## **Appendix E: Standard Drawings and General Notes**

Details are currently available in pdf and AutoCAD format and may be downloaded from Rogue Valley Sewer Services website.

### **General Notes**

General Notes for Vegetated BMPs: These notes must be included on the plans for any Vegetated BMPs in series 3 through 8.

General Notes for Pervious Surfacing: These notes must be included on the plans for any Pervious surfaces in BMPs 2.01 through 2.04.

## **List of Standard Drawings**

BMP 1.01 Tree Protection

BMP 1.02 Tree Protection - Temporary Access Road

BMP 1.03 Tree Planting

BMP 1.04 Tree Planting on Slope

BMP 2.01 Pervious Concrete Pavement

BMP 2.02 Porous Asphalt Pavement

BMP 2.03 Permeable Pavers

BMP 2.04 Vehicular Permeable Paver Edges

BMP 3.01 Infiltration Rain Garden

BMP 3.02 Lined Filtration Rain Garden with Rock Trench

BMP 3.03 Lined Filtration Rain Garden

BMP 3.04 Rain Garden Planting Schematic

BMP 4.01 Infiltration Stormwater Planter with Area Drain

BMP 4.02 Infiltration Stormwater Planter with Amended or Imported Soil and Area Drain

BMP 4.03 Lined Filtration Stormwater Planter

BMP 4.04 Infiltration Stormwater Planter with Rock Trench

BMP 4.05 Stormwater Planter Planting Schematic

BMP 5.01 Infiltration LID Swale with Amended Planting Soil and Rock Trench

BMP 5.02 Infiltration LID Swale -- Lowest Elevation Cell with Area Drain

BMP 5.03 LID Swale Planting Schematic

BMP 6.01 Soakage Trench in Landscape Area

BMP 6.02 Soakage Trench under Impervious Pavement Surface

BMP 7.01 Vegetated Filter Strip with Amended Planting Soil

BMP 8.01 Water Quality Conveyance Swale with Amended Planting Soil

BMP 8.02 Water Quality Conveyance Swale: Fully or Partially Lined

BMP 8.03 Water Quality Conveyance Swale: Planting Schematic

BMP 9.01 Roadway Curb Opening

# GENERAL NOTES FOR PERVIOUS SURFACING

- Excuding construction of the facility itself, exposed treatment area subgrade shall be fenced to prohibit impacts from construction (including materials and equipment storage).
- 2. If unprotected soil has been exposed to rainfall, scarify the surface to a depth of 4 inches to restore infiltration capacity.
- 3. Contractor shall contact the approving agency 48 hours prior to placing geotextile fabric. The approving agency may call the engineer of record in advance of construction of this facility so construction observation may be performed to identify variations in the field that may affect design and verify proper construction.
- 4. Base rock shall be delivered clean and must pass visual inspection by Agency's inspection prior to placement.

Rogue Valley
Stormwater Design
Manual

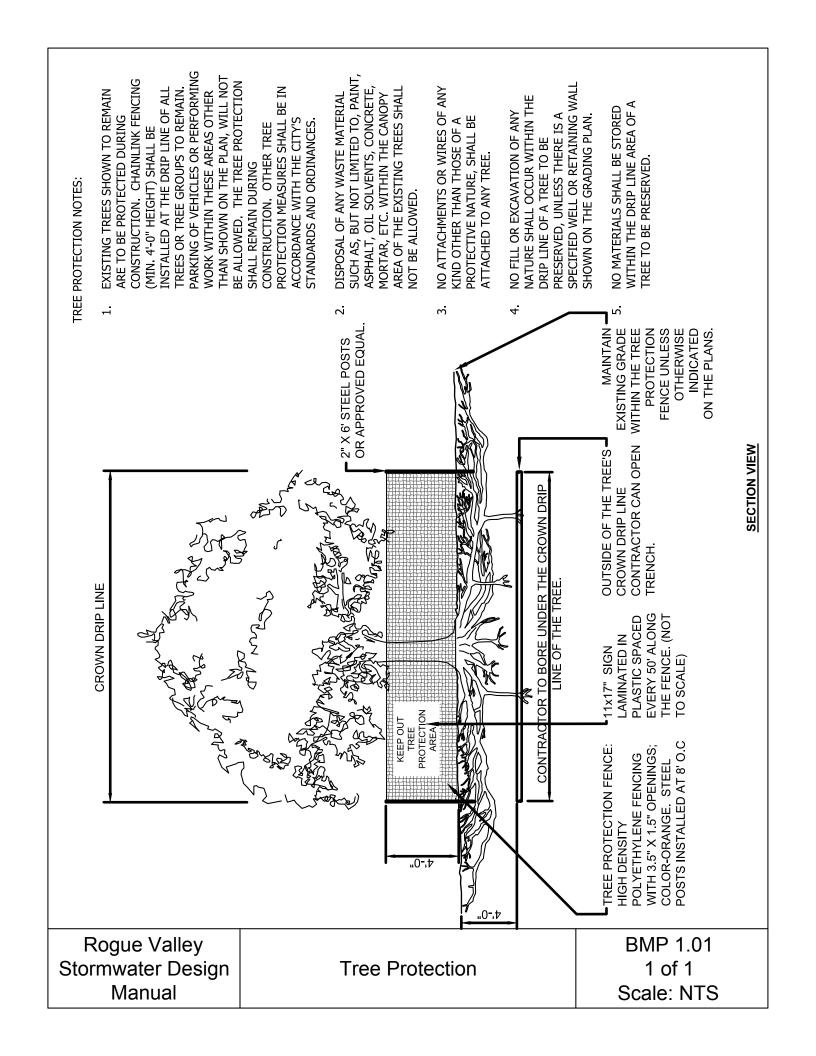
## **General Notes for Vegetated BMPs**

- 1. Excluding construction of the facility itself, exposed stormwater treatment area subgrade shall be fenced to prohibit impacts from construction (including materials and equipment storage).
- 2. Build and vegetate as early as possible to establish plantings prior to directing stormwater runoff to the BMP. Call the reviewing agency 48 hours in advance of constructing this facility so construction observation may be performed to identify variations in the field that may affect design and verify proper construction.
- 3. Over-excavate within the BMP to allow for placement of amended or imported soil up to final grade.
- 4. Amended native or imported soil mix shall be the "Water Quality Mixture" specified in Oregon Standard Specification for Construction Special Provision Section 01012.12
  - a. Conduct excavation, fine grading and placement work only when the facility and the soil to be placed is dry. Do not place if soil is saturated.
  - b. If unprotected soil has been exposed to rainfall, scarify the surface to a depth of 4 inches to restore filtration capacity. Place soil in 8 inch maximum lifts (i.e. depths).
  - c. Lightly compact each lift, (e.g. a water filled landscape roller) to achieve 85% compaction. Do not compact with heavy machinery or vibratory compaction.
- 5. Placement of amended native or imported soil mix shall occur as follows:
  - a. Conduct excavation, fine grading and placement work only when the facility and soil to be placed is dry. Do not place if soil is saturated.
  - b. If unprotected soil has been exposed to rainfall, scarify the surface to a depth of 4 inches to restore filtration capacity.
  - c. Place soil in 8 inch maximum lifts (i.e. depths).
  - d. Lightly compact each lift, (e.g. a water filled landscape roller) to achieve 85% compaction. Do not compact with heavy machinery or vibratory compaction.
- 6. If soil is placed during the wet season and the facility will not be planted within one week of soil installation, install Oregon Standard Specifications for Construction, Special Provision 00280 Type E erosion control matting.
- 7. Contact approving jurisdiction 48 hours in advance of planting so that the jurisdiction can review soil installation and plant placement prior to plant installation.
- 8. Mulch shall be:
  - a. Placed in areas shown on the approved plan
  - b. Shredded wood chips or course compost
  - c. Dye, pesticide and weed free
  - d. Spread in a minimum two inch layer over bare soil or in a ring around plants
  - e. Not touching plant stems
- 9. Side slopes outside of flow area must be permanently stabilized with mulch and vegetation.
- 10. The approving jurisdiction may request evidence the the amended native or imported soil mix meets specification prior to placement.
- 11. If requested test data for the soil mix shall be provided by an accredited laboratory with current certification. The date of the analysis must be no more than 90 days prior to submittal. The report must include the following:
  - a. name and address of the laboratory
  - b. phone, contact and email address of the laboratory
  - c. test data, including date and name of test procedure
  - d. source of the topsoil

