

COMMONWEALTH OF VIRGINIA
 C. BRADLEY C. CRAIG
 Lic. No. 023879
 PROFESSIONAL ENGINEER

Revisions	Date
1 VDOT COMMENTS	12/13/11
2 RECORD DRAWINGS	9/28/12

Issue Date: DECEMBER 4, 2011
Drawn By: ARB
Designed By: ARB
Checked By: BCC
Date: 12/1/11

Mattern & Craig
CONSULTING ENGINEERS • SURVEYORS

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ROANOKE, VIRGINIA 24016
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FAX (540) 345-7691

CLOVERDALE WATERLINE EXTENSION

COVER SHEET

BOTETOURT COUNTY, VIRGINIA

Vertical Scale:
N/A

Horizontal Scale:
N/A

Commission Number:
3178

Sheet No.:

C-1



SHEET LIST:

- C-1 COVER SHEET
- C-2 ABBREVIATIONS AND LEGEND
- C-3 SHEET INDEX, CONTROL DATA AND GENERAL NOTES
- C-4 PLAN AND PROFILE- 12" WATERLINE
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NARRATIVE AND DETAILS
- C-11 EROSION AND SEDIMENT CONTROL DETAILS
- E-1 SITE PLAN AND SERVICE RACK DETAIL -
ELECTRICAL



RECORD DRAWINGS

SET NO.

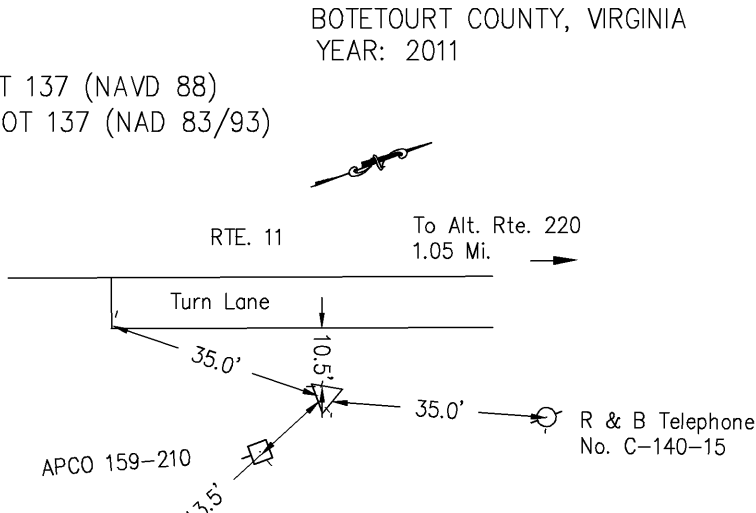
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CONTROL STATION ID.: VDOT MONUMENT 11-0175
M&C PROJECT: 3178
ESTABLISHED BY: TIMOTHY W. CALWELL, LS
VERTICAL DATAM BASED ON: BOTETOURT COUNTY CONTROL BOT 137 (NAVD 88)
HORIZONTAL DATUM BASE ON: BOTETOURT COUNTY CONTROL BOT 137 (NAD 83/93)

Va. STATE PLANE COORDINATES
NAD 1983 METRIC VALUES SOUTH ZONE
X (EAST) 3,375,504.1663
Y (NORTH) 1,116,191.4868
ORTHO. ELEV. = 346.722

M&C PROJECT COORDINATES:
X (EAST) 2,872,680.2797
Y (NORTH) 381,244.3226
ELEV. = 1137.537

- TO CONVERT STATE PLANE METRIC UNITS TO M&C PROJECT VALUES, USE THE FOLLOWING FORMULA:
1. REDUCE THE EASTING METRIC VALUES BY 2.5 MILLION METER. THE SOUTH AND NORTH ZONE NORTHING METRIC VALUES BY 1 AND 2 MILLION RESPECTIVELY.
 2. MULTIPLY THESE VALUES BY THE U.S. SURVEY FOOT (3.280833333).
 3. MULTIPLY THESE VALUES BY COMBINED SCALE AND ELEVATION FACTOR (1.000103408)

