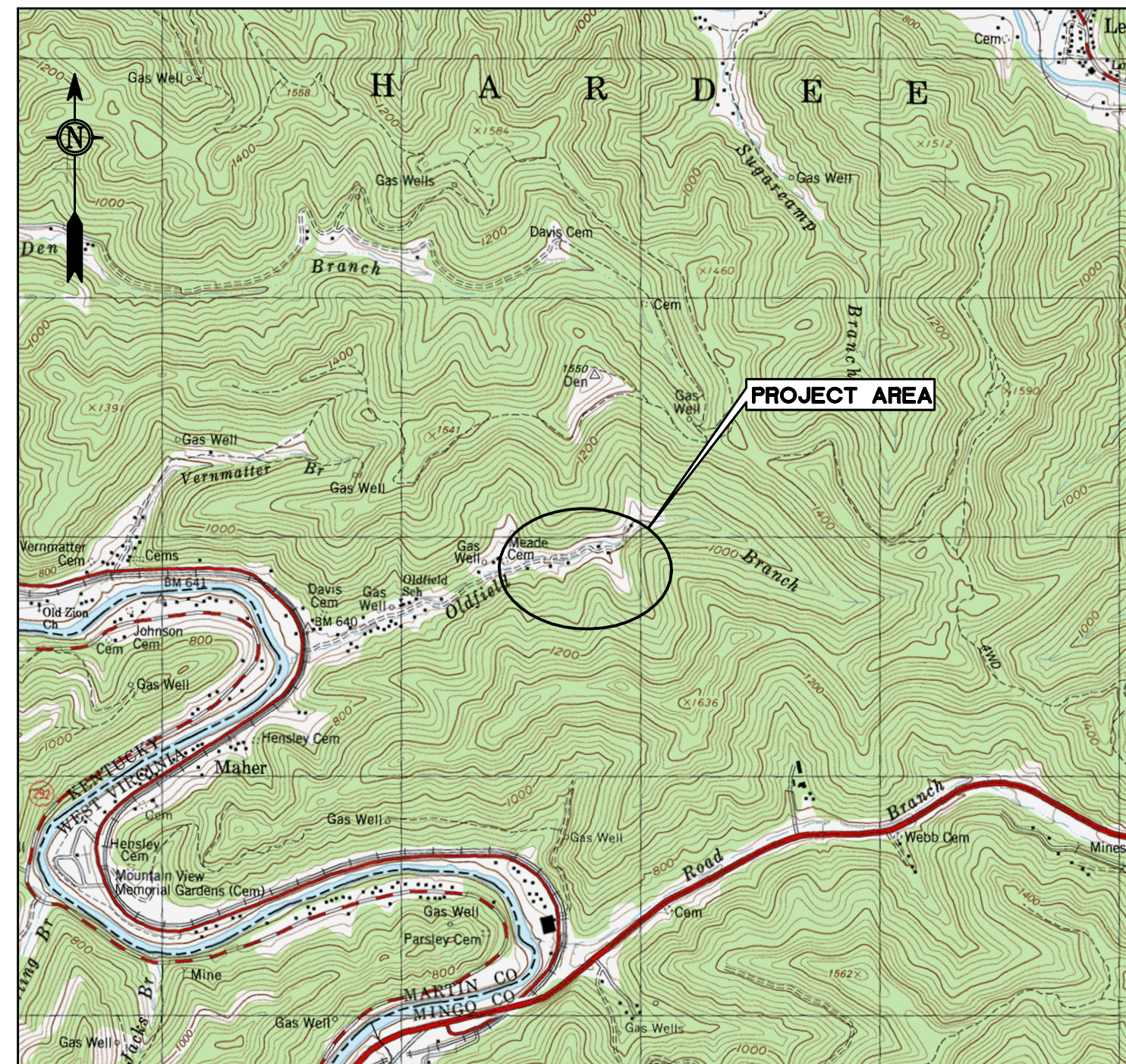


west virginia department of environmental protection

**EARL RAY TOMBLIN, GOVERNOR
 RANDY C. HUFFMAN, CABINET SECRETARY
 OFFICE OF ABANDONED MINE LANDS
 OLDFIELD BRANCH (HALL) DRAINAGE
 MINGO COUNTY, WEST VIRGINIA**

U.S.G.S. LOCATION MAP
 SCALE: 1 INCH = 2000 FEET



MAPPING REFERENCE:
 NAUGATUCK, WEST VIRGINIA
 U.S.G.S. 7.5 MINUTE QUADRANGLE
 1997

BID FORM

ITEM NO.	QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
1.0	1	"Mobilization and Demobilization," per lump sum. Cannot be more than 10% of the Total Amount Bid for the project.	ls.	\$
2.0	1	"Construction Layout," per lump sum. Cannot be more than 5% of the Total Amount Bid for the project.	ls.	\$
3.0	1	"Quality Control," per lump sum. Cannot be more than 3% of the Total Amount Bid for the project.	ls.	\$
4.1	1	"Site Preparation," per lump sum. Cannot be more than 10% of the Total Amount Bid for the project.	ls.	\$
4.2	320	"Class 1 Aggregate," per ton	\$	\$
4.3	60	"Temporary Culvert," per linear foot	\$	\$
4.4	1	"Multi Pipe Stream Crossing," per each	\$	\$
5.1	900	"Silt Fence," per linear foot	\$	\$
5.2	3	"Stabilized Construction Entrance," per each	\$	\$
5.3	4	"Rock Check Dams," per each	\$	\$
6.0	2	"Revegetation," per plan view acre	\$	\$
7.1	600	"2-Foot Deep Vee Grouted Riprap Channel" per linear foot	\$	\$
7.2	250	"1-Foot Deep Trapezoidal ECM Channel," per linear foot	\$	\$
9.1	2	"Wet/Modified Mine Seal," per each	\$	\$
9.2	3	"Bat Gate Mine Seal," per each	\$	\$
9.3	120	"Conveyance Pipe," per linear foot	\$	\$
9.4	100	"Soda Ash Briquettes," per 50 pound bag	\$	\$
10.1	300	"Underdrain," per linear foot	\$	\$
10.2	1	"In Line Cleanouts - 12 inch," per each	\$	\$
11.0	800	"Erosion Control Matting," per square yard	\$	\$
12.1	210	"Redi-Rock Wall," per linear foot	\$	\$
12.2	575	"Stone Backfill," per ton	\$	\$
TOTAL				

SHEET INDEX

DRAWING NO.	DESCRIPTION
1	TITLE AND INDEX SHEET
2	GENERAL NOTES AND SURVEY CONTROL POINT LOCATIONS
3	EXISTING CONDITIONS PLAN
4	EROSION & SEDIMENTATION PLAN
5	PROPOSED PLAN
6	TAX MAP OVERLAY
7	CHANNEL DETAILS
8 - 9	MISCELLANEOUS DETAILS
10 - 12	MINE SEAL DETAILS
13	CHANNEL PROFILES

PLANS PREPARED BY:



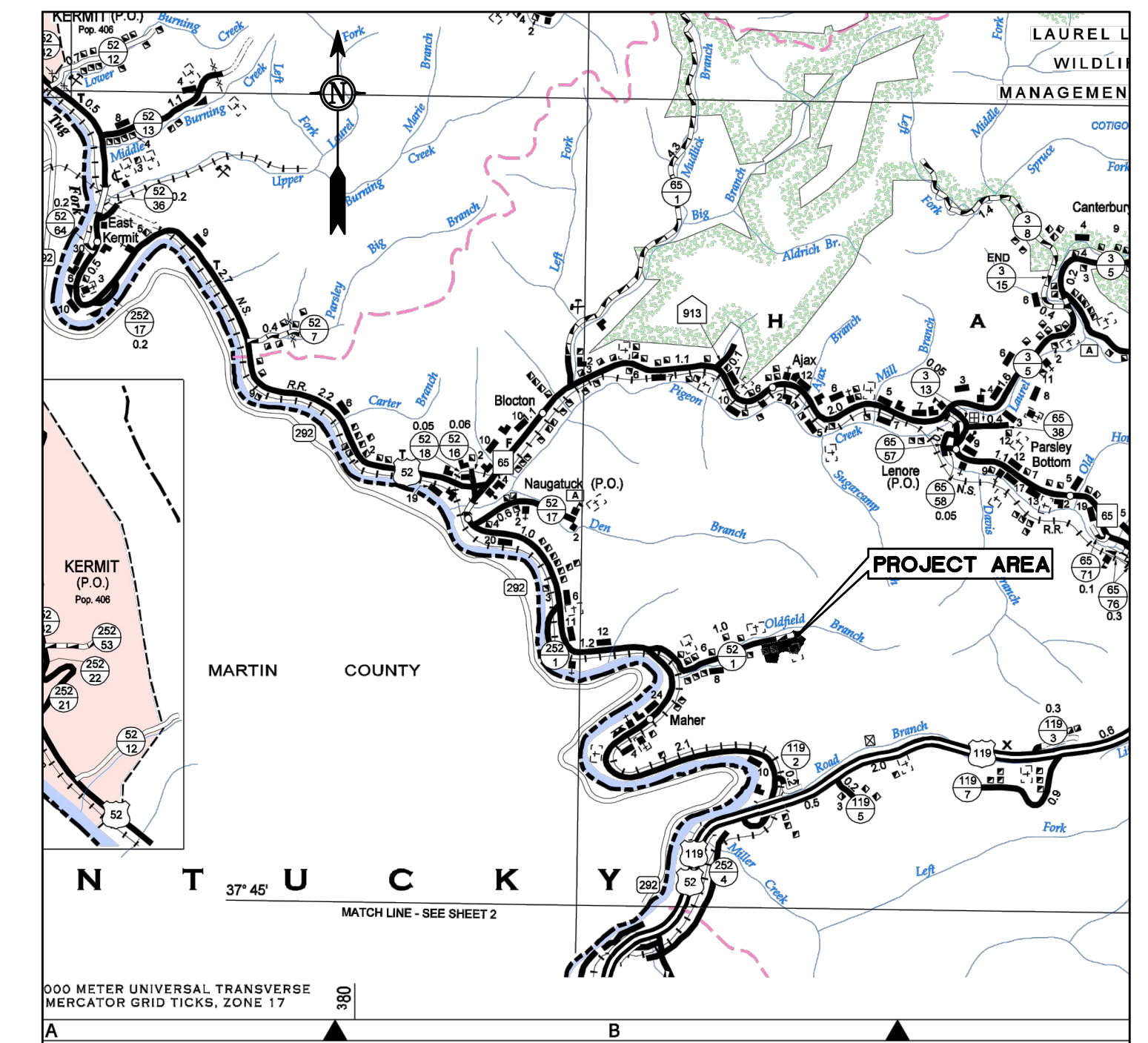
gai consultants
 300 SUMMERS STREET, SUITE 1100
 CHARLESTON, WEST VIRGINIA 25301
 304-926-8100



Charles F. Strolley, PE



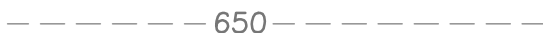


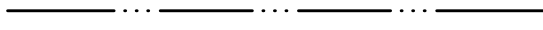






















Date

COUNTY HIGHWAY MAP
 SCALE: 1 INCH = 1 MILE



MAPPING REFERENCE:
 MINGO COUNTY, WEST VIRGINIA
 GENERAL HIGHWAY MAP
 (2011)

LEGEND

	EXISTING FEATURE
	PROPOSED FEATURE
	EXISTING CONTOUR (SURVEY)
	PROPOSED CONTOUR
	CONSTRUCTION WORK LIMIT
	EXISTING STREAM OR PRIMARY FLOW PATH
	EXISTING ROAD
	EXISTING OVERHEAD ELECTRIC
	EXISTING OVERHEAD UTILITY
	PROPOSED CHANNEL CENTERLINE AND TOP EDGES (AT MIN. DEPTH)
	SPOT ELEVATION, PROPOSED GRADE
	SPOT ELEVATION, EXISTING GROUND SURFACE
	SILT FENCE
	EXISTING STORM SEWER LINE
	FLOW DIRECTION
	PROPERTY LINE
	PROPOSED FENCE
	PARCEL NUMBER
	DETAIL NUMBER 1 (OR SECTION OR PROFILE REFERENCE) DRAWING 2
	BORING LOCATION (APPROX.)
	PIEZOMETER LOCATION (APPROX.)
	ROCK CHECK DAM
	RIPRAP/ROCK
	COMPACTED BACKFILL
	EX. CONCRETE PAVING
	EX. ASPHALT PAVING
	EX. GRAVEL PAVING
	EROSION CONTROL MATTING

GENERAL NOTES

- IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND AVOID ALL UTILITIES, FACILITIES, AND OTHER STRUCTURES AND OBSTRUCTIONS. UTILITY LOCATIONS ARE BASED ON INFORMATION PROVIDED ON THE BASE MAPPING, ADDITIONAL SURVEYING, AND ON SITE OBSERVATIONS, AND MAY NOT BE ALL INCLUSIVE. ACTUAL LOCATIONS MAY DEVIATE FROM THAT SHOWN. ALL UTILITIES SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION. CONTACT EACH RESPECTIVE UTILITY/LANDOWNER FOR SERVICE LINE LOCATIONS.
- SANITARY SYSTEMS, STORM DRAINS, AND CULVERTS ARE NOT SHOWN OR ARE NOT SHOWN IN THEIR ENTIRETY AND MUST BE LOCATED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
- ALL FENCES ARE NOT DEPICTED.
- THE CONTRACTOR SHALL MAINTAIN UNRESTRICTED ACCESS AT THE SITE AT ALL TIMES DURING CONSTRUCTION.
- LOCATIONS OF SURVEY CONTROL POINTS SHOULD BE FIELD VERIFIED PRIOR TO COMMENCING WORK. FIELD VERIFICATION OF CROSS SECTIONS SHALL ALSO BE COMPLETED AND ACCEPTED BY THE WVDEP PRIOR TO COMMENCING WORK.
- REFER TO THE OTHER DRAWINGS FOR SPECIFIC NOTES REGARDING THE RECLAMATION WORK.
- ALL DISTURBED AREAS WITHIN THE CONSTRUCTION WORK LIMIT SHALL BE REVEGETATED. ALL OTHER AREAS DISTURBED BY THE CONTRACTOR OUTSIDE THE CONSTRUCTION WORK LIMIT SHALL BE REVEGETATED AT THE CONTRACTOR'S OWN EXPENSE.
- IT IS POSSIBLE THAT CERTAIN ASPECTS OF THE BASE TOPOGRAPHIC MAPPING MAY BE DIFFERENT FROM CONDITIONS EXISTING IN THE FIELD. OTHER NATURAL OCCURRENCES SUCH AS EROSION MAY HAVE RESULTED IN CONDITIONS DIFFERENT THAN SHOWN ON THE BASE MAPPING.
- CONTOUR INTERVAL OF BASE MAPPING IS 2-FOOT. CERTAIN AREAS OF PROPOSED GRADING VARY IN CONTOUR INTERVAL.
- THE CONTRACTOR SHALL UTILIZE EXISTING ACCESS ROADS TO THE PROJECT AREA IN ACCORDANCE WITH THE SPECIFICATIONS.
- THE CONTRACTOR SHALL REPAIR/REPLACE ANY EXISTING FENCES AND GATES THAT ARE DAMAGED/DESTROYED BY THE CONTRACTOR AT HIS OWN EXPENSE.

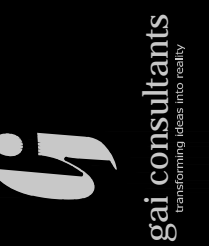
CONTROL POINTS				
STATION	NORTHING (Ft)	EASTING (Ft)	ELEV (Ft,MSL)	REF PLAN SHEET
TBM 1	285624.974	1589597.067	717.80	3
TBM 2	285554.879	1589550.795	743.52	3
TBM 3	285318.038	1589596.234	814.94	3
TBM 4	285408.508	1589723.565	795.02	3
TBM 5	285712.651	1589851.739	723.13	3
TBM 6	285721.865	1590156.946	737.37	3

SURVEY CONTROL POINT LOCATIONS

1
2

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300 SUMMERS STREET, SUITE 100
CHARLESTON, WEST VIRGINIA 25301
P: 304.926.8100 F: 304.926.8880



WVDEP - AML
OLDFIELD BRANCH
(HALL) DRAINAGE
MINGO COUNTY, WV

PLOT SCALE: KAM
DESIGNED BY: KAM
DRAWN BY: KAM
CHECKED BY: XXX
APPROVED BY: XXX
DATE: December 23, 2015
PROJECT NUMBER: E130024

GENERAL NOTES &
SURVEY CONTROL
POINT LOCATIONS

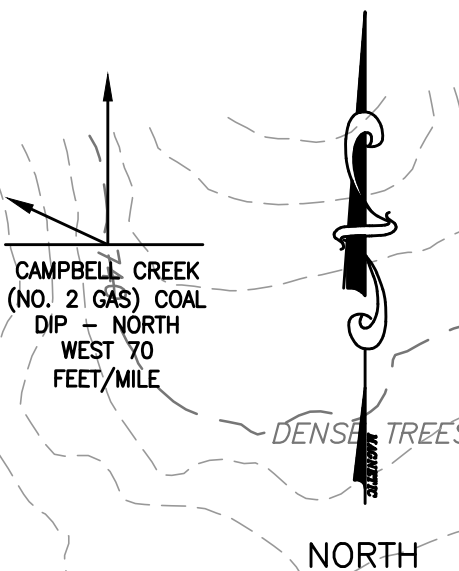
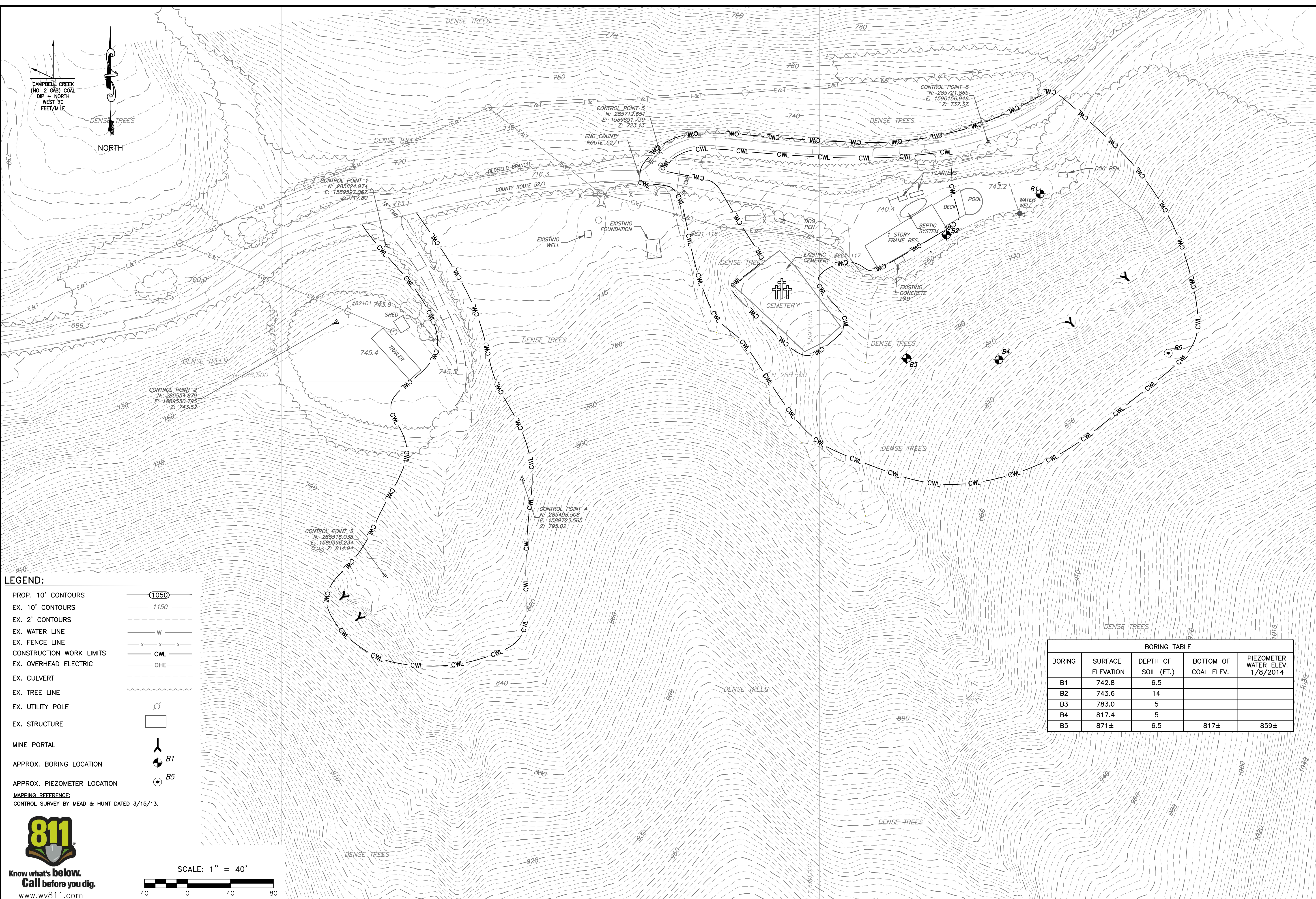
REVISED	REV. NO.	DATE	DESCRIPTION

SCALE
AS SHOWN
DRAWING NUMBER

2

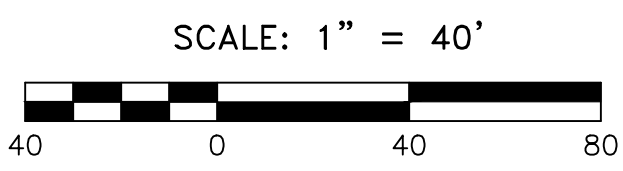


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- LEGEND:**
- PROP. 10' CONTOURS
 - EX. 10' CONTOURS
 - EX. 2' CONTOURS
 - EX. WATER LINE
 - EX. FENCE LINE
 - CONSTRUCTION WORK LIMITS
 - EX. OVERHEAD ELECTRIC
 - EX. CULVERT
 - EX. TREE LINE
 - EX. UTILITY POLE
 - EX. STRUCTURE
 - MINE PORTAL
 - APPROX. BORING LOCATION
 - APPROX. PIEZOMETER LOCATION

MAPPING REFERENCE:
CONTROL SURVEY BY MEAD & HUNT DATED 3/15/13.



BORING TABLE				
BORING	SURFACE ELEVATION	DEPTH OF SOIL (FT.)	BOTTOM OF COAL ELEV.	PIEZOMETER WATER ELEV. 1/8/2014
B1	742.8	6.5		
B2	743.6	14		
B3	783.0	5		
B4	817.4	5		
B5	871±	6.5	817±	859±

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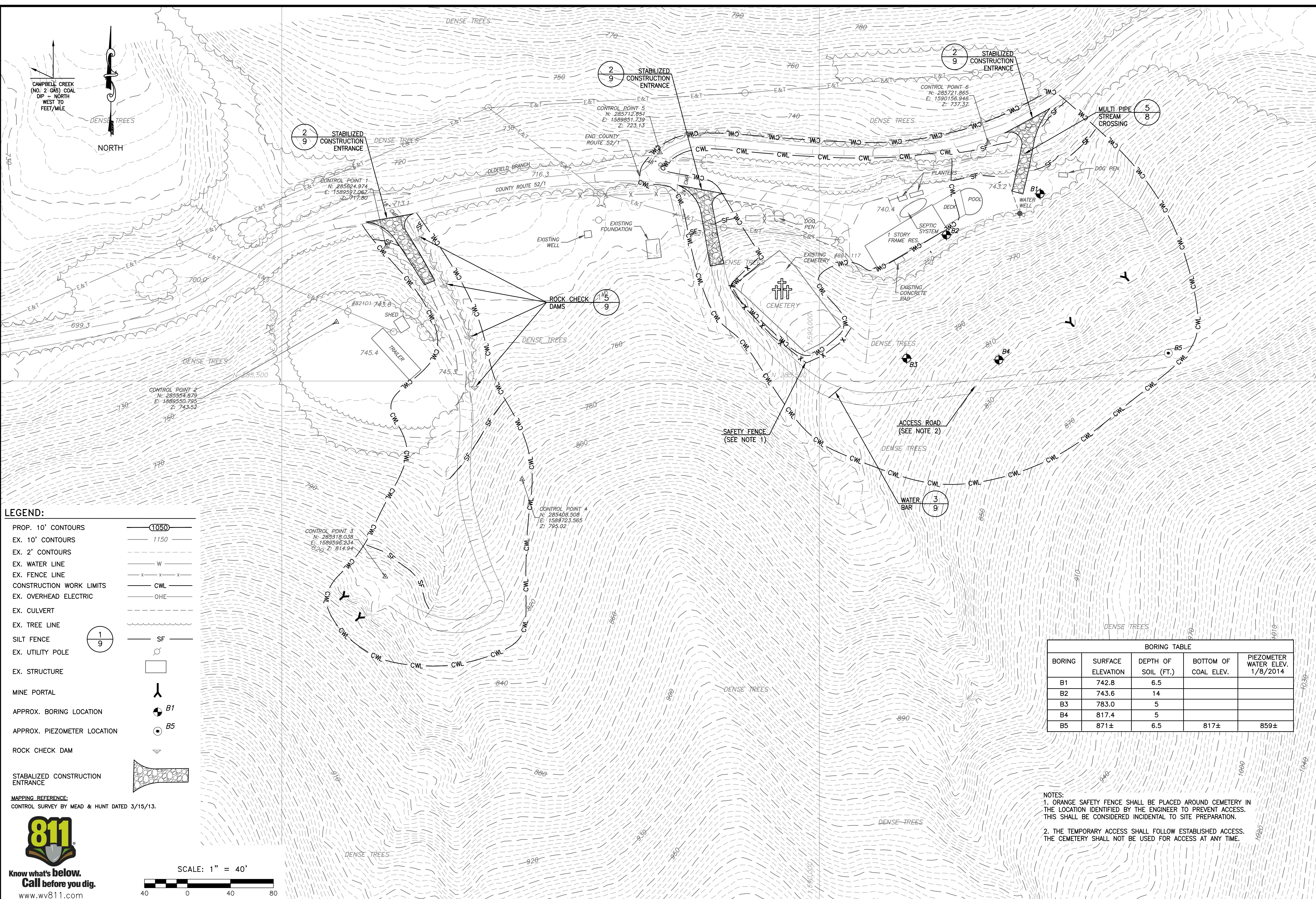
**WVDEP - AML
OLDFIELD BRANCH
(HALL) DRAINAGE
MINGO COUNTY, WV**

1/1
DESIGNED BY: KAM
DRAWN BY: KAM
CHECKED BY: XXX
APPROVED BY: XXX
DATE: December 23, 2015
PROJECT NUMBER: E130024

**EXISTING
CONDITIONS**

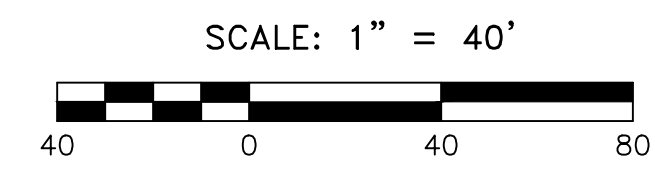
REVISED	REV. NO.	DATE	DESCRIPTION

SCALE
1" = 40'
DRAWING NUMBER
3



- LEGEND:**
- PROP. 10' CONTOURS 1050
 - EX. 10' CONTOURS 1150
 - EX. 2' CONTOURS
 - EX. WATER LINE W
 - EX. FENCE LINE x x x
 - CONSTRUCTION WORK LIMITS CWL
 - EX. OVERHEAD ELECTRIC OHE
 - EX. CULVERT
 - EX. TREE LINE
 - SILT FENCE SF
 - EX. UTILITY POLE
 - EX. STRUCTURE
 - MINE PORTAL
 - APPROX. BORING LOCATION
 - APPROX. PIEZOMETER LOCATION
 - ROCK CHECK DAM
 - STABILIZED CONSTRUCTION ENTRANCE

MAPPING REFERENCE:
CONTROL SURVEY BY MEAD & HUNT DATED 3/15/13.



