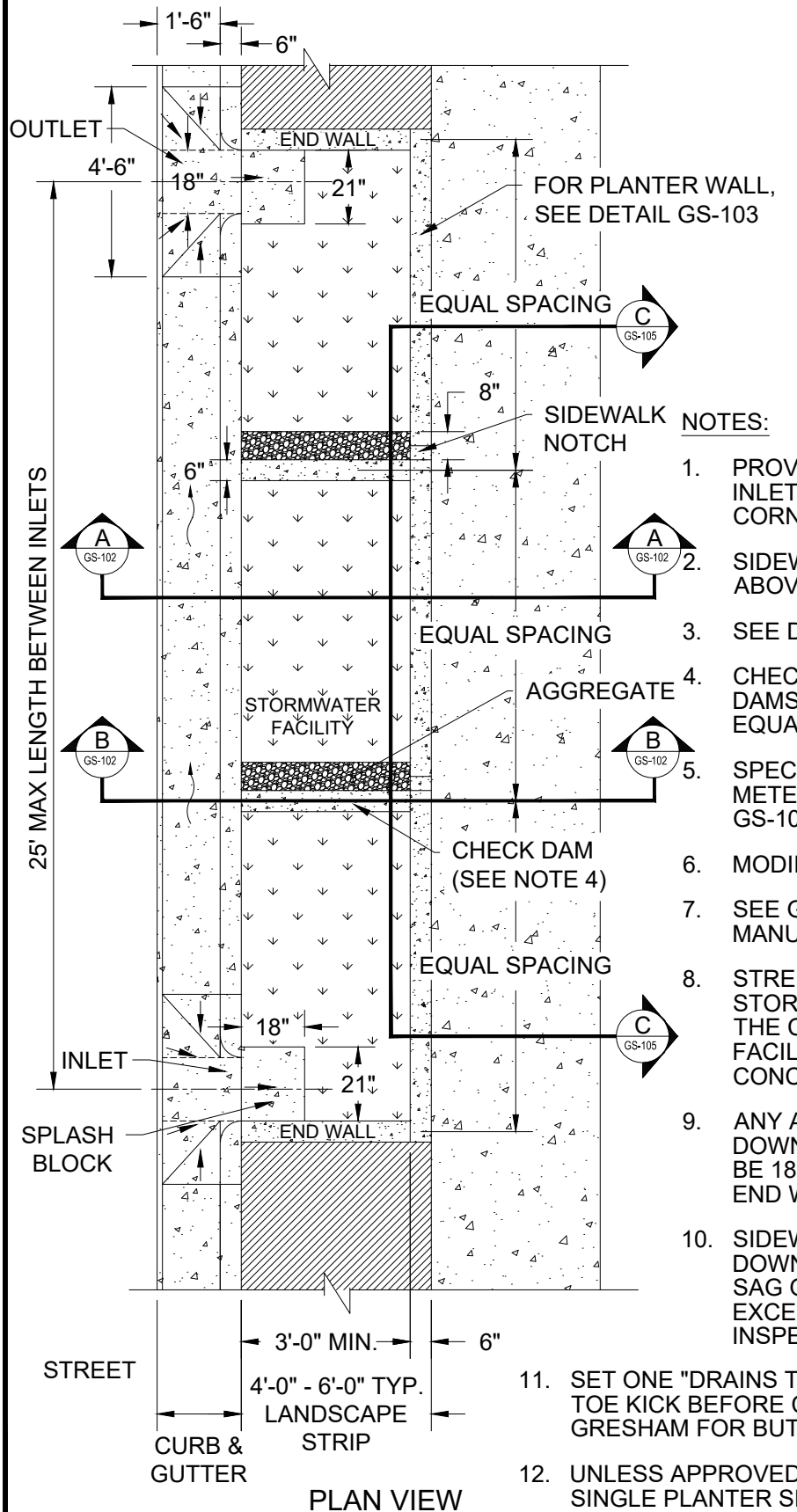
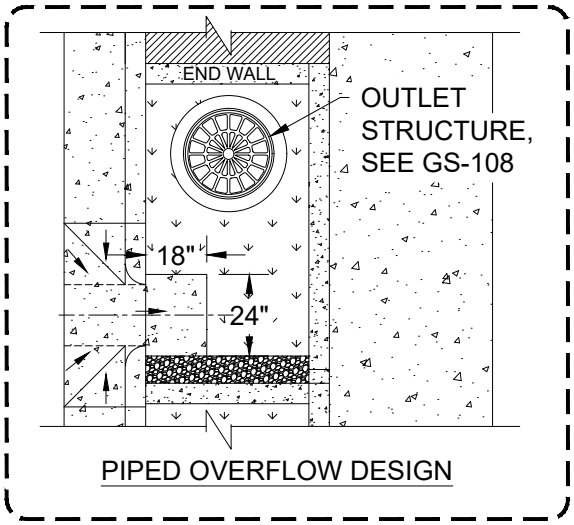


PLAN VIEW

NTS



PIPED OVERFLOW DESIGN

NOTES:

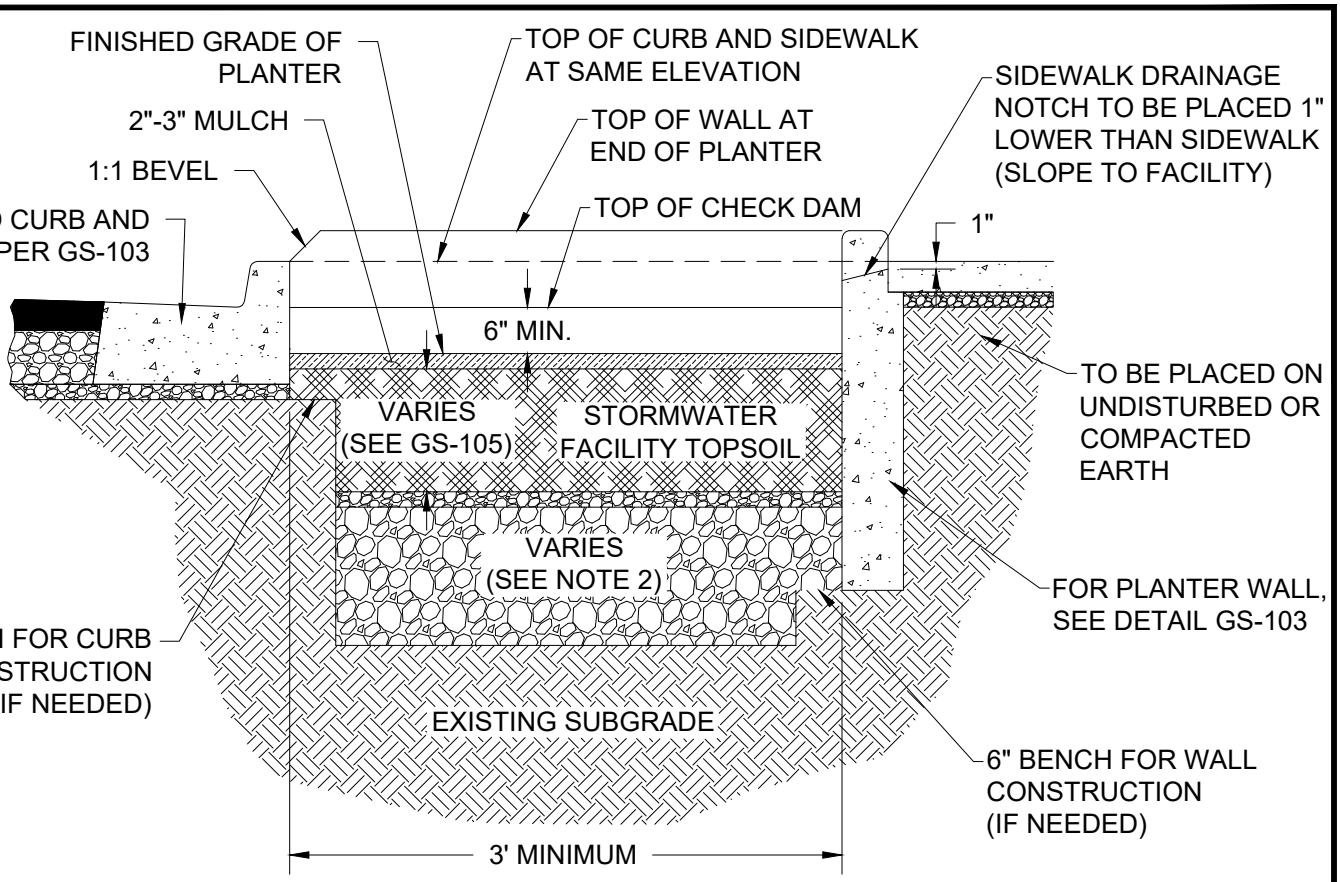
1. PROVIDE STATIONS AND ELEVATIONS AT EVERY INLET, OUTLET, CHECK DAM, PLANTER WALL CORNER, AND SIDEWALK NOTCH.
2. SIDEWALK NOTCH ELEVATION MUST BE SET ABOVE INLET AND OUTLET ELEVATIONS.
3. SEE DETAIL GS-104 FOR INLET DETAILS.
4. CHECK DAMS REQUIRED PER GS-105. CHECK DAMS SHALL BE EQUALLY SPACED TO CREATE EQUALLY SIZED CELLS.
5. SPECIAL REQUIREMENTS FOR WATER LINES, METERS, AND FIRE HYDRANTS; SEE DETAIL GS-109.
6. MODIFIED CURB AND GUTTER: SEE DETAIL GS-103.
7. SEE GRESHAM STORMWATER MANAGEMENT MANUAL FOR PLANTING GUIDANCE.
8. STREETLIGHTS SHALL BE PLACED OUTSIDE OF STORMWATER FACILITIES, UNLESS APPROVED BY THE CITY. IF STREETLIGHTS ARE PLACED IN A FACILITY, PGE APPROVED FOUNDATION WITH 1' CONCRETE SURROUND MUST BE USED.
9. ANY ADDITIONAL INLETS SHALL BE LOCATED ON DOWNSTREAM SIDE OF CHECK DAMS AND SHALL BE 18" X 24" IF NOT LOCATED ADJACENT TO AN END WALL.
10. SIDEWALK NOTCHES TO BE LOCATED AT DOWNSTREAM SIDE OF EACH CHECK DAM, AT ANY SAG OR LOW POINT, AND AT INTERVALS NOT EXCEEDING 15 FEET OR AS DIRECTED BY THE INSPECTOR.
11. SET ONE "DRAINS TO RIVER" BUTTON CENTERED ON SIDEWALK TOE KICK BEFORE CONCRETE HAS DRIED. CONTACT CITY OF GRESHAM FOR BUTTON SPECIFICATIONS (TYPICAL).
12. UNLESS APPROVED BY THE MANAGER, MAXIMUM LENGTH OF SINGLE PLANTER SHALL BE 100 FEET. A 4-FOOT STEP-OUT AREA WITH NO ABOVE GROUND INFRASTRUCTURE SHALL BE PROVIDED BETWEEN ADJACENT PLANTERS.