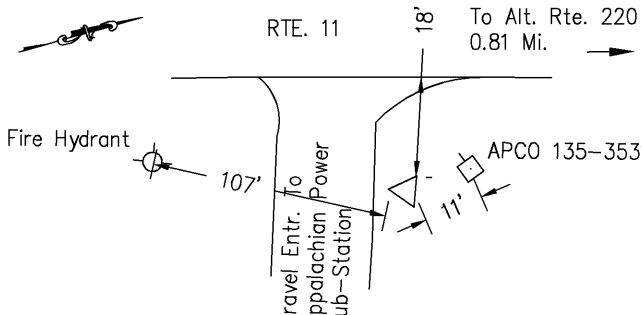


CONTROL STATION ID.: VDOT MONUMENT 11-0176
M&C PROJECT: 3178
ESTABLISHED BY: TIMOTHY W. CALWELL, LS
VERTICAL DATAM BASED ON: BOTETOURT COUNTY CONTROL BOT 137 (NAVD 88)
HORIZONTAL DATUM BASE ON: BOTETOURT COUNTY CONTROL BOT 137 (NAD 83/93)

Va. STATE PLANE COORDINATES
NAD 1983 METRIC VALUES SOUTH ZONE
X (EAST) 3,375,613.7115
Y (NORTH) 1,116,546.0178
ORTHO. ELEV. = 347.526

M&C PROJECT COORDINATES:
X (EAST) 2,873,039.7168
Y (NORTH) 382,407.5999
ELEVATION = 1140.175

- TO CONVERT STATE PLANE METRIC UNITS TO M&C PROJECT VALUES, USE THE FOLLOWING FORMULA:
1. REDUCE THE EASTING METRIC VALUES BY 2.5 MILLION METER. THE SOUTH AND NORTH ZONE NORTHING METRIC VALUES BY 1 AND 2 MILLION RESPECTIVELY.
 2. MULTIPLY THESE VALUES BY THE U.S. SURVEY FOOT (3.280833333).
 3. MULTIPLY THESE VALUES BY COMBINED SCALE AND ELEVATION FACTOR (1.000103408)

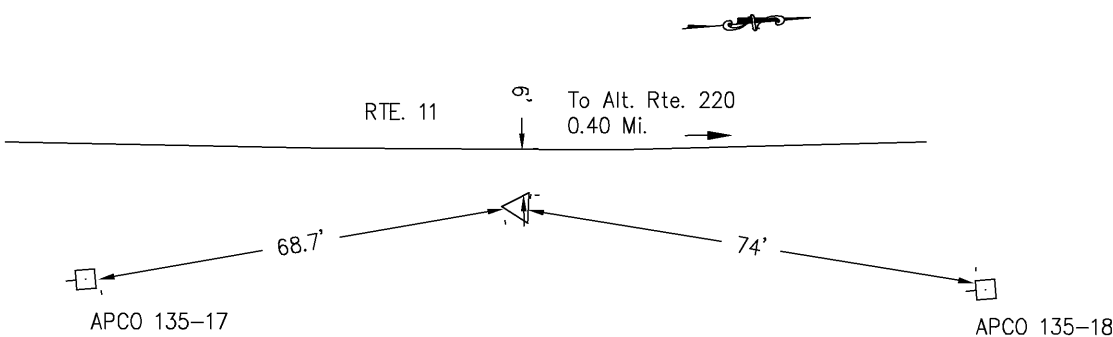


CONTROL STATION ID.: IRON PIN W/CAP
M&C PROJECT: 3178
ESTABLISHED BY: TIMOTHY W. CALWELL, LS
VERTICAL DATAM BASED ON: BOTETOURT COUNTY CONTROL BOT 137 (NAVD 88)
HORIZONTAL DATUM BASE ON: BOTETOURT COUNTY CONTROL BOT 137 (NAD 83/93)

Va. STATE PLANE COORDINATES
NAD 1983 METRIC VALUES SOUTH ZONE
X (EAST) 3,375,776.8863
Y (NORTH) 1,117,206.1339
ORTHO. ELEV. = 364.368

M&C PROJECT COORDINATES:
X (EAST) 2,873,575.1211
Y (NORTH) 384,573.5548
ELEV. = 1195.431

- TO CONVERT STATE PLANE METRIC UNITS TO M&C PROJECT VALUES, USE THE FOLLOWING FORMULA:
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 3. MULTIPLY THESE VALUES BY COMBINED SCALE AND ELEVATION FACTOR (1.000103408)