BORING TABLE				
BORING	SURFACE ELEVATION	DEPTH OF SOIL (FT.)	BOTTOM OF COAL ELEV.	PIEZOMETER WATER ELEV. 1/8/2014
B1	742.8	6.5		
B2	743.6	14		
B3	783.0	5		
B4	817.4	5		
B5	871±	6.5	817±	859±

- NOTES:**
- ORANGE SAFETY FENCE SHALL BE PLACED AROUND CEMETERY IN THE LOCATION IDENTIFIED BY THE ENGINEER TO PREVENT ACCESS. THIS SHALL BE CONSIDERED INCIDENTAL TO SITE PREPARATION.
 - THE TEMPORARY ACCESS SHALL FOLLOW ESTABLISHED ACCESS. THE CEMETERY SHALL NOT BE USED FOR ACCESS AT ANY TIME.

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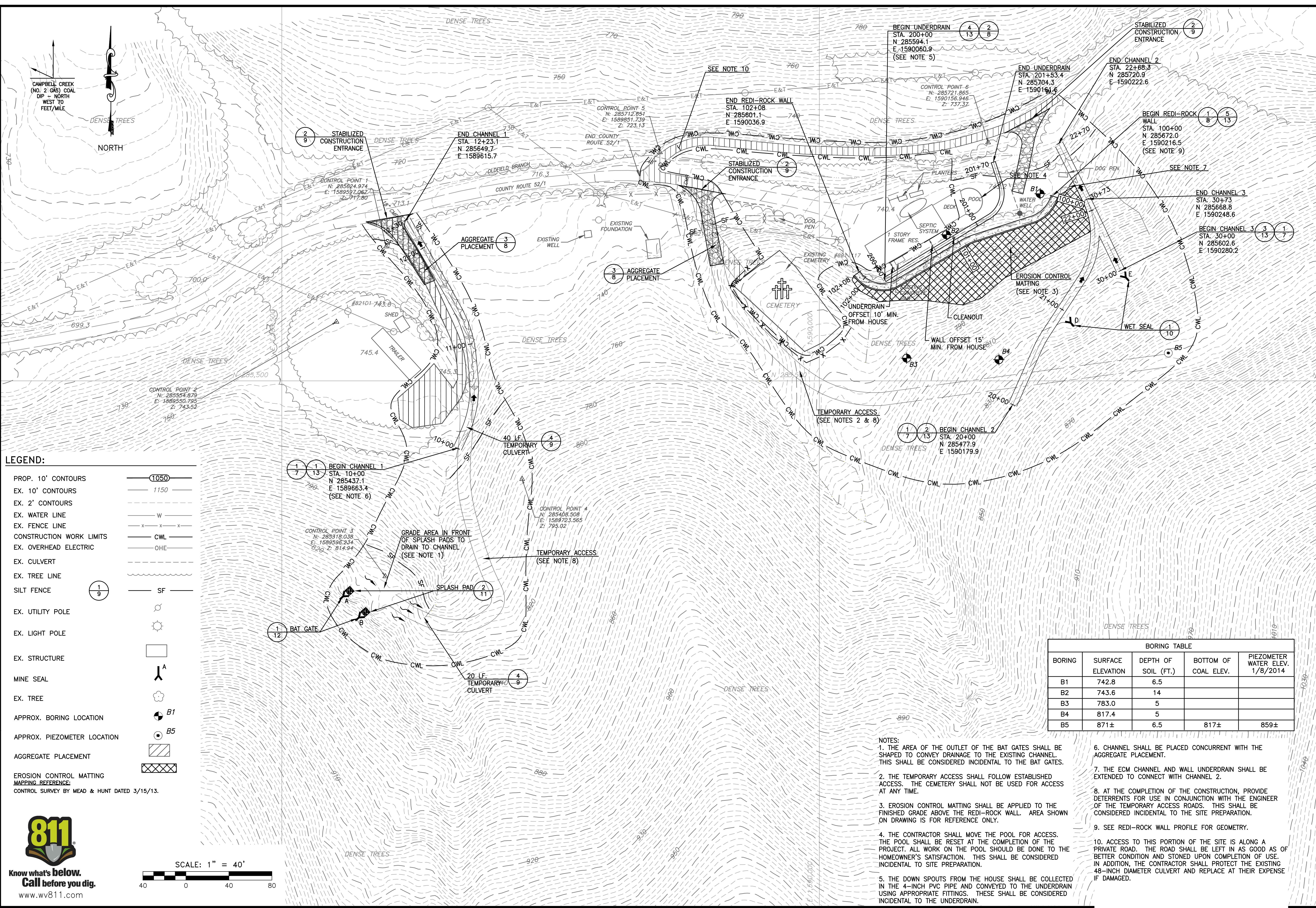
**WVDEP - AML
OLDFIELD BRANCH
(HALL) DRAINAGE
MINGO COUNTY, WV**

1/1
PLOT SCALE: KAM
DESIGNED BY: KAM
CHECKED BY: XXX
APPROVED BY: XXX
DATE: December 23, 2015
PROJECT NUMBER: E130024

**EROSION AND
SEDIMENT CONTROL**

REVISED	REV. NO.	DATE	DESCRIPTION

SCALE
1" = 40'
DRAWING NUMBER
4



LEGEND:

PROP. 10' CONTOURS	
EX. 10' CONTOURS	
EX. 2' CONTOURS	
EX. WATER LINE	
EX. FENCE LINE	
CONSTRUCTION WORK LIMITS	
EX. OVERHEAD ELECTRIC	
EX. CULVERT	
EX. TREE LINE	
SILT FENCE	
EX. UTILITY POLE	
EX. LIGHT POLE	
EX. STRUCTURE	
MINE SEAL	
EX. TREE	
APPROX. BORING LOCATION	
APPROX. PIEZOMETER LOCATION	
AGGREGATE PLACEMENT	
EROSION CONTROL MATTING	
MAPPING REFERENCE:	
CONTROL SURVEY BY MEAD & HUNT DATED 3/15/13.	

BORING TABLE

BORING	SURFACE ELEVATION	DEPTH OF SOIL (FT.)	BOTTOM OF COAL ELEV.	PIEZOMETER WATER ELEV. 1/8/2014
B1	742.8	6.5		
B2	743.6	14		
B3	783.0	5		
B4	817.4	5		
B5	871±	6.5	817±	859±

- NOTES:**
- THE AREA OF THE OUTLET OF THE BAT GATES SHALL BE SHAPED TO CONVEY DRAINAGE TO THE EXISTING CHANNEL. THIS SHALL BE CONSIDERED INCIDENTAL TO THE BAT GATES.
 - THE TEMPORARY ACCESS SHALL FOLLOW ESTABLISHED ACCESS. THE CEMETERY SHALL NOT BE USED FOR ACCESS AT ANY TIME.
 - EROSION CONTROL MATTING SHALL BE APPLIED TO THE FINISHED GRADE ABOVE THE REDI-ROCK WALL. AREA SHOWN ON DRAWING IS FOR REFERENCE ONLY.
 - THE CONTRACTOR SHALL MOVE THE POOL FOR ACCESS. THE POOL SHALL BE RESET AT THE COMPLETION OF THE PROJECT. ALL WORK ON THE POOL SHOULD BE DONE TO THE HOMEOWNER'S SATISFACTION. THIS SHALL BE CONSIDERED INCIDENTAL TO SITE PREPARATION.
 - THE DOWN SPOUTS FROM THE HOUSE SHALL BE COLLECTED IN THE 4-INCH PVC PIPE AND CONVEYED TO THE UNDERDRAIN USING APPROPRIATE FITTINGS. THESE SHALL BE CONSIDERED INCIDENTAL TO THE UNDERDRAIN.
 - CHANNEL SHALL BE PLACED CONCURRENT WITH THE AGGREGATE PLACEMENT.
 - THE ECM CHANNEL AND WALL UNDERDRAIN SHALL BE EXTENDED TO CONNECT WITH CHANNEL 2.
 - AT THE COMPLETION OF THE CONSTRUCTION, PROVIDE DETERRENENTS FOR USE IN CONJUNCTION WITH THE ENGINEER OF THE TEMPORARY ACCESS ROADS. THIS SHALL BE CONSIDERED INCIDENTAL TO THE SITE PREPARATION.
 - SEE REDI-ROCK WALL PROFILE FOR GEOMETRY.
 - ACCESS TO THIS PORTION OF THE SITE IS ALONG A PRIVATE ROAD. THE ROAD SHALL BE LEFT IN AS GOOD AS OF BETTER CONDITION AND STONED UPON COMPLETION OF USE. IN ADDITION, THE CONTRACTOR SHALL PROTECT THE EXISTING 48-INCH DIAMETER CULVERT AND REPLACE AT THEIR EXPENSE IF DAMAGED.

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SCALE: 1" = 40'

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**WVDEP - AML
OLDFIELD BRANCH
(HALL) DRAINAGE
MINGO COUNTY, WV**

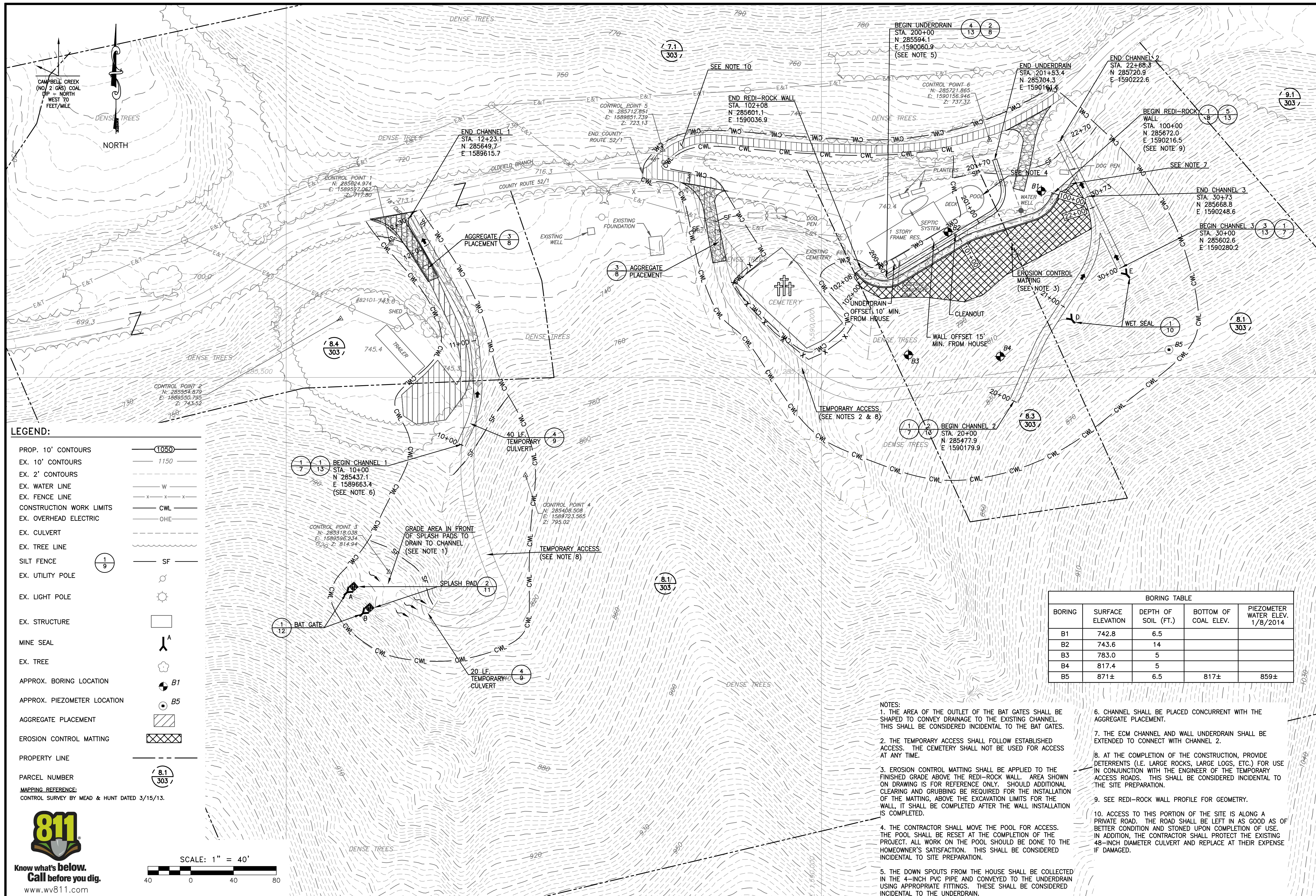
1/1

DESIGNED BY:	KAM	XXX
DRAWN BY:	KAM	XXX
CHECKED BY:		XXX
DATE:	December 23, 2015	
PROJECT NUMBER:	E130024	

PROPOSED

REVISED	REV. NO.	DATE	DESCRIPTION

SCALE
1" = 40'
DRAWING NUMBER
5



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**WVDEP - AML
 OLDFIELD BRANCH
 (HALL) DRAINAGE
 MINGO COUNTY, WV**

1/1
 PLOT SCALE: KAM
 DESIGNED BY: KAM
 DRAWN BY: KAM
 CHECKED BY: XXX
 APPROVED BY: XXX
 DATE: December 23, 2015
 PROJECT NUMBER: E130024

TAX MAP

REVISED
 REV. NO. DATE DESCRIPTION

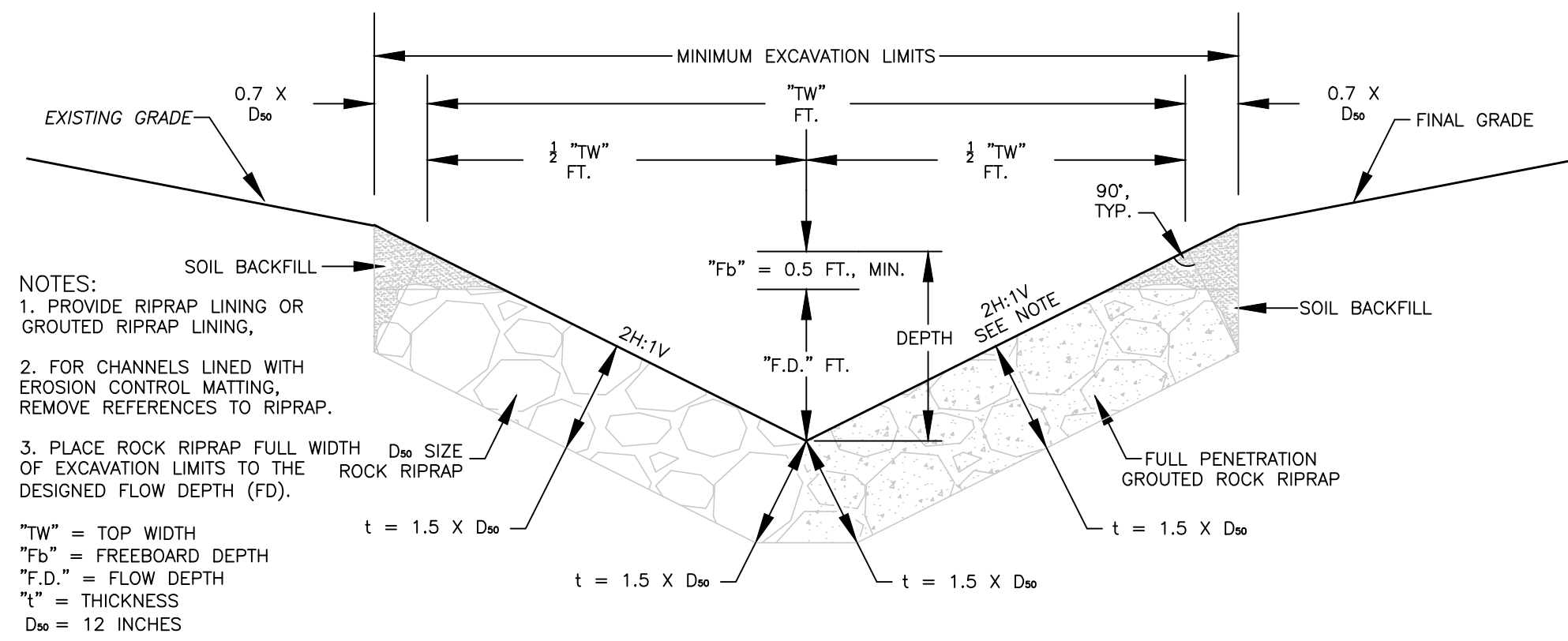
SCALE
1" = 40'
 DRAWING NUMBER
6

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SCALE: 1" = 40'

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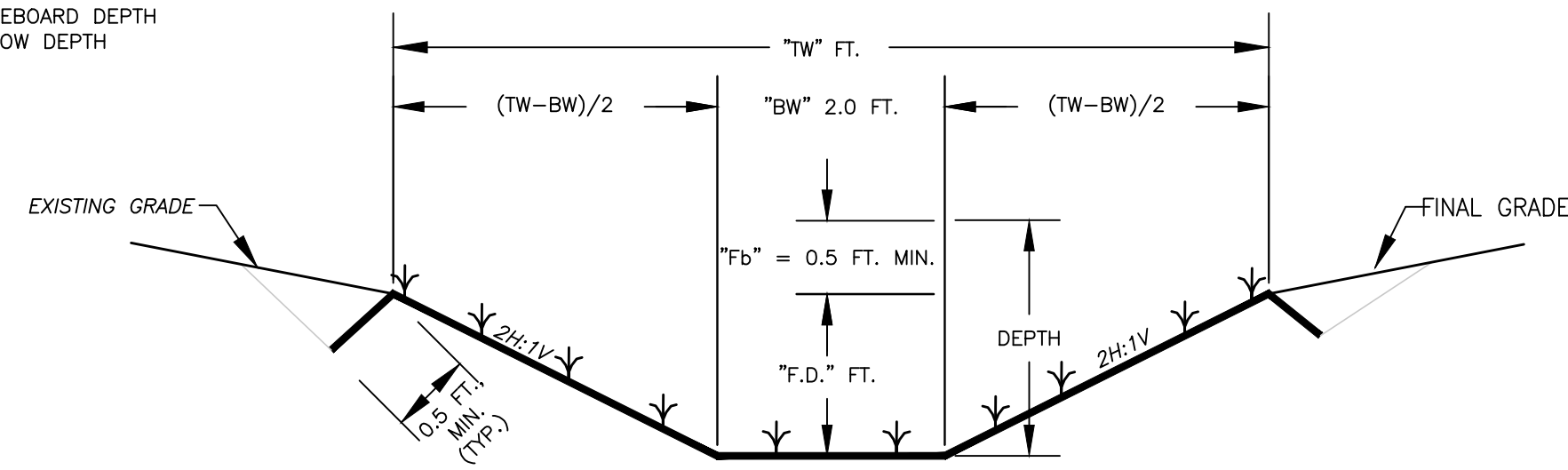
2H:1V "VEE" CHANNEL (1/7)
NOT TO SCALE

NOTE: FOR CHANNEL 2 STA. 20+00 TO STA. 21+43 USE SIDE SLOPE 1.5H:1V

NOTES:

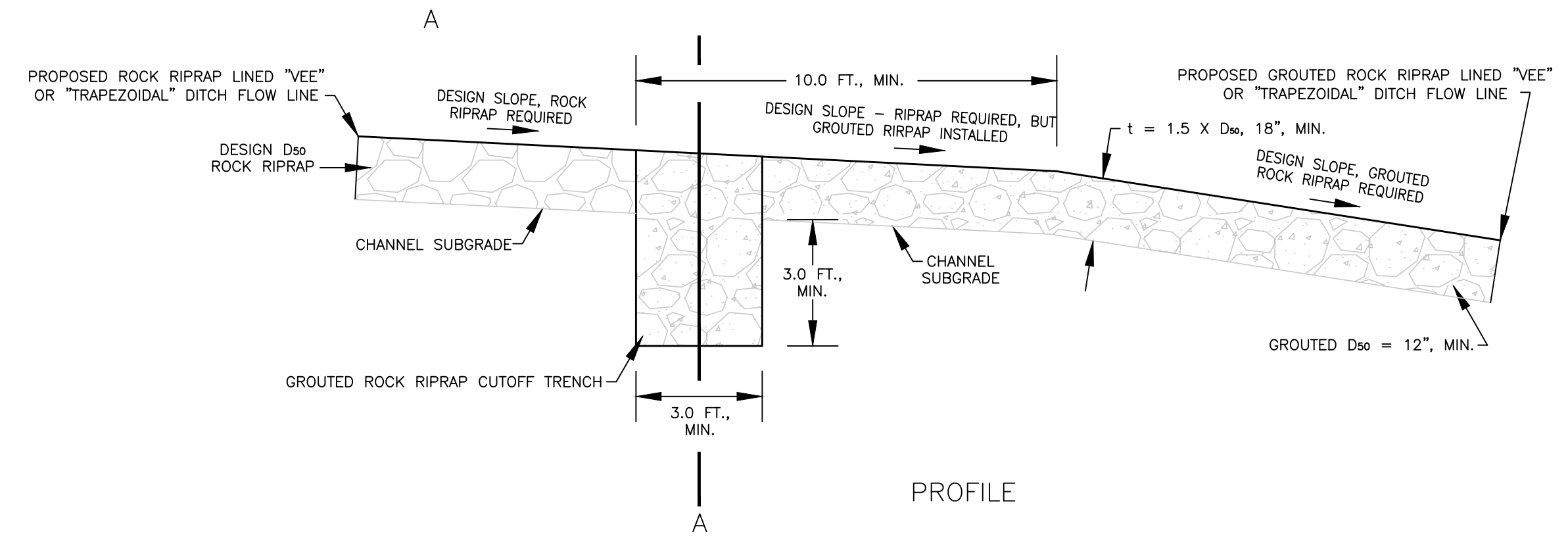
1. DEPTH AS SHOWN CORRESPONDS WITH THE VALUE PROVIDED FOR DEPTH IN CHANNEL SUMMARY, WHICH IS OBTAINED FROM F.D.(FEET) & Fb(0.5 FEET).

