

APPLICANT INSTRUCTIONS:

1. MEASURE ENTIRE FRONT YARD AREA. SUBTRACT HARDSCAPE AREAS TO GET THE TOTAL SQUARE FEET OF PLANTED AND IRRIGATED AREA. ENTER THIS NUMBER IN THE PLANT WATER USE TABLE ON THIS SHEET.
2. IF NEEDED USE A RED PEN TO ADJUST THE LAYOUT OF DRIVEWAY, PATHS AND PLANTING AREAS TO FIT YOUR YARD.
3. ADJUST ORIENTATION OF NORTH ARROW TO SITE CONDITION.
4. ADD ANY EXISTING TREES IN RED ON THE PLAN. ADJUST TREE LOCATIONS IF NEEDED TO FIT YOUR SITE.
5. FILL IN PLANT WATER USE TABLE.
6. INSURE LESS THAN 25% OF PLANTED AREA IS MEDIUM WATER USE PLANTINGS.
7. IN THE LEGEND, CIRCLE THE HARDSCAPE MATERIALS YOU WILL BE USING AND ON DETAIL SHEETS L3.0, L3.1 & L3.2.
8. INDICATE ANY SUBSTITUTIONS TO THE PLANTINGS BY CROSSING OUT THE LISTED PLANTS AND WRITING THE SUBSTITUTION BELOW IN RED INK. MAKE SURE THE PLANTS USED HAVE MATCHING WATER USE AND ARE ROUGHLY THE SAME SIZE (SEE SONOMA-MARIN SAVING WATER PARTNERSHIP <http://www.savingwaterpartnership.org> FOR SUBSTITUTIONS).
9. MOVE TO THE IRRIGATION PLAN AND FILL IN THE AREAS INDICATED ON THAT SHEET.

NOTE:

1. PLANTING DESIGN FOR FULL COVER WITHIN 3 YEARS.
2. THE GARDEN IS DESIGNED TO CAPTURE AND INFILTRATE SOME STORM WATER ON SITE. WHEN THE FLOW IS DIRECTED TO A SWALE OR RAIN GARDEN, IT NEEDS AN OVERFLOW OUTLET THAT WON'T ERODE. OPTIONS ARE PROVIDED ON THE DETAIL SHEETS. SPLASHBLOCKS AND OUTLETS IN PLANTING BEDS ARE MEANT TO SPREAD THE FLOW TO SHEETFLOW OVER PLANTING AREAS AND NO OVERFLOW DEVICE IS NEEDED.
3. REVIEW IRRIGATION SHEETS AND INSTALL SLEEVES UNDER PAVING SURFACES IN THEIR CORRECT LOCATION.



PLANT WATER USE TABLE			
WATER USE	PLAN SF (%)	PERMIT SF (FILL IN)	PERMIT % (FILL IN)
LOW	1,535 (75%)		
MED	508 (25%)		
TOTAL	2,043 (100%)		

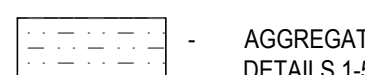
OPTIONAL MATERIALS LEGEND

VEHICULAR PAVING

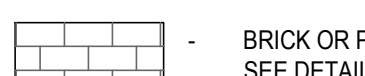


- CONCRETE

PEDESTRIAN PAVING



- AGGREGATE PAVING, CHOOSE FROM DETAILS 1-5 ON SHEET L3.0



- BRICK OR PERMEABLE PAYER

SEE DETAIL 2 ON SHEET L3.0



- MULCH

SEE DETAIL 5 ON SHEET L3.2

STORM WATER ELEMENTS

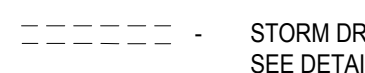


- COBBLE

SEE DETAIL 4 ON SHEET L3.1



- RAIN GARDEN: 3/8" GRAVEL MULCH OR PEA GRAVEL, SEE L3.1 FOR DETAILS



- STORM DRAIN PIPE

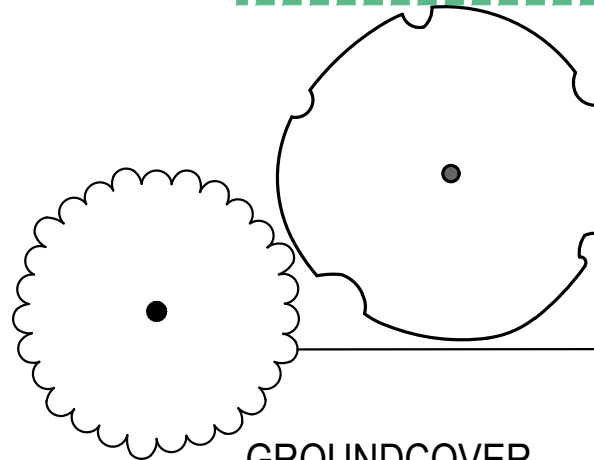
SEE DETAIL 2 ON SHEET L3.1

*SEE SHEETS L3.0-3.2 FOR MATERIALS OPTIONS

PLANTING LEGEND- APPLICANT FILL IN PLANT QUANTITY

AREA	BOTANICAL NAME	SIZE	SPACING	PLAN QUANTITY	PERMIT QUANTITY (FILL IN)
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PLANTING LOW WATER USE



LARGE TREE (CHOOSE ONE)
QUERCUS LOBATA (VALLEY OAK)
TILIA TOMENTOSA (SILVER LINDEN)
GLEDITSIA TRIACANTHOS (HONEY LOCUST)

15G

30-60' O.C.

1

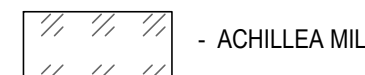
MEDIUM TREE (CHOOSE ONE)
DIOSPYROS (PERSIMMON)
CHILTALPA

15G

20-40' O.C.

1

GROUNDCOVER



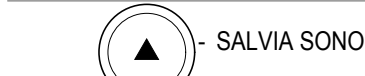
- ACHILLEA MILLEFOLIUM 'PALISADES'

4"

18" O.C.

28

PERENNIALS 0-2'



- SALVIA SONOMENSIS CV OR 'DARA'S CHOICE'

4"

3' O.C.

21



- SALVIA SPATHACEA (HUMMINGBIRD SAGE)

1G

3' O.C.

8



- SCUTELLARIA SUFFRUTESCENS (PINK TEXAS SKULLCAP)

4"

18" O.C.

46

PERENNIALS 2-4' SUN



- EPILOBIUM CANUM 'MARIN PINK'

4"

3' O.C.

27



- SALVIA OFFICINALIS

4"

3' O.C.

9

SHRUBS 1-3' SUN



- LAVENDULA 'DENTATA' (FRENCH LAVENDER)

4"

4' O.C.

21

SHRUBS 3-6' SUN



- CEANOTHUS 'RAY HARTMAN'

SUBSTITUTE SM TREE, <http://www.savingwaterpartnership.org>.

5G

3' O.C.

1

GRASS 1-2'



- BOUTELOUA GRACILIS 'BLONDE AMBITION'

(SIDE OATS GRAMMA GRASS)

4"

2' O.C.

38

RAIN GARDEN



- BOTTOM PERIMETER OF RAIN GARDEN



- JUNCUS PATENS (GRAY RUSH)

2" OR 4"

3' O.C.

2

PLANTING MEDIUM WATER USE

PERENNIALS 0-2' SUN



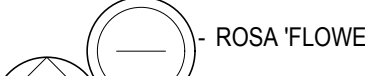
- GERANIUM 'ROZANNE'

4"

2' O.C.

38

SHRUBS 1-3' SUN

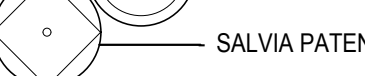


- ROSA 'FLOWER CARPET WHITE'

1G

3' O.C.

5



- SALVIA PATENS

1G

3' O.C.

7

SHRUB 7-10' SUN



- ANISODONTEA HYPOMANDARA 'TARA'S PINK'

1G

4' O.C.

3

RAIN GARDEN (OPTIONAL)



- BOTTOM PERIMETER OF RAIN GARDEN



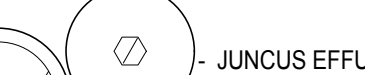
- CAREX PRAEGRACILIS (FIELD SEDGE) OR BIOSWALE SOD MIX

2" PLUGS (OR SOD)

16" O.C.

100

(173 SF)

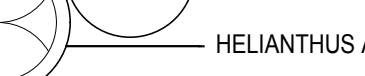


- JUNCUS EFFUSUS 'CARMAN'S JAPANESE' (COMMON RUSH)

1G

3' O.C.

3



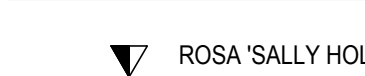
- HELIANTHUS ANGUSTIFOLIA (SWAMP SUNFLOWER)

1G

4' O.C.

2

VINE PLANTING



- ROSA 'SALLY HOLMES' OR MANDEVILLA LAXA

1

*SEE MASTER PLANT LIST FOR PLANT SUBSTITUTIONS AND SHADE ALTERNATES, AVAILABLE FROM SONOMA-MARIN SAVING WATER PARTNERSHIP <http://www.savingwaterpartnership.org>.

PLANTING NOTES:

1. REFER TO PLANTING DETAILS ON SHEET L3.2.

BY USING THESE PLANS, I AGREE TO DEFEND, INDEMNIFY, AND HOLD HARMLESS THE SONOMA-MARIN SAVING WATER PARTNERSHIP, ITS MEMBERS, SONOMA COUNTY WATER AGENCY, CITY OF SANTA ROSA, MARIN MUNICIPAL WATER DISTRICT, NORTH BAY AREA DISTRICT, CITY OF ROSS, VALLEY OF THE MOON WATER DISTRICT, AND TOWN OF WINDSOR AND THEIR DIRECTORS, OFFICERS, AGENTS, EMPLOYEES AND LANDSCAPE DESIGN CONSULTANTS, FROM AND AGAINST ALL LOSS, LIABILITY, DAMAGES, SUITS AND DAMAGES, INCLUDING ATTORNEY'S FEES, ARISING OUT OF OR RESULTING FROM THE USE OF THIS LANDSCAPE PLAN. I UNDERSTAND THAT IT IS MY RESPONSIBILITY AS THE PROJECT OWNER TO ENSURE THAT ALL ELEMENTS ARE IMPLEMENTED SAFELY AND ACCORDING TO APPLICABLE STATUTES, RULES, REGULATIONS, ORDINANCES AND/OR CODES.

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ABLA
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RESIDENTIAL LANDSCAPE DESIGN TEMPLATE
SONOMA-MARIN SAVING WATER PARTNERSHIP
www.savingwaterpartnership.org
NAME: _____
SITE ADDRESS: _____

SONOMA-MARIN SAVING WATER PARTNERSHIP

SHEET TITLE:
LAYOUT &
PLANTING PLAN
SONOMA
COTTAGE B
(CUL DE SAC)

DATE
PERMIT PLAN
JANUARY 17, 2019

L-1.0

SHEET
OF

FIRE SAFER: NON WOOD FENCING & GATES ATTACHED TO HOUSE

DOWNSPOUT LOCATION (TYP) (APPLICANT CAN ADJUST TO MATCH SITE CONDITIONS)

MATCHLINE SEE SHEET L1.0

SHEET FLOW OVER OR UNDER PAVING, SEE DETAILS 5 & 6 ON SHEET L3.1

MULCH BASIN TYPICAL

PLACE COBBLE @ STORM DRAIN OUTFALL, TYPICAL PER DETAIL 4 ON SHEET L3.1



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OPTIONAL MATERIALS LEGEND

VEHICULAR PAVING



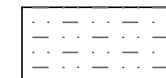
CONCRETE

UNITS
PLAN
QUANTITY

524

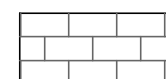
PERMIT
QUANTITY
(FILL IN)

PEDESTRIAN PAVING



AGGREGATE PAVING, CHOOSE FROM DETAILS 1-5 ON SHEET L3.0

SF
175



BRICK OR PERMEABLE PAVER
SEE DETAIL 2 ON SHEET L3.0

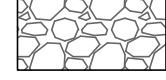
SF
307



MULCH
SEE DETAIL 5 ON SHEET L3.2

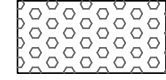
SF

STORM WATER ELEMENTS



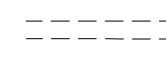
COBBLE
SEE DETAIL 4 ON SHEET L3.1

SF
8



RAIN GARDEN: 3/8" GRAVEL MULCH OR
PEA GRAVEL, SEE L3.1 FOR DETAILS

SF
30



STORM DRAIN PIPE
SEE DETAIL 2 ON SHEET L3.1

LF
50

*SEE SHEETS L3.0-3.2 FOR MATERIALS OPTIONS

PLANTING LEGEND- APPLICANT FILL IN PLANT QUANTITY

AREA	BOTANICAL NAME	SIZE	SPACING	PLAN QUANTITY	PERMIT QUANTITY (FILL IN)
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PLANTING LOW WATER USE

	LARGE TREE (CHOOSE ONE) QUERCUS LOBATA (VALLEY OAK) TILIA TOMENTOSA (SILVER LINDEN) GLEDITSIA TRIACANTHOS (HONEY LOCUST)	15G	30-60' O.C.	1	
	MEDIUM TREE (CHOOSE ONE) DIOSPYROS (PERSIMMON) CHILTALPA	15G	20-40' O.C.	1	

GROUNDCOVER

	ACHILLEA MILLEFOLIUM 'PALISADES'	4"	18" O.C.	28	
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PERENNIALS 0-2'

	SALVIA SONOMENSIS CV OR 'DARA'S CHOICE'	4"	3' O.C.	21	
	SALVIA SPATHACEA (HUMMINGBIRD SAGE)	1G	3' O.C.	8	
	SCUTELLARIA SUFRUTESCENS (PINK TEXAS SKULLCAP)	4"	18" O.C.	46	

PERENNIALS 2-4' SUN

	EPILOBIUM CANUM 'MARIN PINK'	4"	3' O.C.	27	
	SALVIA OFFICINALIS	4"	3' O.C.	9	

SHRUBS 1-3' SUN

	LAVENDULA 'DENTATA' (FRENCH LAVENDER)	4"	4' O.C.	21	
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SHRUBS 3-6' SUN

	CEANOTHUS 'RAY HARTMAN' SUBSTITUTE SM TREE, http://www.savingwaterpartnership.org .	5G	3' O.C.	1	
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GRASS 1-2'

	BOUTELOUA GRACILIS 'BLONDE AMBITION' (SIDE OATS GRAMMA GRASS)	4"	2' O.C.	38	
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RAIN GARDEN

	BOTTOM PERIMETER OF RAIN GARDEN				
	JUNCUS PATENS 'GRAY RUSH'	2" OR 4"	3' O.C.	2	

PLANTING MEDIUM WATER USE

	GERANIUM 'ROZANNE'	4"	2' O.C.	38	
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SHRUBS 1-3' SUN

	ROSA 'FLOWER CARPET WHITE'	1G	3' O.C.	5	
	SALVIA PATENS	1G	3' O.C.	7	

SHRUB 7-10' SUN

	ANISODONTEA HYPOMANDARA 'TARA'S PINK'	1G	4' O.C.	3	
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RAIN GARDEN (OPTIONAL)

	BOTTOM PERIMETER OF RAIN GARDEN				
	CAREX PRAEGRACILIS (FIELD SEDGE) OR BIOSWALE SOD MIX	2" PLUGS (OR SOD)	16" O.C	100 (173 SF)	
	JUNCUS EFFUSUS 'CARMAN'S JAPANESE ' (COMMON RUSH)	1G	3' O.C.	3	
	HELIANTHUS ANGUSTIFOLIA (SWAMP SUNFLOWER)	1G	4' O.C.	2	

VINE PLANTING

	ROSA 'SALLY HOLMES' OR MANDEVILLA LAXA			1	
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*SEE MASTER PLANT LIST FOR PLANT SUBSTITUTIONS AND SHADE ALTERNATES, AVAILABLE FROM SONOMA-MARIN SAVING WATER PARTNERSHIP <http://www.savingwaterpartnership.org>.

PLANTING NOTES:

- REFER TO PLANTING DETAILS ON SHEET L3.2.

BY USING THESE PLANS, I AGREE TO DEFEND, INDEMNIFY, AND HOLD HARMLESS THE SONOMA-MARIN SAVING WATER PARTNERSHIP, ITS MEMBERS (SONOMA COUNTY WATER AGENCY, CITY OF SANTA ROSA, MARIN NATIONAL WATER PARK, CITY OF PETALUMA, CITY OF COSTATI, CITY OF SONOMA, VALLEY OF THE MOON WATER DISTRICT, AND TOWN OF WINDSOR) AND THEIR DIRECTORS, OFFICERS, AGENTS, EMPLOYEES AND LANDSCAPE DESIGN CONSULTANTS AGAINST ANY AND ALL LOSS, LIABILITY, EXPENSE, CLAIMS, SUITS AND DAMAGES, INCLUDING ATTORNEY'S FEES, ARISING OUT OF OR FROM THE DESIGN AND CONSTRUCTION OF THE PLANS. I UNDERSTAND THAT IT IS MY RESPONSIBILITY AS THE PROJECT OWNER TO INSURE THAT PLANNED ELEMENTS ARE IMPLEMENTED SAFELY AND ACCORDING TO APPLICABLE STATUTES, RULES, REGULATIONS, ORDINANCES AND/OR CODES.