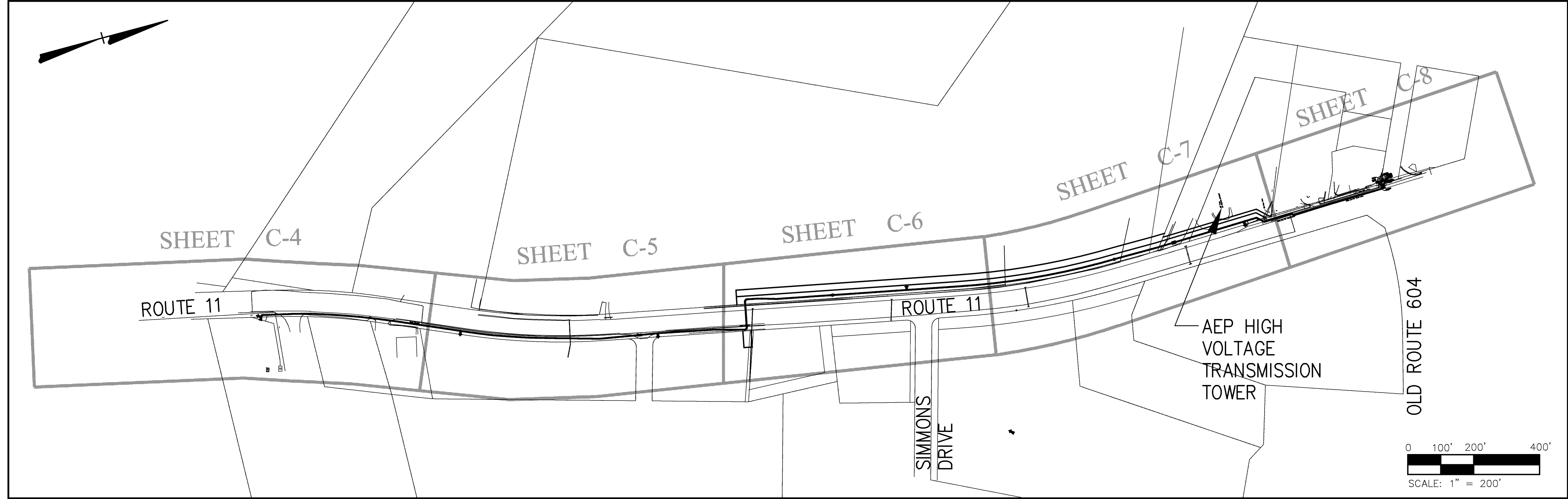
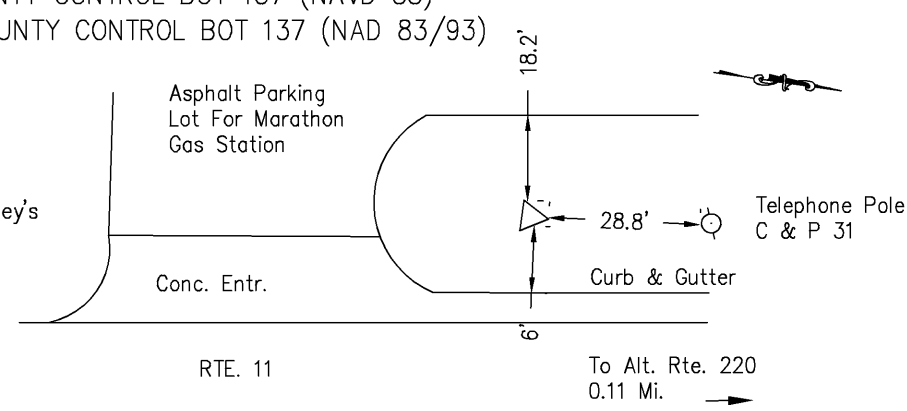


CONTROL STATION ID.: IRON PIN W/CAP
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ESTABLISHED BY: TIMOTHY W. CALWELL, LS
VERTICAL DATAM BASED ON: BOTETOURT COUNTY CONTROL BOT 137 (NAVD 88)
HORIZONTAL DATUM BASE ON: BOTETOURT COUNTY CONTROL BOT 137 (NAD 83/93)

