

**James V. Fitzgerald ASBS Pollution Reduction Program  
Upland BMPs: LID Projects  
Approved by Selection Committee June 9, 2014**

**LID Site #2 - Cooperator ID#: 202.0409.01**

**Site Information:**

Property near Dean Creek, on the west side of Hwy 1, just north of the Fitzgerald Marine Reserve. This is a large property with two residential structures and water flows through the property directly to a roadside ditch that drains to the ASBS. This property is downslope of Hwy 1 and runoff from the highway flows onto the backyard and runs from the back of the property to the front.

**Integrated Project BMPs**

- Install a 100 foot long berm/swale feature along the backyard fence to filter and infiltrate highway runoff (5,700 square feet).
- Construct a 3-tiered rain garden system to further filter and clean highway runoff from the hedgerow swale/feature and runoff from property
- Install a 19x6 foot rain garden on east side of property to capture runoff from property roof and roof of second structure
- Install a 60 foot long vegetated swale that is connected to the east rain garden for further filtration

**Treatment Description:**

Roof runoff on the back half of the eastern building is directed through the existing gutters to a downspout that drains directly to a rain garden. The rain garden provides infiltration as primary treatment and will overflow into a treatment swale that flows to the public road. Roof runoff on the front half of the western building is directed through the existing gutters to a downspout that drains directly to a rain garden. The rain garden provides infiltration as primary treatment and will overflow through a rock weir to the public road. A treatment swale across the back of the property collects runoff from the adjacent public highway and directs it to a rain garden system. The rain garden system consists of three separate rain gardens that drain in series through a set of rock weirs. The overflow from this set of rain gardens flows into a drainage pipe that outlets to the rain garden in front of the western building.

**Stormwater Capture/Treatment:**

**Highway Rain Garden/Swale System and West Rain Garden/Swale System: 41%**  
**East Rain Garden/Swale System: 81%**

# PROJECT 202.0409.01

## WATER QUALITY IMPROVEMENT PLAN

### GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH FINAL DESIGN DRAWINGS AND ATTACHED SPECIFICATIONS: 03 30 10 CONCRETE, 07 65 00 GUTTERS AND DOWNSPOUTS, 32 30 20 GRAVEL EROSION PROTECTION, 32 30 30 ROCK WEIR, 32 30 40 VEGETATED SWALE, 32 30 60 RAIN GARDEN, 32 80 20 IRRIGATION SYSTEM, 32 80 40 SUBMERSIBLE PUMP, 33 40 00 STORM DRAINAGE UTILITIES, 33 40 20 RAINWATER CATCHMENT CISTERN.
2. SAN MATEO RESOURCE CONSERVATION DISTRICT SHALL BE RESPONSIBLE FOR OBTAINING ANY NEEDED PERMITS, EASEMENTS, AND/OR RIGHT-OF-WAYS, AND MEETING ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES AND SHALL CALL NORTHERN CALIFORNIA UNDERGROUND SERVICE ALERT AT '811' AT LEAST 3 DAYS PRIOR TO START OF CONSTRUCTION. SPECIAL SAFETY PRECAUTIONS SHALL BE TAKEN WHEN WORKING IN THE VICINITY OF GAS, OIL, AND ELECTRICAL LINES.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING LOCATIONS OF TEMPORARY ACCESS, STAGING AREAS, AND OTHER FACILITIES TO PRECONSTRUCTION CONDITION. DISTURBANCE OF EXISTING STRUCTURES AND VEGETATION MUST BE AVOIDED OR MINIMIZED TO THE FULLEST POSSIBLE EXTENT.
5. LANDOWNER SHALL BE RESPONSIBLE FOR THE SUCCESSFUL ESTABLISHMENT AND MAINTENANCE OF VEGETATION PRACTICES.
6. CONTRACTOR SHALL ENSURE THAT THE USE AND/OR STORAGE OF PETROLEUM POWERED EQUIPMENT SHALL BE ACCOMPLISHED IN A MANNER TO PREVENT THE POTENTIAL RELEASE OF PETROLEUM MATERIALS INTO WATERS OF THE STATE.
7. CAL-OSHA SAFETY REQUIREMENTS SHALL BE IN EFFECT DURING ALL CONSTRUCTION.
8. CONTACT THE SAN MATEO RESOURCE CONSERVATION DISTRICT AT LEAST 7 DAYS PRIOR TO START OF CONSTRUCTION. PHONE: (650) 726-4660.

### AS-BUILT NOTES

1. THIS AS-BUILT PLAN REPRESENTS THE STATUS OF THE PROJECT AS INSTALLED IN THE FIELD. IT IS NOT A CERTIFICATION OF THE COMPLETENESS OF THE WORK OR THE CONSISTENCY OF THE WORK WITH THE ORIGINAL DESIGN DOCUMENTS. IN SOME CASES DEVIATIONS FROM THE ORIGINAL DESIGN DOCUMENTS MAY LEAD TO OPERATIONS OR MAINTENANCE ISSUES. THE ENGINEER ACCEPTS NO LIABILITY FOR FAILURES OR PROBLEMS ARISING FROM DEVIATIONS FROM THE ORIGINAL DESIGN DOCUMENTS.