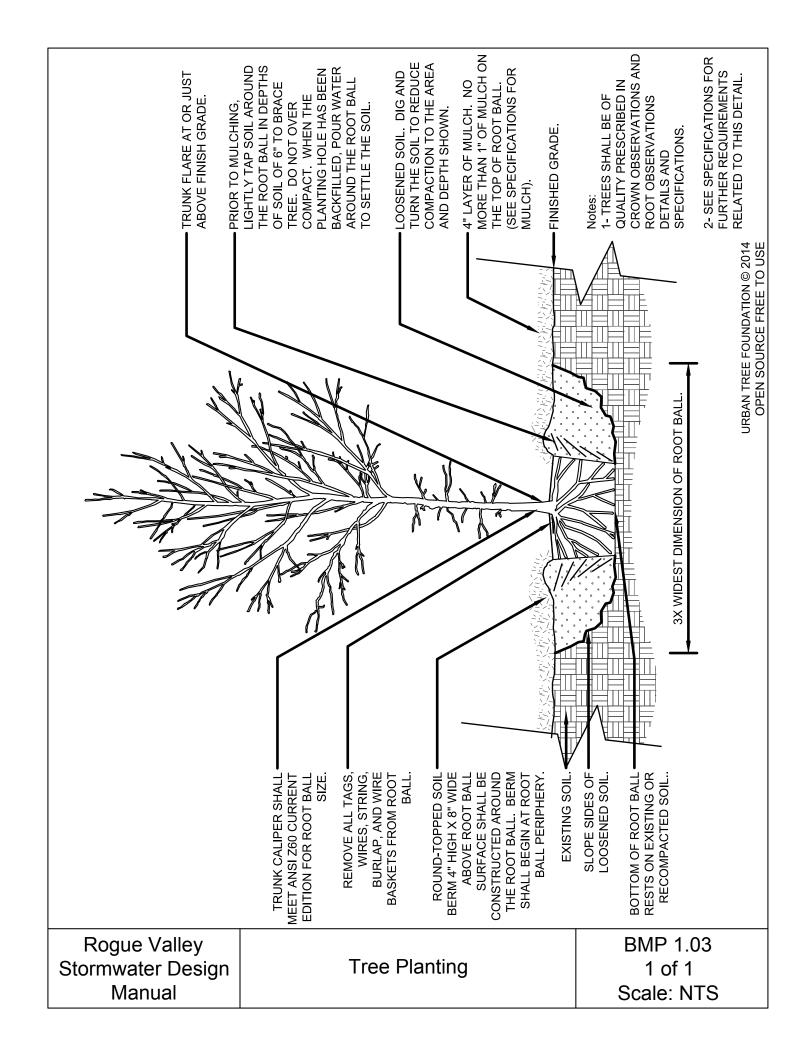
Rogue Valley Stormwater Design Manual

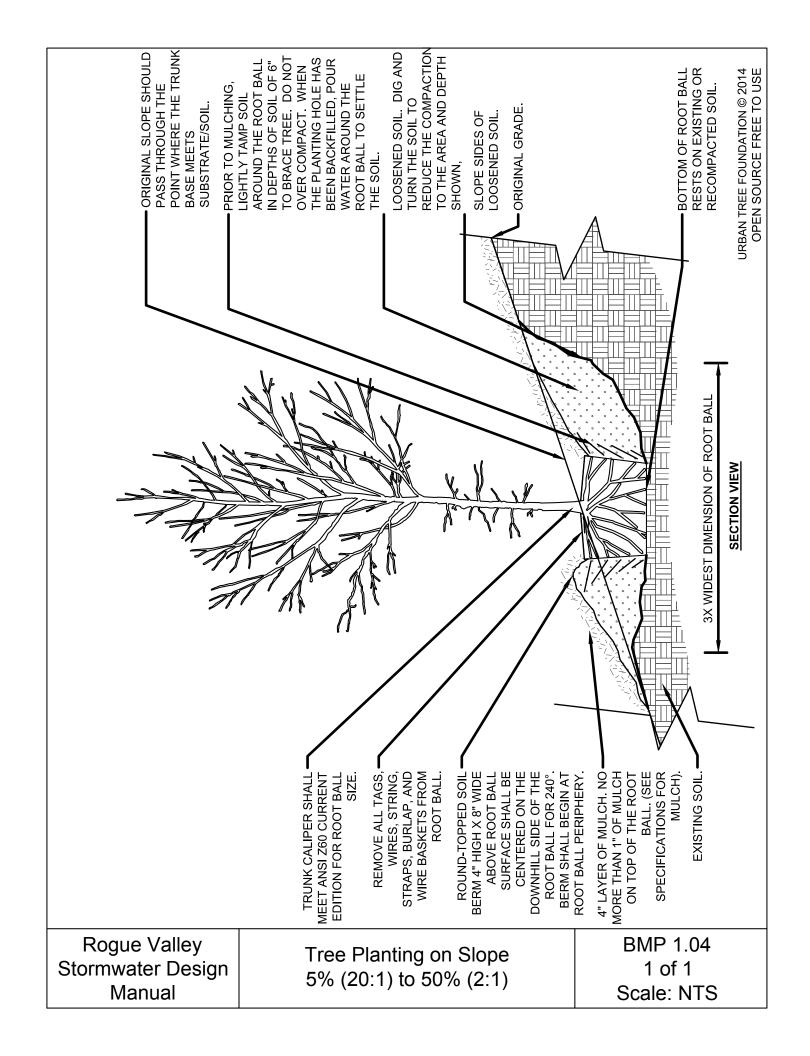
General Notes for Vegetated BMPs

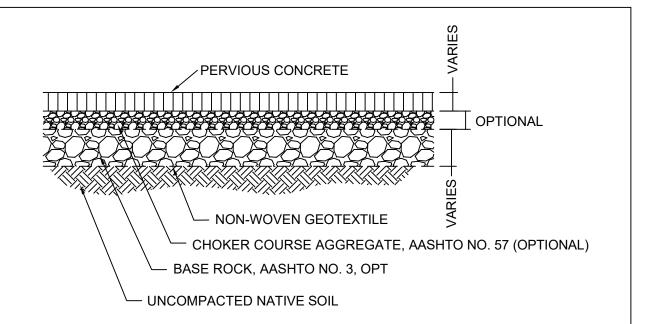
1 of 1 Scale: NTS



#### PARKING OF VEHICLES OR PERFORMING CONSTRUCTION. CHAINLINK FENCING SUCH AS, BUT NOT LIMITED TO, PAINT FHAN SHOWN ON THE PLAN, WILL NOT BE ALLOWED. THE TREE PROTECTION SPECIFIED WELL OR RETAINING WALL PROTECTION MEASURES SHALL BE IN ASPHALT, OIL SOLVENTS, CONCRETE, NO ATTACHMENTS OR WIRES OF ANY **EXISTING TREES SHOWN TO REMAIN NSTALLED AT THE DRIP LINE OF ALL** REES OR TREE GROUPS TO REMAIN. AREA OF THE EXISTING TREES SHALL *NORK WITHIN THESE AREAS OTHER* DISPOSAL OF ANY WASTE MATERIAL MORTAR, ETC. WITHIN THE CANOPY NATURE SHALL OCCUR WITHIN THE WITHIN THE DRIP LINE AREA OF A NO MATERIALS SHALL BE STORED NO FILL OR EXCAVATION OF ANY PRESERVED, UNLESS THERE IS A ARE TO BE PROTECTED DURING KIND OTHER THAN THOSE OF A PROTECTIVE NATURE, SHALL BE SHOWN ON THE GRADING PLAN. ACCORDANCE WITH THE CITY'S CONSTRUCTION, OTHER TREE STANDARDS AND ORDINANCES (MIN, 4'-0" HEIGHT) SHALL BE DRIP LINE OF A TREE TO BE ATTACHED TO ANY TREE rree to be preserved. SHALL REMAIN DURING TREE PROTECTION NOTES: NOT BE ALLOWED. ų. OR TRUNK FLARE 4. ς. ω. 5 AGAINST TRUNK OTHERWISE INDICATED NO MULCH MAINTAIN EXISTING **GRADE WITHIN THE** TREE PROTECTION ACCESS ROAD FENCE UNLESS ON THE PLANS. SECTION VIEW LAYER OF MULCH ON MAINTENANCE ROAD. **CROWN DRIP LINE** 8 - 12" THICK PROTECTION AREA KEEP OUT TREE **DPENINGS**; COLOR-ORANGE. POLYETHYLENE FENCING STEEL POSTS INSTALLED FINCE: HIGH DENSITY REE PROTECTION SCALE) 11x17" SIGN **EVERY 50' ALONG THE** FENCE. (NOT TO LAMINATED IN PLASTIC SPACED 2" X 6' STEEL POSTS OR APPROVED EQUAL. WITH 3.5" X 1.5" AT 8' O C. Rogue Valley **BMP 1.02** Tree Protection - Temporary Access 1 of 1 Stormwater Design Road Scale: NTS Manual







- DESIGN AND INSTALL PERVIOUS CONCRETE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE SPECIFICATION 522 AND THE NATIONAL READY MIXED CONCRETE ASSOCIATIONS (NRMCA) RECOMMENDATIONS.
- UNLESS OTHERWISE APPROVED BY THE ENGINEER, BASE ROCK SHALL BE OPEN GRADED AASHTO NO.
   3.

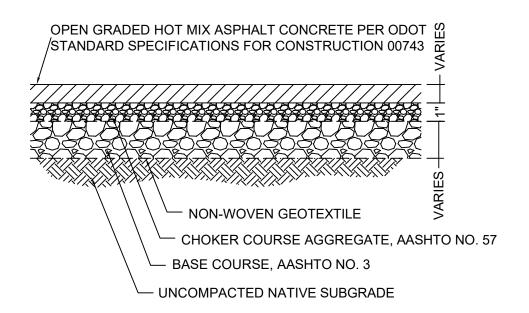
U.S. STANDARD SIEVE SIZE	PERCENT PASSING
2 ½" (63 MM)	100
2" (50 MM)	90-100
1 ½" (37.5 MM)	35-70
1" (25 MM)	0-15
½" (12.5 MM)	0-5

IF THE ABOVE CANNOT BE MET, OPEN GRADED AASHTO NO. 5 IS ACCEPTABLE WITH THE APPROVAL OF THE ENGINEER.