"TW" = TOP WIDTH
"Fb" = FREEBOARD DEPTH
"F.D." = FLOW DEPTH

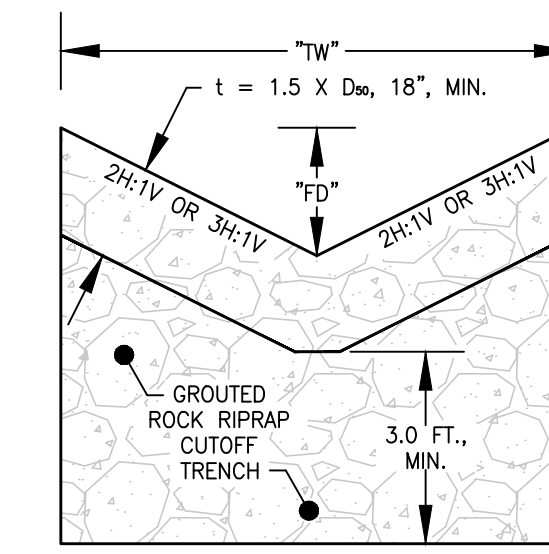


"TRAPEZOIDAL" CHANNEL W/ECM LINING (3/7)
NOT TO SCALE

CHANNEL SUMMARY									
CHANNEL	TYPE	STATION	DEPTH (FT. MIN.)	SIDE SLOPE LEFT	SIDE SLOPE RIGHT	AVG. SLOPE (%)	LINING	LINING THICKNESS (IN.)	TOP WIDTH (FT. MIN.)
1	VEE	10+00.0 - 10+80.0	2	2:1	2:1	23.5	GROUTED RIPRAP	18	8
	VEE	10+80.0 - 11+20.1	2	2:1	2:1	18.5	GROUTED RIPRAP	18	8
	VEE	11+20.1 - 11+92.0	2	2:1	2:1	14.0	GROUTED RIPRAP	18	8
	VEE	11+92.0 - 12+12.0	2	2:1	2:1	18.5	GROUTED RIPRAP	18	8
	VEE	12+12.0 - 12+23.1	2	2:1	2:1	7.5	GROUTED RIPRAP	18	8
2	VEE	20+00.0 - 20+94.0	2	2:1	1.5	24.5	GROUTED RIPRAP	18	8
	VEE	20+94.0 - 21+10.0	2	2:1	1.5	8.0	GROUTED RIPRAP	18	8
	VEE	21+10.0 - 21+43.0	2	2:1	1.5	38.5	GROUTED RIPRAP	18	8
	VEE	21+43.0 - 21+92.0	2	2:1	2:1	59.5	GROUTED RIPRAP	18	8
	VEE	21+92.0 - 22+29.0	2	2:1	2:1	71.0	GROUTED RIPRAP	18	8
	VEE	22+29.0 - 22+46.5	2	2:1	2:1	4.5	GROUTED RIPRAP	18	8
	VEE	22+46.5 - 22+58.0	2	2:1	2:1	59.0	GROUTED RIPRAP	18	8
	VEE	22+58.0 - 22+68.3	2	2:1	2:1	27.9	GROUTED RIPRAP	18	8
3	VEE	30+00.0 - 30+10.0	2	2:1	2:1	62.0	GROUTED RIPRAP	18	8
	VEE	30+10.0 - 30+50.0	2	2:1	2:1	79.0	GROUTED RIPRAP	18	8
	VEE	30+50.0 - 30+73.4	2	2:1	2:1	72.0	GROUTED RIPRAP	18	8



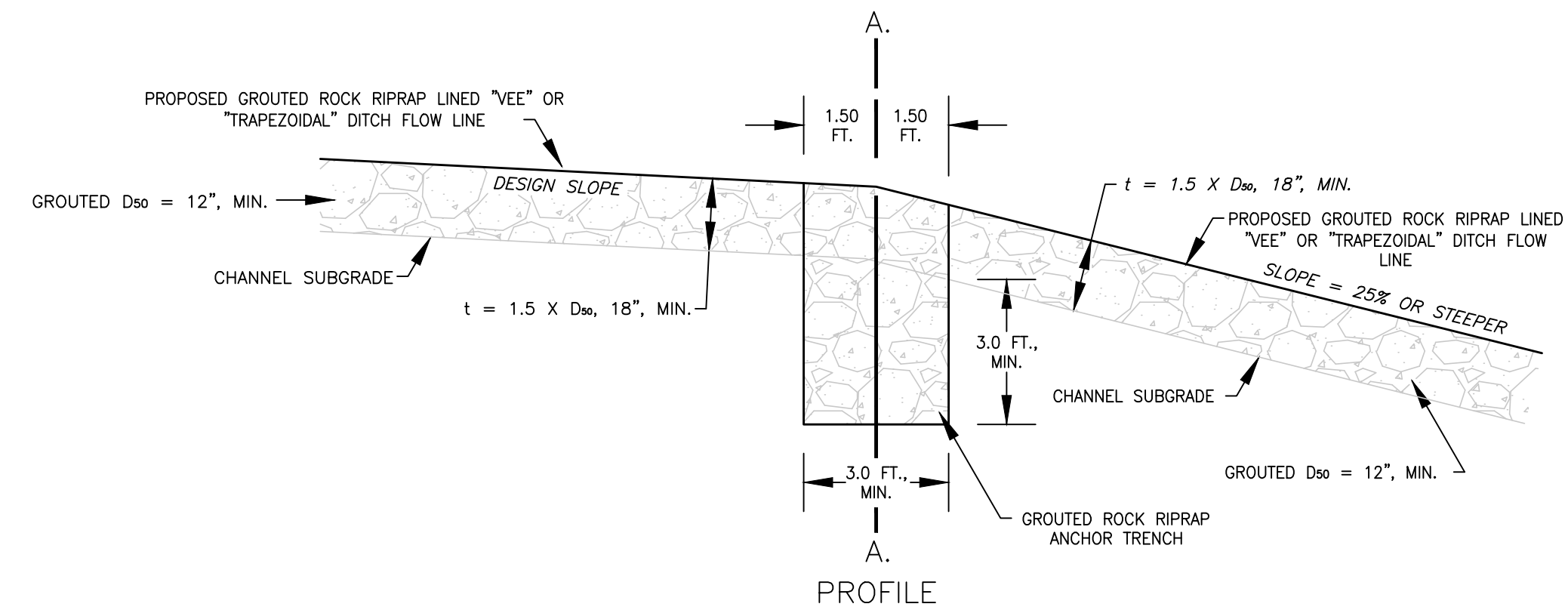
PROFILE



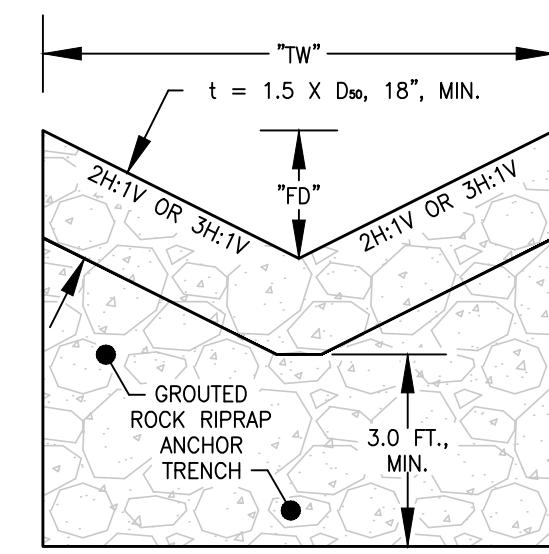
"VEE" DITCH CROSS SECTION A - A GROUT KEY (2/7)
NOT TO SCALE

NOTES:

1. EXTEND GROUT KEY LATERALLY THE FULL WIDTH OF THE CHANNEL AS SHOWN IN THE CROSS SECTION VIEWS.
2. INSTALL GROUT KEY AT THE JUNCTION OF ROCK RIPRAP CHANNEL WITH GROUTED ROCK RIPRAP CHANNEL AS SHOWN IN THE PROFILE VIEW.
3. AFTER EXCAVATING THE GROUT KEY TO THE DIMENSIONS SHOWN, PLACE GROUT IN THE EXCAVATION TO THE CHANNEL SUB GRADE PRIOR TO PLACING THE RIPRAP.
4. "TW" = TOP WIDTH
"Fb" = FREEBOARD DEPTH
"F.D." = FLOW DEPTH
"t" = THICKNESS



PROFILE



"VEE" DITCH CROSS SECTION A - A GROUT ANCHOR (4/7)
NOT TO SCALE

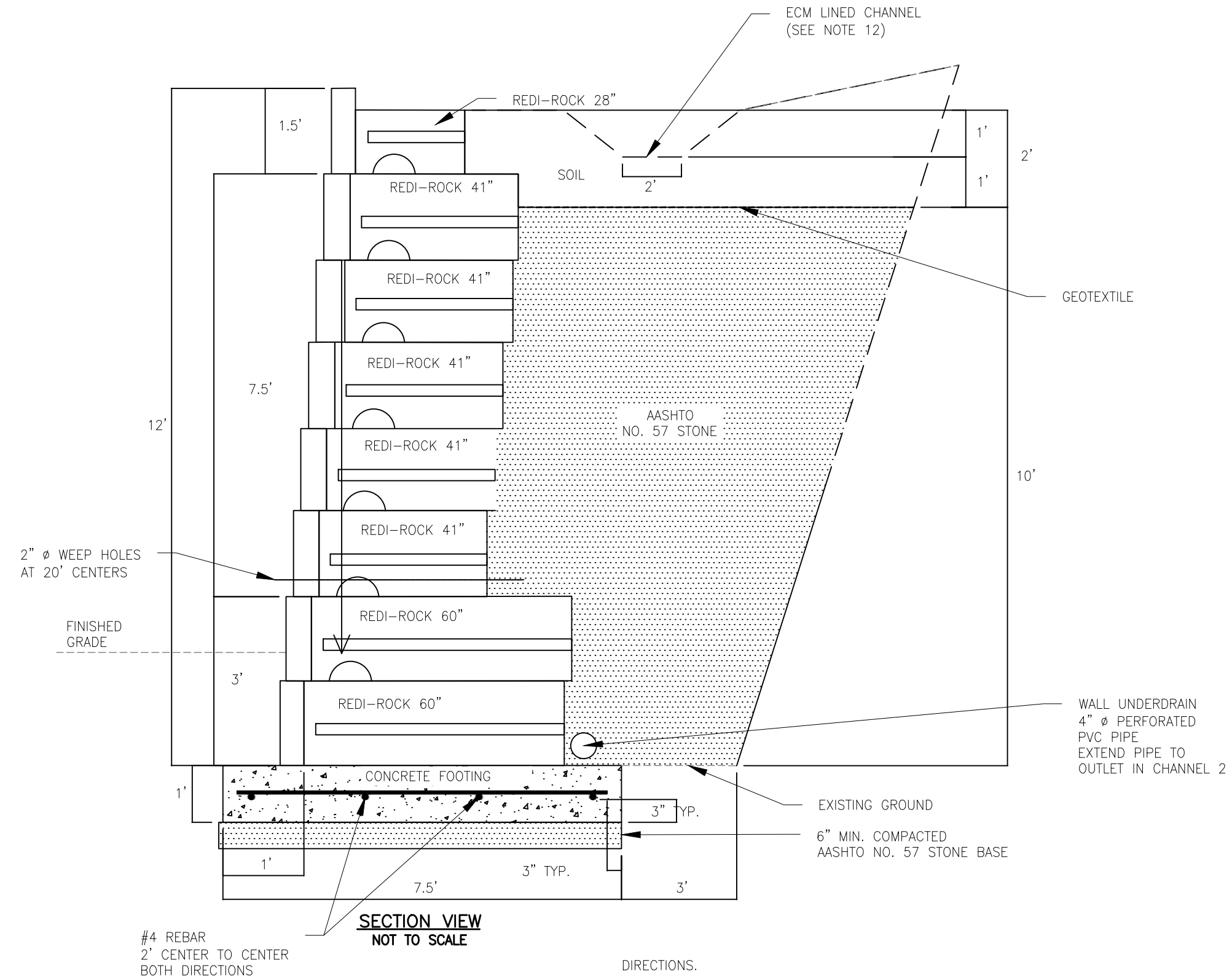
NOTES:

1. EXTEND GROUT ANCHOR LATERALLY THE FULL WIDTH OF THE CHANNEL AS SHOWN IN THE CROSS SECTION VIEWS.
2. INSTALL GROUT ANCHOR AT THE JUNCTION OF CHANNEL FLOW SLOPES WITH A DOWNSTREAM GRADIENT EXCEEDING 25% AS SHOWN IN THE PROFILE VIEW.
3. AFTER EXCAVATING THE GROUT ANCHOR TO THE DIMENSIONS SHOWN, PLACE GROUT IN THE EXCAVATION TO THE CHANNEL SUB GRADE PRIOR TO PLACING THE RIPRAP.
4. "TW" = TOP WIDTH
"Fb" = FREEBOARD DEPTH
"F.D." = FLOW DEPTH
"t" = THICKNESS



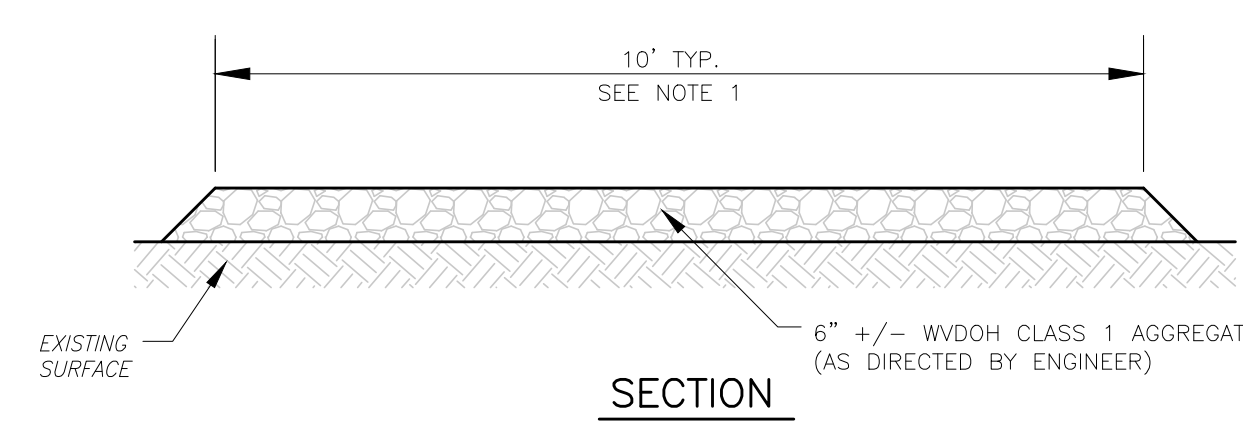
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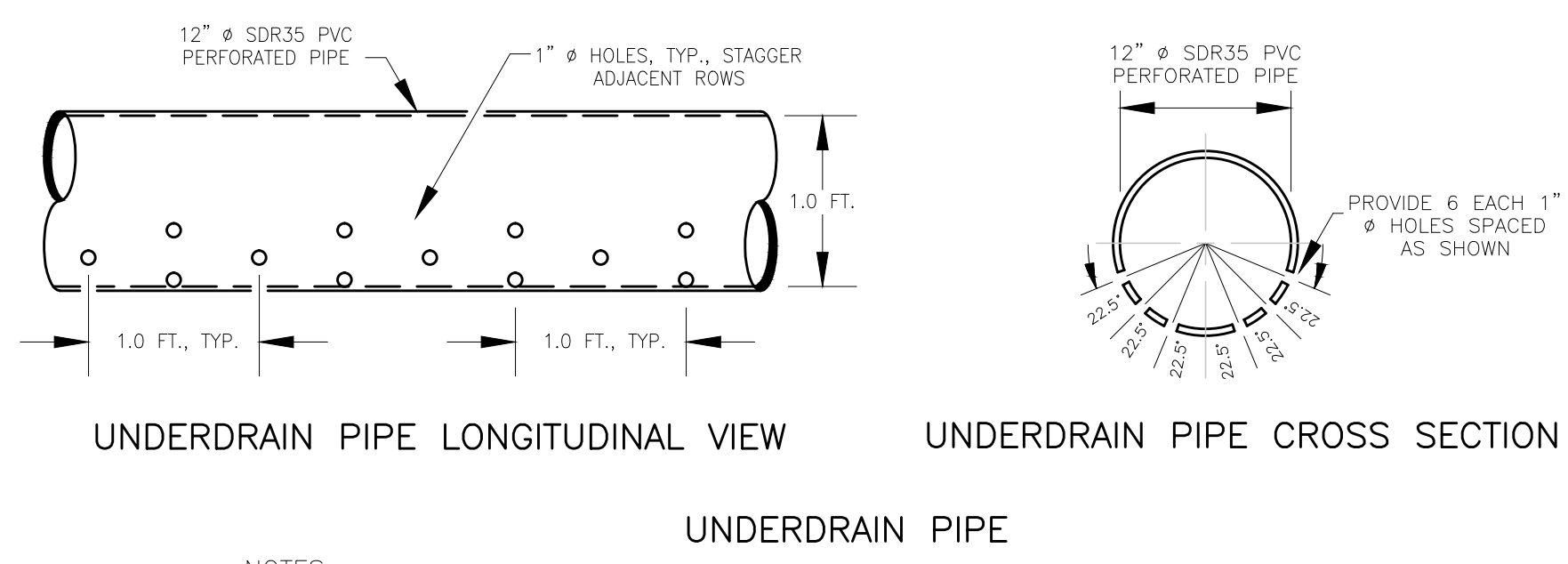
- NOTES:
- FOOTING CONSTRUCTION
- USE CLASS C CONCRETE TO CONSTRUCT THE FOOTING AT THE BASE OF THE WALL IN ACCORDANCE WITH WEST VIRGINIA DEPARTMENT OF HIGHWAY (WVDOT) STANDARD SPECIFICATION SECTION 601. CLASS C CONCRETE MUST BE A MINIMUM OF 12 INCHES THICK AND EXTEND BEYOND ALL EDGES OF THE BASE BLOCK AS SHOWN.
 - THE CLASS C CONCRETE SHALL BEAR ON A 6-INCH MINIMUM LAYER OF COMPACTED AASHTO NO. 57 STONE.
 - THE AASHTO NO. 57 STONE SHALL BEAR ON MEDIUM STIFF SANDY SILTY CLAY.
 - THE BASE OF THE CONCRETE FOOTING SHALL BE A MINIMUM OF THREE (3) FEET BELOW GRADE.
- REDI-ROCK WALL INSTALLATION
- THE CONCRETE FOOTER SHALL CURE A MINIMUM OF 48 HOURS PRIOR TO PLACEMENT OF THE FIRST ROW OF BLOCKS. INSTALL REDI-ROCK WALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS BLOCK AND ON TOP OF THE CONCRETE FOOTING. THE PVC DRAIN PIPE SHALL BE SLOPED SO THAT WATER BEHIND THE WALL IS DIRECTED AWAY FROM THE WALL. A GEOTEXTILE SHALL BE WRAPPED AROUND THE PVC DRAIN PIPE TO PREVENT CLOGGING. THE WALL UNITS SHALL BE THE REDI-WALL COMPONENTS OR ENGINEER APPROVED EQUAL. COLOR SHALL BE THE SELECTION OF THE OWNER.
 - CAREFULLY HANDLE AND ERECT THE PRECAST UNITS SO AS TO AVOID DAMAGE TO THE UNITS. ANY UNITS DAMAGED TO THE EXTENT WHERE THEIR STRUCTURAL INTEGRITY IS COMPROMISED ARE TO BE REPLACED BY THE CONTRACTOR AT HIS OWN EXPENSE. ANY CRACKED UNIT IS TO BE MARKED "REJECTED FOR USE," REMOVED FROM THE JOB SITE, AND REPLACED WITH AN ACCEPTABLE UNIT.
 - ASSEMBLE THE UNITS AS SHOWN ON THE DETAIL AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MAINTAIN FULL BEARING OF THE PRECAST UNITS AND STAGGER JOINTS ON ALTERNATING LAYERS. TAKE SPECIAL CARE IN SETTING THE BOTTOM COURSE OF PRECAST UNITS TO ENSURE TRUE LINE AND GRADE AND CHECK FOR LEVEL IN ALL

REDI-ROCK WALL
NOT TO SCALE

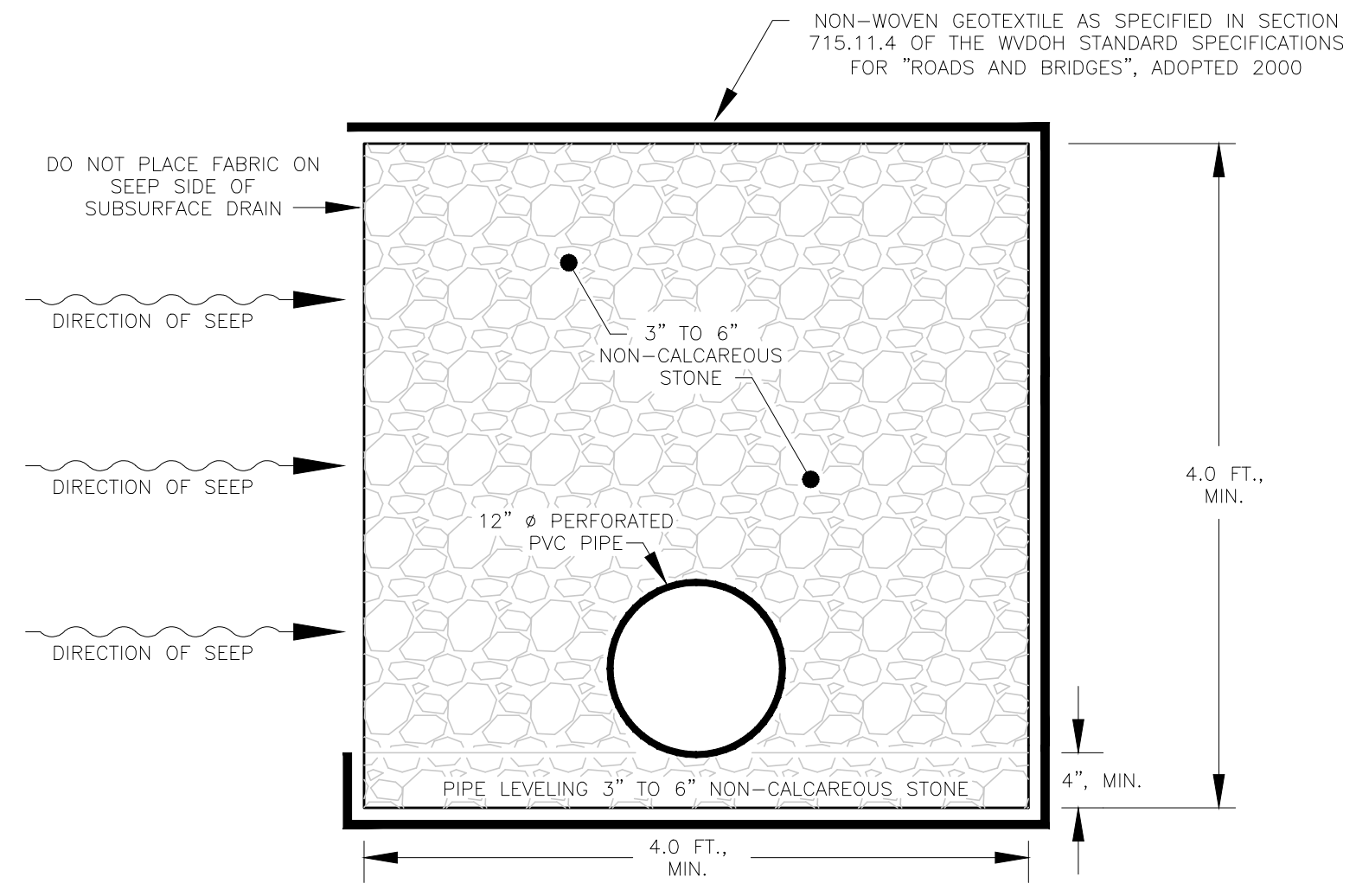


CLASS 1 AGGREGATE PLACEMENT
NOT TO SCALE

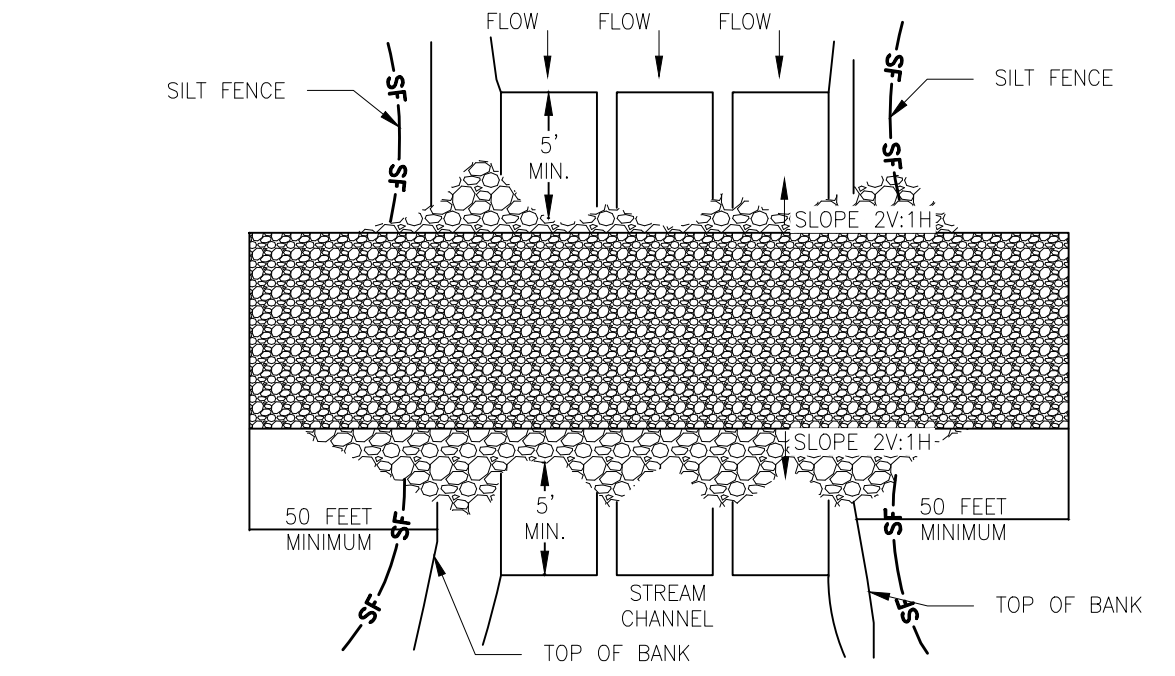
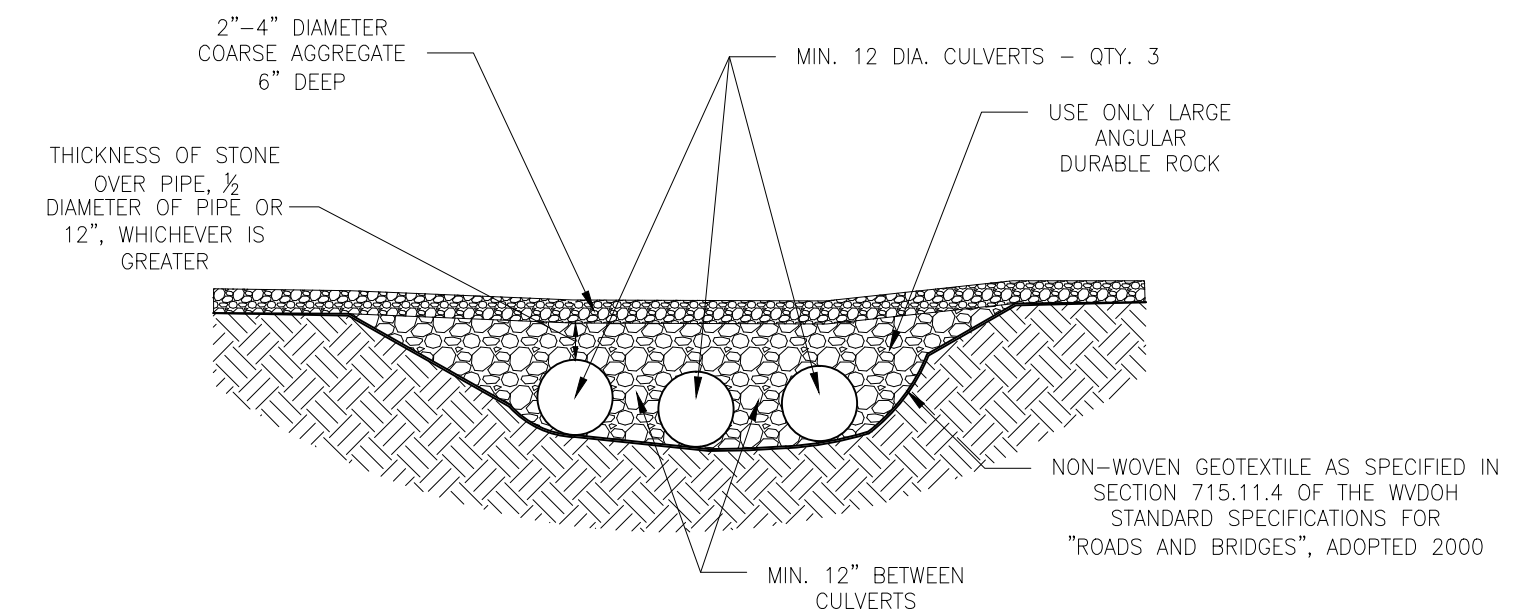
- NOTES:
- THE WIDTH IS TYPICALLY 10 FEET FOR ROADWAYS.



