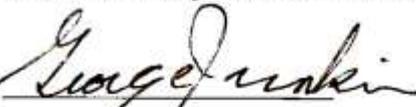
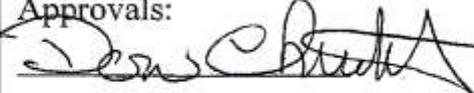
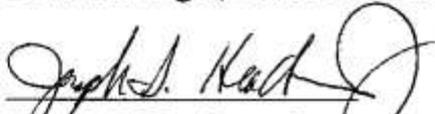


Specification and Construction Plans For: South Bethany Landscaping Improvement Plan Contract Number T201220010

Approvals:	
	<u>12/12/11</u>
Sue Callaway	Date
South Bethany Beautification Committee Chairperson	
	<u>12-12-11</u>
George Junkin	Date
South Bethany Water Quality Committee Chairperson	
	<u>12-12-11</u>
Michael Lord	Date
Certified Nursery Professional, CNP # _____	
State of Delaware License # <u>1031A</u>	

Approvals:	
	<u>12/12/11</u>
Don Chrobot	Date
Maintenance Supervisor, Town of South Bethany	
	<u>12-12-11</u>
Melvin Cusick	Date
Town Manager, Town of South Bethany	
	<u>12-12-11</u>
Joseph I. Headman, Jr.	Date
Mayor, Town of South Bethany	

INDEX OF SHEETS

Sheet Number	Description
1	Title Sheet
2	Index of Sheets
3	Overview
4	General Notes
5	Maintenance of Traffic
6	Notes for Rain Gardens in Landscape Area 1
7, 10, 13, 16, 19, 22	Rain Garden Locations from Reference Document
8, 11, 14, 17, 20, 23	Description of Existing Beds and New Rain Gardens
9, 12, 15, 18, 21, 24	Section Views Showing Excavation Required to Create Rain Gardens
25, 26, 27, 28	Planting Specifications for Rain Gardens
29, 30	Photos Showing Current State of Rain Garden Areas
31	Notes for York Beach Mall Landscape Area 2
32, 34	York Beach Mall Locations from Reference Document
33, 35	Planting Specifications for York Beach Mall
36	Notes for Circle Beds in Landscape Area 3
37, 38, 39, 40	Circle Bed Locations
41	Planting Specifications for Circle Beds

Overview

This document describes the landscaping that will be installed by the Town of South Bethany under the Delaware Department of Transportation's Transportation Enhancement Program (TEP), Contract Number T201220010, *South Bethany Landscaping Improvement Plan*, within the Delaware State Route 1 Right of Way. The project will encompass three landscape areas:

1. Rain Gardens at the storm drains along the east side of the pedestrian walkway on the west side of Route 1;
2. Landscape areas between the York Beach Mall parking area and the Route 1 pedestrian walkway; and
3. Circle beds that currently exist in the Route 1 median at road cross over points.

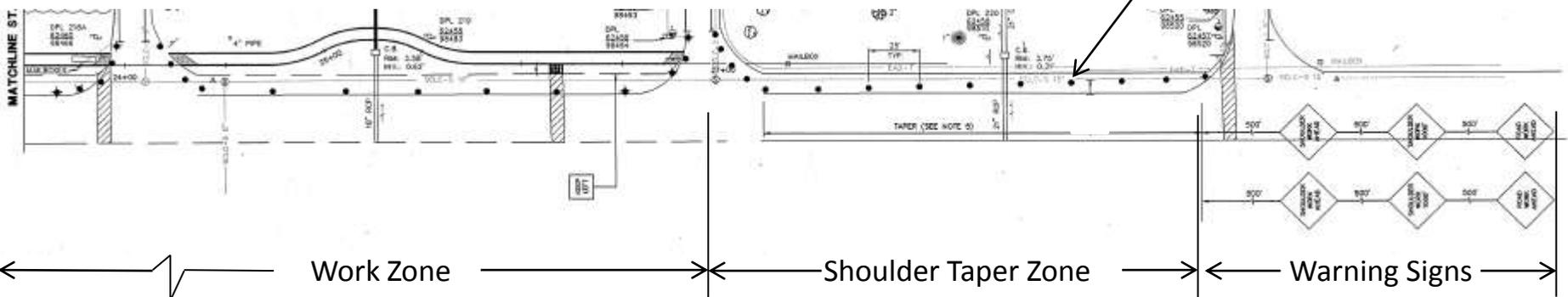
This document contains marked up copies of pages from *The State of Delaware Department of Transportation Specification and Construction Plans for: South Bethany Beach Pedestrian Walkway*, Contract Number 96-200-03, Federal Aid Project Number ETEA-S050(3), 1998. The marked up pages show the locations of the landscape areas within the Route 1 Right of Way. The above 1998 document is the reference document for the locations for all three landscape areas.

General Notes

1. All work shall be performed in a manner that will ensure the least practicable obstruction to traffic consistent with safety. No lane closures should occur. Only shoulder closures are allowed.
2. The contractor shall maintain access to all driveways and side streets for the duration of the project.
3. The contractor shall give a minimum ten (10) calendar day notice to DelDOT of all anticipated shoulder closures for the project prior to any work.
4. There are no anticipated roadway or street closures required to complete the project.
5. All vehicles in the work areas shall display flashing lights.
6. The only utilities expected to be in the landscape areas are storm drains. Excavation must have no impact on the storm drains or storm drain piping. Even though no other utilities have been identified in the landscape areas, the contractor is required to have all utilities in the work area located prior to commencement of any work. If any utility is identified, the contractor shall work with the Town of South Bethany to modify any excavation to protect the utility.
7. It is intended that mud tracking be eliminated on all state maintained roadways adjoining the project. All paved surfaces adjoining the project limits shall be left in a broom clean condition at the end of each work day.
8. The contractor shall work in such a manner as to minimize the time of bare soil exposure. All disturbed areas, rough graded areas, final graded areas and stockpile materials shall be stabilized at the end of each workday.

Typical Placement of Warning Signs and Traffic Cones for Maintenance of Traffic

Traffic Cones, as required



Maintenance of Traffic Plan Notes

1. At the beginning of each work day the following warning signs shall be placed on both sides of the south bound lane:
 - “Road Work Ahead” Placed 1,500 feet before the taper begins;
 - “Shoulder Work 1000” Placed 1,000 feet before the taper begins; and
 - “Shoulder Work Ahead” Placed 500 feet before the taper begins.
2. At the beginning of each work day traffic cones shall be placed at 25’ spacing, center to center, to create the shoulder taper one block before the work zone begins as shown above.
3. At the beginning of each work day traffic cones shall be placed at 25’ spacing, center to center, to define the work area for that day as shown above. Only the shoulder will be closed.
4. At the end of each workday all traffic cones and warning signs shall be removed.

Notes for Rain Gardens in Landscape Area 1

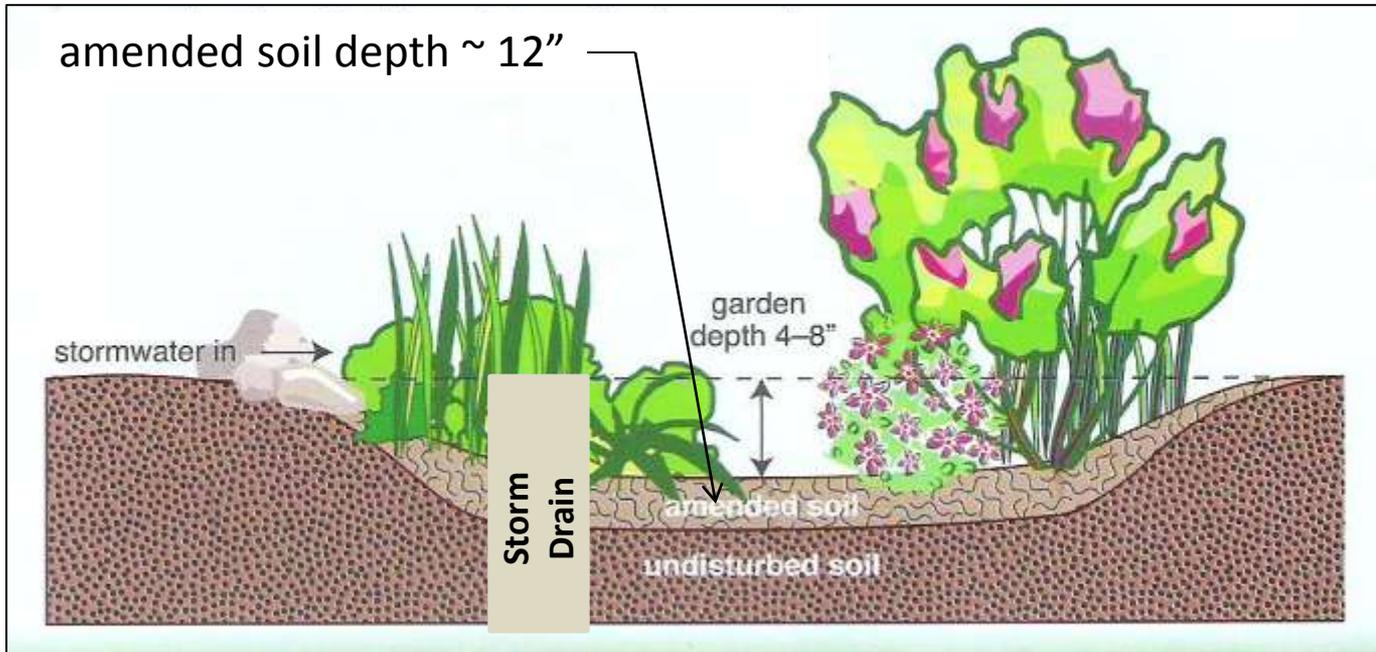
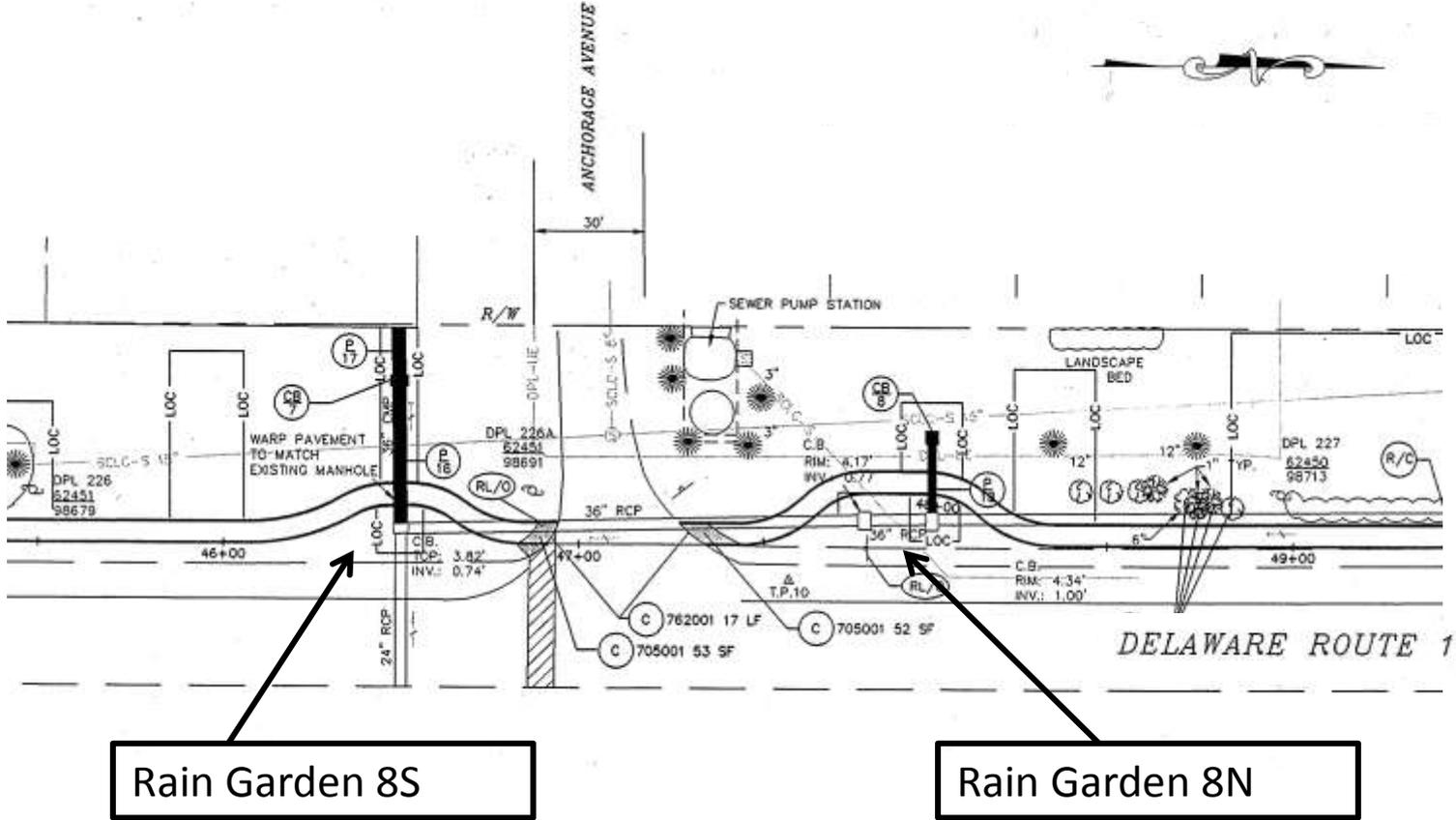


