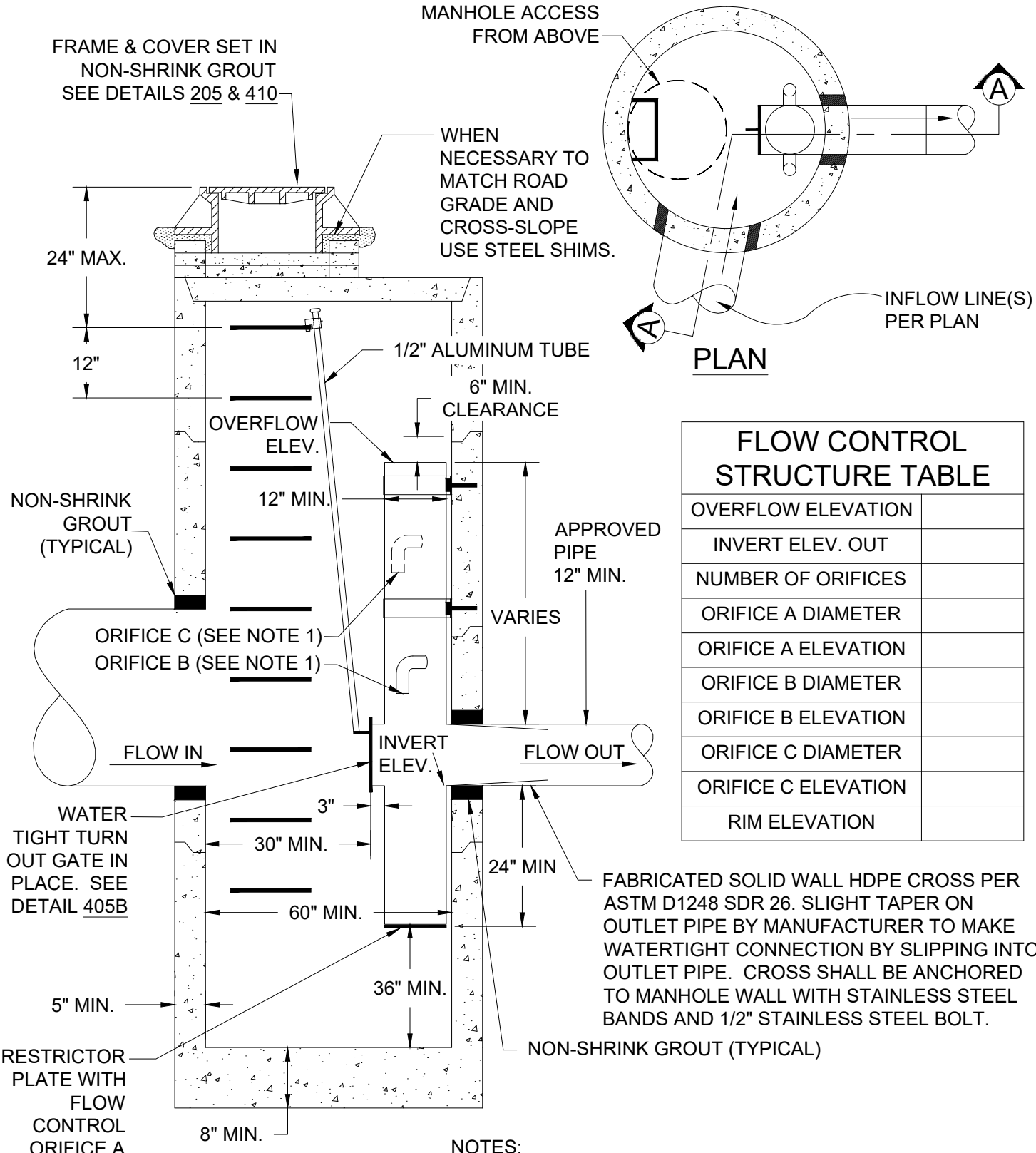


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FLOW CONTROL STRUCTURE TABLE

OVERFLOW ELEVATION	
INVERT ELEV. OUT	
NUMBER OF ORIFICES	
ORIFICE A DIAMETER	
ORIFICE A ELEVATION	
ORIFICE B DIAMETER	
ORIFICE B ELEVATION	
ORIFICE C DIAMETER	
ORIFICE C ELEVATION	
RIM ELEVATION	

SECTION A-A

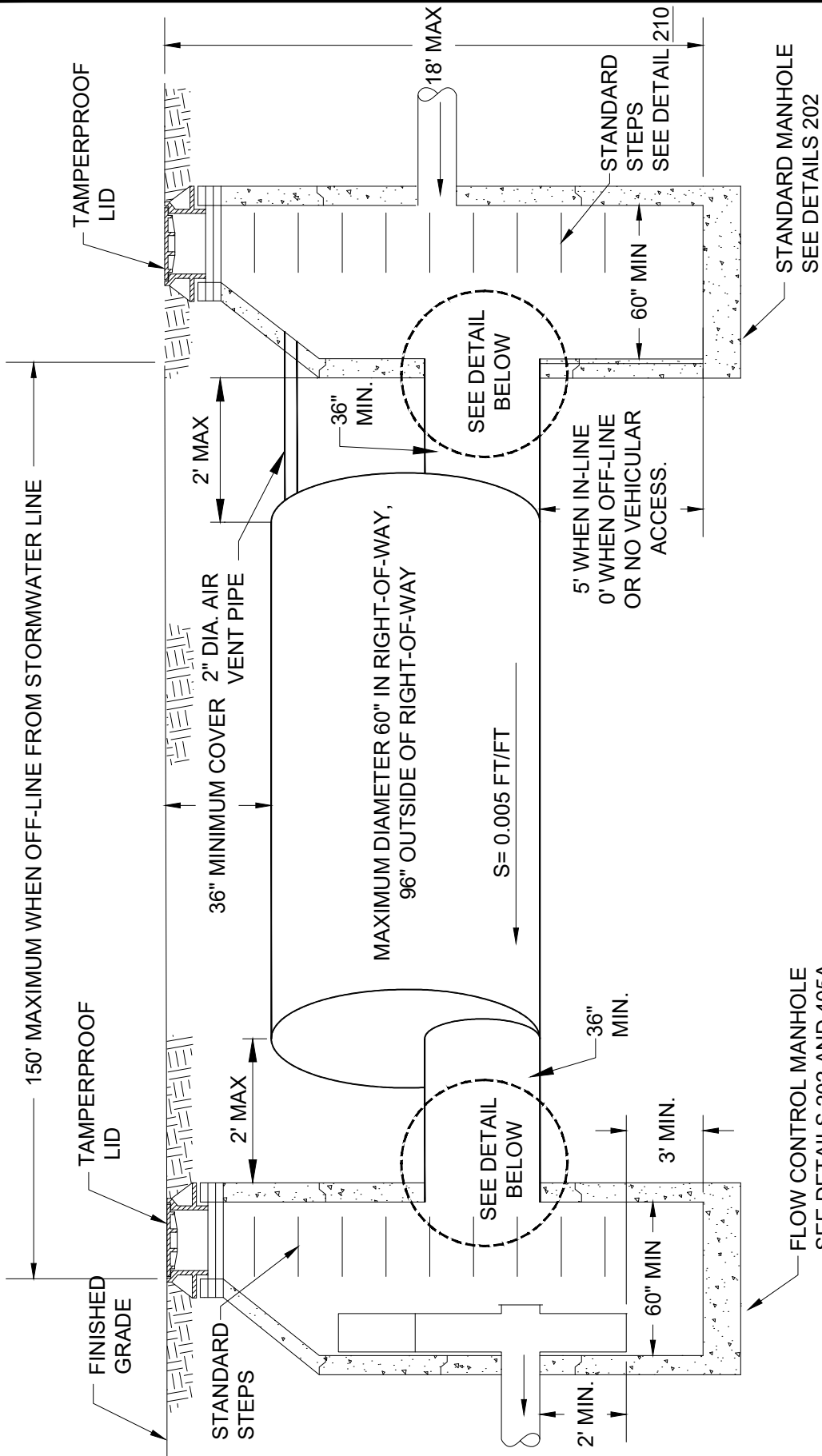
NOTES:
 1. MULTI-ORIFICE ELBOWS TO BE LOCATED TO ASSURE LADDER CLEARANCE. ORIFICE SHALL BE MOUNTED ON BOTTOM OF ELBOWS. ELBOWS SHALL BE SHORT RADIUS AND SHALL NOT EXTEND MORE THAN 8" FROM OVERFLOW PIPE.

