

RAIN GARDEN PLAN

SCALE: 1"=5'

SEQUENCE OF RAIN GARDEN CONSTRUCTION:

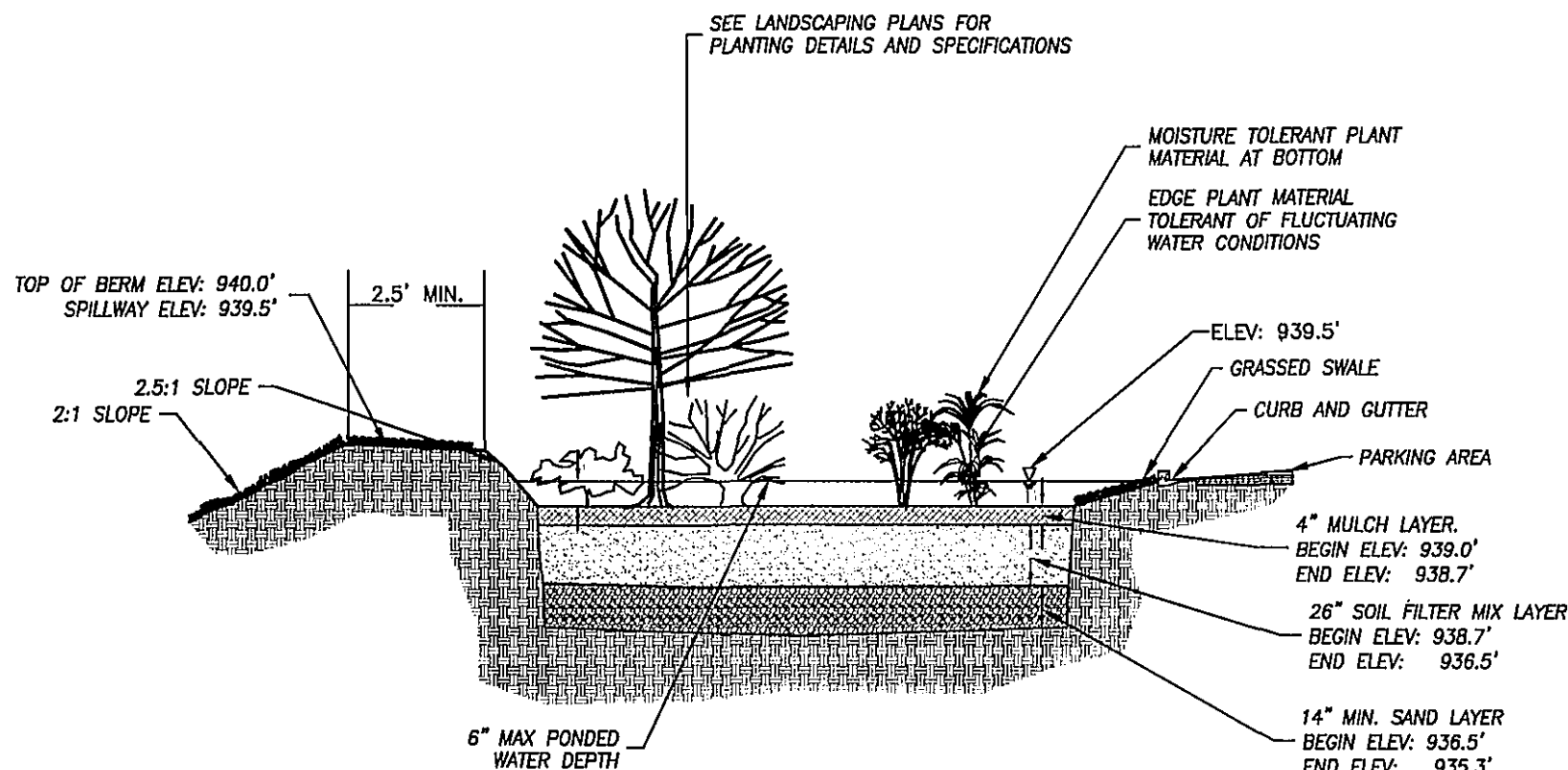
1. INSTALL EROSION AND SEDIMENT CONTROL MEASURES FOR THE SITE. REFER TO EROSION AND SEDIMENT CONTROL PHASING NOTES ON SHEET 7 FOR MORE DETAIL.
2. GRADE THE SITE TO ELEVATIONS SHOWN ON THE PLAN AND STABILIZE ALL SURFACES AS DIRECTED IN THE EROSION AND SEDIMENT CONTROL PHASING NOTES.
3. CONSTRUCT THE RAIN GARDEN AFTER ALL GRADING IS COMPLETED SEEDED AND MULCHED. AVOID ACCUMULATION OF SEDIMENT IN THE RAIN GARDEN.
4. INSTALL THE LINER, LINER COVER, FILTER FABRIC, UNDERDRAIN, AND GRAVEL AS SHOWN IN THE TYPICAL BIOFILTER SECTION DETAIL AND FOLLOW MANUFACTURER'S INSTRUCTIONS WHERE APPLICABLE. LIGHTLY COMPACT WITH A LANDSCAPING ROLLER.
5. AFTER CONFIRMATION THAT SOIL MEETS SPECS CONTAINED IN MINIMUM STANDARD 3.11 OF THE VIRGINIA STORMWATER MANAGEMENT HANDBOOK BY PERFORMING THE REQUISITE GRADATION AND CHEMICAL TESTS, FILL BIORETENTION AREA WITH PLANTING SOIL AS SHOWN IN THE TYPICAL BIOFILTER SECTION DETAIL.
6. INSTALL VEGETATION AND GROUND COVER SPECIFIED IN THE PLANTING PLAN. INSTALL MULCH LAYER.
7. PLACE SOD, EC FABRIC, OR NON EROSION LINING IN THE CHANNEL AND/OR FILTER STRIPS.
8. UPON AUTHORIZATION FROM DESIGNATED INSPECTOR, REMOVE ALL SEDIMENT CONTROLS AND STABILIZE ALL REMAINING DISTURBED AREAS.