### SHEET INDEX

1. TITLE SHEET AND GENERAL NOTES
2. LAYOUT PLAN
3. CONSTRUCTION DETAILS
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5. CONSTRUCTION DETAILS
6. CONSTRUCTION DETAILS

### VICINITY MAP

NOT TO SCALE



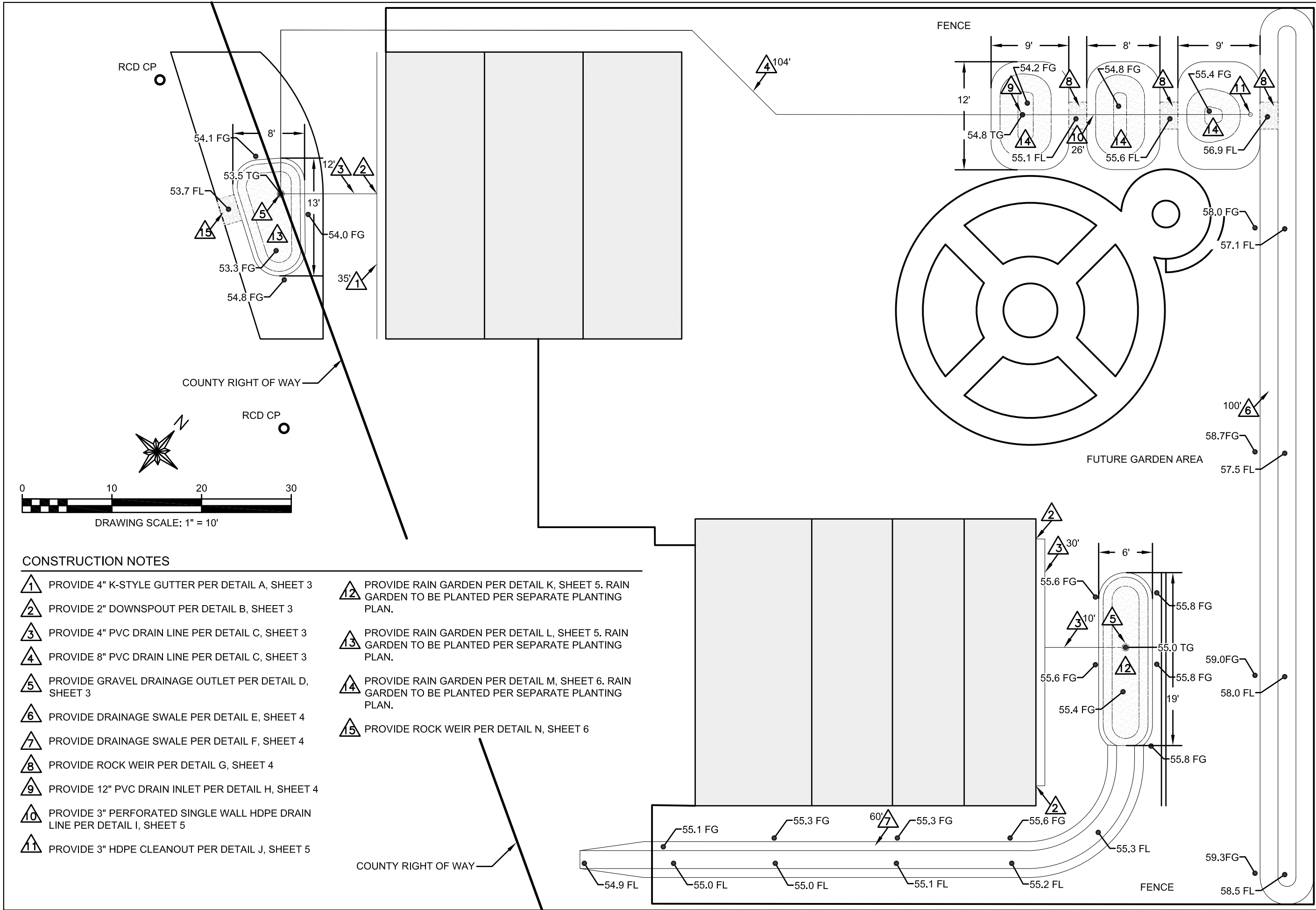
AS-BUILT

DRAWN BY: \_\_\_\_\_  
DESIGNED BY: \_\_\_\_\_  
APPROVED BY: \_\_\_\_\_

PROJECT 202.0409.01  
TITLE SHEET & GENERAL NOTES

PLAN DATE  
2/26/16

SHEET  
01 OF 06



CONSTRUCTION NOTES

- 1 PROVIDE 4" K-STYLE GUTTER PER DETAIL A, SHEET 3

2 PROVIDE 2" DOWNSPOUT PER DETAIL B, SHEET 3

3 PROVIDE 4" PVC DRAIN LINE PER DETAIL C, SHEET 3

4 PROVIDE 8" PVC DRAIN LINE PER DETAIL C, SHEET 3

5 PROVIDE GRAVEL DRAINAGE OUTLET PER DETAIL D, SHEET 3

6 PROVIDE DRAINAGE SWALE PER DETAIL E, SHEET 4

7 PROVIDE DRAINAGE SWALE PER DETAIL F, SHEET 4

8 PROVIDE ROCK WEIR PER DETAIL G, SHEET 4

9 PROVIDE 12" PVC DRAIN INLET PER DETAIL H, SHEET 4

10 PROVIDE 3" PERFORATED SINGLE WALL HDPE DRAIN LINE PER DETAIL I, SHEET 5

11 PROVIDE 3" HDPE CLEANOUT PER DETAIL J, SHEET 5
- 12 PROVIDE RAIN GARDEN PER DETAIL K, SHEET 5. RAIN GARDEN TO BE PLANTED PER SEPARATE PLANTING PLAN.

