

west virginia department of environmental protection

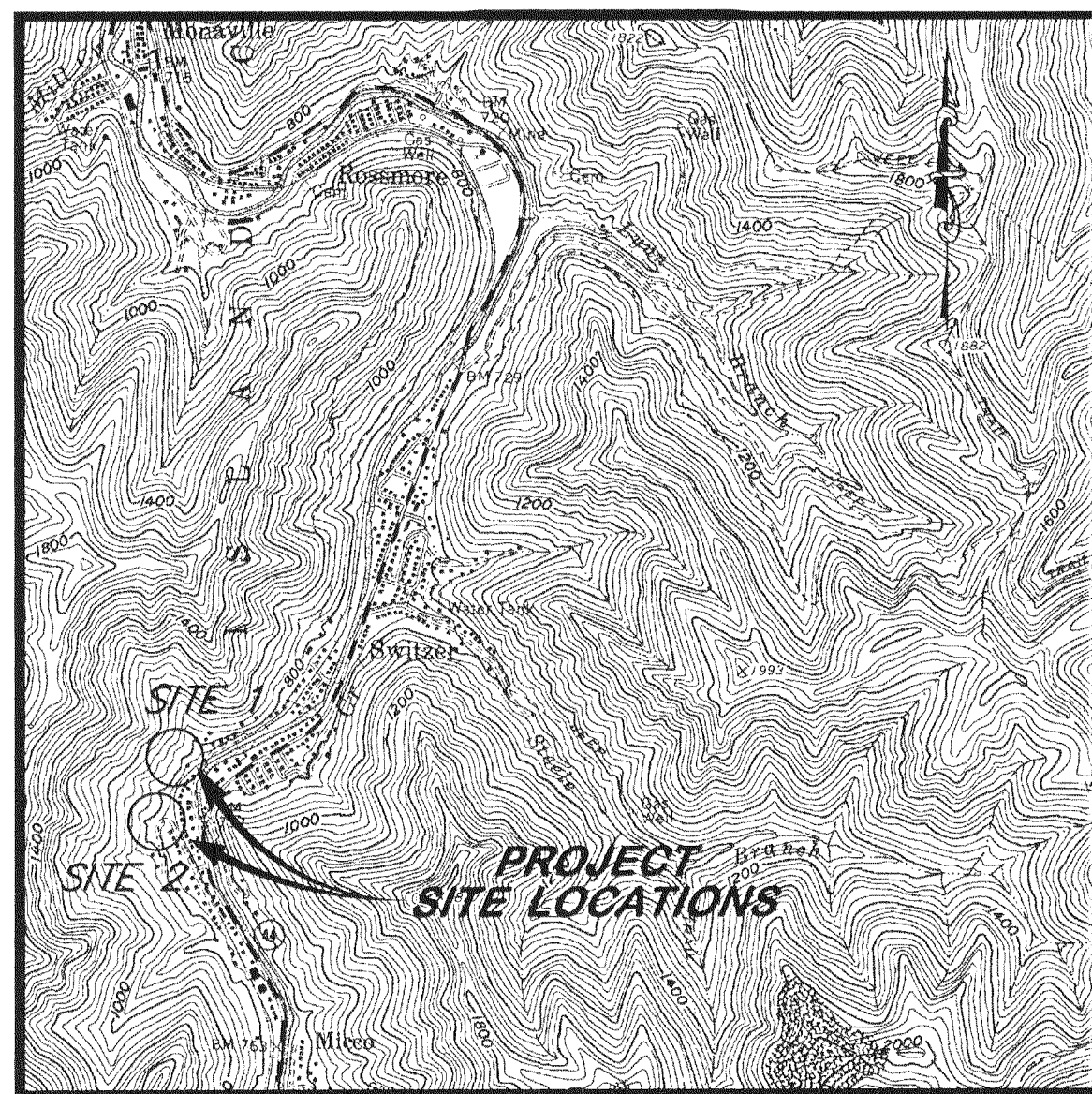
EARL RAY TOMBLIN, GOVERNOR **RANDY C. HUFFMAN, CABINET SECRETARY**

OFFICE OF ABANDONED MINE LANDS AND RECLAMATION

SWITZER (ELLIS) DRAINAGE

AT SWITZER
LOGAN COUNTY, WEST VIRGINIA

VICINITY MAP



USGS 7.5' QUAD (LOGAN)

INDEX TO SHEETS

SHEET NO.	DESCRIPTION
2	SITE 1 - EXISTING CONDITIONS AND TAX MAP OVERLAY
3	SITE 2 - EXISTING CONDITIONS AND TAX MAP OVERLAY
4	SITE 1 - RECLAMATION PLAN AND SEDIMENT CONTROL PLAN
5	SITE 2 - RECLAMATION PLAN AND SEDIMENT CONTROL PLAN
6	SITE 1 - PROFILE, BASELINE CROSS SECTIONS AND TYPICAL SECTIONS
7	SITE 2 - PROFILE 12" SDR-35 PVC PIPE / TYPICAL DETAILS (1)
8	TYPICAL DETAILS (2)
9	TYPICAL DETAILS (3)
10	SITE 1 - PROFILE CHANNELS "B", "C", "E" AND "F" / TYPICAL DETAILS (4)
11	TYPICAL DETAILS (5)
12	SEDIMENT CONTROL DETAILS

BID SCHEDULE

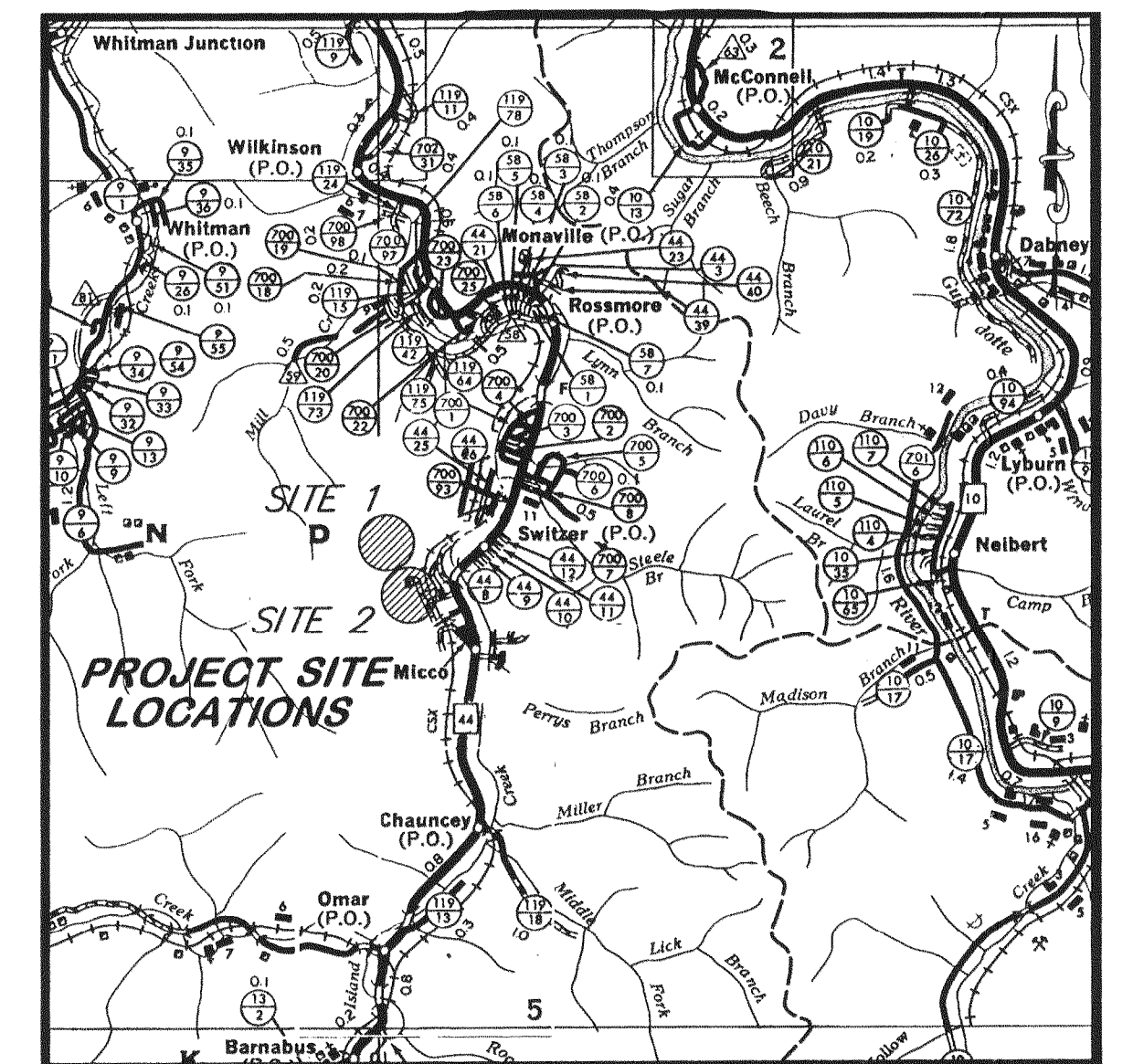
ITEM NO.	DESCRIPTION	QUANTITY
1.0	MOBILIZATION AND DEMOBILIZATION (LIMITED TO 10% OF TOTAL BID)	LS
2.0	CONSTRUCTION LAYOUT (LIMITED TO 5% OF TOTAL BID)	LS
3.0	QUALITY CONTROL (LIMITED TO 3% OF TOTAL BID)	LS
4.0	SITE PREPARATION (LIMITED TO 10% OF TOTAL BID)	LS
4.1	ACCESS ROAD STONE	250 TONS
4.2	GRAVEL DRIVE REHABILITATION	190 TONS
5.0	SILT FENCE	420 LF
5.1	12" STRAW WATTLE	335 LF
5.2	STONE CONSTRUCTION ENTRANCE	75 TONS
5.3	ROCK CHECK DAM	5 EA.
5.4	MATTING	530 SY
6.0	REVEGETATION	LS
7.1	4' GRASS LINED V-DITCH	210 LF
7.2	4' GROUDED ROCK RIPRAP V-DITCH	20 LF
7.3	6' GROUDED ROCK RIPRAP DITCH	210 LF
7.4	8' GROUDED ROCK RIPRAP DITCH	750 LF
7.5	12" HDPE PIPE	400 LF
7.6	24" HDPE PIPE	320 LF
7.7	DROP INLETS	5 EA.
7.8	MANHOLES	2 EA.
7.9	TRASH RACK	1 EA.
8.0	UNCLASSIFIED EXCAVATION	LS
9.0	WET/MODIFIED MINE SEAL	1 EA.
9.1	12" MINE SEAL CONVEYANCE PIPE	140 LF
9.2	SODA ASH BRIQUETTES (50 LB BAG)	10 EA.
11.0	UNDERDRAIN	60 LF
12.1	ASPHALT	340 SY
12.2	SHOULDER STONE	30 TONS



APPROVED

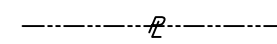
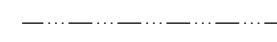
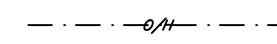
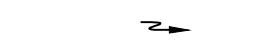
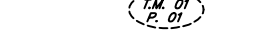


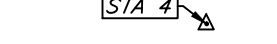
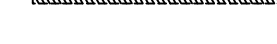
DATE

LOCATION MAP



COUNTY HIGHWAY MAP, 1" = 1 MI.

LEGEND

-  APPROX. PROPERTY LINE
-  EXIST. DRAIN OR WATER COURSE
-  EXISTING UTILITY LINE
-  DIRECTION OF FLOW
-  TAX MAP AND PARCEL NO.
-  EXISTING UTILITY OR LIGHT POLE
-  EXISTING OR PROBABLE MINE OPENING
-  EXISTING SURVEY CONTROL
-  EXISTING CULVERT OR PIPE

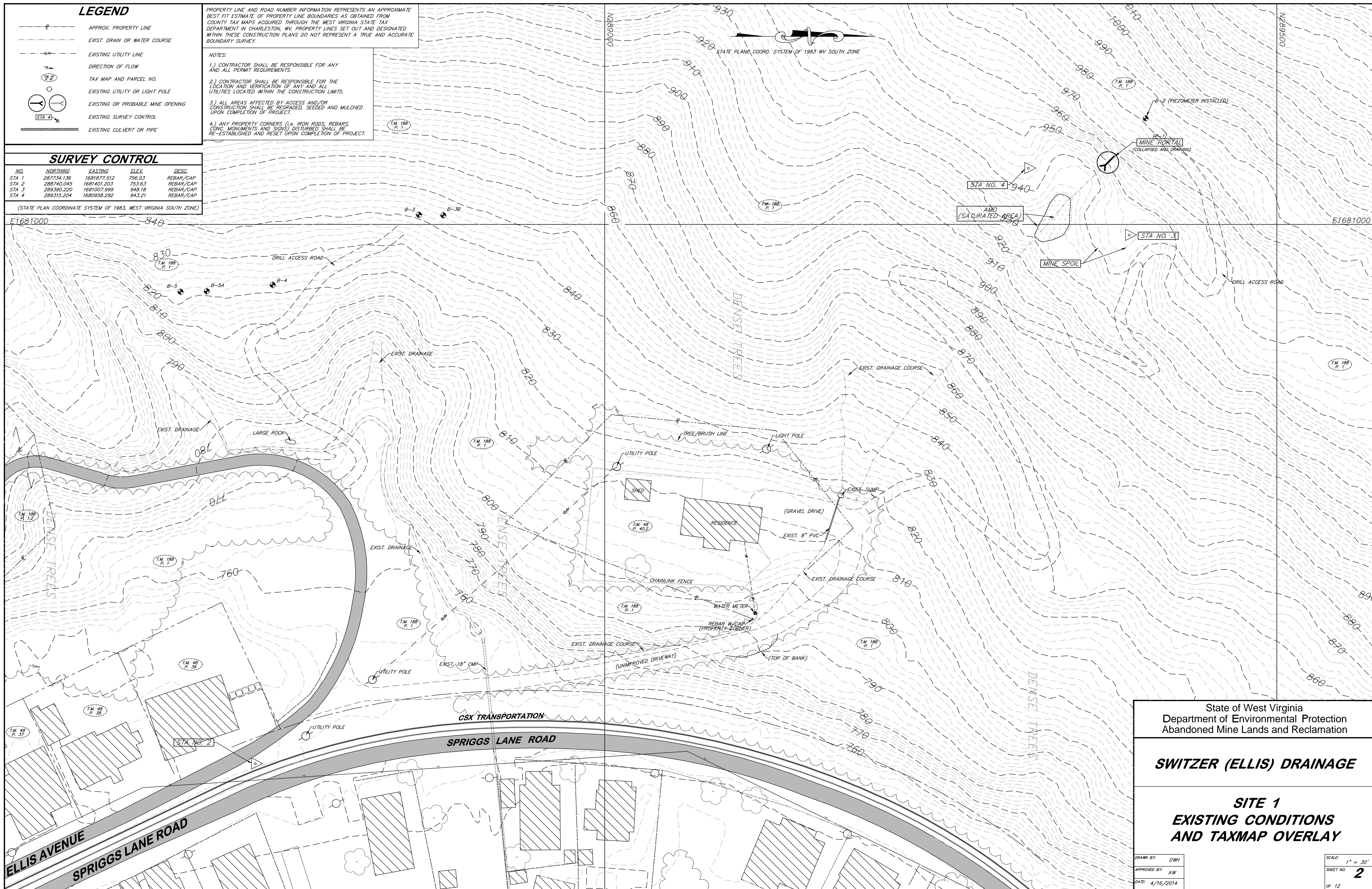
PROPERTY LINE AND ROAD NUMBER INFORMATION REPRESENTS AN APPROXIMATE BEST FIT ESTIMATE OF PROPERTY LINE BOUNDARIES AS OBTAINED FROM COUNTY TAX MAPS ACQUIRED THROUGH THE WEST VIRGINIA STATE TAX DEPARTMENT IN CHARLESTON, WV. PROPERTY LINES SET OUT AND DESIGNATED WITHIN THESE CONSTRUCTION PLANS DO NOT REPRESENT A TRUE AND ACCURATE BOUNDARY SURVEY.

- NOTES:
- 1.) CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL PERMIT REQUIREMENTS.
 - 2.) CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND VERIFICATION OF ANY AND ALL UTILITIES LOCATED WITHIN THE CONSTRUCTION LIMITS.
 - 3.) ALL AREAS AFFECTED BY ACCESS AND/OR CONSTRUCTION SHALL BE REGRADED, SEEDED AND MULCHED UPON COMPLETION OF PROJECT.
 - 4.) ANY PROPERTY CORNERS (i.e. IRON RODS, REBARS, CONC. MONUMENTS AND SIGNS) DISTURBED SHALL BE RE-ESTABLISHED AND RESET UPON COMPLETION OF PROJECT.

SURVEY CONTROL

NO.	NORTHING	EASTING	ELEV.	DESC.
STA 1	287734.136	1681877.512	756.03	REBAR/CAP
STA 2	288740.045	1681401.203	753.63	REBAR/CAP
STA 3	289300.220	1681007.999	948.18	REBAR/CAP
STA 4	289315.204	1680958.292	943.21	REBAR/CAP

(STATE PLAN COORDINATE SYSTEM OF 1983, WEST VIRGINIA SOUTH ZONE)



State of West Virginia
Department of Environmental Protection
Abandoned Mine Lands and Reclamation

SWITZER (ELLIS) DRAINAGE

**SITE 1
EXISTING CONDITIONS
AND TAXMAP OVERLAY**

DRAWN BY: DWH
APPROVED BY: AW
DATE: 4/16/2014

SCALE: 1" = 30'
SHEET NO. **2**
OF 12

NOTES:

- 1.) CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL PERMIT REQUIREMENTS.
- 2.) CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND VERIFICATION OF ANY AND ALL UTILITIES LOCATED WITHIN THE CONSTRUCTION LIMITS.
- 3.) ALL AREAS AFFECTED BY ACCESS AND/OR CONSTRUCTION SHALL BE REGRADED, SEEDED AND MULCHED UPON COMPLETION OF PROJECT.
- 4.) ANY PROPERTY CORNERS (I.E. IRON RODS, REBARS, CONC. MONUMENTS AND SIGNS) DISTURBED SHALL BE RE-ESTABLISHED AND RESET UPON COMPLETION OF PROJECT.

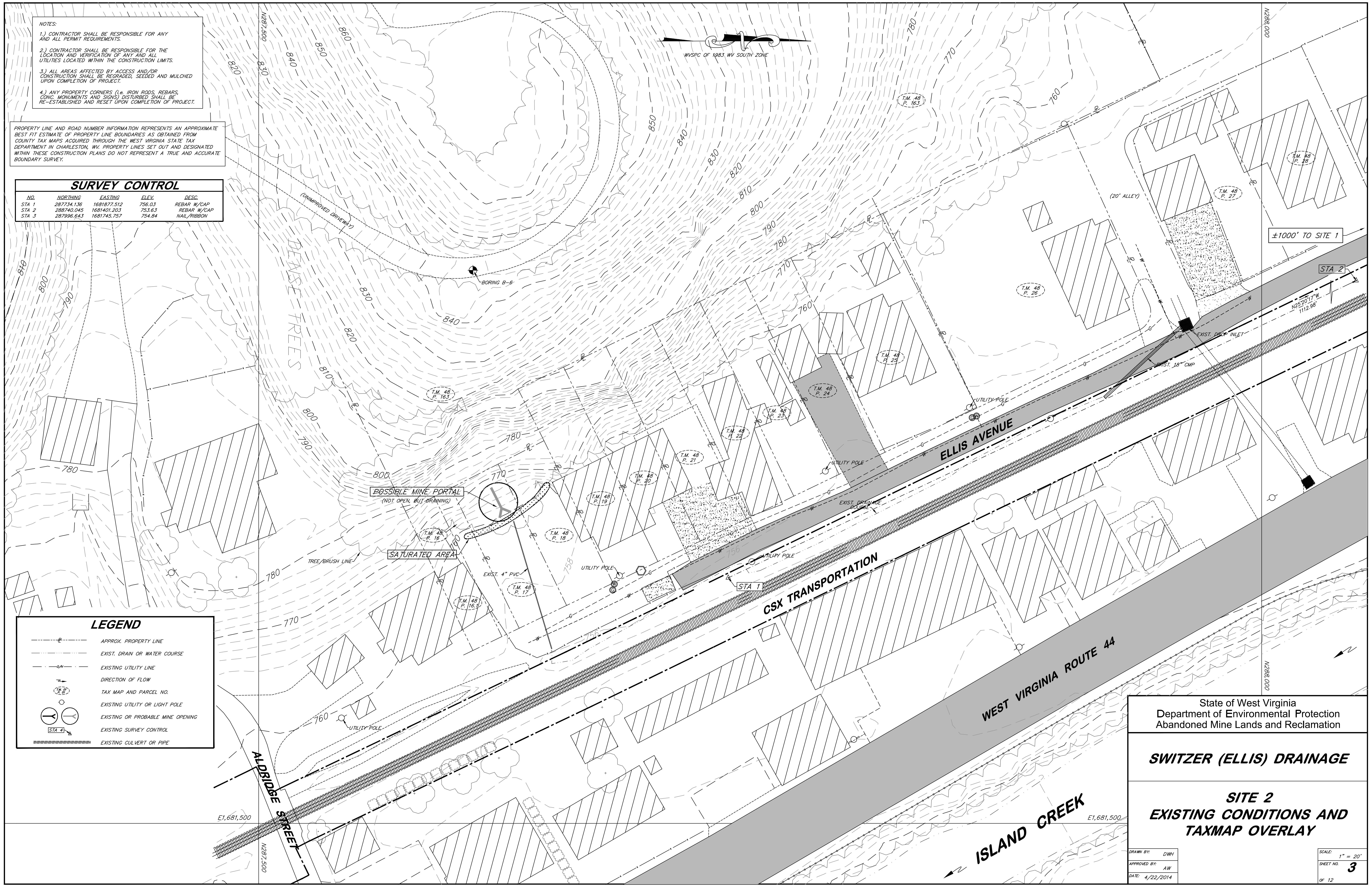
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SURVEY CONTROL

NO.	NORTHING	EASTING	ELEV.	DESC.
STA 1	287754.136	1681877.512	756.03	REBAR W/CAP
STA 2	288740.045	1681401.203	753.63	REBAR W/CAP
STA 3	287996.643	1681745.757	754.84	NAIL/RIBBON

LEGEND

	APPROX. PROPERTY LINE
	EXIST. DRAIN OR WATER COURSE
	EXISTING UTILITY LINE
	DIRECTION OF FLOW
	TAX MAP AND PARCEL NO.
	EXISTING UTILITY OR LIGHT POLE
	EXISTING OR PROBABLE MINE OPENING
	EXISTING SURVEY CONTROL
	EXISTING CULVERT OR PIPE



State of West Virginia
Department of Environmental Protection
Abandoned Mine Lands and Reclamation

SWITZER (ELLIS) DRAINAGE

**SITE 2
EXISTING CONDITIONS AND
TAXMAP OVERLAY**

DRAWN BY: DWH	SCALE: 1" = 20'
APPROVED BY: AW	SHEET NO. 3
DATE: 4/22/2014	OF 12

LEGEND

- APPROX. PROPERTY LINE
- - - EXIST. DRAIN OR WATER COURSE
- - - EXISTING UTILITY LINE
- DIRECTION OF FLOW
- TAX MAP AND PARCEL NO.
- EXISTING UTILITY OR LIGHT POLE
- EXISTING OR PROBABLE MINE OPENING
- EXISTING SURVEY CONTROL
- EXISTING CULVERT OR PIPE

- PROPOSED TYPE "A" MANHOLE
- PROPOSED TYPE "G" INLET
- PROPOSED CONSTRUCTION LIMITS
- FINISHED GRADE CONTOUR
- LIMITS OF REGRADING
- LIMITS OF GRAVEL DRIVE REHABILITATION
- PROPOSED CONSTRUCTION ENTRANCE
- PROPOSED PIPE OR CULVERT
- PROPOSED CONVEYANCE PIPE
- PROPOSED GROUDED ROCK RIP RAP LINED CHANNEL
- LIMITS OF ACCESS ROAD STONE
- PROPOSED MINE SEAL
- SILT FENCE SEDIMENT CONTROL
- STRAW WATTLE EROSION CONTROL

PROPERTY LINE AND ROAD NUMBER INFORMATION REPRESENTS AN APPROXIMATE BEST FIT ESTIMATE OF PROPERTY LINE BOUNDARIES AS OBTAINED FROM COUNTY TAX MAPS ACQUIRED THROUGH THE WEST VIRGINIA STATE TAX DEPARTMENT IN CHARLESTON, WV. PROPERTY LINES SET OUT AND DESIGNATED WITHIN THESE CONSTRUCTION PLANS DO NOT REPRESENT A TRUE AND ACCURATE BOUNDARY SURVEY.

NOTES:

- CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL PERMIT REQUIREMENTS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND VERIFICATION OF ANY AND ALL UTILITIES LOCATED WITHIN THE CONSTRUCTION LIMITS.
- ALL AREAS AFFECTED BY ACCESS AND/OR CONSTRUCTION SHALL BE REGRADED, SEEDED AND MULCHED UPON COMPLETION OF PROJECT.
- ANY PROPERTY CORNERS (I.e. IRON RODS, REBARS, CONC. MONUMENTS AND SIGNS) DISTURBED SHALL BE RE-ESTABLISHED AND RESET UPON COMPLETION OF PROJECT.