U.S. STANDARD SIEVE SIZE	PERCENT PASSING
1 ½" (37.5 MM)	100
1" (25 MM)	90-100
3/4" (19MM)	20-55
½" (12.5 MM)	0-10
3/8" (9.5 MM)	0-5

★ GENERAL PERVIOUS SURFACING NOTES MUST ACCOMPANY THIS DETAIL.

Rogue Valley Stormwater Design	Pervious Concrete Pavement	Dwg BMP 2.01
Manual		1 of 1



- 1. FOLLOW ODOT SPECIFICATION 00743 POROUS ASPHALT CONCRETE.
- 2. MUST USE ELASTOMERIC BINDER PG7022ER.
- 3. MUST PROVIDE THE JOB MIX FORMULA TO THE APPROVING AGENCY PRIOR TO CONSTRUCTION.
- 4. UNLESS OTHERWISE APPROVED BY THE ENGINEER, BASE ROCK SHALL OPEN GRADED AASHTO NO. 3.

U.S. STANDARD SIEVE SIZE	PERCENT PASSING
2 ½" (63 MM)	100
2" (50 MM)	90-100
1 ½" (37.5 MM)	35-70
1" (25 MM)	0-15
½" (12.5 MM)	0-5

IF THE ABOVE CANNOT BE MET, OPEN GRADED AASHTO NO. 5 IS ACCEPTABLE WITH THE APPROVAL OF THE ENGINEER.

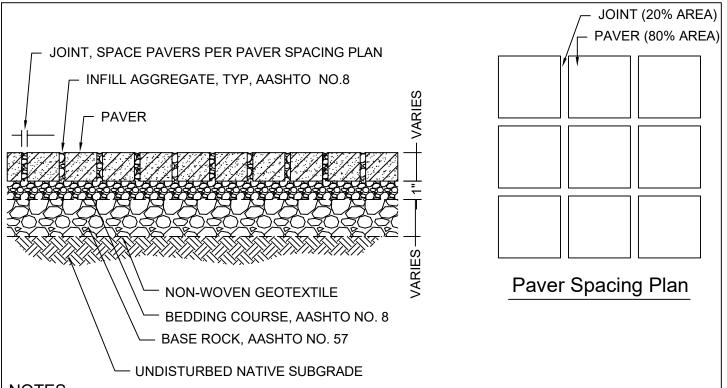
U.S. STANDARD SIEVE SIZE PERCENT PASSIN	
1 ½" (37.5 MM)	100
1" (25 MM)	90-100
<sup>3</sup> / <sub>4</sub> " (19 MM)	20-55
½" (12.5 MM)	0-10
3/8" (9.5 MM)	0-5

CHOKER COURSE AGGREGATE SHALL BE AASHTO NO. 57.

U.S. STANDARD SIEVE SIZE	PERCENT PASSING
1 ½" (37.5 MM)	100
1" (25 MM)	95-100
½" (12.5 MM)	25-60
4 (4.75 MM)	0-10
8 (2.36 MM)	0-5

★ GENERAL PERVIOUS SURFACING NOTES MUST ACCOMPANY THIS DETAIL.

Rogue Valley	Porous Asphalt Pavement	Dwg
Stormwater Design	Porous Aspirali Pavement	BMP 2.02
Manual		1 of 1



- 1. DESIGN & INSTALL CONCRETE PAVERS IN ACCORDANCE WITH THE INTERLOCKING CONCRETE PAVEMENT INSTITUTE (ICPI) SPECIFICATIONS & THE MANUFACTURER'S RECOMMENDATIONS.
- 2. IF USING SALVAGED AND POURED CONCRETE PAVERS, CONFIRM THAT THE PAVER MATERIAL AND CONDITION IS SUITABLE FOR ITS INTENDED USE.
- 3. UNLESS OTHERWISE APPROVED BY THE ENGINEER, BASE ROCK SHALL BE OPEN GRADED AASHTO NO. 57.

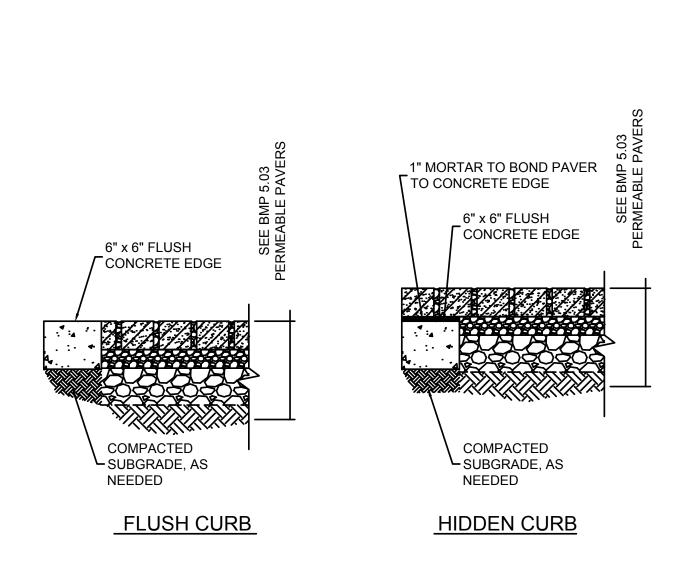
U.S. STANDARD SIEVE SIZE	PERCENT PASSING
1 ½" (37.5 MM)	100
1" (25 MM)	95-100
½" (12.5 MM)	25-60
4 (4.75 MM)	0-10
8 (2.36 MM)	0-5

4. UNLESS OTHERWISE APPROVED BY THE ENGINEER, THE BEDDING COURSE SHALL BE OPEN GRADED AASHTO NO. 8.

U.S. STANDARD SIEVE SIZE	PERCENT PASSING
½" (12.5 MM)	100
3/8" (9.5 MM)	85-100
4 (4.75 MM)	10-30
8 (2.36 MM)	0-10
16 (1.18 MM)	0-5

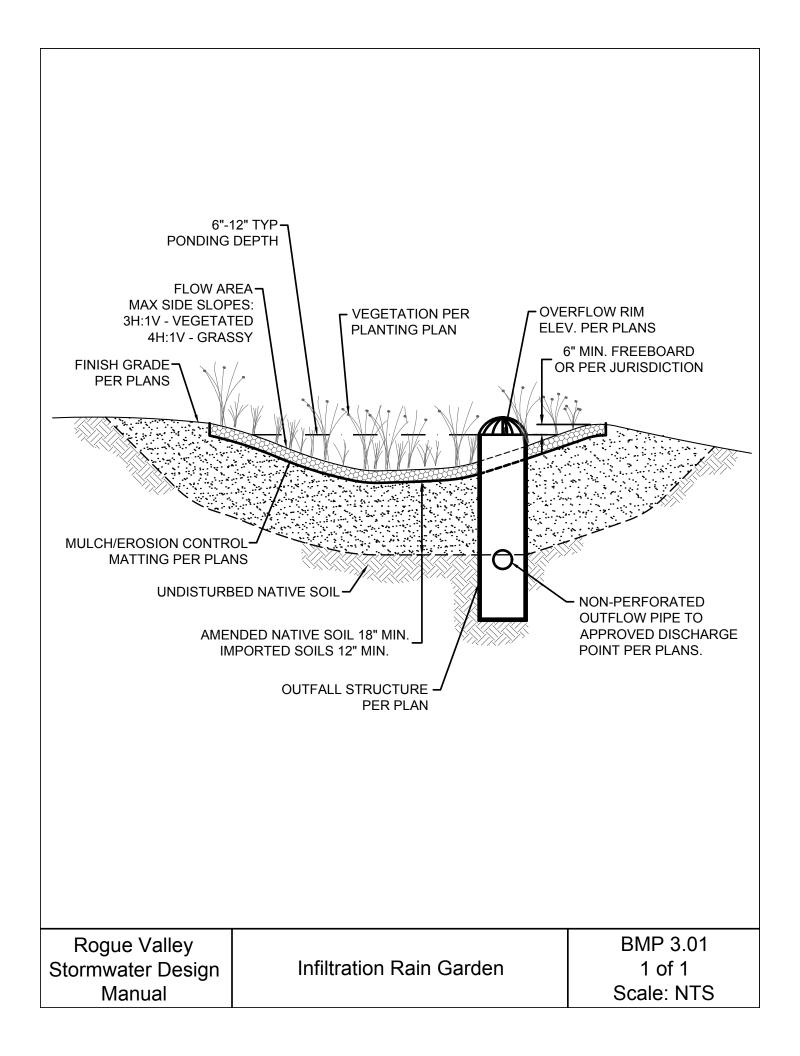
★ GENERAL PERVIOUS SURFACING NOTES MUST ACCOMPANY THIS DETAIL.