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FLOW CONTROL MANHOLE

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DETAIL NO.	405A



NOTES:
1. DETENTION PIPE AND ALL CONNECTIONS SHALL BE WATERTIGHT.

CITY OF GRESHAM

DETENTION PIPE

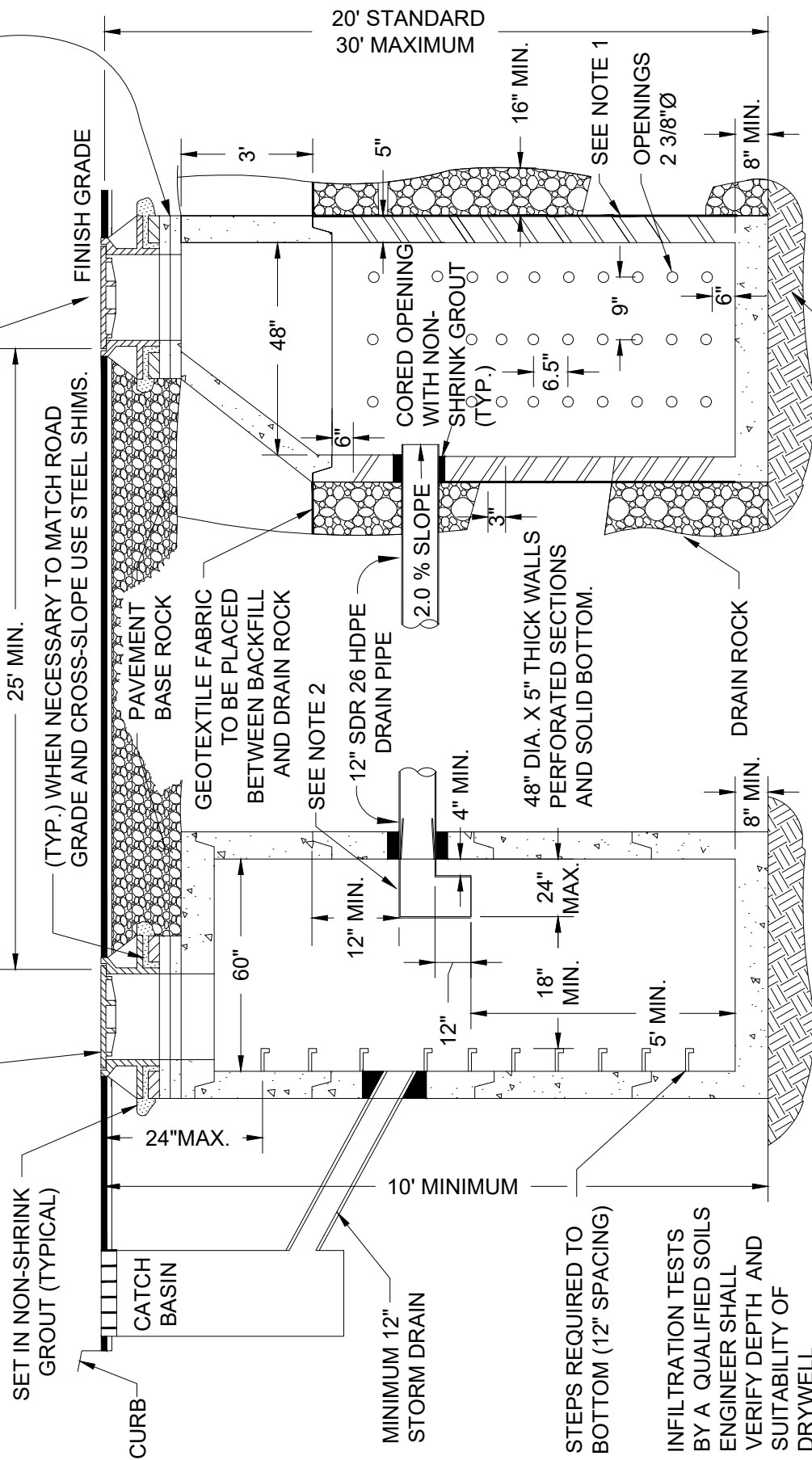
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APPR.	
DETAIL NO.	406

STANDARD FRAME (SEE DETAIL 205B OR 207B) AND COVER (SEE DETAIL 410). OFFSET AS APPROVED BY THE ENGINEER.

