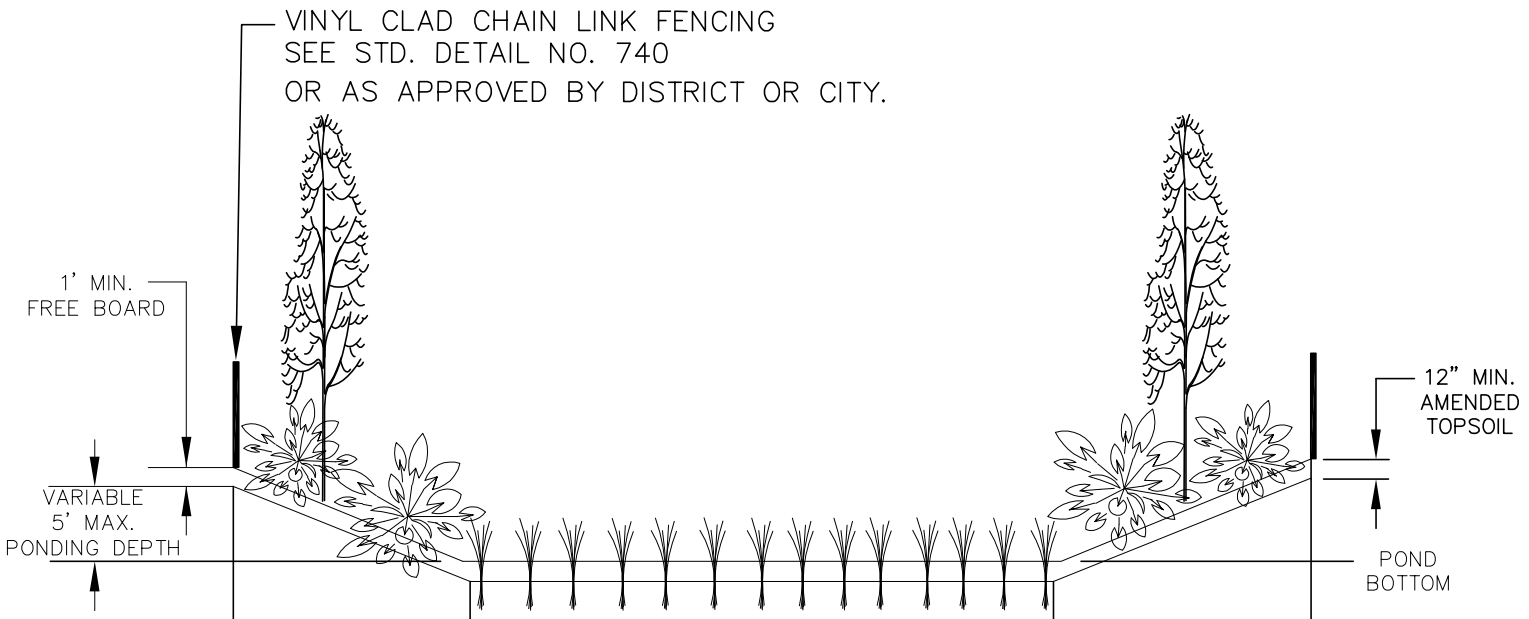
DETENTION POND

DRAWING NO. 700

REVISED 10-31-19



	SIDE SLOPE AREA	DETENTION AREA 6' MINIMUM WIDTH	SIDE SLOPE AREA
EC MATTING	ECONOJUTE*	COCONUT FIBER OR GEOJUTE PLUS*	ECONOJUTE*
SEED MIX	LOW GROW MIX SEE NOTE #5	NONE	LOW GROW MIX SEE NOTE #5
MAX. SLOPE	3H:1V TYP	FLAT BOTTOM	3H:1V TYP

* OR AS APPROVED

NOTES:

1. REFER TO CHAPTER 4, CWS DESIGN & CONSTRUCTION STANDARDS, FOR LANDSCAPING REQUIREMENTS INCLUDING TREE PLACEMENT, TOPSOIL AND PLANTING SPECIFICATIONS.
2. PROVIDE IRRIGATION AS APPROVED BY CWS.
3. JUTE MATTING– GEOJUTE PLUS IN DETENTION AREA, ECONOJUTE FOR ALL OTHER AREAS, OR SIMILIAR FABRICS. COCONUT FIBER IS ALSO ACCEPTABLE.
4. 12 INCHES OF AMENDED TOPSOIL SHALL BE PLACED THROUGHOUT THE WATER QUANTITY FACILITY.
5. SIDE SLOPE AREA SEED MIX, DWARF TALL FESCUE 40%, DWARF PERENNIAL RYE 30%, CREEPING RED FESCUE 25%, COLONIAL BENT GRASS 5%. APPLY AT A RATE OF 120# / ACRE.

Clean Water Services

CONSTRUCTION

1. Detention Pond shall be over-excavated and filled to final grade with 12-inch amended topsoil. Topsoil amendments shall be garden compost, not conventional fertilizer amendments.
2. A biodegradable Erosion Control Matting shall be placed over the topsoil throughout the Detention Pond cross section, fabric shall be held in place in accordance with the manufacturer's installation requirements. Anchor spacing shall be based on 3 fps flow over the fabric.
    a. Pond bottom - high-density jute matting (Geojute Plus or other approved equal)
    b. All other areas - low-density jute matting (Econojute or other approved equal)
3. Plant materials shall be placed in accordance with the plan and plant table as shown on approved plans.
4. The facility shall be deemed acceptable to begin the maintenance period when plant growth and density matches the Engineer's design as shown on the approved plans and all other requirements have been met. The Engineer must certify the facility to be functional, in accordance with the approved plan design to begin the two-year maintenance period..

MAINTENANCE

1. The permittee is responsible for the maintenance of this facility for a minimum of two years following construction and acceptance of this facility per Chapter 2.
2. Irrigation is to be provided per separate irrigation plan as approved.
   Note: Irrigation needs are to be met using a temporary irrigation system with a timer during the dry season. Systems should be winterized during the wet season to assure longevity and guard against damage from freezing temperatures. Water source shall be as shown on the approved plans.
3. Engineer or Owner's Representative is required to perform Monitoring and Maintenance of the Site and provide Documentation as required in Appendix A, 2.5 of the Design and Construction Standards. The Approved Plans shall include a Maintenance Schedule per Appendix A, 2.6.e of the Design and Construction Standards.
4. The Facility shall be re-excavated and planted if siltation greater than 3 inches in depth occurs within the two-year maintenance period.

DETENTION POND CONSTRUCTION & MAINTENANCE NOTES

DETAIL NO. 701

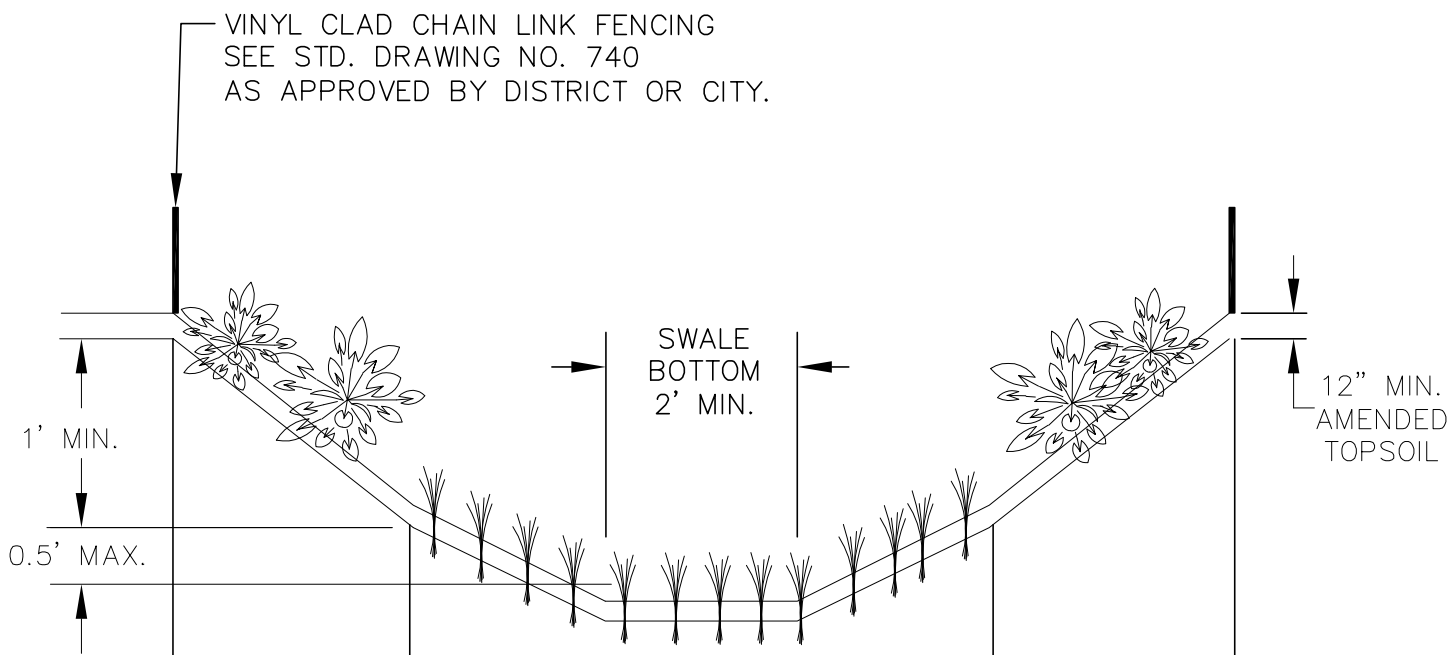
REVISED 10-31-19

Clean Water Services

WATER QUALITY SWALE

DRAWING NO. 705

REVISED 10-31-19



SWALE AREA	SIDE SLOPE AREA	TREATMENT AREA 6' MINIMUM WIDTH			SIDE SLOPE AREA
EC MATTING	ECONOJUTE*	COCONUT FIBER OR GEOJUTE PLUS*			ECONOJUTE*
SEED MIX	LOW GROW MIX SEE NOTE #5	NONE			LOW GROW MIX SEE NOTE #5
MAX. SLOPE	2.5H:1V	4H:1V TYP	FLAT BOTTOM	4H:V1	2.5H:V1

* OR AS APPROVED

NOTES:

1. REFER TO CHAPTER 4, CWS DESIGN & CONSTRUCTION STANDARDS, FOR LANDSCAPING REQUIREMENTS INCLUDING TREE PLACEMENT, TOPSOIL AND PLANTING SPECIFICATIONS.
2. PROVIDE IRRIGATION AS APPROVED BY CWS.
3. JUTE MATTING– GEOJUTE PLUS IN TREATMENT AREA, ECONOJUTE FOR ALL OTHER AREAS, OR SIMILIAR FABRICS. COCONUT FIBER IS ALSO ACCEPTABLE.
4. 12 INCHES OF AMENDED TOPSOIL SHALL BE PLACED THROUGHOUT THE WATER QUALITY FACILITY.
5. FREEBOARD AREA SEED MIX, DWARF TALL FESCUE 40%, DWARF PERENNIAL RYE 30%, CREEPING RED FESCUE 25%, COLONIAL BENT GRASS 5%. APPLY AT A RATE OF 120# / ACRE.

Clean Water Services

CONSTRUCTION

1. Water Quality Facility shall be over-excavated and filled to final grade with 12-inch amended topsoil. Topsoil amendments shall be garden compost, not conventional fertilizer amendments.
2. A biodegradable Erosion Control Matting shall be placed over the topsoil throughout the swale cross section, fabric shall be held in place in accordance with the manufacturer's installation requirements. Anchor spacing shall be based on 3 fps flow over the fabric.
    a. Treatment area - high-density jute matting (Geojute Plus or other approved equal)
    b. All other areas - low-density jute matting (Econojute or other approved equal)
3. Plant materials shall be placed in accordance with the plan and plant table as shown on approved plans.
4. The water quality facility treatment area plantings can be deemed "substantially complete" once active green growth has occurred to an average growth of 3" and plant density is an average of approx. 6 plants (minimum 1-inch plugs or equivalent) per square foot.
5. The facility shall be deemed acceptable to begin the maintenance period when plant growth and density matches the engineer's design as shown on the approved plans and all other requirements have been met. The engineer must certify the facility to be functional, in accordance with the approved plan design to begin the two-year maintenance period.

MAINTENANCE

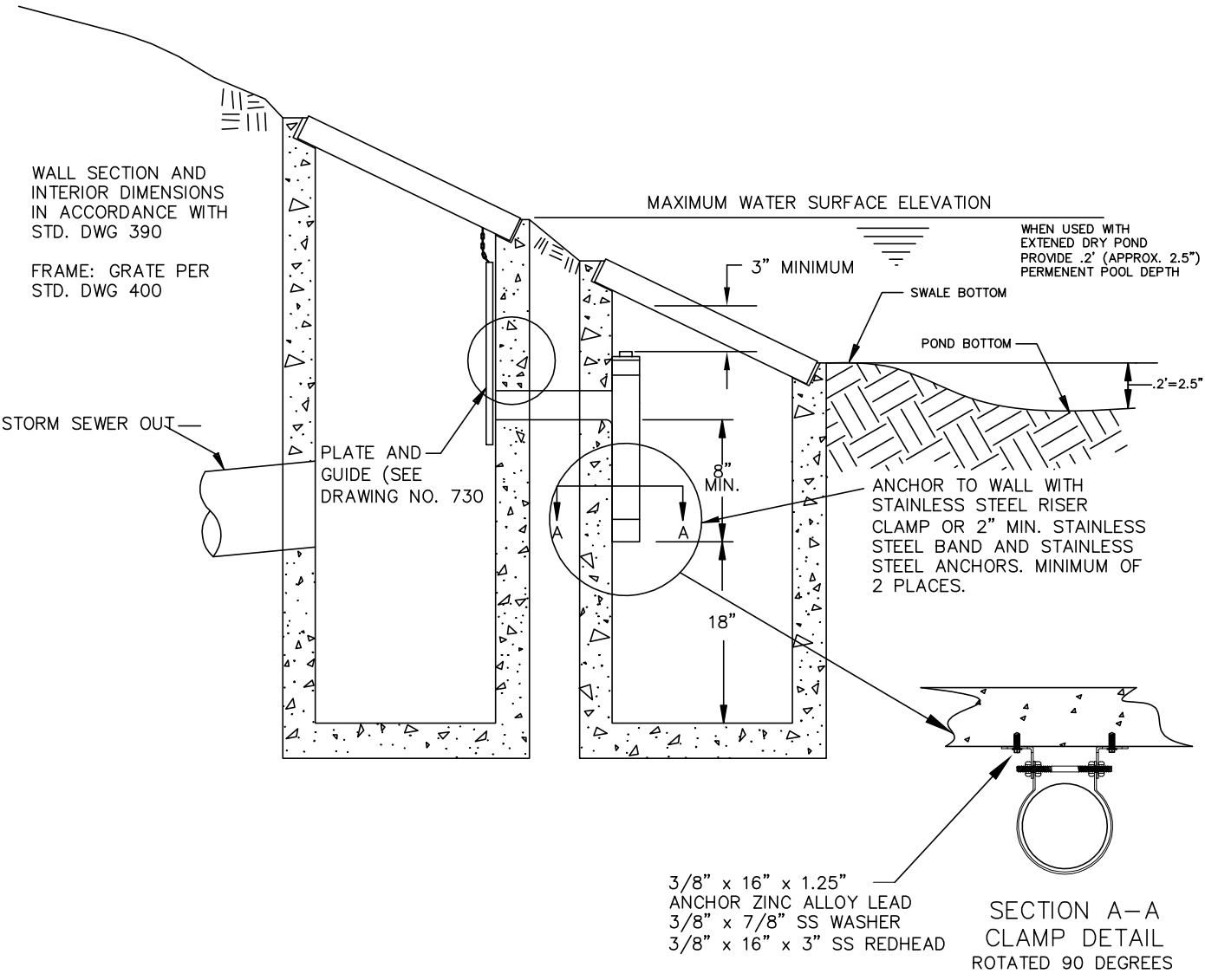
5. The permittee is responsible for the maintenance of this facility for a minimum of two years following construction and acceptance of this facility per Chapter 2.
6. Irrigation is to be provided per separate irrigation plan as approved.
   Note: Irrigation needs are to be met using a temporary irrigation system with a timer during the dry season. Systems should be winterized during the wet season to assure longevity and guard against damage from freezing temperatures. Water source shall be as shown on the approved plans.
7. Engineer or Owner's Representative is required to perform Monitoring and Maintenance of the Site and provide Documentation as required in Appendix A, 2.5 of the Design and Construction Standards. The Approved Plans shall include a Maintenance Schedule per Appendix A, 2.6.e of the Design and Construction Standards.
8. The facility shall be re-excavated and planted if siltation greater than 3 inches in depth occurs within the two-year maintenance period.

