

ADDENDUM NO. 1
04/11/2025
Total Maximum Daily Load Plan
Borough of West Chester
Chester County, PA

The information enclosed in this addendum has been issued in order to include revisions to the Total Maximum Daily Load (TMDL) Plan that was originally approved by PADEP in 2018.

Specifically, Addendum No. 1 includes additional proposed BMP's. Enclosed herein, are the amended sections of the original report.

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Contents

Section A, Public Participation. 3
Section G, Select BMPs to Achieve the Minimum Required Reductions in Pollutant Load..... 4
Section G, Identify Responsible Parties for Operation and Maintenance (O&M) of BMPs 8

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Section A, Public Participation.

The following section shall be appended to Section A, Public Participation.

Public Participation – Addendum No. 1

The Borough of West Chester has completed the Public Participation measures for Addendum No. 1. All required documentation of public participation for Addendum No. 1 is included in Appendix A of this Addendum.

- Proposed TMDL Plan Addendum No. 1 public notice was published in: Daily Local News
- Proposed TMDL Plan Addendum No. 1 public notice was published in newspaper: xx/xx/2025
- Proposed TMDL Plan Addendum No. 1 was made available for public review/comment: xx/xx/2025
- End date for receipt of written comments (30 days from the date of public notice): xx/xx/2025
- Proposed TMDL Plan Addendum No. 1 comments were accepted at a public meeting: xx/xx/2025

Questions received were of a general nature only, and no comments were made that required a response in, or revision to, this document.

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Section G, Select BMPs to Achieve the Minimum Required Reductions in Pollutant Load

The following section shall be appended to Section G. Select BMPs To Achieve the Minimum Required Reductions in Pollutant Load

Additional BMPs– Addendum No. 1

Proposed BMPs being added via this addendum are listed below.

- Bio Swale at the Public Works Building
- Rain Garden at the Public Works Building
- Bio Retention Garden at the end of Magnolia & Maple Avenue
- Rain Garden at the Good Will Fire Company No. 2 Building
- Bio Swales at the intersection of Bolmar Street & Miner Street
- Nineteen (19) Roadway Bump-out Rain Gardens to collect roadway stormwater runoff at twelve (12) intersections
 - S. Matlack Street & Magnolia Street
 - S. Matlack Street & Union Street
 - S. Matlack Street & Linden Street
 - S. Matlack Street & Lacey Street
 - S. Matlack Street & E. Niels Street
 - S. Matlack Street & E. Miner Street
 - Linden Street & Maple Alley
 - E. Miner Street & Poplar
 - S. Adams Street & E. Miner Street
 - S. Franklin Street & E. Miner Street
 - Market Street Midblock between Franklin Avenue & S Adams Street
 - S. Walnut Street & E. Barnard Street
- Basin Retrofit to convert Detention Basin at Union & Worthington Street into a Bioretention Rain Garden
- Streetscape Project along S. Bolmar Street near E. Miner Street

Drainage Areas for each were delineated using contours provided by Pennsylvania Spatial Data Access (PASDA). The BMP efficiencies were determined by using the PA DEP BMP Effectiveness Values Table. The total phosphorus load, drainage area and loading rate was determined from the previous MapShed calculations for the Goose Creek Drainage area in West Chester Borough. At the time of this addendum, the version of MapShed was no longer available for public use. A loading rate of 0.26 lbs./ac/year was previously determined in the MapShed software and used for the initial TMDL reduction calculations. For consistency, these same loading rates will be used in the updated reduction calculations. Sketches for these proposed BMPs can be found in the Appendices of this addendum. A summary of the reductions for the structural BMPs can be found in Table 1 on the next page.

Table 1 – Calculation Methodology: Structural BMPs, Addendum No. 1

Location	BMP Type	Drainage area (ac)	Land Use	TP Loading (lbs./ac/yr)	Efficiency (%)	Reduction (lbs./yr)
John O. Green Park	Permeable Pavement w/o Sand or Veg (A/B Soils w/o underdrain)	1.12	HD Mixed	0.26	80%	0.23
Fugett Park/Borough Hall	Raingarden (A/B soils w/ underdrain)	1.07	HD Mixed	0.26	75%	0.21
	Filtering Practices	0.55	HD Mixed	0.26	60%	0.09
Greenview Alley	Bioretention (A/B soils w/o underdrain)	0.47	HD Mixed	0.26	85%	0.10
	Bioretention (A/B soils w/o underdrain)	0.22	MD Mixed	0.26	85%	0.05
	Bioretention (A/B soils w/o underdrain)	0.06	LD Mixed	0.06	85%	0.003
					Subtotal	0.68
2023 Additional Proposed BMPs						
Public Works Building	Bioswale	0.67	HD Mixed	0.26	75%	0.13
	Raingarden (A/B soils w/o underdrain)	0.8	HD Mixed	0.26	85%	0.18
Magnolia St. & Maple Alley	Bioretention (A/B soils w/o underdrain)	0.65	HD Residential	0.26	85%	0.14
Good Will Fire Company	Bioswale	1.34	HD Mixed	0.26	75%	0.26
Various Intersections	"Bump-out" Rain Gardens (A/B soils w underdrain)	28.52	HD Residential	0.26	75%	5.56
Bolmar St. & Miner St.	Bioswale	0.80	HD Residential	0.26	75%	0.16
Union St & Worthington St*	Bioretention (A/B soils w/ underdrain)	4.25	HD Residential	0.26	55%	0.61
					Subtotal	7.04
					Total Reduction	7.72

*Union St Bio Retention is a basin retrofit of a Dry Extended Detention Basin, as such the calculated reduction/efficiency is the difference between the two types of BMPs

The Street Sweeping load reduction was calculated using the loading rate (0.26 lbs./ac/yr) and the efficiency rate was determined from the PA DEP BMP Effectiveness Values Table (3%). The miles swept and their area equivalent is 16 miles, or 16 acres. A reduction of 0.13 lbs./yr of phosphorous was calculated for sweeping 25 times a year. A summary of the street sweeping phosphorous reduction can be found in Table 2 on the next page.

Table 2 – Calculation Methodology: Street Sweeping, Addendum No. 1

BMP Type	Miles Swept	TP Loading (lbs./ac/yr)	Efficiency	Reduction (lbs./yr)
Street Sweeping	16	0.26	3%	0.13

A summary of the tree planting phosphorous load reduction calculations can be found in Table 3.

Table 3 – Calculation Methodology: Tree Plantings, Addendum No. 1

BMP Type	Trees	Effective DA (Acres)	Loading (lbs./ac/yr)	Efficiency	Reduction (lbs./yr)
Planted Trees	90	0.9	0.26	15%	0.04

A summary of all proposed BMPs in the previous TMDL plan can be found in Table 4. The streambank restoration and stabilization BMP and jellyfish endwall BMPs were found to be infeasible and will not be included in the MS4 BMP Strategy.

Table 4 – The Previous TMDL Strategy Summary, to be replaced with Table 5

Adjusted MS4 LR in the TMDL Study (lb/year)	39.18
Required Short Term Reduction: 5% of the existing load for TP at the time of the TMDL Plan submission	1.96 lbs/yr
Proposed Potential Reduction (lbs./yr)	1.20 (Three BMP Locations) 1.54 (Street Sweeping) 0.04 (Plant Street Trees) 13.6 (Streambank Restoration) 1.68 (Endwall 13) 1.34 (Endwall 37) <u>Potential Total of 19.40</u>

A summary of all the revised proposed BMPs can be found in Table 5.

Table 5 – Revised TMDL Strategy Summary, Addendum No. 1

Adjusted MS4 LR in the TMDL Study (lbs./yr)	39.18
Required Short term Reduction: 5% of the existing load for TP at the time of TMDL Plan submission	1.96 lbs./yr
Proposed Potential Reduction (lbs./yr)	0.23 (John O. Green Park BMP's) 0.30 (Fugett Park/Borough Hall BMP's) 0.153 (Greenview Alley BMP's) 0.13 (Public Works Bioswale) 0.18 (Public Works Rain Garden) 0.14 (Magnolia & Maple Bio Retention) 5.56 (Bump Out" Rain Gardens) 0.26 (Good Will Fire Company Bio Swale) 0.13 (Street Sweeping) 0.04 (Plant Street Trees) 0.61 (Union St & Worthington Bio Retention) 0.16 (Bolmar & Miner Bio Swales) <u>Potential total of 7.89 lbs./yr</u>

Section I, Identify Responsible Parties for Operation and Maintenance (O&M) of BMPs

The following section shall be appended to Section I, Identify Responsible Parties for Operation and Maintenance (O&M) of BMPs