13 PROVIDE RAIN GARDEN PER DETAIL L, SHEET 5. RAIN GARDEN TO BE PLANTED PER SEPARATE PLANTING PLAN.

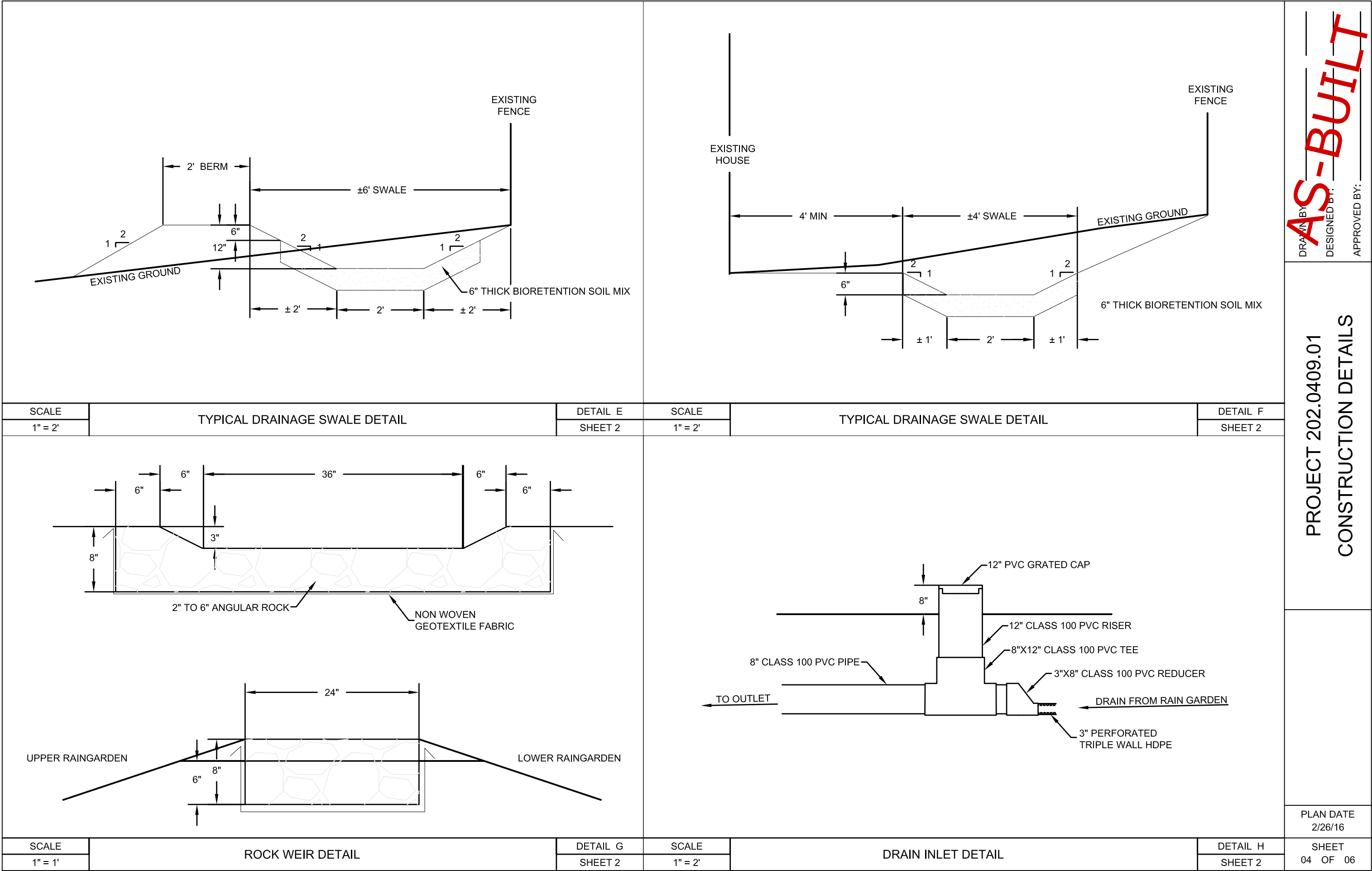
14 PROVIDE RAIN GARDEN PER DETAIL M, SHEET 6. RAIN GARDEN TO BE PLANTED PER SEPARATE PLANTING PLAN.