WATER QUALITY SWALE CONSTRUCTION & MAINTENANCE NOTES

DETAIL NO. 706

REVISED 10-31-19

Clean Water Services



NOTES:

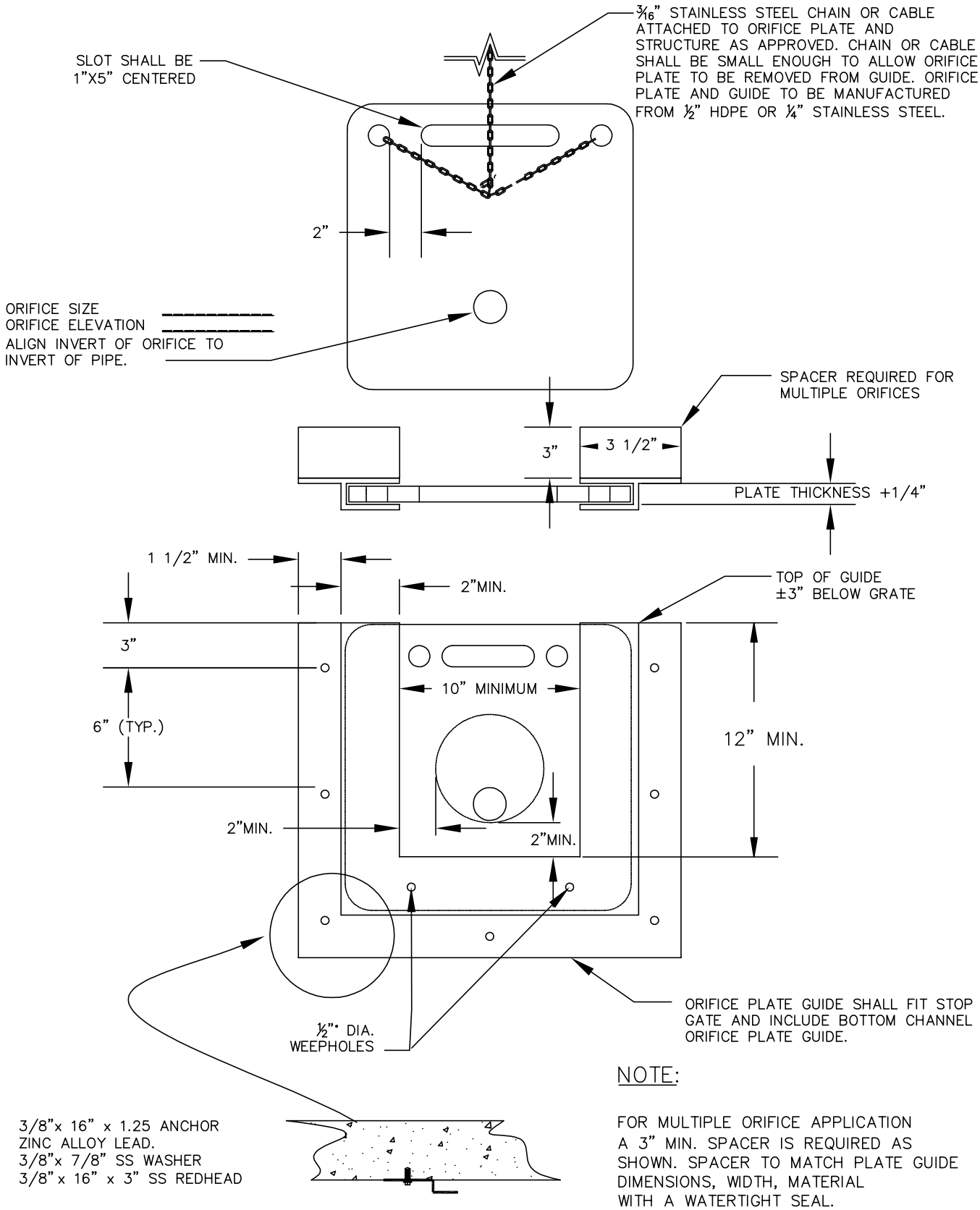
1. CONNECTING PIPE AND TEE SHALL BE 4", 6", OR 8" AWWA C–900 OR ASTM 3034 PVC,AND ONE SIZE LARGER THAN THE ORIFICE OPENING.
2. MAXIMUM ORIFICE OPENING SHALL BE 6" DIAMETER.
3. STRUCTURES SHALL CONFORM TO STANDARD DRAWING NO. 390 DITCH INLET.
4. FRAME AND GRATE SHALL CONFORM TO STANDARD DRAWING NO. 400, DITCH INLET FRAME AND GRATE.
5. PLATE AND GUIDE SHALL BE SECURED FLUSH AGAINST WALL OF STRUCTURE AS APPROVED.
6. MAINTENANCE ACCESS REQUIRED TO WITHIN 10' OF CENTER OF BOTH STRUCTURES.
7. ALTERNATE STRUCTURES TO BE APPROVED, IN WRITING, BY DISTRICT OR CITY.

OUTFLOW CONTROL STRUCTURE

DRAWING NO. 710

REVISED 10–31–19

Clean Water Services



NOTE:

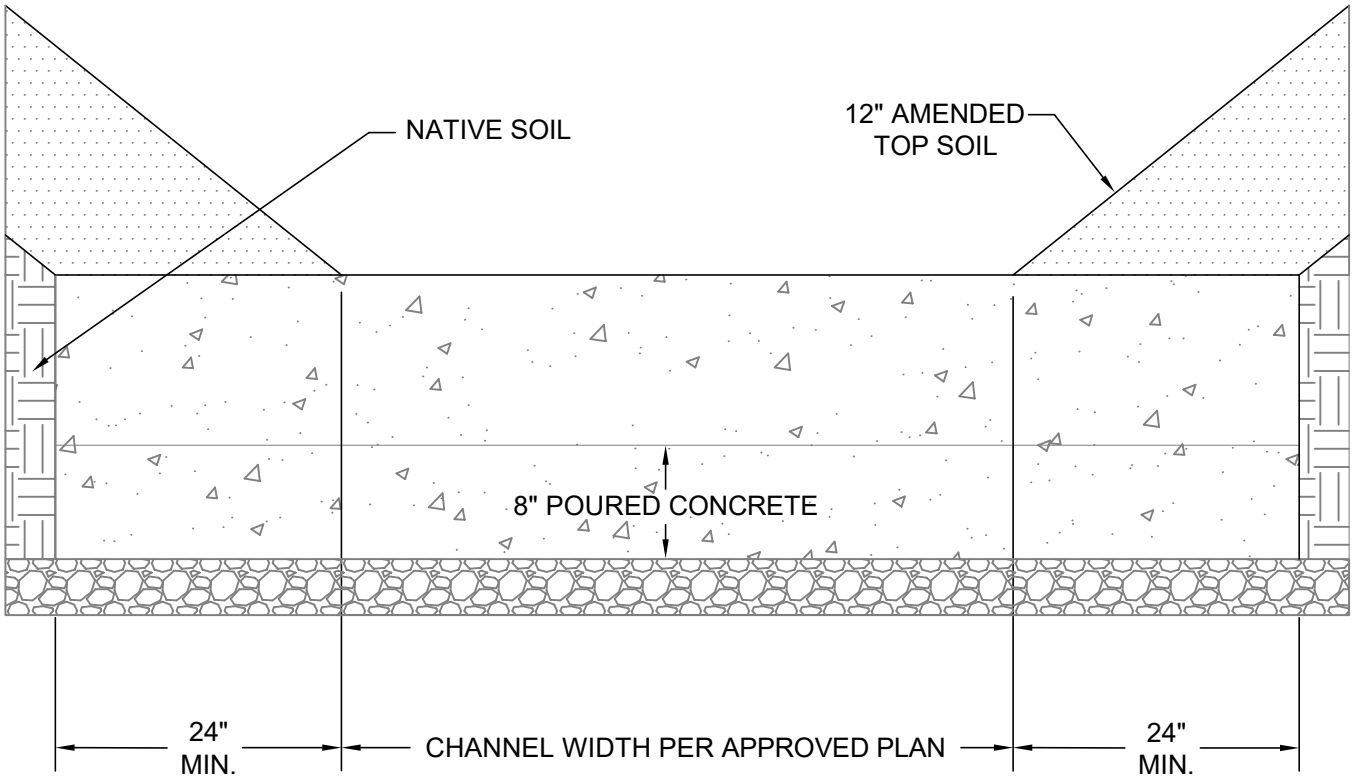
FOR MULTIPLE ORIFICE APPLICATION A 3" MIN. SPACER IS REQUIRED AS SHOWN. SPACER TO MATCH PLATE GUIDE DIMENSIONS, WIDTH, MATERIAL WITH A WATERTIGHT SEAL.

ORIFICE PLATE AND GUIDE

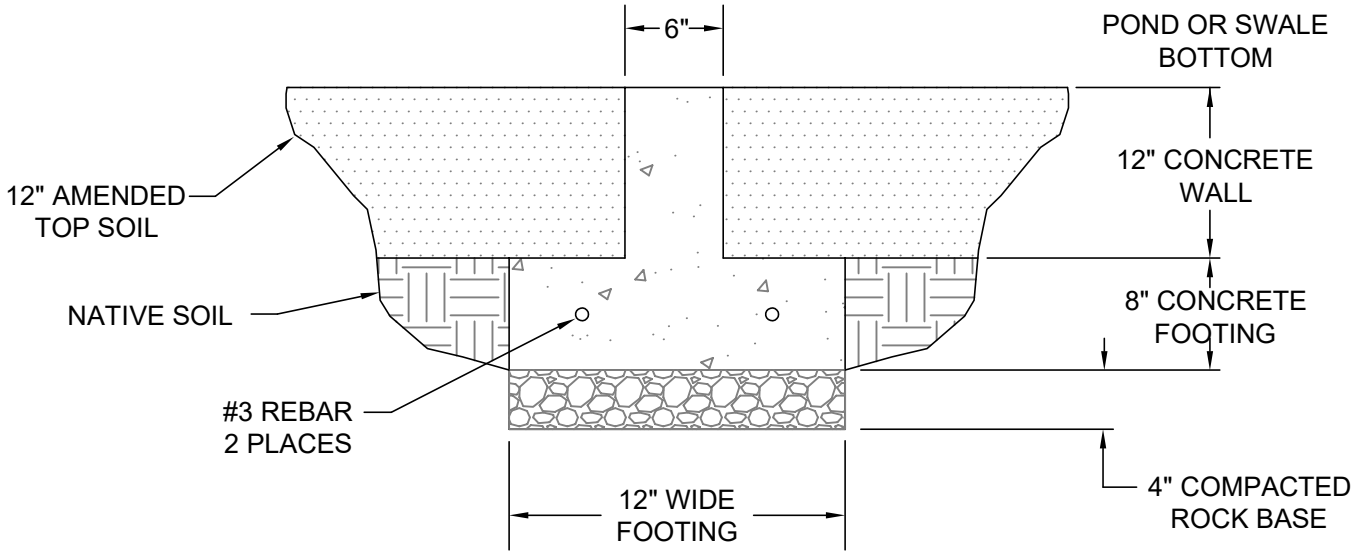
DRAWING NO. 711

REVISED 10-31-19

Clean Water Services



FRONT VIEW



SIDE VIEW

NOTE:

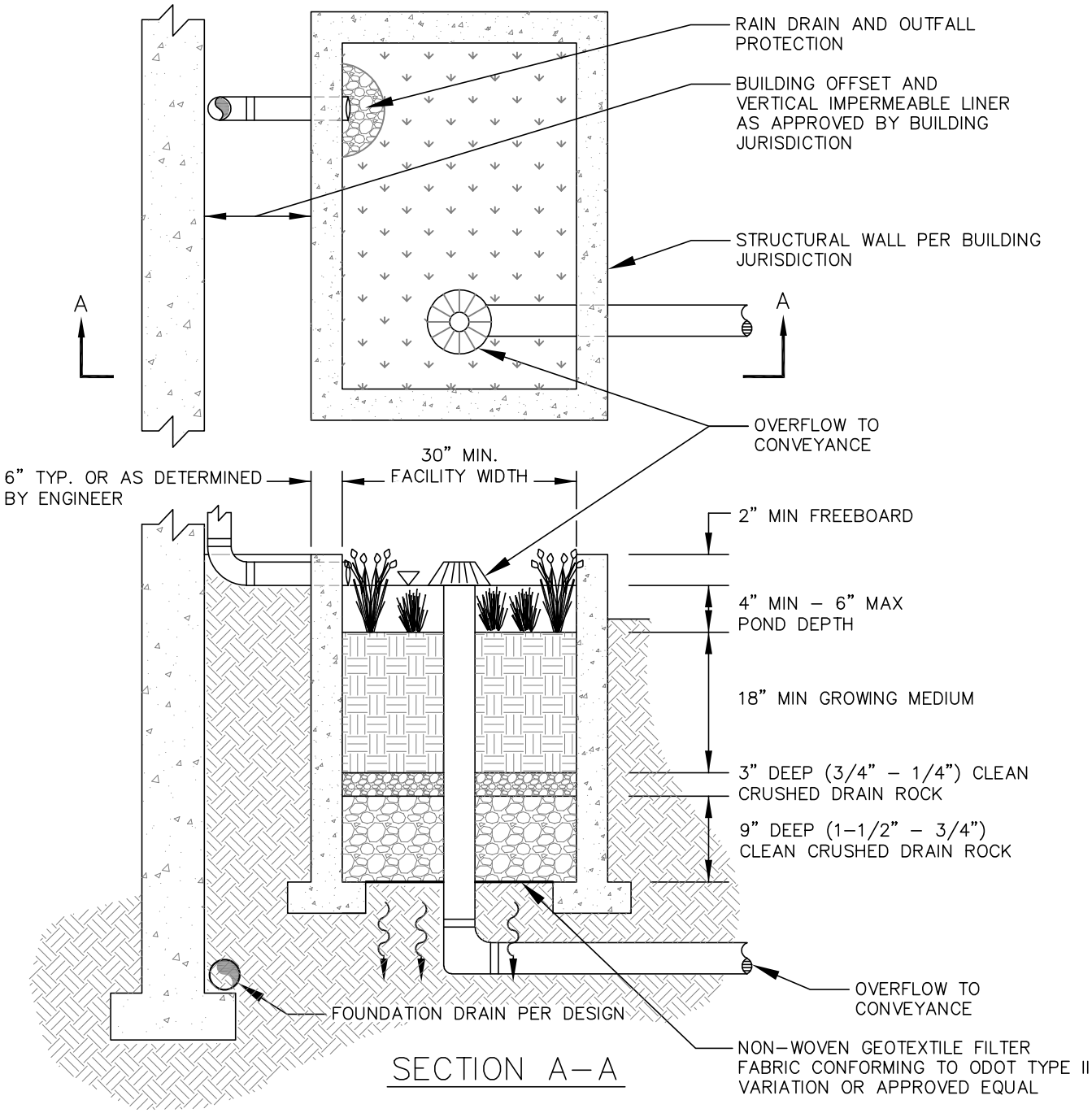
SPREADER TO BE ONE MONOLITHIC POUR.

CONCRETE SPREADER DETAIL

DRAWING NO. 715

REVISED 10-31-19

Clean Water Services



SECTION A–A

LOT# _____

BOX SIZE (SF.) _____

OF PLANTS _____

TYPE OF PLANTS _____

_____

SIZE OF PLANTS _____

NOTES:

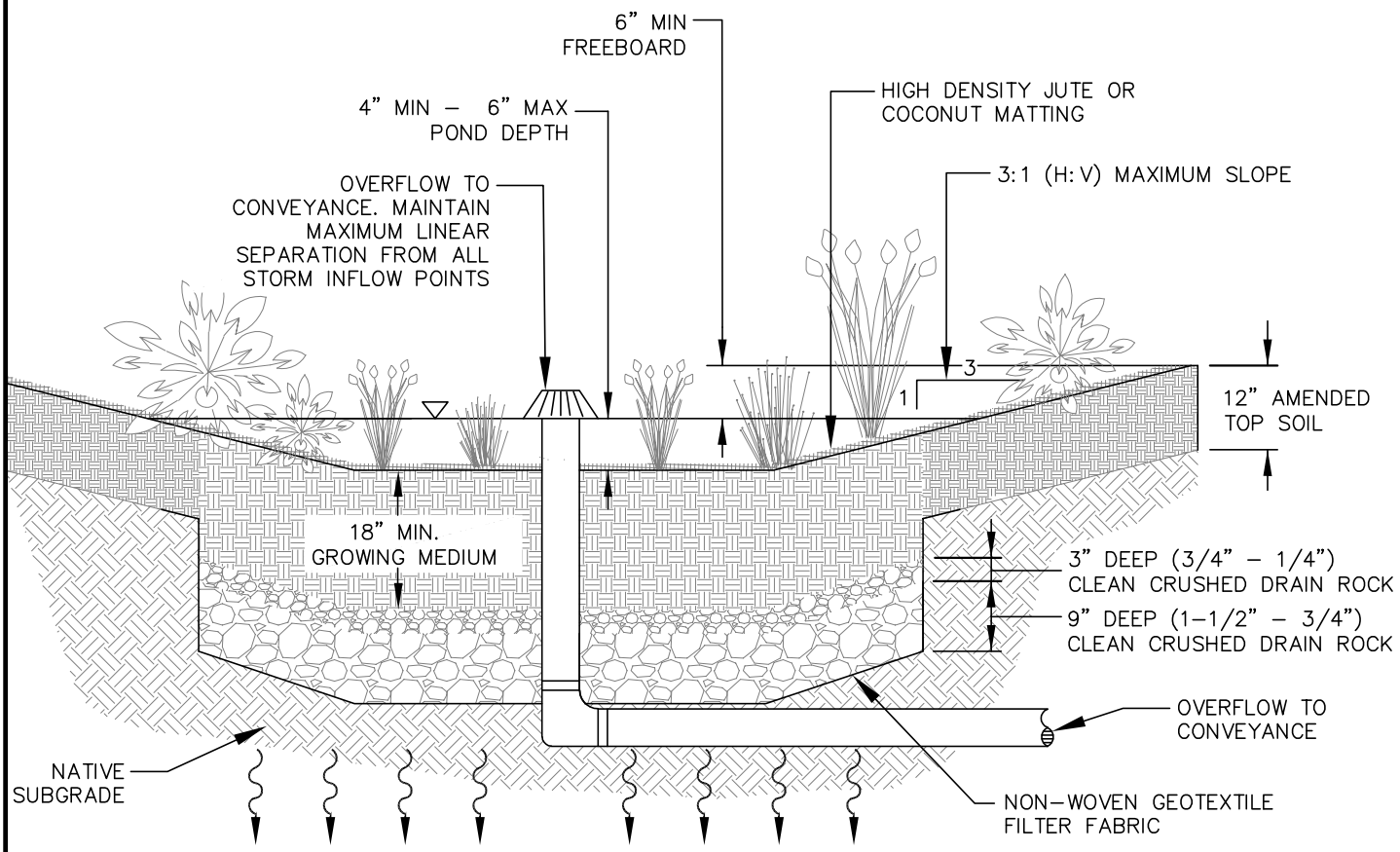
1. PRIVATE WATER QUALITY TREATMENT.
2. 30" MIN WIDTH – FACILITY LENGTH TO BE CALCULATED BASED ON INCOMING FLOWS.
3. VEGETATION: SEE PLANT LIST IN LIDA HANDBOOK.
4. I.E. OF RAIN DRAIN MUST MATCH THE ELEVATION OF THE OVERFLOW STRUCTURE.
5. RAIN DRAINS AND OVERFLOW TO MAINTAIN MAXIMUM LINEAR SEPARATION.
6. OUTFALL PROTECTION SIZED PER FLOW CALCULATIONS.
7. BUILDING JURISDICTION APPROVAL REQUIRED WHEN DEPTH OF FACILITY IS BELOW BUILDING FOOTING.