STANDARD CONE AND SECTIONS TAMPERPROOF FRAME & COVER (SEE DETAILS 205B OR 207B AND 411) OR FLAT TOP AS APPROVED BY THE ENGINEER

MAXIMUM 12" OR 3 GRADE RINGS. MINIMUM - 2" RINGS



25' MIN. (TYP.) WHEN NECESSARY TO MATCH ROAD GRADE AND CROSS-SLOPE USE STEEL SHIMS.

MINIMUM 12" STORM DRAIN

SEE NOTE 2

STEPS REQUIRED TO BOTTOM (12" SPACING)

INFILTRATION TESTS BY A QUALIFIED SOILS ENGINEER SHALL VERIFY DEPTH AND SUITABILITY OF DRYWELL INSTALLATION

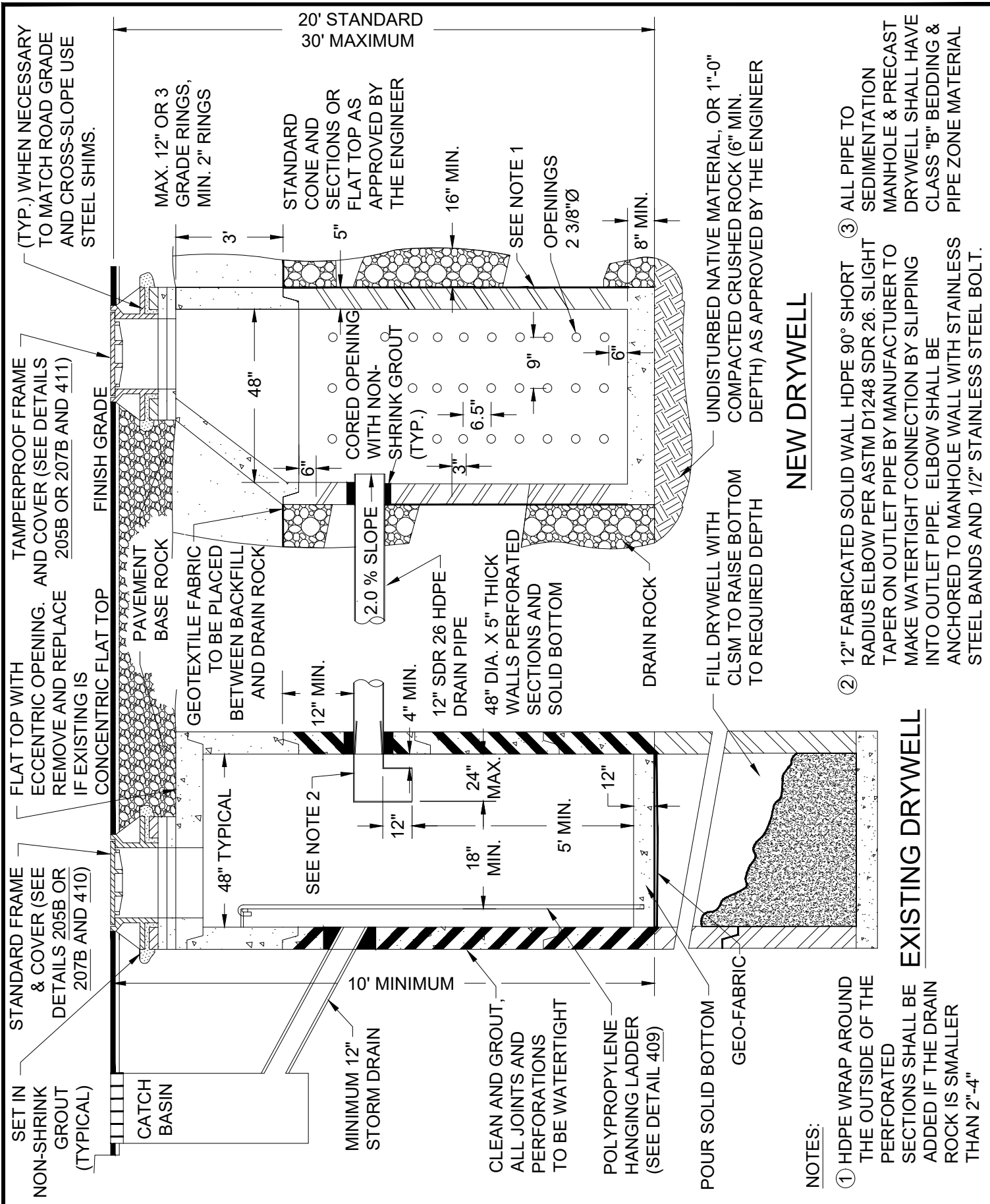
UNDISTURBED NATIVE MATERIAL, OR 1'-0" COMPACTED CRUSHED ROCK (6" MIN. DEPTH) AS APPROVED BY THE ENGINEER

UNDISTURBED NATIVE MATERIAL, OR 1'-0" COMPACTED CRUSHED ROCK (6" MIN. DEPTH) AS APPROVED BY THE ENGINEER

NOTES:

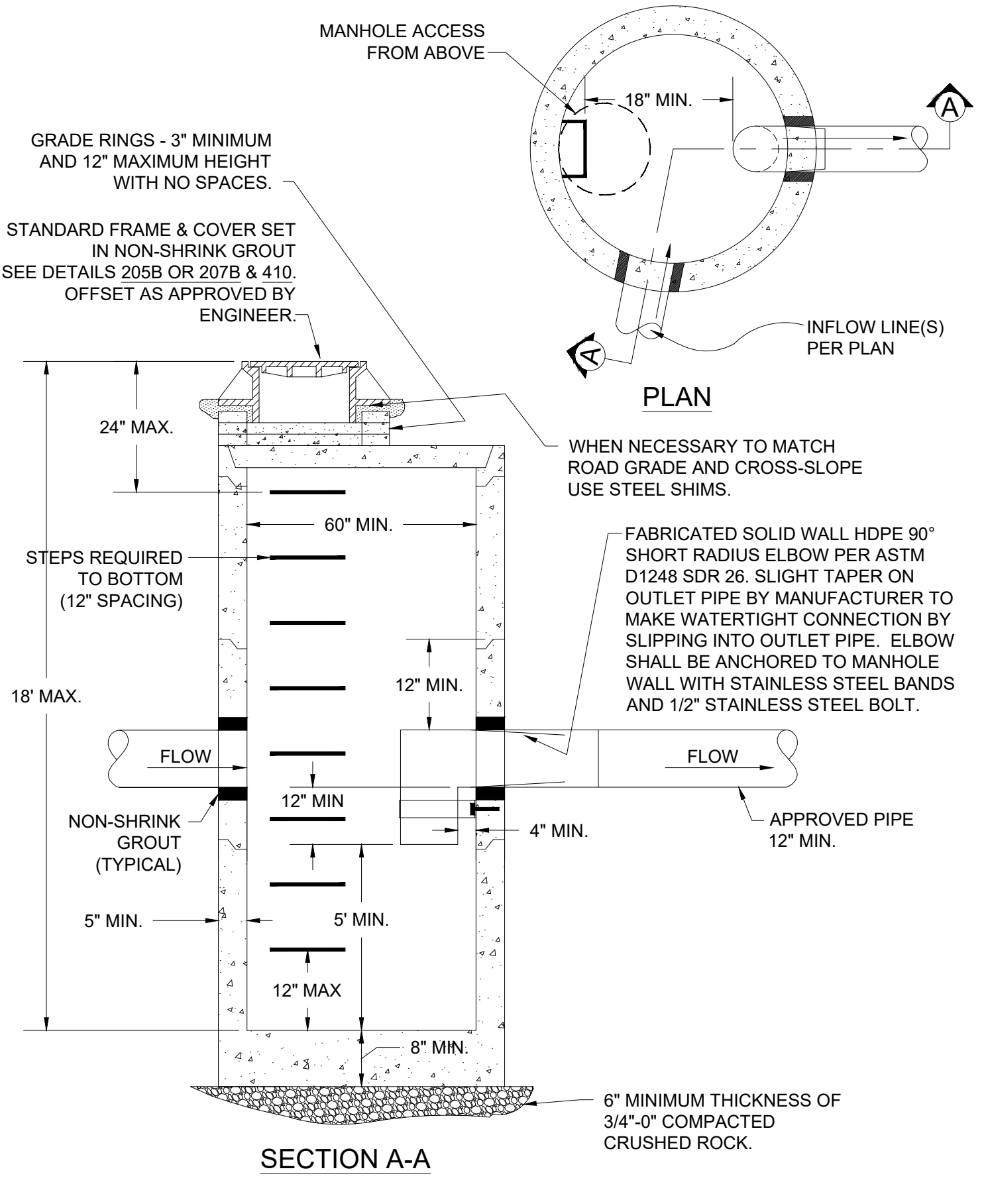
- ① HDPE WRAP AROUND THE OUTSIDE OF THE PERFORATED SECTIONS SHALL BE ADDED IF THE DRAIN ROCK IS SMALLER THAN 2"-4".
- ② 12" FABRICATED SOLID WALL HDPE 90° SHORT RADIUS ELBOW PER ASTM D1248 SDR 26. SLIGHT TAPER ON OUTLET PIPE BY MANUFACTURER TO MAKE WATERTIGHT CONNECTION BY SLIPPING INTO OUTLET PIPE. ELBOW SHALL BE ANCHORED TO MANHOLE WALL WITH STAINLESS STEEL BANDS AND 1/2" STAINLESS STEEL BOLT.
- ③ ALL PIPE TO SEDIMENTATION MANHOLE & PRECAST DRYWELL SHALL HAVE CLASS "B" BEDDING & PIPE ZONE MATERIAL.

DRAWN	CMC
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APPR.	
DETAIL NO.	407