- NOTES:
- THE GEOTEXTILE SHALL BE OVERLAPPED 1.0 FOOT, MINIMUM, AT ALL JOINTS.

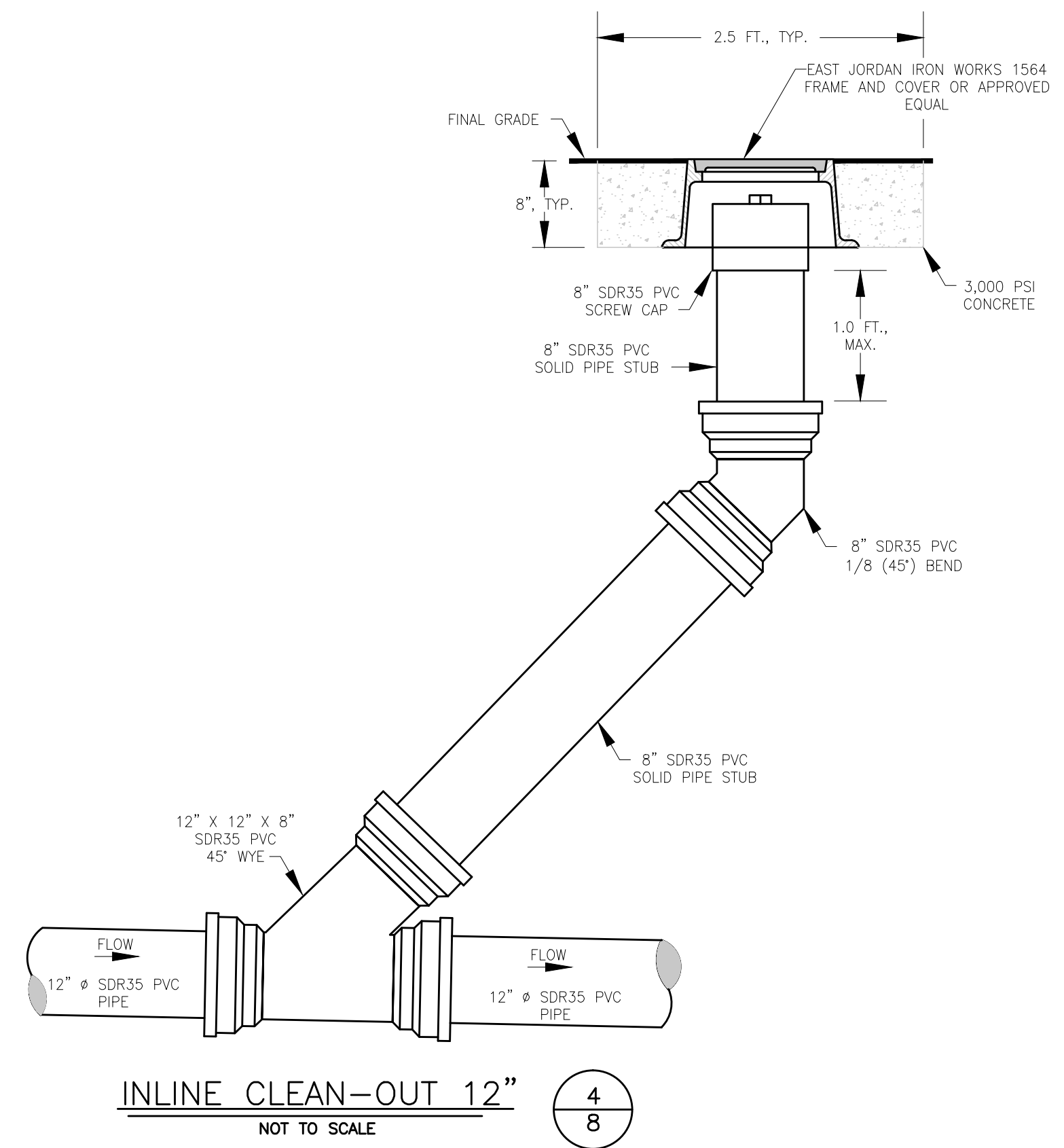


UNDERDRAIN
NOT TO SCALE



- NOTES:
- 2" TO 4" COARSE AGGREGATE OR LARGER SHALL BE USED TO FORM THE CROSSING. DO NOT USE ERODIBLE MATERIAL FOR CONSTRUCTION OF THE CROSSING. THE DEPTH OF STONE COVER OVER THE CULVERT SHALL BE EQUAL TO ONE-HALF THE DIAMETER OF THE CULVERT OR 12", WHICHEVER IS GREATER. IF MULTIPLE CULVERTS ARE USED, THEY SHALL BE SEPARATED BY AT LEAST 12" OF COMPACTED AGGREGATE FILL. TO PROTECT THE SIDES OF THE STONE FROM EROSION, RIPRAP SHALL BE USED.
 - THE CULVERTS SHALL EXTEND A MINIMUM OF FIVE FOOT BEYOND THE UPSTREAM AND DOWNSTREAM TOE OF THE AGGREGATE PLACED AROUND THE CULVERT.
 - THE SLOPE OF THE CULVERT SHALL BE AT LEAST 0.25 INCH PER FOOT.
 - THE TEMPORARY WATERWAY CROSSING SHALL BE AT RIGHT ANGLES TO THE STREAM. WHERE APPROACH CONDITIONS DICTATE, THE CROSSING MAY VARY 15 DEGREES FROM A LINE DRAWN PERPENDICULAR TO THE CENTERLINE OF THE STREAM AT THE INTENDED CROSSING LOCATION.
 - THE CENTERLINE OF BOTH ROADWAY APPROACHES SHALL COINCIDE WITH THE CROSSING ALIGNMENT CENTERLINE FOR A MINIMUM DISTANCE OF 50' FROM EACH BANK OF THE WATERWAY BEING CROSSED. IF PHYSICAL OR RIGHT-OF-WAY RESTRAINTS PRECLUDE THE 50' MIN., A SHORTER DISTANCE MAY BE PROVIDED. ALL FILL MATERIALS ASSOCIATED WITH THE ROADWAY APPROACH SHALL BE LIMITED TO A MAX. HEIGHT OF 2' ABOVE THE EXISTING FLOOD PLAIN ELEVATION.
 - THE ROADWAY APPROACHES TO THE STRUCTURE SHALL CONSIST OF STONE PADS MEETING THE FOLLOWING SPECIFICATIONS:
 - STONE: 2" - 4"
 - MIN. THICKNESS: 6"
 - MIN. WIDTH: EQUAL TO THE WIDTH OF THE STRUCTURE
 - APPROPRIATE PERIMETER CONTROLS SUCH AS SILT FENCE SHALL BE EMPLOYED WHEN NECESSARY ALONG BANKS OF STREAM.
 - CLEARING & EXCAVATION OF STREAMBED AND BANKS SHALL BE KEPT TO A MINIMUM.
 - THE INVERT ELEVATION OF THE CULVERT SHALL BE INSTALLED ON THE NATURAL STREAMBED GRADE.
 - GEOTEXTILE SHALL BE PLACED ON THE STREAMBED AND STREAMBANKS PRIOR TO PLACEMENT OF THE PIPE CULVERTS AND AGGREGATE. THE FILTER CLOTH SHALL COVER THE STREAMBED AND EXTEND A MIN. OF 6" AND MAX. OF 1' BEYOND THE END OF THE CULVERT AND BEDDING MATERIAL.
 - WHEN THE CROSSING HAS SERVED ITS PURPOSE, ALL STRUCTURES SHALL BE REMOVED. REMOVAL AND CLEAN UP OF THE AREA SHALL BE ACCOMPLISHED WITHOUT CONSTRUCTION EQUIPMENT WORKING IN THE WATERWAY CHANNEL.
 - UPON REMOVAL OF THE STRUCTURE, THE STREAM BANK SHALL BE IMMEDIATELY STABILIZED.
 - DURING ROUTINE ROAD MAINTENANCE, DO NOT GRADE MUD AND DEBRIS OVER THE SIDES OF THE CROSSING INTO THE STREAM.

MULTIPLE PIPE STREAM CROSSING
NOT TO SCALE



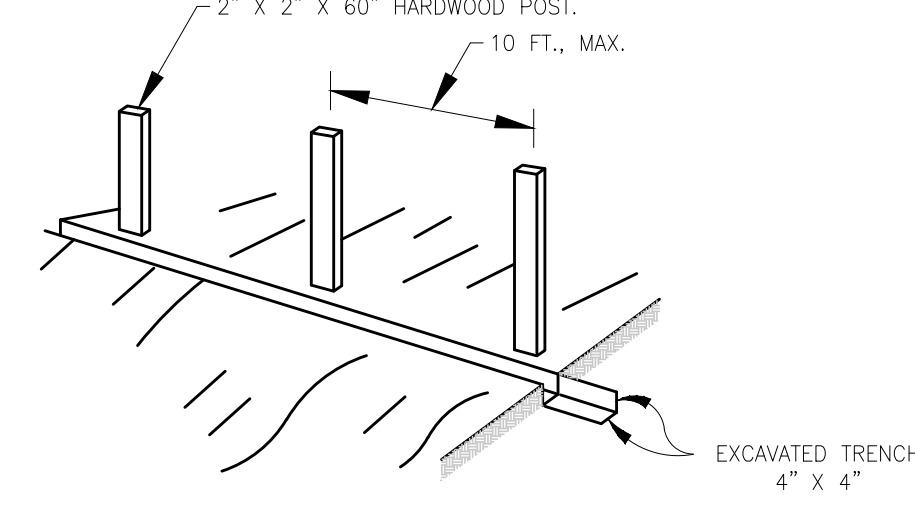
INLINE CLEAN-OUT 12\"/>



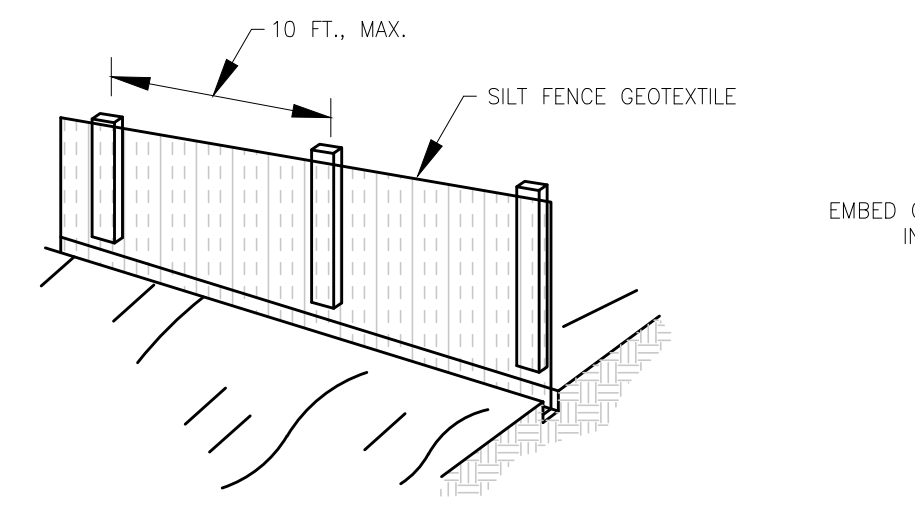
PLOT SCALE:	KAM
DESIGNED BY:	KAM
DRAWN BY:	XXX
CHECKED BY:	XXX
APPROVED BY:	XXX
DATE:	December 23, 2015
PROJECT NUMBER:	E100024

REVISED	DATE	DESCRIPTION

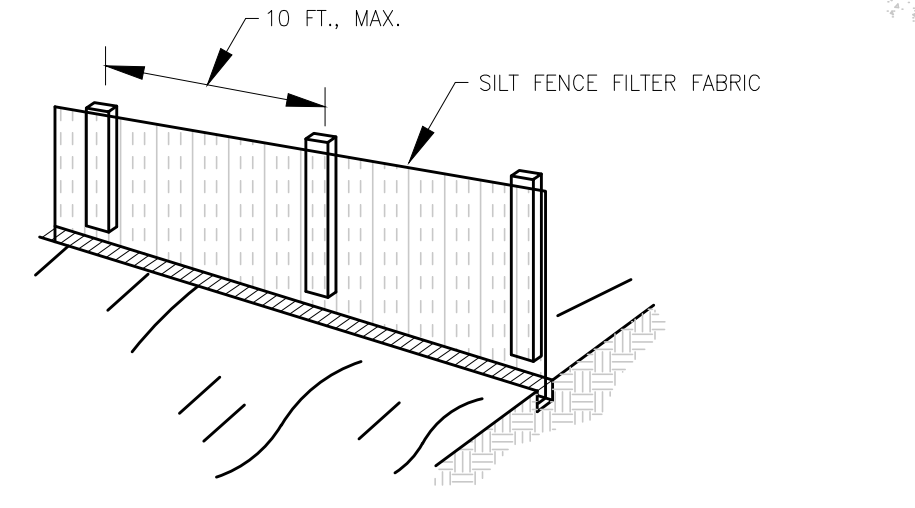
1. SET POSTS ALONG CONTOUR OF THE LAND AND EXCAVATE TRENCH UPSLOPE ALONG THE LINE OF POSTS.



2. ATTACH THE GEOTEXTILE TO THE FENCE POSTS AND EXTEND IT INTO THE DITCH.



3. BACKFILL AND COMPACT THE TRENCH WITH EXCAVATED SOILS.



1. GEOTEXTILE SHALL BE PURCHASED IN A CONTINUOUS ROLL AND CUT TO ALIGNMENT LENGTH TO AVOID JOINTS. WHERE JOINTS ARE UNAVOIDABLE, THE FABRIC SHALL BE SPICED TOGETHER AT A SUPPORT POST BY TWISTING THE POST OF EACH RUN AROUND EACH OTHER.

2. GEOTEXTILE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE SUPPORT POSTS USING ONE INCH, MINIMUM, LONG HEAVY-DUTY WIRE STAPLES OR THE WIRES WITH EIGHT INCHES, MINIMUM, OF FABRIC EXTENDED INTO THE TRENCH. DO NOT STAPLE FABRIC TO TREES.

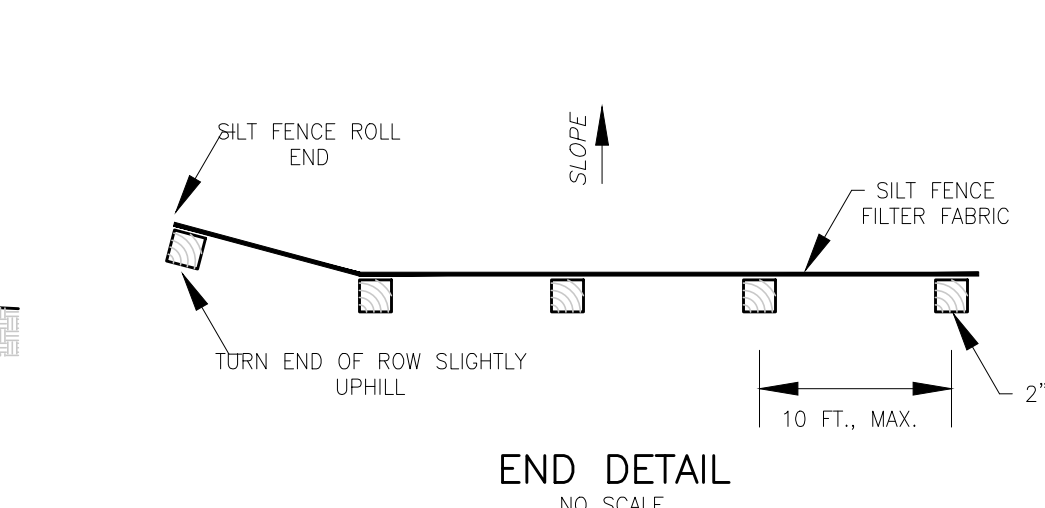
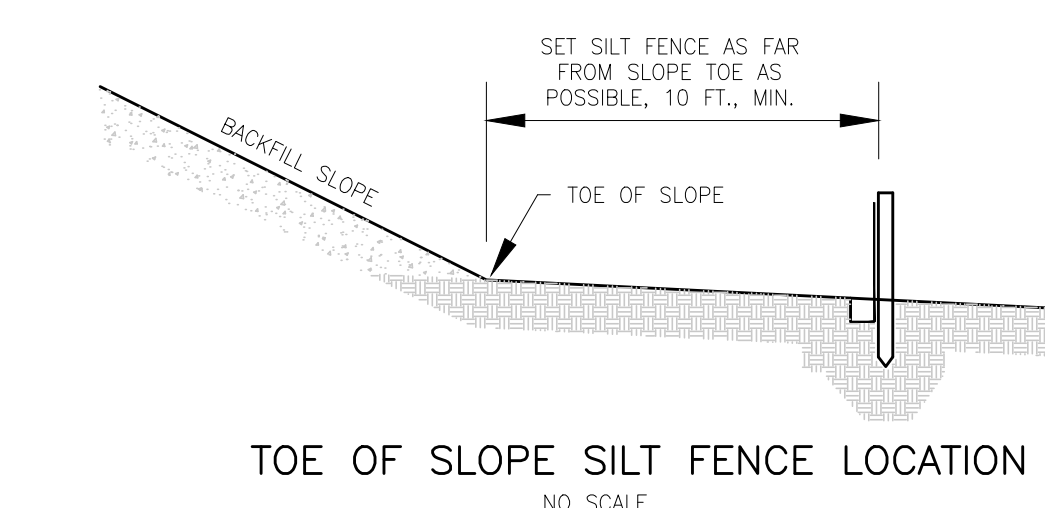
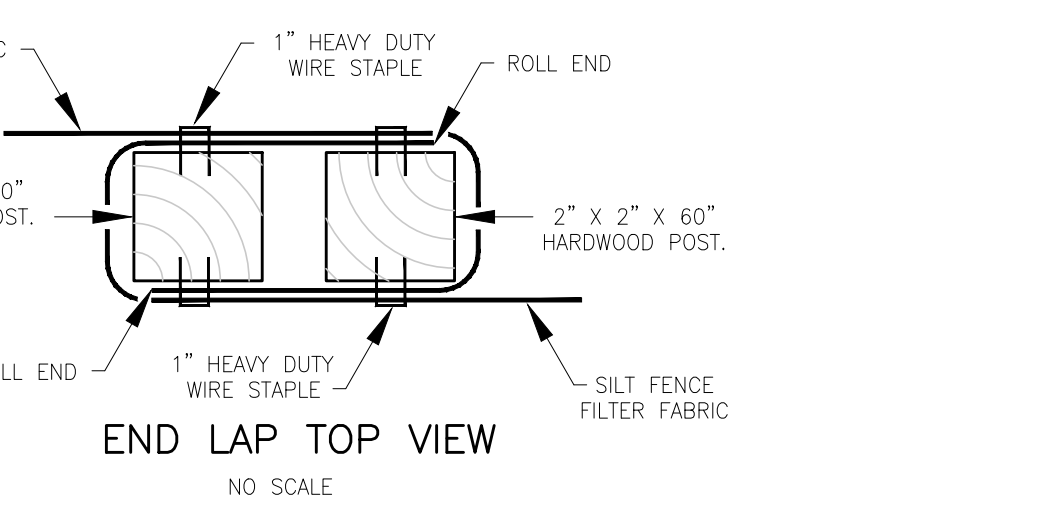
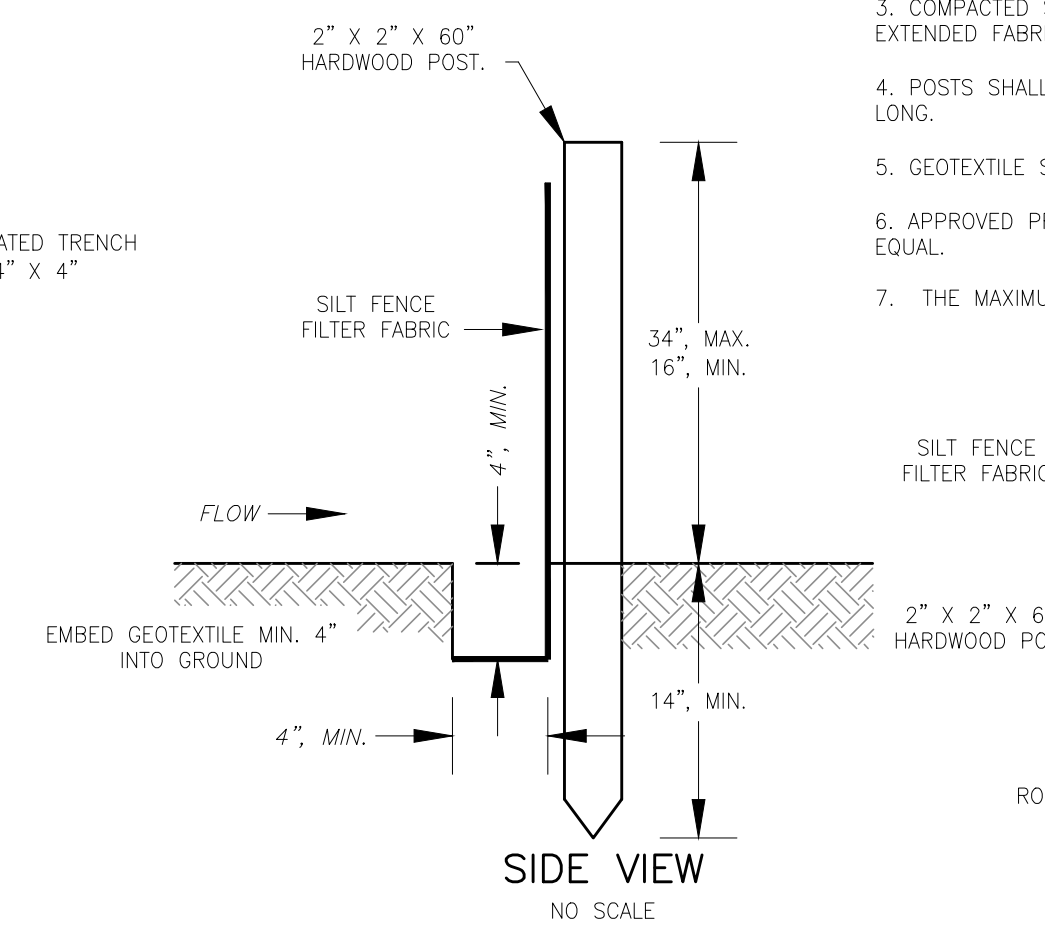
3. COMPACTED SOIL BACKFILL SHALL BE PLACED IN THE 4" BY 4" TRENCH ATOP THE EXTENDED FABRIC.

4. POSTS SHALL BE CONSTRUCTED OF 2" X 2" HARDWOOD OR 2" X 4" PINE BY 60" LONG.

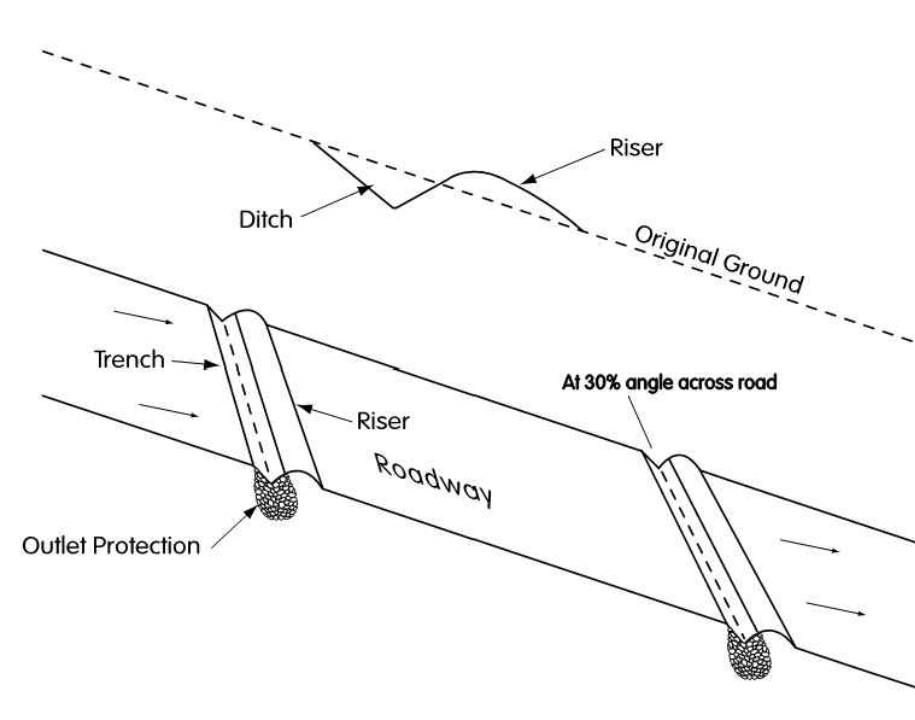
5. GEOTEXTILE SHALL BE NON-WOVEN "MIRAFI 100X", "EXXON GTF 180" OR EQUAL.