SURVEY CONTROL

NO.	NORTHING	EASTING	ELEV.	DESC.
STA 1	287734.136	1681877.512	756.03	REBAR/CAP
STA 2	288740.045	1681401.203	753.63	REBAR/CAP
STA 3	289390.220	1681007.999	948.18	REBAR/CAP
STA 4	289315.204	1680958.292	943.21	REBAR/CAP

(STATE PLAN COORDINATE SYSTEM OF 1983, WEST VIRGINIA SOUTH ZONE)



State of West Virginia
Department of Environmental Protection
Abandoned Mine Lands and Reclamation

SWITZER (ELLIS) DRAINAGE

**SITE 1
RECLAMATION AND
SEDIMENT CONTROL PLAN**

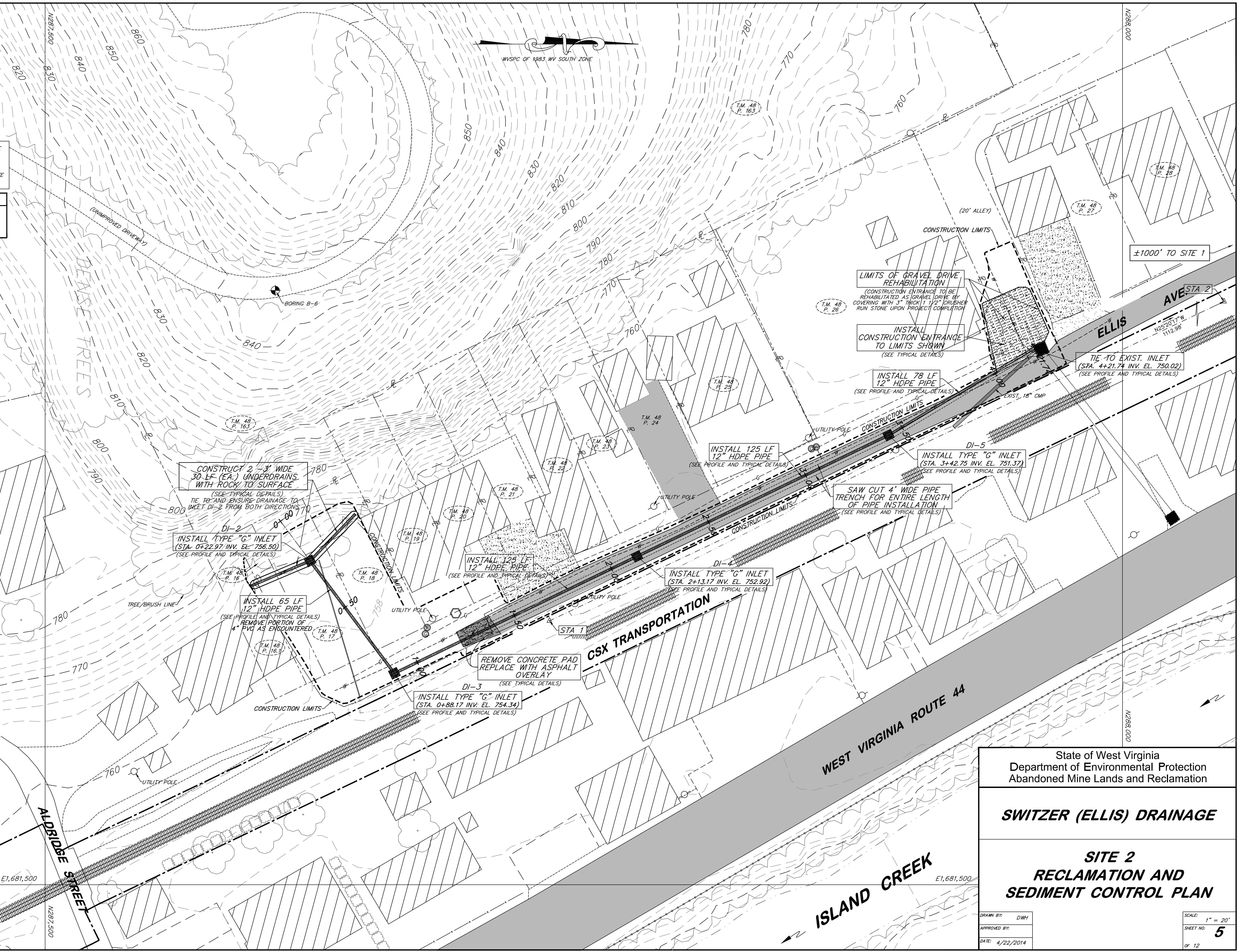
DRAWN BY: RCD	SCALE: 1" = 30'
APPROVED BY: AW	SHEET NO. 4
DATE: 7/21/2014	OF 12

- NOTES:
- 1.) CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL PERMIT REQUIREMENTS.
 - 2.) CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND VERIFICATION OF ANY AND ALL UTILITIES LOCATED WITHIN THE CONSTRUCTION LIMITS.
 - 3.) ALL AREAS AFFECTED BY ACCESS AND/OR CONSTRUCTION SHALL BE REGRADED, SEEDED AND MULCHED UPON COMPLETION OF PROJECT.
 - 4.) ANY PROPERTY CORNERS (i.e. IRON RODS, REBARS, CONC. MONUMENTS AND SIGNS) DISTURBED SHALL BE RE-ESTABLISHED AND RESET UPON COMPLETION OF PROJECT.
 - 5.) EXCESS MATERIAL IS TO BE DISPOSED OF OFFSITE IN AN AREA APPROVED BY WDEP AND ACCORDING TO OFFSITE DISPOSAL SPECIFICATIONS.

PROPERTY LINE AND ROAD NUMBER INFORMATION REPRESENTS AN APPROXIMATE BEST FIT ESTIMATE OF PROPERTY LINE BOUNDARIES AS OBTAINED FROM COUNTY TAX MAPS ACQUIRED THROUGH THE WEST VIRGINIA STATE TAX DEPARTMENT IN CHARLESTON, WV. PROPERTY LINES SET OUT AND DESIGNATED WITHIN THESE CONSTRUCTION PLANS DO NOT REPRESENT A TRUE AND ACCURATE BOUNDARY SURVEY.

SURVEY CONTROL				
NO.	NORTHING	EASTING	ELEV.	DESC.
STA 1	287754.136	1681877.512	756.03	REBAR W/CAP
STA 2	288740.045	1681401.203	753.63	REBAR W/CAP
STA 3	287996.643	1681745.757	754.84	NAIL/RIBBON

LEGEND	
	APPROX. PROPERTY LINE
	EXIST. DRAIN OR WATER COURSE
	EXISTING UTILITY LINE
	DIRECTION OF FLOW
	TAX MAP AND PARCEL NO.
	EXISTING UTILITY OR LIGHT POLE
	EXISTING OR PROBABLE MINE OPENING
	EXISTING SURVEY CONTROL
	EXISTING CULVERT OR PIPE
	PROPOSED CONSTRUCTION ENTRANCE
	PROPOSED TYPE "G" INLET
	PROPOSED CONSTRUCTION LIMITS
	LIMITS OF GRAVEL DRIVE REHABILITATION
	PROPOSED CONSTRUCTION ENTRANCE
	PROPOSED PIPE OR CULVERT
	PROPOSED 4' GRASS LINED CHANNEL
	SILT FENCE SEDIMENT CONTROL
	STRAW WATTLE EROSION CONTROL

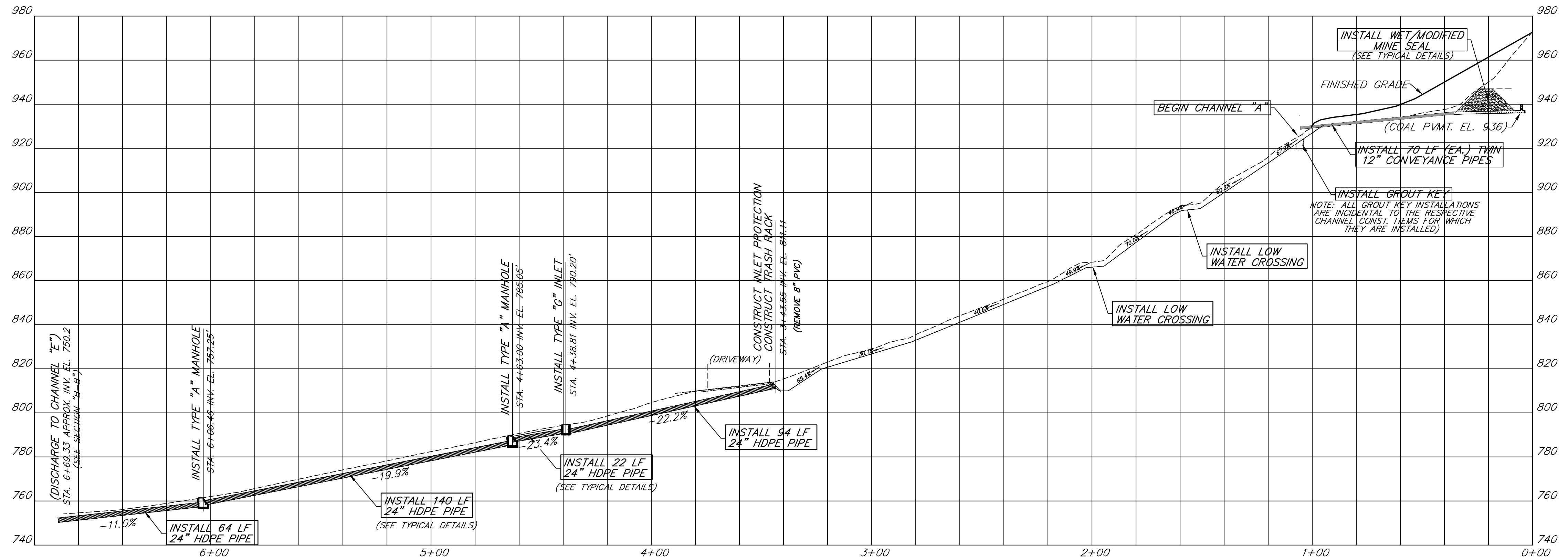


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Abandoned Mine Lands and Reclamation

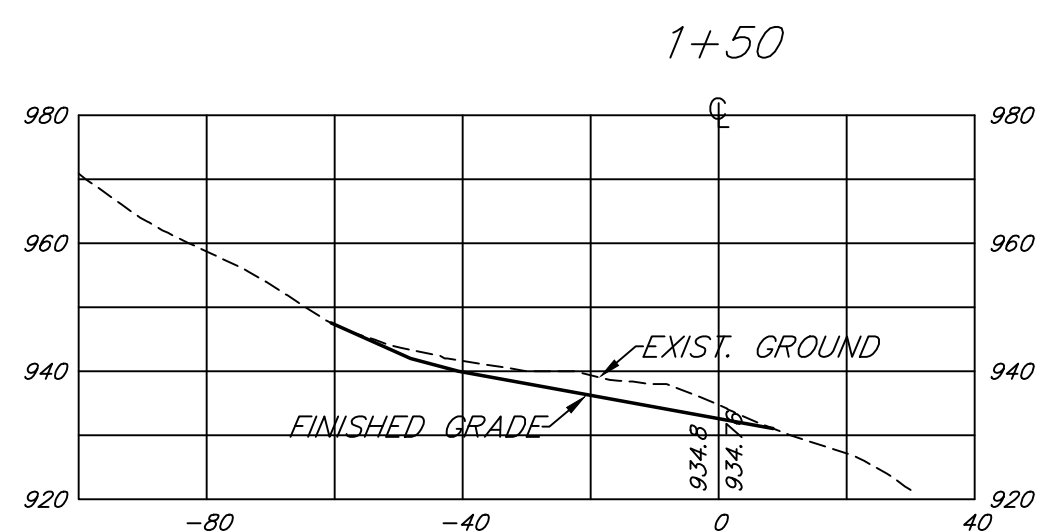
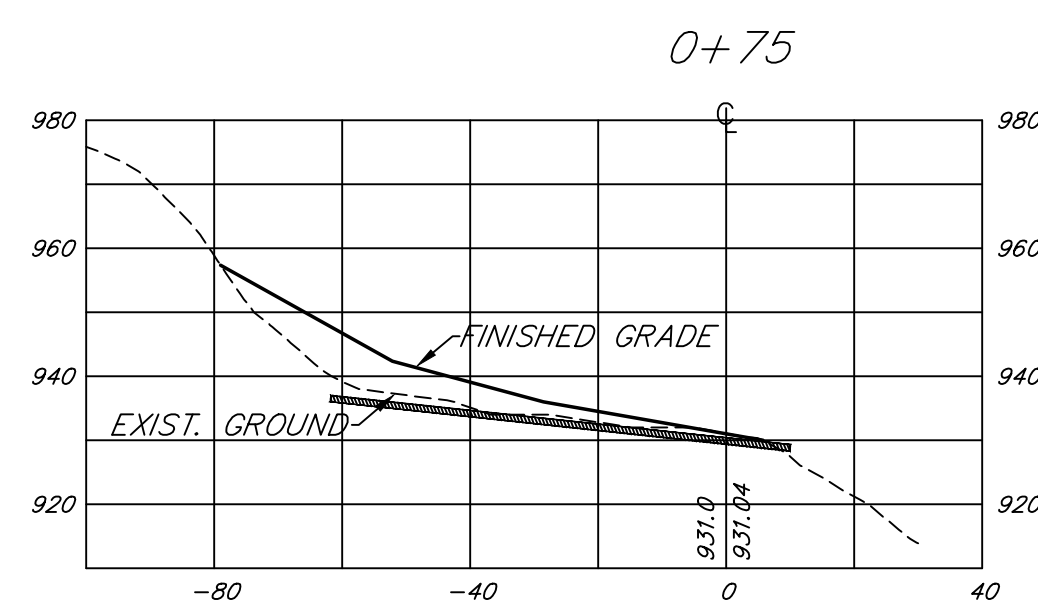
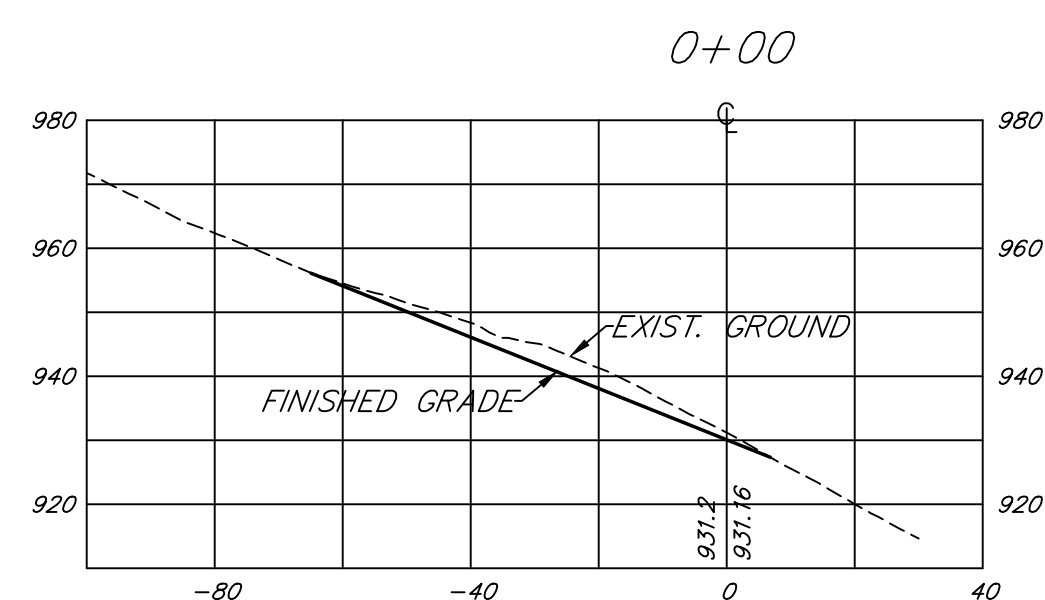
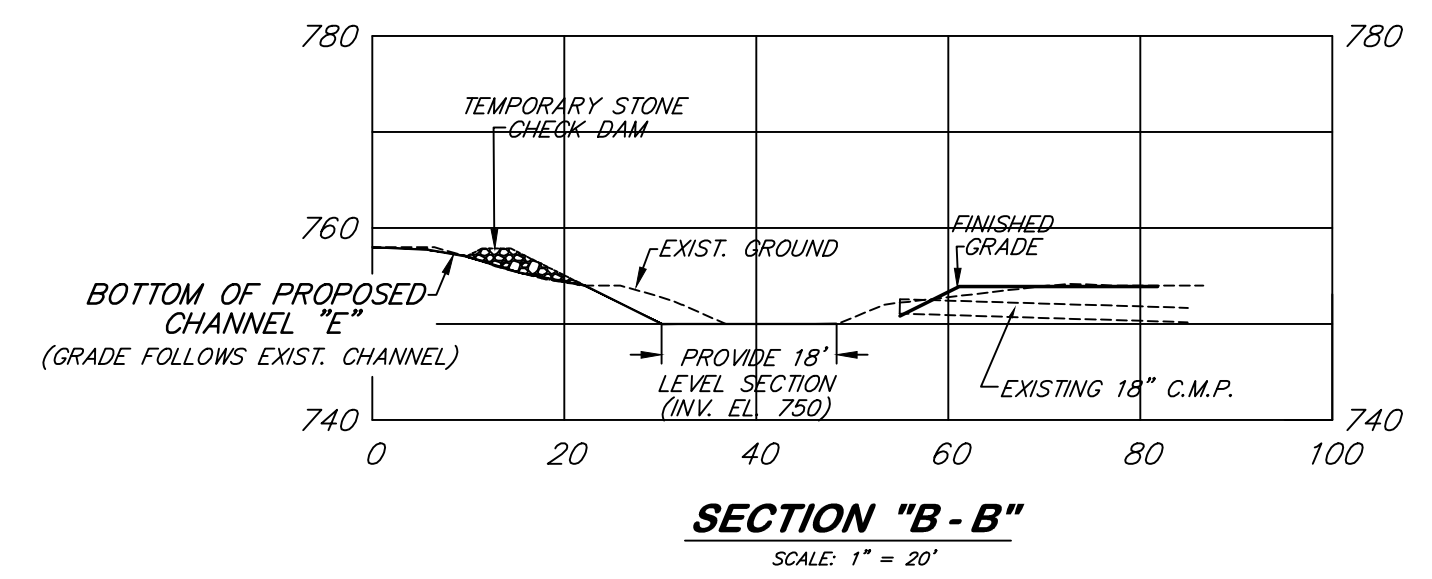
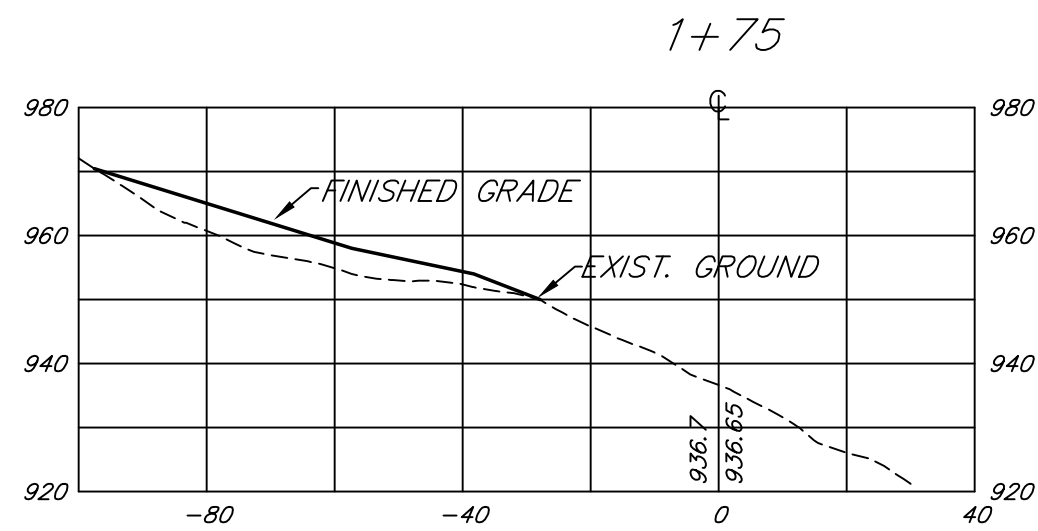
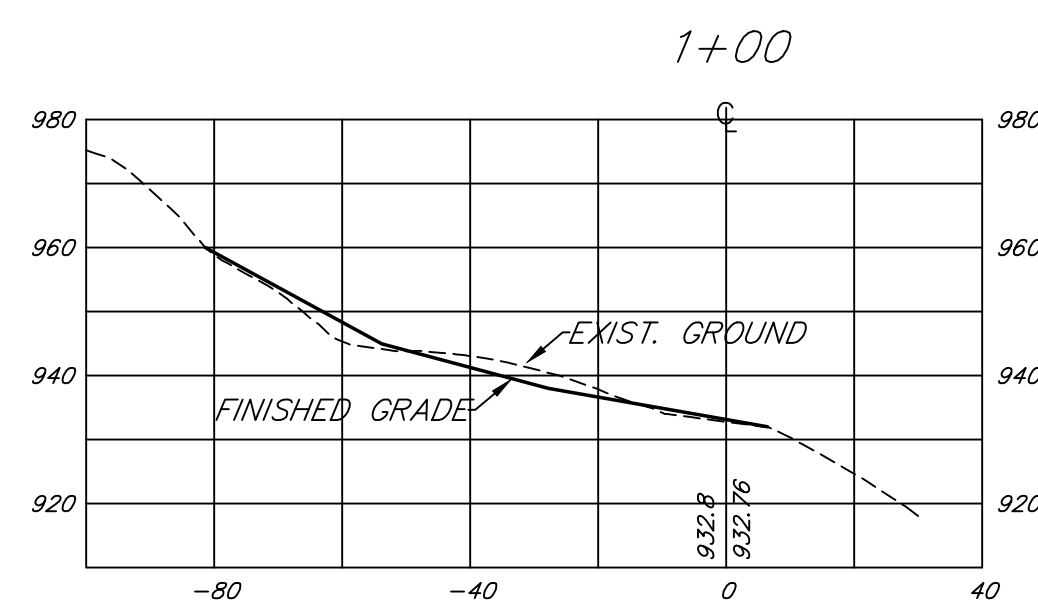
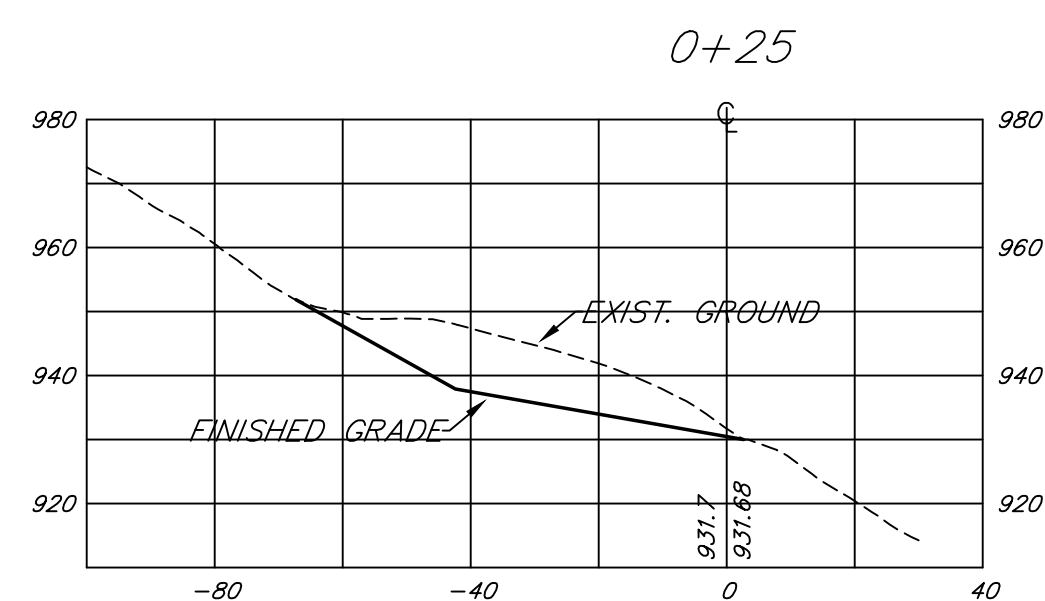
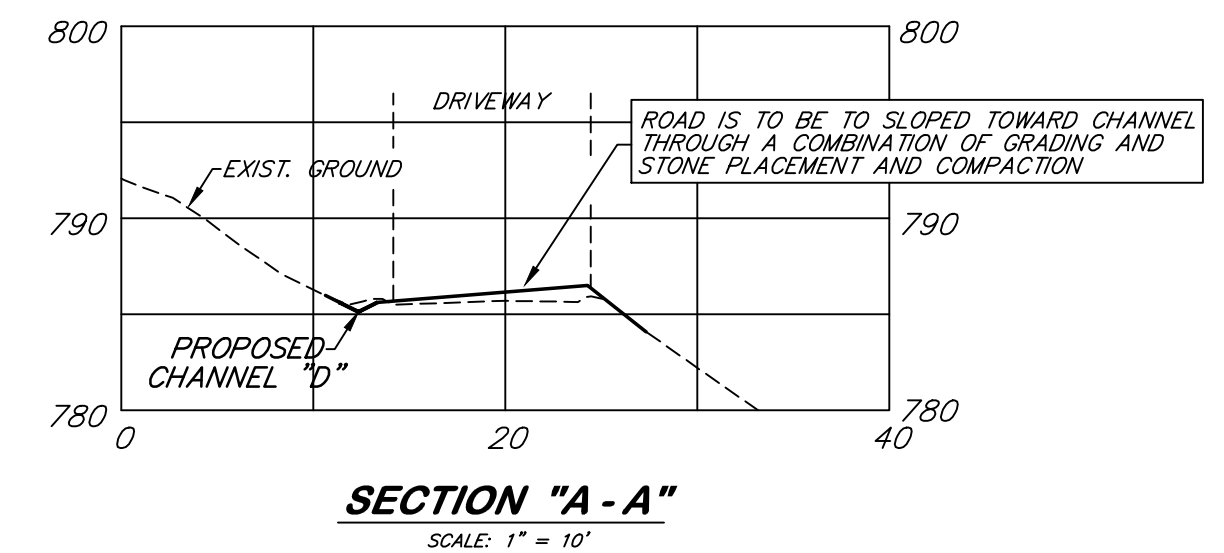
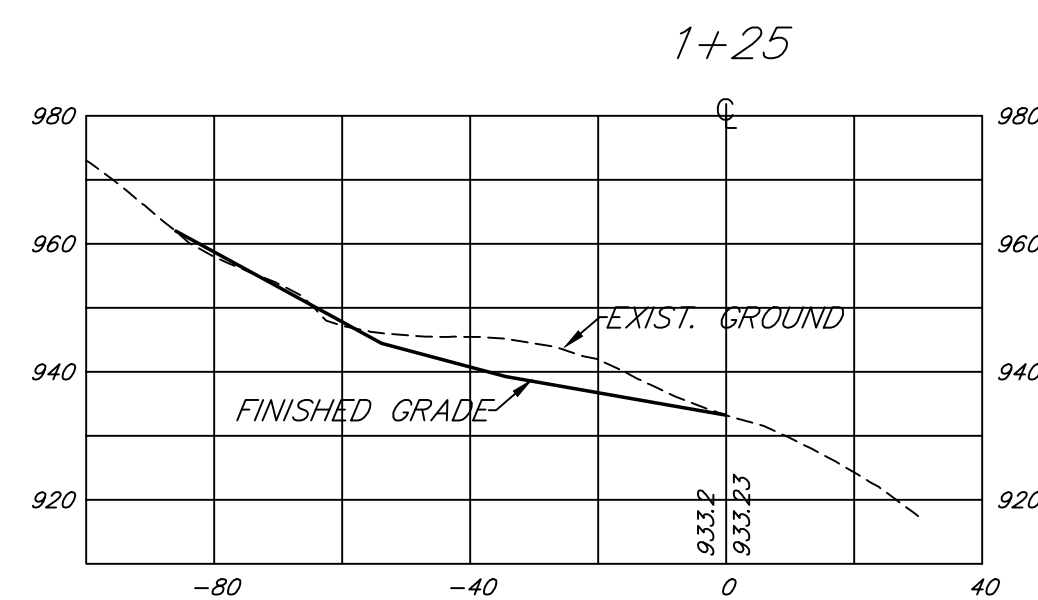
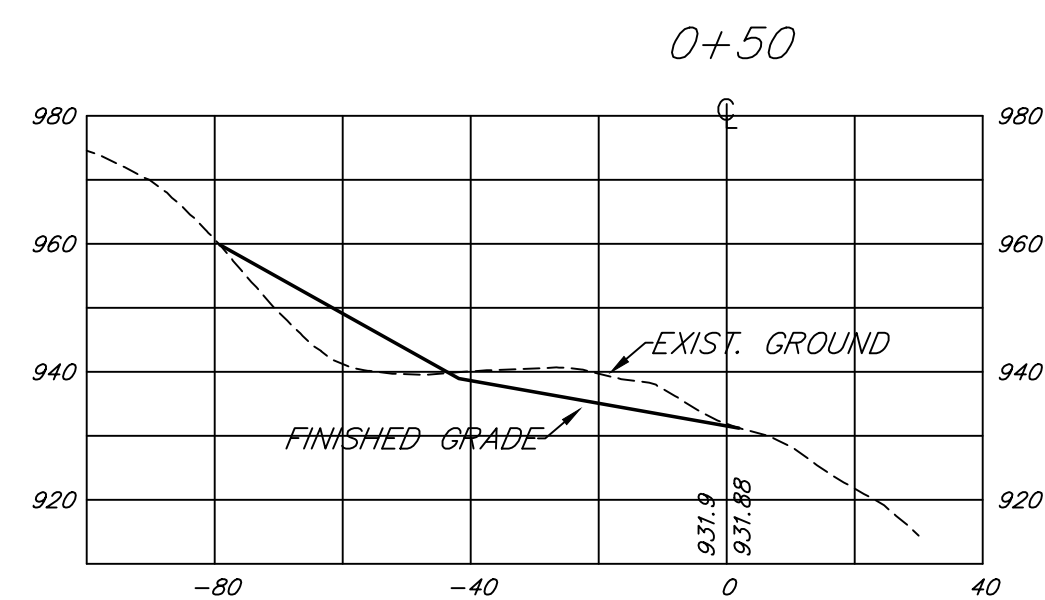
SWITZER (ELLIS) DRAINAGE