CITY OF GRESHAM

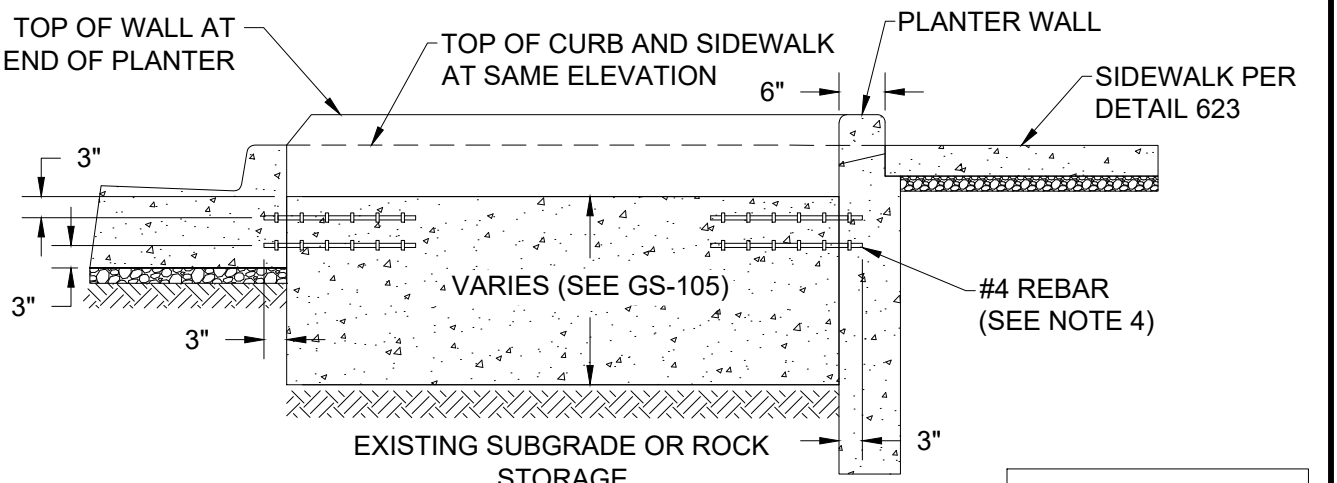
PLANTER PLAN VIEW

PWS VERSION: JAN 2024

DRAWN	KRB
REV. DATE	JAN 2024
APPR.	
DETAIL NO.	GS-101



SECTION A-A



SECTION B-B

FOR PLAN VIEW REFER TO GS-101

NOTES:

1. STORMWATER FACILITY TOPSOIL SHALL BE PER THE CITY'S STORMWATER MANAGEMENT MANUAL.
2. SEE GS-107 TO DETERMINE WHEN AGGREGATE AND UNDERDRAINS ARE REQUIRED.
3. AFTER INITIAL EXCAVATION AND WALL CONSTRUCTION, FRACTURE AND LOOSEN THE NATIVE SOIL TO A DEPTH OF 12" BELOW DEPTH WHERE STORMWATER FACILITY TOPSOIL WILL BE PLACED. DO NOT TILL.
4. EMBED OR EPOXY SET 12" MIN. LENGTH #4 REBAR INTO CURB AND PLANTER WALL.

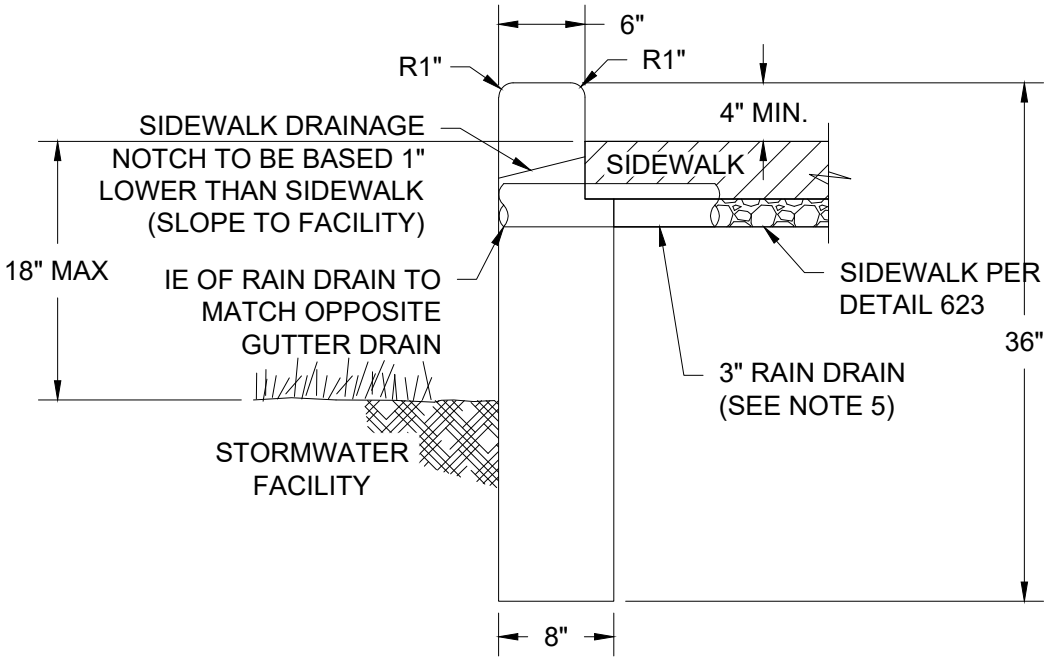
NTS

CITY OF GRESHAM

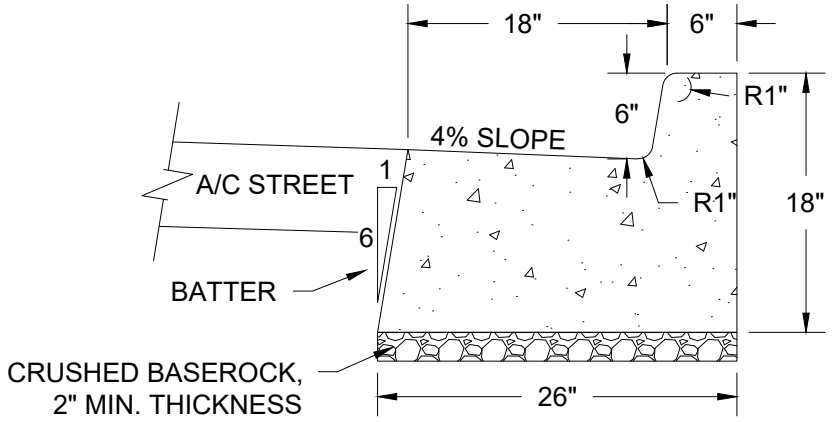
PLANTER SECTION VIEW

PWS VERSION: JAN 2024

DRAWN	KRB
REV. DATE	JAN 2024
APPR.	
DETAIL NO.	GS-102



PLANTER WALL ADJACENT TO WALK



THICKENED MONOLITHIC CURB AND GUTTER FOR STREET SIDE OF RAIN GARDENS

NOTES:

1. PCC SHALL BE 4,000 PSI STRENGTH AT 28 DAYS.
2. CONTRACTION JOINTS SHALL BE PLACED AT 15' MAX. SPACING.
3. CRUSHED BASE ROCK SHALL BE COMPACTED TO 95% RELATIVE DENSITY PER ASTM D1557.
4. FINISH ALL EXPOSED CONCRETE SURFACES.
5. IF RAIN DRAIN WILL BE PIPED TO FACILITY, EXTEND 3" SCHEDULE 40 PVC DRAIN PIPE FROM INSIDE OF PLANTER TO CONNECTION AT BACK OF SIDEWALK. RAIN DRAIN SHALL BE LOCATED ABOVE GUTTER ELEVATION.
6. ADD 2" WIDE SHELF WHEN PLANTER WALL IS DESIGNED TO BE ADJACENT TO SIDEWALK.

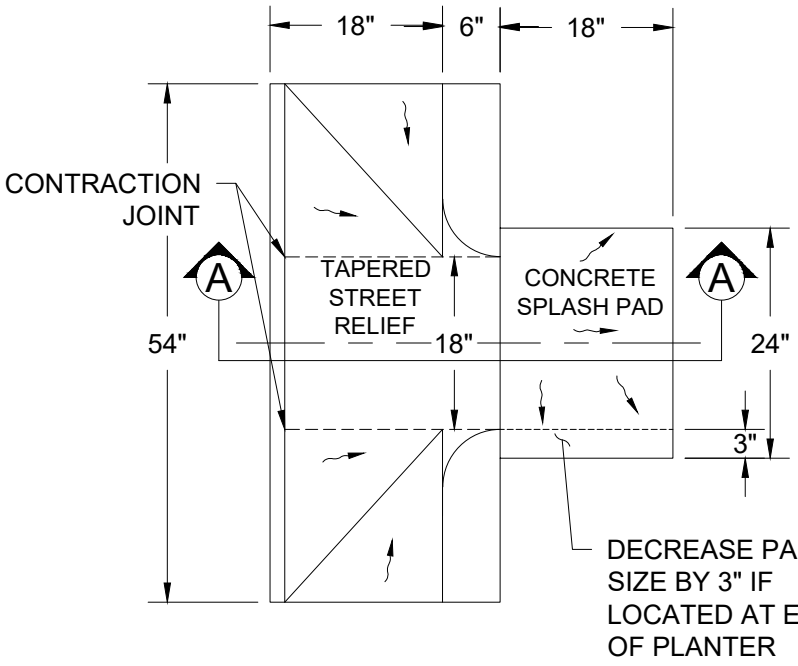
NTS

CITY OF GRESHAM

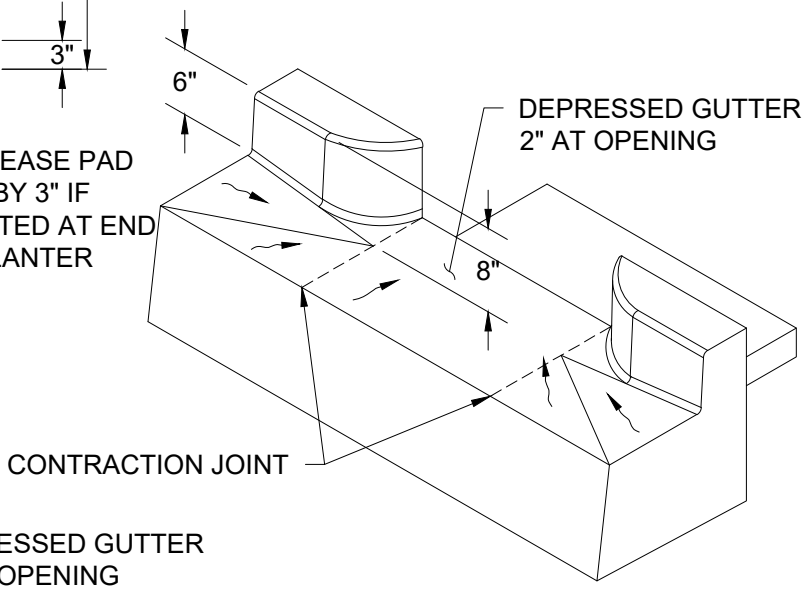
PLANTER WALL AND MODIFIED CURB

PWS VERSION: JAN 2024

DRAWN	KRB
REV. DATE	MAR 2021
APPR.	
DETAIL NO.	GS-103



PLAN



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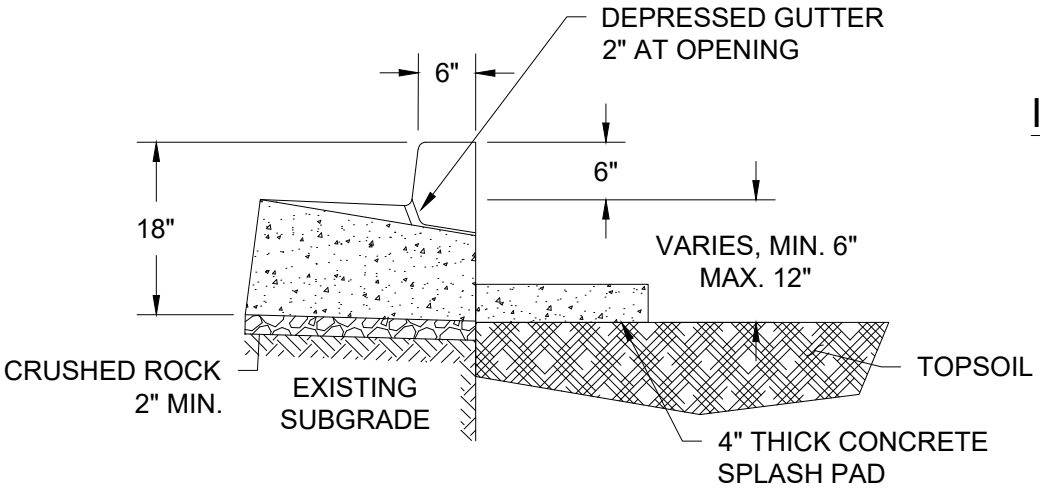


SECTION A-A

NOTES:

1. REFER TO GS-103 FOR THICKENED MONOLITHIC CURB AND GUTTER. IF PRESENT, MATCH GUTTER PAN WIDTH OF ADJACENT CURB AND GUTTER.
2. SEE CHECK DAM DETAIL GS-105 FOR DISTANCE TO TOP OF SPLASH PAD.
3. MAXIMUM DISTANCE BETWEEN INLETS SHALL BE 25 FEET.