INFILTRATION PLANTER

DRAWING NO. 720

REVISED 10–31–19

Clean Water Services



NOTES:

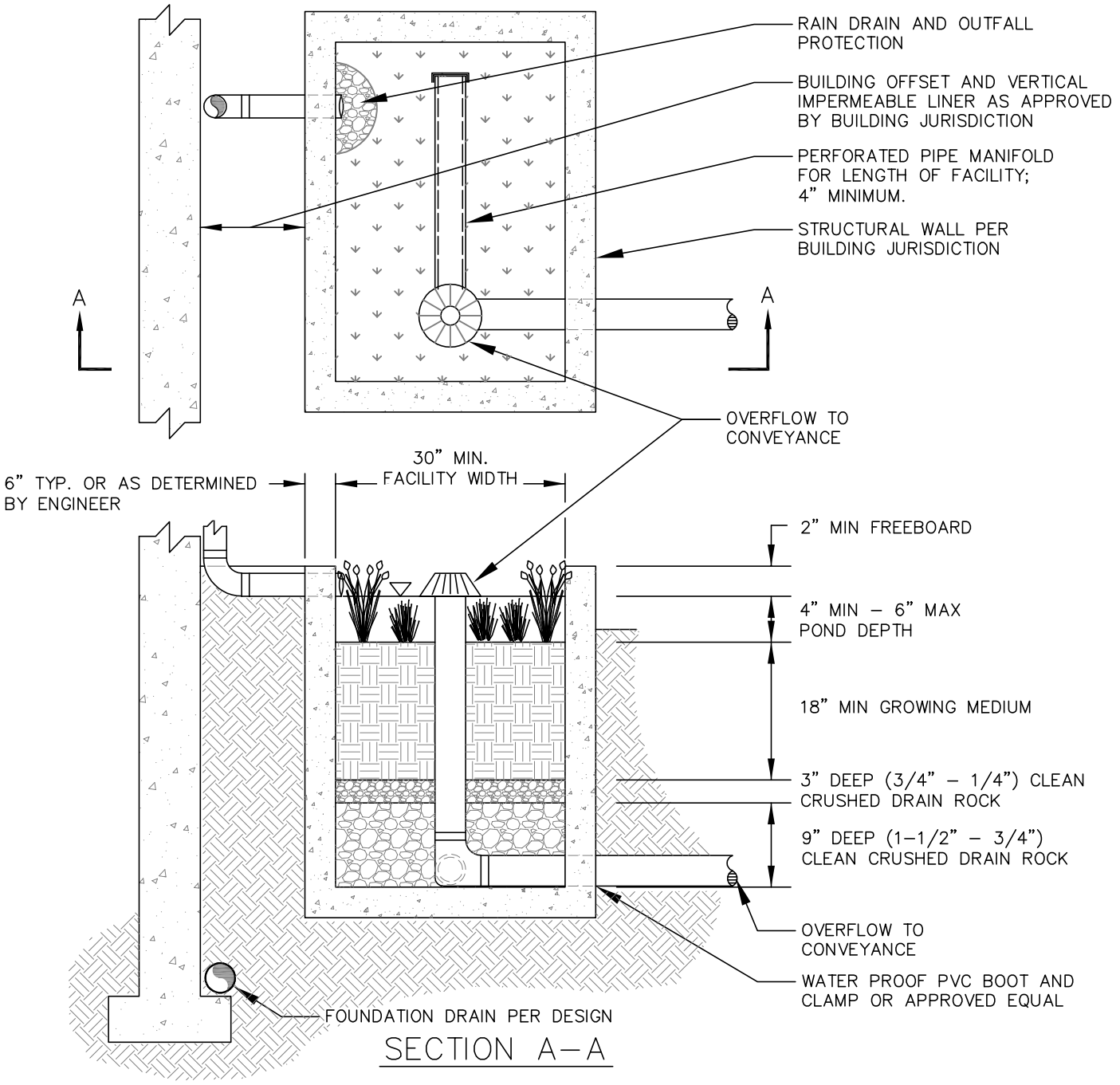
1. PROVIDE OVERFLOW CONVEYANCE SYSTEM, OVERFLOW CONVEYANCE HEIGHT TO ALLOW 4" MINIMUM – 6" MAXIMUM PONDING, PIPING TO A MINIMUM OF THE PLUMBING CODE OR CONVEY THE 25 YEAR STORM.
2. IF USING THE NATIVE SOIL INFILTRATION FOR SIZING, THE RATE SHALL BE DETERMINED BY ASTM STANDARD TESTING METHODS.
3. FLOW DISSIPATERS SHOULD BE USED IF ENTRY SLOPE TO THE BASIN IS GREATER THAN 3:1. FLOW DISSIPATERS SHALL BE CONSTRUCTED OUT OF ROCK OR GRAVEL PER DESIGN FLOW VELOCITY AT ENTRY OF THE FACILITY.
4. TREATMENT AREA SHALL HAVE HIGH DENSITY JUTE OR COCONUT MATTING OVER 18" MINIMUM OF GROWING MEDIUM OR BASE STABILIZATION METHOD AS APPROVED BY THE DISTRICT.
5. VEGETATION TO BE USED IN WET AREAS OF THE BASIN IS PER APPENDIX "A" FOR THE WET MOISTURE CONDITIONS.
6. VEGETATION TO BE USED IN OTHER AREAS OF BASIN CONFORMS TO PLANT LIST OF THIS HANDBOOK AS APPROVED BY DISTRICT.

NON–STRUCTURAL INFILTRATION PLANTER/RAIN GARDEN

DRAWING NO. 725

REVISED 10–31–19

Clean Water Services



SECTION A–A

LOT# _____

BOX SIZE (SF.) _____

OF PLANTS _____

TYPE OF PLANTS _____

_____

SIZE OF PLANTS _____

NOTES:

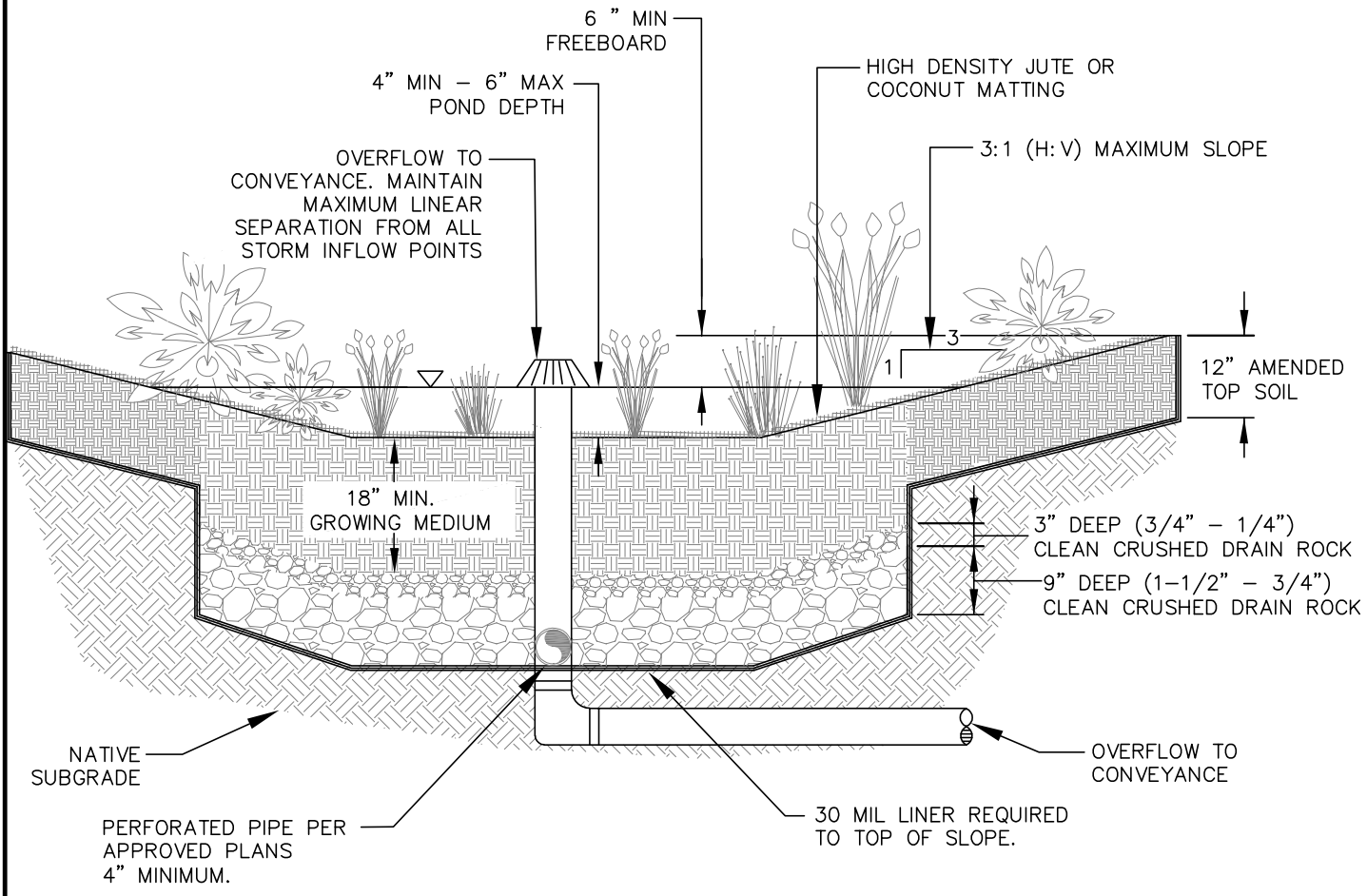
1. PRIVATE WATER QUALITY TREATMENT.
2. 30" MIN WIDTH – FACILITY LENGTH TO BE CALCULATED BASED ON INCOMING FLOWS.
3. VEGETATION: SEE PLANT LIST IN LIDA HANDBOOK.
4. I.E. OF RAIN DRAINS MUST MATCH THE ELEVATION OF THE OVERFLOW STRUCTURE.
5. RAIN DRAINS AND OVERFLOW TO MAINTAIN MAXIMUM LINEAR SEPERATION.
6. OUTFALL PROTECTION SIZED PER FLOW CALCULATIONS.
7. BUILDING JURISDICTION APPROVAL REQUIRED WHEN DEPTH OF FACILITY IS BELOW BUILDING FOOTING.

FLOW THROUGH PLANTER

DRAWING NO. 730

REVISED 10–31–19

Clean Water Services



NOTES:

1. PROVIDE OVERFLOW CONVEYANCE SYSTEM, OVERFLOW CONVEYANCE HEIGHT TO ALLOW 4" MINIMUM – 6" MAXIMUM PONDING, PIPING TO A MINIMUM OF THE PLUMBING CODE OR CONVEY THE 25 YEAR STORM.
2. FLOW DISSIPATERS SHOULD BE USED IF ENTRY SLOPE TO THE BASIN IS GREATER THAN 3:1. FLOW DISSIPATERS SHALL BE CONSTRUCTED OUT OF ROCK OR GRAVEL PER DESIGN FLOW VELOCITY AT ENTRY OF THE FACILITY.
3. TREATMENT AREA SHALL HAVE HIGH DENSITY JUTE OR COCONUT MATTING OVER 18" MINIMUM OF GROWING MEDIUM OR BASE STABILIZATION METHOD AS APPROVED BY THE DISTRICT.
4. VEGETATION TO BE USED IN WET AREAS OF THE BASIN IS PER APPENDIX "A" FOR THE WET MOISTURE CONDITIONS.
5. VEGETATION TO BE USED IN OTHER AREAS OF BASIN CONFORMS TO PLANT LIST OF THIS HANDBOOK AS APPROVED BY DISTRICT.

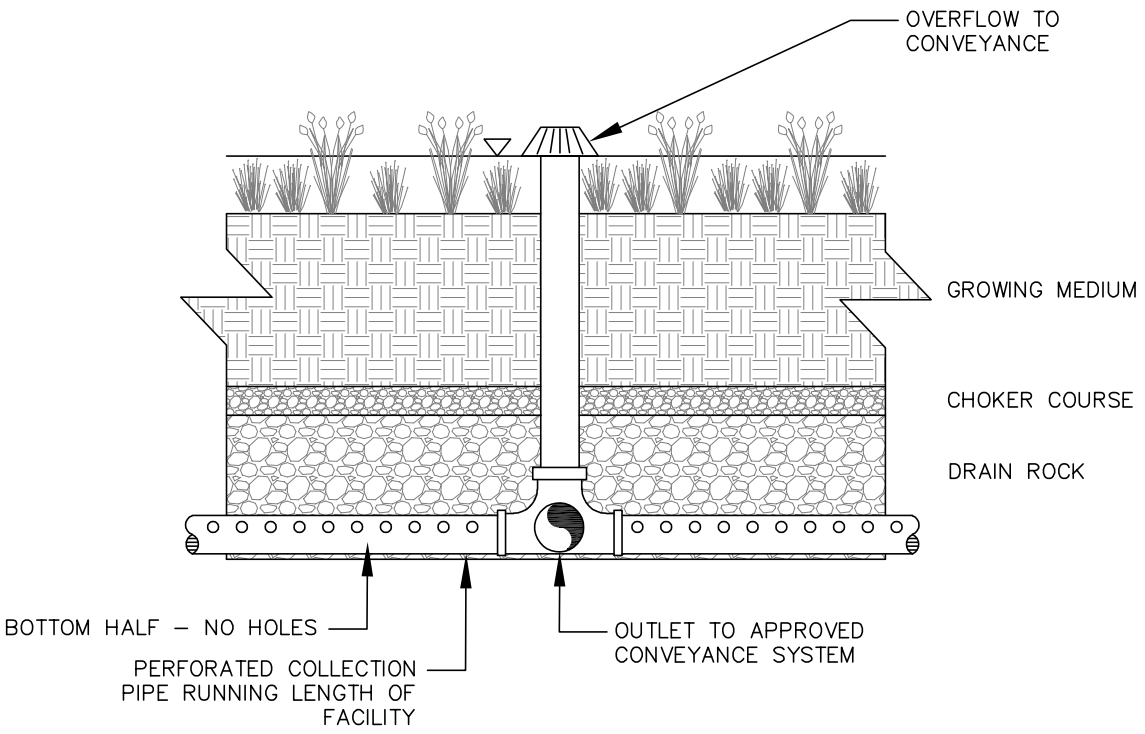
NON–STRUCTURAL FLOW THROUGH PLANTER/SWALE

DRAWING NO. 735

REVISED 10–31–19

Clean Water Services

PERFORATED PIPE MANIFOLD PROFILE



PIPING NOTES:

FOR PRIVATE PROPERTY, PIPING MUST BE CAST IRON, ABS SCH40, OR PVC SCH40. THREE–INCH PIPE IS REQUIRED FOR FACILITIES DRAINING UP TO 1,500 SQUARE FEET OF IMPERVIOUS AREA; OTHERWISE 4–INCH PIPE MINIMUM IS REQUIRED. PIPING INSTALLATION AND SIZING MUST FOLLOW CURRENT UNIFORM PLUMBING CODE.

FOR PUBLIC FACILITIES, 6–INCH OR 8–INCH ASTM 3034 SDR 35 PVC PIPE AND PERFORATED PIPE ARE REQUIRED.