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ABLA

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LANDSCAPE ARCHITECTURE

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SONOMA-MARIN SAVING WATER PARTNERSHIP
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SITE ADDRESS: _____



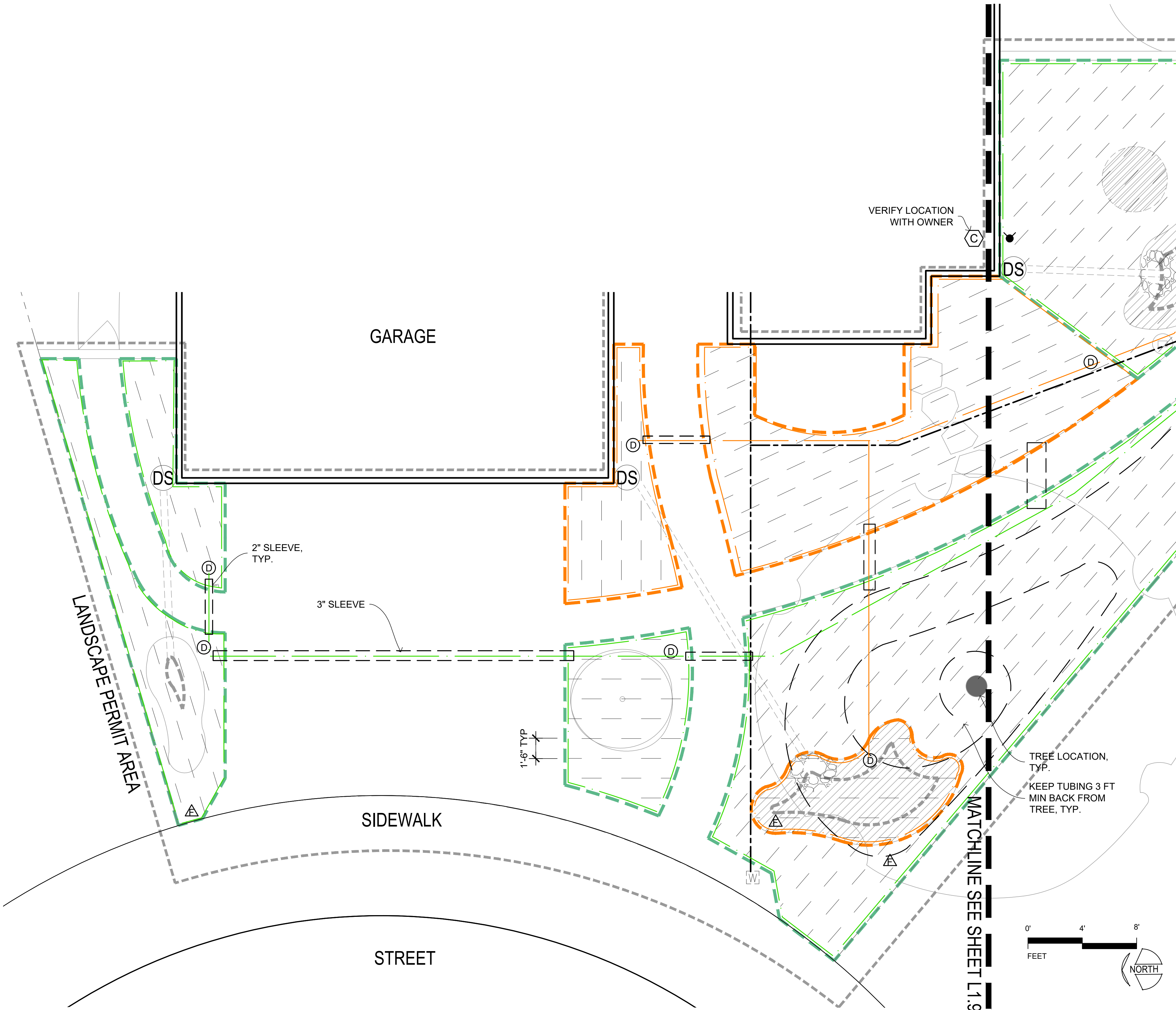
SHEET TITLE:

LAYOUT &
PLANTING PLAN
SONOMA
COTTAGE B
(CUL DE SAC)

DATE
PERMIT PLAN
JANUARY 17, 2019

L-1.1

SHEET
OF



PLANT WATER USE TABLE			
WATER USE	PLAN SF (%)	PERMIT SF (FILL IN)	PERMIT % (FILL IN)
LOW	1,535 (75%)		
MED	508 (25%)		
TOTAL	2,043 (100%)		

IRRIGATION VALVE TABLE

HYDRO ZONE	WATER USE	VALVE	PLAN SF	SUB - ZONES	PERMIT SF (FILL IN)	SUB - ZONES (FILL IN)	SOIL TYPE (CLAY / LOAM / SAND) (FILL IN)
1	LOW	1	1535 SF	5			
2	MED	2	508 SF	3			
3	TREES	3	196 LF	1			
CLAY SOIL: DO NOT EXCEED 1100 SF / 3 GPM PER SUBZONE. IF TOTAL AREA OF ZONE EXCEEDS 2200 SF, ADD A VALVE.							
LOAM SOIL: DO NOT EXCEED 1100 SF / 3 GPM PER SUBZONE. IF TOTAL AREA OF ZONE EXCEEDS 2200 SF, ADD A VALVE.							
SANDY SOIL: DO NOT EXCEED 500 SF / 3 GPM PER SUBZONE. IF TOTAL AREA OF ZONE EXCEEDS 1000 SF, ADD A VALVE.							
TREE EMITTER TUBING 0.6 GPH PER LEGEND: MIN 20 LF PER VALVE; MAX 200 LF PER SUBZONE; MAX 400 LF PER VALVE							
FOR EMITTER FLOW, EMITTER SPACING & ROW SPACING PER SOIL TYPE SEE LEGEND							

IRRIGATION LEGEND

APPLICANT CHECK-OFF COMPONENTS	SYMBOL	COMPONENT	MANUFAC - TURER	MODEL	NOTES / SIZE / COLOR
		EXISTING WATER METER			
		CONTROLLER	HUNTER	PRO-C	INDOOR
		WEATHER SENSOR	HUNTER	SOLAR-SYNC -SEN	WIRED
		FULL PORT BALL VALVE	NIBCO	585	LINE SIZE
		SLEEVE		PVC SCH 40	
		MAINLINE		PVC SCH 40 WITH SCH 40 SOLVENT WELD FITTINGS	
		LATERAL PIPE (COLOR VARIES PER ZONE)		PVC SCH 40 WITH SCH 40 SOLVENT WELD FITTINGS	PIPE SIZE: 0-6 GPM: 3/4" PIPE; 7-12 GPM: 1" PIPE;
		DRIP IRRIGATION CONTROL VALVE ASSEMBLY TO INCLUDE:			
		ASSEMBLY	HUNTER	ACZ-075-40 DRIP CONTROL ZONE KIT	ALL-IN-ONE KIT INCLUDES BACKFLOW PREVENTION, FILTER AND PRESSURE REGULATOR
		ANTI-SIPHON VALVE (COLOR VARIES PER ZONE)		PGV-ASV, INCLUDED IN KIT	3/4 INCH ANTI-SIPHON VALVE PROVIDES BACKFLOW PREVENTION
		DRIP FILTER		INCLUDED IN KIT	150 MESH STAINLESS STEEL SCREEN
		PRESSURE REGULATION		INCLUDED IN KIT	40 PSI
		NIPPLE		PVC SCH 80 UV RESISTANT	
		TRANSITION TO DRIP ZONE			SEE DETAIL
DRIP LAYOUT					
		PLANTING BEDS			
		TREES			

APPLICANT INSTRUCTIONS:

- ADJUST LAYOUT OF PLANTING BEDS IF CHANGED ON LAYOUT SHEET 1.0.
- REVIEW IRRIGATION VALVE TABLE TO ADJUST SF AREAS OF VALVE ZONES.
- IF AREAS EXCEED MAX SUBZONE FLOW (3 GPM) DIVIDE INTO ADDITIONAL SUBZONES AND ENTER UNDER SUBZONE COLUMN
- IF AREAS EXCEED MAX ZONE FLOW (7 GPM) ADD A VALVE AND ENTER SF AREA NEXT TO NEW VALVE NUMBER ("B" OR "C")
- DRAW OUT NEW SUBZONE AND/OR VALVE ZONE AREA ON PLAN IN NEW COLOR.
- ADD VALVE AS NEEDED TO VALVE MANIFOLD.
- REVIEW IRRIGATION LEGEND AND CHECK OFF THAT ALL COMPONENTS ARE SHOWN ON ADJUSTED PLAN.
- NOTE ANY EQUIPMENT SUBSTITUTIONS.

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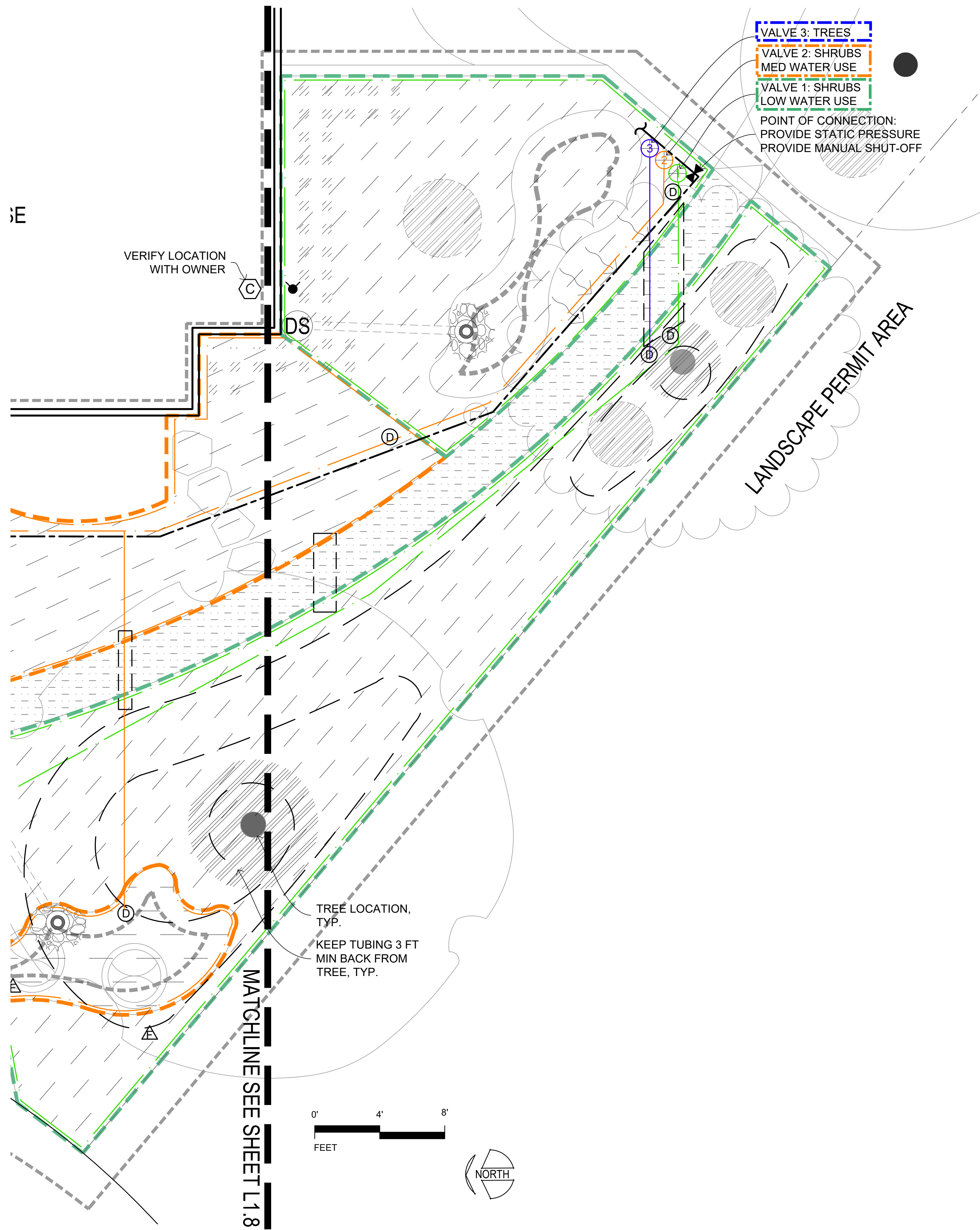
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SHEET TITLE:
IRRIGATION
PLAN
SONOMA
COTTAGE B
(CUL-DE-SAC)





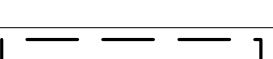
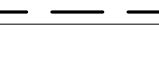



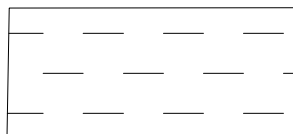


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OF



IRRIGATION LEGEND

APPLICANT CHECK-OFF COMPONENTS	SYMBOL	COMPONENT	MANUFAC - TURER	MODEL	NOTES / SIZE / COLOR
		EXISTING WATER METER			
		CONTROLLER	HUNTER	PRO-C	INDOOR
		WEATHER SENSOR	HUNTER	SOLAR-SYNC -SEN	WIRED
		FULL PORT BALL VALVE	NIBCO	585	LINE SIZE
		SLEEVE		PVC SCH 40	
		MAINLINE		PVC SCH 40 WITH SCH 40 SOLVENT WELD FITTINGS	
		LATERAL PIPE (COLOR VARIES PER ZONE)		PVC SCH 40 WITH SCH 40 SOLVENT WELD FITTINGS	PIPE SIZE: 0-6 GPM: 3/4" PIPE; 7-12 GPM: 1" PIPE;
		DRIP IRRIGATION CONTROL VALVE ASSEMBLY TO INCLUDE:			
		ASSEMBLY	HUNTER	ACZ-075-40 DRIP CONTROL ZONE KIT	ALL-IN-ONE KIT INCLUDES BACKFLOW PREVENTION, FILTER AND PRESSURE REGULATOR
		ANTI-SIPHON VALVE (COLOR VARIES PER ZONE)		PGV-ASV, INCLUDED IN KIT	3/4 INCH ANTI-SIPHON VALVE PROVIDES BACKFLOW PREVENTION
		DRIP FILTER		INCLUDED IN KIT	150 MESH STAINLESS STEEL SCREEN
		PRESSURE REGULATION		INCLUDED IN KIT	40 PSI
		NIPPLE			PVC SCH 80 UV RESISTANT
		TRANSITION TO DRIP ZONE			SEE DETAIL
DRIP LAYOUT					
		PLANTING BEDS			
		TREES			
		INLINE EMITTER TUBING	NETAFIM	TLCV26-1801	CLAY SOIL: EMITTER FLOW: 0.26 GPH; EMITTER SPACING: 18"; ROW SPACING: 18"
				TLCV4-1801	LOAM SOIL: EMITTER FLOW: 0.4 GPH; EMITTER SPACING: 18"; ROW SPACING: 18"
				TLCV6-1801	SANDY SOIL: EMITTER FLOW: 0.6 GPH; EMITTER SPACING: 12"; ROW SPACING: 18"
		DRIP FLUSHOUT	NETAFIM	TLFIG8	
SYMBOLS FOR COMPONENTS ARE LARGER THAN ACTUAL SIZE AND MAY BE SHOWN IN PAVED AREAS FOR GRAPHIC CLARITY. COORDINATE LOCATION OF EQUIPMENT WITH PLUMBER.					
ALL PIPE RUNS UNDER PAVING ARE IN SLEEVES, INSTALL SLEEVES PRIOR TO POURING CONCRETE					

APPLICANT INSTRUCTIONS:

- ADJUST LAYOUT OF PLANTING BEDS IF CHANGED ON LAYOUT SHEET 1.0.
- REVIEW IRRIGATION VALVE TABLE TO ADJUST SF AREAS OF VALVE ZONES.
- IF AREAS EXCEED MAX SUBZONE FLOW (3 GPM) DIVIDE INTO ADDITIONAL SUBZONES AND ENTER UNDER SUBZONE COLUMN
- IF AREAS EXCEED MAX ZONE FLOW (7 GPM) ADD A VALVE AND ENTER SF AREA NEXT TO NEW VALVE NUMBER ("B" OR "C")
- DRAW OUT NEW SUBZONE AND/OR VALVE ZONE AREA ON PLAN IN NEW COLOR.
- ADD VALVE AS NEEDED TO VALVE MANIFOLD.
- REVIEW IRRIGATION LEGEND AND CHECK OFF THAT ALL COMPONENTS ARE SHOWN ON ADJUSTED PLAN.
- NOTE ANY EQUIPMENT SUBSTITUTIONS.