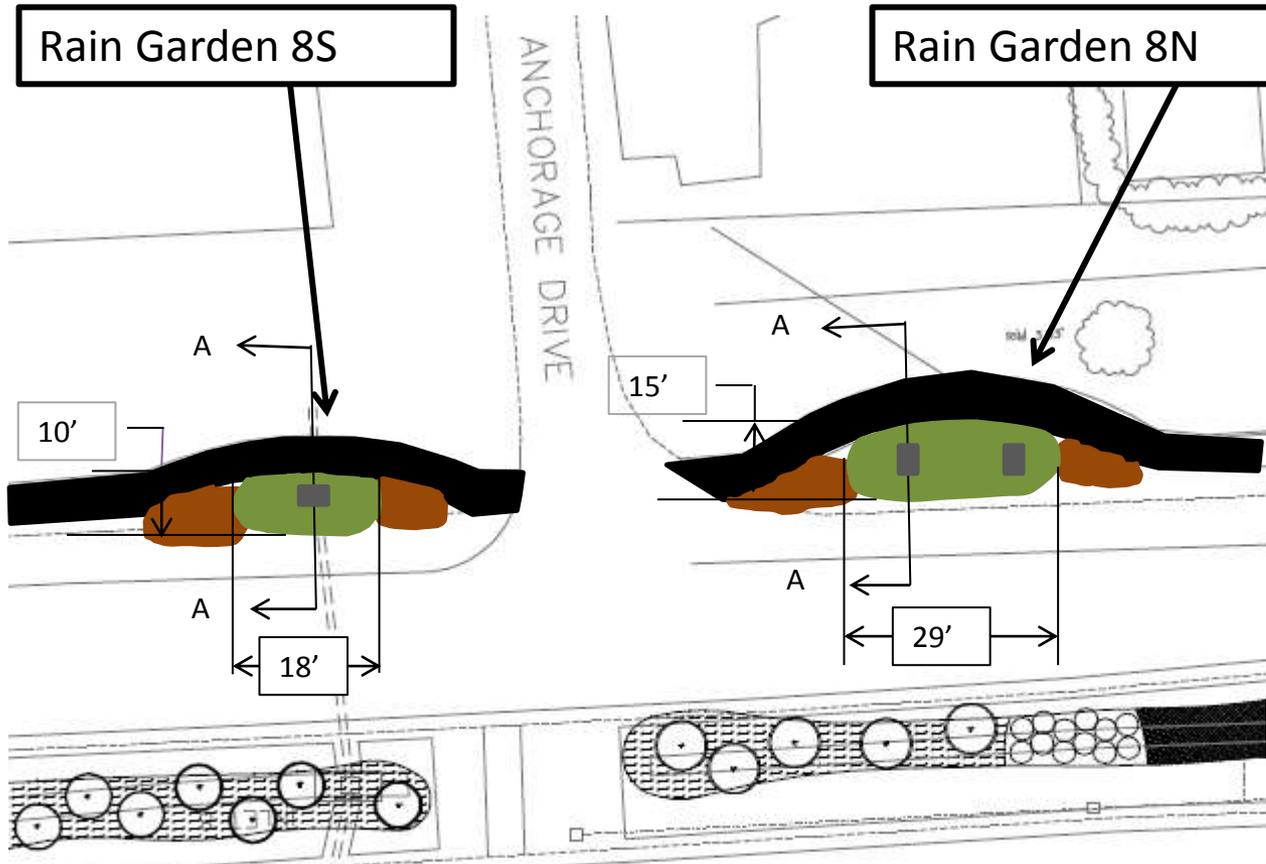
Figure from CIB Publication, *Rain Gardens – A Local Solution To Stormwater Pollution*, - Consistent with the DNREC Rain Garden Training, March 23, 2011 at Blackbird State Forest.

1. Excavate so that the top of the storm drain is 6" above the amended soil.
2. Excavate no closer than 2' to the Route 1 paved shoulder surface.
3. Slopes to bottom vary depending on location of Route 1 and location of the walkway (see the following pages) In no case are the slopes greater than 1:4.
4. Remove old beds and grade towards the rain gardens.
5. Amend the soil to a depth of about 12 inches. The amended soil is nominally two parts sand, one part top soil (no clay) and one part compost.
6. Plant the rain gardens per the following pages.
7. Seed disturbed areas outside of the rain gardens.
8. Edge each rain garden bed.
9. Finish with a 3 inch layer of double shredded mulch.
10. Place 6" to 8" river rock around the perimeter of each drain, 12" wide.

Landscape Area 1 – Rain Garden 8S & 8N – Location From Page 6 of the Reference Document



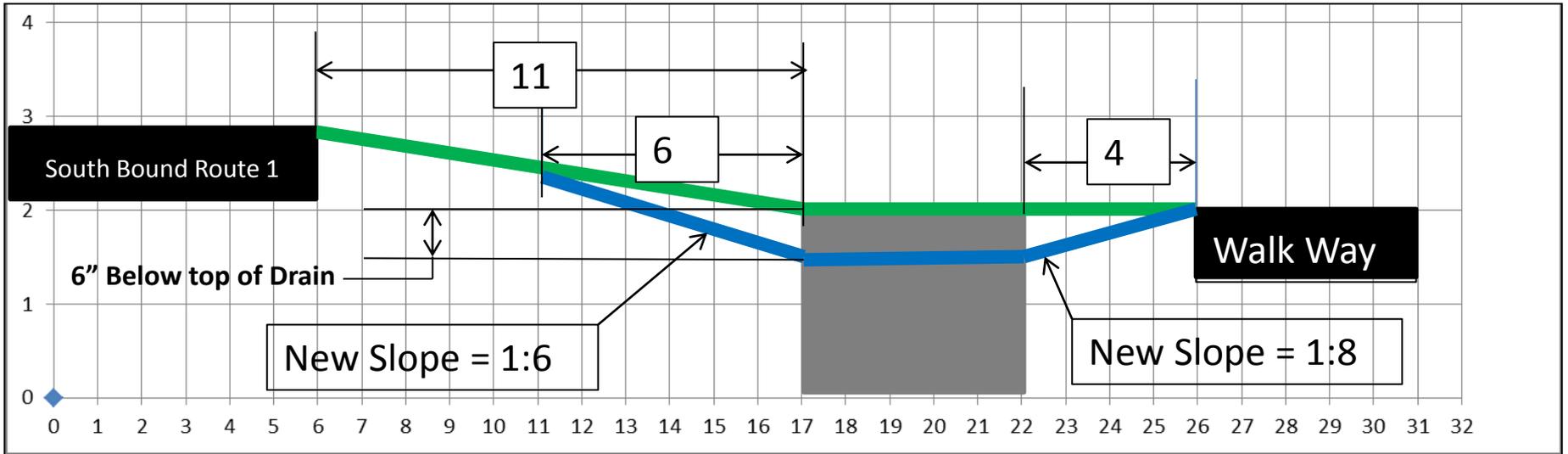
Landscape Area 1 – Rain Garden 8S & 8N – Existing Beds & New Rain Gardens



Legend:

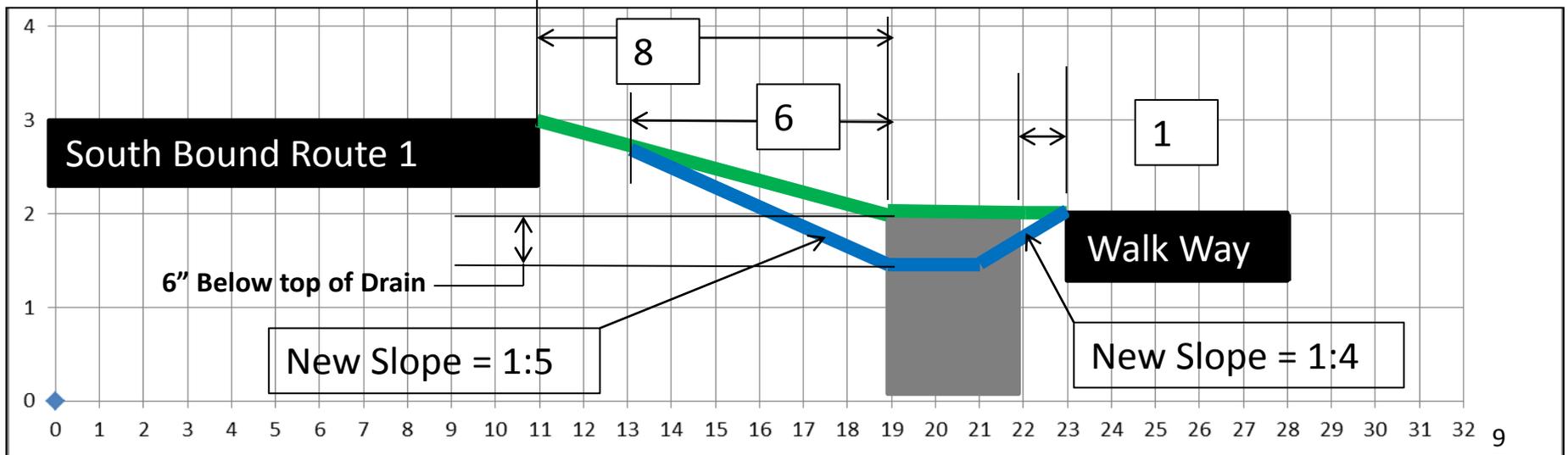
- Existing Bed 
- Drain 
- New Rain Garden 