NOTES:

1. BRANCH SPACING AND NUMBER OF BRANCHES TO BE CALCULATED BASED ON STORM FLOWS FROM IMPERVIOUS AREA BEING TREATED.
2. NO TREES OR DEEP ROOTED VEGETATION OVER PIPING.
3. GRADE SUBGRADE TO PROVIDE MANIFOLD WITH POSITIVE DRAINAGE.
4. CONVEYANCE SIZED AT MINIMUM FOR 25 YEAR EVENT STORM FLOWS.
5. DETENTION (IF REQUIRED) VOLUME BASED ON DEPTH OF DRAIN ROCK RESERVOIR LAYER AND POSITION OF MANIFOLD WITHIN THE DRAIN ROCK LAYER.
6. FITTINGS TO BE SAME MATERIAL AS PERFORATED PIPE.
7. PIPE SECTIONS EXPOSED TO SUNLIGHT SHALL BE OF MATERIAL NOT SUBJECT TO DEGRADATION FROM THE EFFECTS OF SUNLIGHT.

PERFORATED PIPE DETAILS

DRAWING NO. 740

REVISED 10–31–19

Clean Water Services

STORMWATER FACILITY GROWING MEDIUM

FURNISH IMPORTED BLENDED SOIL FOR ALL VEGETATED LIDA FACILITIES CONFORMING TO THE FOLLOWING:

- GENERAL COMPOSITION – USE MATERIAL THAT IS ANY BLEND OF LOAMY SOIL, SAND, AND COMPOST THAT IS 30–40% COMPOST (BY VOLUME) AND MEETS THE OTHER CRITERIA IN THIS SPECIFICATION.
- ANALYSIS REQUIREMENTS FOR THE BLENDED MATERIAL:
  PARTICLE GRADATION – A SIEVE ANALYSIS OF THE BLENDED MATERIAL, NOT INCLUDING COMPOST, SHALL BE CONDUCTED IN CONFORMANCE WITH ASTM C117/C136, AASHTO T11/T27, ASTM D422/D1140, OR ASTM D6913. THE ANALYSIS SHALL INCLUDE THE FOLLOWING SIEVE SIZES: 1 INCH, 3/8 INCH, #4, #10, #20, #40, #60, #100, #200. THE GRADATION OF THE BLEND SHALL MEET THE FOLLOWING GRADATION CRITERIA.

SIEVE SIZE	PERCENT PASSING
1 INCH	100
# 4	85 –100
# 10	50–100
# 40	20–60
# 100	10–40
# 200	10–20

- THE MATERIAL SHALL BE LOOSE AND EASILY BROKEN INTO SMALL PIECES
- IT SHALL BE WELL MIXED AND HOMOGENOUS.
- IT SHALL BE FREE OF WOOD PIECES, PLASTIC, AND OTHER FOREIGN MATTER.
- IT SHALL HAVE NO VISIBLE FREE WATER.
- THE PH (POWER OF HYDROGEN) OF THE BLENDED MATERIAL SHALL BE TESTED AND BE BETWEEN 6 TO 8.

COMPOST

THE COMPOST SHALL BE DERIVED FROM PLANT MATERIAL AND PROVIDED BY A MEMBER OF THE US COMPOSTING COUNCIL SEAL OF TESTING ASSURANCE (STA) PROGRAM. SEE WWW.COMPOSTINGCOUNCIL.ORG FOR A LIST OF LOCAL PROVIDERS.

THE COMPOST SHALL BE THE RESULT OF THE BIOLOGICAL DEGRADATION AND TRANSFORMATION OF PLANT–DERIVED MATERIALS UNDER CONDITIONS DESIGNED TO PROMOTE AEROBIC DECOMPOSITION. THE MATERIAL SHALL BE WELL COMPOSTED, FREE OF VIABLE WEED SEEDS, AND STABLE WITH REGARD TO OXYGEN CONSUMPTION AND CARBON DIOXIDE GENERATION. THE COMPOST SHALL HAVE NO VISIBLE FREE WATER AND PRODUCE NO DUST WHEN HANDLED. IT SHALL MEET THE FOLLOWING CRITERIA, AS REPORTED BY THE US COMPOSTING COUNCIL STA COMPOST TECHNICAL DATA SHEET PROVIDED BY THE VENDOR.

- 100% OF THE MATERIAL MUST PASS THROUGH A 1/2–INCH SCREEN.
- THE PH OF THE MATERIAL SHALL BE BETWEEN 6 MIN. AND 8 MAX.
- MANUFACTURED INERT MATERIAL (PLASTIC, CONCRETE, CERAMICS, METAL, ETC.) SHALL BE LESS THAN 1.0% BY WEIGHT.
- THE ORGANIC MATTER CONTENT SHALL BE BETWEEN 30 AND 70% (DRY WEIGHT BASIS).
- SOLUBLE SALT CONTENT SHALL BE LESS THAN 6.0 MMHOS/CM.
- MATURITY INDICATOR SHALL BE GREATER THAN 80% FOR GERMINATION AND VIGOR.
- STABILITY SHALL BE 'STABLE' TO 'VERY STABLE'.
- CARBON/NITROGEN (C/N) RATIO SHALL BE LESS THAN 25:1.
- TRACE METALS TEST RESULT = "PASS."

CONSTRUCTION

STORMWATER FACILITY GROWING MEDIUM:

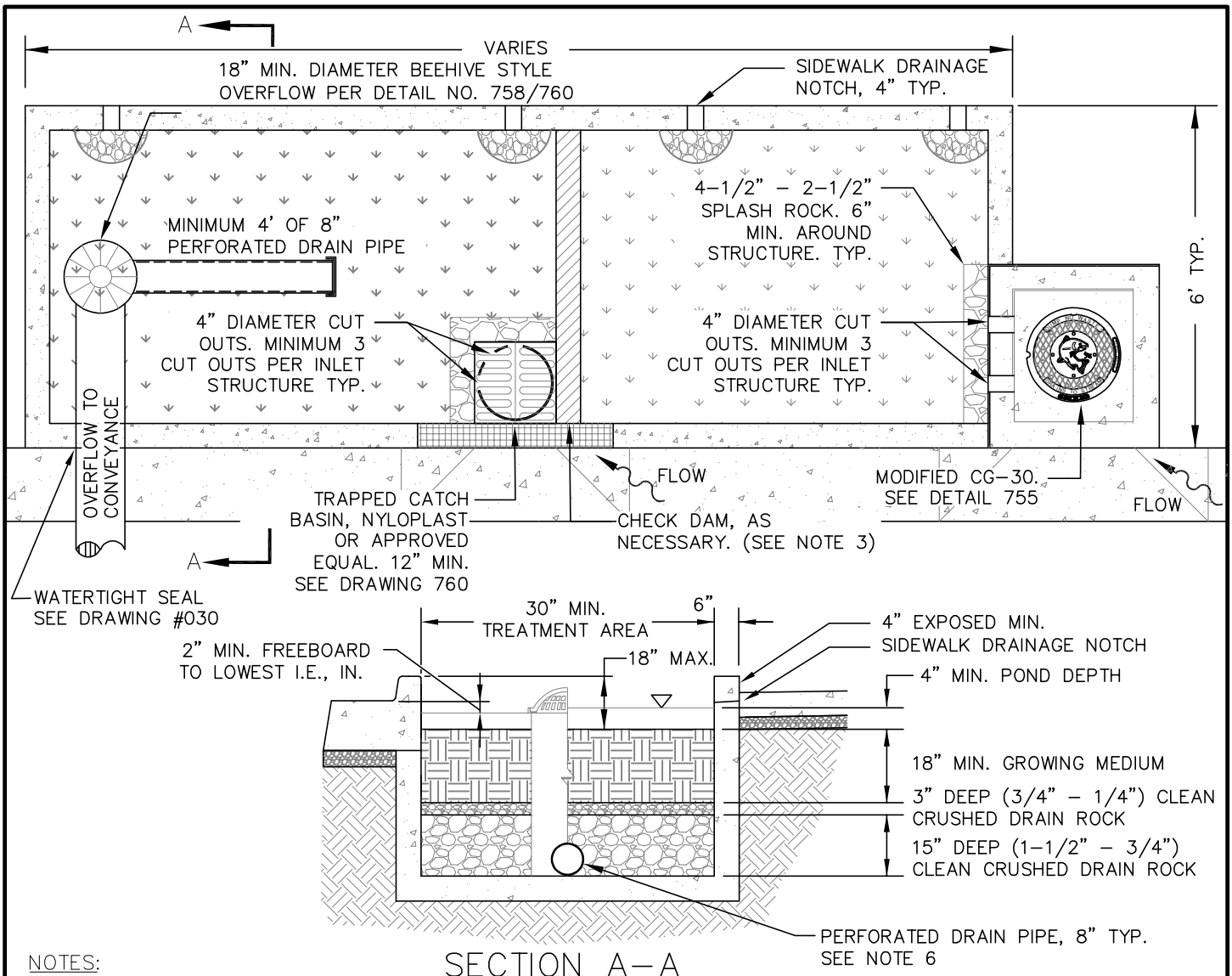
- PROTECTION OF THE SOIL – THE MATERIAL SHALL BE PROTECTED FROM ALL SOURCES OF CONTAMINATION, INCLUDING WEED SEEDS, WHILE AT THE SUPPLIER, IN CONVEYANCE, AND AT THE PROJECT SITE.
- WET AND WINTER CONDITIONS – HAULING AND PLACEMENT OF THE MATERIAL WILL NOT BE ALLOWED WHEN THE WEATHER IS TOO WET OR THE GROUND IS FROZEN OR SATURATED AS DETERMINED BY THE OWNERS REPRESENTATIVE.
- PLACEMENT OF THE SOIL – PLACE THE MATERIAL IN LOOSE LIFTS, NOT TO EXCEED 8 INCHES EACH AND EACH LIFT SHALL BE COMPACTED WITH A WATER–FILLED LANDSCAPE ROLLER. DO NOT OTHERWISE MECHANICALLY COMPACT THE MATERIAL.
- TIMING OF PLANT INSTALLATION – WEATHER PERMITTING AND AS APPROVED, INSTALL PLANTS AS SOON AS POSSIBLE AFTER PLACING AND GRADING THE SOIL IN ORDER TO MINIMIZE EROSION AND FURTHER COMPACTION.
- EROSION CONTROL – TEMPORARY EROSION CONTROL MEASURES ARE REQUIRED UNTIL PERMANENT STABILIZATION MEASURES ARE FUNCTIONAL.
- PROTECTION OF THE INSTALLED SOIL – IN ALL CASES, THE PROTECT INSTALLED MATERIAL FROM FOOT OR EQUIPMENT TRAFFIC AND SURFACE WATER RUNOFF. INSTALL TEMPORARY FENCING OR WALKWAYS AS NEEDED TO KEEP WORKERS, PEDESTRIANS, AND EQUIPMENT OUT OF THE AREA. UNDER NO CIRCUMSTANCES SHOULD MATERIALS AND EQUIPMENT BE STORED ON TOP OF THE INSTALLATION AREA.

GROWING MEDIUM SPECIFICATION FOR VEGETATED FACILITIES

DRAWING NO. 742

REVISED 10–31–19

Clean Water Services



SECTION A–A

NOTES:

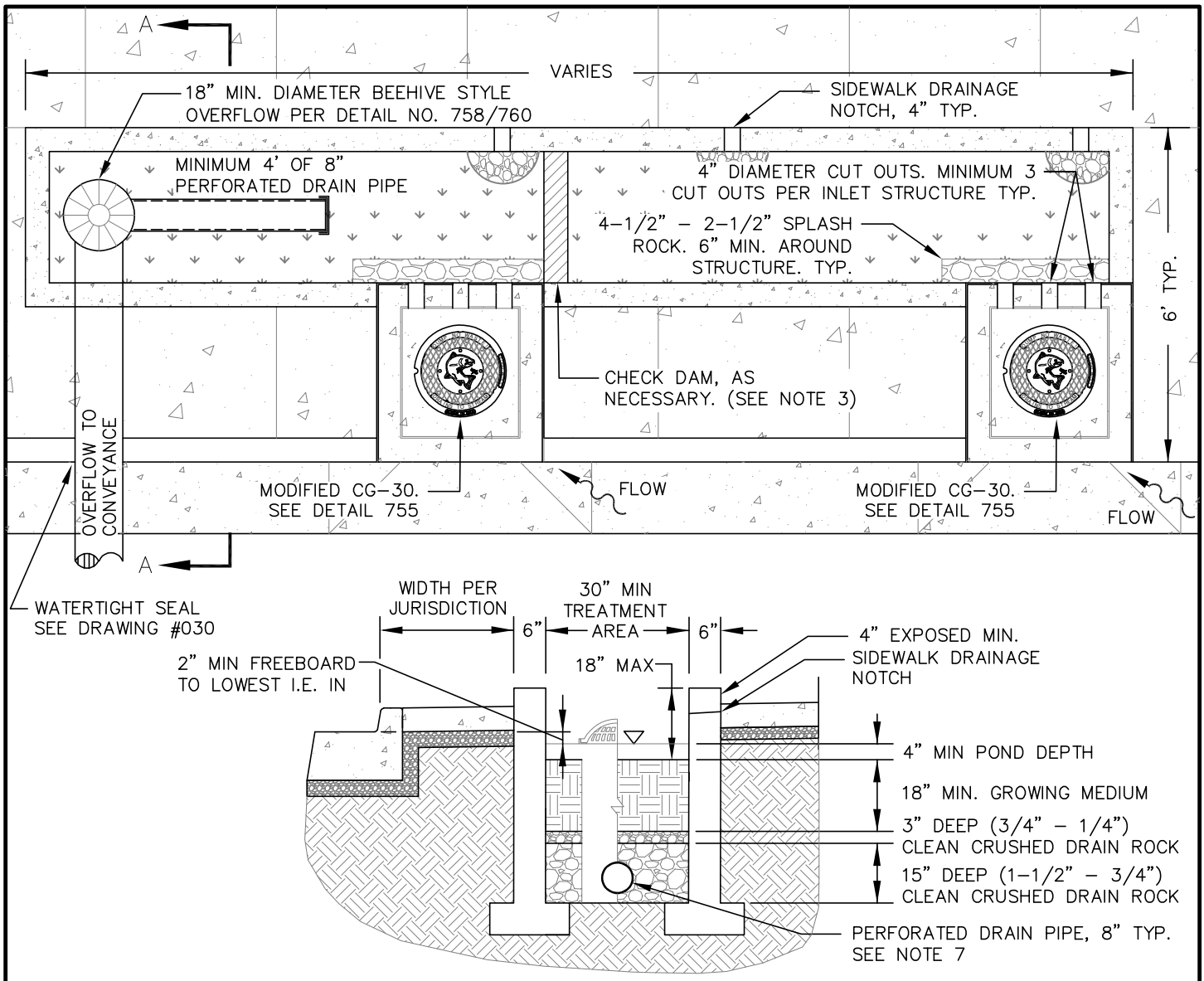
1. THIS DETAIL REPRESENTS A FLOW THROUGH PLANTER WITH FULL LENGTH CONCRETE WALLS AND FLOOR. FOR INFILTRATION PLANTER CONCRETE WALLS W/FOOTING WILL BE REQUIRED AS SHOWN ON DRAWING #750.
2. WALL'S STRUCTURAL DESIGN AND DIMENSIONS DETERMINED BY ENGINEER.
3. PROVIDE PROTECTION FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AND FOOT TRAFFIC IN PROPOSED FACILITY AREAS PRIOR TO, DURING, AND AFTER CONSTRUCTION.
4. SIDEWALK ELEVATION MUST BE SET ABOVE CHECK DAM AND INLET/OUTLET ELEVATIONS TO ALLOW OVERFLOW TO DRAIN TO STREET OR PIPED OVERFLOW SYSTEM AS APPLICABLE.
5. PLANTER SHALL BE FLAT BOTTOM IN ALL DIRECTIONS TO WITHIN 1 INCH. CHECK DAMS SHALL BE PLACED ACCORDING TO INDIVIDUAL PROJECT PLANS PER DETAIL 762. PROVIDE 2" MIN FREEBOARD.
6. STREET SIDE CURB NOTCHES TO BE LOCATED AS IDENTIFIED ON PROJECT PLANS.
7. SIDEWALK CURB NOTCH: 1" LOWER THAN SIDEWALK, SLOPED TO FACILITY. SIDEWALK DRAINAGE NOTCHES SHALL ALIGN WITH SIDEWALK CONTRACTION JOINTS AND LOW POINTS.
8. PERFORATED PIPE IN INFILTRATION FACILITIES: BOTTOM OF PIPE SHALL BE SET AT 2 1/2" ABOVE SUBGRADE. PERFORATED PIPE IN FLOW THROUGH FACILITIES: BOTTOM OF PIPE SHALL BE SET AT BASE OF DRAIN ROCK LAYER.
9. HYDRANTS, UTILITY POLES, OR ANY UTILITY BOXES PLACED WITHIN PLANTER MUST BE APPROVED BY JURISDICTION IN WRITING.
10. ACTUAL ELEVATIONS AND DIMENSIONS TO BE CONSTRUCTED AS IDENTIFIED ON PROJECT PLANS.
11. ENSURE THAT A DOWNSTREAM CATCH BASIN IS IN PLACE FOR EMERGENCY OVERFLOW.