Va. STATE PLANE COORDINATES
NAD 1983 METRIC VALUES SOUTH ZONE
X (EAST) 3,375,748.68235
Y (NORTH) 1,117,704.6593
ORTHO. ELEV. = 370.963

M&C PROJECT COORDINATES:
X (EAST) 2,873,482.5789
Y (NORTH) 386,209.3027
ELEVATION = 1217.069

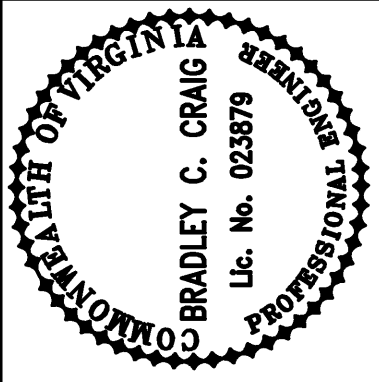
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SHEET INDEX
SCALE: 1"= 200'

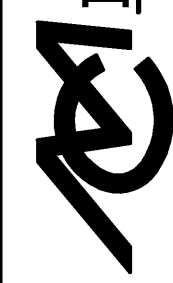
NOTES:

1. PROPERTY LINES SHOWN HEREON ARE BASED ON RECORDED DEEDS, PLATS AND FOUND MONUMENTS. BEARINGS HAVE BEEN ROTATED TO MERIDIAN OF BOTETOURT COUNTY SURVEY CONTROL NETWORK (VA. STATE PLANE - SOUTH ZONE). A BOUNDARY SURVEY HAS NOT BEEN PERFORMED ON EACH PARCEL THEREFORE PROPERTY LINES MAY BE SUBJECT TO ADJUSTMENT AS WOULD BE DISCLOSED BY A CURRENT BOUNDARY SURVEY.
2. THIS TOPOGRAPHIC SURVEY FOR A NEW WATER LINE ON LEE HIGHWAY (RTE. 11) WAS COMPLETED UNDER THE DIRECT AND RESPONSIBLE CHARGE OF TIMOTHY W. CALDWELL, L.S. FROM AN ACTUAL GROUND SURVEY MADE UNDER MY SUPERVISION; THAT THE IMAGERY AND/OR ORIGINAL DATA WAS OBTAINED ON JUNE 9TH THRU AUGUST 4, 2011; AND THAT THIS PLAT, MAP, OR DIGITAL GEOSPATIAL DATA INCLUDING METADATA MEETS MINIMUM ACCURACY STANDARDS UNLESS OTHERWISE NOTED.
3. HORIZONTAL DATUM IS BASED ON NAD 83/93.
4. VERTICAL DATUM IS BASED ON NAVD 88