Inlet 8N – Section A-A

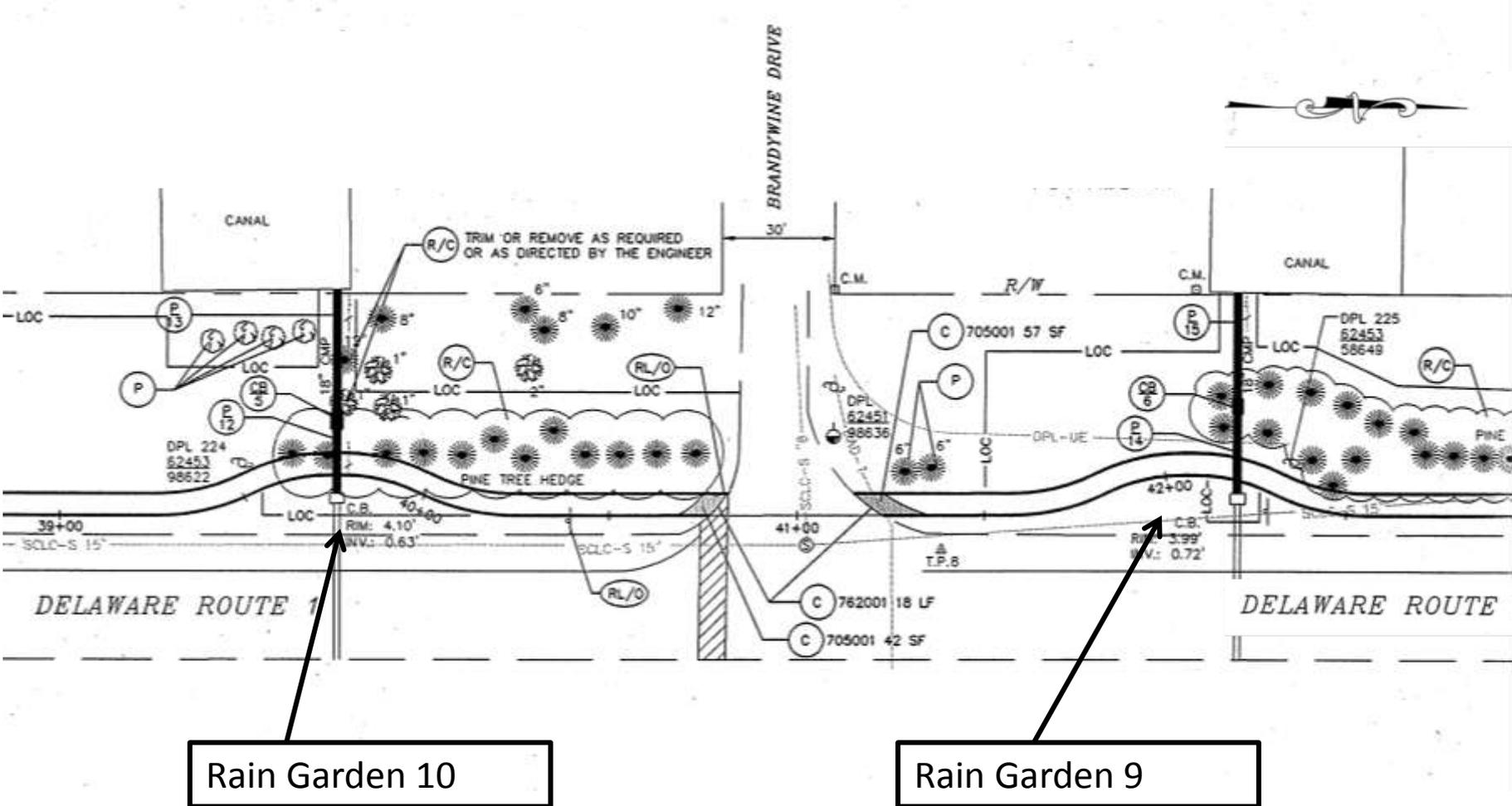


Legend:
 Approximate Existing Contour —
 Rain Garden Excavation —

Inlet 8S – Section A-A



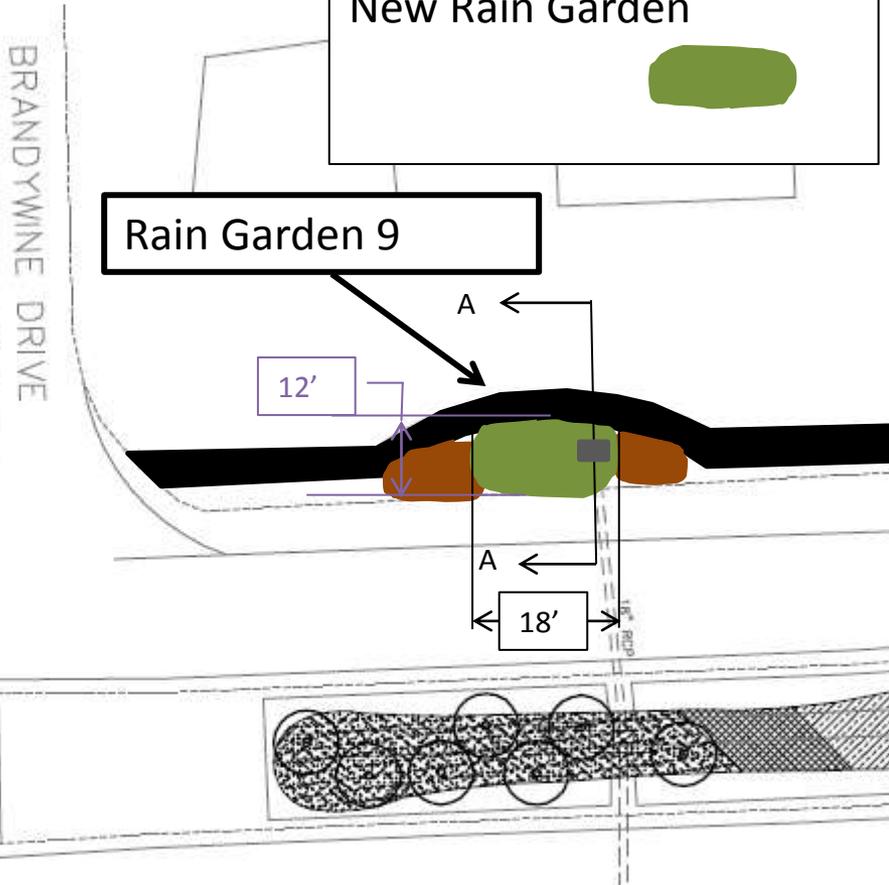
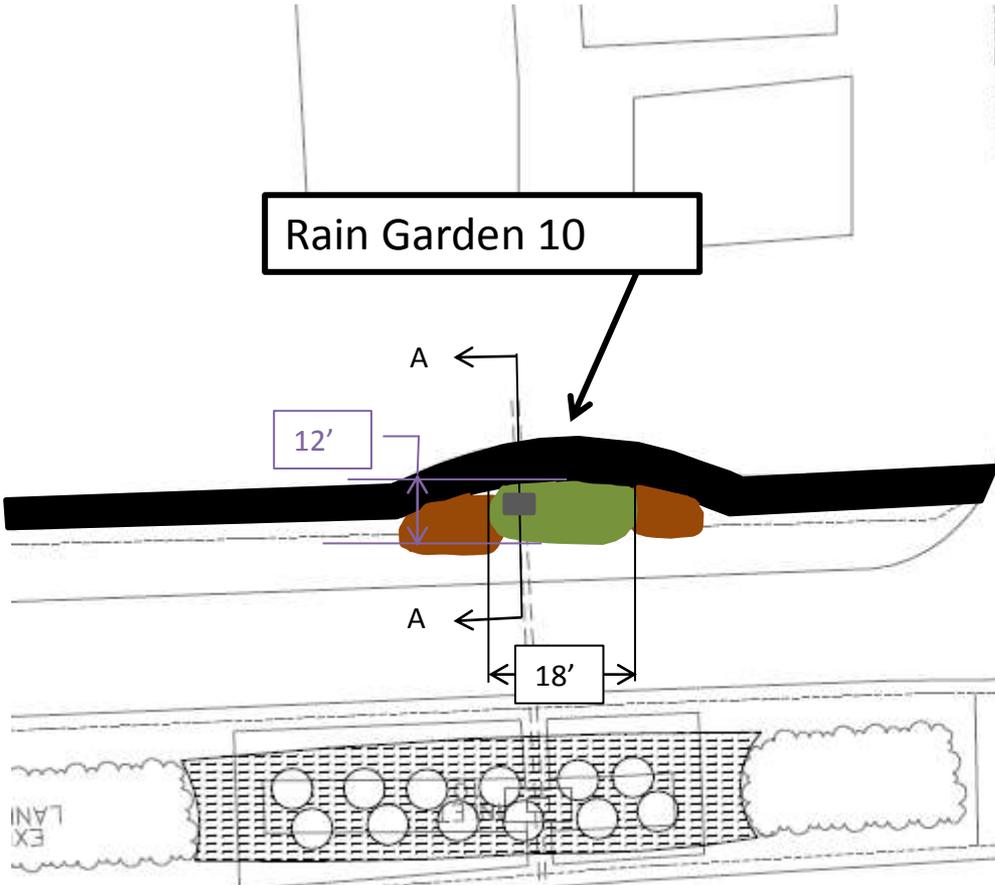
Landscape Area 1 – Rain Garden 10 & 9 – Location From Page 6 of the Reference Document



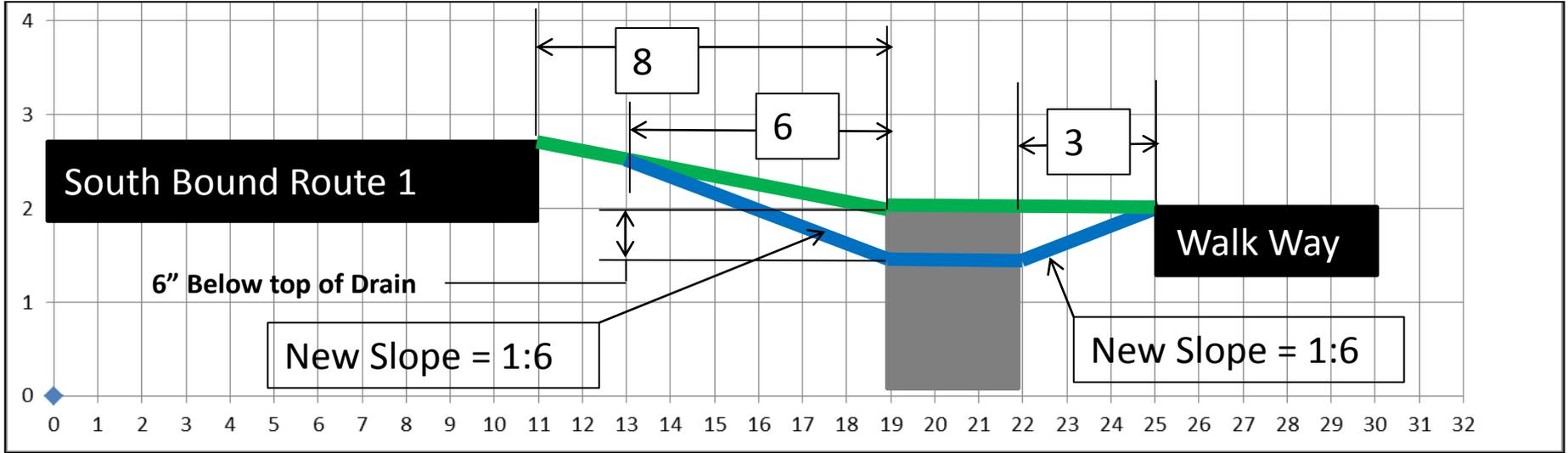
**Landscape Area 1 – Rain Garden 10 & 9
– Existing Bed & New Rain Garden**

Legend:

- Existing Bed 
- Drain 
- New Rain Garden 

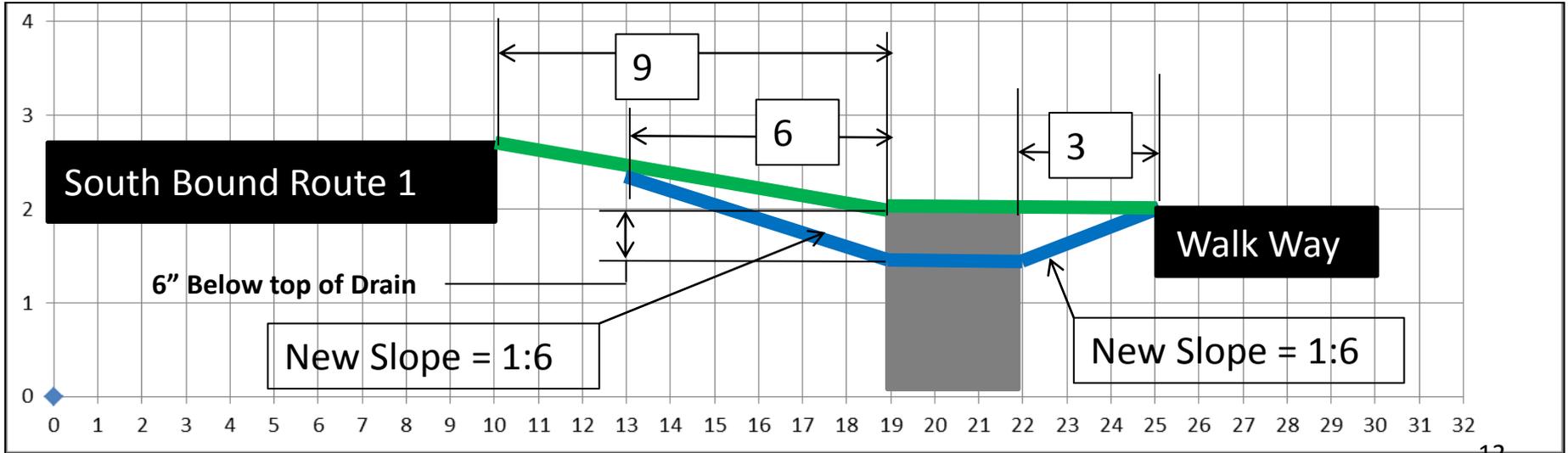


Inlet 9 – Section A-A

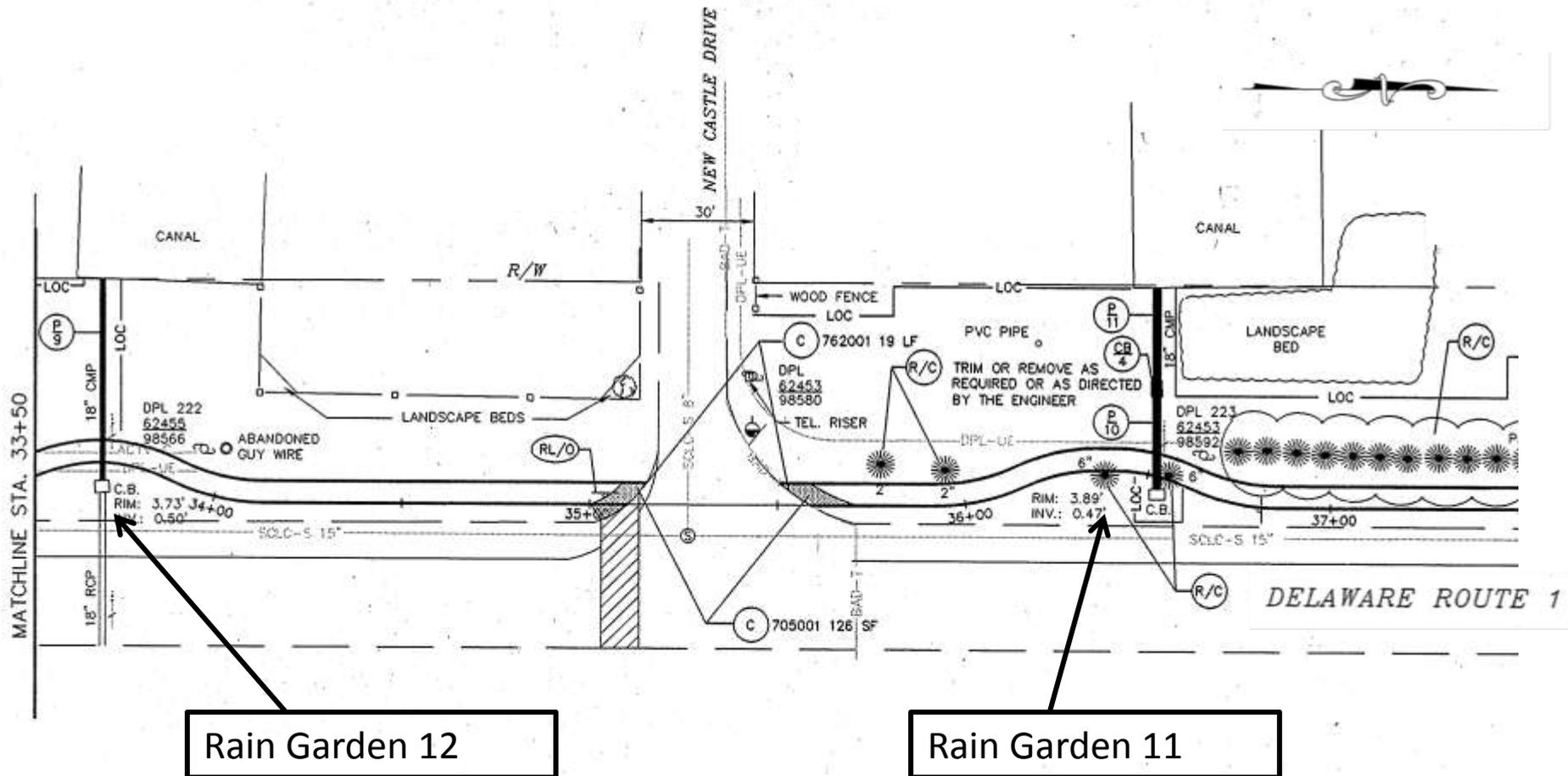


Legend:
 Approximate Existing Contour —
 Rain Garden Excavation —

Inlet 10 – Section A-A



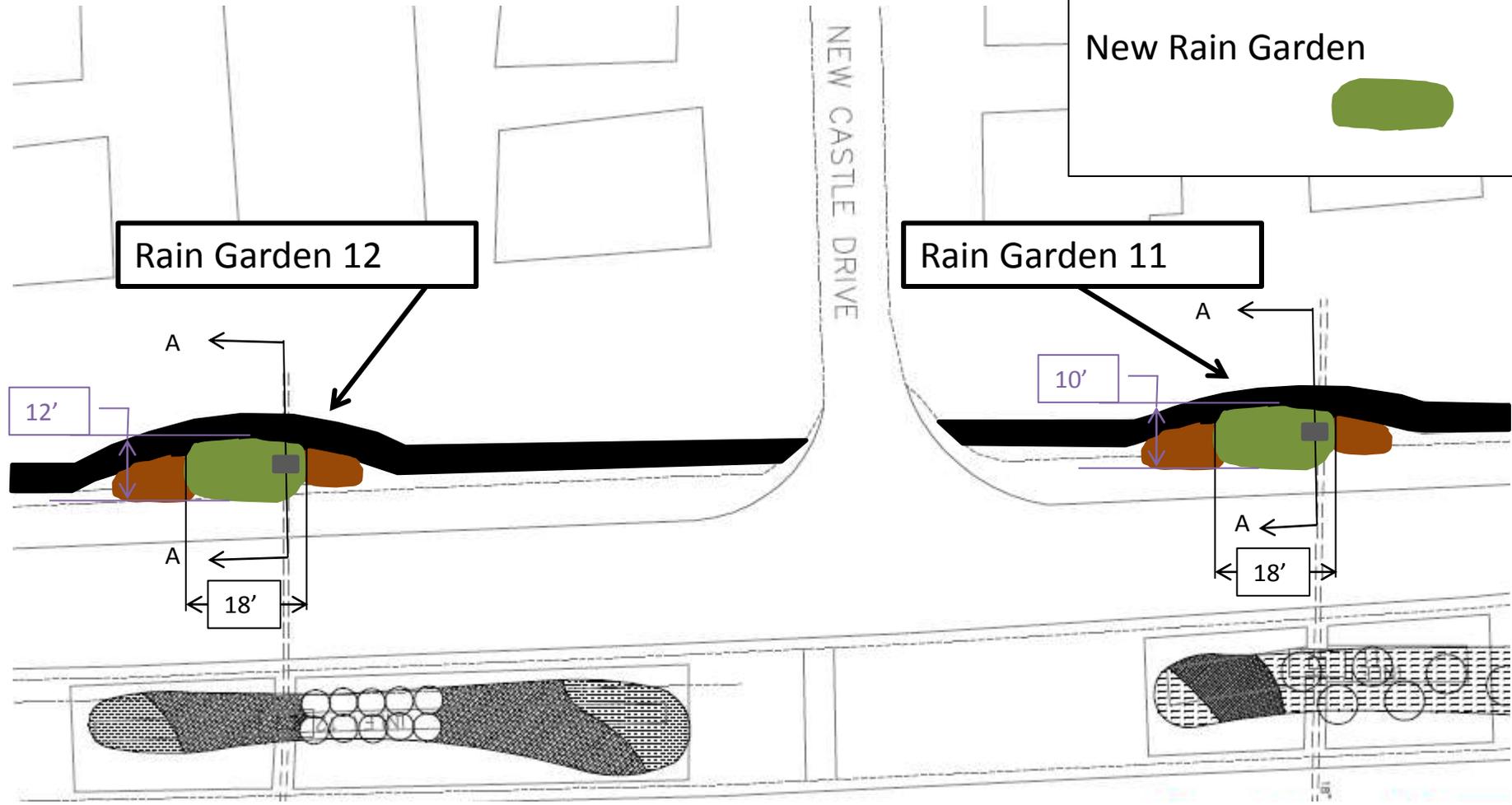
Landscape Area 1 – Rain Garden 12 & 11 – Location From Page 6 of the Reference Document