Table 6 – Summary of Operation & Maintenance of BMPs, Revised via Addendum No. 1

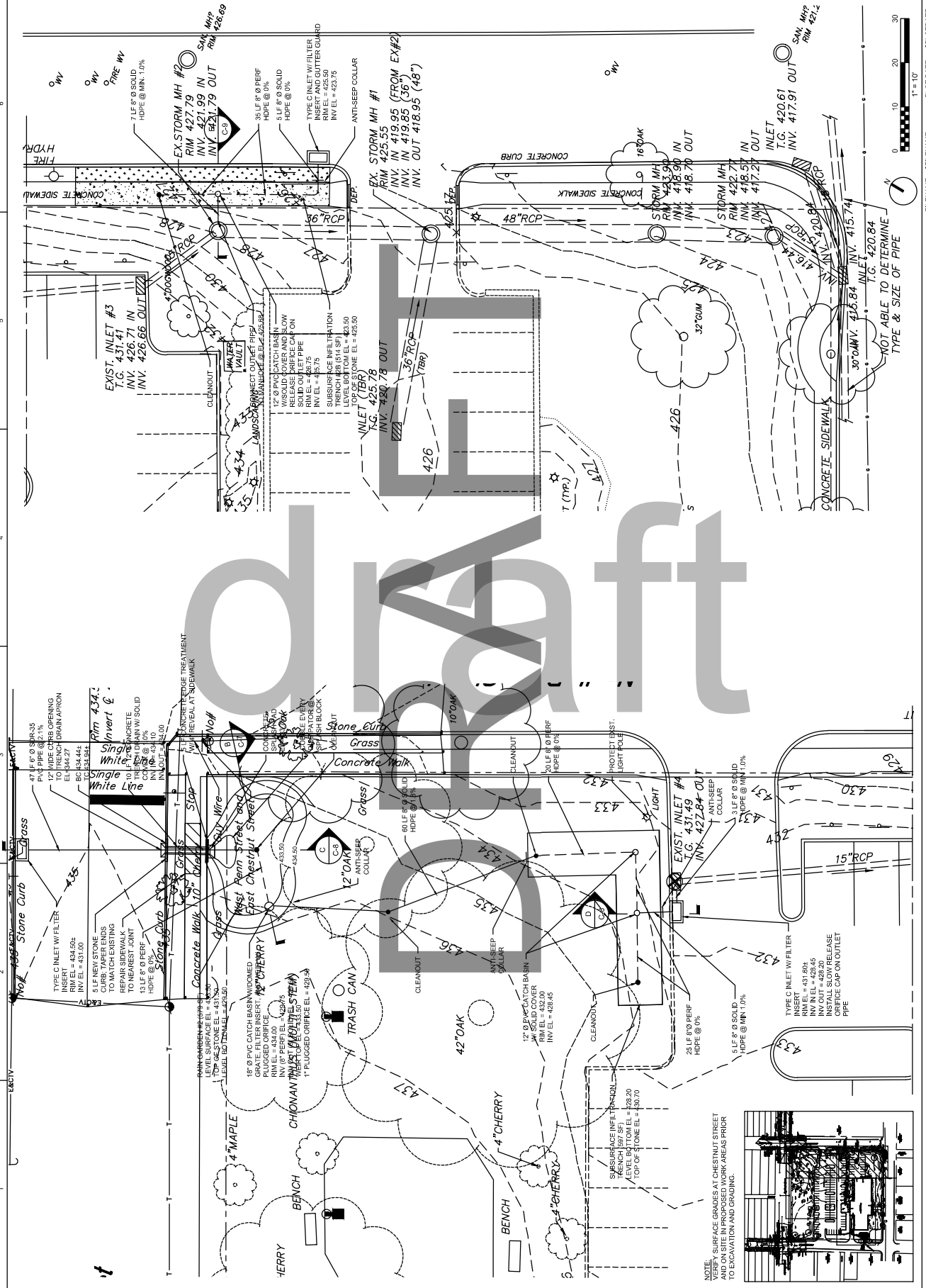
NAME OF BMP	RESPONSIBLE PARTY	O&M ACTIVITY & FREQUENCY
Street Sweeping	West Chester Borough	Per PA BMP Manual (latest revision) BMP 5.9.1 pg 94-97
Street Tree Planting	West Chester Borough	Per PA BMP Manual (latest revision) BMP 5.6.3 pg 63-67
Streambank Restoration	West Chester Borough	Per PA BMP Manual (latest revision) BMP 6.7.1 pg 191-210
Proposed Infiltration Facilities	West Chester Borough	Per PA BMP Manual (latest revision) BMP 6.4.3/6.4.4 pg 33-47
Jellyfish Filters	West Chester Borough	Per Manufactures Instructions
Inlet Cleaning	West Chester Borough	Per PA DEP Direction and Applicable Manufacturer's Instructions
Public Works Bio Swale	West Chester Borough	Per PA DEP Manual (latest Revision) BMP 6.4.1
Public Works Rain Garden	West Chester Borough	Per PA DEP Manual (latest Revision) BMP 6.4.1
Magnolia & Maple Bio Retention	West Chester Borough	Per PA DEP Manual (latest Revision) BMP 6.4.1
Good Will Fire Company Bio Swale	West Chester Borough	Per PA DEP Manual (latest Revision) BMP 6.4.1
"Bump Out" Rain Gardens	West Chester Borough	Per PA DEP Manual (latest Revision) BMP 6.4.2
Bolmar & Miner Bio Swale	West Chester Borough	Per PA DEP Manual (latest Revision) BMP 6.4.3
Union St & Worthington Bio Retention	West Chester Borough	Per PA DEP Manual (latest Revision) BMP 6.4.4

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INSERT PUBLIC PARTICIPATION
INFORMATION

dratt

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




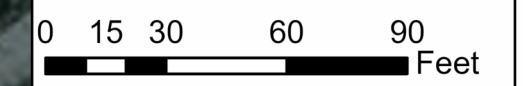
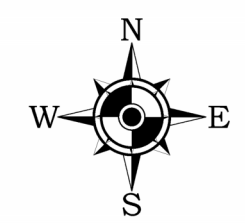
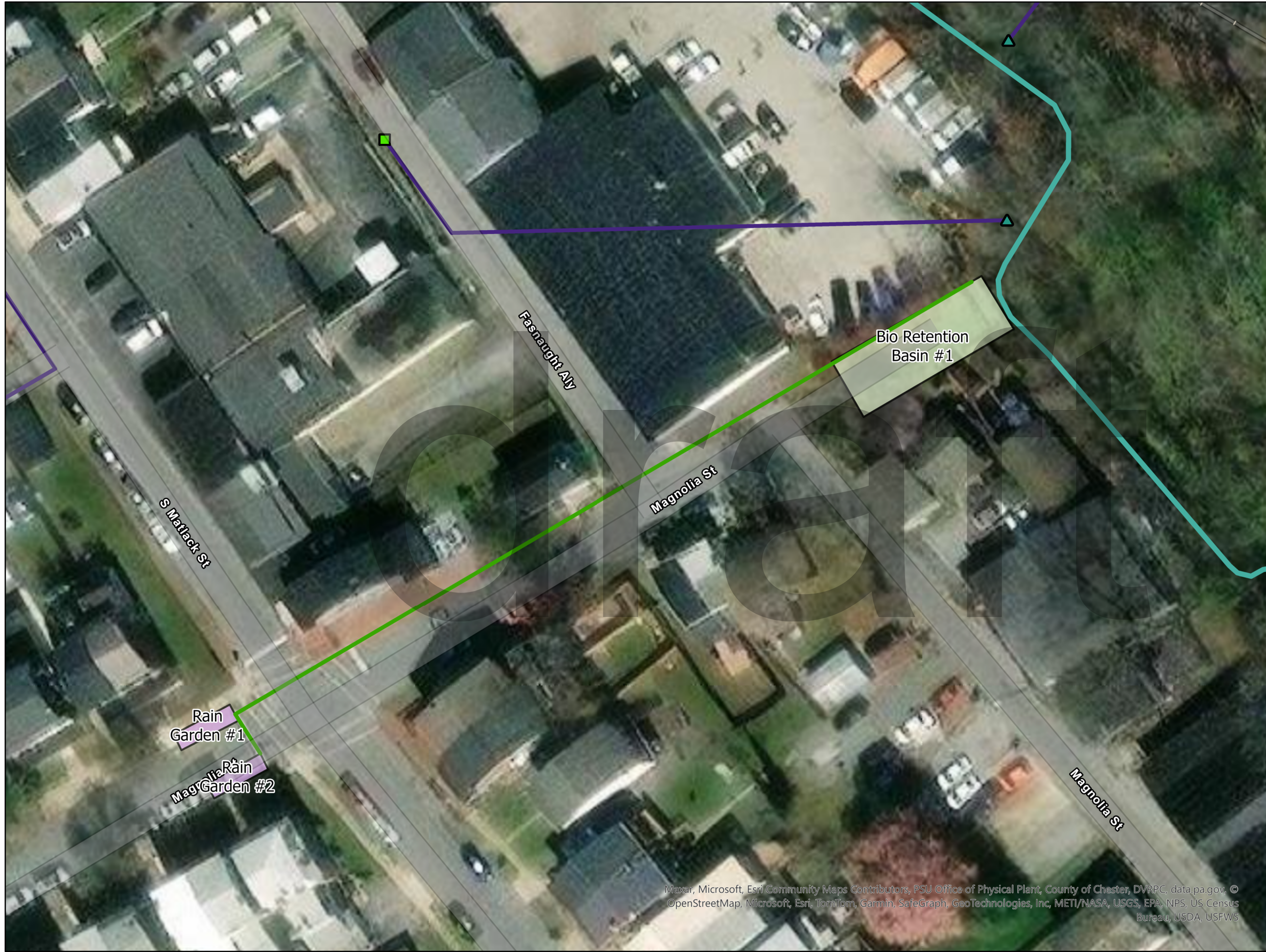
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PROPOSED BMP'S FOR WEST CHESTER TMDL AND PRP PLANS
WEST CHESTER
CHESTER COUNTY

DECEMBER, 2023

Legend

-  Existing Outlet
 -  Existing Manhole
 -  Existing Inlet
 -  Proposed Pipe
 -  Existing Storm Pipe
 -  Channel
 -  Existing Storm Basins
- Proposed BMPs**
- Type
-  Bio Retention Basin
 -  Bump-Out Rain Garden



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CHESTER COUNTY

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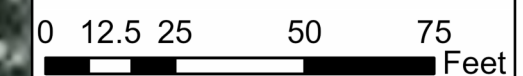
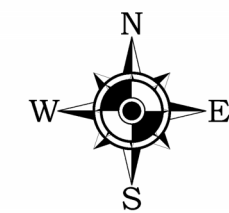
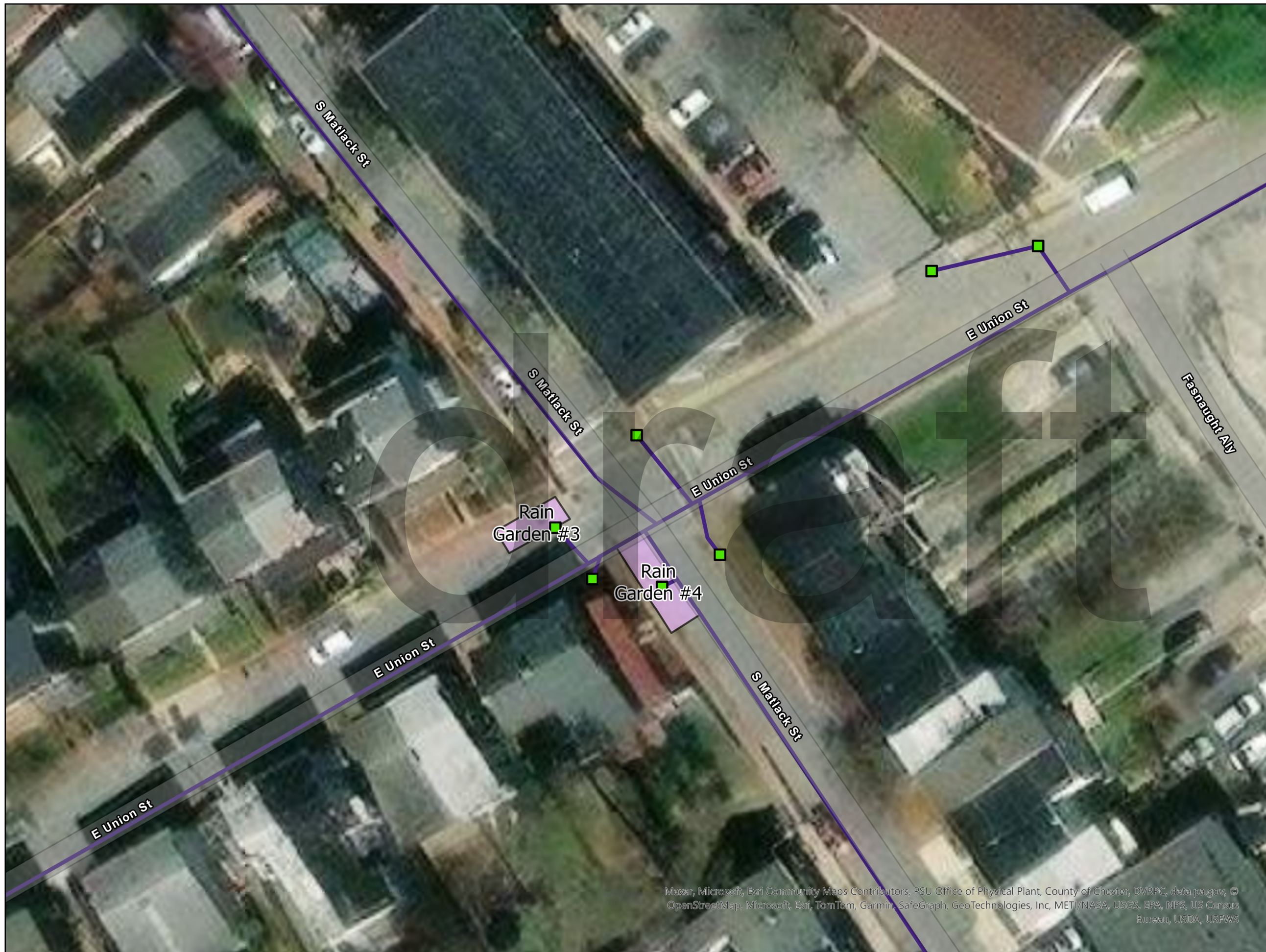
Legend

