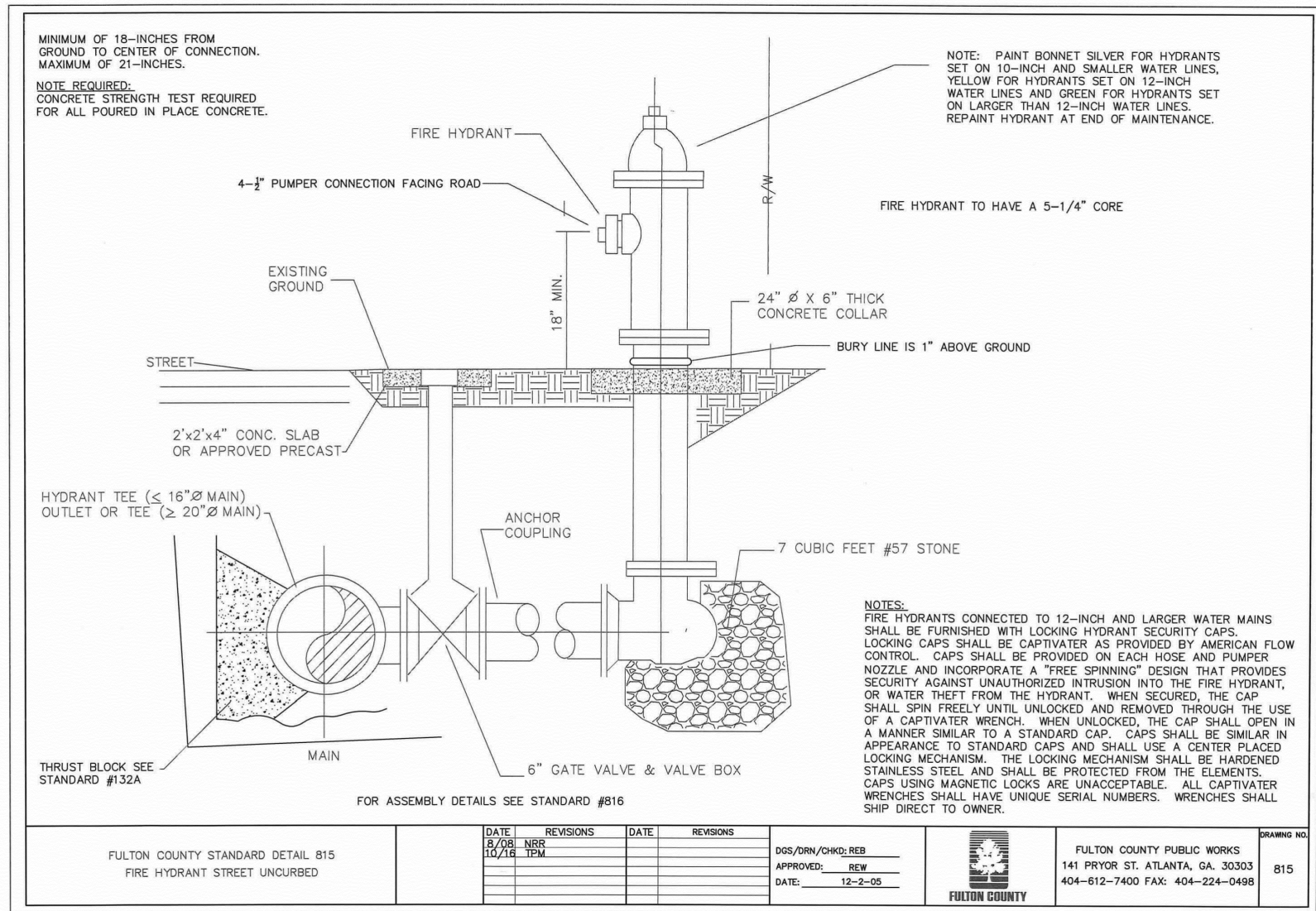
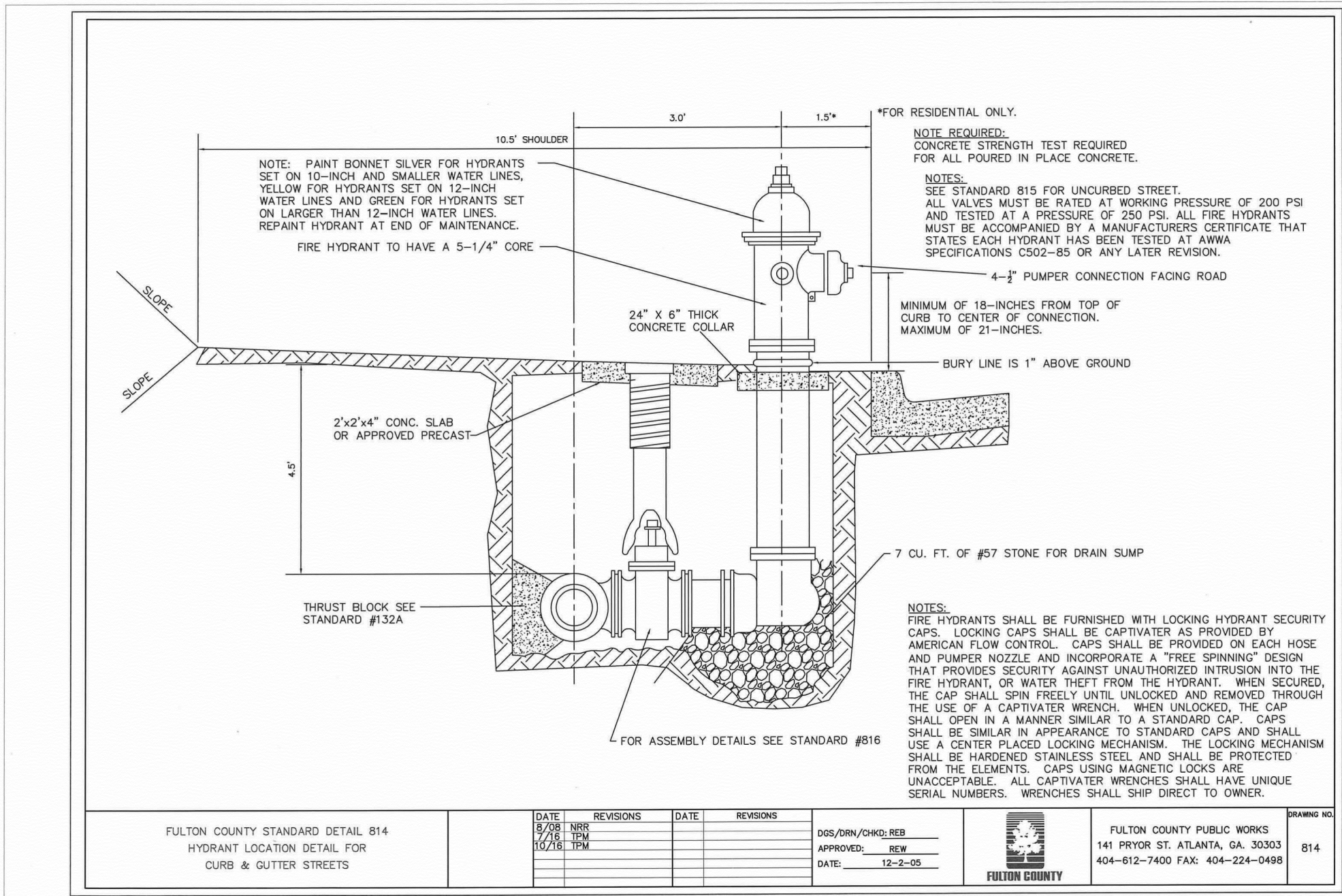
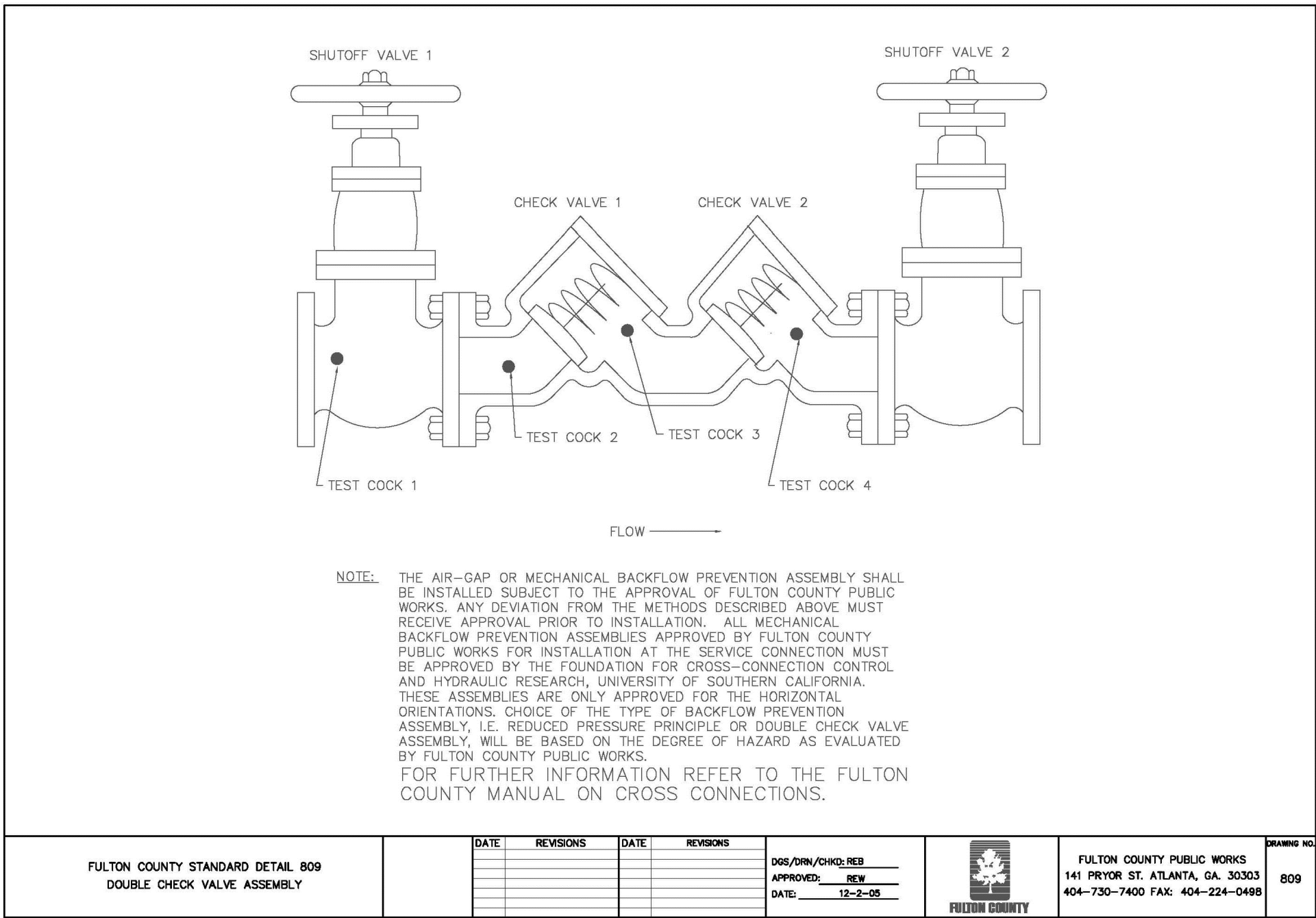
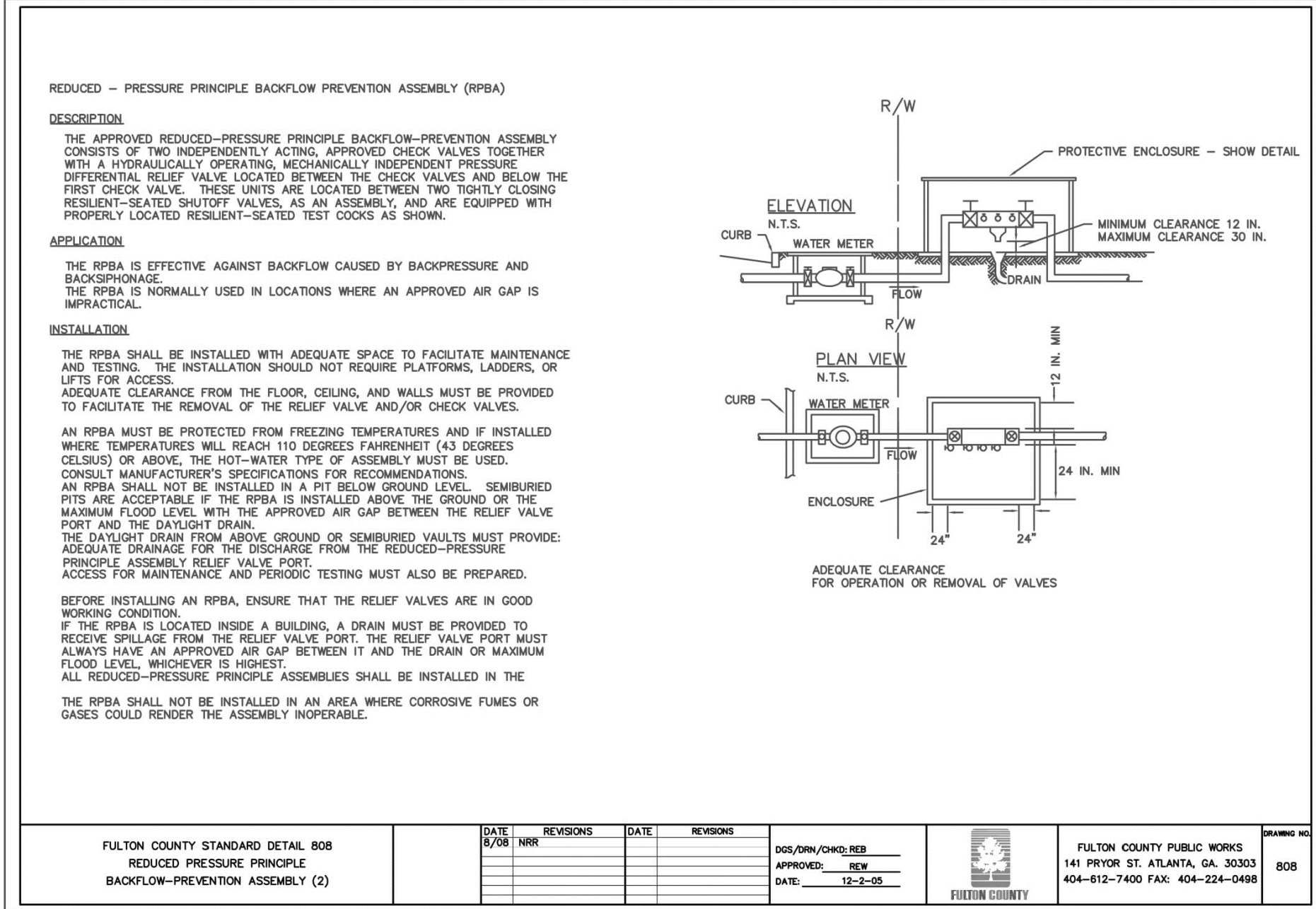
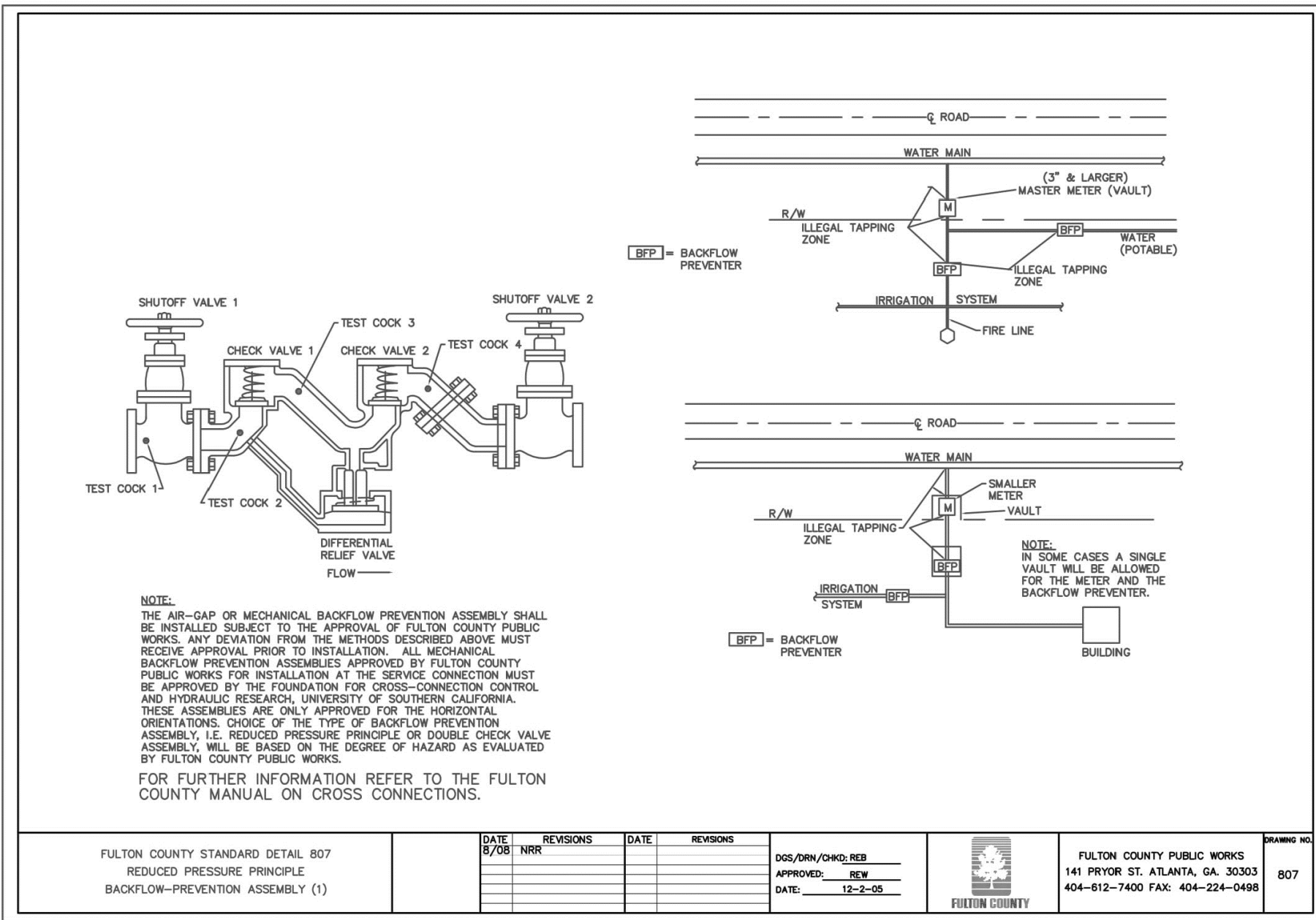
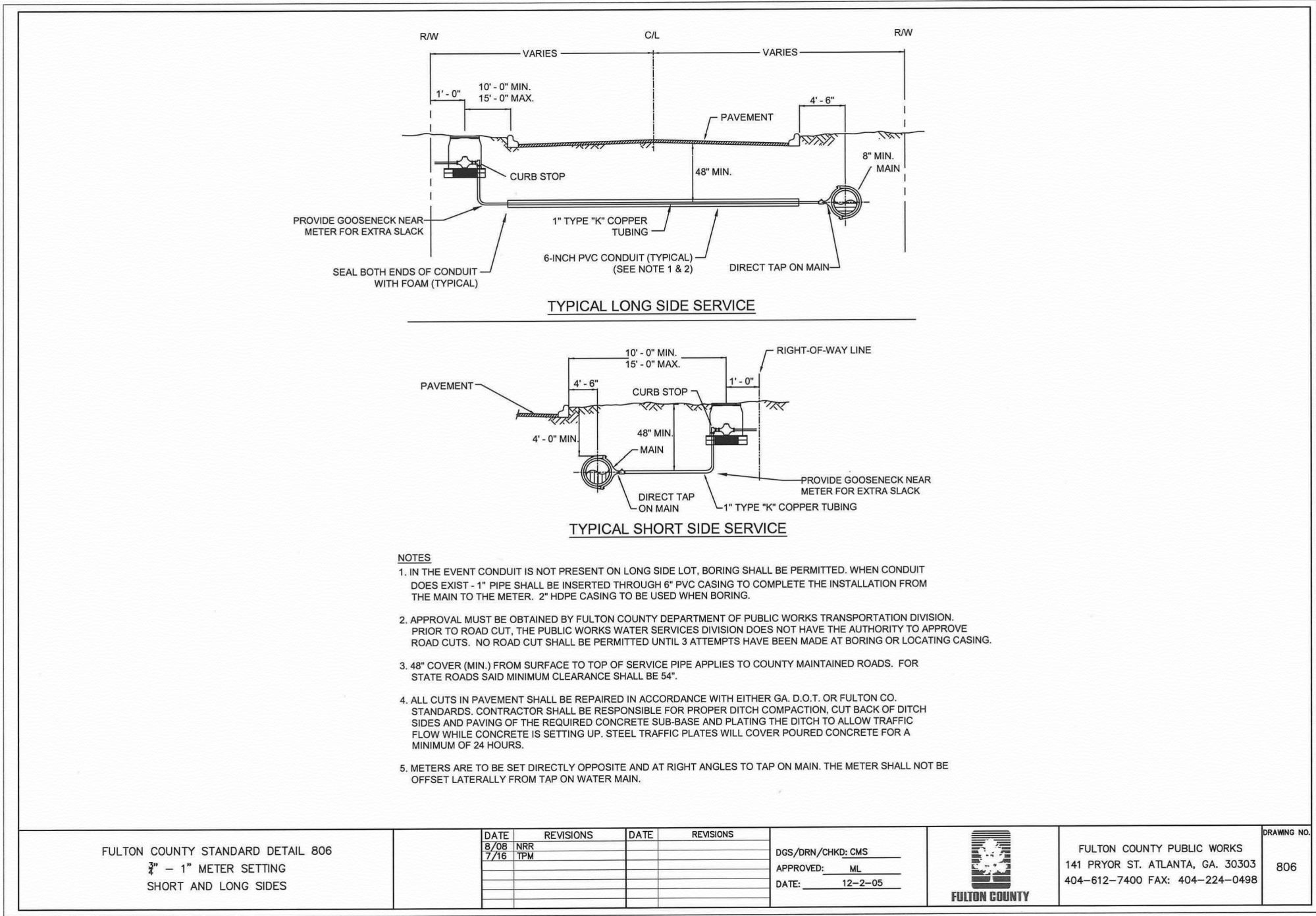
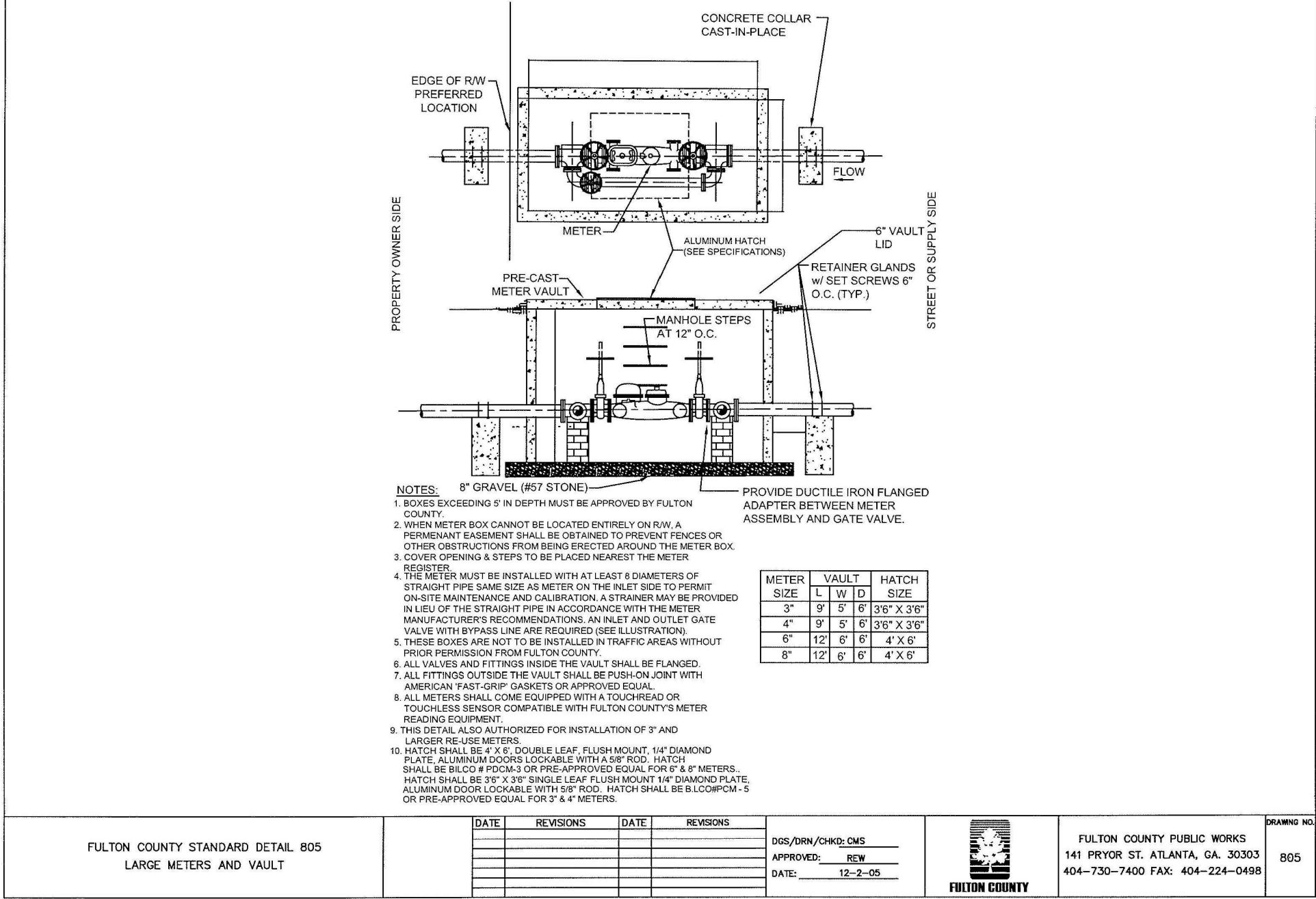
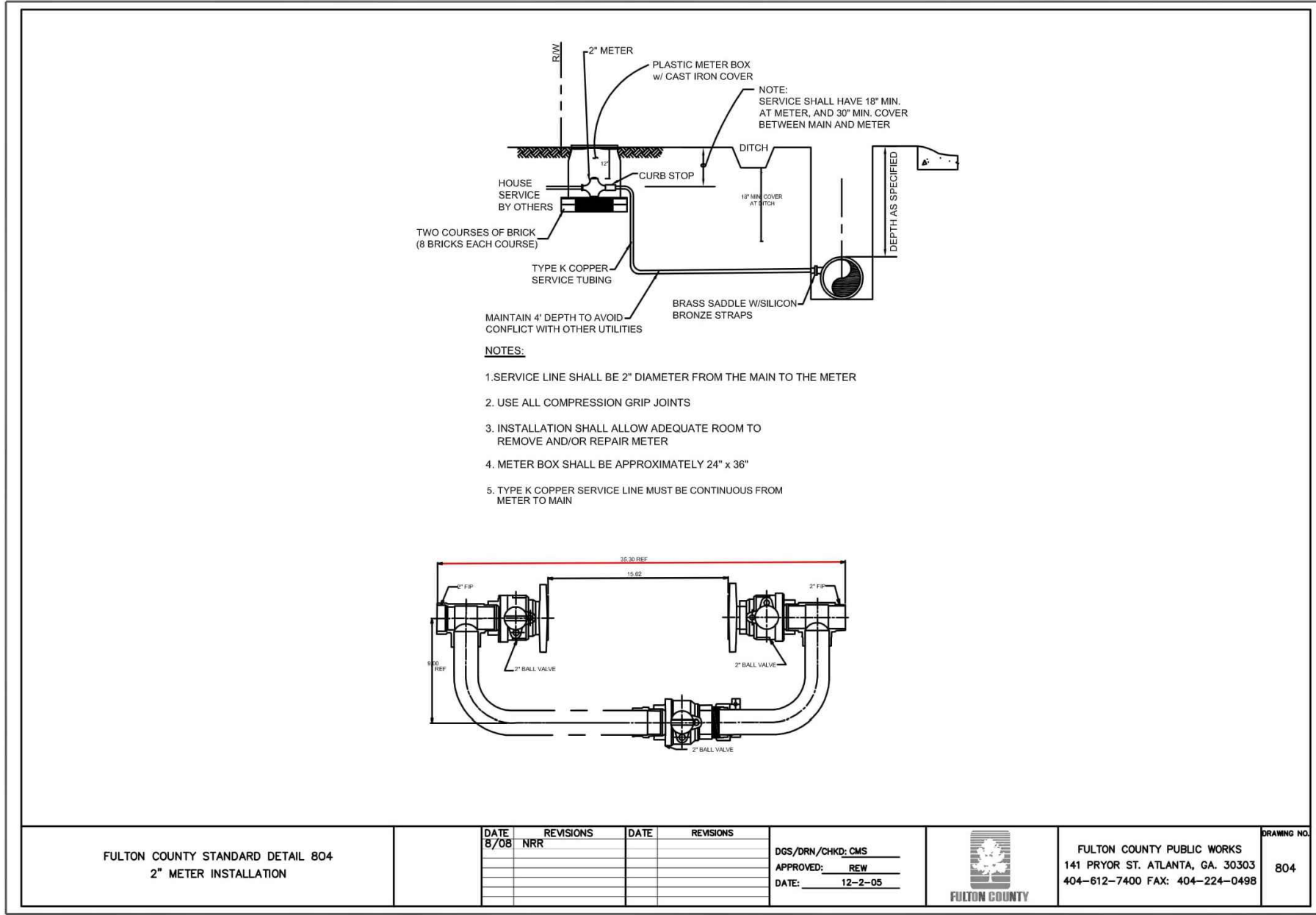
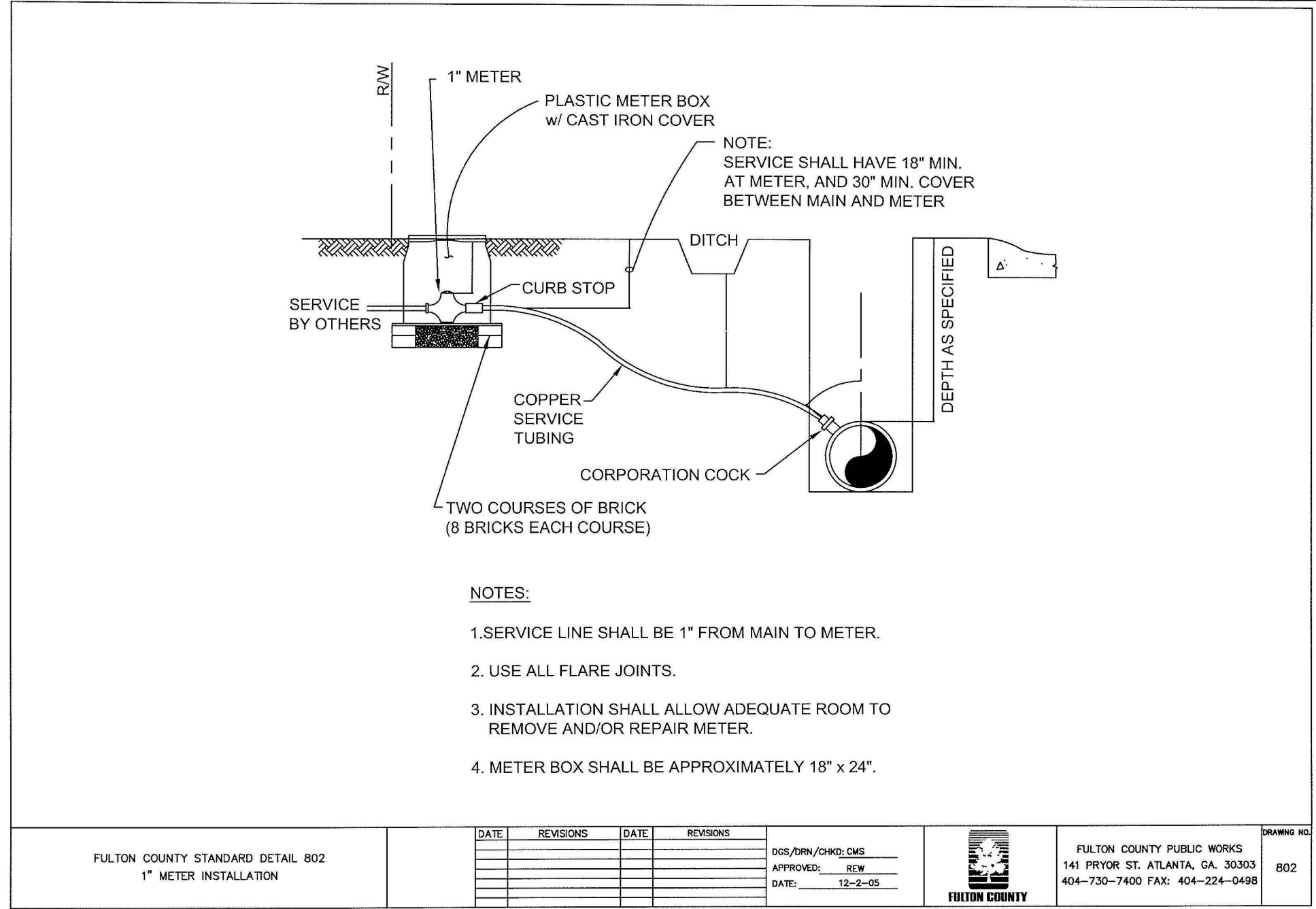
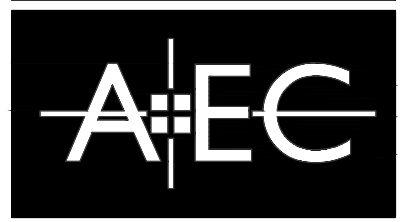