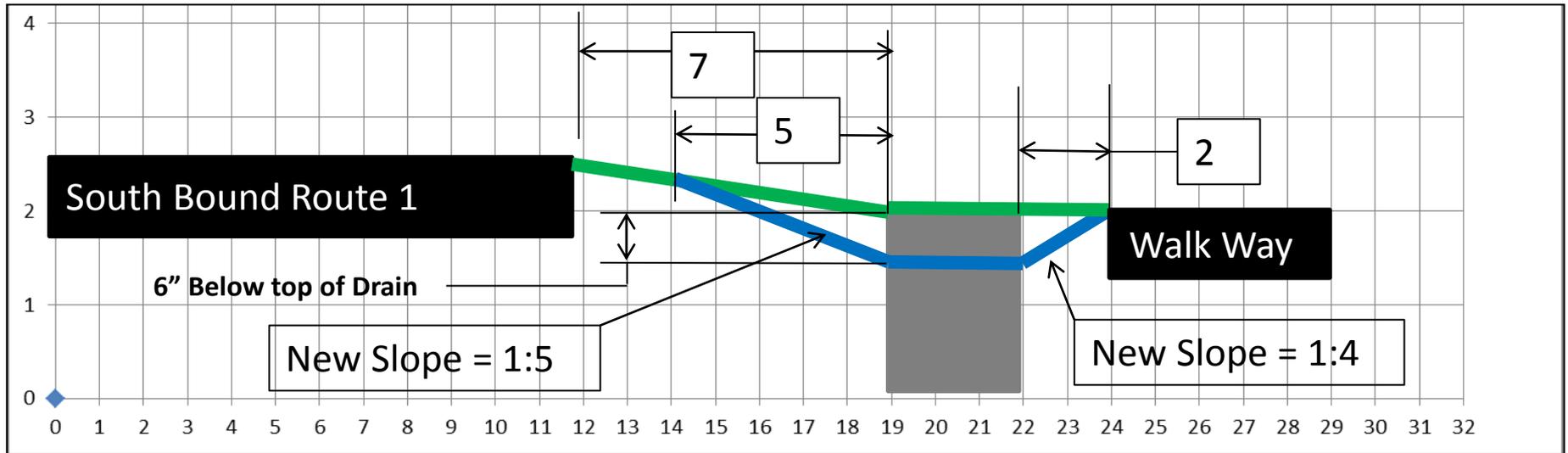
Landscape Area 1 – Rain Garden 12 & 11
– Existing Bed & New Rain Garden

Legend:

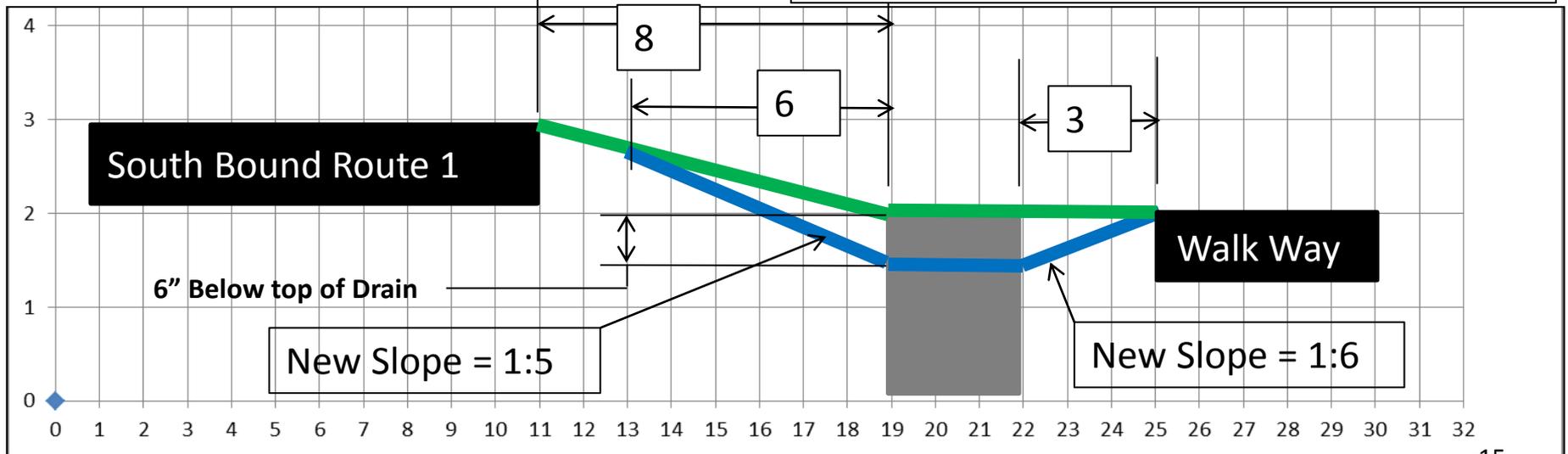
- Existing Bed 
- Drain 
- New Rain Garden 



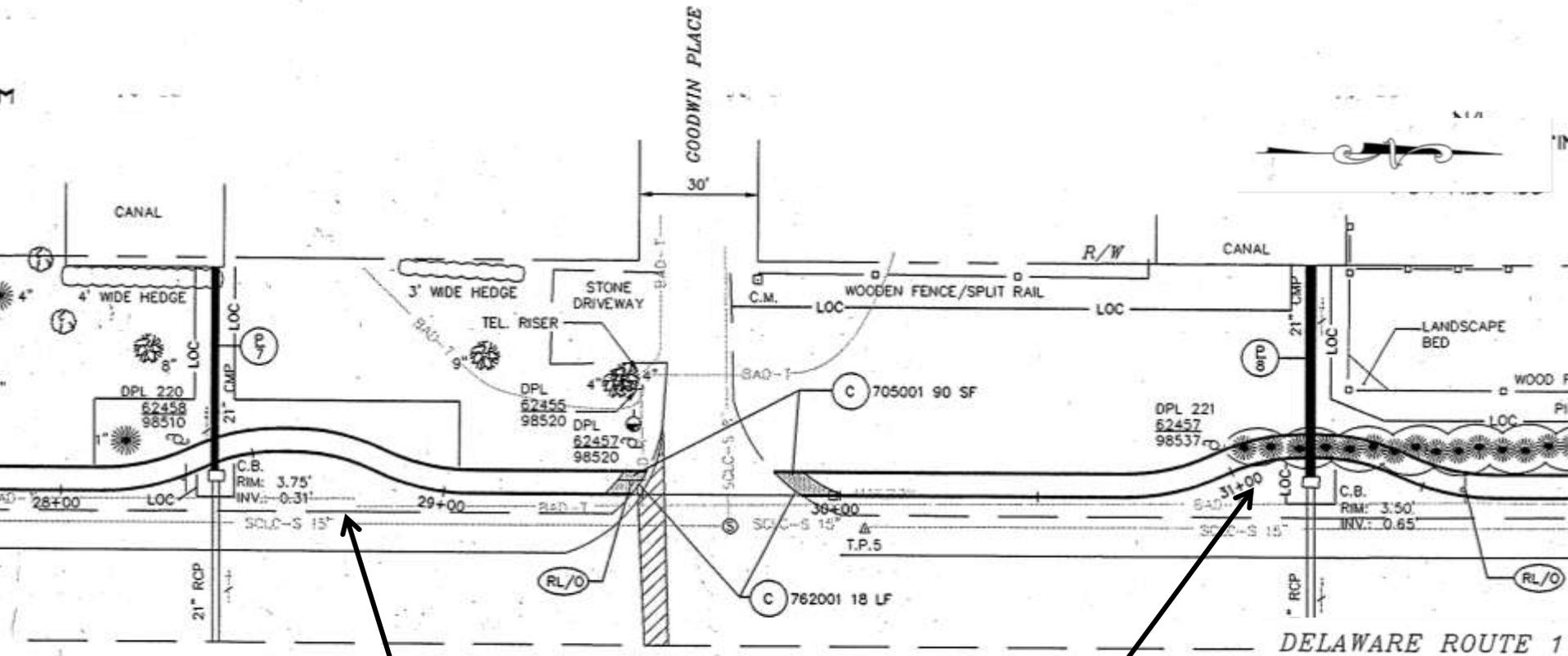
Inlet 11 – Section A-A



Inlet 12 – Section A-A



Landscape Area 1 – Rain Garden 14 & 13 – Location From Page 6 of the Reference Document



Rain Garden 14

Rain Garden 13

**Landscape Area 1 – Rain Garden 14 & 13
– Existing Bed & New Rain Garden**

Legend:

- Existing Bed 
- Drain 
- New Rain Garden 

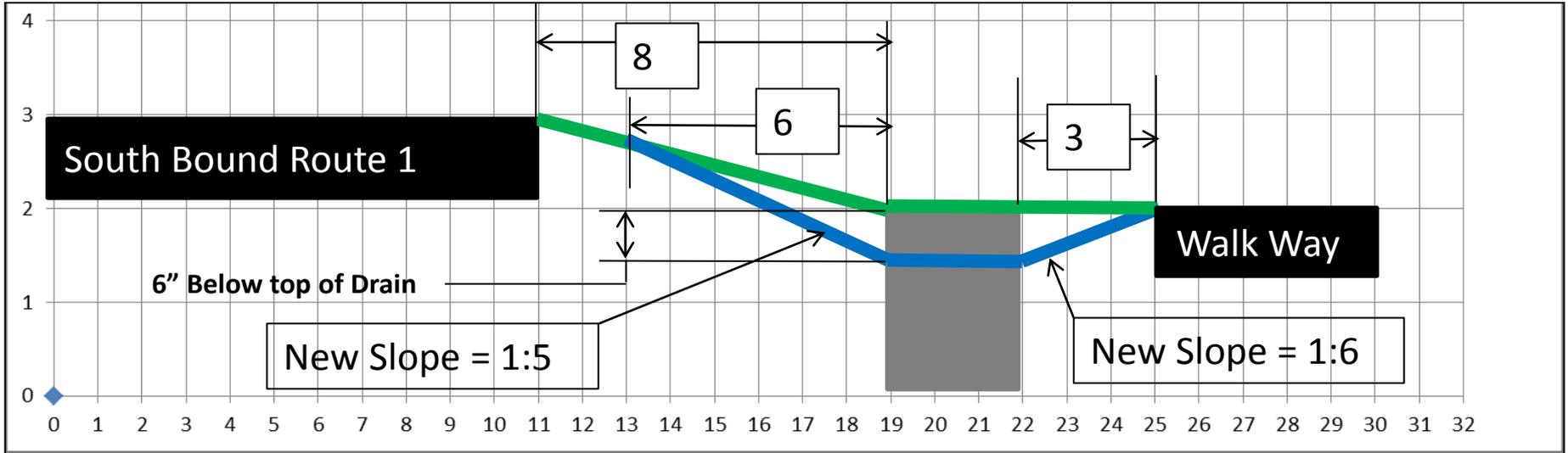
Rain Garden 14

Rain Garden 13

GODWIN PLACE

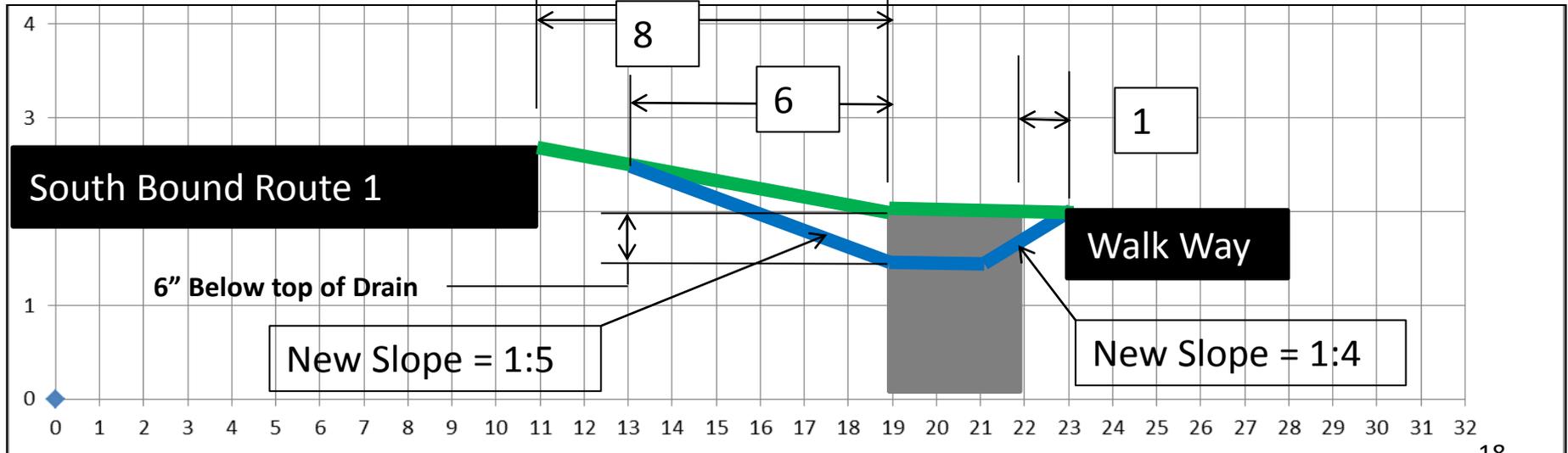


Inlet 13 – Section A-A

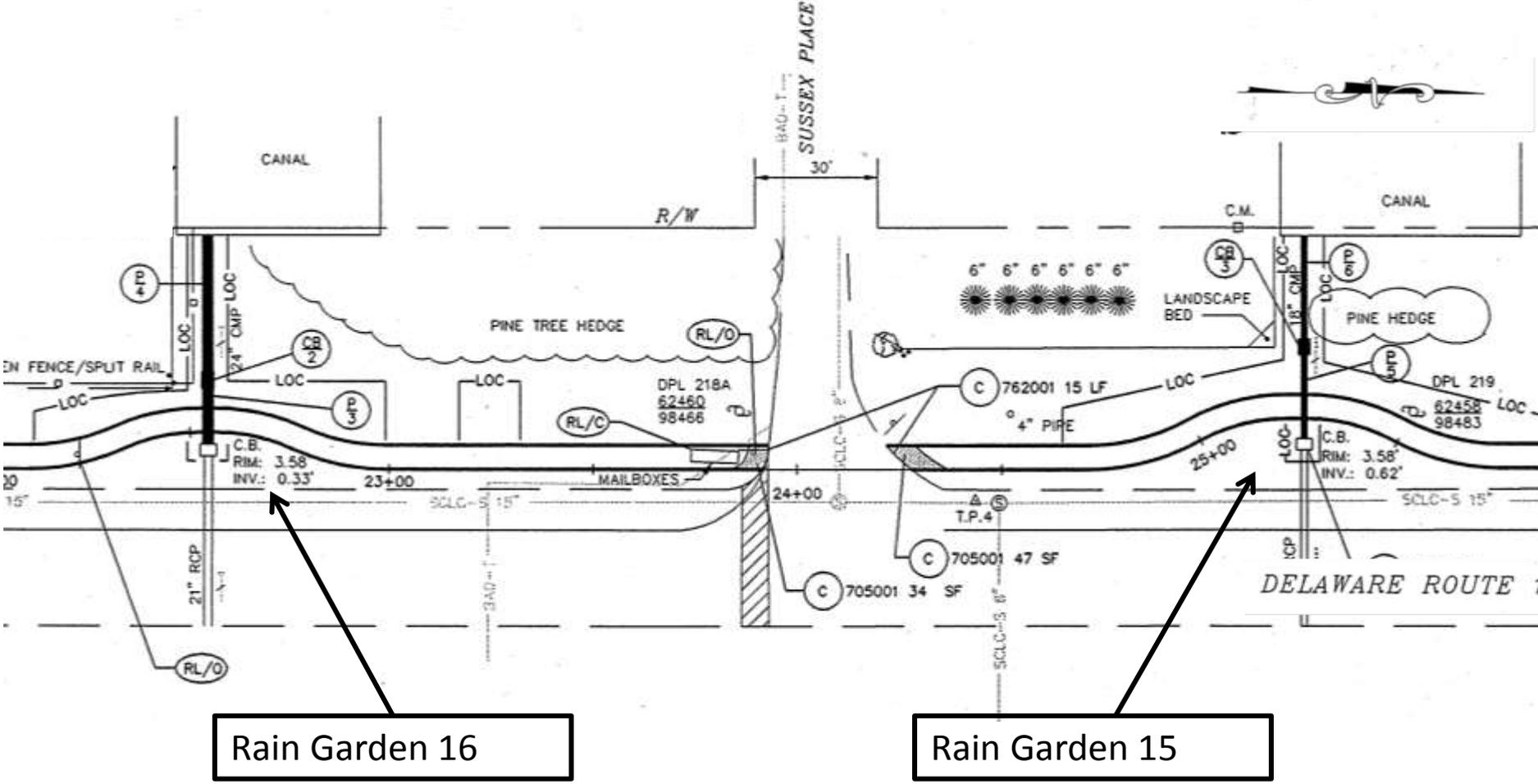


Legend:
 Approximate Existing Contour —
 Rain Garden Excavation —

Inlet 14 – Section A-A



Landscape Area 1 – Rain Garden 16 & 15 – Location From Page 5 of the Reference Document



Rain Garden 16

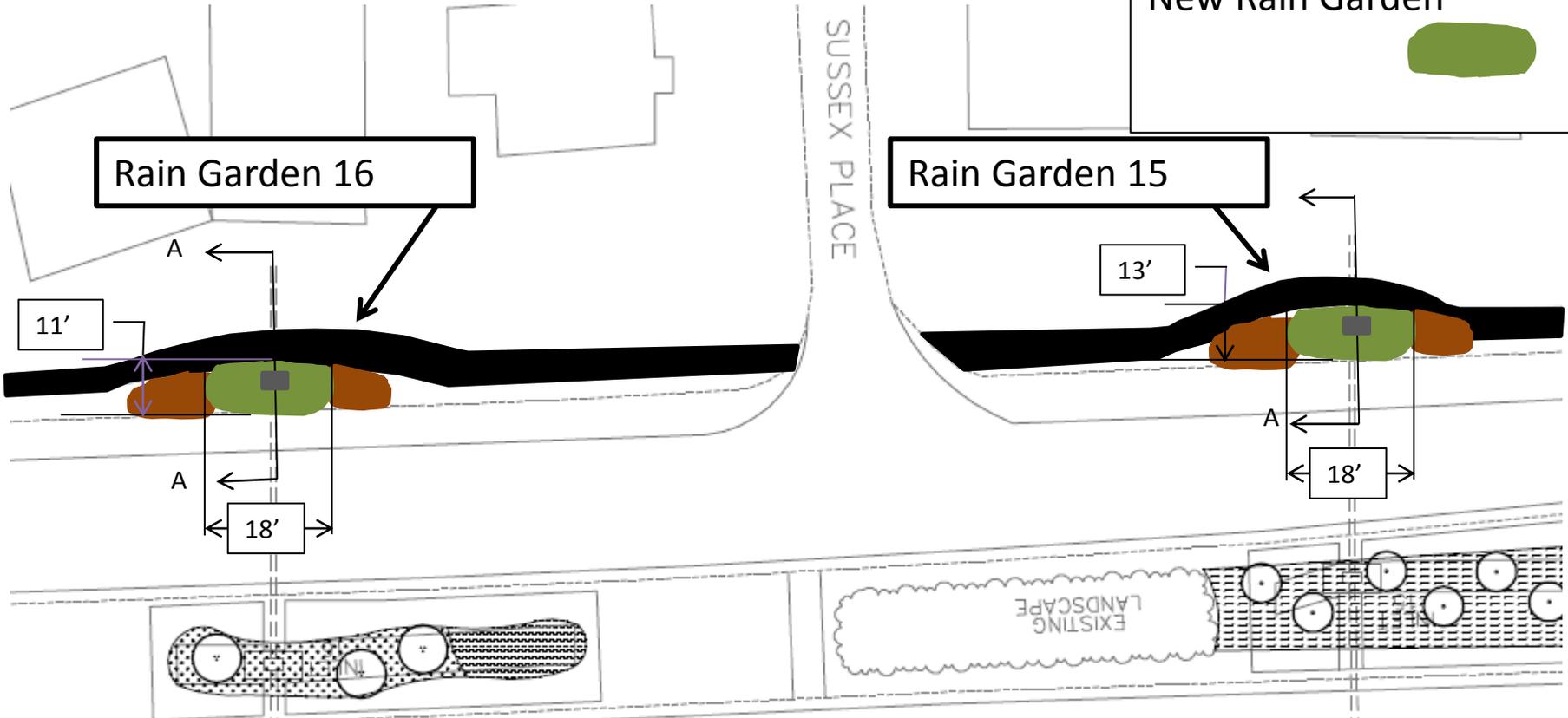
Rain Garden 15

Landscape Area 1 – Rain Garden 16 & 15

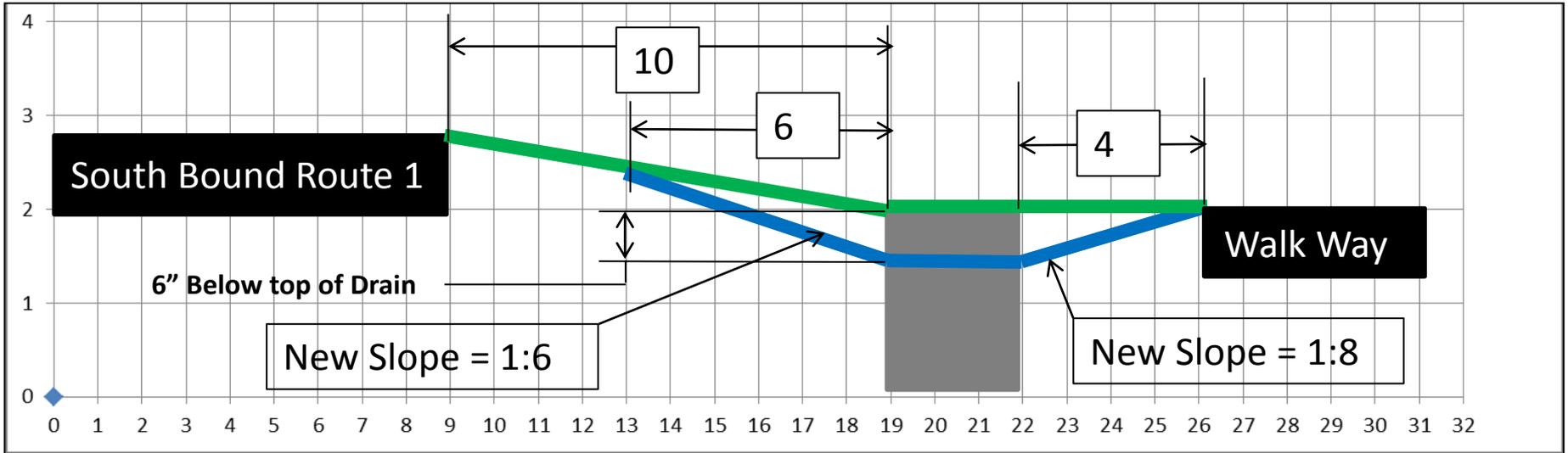
– Existing Bed & New Rain Garden

Legend:

- Existing Bed 
- Drain 
- New Rain Garden 



Inlet 15 – Section A-A



Legend:

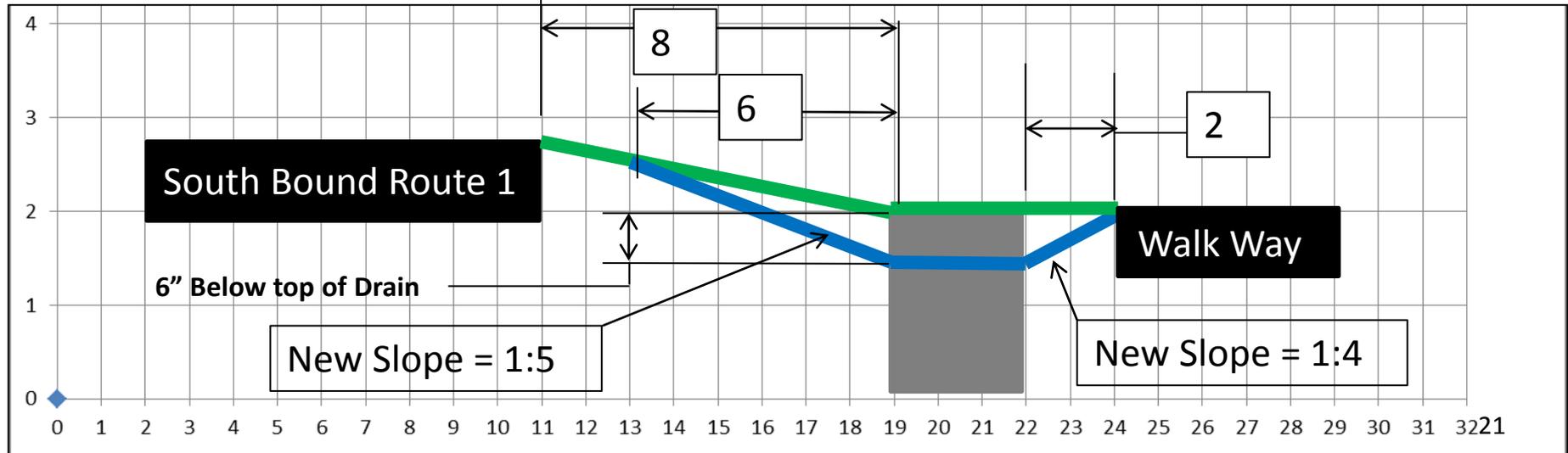
Approximate Existing Contour



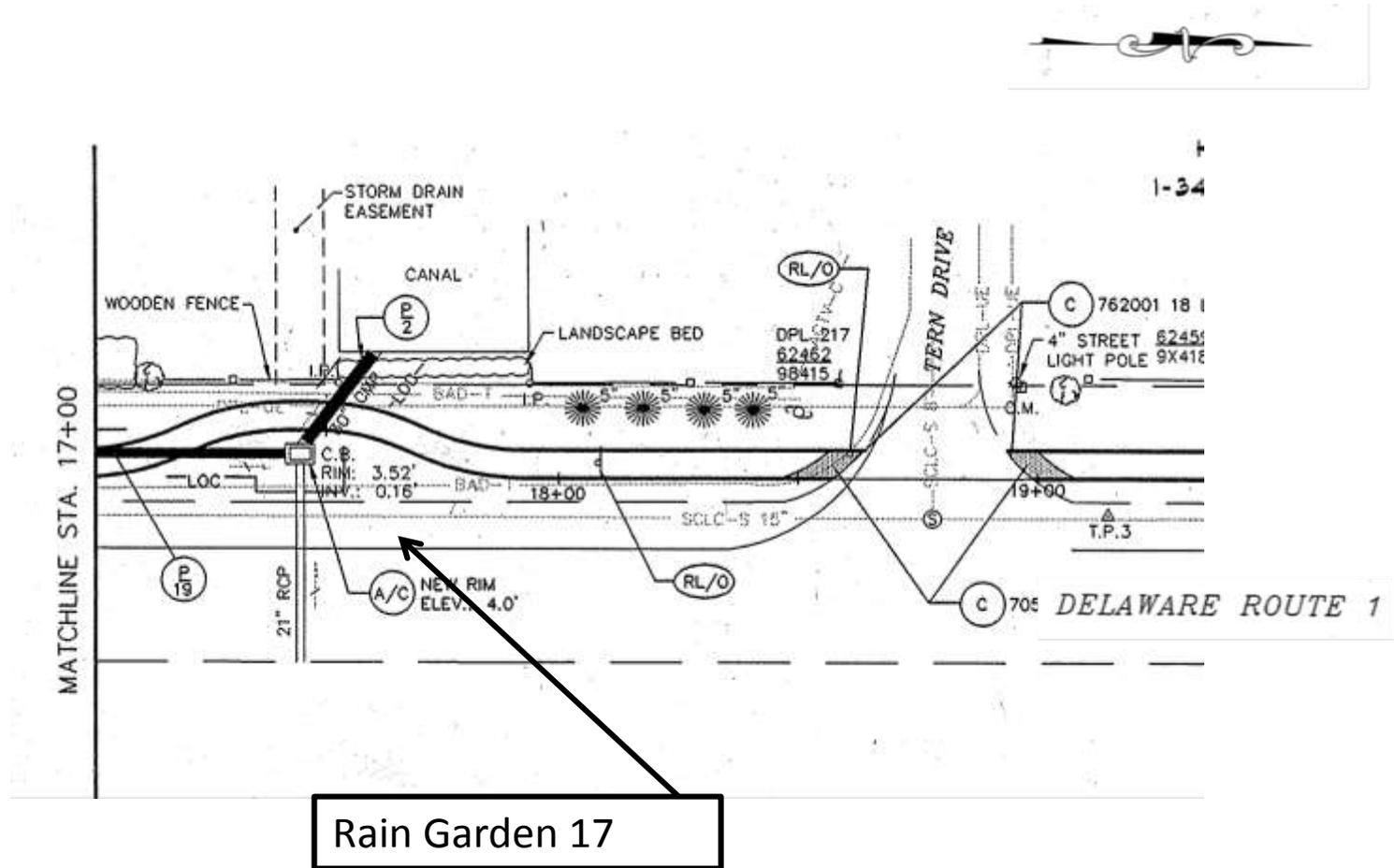
Rain Garden Excavation



Inlet 16 – Section A-A



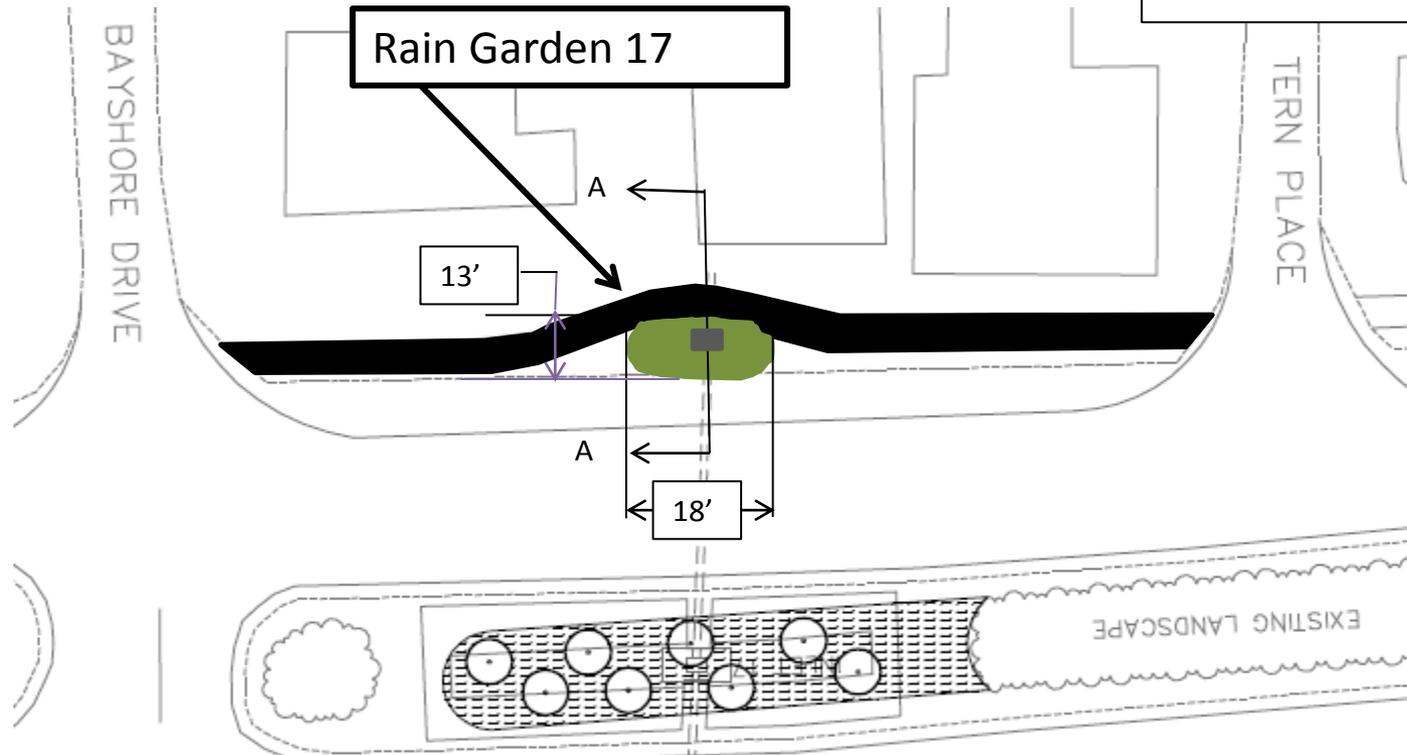
Landscape Area 1 – Rain Garden 17 – Location From Page 5 of the Reference Document



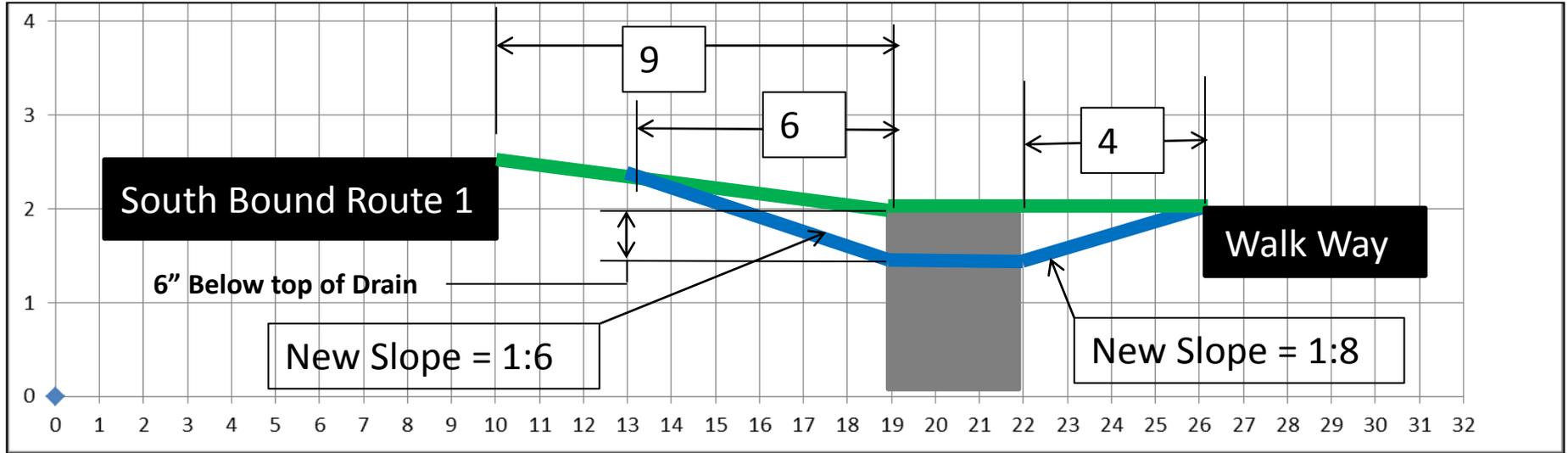
Landscape Area 1 – Rain Garden 17 – Existing Bed & New Rain Garden

Legend:

- No Existing Bed
- Drain
- New Rain Garden



Inlet 17 – Section A-A

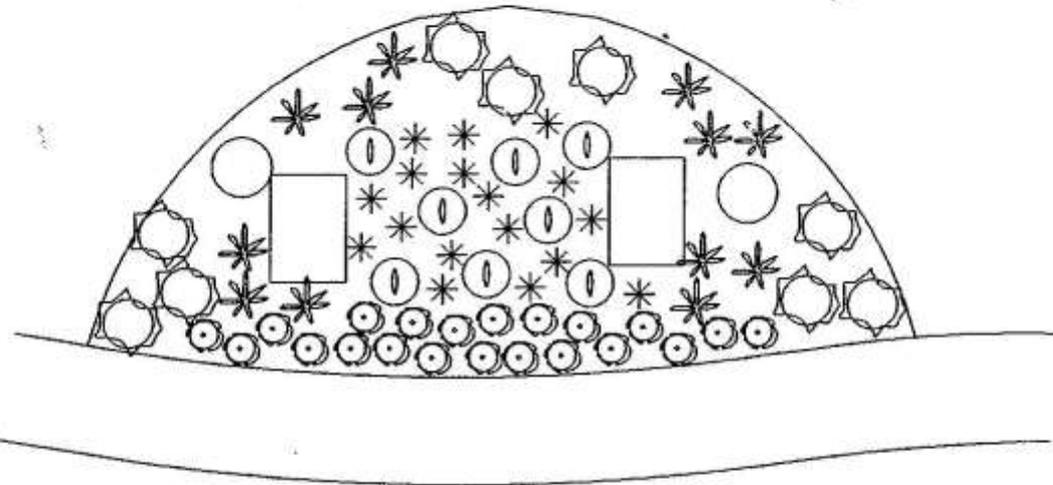


Legend:

- Approximate Existing Contour 
- Rain Garden Excavation 

AREA 8 NORTH

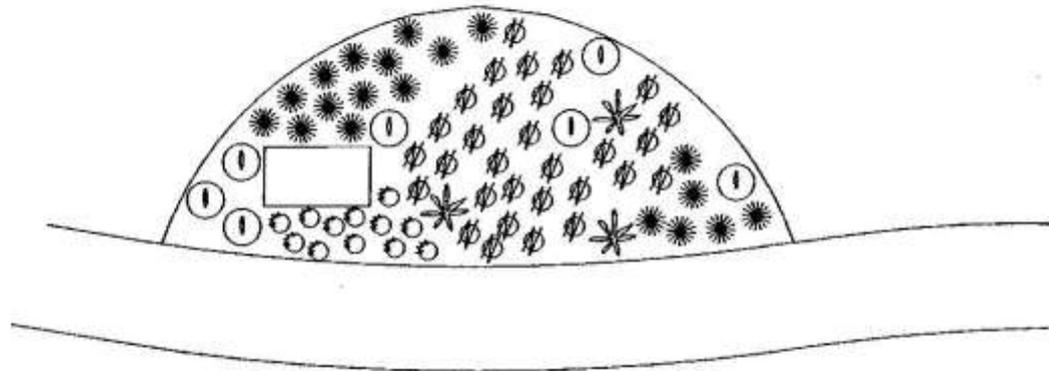
———— SOUTH BOUND ROUTE ONE ———— 



		size	root size	Qty.
	panicum 'shenendoah'	18" - 24"	3 gal	12
	smooth sumac	2'	3 gal	4
	tussock sedge	12" - 18"	1 gal	17
	butterfly milkweed	12" - 18"	1 gal	21
	clethra 'ruby spice'	3'	3 gal	2
	virginia sweetspice	2' - 3'	3 gal	9

AREA 8 SOUTH / AREA 9 / AREA 11,12 AREA 10,13 FLIP

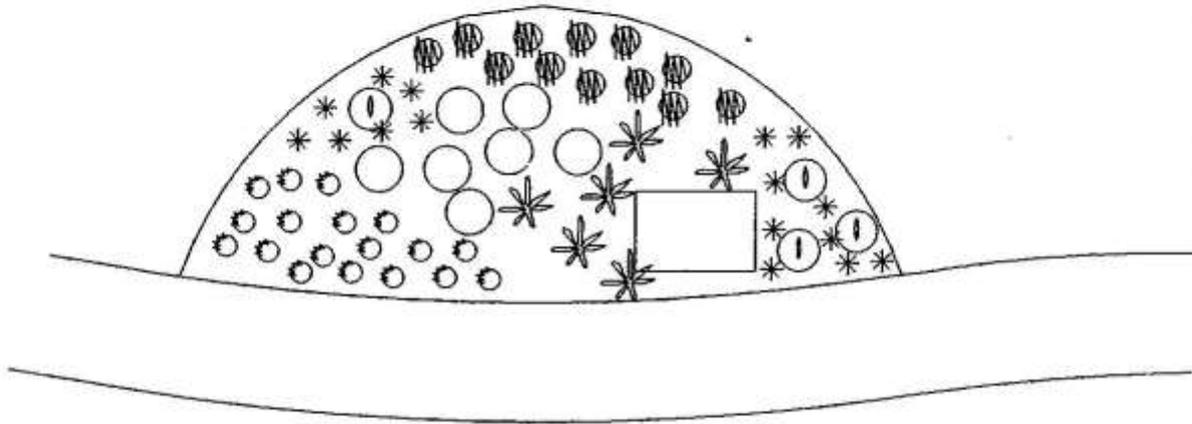
————— SOUTH BOUND ROUTE ONE —————>



		SIZE	root size	Qty.
	panicum 'shenendoah'	18" - 24"	3 gal	3
	smooth sumac	2'	3 gal	8
	bushy bluestem	12" - 18"	1 gal	20
	wild ageratum	18" - 24"	1 gal	13
	marsh marigold	12"	1 gal	30

AREA 14

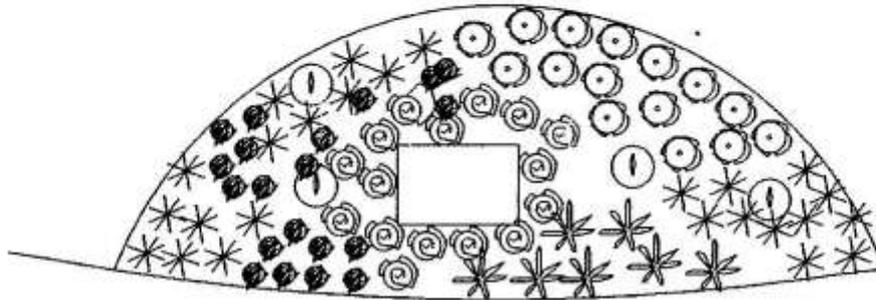
SOUTH BOUND ROUTE ONE



		SIZE	root size	Qty.
	panicum 'shenendoah'	18" - 24"	3 gal	7
	smooth sumac	2'	3 gal	4
	virginia sweetspice	2' - 3'	3 gal	7
	wild ageratum	18" - 24"	1 gal	15
	star boltonia	6" - 12 "	3 qt	20
	tussock sedge	12"	1 gal	19

AREA 15 / 16 / 17

SOUTH BOUND ROUTE ONE



		SIZE	root size	Qty.
	panicum 'shenendoah'	18" - 24"	3 gal	7
	smooth sumac	2'	3 gal	4
	marsh marigold	12"	1 gal	20
	butterfly milkweed	12" - 18"	1 gal	15
	joe pye weed	2' - 3'	3 gal	17
	bushy bluestem	12" - 18"	1 gal	26