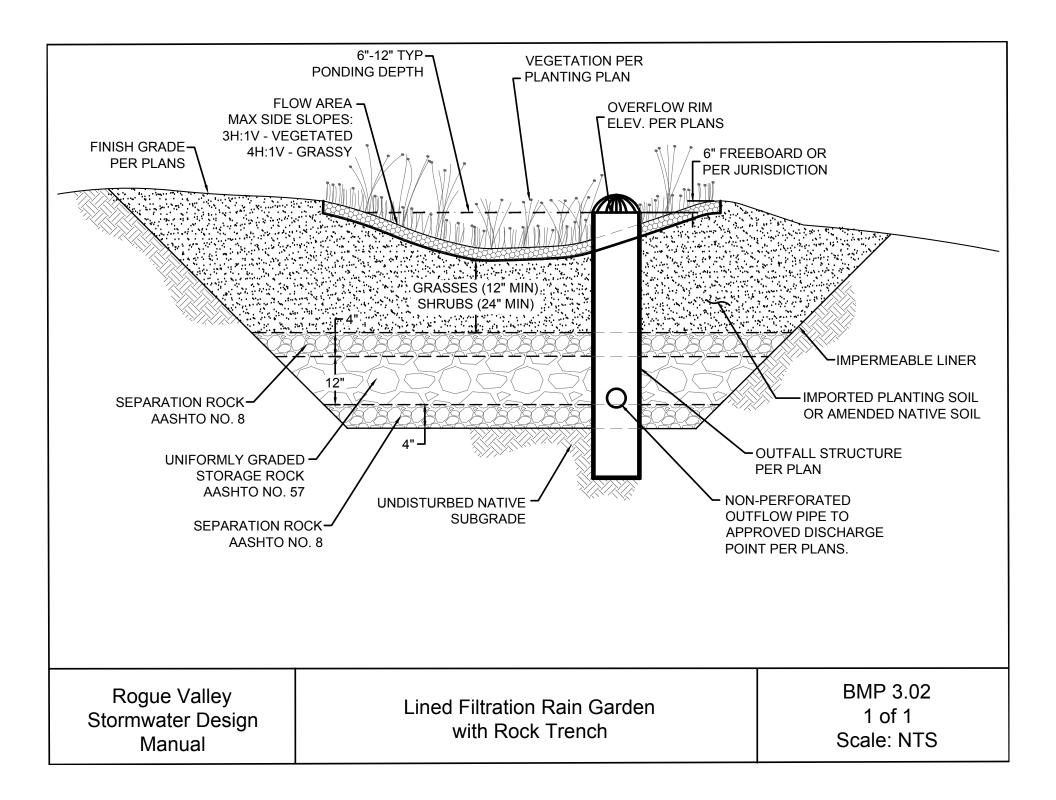
Rogue Valley Stormwater Design	Permeable Pavers	Dwg BMP 2.03
Manual		1 of 1

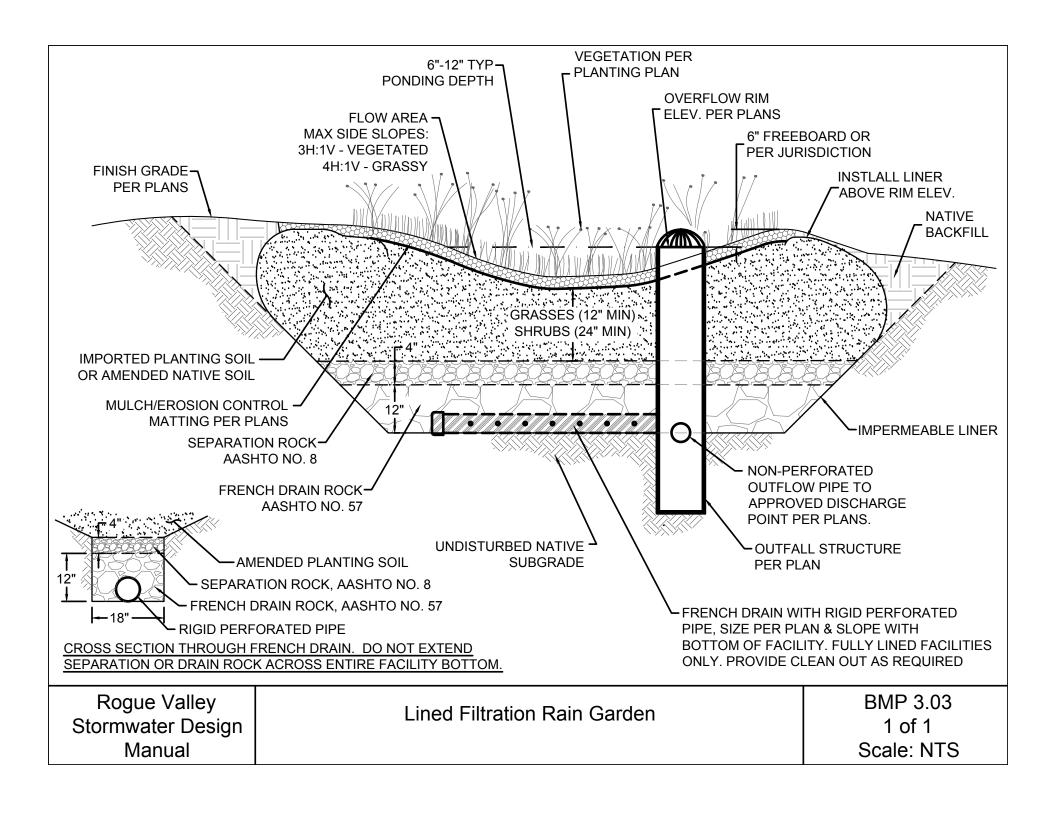


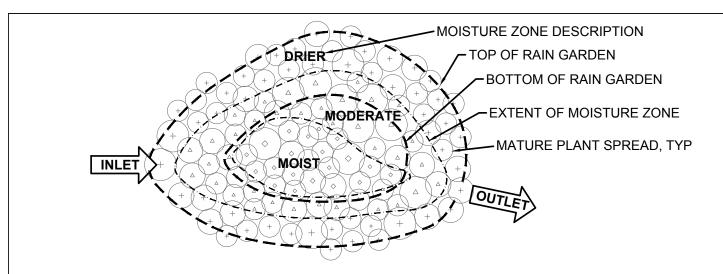
- 1. DURING INSTALLATION OF CURB, PROTECT PERMEABLE PAVER AREA FROM COMPACTION.
- ★ GENERAL PERVIOUS SURFACING NOTES MUST ACCOMPANY THIS DETAIL.

Rogue Valley		Dwg
Stormwater Design	Vehicular Permeable Paver Edges	BMP 2.04
Manual		1 of 1

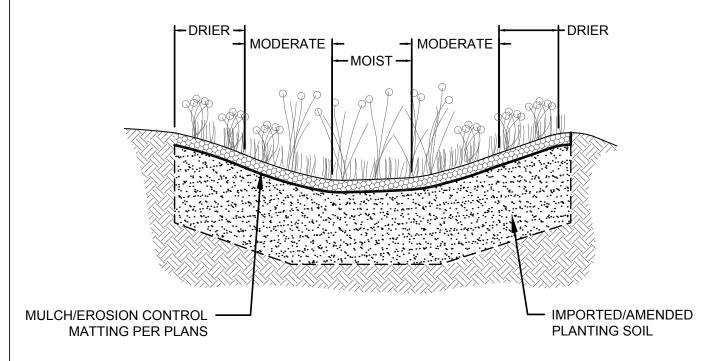








## **PROFILE VIEW**



#### LEGEND:

- — CONTOUR LINE
- MOISTURE ZONE

PLANT SPECIES APPROPRIATE FOR MOISTURE ZONE:

- (+) DRIER
- ( MODERATE
- ( > MOIST

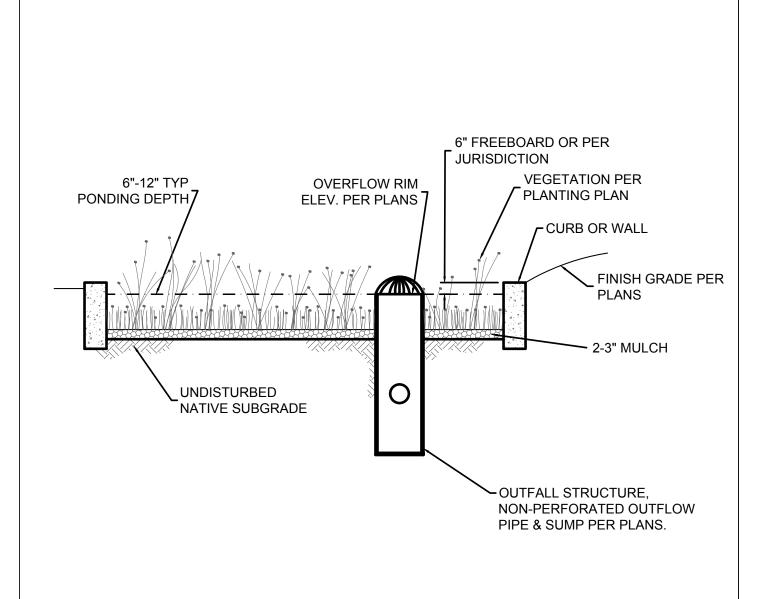
#### NOTES:

- THIS DETAIL IS PROVIDED AS A SCHEMATIC EXAMPLE OF THE RANDOM PLANT PLACEMENT AND 95% COVERAGE AFTER ESTABLISHMENT PERIOD DESIRED TO REDUCE EROSION AND WEEDS.
- 2. INSTALL PLANTS PER PLANS, ACCORDING TO LANDSCAPE DESIGN PLANT TABLE, WHICH SHOULD INCLUDE PLANT SPECIES, SPACING, AND QUANTITIES IN EACH MOISTURE ZONE.
- 3. MOISTURE ZONES VARY FROM THOSE SHOWN DEPENDING ON GRADING PLAN, LOCATION OF INLET (S) AND OUTLET(S) AND FACILITY SHAPE.

