS COMMISSION GREEN INFRASTRUCTURE IMPLEMENTATION PROJECT 15 SPRINGFIELD ROAD, PEMBERTON BOROUGH BURLINGTON COUNTY, NEW JERSEY BLOCK: 846 LOTS: 1.01 & 1.02

### PROJECT DESCRIPTION:

A RAIN GARDEN (340 S.F.) IS TO BE INSTALLED SOUTHEAST OF THE BUILDING TO CAPTURE, TREAT, AND INFILTRATE THE STORMWATER RUNOFF FROM THE ROOFTOP (2,475 S.F.). TO AVOID EROSION AN ATRIUM WILL BE USED IN CONJUNCTION WITH AN EROSION CONTROL APRON FOR EXCESS STORMWATER FROM MORE INTENSE STORMS. THE ATRIUM WILL LEAD TO A PIPE UNDERNEATH THE SIDEWALK AND DISCHARGE INTO THE STORMWATER BASIN WITH A ROCK APRON TO DISSIPATE THE EXTRA RUNOFF.

### LIST OF DRAWINGS:

SHEET NAME	TITLE
COVER	COVER SHEET
P-1	EXISTING CONDITIONS AND DEMOLITION PLAN
P-2	PROPOSED SITE PLAN
P-3	PLANTING PLAN
DT-1	RAIN GARDEN DETAILS
DT-2	PLANTING AND LANDSCAPING DETAILS

### GENERAL NOTES:

1. SURVEY CONDUCTED BY RUTGERS COOPERATIVE EXTENSION WATER RESOURCES PROGRAM. ALL ELEVATIONS ARE RELATIVE TO THE 100.00' BENCHMARK POINT.
2. EXISTING SOILS ARE WESTPHALIA LOAMY FINE SAND WHICH ARE CLASSIFIED AS HYDROLOGIC SOIL GROUP B WHICH HAVE MODERATE INFILTRATION RATES BASED ON THE NRCS WEB SOIL SURVEY ([websoilsurvey.sc.egov.usda.gov](http://websoilsurvey.sc.egov.usda.gov)).
3. ANY OVERHEAD AND UNDERGROUND UTILITIES SHOWN ARE FROM FIELD OBSERVATIONS AND ARE NOT A COMPLETE REPRESENTATION. A UTILITY MARKOUT NEEDS TO BE CONDUCTED PRIOR TO MOBILIZATION BY THOSE RESPONSIBLE FOR EXCAVATION. NJ ONE CALL: 811 OR 800-272-1000

### LOCATION MAP (N.T.S.):



### LEGEND:

-----	EXISTING DRAINAGE AREA
——	EDGE OF PAVEMENT
—— ——	EXISTING CENTERLINE
—— —— ——	EXISTING FENCE
—— —— —— ——	EXISTING TREELINE
○	EXISTING TREE/SHRUB
▭	EXISTING BUILDING
⊕	EXISTING UTILITY POLE
⊙	EXISTING LIGHT POLE
⊞	EXISTING CATCH BASIN
—— —— —— —— —— ——	EXISTING CONTOURS
●	EXISTING SPOT ELEVATIONS
SPOT ELEVATION CODES:	GS - GROUND SHOT
RL - RAILROAD LINE	MH - MANHOLE
CB - CATCH BASIN	SB - SIDEWALK
EP - EDGE OF PAVEMENT	LP - UTILITY POLE
F - FENCE	
---	LIMIT OF WORK
▨	AREA TO BE DEPAVED
▤	PROPOSED GREEN INFRASTRUCTURE
—— ——	PROPOSED TOP OF BERM
~	PROPOSED CONTOURS

PLAN REVISIONS		
REV. DATE	REV. SUMMARY	REV. SHEETS
3/25/2022	ADDED UNDERDRAIN, REVISED PLANT LIST	P-1, P-2, P-3, DT-1, DT-2
4/11/2022	ADDED POLLUTANT REMOVAL TABLES	DT-1
4/22/2022	REVISED PLANT LIST	P-3, DT-2
6/14/2022	EDITED CONSTRUCTION NOTES	P-1, DT-1

CHRISTOPHER C. OBROPTA, P.D., P.E.  
PROFESSIONAL ENGINEER - CIVIL  
DATE: 06/14/2022  
DRAWN: CC  
CHECKED: CC  
DATE: 06/14/2022