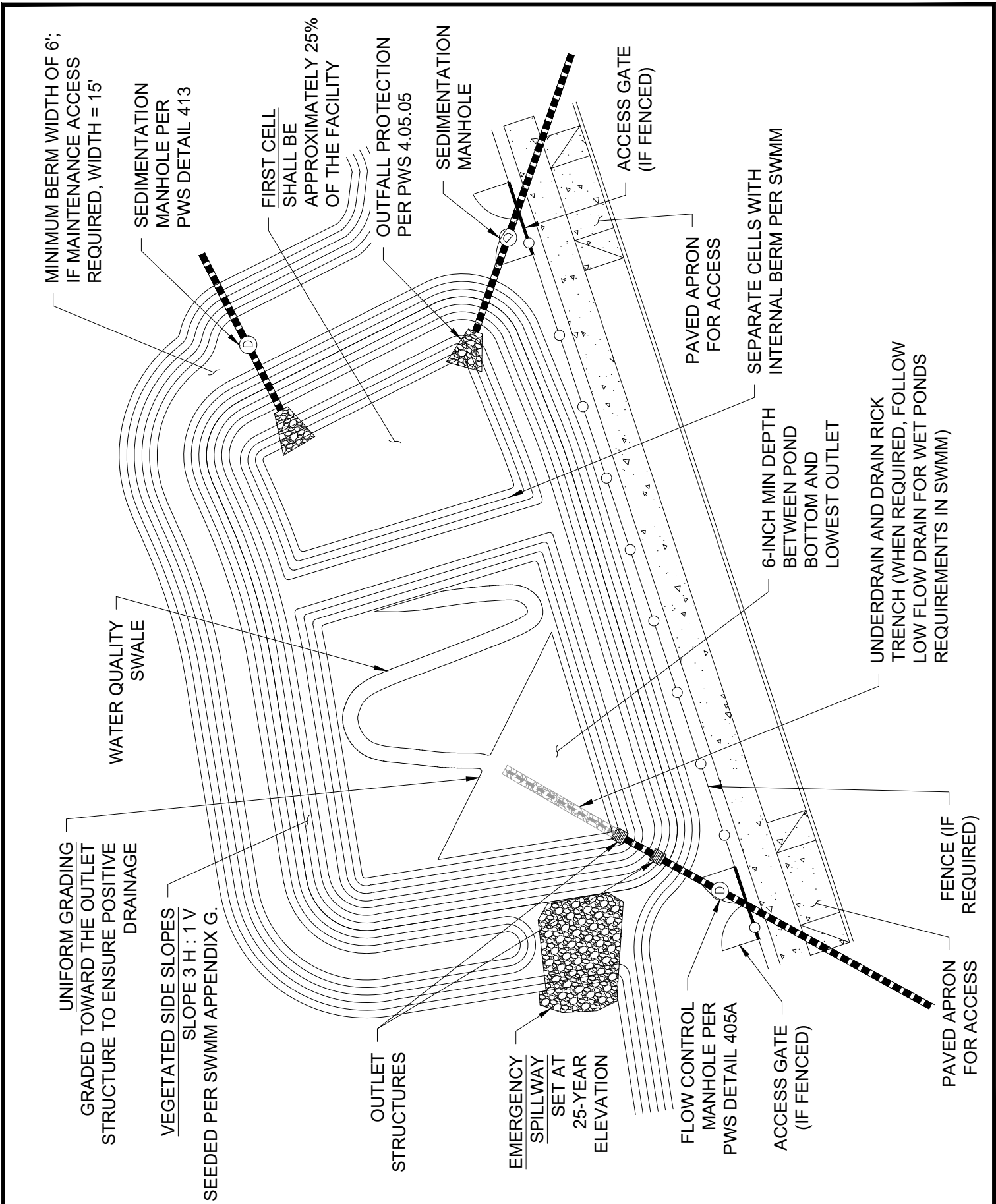


	DRYWELL SYSTEM AND SEDIMENTATION MANHOLE (TYPICAL RETROFIT INSTALLATION)		DRAWN CMC
	PWS VERSION: JAN 2026		REV. DATE MARCH 2026
	(TYP.) WHEN NECESSARY TO MATCH ROAD GRADE AND CROSS-SLOPE USE STEEL SHIMS.		APPR.
	20' STANDARD 30' MAXIMUM		DETAIL NO. 408

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<p>CITY OF GRESHAM</p>	<p>SEDIMENTATION MANHOLE</p>	<p>DRAWN RMS</p>
		<p>REV. DATE MARCH 2026</p>
		<p>APPR.</p>
		<p>DETAIL NO. 413</p>
<p>PWS VERSION: JAN 2026</p>		

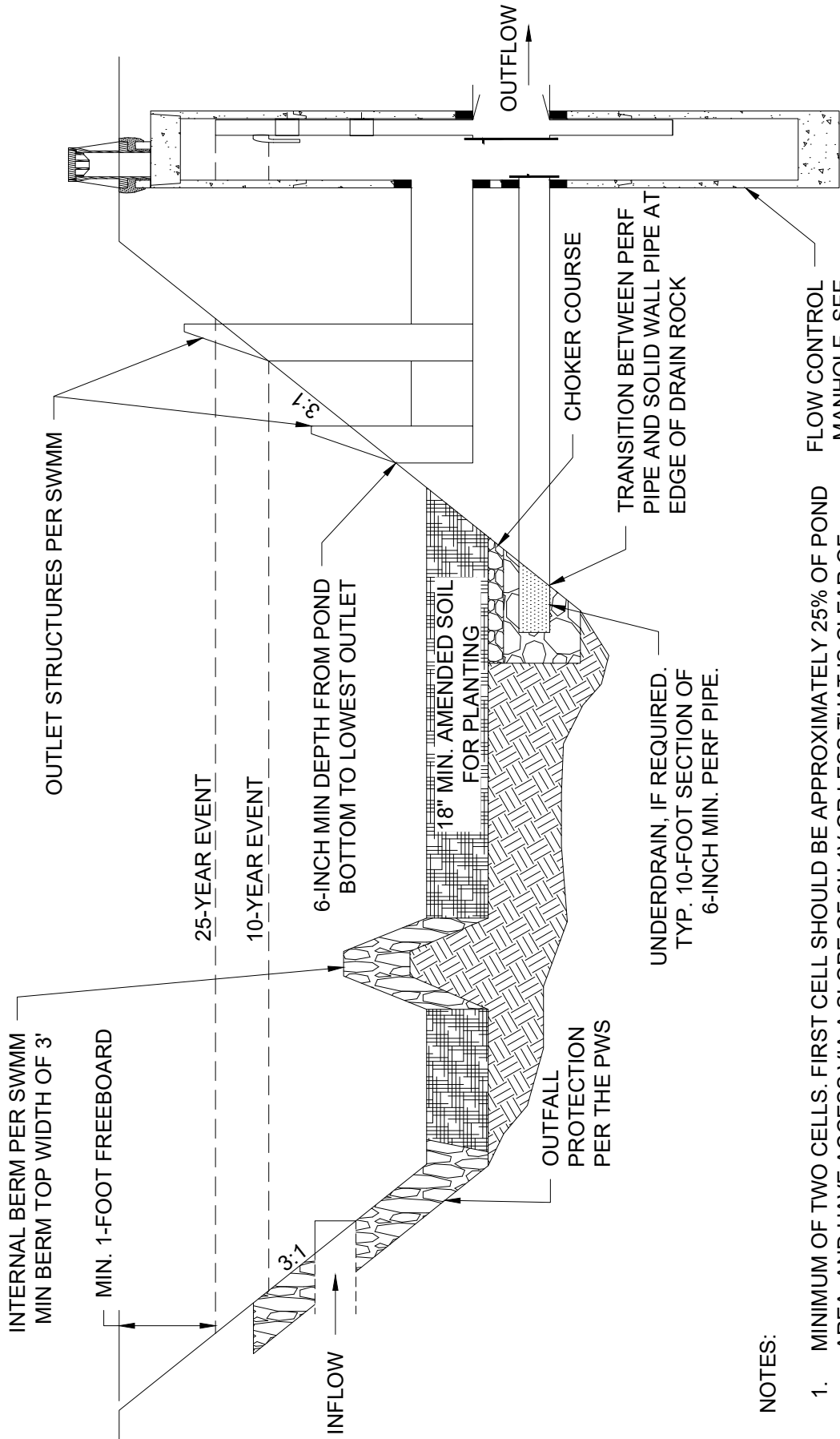


CITY OF GRESHAM

DRY POND PLAN VIEW

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NOTES:

1. MINIMUM OF TWO CELLS. FIRST CELL SHOULD BE APPROXIMATELY 25% OF POND AREA, AND HAVE ACCESS VIA A SLOPE OF 3H:1V OR LESS THAT IS CLEAR OF WOODY VEGETATION.
2. POND DESIGNER MUST CONSTRUCT AN EMERGENCY SPILLWAY AT THE 25-YEAR POND ELEVATION THAT IS A MINIMUM OF 1-FOOT BELOW TOP OF POND.
3. PERF PIPE MAY BE REQUIRED FOR FACILITIES WHERE WATER QUALITY EVENT CANNOT BE STORED WITHOUT OVERFLOW AND THEN DRAW DOWN WITHIN 48 HOURS. SEE FACILITY DESIGN REQUIREMENTS IN SWMM.
4. BOTTOM OF POND SHALL BE VEGETATED FOLLOWING REQUIREMENTS IN THE SWMM APPENDIX G.