**SITE 2
RECLAMATION AND
SEDIMENT CONTROL PLAN**

DRAWN BY: DWH	SCALE: 1" = 20'
APPROVED BY:	SHEET NO. 5
DATE: 4/22/2014	OF 12



PROFILE - CHANNEL "A" / 24" HDPE PIPE
SCALE: 1" = 30'



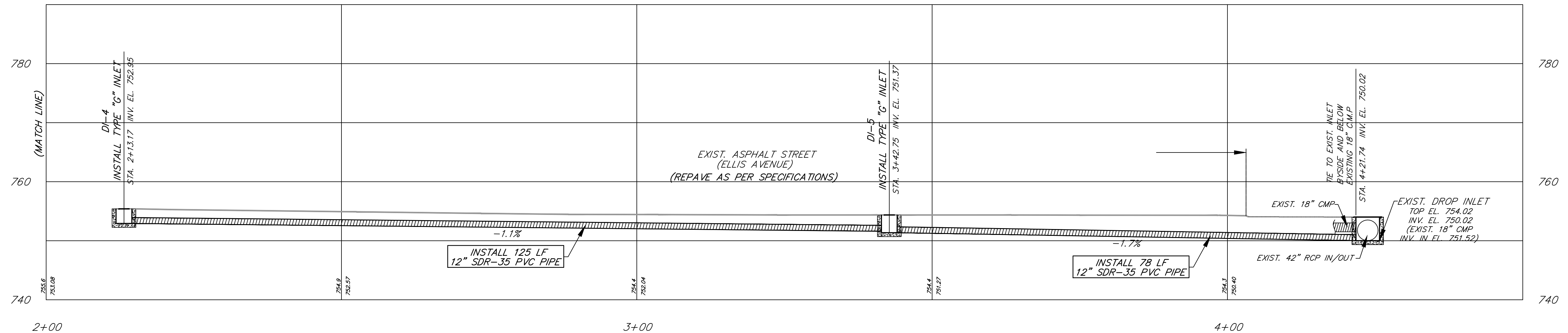
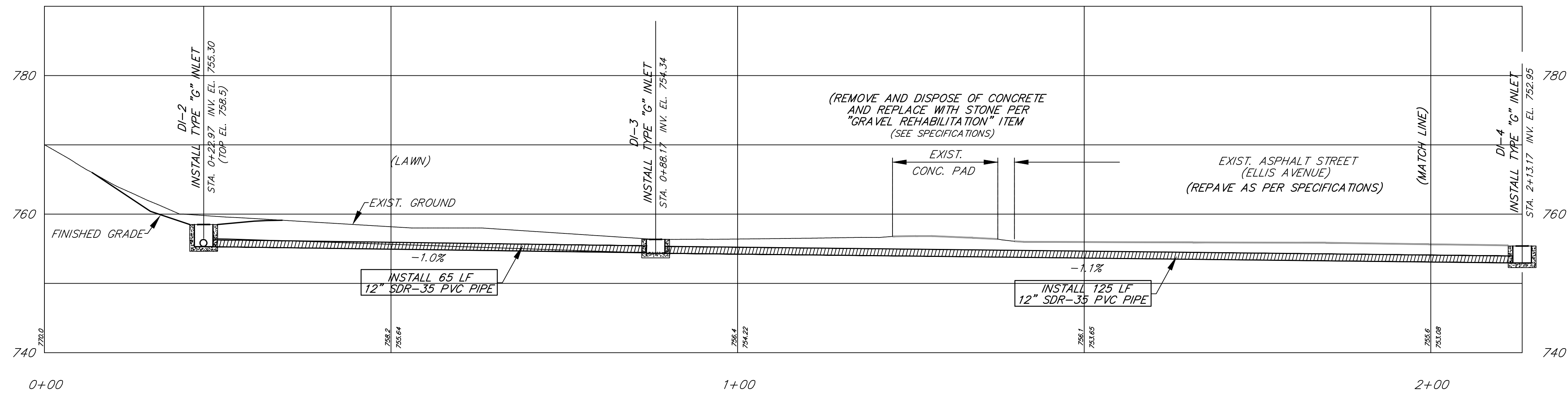
BASELINE CROSS SECTIONS
SCALE: 1" = 30'

State of West Virginia
Department of Environmental Protection
Abandoned Mine Lands and Reclamation

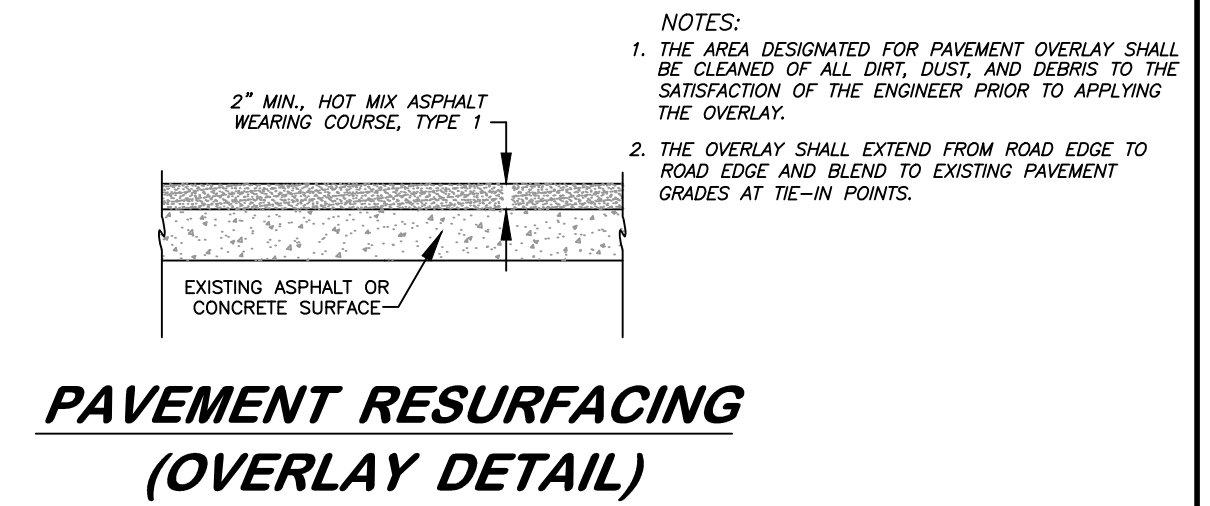
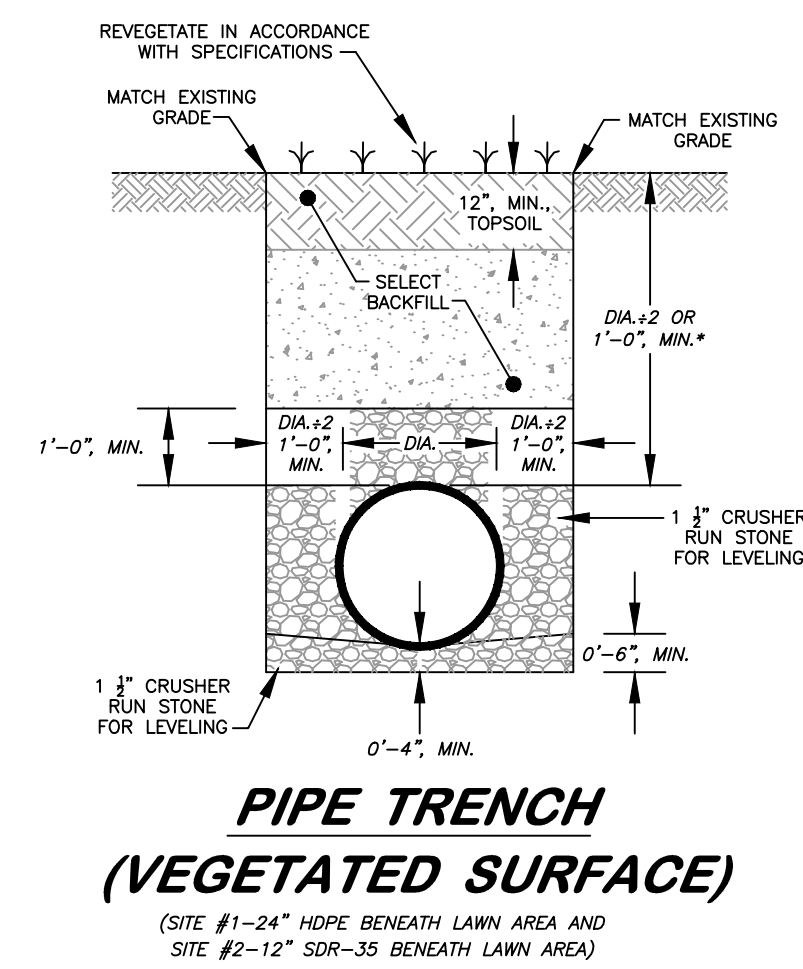
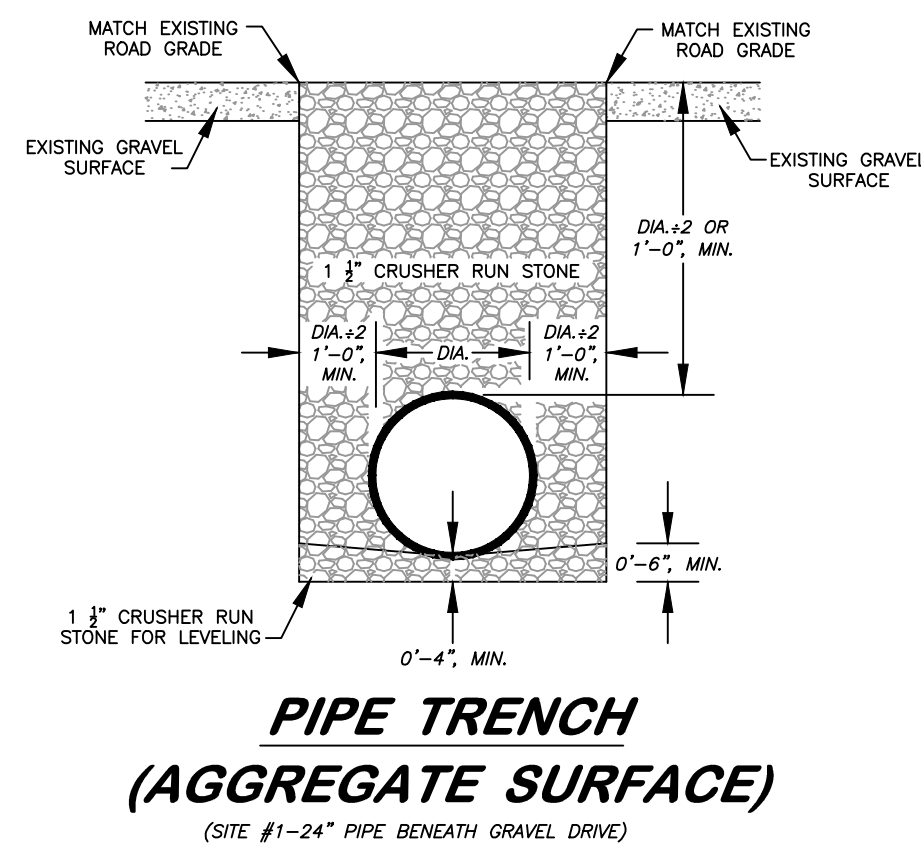
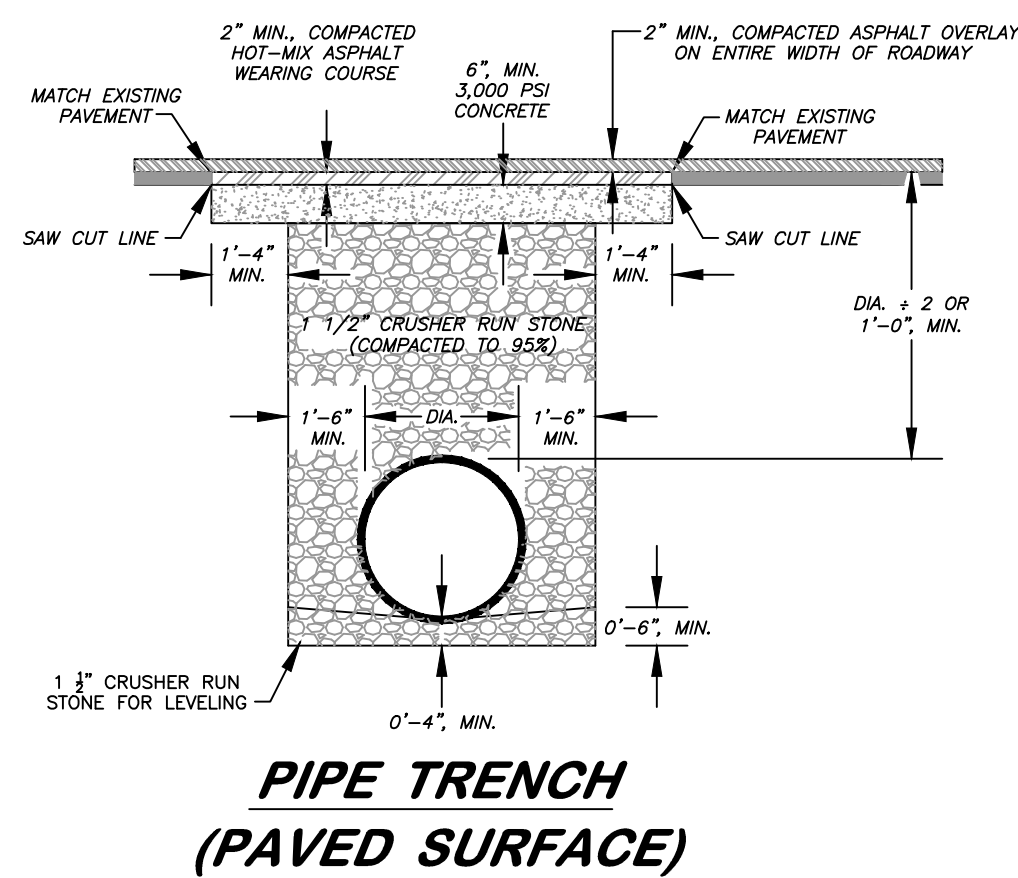
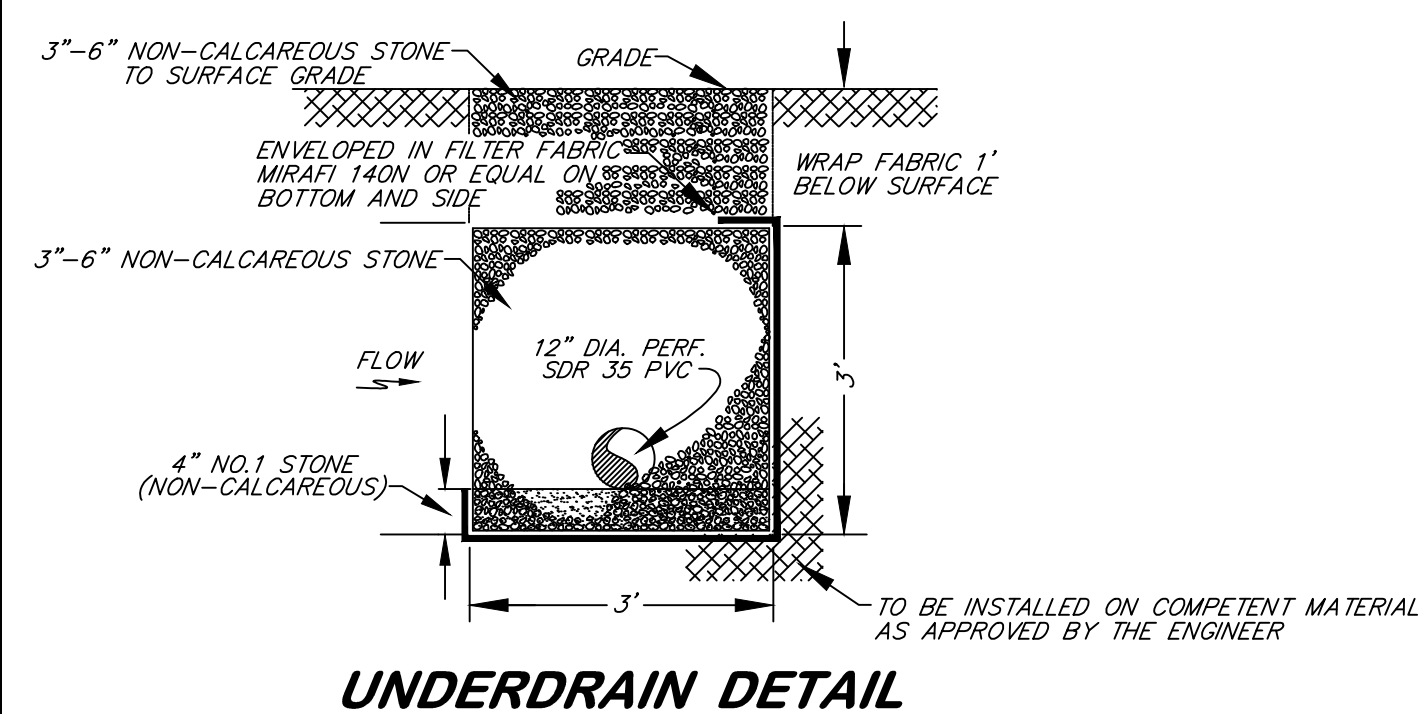
SWITZER (ELLIS) DRAINAGE

SITE 1
PROFILE - CHANNEL "A" / 24" PIPE,
BASELINE CROSS SECTIONS
AND TYPICAL SECTIONS

DRAWN BY: RCD	SCALE: AS SHOWN
APPROVED BY:	SHEET NO. 6
DATE: 7/26/2014	OF 12



PROFILE - 12" SDR-35 PVC PIPE (SITE 2)
SCALE: 1" = 10'



NOTES:
1. THE AREA DESIGNATED FOR PAVEMENT OVERLAY SHALL BE CLEANED OF ALL DIRT, DUST, AND DEBRIS TO THE SATISFACTION OF THE ENGINEER PRIOR TO APPLYING THE OVERLAY.
2. THE OVERLAY SHALL EXTEND FROM ROAD EDGE TO ROAD EDGE AND BLEND TO EXISTING PAVEMENT GRADES AT TIE-IN POINTS.

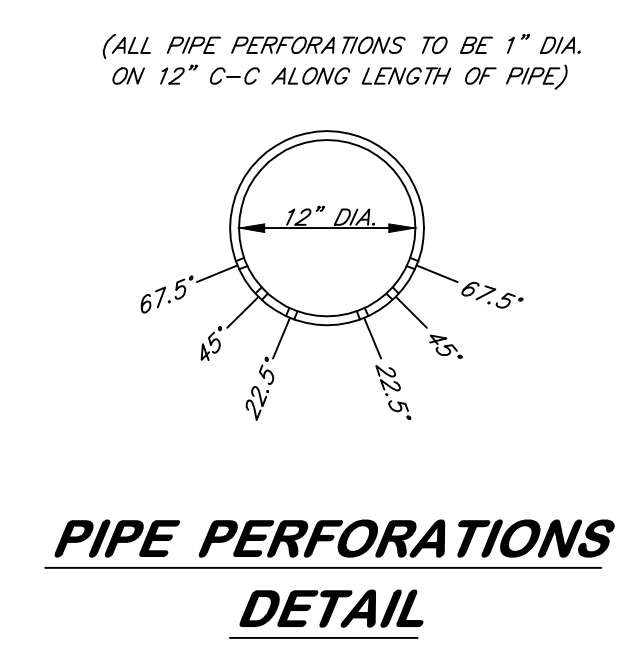
NOTES:
1. 1 1/2" CRUSHER RUN STONE SHALL MEET THE GRADATION REQUIREMENTS FOR CLASS 1 AGGREGATE IN TABLE 704.6.2A OF THE WDDH STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.