- Existing Inlet
- Proposed Pipe
- Existing Storm Pipe
- Existing Storm Basins

Proposed BMPs

Type

- Bio Retention Basin
- Bump-Out Rain Garden
- Basin Retrofit










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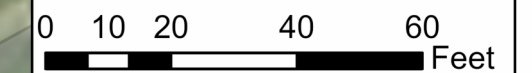
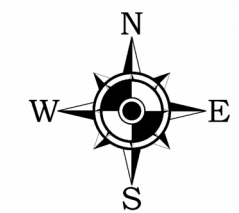
Legend

-  Outlet
-  Manhole
-  Existing Storm
-  Proposed_Pipes
-  Existing Storm Pipes
-  Channel
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Proposed BMPs

Type

-  Bio Retention Basin
-  Bump-Out Rain Garden










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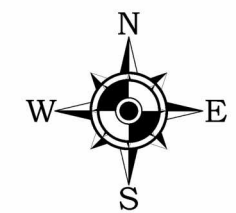
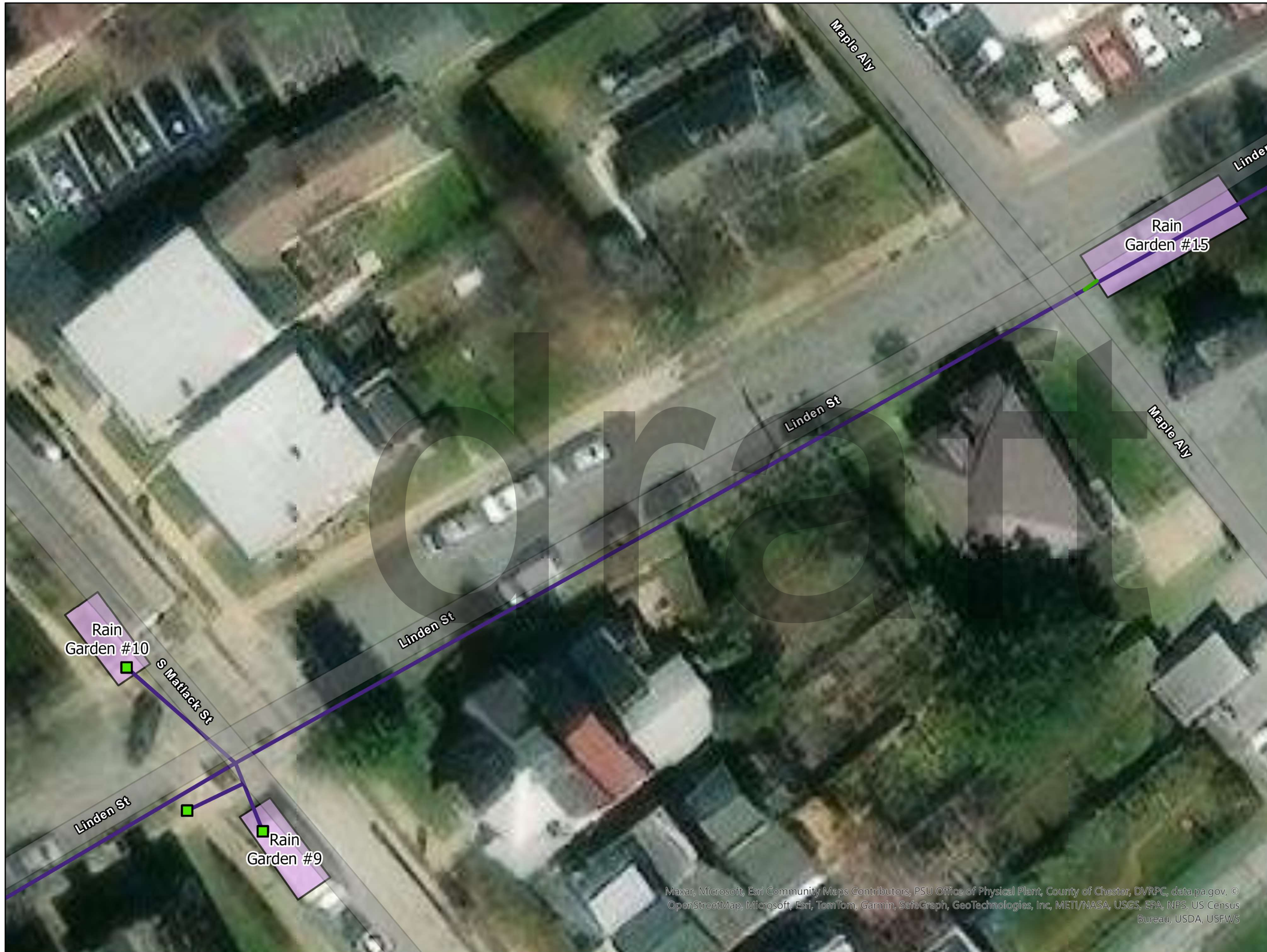
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Proposed BMPs

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
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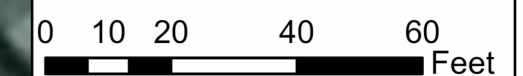
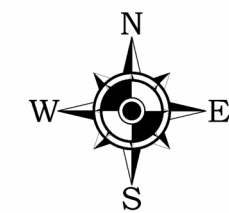
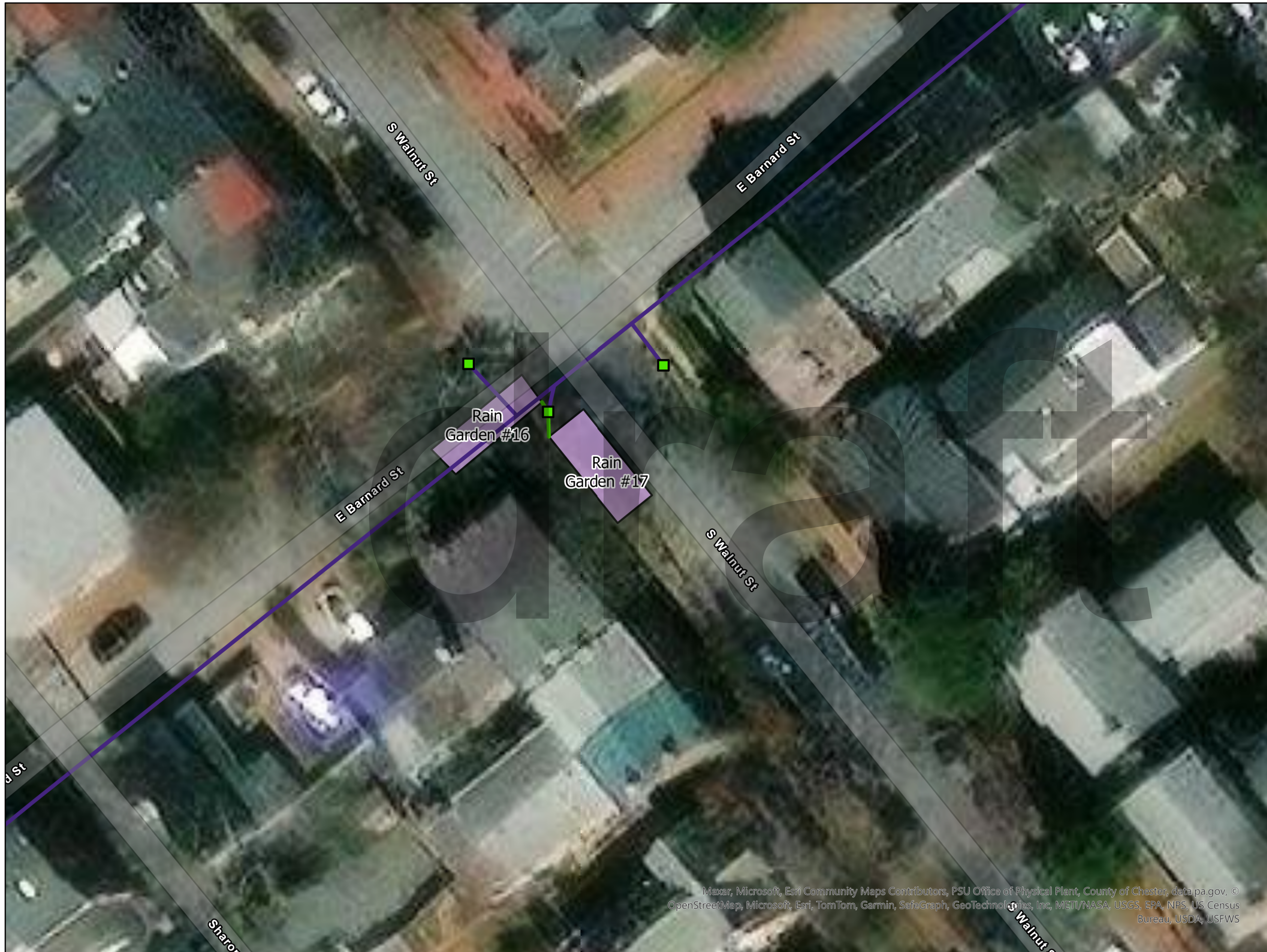
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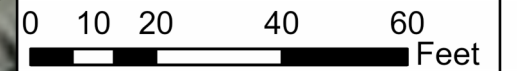
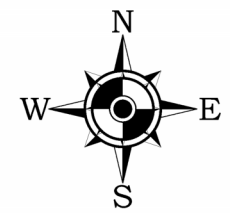
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Proposed BMPs