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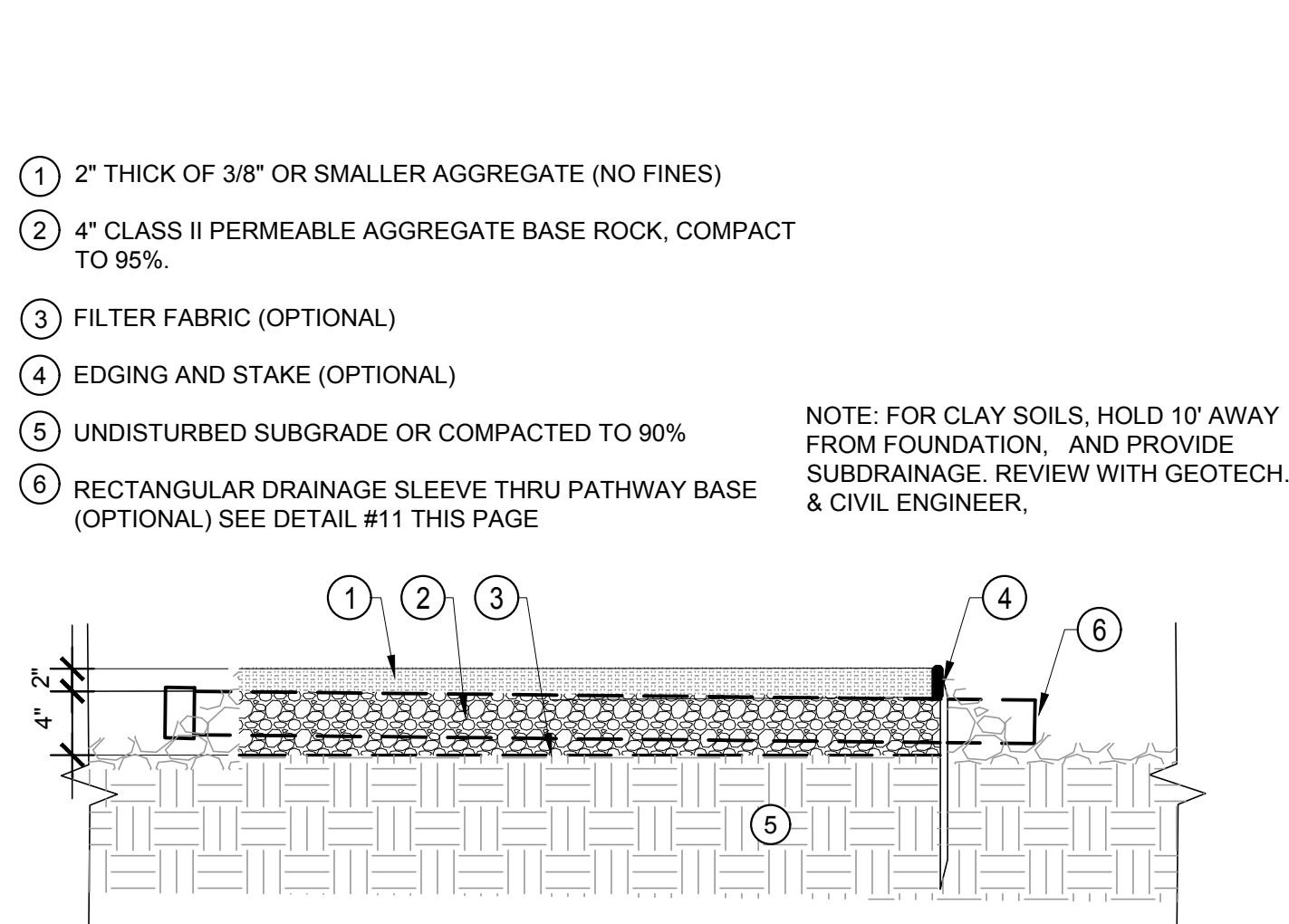
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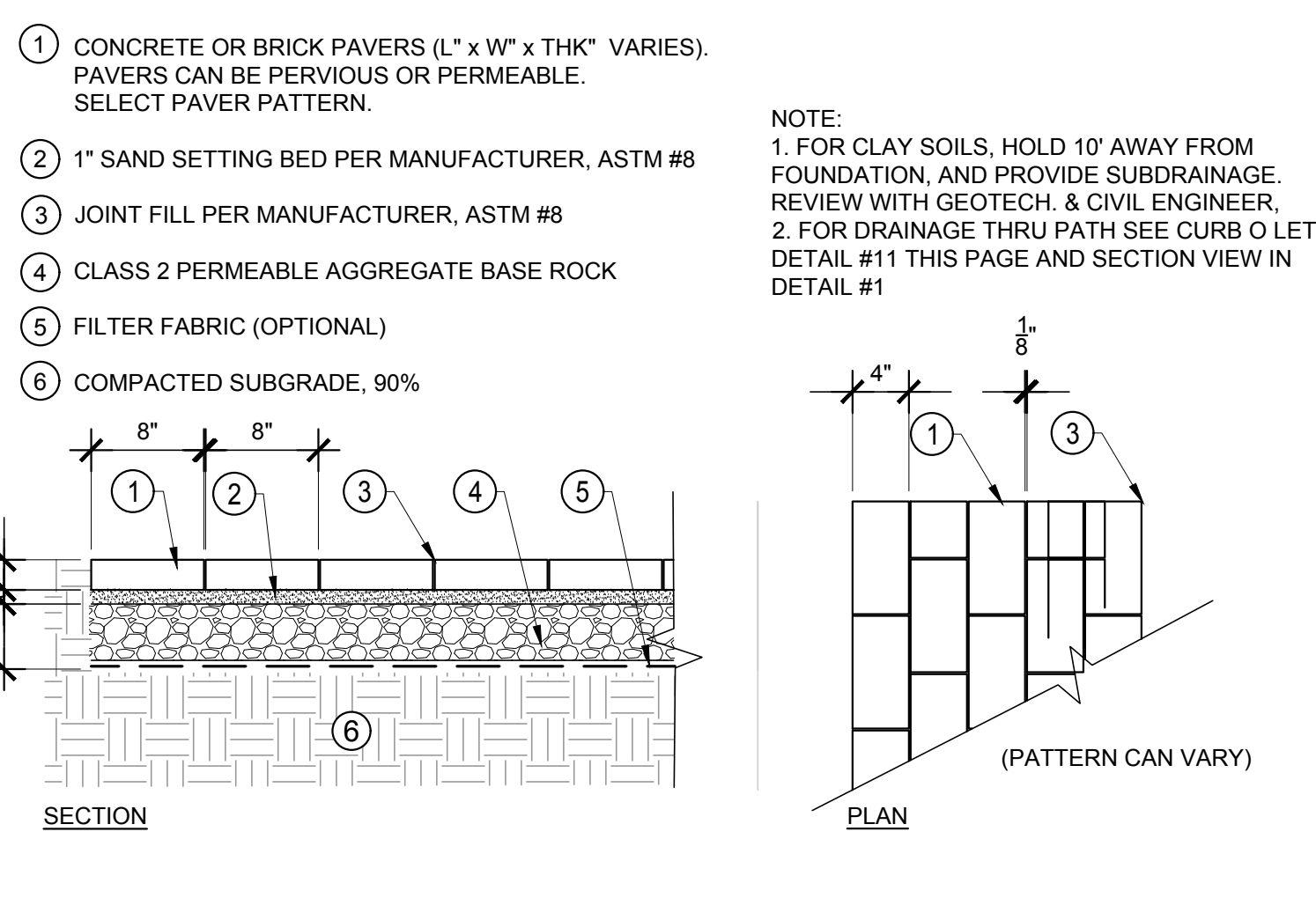
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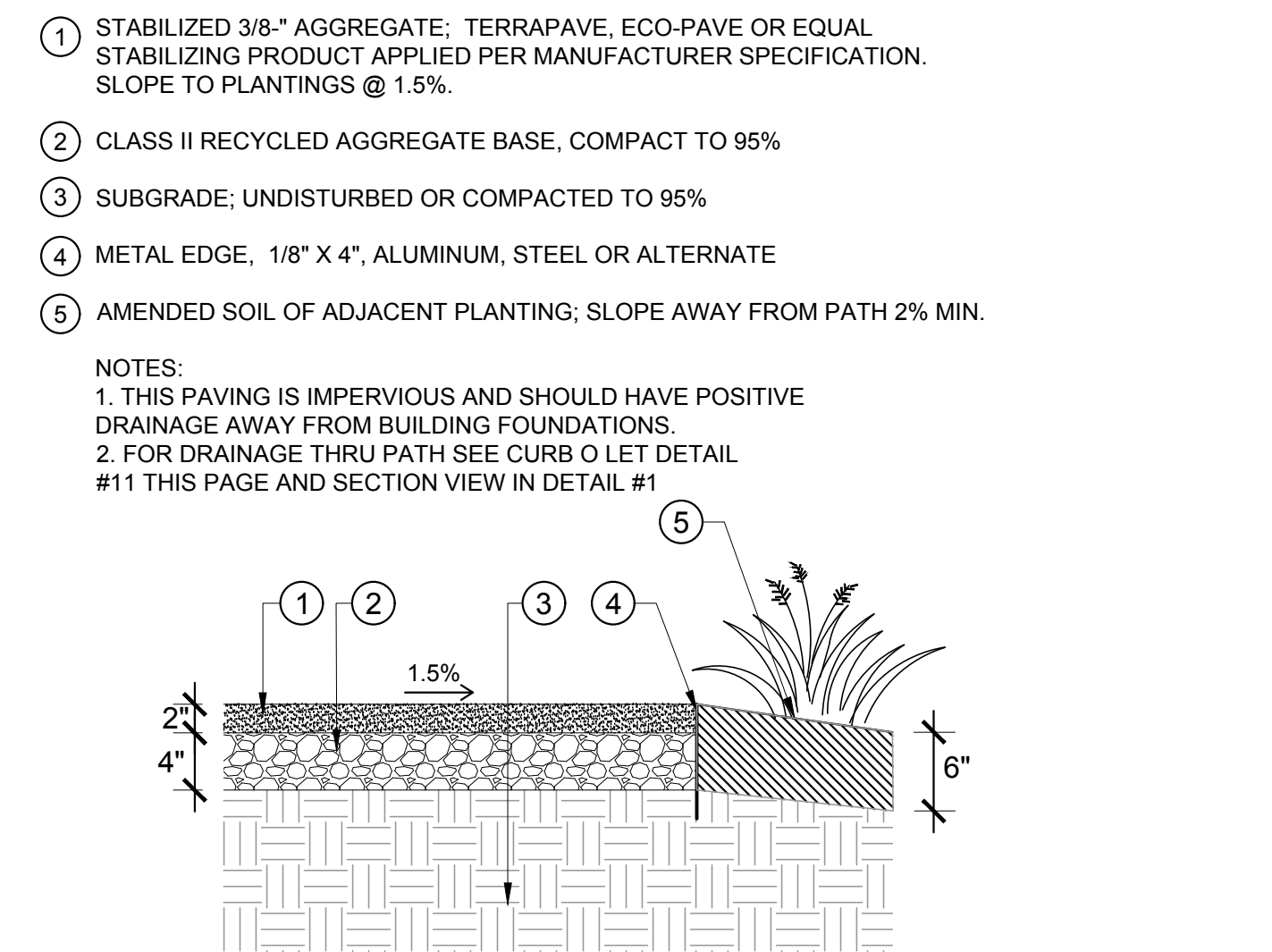
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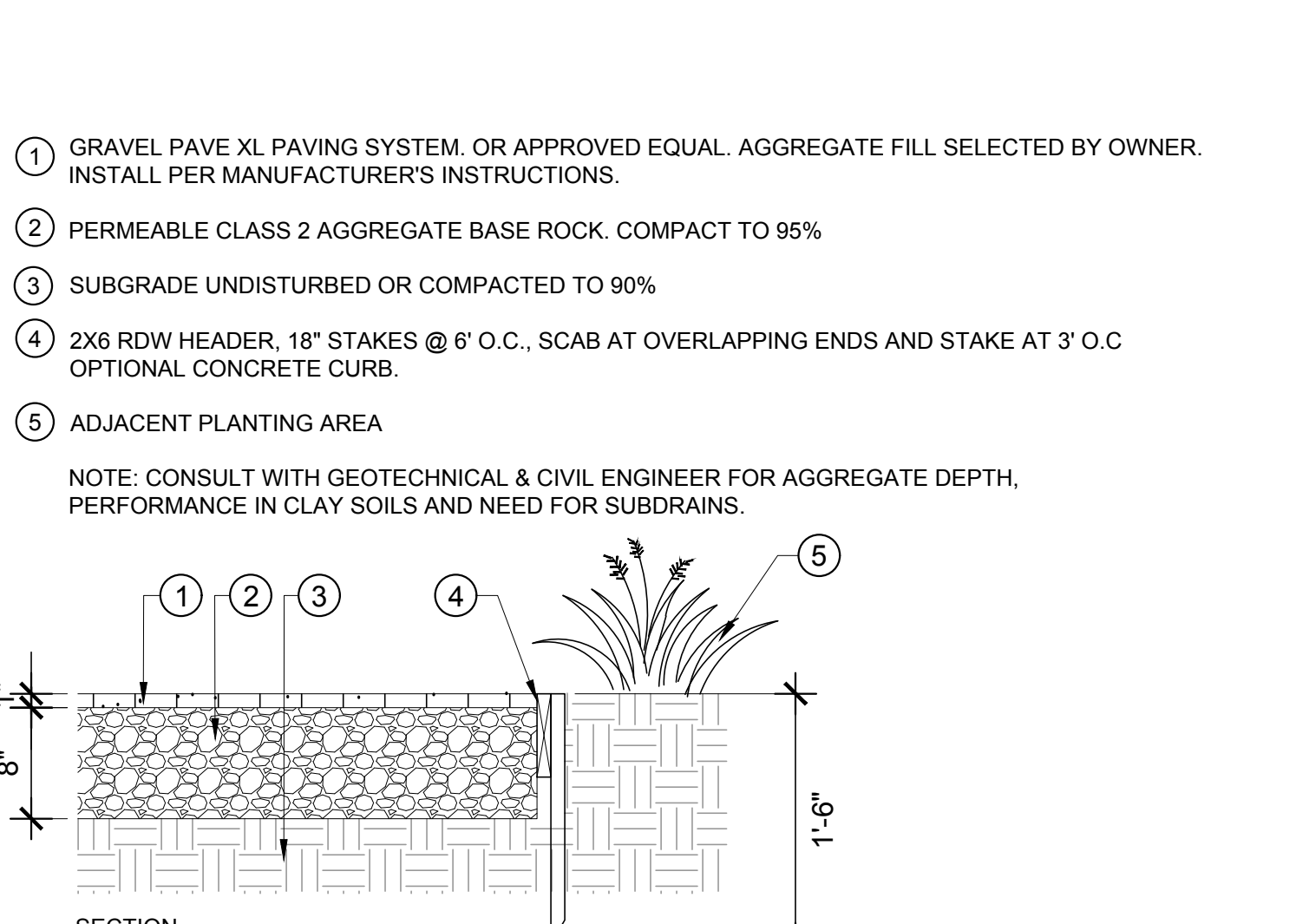
1 PERMEABLE AGGREGATE PAVING - PATH OR PATIO
SCALE: 1"=1'-0"



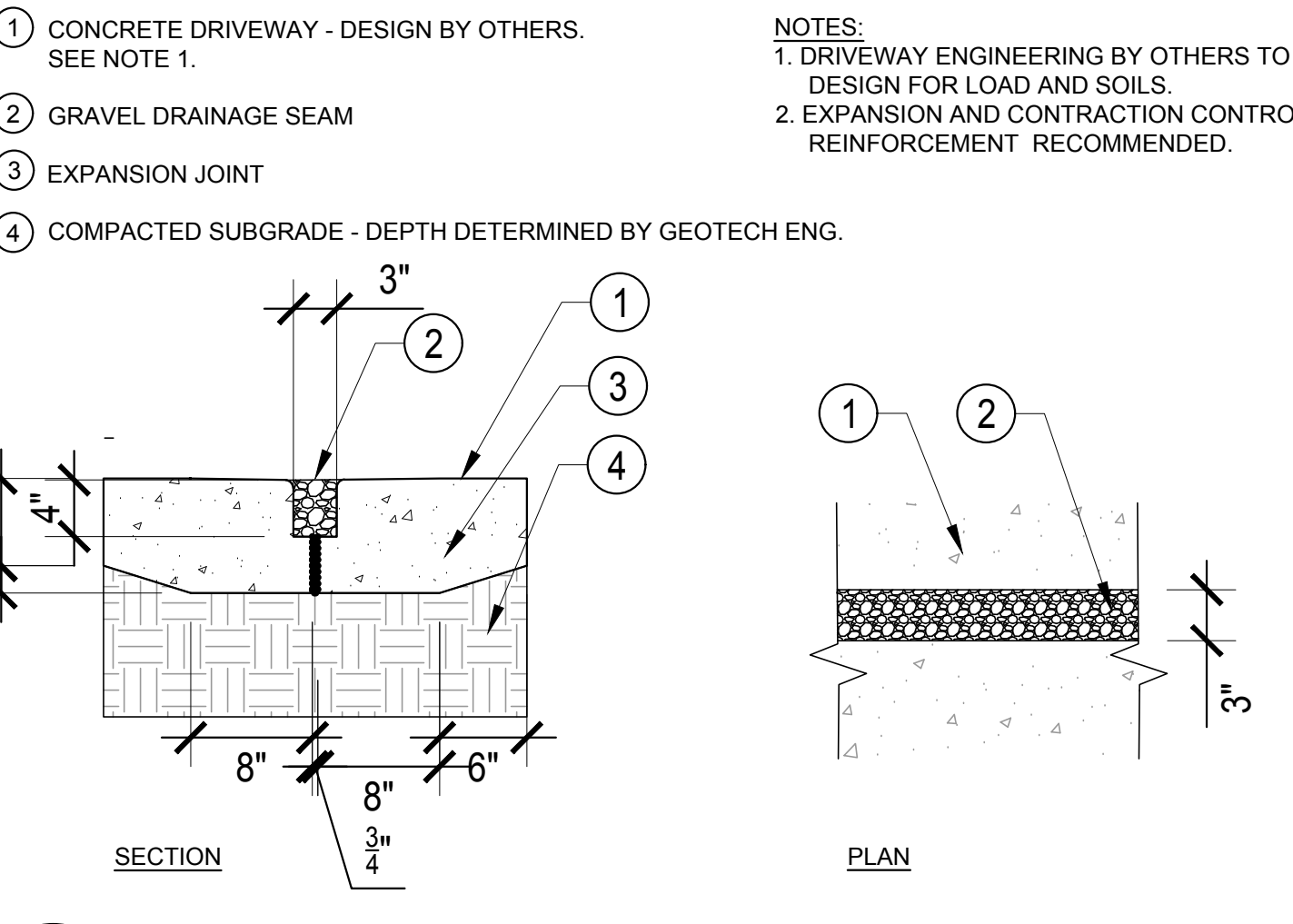
2 PERMEABLE PAVERS - PATH OR PATIO
SCALE: 1"=1'-0"