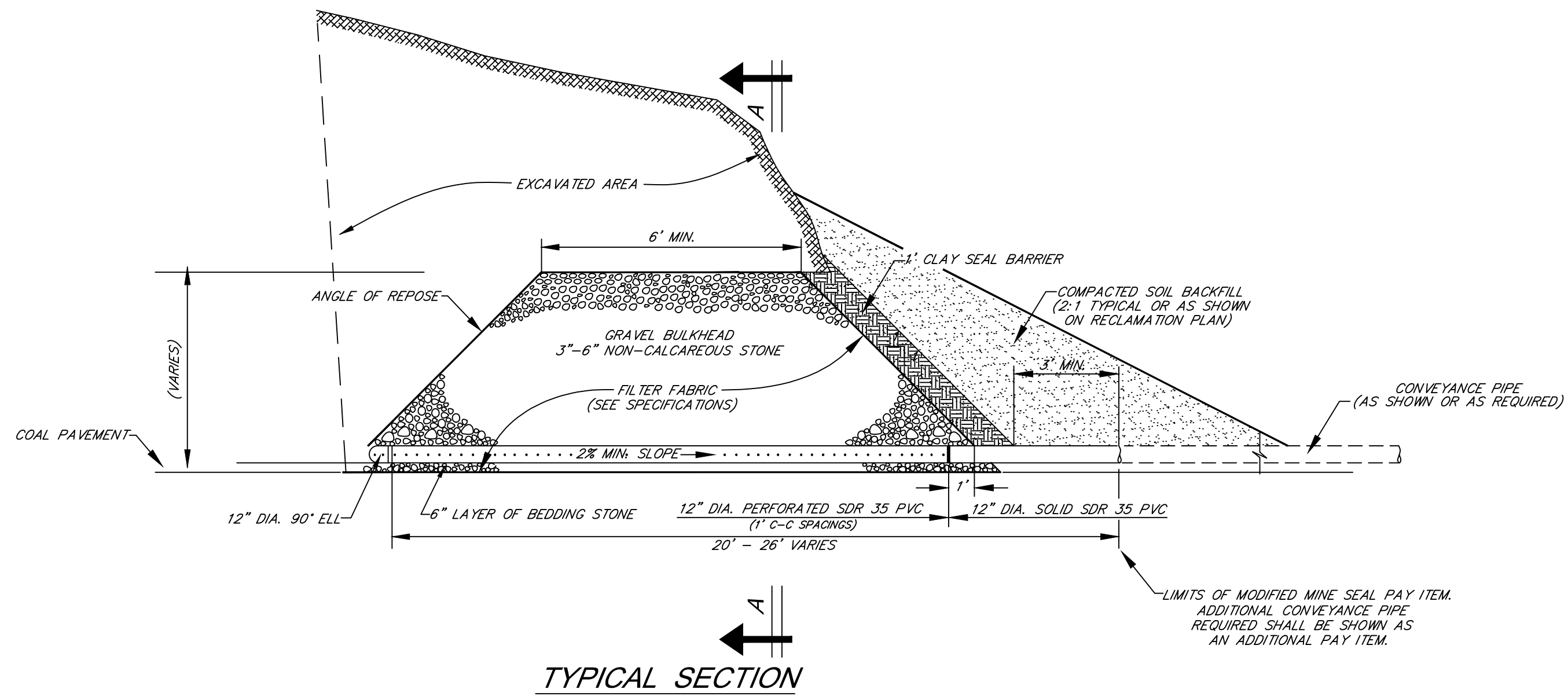
NOTES:
1. *SHOULD DIA + 2 BE EQUAL TO 1'-0", THEN CRUSHER RUN STONE GOES ALL THE WAY TO SURFACE.
2. 1 1/2" CRUSHER RUN STONE SHALL MEET THE GRADATION REQUIREMENTS FOR CLASS 1 AGGREGATE IN TABLE 704.6.2A OF THE WDDH STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.

State of West Virginia
Department of Environmental Protection
Abandoned Mine Lands and Reclamation

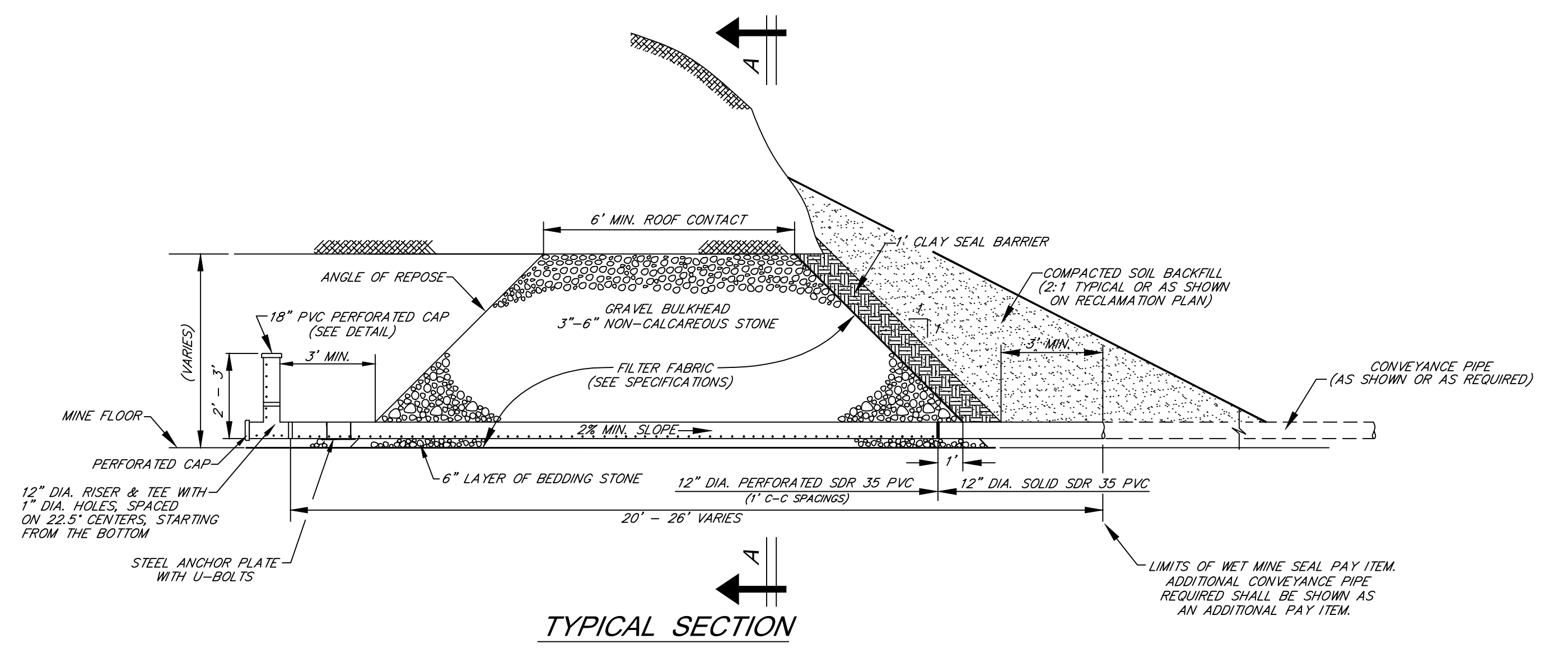
SWITZER (ELLIS) DRAINAGE

**SITE 2
PROFILE - 12" SDR-35 PVC PIPE,
AND TYPICAL DETAILS (1)**

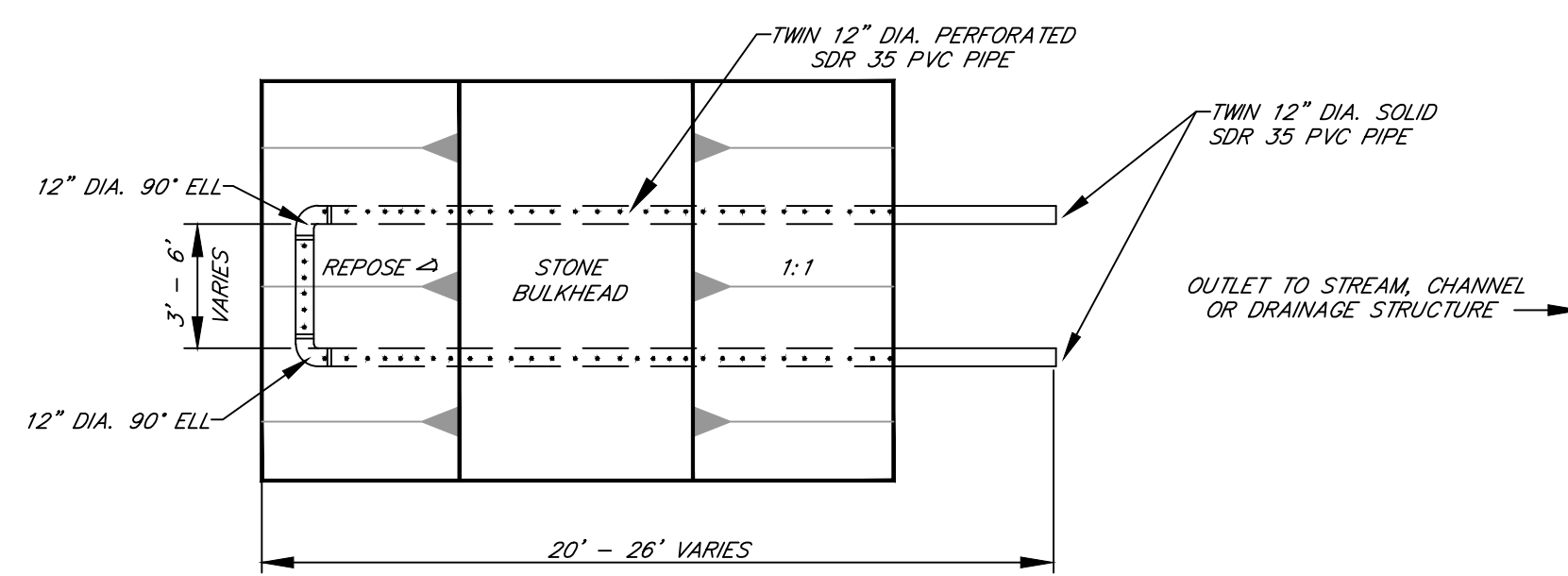




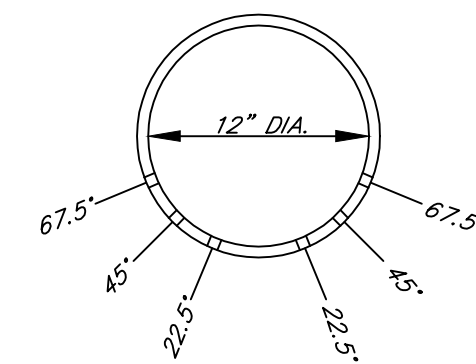
TYPICAL SECTION



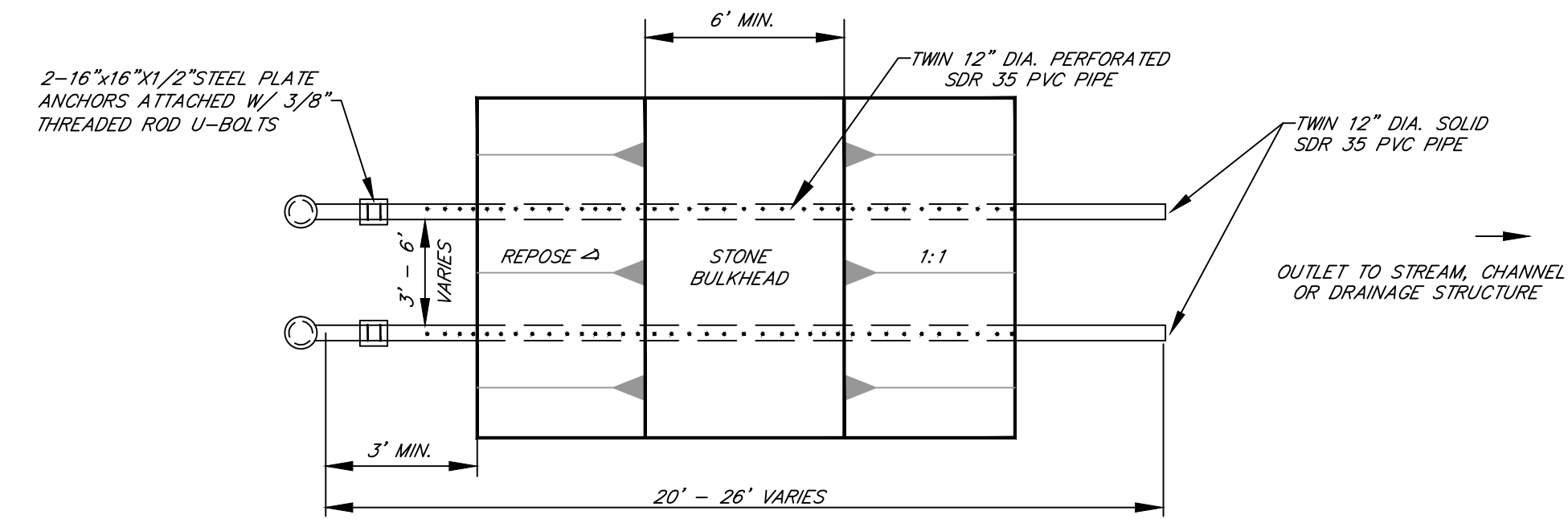
TYPICAL SECTION



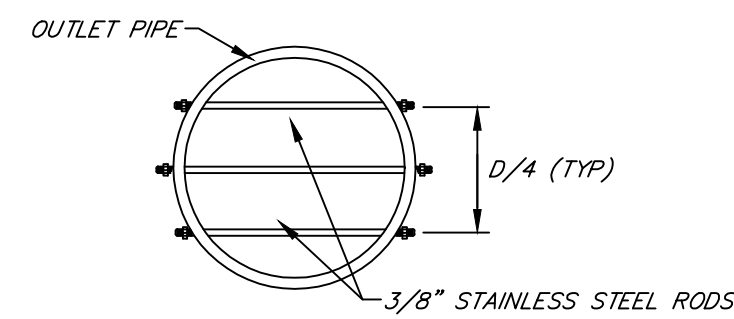
PLAN
MODIFIED MINE SEAL DETAIL



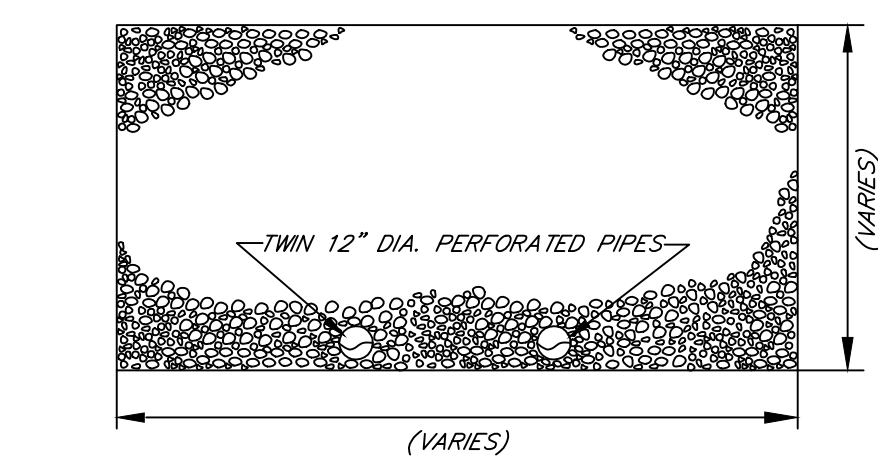
PIPE PERFORATIONS
DETAIL
(ALL PIPE PERFORATIONS TO BE 1\"/>



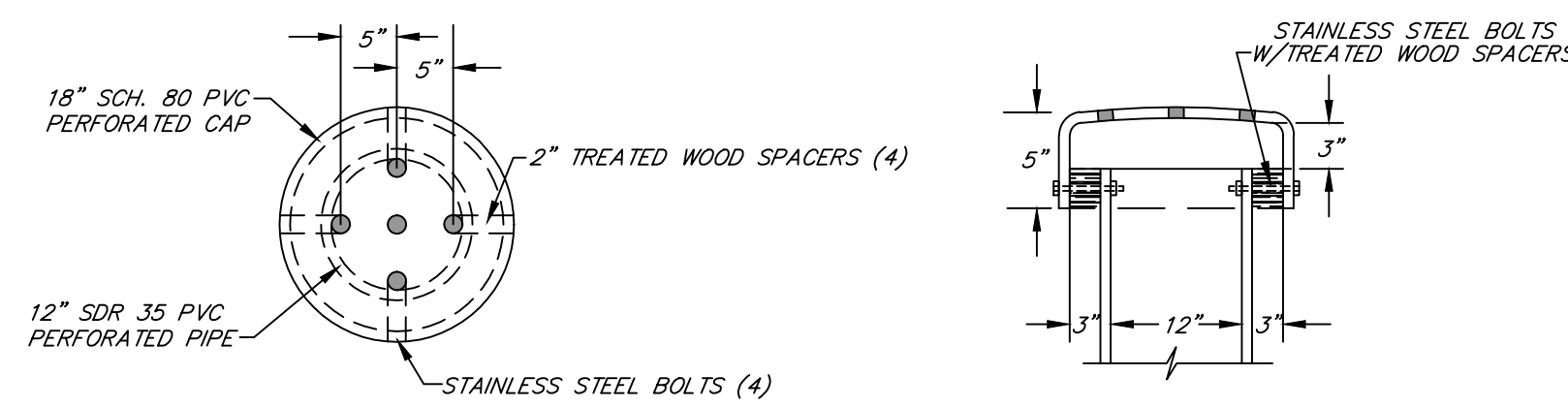
PLAN
WET MINE SEAL DETAIL



TYPICAL ANIMAL GUARD
DETAIL



SECTION A-A
STONE BULKHEAD
(MODIFIED AND WET MINE SEALS)



PERFORATED CAP DETAIL

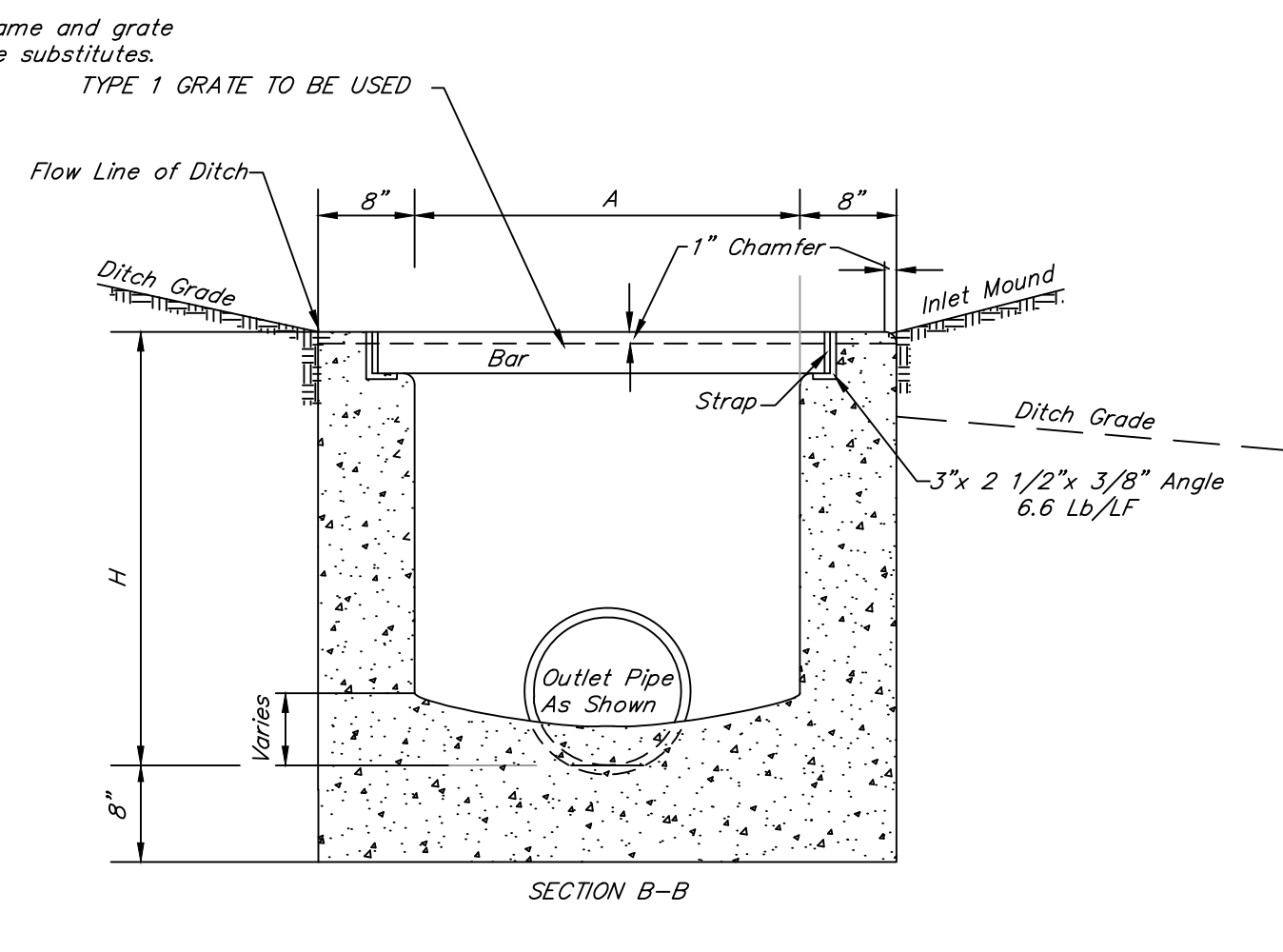
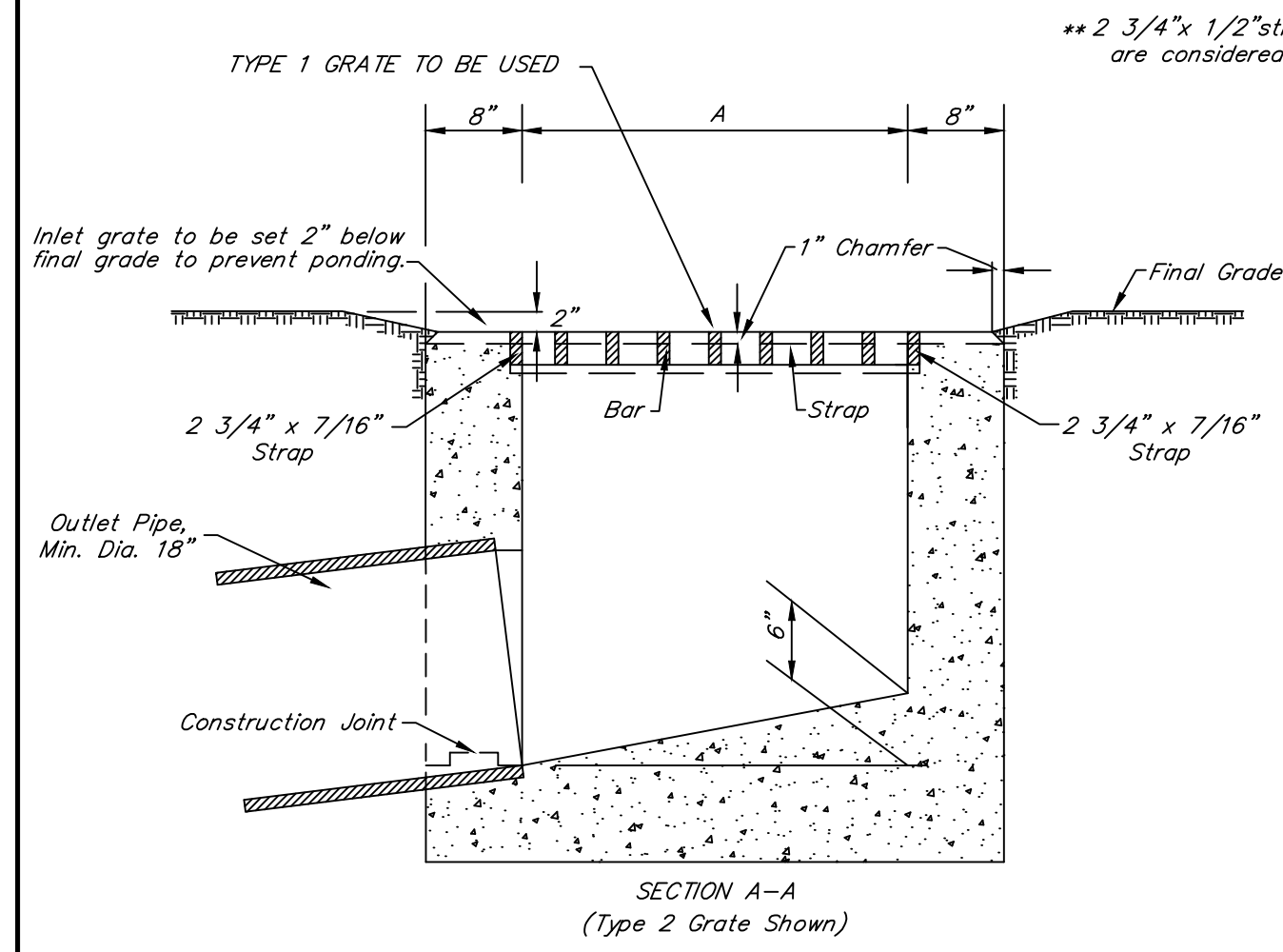
State of West Virginia
Department of Environmental Protection
Abandoned Mine Lands and Reclamation

SWITZER (ELLIS) DRAINAGE

TYPICAL DETAILS (2)

DRAWN BY: *DWH*
APPROVED BY:
DATE: 4/16/2014

SCALE: NONE
SHEET NO. **8**
OF 12



INLET MOUNDING TABLE			
DITCH GRADE (%)		L, HORIZONTAL LENGTH (FT)	
FROM	TO		
0	3	10	
3	5	9	
5	7.5	8	
7.5	UP	SPECIAL DESIGN	