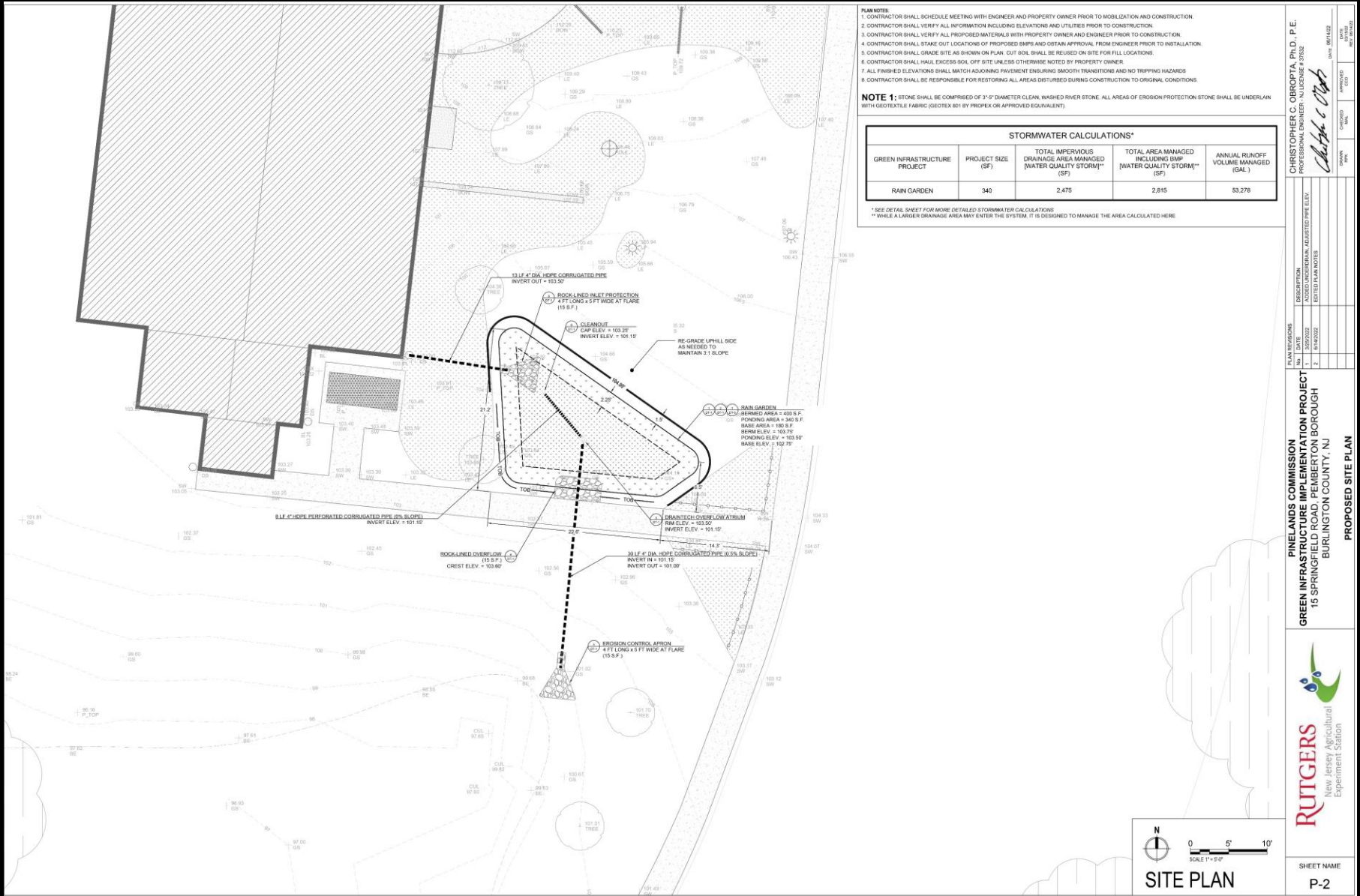
PLAN REVISIONS	DESCRIPTION
NO.	DATE

PINELANDS COMMISSION  
GREEN INFRASTRUCTURE IMPLEMENTATION PROJECT  
15 SPRINGFIELD ROAD, PEMBERTON BOROUGH  
BURLINGTON COUNTY, NJ  
COVER SHEET



SHEET NAME  
COVER

# Finalizing the plan



- PLAN NOTES**
- CONTRACTOR SHALL SCHEDULE MEETING WITH ENGINEER AND PROPERTY OWNER PRIOR TO MOBILIZATION AND CONSTRUCTION.
  - CONTRACTOR SHALL VERIFY ALL INFORMATION INCLUDING ELEVATIONS AND UTILITIES PRIOR TO CONSTRUCTION.
  - CONTRACTOR SHALL VERIFY ALL PROPOSED MATERIALS WITH PROPERTY OWNER AND ENGINEER PRIOR TO CONSTRUCTION.
  - CONTRACTOR SHALL STAKE OUT LOCATIONS OF PROPOSED BMPs AND OBTAIN APPROVAL FROM ENGINEER PRIOR TO INSTALLATION.
  - CONTRACTOR SHALL GRADE SITE AS SHOWN ON PLAN. CUT SOIL SHALL BE REUSED ON SITE FOR FILL LOCATIONS.
  - CONTRACTOR SHALL HAIL EXCESS SOIL OFF SITE UNLESS OTHERWISE NOTED BY PROPERTY OWNER.
  - ALL FINISHED ELEVATIONS SHALL MATCH ADJACENT PAVEMENT ENSURING SMOOTH TRANSITIONS AND NO TRIPPING HAZARDS.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ALL AREAS DISTURBED DURING CONSTRUCTION TO ORIGINAL CONDITIONS.