CITY OF ALPHARETTA PERMIT # D250030

FULTON COUNTY PERMIT # WRN25-118



Civil Engineering
Land Planning
Landscape Architecture

Water Resources
Property Services
Arboret Services

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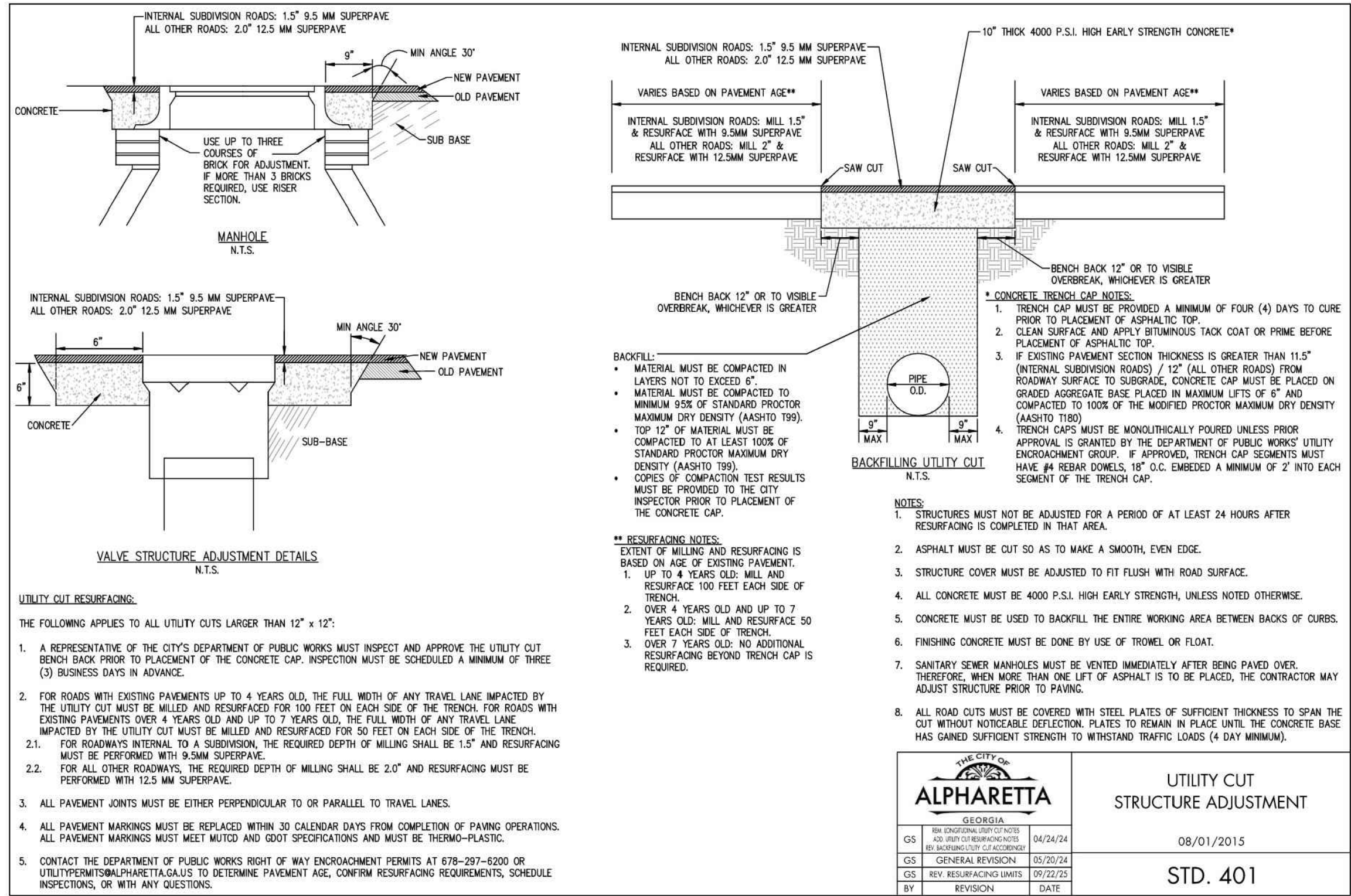
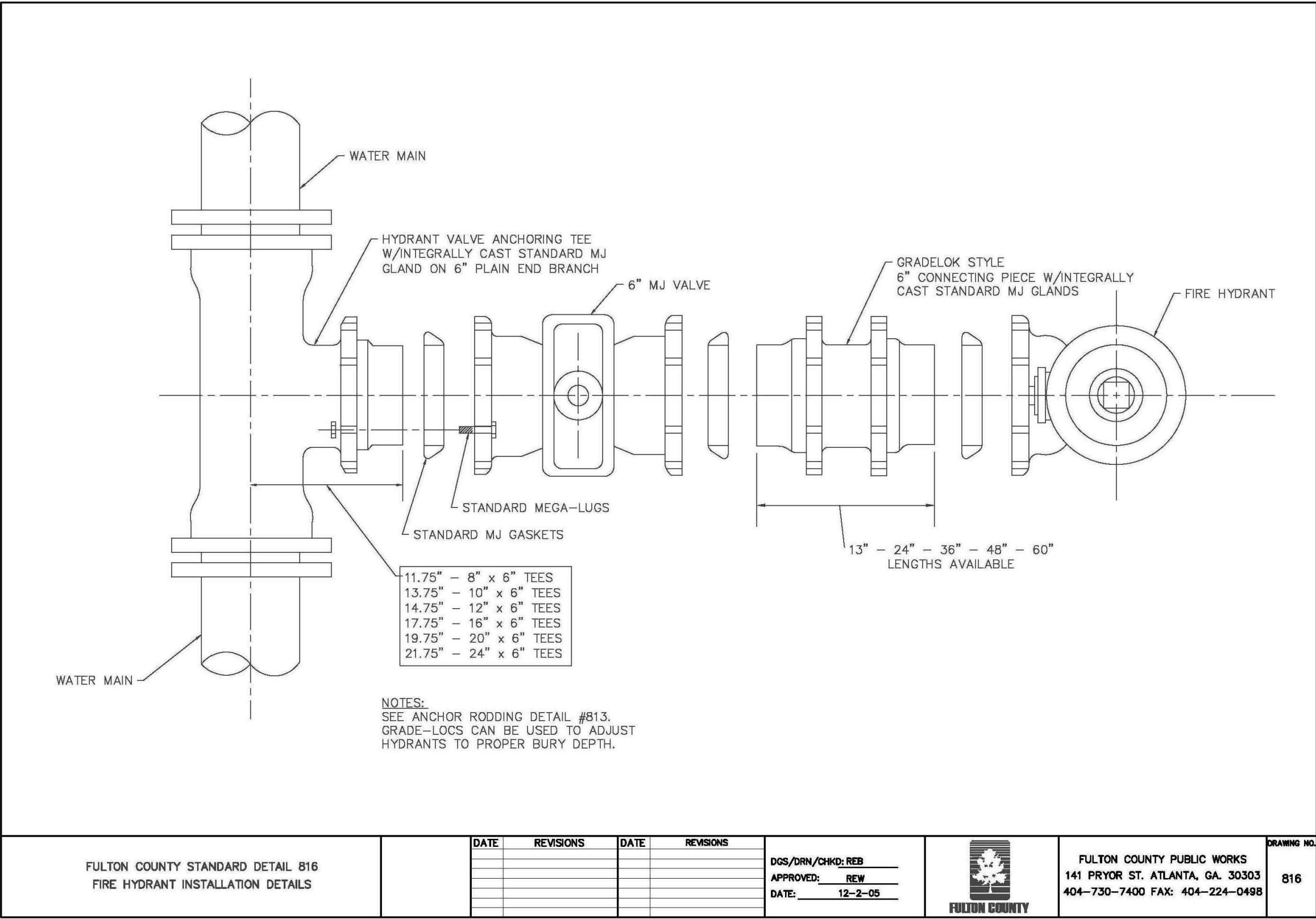
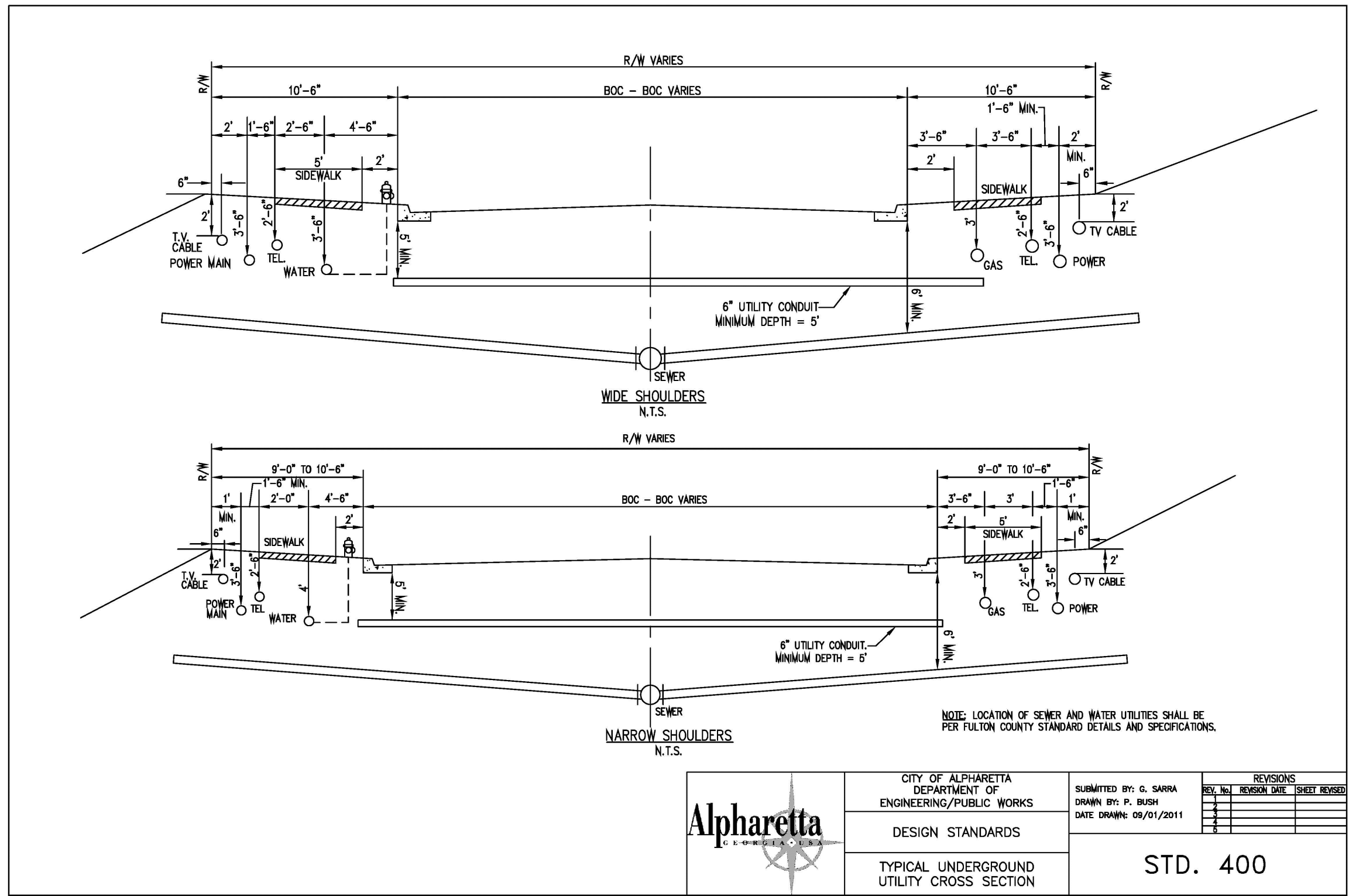
UTILITY DETAILS