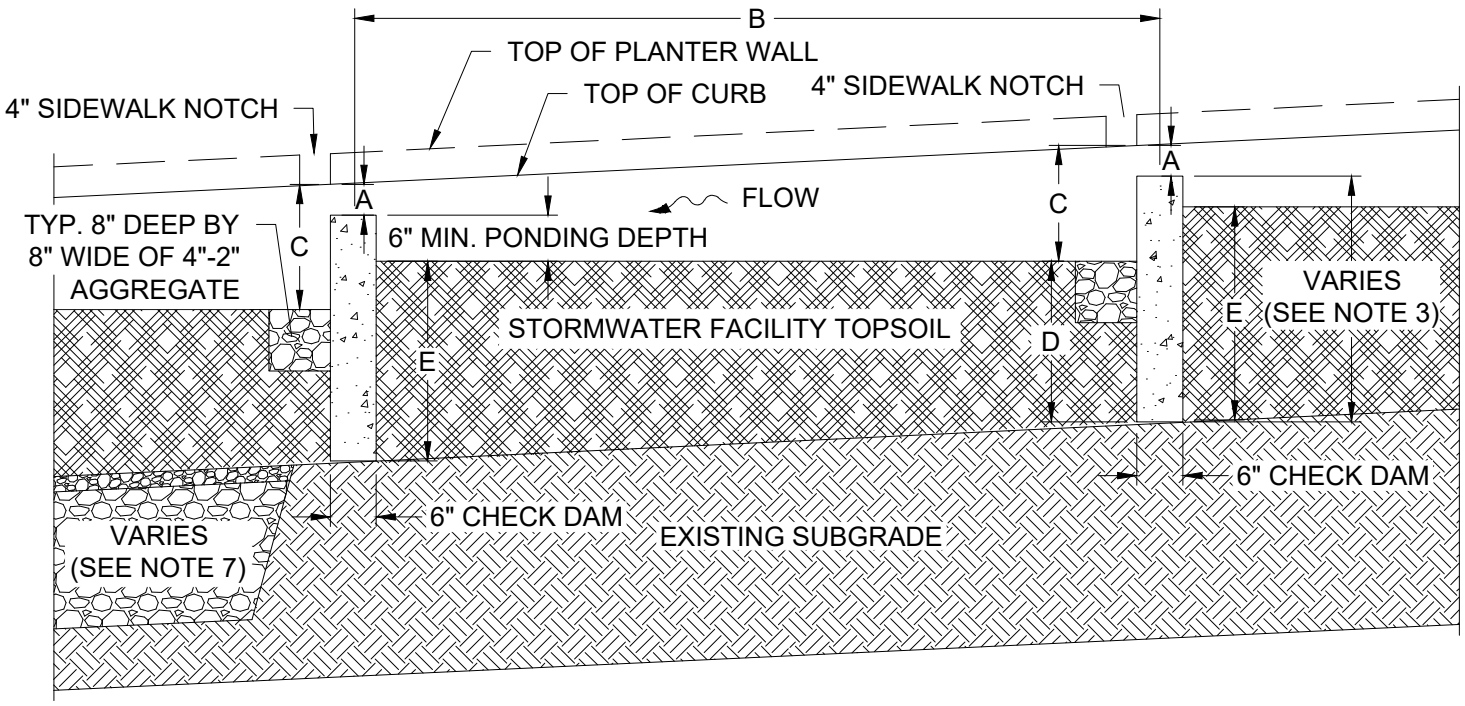
NTS

CITY OF GRESHAM

CONCRETE CURB INLET

PWS VERSION: JAN 2024

DRAWN	KRB
REV. DATE	MAR 2021
APPR.	
DETAIL NO.	GS-104



SECTION C-C

ROAD GRADE	A (SEE NOTE 2)	MIN B	MAX B	C	D	E
>8%-15%	4"	5'	10'	18"	SEE GS-107 FOR DIMENSIONS	D + 8"
>4%-8%	5"	7.5'	15'	15"		D + 6"
0%-4%	6"	12.5'	25'	12"		D

NOTES:

1. CHECK DAM TO BE PLACED ON UNDISTURBED NATIVE SOIL, OR ON AGGREGATE IF REQUIRED.
2. TOP OF CHECK DAM SHALL BE A MINIMUM OF 1" BELOW THE UPSTREAM INLET GUTTERLINE ELEVATION.
3. CHECK DAM WIDTH IS 6". HEIGHT VARIES DEPENDING ON ROAD GRADE.
4. DIMENSION B VARIES BASED ON EQUAL SPACING REQUIREMENT ON GS-101.
5. SIDEWALK DRAINAGE NOTCHES TO BE LOCATED IMMEDIATELY DOWNSTREAM OF EACH CHECK DAM.
6. SIDEWALK NOTCH TO BE 1" LOWER THAN SIDEWALK AND SLOPED TO FACILITY. WIDTH IS 4" AND MINIMUM DEPTH 5" WHEN 4" TOE KICK PLANNED FOR.
7. SEE GS-107 TO DETERMINE WHEN AGGREGATE AND UNDERDRAIN ARE REQUIRED.

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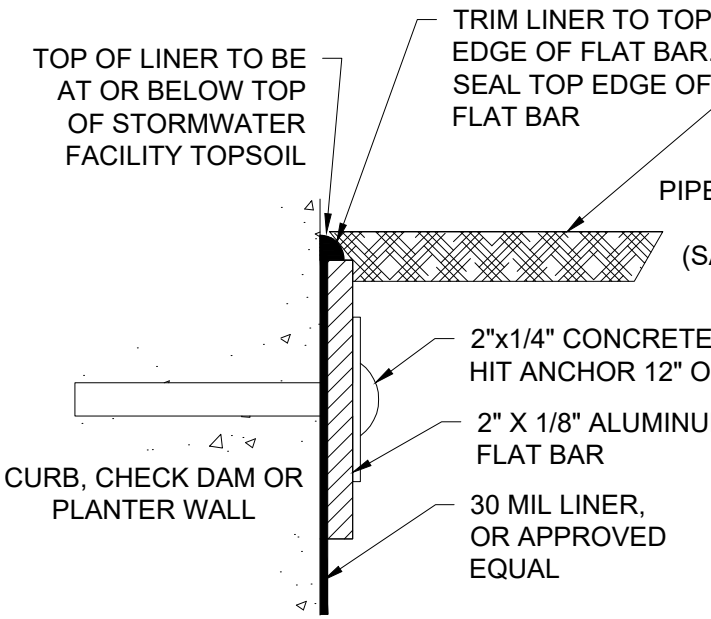
CITY OF GRESHAM

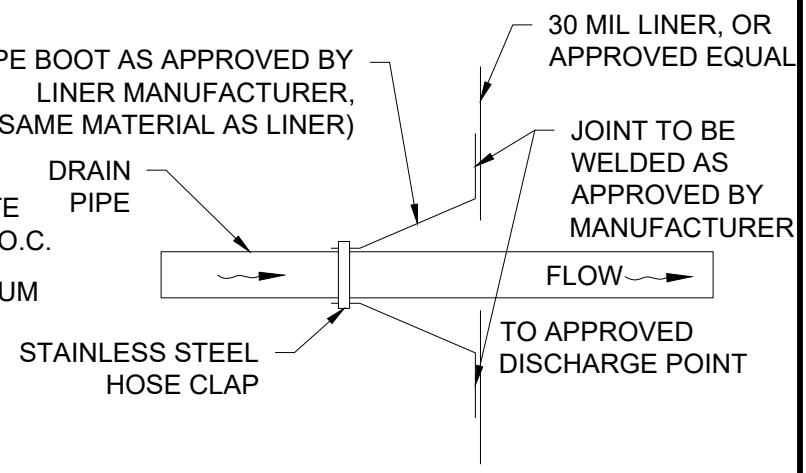
CONCRETE CHECK DAM

PWS VERSION: JAN 2024

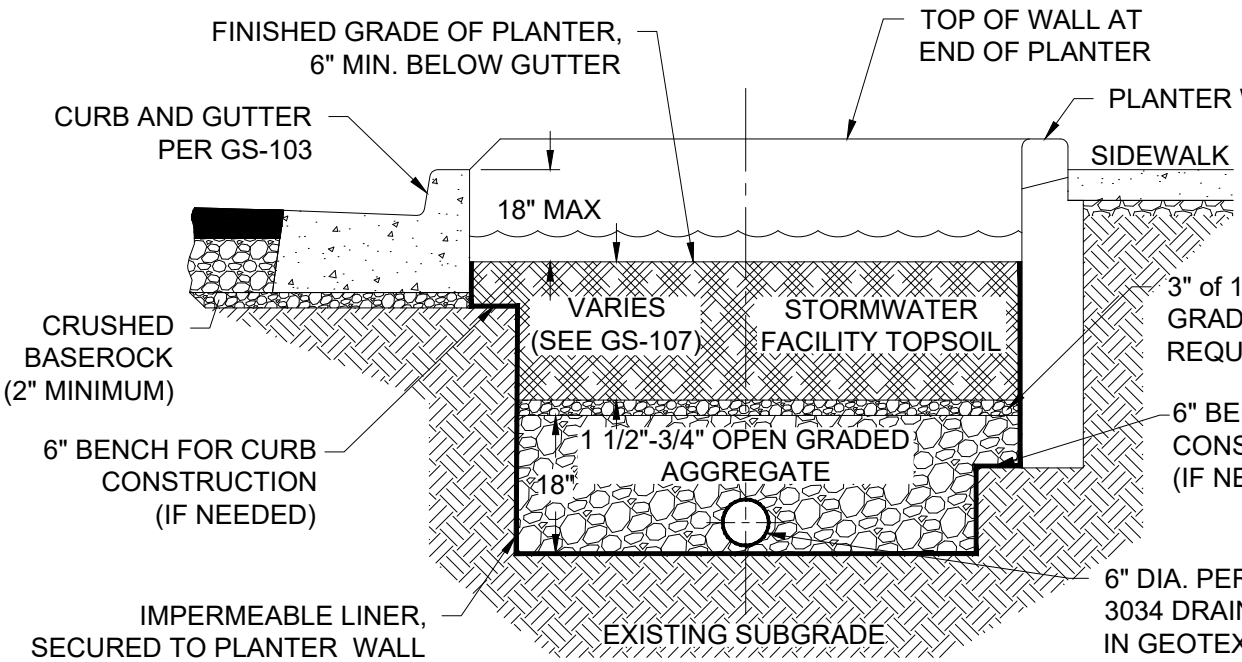
DRAWN	KRB
REV. DATE	JAN 2024
APPR.	
DETAIL NO.	GS-105



LINER ATTACHMENT



PIPE BOOT



LINED PLANTER WITH UNDERDRAIN

NOTES:

1. MONOLITHIC CONCRETE ON SIDES AND BOTTOM PREFERRED OVER USE OF HDPE LINER.
2. FULL LINER REQUIRED IN HILLSIDE AND GEOLOGIC RISK OVERLAY DISTRICTS, CONTAMINATED SOILS, OR IN UNCONSOLIDATED FILL WITH OVERFLOW INTERCEPTED BY INLET TO STORMWATER SYSTEM. SEE GS-107.