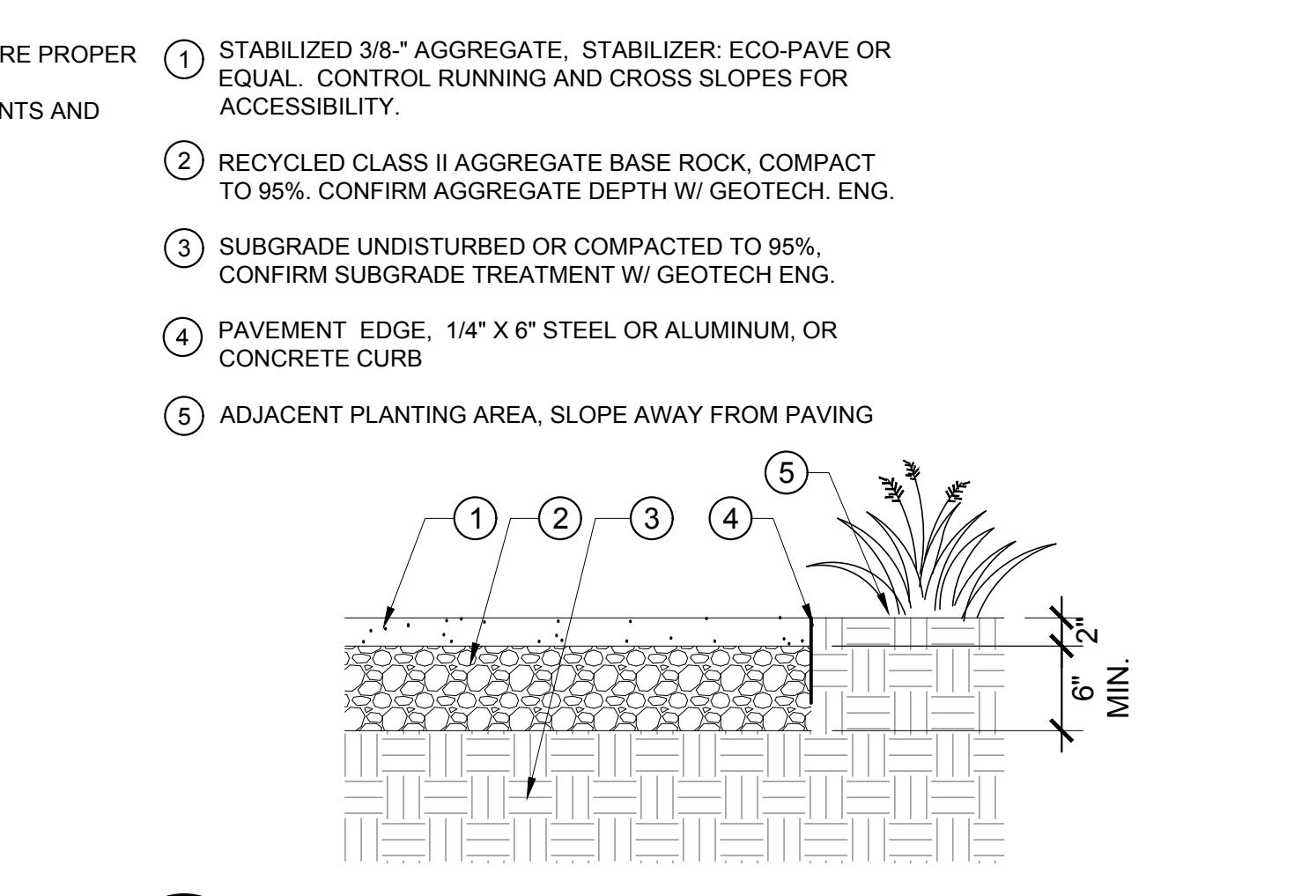
3 PERMEABLE INFILTRATION - PEDESTRIAN
SCALE: 1"=1'-0"



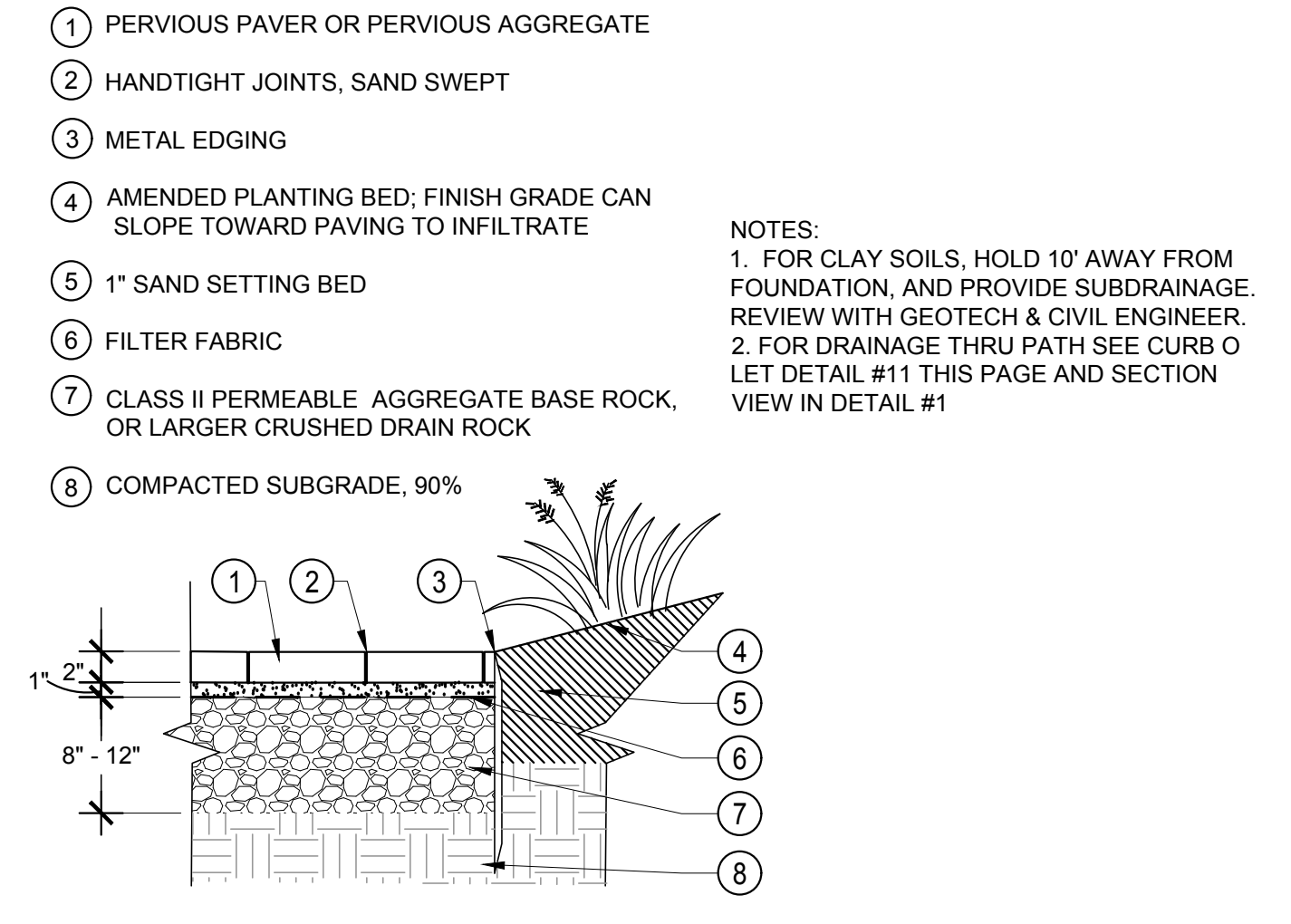
4 AGGREGATE PAVING - PEDESTRIAN
SCALE: 1"=1'-0"



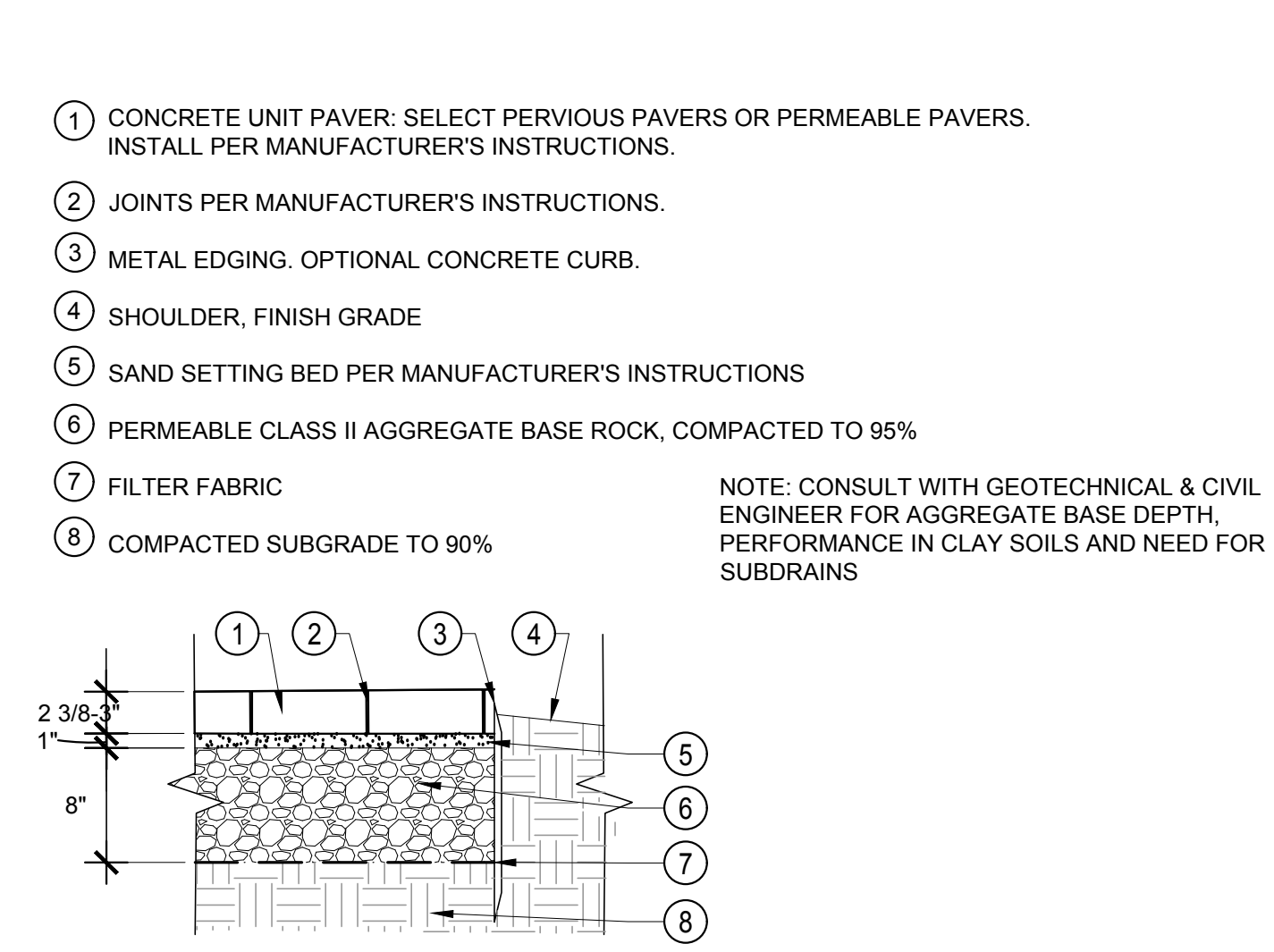
5 STABILIZED AGGREGATE - PATH OR PATIO
SCALE: 1"=1'-0"



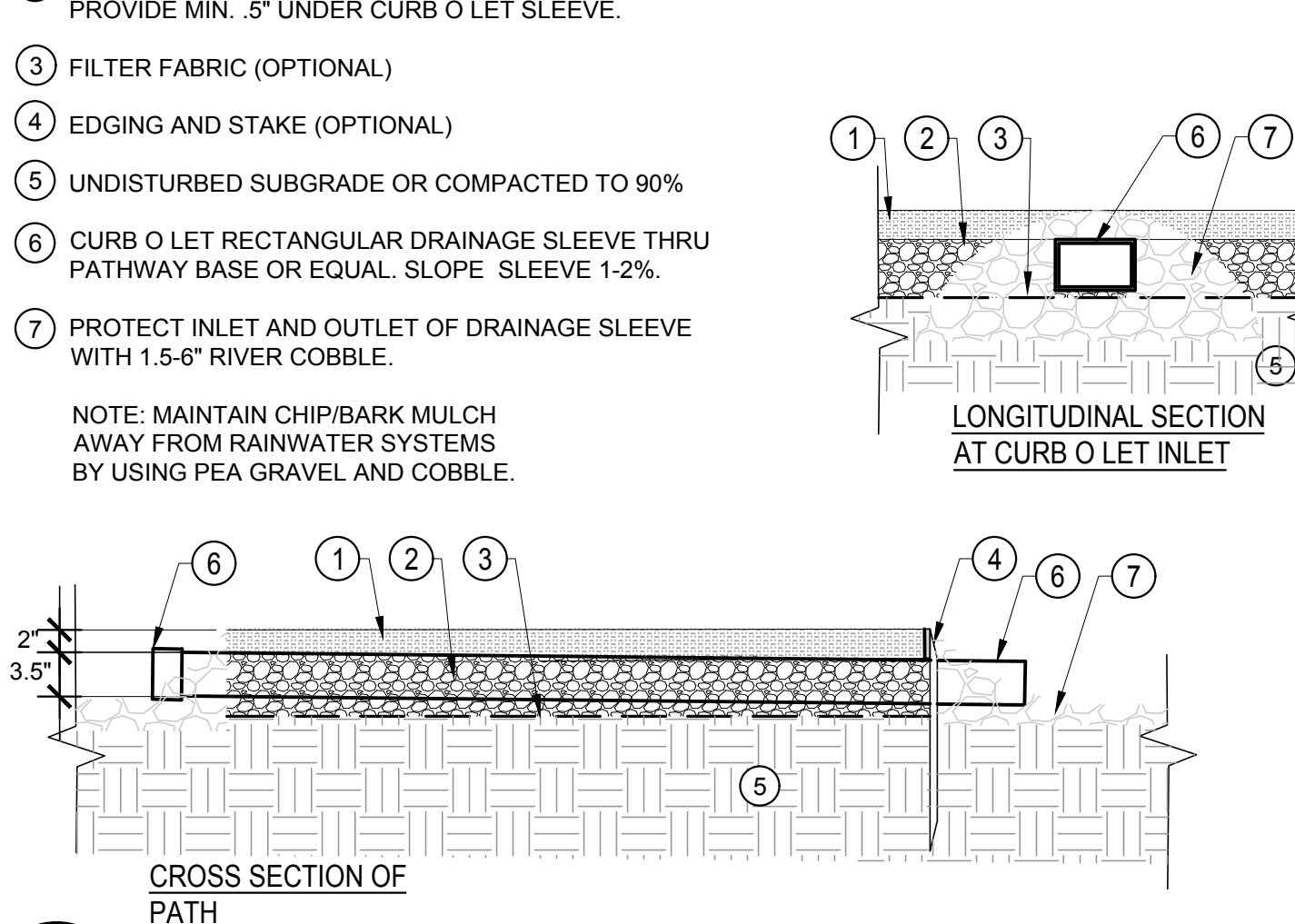
6 GRAVELPAVE PAVING - VEHICLE
SCALE: 1"=1'-0"