**NOTE 1:** STONE SHALL BE COMPRISED OF 3" DIAMETER CLEAN, WASHED RIVER STONE. ALL AREAS OF EROSION PROTECTION STONE SHALL BE UNDERLAIN WITH GEOTEXTILE FABRIC (GEOTEX 801 BY PROFLEX OR APPROVED EQUIVALENT).

STORMWATER CALCULATIONS*				
GREEN INFRASTRUCTURE PROJECT	PROJECT SIZE (SF)	TOTAL IMPERVIOUS DRAINAGE AREA MANAGED [WATER QUALITY STORM]** (SF)	TOTAL AREA MANAGED INCLUDING BMP [WATER QUALITY STORM]** (SF)	ANNUAL RUNOFF VOLUME MANAGED (GAL.)
RAIN GARDEN	340	2,475	2,815	53,278

\* SEE DETAIL SHEET FOR MORE DETAILED STORMWATER CALCULATIONS  
 \*\* WHILE A LARGER DRAINAGE AREA MAY ENTER THE SYSTEM, IT IS DESIGNED TO MANAGE THE AREA CALCULATED HERE

**PLAN REVISIONS**

No.	DATE	DESCRIPTION
1	2/25/2025	ADDED UNDERDRAIN, ADJUSTED PIPE ELEV.
2	2/25/2025	EDITED PLAN TABLE

**PROJECT INFORMATION**

PROJECT NO.: 25000000  
 PROJECT NAME: GREEN INFRASTRUCTURE IMPLEMENTATION PROJECT  
 CLIENT: PINELANDS COMMISSION  
 ADDRESS: 15 SPRINGFIELD ROAD, PINEBERTON BOROUGH, BURLINGTON COUNTY, NJ  
 SHEET NO.: 0010  
 SHEET TITLE: PROPOSED SITE PLAN

**DESIGNER:** CHRISTOPHER C. OBROPTA, P.H.D., P.E.  
 PROFESSIONAL ENGINEER - N.J. LICENSE # 25282

**CHECKED BY:** [Signature]

**SCALE:** 1" = 5'-0"

**SHEET NAME:** P-2

**LOGO:** RUTGERS New Jersey Agricultural Experiment Station

# Pre-construction



# Soil borings

0-5in 10YR 2/2 loamy sand  
5- 10YR 6/4 sand  
10YR



Note: RG Core - notes 9" to 10" from  
Diameter of the Drill  
Dirt - 6 RG 10051 A DIF 235'  
↑  
78.5'  
Sample  
1035'

Soil color chart with color swatches and a data table.