FLOW CONTROL MANHOLE. SEE DETAIL 405A

TRANSITION BETWEEN PERF PIPE AND SOLID WALL PIPE AT EDGE OF DRAIN ROCK

CHOKER COURSE

18" MIN. AMENDED SOIL FOR PLANTING

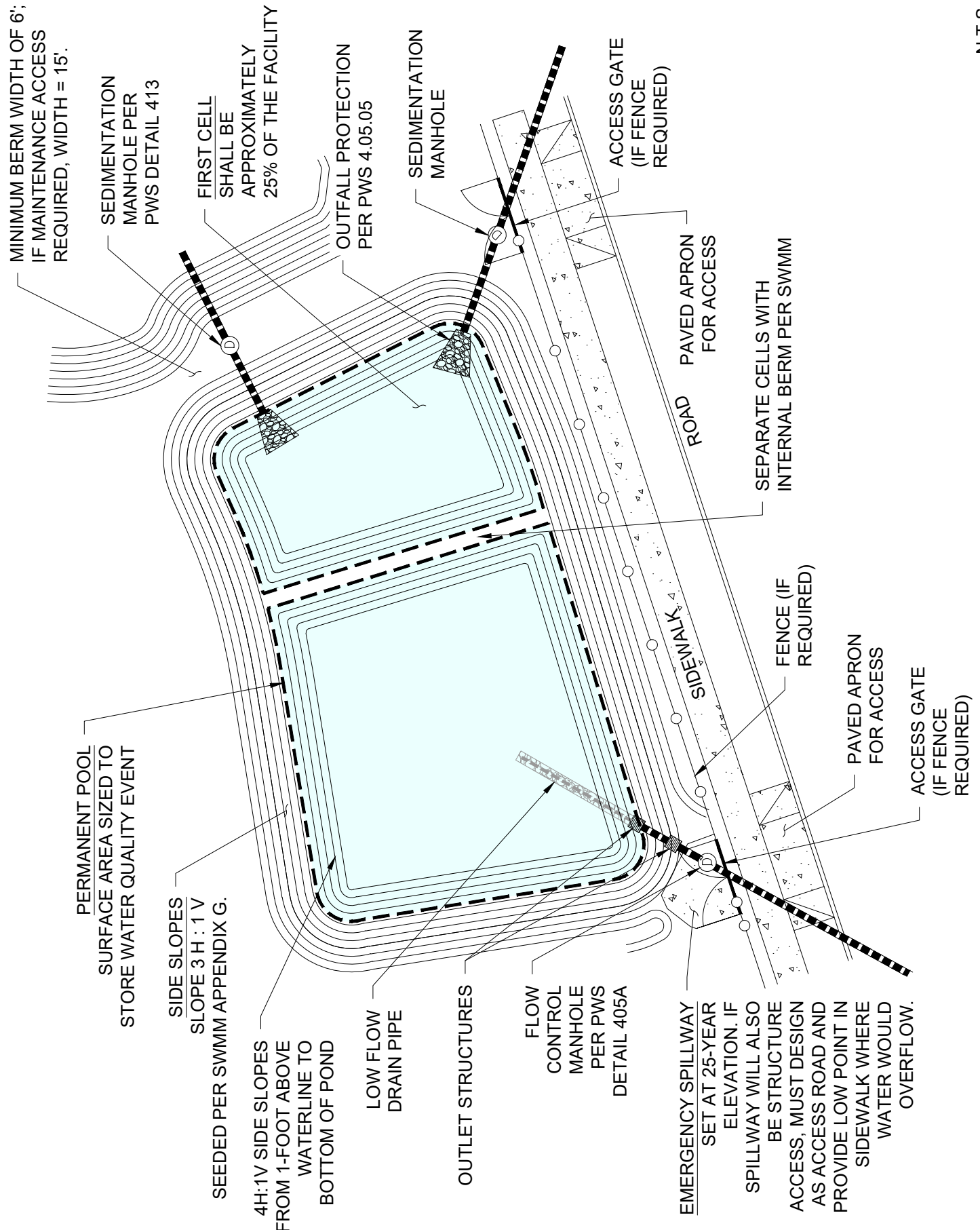
UNDERDRAIN, IF REQUIRED. TYP. 10-FOOT SECTION OF 6-INCH MIN. PERF PIPE.

OUTFALL PROTECTION PER THE PWS

OUTLET STRUCTURES PER SWMM

OUTFLOW

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DETAIL NO.	416



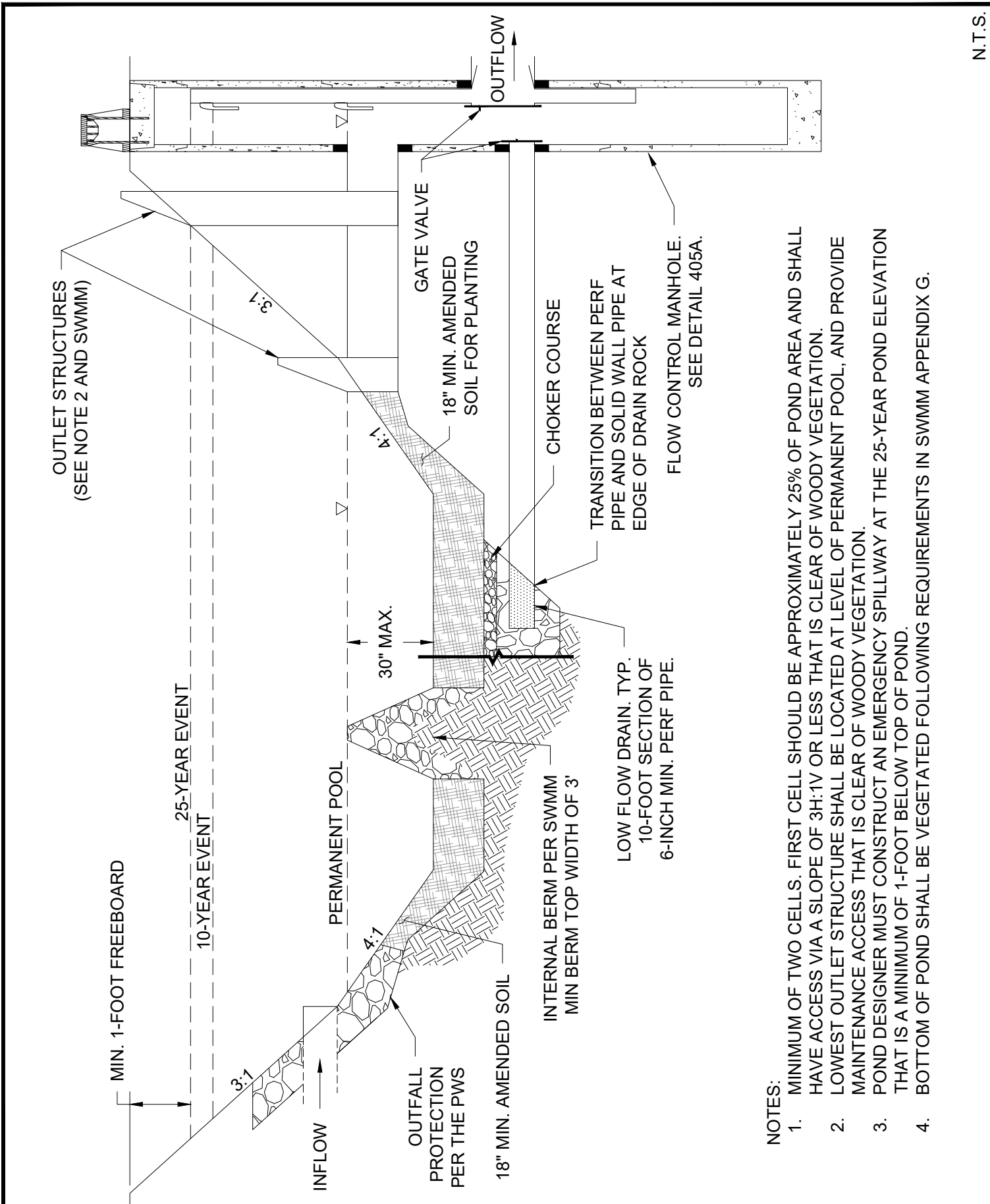
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CITY OF GRESHAM