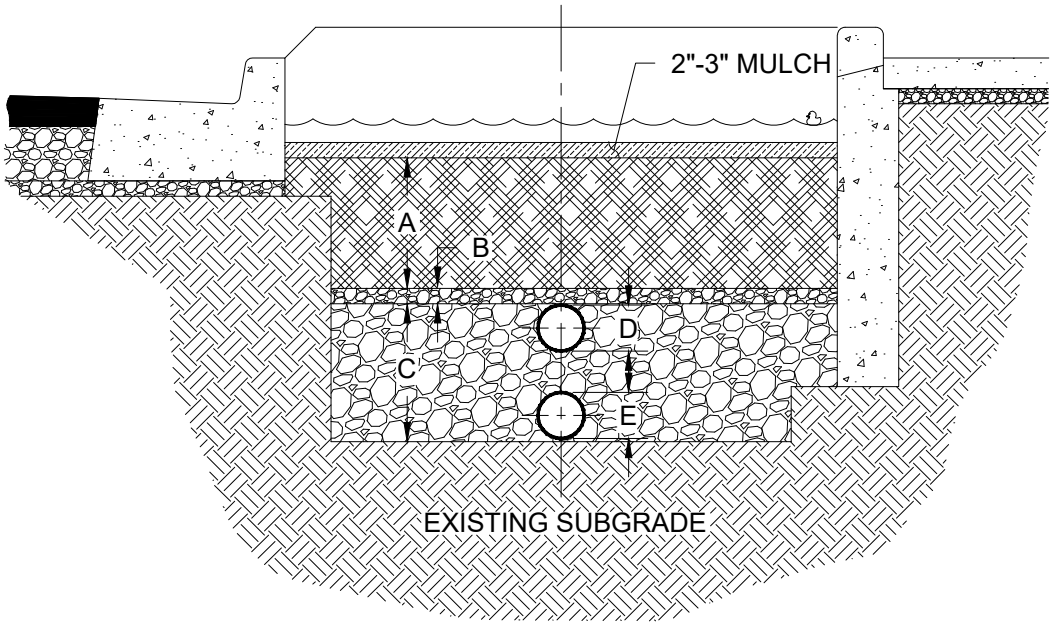
NTS

CITY OF GRESHAM

LINER ATTACHMENT AND PIPE BOOT

PWS VERSION: JAN 2024

DRAWN	DRO
REV. DATE	JAN 2024
APPR.	
DETAIL NO.	GS-106



CONDITION	A	B	C	D	E
GOOD INFILTRATING SOILS (>2"/hr)	12" (MIN) TOPSOIL	0"	0"	NA	NA
LOW INFILTRATING SOILS (0.5 to 2"/hr)	18" (MIN) TOPSOIL	0"	0"	NA	NA
POOR INFILTRATING SOILS (<0.5"/hr)	24" (MIN) TOPSOIL	3" OF 1/4"-NO. 10 OPEN GRADED AGGREGATE	18" MIN. 1 1/2"-3/4" OPEN GRADED AGGREGATE	6" PERF PIPE	NA
LINED FACILITIES	24" (MIN) TOPSOIL	3" OF 1/4"-NO. 10 OPEN GRADED AGGREGATE	18" MIN. 1 1/2"-3/4" OPEN GRADED AGGREGATE	NA	6" PERF PIPE

NOTES:

1. SEE STORMWATER MANAGEMENT MANUAL FOR DETAILS ON STORMWATER FACILITY TOPSOIL SPECIFICATIONS.
2. MINIMUM DEPTH FOR A IS 12 INCHES. SEE GS-105 TO DETERMINE DEPTHS FOR SLOPED FACILITIES.
3. LINED FACILITIES ONLY ALLOWED FOR STEEP SLOPES (>20%), UNCONSOLIDATED FILL (WITH SLOPES OR LOW INFILTRATION SOILS) OR IN CONTAMINATED SOILS, SEE GS-106 FOR DETAILS ON LINED FACILITIES.
4. TREES INCLUDED IN PLANTERS MUST FOLLOW GS-112. TREES NOT ALLOWED IN LINED FACILITIES OR TO HAVE ROCK OR UNDERDRAIN WITHIN THE DEEPENED SOIL SECTION. THE DEEPENED SOIL SECTION FOR TREES SHALL BE A MINIMUM OF THE DEPTH IN COLUMN A PLUS AN ADDITIONAL 18".
5. MAXIMUM LENGTH OF PERFORATED PIPE IS 36 INCHES.

NTS

CITY OF GRESHAM

UNDERDRAIN AND ROCK REQUIREMENTS

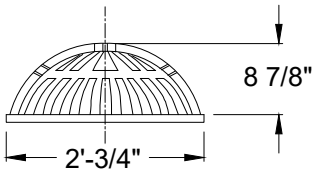
PWS VERSION: JAN 2024

DRAWN DRO

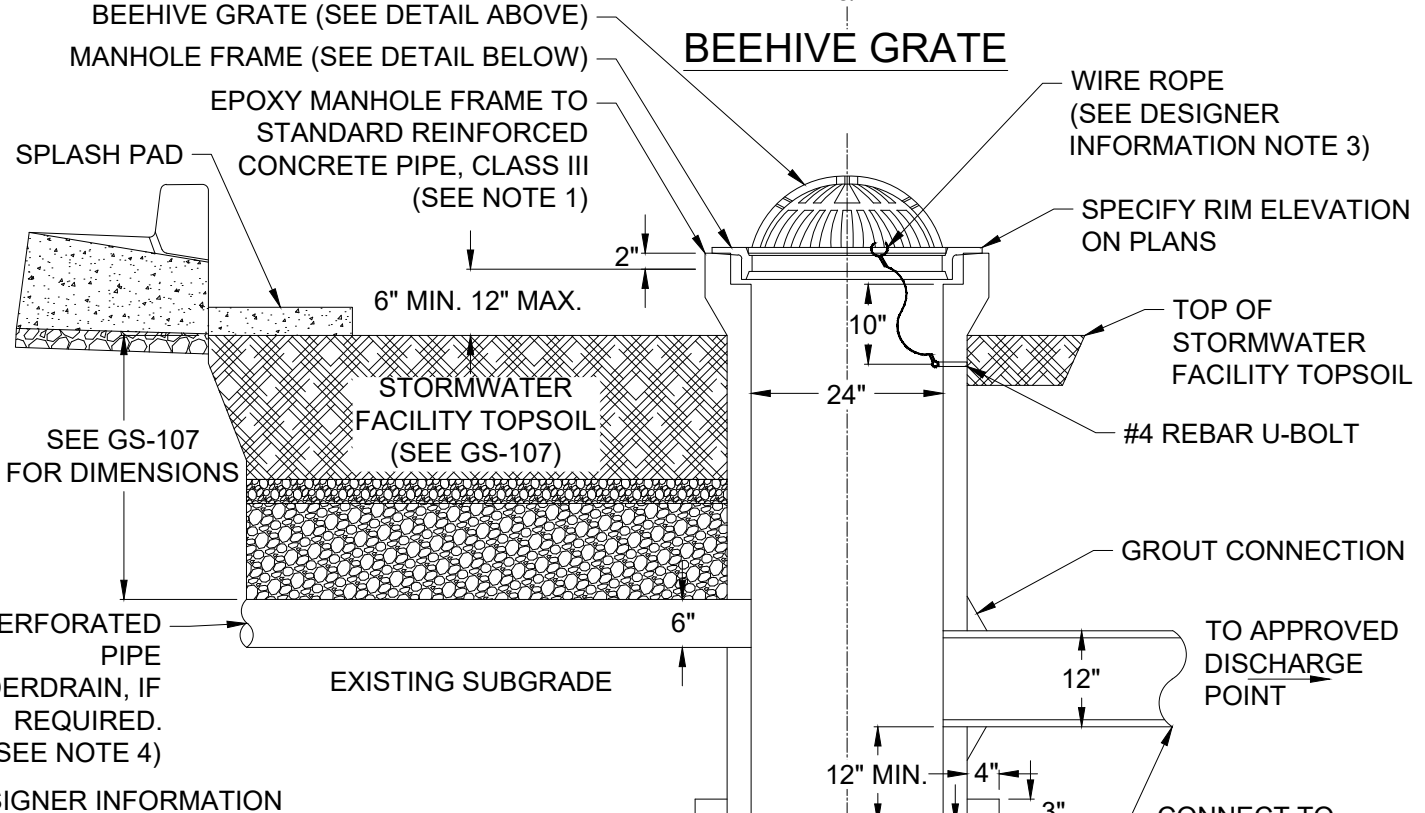
REV. DATE JAN 2022

APPR.