- Type
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 -  Bump-Out Rain Garden









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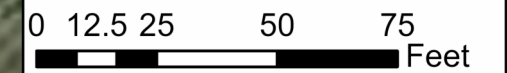
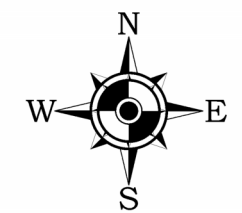
May, 2024

Legend

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Proposed BMPs

- Type
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 -  Bump-Out Rain Garden
 -  Basin Retrofit









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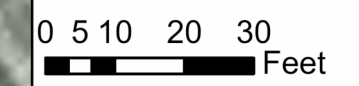
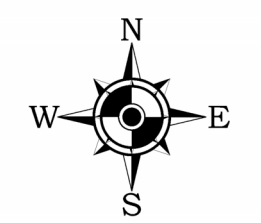
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- Type
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 -  Bump-Out Rain Garden
 -  Basin Retrofit
 -  Bioswale



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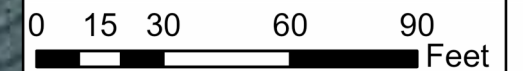
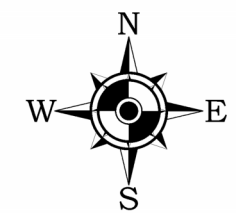
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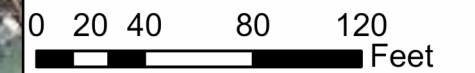
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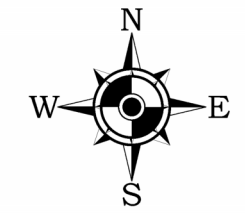
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PROPOSED BMP'S FOR WEST CHESTER TMDL AND PRP PLANS
WEST CHESTER
CHESTER COUNTY

DECEMBER, 2023

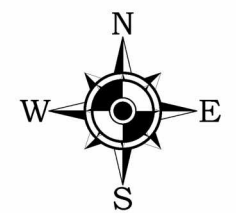
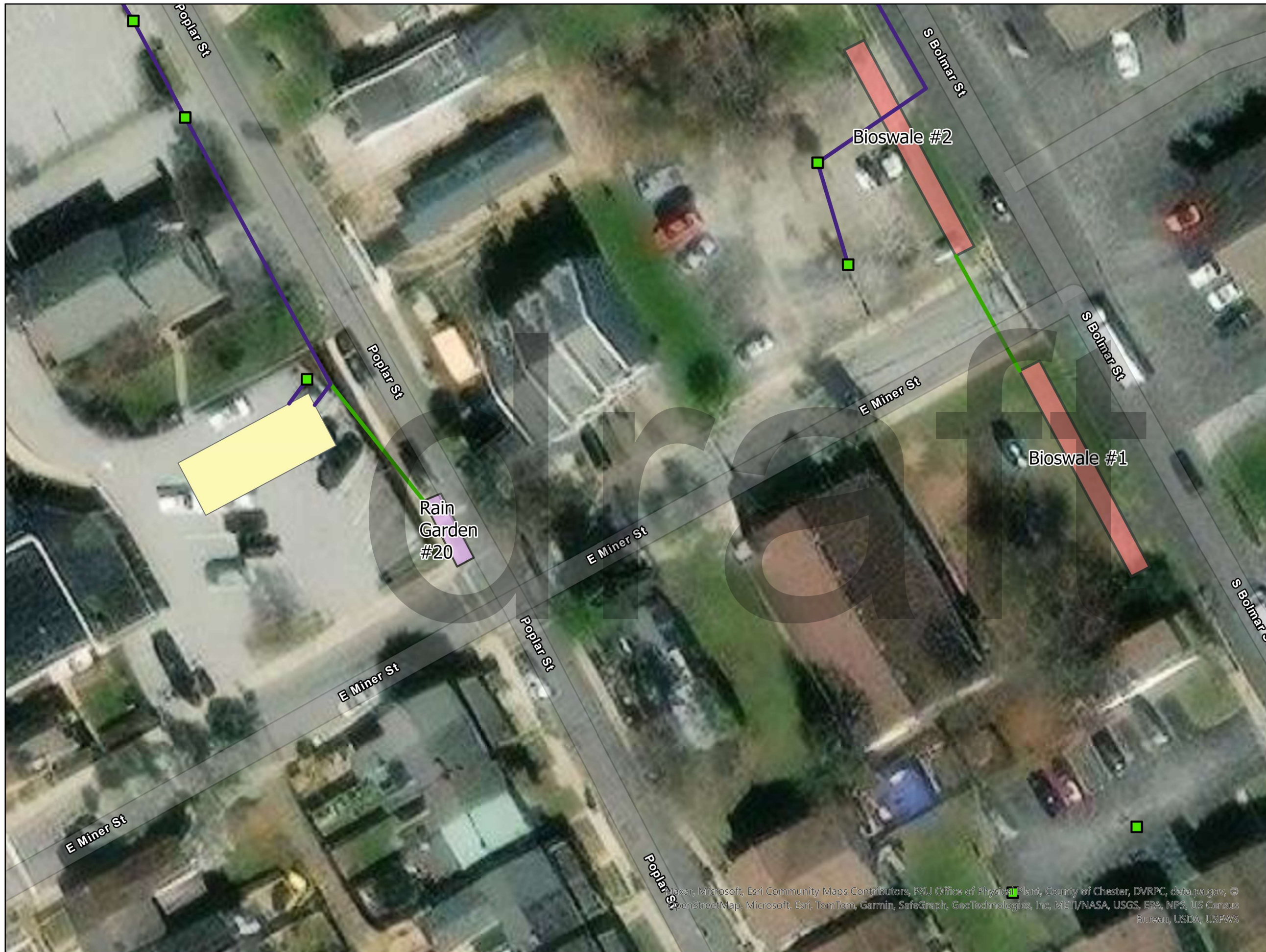
Legend

- Existing Inlet
- Proposed Pipe
- Existing Storm Pipe
- Existing Storm Basins

Proposed BMPs

Type

- Bio Retention Basin
- Bump-Out Rain Garden
- Basin Retrofit
- Bioswale



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REMINGTON & VERNICK ENGINEERS
 2059 SPRINGDALE ROAD, CHERRY HILL, NJ 08033
 (856) 795-9595, FAX (856) 795-1882, WWW.RVE.COM
 Certificate of Authorization: 24 GA 28003300
 -ENGINEERING EXCELLENCE-

NOT FOR CONSTRUCTION

CS0201
SHEET 3 OF 21

DATE: 2024-06-07
DRAWING NO.: 11-20
PROJECT: WCHB000030
SHEET: 3 OF 21

DATE: 2024-06-07
DRAWING NO.: 11-20
PROJECT: WCHB000030
SHEET: 3 OF 21

NO.	REVISIONS	DATE

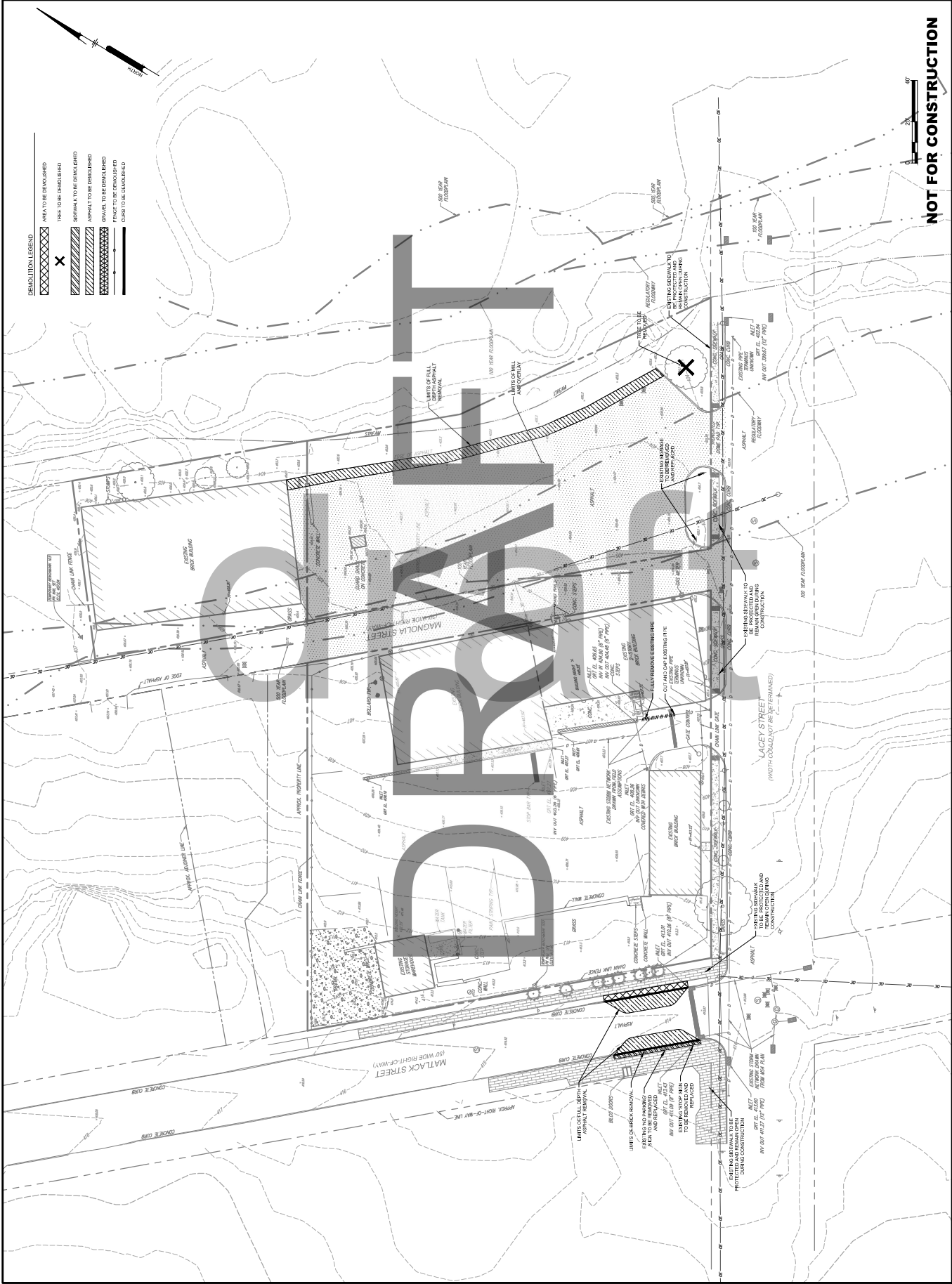
GOOSE CREEK GREEN STORMWATER
EXISTING CONDITIONS AND DEMOLITION PLAN
WEST CHESTER BOROUGH
401 EAST GAY STREET
WEST CHESTER, PA 19380