Photographs Showing Current State of Rain Garden Areas – All Views Looking North



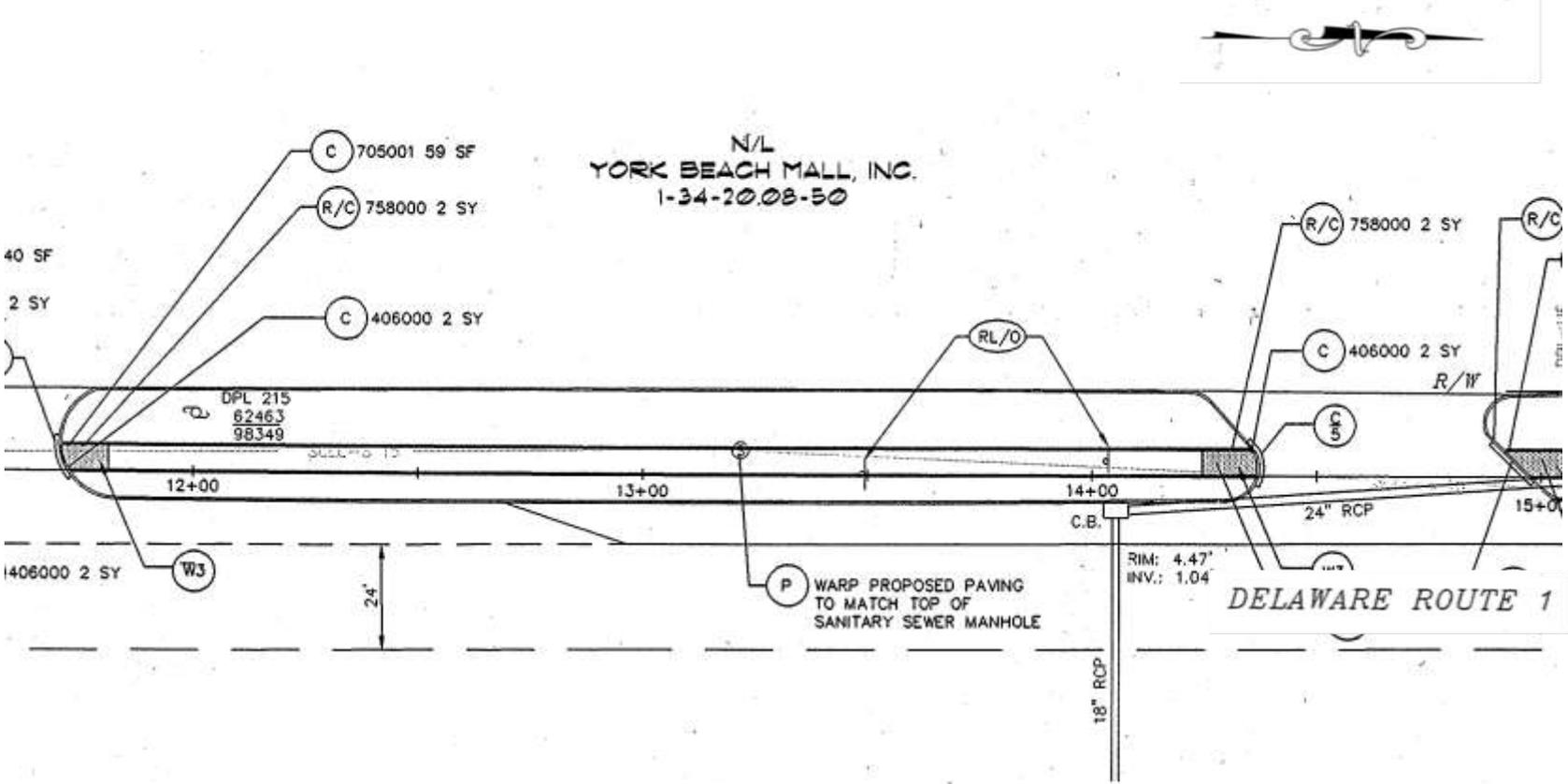
Photographs Showing Current State of Rain Garden Areas – All Views Looking North



Notes for – Landscape Area 2 – between the York Beach Mall parking area and the pedestrian walkway

1. No excavation is required for landscape area 2.
2. Relocate the existing gravel as shown in the following pages.
3. Relocate existing holly tree as shown on page 35.
4. Relocate existing benches to the gravel areas.
5. Plant the two beds per the following pages.
6. Finish with a 3 inch layer of double shredded mulch place locally around plants.

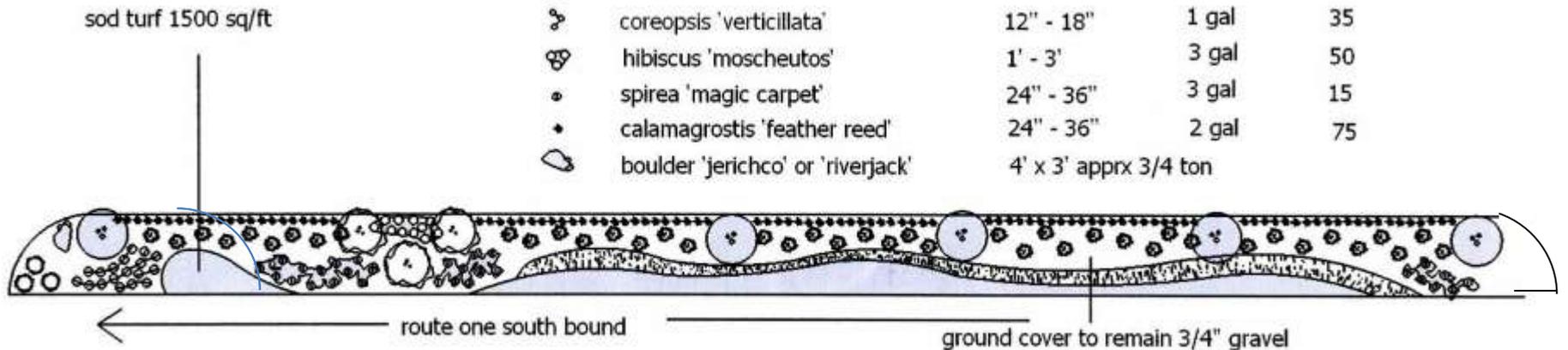
Landscape Area 2 – York Beach Mall Landscape Bed #1 – Location From Page 5 of the Reference Document



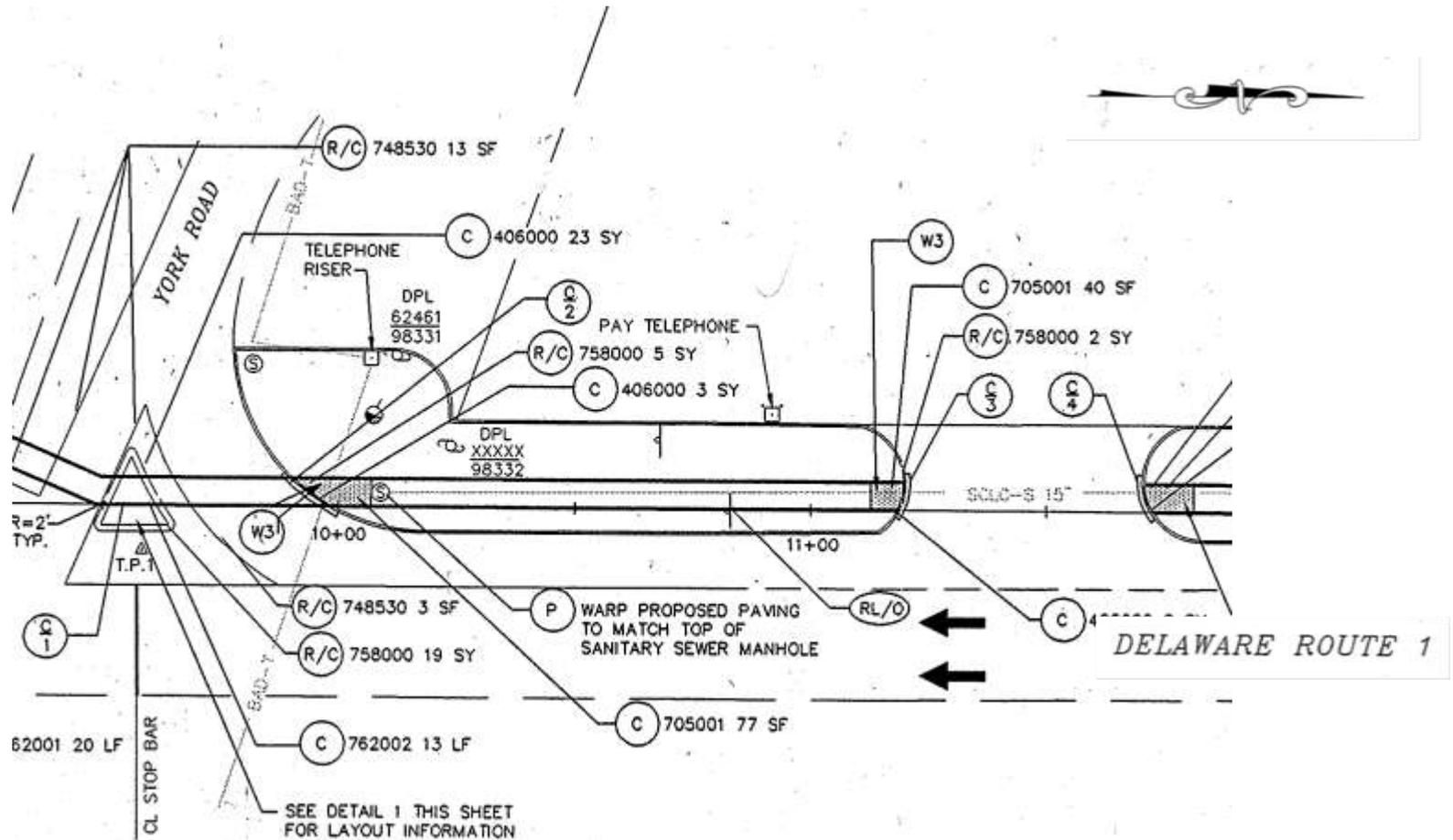
Landscape Area 2 – York Beach Mall Landscape Bed #1

Planting Specifications

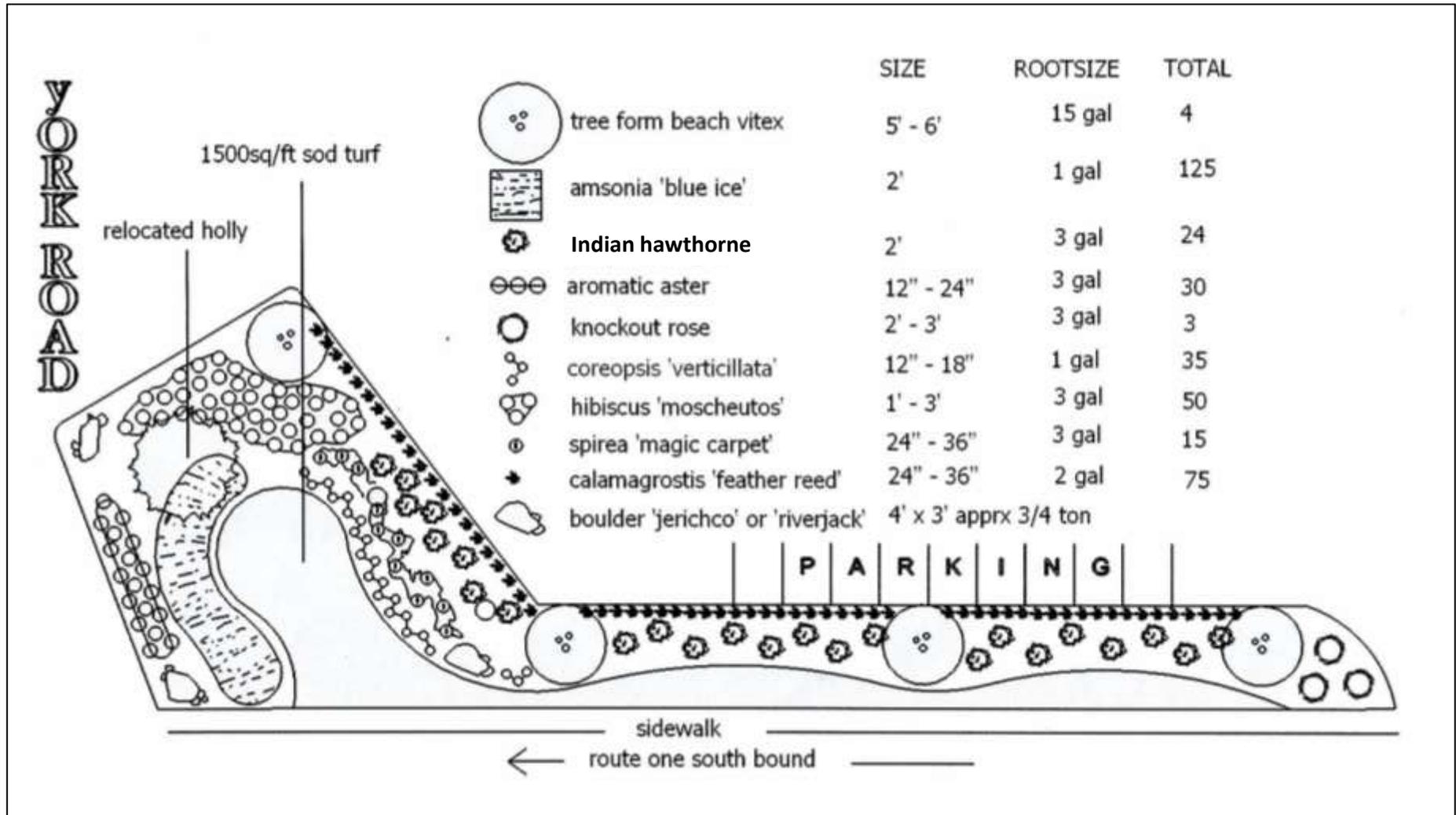
	SIZE	ROOTSIZE	TOTAL
 crape myrtl 'muskogee'	6' - 8'	15 gal	3
 tree form beach vitex	5' - 6'	15 gal	4
 amsonia 'blue ice'	2'	1 gal	125
 Indian hawthorne	2'	3 gal	24
 aromatic aster	12" - 24"	3 gal	30
 knockout rose	2' - 3'	3 gal	3
 coreopsis 'verticillata'	12" - 18"	1 gal	35
 hibiscus 'moscheutos'	1' - 3'	3 gal	50
 spirea 'magic carpet'	24" - 36"	3 gal	15
 calamagrostis 'feather reed'	24" - 36"	2 gal	75
 boulder 'jerichco' or 'riverjack'	4' x 3' apprx 3/4 ton		



Landscape Area 2 – York Beach Mall Landscape Bed #2 – Location From Page 5 of the Reference Document