WET POND PLAN VIEW

PWS VERSION: JAN 2026

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REV. DATE	MARCH 2026
APPR.	
DETAIL NO.	417



NOTES:

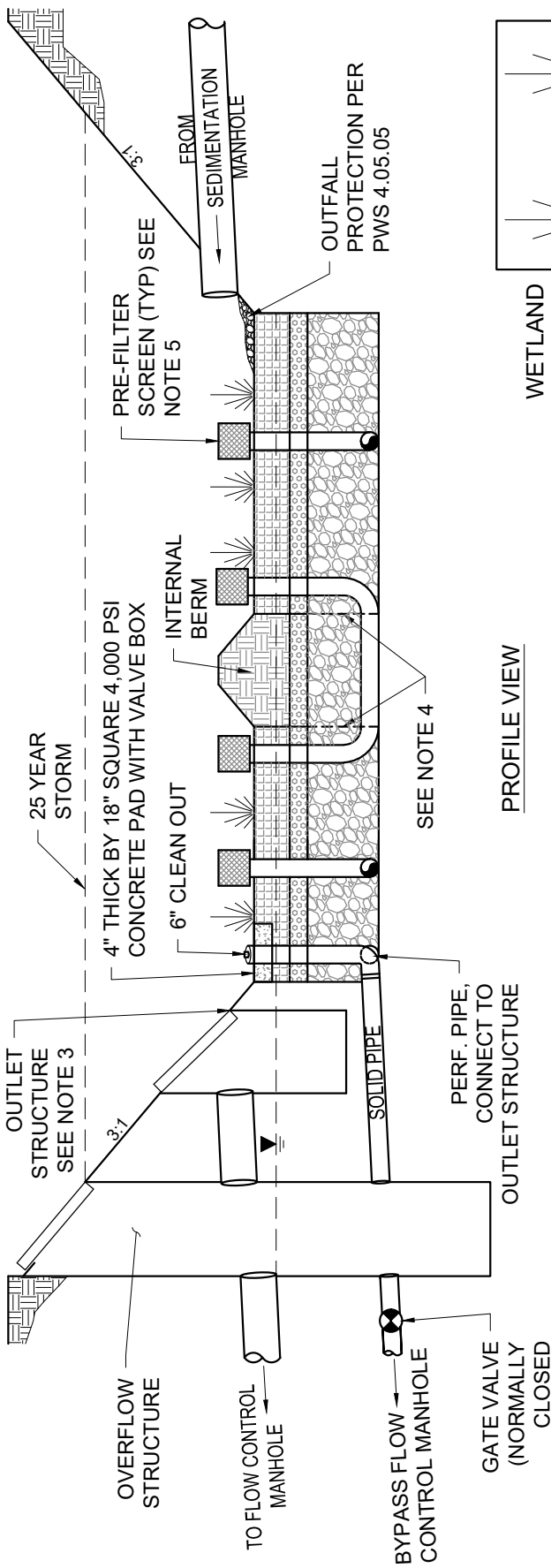
1. MINIMUM OF TWO CELLS. FIRST CELL SHOULD BE APPROXIMATELY 25% OF POND AREA AND SHALL HAVE ACCESS VIA A SLOPE OF 3H:1V OR LESS THAT IS CLEAR OF WOODY VEGETATION.
2. LOWEST OUTLET STRUCTURE SHALL BE LOCATED AT LEVEL OF PERMANENT POOL, AND PROVIDE MAINTENANCE ACCESS THAT IS CLEAR OF WOODY VEGETATION.
3. POND DESIGNER MUST CONSTRUCT AN EMERGENCY SPILLWAY AT THE 25-YEAR POND ELEVATION THAT IS A MINIMUM OF 1-FOOT BELOW TOP OF POND.
4. BOTTOM OF POND SHALL BE VEGETATED FOLLOWING REQUIREMENTS IN SWMM APPENDIX G.