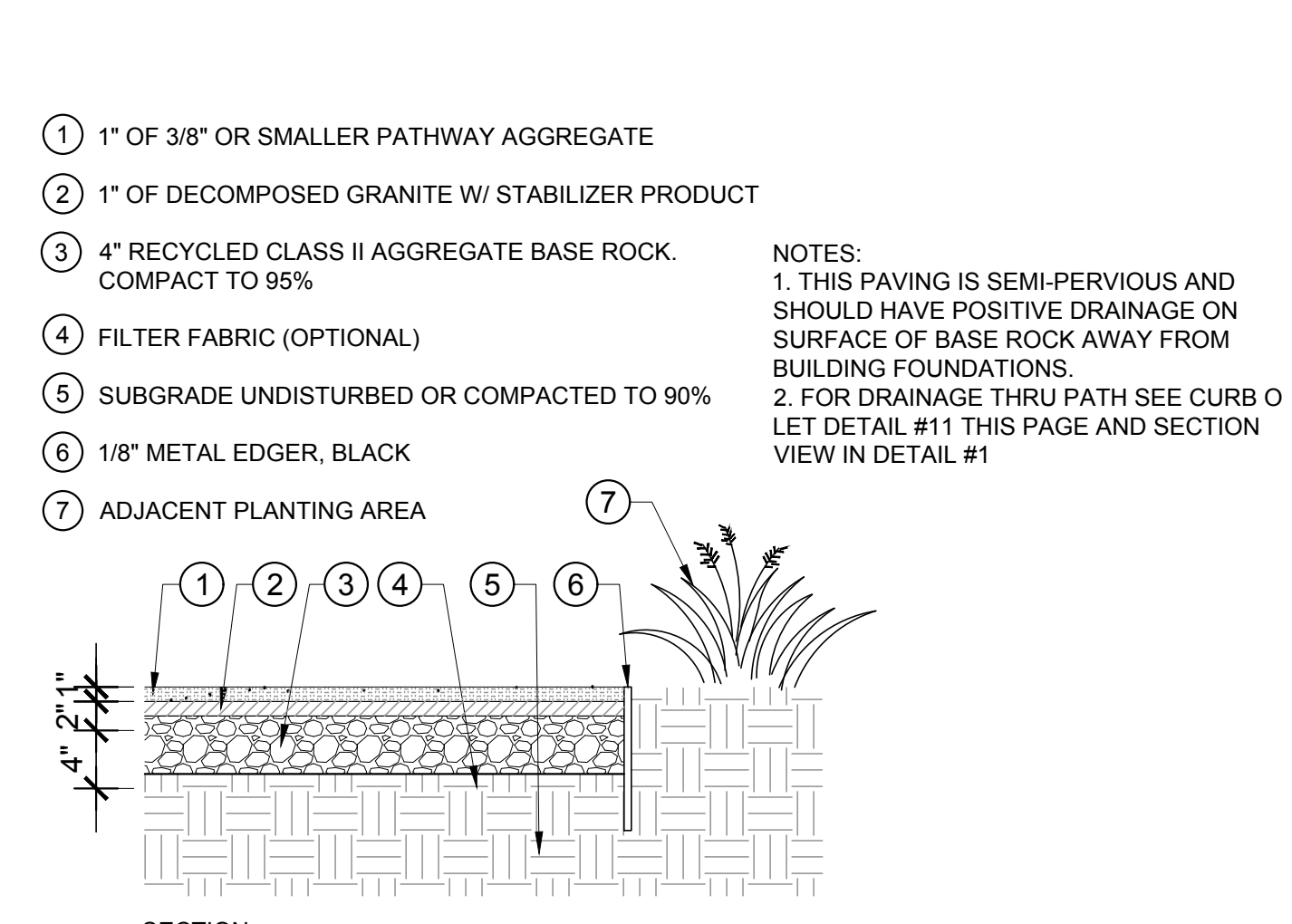
7 PERVIOUS OR PERMEABLE UNIT PAVER - VEHICLE
SCALE: 1"=1'-0"



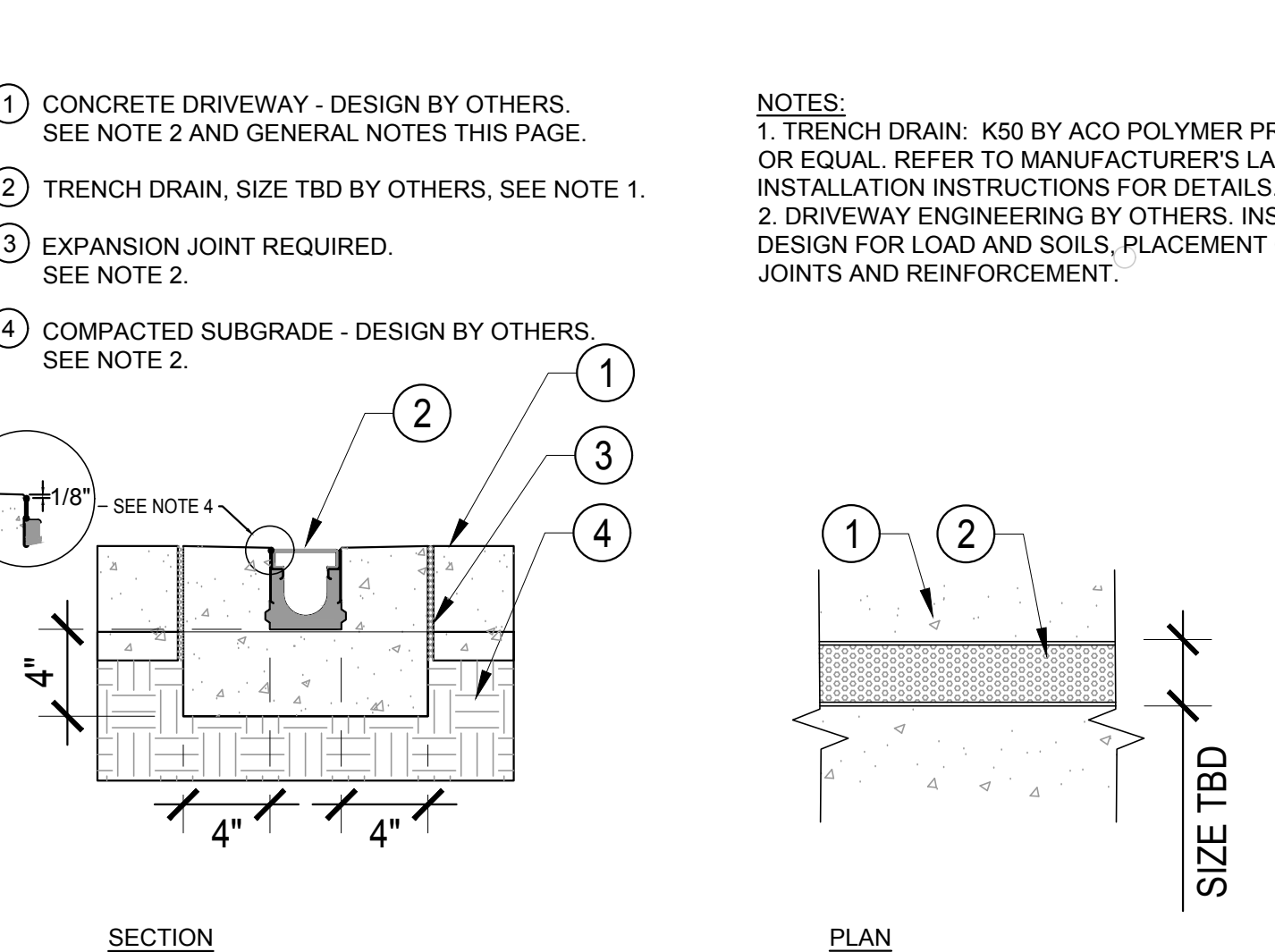
8 CONCRETE - VEHICLE - TRENCH DRAIN
SCALE: 1"=1'-0"



9 CONCRETE - VEHICLE - GRAVEL DRAINAGE SEAMS
SCALE: 1"=1'-0"



10 STABILIZED AGGREGATE - VEHICLE
SCALE: 1"=1'-0"



11 RECTANGULAR DRAINAGE SLEEVE IN PATHS
SCALE: NOT TO SCALE

GENERAL NOTES :

- DESIGN STRATEGY: THESE DETAILS ARE PROVIDED TO CREATE OPTIONS FOR PERMEABLE PAVING, AND PAVING STRATEGIES THAT PROMOTE STORMWATER INFILTRATION IN LANDSCAPE SPACES. THESE STRATEGIES HELP CLEAN WATER, INFILTRATE RUN OFF INTO GROUNDWATER, AND PROVIDE MORE SOIL MOISTURE AVAILABILITY FOR LANDSCAPE PLANTINGS.
- THESE DETAILS SHOULD BE EVALUATED BY THE SITE ENGINEER AND ADJUSTED TO SITE CONDITIONS.
- PAVING DEPTH, DEPTH OF BASE GRAVEL, SUB-BASE PREPARATION AND CONCRETE REINFORCEMENT SHOULD ALL BE EVALUATED AND ADJUSTED AS NEEDED BY A GEOTECHNICAL ENGINEER.
- SOIL TYPE AFFECTS THE PERFORMANCE OF THESE DETAILS. CLAY SOILS DO NOT INFILTRATE WELL, SO THERE IS A NEED TO EVALUATE WHETHER THE PERMEABLE/PERVIOUS PAVING DETAILS ARE APPROPRIATE FOR SPECIFIC SITES AND ADJUST THEM AS APPROPRIATE TO PROTECT BUILDINGS AND OTHER IMPROVEMENTS.
- ACCESSIBLE PAVING IS SMOOTH, FIRM, AND HAS A CROSS SLOPE NOT TO EXCEED 2%. RUNNING SLOPE SHOULD BE 5% OR LESS UNLESS PAVING RAMP WITH HANDRAILS. SEE TITLE 24 OF CALIFORNIA CODE FOR ACCESSIBILITY REQUIREMENTS AND STANDARDS

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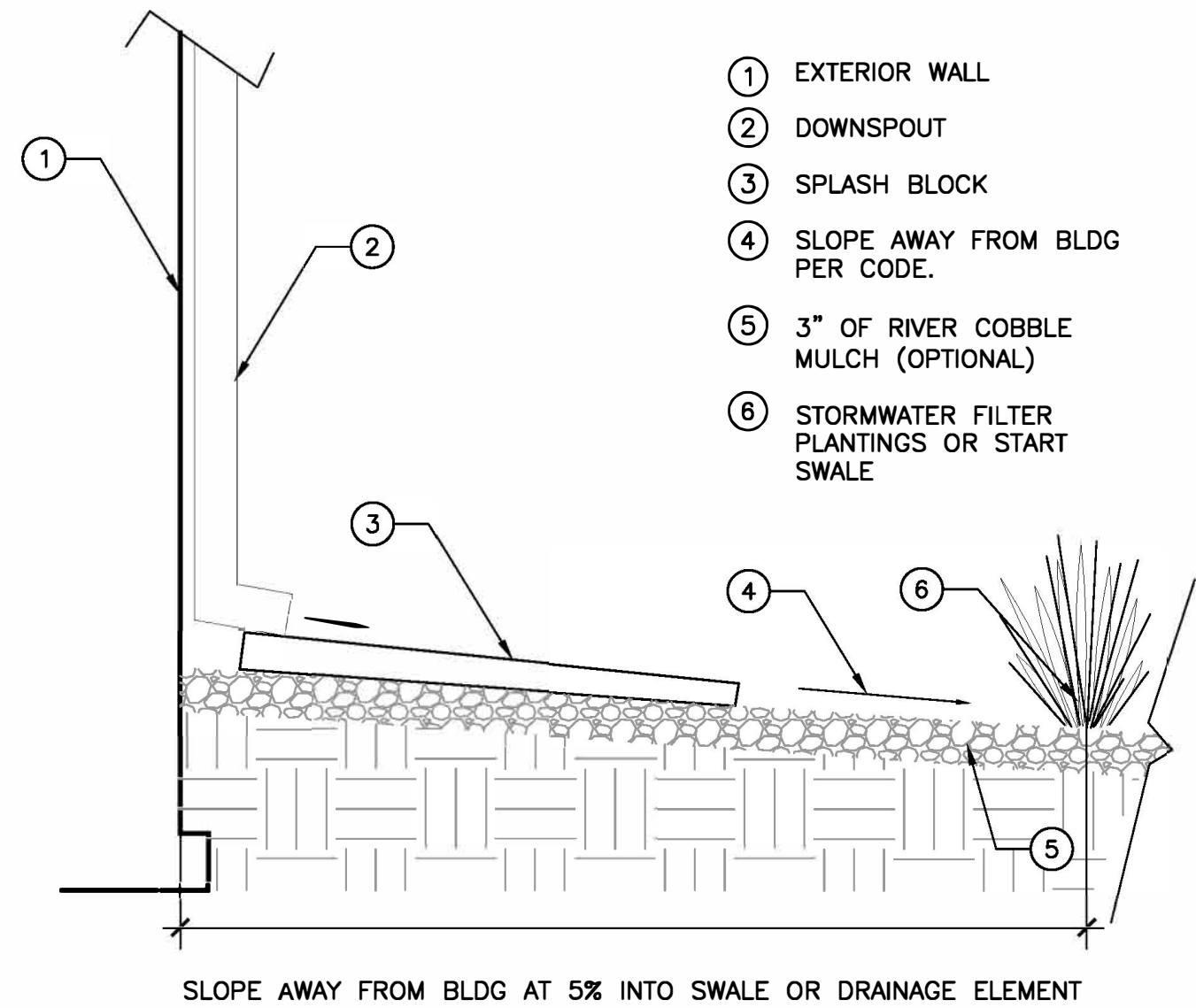
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L.I.D. PAVING DETAILS