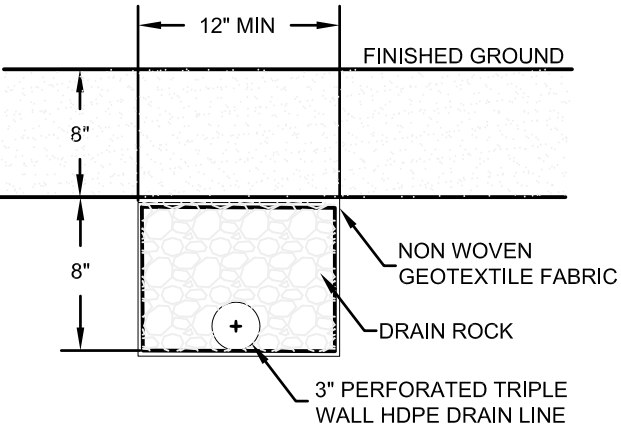
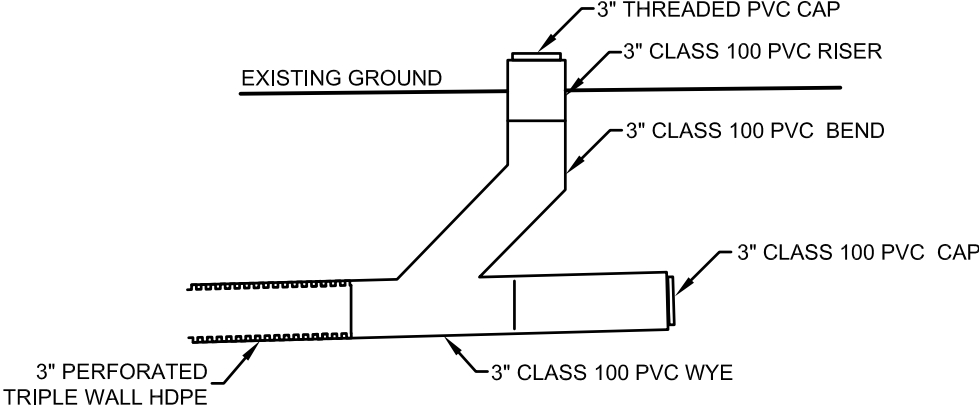
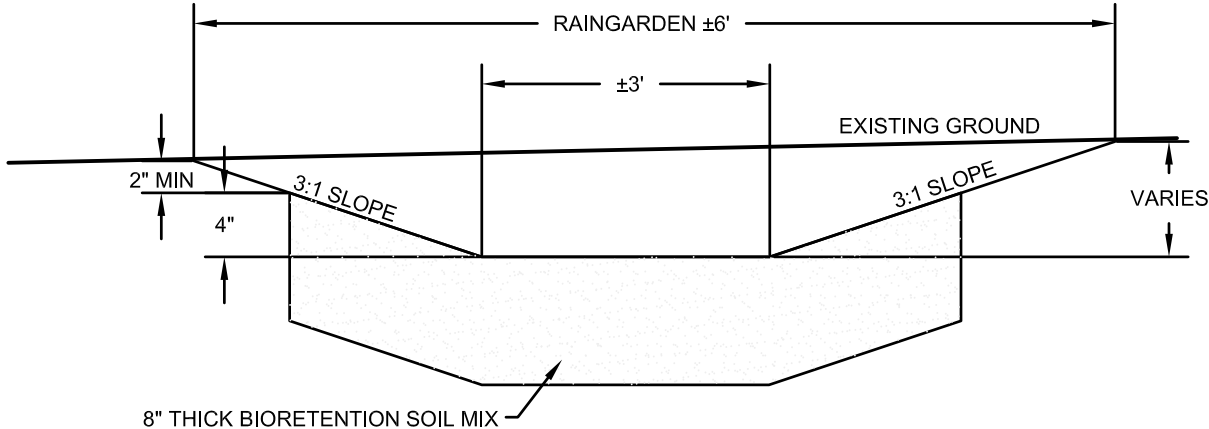
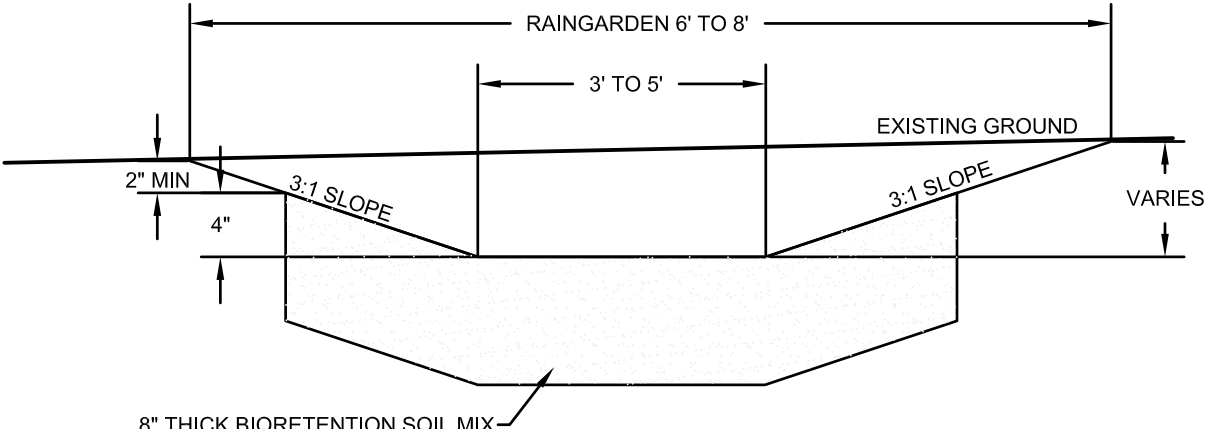
15 PROVIDE ROCK WEIR PER DETAIL N, SHEET 6