CITY OF GRESHAM

WET POND PROFILE VIEW

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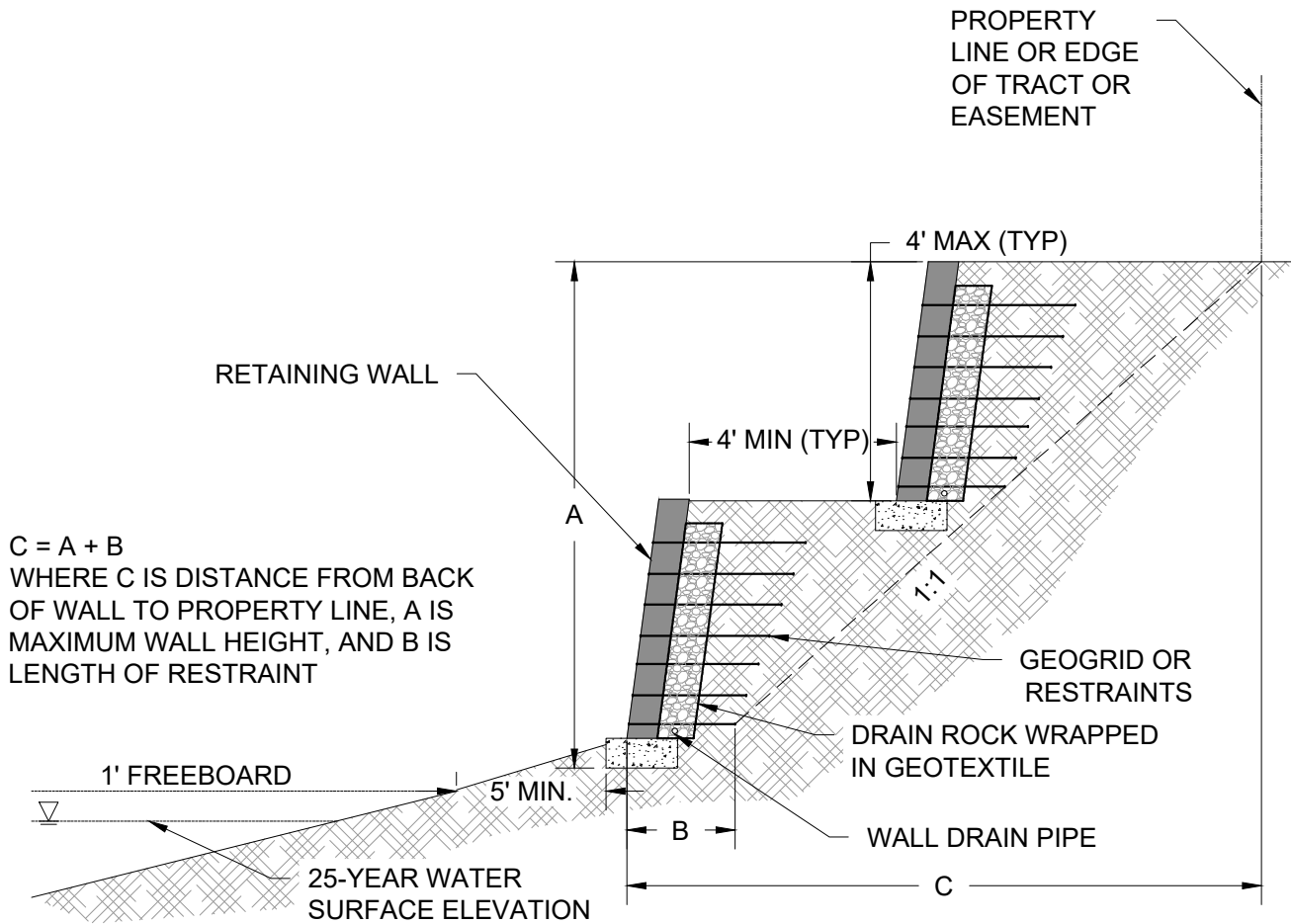
PROFILE VIEW

WETLAND VEGETATION	12" OF STORMWATER FACILITY SOIL	3" OF 1/4" - #10 AGGREGATE	24" OF 1- 1/2" - 3/4" OPEN GRADED AGGREGATE	UN-COMPACTED NATIVE SOIL
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SUBSURFACE GRAVEL POND SECTION

- NOTES:**
1. ALL PIPING SHALL BE 6" DIAMETER SCHEDULE 40 PVC. ALL 90° BENDS SHALL BE LONG SWEEP ELBOWS
 2. PIPES SHALL BE PLACED IN THE BOTTOM OF THE ROCK LAYER. VERTICAL DRAIN PIPES SHALL BE FABRIC WRAPPED PERFORATED PVC. HORIZONTAL LINES CONNECTING VERTICAL PERF PIPES SHALL BE SOLID PVC
 3. THE INVERT ELEVATION SHALL BE SET AT THE WATER SURFACE ELEVATION OF THE WATER QUALITY STORM
 4. AN INTERNAL BERM SHALL BE CONSTRUCTED BETWEEN THE TWO CELLS PER THE SWMM. MIN TOP WIDTH OF 3'. INTERNAL BERMS FOR SUBSURFACE GRAVEL PONDS WHICH ARE PLACED ON GRAVEL SHALL BE ENTIRELY WRAPPED IN GEOTEXTILE FABRIC. INTERNAL BERMS PLACED ON UNDISTURBED NATIVE SOIL SHALL BE BUILT PER WET POND SPECIFICATIONS
 5. FILTER SHALL BE FABCO 10235-2 OR APPROVED EQUAL
 6. BOTTOM OF POND SHALL BE VEGETATED FOLLOWING REQUIREMENTS IN SWMM APPENDIX G

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$C = A + B$
 WHERE C IS DISTANCE FROM BACK OF WALL TO PROPERTY LINE, A IS MAXIMUM WALL HEIGHT, AND B IS LENGTH OF RESTRAINT

1. RETAINING WALLS ARE NOT ALLOWED WITHIN THE ACTIVE POND AREA. ALL PARTS OF THE WALL MUST BE A MINIMUM DISTANCE OF 5 FEET AWAY FROM THE BOUNDARY DEFINED BY THE FREEBOARD ELEVATION.
2. GRAVITY WALLS SHALL BE SET BACK FROM THE NEAREST PROPERTY LINE OR EDGE OF TRACT OR EASEMENT BY AT LEAST THE DISTANCE EQUAL TO THE WALL HEIGHT.
3. REINFORCED RETAINING WALLS SHALL BE SET BACK FROM THE NEAREST PROPERTY LINE OR EDGE OF TRACT OR EASEMENT BY AT LEAST THE DISTANCE EQUAL TO THE MAXIMUM WALL HEIGHT PLUS THE LENGTH OF THE RESTRAINT CONTROLLING THE 1:1 ZONE OF INFLUENCE.
4. DRAIN ROCK WRAPPED IN GEOTEXTILE SHALL BE INCLUDED BEHIND WALLS.
5. NO PERFORATIONS FOR PRIVATE STORM LINES SHALL PASS THROUGH RETAINING WALLS.
6. STRUCTURAL DESIGN CALCULATIONS MUST BE SUBMITTED WITH EVERY RETAINING WALL PROPOSAL.
7. WALLS SHALL NOT INHIBIT MAINTENANCE ACCESS INTO THE FACILITY.
8. SLOPES WITHIN CITY TRACT OR EASEMENT SHALL BE A MAXIMUM OF 3H:1V.

CITY OF GRESHAM

RETAINING WALLS ADJACENT TO PONDS

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