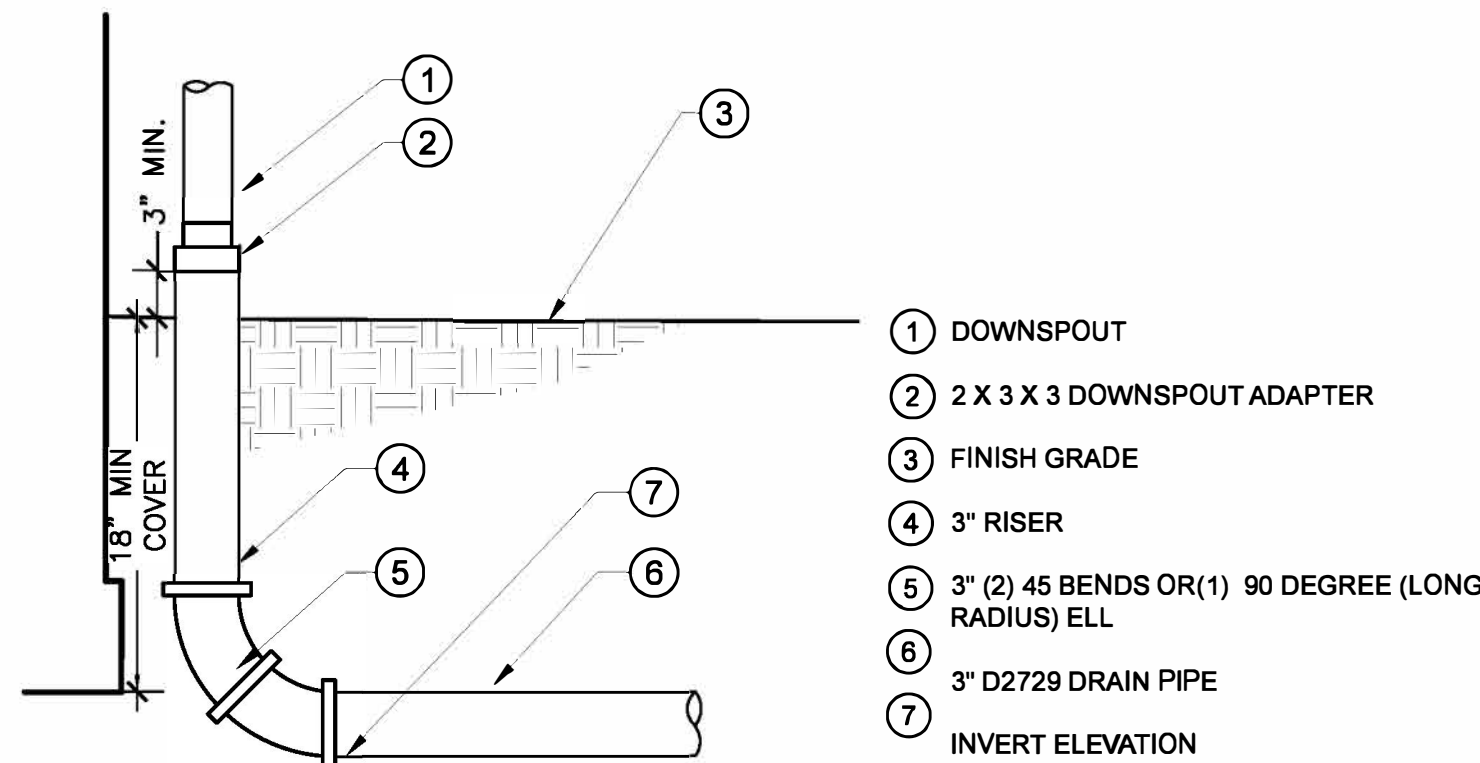
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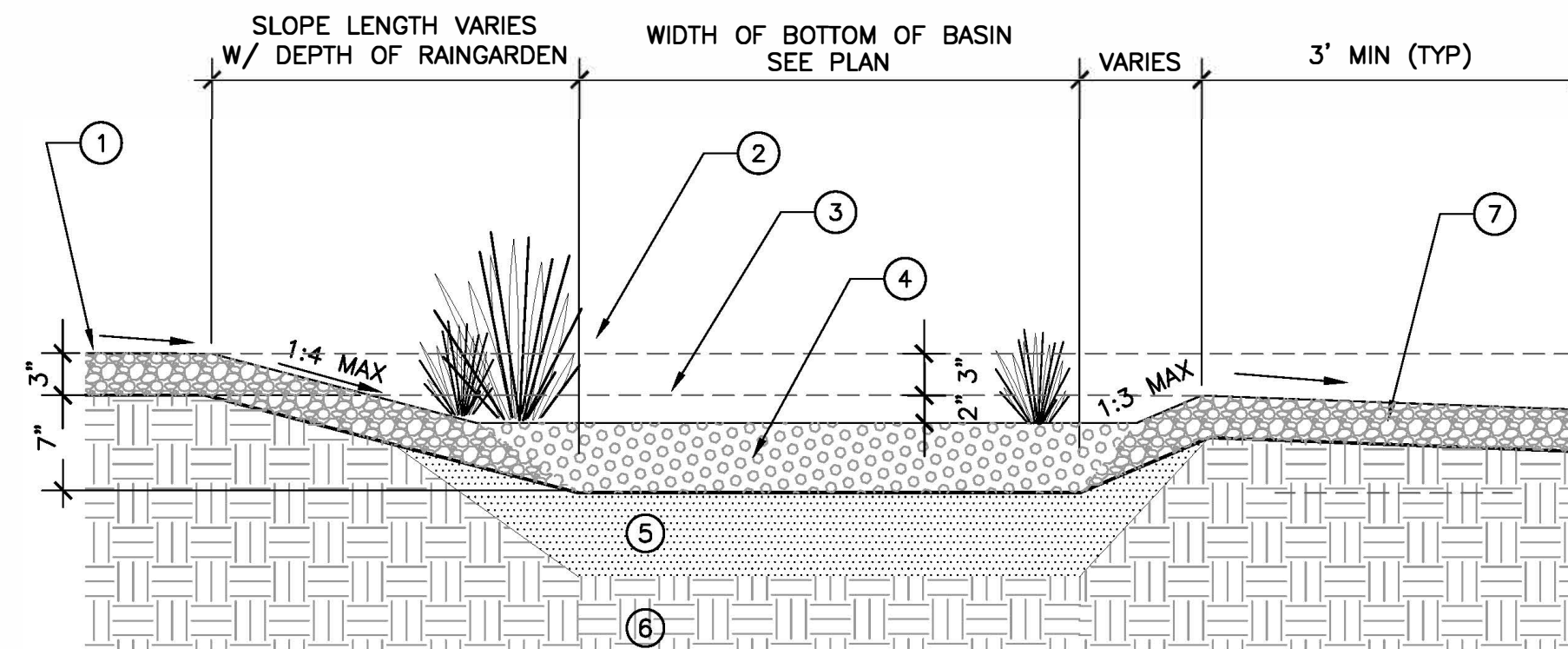
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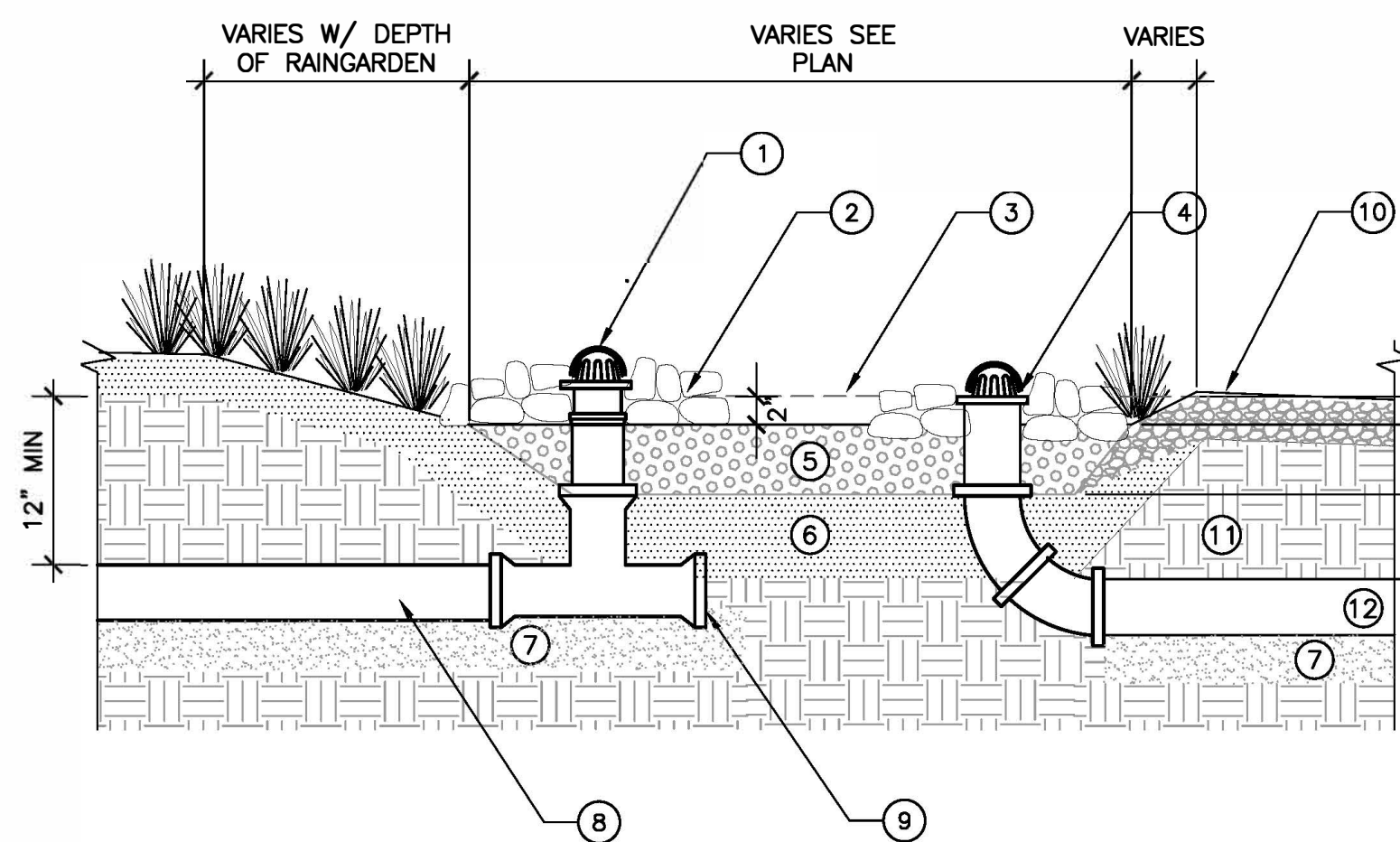
1 DOWNSPOUT SPLASHBLOCK TO OVERLAND FLOW
SCALE: 1/2"=1'-0"



2 DOWNSPOUT WITH PIPED OUTLET
SCALE: 1/2"=1'-0"

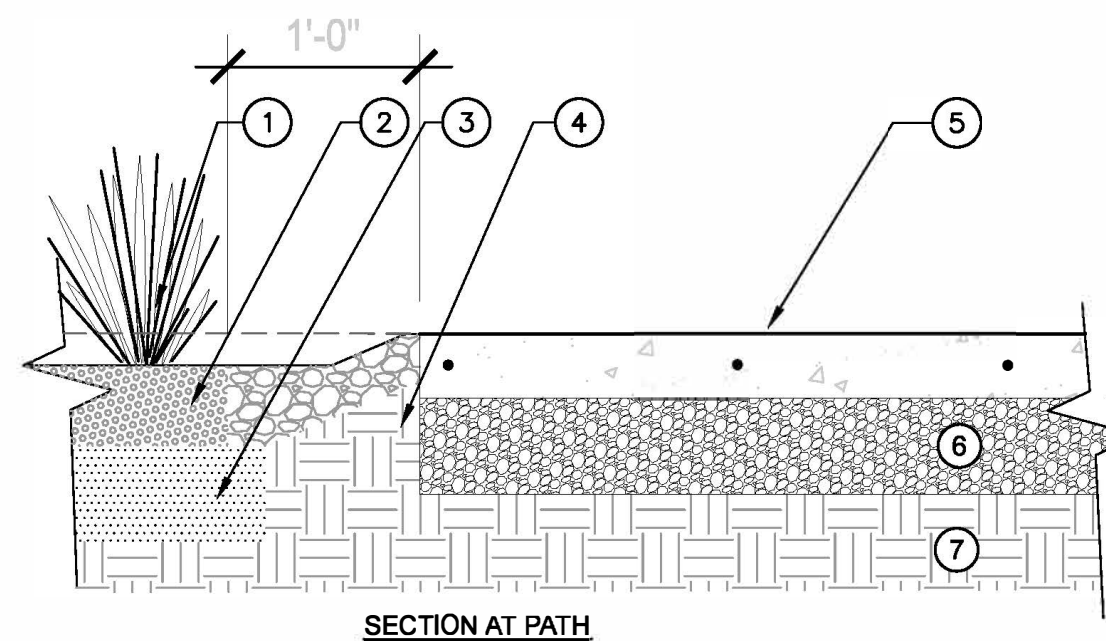


3 VEGETATED RAINGARDEN W/ OVERLAND FLOW INLET & OUTLET
SCALE: 1/2"=1'-0"



4 VEGETATED RAINGARDEN W/ PIPED INLET
SCALE: 1/2"=1'-0"

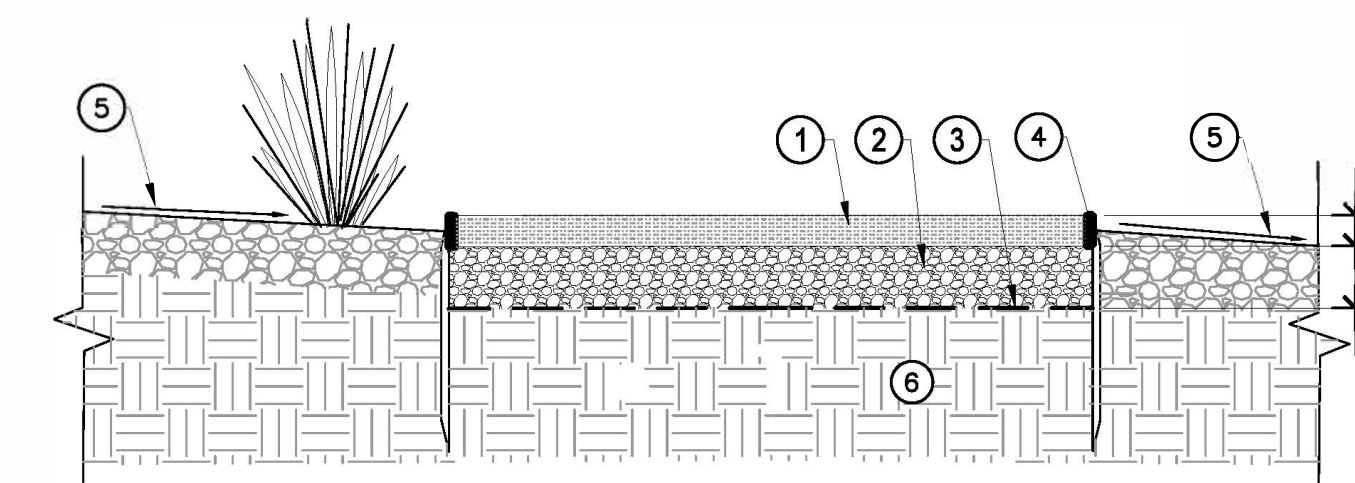
- 1 ATRIUM DRAIN GRATE ON OUTLET BUBBLER CONNECTED TO DOWNSPOUT; BY NDS OR EQUAL
 - 2 COBBLE AROUND OUTLET PIPE (TYP.)
 - 3 MAX WATER LEVEL 2" ABOVE PEA GRAVEL
 - 4 DRAIN INLET STRUCTURE AT TOP PONDING ELEVATION (2" ABOVE PEA GRAVEL). PIPE TO OUTLET.
 - 5 5" PEA GRAVEL MULCH INSURES NO PONDING WITHIN 72 HRS FOR MOSQUITO CONTROL.
 - 6 SCARIFY & AMEND NATIVE SOIL AT BOTTOM OF RAIN GARDEN
 - 7 6" SAND OR GRAVEL SETTING BED UNDER PIPE
 - 8 4" STORMDRAIN PIPE FROM ROOF DOWNSPOUT(S)
 - 9 END PLUG W/ (1) 3/4" WEEP HOLE 3/4" ABOVE PIPE INVERT, SET END OF PIPE IN 12"x12" GRAVEL TRENCH FOR DRAINAGE
 - 10 SECONDARY OVERFLOW SLIGHTLY HIGHER THAN PIPE INLET. COVER WITH 3" OF 1.5-6" RIVER COBBLE
 - 11 UNDISTURBED SUBGRADE
 - 12 OUTLET PIPE, OUTLET TO RAINWATER BASIN 6" MIN. DOWNSLOPE OR CONNECT TO EXISTING STORM DRAIN PIPE OR OUTLET AT CURB IF PRESENT.
- NOTES:
1. RAINWATER GARDEN DESIGNED FOR CLAY SOILS. MAX DEPTH 7" OF WHICH 5" HAS A PEA GRAVEL MULCH.
2. NO WOOD CHIP MULCH IN RAINWATER SYSTEMS TO AVOID CLOGGING STORM DRAINS. MAINTAIN GRAVEL MULCH THROUGHOUT SWALES AND RAINGARDENS TO SIDEWALK.



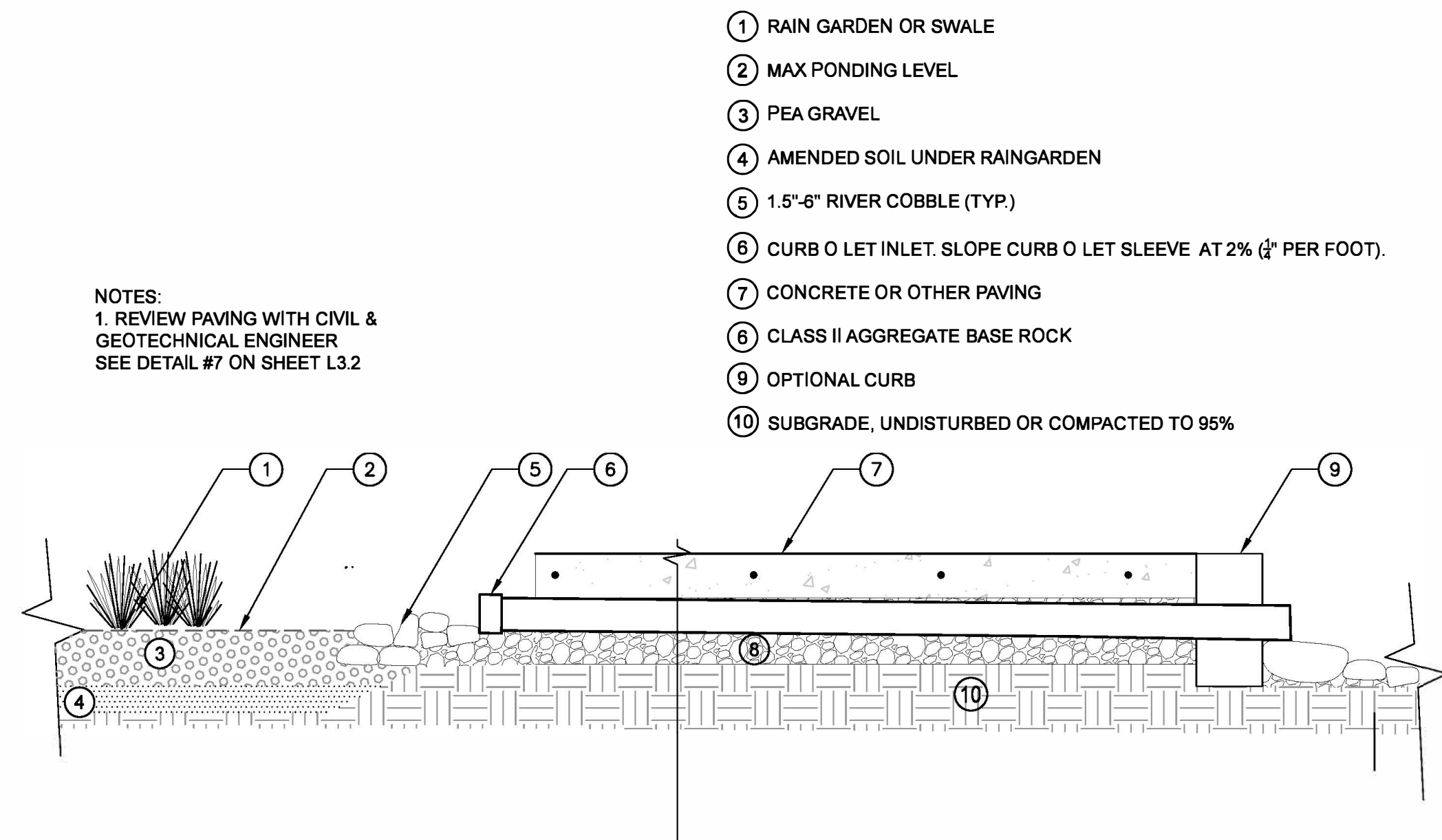
5 RAINGARDEN OVERFLOWING OVER PAVEMENT SECTION
SCALE: 1/2"=1'-0"

- 1 PLANTING IN RAIN GARDEN.
 - 2 5" PEA GRAVEL MULCH INSURES NO PONDING WITHIN 72 HRS FOR MOSQUITO CONTROL. TOTAL DEPTH INCLUDING PONDING IS 7".
 - 3 RIVER COBBLE: 1.5-6" IN SIZE. FILL TO PAVEMENT EDGE
 - 4 SCARIFY & AMEND NATIVE SOIL AT BOTTOM OF RAIN GARDEN.
 - 5 CONCRETE OR OTHER IMPERVIOUS WALKWAY
 - 6 CLASS II RECYCLED AGGREGATE BASE ROCK
 - 7 UNDISTURBED SUBGRADE.
- NOTES:
1. ENSURE NO MULCH OR SOIL WASHES ON TO PATH. USE RIVER COBBLE TO MAINTAIN CLEAN EDGE.
2. NO MULCH IN RAINWATER SYSTEMS TO AVOID CLOGGING STORM DRAINS.