PENNON ASSOCIATES, INC.
150 N. GAY STREET, SUITE 300
WEST CHESTER, PA 19380
T 610.429.8907 F 610.429.8918



DEMOLITION LEGEND

[Cross-hatched pattern]	AREA TO BE DEMOLISHED
[Diagonal lines /]	TOPSOIL TO BE DEMOLISHED
[Diagonal lines \]	ASPHALT TO BE DEMOLISHED
[Dotted pattern]	GRAVEL TO BE DEMOLISHED
[Horizontal lines]	FINISH TO BE DEMOLISHED
[Vertical lines]	CLING TO BE DEMOLISHED



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CS1001
SHEET 4 OF 21

DATE NO. REVISIONS BY

PRODUCT: WCHB000030
DATE: 2024-06-07
DRAWING SCALE: 1" = 20'
DRAWN BY: JCS
CHECKED BY: CRP

DATE	NO.	REVISIONS	BY

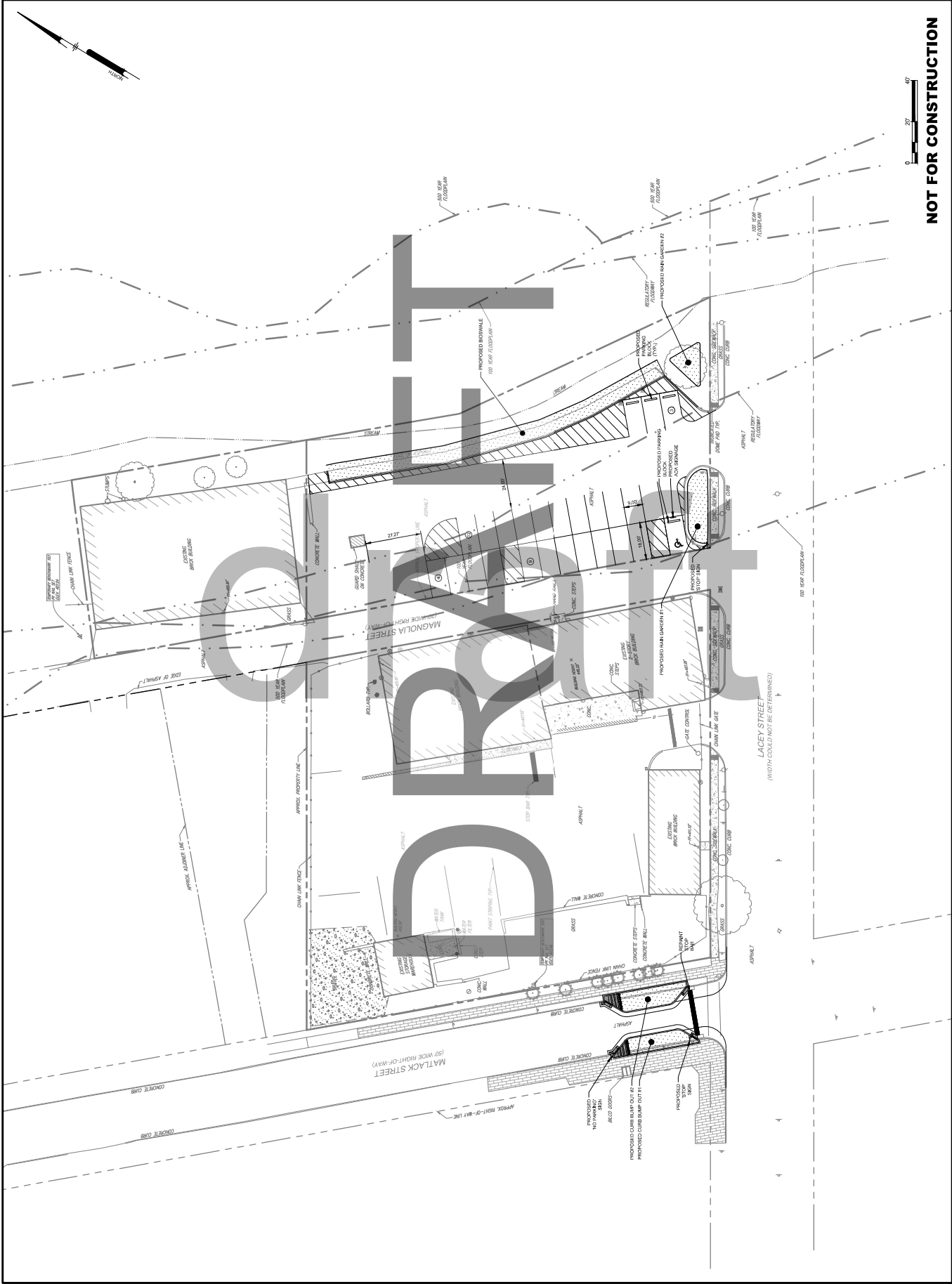
GOOSE CREEK GREEN STORMWATER SITE PLAN

205 LACEY STREET
WEST CHESTER, PA 19382

401 EAST GAY STREET
WEST CHESTER, PA 19380

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK.

Pennoni ASSOCIATES, INC.
158 W. GAY STREET, SUITE 300
WEST CHESTER, PA 19380
T 610.429.8907 F 610.429.8918

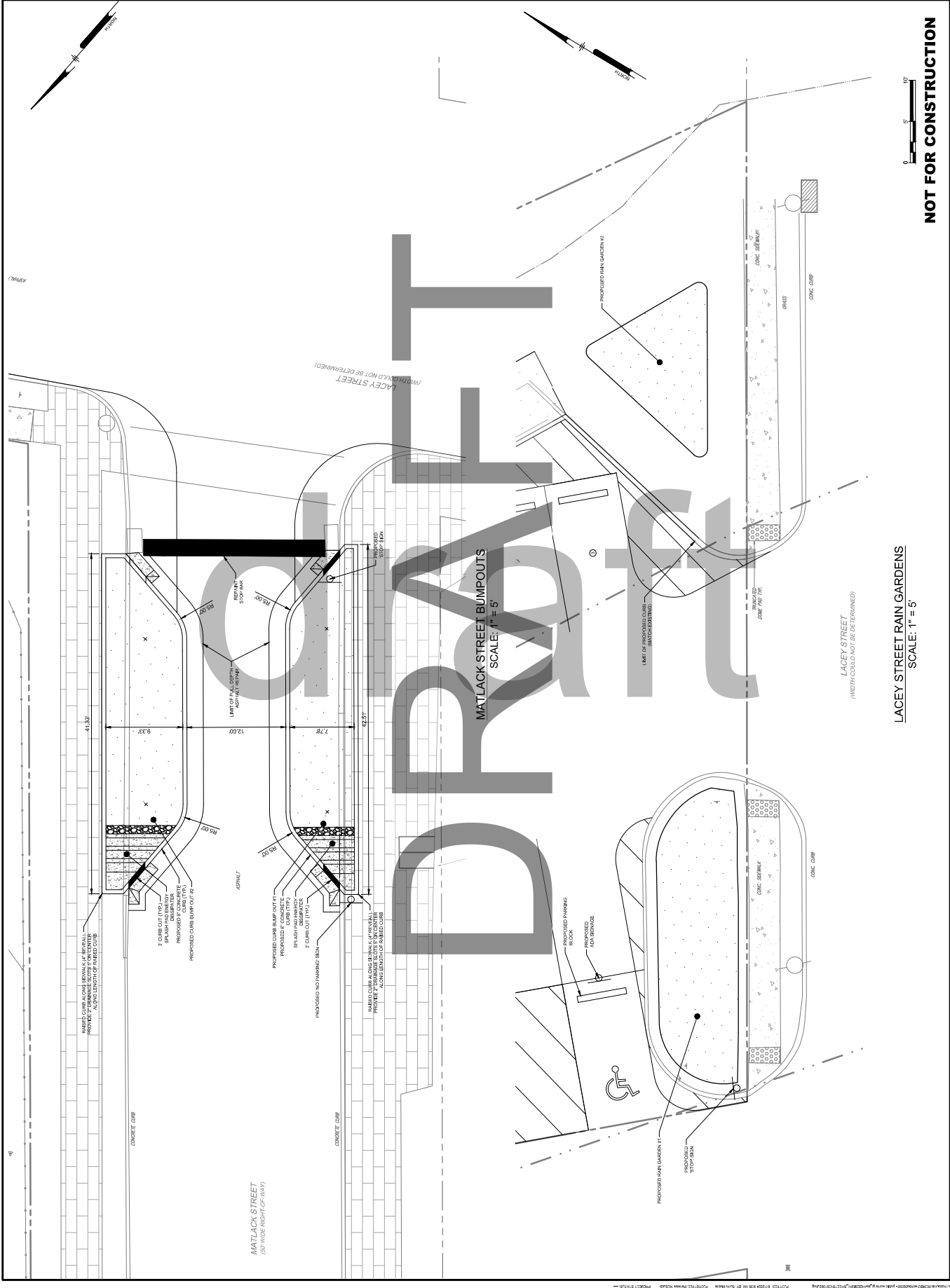


ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR
 AND OWNER MUST BE NOTIFIED OF ANY
 DISCREPANCIES BEFORE PROCEEDING WITH WORK

**GOOSE CREEK GREEN STORMWATER
 SITE PLAN**
 205 LACEY STREET
 WEST CHESTER, PA 19382
 401 EAST GAY STREET
 WEST CHESTER, PA 19380

NO.	DATE	REVISIONS	BY

WCHB000030
 DATE: 2024-06-07
 DRAWING SCALE: 1" = 5'
 SHEET NO.: ACS
 PROJECT: CRP



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CS1003
SHEET 6 OF 21



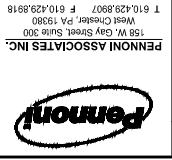
DATE: 2024-06-27
DRAWN BY: JCS
CHECKED BY: JCS
DATE: 2024-06-27
PROJECT: WCHB000030
PRODUCT: WEST CHESTER BOROUGH
205 LACE STREET
WEST CHESTER, PA 19382