UPPER HEMBREE
ROAD HEALTHCARE
1270 UPPER HEMBREE ROAD
ALPHARETTA, GA 30009

DATE	2-27-26
REVISIONS	
ALPHARETTA COMMENTS	
NO.	1
PROJECT NO: 25-5238	
CIVIL DESIGNED BY: AJS	
LANDSCAPE DESIGNED BY: NGH / JPS	
CHECKED BY:	
DATE: 10/05/2025	

SHEET

D3.5



374172

	* Fireflow Request
Project Name:	UPPER HEMBREE HEALTHCARE
Address:	1270 UPPER HEMBREE ROAD, ALPHARETTA, GA 30076
Developer:	Plot Holders, LLC
Requested By:	Andrew Simms
Firm Name:	AEC, Inc.
Telephone:	770-641-1942
FAX:	
To: Kevin Beaty Fax: 404-332-0336 Date of Request: 1-10-23	
Please perform a flow test for the above location as shown on the attached map:	
District: 1st	Section: 2nd
Land Lot (s): 553	
Address: 1270 UPPER HEMBREE ROAD, ALPHARETTA, GA 30076	
Intersection of: Upper Hembree Road and Hwy 9	
Special Instructions: On the north side of Upper Hembree Road, approximately 700 feet west of the intersection of Upper Hembree Road and Hwy 9	
Please fax results to : ajs@aecat.com	
Date Tested: 1-24-23	Time: 1:05
Main Size: 8"	
Hydrant Information	
Number:	Make/Model:
Static Pressure: 84 PSI	Residual Pressure: 75 PSI
Available Flow @20psi: 3241 GPM	Pilot: 45 PSI
Technician: L.W.	
* Required Attachments	
1) Site map identifying hydrant to be tested.	
2) Check for \$100.00 made payable to: "Fulton County"	
NOTE : All Commercial/Master water meter applications must be accompanied by a Fulton County Water Meter Size Certification approved by Fulton County Public Works	

CITY OF ALPHARETTA PERMIT # D250030

FULTON COUNTY PERMIT # WRN25-118

CROSS SECTION

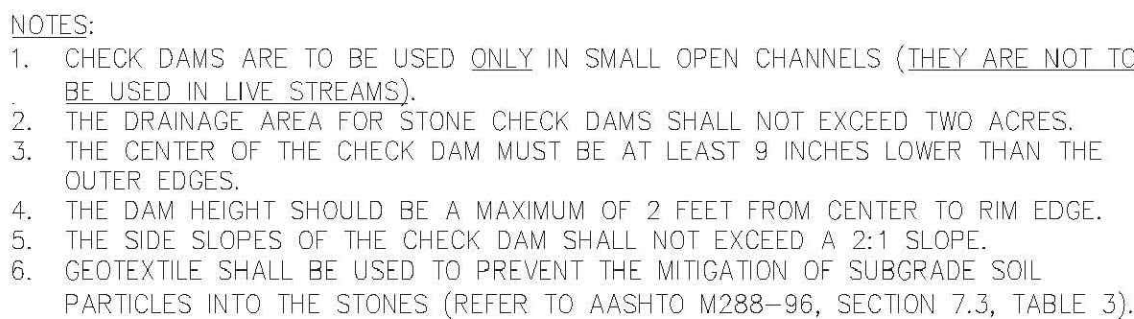


Figure 6-12.2

GSWCC 2016 Edition

EXIT DIAGRAM

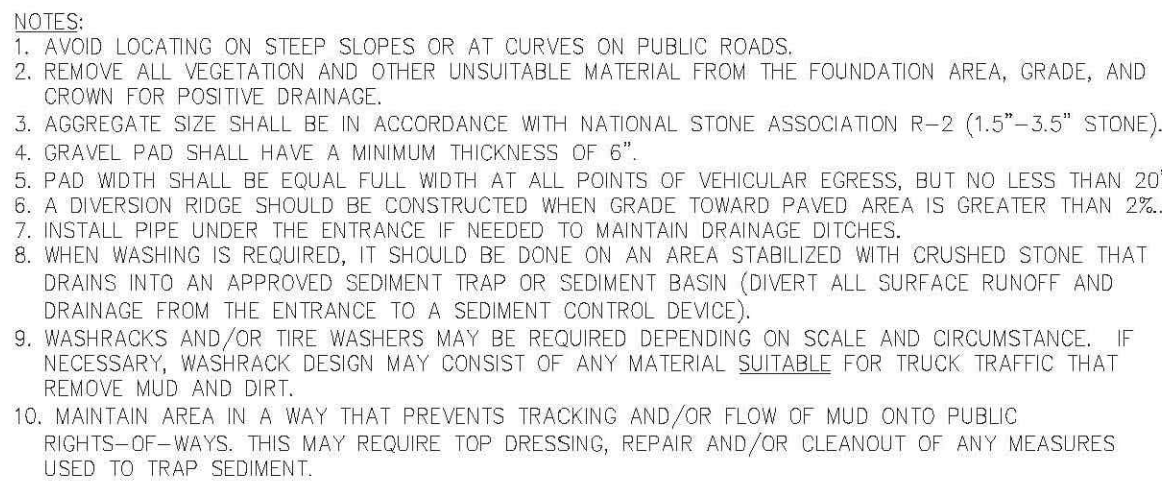


Figure 6-14.1

6-90

GRADED AREAS WITH SMOOTH, HARD SURFACES GIVE A FALSE IMPRESSION OF "FINISHED GRADE" AND A JOB WELL DONE. IT IS DIFFICULT TO ESTABLISH A VEGETATION WHICH WILL PROTECT THE RECLAIMED SURFACE FROM EROSION. THE POTENTIAL FOR EROSION, ROUGH SLOPE SURFACES WITH UNEVEN SOIL AND ROCKS LEFT IN PLACE MAY APPEAR UNATTRACTIVE OR UNFINISHED AT FIRST, BUT ENCOURAGE WATER INFILTRATION, SPEED THE ESTABLISHMENT OF VEGETATION, AND PREVENT RUN-OFF DURING SEVERE WEATHER. SLOPE SURFACES GIVE LIME, FERTILIZER AND SEED SOME NATURAL COVERAGE. NICHES IN THE SURFACE PROVIDE MICRO CLIMATES WHICH GENERALLY PROVIDE A MORE FAVORABLE ENVIRONMENT FOR PLANT GROWTH THAN DO SMOOTH SURFACES. THIS AIDS SEED GERMINATION. THERE ARE DIFFERENT METHODS OF ACHIEVING A ROUGHENED SOIL SURFACE ON A SLOPE, AND THE SELECTION OF THE METHOD TO BE USED DEPENDS UPON THE TYPE OF SOIL, THE TYPE OF ROUGHENING METHODS INCLUDE STAIR STEP GRADING, GROOVING, AND TRACKING. FACTORS TO BE CONSIDERED IN CHOOSING A METHOD ARE SLOPE TYPE, SOIL REQUIREMENTS, AND WHETHER THE SLOPE IS FORMED BY CUTTING OR FILLING.

CUT SLOPES STEEPER THAN 3:1:

CUT SLOPES WITH A GRADIENT STEEPER THAN 3:1 SHOULD NOT BE MOWED. THEY SHALL BE STAIR STEPPED GRADED OR GROOVED.

1) STAIR STEP GRADING MAY BE CARRIED OUT ON ANY MATERIAL SOFT ENOUGH TO BE RIPPED WITH A BULLDOZER. SLOPES CONSISTING OF SOFT ROCK WITH SOME SUBSOIL ARE PARTICULARLY SUITED TO STAIR STEP GRADING. THE DISTANCE OF THE VERTICAL CUT DISTANCE TO THE HORIZONTAL DISTANCE SHALL BE LESS THAN 1:1 AND THE HORIZONTAL PORTION OF THE "STAIR" SHALL SLOPE TOWARDS THE VERTICAL WALL. INDIVIDUAL VERTICAL CUTS SHALL BE MORE THAN 3 FEET HIGH. THE SOFT SOIL MATERIAL AND NOT MORE THAN 40 INCHES IN ROCKY MATERIAL.

2) GROOVING CONSISTS OF USING MACHINERY TO CREATE A SERIES OF RIDGES AND DEPRESSIONS WHICH RUN PERPENDICULAR TO THE SLOPE (ON THE CONTOUR). GROOVES MAY BE MADE WITH ANY APPROPRIATE IMPLEMENT WHICH CAN BE SAFELY OPERATED ON THE SLOPE AND WHICH WILL NOT CAUSE UNDUE COMPACTION. SUGGESTED IMPLEMENTS INCLUDE DISCS, TILLERS, SPRING HARROWS, AND THE TEETH ON A FRONT END LOADER. BLIND CUTS OR GROOVES MAY NOT BE LESS THAN 3 INCHES DEEP NOR FURTHER THAN 15 INCHES APART.

FILL SLOPES WITH A GRADIENT STEEPER THAN 3:1 SHOULD NOT BE MOWED. THEY SHALL BE GROOVED OR ALLOWED TO REMAIN ROUGH AS THEY ARE CONSTRUCTED. METHOD (1) OR (2) BELOW MAY BE USED.

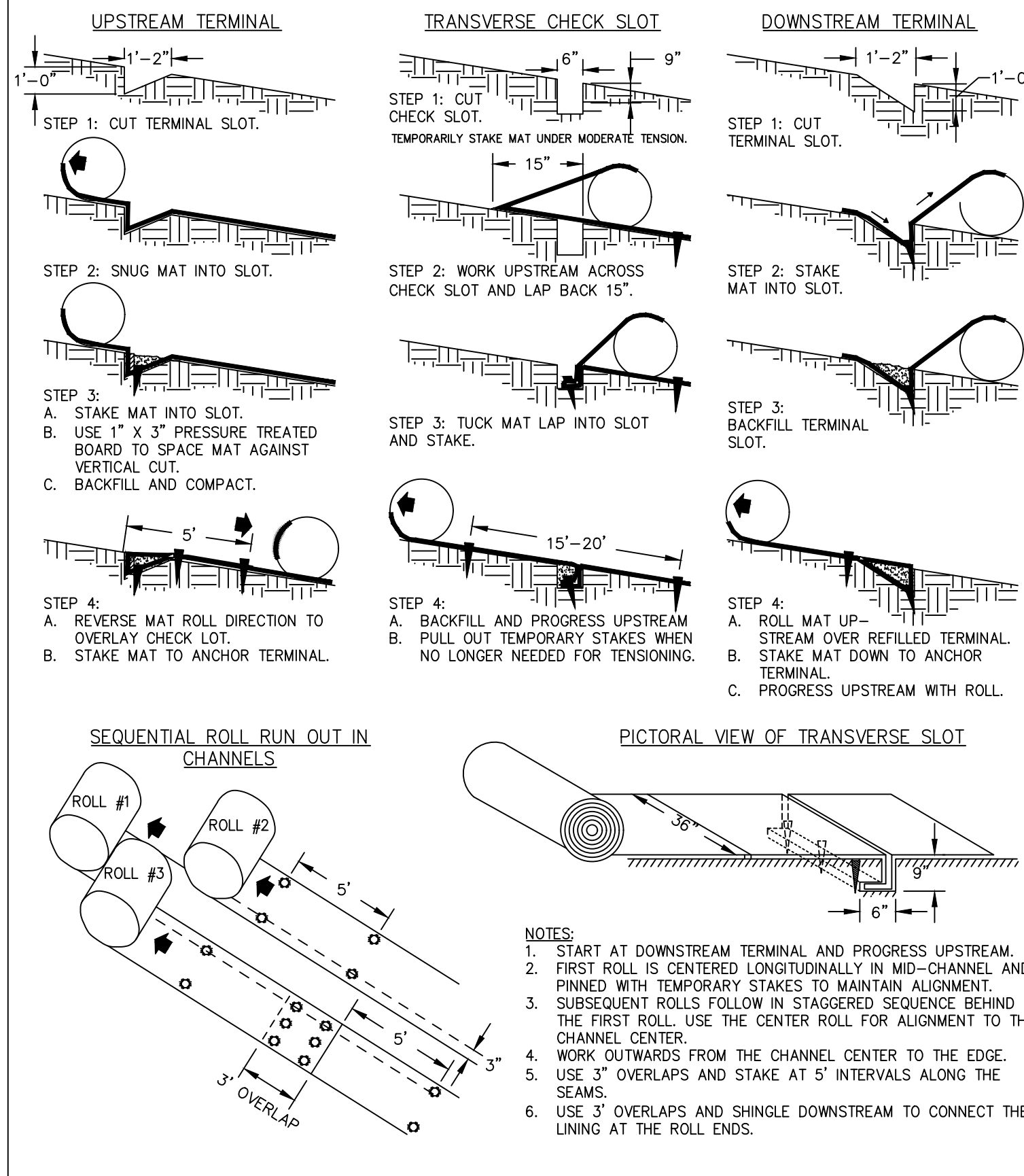
- 1) GROOVE ACCORDING TO # 2 OF "CUT SLOPES STEEPER THAN 3:1".
- 2) AS LIFTS OF THE FILL ARE CONSTRUCTED, SOIL AND ROCK MATERIAL MAY BE ALLOWED TO FALL NATURALLY ONTO THE SLOPE SURFACE.

COLLUVIAL MATERIALS (SOILS DEPOSITS AT THE BASE OF SLOPES OR FORM OLD STREAM BEDS) SHALL NOT BE USED IN FILLS AS THEY FLOW WHEN SATURATED.

(Su)

SURFACE ROUGHENING
NOT TO SCALE

BLANKET AND MATTING CROSS-SECTIONS



CHRISTOPHER J. FINKE
GSMCC LEVEL II #29494 EXP. 12-19-27



Civil Engineering	Water Resources
Land Planning	Property Services
Landscape Architecture	Arborist Services

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EROSION CONTROL DETAILS

UPPER HEMBREE
ROAD HEALTHCARE
1270 UPPER HEMBREE ROAD
ALPHARETTA, GA 30009

[illegible]

PROJECT NO.: 25-5238
CIVIL DRAWN BY: AJS
CIVIL DESIGNED BY: AJS, CJF
LANDSCAPE DRAWN BY: NGH / JPS
LANDSCAPE DESIGNED BY: NGH / JPS
CHECKED BY:
DATE - 10/05 / 2025

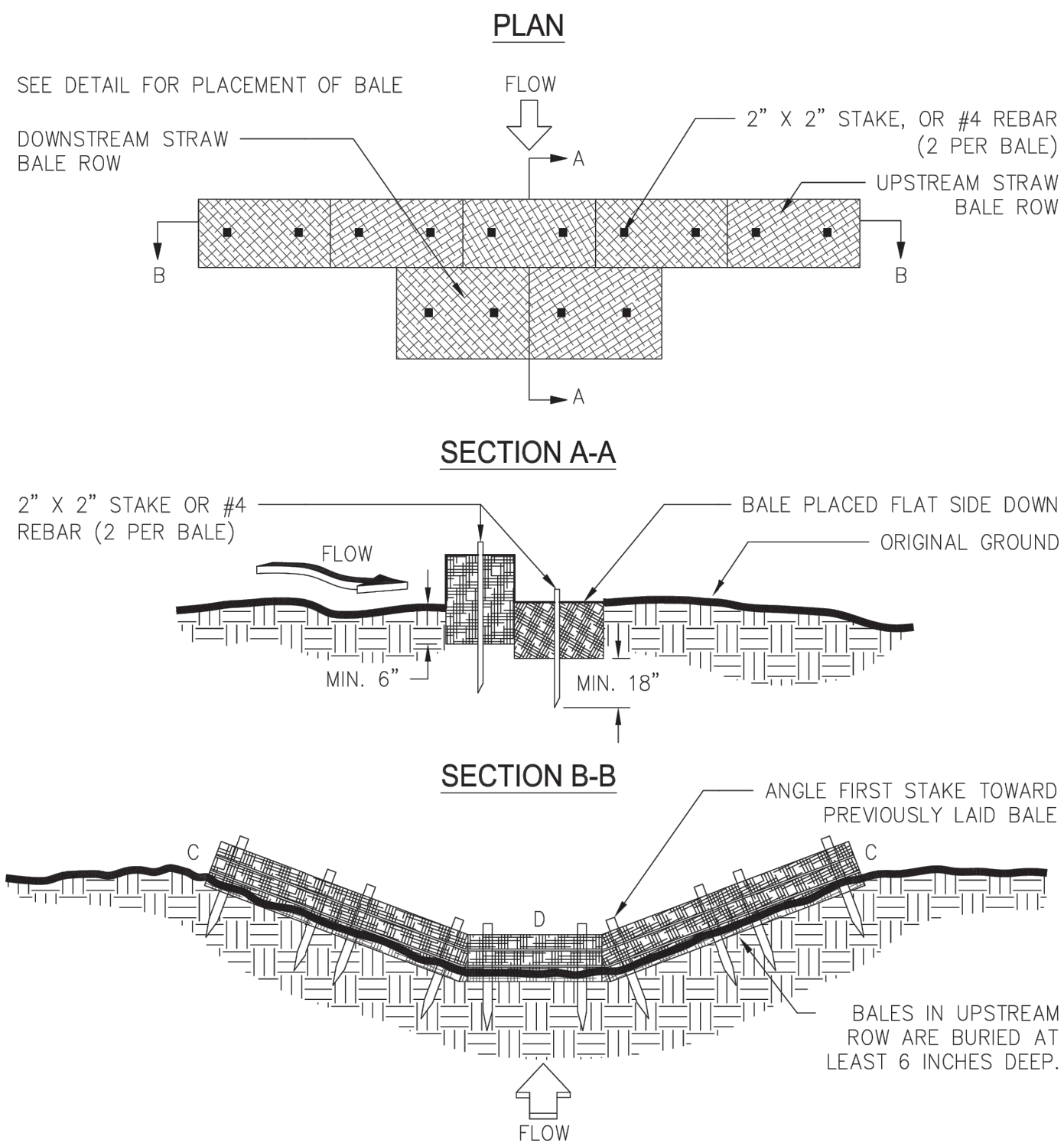
SHEET

D4.1

CITY OF ALPHARETTA PERMIT # D250030

FULTON COUNTY PERMIT # WRN25-118

TYPICAL STRAW BALE CHECK DAM



- NOTES:
- BALES SHOULD BE BOUND WITH WIRE OR NYLON STRING AND SHOULD BE PLACED IN ROWS WITH BALE ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
 - REMOVE #4 REBAR AFTER STRAW BALES ARE NO LONGER IN PLACE.
 - POINT C OF SECTION B-B SHOULD ALWAYS BE HIGHER THAN POINT D.
 - STRAW-BALE CHECK DAMS SHALL NOT BE USED WHERE THE DRAINAGE AREA EXCEEDS ONE ACRE.