GENERAL PLANTING SPECIFICATIONS:

1. DELIVER STOCK ONLY AFTER SOIL HAS BEEN PREPARED. SCHEDULE HARVESTING AND DELIVERY IN QUANTITIES SUITABLE FOR IMMEDIATE PLANTING UPON ARRIVAL. PLANT IMMEDIATELY - IF PLANTING CANNOT BE ACCOMPLISHED IMMEDIATELY, PROVIDE SHADE, PROTECT FROM WIND, PROTECT BALLS OR ROOTS FROM DRYING BY COVERING AT ALL TIMES WITH MOIST SAW DUST, WOOD CHIPS, SHREDDED BARK, PEAT MOSS, OR OTHER SIMILAR MULCHING MATERIAL.
2. SCHEDULE AND COORDINATE WITH WORK OF OTHER SECTIONS AND LOCAL SEASONS. LOCATE AND AVOID DAMAGE TO UNDERGROUND UTILITIES.
3. PLANTING TIME: PLANT ONLY IN THAWED GROUND.
4. MULCH: REPLACE MULCH IN AREAS WHERE MULCH HAS BEEN DISPLACED AND SECURE AGAINST DISPLACEMENT.
5. WATERING: WATER REGULARLY AND AT SUCH TIMES AND RATES AS NECESSARY FOR OPTIMUM GROWTH AND TO AVOID WILTING, PUDDLING, RUNOFF, OR EROSION.
6. FERTILIZING: AFTER ONE MONTH OF GROWTH, APPLY 10:10:10 SLOW RELEASE FERTILIZER AT THE RATE OF 1/2 POUND PER 1000 SQUARE FEET.
7. CONTROL GROWTH OF WEEDS: APPLY HERBICIDES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. REMEDY ANY DAMAGE RESULTING FROM USE OF HERBICIDES. DO NOT ALLOW FOOT OR VEHICULAR TRAFFIC OVER NEW LAWN AREAS.
8. REMOVE WEEDS, REPLACE MULCH, AND RESTORE ERODED WATERING BASINS AROUND TRUNKS IF NEEDED.
9. ADJUST STAKES AND GUYS TO PROVIDE PROPER SUPPORT AND REPLANT TREES AND SHRUBS TO VERTICAL POSITION IF NECESSARY.
10. APPLY INSECTICIDES OR FUNGICIDES IF NECESSARY TO PREVENT OR CORRECT INSECT INFESTATION AND DISEASE.
11. PLANTING SOIL: MIX NATIVE SOIL, TOPSOIL, AND AMENDMENTS THOROUGHLY TO PROVIDE UNIFORM MIXTURE, USING POWERED ROTARY TILLER OR HAND-SHOVEL.
12. PLANTING SOIL MIX (DO NOT USE WITHIN BIOFILTER LIMITS):
ONE-THIRD (1/3) NATIVE SOIL FROM EXCAVATED HOLE.
ONE-THIRD (1/3) IMPORTED TOPSOIL.
ONE-THIRD (1/3) MIXED SOIL AMENDMENTS (MANURE & PEAT HUMUS). COMMERCIAL FERTILIZER: 0.25 POUNDS PER 100 SQUARE FEET OF SURFACE AREA.