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1 VDOT COMMENTS	12/13/11
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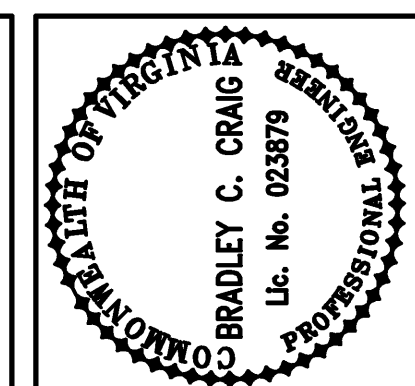
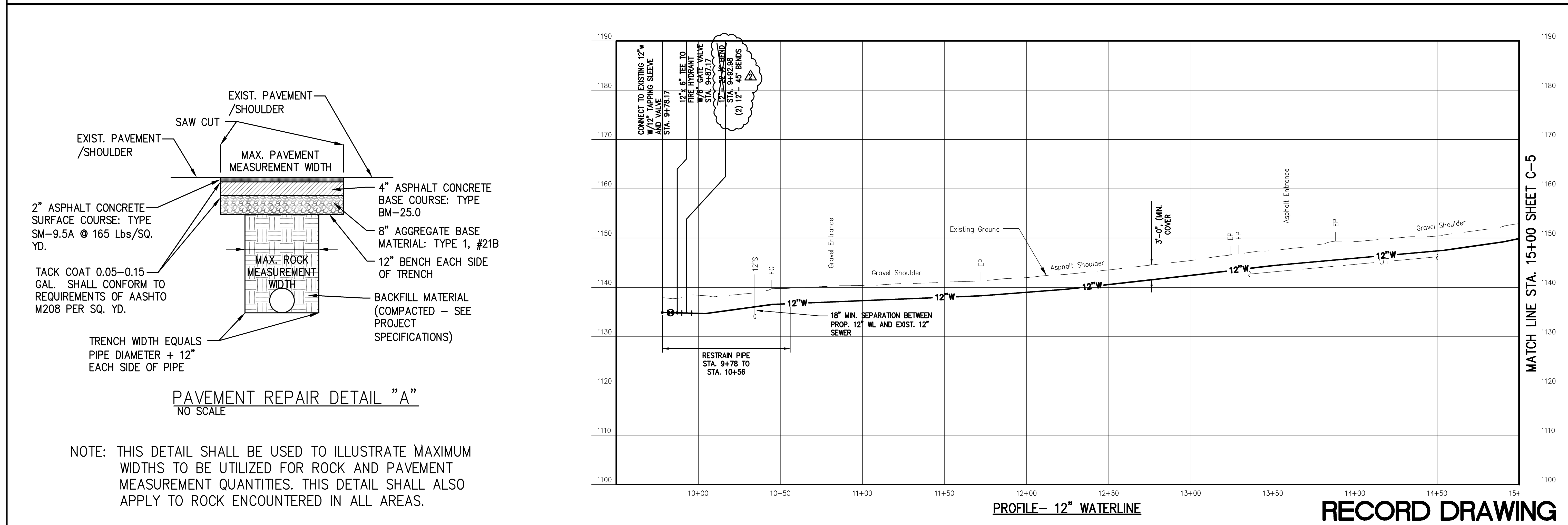
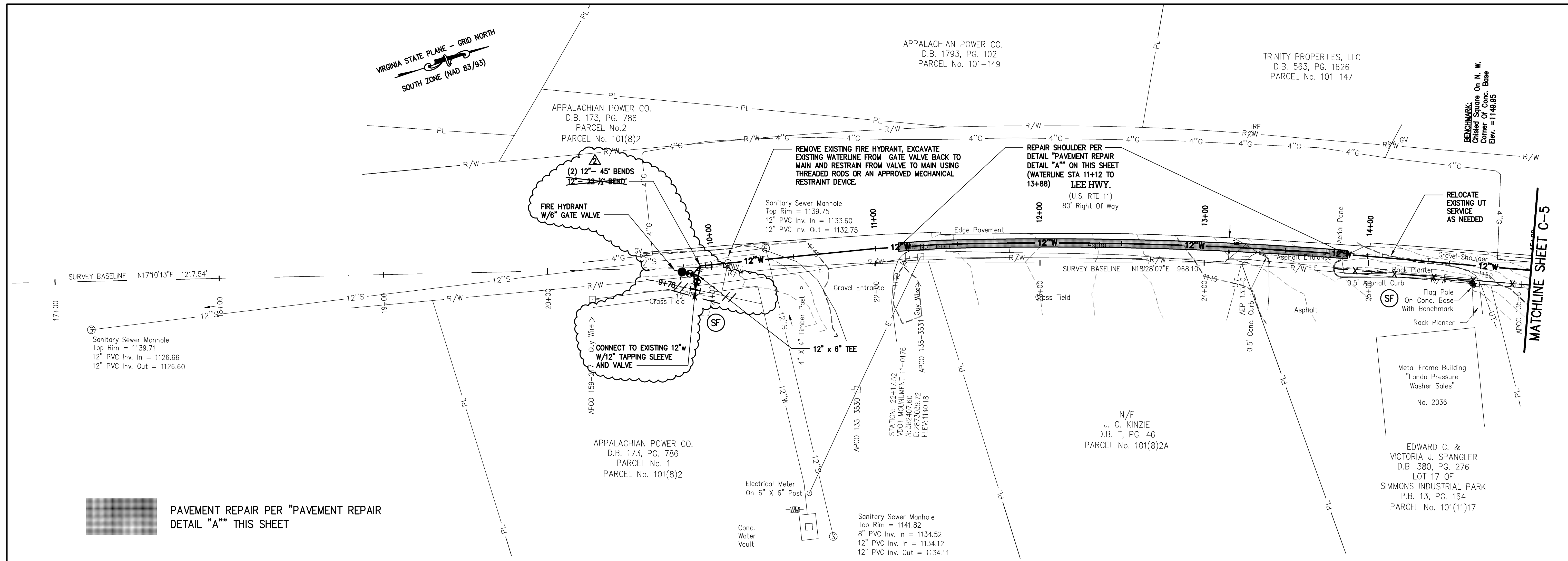
CLOVERDALE WATERLINE EXTENSION