- 1 PERMEABLE AGGREGATE PAVING: 2" THICK OF 3/8" OR SMALLER AGGREGATE (NO FINES)
 - 2 4" CLASS II PERMEABLE AGGREGATE BASE ROCK. COMPACT TO 95%.
 - 3 FILTER FABRIC
 - 4 EDGING AND STAKE (OPTIONAL)
 - 5 RAINWATER FLOWING WITHIN 4" OF 1.5-6" RIVER COBBLE FROM DOWNPOUT OR RAINGARDEN
 - 6 NATIVE SOIL; SCARIFY TOP 3" TO IMPROVE INFILTRATION UNDER COBBLE
- NOTE:
1. REVIEW DETAIL WITH GEOTECH. & CIVIL ENGINEER
2. SITE 10' AWAY FROM FOUNDATION.

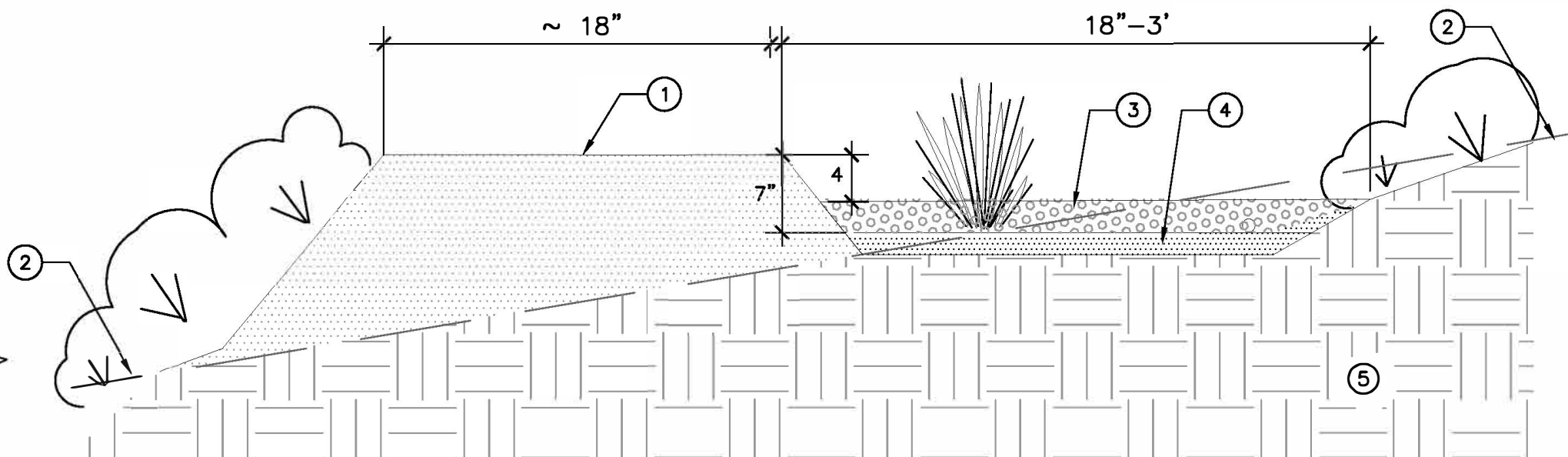


6 RAINWATER FLOW THRU PERMEABLE PAVING SECTION
SCALE: 1"=1'-0"

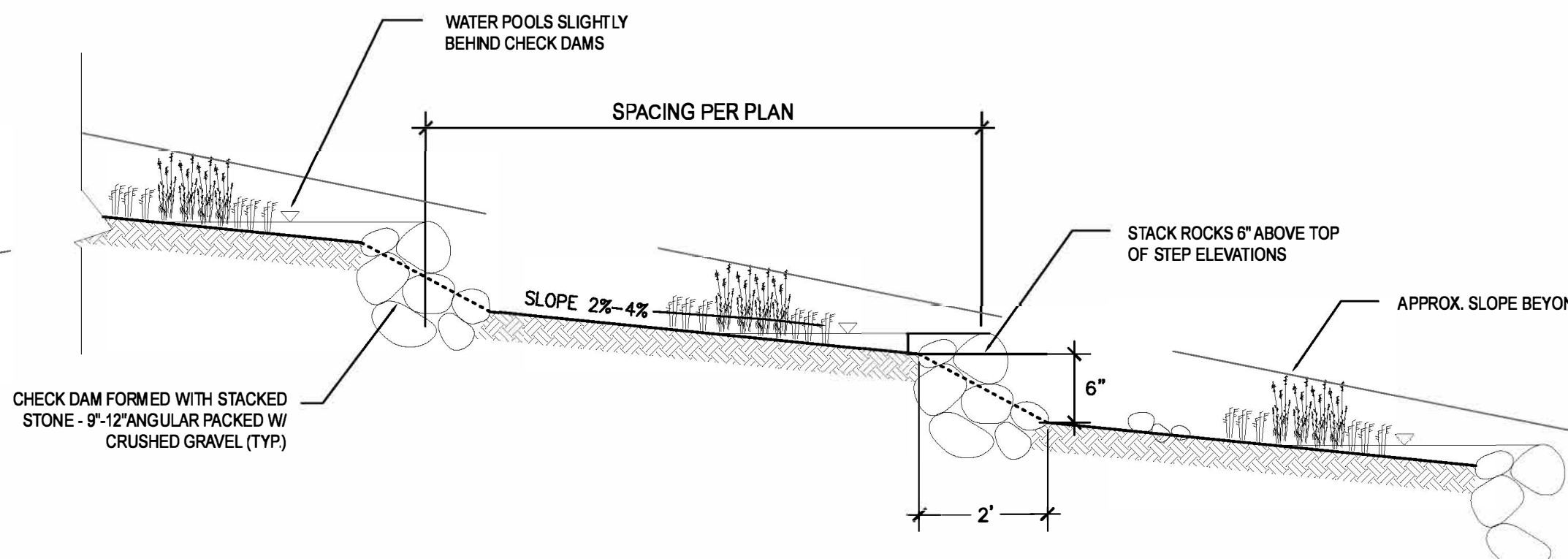


7 DRAIN SLEEVE THRU PATH FROM RAINGARDEN
SCALE: 1/2"=1'-0"

- 1 BERM; CONSTRUCT WHILE DIGGING BASIN. CAN BE MADE WIDER TO BE A WALKING PATH
 - 2 EXISTING SLOPE 8% OR LESS
 - 3 3" PEA GRAVEL MULCH INSURES NO PONDING WITHIN 72 HRS FOR MOSQUITO CONTROL. TOTAL DEPTH INCLUDING PONDING IS 7". SEE DETAIL 9 FOR ROCK CHECK DAMS
 - 4 SCARIFY & AMEND NATIVE SOIL AT BOTTOM OF RAIN GARDEN
 - 5 UNDISTURBED SUBGRADE
- NOTES:
1. MINIMUM SLOPE IN THE DIRECTION OF FLOW TO BE 0.5%. IF SLOPE EXCEEDS 2% STEP DOWN IN CASCADE PER DETAIL # 9 THIS PAGE.
2. NO WOOD CHIP OR BARK MULCH IN RAINWATER SYSTEMS TO AVOID CLOGGING STORM DRAINS.



8 SWALE/CASCADE ON SLOPE - SECTION
1/2"=1'-0"



9 SWALE/CASCADE ON SLOPE - LONGITUDINAL SECTION
1/2"=1'-0"

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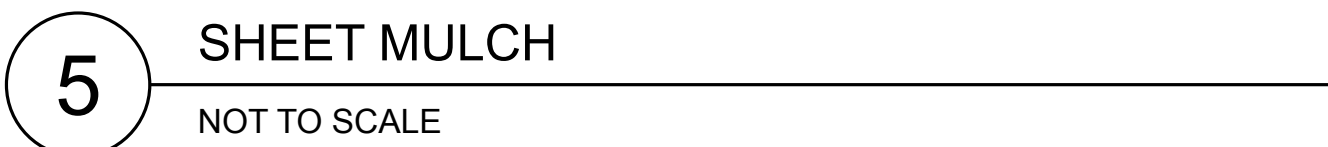
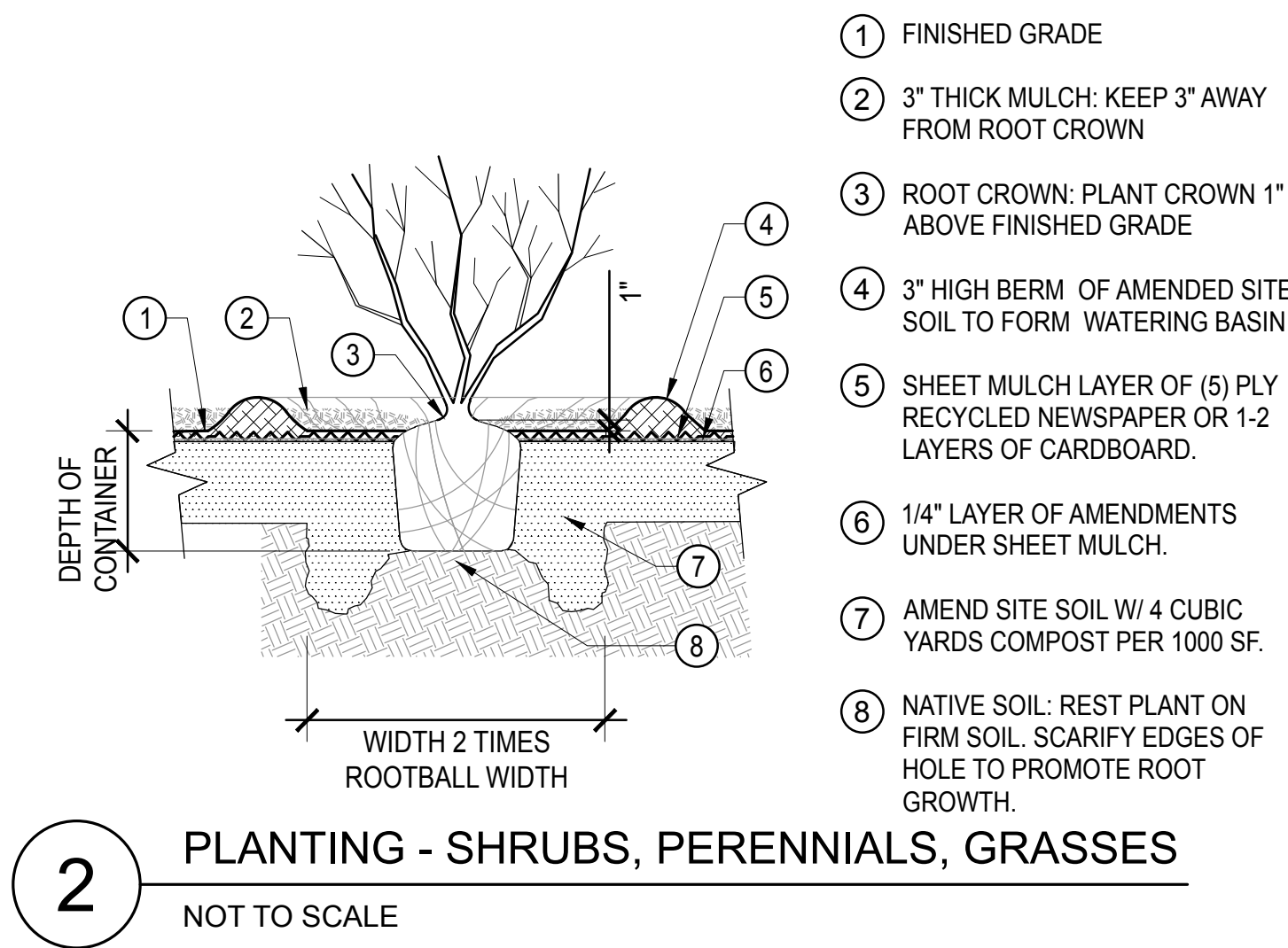
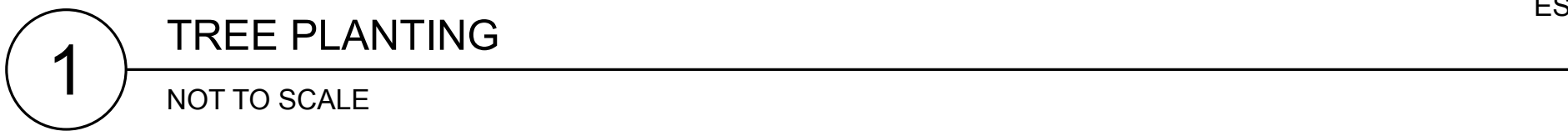
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SHEET TITLE:
RAIN GARDENS
& SWALE
DETAILS

DATE
PERMIT PLAN
MAY 18, 2018

L-3.1
SHEET
OF



6 PLANT PIT AND WATERING BERM
NOT TO SCALE

APPLICANT INFORMATION:

LANDSCAPE TO LAUNDRY SYSTEM OVERVIEW:
A LAUNDRY-TO-LANDSCAPE GRAYWATER SYSTEM CAPTURES LIGHTLY USED WATER FROM THE DISCHARGE HOSE OF YOUR WASHING MACHINE AND PUMPS IT OUT TO THE LANDSCAPE THROUGH 1-INCH TUBING. THE SYSTEM DOES NOT ALTER THE EXISTING PLUMBING AND THEREFORE DOES NOT REQUIRE A PERMIT. A THREE-WAY DIVERTER VALVE IS A NECESSARY COMPONENT, ALLOWING YOU TO SEND DISCHARGE WATER BACK TO THE SEWER SYSTEM WHEN NEEDED OR DURING THE RAINY SEASON.

INSTALLATION & DESIGN CONSIDERATIONS:
LAUNDRY TO LANDSCAPE GRAYWATER SYSTEMS ARE EASY TO INSTALL FOR THE DO-IT-YOURSELF OR A PROFESSIONAL, ESPECIALLY IF THE WASHING MACHINE IS LOCATED ON AN EXTERNAL WALL AND IS IN CLOSE PROXIMITY TO THE LANDSCAPE AREA BEING IRRIGATED. NOTE, THE WASHING MACHINE PUMP WILL PROVIDE SUFFICIENT PRESSURE THROUGH A 1-INCH IRRIGATION LINE FOR 100-FEET ON FLAT GROUND. IF THE SYSTEM IS DESIGNED TO IRRIGATE UPHILL FROM THE WASHING MACHINE, THE DISTANCE SHOULD BE REDUCED TO 30-50 FEET WITH NO MORE THAN A 5% SLOPE. IF THE SYSTEM IS DESIGNED TO IRRIGATE DOWNHILL FROM THE WASHING MACHINE, THE DISTANCE MAY INCREASE TO 150-FEET DEPENDING ON SLOPE.

GRAYWATER REQUIREMENTS TO COMPLY WITH CALIFORNIA PLUMBING CODE ("CPC") STANDARDS:

- NOTIFY ENFORCING AGENCY
- BE ABLE TO REDIRECT TO SEWER
- NO POTABLE WATER CONNECTION
- CONTAIN GRAYWATER ON SITE
- DIRECT AND CONTAIN GRAYWATER WITHIN MULCH BASINS (IRRIGATION OR DISPOSAL FIELD) BELOW THE GROUND SURFACE
- NO PONDING OR RUNOFF
- OUTLETS COVERED BY AT LEAST 2-INCHES OF MULCH, ROCK, OR A SHIELD (E.G. VALVE BOX LID)
- MINIMIZE CONTACT WITH HUMANS AND ANIMALS
- DIVERT WATER TO THE SEWER IF IT CONTAINS DIAPERS, OIL, OTHER CHEMICALS
- GRAYWATER DIVERTED TO LANDSCAPE SHALL NOT CONTAIN HAZARDOUS CHEMICALS
- PERMIT EXEMPTION DOES NOT GRANT INSTALLATION THAT VIOLATES OTHER CODE OR LAWS
- POST OPERATION AND MAINTENANCE MANUAL

CPC Table 1502.4 — LOCATION OF GREY WATER SYSTEM

MINIMUM HORIZONTAL DISTANCE IN CLEAR REQUIRED FROM	SUBSURFACE AND SUBSOIL IRRIGATION FIELD AND MULCH BASIN (feet)
Building structures	2
Property line adjoining private property	1.5
Water supply wells	100
Streams and lakes	100
Sewage pits or cesspools	5
Sewage disposal field	4
Septic tank	5
On-site domestic water service line	0
Pressurized public water main	10

CALCULATIONS SECTION

1. Estimate Daily Graywater Production

Calculation Method (choose one and check box)

☐ California Plumbing Code Estimate (Assign 2 occupants to master bedroom and 1 occupant to each additional bedroom)

Laundry: _____ occupants x 15 gallons/day _____ gal/day

☐ Estimate of graywater produced from winter (Dec-Feb) water use records (reference utility bill)

Laundry: _____ (gallons/load*) x _____ (loads/week) ÷ 7 (days/week) _____ gal/day

*Typical gals/per load: Front loader 15, Top loader 40 **TOTAL** _____ gal/day

2. Determine Minimum Mulch Basin Size

Minimum Mulch Basin Size:

(gal/day) ÷ gal/ft²/day = ft²
From 1 above: _____ Maximum Absorption Capacity (from column 3 in table below)

*Dig mulch basin to a depth of 1 ft to ensure sufficient surge capacity for water leaving the laundry machine.