STREET SIDE PLANTER WITHOUT STREET PARKING

DRAWING NO. 745

REVISED 10–31–19

Clean Water Services



SECTION A-A

NOTES:

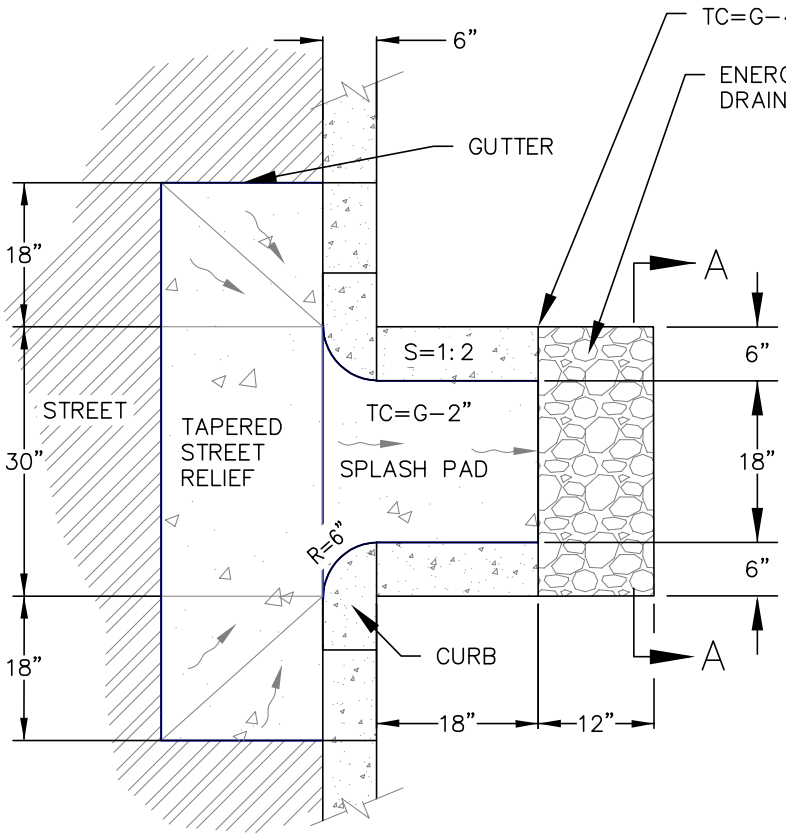
1. THIS DETAIL REPRESENTS AN INFILTRATION PLANTER WITH CONCRETE WALLS W/FOOTINGS. FOR FLOW THROUGH PLANTER, CONCRETE WALLS AND FLOOR WILL BE REQUIRED AS SHOWN ON DRAWING #745.
2. WALL'S STRUCTURAL DESIGN AND DIMENSIONS DETERMINED BY ENGINEER.
3. PROVIDE PROTECTION FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AND FOOT TRAFFIC IN PROPOSED FACILITY AREAS PRIOR TO, DURING, AND AFTER CONSTRUCTION.
4. SIDEWALK ELEVATION MUST BE SET ABOVE CHECK DAM AND INLET/OUTLET ELEVATIONS TO ALLOW OVERFLOW TO DRAIN TO STREET OR PIPED OVERFLOW SYSTEM AS APPLICABLE.
5. PLANTER SHALL BE FLAT BOTTOM IN ALL DIRECTIONS TO WITHIN 1 INCH. CHECK DAMS SHALL BE PLACED ACCORDING TO INDIVIDUAL PROJECT PLANS PER DETAIL 762. PROVIDE 2" MIN FREEBOARD.
6. STREET SIDE CURB NOTCHES TO BE LOCATED AS IDENTIFIED ON PROJECT PLANS.
7. SIDEWALK CURB NOTCH: 1" LOWER THAN SIDEWALK, SLOPED TO FACILITY. SIDEWALK DRAINAGE NOTCHES SHALL ALIGN WITH SIDEWALK CONTRACTION JOINTS AND LOW POINTS.
8. PERFORATED PIPE IN UNLINED FACILITIES: BOTTOM OF PIPE SHALL BE SET AT 2 1/2" ABOVE SUBGRADE. PERFORATED PIPE IN LINED FACILITIES: BOTTOM OF PIPE SHALL BE SET AT BASE OF DRAIN ROCK LAYER
9. HYDRANTS, UTILITY POLES, OR ANY UTILITY BOXES PLACED WITHIN PLANTER MUST BE APPROVED BY JURISDICTION IN WRITING.
10. ACTUAL ELEVATIONS AND DIMENSIONS TO BE CONSTRUCTED AS IDENTIFIED ON PROJECT PLANS.
11. ENSURE THAT A DOWNSTREAM CATCH BASIN IS IN PLACE FOR EMERGENCY OVERFLOW.

STREET SIDE PLANTER WITH STREET PARKING

DRAWING NO. 750

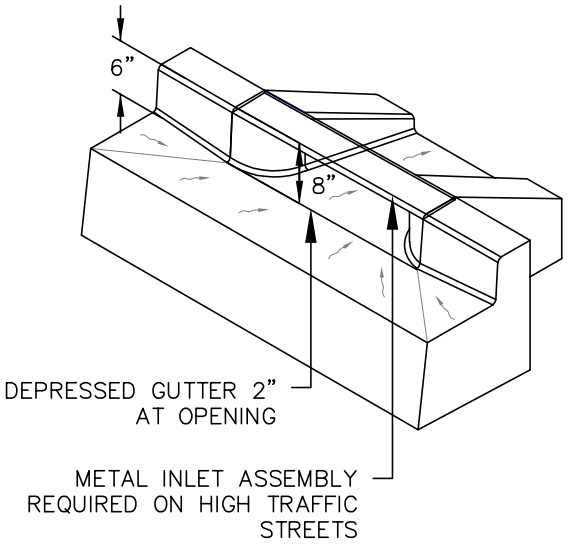
REVISED 10-31-19

Clean Water Services



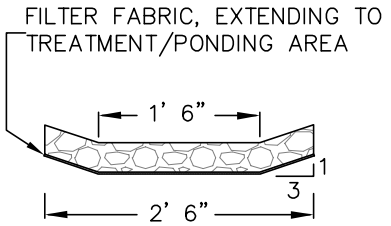
PLAN CURB CUT OUT

N.T.S.

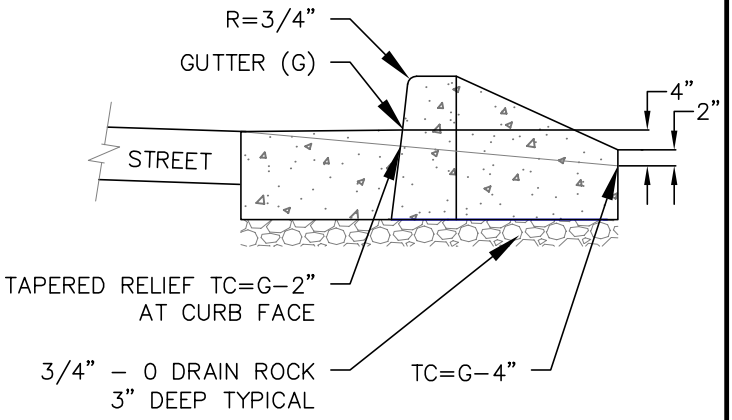


ISOMETRIC CURB CUT OUT

N.T.S.



SECTION A-A



NOTES:

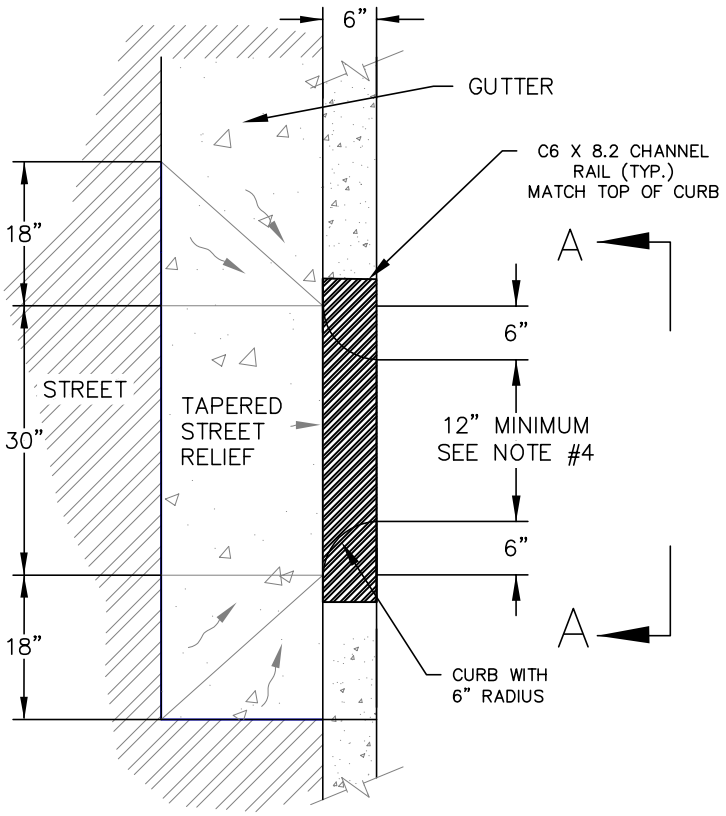
1. INFLOW STRUCTURE PER LOCAL JURISDICTION. CURB CUT OUTS NOT ALLOWED ON WASHINGTON COUNTY ROADS - USE MODIFIED CG-30 SEE DETAIL 755, FOR INLET STRUCTURE.
2. INFLOW STRUCTURE - CURB CUT OUT SHALL HAVE MINIMUM 2" DROP AT THE FLOW LINE LEADING TO THE SPLASH PAD, SEE DETAIL.
3. ENERGY DISSIPATER DRAIN ROCK: ROCK SIZE 4-1/2" - 2-1/2" OR SIZED BY DESIGN INFLOW. PLACE ROCK 6" DEEP BEHIND SPLASH PAD.
4. CURB PROFILE PER LOCAL JURISDICTION.
5. ENSURE THAT DOWNSTREAM CATCH BASINS ARE IN PLACE FOR HIGH FLOW CONVEYANCE.

CURB CUT OUT

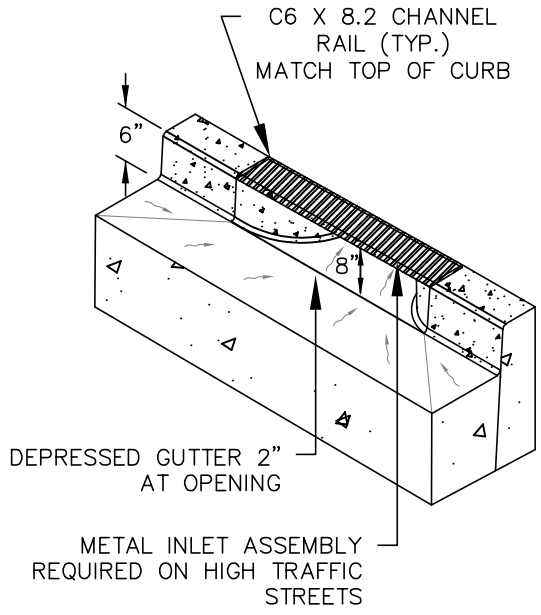
DRAWING NO. 752

REVISED 10-31-19

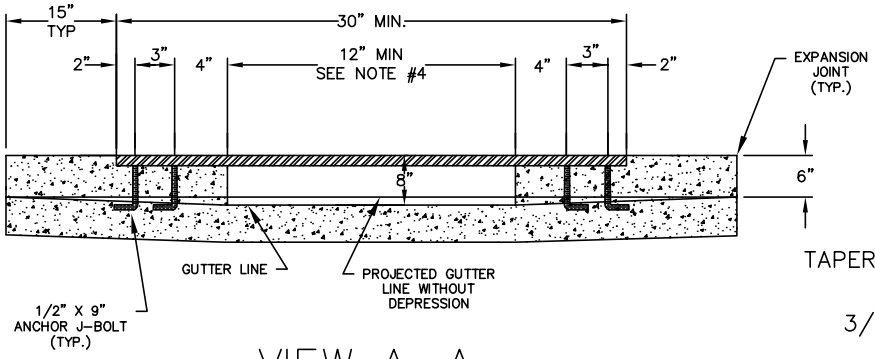
Clean Water Services



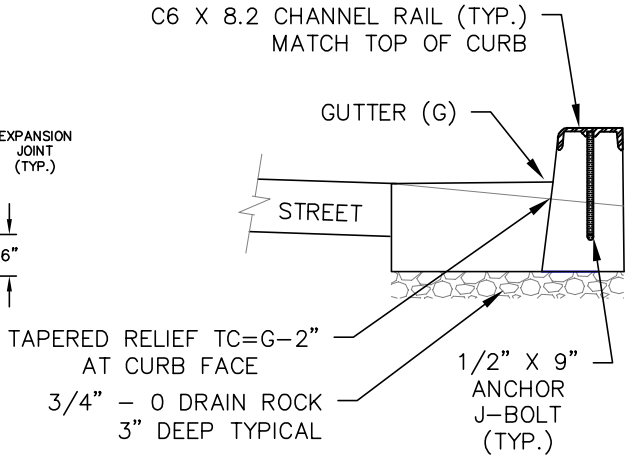
PLAN CURB CUT OUT



ISOMETRIC CURB CUT OUT



VIEW A–A



STREET CURB OPENING DETAIL

NOTES:

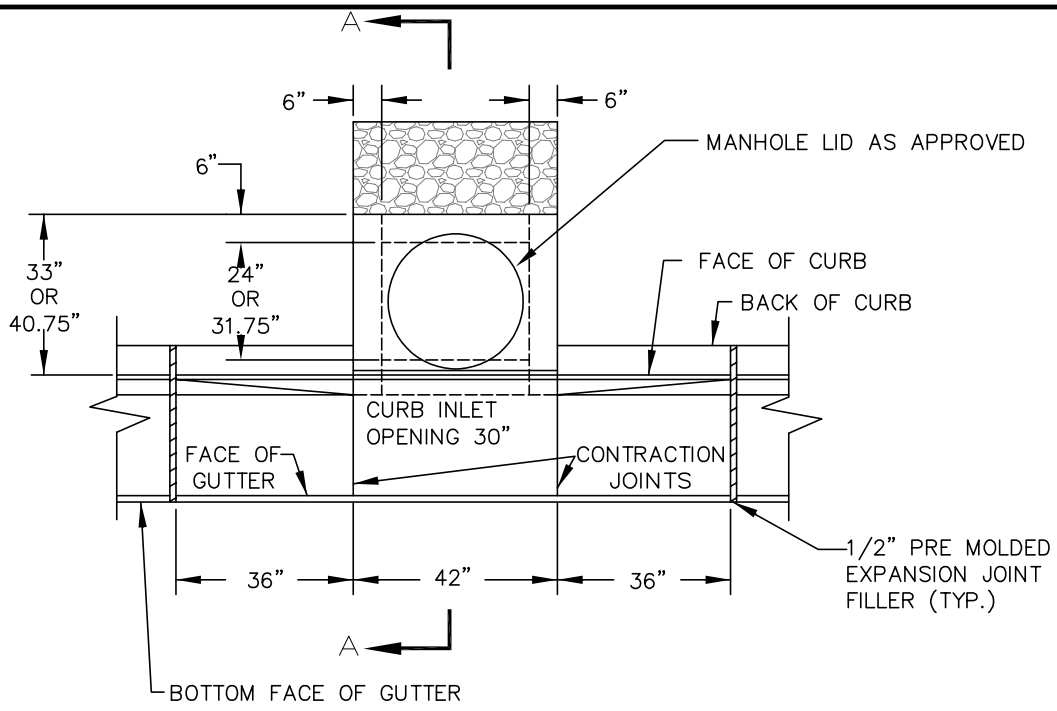
1. INFLOW STRUCTURE PER LOCAL JURISDICTION.
2. INFLOW STRUCTURE – CURB CUT OUT SHALL HAVE MINIMUM 2" DROP AT THE FLOW LINE LEADING TO THE SPLASH PAD, SEE DETAIL.
3. CURB PROFILE PER LOCAL JURISDICTION.
4. CURB CUT OUT TO MATCH INLET GRATE DIMENSION.