6. APPROVED PREFABRICATED UNITS INCLUDE "GEOFAB", "ENVIROFENCE", OR APPROVED EQUAL.

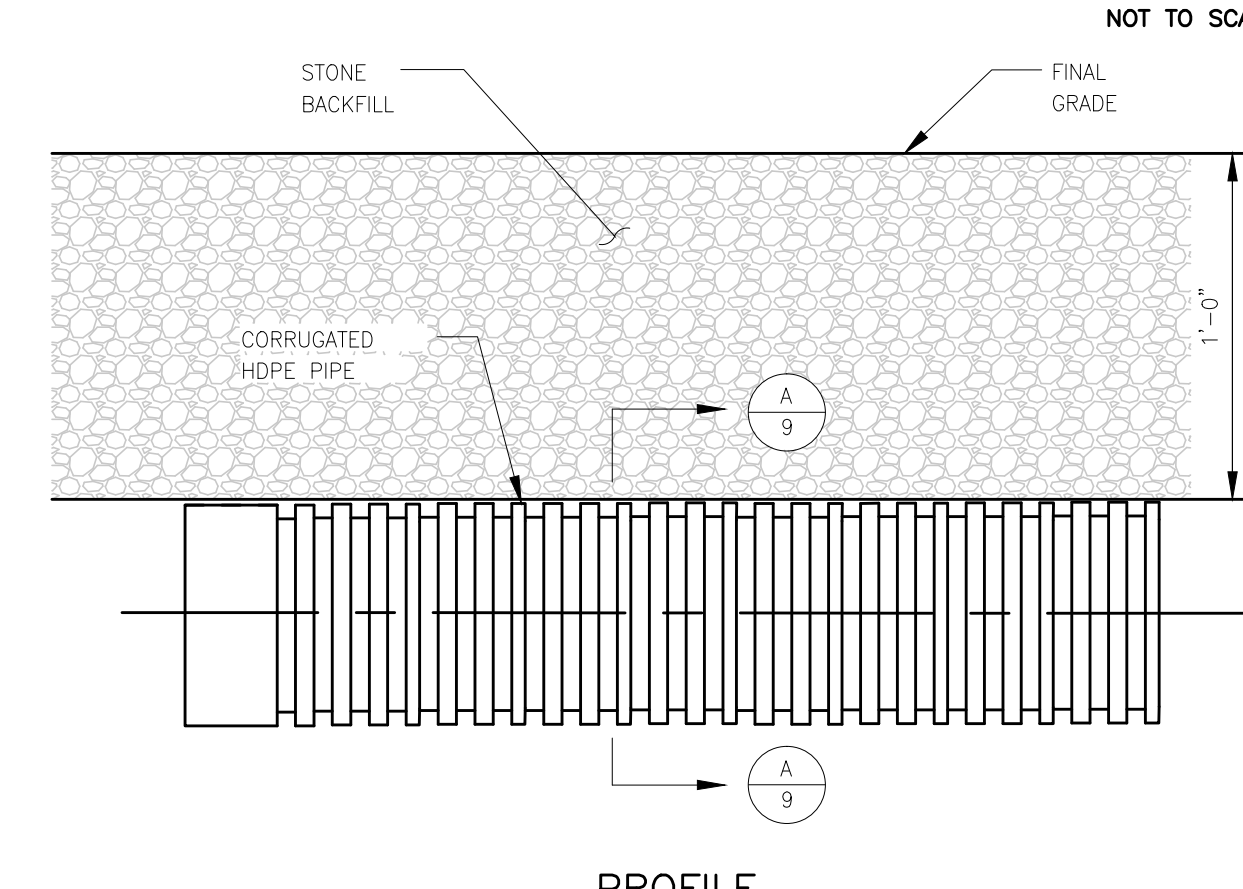
7. THE MAXIMUM RUN OF SLOPE ABOVE A ROW OF SILT FENCE IS 110 FEET.



SILT FENCE
NOT TO SCALE (1/9)

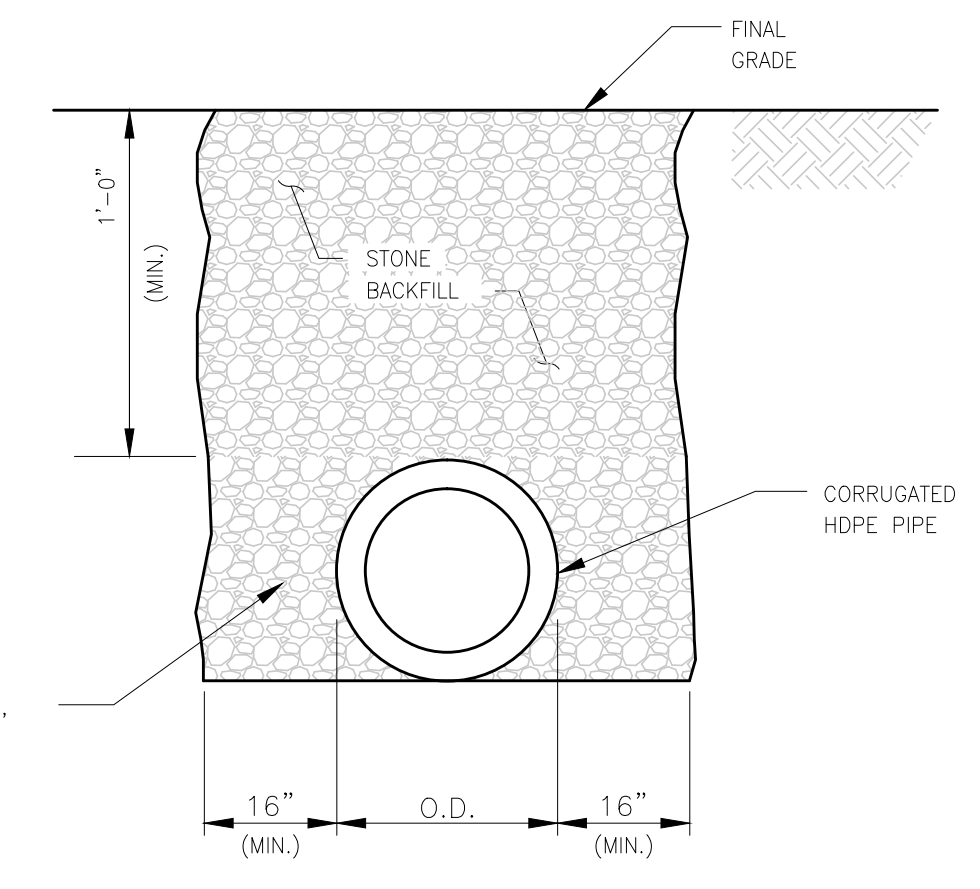


WATER BAR
NOT TO SCALE (3/9)



PROFILE

TEMPORARY CULVERT
NOT TO SCALE (4/9)



SECTION
(A/9)

VEGETATIVE PRACTICES:

EXCEPT AS NOTED BELOW, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN SEVEN DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS PERMANENTLY CEASED.

• WHERE THE INITIATION OF STABILIZATION MEASURES BY THE SEVENTH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASES IS PRECLUDED BY SNOW COVER, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS CONDITIONS ALLOW.

• WHERE CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN 14 DAYS FROM WHEN ACTIVITIES CEASED, (E.G., THE TOTAL TIME PERIOD THAT CONSTRUCTION ACTIVITY IS TEMPORARILY HALTED IS LESS THAN 14

• DAYS) THEN STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE BY THE SEVENTH DAY AFTER CONSTRUCTION ACTIVITIES HAVE TEMPORARILY CEASED.

AREAS WHERE THE SEED HAS FAILED TO GERMINATE ADEQUATELY (UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70%) WITHIN 30 DAYS AFTER SEEDING AND MULCHING MUST BE RESEEDING IMMEDIATELY, OR AS SOON AS WEATHER CONDITIONS ALLOW.

AT A MINIMUM, INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROLS WILL BE CONDUCTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAIN EVENT OF 0.5 INCHES OR GREATER OF RAINFALL IN 24 HOURS.

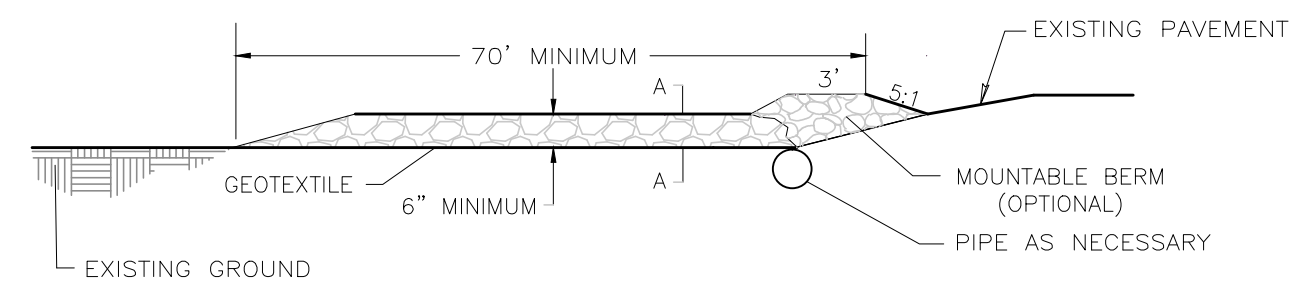
NOTES:

1. "X" DIMENSION AS DETAILED BY THE SPECIFICATIONS, FOR SEDIMENT CONTROL THE MAXIMUM HEIGHT OF THE ROCK CHECK DAM IS 3 FEET. HOWEVER, ROCK CHECK DAMS CAN BE CONSTRUCTED IN SMALLER DITCHES. THE CENTER OF THE ROCK CHECK DAM SHALL BE 0'-6" LOWER THAN THE OUTER EDGES AS SHOWN.

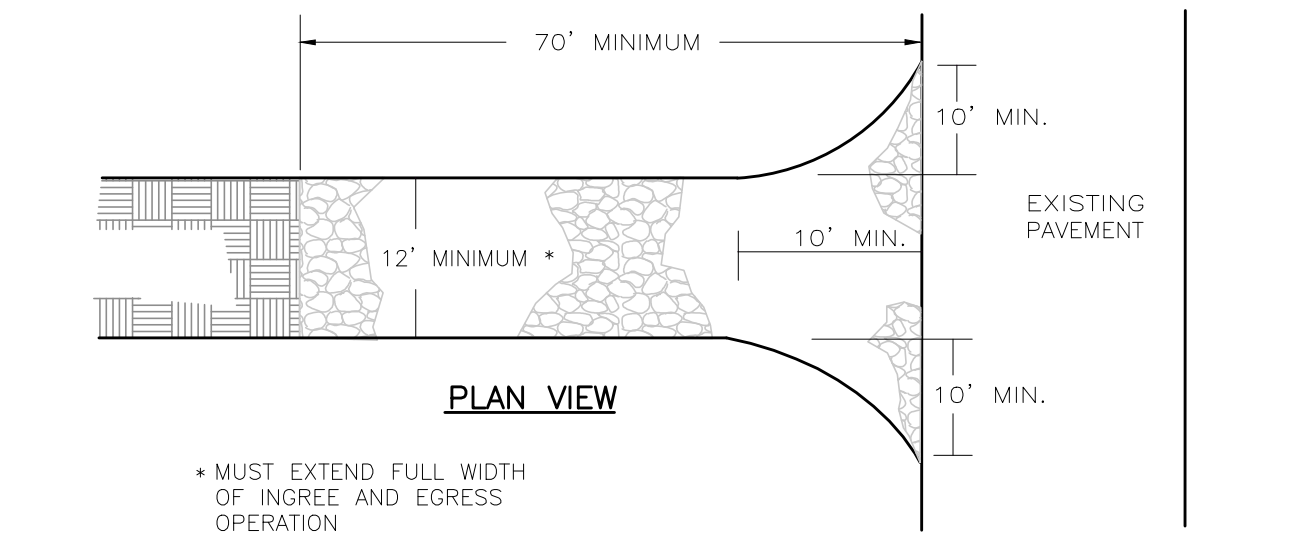
2. ROCK CHECK DAMS ARE NORMALLY INSTALLED IN EXISTING DRAINS AND THE TOP CROSS SECTION OF THE DAM SHOULD HAVE A LEVEL CENTER SECTION THE SAME WIDTH AS THE EXISTING CHANNEL BOTTOM AND 0'-6" LOWER THAN THE OUTER EDGES OF THE DAM. ROCK CHECK DAMS PLACED IN PROJECT CONSTRUCTED FLAT-BOTTOM DITCHES SHALL HAVE SIMILAR DIMENSIONS.

3. THE CENTER OF ROCK CHECK DAMS CONSTRUCTED IN PROJECT CONSTRUCTED "VEE" SHAPED OR EXISTING "VEE" SHAPED DITCHES SHALL BE 0'-6" LOWER THAN AND SLOPED TO THE OUTER TOP EDGES OF THE DITCH SO HIGH FLOWS GO OVER THE TOP OF THE DAM AND NOT AROUND THE EDGES.

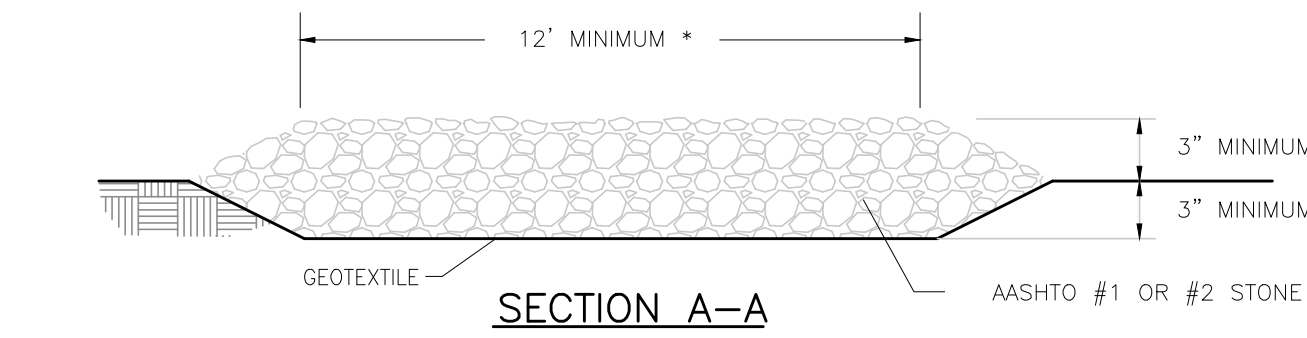
4. ROCK CHECK DAMS SHALL BE REMOVED AFTER THE FIRST GROWING SEASON.



PROFILE

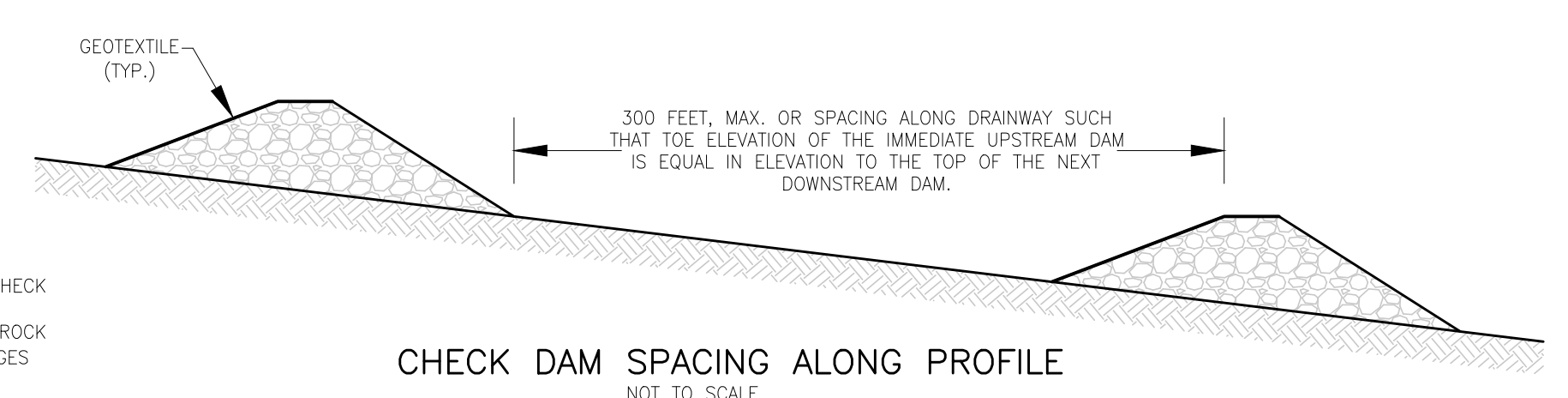


PLAN VIEW

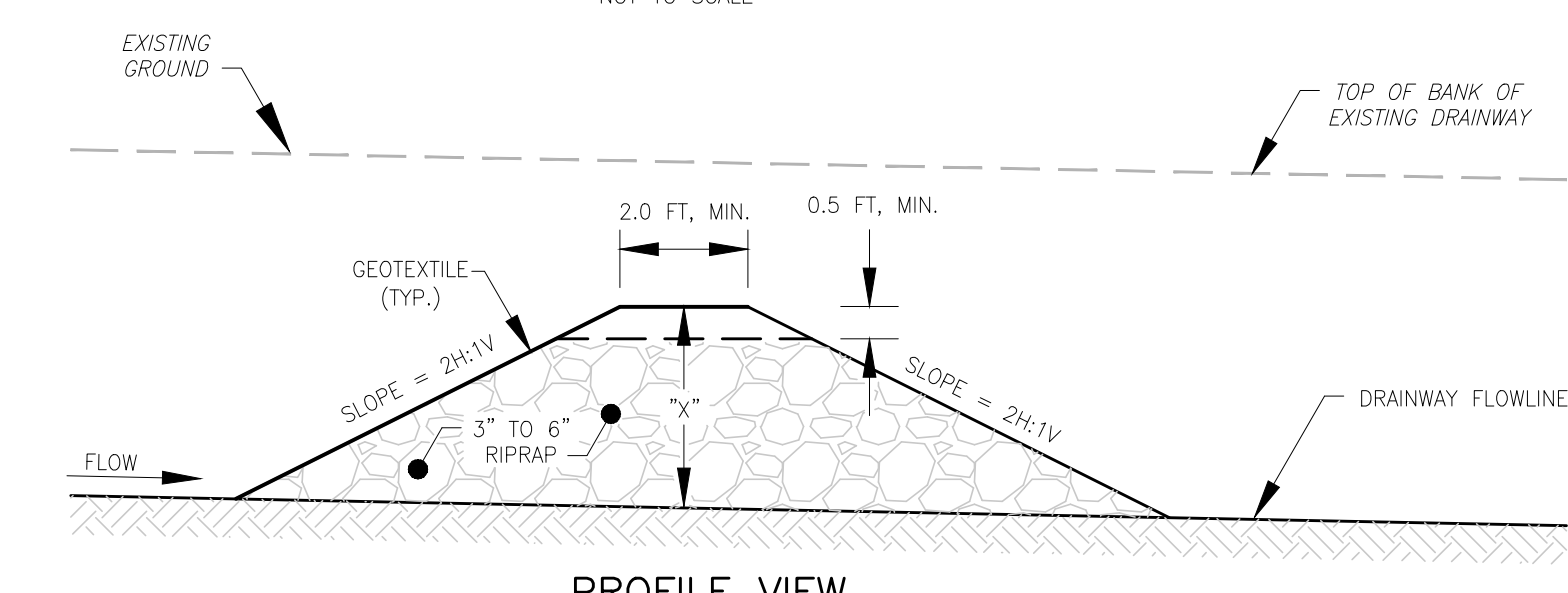


SECTION A-A

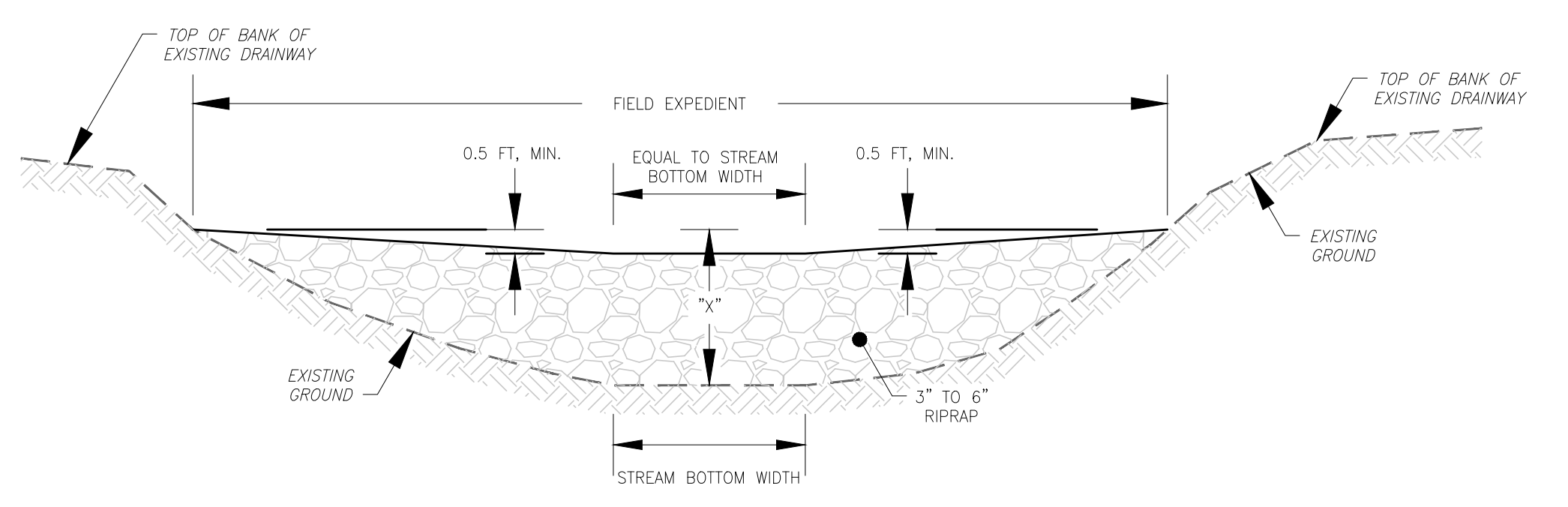
STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE (2/9)



CHECK DAM SPACING ALONG PROFILE
NOT TO SCALE



PROFILE VIEW



CROSS SECTION VIEW

ROCK CHECK DAM
NOT TO SCALE (5/9)

GAI CONSULTANTS, INC.
300 SUMMERS STREET, SUITE 100
CHARLESTON, WEST VIRGINIA 25301
P: 304. 926. 8100 F: 304. 926. 8860



**WVDEP - AML
OLDFIELD BRANCH
(HALL) DRAINAGE
MINGO COUNTY, WV**

PLOT SCALE: KAM
DESIGNED BY: KAM
DRAWN BY: KAM
CHECKED BY: XXX
APPROVED BY: XXX
DATE: December 23, 2015
PROJECT NUMBER: E130024