AS-BUILT

DRAWN BY: \_\_\_\_\_  
DESIGNED BY: \_\_\_\_\_  
APPROVED BY: \_\_\_\_\_

PROJECT 202.0409.01  
LAYOUT PLAN



					
SCALE 1" = 1'	PERFORATED DRAIN LINE TYPICAL TRENCH SECTION	DETAIL I SHEET 2	SCALE 1" = 1'	PERFORATED DRAIN LINE CLEANOUT DETAIL	DETAIL J SHEET 2
					
SCALE 1" = 1'	TYPICAL RAIN GARDEN SECTION	DETAIL K SHEET 2	SCALE 1" = 1'	TYPICAL RAIN GARDEN SECTION	DETAIL L SHEET 2

AS-BUILT

DRAWN BY:  
DESIGNED BY:  
APPROVED BY:

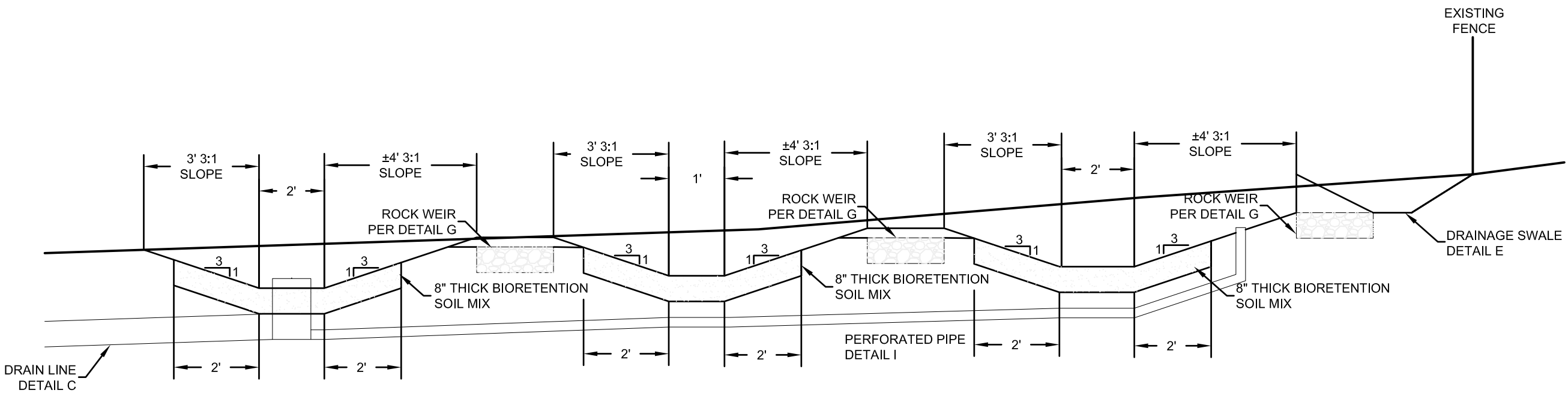
PROJECT 202.0409.01

CONSTRUCTION DETAILS

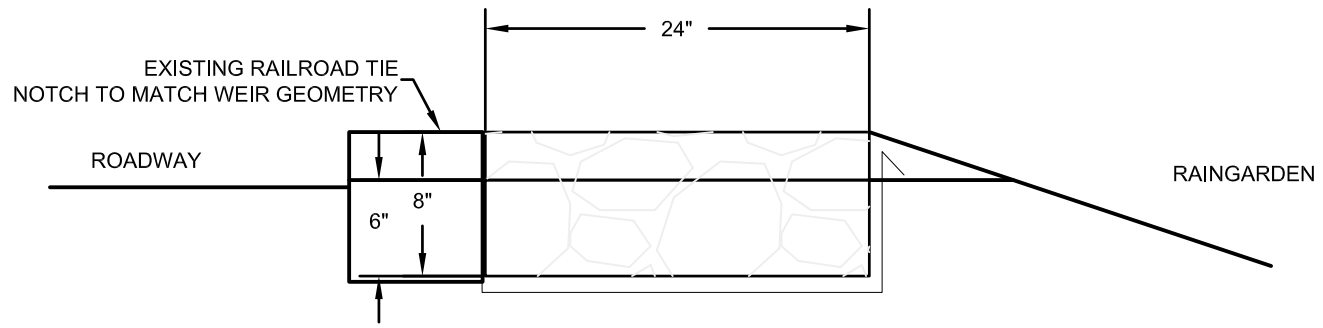
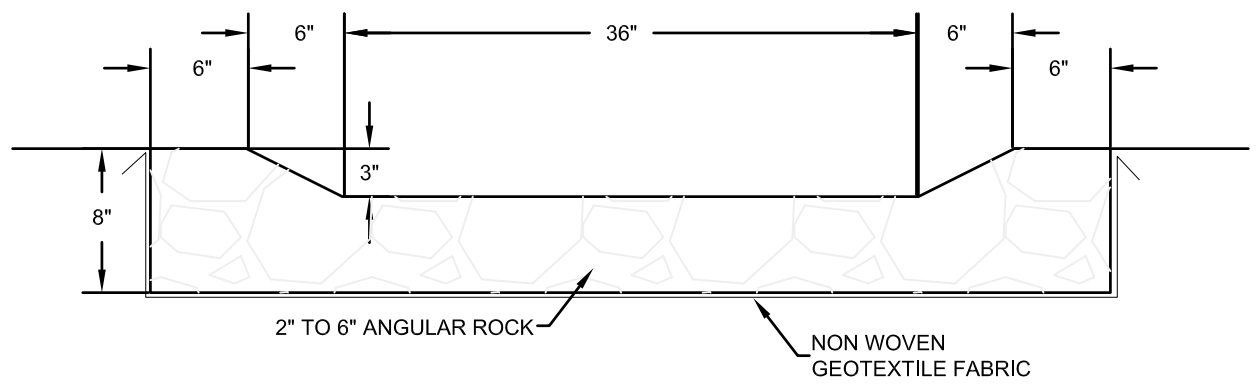
AS-BUILT