Landscape Area 2 – York Beach Mall Landscape Bed #2 Planting Specifications

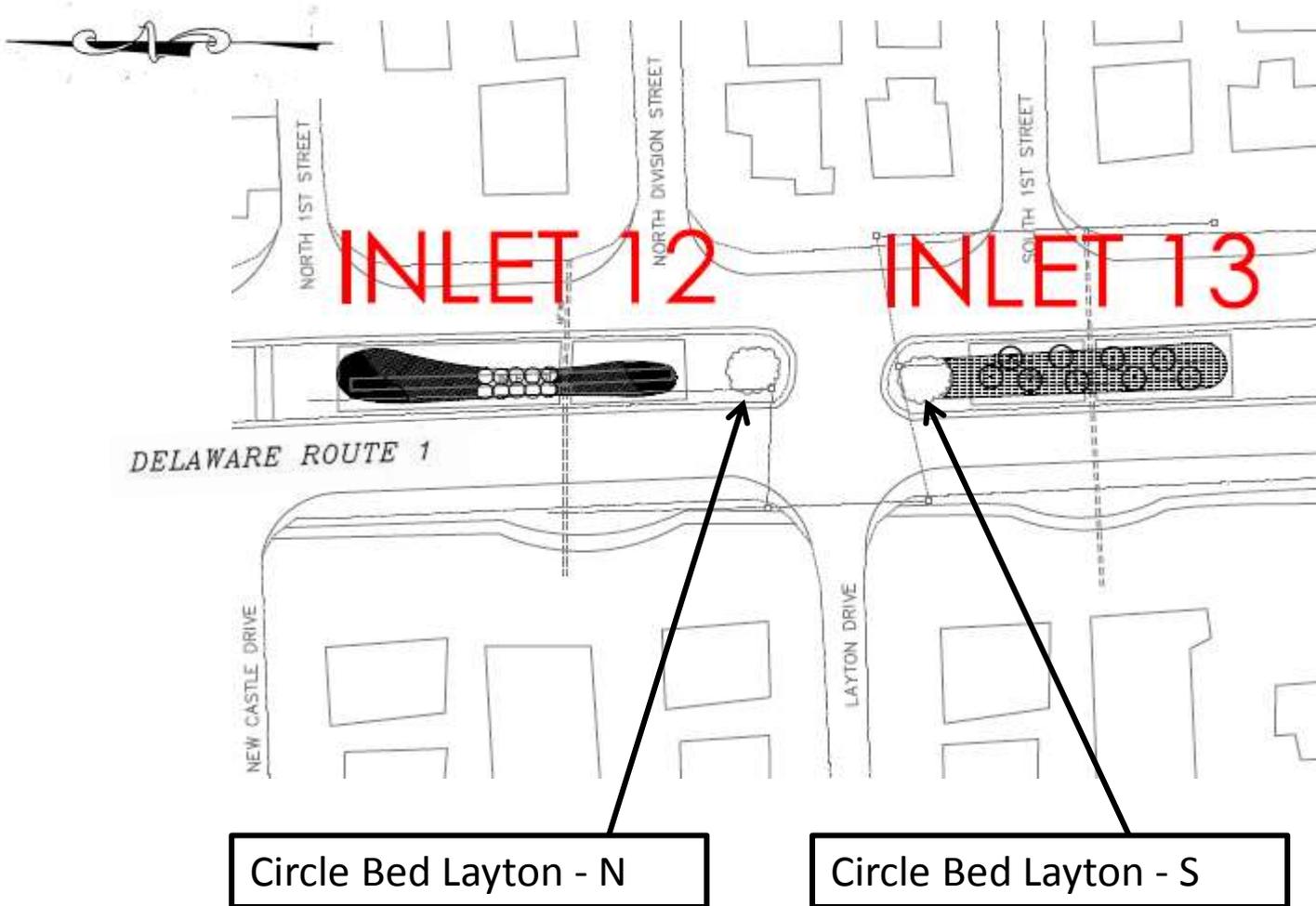


Notes for Circle beds that currently exist in the Route 1 median at road cross over points

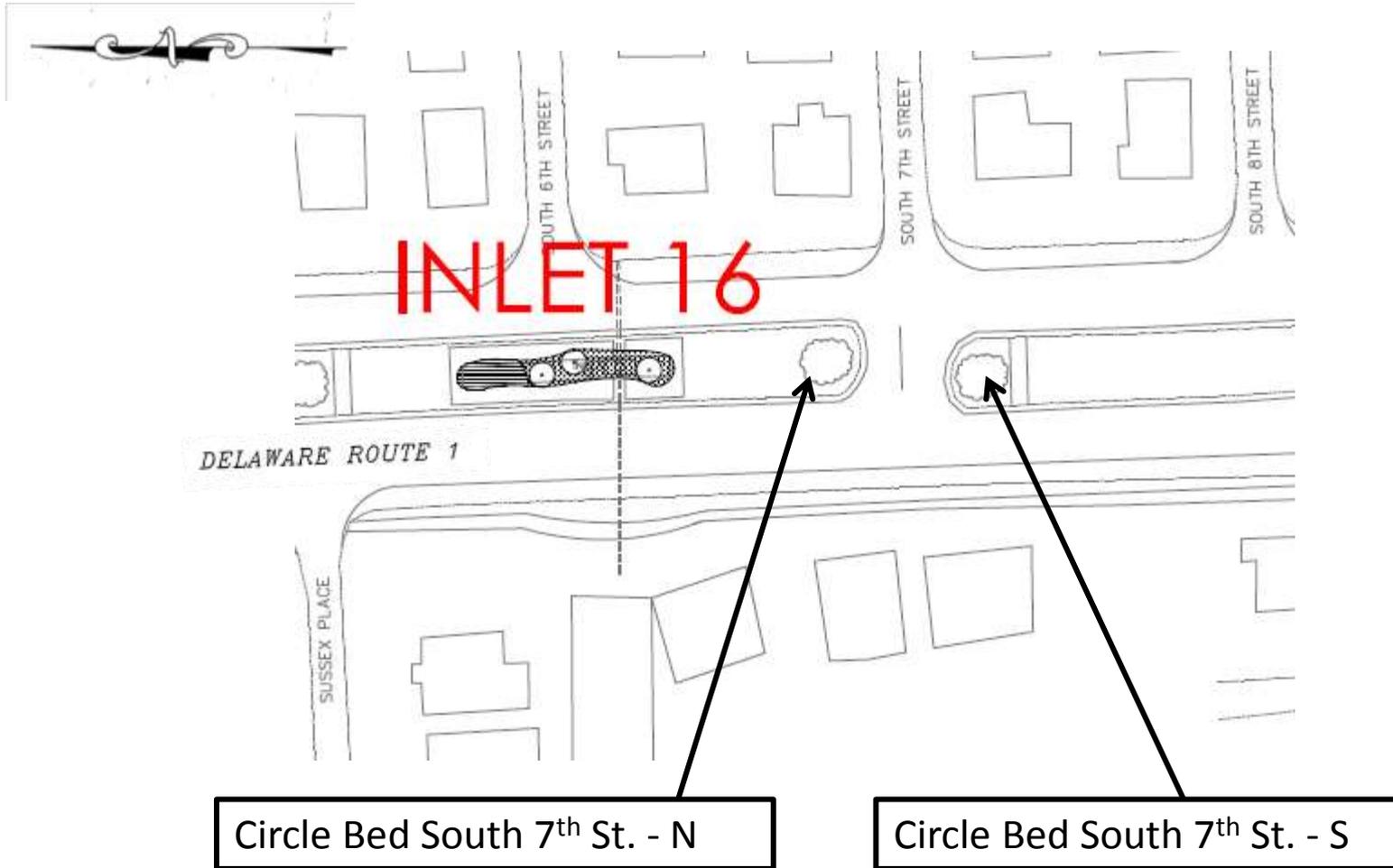
– Landscape Area 3

1. No excavation is required for any of the circle beds.
2. 1 Circle bed at south end of median stays as a raised bed as it is on top of a control box.
3. Plant the circle beds per the following page.
4. Finish with a 3 inch layer of double shredded mulch.
5. Edge each circle bed.

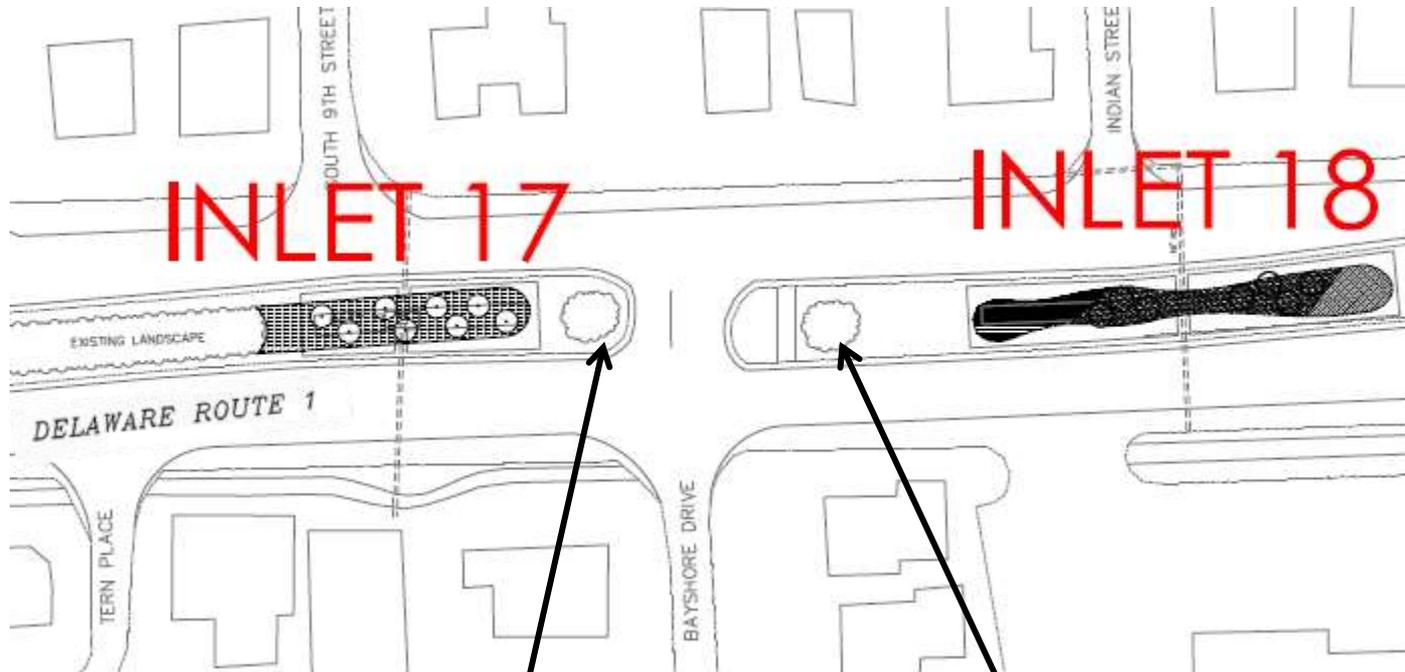
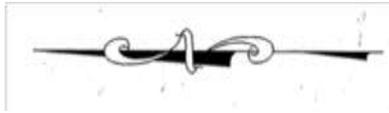
Landscape Area 3 – Circle Bed Layton Dr. – N and Layton Dr. – S



Landscape Area 3 – Circle Bed South 7th St. – N and South 7th St. – S



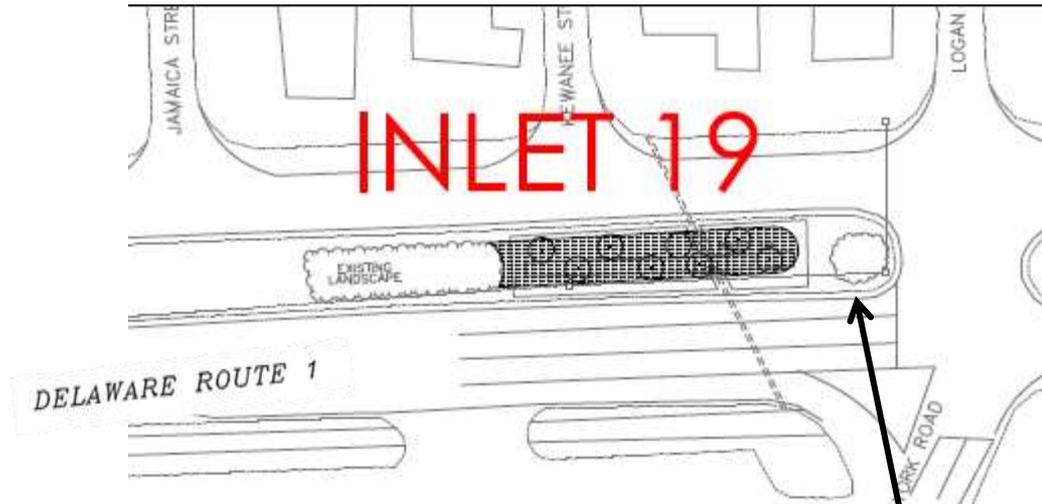
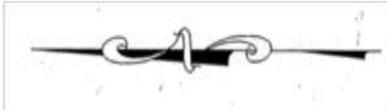
Landscape Area 3 – Circle Bed Bayshore Dr. – N and Bayshore Dr. – S



Circle Bed Bayshore Dr. – N

Circle Bed Bayshore - S

Landscape Area 3 – Circle Bed York Dr.

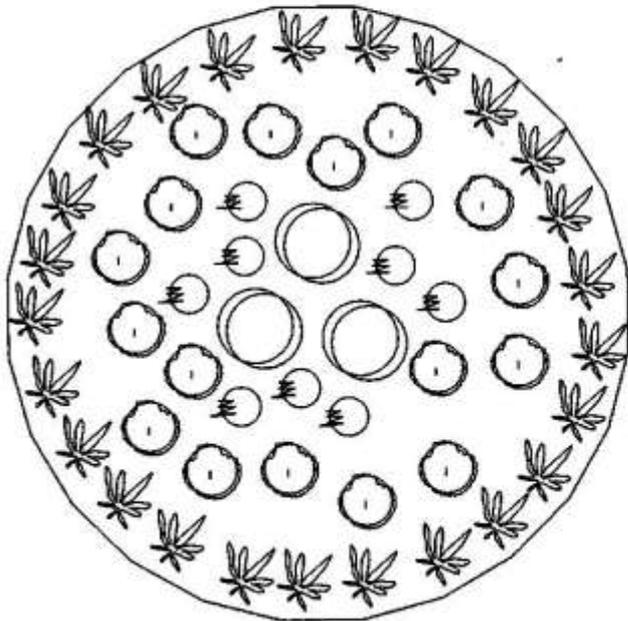


Circle Bed York Dr.
Not a Rain Garden

Landscape Area 3

Planting Specifications

CIRCLE AREA ROUTE ONE MEDIAN



tiger eye sumac

size

2"

root size

3 gal

Qty.

3



wild ageratum

18" - 24"

1 gal

9



sea lavender

12" - 18"

1 gal

17



broom sedge

6"

1 gal

25