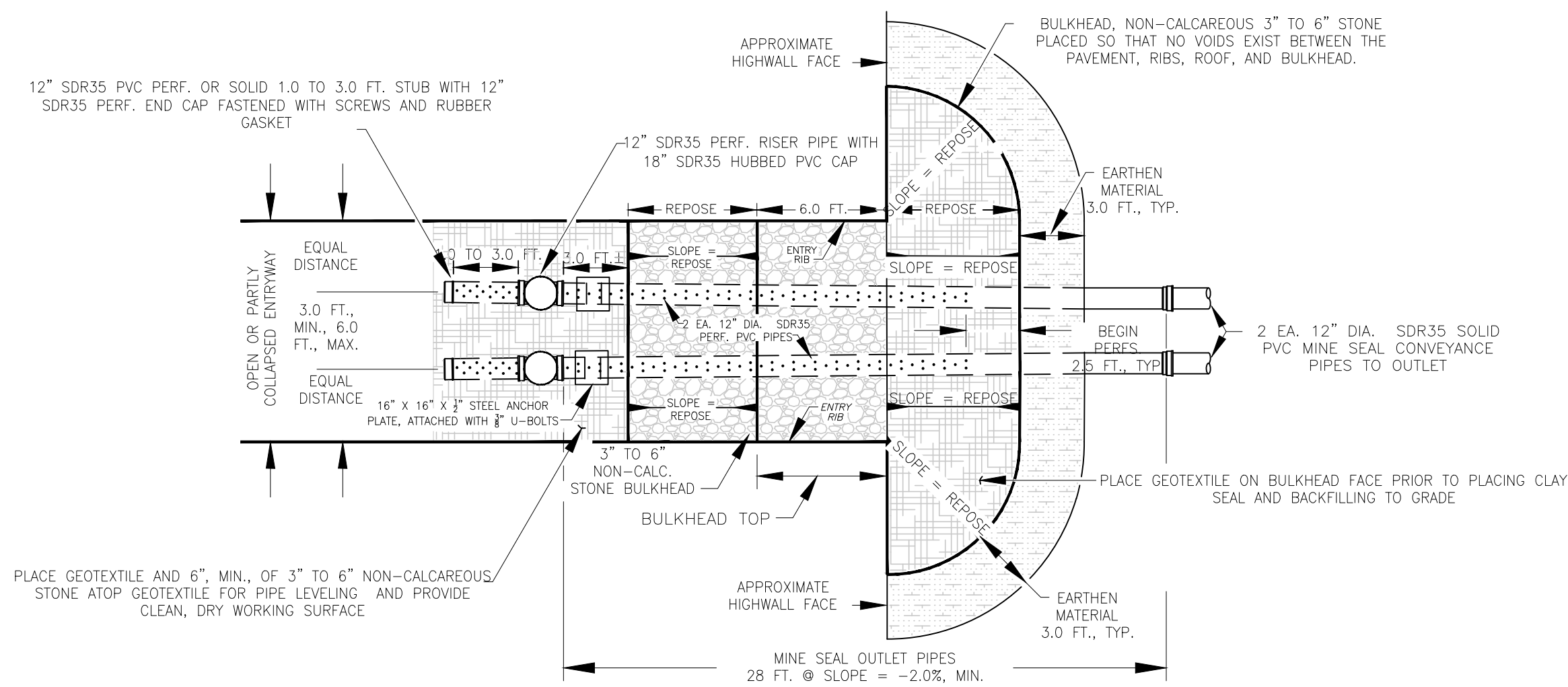
**MISCELLANEOUS
DETAILS**

REVISED	REV. NO.	DATE	DESCRIPTION

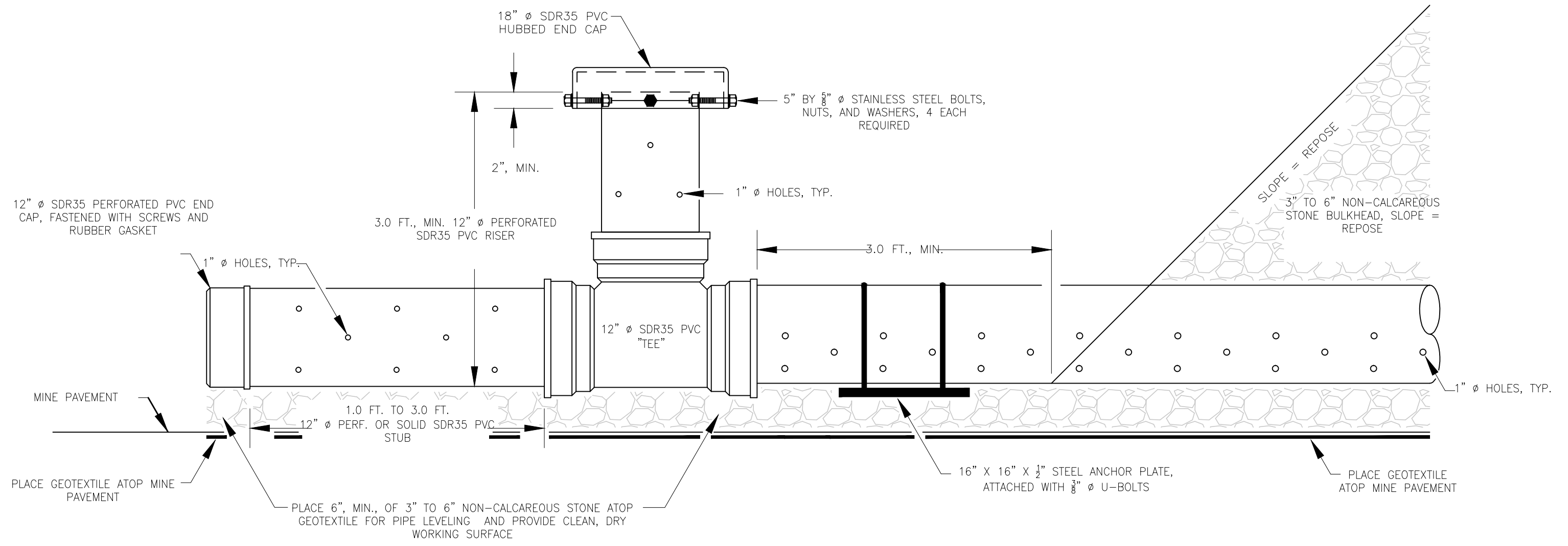
SCALE
AS SHOWN
DRAWING NUMBER

9





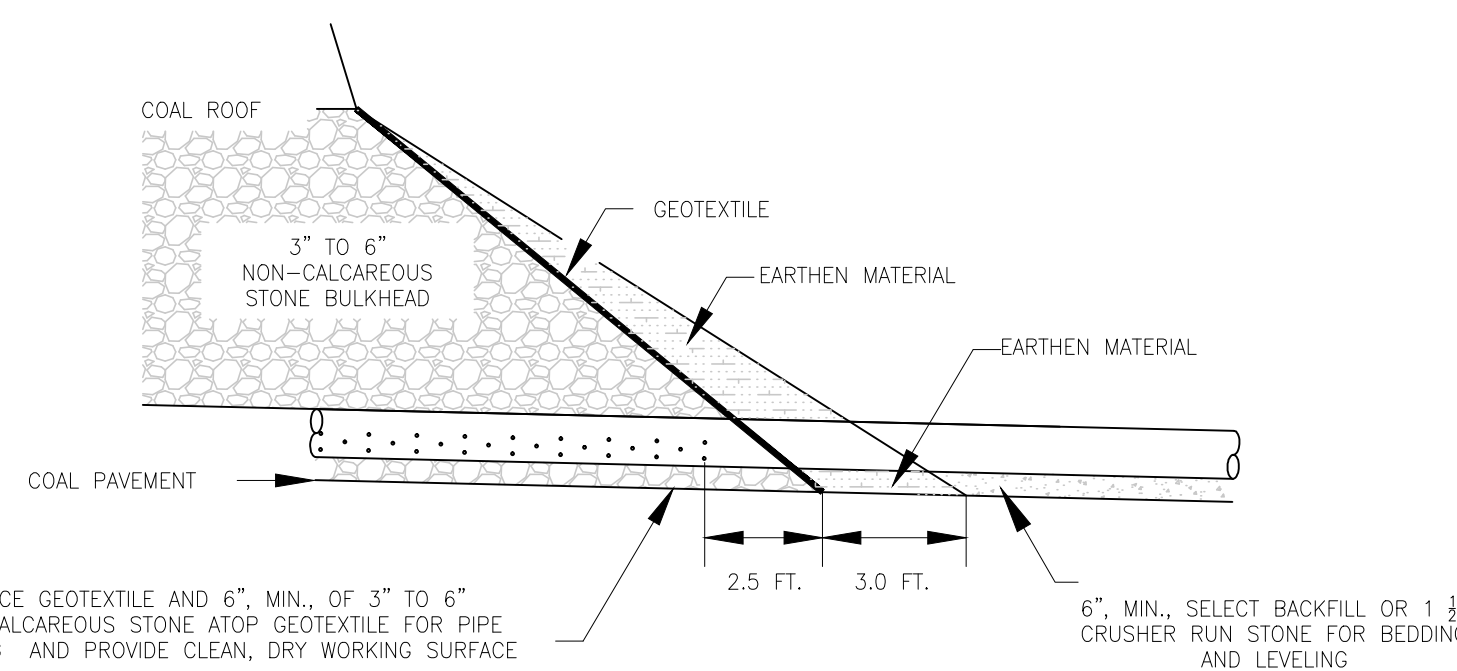
PLAN VIEW TOP OF BULKHEAD ELEVATION



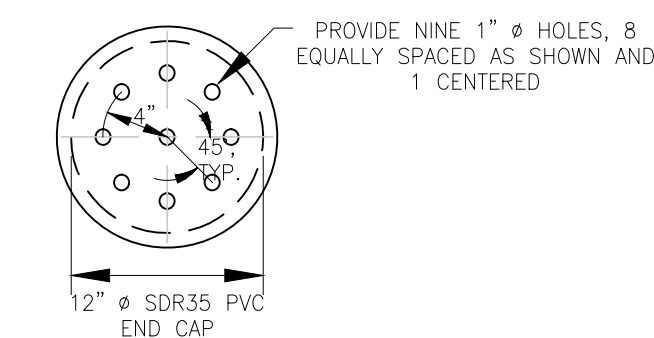
'TEE' RISER DETAIL

NOTES:

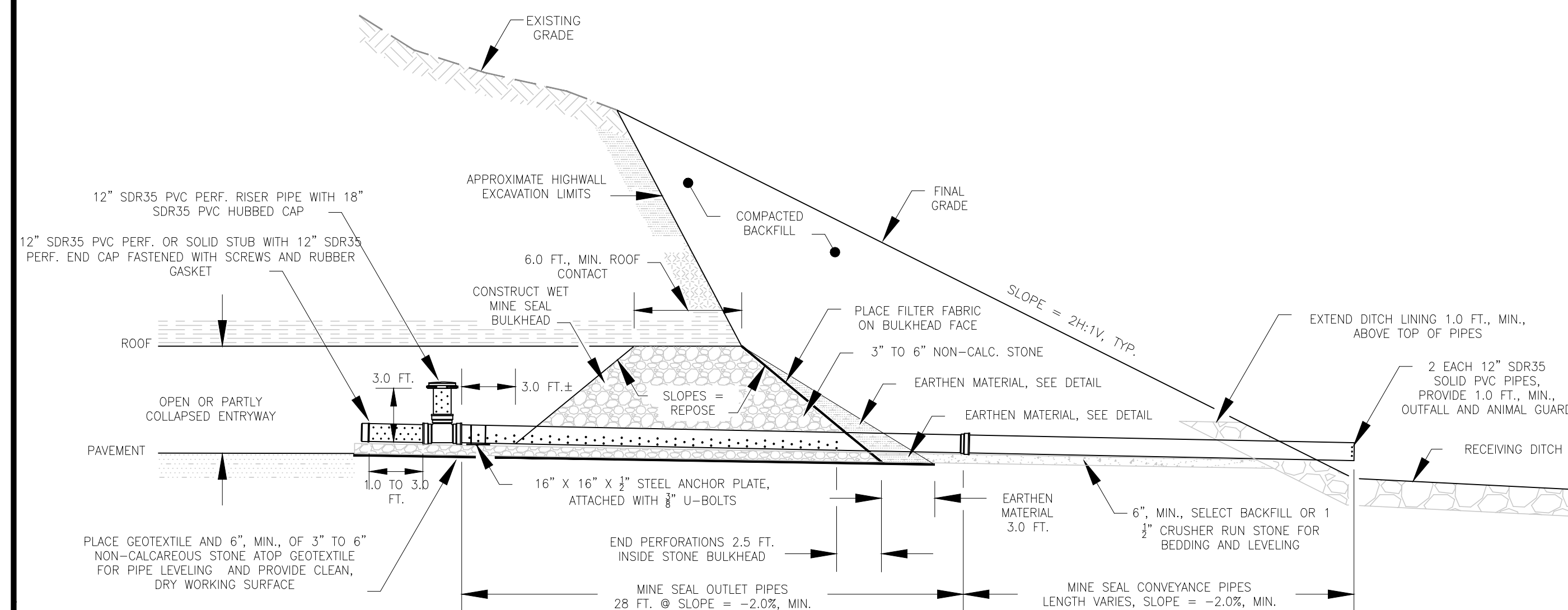
1. THE TWO (2) JOINTS (28.0 FEET) OF MINE SEAL OUTLET PIPES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "WET MINE SEALS" REGARDLESS OF WHERE THESE PIPES END IN THE INSTALLATION.
2. THE MINE SEAL CONVEYANCE PIPE LENGTHS VARY AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "MINE SEAL CONVEYANCE PIPES". MINE SEAL CONVEYANCE PIPES BEGIN AT THE END OF THE MINE SEAL OUTLET PIPES AND EXTEND TO THE PLANNED OUTFALL.
3. THE PERFORATED END CAP LOCATED INSIDE THE MINE AT THE END OF THE ONE TO THREE FOOT (1.0' TO 3.0') STUB SHALL HAVE A RUBBER GASKET, PLACED ON THE UPSTREAM END OF THE STUB AND SCREWED IN PLACE.
4. THE STONE BULKHEAD SHALL BE IN CONTACT WITH COAL ROOF FOR A DISTANCE EQUAL TO THE OPENING HEIGHT OR A MINIMUM OF 6.0 FEET. THE INSIDE AND OUTSIDE STONE BULKHEAD FACES SHALL BE CONSTRUCTED AT THE ANGLE OF REPOSE OF THE 3" TO 6" NON-CALCAREOUS STONE BULKHEAD.
5. 1 3/4" CRUSHER RUN STONE SHALL MEET THE GRADATION REQUIREMENTS FOR CLASS 1 AGGREGATE IN TABLE 704.6.2A OF THE WDOH SPECIFICATIONS FOR ROADS AND BRIDGES.



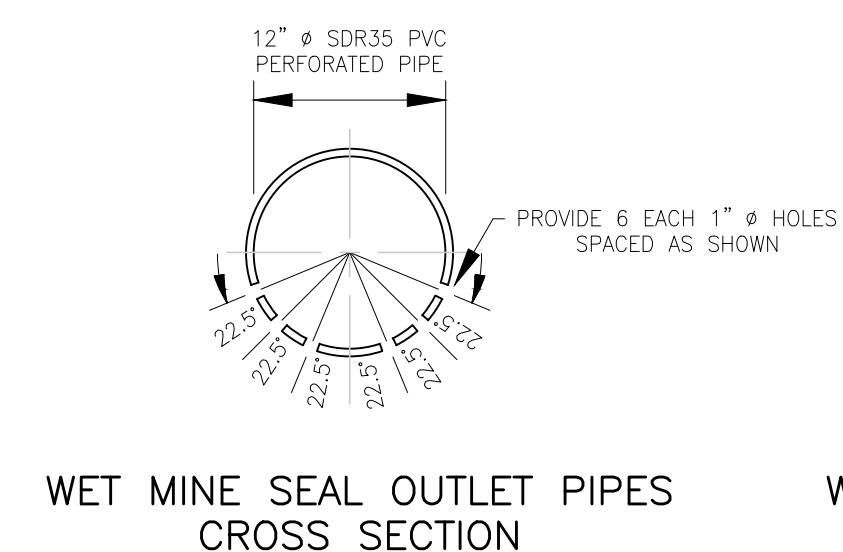
EARTHEN MATERIAL DETAILS



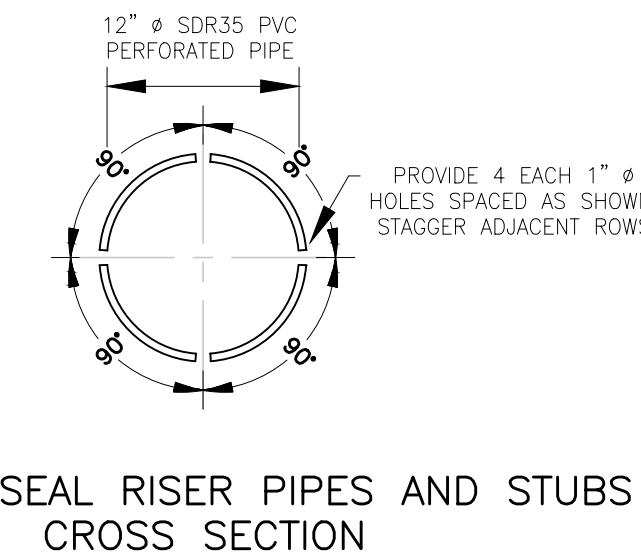
PERFORATED END CAP



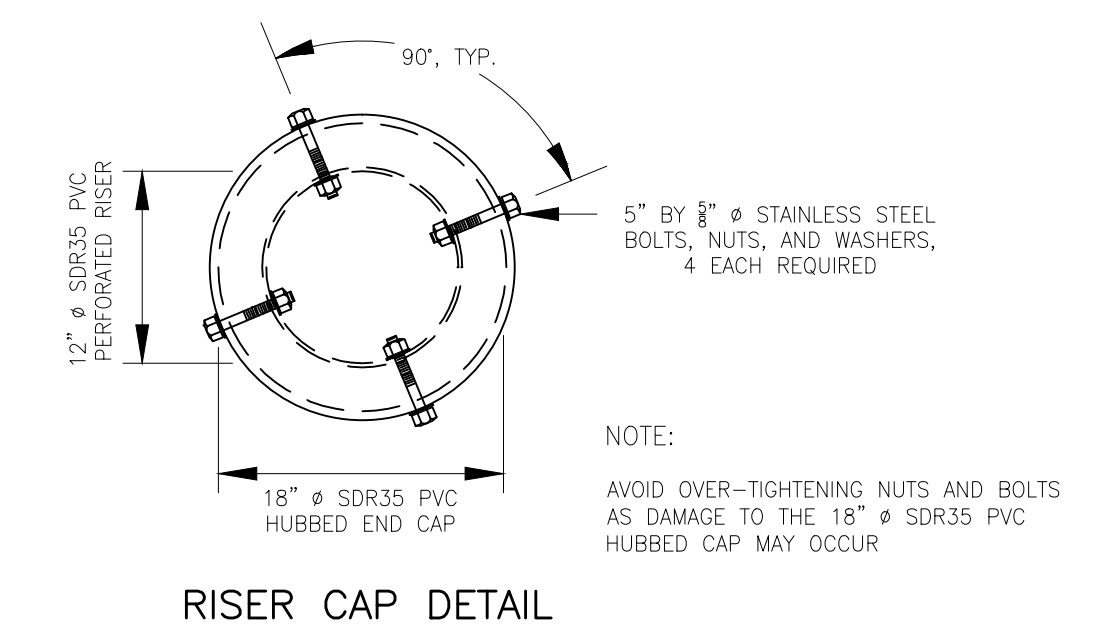
PROFILE VIEW, TYP.



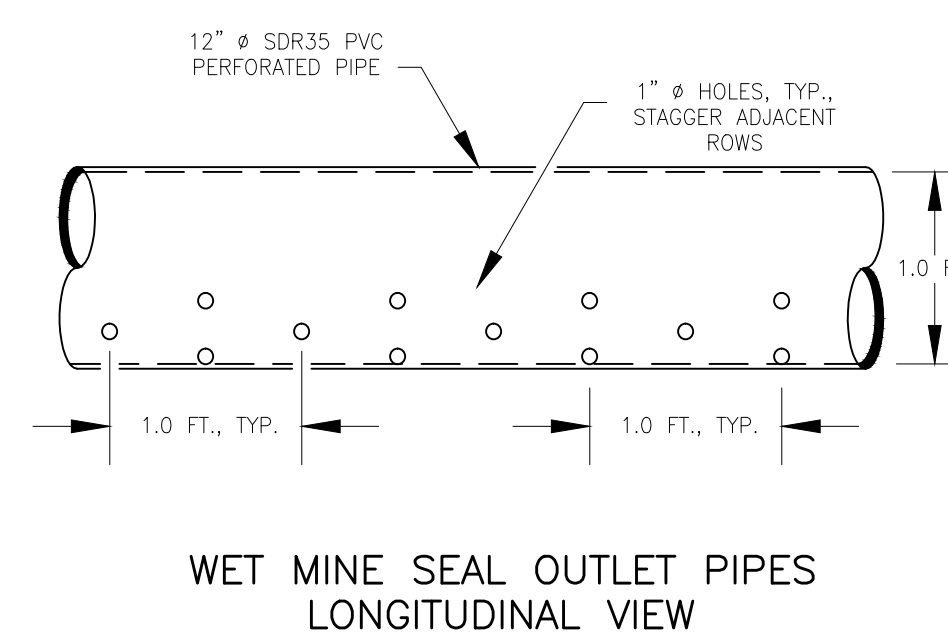
WET MINE SEAL OUTLET PIPES CROSS SECTION



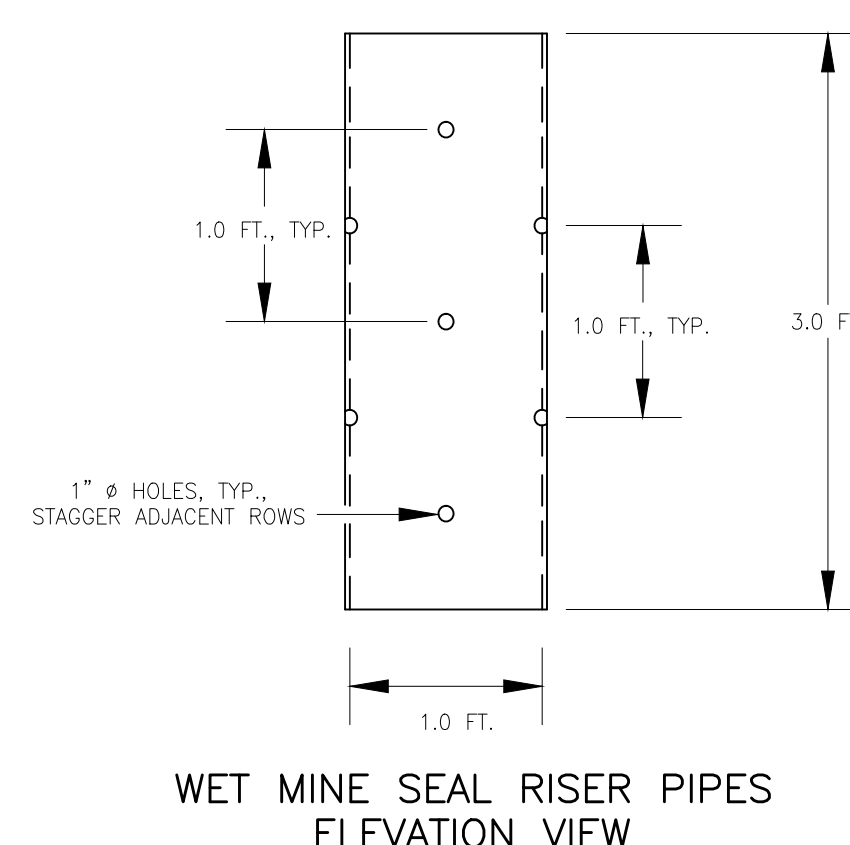
WET MINE SEAL RISER PIPES AND STUBS CROSS SECTION



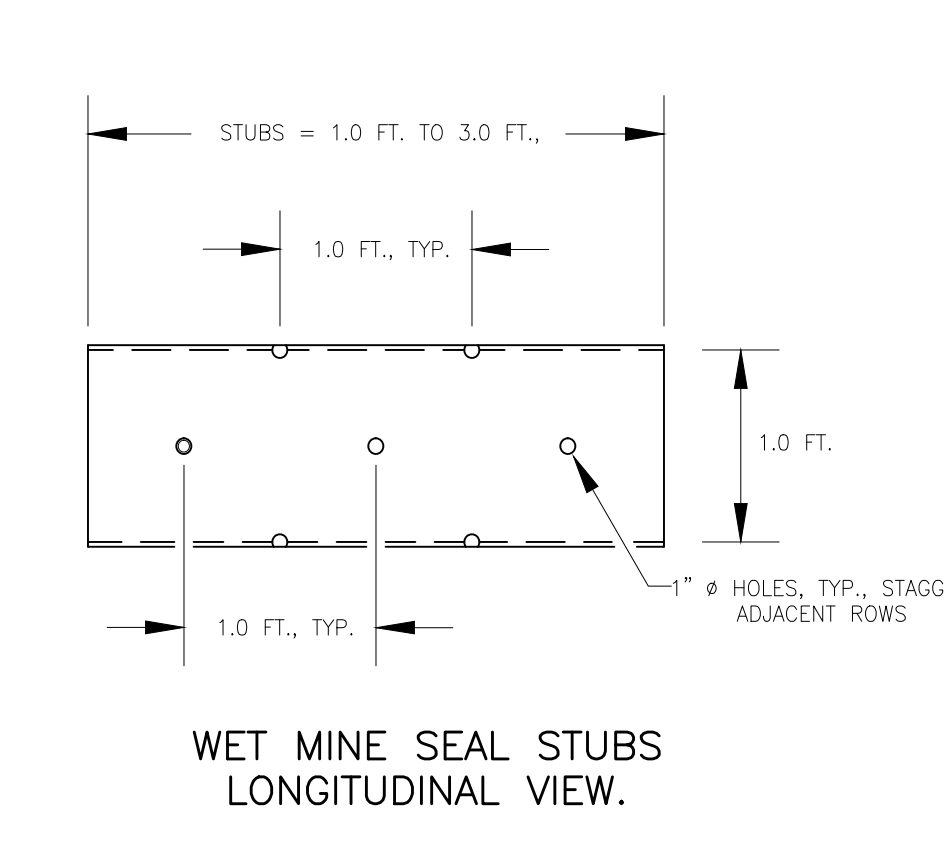
RISER CAP DETAIL



WET MINE SEAL OUTLET PIPES LONGITUDINAL VIEW



WET MINE SEAL RISER PIPES ELEVATION VIEW



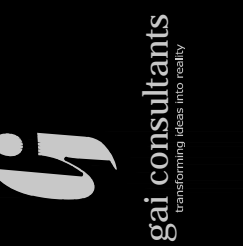
WET MINE SEAL STUBS LONGITUDINAL VIEW.

WET SEAL 1/10
NOT TO SCALE

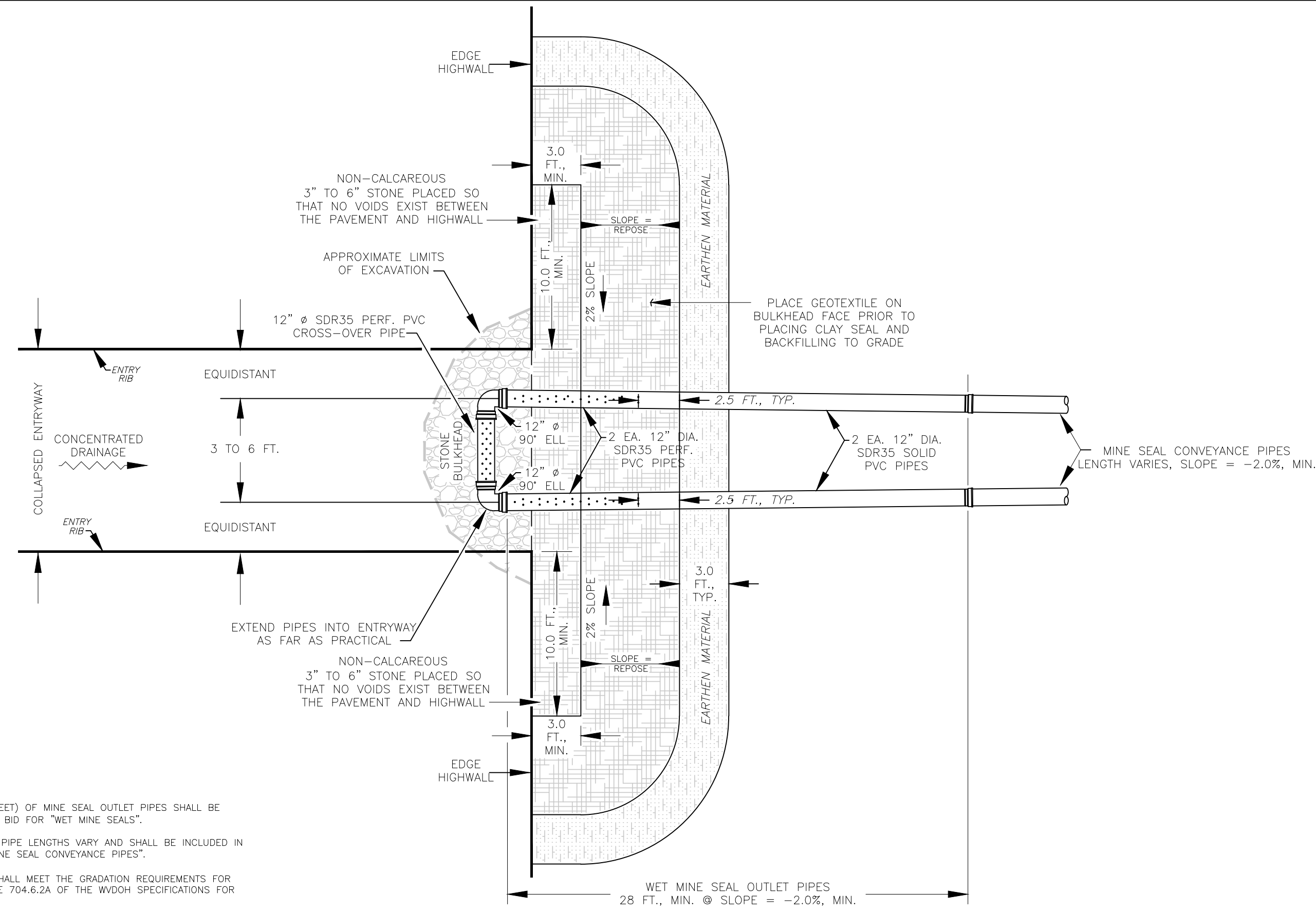
WET MINE SEAL PIPES
NOT TO SCALE



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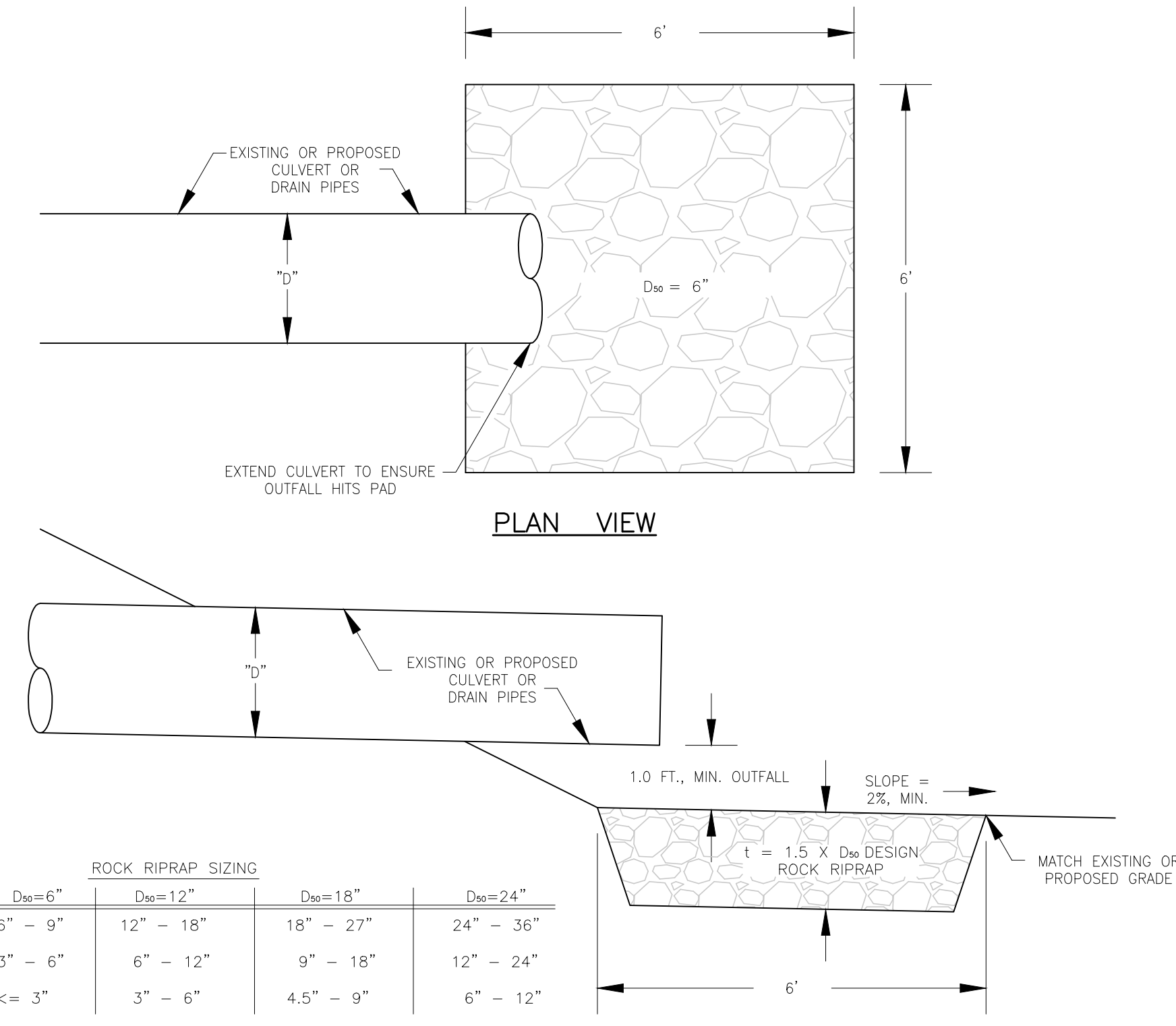