Figure 6-12.3

Cd-Hb STRAW-BALE CHECK DAM
NOT TO SCALE

6-83

Retaining Wall

Re



DEFINITION

A wall constructed of one or more of the following: concrete masonry, reinforced concrete cribbing, treated timbers, steel pilings, gabions, stone drywall, rock riprap, etc.

PURPOSE

To assist in the stabilization of cut or fill slopes where stable slopes are not attainable without the use of the wall.

CONDITIONS

Use in conjunction with cut or fill slopes which, because of space limitations or unstable material, do not allow the stable slope criteria listed above, e.g. cuts into steep hillsides on small lots or cuts into hillsides behind shopping centers to provide loading space.

DESIGN CRITERIA

General

The design of a retaining wall is a complicated process. Many factors must be taken into account such as: stresses and forces outside and within the wall, allowable height and minimum thickness. Other considerations are: foundation design with respect to loadings, bearing values of soils and footing dimensions. Additional design factors are safety hazards, subsurface and surface drainage and appearance.

Each situation requires a *specific design* which is within the capabilities of the design professional.

Consideration should be given to all of the alternative methods with regard to construction of the

wall. Some methods are:

- Concrete masonry
- Concrete cribbing
- Gabions
- Steel piling
- Stone drywall
- Rock riprap, etc.
- Treated timbers
- Geotextile wrapped-face wall
- Geotextile reinforced steep slopes

CONDITIONS:

WATER CLARIFICATION AND THE REMOVAL OF TURBIDITY WILL USUALLY REQUIRE THE ADDITION OF FLOCCULANTS, POLYMERS, POLYACRYLAMIDES (PAM), CHITOSAN AND OTHER CHEMICALS THAT CAUSE SOIL PARTICLES TO BIND TOGETHER, BECOME HEAVY AND SETTLE TO THE BOTTOM OF A SEDIMENT TRAP, SEDIMENT BASIN OR BECOME ENTRAPPED IN OTHER BMPs. THIS PRACTICE IS NOT INTENDED FOR APPLICATION TO SURFACE WATERS OF THE STATE. IT IS INTENDED FOR APPLICATION WITHIN CONSTRUCTION STORM WATER DITCHES AND STORM DRAINAGES THAT FEED INTO PRE-CONSTRUCTED PONDS OR BASINS OR OTHER BMPs.

CRITERIA:

- APPLICATION RATES SHALL CONFORM TO MANUFACTURER'S GUIDELINES FOR APPLICATION. ONLY ANIONIC FORMS OF FL-CO SHALL BE USED. FOLLOWING ARE EXAMPLES OF FL-CO APPLICATIONS WITHIN CONSTRUCTION STORM WATER DITCHES OR DRAINAGEWAYS THAT FEED INTO SEDIMENT BASINS OR OTHER BMPs:
- FL-CO BAGS OR SOCS THAT ARE INSTALLED DIRECTLY IN A DITCH, PIPE OR CULVERT.
 - FL-CO TREATED DITCH CHECKS (I.E. FIBER ROLLS, WATTLES, OR COMPOST LOGS INOCULATED OR USED IN CONJUNCTION WITH FL-CO).
 - GRANULATED FL-CO TREATED ROCK DITCH CHECKS.
 - DITCH CHECKS WITH ATTACHED FL-CO BAGS OR SOCS.
 - ADDITION OF GRANULAR FL-CO DIRECTLY INTO A DITCH.
 - EROSION CONTROL BLANKETS AND TURF REINFORCE-MENT MATS THAT HAVE BEEN INOCULATED WITH A FL-CO.
 - "PUMP AND TREAT" SYSTEMS THAT USE MECHANICAL MIXING WITH A CHEMICAL TREATMENT OF A FL-CO.

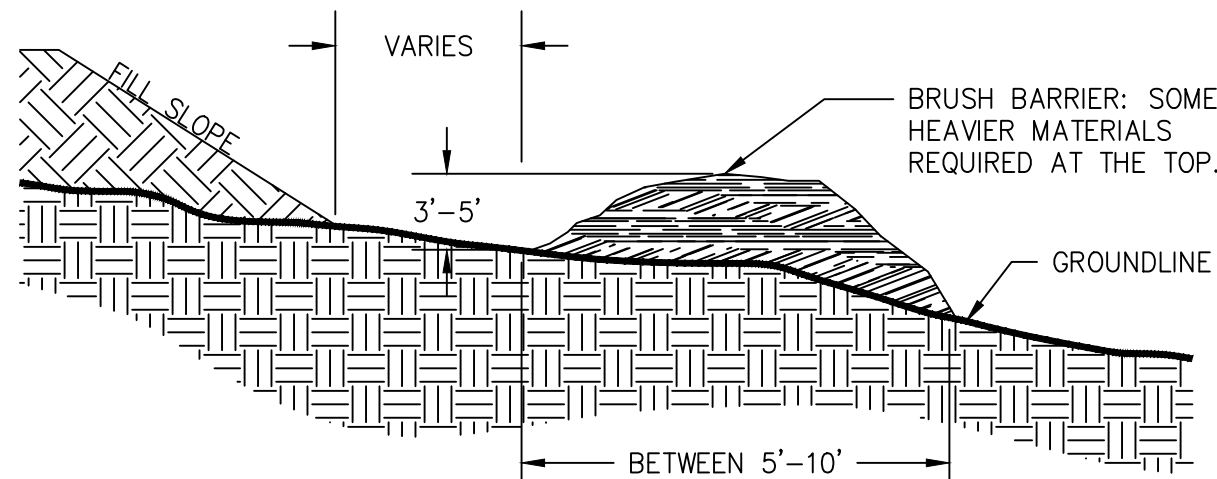
OPERATION AND MAINTENANCE:

APPLICATION RATES SHALL CONFORM TO MANUFACTURER'S GUIDELINES FOR APPLICATION. MAINTENANCE SHALL CONSIST OF REAPPLYING FL-CO VIA ONE OF MEANS ABOVE WHEN TURBIDITY LEVELS ARE NO LONGER MET OR THE FL-CO IS USED UP. BRICKS, BLOCKS, LOGS AND BAGS SHALL BE MAINTAINED WHEN SEDIMENT ACCUMULATES ON THE PRODUCTS.

Fl-Co FLOCCULANTS / COAGULANTS

SEDIMENT BARRIERS

BRUSH BARRIER SECTION



NOTE:

- INTERMINGLE BRUSH, LOGS, ETC. SO AS TO NOT FORM A SOLID DAM.
- BRUSH SHOULD BE WIND-ROWED ON THE CONTOUR AS CLOSE AS POSSIBLE.
- MINIMUM BASE WIDTH FOR BARRIER SHALL BE 5 FEET AND SHOULD BE NO WIDER THAN 10 FEET. THE HEIGHT OF THE BARRIER SHOULD BE BETWEEN 3' AND 5'.
- A COMMERCIALY AVAILABLE FILTER FABRIC MAY BE PLACED ON THE SIDE OF THE BRUSH BARRIER RECEIVING SEDIMENT-LADEN RUNOFF FOR ADDED FILTER CAPACITY (LOWER EDGE MUST BE BURIED IN A 6 INCH DEEP TRENCH AND THE UPPER EDGE MUST BE FASTENED TO THE BRUSH BARRIER).

Sd1-BB SEDIMENT BRUSH BARRIER DETAIL
NOT TO SCALE

MATERIALS - HECP (HYDRAULIC EROSION CONTROL PRODUCTS)

HYDRAULIC EROSION CONTROL PRODUCTS SHALL BE PREPACKAGED FROM THE MANUFACTURER. FIELD MIXING OF PERFORMANCE ENHANCING ADDITIVES WILL NOT BE ALLOWED. FIBEROUS COMPONENTS SHOULD BE ALL NATURAL OR BIODEGRADABLE. PRODUCTS SHALL BE DETERMINED TO BE NON-TOXIC IN ACCORDANCE WITH EPA-821-R-02-012.

MATERIALS - RECP (ROLLED EROSION CONTROL PRODUCTS)

BLANKETS SHALL BE NONTXIC TO VEGETATION, SEED, OR WILDLIFE. PRODUCTS SHALL BE DETERMINED TO BE NON-TOXIC IN ACCORDANCE WITH EPA-821-R-02-012. AT MINIMUM, THE PLASTIC OR BIODEGRADABLE NETTING SHALL BE STITCHED TO THE FIBROUS MATRIX TO MAXIMIZE STRENGTH AND PROVIDE FOR EASE OF HANDLING.

RECPs ARE CATEGORIZED AS FOLLOWS:

- SHORT-TERM (FUNCTIONAL LONGEVITY 12 MO.)
 - PHOTODEGRADABLE - STRAW BLANKETS WITH A TOP AND BOTTOM SIDE PHOTO DEGRADABLE NET. THE MAXIMUM SIZE OF THE MESH SHALL BE OPENINGS OF 1/2" X 1/2". THE BLANKET SS 6-122 GSWCC (AMENDED - 2013) SHOULD BE SEWN TOGETHER ON 1.5" CENTERS WITH DEGRADABLE THREAD. MINIMUM THICKNESS SHOULD BE 0.35" AND MINIMUM DENSITY SHOULD BE 0.5 LBS PER SQUARE YARD.
 - BIODEGRADABLE - STRAW BLANKET WITH A TOP AND BOTTOM SIDE BIODEGRADABLE JUTE NET. THE TOP SIDE NET SHALL CONSIST OF MACHINE DIRECTION STRANDS THAT ARE TWISTED TOGETHER AND THEN INTERWOVEN WITH CROSS DIRECTION STRANDS (LENO WEAVE). THE BOTTOM NET MAY BE LENO WEAVE OR OTHERWISE TO MEET REQUIREMENTS. THE APPROXIMATE SIZE OF THE MESH SHALL BE OPENINGS OF 0.5" X 1.0". THE BLANKET SHOULD BE SEWN TOGETHER ON 1.5" CENTERS WITH DEGRADABLE THREAD. MINIMUM THICKNESS SHOULD BE 0.25" AND MINIMUM DENSITY SHOULD BE 0.5 LBS PER SQUARE YARD.
- EXTENDED-TERM (FUNCTIONAL LONGEVITY 24 MO.)
 - PHOTODEGRADABLE - BLANKETS THAT CONSIST OF 70% STRAW AND 30% COCONUT WITH A TOP AND BOTTOM SIDE PHOTODEGRADABLE NET. THE TOP NET SHOULD HAVE ULTRAVIOLET ADDITIVES TO DELAY BREAKDOWN. THE MAXIMUM SIZE OF THE MESH SHALL BE OPENINGS OF 0.65" X 0.65". THE BLANKET SHOULD BE SEWN TOGETHER ON 1.5" CENTERS WITH DEGRADABLE THREAD. MINIMUM THICKNESS SHOULD BE 0.35" AND MINIMUM DENSITY SHOULD BE 0.6 LBS PER SQUARE YARD.
 - BIODEGRADABLE - BLANKETS THAT CONSIST OF 70% STRAW AND 30% COCONUT WITH A TOP AND BOTTOM SIDE BIODEGRADABLE JUTE NET. THE TOP SIDE NET SHALL CONSIST OF MACHINE DIRECTION STRANDS THAT ARE TWISTED TOGETHER AND THEN INTERWOVEN WITH CROSS DIRECTION STRANDS (LENO WEAVE). THE BOTTOM NET MAY BE LENO WEAVE OR OTHERWISE TO MEET REQUIREMENTS. THE APPROXIMATE SIZE OF THE MESH SHALL BE OPENINGS OF 0.5" X 1.0". THE BLANKET SHOULD BE SEWN TOGETHER ON 1.5" CENTERS WITH DEGRADABLE THREAD. MINIMUM THICKNESS SHOULD BE 0.25" AND MINIMUM DENSITY SHOULD BE 0.5 LBS PER SQUARE YARD.

BLANKET SHOULD BE SEWN TOGETHER ON 1.5" CENTERS WITH DEGRADABLE THREAD. MINIMUM THICKNESS SHOULD BE 0.25" AND MINIMUM DENSITY SHOULD BE 0.65 LBS PER SQUARE YARD.

- LONG-TERM (FUNCTIONAL LONGEVITY 36 MO.)
 - PHOTODEGRADABLE - BLANKETS THAT CONSIST OF 100% COCONUT WITH A TOP AND BOTTOM SIDE PHOTODEGRADABLE NET. EACH NET SHOULD HAVE ULTRAVIOLET ADDITIVES TO DELAY BREAKDOWN. THE MAXIMUM SIZE OF THE MESH SHALL BE OPENINGS OF 0.65" X 0.65". THE BLANKET SHOULD BE SEWN TOGETHER ON 1.5" CENTERS WITH DEGRADABLE THREAD. MINIMUM THICKNESS SHOULD BE 0.3" AND MINIMUM DENSITY SHOULD BE 0.5 LBS PER SQUARE YARD.
 - BIODEGRADABLE - BLANKETS THAT CONSIST OF 100% COCONUT WITH A TOP AND BOTTOM SIDE BIODEGRADABLE JUTE NET. THE TOP SIDE NET SHALL CONSIST OF MACHINE DIRECTION STRANDS THAT ARE TWISTED TOGETHER AND THEN INTERWOVEN WITH CROSS DIRECTION STRANDS (LENO WEAVE). THE BOTTOM NET MAY BE LENO WEAVE OR OTHERWISE TO MEET REQUIREMENTS. THE APPROXIMATE SIZE OF THE MESH SHALL BE OPENINGS OF 0.5" X 1.0". THE BLANKET SHOULD BE SEWN TOGETHER ON 1.5" CENTERS WITH DEGRADABLE THREAD. MINIMUM THICKNESS SHOULD BE 0.25" AND MINIMUM DENSITY SHOULD BE 0.5 LBS PER SQUARE YARD.

SITE PREPARATION:

AFTER THE SITE HAS BEEN SHAPED AND GRADED TO THE APPROVED DESIGN, PREPARE A FRIABLE SEEDBED RELATIVELY FREE FROM CLOUDS AND ROCKS MORE THAN ONE INCH IN DIAMETER, AND ANY FOREIGN MATERIAL THAT WILL PREVENT CONTACT OF THE SOIL STABILIZATION MAT WITH THE SOIL SURFACE. SURFACE MUST BE SMOOTH TO ENSURE PROPER CONTACT OF BLANKETS OR MATTING TO THE SOIL TO THE SOIL SURFACE. IF NECESSARY, REDIRECT ANY RUNOFF FROM THE DITCH OR SLOPE DURING INSTALLATION.

INSTALLATION:

INSTALLATION AND STAPLING OF RECPs AND APPLICATION RATES FOR THE HECPs SHALL CONFORM TO MANUFACTURER'S GUIDELINES FOR APPLICATION. PRODUCTS SHALL HAVE A MAXIMUM C-FACTOR (ASIM D6459) FOR THE FOLLOWING SLOPE GRADE: 3:1 SLOPE OR GREATER (H:V), 0.080 C-FACTOR (MAX.).

MAINTENANCE:

ALL EROSION CONTROL BLANKETS AND MATTING SHOULD BE INSPECTED PERIODICALLY FOLLOWING INSTALLATION, PARTICULARLY AFTER RAINSTORMS TO CHECK FOR EROSION AND UNDERMINING. ANY DISLOCATION OR FAILURE SHOULD BE REPAIRED IMMEDIATELY. IF WASHOUTS OR BREAKAGE OCCURS, REINSTALL THE MATERIAL AFTER REPAIRING DAMAGE TO THE SLOPE OR DITCH. CONTINUE TO MONITOR THESE AREAS UNTIL THEY BECOME PERMANENTLY STABILIZED.

Ss SLOPE STABILIZATION
NOT TO SCALE

STORM DRAIN OUTLET PROTECTION

DESIGN CRITERIA:

STRUCTURALLY LINED APRONS AT THE OUTLETS OF PIPES AND PAVED CHANNEL SECTIONS SHALL BE DESIGNED ACCORDING TO THE FOLLOWING CRITERIA:

CAPACITY

PEAK STORMFLOW FROM THE 25-YEAR, 24 HOUR FREQUENCY STORM OR THE STORM SPECIFIED IN THE TITLE 12-7-1 OF THE OFFICIAL CODE OF GEORGIA ANNOTATED OR THE DESIGN DISCHARGE OF THE WATER CONVEYANCE STRUCTURE, WHICHEVER IS GREATER.

TAILWATER DEPTH

THE DEPTH OF THE TAILWATER IMMEDIATELY BELOW THE PIPE OUTLET MUST BE DETERMINED FOR THE DESIGN CAPACITY OF THE PIPE. MANNING'S EQUATION MAY BE USED TO DETERMINE TAILWATER DEPTH. IF THE TAILWATER DEPTH IS LESS THAN HALF THE DIAMETER OF THE OUTLET PIPE, IT SHALL BE CLASSIFIED AS A MINIMUM TAILWATER CONDITION. IF THE TAILWATER DEPTH IS GREATER THAN HALF THE PIPE DIAMETER, IT SHALL BE CLASSIFIED AS A MAXIMUM TAILWATER CONDITION. PIPES WHICH OUTLET ONTO FLAT AREAS WITH NO DEFINED CHANNEL, MAY BE ASSUMED TO HAVE A MINIMUM TAILWATER CONDITION.

APRON WIDTH

IF THE PIPE DISCHARGES DIRECTLY INTO A WELL-DEFINED CHANNEL, THE APRON SHALL EXTEND ACROSS THE CHANNEL BOTTOM AND UP THE CHANNEL BANKS TO AN ELEVATION ONE FOOT ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK (WHICHEVER IS LESS). IF THE PIPE DISCHARGES ONTO A FLAT AREA WITH NO DEFINED CHANNEL, THE WIDTH OF THE APRON SHALL BE DETERMINED AS FOLLOWS:

- THE UPSTREAM END OF THE APRON, ADJACENT TO THE PIPE, SHALL HAVE A WIDTH THREE TIMES THE DIAMETER OF THE OUTLET PIPE.
- FOR THE MINIMUM TAILWATER CONDITION, THE DOWNSTREAM END OF THE APRON SHALL HAVE A WIDTH EQUAL TO THE PIPE DIAMETER PLUS THE LENGTH OF THE APRON. REFER TO FIGURE 6-24.1.
- FOR A MAXIMUM TAILWATER CONDITION, THE DOWN STREAM END SHALL HAVE A WIDTH EQUAL TO THE PIPE DIAMETER PLUS 0.4 TIMES THE LENGTH OF THE APRON. REFER TO FIGURE 6-24.2.