PROJECT 202.0409.01  
CONSTRUCTION DETAILS

PLAN DATE  
2/26/16  
SHEET  
06 OF 06

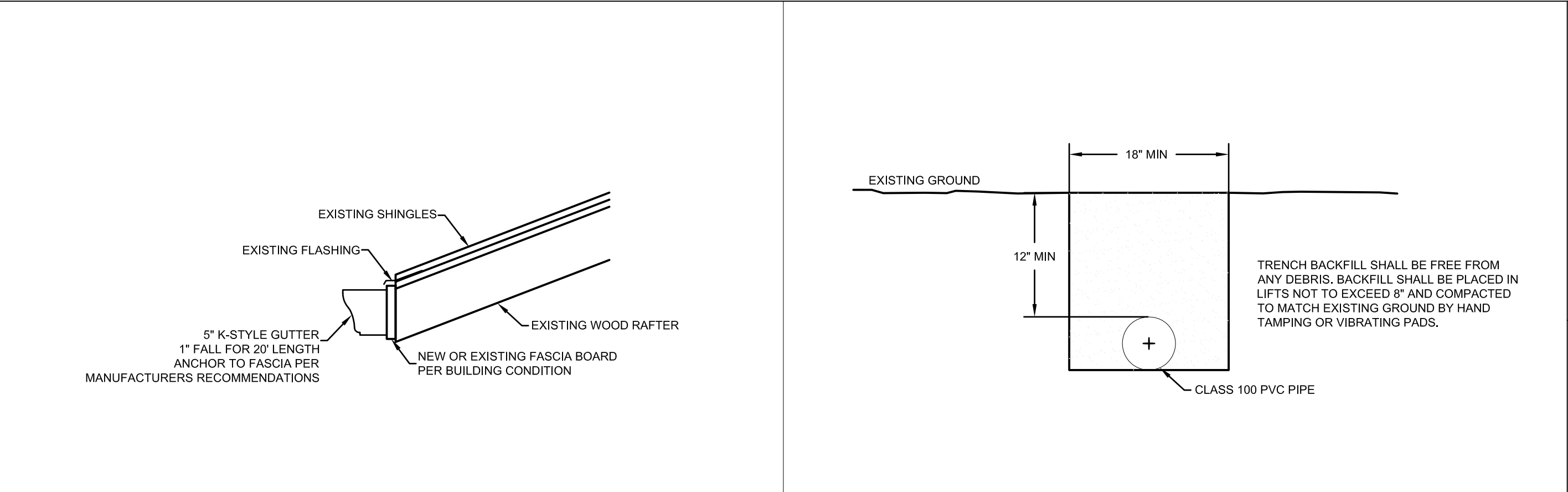


RAIN GARDEN DETAIL



ROCK WEIR DETAIL

DETAIL N  
SHEET 2