Color	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
10YR	10YR 1/1	10YR 2/1	10YR 3/1	10YR 4/1	10YR 5/1	10YR 6/1	10YR 7/1	10YR 8/1	10YR 9/1	10YR 10/1	10YR 11/1	10YR 12/1	10YR 13/1	10YR 14/1	10YR 15/1	10YR 16/1	10YR 17/1	10YR 18/1	10YR 19/1	10YR 20/1	10YR 21/1	10YR 22/1	10YR 23/1	10YR 24/1	10YR 25/1	10YR 26/1	10YR 27/1	10YR 28/1	10YR 29/1	10YR 30/1	10YR 31/1	10YR 32/1	10YR 33/1	10YR 34/1	10YR 35/1	10YR 36/1	10YR 37/1	10YR 38/1	10YR 39/1	10YR 40/1	10YR 41/1	10YR 42/1	10YR 43/1	10YR 44/1	10YR 45/1	10YR 46/1	10YR 47/1	10YR 48/1	10YR 49/1	10YR 50/1
7.5YR	7.5YR 1/2	7.5YR 2/2	7.5YR 3/2	7.5YR 4/2	7.5YR 5/2	7.5YR 6/2	7.5YR 7/2	7.5YR 8/2	7.5YR 9/2	7.5YR 10/2	7.5YR 11/2	7.5YR 12/2	7.5YR 13/2	7.5YR 14/2	7.5YR 15/2	7.5YR 16/2	7.5YR 17/2	7.5YR 18/2	7.5YR 19/2	7.5YR 20/2	7.5YR 21/2	7.5YR 22/2	7.5YR 23/2	7.5YR 24/2	7.5YR 25/2	7.5YR 26/2	7.5YR 27/2	7.5YR 28/2	7.5YR 29/2	7.5YR 30/2	7.5YR 31/2	7.5YR 32/2	7.5YR 33/2	7.5YR 34/2	7.5YR 35/2	7.5YR 36/2	7.5YR 37/2	7.5YR 38/2	7.5YR 39/2	7.5YR 40/2	7.5YR 41/2	7.5YR 42/2	7.5YR 43/2	7.5YR 44/2	7.5YR 45/2	7.5YR 46/2	7.5YR 47/2	7.5YR 48/2	7.5YR 49/2	7.5YR 50/2
5YR	5YR 1/3	5YR 2/3	5YR 3/3	5YR 4/3	5YR 5/3	5YR 6/3	5YR 7/3	5YR 8/3	5YR 9/3	5YR 10/3	5YR 11/3	5YR 12/3	5YR 13/3	5YR 14/3	5YR 15/3	5YR 16/3	5YR 17/3	5YR 18/3	5YR 19/3	5YR 20/3	5YR 21/3	5YR 22/3	5YR 23/3	5YR 24/3	5YR 25/3	5YR 26/3	5YR 27/3	5YR 28/3	5YR 29/3	5YR 30/3	5YR 31/3	5YR 32/3	5YR 33/3	5YR 34/3	5YR 35/3	5YR 36/3	5YR 37/3	5YR 38/3	5YR 39/3	5YR 40/3	5YR 41/3	5YR 42/3	5YR 43/3	5YR 44/3	5YR 45/3	5YR 46/3	5YR 47/3	5YR 48/3	5YR 49/3	5YR 50/3
2.5YR	2.5YR 1/4	2.5YR 2/4	2.5YR 3/4	2.5YR 4/4	2.5YR 5/4	2.5YR 6/4	2.5YR 7/4	2.5YR 8/4	2.5YR 9/4	2.5YR 10/4	2.5YR 11/4	2.5YR 12/4	2.5YR 13/4	2.5YR 14/4	2.5YR 15/4	2.5YR 16/4	2.5YR 17/4	2.5YR 18/4	2.5YR 19/4	2.5YR 20/4	2.5YR 21/4	2.5YR 22/4	2.5YR 23/4	2.5YR 24/4	2.5YR 25/4	2.5YR 26/4	2.5YR 27/4	2.5YR 28/4	2.5YR 29/4	2.5YR 30/4	2.5YR 31/4	2.5YR 32/4	2.5YR 33/4	2.5YR 34/4	2.5YR 35/4	2.5YR 36/4	2.5YR 37/4	2.5YR 38/4	2.5YR 39/4	2.5YR 40/4	2.5YR 41/4	2.5YR 42/4	2.5YR 43/4	2.5YR 44/4	2.5YR 45/4	2.5YR 46/4	2.5YR 47/4	2.5YR 48/4	2.5YR 49/4	2.5YR 50/4
10YR	10YR 1/6	10YR 2/6	10YR 3/6	10YR 4/6	10YR 5/6	10YR 6/6	10YR 7/6	10YR 8/6	10YR 9/6	10YR 10/6	10YR 11/6	10YR 12/6	10YR 13/6	10YR 14/6	10YR 15/6	10YR 16/6	10YR 17/6	10YR 18/6	10YR 19/6	10YR 20/6	10YR 21/6	10YR 22/6	10YR 23/6	10YR 24/6	10YR 25/6	10YR 26/6	10YR 27/6	10YR 28/6	10YR 29/6	10YR 30/6	10YR 31/6	10YR 32/6	10YR 33/6	10YR 34/6	10YR 35/6	10YR 36/6	10YR 37/6	10YR 38/6	10YR 39/6	10YR 40/6	10YR 41/6	10YR 42/6	10YR 43/6	10YR 44/6	10YR 45/6	10YR 46/6	10YR 47/6	10YR 48/6	10YR 49/6	10YR 50/6



# Digging and removing existing soil



# Installing the underdrain



# Installing the underdrain



# Adding the bioretention soil



# Connecting the downspout



# Placing 1.5 tons of stone



# Installing the interpretive sign



# Planting 79 native plants



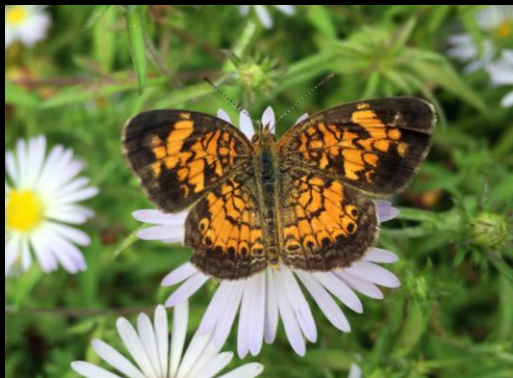


# Mulching and watering



All done!





# Questions?