BOTTOM GRADE

THE APRON SHALL BE CONSTRUCTED WITH NO SLOPE ALONG ITS LENGTH (0.0% GRADE). THE INVERT ELEVATION OF THE DOWNSTREAM END OF THE APRON SHALL BE EQUAL TO THE ELEVATION OF THE INVERT OF THE RECEIVING CHANNEL. THERE SHALL BE NO OVERFALL AT THE END OF THE APRON.

SIDE SLOPE

IF THE PIPE DISCHARGES INTO A WELL-DEFINED CHANNEL, THE SIDE SLOPES OF THE CHANNEL SHALL NOT BE STEEPER THAN 2:1.

ALIGNMENT

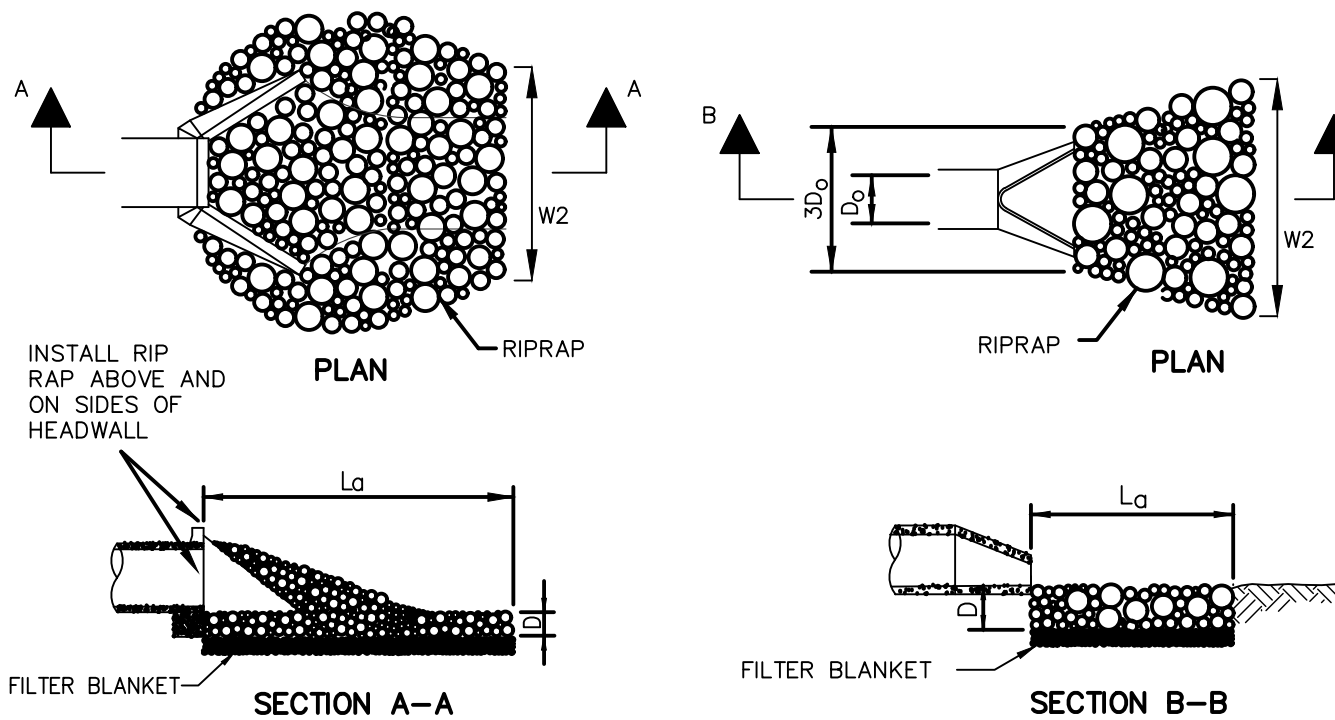
THE APRON SHALL BE LOCATED SO THAT THERE ARE NO BENDS IN THE HORIZONTAL ALIGNMENT.

GEOTEXTILE

GEOTEXTILES SHOULD BE USED AS A SEPARATOR BETWEEN THE GRADED STONE, THE SOIL BASE, AND THE ADJUTMENTS. THE GEOTEXTILES WILL PREVENT THE MIGRATION OF SOIL PARTICLES FROM THE SUBGRADE INTO THE GRADED STONE. THE GEOTEXTILE SHALL BE SPECIFIED ON ACCORDANCE WITH AASHTO M288-96 SECTION 7.5, PERMANENT EROSION CONTROL RECOMMENDATIONS. THE GEOTEXTILE SHOULD BE PLACED IMMEDIATELY ADJACENT TO THE SUBGRADE WITHOUT ANY VOIDS.

MATERIALS

THE APRON MAY BE LINED WITH RIPRAP, GROUTED RIPRAP, OR CONCRETE. THE MEDIUM SIZED STONE FOR RIPRAP, D50, SHALL BE DETERMINED FROM THE CURVES, FIGURE 6-24.1 AND 6-24.2, ACCORDING TO THE TAILWATER CONDITION. THE GRADATION, QUALITY AND PLACEMENT OF RIPRAP SHALL CONFORM TO APPENDIX C.



DESIGN SPECIFICATIONS TABLE

HD ID	D ₀ (IN.)	Q ₂₅ (CFS)	V ₂₅ (FPS)	Min or Max Tailwater?	La (FT)	W ₁ (FT)	W ₂ (FT)	d ₅₀ (IN.)	D (IN.)
A0	18	5.70	3.23	Min.	9	5	10.5	4	6.0

St STORM DRAIN OUTLET PROTECTION
NOT TO SCALE

- NATIONAL STONE ASSOCIATION
- AT LEAST 50% OF THE INDIVIDUAL STONE PARTICLES MUST BE EQUAL OR LARGER THAN LISTED SIZE.
- 85-100% OF THE INDIVIDUAL STONE PARTICLES MAYBE LESS THAN LISTED SIZE.
- GEORGIA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION SPECIFICATIONS:

- ENSURE THAT THE SUBGRADE FOR THE FILTER AND RIPRAP FOLLOWS THE REQUIRED LINES AND GRADES SHOWN IN THE PLAN. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO THE DENSITY OF THE SURROUNDING UNDISTURBED MATERIAL. LOW AREAS IN THE SUBGRADE ON UNDISTURBED SOIL MAY ALSO BE FILLED BY INCREASING THE RIPRAP THICKNESS.
- THE RIPRAP AND GRAVEL FILTER MUST CONFORM TO THE SPECIFIED GRADING LIMITS SHOWN ON THE PLANS.
- GEOTEXTILE MUST MEET DESIGN REQUIREMENTS AND BE PROPERLY PROTECTED FROM PUNCHING OR TEARING DURING INSTALLATION. REPAIR ANY DAMAGE BY REMOVING THE RIPRAP AND PLACING ANOTHER PIECE OF FILTER FABRIC OVER THE DAMAGED AREA. ALL CONNECTING JOINTS SHOULD OVERLAP A MINIMUM OF 1 FT. IF THE DAMAGE IS EXTENSIVE, REPLACE THE ENTIRE FILTER FABRIC.
- RIPRAP MAY BE PLACED BY EQUIPMENT, BUT TAKE CARE TO AVOID DAMAGING THE FILTER. THE MINIMUM THICKNESS OF THE RIPRAP SHOULD BE 1.5 TIMES THE MAXIMUM STONE DIAMETER.
- CONSTRUCT THE APRON ON ZERO GRADE WITH NO OVERFALL AT THE END. MAKE THE TOP OF THE RIPRAP AT THE DOWNSTREAM END LEVEL WITH THE RECEIVING AREA OR SLIGHTLY BELOW IT.
- ENSURE THAT THE APRON IS PROPERLY ALIGNED WITH THE RECEIVING STREAM AND PREFERABLY STRAIGHT THROUGHOUT ITS LENGTH. IF A CURVE IS NEEDED TO FIT SITE CONDITIONS, PLACE IT IN THE UPPER SECTION OF THE APRON.
- IMMEDIATELY AFTER CONSTRUCTION, STABILIZE ALL DISTURBED AREAS WITH VEGETATION.
- STONE QUALITY SELECT STONE FOR RIPRAP FROM FIELD STONE OR QUARRY STONE. THE STONE SHOULD BE HARD, ANGULAR, AND HIGHLY WEATHER-RESISTANT. THE SPECIFIC GRAVITY OF THE INDIVIDUAL STONES SHOULD BE AT LEAST 2.5.
- FILTER - INSTALL A FILTER TO PREVENT SOIL MOVEMENT THROUGH THE OPENINGS IN THE RIPRAP. THE FILTER SHOULD CONSIST OF A GRADED GRAVEL LAYER OR A SYNTHETIC FILTER CLOTH. SEE APPENDIX C; P. C-1.

MAINTENANCE:

INSPECT RIPRAP OUTLET STRUCTURES AFTER HEAVY RAINS TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

NOTES:

- LENGTH (L₀) IS THE RIPRAP LENGTH (AS SHOWN IN THE CHART).
- DEPTH (D) IS THE RIPRAP DEPTH (1.5 TIMES THE MAXIMUM STONE DIAMETER, OR AS SHOWN ON DRAWINGS BUT NOT LESS THAN 12").
- INSTALL A 6" MINIMUM DEEP FILTER STONE BLANKET (#57 STONE) OR FILTER FABRIC (AASHTO M288-96 SECTION 7.5) BETWEEN RIPRAP AND SOIL FOUNDATION.
- IN A WELL-DEFINED CHANNEL, EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH, OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
- A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.
- FOR VELOCITIES UP TO 6.5 FPS, USE GDOT TYPE 3 WITH #57 FILTER BEDDING STONE.
- FOR VELOCITIES OVER 6.5 FPS, CONSULT TABLE C-1.

TABLE C-1
GRADED RIP-RAP STONE

FLOW VELOCITY (FT./SEC.)	N.S.A. NO. ¹	SIZE INCHES (SQ. OPENING)			FILTER STONE N.S.A. NO. ¹
		MAX	AVG. ²	MIN.	
2.5	R-1	1 1/2	3/4	No. 8	FS-1
4.5	R-2	3	1 1/2	1	FS-1
6.5	R-3	6	3	2	FS-2
9.0	R-4	12	6	3	FS-2
11.5	R-5	18	9	5	FS-2
13.0	R-6	24	12	7	FS-3
14.5	R-7	30	15	12	FS-3

TABLE C-2
FILTER BEDDING STONE

N.S.A. NO. ¹	SIZE INCHES (SQ. OPENING)		
	MAX	AVG. ²	MIN. ³
FS-1	3/8	#30 MESH	#100 MESH
FS-2	2	#4	#100 MESH
FS-3	6 1/2	2 1/2	#16

TABLE C-4
FILTER BEDDING STONE

G.D.O.T. NO. ⁴	NOMINAL SIZE (INCHES)		
	3	2" - 1"	
	4	1 1/2" - 3/4"	
	5	1" - 1/2"	
	6	3/4" - 3/8"	
	57	1" - No. 4	

TABLE C-3
GRADED RIP-RAP STONE

G.D.O.T. NO. ⁴	SIZE INCHES (SQ. OPENING)			COMMON USES
	MAX	AVG. ²	MIN. ³	
TYPE 3	12	9	5	CREEK BANKS, PIPE OUTLETS
TYPE 1	24	12	7	LAKES, SHORELINES, RIVERS

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1270 UPPER HEMBREE ROAD
ALPHARETTA, GA 30009

DATE	2-27-26
REVISIONS	
ALPHARETTA COMMENTS	
NO.	
I.	

PROJECT NO.: 25-5238
CIVIL DRAWN BY: AJS
LANDSCAPE DRAWN BY: NGH/JPS
LANDSCAPE DESIGNED BY: NGH/JPS
CHECKED BY:
DATE: 10/05/2025

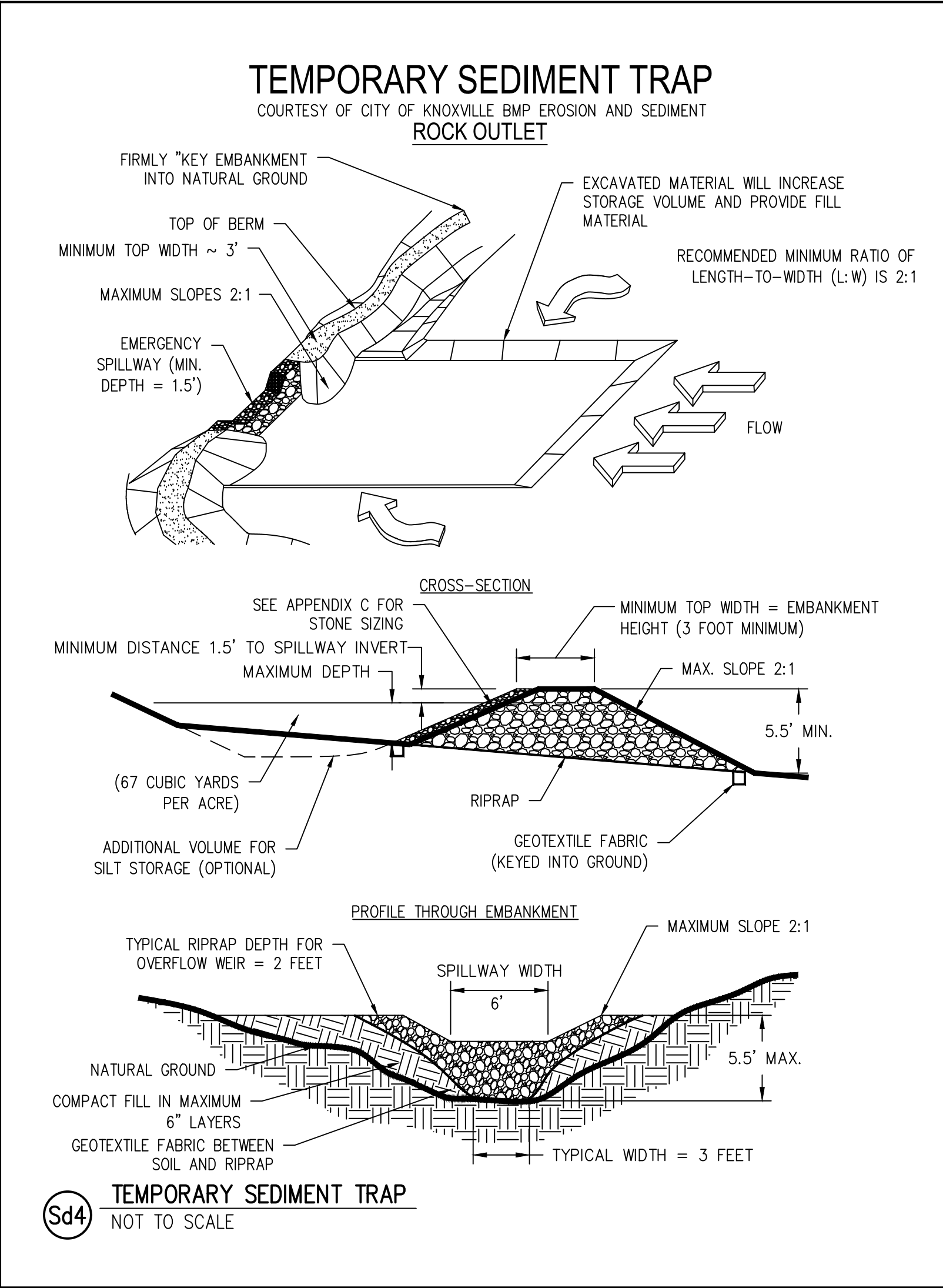
SHEET

D4.2

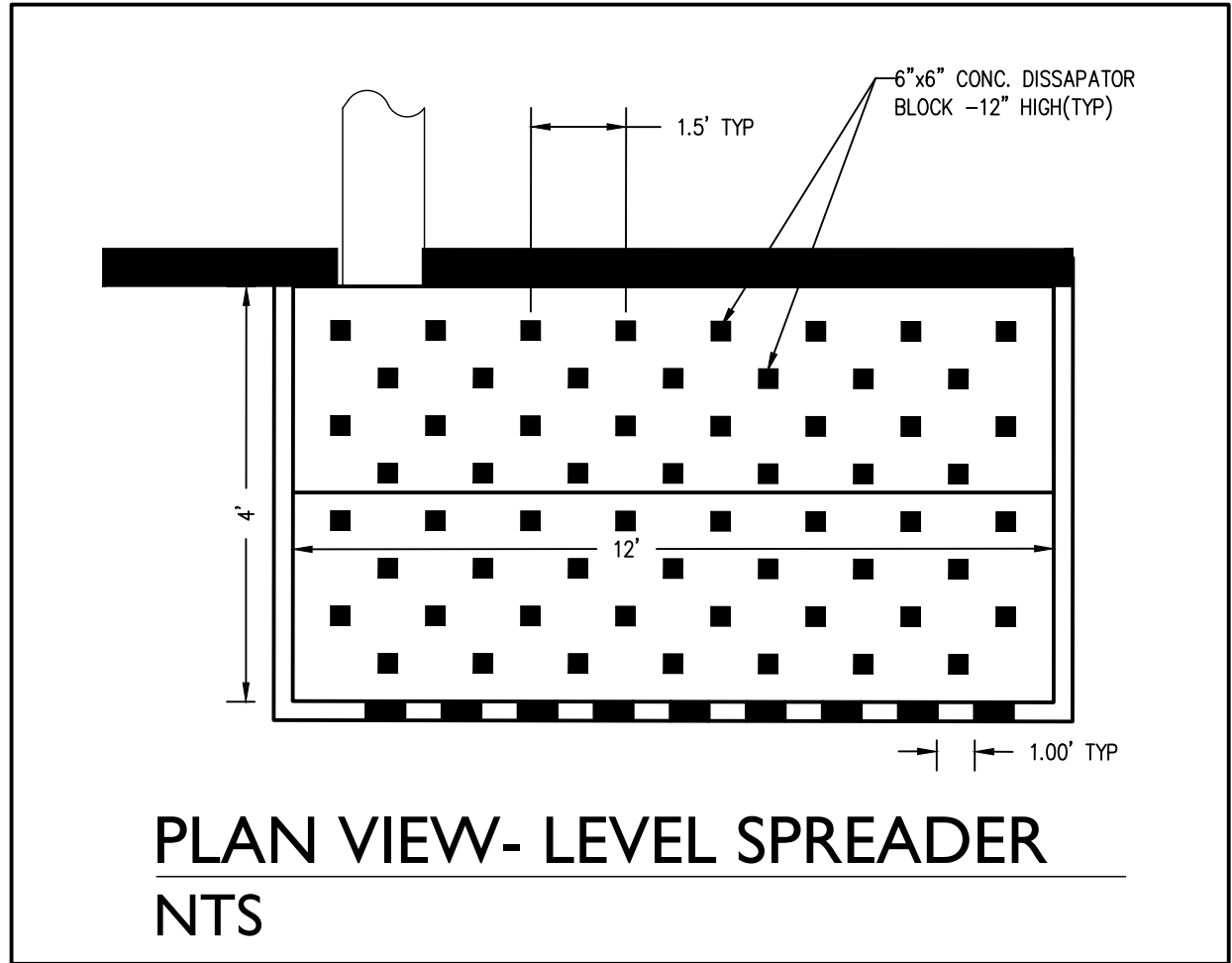
Phase II Sediment Trap Calculations (Sd2-F)												
Structure ID	Basin Area (AC)	Sediment Storage Per Acre (CY/AC)	Sediment Volume Required		Depth (1.5' Min) (FT)	Assumed Side Slopes (2:1 Min) (---:1)	Minimum Area (SF)	Shape	Minimum Rectangle Length (FT)	Minimum Rectangle Width (FT)	Minimum Diameter (FT)	Sediment Provided (CY)
			(CY)	(CF)								
A1	0.52	67	34.8	940.7	1.5	2	627.1	Rectangular	30.0	21.0	-	35.0

Sd4-C #1 CALCULATIONS

TOP OF BERM ELEV:	1085.0		
TOP OF BERM WIDTH:	3.0	FT	(MIN 3.0 FT)
BOTTOM ELEV:	1080.0		
Sd4 DEPTH:	5.0	FT	(MAX 5.5 FT)
MAXIMUM SIDE SLOPES:	2:1		(MAX 2:1)
EMERGENCY SPILLWAY ELEV:	1083.5		
EMERGENCY SPILLWAY DEPTH:	1.5	FT	(MIN 1.5 FT)
EMERGENCY SPILLWAY WIDTH:	4.0	FT	
LENGTH TO WIDTH RATIO:	2.0:1		(MIN 2:1)
DRAINAGE AREA:	0.34	ACRES	(5.0 ACRES MAX)
REQUIRED STORAGE:	67	CY/ACRE	
REQUIRED STORAGE VOLUME:	22.8	CY	
TOTAL PROVIDED STORAGE VOLUME:	36.0	CY	
CLEANOUT VOLUME:	12.0	CY	
CLEANOUT ELEV:	1,083.0		



Sd4 TEMPORARY SEDIMENT TRAP
NOT TO SCALE



Lv LEVEL SPREADER DETAIL
NOT TO SCALE

DESIGN CRITERIA:

THROUGH TESTING THERE ARE TWO DIFFERENT CATEGORIES (HIGH RETENTION AND HIGH FLOW) SUPPORTED. IN AREAS WHERE BMPs ARE BEING USED ON PAVED SURFACES, OR SAFETY IS A CONCERN, THE POTENTIALLY NEGATIVE EFFECTS OF PONDING SHOULD BE TAKEN INTO ACCOUNT. IN SUCH CASES, A HIGH FLOW BMP IS PREFERRED.