REVISED	REV. NO.	DATE	DESCRIPTION



- NOTES:
1. THE TWO (2) JOINTS (28.0 FEET) OF MINE SEAL OUTLET PIPES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "WET MINE SEALS".
 2. THE MINE SEAL CONVEYANCE PIPE LENGTHS VARY AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "MINE SEAL CONVEYANCE PIPES".
 3. 1 1/2" CRUSHER RUN STONE SHALL MEET THE GRADATION REQUIREMENTS FOR CLASS 1 AGGREGATE IN TABLE 704.6.2A OF THE WVDOT SPECIFICATIONS FOR ROADS AND BRIDGES.

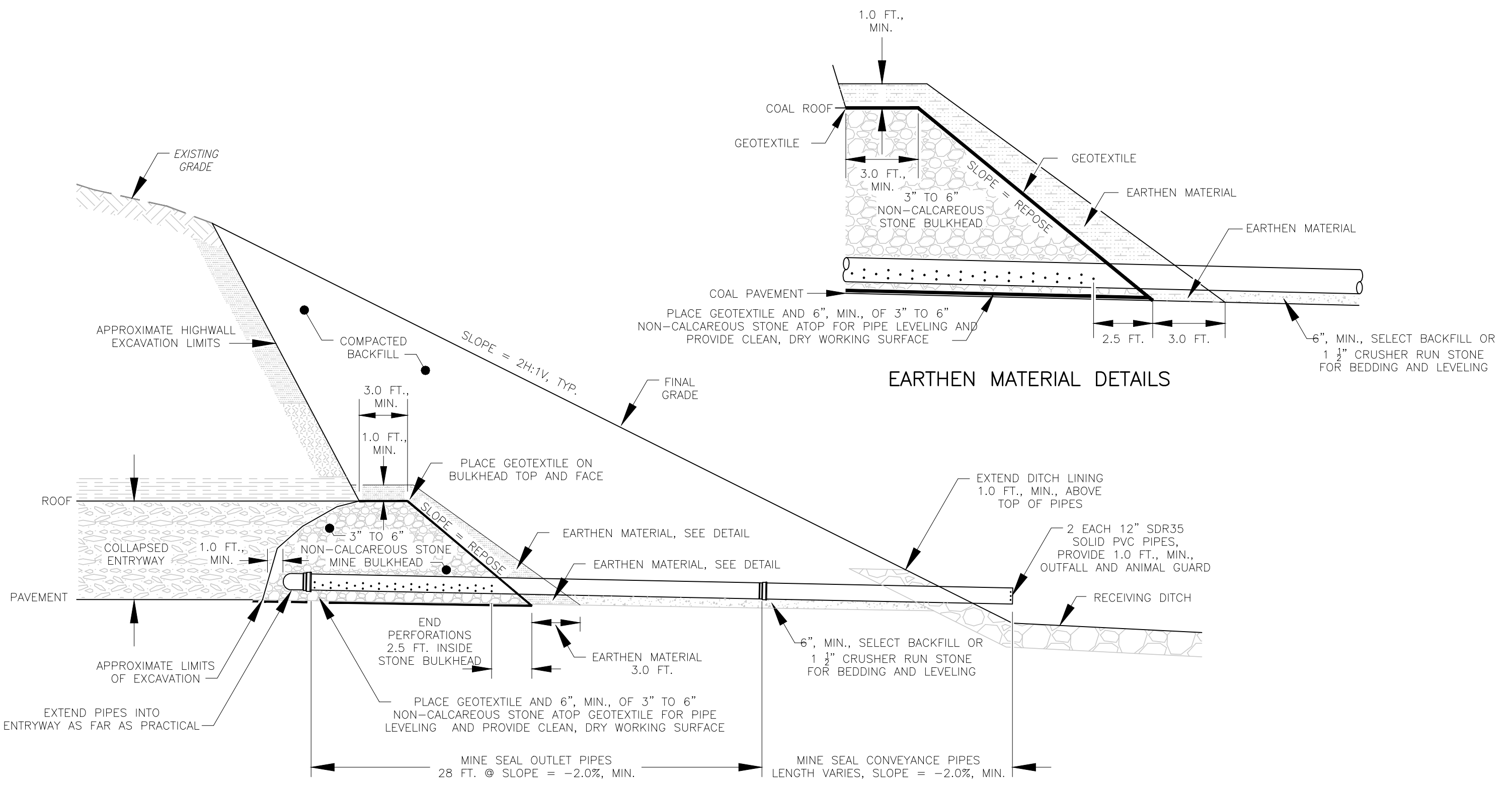
PLAN VIEW TOP OF BULKHEAD ELEVATION



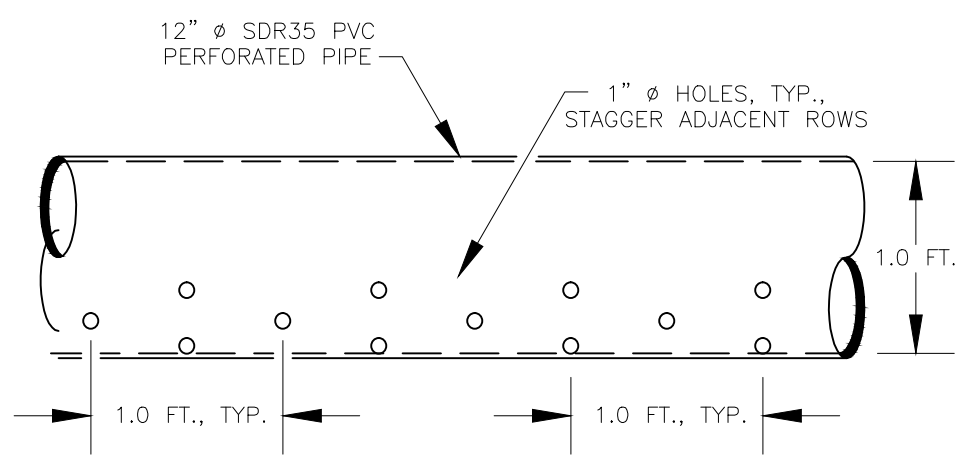
GRADATION	ROCK RIPRAP SIZING			
	D ₅₀ =6"	D ₅₀ =12"	D ₅₀ =18"	D ₅₀ =24"
50%	6" - 9"	12" - 18"	18" - 27"	24" - 36"
35%	3" - 6"	6" - 12"	9" - 18"	12" - 24"
15%	< 3"	3" - 6"	4.5" - 9"	6" - 12"

- NOTES:
- "D" = CULVERT DIAMETER
- "t" = THICKNESS

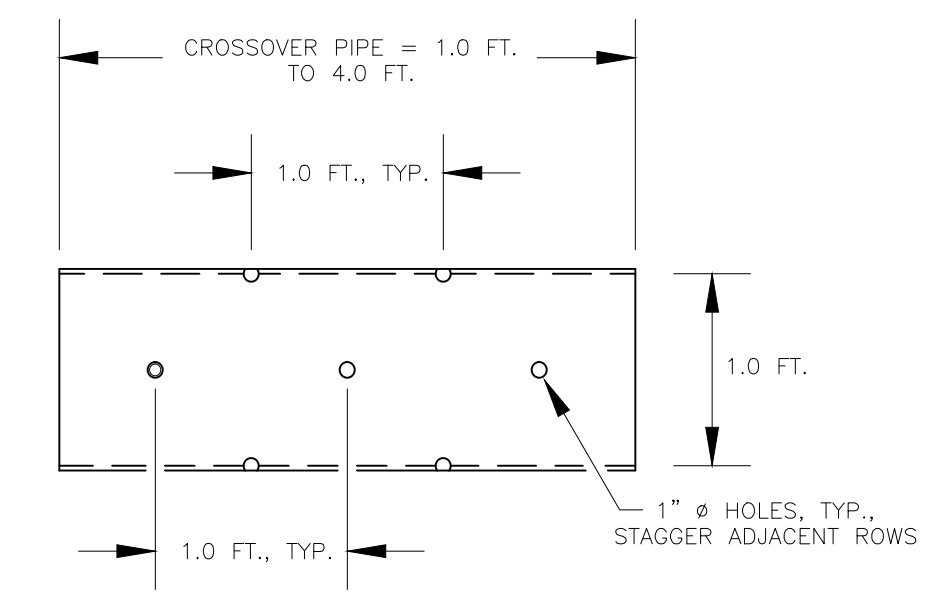
SPLASH PAD 2/11



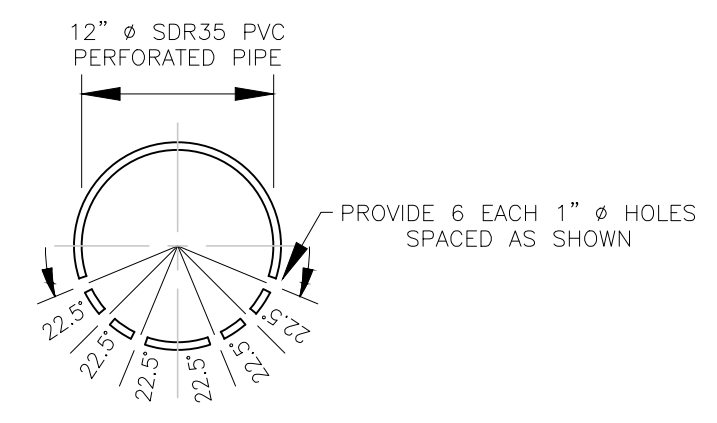
PROFILE VIEW



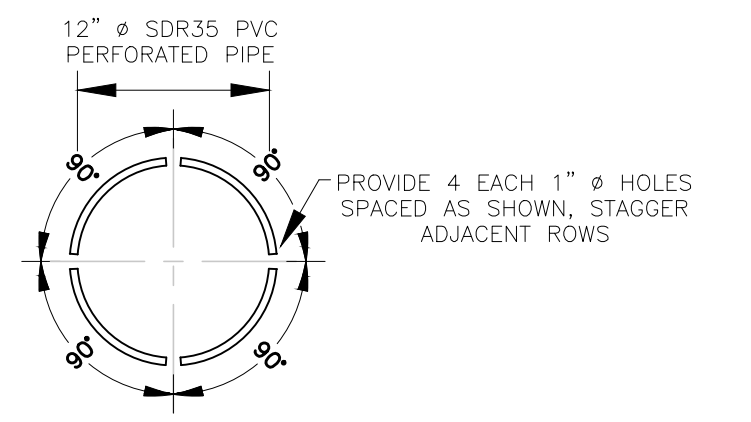
MODIFIED MINE SEAL OUTLET PIPES LONGITUDINAL VIEW



MODIFIED MINE SEAL CROSS-OVER PIPE LONGITUDINAL VIEW



MODIFIED MINE SEAL OUTLET PIPES CROSS SECTION



MODIFIED MINE SEAL CROSS-OVER PIPE CROSS SECTION

MODIFIED MINE SEAL PIPES NOT TO SCALE

1/11

MODIFIED MINE SEAL

NOT TO SCALE



GAI CONSULTANTS, INC.
 300 SUMMERS STREET, SUITE 100
 CHARLESTON, WEST VIRGINIA 25301
 P-304.926.800 F-304.926.880



WVDEP - AML
 OLDFIELD BRANCH
 (HALL) DRAINAGE
 MINGO COUNTY, WV

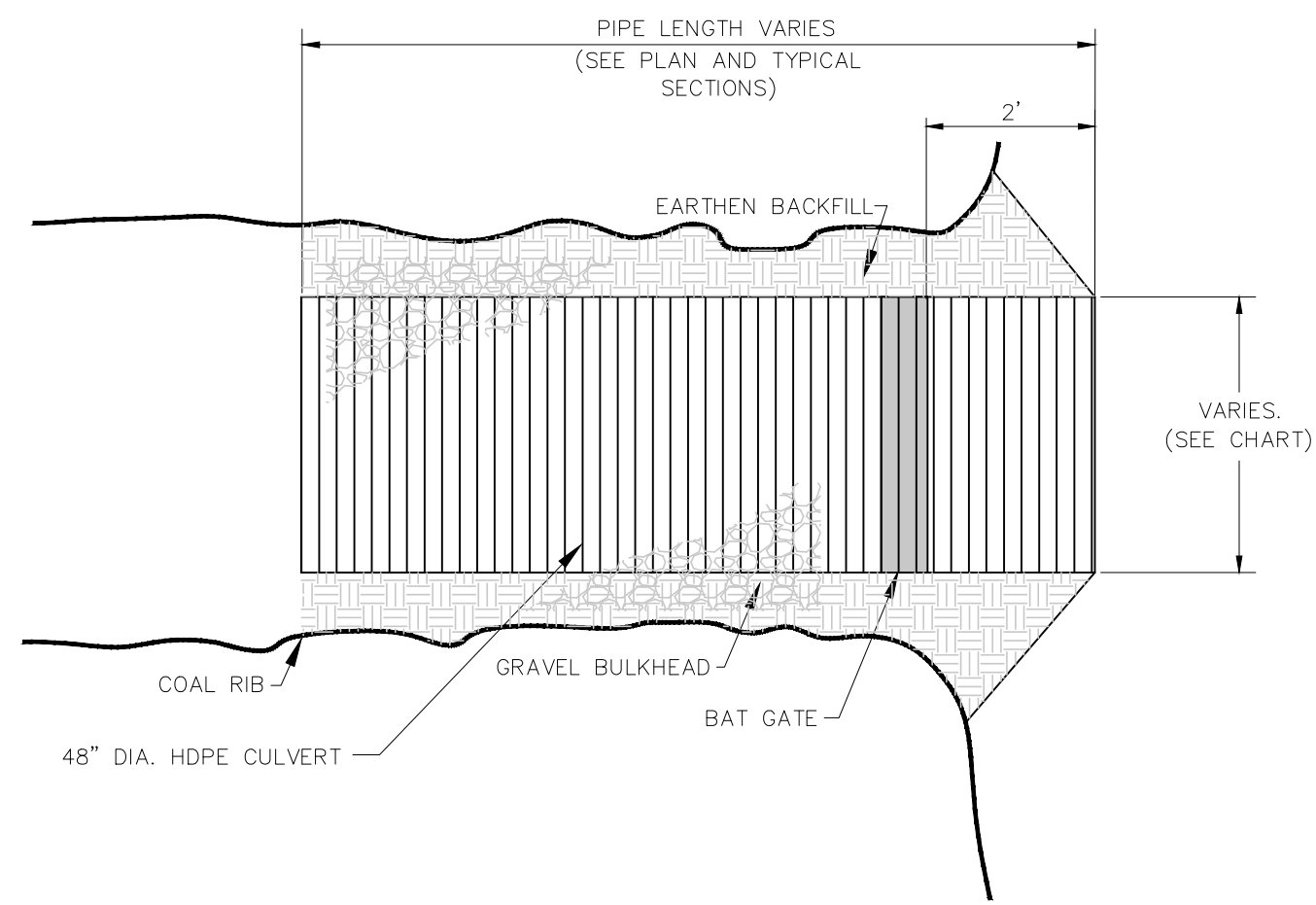
PLOT SCALE: KAM
 DESIGNED BY: KAM
 DRAWN BY: XXX
 CHECKED BY: XXX
 APPROVED BY: XXX
 DATE: December 23, 2015
 PROJECT NUMBER: E130024

MINE SEAL
 DETAILS

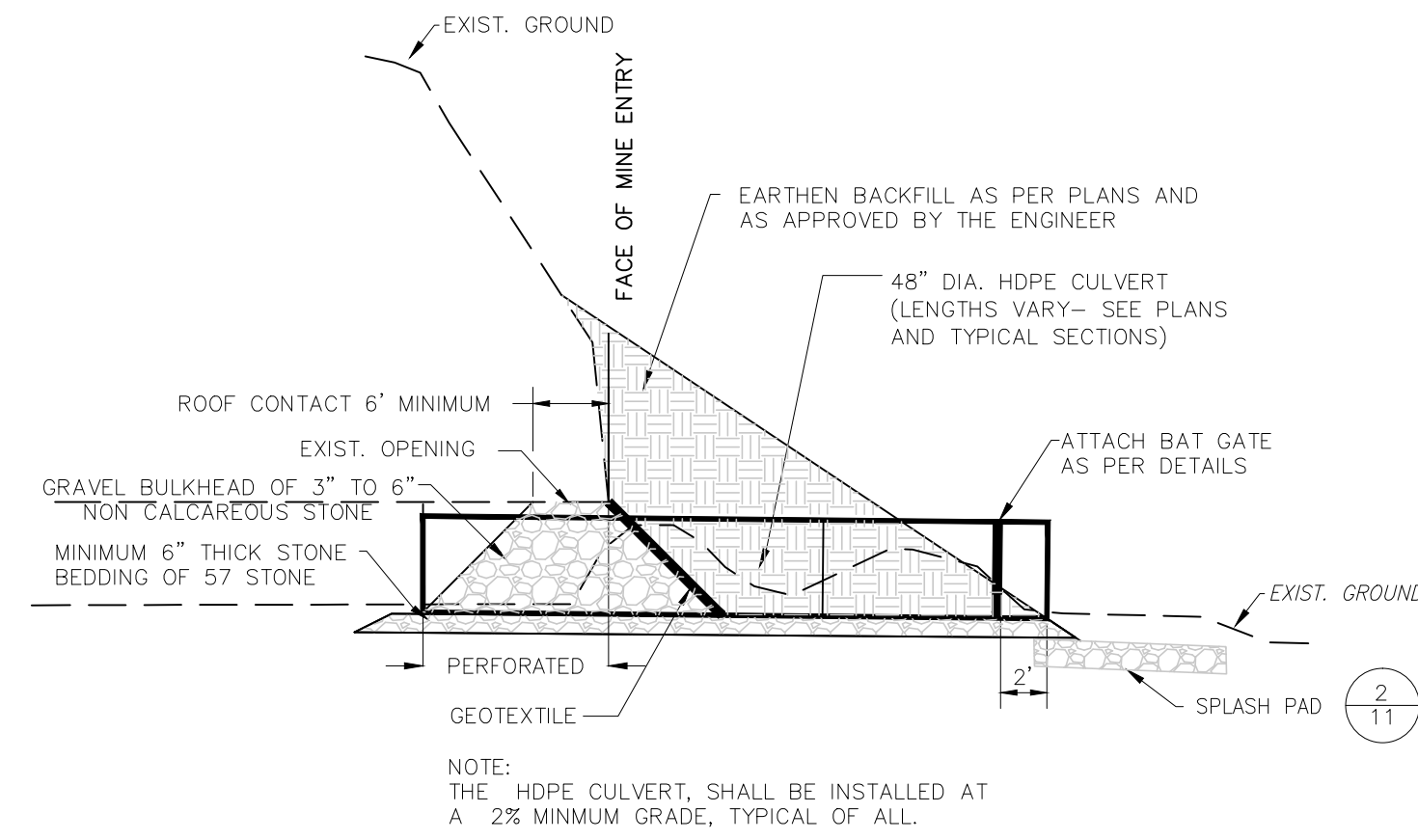
REVISED	REV. NO.	DATE	DESCRIPTION

SCALE AS SHOWN
 DRAWING NUMBER

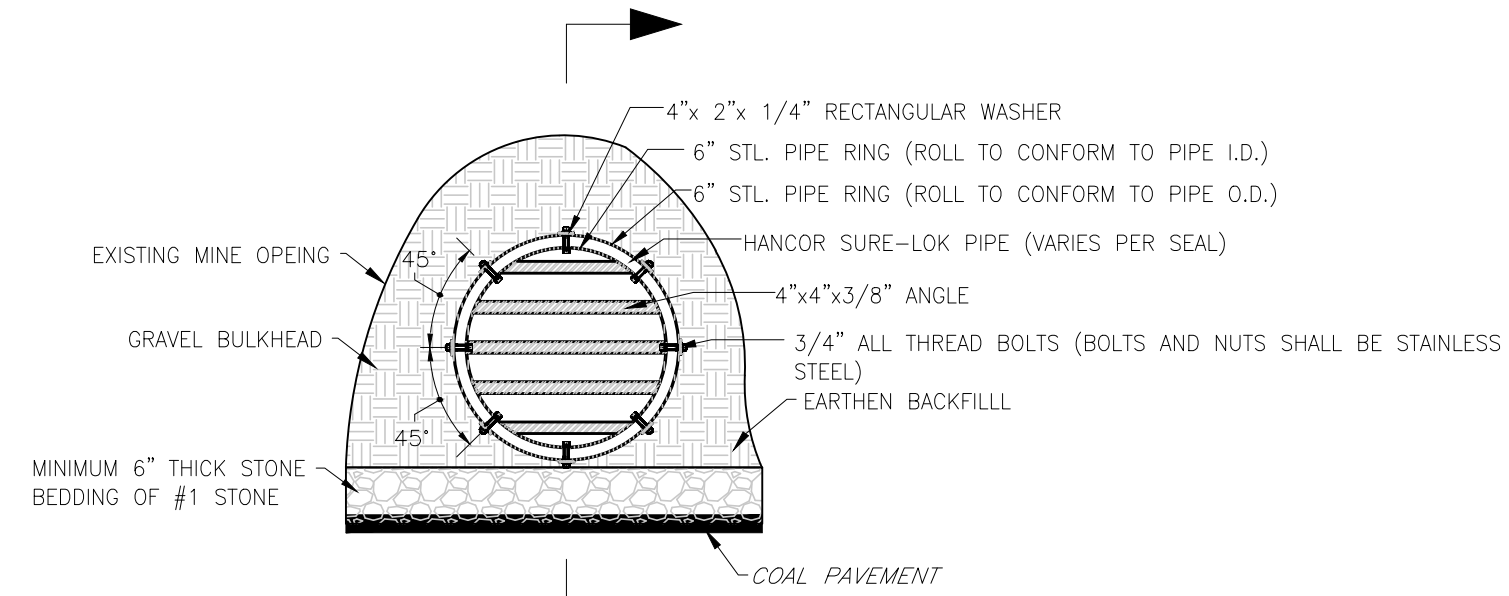
11



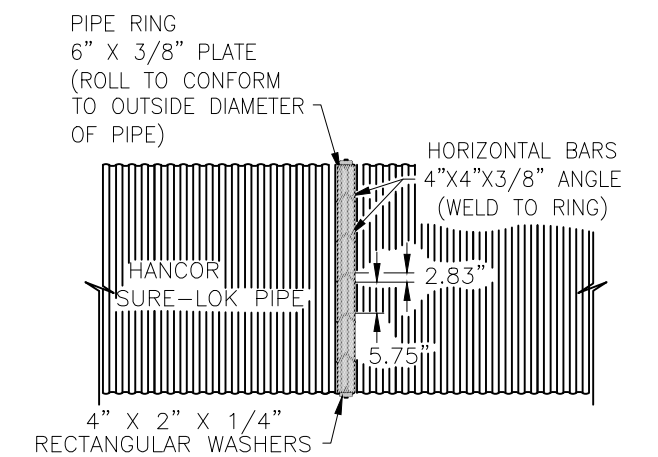
PLAN



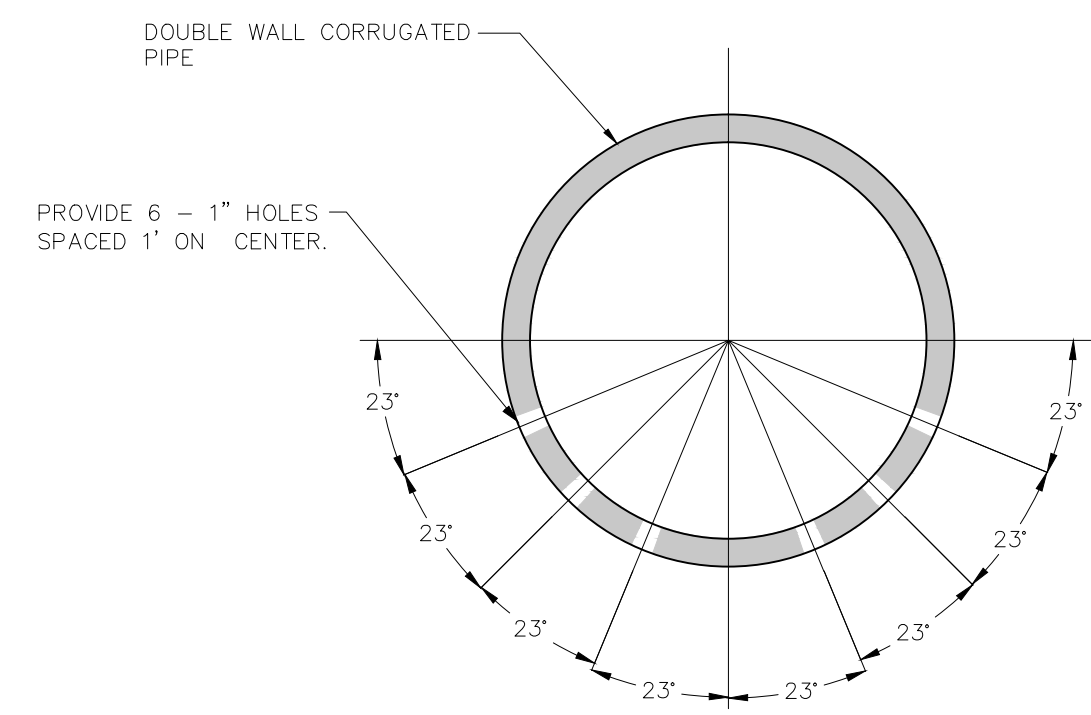
TYPICAL CONSTRUCTION DETAILS
(APPLICABLE TO ALL BAT GATES UNLESS NOTED)