Rogue Valley
Stormwater Design
Manual

Rain Garden
Planting Schematic

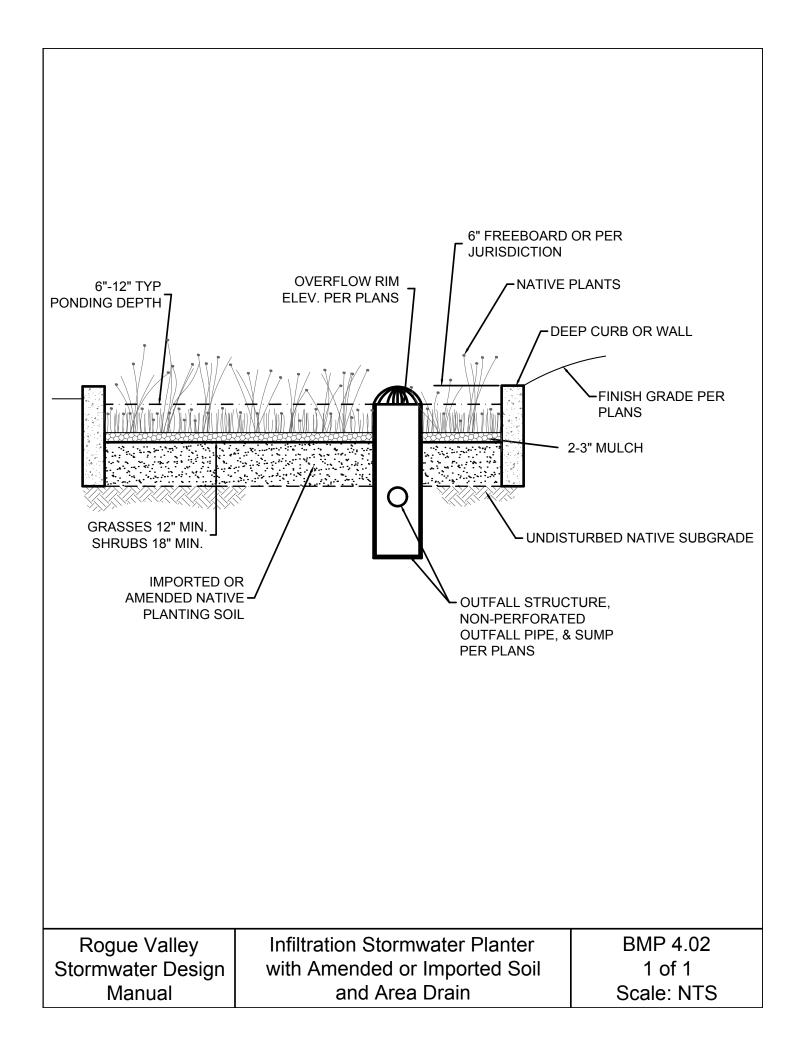
BMP 3.04 1 of 1 Scale: NTS

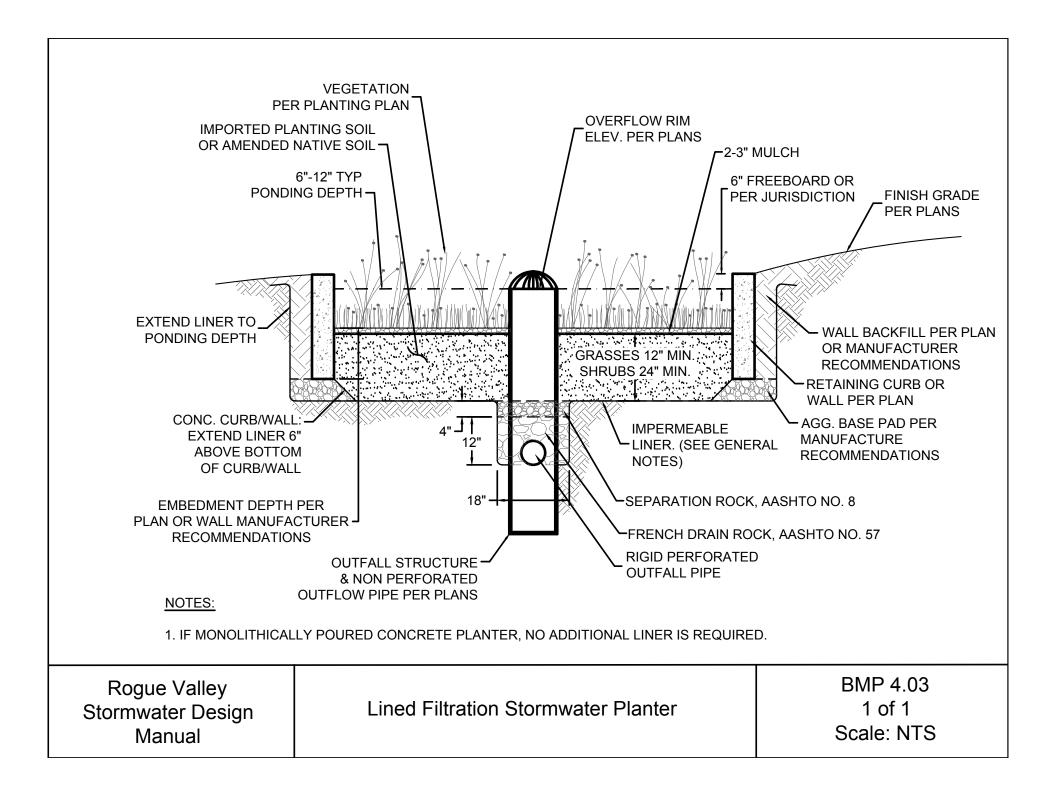


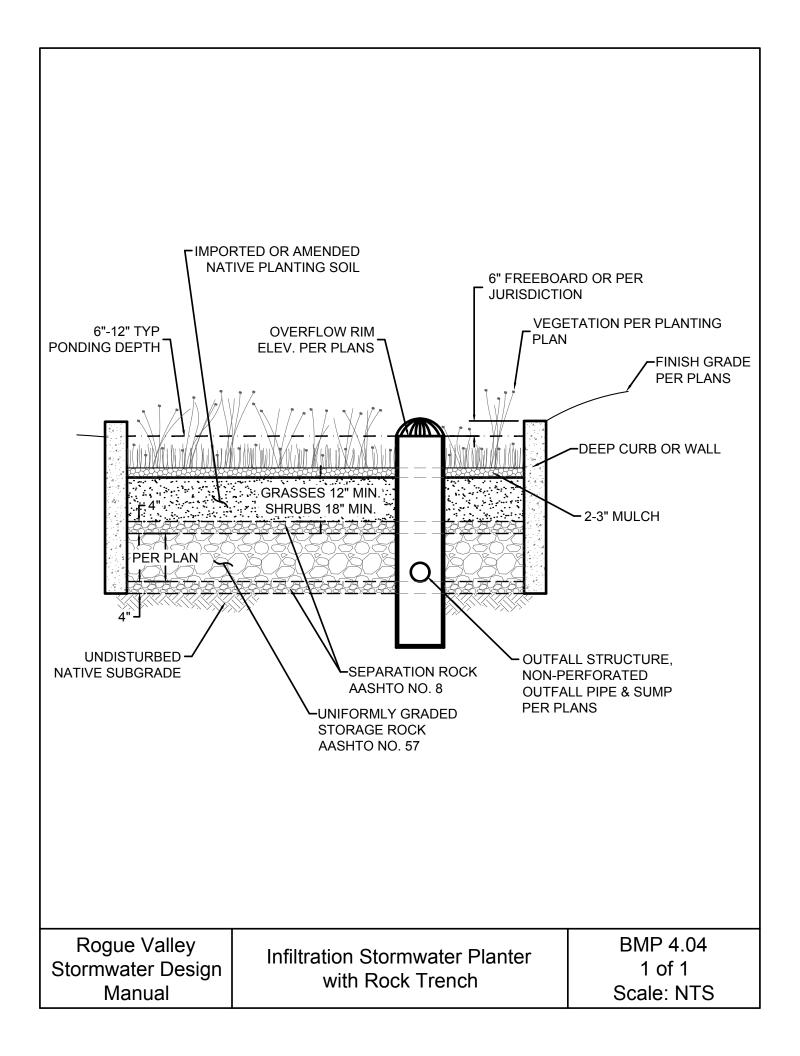
Rogue Valley Stormwater Design Manual

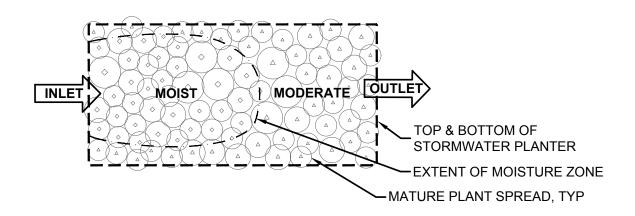
Infiltration Stormwater Planter with Area Drain