ON UNPAVED AREAS WHERE PONDING WILL NOT CAUSE A SAFETY HAZARD, HIGH RETENTION SHALL BE TAKEN INTO ACCOUNT. IF HIGH RETENTION IS NOT USED IN THIS SITUATION A RATIONALE SHALL BE GIVEN ON THE PLAN AND AN UNPAVED APPLICATION SHOULD APPLY.

ON UNPAVED AREAS INLET SEDIMENT TRAPS SHALL MEET 90% SOIL RETENTION EFFICIENCY WITH A MINIMUM SEEPAGE EFFICIENCY OF 65%.

ON PAVED AREAS OR AREAS WHERE A SAFETY HAZARD IS A SEDIMENT TRAPS SHALL MEET 75% SOIL RETENTION EFFICIENCY WITH A MINIMUM SEEPAGE OF 85%.

SEDIMENT TRAPS MUST BE SELF-DRAINING UNLESS THEY ARE OTHERWISE PROTECTED IN AN APPROVED FASHION THAT WILL NOT PRESENT A SAFETY HAZARD. THE DRAINAGE AREA ENTERING THE INLET SEDIMENT TRAP SHALL BE NO GREATER THAN ONE ACRE.

IF RUNOFF MAY BYPASS THE PROTECTED INLET, A TEMPORARY DIKE SHOULD BE CONSTRUCTED ON THE DOWN SLOPE SIDE OF THE STRUCTURE. ALSO, A STONE FILTER RING MAY BE USED ON THE UP SLOPE SIDE OF THE INLET TO SLOW RUNOFF AND FILTER LARGER SOIL PARTICLES. REFER TO FR-STONE FILTER RING.

CONSTRUCTION SPECIFICATIONS:

AN EXCAVATION MAY BE CREATED AROUND THE INLET SEDIMENT TRAP TO PROVIDE ADDITIONAL SEDIMENT STORAGE. THE TRAP SHALL BE SIZED TO PROVIDE A MINIMUM STORAGE CAPACITY CALCULATED AT THE RATE OF 67 CUBIC YARDS PER ACRE OF DRAINAGE AREA. A MINIMUM DEPTH OF 1.5 FEET FOR SEDIMENT STORAGE SHOULD BE PROVIDED. SIDE SLOPES SHALL NOT BE STEEPER THAN 2:1.

SEDIMENT TRAPS MAY BE CONSTRUCTED ON NATURAL GROUND SURFACE, ON AN EXCAVATED SURFACE, OR ON MACHINE COMPACTED FILL, PROVIDED THEY HAVE A NON-ERODIBLE OUTLET.

CURB INLET PROTECTION (Sd2-P)

ONCE PAVEMENT HAS BEEN INSTALLED, A CURB INLET FILTER SHALL BE INSTALLED ON INLETS RECEIVING RUNOFF FROM DISTURBED AREAS. THIS METHOD OF INLET PROTECTION SHALL BE REMOVED IF A SAFETY HAZARD IS CREATED.

ONE METHOD OF CURB INLET PROTECTION USES "PIGS-IN-A-BLANKET"- 8-INCH CONCRETE BLOCKS WRAPPED IN FILTER FABRIC. SEE FIGURE 6-28.6. ANOTHER METHOD USES GRAVEL BAGS CONSTRUCTED BY WRAPPING DOT #57 STONE WITH FILTER FABRIC, WIRE, PLASTIC MESH, OR EQUIVALENT MATERIAL.

A GAP OF APPROXIMATELY 4 INCHES SHALL BE LEFT BETWEEN THE INLET FILTER AND THE INLET TO ALLOW FOR OVERFLOW AND PREVENT HAZARDOUS PONDING IN THE ROADWAY. PROPER INSTALLATION AND MAINTENANCE ARE CRUCIAL DUE TO POSSIBLE PONDING IN THE ROADWAY, RESULTING IN A HAZARDOUS CONDITION. SEVERAL OTHER METHODS ARE AVAILABLE TO PREVENT THE ENTRY OF SEDIMENT INTO STORM DRAIN INLETS.

MAINTENANCE:

THE TRAP SHALL BE INSPECTED DAILY AND AFTER EACH RAIN, AND REPAIRS MADE AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE HEIGHT OF THE TRAP.

SEDIMENT SHALL BE REMOVED FROM CURB INLET PROTECTION IMMEDIATELY. FOR EXCAVATED INLET SEDIMENT TRAPS, SEDIMENT SHALL BE REMOVED WHEN ONE-HALF OF THE SEDIMENT STORAGE CAPACITY HAS BEEN LOST TO SEDIMENT ACCUMULATION. SOD INLET PROTECTION SHALL BE MAINTAINED AS SPECIFIED IN DS4 - DISTURBED AREA STABILIZATION (WITH SODDING).

SEDIMENT SHALL NOT BE WASHED INTO THE INLET. IT SHALL BE REMOVED FROM THE SEDIMENT TRAP, DISPOSED OF AND STABILIZED SO THAT IT WILL NOT ENTER THE INLET AGAIN.

WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED, ALL MATERIALS AND ANY SEDIMENT SHALL BE REMOVED, AND EITHER SALVAGED OR DISPOSED OF PROPERLY. THE DISTURBED AREA SHALL BE BROUGHT TO PROPER GRADE, THEN SMOOTHED AND COMPACTED. APPROPRIATELY STABILIZE ALL DISTURBED AREAS AROUND THE INLET.

Sd2 CURB INLET PROTECTION
NOT TO SCALE

DESIGN CRITERIA:

THROUGH TESTING THERE ARE TWO DIFFERENT CATEGORIES (HIGH RETENTION AND HIGH FLOW) SUPPORTED. IN AREAS WHERE BMPs ARE BEING USED ON PAVED SURFACES, OR SAFETY IS A CONCERN, THE POTENTIALLY NEGATIVE EFFECTS OF PONDING SHOULD BE TAKEN INTO ACCOUNT. IN SUCH CASES, A HIGH FLOW BMP IS PREFERRED.

ON UNPAVED AREAS WHERE PONDING WILL NOT CAUSE A SAFETY HAZARD, HIGH RETENTION SHALL BE TAKEN INTO ACCOUNT. IF HIGH RETENTION IS NOT USED IN THIS SITUATION A RATIONALE SHALL BE GIVEN ON THE PLAN AND AN UNPAVED APPLICATION SHOULD APPLY.

ON UNPAVED AREAS INLET SEDIMENT TRAPS SHALL MEET 90% SOIL RETENTION EFFICIENCY WITH A MINIMUM SEEPAGE EFFICIENCY OF 65%.

ON PAVED AREAS OR AREAS WHERE A SAFETY HAZARD IS A SEDIMENT TRAPS SHALL MEET 75% SOIL RETENTION EFFICIENCY WITH A MINIMUM SEEPAGE OF 85%.

SEDIMENT TRAPS MUST BE SELF-DRAINING UNLESS THEY ARE OTHERWISE PROTECTED IN AN APPROVED FASHION THAT WILL NOT PRESENT A SAFETY HAZARD. THE DRAINAGE AREA ENTERING THE INLET SEDIMENT TRAP SHALL BE NO GREATER THAN ONE ACRE.

IF RUNOFF MAY BYPASS THE PROTECTED INLET, A TEMPORARY DIKE SHOULD BE CONSTRUCTED ON THE DOWN SLOPE SIDE OF THE STRUCTURE. ALSO, A STONE FILTER RING MAY BE USED ON THE UP SLOPE SIDE OF THE INLET TO SLOW RUNOFF AND FILTER LARGER SOIL PARTICLES. REFER TO FR-STONE FILTER RING.

CONSTRUCTION SPECIFICATIONS:

AN EXCAVATION MAY BE CREATED AROUND THE INLET SEDIMENT TRAP TO PROVIDE ADDITIONAL SEDIMENT STORAGE. THE TRAP SHALL BE SIZED TO PROVIDE A MINIMUM STORAGE CAPACITY CALCULATED AT THE RATE OF 67 CUBIC YARDS PER ACRE OF DRAINAGE AREA. A MINIMUM DEPTH OF 1.5 FEET FOR SEDIMENT STORAGE SHOULD BE PROVIDED. SIDE SLOPES SHALL NOT BE STEEPER THAN 2:1.

SEDIMENT TRAPS MAY BE CONSTRUCTED ON NATURAL GROUND SURFACE, ON AN EXCAVATED SURFACE, OR ON MACHINE COMPACTED FILL, PROVIDED THEY HAVE A NON-ERODIBLE OUTLET.

FILTER FABRIC WITH SUPPORTING FRAME (Sd2-F)

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5%) AND SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS. SILT FENCE MATERIAL WITH WIRE REINFORCEMENT AND SUPPORTED BY STEEL POSTS SHOULD BE USED. THE STAKES SHALL BE SPACED EVENLY AROUND THE PERIMETER OF THE INLET A MAXIMUM OF 3 FEET APART, AND SECURELY DRIVEN INTO THE GROUND, APPROXIMATELY 18 INCHES DEEP. THE FABRIC SHALL BE 36 INCHES TALL AND ENTRENCHED 12 INCHES AND BACKFILLED WITH CRUSHED STONE OR COMPACTED SOIL. FABRIC AND WIRE SHALL BE SECURELY FASTENED TO THE POSTS, AND FABRIC ENDS MUST BE OVERLAPPED A MINIMUM OF 18 INCHES OR WRAPPED TOGETHER AROUND A POST TO PROVIDE A CONTINUOUS FABRIC BARRIER AROUND THE INLET.

MAINTENANCE:

THE TRAP SHALL BE INSPECTED DAILY AND AFTER EACH RAIN, AND REPAIRS MADE AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE HEIGHT OF THE TRAP.

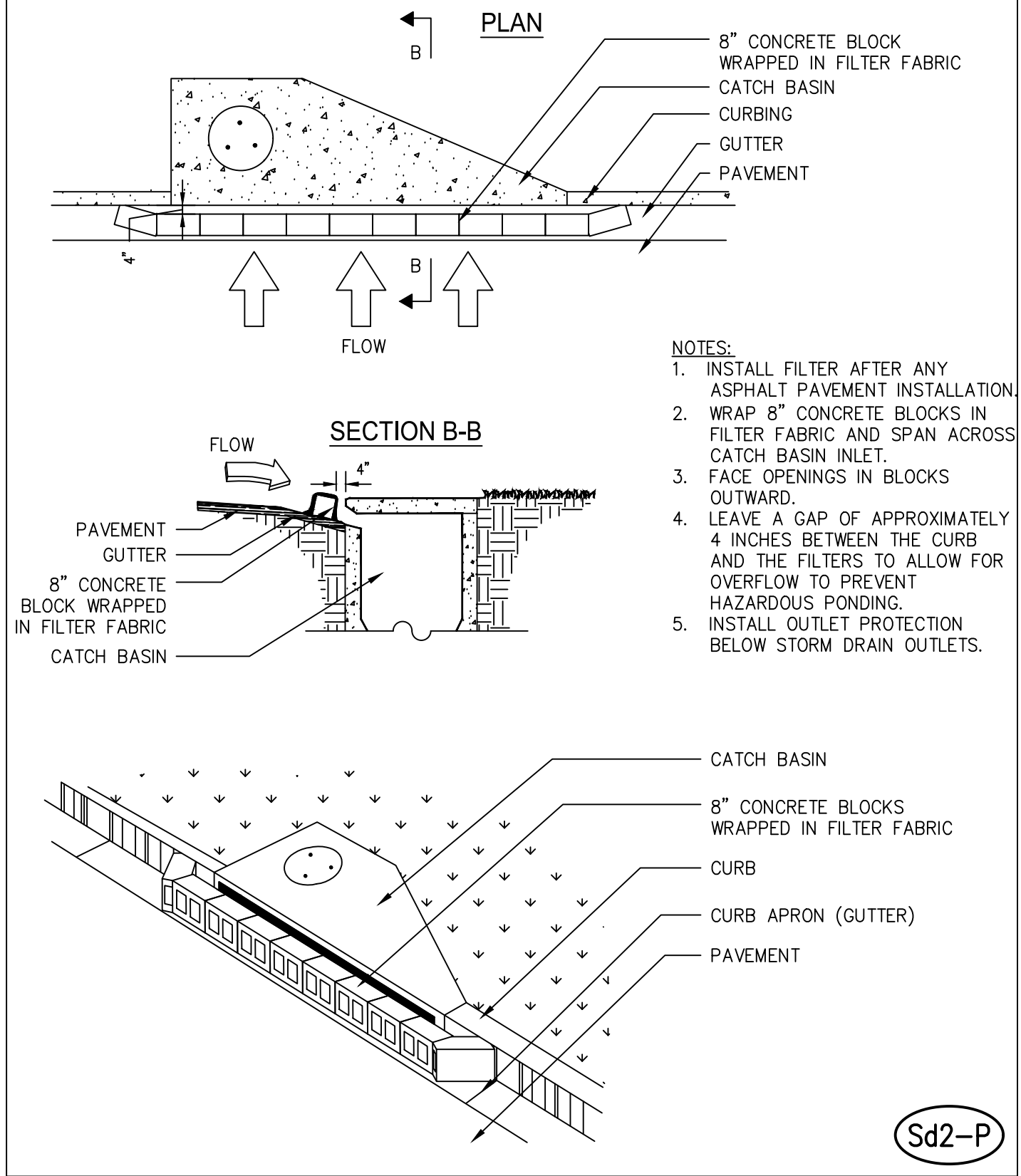
SEDIMENT SHALL BE REMOVED FROM CURB INLET PROTECTION IMMEDIATELY. FOR EXCAVATED INLET SEDIMENT TRAPS, SEDIMENT SHALL BE REMOVED WHEN ONE-HALF OF THE SEDIMENT STORAGE CAPACITY HAS BEEN LOST TO SEDIMENT ACCUMULATION. SOD INLET PROTECTION SHALL BE MAINTAINED AS SPECIFIED IN DS4 - DISTURBED AREA STABILIZATION (WITH SODDING).

SEDIMENT SHALL NOT BE WASHED INTO THE INLET. IT SHALL BE REMOVED FROM THE SEDIMENT TRAP, DISPOSED OF AND STABILIZED SO THAT IT WILL NOT ENTER THE INLET AGAIN.

WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED, ALL MATERIALS AND ANY SEDIMENT SHALL BE REMOVED, AND EITHER SALVAGED OR DISPOSED OF PROPERLY. THE DISTURBED AREA SHALL BE BROUGHT TO PROPER GRADE, THEN SMOOTHED AND COMPACTED. APPROPRIATELY STABILIZE ALL DISTURBED AREAS AROUND THE INLET.

Sd2 FILTER FABRIC WITH SUPPORTING FRAME
NOT TO SCALE

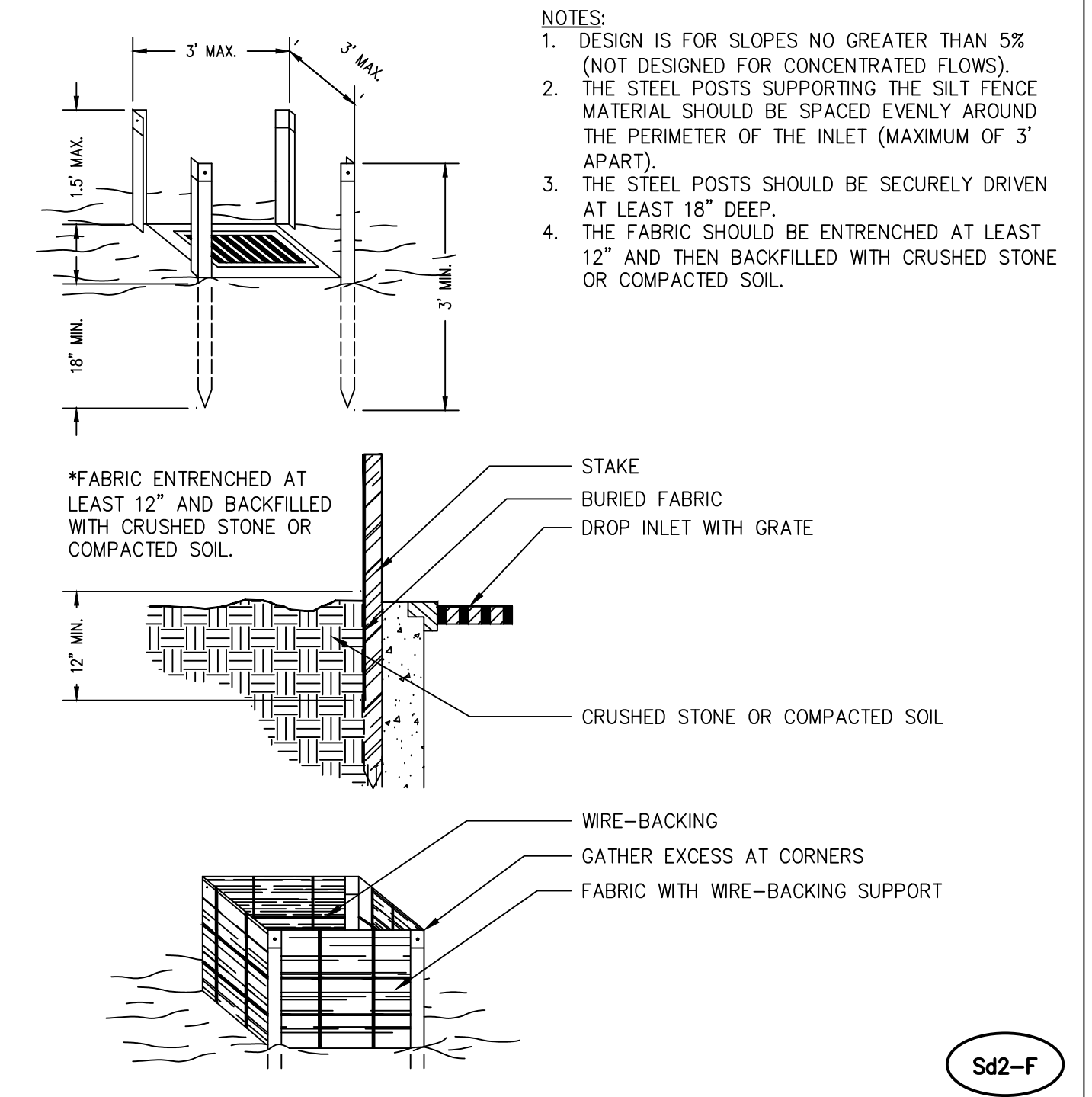
CURB INLET FILTER "PIGS IN BLANKET"



Sd2-P

FABRIC AND SUPPORTING FRAME FOR INLET PROTECTION

STEEL FRAME AND TYPE C SILT FENCE INSTALLATION

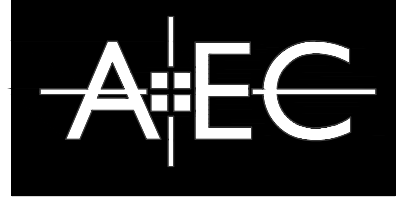


Sd2-F

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NO.	REVISIONS	DATE	COMMENTS
1	ALPHARETTA COMMENTS	2-27-26	

PROJECT NO.: 25-5238
CIVIL DRAWN BY: AJS
LANDSCAPE DRAWN BY: NGH/JPS
LANDSCAPE DESIGNED BY: NGH/JPS
CHECKED BY:
DATE - 10/05/2025

SHEET
D4.3



UPPER HEMBREE ROAD HEALTHCARE

ALPHARETTA, GA

MODULAR BLOCK AND CAST-IN-PLACE RETAINING WALL SYSTEM

06/15/23

NOTES FOR THE CONSTRUCTION OF THE MODULAR BLOCK RETAINING WALL

1.0 REINFORCED ZONE

THE REINFORCED BACKFILL SOIL SHALL BE COMPACTED GRANULAR FILL FREE OF DEBRIS AND MEETING THE FOLLOWING GRADATION AS DETERMINED IN ACCORDANCE WITH ASTM D422.