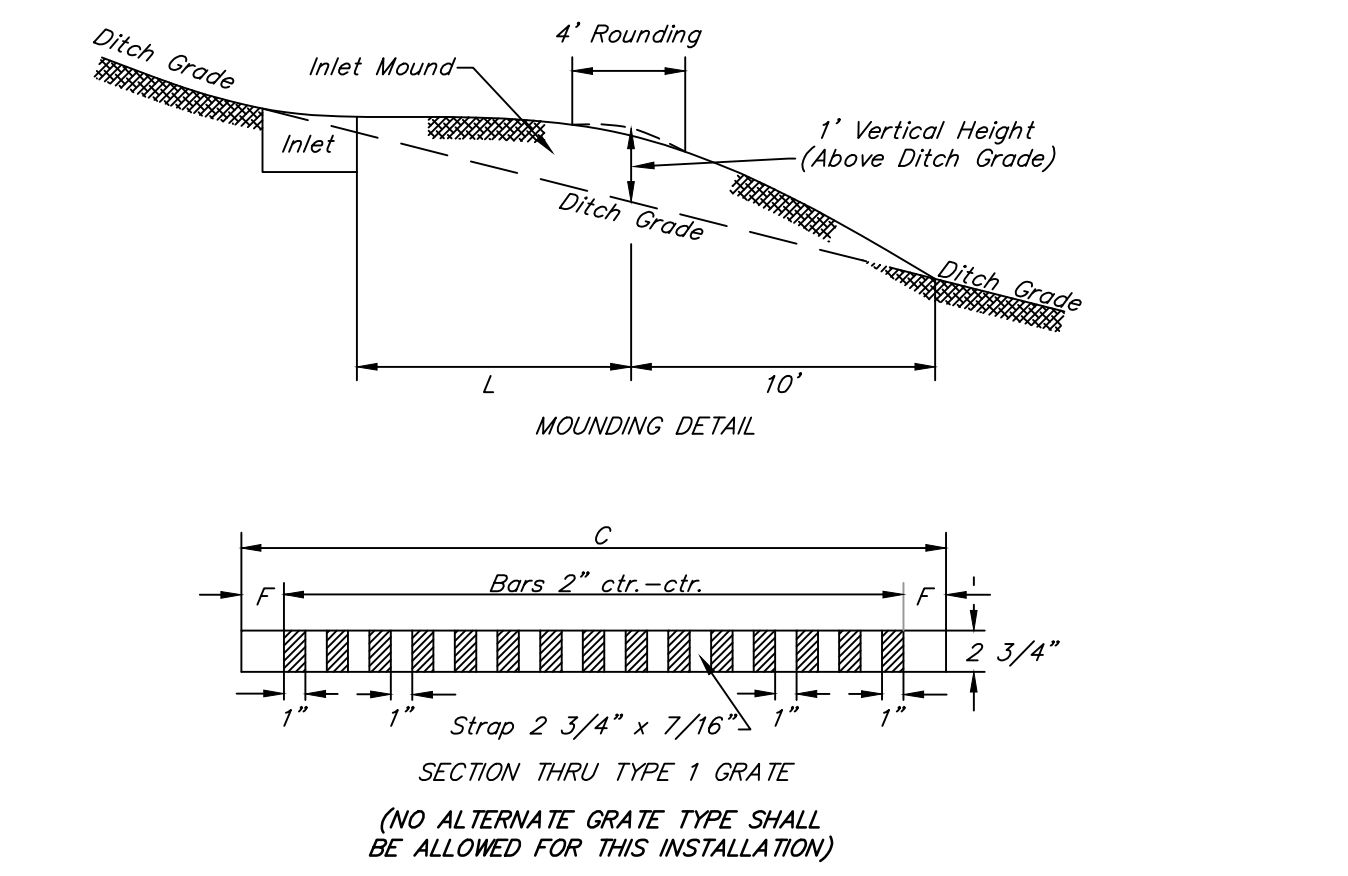
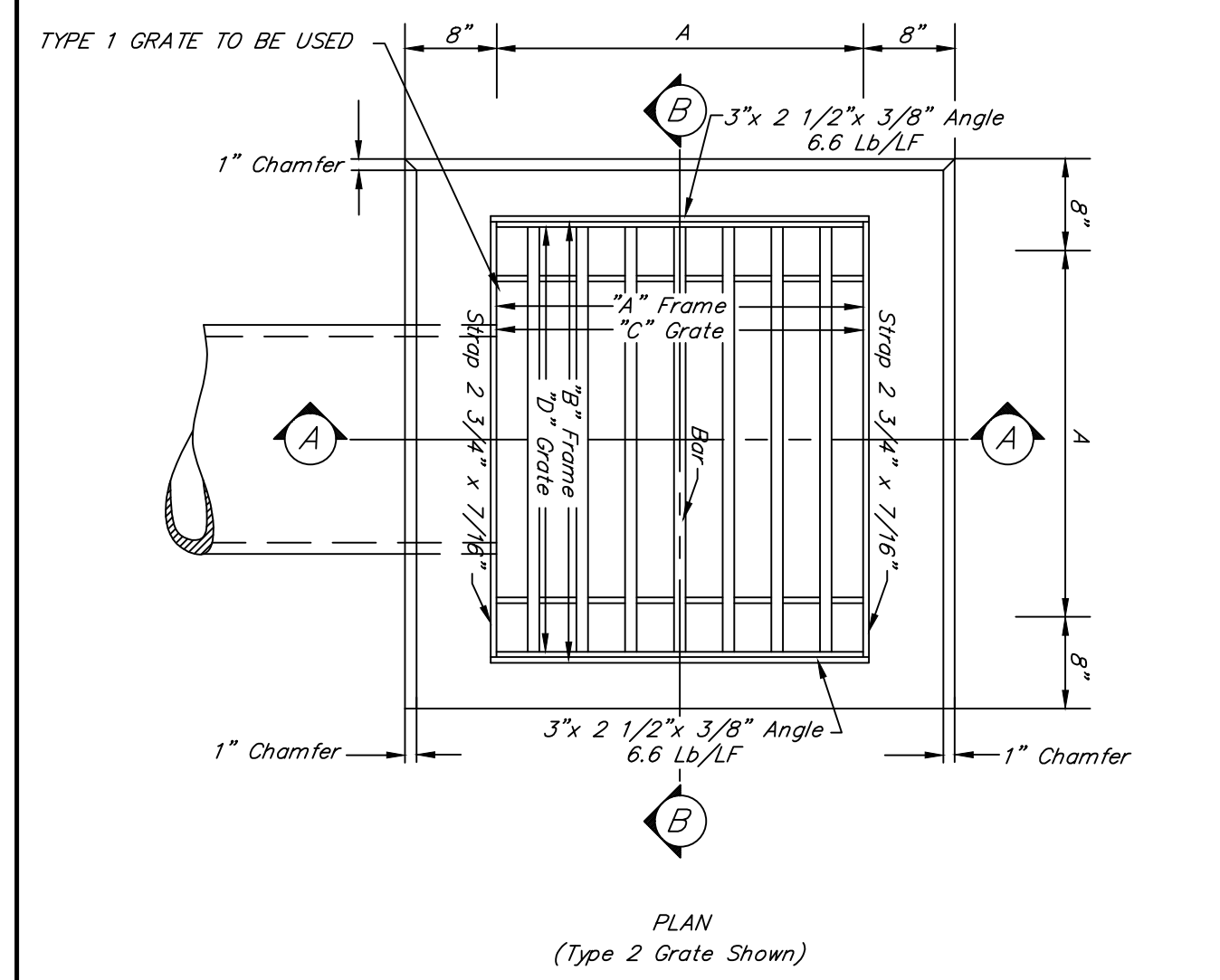


TABLE OF DIMENSIONS AND WEIGHTS											
PIPE SIZE	A	B	C	D	H(Min)	F	No. X	Wt. Grate	*F	**No. X	**Wt. Grate
12"	2'-8"	3'-2"	2'-7 3/4"	3'-1 3/4"	1'-6"	1'-6"	3	223	62	1 3/8"	453
18"	2'-8"	3'-2"	2'-7 3/4"	3'-1 3/4"	2'-0"	1'-6"	3	223	62	1 3/8"	453
24"	2'-8"	3'-2"	2'-7 3/4"	3'-1 3/4"	2'-6"	1'-6"	3	223	62	1 3/8"	453

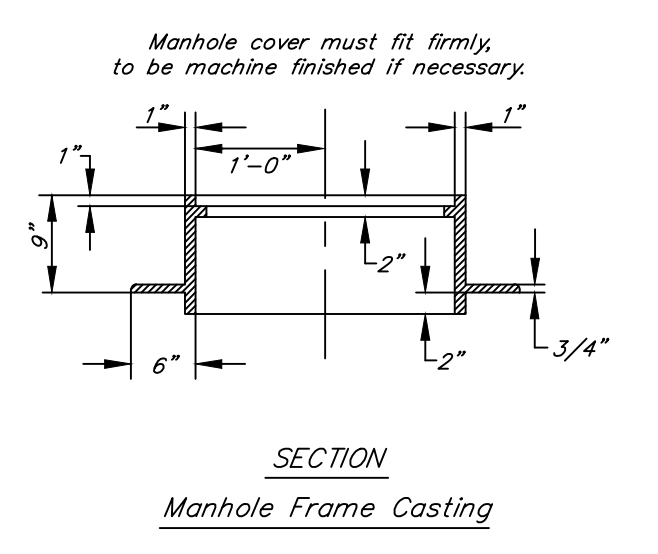
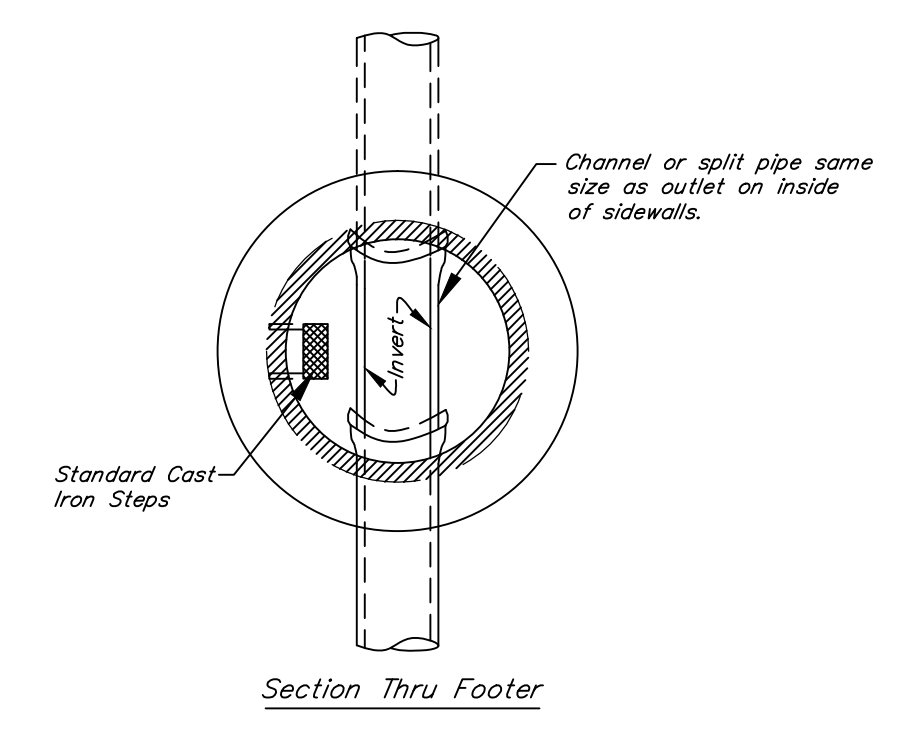
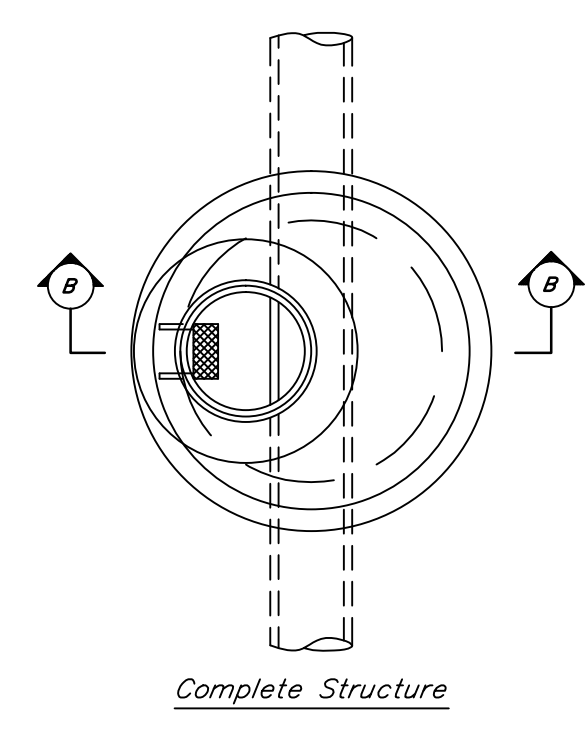
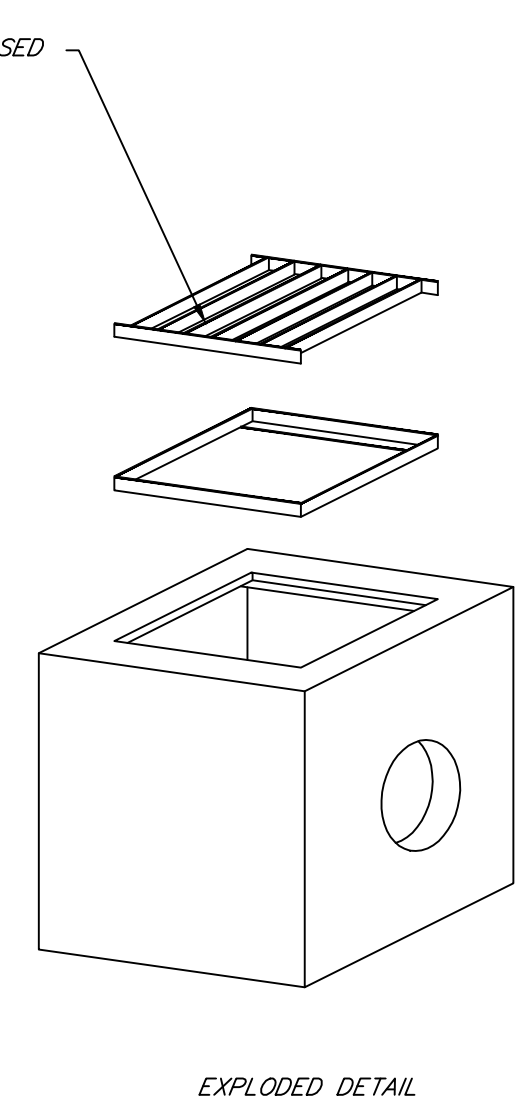
NOTES
 Wall and footer thickness is eight (8) inches. Construction between the footer and the top of the pipe may be of brick or precast concrete block. All other construction shall be of Class B concrete. Inlet may be precast, with lifting hooks out of sight after placing. Sufficient reinforcement will be included in precast inlets to resist handling stresses.
 Inverts shall be shaped for self-cleaning, and shall be monolithic with footer. A construction joint, approximately 2" x 4", will be used at the top of the self-cleaning invert. When precast construction is used, this construction joint will be omitted.
 When the inlet is used for more than one pipe, the invert shall be shaped to provide smooth transitions for the flow line.

Type 1 Grate is for use in urban areas and Type 2 Grate is for use in rural areas, unless otherwise specified.
 Grate to be used, either Type 1 or Type 2, will be as specified on plans.
 All concrete is to be Class B Concrete.
 The type and size of pipe to be used with the inlet is to be the type and size as called for on the plans.
 Drawing shows pipe entering one side of the inlet; however, pipes may enter any or all sides of the inlet as called for on the plans.
 When the bell end of concrete pipe is placed in the inlet, the inside of the bell shall be filled with concrete up to the flow line.
 Omit inlet mound when inlet is placed at the low point in sag of vertical curve.
 Typical "keyed" construction joint is shown on Section A-A herein. Other "keyed" or "doweled" type construction joints may be used if acceptable to the Engineer.

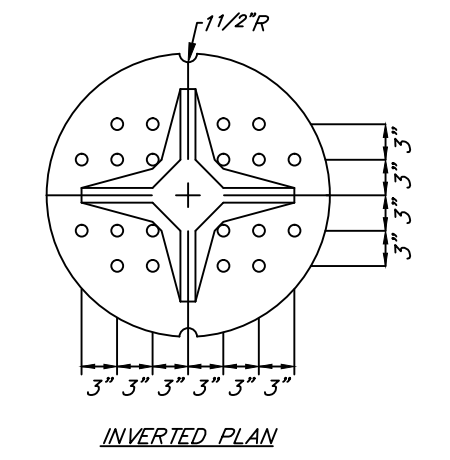
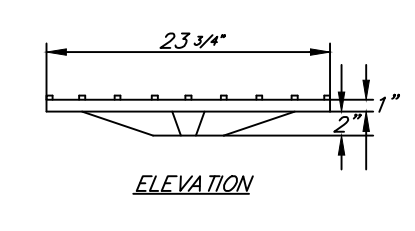
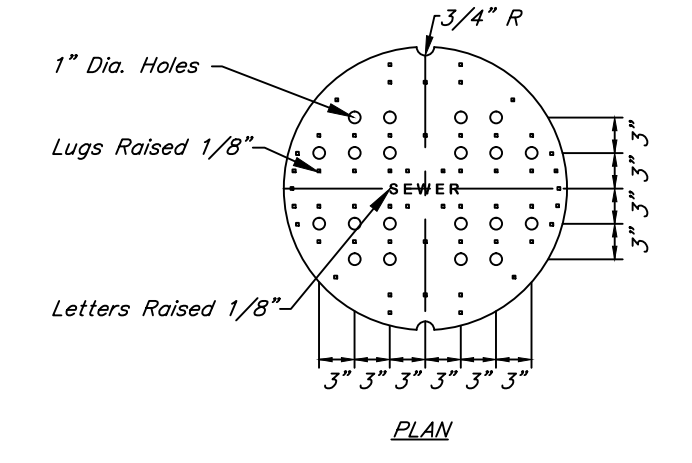
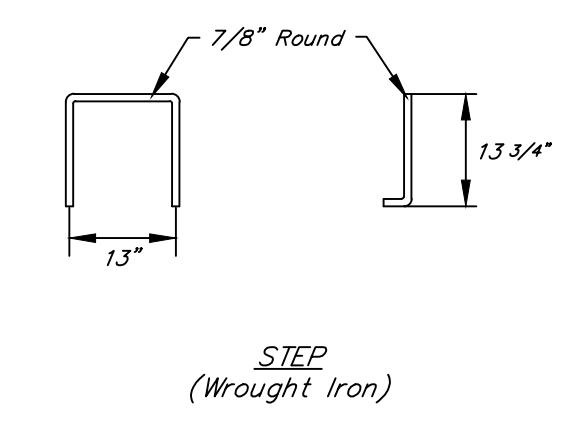
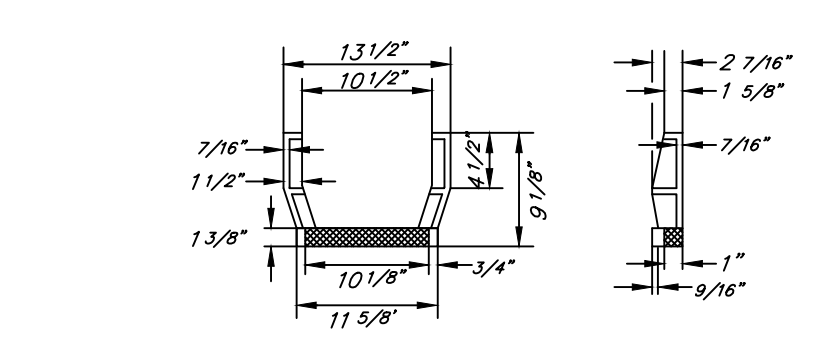
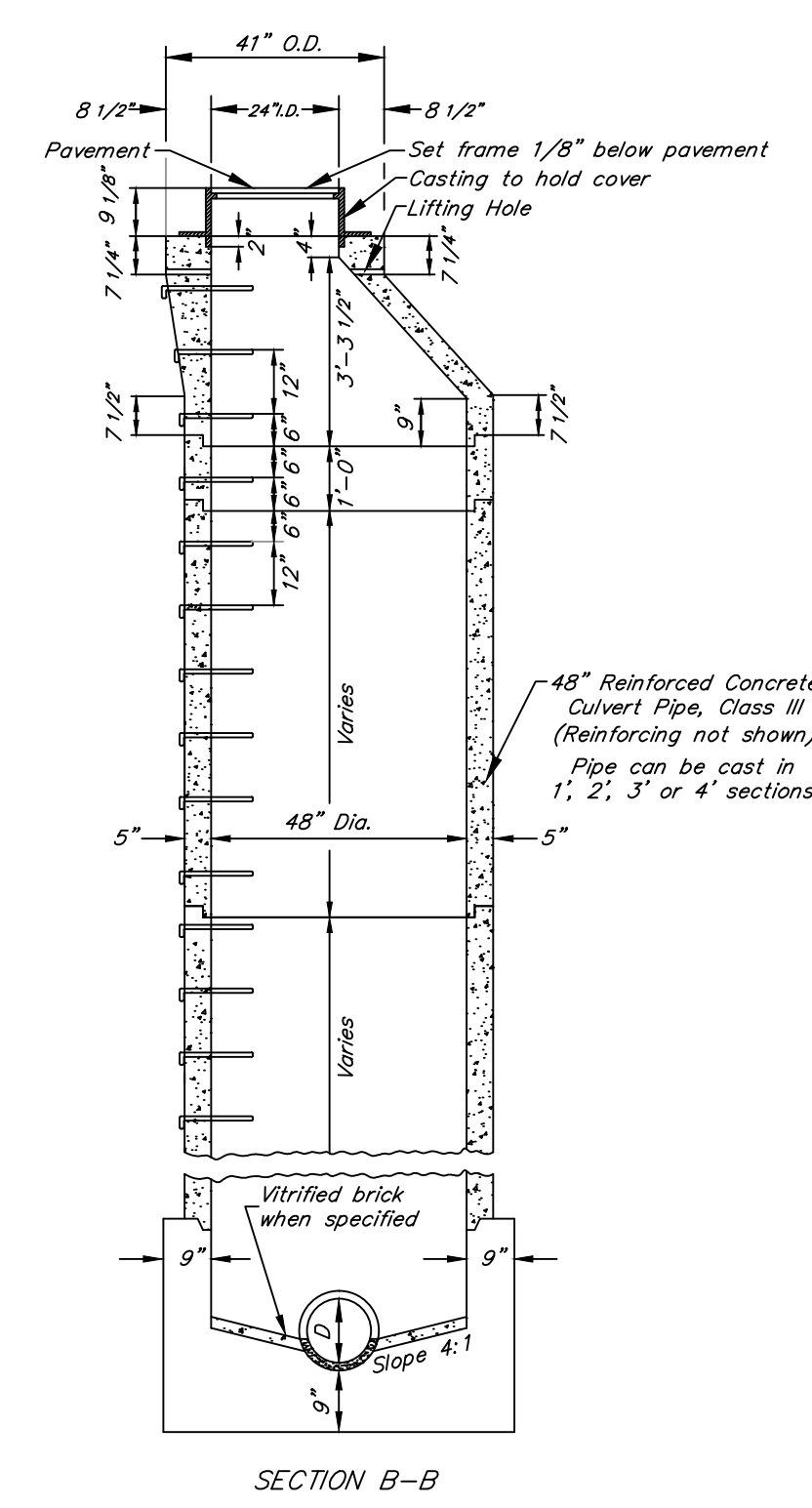
Grate and frame members may be galvanized in accordance with ASTM Specifications A123 in lieu of the painting specified below. Galvanized surfaces which have been abraded so that the base metal is exposed, and all field welded surfaces, shall be protected with zinc rich primer, meeting the requirements of Subsection 711.21 of the Specifications, or by field galvanizing.
 All grate and frame members shall meet the requirements for structural steel of Subsection 709.12 of the Standard Specifications. X members shall be joined to the end straps with 3/8" welds on both sides of each end. Frame members shall be joined with 3/8" welds at the outsides of the corners. The upper portion of the inlet shall be cast with frame in place or placed in fresh concrete immediately after casting. The grate and the inside of the frame shall be painted with Type "A" Asphalt-Base Emulsion meeting the requirements of ASTM Specification D 1187, or with Vinyl-Type Paint in accordance with the requirements of Section 615 of the Specifications except that the blast cleaning requirements prior to painting are waived. The color of the top coat of vinyl paint shall meet the requirements of Federal Standard 595, No. 14062. Members and welds shall be cleaned before painting.

Unit price bid for Type "G" inlet will be for all depths, unless otherwise specified, and shall be paid for per each, also unless otherwise noted or specified.

**STANDARD DETAIL
 TYPE G INLET**



NOTES
 All concrete pipe to be used as sidewall for the manhole shall meet the requirements for Class III pipe of Subsection 714.2 of the Standard Specifications. Concrete pipe sections may be used in any combination to produce a manhole of desired depth, except the tapered top section shall be retained as shown.
 The tapered top sections shall be manufactured and meet the same requirements as the concrete pipe.
 Lifting hole in the tapered top section and the circumferential notches in the manhole cover are for handling purposes only.
 Drawing shows pipe entering and leaving manhole in a straight line. However, the pipes may enter or leave at any angle or place as called for or shown on the plans.
 The footer up to the joint shown shall be Class B concrete.
 Castings are to be of the design shown and are to be of Gray-Iron meeting the requirements of Subsection 709.10 of the Standard Specifications.
 Steps may be either the Cast Iron Step or the Wrought Iron Step as shown and shall conform to the requirements of Subsections 709.10 and 709.11, respectively, of the Standard Specifications.
 The precast sections of pipe shall be set in joint mortar.
 The forming of the seat in the footing may be by the use of a section of the precast pipe or by means of a jig.
 Pipe at elevations of than shown may be joined to the manhole by cutting a hole the size of the connecting pipe in the manhole, inserting the pipe the thickness of the manhole shell and closing all openings around the connecting pipe with joint mortar.
 Either this manhole or the cast in place manhole on Standard M.S. 3-A may be furnished when Type A manhole is called for in the contract.
 Minimum height of bench wall above flow line of pipe is 25% of the diameter of the pipes.
 The bearing area of the frame and cover shall be so fitted and finished as to provide a firm and even seat for the entire cover in the frame. No projections shall exist on bearing areas of wither casting, and the cover shall seat in its frame without rocking.