NO.	REVISIONS	DATE

GOOSE CREEK GREEN STORMWATER
SITE PLAN
205 LACE STREET
WEST CHESTER, PA 19382
401 EAST GAY STREET
WEST CHESTER, PA 19380

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR
AND OWNER MUST BE NOTIFIED OF ANY
DISCREPANCIES BEFORE PROCEEDING WITH WORK

Pennoni
PENNONI ASSOCIATES, INC.
158 W. Gay Street, Suite 200
West Chester, PA 19380
T 610.429.8907 F 610.429.8918

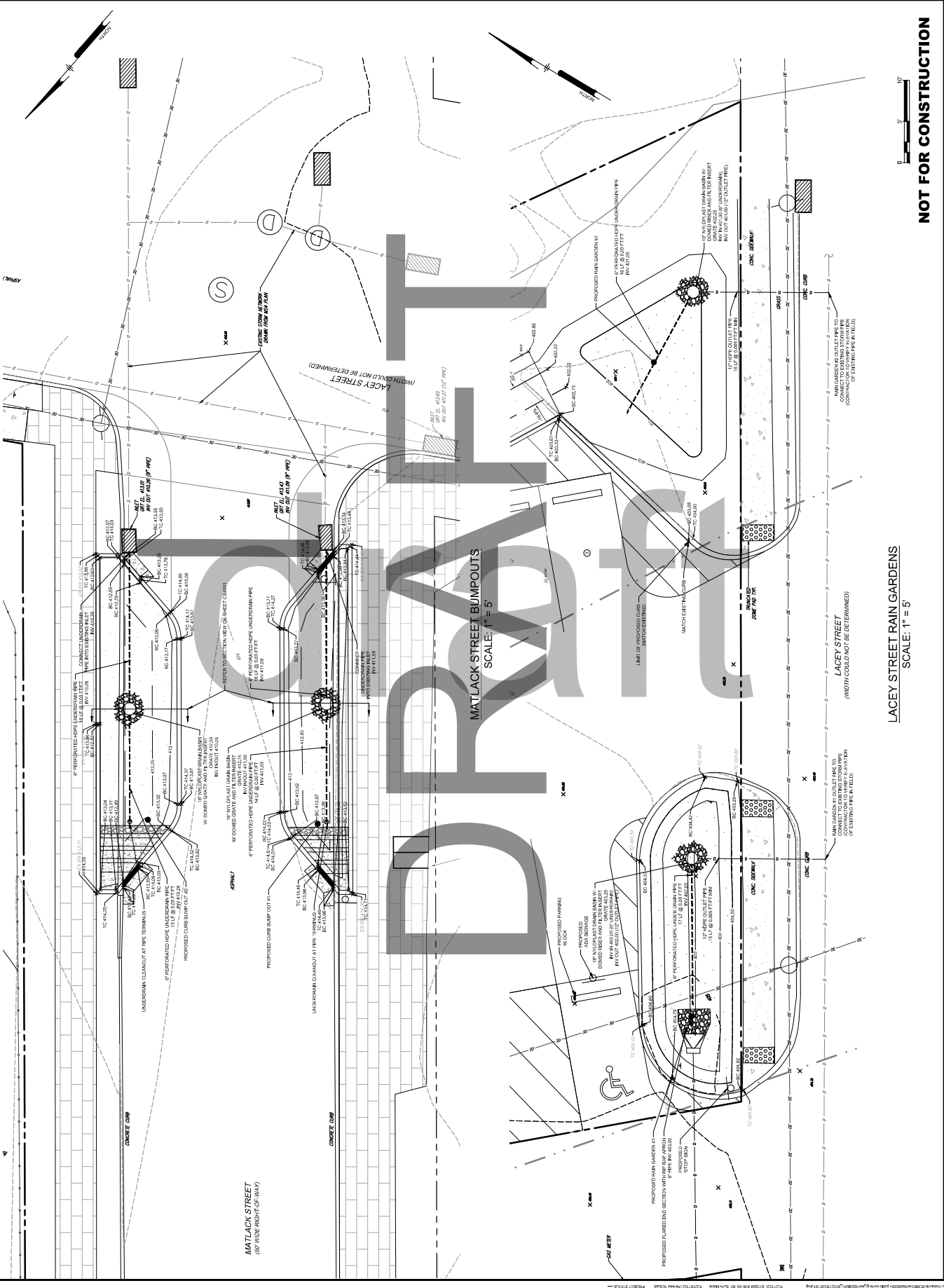


ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK.

GOOSE CREEK GREEN STORMWATER GRADING & UTILITY PLAN
 205 LACEY STREET, PA 19382
 WEST CHESTER BOROUGH
 401 EAST GAY STREET
 WEST CHESTER, PA 19380

NO.	DATE	REVISIONS


PROJECT: **WCHB000030**
 DATE: 2024-06-07
 DRAWING SCALE: 1" = 5'
 SHEET: **CS1701**
 SHEET 7 OF 21



NOT FOR CONSTRUCTION

LACEY STREET RAIN GARDENS
 SCALE: 1" = 5'

GOOSE CREEK GREEN STORMWATER GRADING & UTILITY PLAN
 205 LACEY STREET, PA 19382
 WEST CHESTER BOROUGH
 401 EAST GAY STREET
 WEST CHESTER, PA 19380



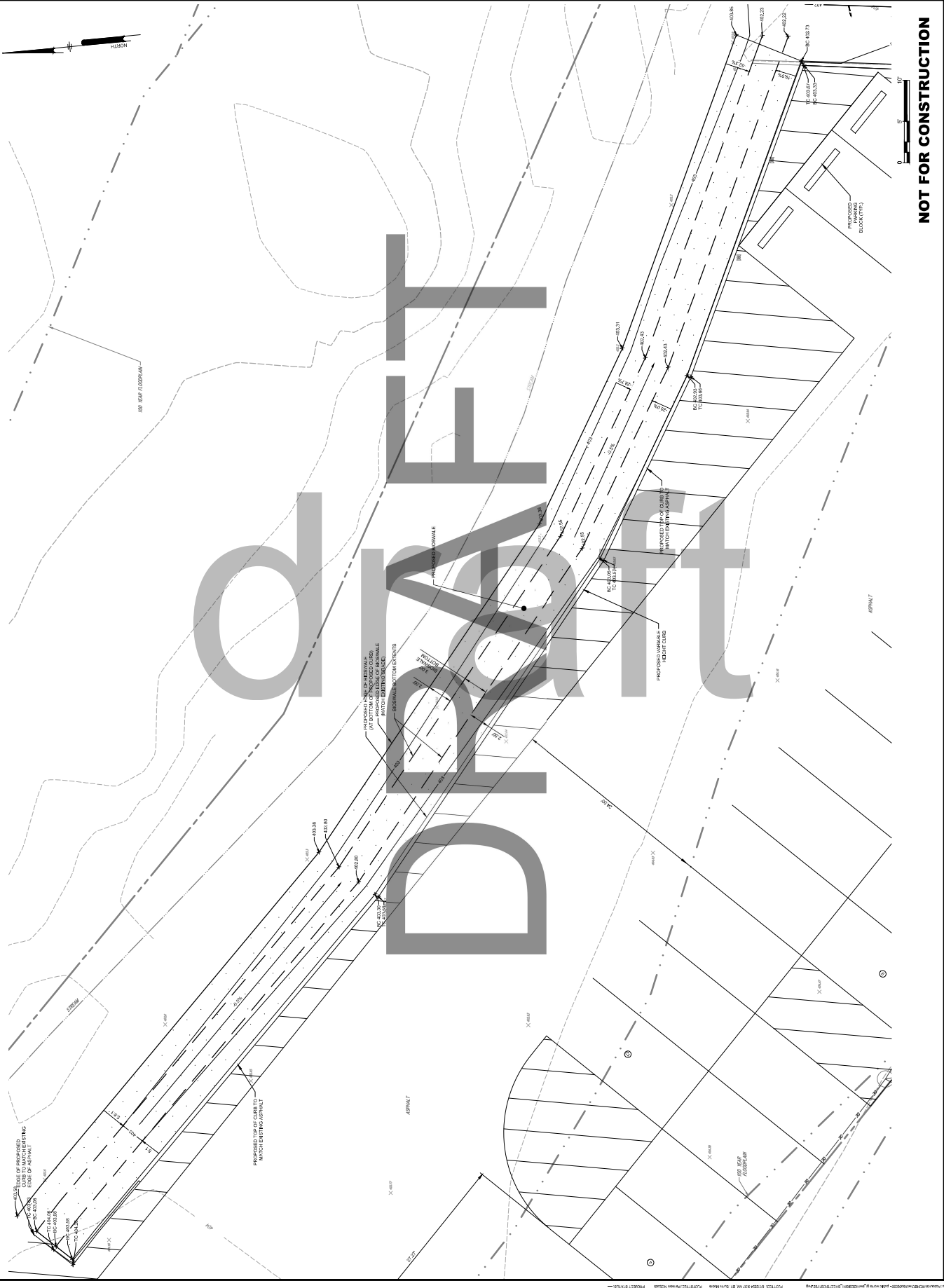
PENNONI ASSOCIATES, INC.
 158 W. CUPY STREET, SUITE 200
 WEST CHESTER, PA 19380
 T 610.429.8907 F 610.429.8918

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR
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**GOOSE CREEK GREEN STORMWATER
 GRADING & UTILITY PLAN**
 205 LACEY STREET
 WEST CHESTER, PA 19382
 401 EAST GAY STREET
 WEST CHESTER, PA 19380

DATE	NO.	REVISIONS

DATE: 2024-06-27
 PROJECT: WCHB000030
 DRAWING SCALE: 1" = 30'
 SHEET NO.: 8 OF 21
 SHEET TITLE: CS1702
 PROJECT: GRP



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PENNONI ASSOCIATES INC.
 158 W. CHERRY STREET, SUITE 300
 WEST CHESTER, PA 19380
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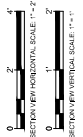
ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK.