Design of Six Soil Types	Min SQ. FT. of Irrigation/ Leaching Area Per 100 Gallons of Estimated Graywater Discharge Per Day	Max Absorption Capacity in Gallons Per SQ. FT. of Irrigation/ Leaching Area for an 24-Hour Period
Coarse sand or gravel	30	5.0
Fine Sand	25	4.0
Sandy Loam	40	2.5
Sandy Clay	60	1.7
Clay with considerable sand or gravel	90	1.1
Clay with small amounts of sand or gravel	120	0.8

3. Determining Weekly Water Needs

Weekly Water needs = (0.62 x Area x Eto x Pf) / 4 weeks = _____ *0.62 = (# of gal in 1" of water covering 1 ft²)

- Area = π r² = 3.14 x (canopy radius of existing plant)² OR = (Length x Width) for number of garden beds
- Evapotranspiration rates (Eto) - Choose Eto for hottest month - July = 6.51"/month for Santa Rosa
- Plant factor (Pf) = 0.3 (Low water use), 0.5 (Moderate water use) *check landscape plan for water use of plants in the hydrozone

ADDITIONAL INFORMATION

GRAYWATER IS RECEIVED BEST BY TREES, BUSHES, SHRUBS, SMALL PERENNIALS AND LARGER ANNUALS, BUT IS PROHIBITED ON LAWN, RAISED BEDS, ROOT AND LEAFY VEGETABLES. MODERATE WATER USERS SUCH AS FRUIT TREES ARE ALSO AN IDEAL APPLICATION. GRAYWATER IS SOMEWHAT ALKALINE (HIGH pH) AND NOT RECOMMENDED FOR PLANTS THAT PREFER ACIDIC SOILS (LOW pH) LIKE BLUEBERRIES AND RHODEDENDRONS SOIL TYPE WILL DETERMINE BOTH HOW QUICKLY GRAYWATER IS ABSORBED IN YOUR LANDSCAPE AND THE SIZE OF THE MULCH BASINS NEEDED TO INFILTRATE THE GRAYWATER..

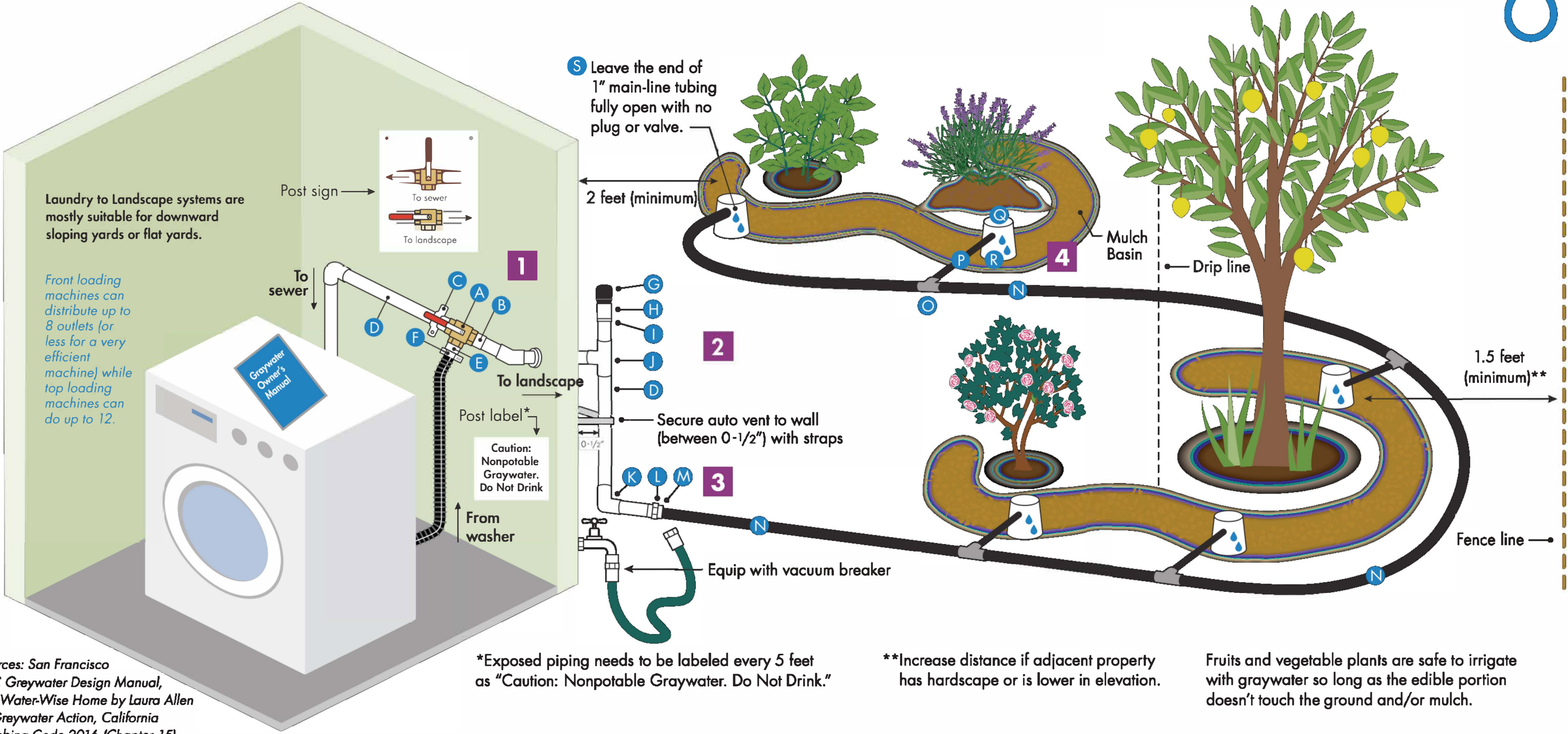
THE KEY TO PROPER IRRIGATION WITH GRAYWATER IS TO KNOW HOW MUCH THE CHOSEN PLANTS NEED GIVEN EVAPOTRANSPIRATION RATES, PLANT WATERING NEEDS, AND EXISTING CANOPY.

RECOMMENDED DETERGENTS:

TO ENSURE PLANT SURVIVAL AVOID SOAPS AND DETERGENTS THAT CONTAIN BORON, SODIUM AND CHLORINE COMPOUNDS. THE FOLLOWING LIST OF COMMERCIAL DETERGENTS ARE RECOMMENDED FOR USE WITH LAUNDRY TO LANDSCAPE GRAYWATER SYSTEMS.

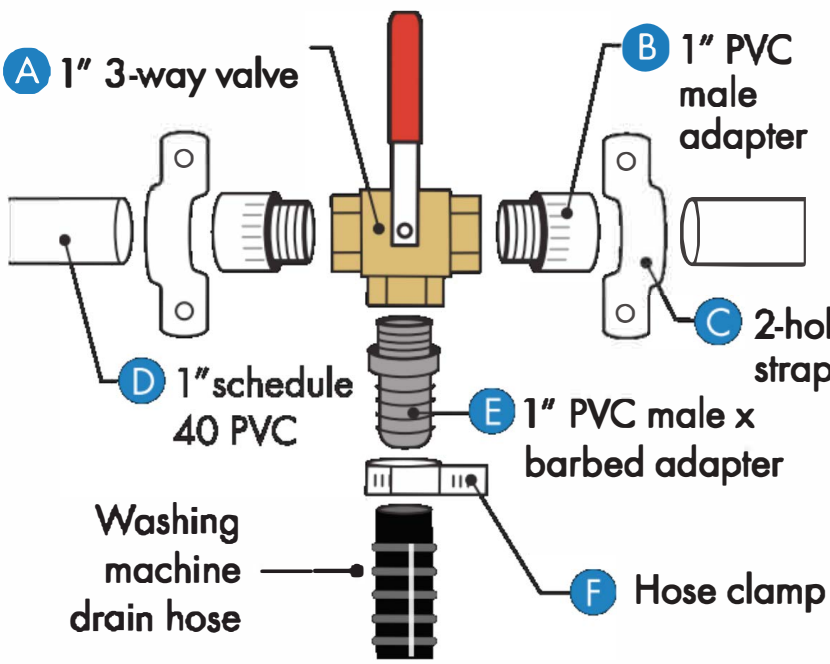
- OASIS LAUNDRY
- BIO PAC LAUNDRY LIQUID
- BIOKLEEN LAUNDRY LIQUID
- ECOVER LAUNDRY WASH (SOME SALT)
- LIQUID ECOS LIQUID DETERGENT
- LIFE TREE LAUNDRY LIQUID
- MOUNTAIN GREEN LAUNDRY DETERGENT
- VASKA HERBATERGENT

Laundry to Landscape: Graywater System Example

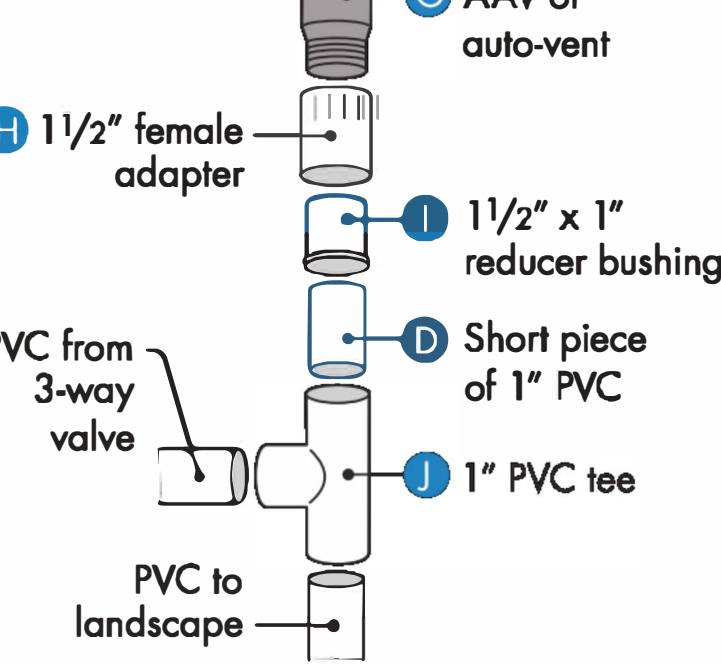


Sources: San Francisco PUC Graywater Design Manual, The Water-Wise Home by Laura Allen of Graywater Action, California Plumbing Code 2016 (Chapter 15)

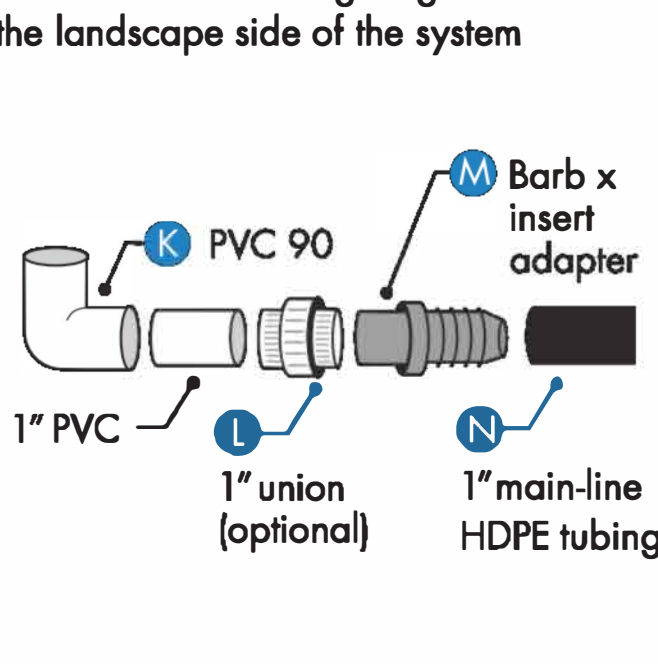
1 Diverter (3-way) Valve



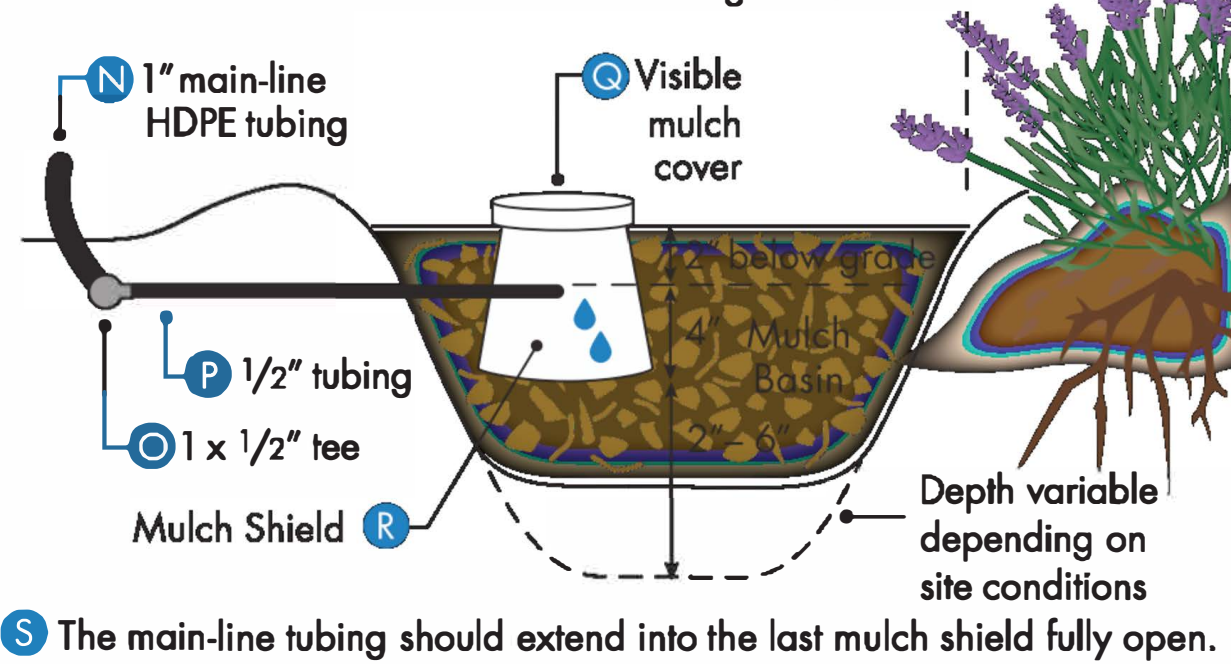
2 Auto Vent



3 System Clean-out



4 Mulch Basin



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SHEET TITLE:
GREYWATER -
LAUNDRY TO
LANDSCAPE

DATE
PERMIT PLAN
MAY 18, 2018

GW-1.0

SHEET
OF



- NOTES:
1. A RAINWATER CATCHMENT SYSTEM MAY NOT REQUIRE A BUILDING PERMIT PROVIDED ALL OF THE FOLLOWING ARE MET (CALIFORNIA PLUMBING CODE 1601.3 (1)):
 - WATER WILL BE USED FOR OUTDOOR NON-SPRAY IRRIGATION
 - MAXIMUM STORAGE CAPACITY OF 5,000 GALLONS
 - TANK IS SUPPORTED DIRECTLY UPON GRADE
 - RATIO OF HEIGHT TO DIAMETER OR WIDTH DOES NOT EXCEED 2 TO 1
 - DOES NOT REQUIRE ELECTRICAL POWER OR MAKEUP WATER SUPPLY CONNECTION (SEE NOTE 2 AND 3)
 2. ALL OTHER RAINWATER CATCHMENT SYSTEMS MUST BE SUBMITTED FOR BUILDING PERMIT.
 3. PUMP AND PRESSURE TANK LIKELY REQUIRE INEXPENSIVE, OVER-THE-COUNTER, ELECTRICAL PERMIT.
 4. IF CITY WATER PLUMBED TO TANK FOR MAKE UP USING FLOAT VALVE OR MANUALLY OPERATED VALVE, THEN A PERMIT IS REQUIRED AND AN AIR GAP IS REQUIRED BETWEEN RAINWATER HARVESTING SYSTEM AND DOMESTIC WATER SYSTEM.
 5. TANKS CAN BE DAISY CHAINED AT POINT "D" USING FLEXIBLE PIPE ONLY TO REDUCE CHANCE OF LEAKAGE IN EARTHQUAKES.
 6. THERE ARE NO REQUIRED SETBACKS FROM BUILDINGS OR SIDE/BACK PROPERTY LINES, THOUGH A CONVERSATION WITH YOUR NEIGHBOR COULD BE HELPFUL.



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