DETAIL NO. GS-107



BEEHIVE GRATE

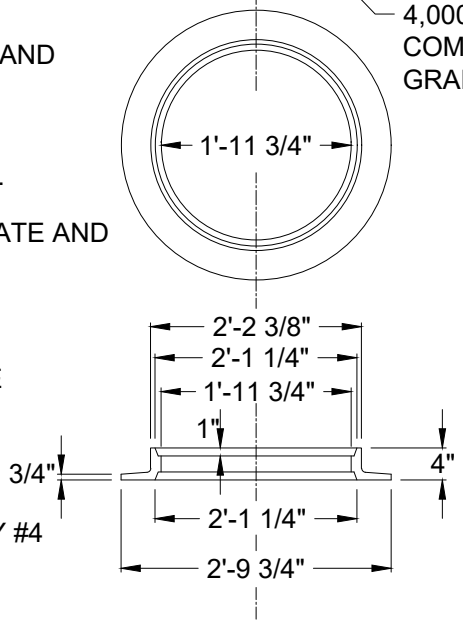


DESIGNER INFORMATION

1. RIM ELEVATION TO BE 2" BELOW GUTTERLINE OUTLET ELEVATION.
2. SIZE INLET BASED ON CALCULATED FLOWS AND MANUFACTURERS RECOMMENDATIONS.
3. WIRE ROPE BETWEEN 1/8"-3/16" DIAMETER, STAINLESS STEEL, 7 STRANDS OF 19 WIRES.
4. SEE GS-107 TO DETERMINE WHEN AGGREGATE AND UNDERDRAINS ARE REQUIRED.

CONSTRUCTION NOTES

1. SECURE GRATE IN PLACE WITH 54" OF WIRE ROPE. LOOP ENDS OF WIRE ROPE AROUND U-BOLT AND GRATE. CRIMP EACH END OF WIRE ROPE WITH 3" OVERLAP.
2. DRILL 2" DEEP HOLES INTO PIPE AND EPOXY #4 REBAR U-BOLT (2"x4") IN HOLES.
3. GRATE TO BE CAST IRON, ASTM A48 CL30.
4. PIPE CONNECTIONS TO BEEHIVE TO BE CORED.



24"x4" REVERSIBLE MANHOLE FRAME

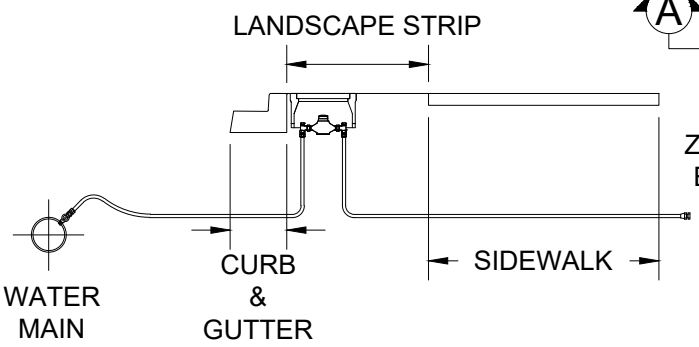
NTS

CITY OF GRESHAM

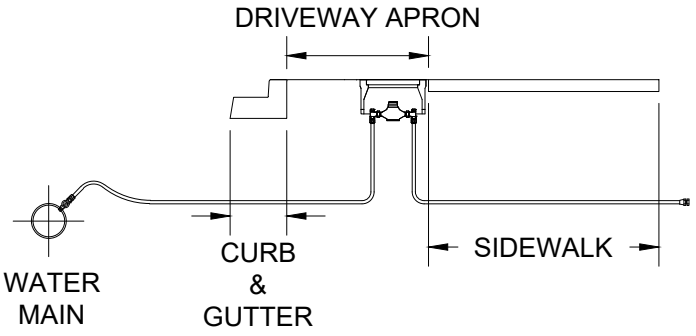
BEEHIVE OVERFLOW

PWS VERSION: JAN 2024

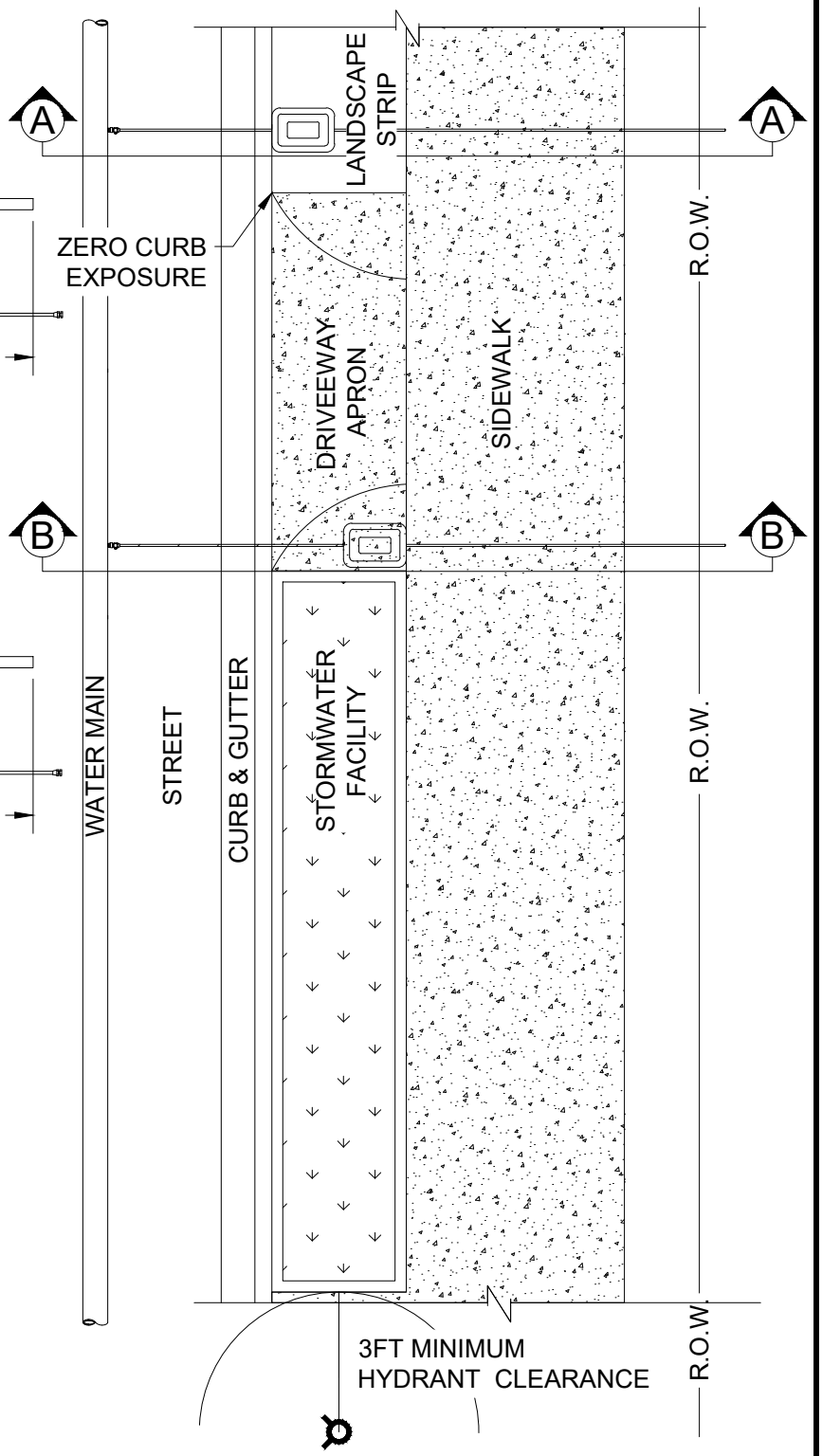
DRAWN	DRO
REV. DATE	JAN 2024
APPR.	
DETAIL NO.	GS-108



SECTION A-A



SECTION B-B



PLAN VIEW

NOTES:

1. REFER TO FIRE HYDRANT ASSEMBLY STANDARD DETAIL 501A. HYDRANTS MUST HAVE MIN 3FT CLEARANCE FROM THE EDGE OF STORMWATER FACILITY.
2. REFER TO 1" SERVICE ASSEMBLY, STANDARD DETAIL 502.