RAIN GARDEN-SPECIFIC PLANTING SPECIFICATIONS:

1. ROOT STOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT FROM THE SOURCE TO THE JOBSITE AND UNTIL PLANTED.
2. THE DIAMETER OF THE PLANTING PIT MUST BE A MINIMUM OF SIX INCHES LARGER THAN THE DIAMETER OF THE BALL OF THE TREE.
3. THE PLANTING PIT SHALL BE DEEP ENOUGH TO ALLOW 1/8 OF THE OVERALL DIMENSION OF THE ROOT BALL TO BE ABOVE GRADE. LOOSE SOIL AT THE BOTTOM OF THE PIT SHALL BE TAMPED BY HAND.
4. THE PLANTING PIT SHALL BE DEEP ENOUGH TO ALLOW 1/8 OF THE OVERALL DIMENSION OF THE ROOT BALL TO BE ABOVE GRADE. LOOSE SOIL AT THE BOTTOM OF THE PIT SHALL BE TAMPED BY HAND.
5. THE APPROPRIATE AMOUNT OF FERTILIZER IS TO BE PLACED AT THE BOTTOM OF THE PIT.
6. THE PLANT SHALL BE REMOVED FROM THE CONTAINER AND PLACED IN THE PLANTING PIT BY LIFTING AND CARRYING THE PLANT BY ITS BALL. (NOT BY BRANCHES OR TRUNK).
7. SET THE PLANT STRAIGHT AND IN THE CENTER OF THE PIT SO THAT APPROXIMATELY 1/8 OF THE DIAMETER OF THE ROOT BALL IS ABOVE THE FINAL GRADE.
8. BACKFILL PLANTING PIT WITH EXISTING SOIL.
9. MAKE SURE PLANT REMAINS STRAIGHT DURING BACKFILL PROCEDURE.
10. NEVER COVER THE TOP OF THE BALL WITH SOIL. MOUND SOIL AROUND THE EXPOSED BALL.
11. SEE PLANTING PLAN FOR STAKING AND BRACING REQUIREMENTS.
12. DUE TO HIGH LEVELS OF NUTRIENTS IN STORMWATER RUNOFF TO BE RECEIVED, BIOFILTER PLANTS SHOULD NOT REQUIRE CHEMICAL FERTILIZATION.
13. BIOFILTER PLANTING SPECIFICATIONS SUPERCEDE GENERAL PLANTING SPECIFICATIONS.



TYPICAL RAIN GARDEN SECTION

NOT TO SCALE

GENERAL NOTES:

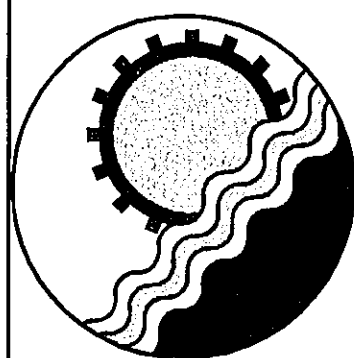
1. SAND SHALL BE ASTM C-33 CONCRETE SAND AND FREE OF DELETERIOUS MATERIAL.
2. PLANTING SOIL MIXTURE SHALL BE 50% SAND, 30% LEAF COMPOST (FULLY COMPOSTED), AND 20% TOPSOIL. TOPSOIL SHALL BE SANDY LOAM OR LOAMY SAND WITH A MAXIMUM CLAY CONTENT OF 5%. TOPSOIL SHALL ALSO BE FREE OF STONES, STUMPS, ROOTS, OR SIMILAR OBJECTS GREATER THAN ONE INCH, OR ANY SUBSTANCE WHICH MAY BE HARMFUL TO PLANT GROWTH. REFER TO MINIMUM STANDARD 3.11 FOR FURTHER SOIL SPECIFICATIONS AND REQUIRED TESTING.
3. SOIL SHALL BE PLACED IN LIFTS LESS THAN 18 INCHES AND LIGHTLY COMPACTED (MINIMAL COMPACTIVE EFFORT) BY TAMPING OR ROLLING WITH A HAND-OPERATED LANDSCAPE ROLLER.
4. RAIN GARDEN SHALL BE INSPECTED AND MAINTAINED PER MINIMUM STANDARD 3.11 BIORETENTION PRACTICES OF THE VIRGINIA STORMWATER HANDBOOK, UNLESS OTHERWISE INDICATED IN THESE PLANS.
5. RAIN GARDEN SHALL NOT BE INSTALLED UNTIL ALL AREAS DRAINING TO IT ARE STABILIZED. CONSTRUCTION RUNOFF FROM UNSTABILIZED AREAS CONTAINS HIGH LEVELS OF SUSPENDED SOLIDS THAT MAY CLOG THE BIOFILTER AND PREVENT IT FROM FUNCTIONING.
6. SEE SHEET 9 FOR BIOFILTER PLANTING PLAN.