**STANDARD DETAIL
 TYPE "A" MANHOLE
 (PRECAST)**

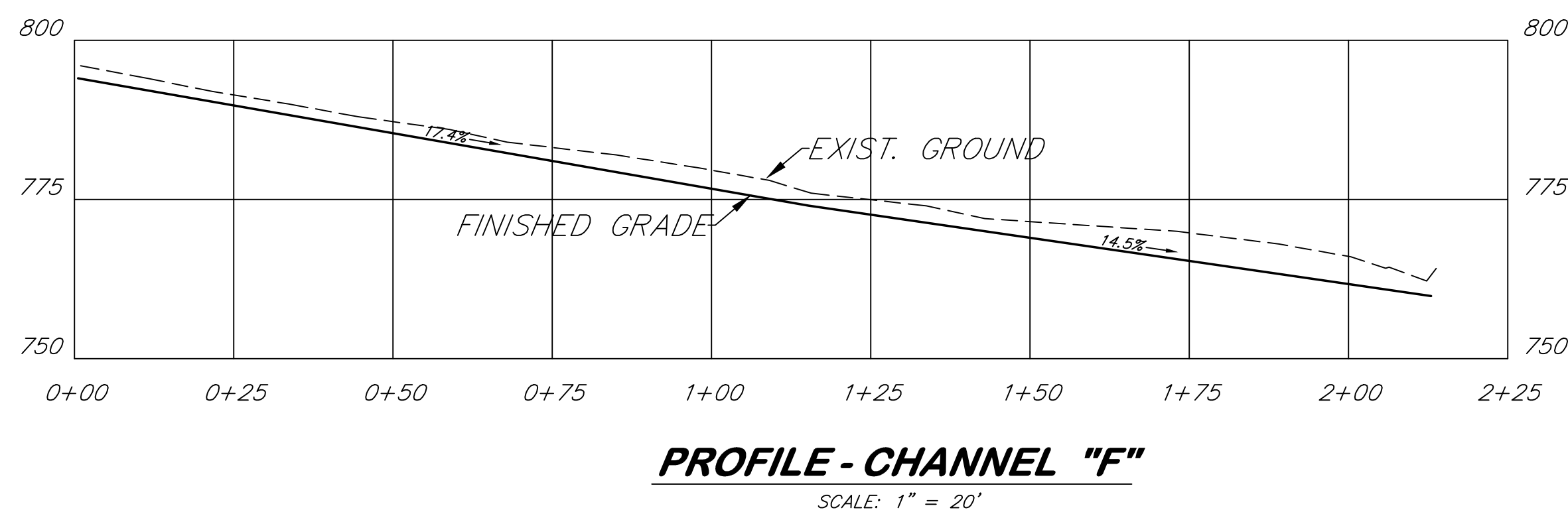
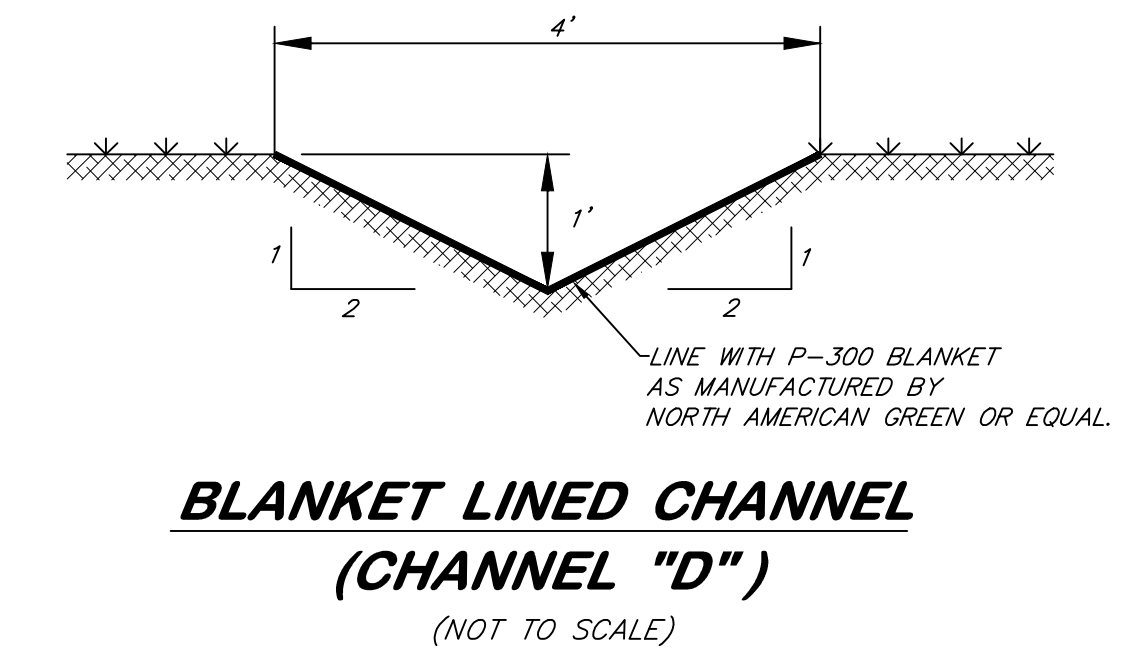
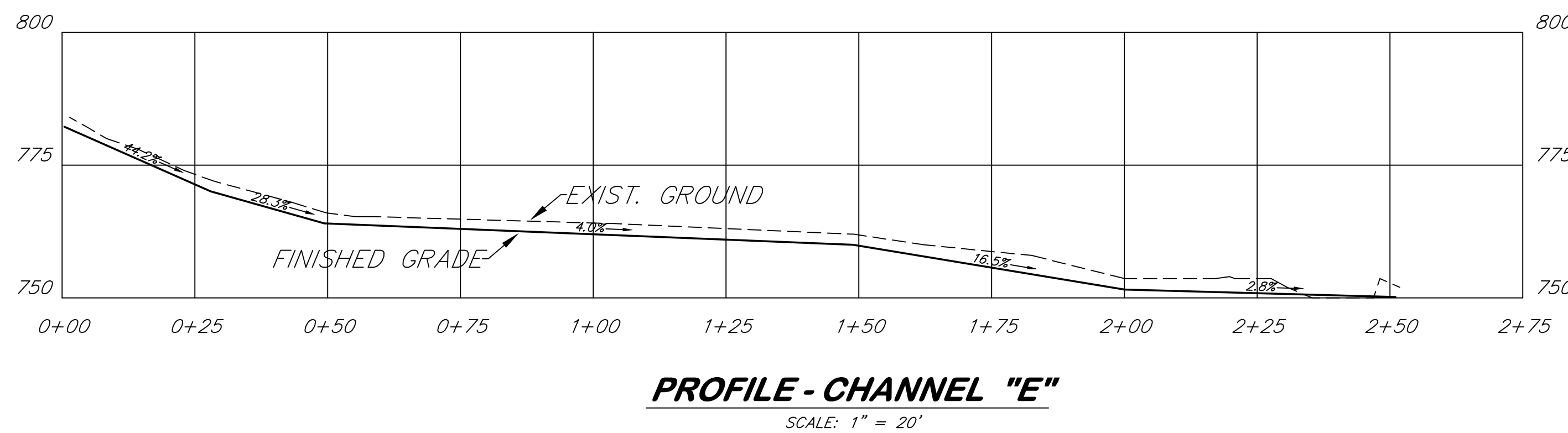
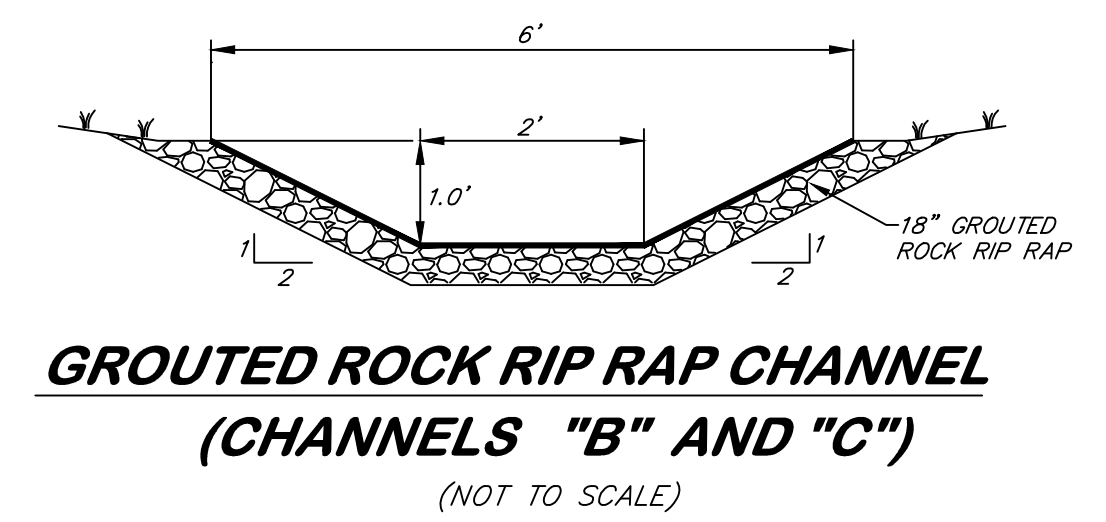
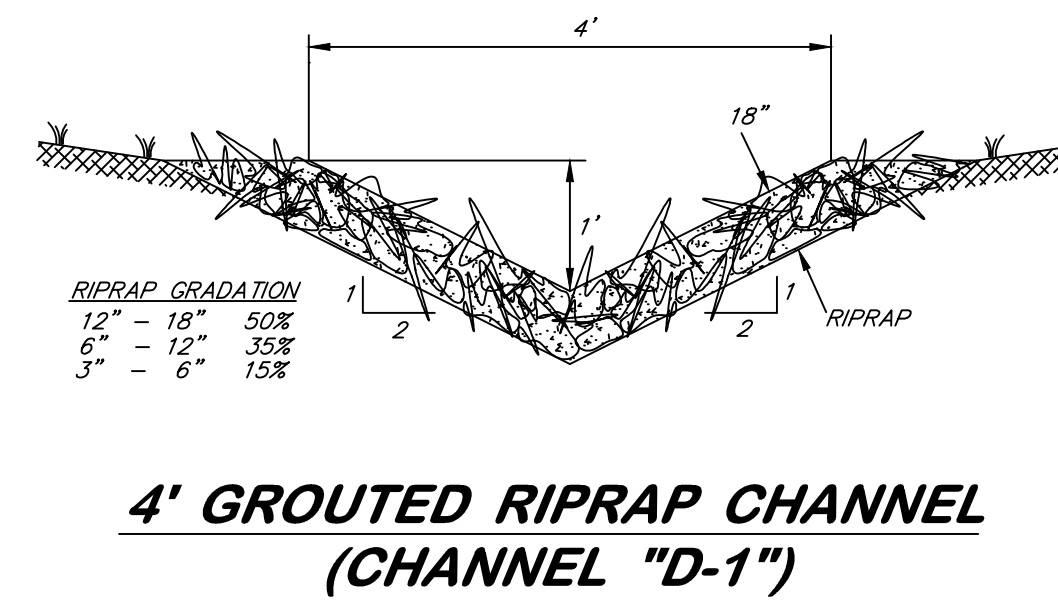
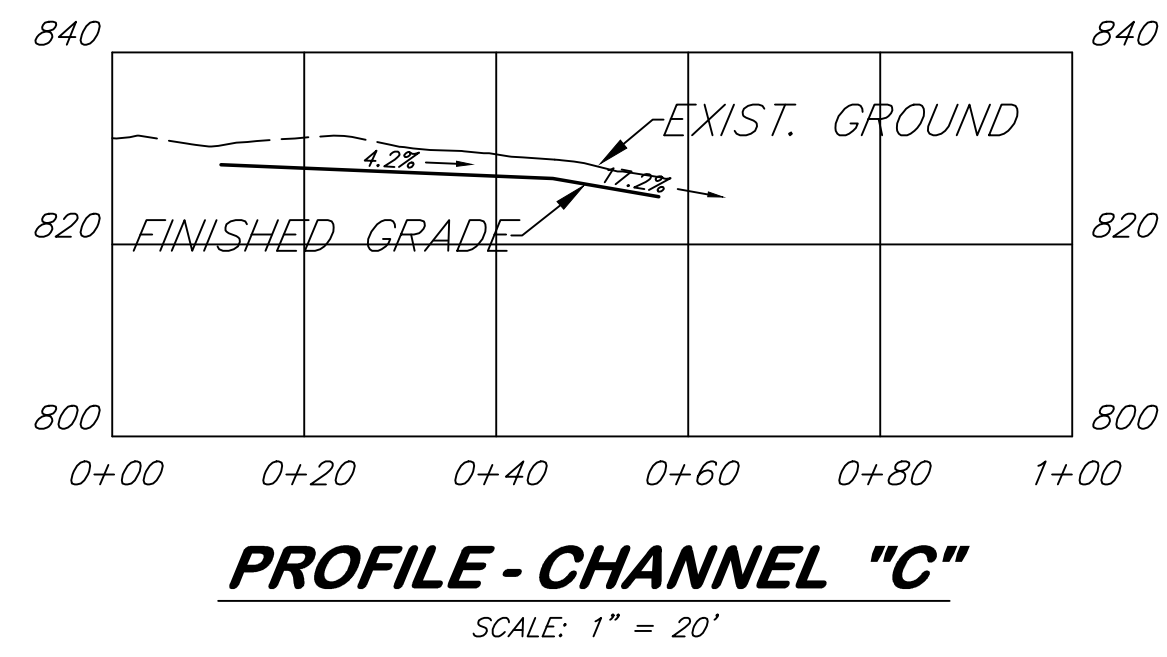
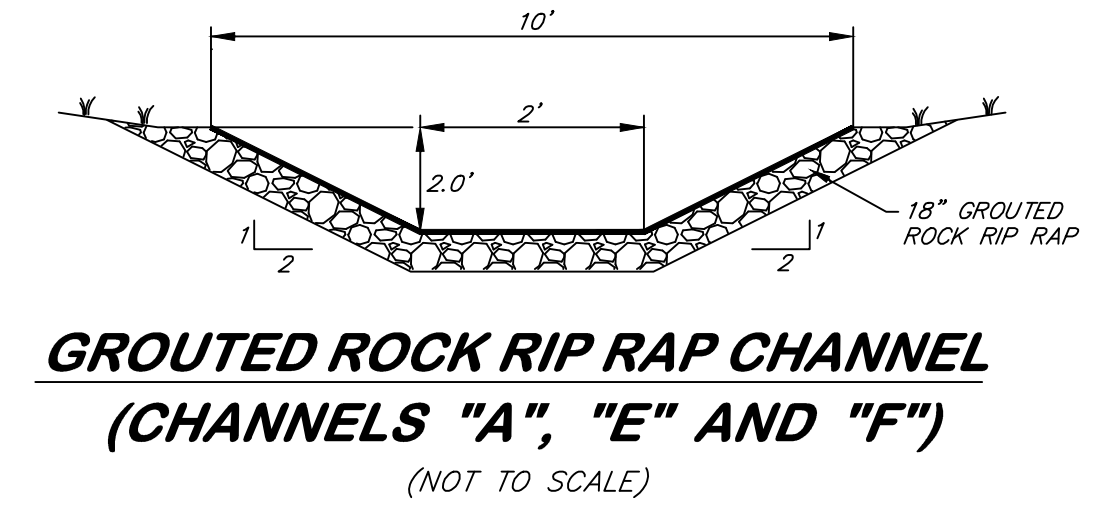
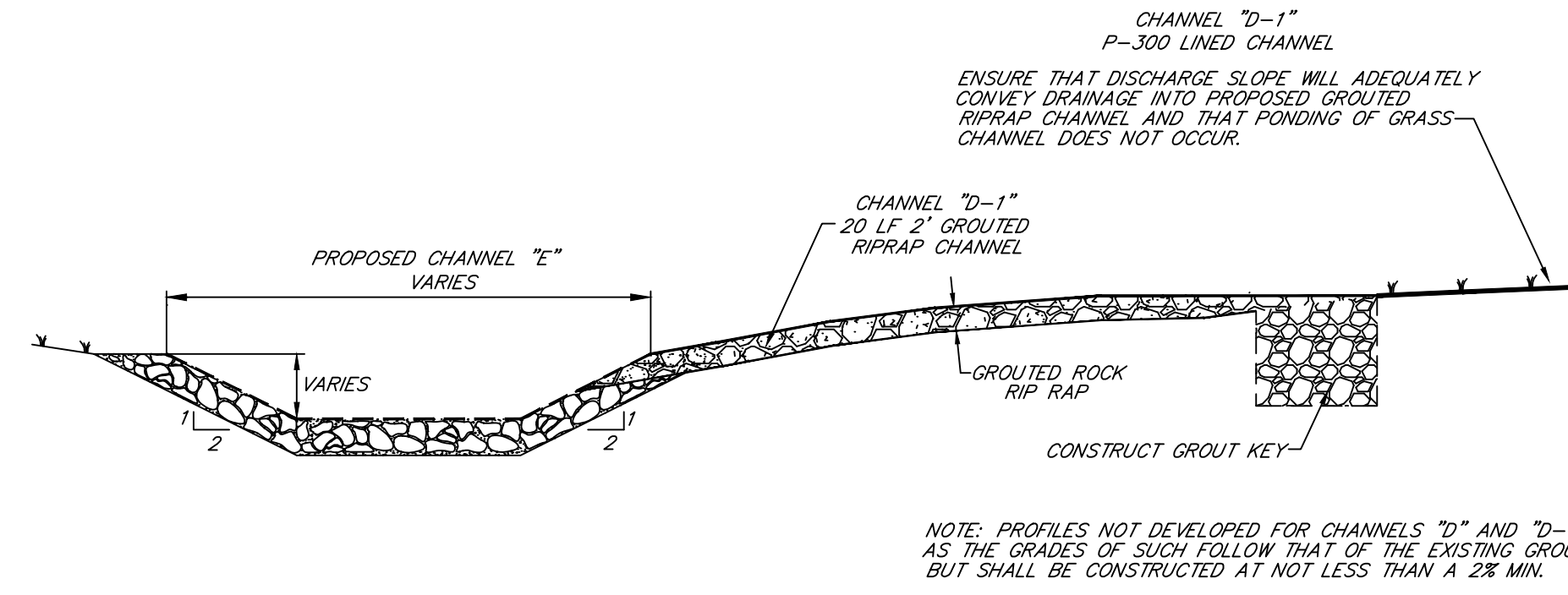
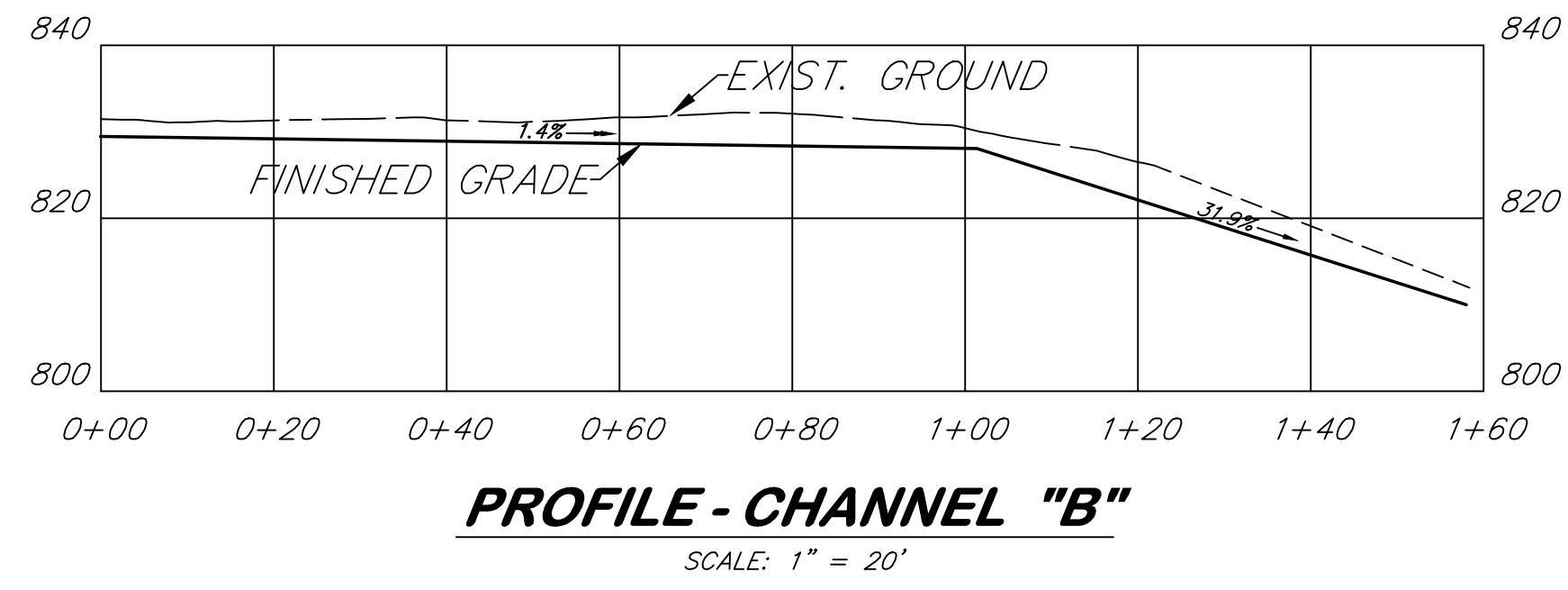
State of West Virginia
 Department of Environmental Protection
 Abandoned Mine Lands and Reclamation

SWITZER (ELLIS) DRAINAGE

TYPICAL DETAILS (3)

DRAWN BY: DWH
 APPROVED BY: AW
 DATE: 4/16/2014

SCALE: NONE
 SHEET NO. 9
 OF



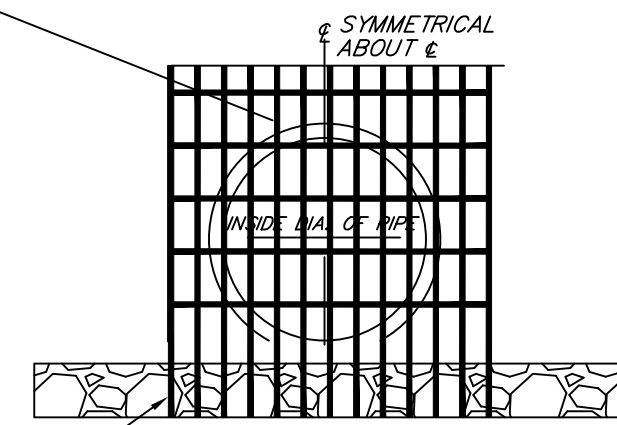
State of West Virginia
Department of Environmental Protection
Abandoned Mine Lands and Reclamation

SWITZER (ELLIS) DRAINAGE

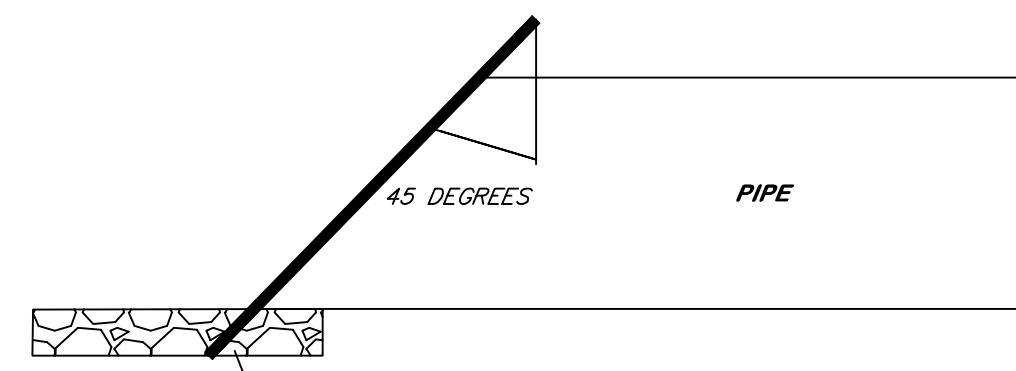
**PROFILES
CHANNEL "B", "C", "E" AND "F"
AND TYPICAL DETAILS (4)**