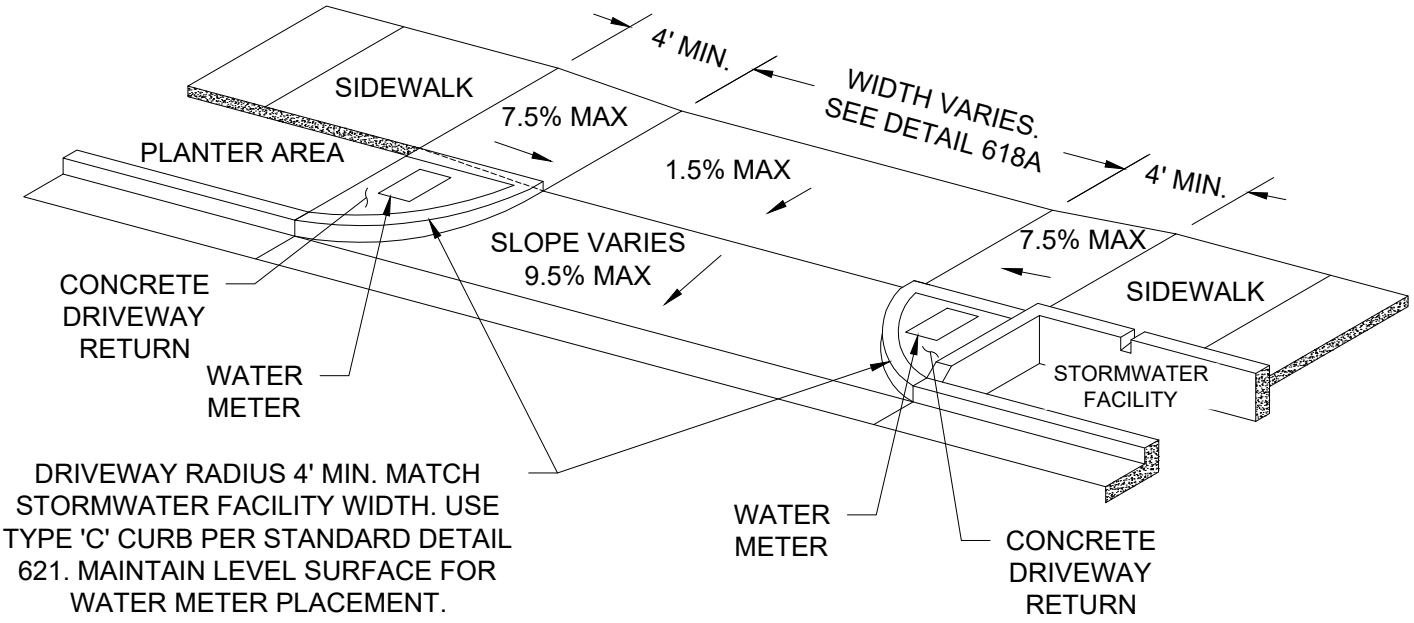
NTS

CITY OF GRESHAM

STORMWATER FACILITY, METER AND HYDRANT LOCATIONS

PWS VERSION: JAN 2024

DRAWN	KRB
REV. DATE	JAN 2019
APPR.	
DETAIL NO.	GS-109



NOTES:

1. SIDEWALK WIDTH VARIES WITH STREET CLASSIFICATION. SEE STANDARD STREET CROSS SECTIONS. (5' MINIMUM)
2. STORMWATER FACILITY WIDTH VARIES. SEE STANDARD STREET CROSS SECTIONS. (4' MINIMUM)
3. CURB RADIUS SHALL MATCH STORMWATER FACILITY WIDTH. SEE STANDARD STREET CROSS SECTIONS.
4. SLOPES SHOWN ARE RELATIVE TO HORIZONTAL. TRANSITION RAMP SHALL BE 7.5% MAX SLOPE OR 15' IN LENGTH.
5. ALL CONCRETE SURFACES SHALL BE LIGHTLY BROOMED AND EDGED IN A WORKMANLIKE MANNER.
6. SAW CUT EXISTING CURBS WHERE THEY ARE TO BE REMOVED - IF LESS THAN 3' TO EXISTING JOINT, REMOVE TO JOINT. EXISTING ASPHALT IN FRONT OF THE APPROACH SHALL BE SAW CUT AND REPLACED WITH HOT MIX.
7. CONCRETE SHALL BE 4,000 PSI AT 28 DAYS.
8. WATER METER LIDS IN CONCRETE DRIVEWAY RETURN SHALL BE TRAFFIC RATED.
9. CONCRETE DEPTH AND ROCK SECTION SHALL BE PER STANDARD DETAIL 618A.

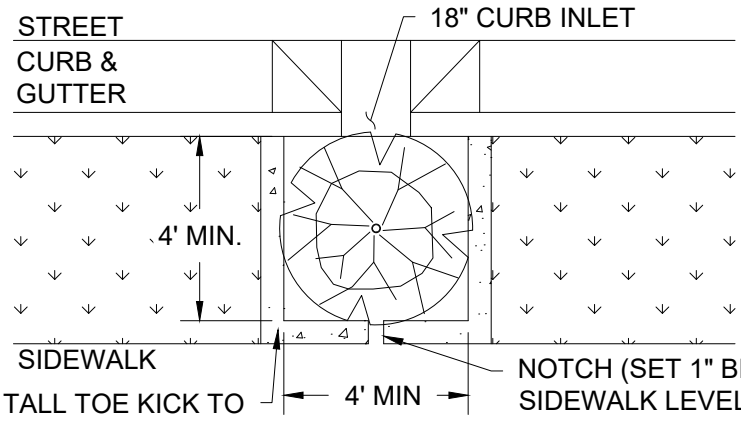
NTS

CITY OF GRESHAM

STORMWATER FACILITY RESIDENTIAL DRIVEWAY APPROACH

PWS VERSION: JAN 2024

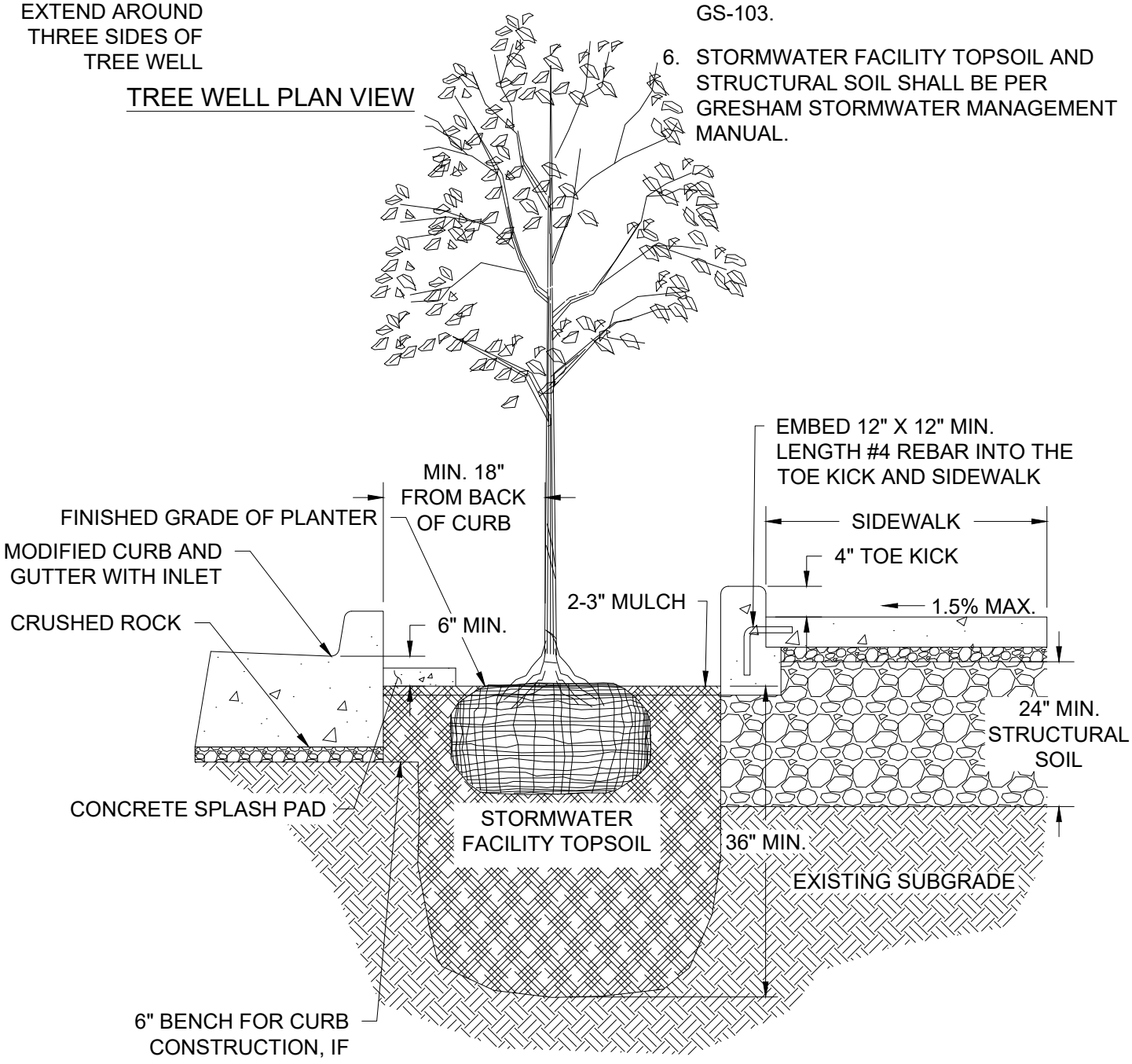
DRAWN	KRB
REV. DATE	JAN 2024
APPR.	
DETAIL NO.	GS-110