CURB CUT OUT TOP RAIL

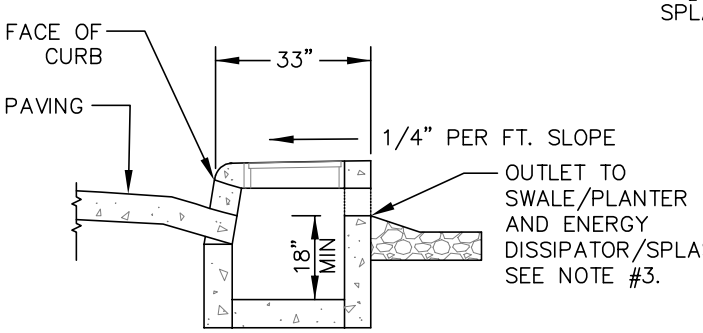
DRAWING NO. 753

REVISED 10–31–19

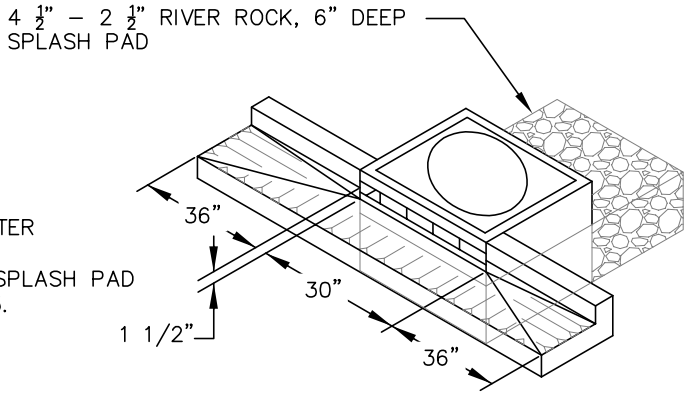
Clean Water Services



PLAN VIEW



SECTION A–A
NON–SNOUT



PERSPECTIVE VIEW
SHOWING DEPRESSED
GUTTER AT CURB INLET

NOTES:

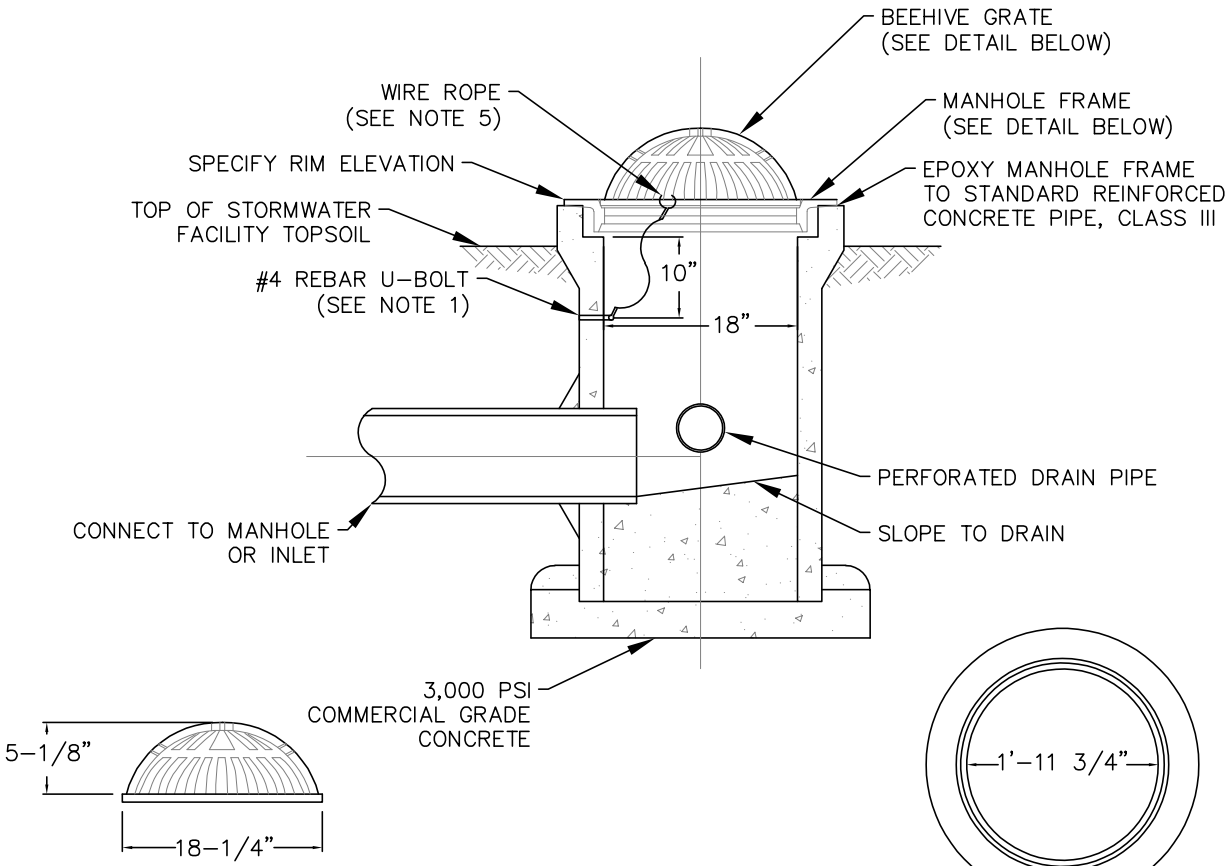
1. INSTALL STRUCTURE ON MINIMUM OF 8" OF 3/4" TO 0" COMPACTED BASE MATERIAL.
2. INSTALL ENERGY DISSIPATER/SPLASH PAD AT OUTFALL OF STRUCTURE.
3. FOUR INCH DIAMETER CUT OUTS, MINIMUM 3 CUT OUTS EVENLY SPACED PER INLET STRUCTURE, TYPICAL.

MODIFIED CG–30 INLET WITH SUMP

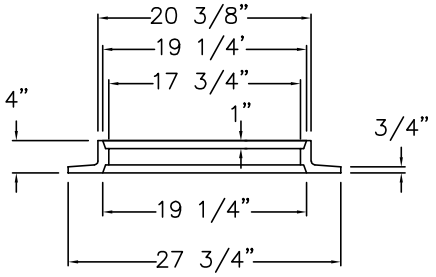
DRAWING NO. 755

REVISED 10–31–19

Clean Water Services



BEEHIVE GRATE



18"x4" REVERSIBLE MANHOLE FRAME

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"X 4") IN HOLES.
3. GRATE TO BE CAST IRON, ASTM A48 CL30.
4. SIZE INLET BASED ON CALCULATED FLOWS AND MANUFACTURERS RECOMMENDATIONS.
5. WIRE ROPE BETWEEN 1/8"-3/16" DIAMETER, STAINLESS STEEL, 7 STRANDS OF 19 WIRES.

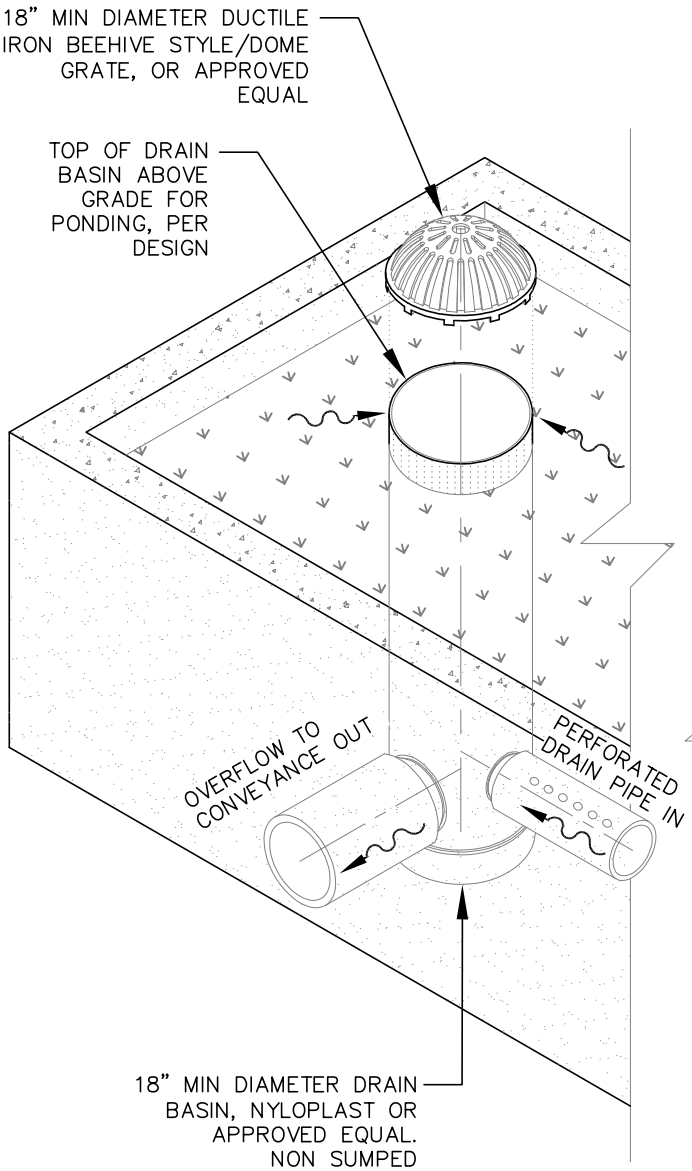
BEEHIVE INLET

DRAWING NO. 758

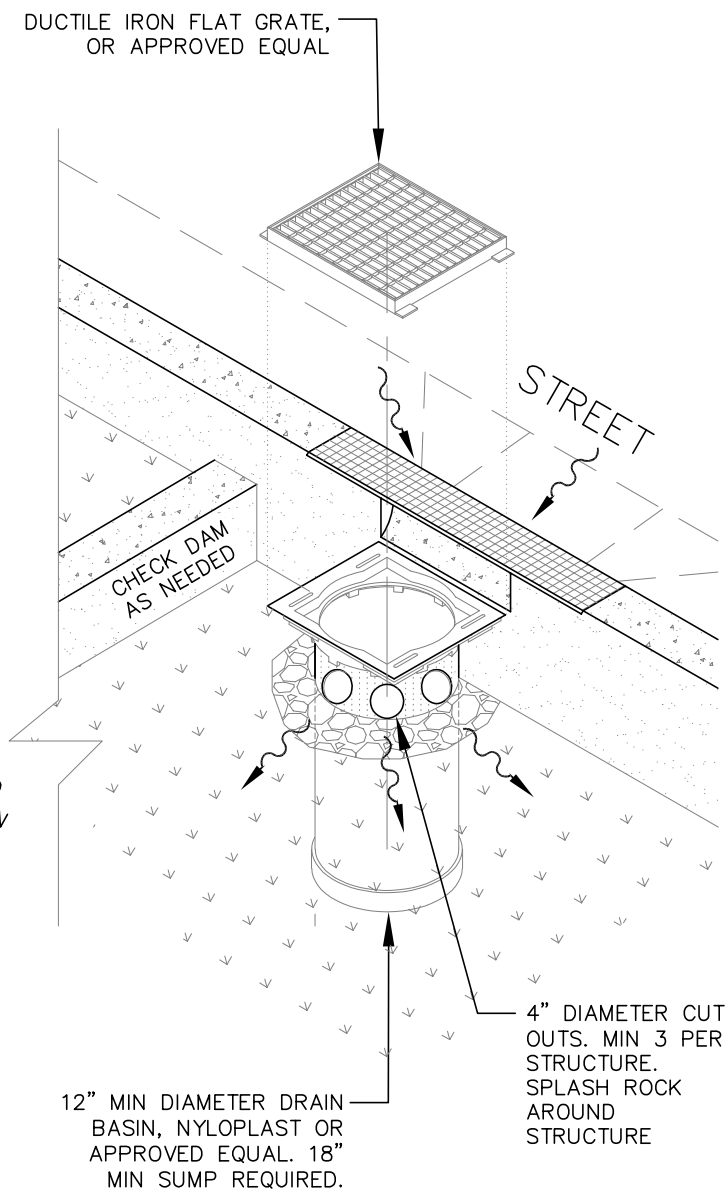
REVISED 10-31-19

Clean Water Services

OVERFLOW STRUCTURE



INLET STRUCTURE



NOTE:

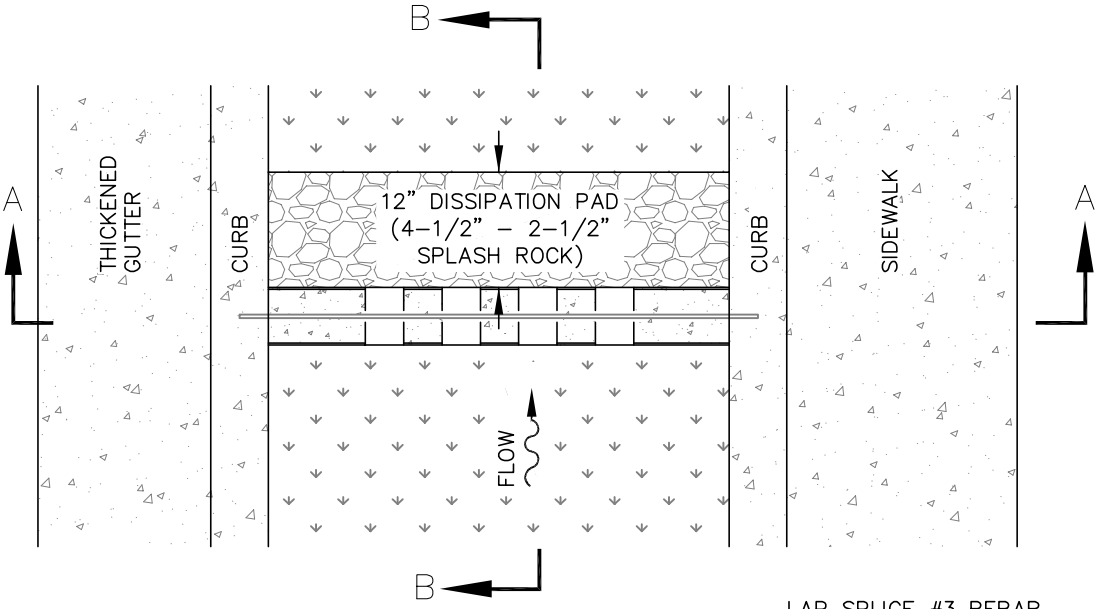
1. PLACE STRUCTURE ON 3/4" TO 0" BASE ROCK PLACED OVER NATIVE SUBGRADE.

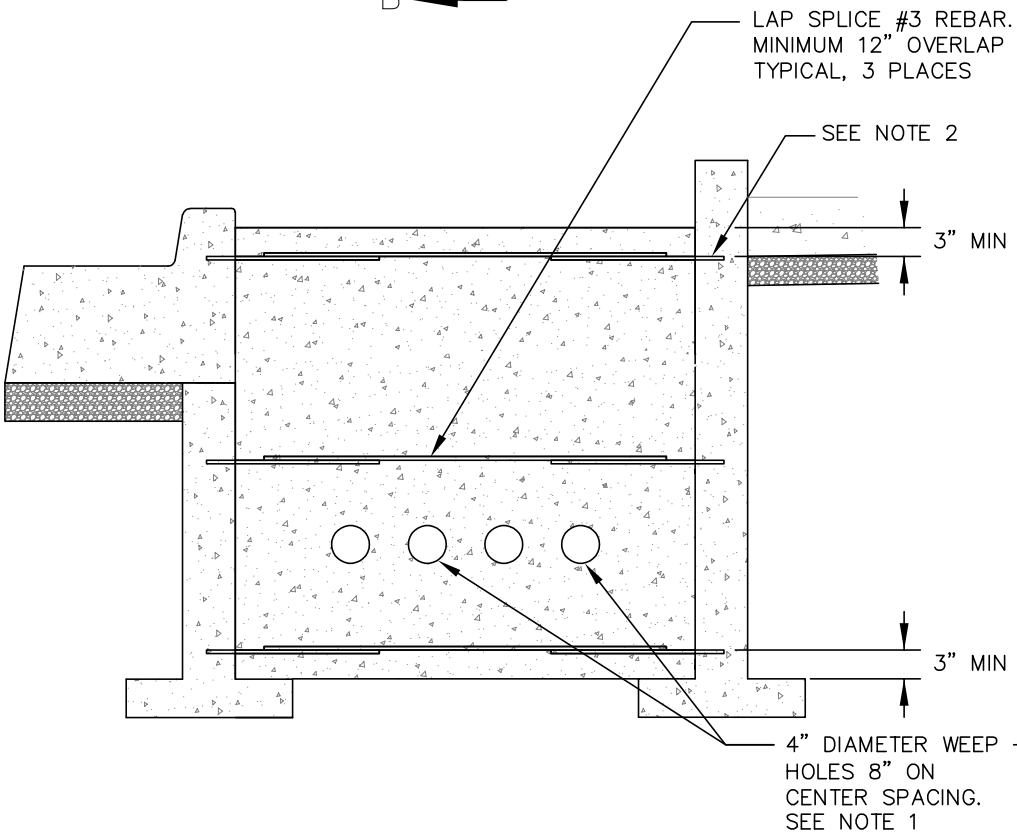
OVERFLOW/INLET STRUCTURE

DRAWING NO. 760

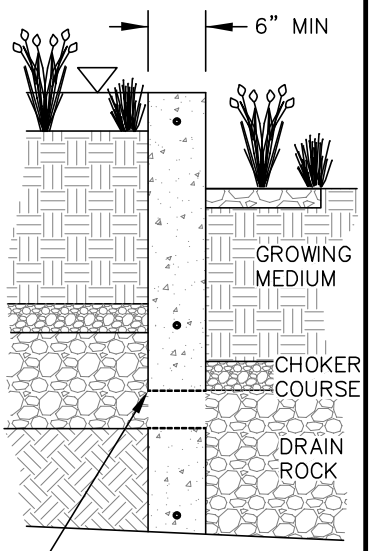
REVISED 10-31-19

Clean Water Services





SECTION A–A



SECTION B–B

NOTES

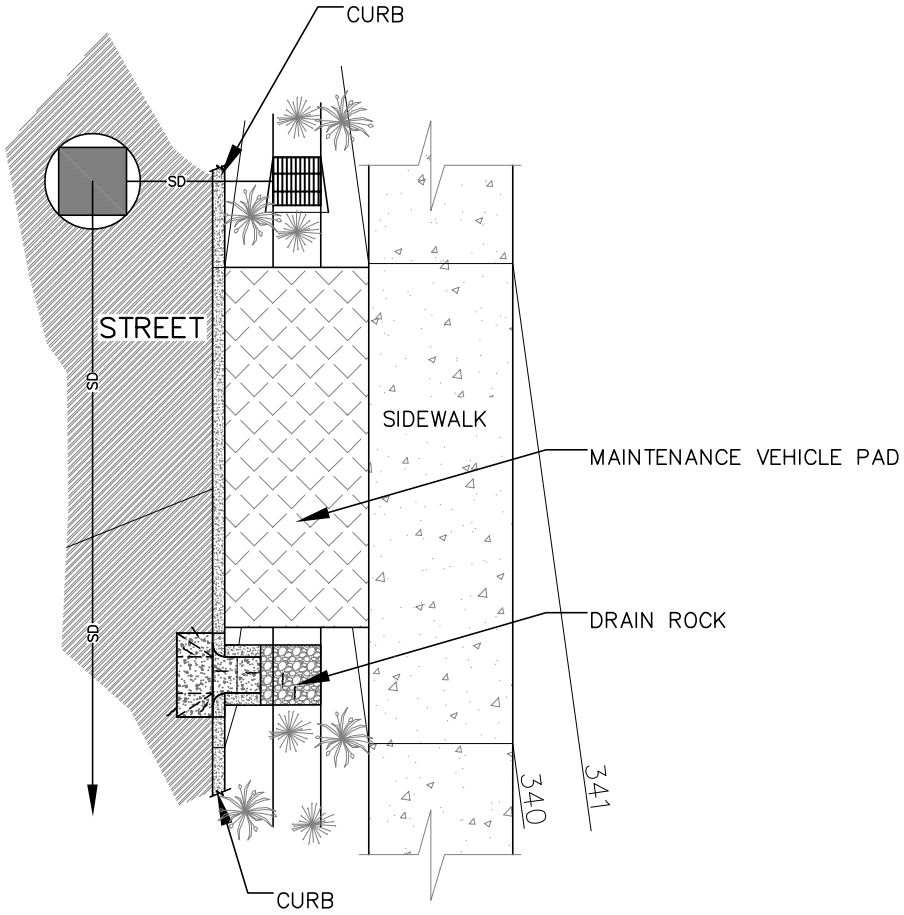
1. WEEP HOLES TO BE PLACED WITHIN DRAIN ROCK LAYER. TOP OF WEEP HOLE TO BE SAME ELEVATION AS THE TOP OF DRAIN ROCK LAYER, ON LOWEST SIDE OF CHECK DAM.
2. MINIMUM 3" REBAR EMBEDMENT FOR CURB AND PLANTER WALL.
3. CHECK DAM SPACING SHALL PROVIDE A MINIMUM OF 2" FREEBOARD, AND AN 18" MAXIMUM DROP FROM ANY ADJACENT CURB TO TOP OF FACILITY GROWING MEDIUM.