SPECIAL NOTE:

1. ALL SPECIFICATIONS CONTAINED IN MINIMUM STANDARDS 3.11 AND 3.11A IN THE VIRGINIA STORMWATER MANAGEMENT HANDBOOK (1999) SHALL APPLY TO BIOFILTER CONSTRUCTION UNLESS SPECIFICALLY SUPERCEDED ON THIS SHEET.

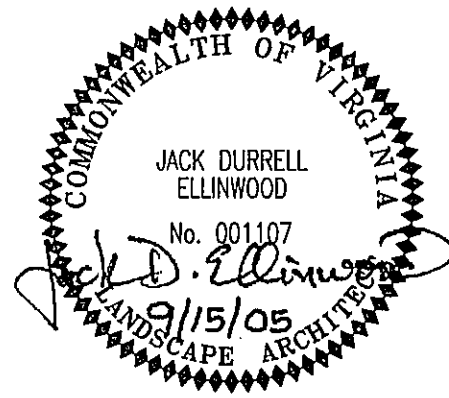
MINIMUM BIOFILTER MAINTENANCE SCHEDULE:

DESCRIPTION	METHOD	FREQUENCY	TIME OF YEAR
SOIL			
INSPECT AND REPAIR EROSION	VISUAL	MONTHLY	MONTHLY
ORGANIC LAYER			
REMULCH ANY VOID AREAS	BY HAND	AS NEEDED	AS NEEDED
REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER (OPTIONAL)	BY HAND	ONCE EVERY 2-3 YEARS	SPRING
PLANTS			
REMOVE AND REPLACE ALL DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT	SEE PLANTING SPECS	TWICE A YEAR	3/15 TO 4/30 AND 10/1 TO 11/30
TREAT ALL DISEASED TREES AND SHRUBS	MECHANICAL OR BY HAND	N/A	VARIES, DEPENDS ON INFESTATION
WATER ALL PLANTS AT THE END OF EACH DAY FOR 14 CONSECUTIVE DAYS AFTER PLANTING IS COMPLETE	BY HAND	IMMEDIATELY AFTER PROJECT COMPLETION	N/A
REPLACE STAKES AFTER ONE YEAR	BY HAND	ANNUALLY	ONLY REMOVE STAKES IN THE SPRING
REPLACE DEFICIENT STAKES OR WIRES	BY HAND	N/A	AS NEEDED
CHECK FOR ACCUMULATED SEDIMENT	VISUAL	MONTHLY	MONTHLY



ENGINEERING CONCEPTS, INC.

20 S. ROANOKE ST., PO BOX 619
FINCASTLE, VIRGINIA 24090
540.473.1253 FAX: 540.473.1254



No.	Revision	By	Appd.	Date	Drawn
1	REV / COMMENTS OF 9-6-05	DRB	JDE	9/15/05	CJM
					Designed CJM/JDE
					Checked JDE/CJM
					Approved JDE

WESTERN VIRGINIA WATER AUTHORITY
LOWER PARKING LOT EXPANSION

RAIN GARDEN PLAN
ROANOKE, VIRGINIA

WVWA ID# 6L8GUJ

SCALE: AS NOTED

AUGUST 18, 2005

PROJECT: 05052