TREE WELL PLAN VIEW

NOTES:

1. REMOVE WIRE AND BURLAP FROM ROOT BALL PRIOR TO BACKFILLING.
2. SET TOP OF ROOT BALL A MINIMUM OF 1"-2" ABOVE TOPSOIL SURFACE.
3. SET ONE "DRAINS TO RIVER" BUTTON INTO CURB BEFORE CONCRETE HAS DRIED.
4. SEE GS-104 FOR CURB INLET DETAILS.
5. USE MODIFIED CURB AND GUTTER PER GS-103.
6. STORMWATER FACILITY TOPSOIL AND STRUCTURAL SOIL SHALL BE PER GRESHAM STORMWATER MANAGEMENT MANUAL.



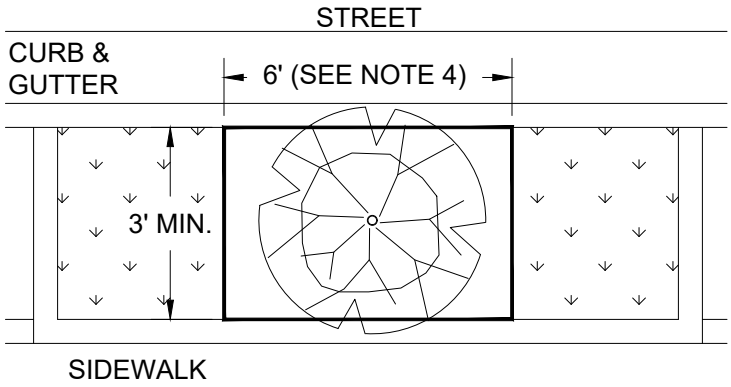
NTS

CITY OF GRESHAM

STORMWATER TREE WELL WITH STRUCTURAL SOIL

PWS VERSION: JAN 2024

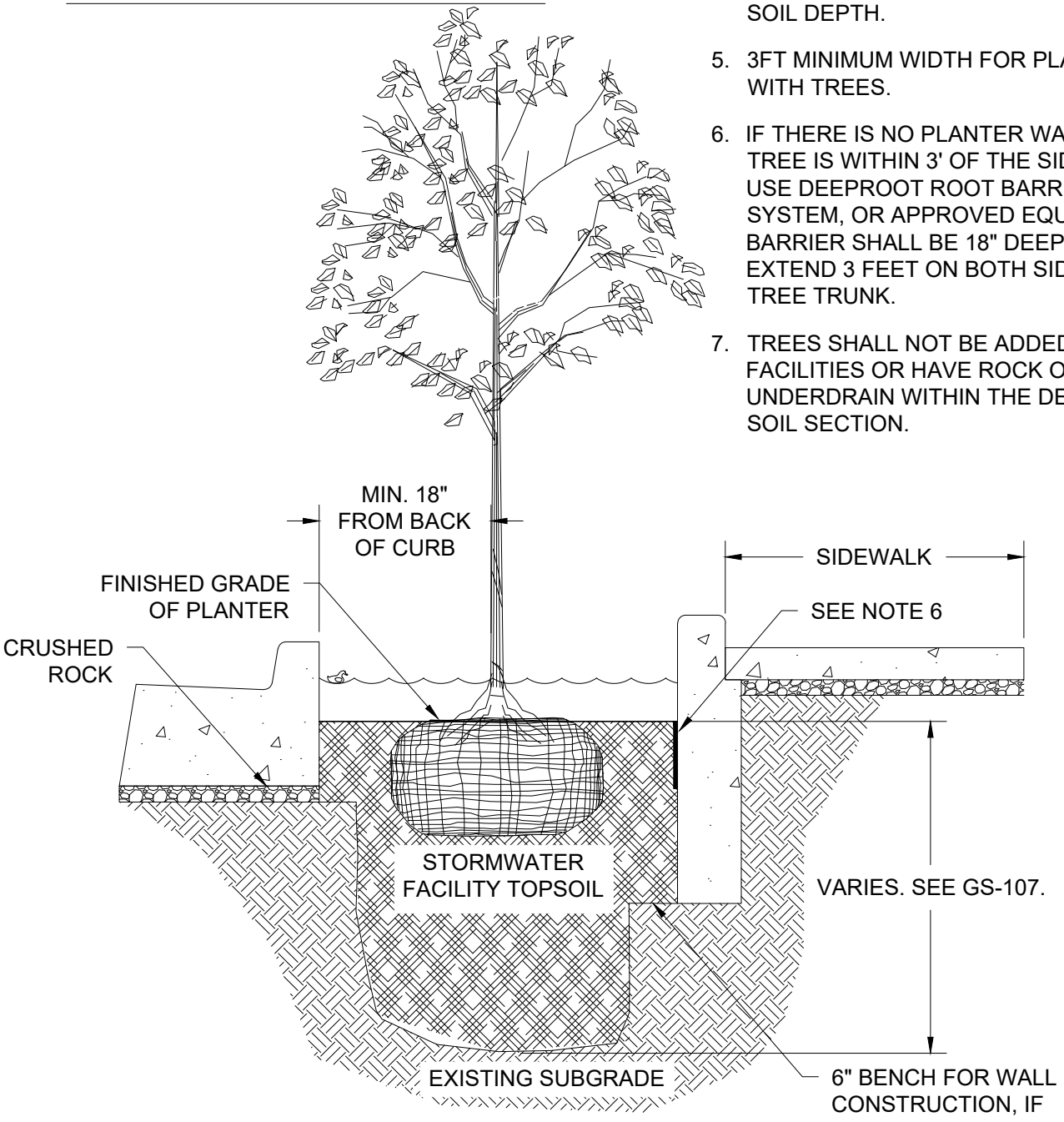
DRAWN	KRB
REV. DATE	JAN 2024
APPR.	
DETAIL NO.	GS-111



STORMWATER PLANTER PLAN VIEW

NOTES:

1. TREES MUST BE SELECTED FROM LIST OF APPROVED STORMWATER TREES, UNLESS APPROVED BY THE CITY.
2. REMOVE WIRE AND BURLAP FROM ROOT BALL PRIOR TO BACKFILLING.
3. SET TOP OF ROOT BALL A MINIMUM OF 1"-2" ABOVE TOPSOIL SURFACE.
4. DEEPENED SOIL SECTION SHALL BE 6 FEET LONG. SEE GS-107 FOR MINIMUM SOIL DEPTH.
5. 3FT MINIMUM WIDTH FOR PLANTERS WITH TREES.
6. IF THERE IS NO PLANTER WALL AND THE TREE IS WITHIN 3' OF THE SIDEWALK, USE DEEPROOT ROOT BARRIER SYSTEM, OR APPROVED EQUAL. ROOT BARRIER SHALL BE 18" DEEP AND EXTEND 3 FEET ON BOTH SIDES OF THE TREE TRUNK.
7. TREES SHALL NOT BE ADDED TO LINED FACILITIES OR HAVE ROCK OR UNDERDRAIN WITHIN THE DEEPENED SOIL SECTION.



NTS

CITY OF GRESHAM

STREET TREE PLANTING WITHIN STORMWATER PLANTER

PWS VERSION: JAN 2024

DRAWN	KRB
REV. DATE	JAN 2024
APPR.	
DETAIL NO.	GS-112