SIEVE SIZE	PERCENT PASSING
1 INCH	75 - 100
NO. 4	20 - 100
NO. 40	0 - 60
NO. 200	0 - 35

THE MAXIMUM SIEVE SIZE SHOULD BE LIMITED TO 1 INCH. REINFORCED BACKFILL SOIL SHALL CONSIST OF MATERIAL MEETING USCS CRITERIA FOR GW, GP, SW, SP, SC OR SM & THE MATERIAL TO HAVE A PH RANGE OF 3 - 9. THE PORTION PASSING THE NO. 40 SIEVE SHALL HAVE A PLASTICITY INDEX LESS THAN 20. THE MATERIAL SHALL BE SUBSTANTIALLY FREE OF SHALE OR OTHER SOFT, POOR DURABILITY PARTICLES. THE MATERIAL SHALL HAVE A MAGNESIUM SULFATE SOUNDNESS LOSS OF LESS THAN 30 PERCENT AFTER FOUR CYCLES (OR A SODIUM SULFATE VALUE LESS THAN 15 PERCENT AFTER FIVE CYCLES). TESTING SHALL BE IN ACCORDANCE WITH AASHTO T-104.

2.0 TECHNICAL REQUIREMENTS

FILL SHALL BE COMPACTED AS SPECIFIED BY THE PROJECT SPECIFICATIONS OR TO A MINIMUM 95% OF THE MAXIMUM DENSITY, AND WITHIN +3/-3 PERCENT OF OPTIMUM MOISTURE CONTENT AS DETERMINED IN ACCORDANCE WITH ASTM D-698 (STANDARD PROCTOR DENSITY), WHICHEVER IS GREATER.

FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 8 INCHES IN COMPACTED THICKNESS FOR HEAVY COMPACTION EQUIPMENT. FOR ZONES WHERE COMPACTION IS ACCOMPLISHED WITH HAND EQUIPMENT, FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 6 INCHES IN UNCOMPACTED THICKNESS. ONLY HAND OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET OF THE WALL FACE.

IN THE ABSENCE OF OWNER'S DIRECTION TO EMPLOY MORE STRINGENT COMPACTION SPECIFICATIONS, THE COMPACTED DENSITY OF THE FILL SHALL BE TESTED EVERY 2,000 SQUARE FEET PER 8 INCH LIFT OR EVERY 200 LINEAR FEET OF A SINGLE COURSE OF BLOCKS, WHICHEVER IS LESS. (THESE TESTS MUST INCLUDE THE BACKFILL ZONE IMMEDIATELY BEHIND THE WALL WHERE HEAVY COMPACTION EQUIPMENT MAY NOT OPERATE.)

THE CAP UNIT SHALL BE GLUED TO THE TOP MOST STANDARD UNIT.

TESTING METHODS, FREQUENCY AND VERIFICATION OF MATERIAL SPECIFICATIONS AND COMPACTION SHALL BE THE RESPONSIBILITY OF THE OWNER AND/OR CONSTRUCTION VERIFICATION ENGINEER.

HEAVY AND/OR CONSTRUCTION EQUIPMENT NOT INVOLVED WITH THE WALL CONSTRUCTION SHALL NOT OPERATE WITHIN 10.0' OF THE WALL FACE UNTIL FINAL PAVEMENT AND CURBING IS IN PLACE BEHIND THE WALL AS APPLICABLE.

3.0 GEOGRID PLACEMENT

GEOGRID SHALL BE PLACED AT THE LOCATIONS, ELEVATIONS AND WITH THE PROPER EMBEDMENT LENGTH AS SHOWN ON THE CONSTRUCTION DRAWINGS. EMBEDMENT LENGTH IS MEASURED FROM THE FRONT FACE OF THE WALL UNIT. THE EDGE OF THE GEOGRID SHOULD BE VISIBLE AT THE WALL FACE FOR CONSTRUCTION VERIFICATION PURPOSES.

GEOGRIDS SHALL BE CONNECTED TO THE WALL UNIT PER THE MANUFACTURER'S INSTRUCTIONS.

NO MORE THAN TWO COURSES OF BLOCK SHOULD BE STACKED PRIOR TO INFILLING UNITS WITH #57 STONE. COURSES BELOW GEOGRID LAYER MUST BE INFILLED WITH #57 STONE PRIOR TO PLACING GEOGRID REINFORCEMENT.

PRIOR TO PLACING FILL MATERIALS IN THE REINFORCED FILL AREA, THE GEOGRIDS SHALL BE ANCHORED TO THE WALL UNITS, PULLED TIGHT TO REMOVE ANY SLACK, AND LAID FLAT AND HORIZONTAL. NO PORTION OF THE GEOGRID PLACEMENT SHALL BE STEEPER THAN 10% GRADE FROM THE HORIZONTAL OR ALLOWED TO DROOP DOWN DIRECTLY BEHIND THE BLOCK.

TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY ON THE GEOGRID MATERIALS. A MINIMUM FILL THICKNESS OF 6 INCHES IS REQUIRED FOR OPERATION OF TRACKED VEHICLES OVER THE GEOGRID. THE TURNING OF TRACKED VEHICLES SHALL BE KEPT TO A MINIMUM TO PREVENT DISPLACEMENT OF GEOGRIDS.

4.0 DRAINAGE

BACKFILL SHALL BE GRADED AWAY FROM THE WALL FACE AND COMPACTED TO 95% STANDARD PROCTOR AT THE END OF EACH WORK DAY TO PREVENT WATER FROM BEING DIRECTED TOWARDS THE REINFORCED SOIL MASS.

PERMANENT DRAINAGE AND SITE GRADING SHALL BE PERFORMED TO PREVENT RUNOFF FROM BEING DIRECTED OVER THE WALL FACE OR ALLOWED TO POND ABOVE THE REINFORCED MASS.

SURFACE WATER FLOW EITHER TEMPORARY OR PERMANENT SHOULD NOT BE ALLOWED TO RUN ALONG TOE OF EARTH STRUCTURE AT ANY TIME. CONCENTRATED WATER FLOW ALONG THE WALL TOE CAN UNDERMINE & DAMAGE THE EARTH STRUCTURE FOUNDATION. CIVIL SITE DESIGNER IS RESPONSIBLE FOR ADDRESSING ALL POSSIBLE EROSION CONCERNS TO PROTECT WALL FOUNDATION.

5.0 DESIGN PARAMETERS

DESIGN OF THE REINFORCED SOIL STRUCTURES IS BASED ON THE FOLLOWING PARAMETERS:

REINFORCED ZONE	$\Phi' = 32^\circ$	$C' = 0$ PSF	$\gamma = 120$ PCF
RETAINED ZONE	$\Phi' = 32^\circ$	$C' = 0$ PSF	$\gamma = 120$ PCF
FOUNDATION ZONE	$\Phi' = 30^\circ$	$C' = 100$ PSF	$\gamma = 120$ PCF

INTERNAL STABILITY:

MIN. F.S. AGAINST GEOGRID PULLOUT	= 1.5
SOIL-GEOGRID INTERACTION COEFFICIENT	= 0.8
PERCENT COVERAGE OF GEOGRID	= 100%
MINIMUM F.S. FOR UNCERTAINTIES	= 1.5

EXTERNAL STABILITY:

MINIMUM F.S. AGAINST BASE SLIDING	= 1.5
MINIMUM F.S. AGAINST OVERTURNING	= 2.0
MINIMUM F.S. FOR GLOBAL STABILITY	= 1.3
MINIMUM F.S. FOR RAPID DRAWDOWN	= N/A

UNIFORM SURCHARGE	= 250 PSF
HYDROSTATIC LOADING	= AT TOE OF SLOPE
REQUIRED BEARING CAPACITY	= VARIES (SEE ELEVATION VIEW)

6.0 SPECIAL PROVISIONS

ACCEPTABLE MODULAR BLOCK UNITS ARE: ANCHOR DIAMOND PRO (BATTER 7.1°)
ROCKWOOD CLASSIC 8 (BATTER 7.1°)
KEYSTONE COMPAC III (BATTER 8.0°)
RIDGEROCK PLUS (BATTER 7.1°)

ACCEPTABLE GEOGRID REINFORCEMENTS ARE:	TYPE 1 STRATA SGU 60 MIRAFI 3XT EWG 60	TYPE 2 STRATA SGU 80 MIRAFI 5XT EWG 80	TYPE 3 STRATA SGU 120 MIRAFI 8XT EWG 120
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OTHER BLOCK AND GRID SYSTEMS MUST BE SUBMITTED FOR APPROVAL BY EES PRIOR TO CONSTRUCTION.

ENGINEERED EARTH SOLUTIONS, LLC. (EES) ASSUMES NO LIABILITY FOR INTERPRETATIONS OF SUBSURFACE CONDITIONS, SUITABILITY OF SOIL PARAMETERS, AND SUBSURFACE GROUNDWATER CONDITIONS. THE WALL CONTRACTOR AND/OR CONSTRUCTION VERIFICATION ENGINEER IS RESPONSIBLE FOR REVIEWING AND VERIFYING THAT CONDITIONS DESCRIBED ABOVE ARE ACCURATE PRIOR TO AND DURING CONSTRUCTION.

ALL WALLS OVER 25.0' IN HEIGHT REQUIRE DEEP BORINGS AT THE WALL LOCATION EVERY 50.0' O.C. ALONG THE WALL LENGTH. THE BORINGS SHALL EXTEND TO 1.5 TIMES THE WALL HEIGHT. FOR EXAMPLE, A 40.0' WALL WOULD REQUIRE DEEP BORINGS TO 60.0'. THE BORING RESULTS SHOULD BE SUBMITTED TO THE CONSTRUCTION VERIFICATION ENGINEER TO VERIFY FOUNDATION DESIGN PARAMETERS PRIOR TO CONSTRUCTION.

THE WALL CONTRACTOR AND/OR OWNER IS RESPONSIBLE FOR HAVING SUPERVISION OF ALL PHASES OF CONSTRUCTION BY A QUALIFIED GEOTECHNICAL ENGINEER (CONSTRUCTION VERIFICATION ENGINEER).

ENGINEERED EARTH SOLUTIONS, LLC HAS NOT EVALUATED SETTLEMENT. THE OWNER MUST INVESTIGATE AND EVALUATE THE IMPACT OF ANY AND ALL SETTLEMENT OF THE EARTH STRUCTURE PRIOR TO CONSTRUCTING ALL BUILDING AND SITE IMPROVEMENTS ABOVE AND IN CLOSE PROXIMITY TO THE SUBJECT EARTH STRUCTURE. ENGINEERED EARTH SOLUTIONS, LLC IS NOT RESPONSIBLE FOR ADVERSE IMPACT TO BUILDINGS AND/OR SITE IMPROVEMENTS DUE TO SHORT OR LONG-TERM SETTLEMENT CAUSED BY THE SURCHARGE LOAD OR SETTLEMENT WITHIN OR BELOW THE REINFORCED SOIL MASS.

A COPY OF THESE DRAWINGS SHALL BE PROVIDED TO FUTURE OWNERS OF THE DEVELOPED PROPERTY TO PROVIDE THEM WITH A RECORD OF THE LOCATION OF THE REINFORCED ZONE AND RECOMMENDATIONS REGARDING PERMISSIBLE CONSTRUCTION ACTIVITIES AROUND THE MECHANICALLY STABILIZED EARTH STRUCTURE.

GENERAL NOTES:

1. SOIL INSTALLED IN SLOPES BOTH ABOVE AND BELOW THE REINFORCED STRUCTURE SHALL BE COMPACTED TO WITHIN 95% OF ITS MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST (ASTM D-698). FILL SOILS INSTALLED ABOVE AND BELOW THE REINFORCED ZONE MUST MEET THE REINFORCED ZONE PARAMETERS NOTED IN NOTE 5.0 DESIGN PARAMETERS.

2. CONSTRUCTION VERIFICATION OF THE WALL INSTALLATION BY AN ENGINEER IS REQUIRED AND MUST BE PROVIDED BY A KNOWLEDGEABLE GEOTECHNICAL ENGINEER FAMILIAR WITH MECHANICALLY STABILIZED STRUCTURES. EES CAN PERFORM THIS VERIFICATION AS REQUESTED BUT MUST INCLUDE DAILY SITE VISITS.

3. IDENTIFICATION OF ALL UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY CONFLICTS SHALL BE REPORTED TO THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION.

4. EXCAVATION THROUGH THE GEOSYNTHETIC REINFORCEMENT FOR THE PURPOSE OF PLANTING TREES OR INSTALLATION OF UTILITIES SHOULD NOT OCCUR WITHOUT APPROVAL BY THE ENGINEER OF RECORD.

5. WATERLINES INCLUDING IRRIGATION SYSTEMS MUST BE WATER TIGHT WITHIN 100 FEET OF THE REINFORCED ZONE. LEAKAGE BEHIND A RETAINING WALL WILL INCREASE THE HORIZONTAL PRESSURE AGAINST THE WALL LEADING TO WALL FAILURE. FOR THIS REASON, SUBSURFACE WATERLINES AND IRRIGATION SYSTEMS SHOULD NOT BE INSTALLED ABOVE THE REINFORCED ZONES OF THE RETAINING WALL, OR WITHIN 5 FEET BEHIND THE REINFORCED ZONES.

6. THE RETAINING WALLS DESIGNED HEREIN ARE IN ACCORDANCE WITH THE STANDARD OF PRACTICE AS OUTLINED BY THE NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA) DESIGN MANUAL FOR SEGMENTAL RETAINING WALLS, SECOND EDITION.

7. ALL CONSTRUCTION ACTIVITY SHALL CONFORM TO THE MINIMUM REQUIREMENTS PER O.S.H.A. STANDARDS.

8. THIS DESIGN IS BASED UPON SPECIFIC PROPERTIES OF MATERIALS WHICH ARE PROPRIETARY. ANY SUBSTITUTION OF THE SPECIFIED PRODUCTS OR CHANGE IN STRUCTURE GEOMETRY WILL INVALIDATE THIS DESIGN. THIS DRAWING IS BEING FURNISHED FOR USE ON THIS SPECIFIC PROJECT ONLY. ANY PARTY ACCEPTING THIS DOCUMENT DOES SO IN CONFIDENCE AND AGREES THAT IT SHALL NOT BE DUPLICATED, IN WHOLE OR IN PART, NOR DISCLOSED TO OTHERS WITHOUT THE CONSENT OF ENGINEERED EARTH SOLUTIONS, LLC. THIS DRAWING, DESIGN NOTES, AND ASSOCIATED CALCULATIONS HAVE BEEN PREPARED BY ENGINEERED EARTH SOLUTIONS, LLC. FROM INFORMATION PROVIDED BY OTHERS. FINAL DETERMINATION OF THE SUITABILITY OF ANY INFORMATION CONTAINED HEREIN IS THE RESPONSIBILITY OF THE USER.

9. DISCOVERY OF SUBSURFACE GROUNDWATER SHALL BE REPORTED IMMEDIATELY TO THE PROJECT GEOTECHNICAL ENGINEER, CONSTRUCTION VERIFICATION ENGINEER AND EES FOR ADDITIONAL DRAINAGE CONSIDERATION.

10. STORM DRAIN SYSTEMS ARE PRONE TO LEAKING, THEREFORE, IF A JOINT IN A STORM WATER PIPE IS LOCATED WITHIN 100 FEET OF THE RETAINING WALL THE STORM WATER PIPE MUST BE WATER TIGHT. NEOPRENE O-RINGS MUST BE INSTALLED AT ALL STORM PIPE JOINTS AS A MINIMUM.

11. CONSTRUCTION ACTIVITIES, WHICH OCCUR ON THE SITE AFTER COMPLETION OF THE RETAINING WALL, SHOULD BE MONITORED BY THE OWNER'S REPRESENTATIVE TO INSURE THAT THEY DO NOT RESULT IN EXCAVATION THROUGH GEOSYNTHETIC REINFORCEMENT OR IN THE VICINITY OF THE WALL FOUNDATION. HEAVY CONSTRUCTION EQUIPMENT SHOULD NOT BE PERMITTED TO OPERATE WITHIN 10.0 FEET BEHIND A WALL FACE.

12. EARTH STRUCTURE LOCATION IN RELATION TO PROPERTY LINES, WATERSHED EASEMENTS, UTILITY EASEMENTS OR ANY OTHER TYPE OF EASEMENT OR BUFFER ARE THE RESPONSIBILITY OF THE OWNER OR THE SITE CIVIL ENGINEER. EES ASSUMES NO LIABILITY FOR THE LOCATION OF THE EARTH STRUCTURE. SURVEY CONTROL MUST BE PERFORMED USING THE CIVIL SITE DESIGNER'S LOCATION INFORMATION AND ACCOUNT FOR ALL STRUCTURE FACE BATTER. DEVIATION FROM THE CIVIL SITE DESIGN LAYOUT MUST BE REPORTED TO AND APPROVED BY THE CIVIL SITE DESIGNER PRIOR TO THE CONSTRUCTION OF THE EARTH STRUCTURE / RETAINING WALL.

13. GEOTECHNICAL REPORT BY CHATTAHOOCHEE CONSULTING GROUP DATED MAY 10, 2023 WAS PROVIDED FOR USE. BORINGS WERE INCLUDED WHICH INDICATE GENERAL SOIL TYPES. THE OWNER OR OWNER'S REPRESENTATIVE HAS PROVIDED SPECIFIC SOIL PARAMETERS FOR THE PROPOSED EARTH STRUCTURE. IN PREPARATION OF THE DESIGN, THESE SOIL PARAMETERS WERE USED. CONSTRUCTION VERIFICATION OF THE ABOVE SOIL CONDITIONS IS IMPERATIVE PRIOR TO AND DURING CONSTRUCTION. FAILURE TO VALIDATE THESE SOIL PARAMETERS CAN RESULT IN STRUCTURE FAILURE.

14. ALL ROOF DRAINS AND ROOF DRAIN OUTLETS MUST BE PIPED TO STORM DRAIN SYSTEM. ROOF DRAINS SHALL NOT BE EMPTIED INTO DRY WELLS OR POP UP DISSIPATERS WITHIN 20.0' OF THE REINFORCED ZONE.

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NOTE: THE CIVIL SITE DESIGNER SHALL APPROVE PRIOR TO CONSTRUCTION THE DETAILED LAYOUT FOR THE RETAINING WALL(S) AS SHOWN IN THESE SHOP DRAWINGS. DESIGN AND COORDINATION OF SURFACE DRAINAGE, STORM STRUCTURES, UTILITIES, FENCES, CURBS, GUARDRAILS AND OTHER NEW AND EXISTING IMPROVEMENTS IN THE RETAINING WALL AREA REMAINS THE SOLE RESPONSIBILITY OF THE CIVIL SITE DESIGNER.

THE WALL INSTALLER IS RESPONSIBLE FOR PROVIDING DRAINAGE AS SHOWN ON THE CONSTRUCTION DRAWINGS. FAILURE TO FOLLOW THESE DRAWINGS IN THEIR ENTIRETY WILL INVALIDATE THE DESIGN.