CONCRETE CHECK DAM

DRAWING NO. 762

REVISED 10–31–19

Clean Water Services



NOTES:

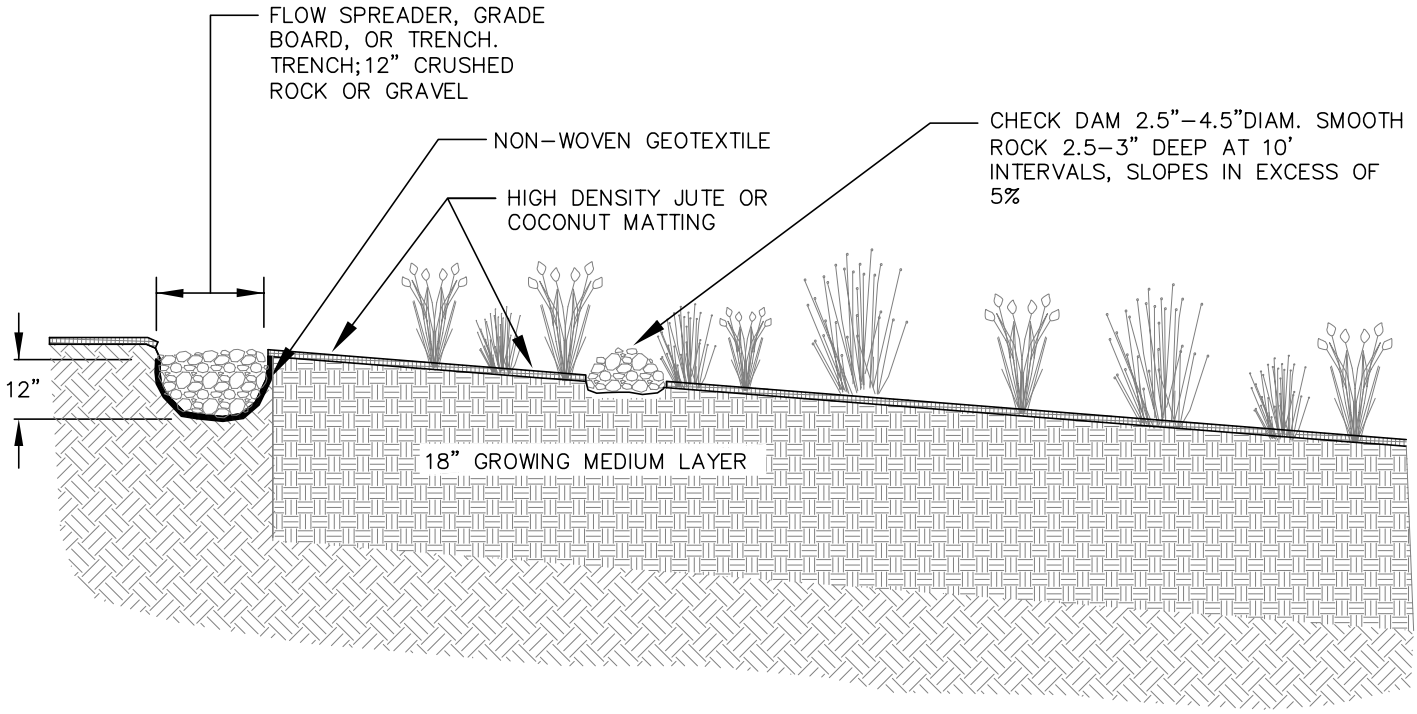
1. PUBLICLY MAINTAINED WATER QUALITY FACILITIES SHALL BE PROVIDED WITH MAINTENANCE ACCESS PER R&O CHAPTER 4.07.6.
2. PROVIDE ACCESS FOR ROADSIDE WATER QUALITY FACILITY AS ILLUSTRATED, OR PER LOCAL JURISDICTION. DESIGN FOR TRAFFIC VOLUME AND/OR SIGHT DISTANCE MAY BE REQUIRED. MINIMUM 20' LONG, 7' WIDE PERVIOUS OR IMPERVIOUS PAVEMENT CAPABLE OF SUPPORTING A TYPICAL MAINTENANCE VEHICLE SHALL BE LOCATED WITHIN 10' OF ANY SUMPED STRUCTURES.
3. IF PERVIOUS PAVERS ARE USED, A STRUCTURAL BORDER SHALL BE DESIGNED TO PREVENT SHIFTING OF THE PAVERS.

PUBLIC WATER QUALITY FACILITY ACCESS

DRAWING NO. 765

REVISED 10-31-19

Clean Water Services



PROFILE VIEW

NOTES:

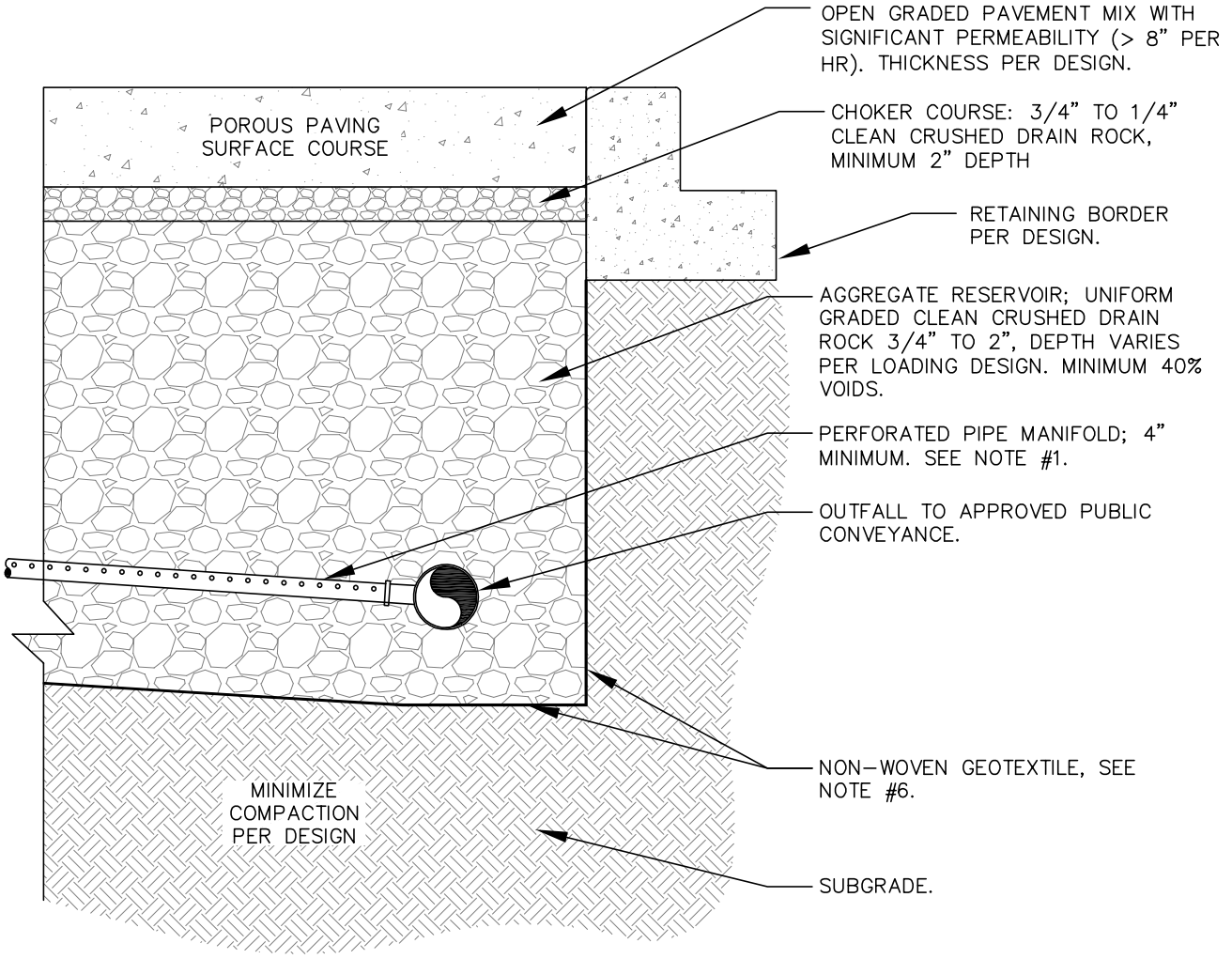
1. COLLECTION AND CONVEYANCE OF OVERFLOW FROM FILTER STRIP SHALL BE SPECIFIED ON PLANS TO APPROVED PUBLIC CONVEYANCE SYSTEM.
2. FACILITY SHALL BE A MINIMUM OF 5' WIDE, MEASURED IN THE DIRECTION OF FLOW.
3. ENTIRE FILTER STRIP MUST HAVE 100% COVERAGE BY APPROVED, NATIVE GRASSES, WILDFLOWER BLENDS, GROUND COVERS, OR ANY COMBINATION THEREOF.
4. A CONCRETE SPREADER, OR GRAVEL TRENCH MAY BE REQUIRED TO DISPERSE THE RUNOFF EVENLY ACROSS THE FILTER STRIP TO PREVENT POINT OF DISCHARGE/CHANNELIZATION. THE TOP OF THE LEVEL SPREADER MUST BE HORIZONTAL AND AT AN APPROPRIATE HEIGHT TO PROVIDE SHEET FLOW DIRECTLY TO THE SOIL WITHOUT SCOUR. LEVEL SPREADERS SHALL NOT HOLD A PERMANENT VOLUME OF RUNOFF. SPREADERS MAY BE CONCRETE PER CWS DETAIL #715. TRENCHES USED AS LEVEL SPREADERS CAN BE FILLED WITH WASHED CRUSHED ROCK, PEA GRAVEL OR SAND.

VEGETATED FILTER STRIP

DRAWING NO. 770

REVISED 10-31-19

Clean Water Services



NOTES:

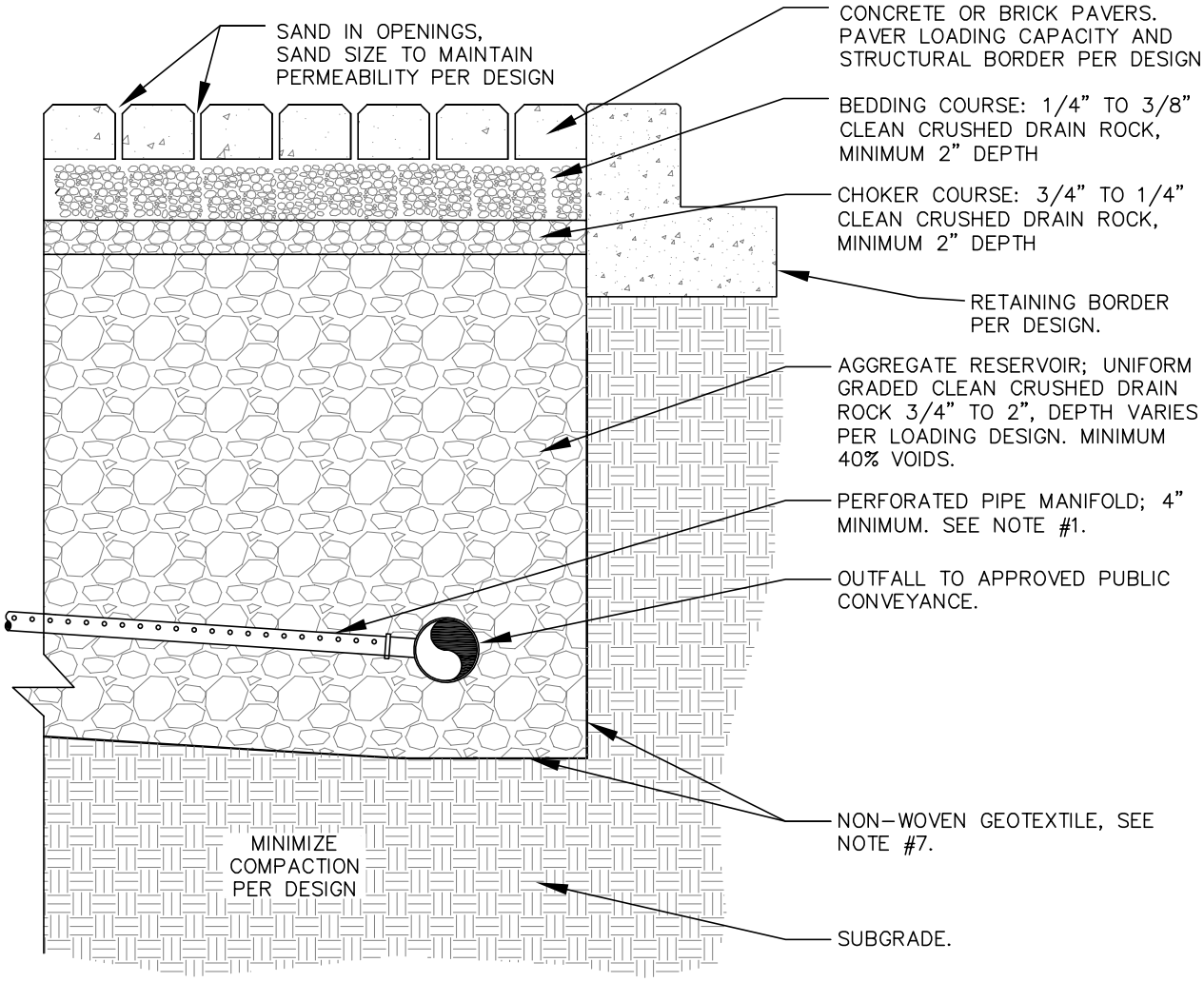
1. SITE SPECIFIC DESIGN REQUIRED, TO MEET APPLICABLE LOCAL REQUIREMENTS.
2. PROVIDE PERFORATED PIPE MANIFOLD IN RESERVOIR LAYER FOR CONVEYANCE, IF NATIVE SOIL INFILTRATION RATES LESS THAN 2"/HOUR. SEE PERFORATED PIPE DETAIL. (DRAWING NO. 740)
3. NOT RECOMMENDED FOR TRAFFIC SURFACES WITH SLOPE > 5%.
4. SUBGRADE SLOPED TO MANIFOLD FOR DRAINAGE PER APPROVED PLAN.
5. HIGHEST SEASONAL WATER TABLE MUST BE AT LEAST 10' BELOW RESERVOIR LAYER. STRUCTURE MUST BE 100' AWAY FROM DRINKING WATER WELL. MINIMUM OF 100' AWAY UP SLOPE & 10' AWAY DOWN SLOPE FROM STRUCTURE FOUNDATIONS.
6. WATER QUALITY TREATMENT REQUIRED FOR FLOWS FROM OTHER IMPERVIOUS AREAS THAT DRAIN TO POROUS PAVEMENT.
7. NON-WOVEN GEOTEXTILE CONFORMING TO ODOT TYPE II VARIATION OR APPROVED EQUAL.