GOOSE CREEK GREEN STORMWATER SECTION VIEWS
 205 LACEY STREET
 WEST CHESTER, PA 19382
 401 EAST GAY STREET
 WEST CHESTER, PA 19380

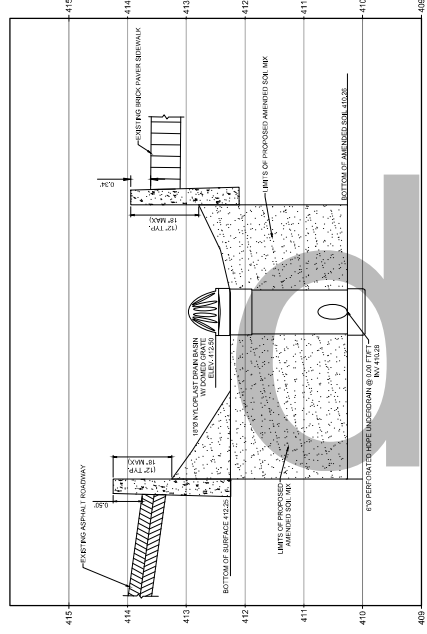
NO.	REVISIONS	DATE

DATE: 2024-06-07
 DRAWING SCALE: 1" = 2' (H) | 1" = 1' (V)
 PRODUCT: WCHB000030
 SHEET: 13 OF 21
 PROJECT: CS4001
 DRAWN BY: ACS
 CHECKED BY: GRP

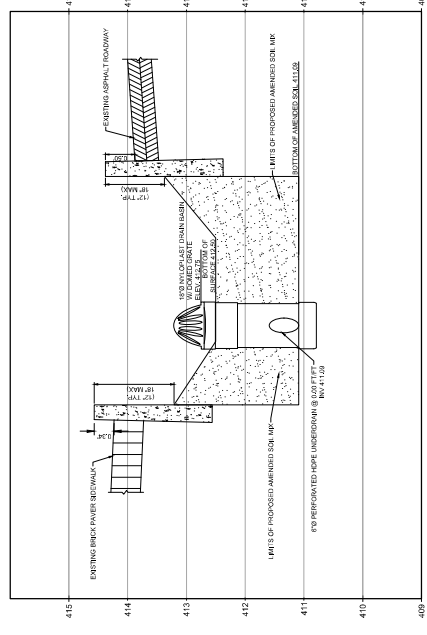
CS4001
 SHEET 13 OF 21



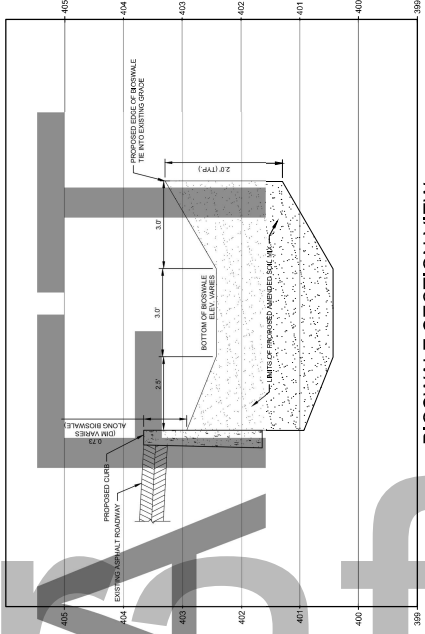
NOT FOR CONSTRUCTION



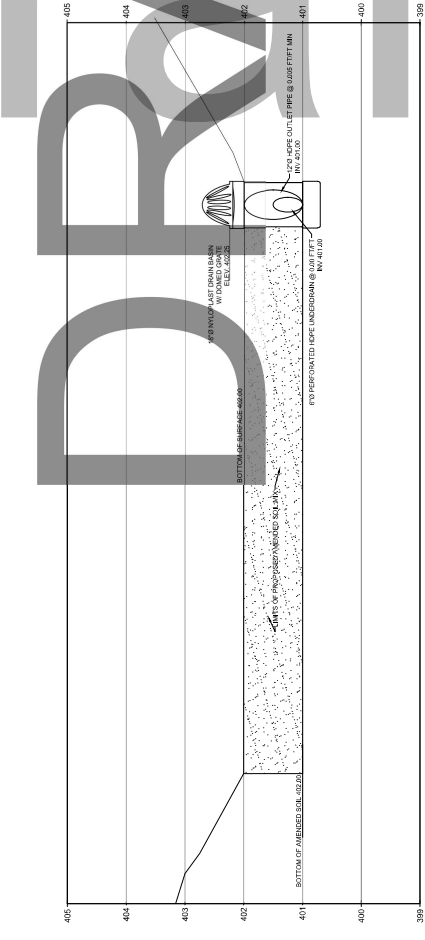
CURB BUMP OUT #2 SECTION VIEW



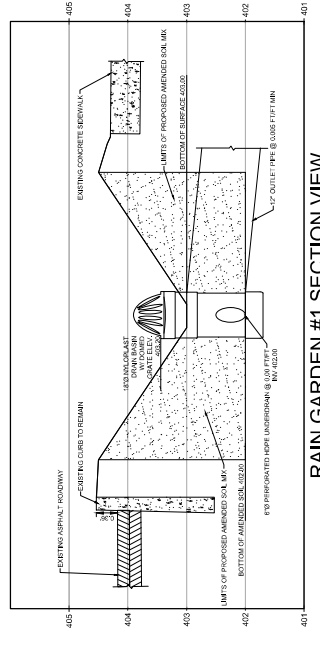
CURB BUMPOUT #1 SECTION VIEW



BIOSWALE SECTION VIEW



RAIN GARDEN #2 SECTION VIEW



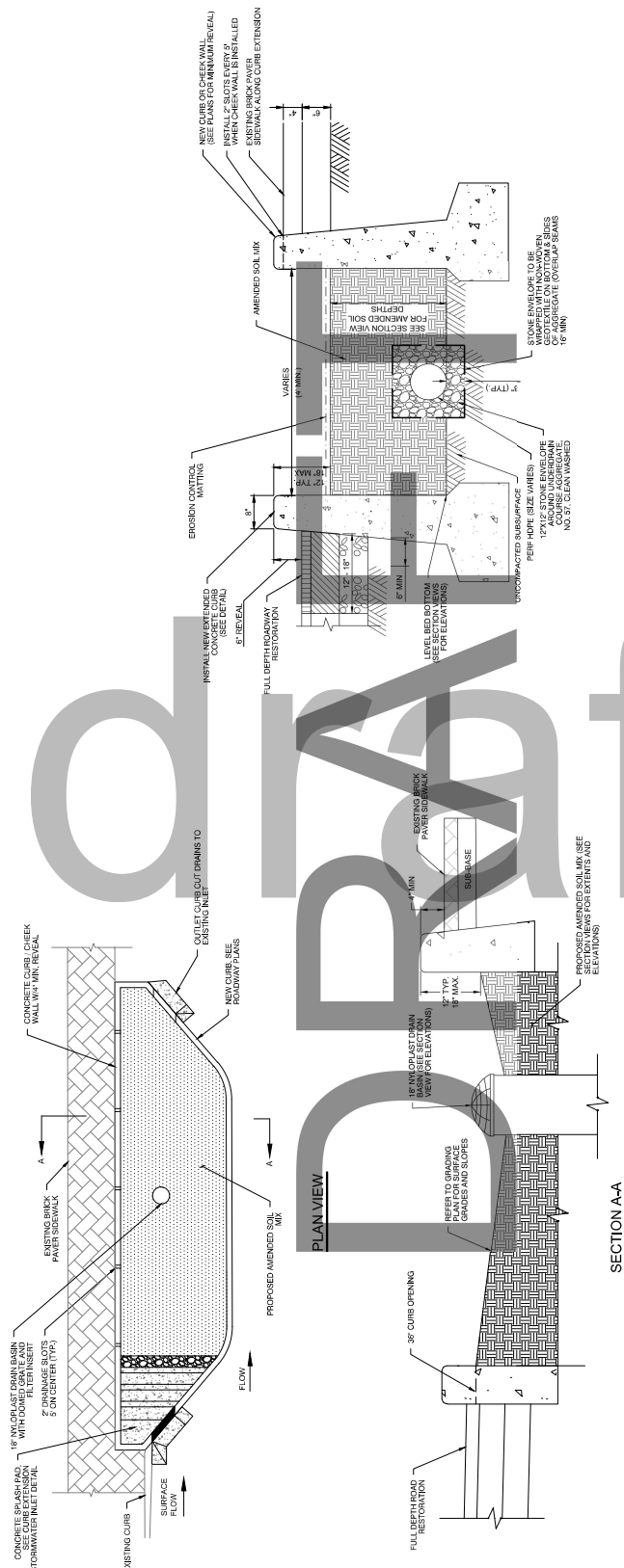
RAIN GARDEN #1 SECTION VIEW

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR
 AND OWNER MUST BE NOTIFIED OF ANY
 DISCREPANCIES BEFORE PROCEEDING WITH WORK

**GOOSE CREEK GREEN STORMWATER
 CONSTRUCTION DETAILS**
 WEST CHESTER BOROUGH
 401 EAST GAY STREET
 WEST CHESTER, PA 19380

DATE	NO.	REVISIONS

NOT FOR CONSTRUCTION



TYPICAL CURB EXTENSION SURFACE SECTIONS W/ RELATIVE ELEVATIONS
 N.T.S.

VEGETATED CURB EXTENSION SECTION
 N.T.S.



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 150 N. BAY STREET, SUITE 300
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ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR
 AND OWNER MUST BE NOTIFIED BY E-MAIL
 DISCREPANCIES BEFORE PROCEEDING WITH WORK