BMP 4.01 1 of 1 Scale: NTS









### LEGEND:

- — CONTOUR LINE
- MOISTURE ZONE

PLANT SPECIES APPROPRIATE FOR MOISTURE ZONE:

- ( MODERATE
- MOIST

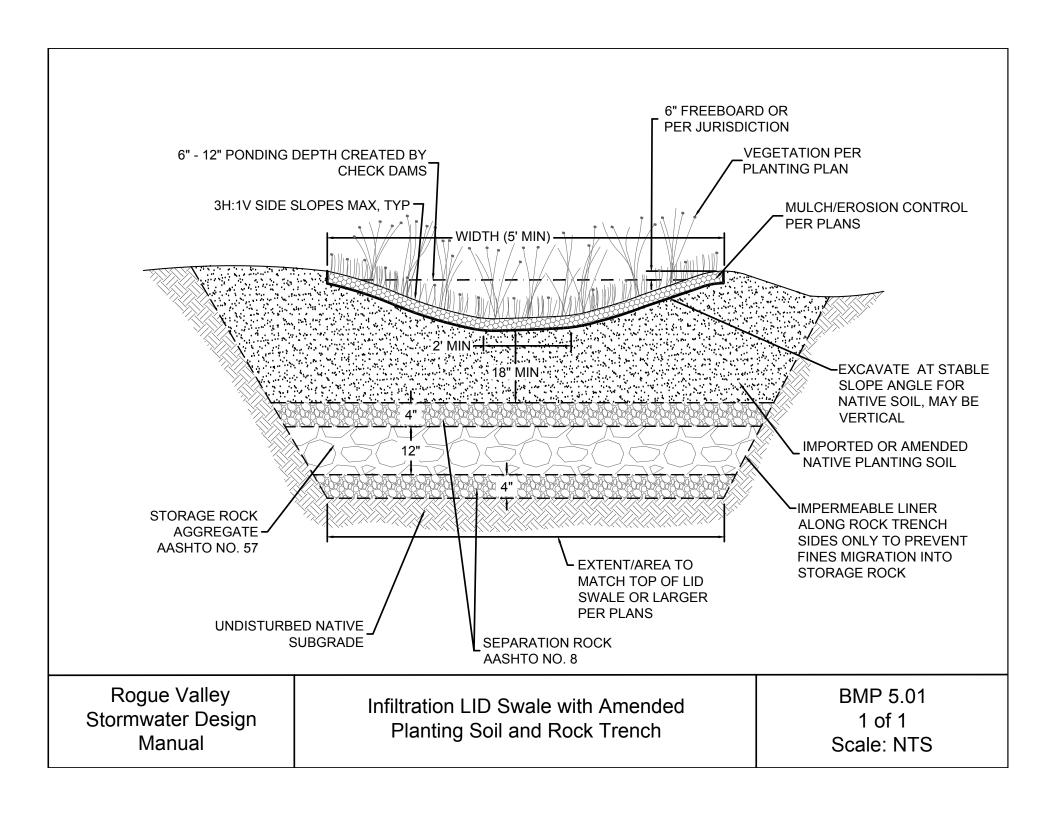
### NOTES:

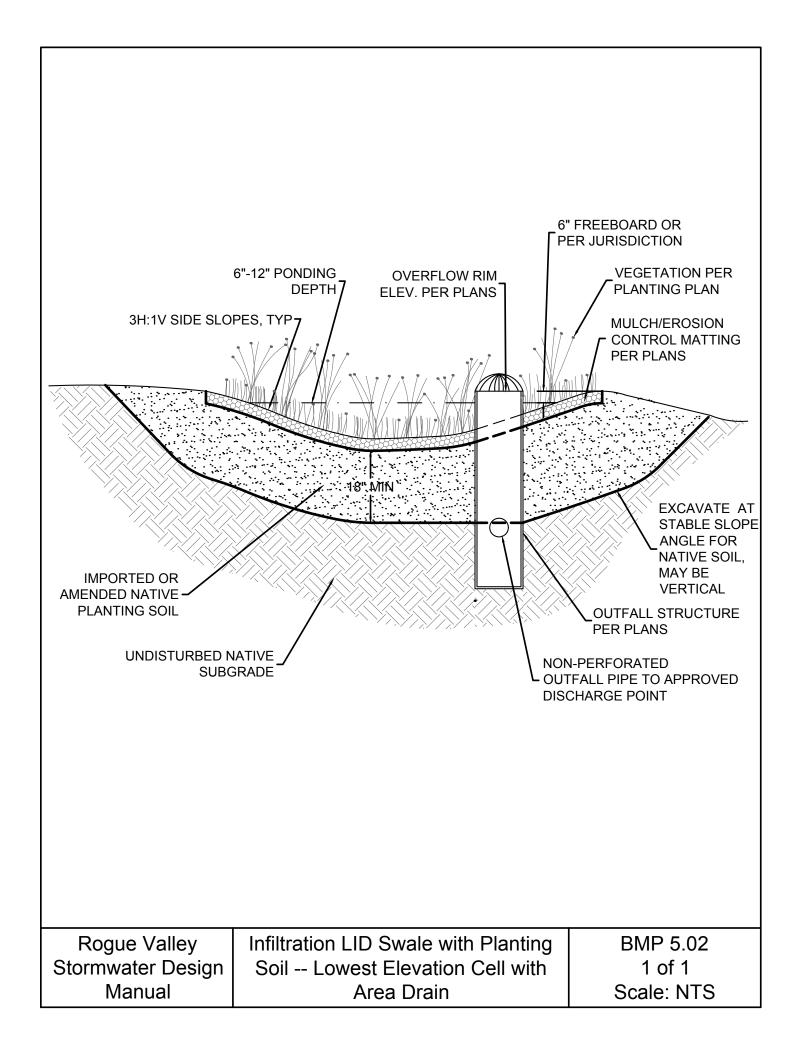
- THIS DETAIL IS PROVIDED AS A SCHEMATIC EXAMPLE OF THE RANDOM PLANT PLACEMENT AND 95% COVERAGE AFTER ESTABLISHMENT PERIOD DESIRED TO REDUCE EROSION AND WEEDS.
- INSTALL PLANTS PER PLANS, ACCORDING TO LANDSCAPE DESIGN PLANT TABLE, WHICH SHOULD INCLUDE PLANT SPECIES, SPACING, AND QUANTITIES IN EACH MOISTURE ZONE.
- 3. MOISTURE ZONES VARY FROM THOSE SHOWN DEPENDING ON GRADING PLAN, LOCATION OF INLET (S) AND OUTLET(S) AND FACILITY SHAPE.

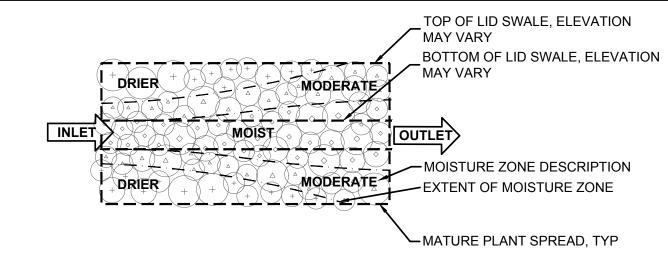
Rogue Valley
Stormwater Design
Manual

Stormwater Planter Planting Schematic

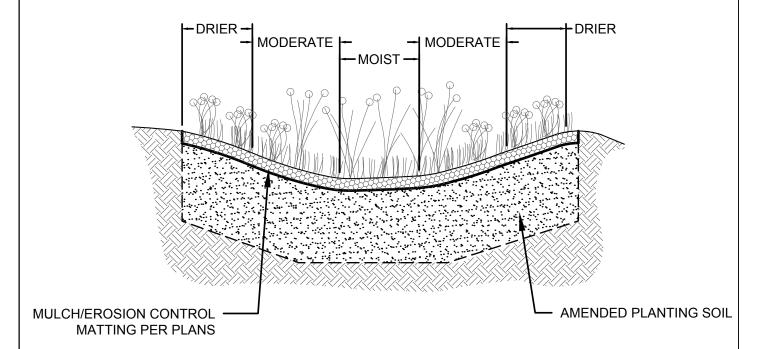
BMP 4.05 1 of 1 Scale: NTS







## PROFILE VIEW



#### LEGEND:

- CONTOUR LINE
- - MOISTURE ZONE

PLANT SPECIES APPROPRIATE FOR MOISTURE ZONE:

- (+) DRIER
- (a) MODERATE
- ( MOIST

#### NOTES

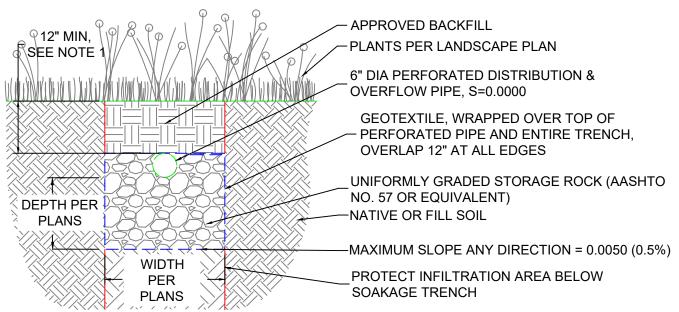
- THIS DETAIL IS PROVIDED AS A SCHEMATIC EXAMPLE OF THE RANDOM PLANT PLACEMENT AND 95% COVERAGE AFTER ESTABLISHMENT PERIOD DESIRED TO REDUCE EROSION AND WEEDS.
- 2. INSTALL PLANTS PER PLANS, ACCORDING TO LANDSCAPE DESIGN PLANT TABLE, WHICH SHOULD INCLUDE PLANT SPECIES, SPACING, AND QUANTITIES IN EACH MOISTURE ZONE.
- 3. MOISTURE ZONES VARY FROM THOSE SHOWN DEPENDING ON GRADING PLAN, LOCATION OF INLET (S) AND OUTLET(S) AND FACILITY SHAPE.

Rogue Valley
Stormwater Design
Manual

LID Swale Planting Schematic

BMP 5.03 1 of 1 Scale: NTS

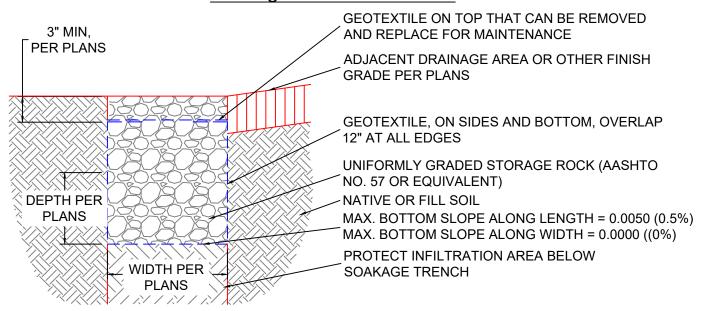
# Soakage Trench in Landscape Area



### **NOTES**

- 1. DEPTH TO PIPE MUST BE 12" MINIMUM FOR ADEQUATE SOIL DEPTH PER PLANT CHOICES: 12" FOR LAWN
  - 18" FOR TALL GRASSES
  - 24" FOR SHRUBS
  - 36" FOR MOST TREES

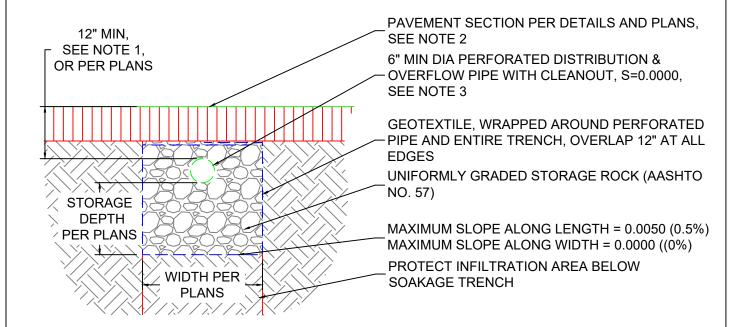
## Soakage Trench at Surface



### **UIC AUTHORIZATION (NOT ALWAYS REQUIRED):**

IF WATER IS DIRECTLY DISCHARGED TO THE SUBSURFACE, THE FACILITY MAY BE CONSIDERED A UIC AND MIGHT REQUIRE DEQ AUTHORIZATION. CONTACT DEQ TO FIND OUT ABOUT CURRENT UIC REGULATIONS AND WHETHER AUTHORIZATION WILL BE REQUIRED. DEQ'S UIC WEBPAGE: HTTP://WWW.OREGON.GOV/DEQ/WQ/WQPERMITS/PAGES/UIC.ASPX.

Rogue Valley		BMP 6.01
Stormwater Design	Soakage Trench in Landscape Area	1 of 1
Manual		Scale: NTS

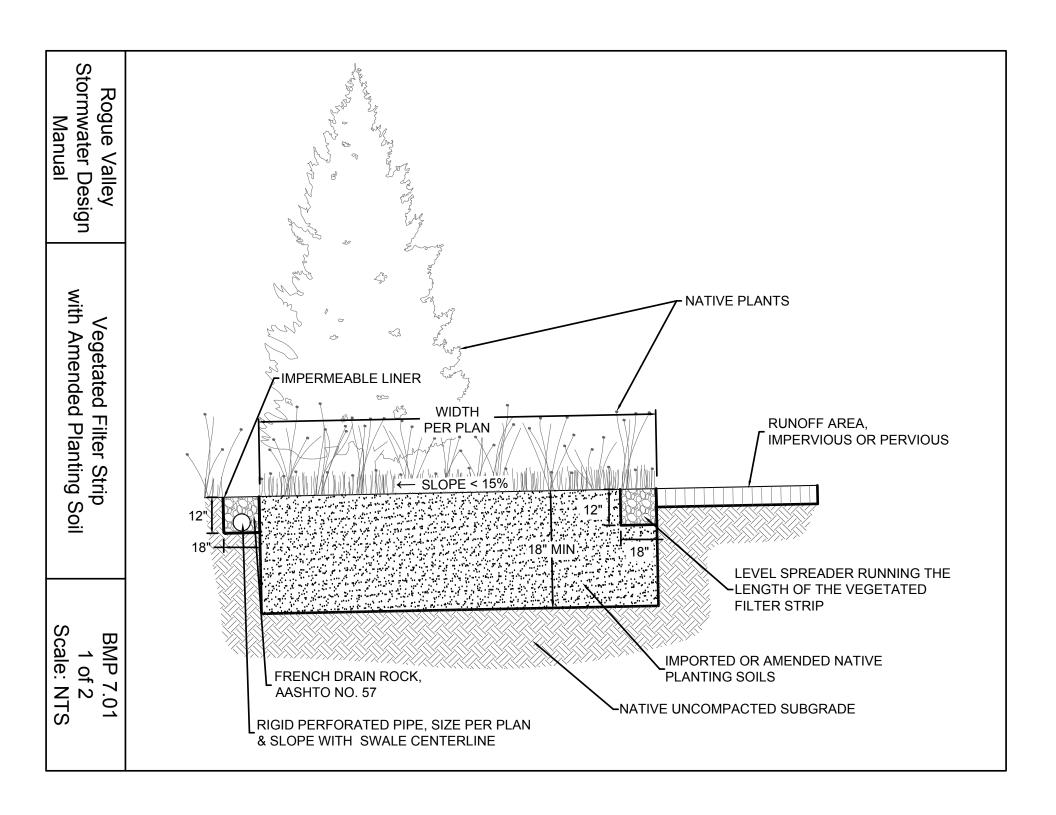


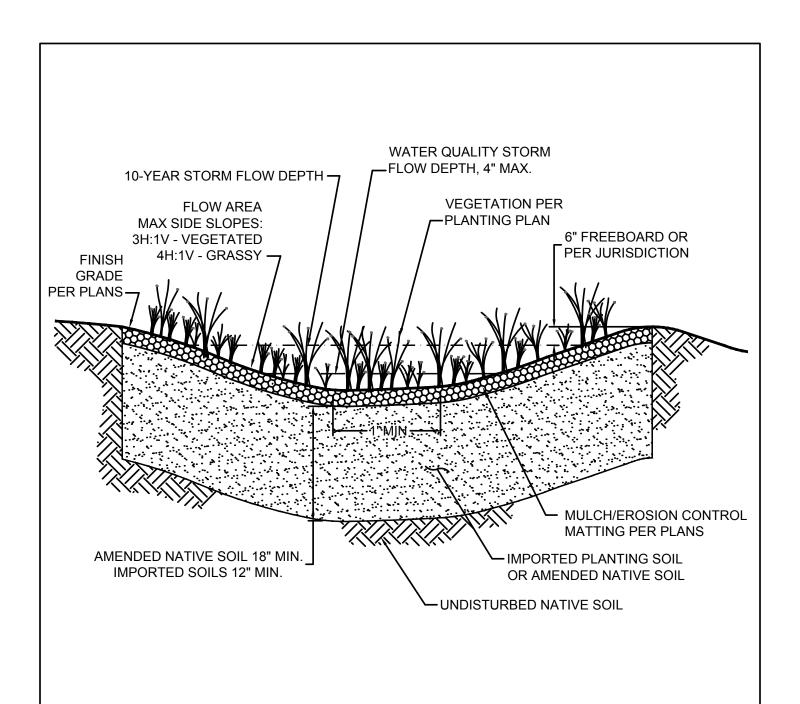
- 1. PROVIDE DEPTH TO PIPE NEEDED FOR ADEQUATE COVER BASED ON VEHICULAR LOADING, WHICH VARIES WITH PIPE MANUFACTURER.
- 2. PAVEMENT SECTION (DEPTH AND TYPE OF IMPERVIOUS PAVEMENT SURFACE, OPEN GRADED BASE ROCK) TO BE DESIGNED BY A GEOTECHNICAL ENGINEER TO SUPPORT PREDICTED TRAFFIC LOADING BASED ON UNDERLYING NATIVE SOILS IN A WET, UNCOMPACTED CONDITION. DO NOT COMPACT
- 3. IF PERFORATED DISTRIBUTION PIPE WILL BE LOCATED ON THE BOTTOM OF THE TRENCH TO ACHIEVE ADEQUATE COVER, INCORPORATE A CATCH BASIN CONTROL STRUCTURE (SEE BMP 8.01) OR EQUIVALENT DEVICE TO ENSURE WATER BACKS UP INTO STORAGE ROCK DEPTH.