DRAWN BY:	RCD	SCALE:	AS SHOWN
APPROVED BY:	AW	SHEET NO.:	10
DATE:	7/21/2014	OF:	12

TRASH RACK CONSISTING OF 1" DIAMETER BARS
SPACED HORIZONTALLY AT 5" C-C MAX
SPACED VERTICALLY AT 2' C-C MAX

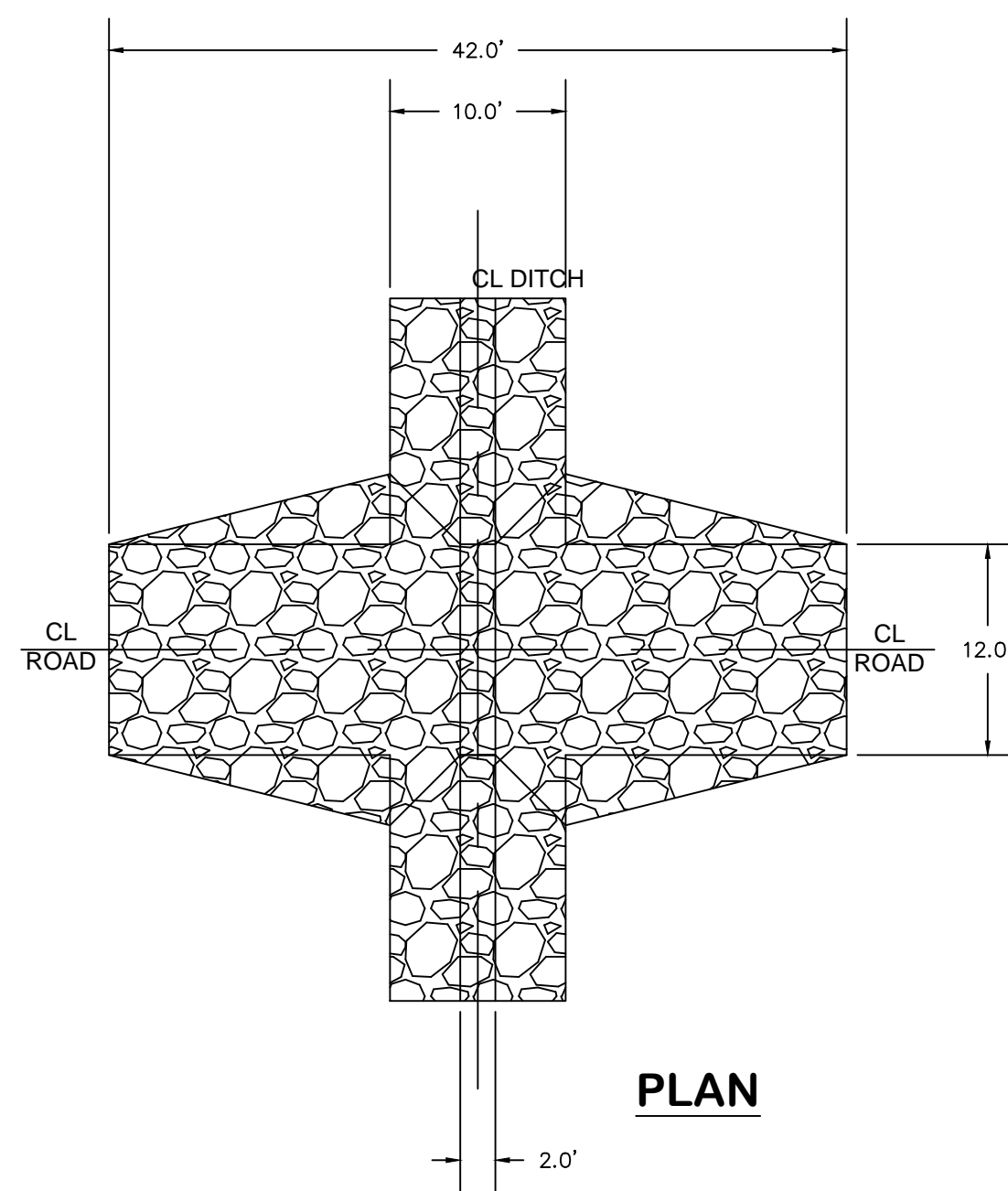


ANCHOR TRASHRACK INTO GROUTED ROCK RIP RAP



ANCHOR TRASHRACK INTO GROUTED ROCK RIP RAP

TRASH RACK SCHEMATIC
SCALE: NTS

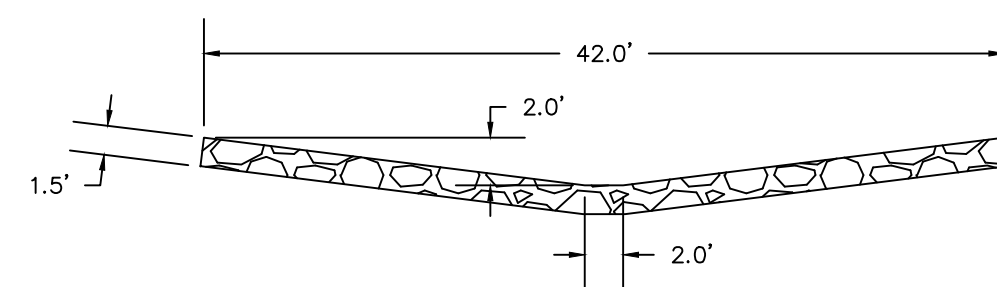


PLAN

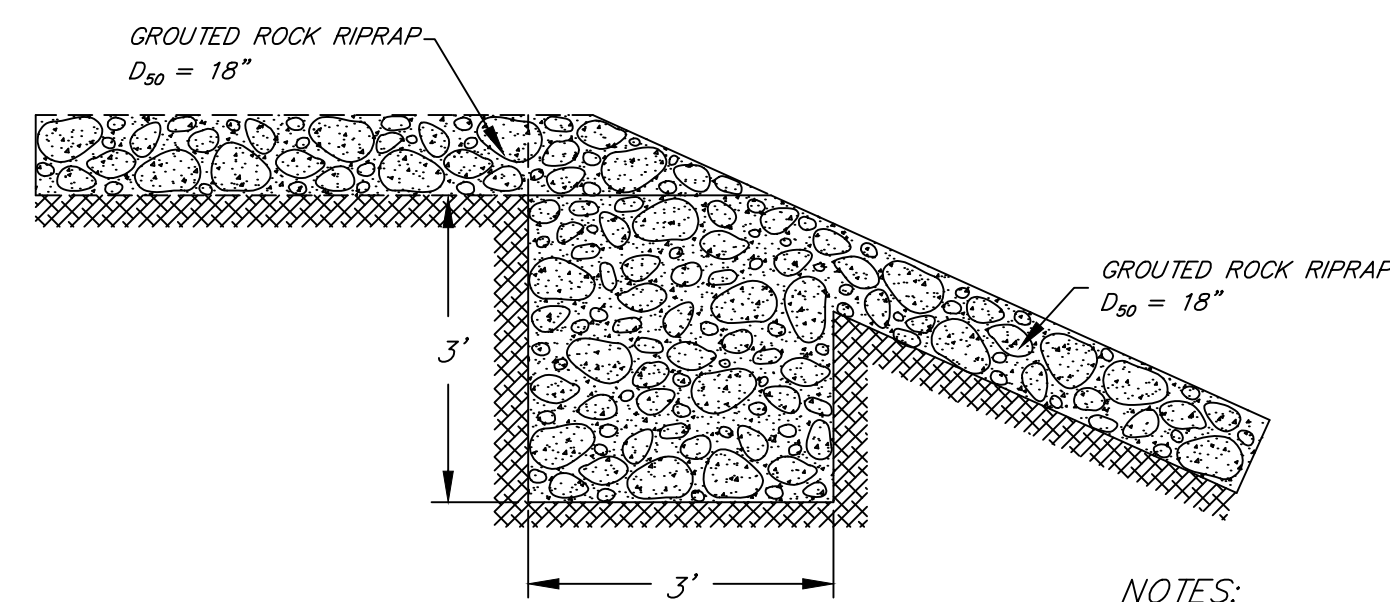
RIPRAP GRADATION

12-18	50%
6-12	25%
3-6	25%

SECTION



GROUTED RIPRAP LOW WATER CROSSING
SCALE: NTS

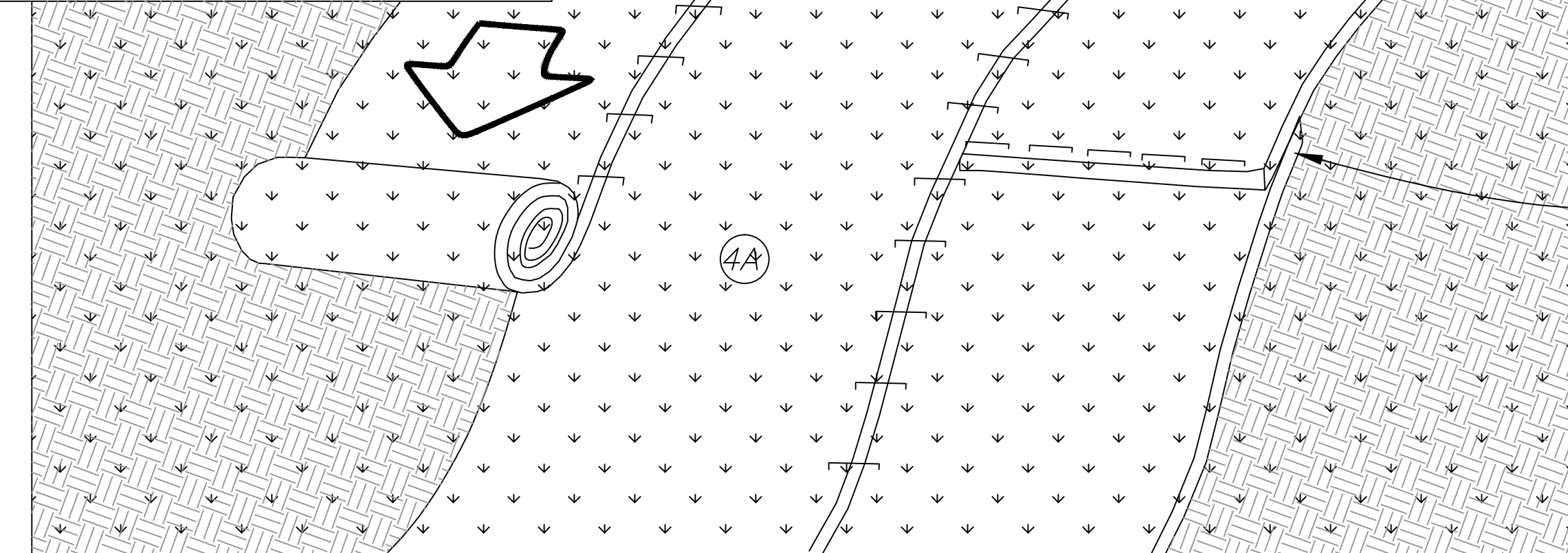


DETAIL
GROUT KEY/ANCHOR

N.T.S.

NOTES:

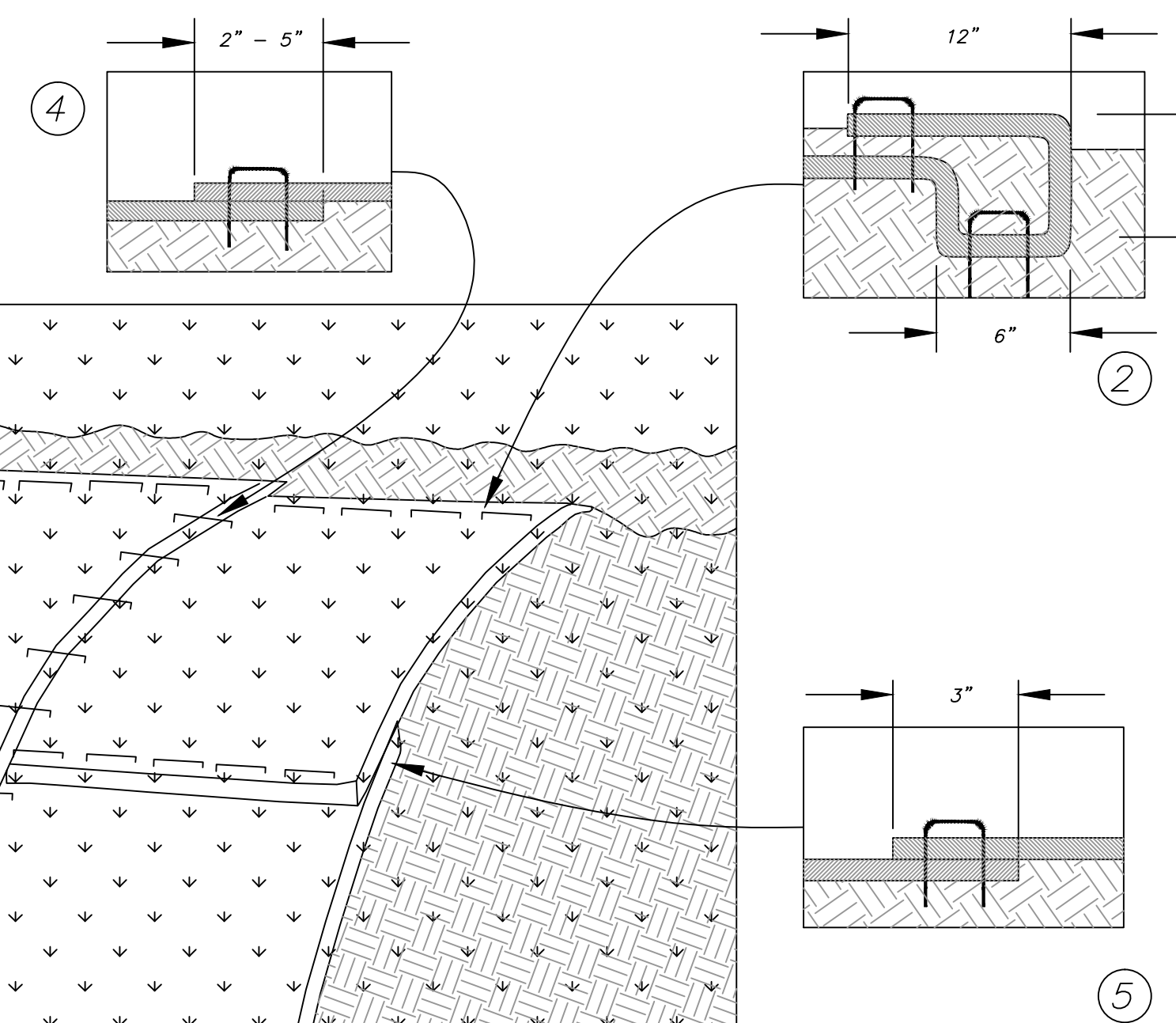
1. EXTEND GROUT KEY/ANCHOR LATERALLY FULL WIDTH OF DITCH.
2. INSTALL GROUT KEYS/ANCHORS AT BEGINNING AND END OF GROUTED DITCHES AND AT INTERVALS AS SHOWN ON PLAN.



CONSTRUCTION NOTES:

1. INSTALL ON ALL CONSTRUCTED SLOPES WHERE THE SLOPE IS 2:1 OR STEEPER, AS SHOWN ON THE PLANS.
 2. PREPARE SOIL BEFORE INSTALLING EROSION CONTROL PRODUCTS (RECP'S), INCLUDING ANY NECESSARY APPLICATION OF FERTILIZER AND SEED.
 3. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING RECP'S IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECP'S EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP'S WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECP'S.
 4. ROLL THE RECP (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. RECP WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP'S MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLE/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE(S). WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
 5. THE EDGES OF PARALLEL RECP'S MUST BE STAPLED WITH APPROXIMATELY 2" - 5" OVERLAP, DEPENDING ON THE TYPE OF RECP BEING USED.
 6. CONSECUTIVE RECP'S SPICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROPRIATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED SECTION, APPROXIMATELY 12" APART, ACROSS THE ENTIRE RECP'S WIDTH.
- NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE RECP'S.

ROLLED EROSION CONTROL PRODUCT



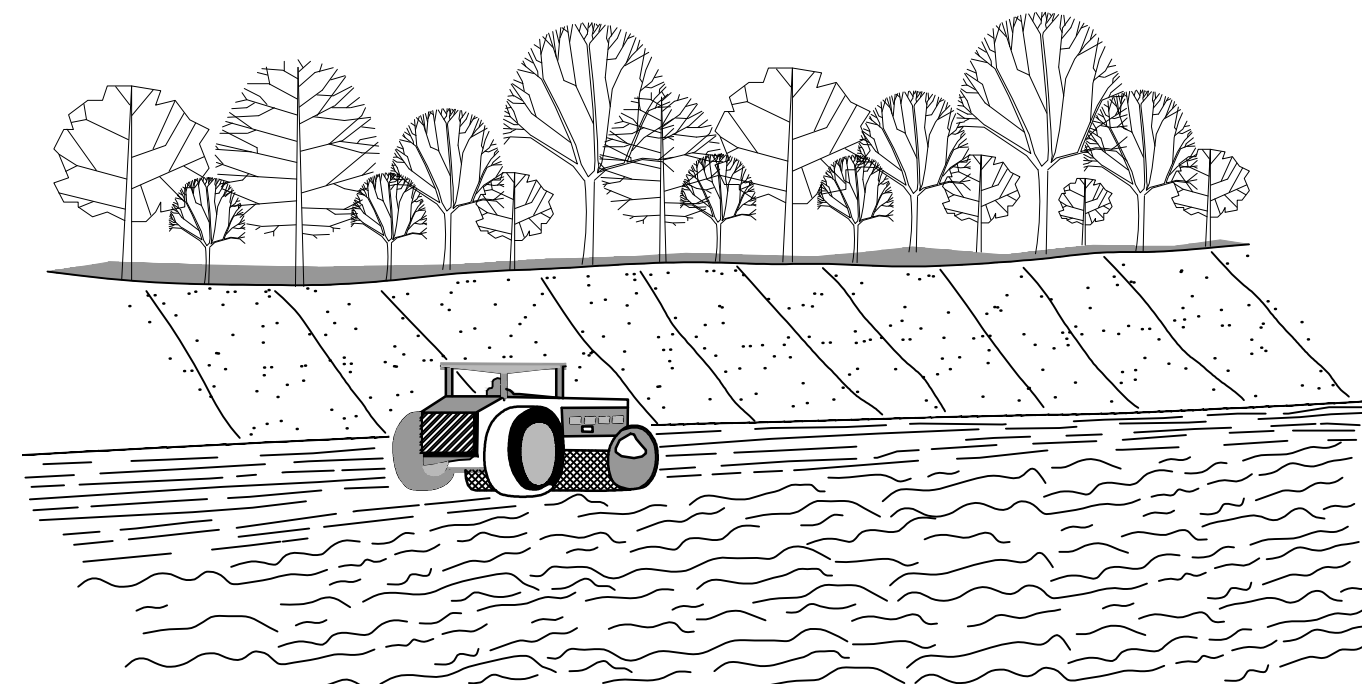
State of West Virginia
Department of Environmental Protection
Abandoned Mine Lands and Reclamation

SWITZER (ELLIS) DRAINAGE

TYPICAL DETAILS (5)

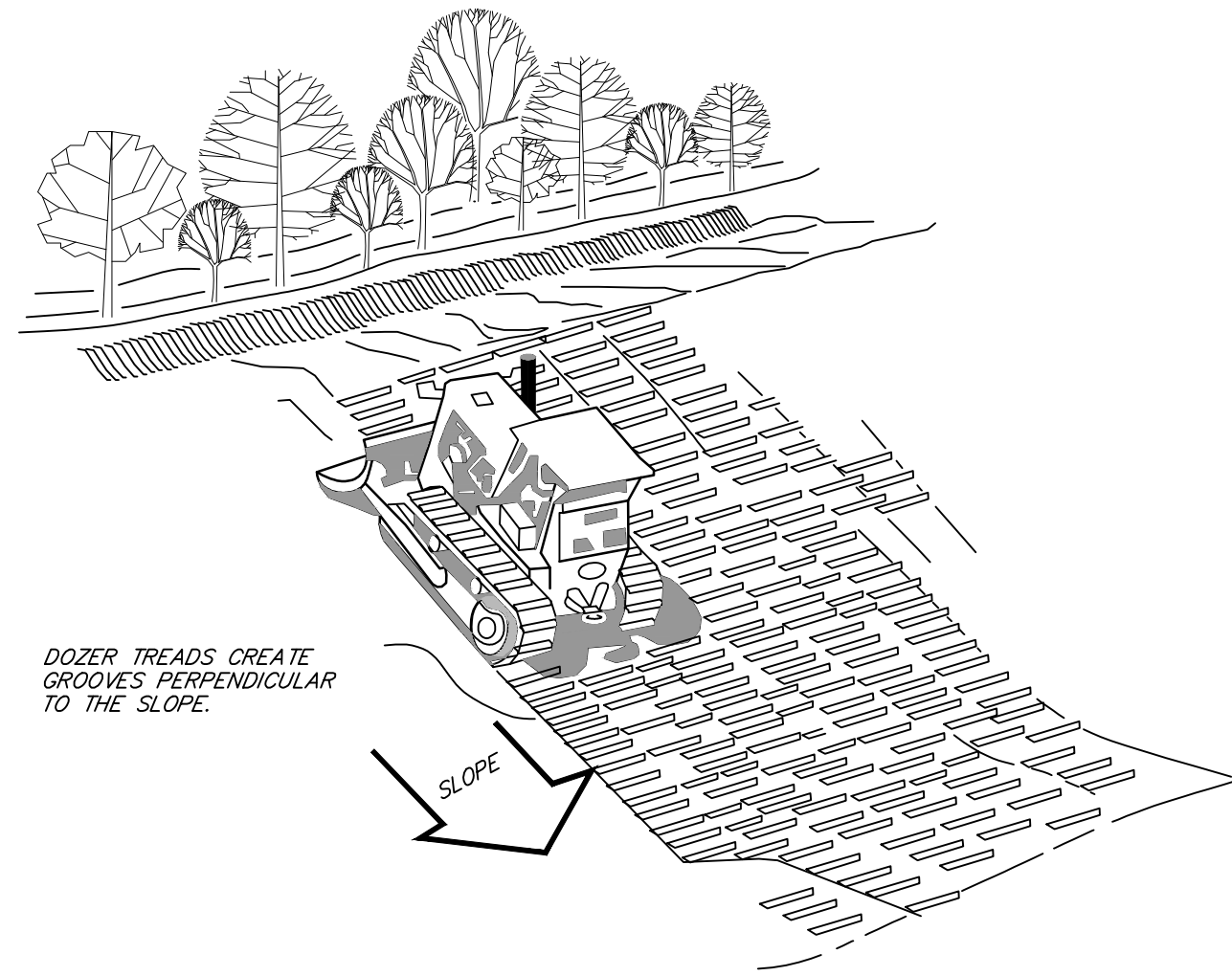
DRAWN BY: RCD
APPROVED BY: AW
DATE: 8/07/2014

SCALE: NONE
SHEET NO. **11**
OF 12



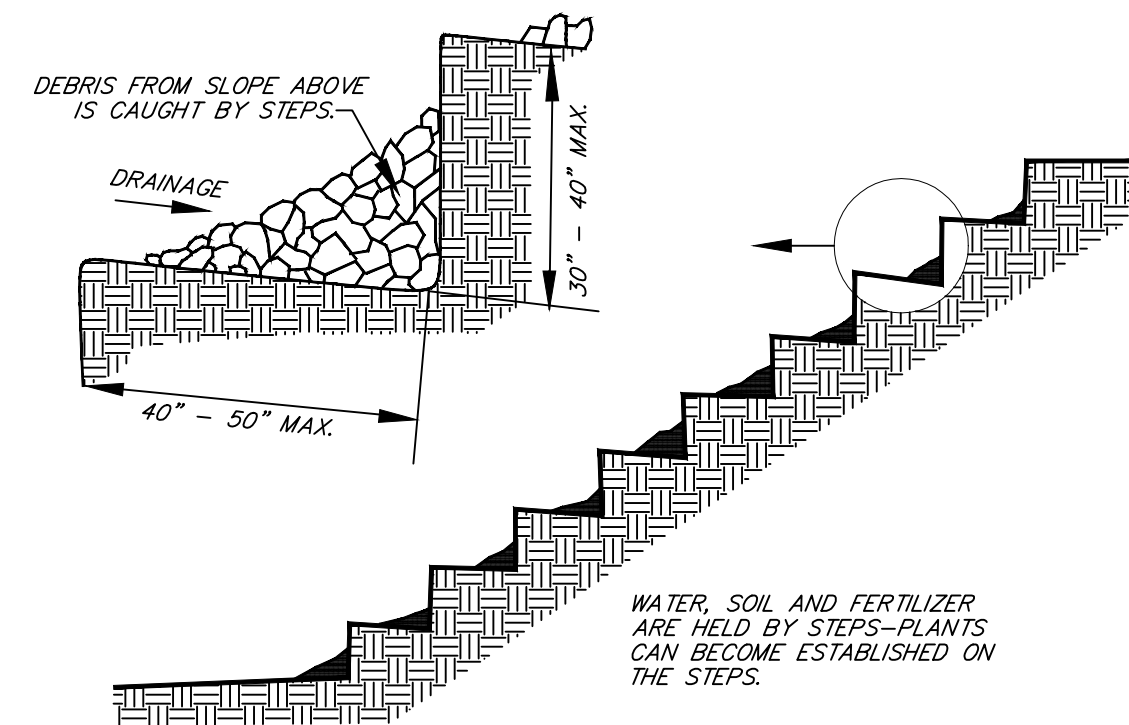
FILL SLOPE TREATMENT

EACH LIFT OF THE FILL IS COMPACTED, BUT THE OUTER FACE OF THE SLOPE IS ALLOWED TO REMAIN LOOSE SO THAT THE ROCKS, CLODS, ETC. REACH THE NATURAL ANGLE OF REPOSE.



TRACKING

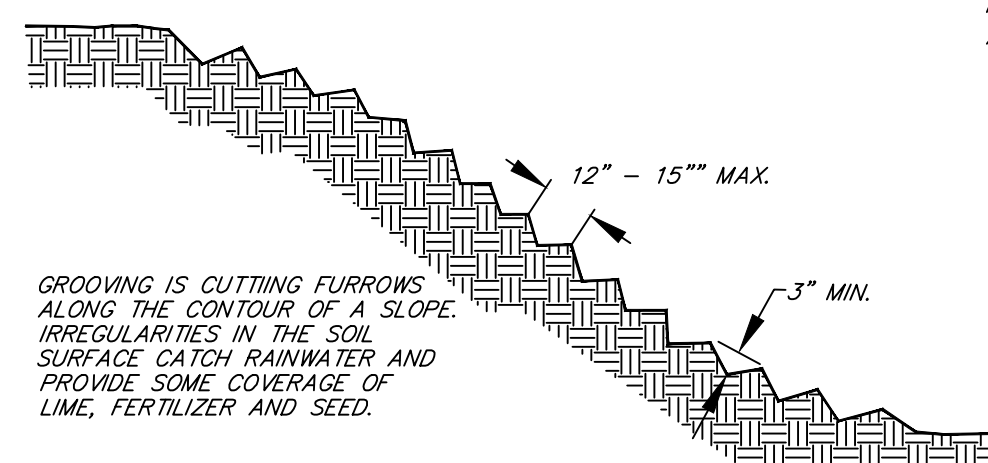
DOZER TREADS CREATE GROOVES PERPENDICULAR TO THE SLOPE.



STAIR STEPPING CUT SLOPES

DEBRIS FROM SLOPE ABOVE IS CAUGHT BY STEPS.
DRAINAGE
30" - 40" MAX.
40" - 50" MAX.