END VIEW

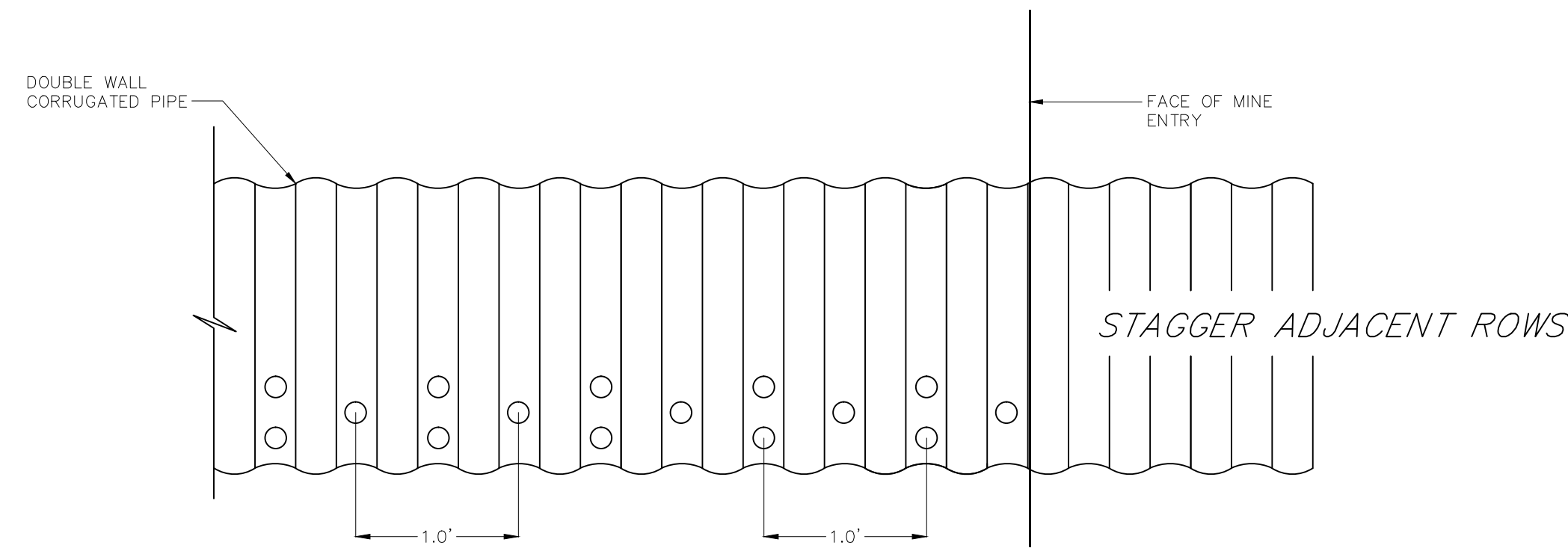


PIPE RING SECTION

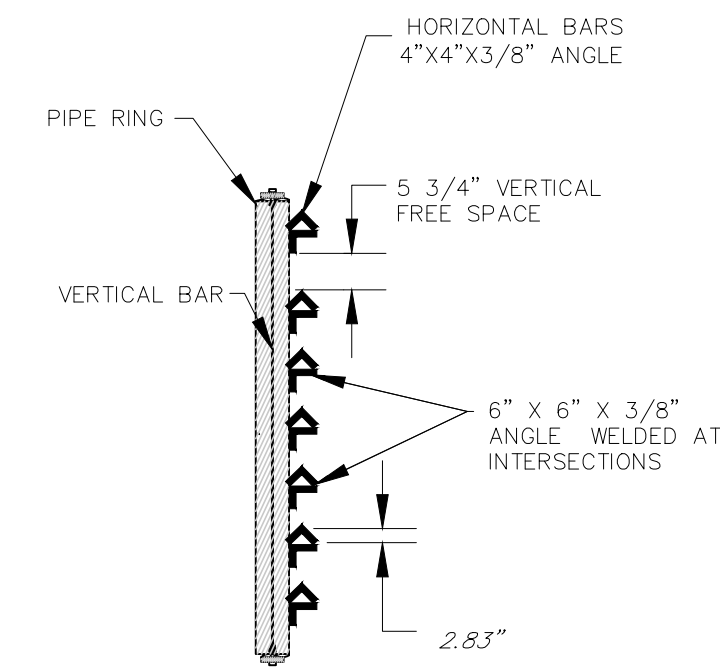


NOTE:
PERFORATE ON PIPE WALLS NOT ON RIBS.

PERFORATION DETAIL



VERTICAL BAR SIDE VIEW



GATE DETAIL
(48\"/>

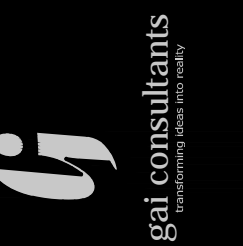
HDPE BAT GATE	
PORTAL	PIPE (INCHES)
A	36
B	36 (2 pipes)
C	48

NOTE:
HORIZONTAL BAR SPACINGS ARE NOT TO BE ALTERED. AN ADDITIONAL HORIZONTAL "FLAT" BAR MAY BE REQUIRED TO MAINTAIN SPACINGS THROUGHOUT ENTIRE HEIGHT OF CULVERT. THESE MODIFICATIONS ARE TO BE APPROVED BY THE ENGINEER PRIOR TO BEING PERFORMED.

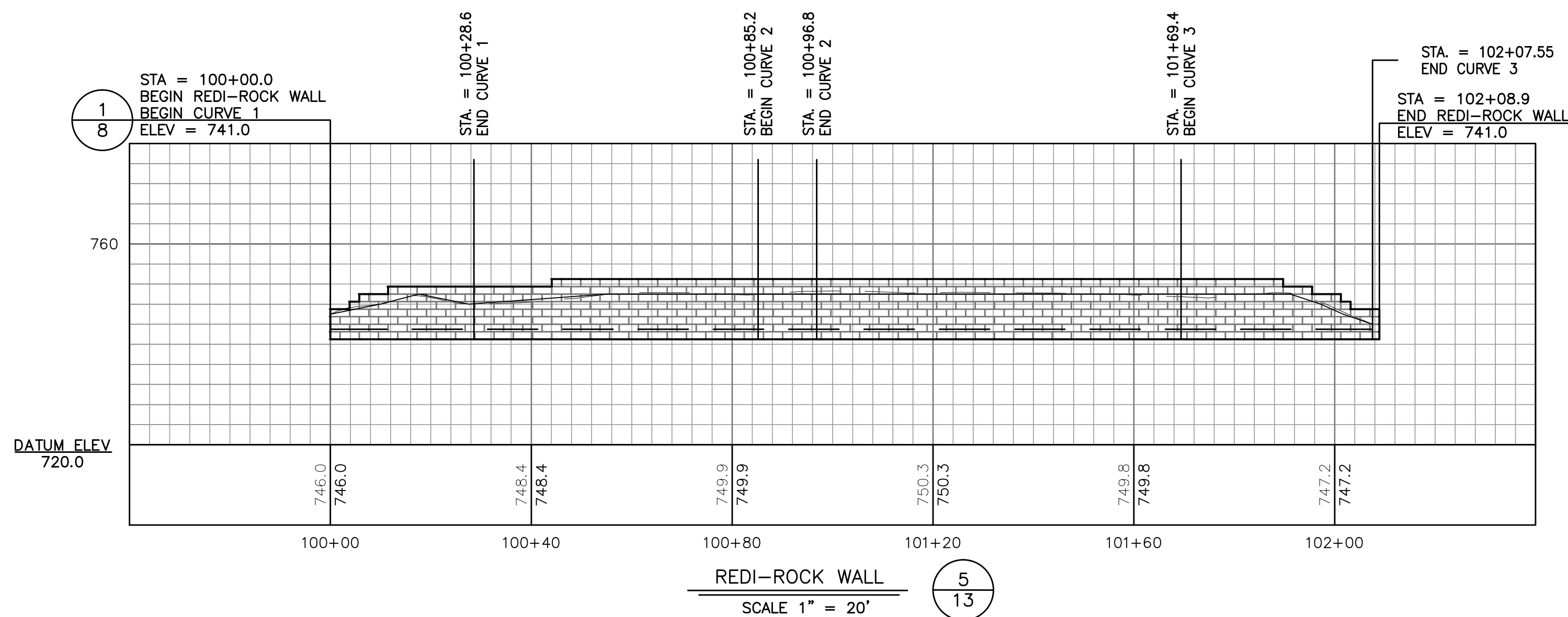
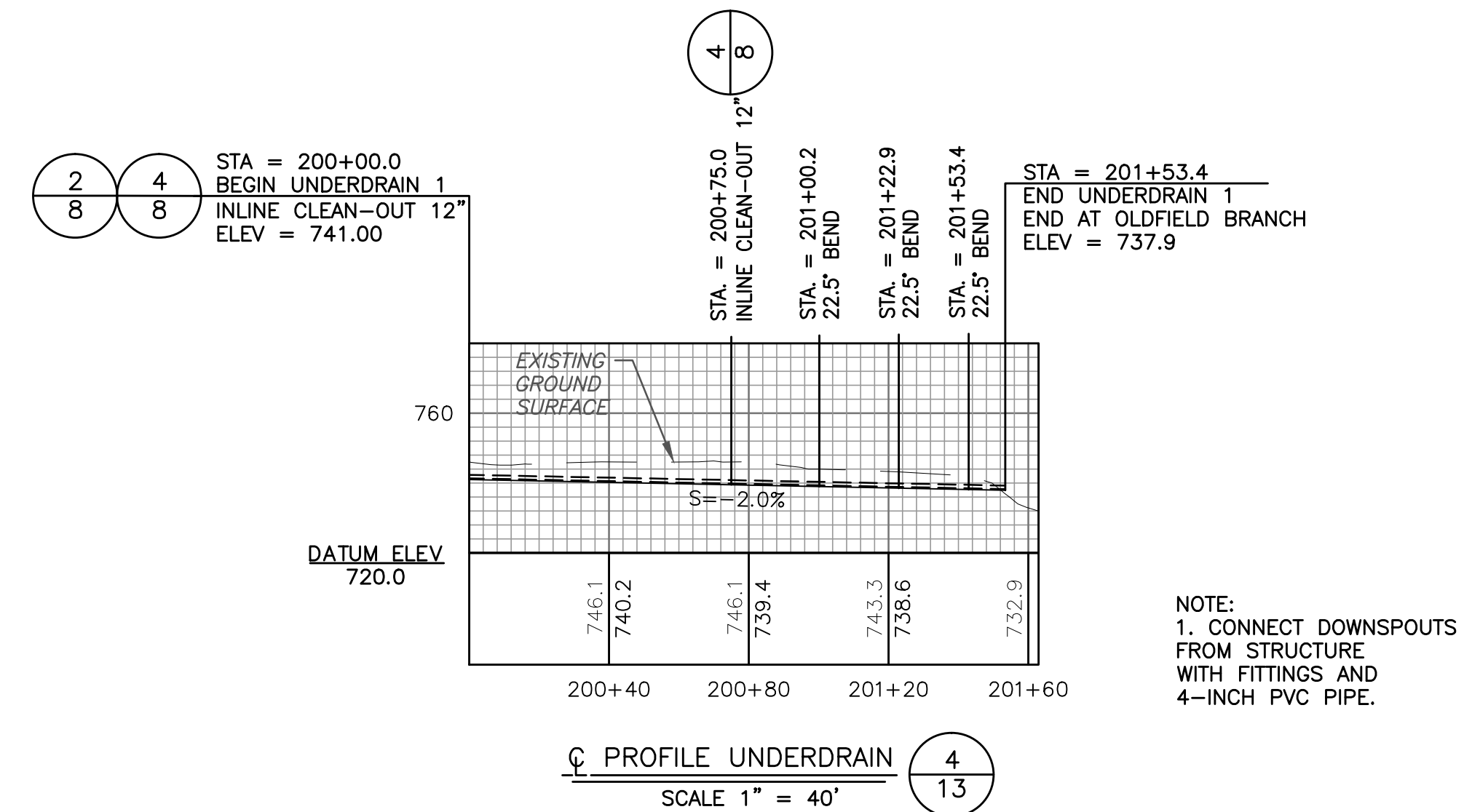
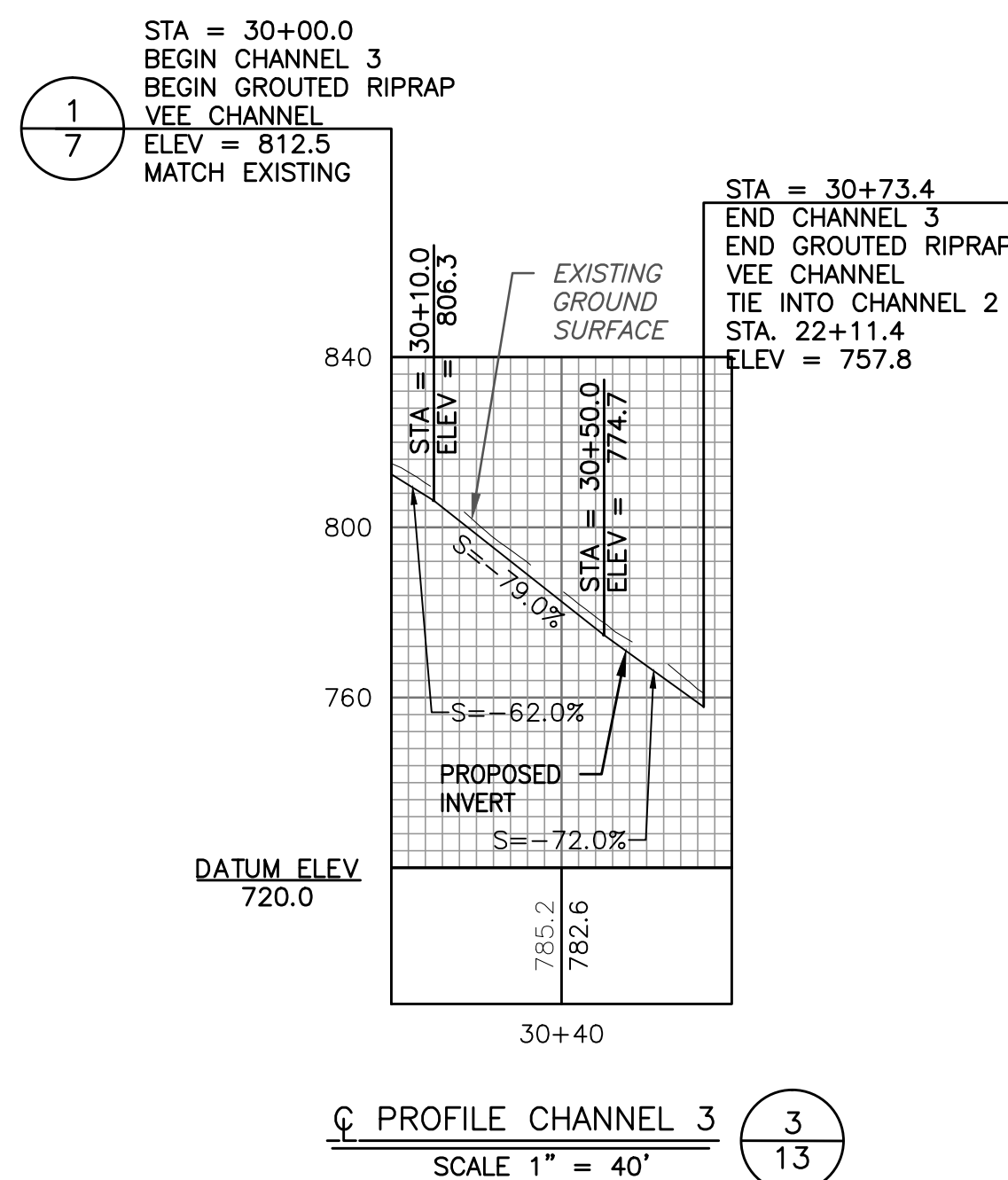
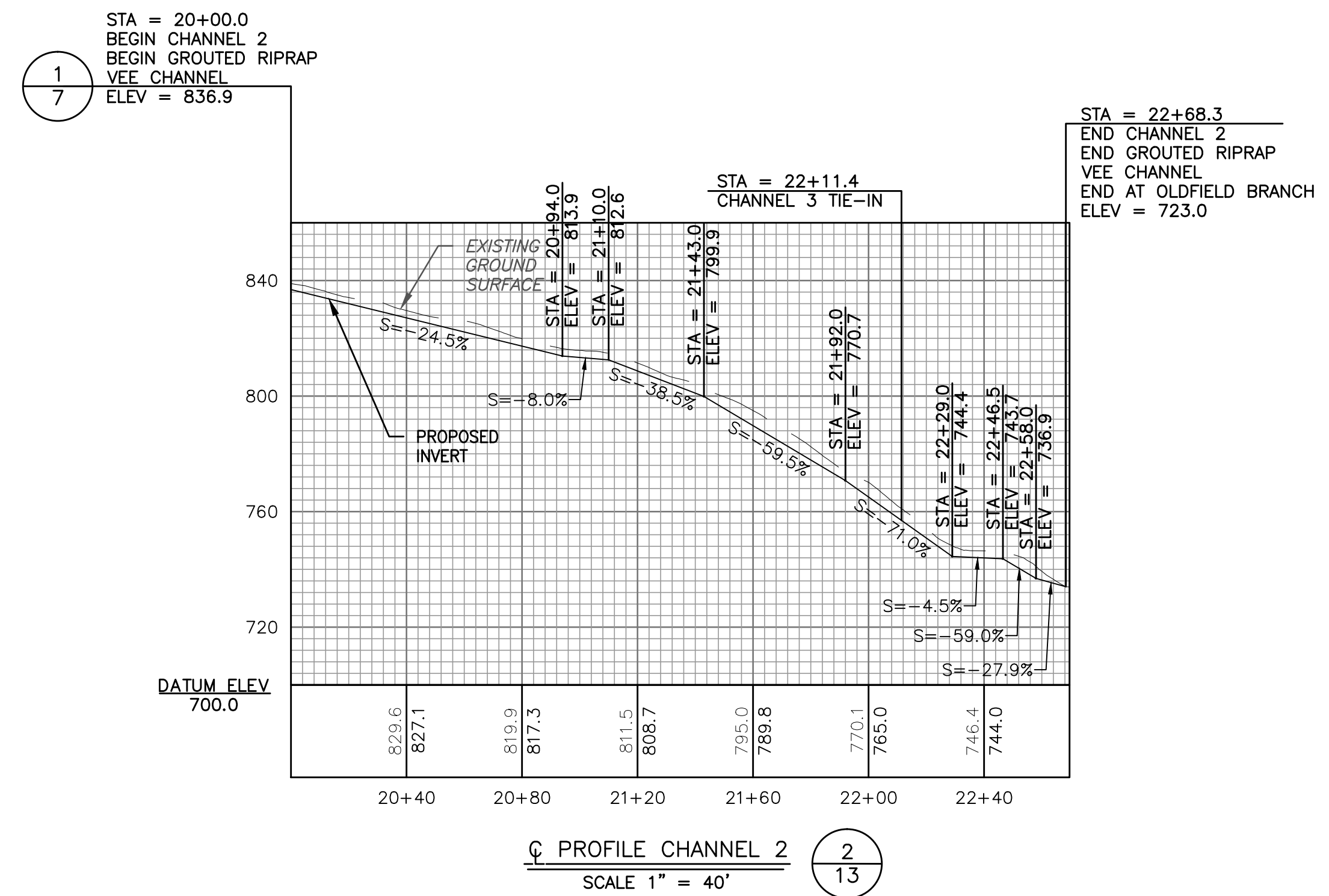
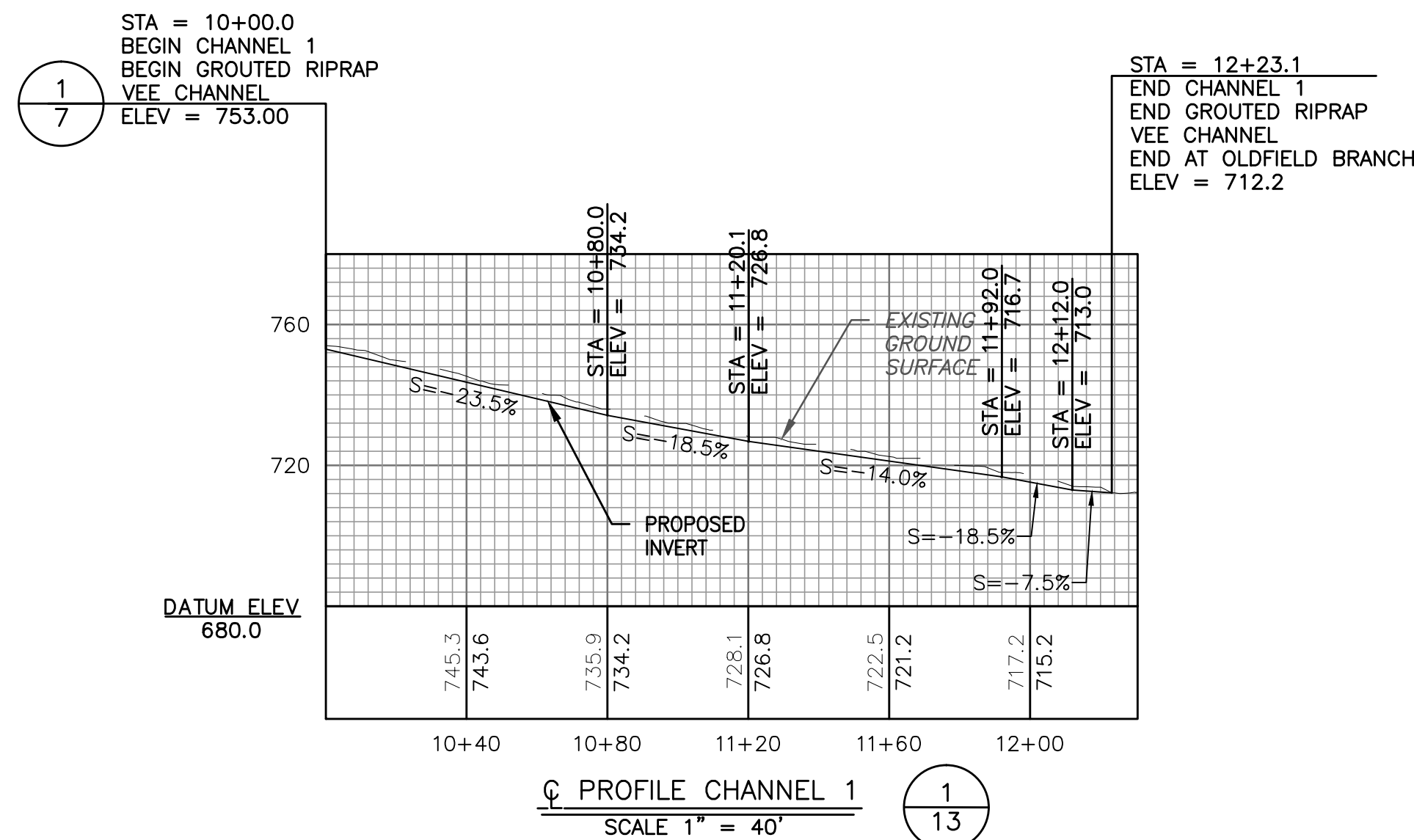
BAT GATE 1
12



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REVISED	REV. NO.	DATE	DESCRIPTION



CURVE #	COORDINATE		RADIUS (FEET)
	NORTHING	EASTING	
1	BEGIN	285672.0 1590216.5	30
	END	285652.3 1590197.4	
2	BEGIN	285635.0 1590143.5	50
	END	285630.1 1590132.9	
3	BEGIN	285592.6 1590070.8	27
	END	285601.1 1590036.9	



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