### **UIC AUTHORIZATION (NOT ALWAYS REQUIRED):**

IF WATER IS DIRECTLY DISCHARGED TO THE SUBSURFACE, THE FACILITY MAY BE CONSIDERED A UIC AND MIGHT REQUIRE DEQ AUTHORIZATION. CONTACT DEQ TO FIND OUT ABOUT CURRENT UIC REGULATIONS AND WHETHER AUTHORIZATION WILL BE REQUIRED. DEQ'S UIC WEBPAGE: HTTP://WWW.OREGON.GOV/DEQ/WQ/WQPERMITS/PAGES/UIC.ASPX.

Rogue Valley	Soakage Trench under Impervious Pavement Surface	BMP 6.02
Stormwater Design		1 of 1
Manual		Scale: NTS

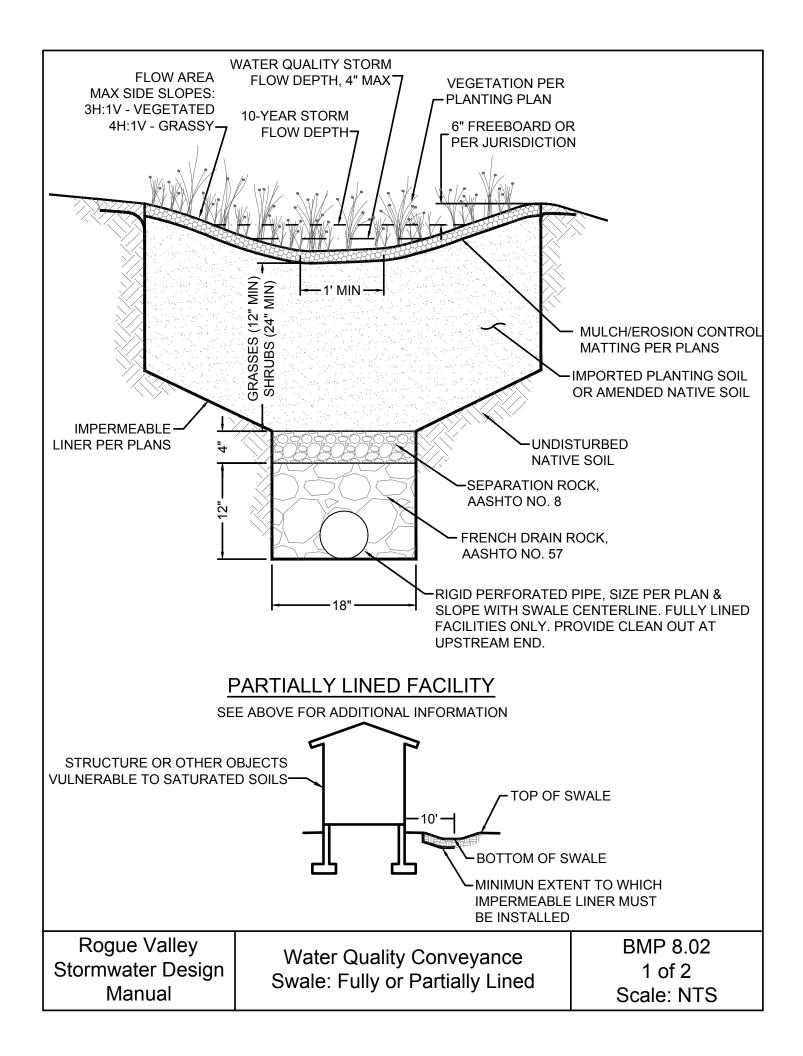




Rogue Valley Stormwater Design Manual

Water Quality Conveyance Swale with Amended Planting Soil

BMP 8.01 1 of 1 Scale: NTS



- 1. DEPTH OF SOIL VARIES WITH PROPOSED VEGETATION TYPE:
  - GRASSES 12"
  - SHRUBS 24"
- ★ GENERAL WATER QUALITY CONVEYANCE SWALE NOTES MUST ACCOMPANY THIS DETAIL

## MATERIAL SPECIFICATIONS

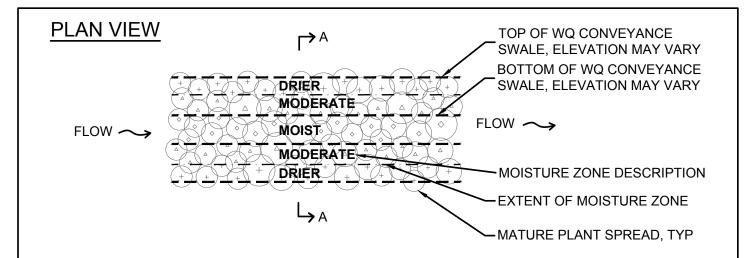
OPEN GRADED AASHTO NO. 8		
U.S. STANDARD SIEVE SIZE	PERCENT PASSING	
½" (12.5 MM)	100	
3/8" (9.5 MM)	85-100	
4 (4.75 MM)	10-30	
8 (2.36 MM)	0-10	
16 (1.18 MM)	0-5	

DRAINAGE ROCK AASHTO NO. 57		
U.S. STANDARD SIEVE SIZE	PERCENT PASSING	
1 ½" (37.5 MM)	100	
1" (9.5 MM)	95-100	
½" (12.5 MM)	25-60	
4 (4.75 MM)	0-10	
8 (2.36 MM)	0-5	

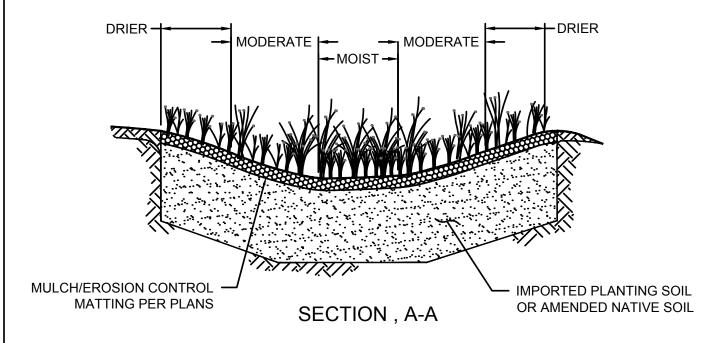
## IMPERMEABLE LINER SPECIFICATIONS

- 1. MATERIAL SPECIFICATIONS. IMPERMEABLE LINERS MAY BE A 30 MIL (MINIMUM) LOW DENSITY POLYETHYLENE (LDPE), 30 MIL (MINIMUM) ETHYLENE PROPYLENE DIENE MONOMER (EPDM) OR BENTONITE CLAY MAT PER MANUFACTURER GUIDANCE.
- 2. PLACEMENT. INSTALL THE LINER SECURELY AT A HEIGHT EQUAL TO THE DEPTH OF WATER THAT MAY BE PONDED OR FLOWING DURING 25 YEAR STORM.

Rogue Valley Stormwater Design Manual	Water Quality Conveyance Swale: Fully or Partially Lined	BMP 8.02 2 of 2 Scale: NTS
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## **PROFILE VIEW**



### LEGEND:

- INDICATES GRADE BREAK
- MOISTURE ZONE

PLANT SPECIES APPROPRIATE FOR MOISTURE ZONE:

- + DRIER
- ( MODERATE
- MOIST

### NOTES:

- 1. THIS DETAIL IS PROVIDED AS A SCHEMATIC EXAMPLE OF THE RANDOM PLANT PLACEMENT AND 90% COVERAGE AFTER ESTABLISHMENT PERIOD DESIRED TO REDUCE EROSION AND WEEDS.
- 2. INSTALL PLANTS PER PLANS, ACCORDING TO LANDSCAPE DESIGN PLANT TABLE, WHICH SHOULD INCLUDE PLANT SPECIES, SPACING, AND QUANTITIES IN EACH MOISTURE ZONE.
- 3. MOISTURE ZONES VARY FROM THOSE SHOWN DEPENDING ON GRADING PLAN, LOCATION OF INLET(S) AND OUTLET(S) AND FACILITY SHAPE.

Rogue Valley
Stormwater Design
Manual

Water Quality Conveyance Swale Planting Schematic

BMP 8.03 1 of 1 Scale: NTS