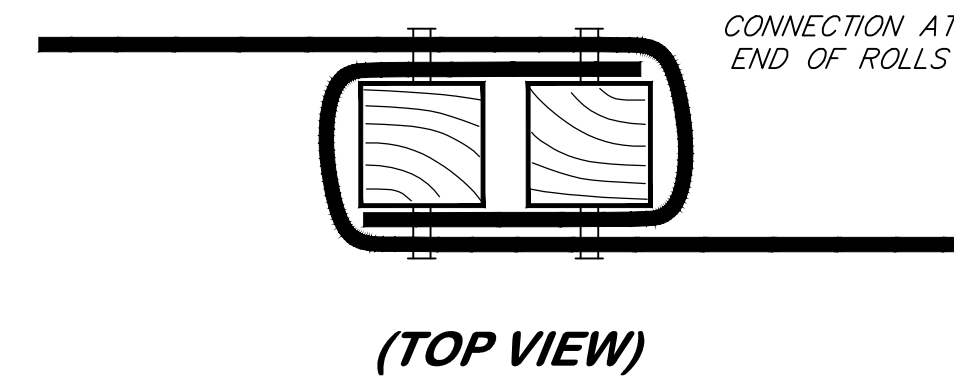
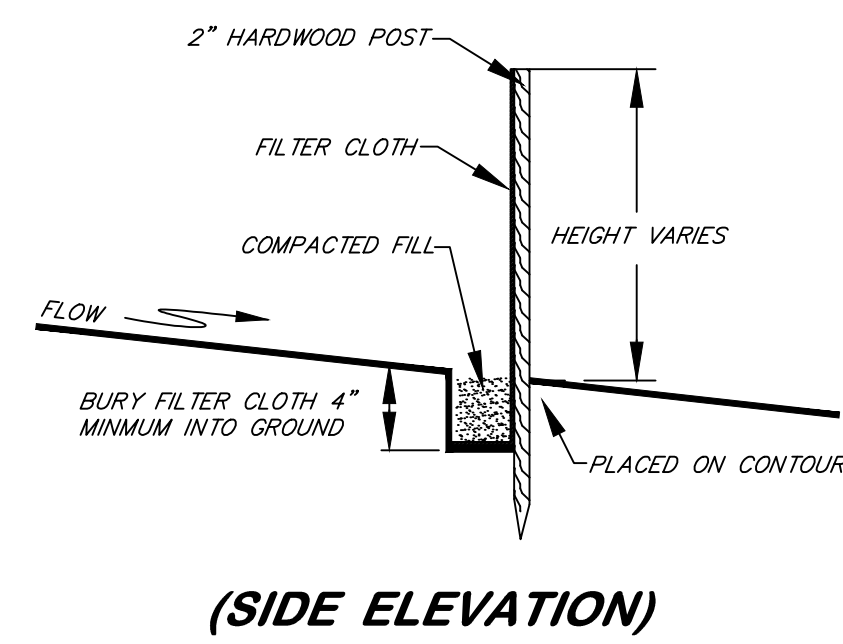
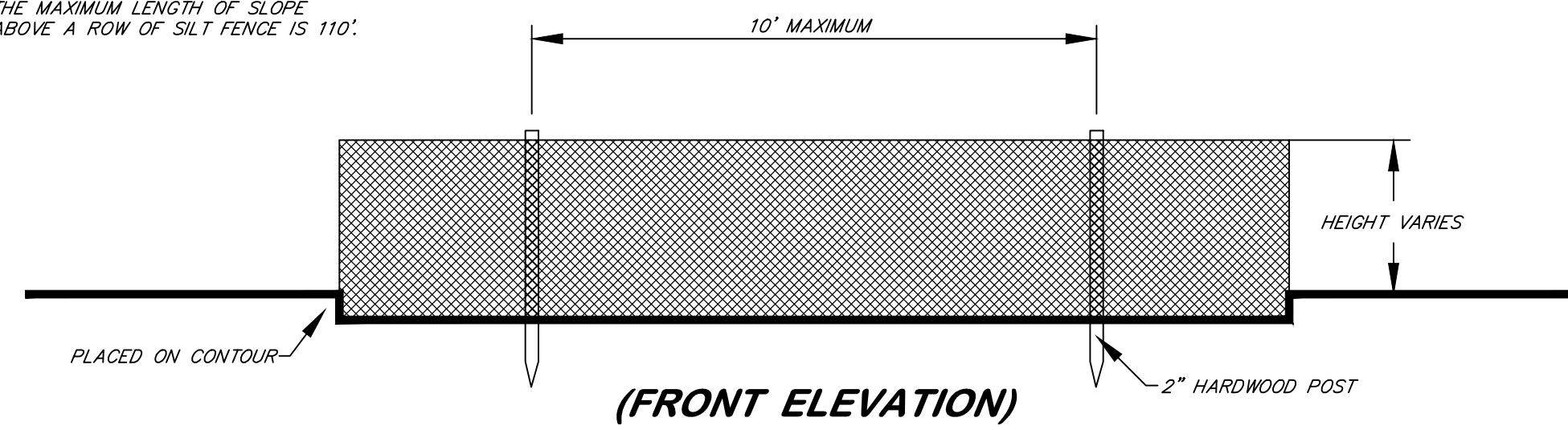
WATER, SOIL AND FERTILIZER ARE HELD BY STEPS-PLANTS CAN BECOME ESTABLISHED ON THE STEPS.



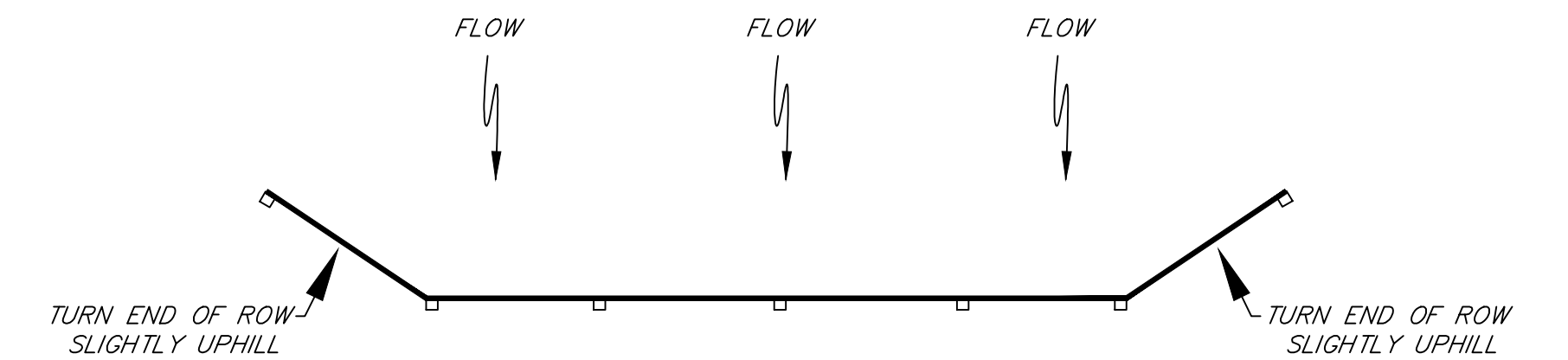
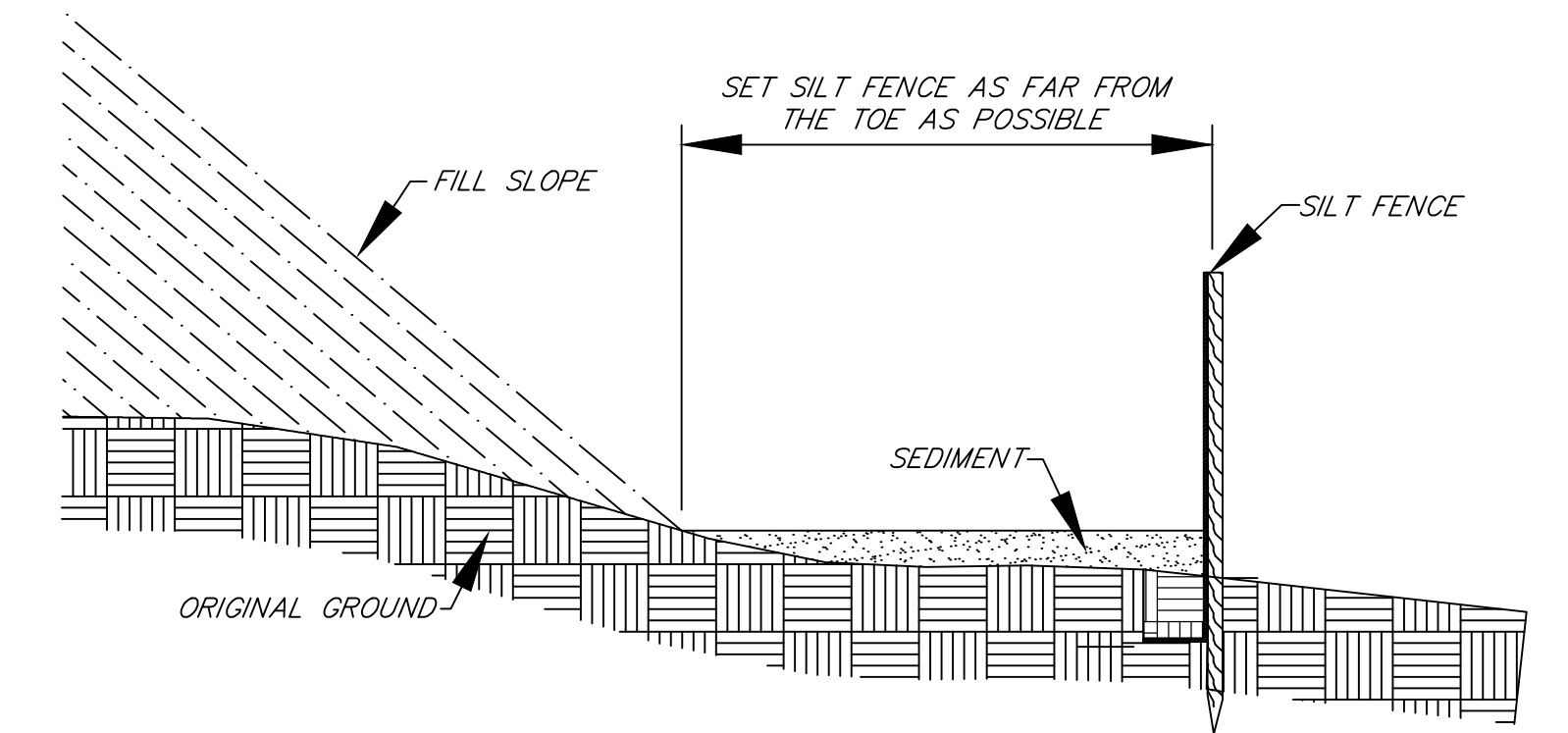
GROOVING SLOPES

GROOVING IS CUTTING FURROWS ALONG THE CONTOUR OF A SLOPE. IRREGULARITIES IN THE SOIL SURFACE CAUGHT RAINWATER AND PROVIDE SOME COVERAGE OF LIME, FERTILIZER AND SEED.

NOTE: THE MAXIMUM LENGTH OF SLOPE ABOVE A ROW OF SILT FENCE IS 110'.

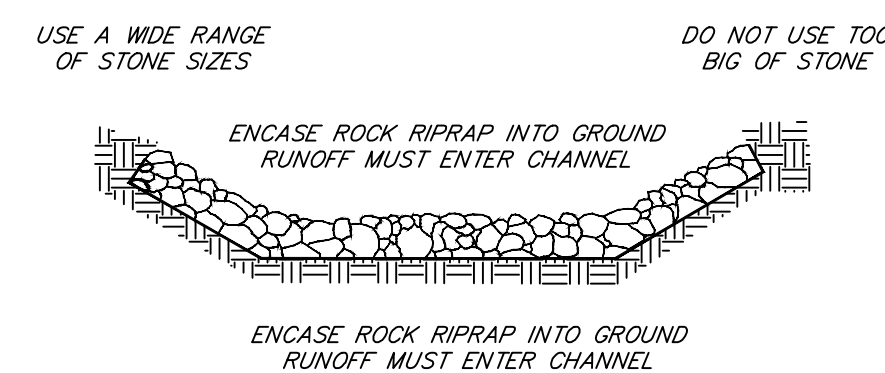


SILT FENCE
(FIG. 3.27.2)

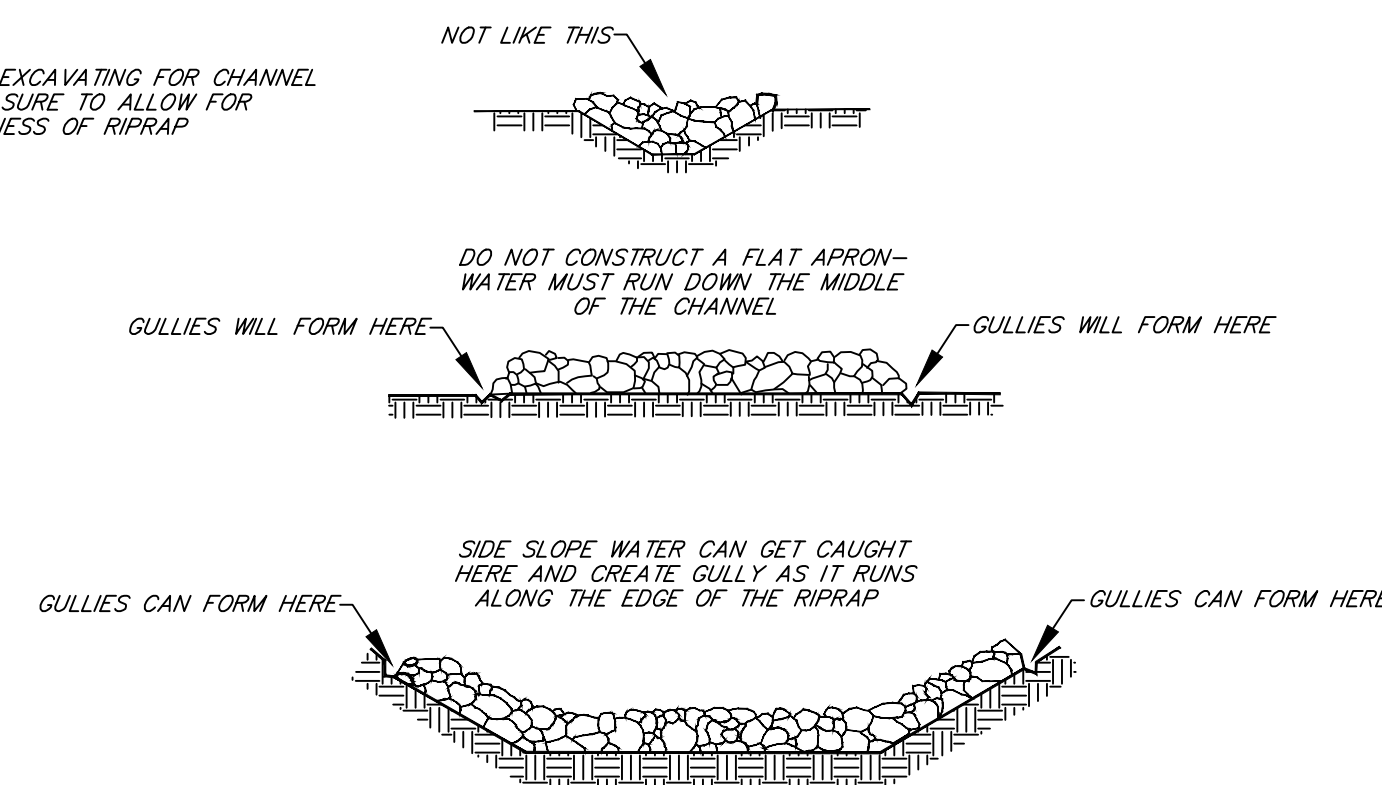


PLACEMENT OF SILT FENCE
(FIG. 3.27.1)

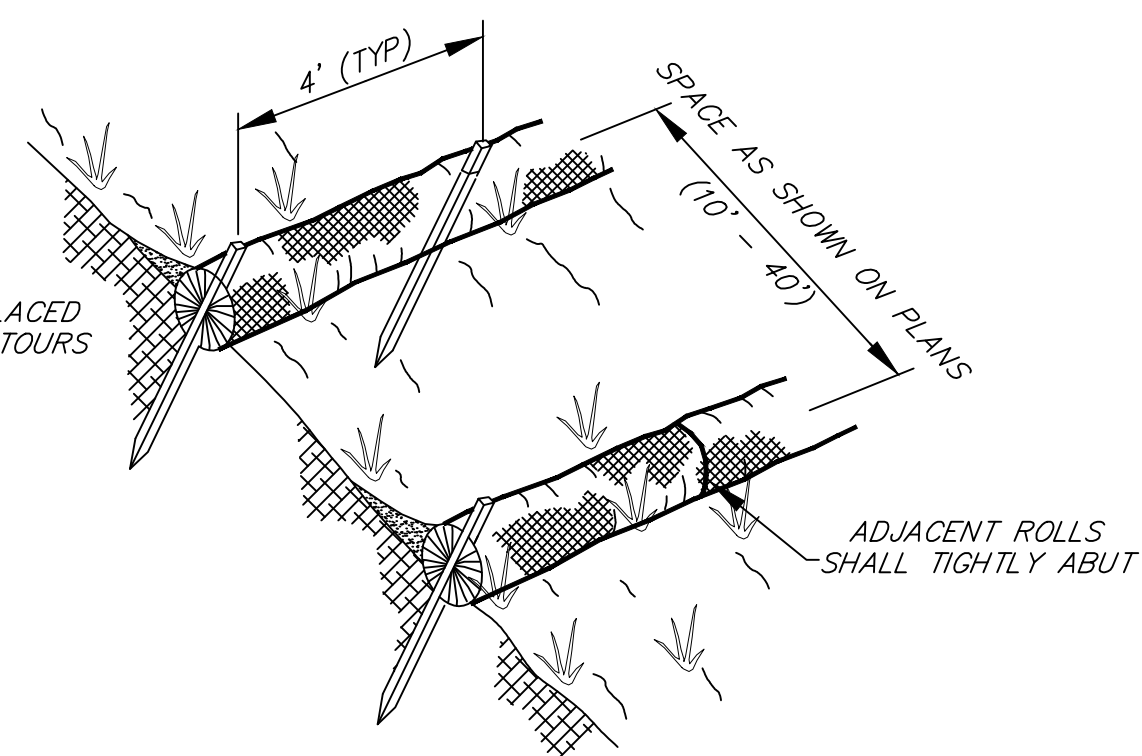
RIPRAP DIVERSION
(FIG. 3.15.3)



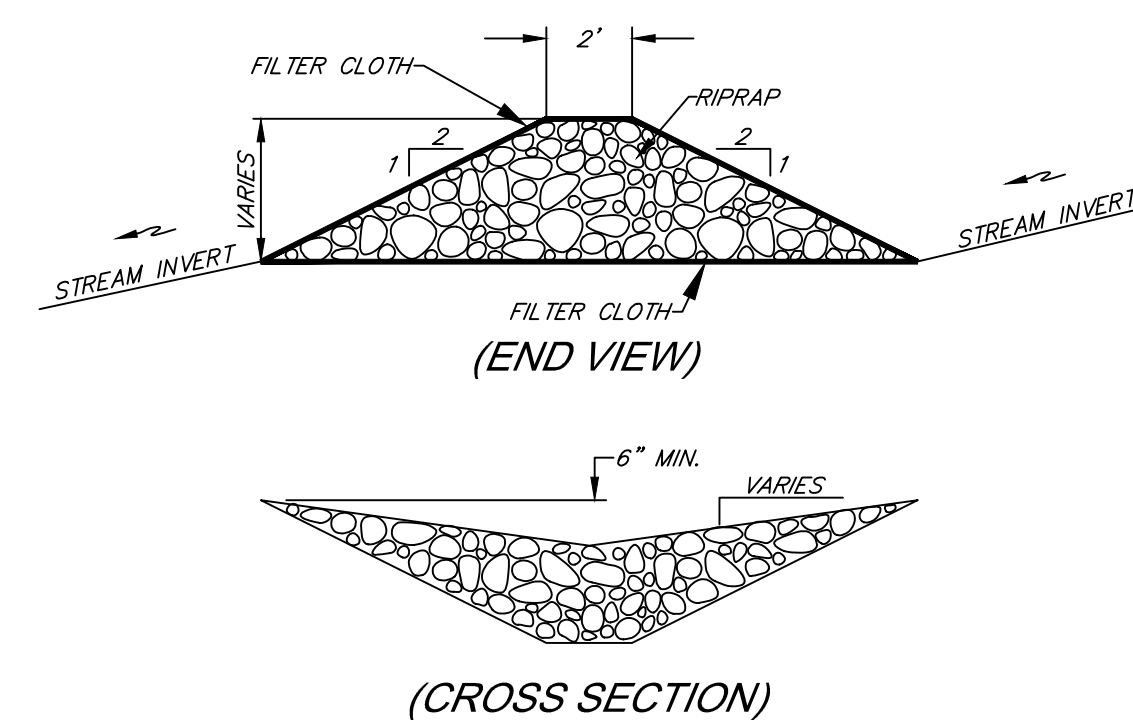
COMMON PROBLEMS



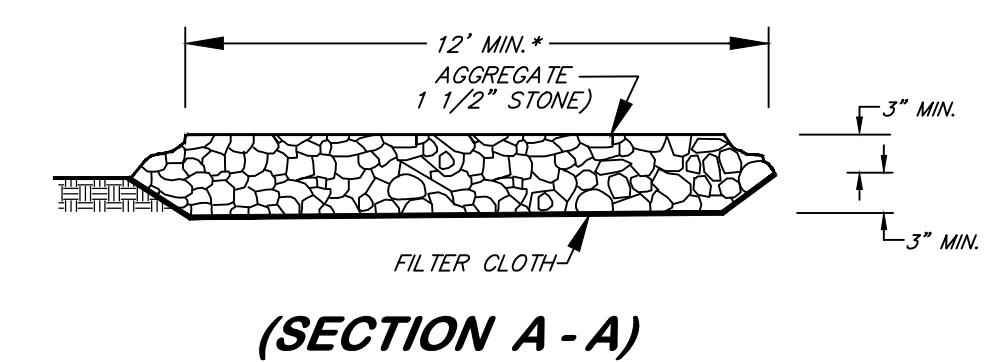
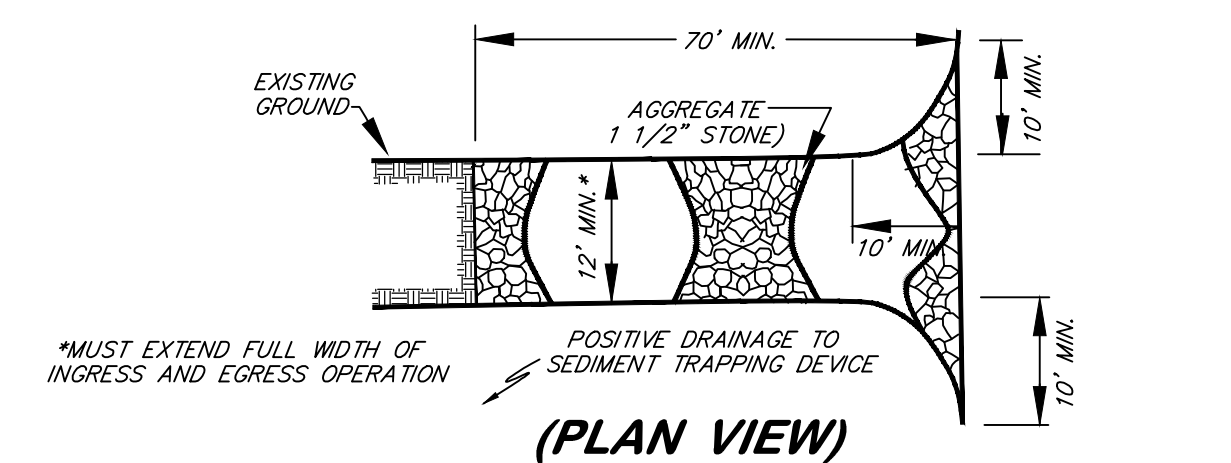
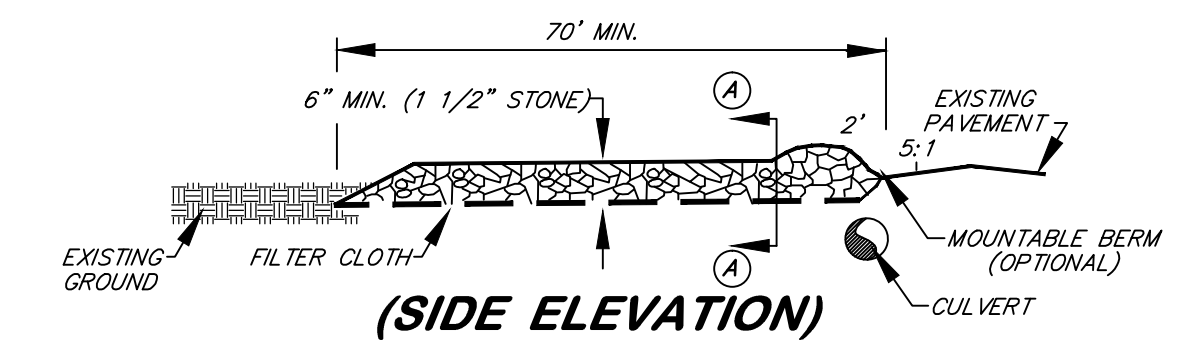
NOTE: STRAW ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3"-5" DEEP, DUG ON CONTOURS. RUNOFF MUST NOT BE ALLOWED TO FLOW UNDER OR AROUND THE ROLLS.



12" WATTLE EROSION CONTROL



IN-STREAM ROCK CHECK DAM



STONE CONSTRUCTION ENTRANCE
(FIG. 3.02.1)

State of West Virginia
Department of Environmental Protection
Abandoned Mine Lands and Reclamation

SWITZER (ELLIS) DRAINAGE

**SEDIMENT CONTROL
TYPICAL DETAILS**

DRAWN BY: DWH
APPROVED BY: AW
DATE: 4/22/2014

SCALE: NONE
SHEET NO. 12
OF 12