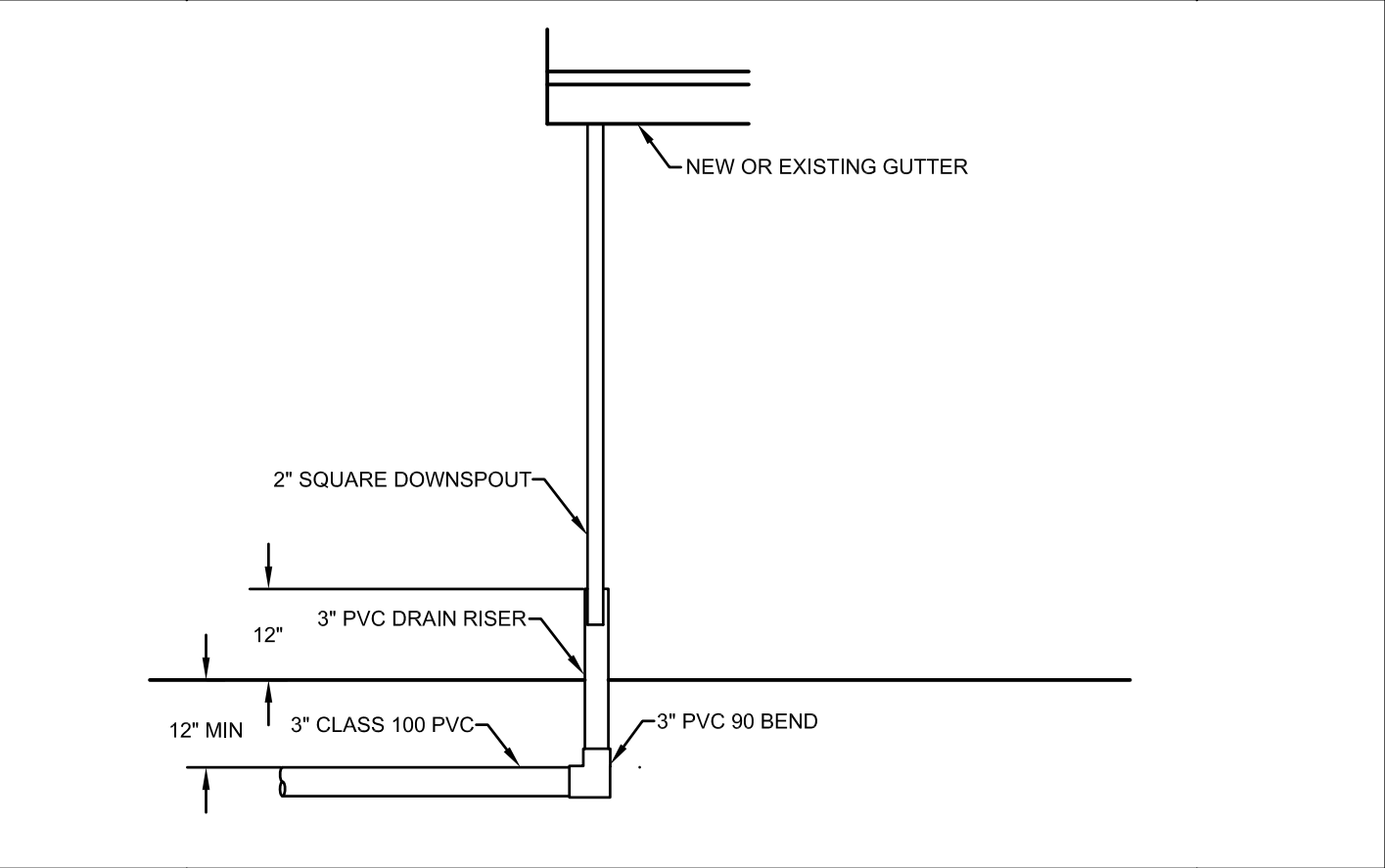


SCALE	TYPICAL GUTTER DETAIL
1" = 1'	

DETAIL A
SHEET 2

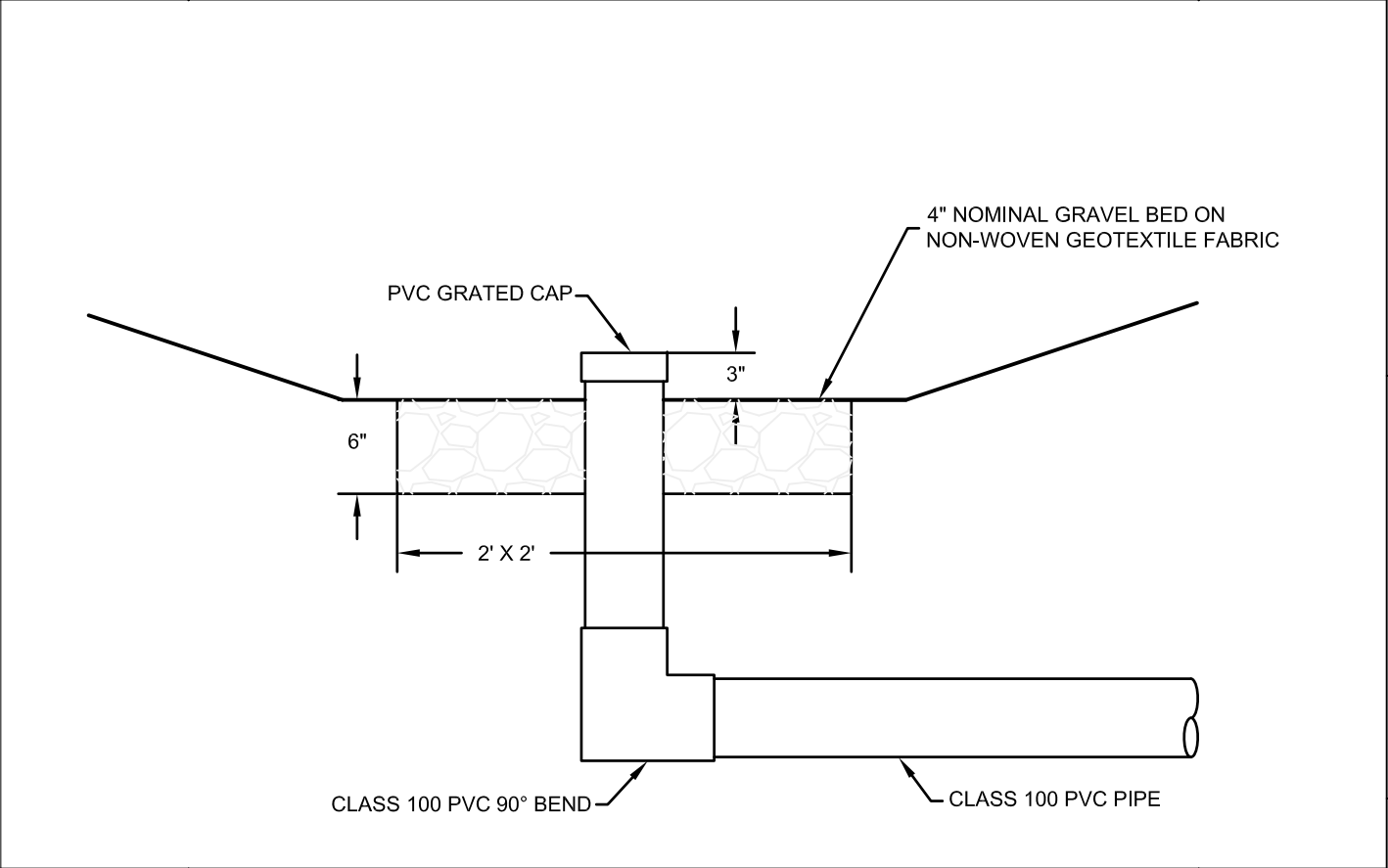
SCALE	TYPICAL DRAIN PIPE SECTION
1" = 1'	