POROUS PAVEMENT

DRAWING NO. 775

REVISED 10-31-19

Clean Water Services



NOTES:

1. SITE SPECIFIC DESIGN REQUIRED TO MEET APPLICABLE LOCAL REQUIREMENTS.
2. PROVIDE PERFORATED PIPE MANIFOLD IN RESERVOIR LAYER FOR CONVEYANCE,, IF NATIVE SOIL INFILTRATION RATES LESS THAN 2"/HOUR. SEE PERFORATED PIPE DETAIL. (DRAWING NO. 740)
3. NOT RECOMMENDED FOR TRAFFIC SURFACES WITH SLOPE > 5%.
4. SUBGRADE SLOPED TO MANIFOLD FOR DRAINAGE PER APPROVED PLAN.
5. HIGHEST SEASONAL WATER TABLE MUST BE AT LEAST 10' BELOW RESERVOIR LAYER. STRUCTURE MUST BE 100' AWAY FROM DRINKING WATER WELL. MINIMUM OF 100' AWAY UP SLOPE & 10' AWAY DOWN SLOPE FROM STRUCTURE FOUNDATIONS.
6. WATER QUALITY TREATMENT REQUIRED FOR FLOWS FROM OTHER IMPERVIOUS AREAS THAT DRAIN TO POROUS PAVERS.
7. NON-WOVEN GEOTEXTILE CONFORMING TO ODOT TYPE II VARIATION OR APPROVED EQUAL.

POROUS PAVERS

DRAWING NO. 780

REVISED 10-31-19

Clean Water Services

RIPRAP:

- ROCK FOR RIPRAP SHALL BE ANGULAR IN SHAPE.
- THICKNESS OF A SINGLE ROCK SHALL NOT BE LESS THAN ONE-THIRD ITS LENGTH.
- ROUNDED ROCK WILL NOT BE ACCEPTED UNLESS APPROVED BY THE DISTRICT.

RIPRAP INSTALLATION:

- EXCAVATE BELOW FINISH GRADE TO DEPTH & DIMENSIONS SHOWN ON APPROVED PLANS.
- INSTALL WOVEN GEOTEXTILE FABRIC.
- PLACE RIP RAP TO FINISH GRADE.

- GRADE RIPRAP SHALL BE THE CLASS AND SIZE OF ROCK ACCORDING TO THE FOLLOWING:

CLASS 50	CLASS 100	CLASS 200	CLASS 700	CLASS 2000	PERCENT (BY WEIGHT)
		WEIGHT OF ROCK (LBS)			
50-30	100-60	200-140	700-500	2000-1400	20
30-15	60-25	140-80	500-200	1400-700	30
15-2	25-2	80-8	200-20	700-40	40
2-0	2-0	8-0	20-0	40-0	10

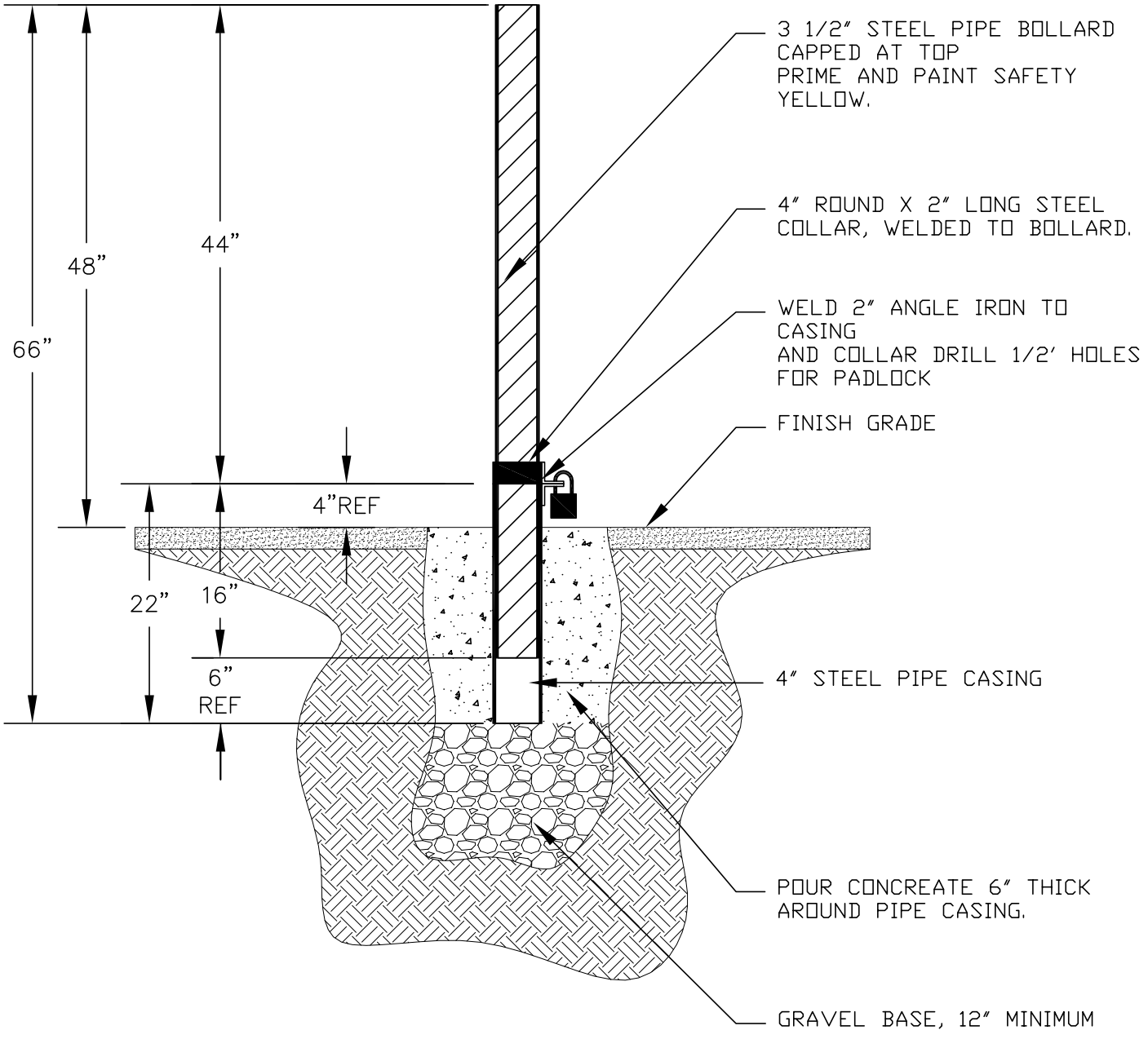
RIP RAP DETAILS

Clean Water Services

REVISED 10-31-19

DRAWING NO. 790

STEEL PIPE SPECIFICATIONS
ASTM A-53 STEEL, SCHEDULE 40,
BLACK, HOT DIPPED, ZINC-COATED, WELDED, SEAMLESS
4-INCH STEEL PIPE O.D. = 4.500" I.D. = 4.026 THICKNESS = 0.237
3 1/2-INCH STEEL PIPE O.D. = 4.000" I.D. = 3.549" THICKNESS = 0.226"



REMOVABLE BOLLARD

DRAWING NO. 791

REVISED 10-31-19

Clean Water Services

CHAIN LINK FENCE AND GATE

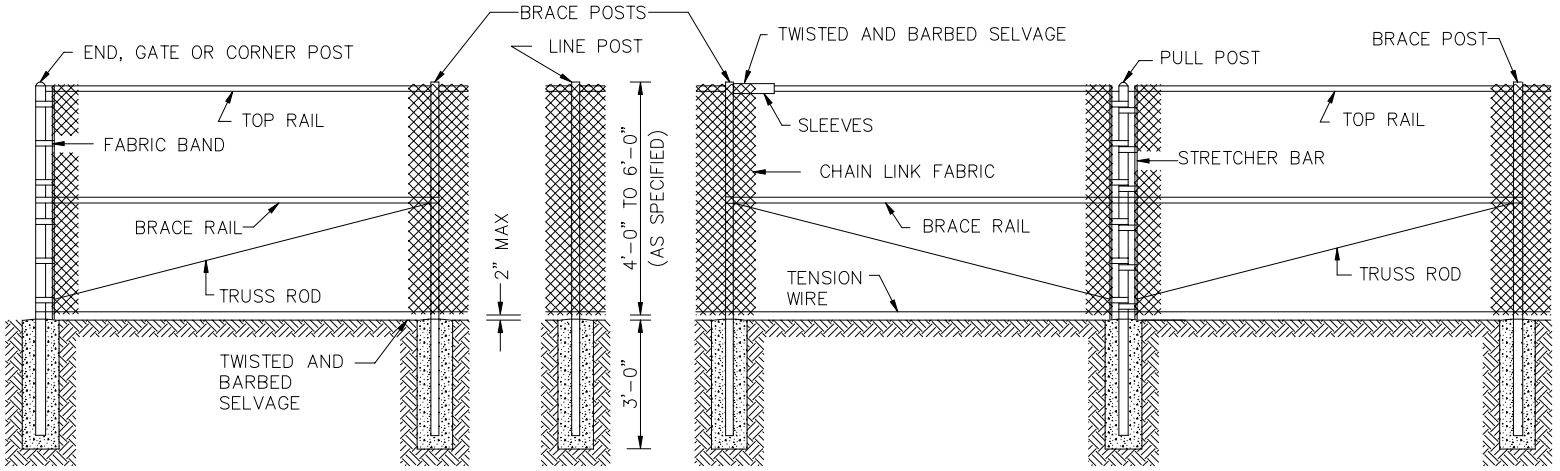
DRAWING NO. 792

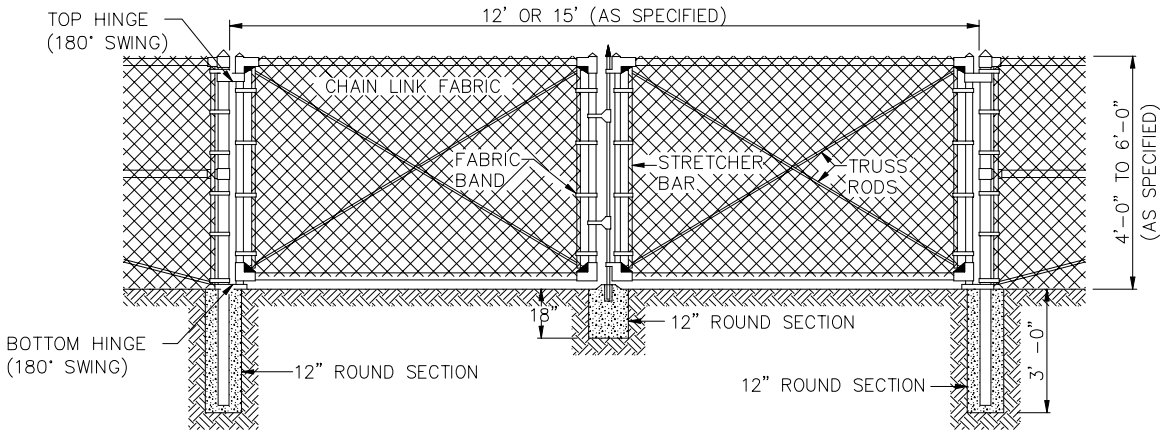
REVISED 10-31-19

MEMBER	NOMINAL DIA (IN)	MATERIAL	
BRACE RAIL	1.660	GALV TUBULAR STL	
GATE FRAME	2.00	GALV TUBULAR STL	
LINE POSTS	2.375	GALV TUBULAR STL	
END & CORNER POST	2.875	GALV TUBULAR STL	
CHAIN LINK FABRIC		9 GA. W/GREEN OR BLACK PVC COATING.	
	GATE OPENING (ft)	NOMINAL DIA (IN)	MATERIAL
GATE POST	12' OR 15'	4	GALV TUBULAR STL

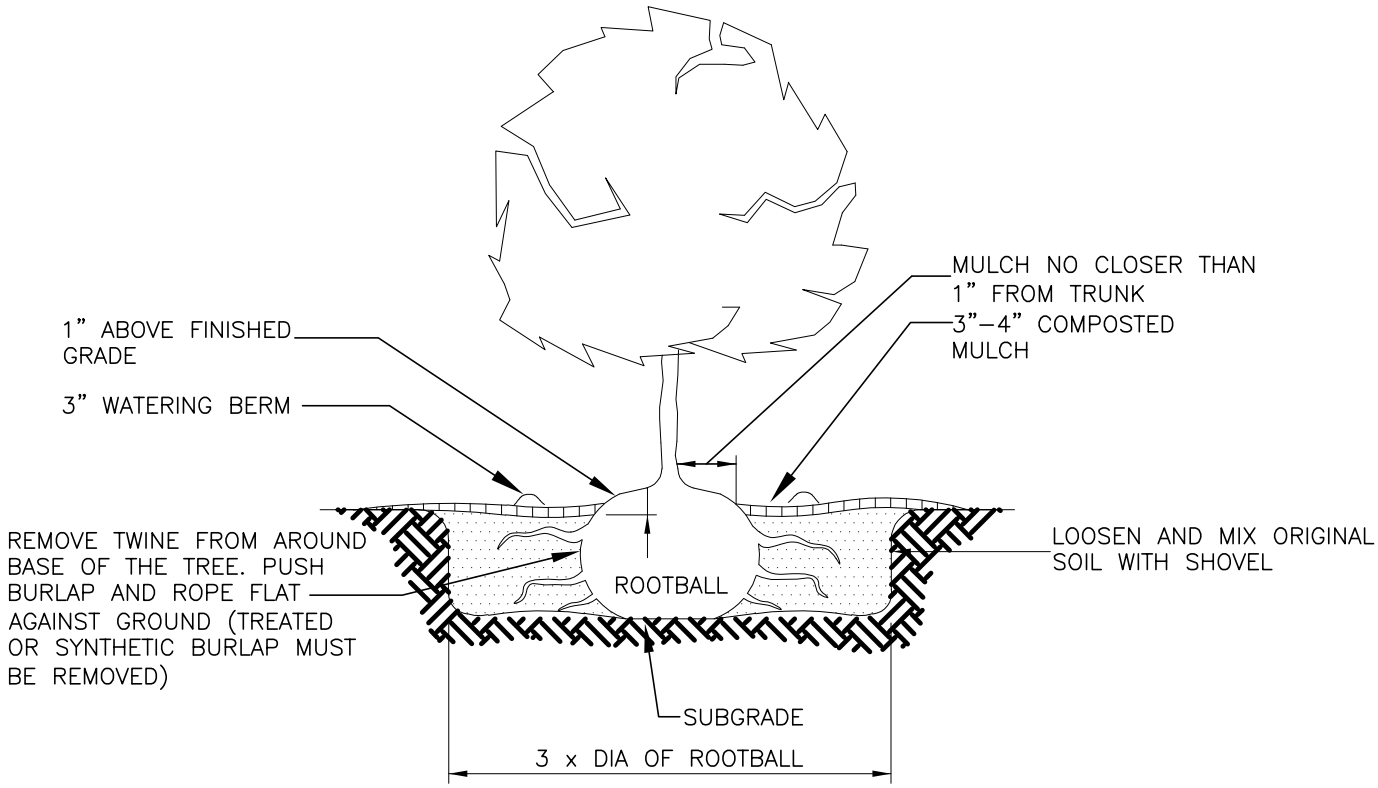
NOTES:

1. ALL FITTINGS, FASTENERS, & AND FABRIC TIES SHALL BE HOT DIP GALV.
2. CONC SHALL BE MIN 2500 PSI @ 28 DAYS.
3. PROVIDE BRACE RAIL BETWEEN END POSTS AND LINE POSTS. LENGTHS AS REQ'D.
4. PROVIDE GATE STOPS AND DROP RECEIVERS SET IN CONCRETE, EACH GATE.
5. PROVIDE EXTENSION ARMS ON LINE, END AND CORNER POSTS & GATE POSTS AS REQ'D.
6. PROVIDE SIGHT OBSCURING SLATS WITH ALL WASTEWATER PUMP STATIONS.
7. CENTER BRACE RAIL NOT REQUIRED WITH FENCE HEIGHT OF 5' OR LESS.
8. ALL POSTS AND RAILS TO MATCH FENCE COLOR.





Clean Water Services



NOTE:

IF TREE IS CONTAINER GROWN STOCK, BREAK ROOT BALL APART BEFORE PLACING IN PLANTING HOLE.
IF PLANT IS ROOT BOUND MAKE A VERTICAL CUT THROUGH THE LOWER 1/4 OF THE SOIL MASS. PULL OUT AND STRAIGHTEN LARGE, CIRCLING ROOTS.

TREE PLANTING– CONTAINER/ BURLAPPED

DRAWING NO. 793

REVISED 10–31–19

Clean Water Services

NOTE:

SIGNS TO BE MOUNTED ON POSTS, AND AT FREQUENCIES & LOCATIONS AS APPROVED BY DISTRICT OR CITY.

12"X18" SIGNS SHALL BE PLACED IN A MANNER AS TO CLEARLY IDENTIFY THE SENSITIVE AREA AND VEGETATED CORRIDOR. THIS WILL INCLUDE ALL POINTS OF ENTRY SUCH AS THE BEGINNING OF PATHS. TRAIL HEADS AND ANY PLACE THAT THE PUBLIC MAY WANT OR BE ABLE TO ENTER AREA.

4"X4" SIGNS SHALL BE USED FOR AREAS WHERE A LARGE NUMBER OF SIGNS ARE NEEDED SUCH AS THE BACK OR SIDE YARDS ON EACH LOT ADJACENT TO THE SENSITIVE AREA OR VEGETATED CORRIDOR IN NEW SUBDIVISIONS OF PARTITIONS.

VEGETATED CORRIDOR SIGNAGE

DRAWING NO. 794

REVISED 10-31-19

CleanWater Services