**GOOSE CREEK GREEN STORMWATER
 CONSTRUCTION DETAILS**

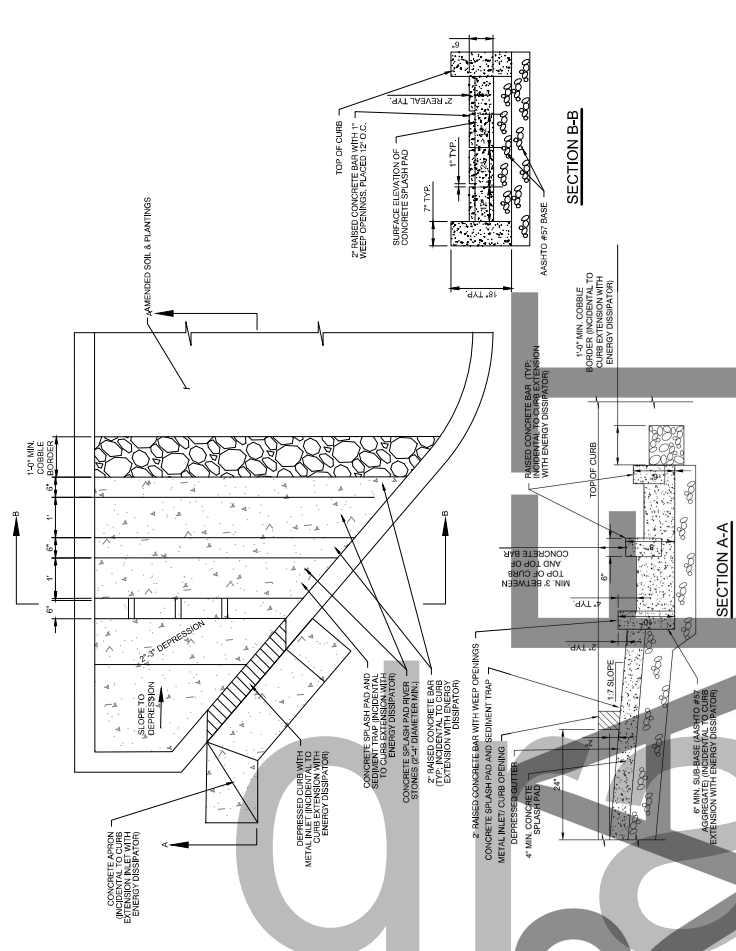
WEST CHESTER BOROUGH
 401 EAST GAY STREET
 WEST CHESTER, PA 19380

DATE	NO.	REVISIONS	BY

PRODUCT: WCHB000030
 DATE: 2024-06-07
 DRAWING SCALE: N.T.S.
 SHEET NO.: 18 OF 21

PROJECT: WCHB000030
 SHEET: 18 OF 21

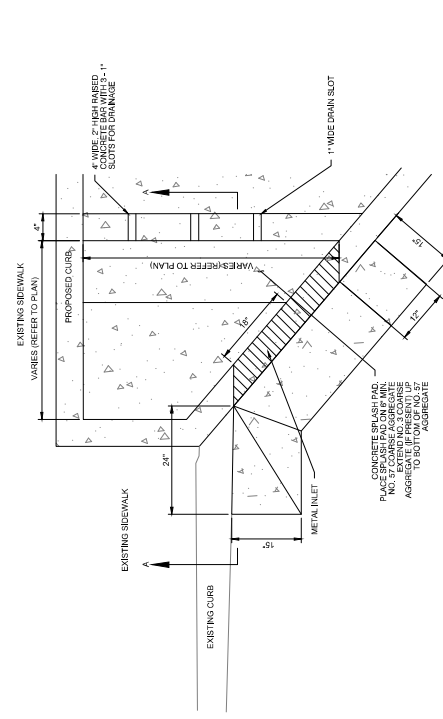
CS6005



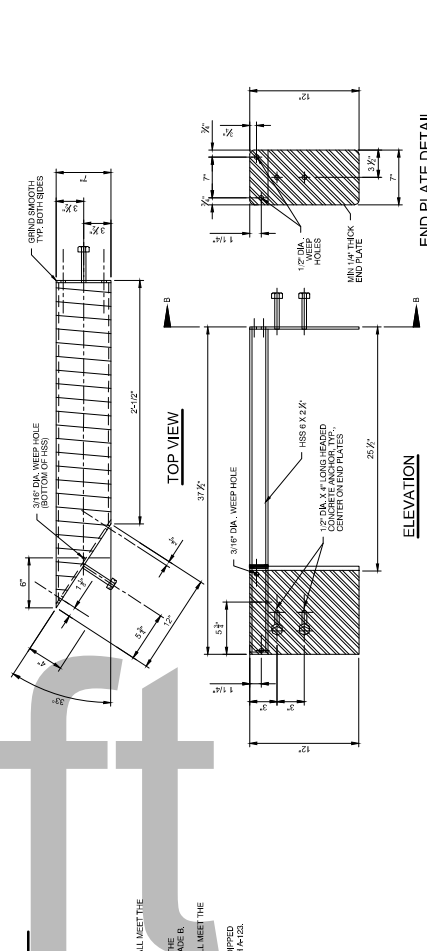
SECTION A-A
 CURB EXTENSION STORMWATER INLET WITH DISSIPATER

NOTES:

1. SAWCUT BEYOND FACILITY AND TRIMMITION EXISTING CURB TO NEW CURB AND GUTTER AT 1 PIER FOOT AS NECESSARY.
2. INLET MAY BE MODIFIED TO MINIMIZE FLOW ENTRY TO STORM WATER FACILITY.
3. SEE PLANS FOR ACTUAL CONFIGURATION OF CURB EXTENSION INLETS.



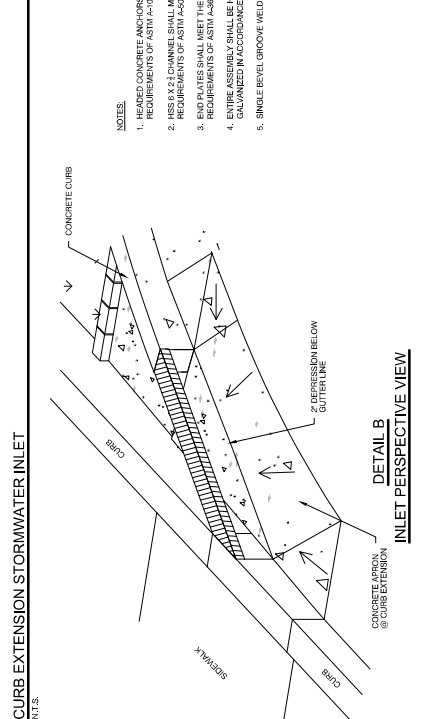
DETAIL A
 INLET PLAN VIEW



SECTION B-B
 CURB EXTENSION STORMWATER INLET WITH DISSIPATER

NOTES:

1. REINFORCED CONCRETE ANCHORS SHALL MEET THE REQUIREMENTS OF ASTM A-308.
2. HSS 8 X 2 CHANNEL SHALL MEET THE REQUIREMENTS OF ASTM A-36.
3. ALL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH A-153.
4. ENTIRE ASSEMBLY SHALL BE NOT GALVANIZED IN ACCORDANCE WITH A-153.
5. SINGLE LEVEL GROOVE WELD.



DETAIL B
 INLET PERSPECTIVE VIEW

NOTES:

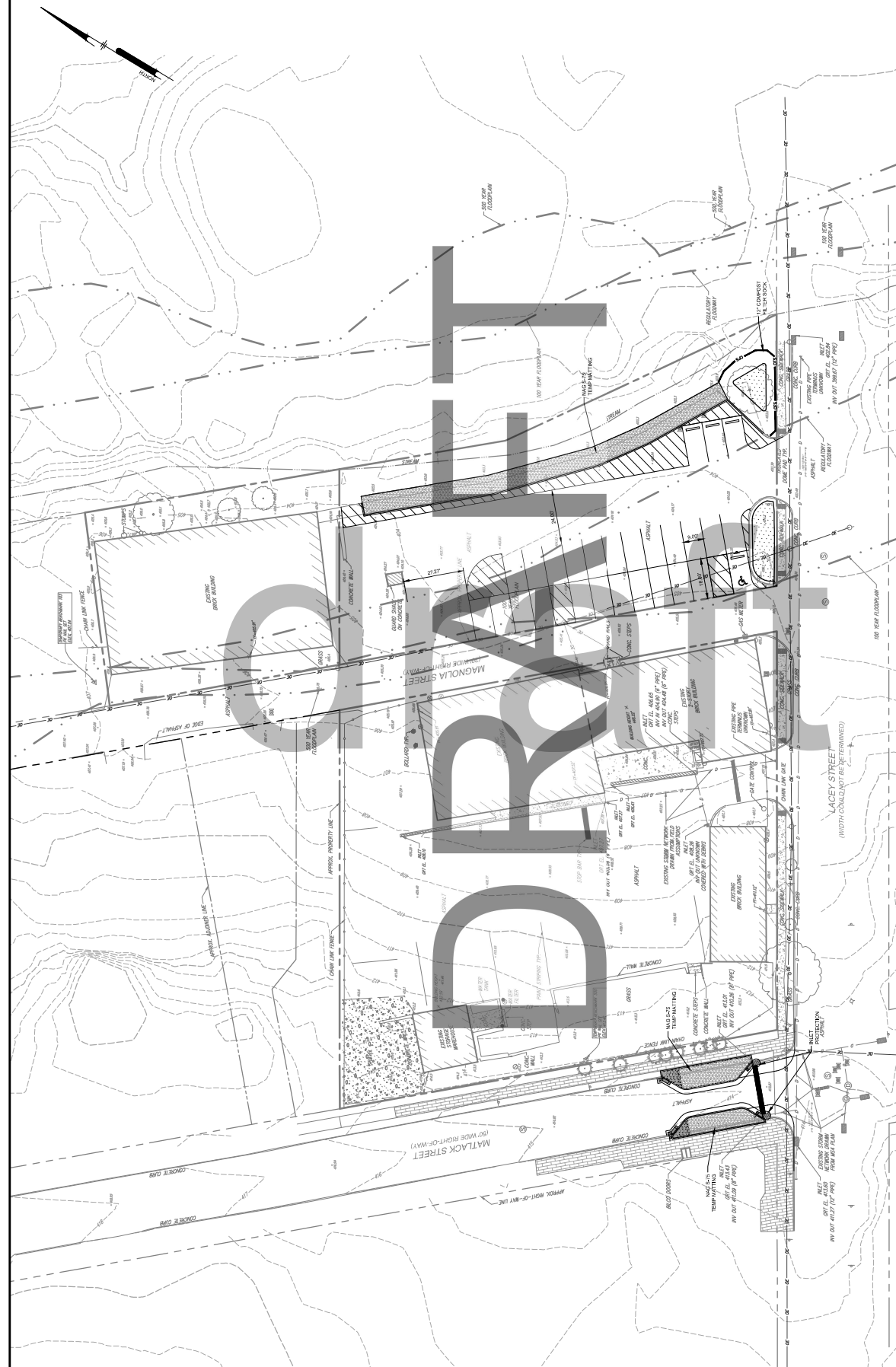
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CS8001
SHEET 19 OF 21

EROSION AND SEDIMENT CONTROL LEGEND

- PROPOSED COMPOST FILTER SOCK
- PROPOSED SLOPE MATTING
- PROPOSED TEMPORARY INLET PROTECTION



DATE	NO.	REVISIONS	BY

GOOSE CREEK GREEN STORMWATER
205 LACEY STREET
WEST CHESTER, PA 19382

EROSION & SEDIMENTATION CONTROL PLAN
WEST CHESTER BOROUGH
401 EAST GAY STREET
WEST CHESTER, PA 19380

PENNONI ASSOCIATES, INC.
150 N. GAY STREET, SUITE 300
WEST CHESTER, PA 19380
T 610.429.8907 F 610.429.8918

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK.

DATE: 2024-06-07
PROJECT: WCHB0000030
DRAWING: 11-2-20
SCALE: AS SHOWN
APPROVED: [Signature]