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PLOT HOLDERS

755 SOUTH ST. #855
PHILADELPHIA, PA 19147
TEL: (215) 259-8255

CLIENT



441 CREEKSTONE RIDGE
WOODSTOCK, GEORGIA 30188
TEL: 770-592-2950
EESOLS.COM



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PROJECT No. Z23-0338

NOTES FOR THE CONSTRUCTION OF THE CAST-IN-PLACE CONCRETE RETAINING WALL

1. ALL CONCRETE WORK SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE STANDARD 318-19 AND IBC 2022.
2. SOIL BEARING CAPACITY SHALL BE APPROVED BY A GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION.
3. BACKFILL AROUND THE CAST-IN-PLACE CONCRETE RETAINING WALL SHALL BE PLACED IN 8" LIFTS AT 95% STANDARD PROCTOR COMPACTION.
4. ALL STEEL SHALL BE ASTM A615 GRADE 60 REINFORCEMENT.
5. UNLESS OTHERWISE NOTED, ALL REINFORCING LAP SPLICES SHALL BE PER ACI STANDARDS CLASS B SPLICES.
6. PRIOR TO PLACING CONCRETE, ALL REINFORCING STEEL SHALL BE FREE OF RUST SCALE OR ANY FOREIGN MATERIAL.
7. CONCRETE TO BE 3000 PSI WITH SLUMP OF 4 TO 6 INCHES.
8. VERTICAL CONTROL JOINTS SHALL BE MADE WITH CHAMFER EDGES AT 25 FT. (MAX.) INTERVALS ALONG WALL LENGTH.
9. TEMPORARY SAFETY FENCE SHALL BE INSTALLED MEETING CURRENT OSHA STANDARDS UNTIL PERMANENT FENCE (DESIGNED BY OTHERS) IS INSTALLED.
10. ALL EXCAVATIONS MADE FOR THE WALL CONSTRUCTION SHALL BE APPROVED BY THE ON-SITE GEOTECHNICAL ENGINEER AND MEET OSHA STANDARDS PRIOR TO CONSTRUCTION.
11. CONTRACTOR SHALL GIVE CONSTRUCTION VERIFICATION ENGINEER 48 HOURS NOTICE PRIOR TO POURING ANY CONCRETE. ALL REINFORCING STEEL SHALL BE INSPECTED BY THE CONSTRUCTION VERIFICATION ENGINEER PRIOR TO POURING CONCRETE.
12. FOOTINGS MAY BE CAST INTO AN EARTH-FORMED TRENCH IF SOIL CONDITIONS PERMIT.
13. EXCAVATION FOR FOOTING SHALL BE CUT TO ACCURATE SIZE AND DIMENSIONS AS SHOWN ON PLANS. ALL SOIL BELOW SLABS AND FOOTINGS SHALL BE PROPERLY COMPACTED AND SUB GRADE BROUGHT TO A REASONABLE TRUE AND LEVEL PLANE BEFORE PLACING CONCRETE.
14. ALL BEARING MATERIAL SHALL BE INSPECTED BY THE INDEPENDENT TESTING AGENCY PRIOR TO CONCRETE PLACEMENT. THE INDEPENDENT TESTING AGENCY SHALL BE THE SOLE JUDGE AS TO THE SUITABILITY OF THE BEARING MATERIAL. FOOTING ELEVATIONS SHALL BE ADJUSTED AS REQUIRED.
15. ACCEPTABLE WALL DRAINAGE COMPOSITE ARE:
- SITEDRAIN DS-180 SERIES DRAINAGE COMPOSITE
 - J-DRAIN ES 2140 DRAINAGE COMPOSITE
 - OR APPROVED EQUAL
- ON 8.0' CENTERS ROLLED DOWN BACK CUT

16. NO EXCAVATION SHALL BE CLOSER THAN A 2:1 (2 HORIZONTAL TO 1 VERTICAL) ZONE OF INFLUENCE EXTENDING OUT DOWNWARD FROM THE CAST-IN-PLACE FOOTING. PROVIDE SHORING AND PROTECTION FOR EXCAVATION BANKS AS NECESSARY TO PRESERVE SAFETY AND PREVENT CAVING.
17. ALL BEARING STRATA SHALL BE ADEQUATELY DRAINED BEFORE FOUNDATION CONCRETE IS PLACED.
18. THE CONTRACTOR SHALL INFORM THE PROFESSIONAL OF RECORD IN WRITING OF ANY DEVIATION FROM THE CONTRACT DOCUMENTS.
19. AT ALL TIMES THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONDITIONS OF THE JOB SITE INCLUDING SAFETY OF PERSONS AND PROPERTY. THE ARCHITECT'S OR ENGINEER'S PRESENCE AT THE JOB SITE FOR REVIEW OF WORK DOES NOT IMPLY CONFIRMATION OF THE ADEQUACY OF THE CONTRACTOR'S MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR THE COMPLIANCE WITH OSHA REGULATIONS.
20. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS BEFORE STARTING WORK. THE CIVIL ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES.
21. BRACE WALLS DURING BACKFILLING OR USE HAND OPERATED EQUIPMENT WITHIN 5' BEHIND WALLS.
22. FACTORS OF SAFETY:
- F.S. OF SLIDING = 1.5
F.S. OF OVERTURNING = 1.5
F.S. OF BEARING CAPACITY = 2.0
F.S. OF GLOBAL STABILITY = 1.3
23. THE CAST-IN-PLACE CONCRETE RETAINING WALL IS BASED ON THE FOLLOWING PARAMETERS:
- | | | | |
|---|--------------------|------------------------|----------------------------|
| RETAINED ZONE | $\Phi' = 32^\circ$ | $C' = 0 \text{ PSF}$ | $\gamma = 120 \text{ PCF}$ |
| FOUNDATION ZONE | $\Phi' = 30^\circ$ | $C' = 100 \text{ PSF}$ | $\gamma = 120 \text{ PCF}$ |
| DENSE WEATHERED ROCK | $\Phi' = 38^\circ$ | $C' = 100 \text{ PSF}$ | $\gamma = 120 \text{ PCF}$ |
| COEFF. OF FRICTION = 0.35 ON RESIDUAL SOIL // 0.45 ON EXISTING ROCK | | | |
| BEARING CAPACITY OF SOIL = 4000 PSF | | | |
- SURCHARGE = 250 PSF TRAFFIC // 100 PSF PEDESTRIAN
IMPACT LOAD = 0.4 KLF @ PARAPET
HYDROSTATIC LOAD
WALL B & C = EL. 1077.2 (PERMANENT) / EL. 1081.84 (FLOOD)
WALL D = NONE

24. THIS DESIGN IS BASED UPON SPECIFIC PROPERTIES OF MATERIALS WHICH ARE PROPRIETARY. ANY SUBSTITUTION OF THE SPECIFIED PRODUCTS OR CHANGE IN STRUCTURE GEOMETRY WILL INVALIDATE THIS DESIGN. THIS DRAWING IS BEING FURNISHED FOR USE ON THIS SPECIFIC PROJECT ONLY. ANY PARTY ACCEPTING THIS DOCUMENT DOES SO IN CONFIDENCE AND AGREES THAT IT SHALL NOT BE DUPLICATED, IN WHOLE OR IN PART, NOR DISCLOSED TO OTHERS WITHOUT THE CONSENT OF ENGINEERED EARTH SOLUTIONS, LLC. THIS DRAWING, DESIGN NOTES, AND ASSOCIATED CALCULATIONS HAVE BEEN PREPARED BY ENGINEERED EARTH SOLUTIONS, LLC. FROM INFORMATION PROVIDED BY OTHERS. FINAL DETERMINATION OF THE SUITABILITY OF ANY INFORMATION CONTAINED HEREIN IS THE RESPONSIBILITY OF THE USER.
25. CONSTRUCTION VERIFICATION OF THE WALL INSTALLATION BY AN ENGINEER IS REQUIRED AND MUST BE PROVIDED BY A KNOWLEDGEABLE GEOTECHNICAL ENGINEER FAMILIAR WITH CAST-IN-PLACE STRUCTURES. EES CAN PERFORM THIS VERIFICATION AS REQUESTED BUT MUST INCLUDE DAILY SITE VISITS.
26. FAILURE OF QUALITY ASSURANCE TESTING AND INSPECTION TO DETECT ANY DEFECTIVE WORK OR MATERIAL SHALL NOT IN ANY WAY PREVENT LATER REJECTION WHEN SUCH DEFECT IS NOTED, NOR SHALL IT OBLIGATE THE OWNER'S REPRESENTATIVE FOR FINAL ACCEPTANCE.
27. GEOTECHNICAL REPORT BY CHATTAHOOCHEE CONSULTING GROUP DATED MAY 10, 2023 WAS PROVIDED FOR USE. BORINGS WERE INCLUDED WHICH INDICATE GENERAL SOIL TYPES. THE OWNER OR OWNER'S REPRESENTATIVE HAS PROVIDED SPECIFIC SOIL PARAMETERS FOR THE PROPOSED EARTH STRUCTURE. IN PREPARATION OF THE DESIGN, THESE SOIL PARAMETERS WERE USED. CONSTRUCTION VERIFICATION OF THE ABOVE SOIL CONDITIONS IS IMPERATIVE PRIOR TO AND DURING CONSTRUCTION. FAILURE TO VALIDATE THESE SOIL PARAMETERS CAN RESULT IN STRUCTURE FAILURE.
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PLOT HOLDERS

755 SOUTH ST. #855
PHILADELPHIA, PA 19147
TEL: (215) 259-8255

CLIENT



ENGINEERED EARTH SOLUTIONS, LLC.
441 CREEKSTONE RIDGE
WOODSTOCK, GEORGIA 30188
TEL: 770-592-2950
EESOLS.COM



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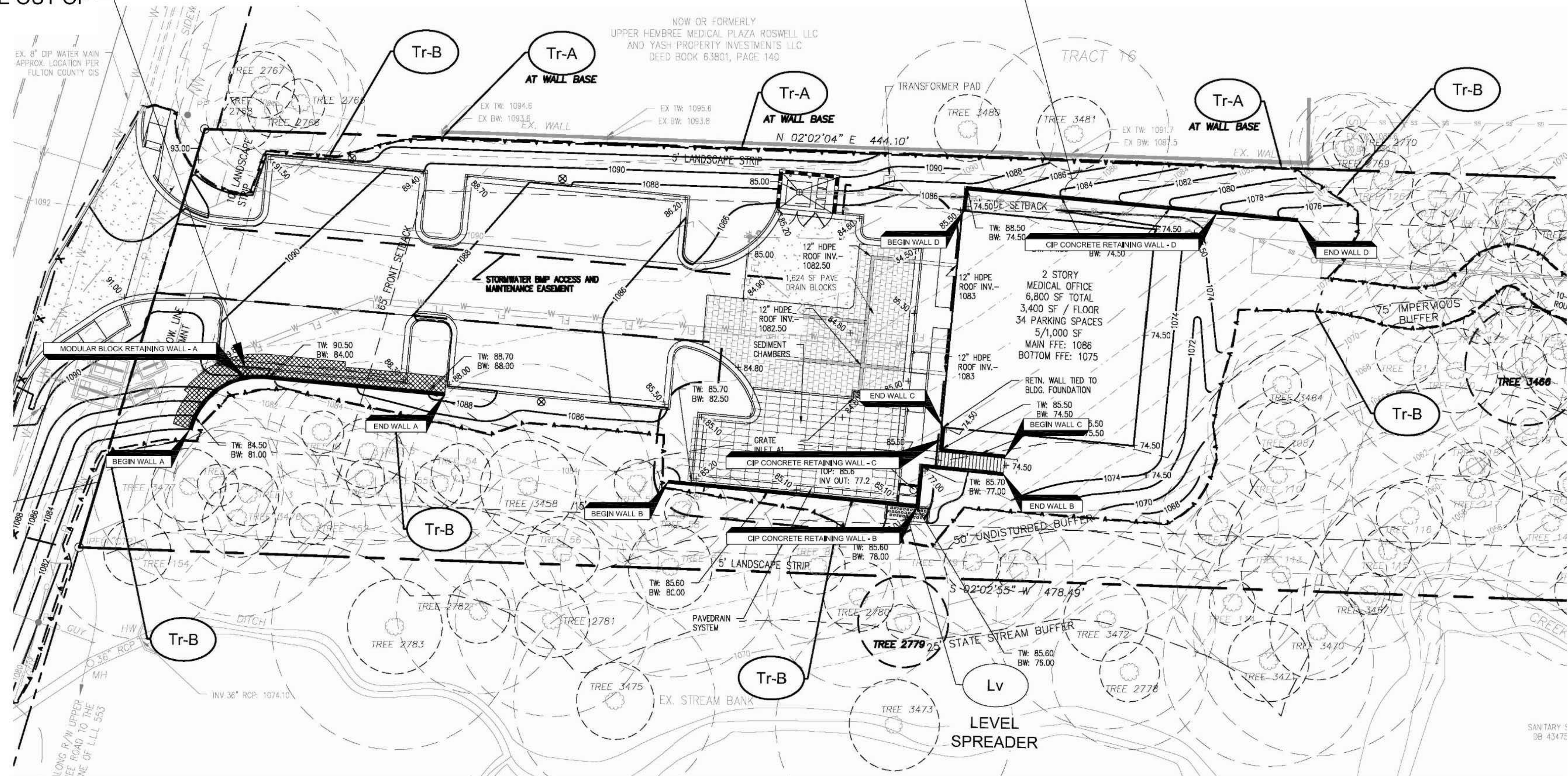
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RELOCATE LIGHT POLE OUT OF
REINFORCED ZONE

ROCK CONDITIONS MUST BE VERIFIED BY
THE ON-SITE GEOTECHNICAL ENGINEER.
PROTECT THE EXISTING WALL WITH
SHORING AS REQUIRED.

NOTE: CONSTRUCTION VERIFICATION OF THE WALL
INSTALLATION BY AN ENGINEER IS REQUIRED AND MUST BE
PROVIDED BY A KNOWLEDGEABLE GEOTECHNICAL ENGINEER
FAMILIAR WITH MECHANICALLY STABILIZED STRUCTURES.



PLAN VIEW
NOT TO SCALE

THE ADJACENT PLAN VIEW HAS BEEN COPIED FROM CIVIL SITE PLANS
PREPARED BY AEC DATED 02-27-26 FOR REFERENCE. REFER TO CIVIL
SITE PLANS FOR STRUCTURE LAYOUT INFORMATION. MODULAR BLOCK
WALL LAYOUT SHALL BE APPROVED BY THE CIVIL SITE DESIGNER PRIOR
TO CONSTRUCTION. THE TOP OF WALL LOCATION IS SHOWN. THE
SURVEYOR SHALL ADJUST THE BOTTOM OF WALL LOCATION TO ACCOUNT
FOR WALL BATTER.

THIS DESIGN IS BASED UPON SPECIFIC PROPERTIES OF MATERIALS WHICH ARE
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PLOT HOLDERS

755 SOUTH ST. #855
PHILADELPHIA, PA 19147
TEL: (215) 259-8255
CLIENT

EES
ENGINEERED EARTH SOLUTIONS, LLC.
441 CREEKSTONE RIDGE
WOODSTOCK, GEORGIA 30188
TEL: 770-592-2950
EESOLS.COM



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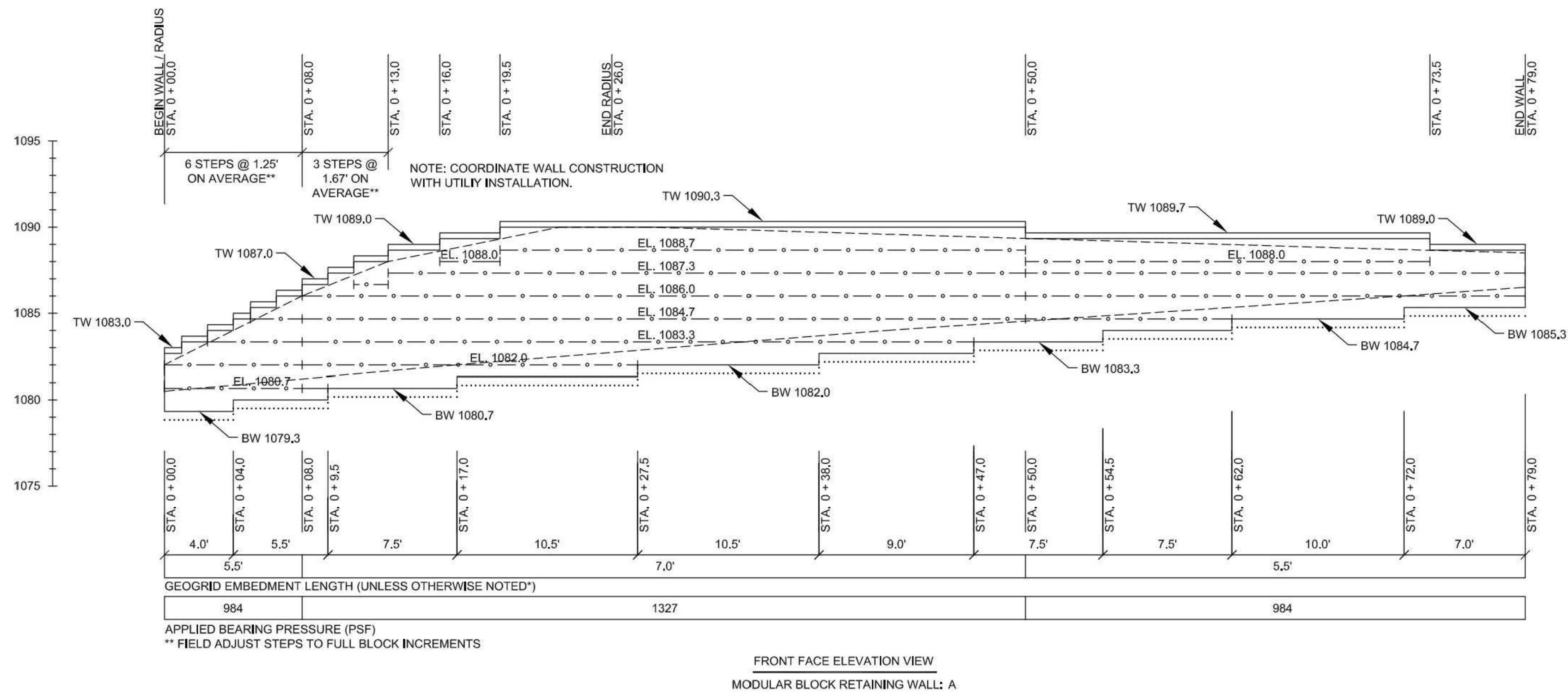
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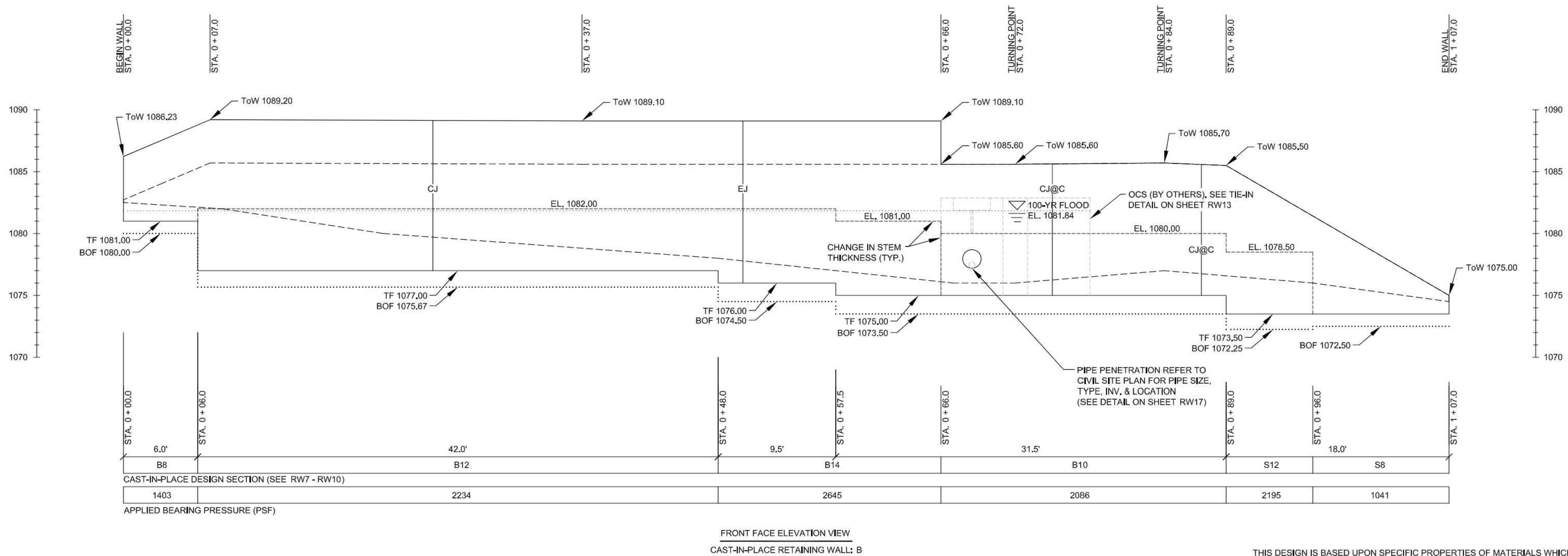
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NOTE: CONSTRUCTION VERIFICATION OF THE WALL INSTALLATION BY AN ENGINEER IS REQUIRED AND MUST BE PROVIDED BY A KNOWLEDGEABLE GEOTECHNICAL ENGINEER FAMILIAR WITH MECHANICALLY STABILIZED STRUCTURES.

LEGEND - MODULAR WALL	
BW	BOTTOM OF WALL
TW	TOP OF WALL
---	GRADE LINE
"X,X"	ALTERNATE REINFORCEMENT LENGTH
---	CHANGE IN EMBEDMENT LENGTH OR REINFORCEMENT TERMINATION
EL.XX.X	REINFORCEMENT ELEVATION
o	GEOGRID TYPE 1 REINFORCEMENT
---	LEVELING PAD
REFER TO RW1 FOR GEOGRID REINFORCEMENT OPTIONS	

LEGEND - CAST-IN-PLACE WALL	
TF	TOP OF FOOTING
ToW	TOP OF WALL
BOF	BOTTOM OF FOOTING
---	PROPOSED GRADE AT WALL
CJ	CJ (CONTROL JOINT/CONSTRUCTION JOINT)
EJ	EJ (EXPANSION JOINT)
CJ@C	CJ@C (CONSTRUCTION JOINT AT CORNER)



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755 SOUTH ST. #855
PHILADELPHIA, PA 19147
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EES
ENGINEERED EARTH SOLUTIONS, LLC.
441 CREEKSTONE RIDGE
WOODSTOCK, GEORGIA 30188
TEL: 770-592-2950
EESOLS.COM



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