DETAIL C
SHEET 2



SCALE	TYPICAL FIRST FLUSH SYSTEM DETAIL
1"=2'	

DETAIL B
SHEET 2



SCALE	GRAVEL DRAINAGE OUTLET DETAIL
1" = 1'	

DETAIL D
SHEET 2

AS-BUILT

DRAWN BY:  
DESIGNED BY:  
APPROVED BY:

PROJECT 202.0409.01  
CONSTRUCTION DETAILS

PLAN DATE  
2/26/16

SHEET  
03 OF 06





APPROVAL

DAYS SINCE START OF PANDEMIC

SHEET

L2.0

OF ALL SHEETS  
LATEST REVISION



1. ECLANDSCAPE DRAWINGS ARE BASED ON PLAN DOCUMENTS PREPARED BY PRICE QUINTANA-JONES P.E. REFER TO ENGINEERING DRAWINGS FOR ALL SITE MEASUREMENTS.
2. SEE ENGINEERING DRAWINGS AND SPECIFICATIONS FOR ALL CONSTRUCTION DETAILS OF BEST MANAGEMENT PRACTICES, INCLUDING GRADING AND BOIL TRAP LIFT, ETC.
3. ALL PLANTS SHALL BE INSPECTED AND APPROVED BY ECLANDSCAPE DESIGNER PRIOR TO INSTALLATION.
4. PLANTS SHALL BE PLANTED IN 5.0" X 6.0" SIZES, AND PLANTED TO THE DEPTH OF THE ROOT CROWN, AND ALL PLANTS SHALL BE WATERED THOROUGHLY AT THE TIME OF PLANTING.
5. ALL MAINTENANCE SHALL BE PERFORMED BY OTHERS, AND IS NOT INCLUDED IN THIS SCOPE OF WORK. FOR GENERAL PURPOSES, PLANTINGS WILL NEED SUPPLEMENTAL IRRIGATION DURING THE ESTABLISHMENT PERIOD OF 12-24 MONTHS. MAINTENANCE SHALL BE REQUIRED TO MONITOR AND MAINTAIN PLANTINGS THROUGHOUT THE LIFE OF THE PROJECT. NONNATIVE INVASIVE SPECIES SHOULD BE CONTROLLED BY HAND WEEDING.

**Total Count**  
**151**  
(total all plants)

Zone	Botanical Name	Common Name	
A	<i>Carex tumida</i>	foxtail sedge	
	<i>Juncus roemerianus</i>	California juncus	
	<i>Lychnis viscaria</i>	creeping alalyce	
	<i>Leptocarpus tenax</i>	creeping alalyce	
	<i>Calamagrostis foliolosa</i>	Mendocino reed grass	
B	<i>Adiantum nigrifolium</i>	parrot	
	<i>Aster chilensis</i>	California aster	
	<i>Epilobium cuneum</i>	California hushia	
	<i>Erigeron glaucus</i>	seaside daisy	
	<i>Fraxinus dipetensis</i>	beach strawberry	
	<i>Iris douglasiana</i>	Douglas iris	
	<i>Salvia spathulata</i>	hummingbird sage	

**Vegetated Swale** planted with No-mow Fine Fescue Blend sod (or similar).

1. Final plant selection, locations and placement shall be verified in field by Ecological Concerns Incorporated prior to installation.
2. Plant spacing at 1 foot/On-Center
3. All plants 1 gallon container size



RAIN GARDENS 2

— MATCHLINE TO  
RAIN GARDEN 3

VEGETATED SWALE (TYP)

RAIN GARDEN 3

SWALE 4

SWALE 5  
3/16"=1'-0"