**SHEET INDEX, CONTROL DATA
AND GENERAL NOTES**

BOTETOURT COUNTY, VIRGINIA

Vertical Scale:
N/A
Horizontal Scale:
AS NOTED
Commission Number:
3178
Sheet No.:
C-3

RECORD DRAWING



Date	12/13/11
Revisions	1 VDOT COMMENTS 2 RECORD DRAWINGS

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CLOVERDALE WATERLINE EXTENSION

PLAN AND PROFILE- 12" WATERLINE

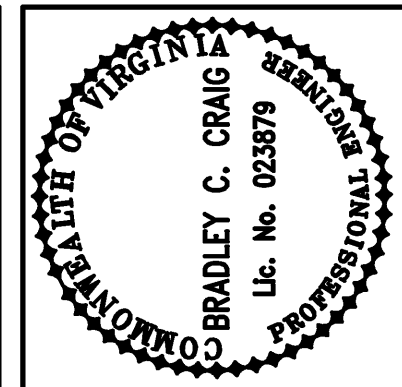
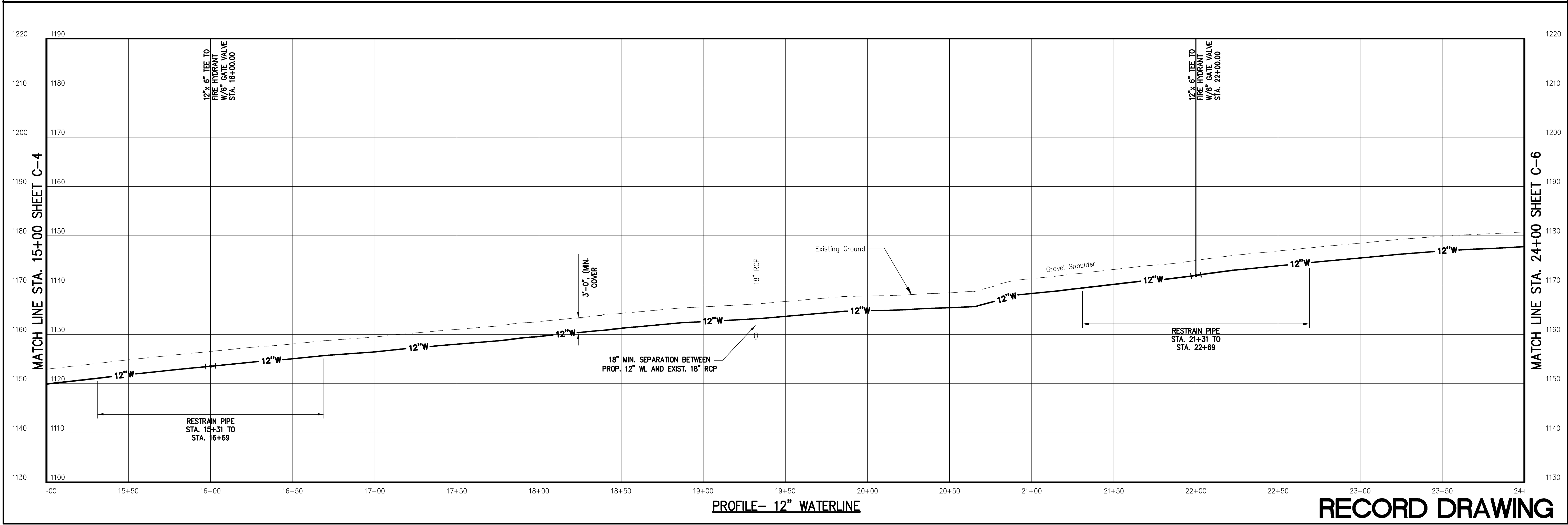
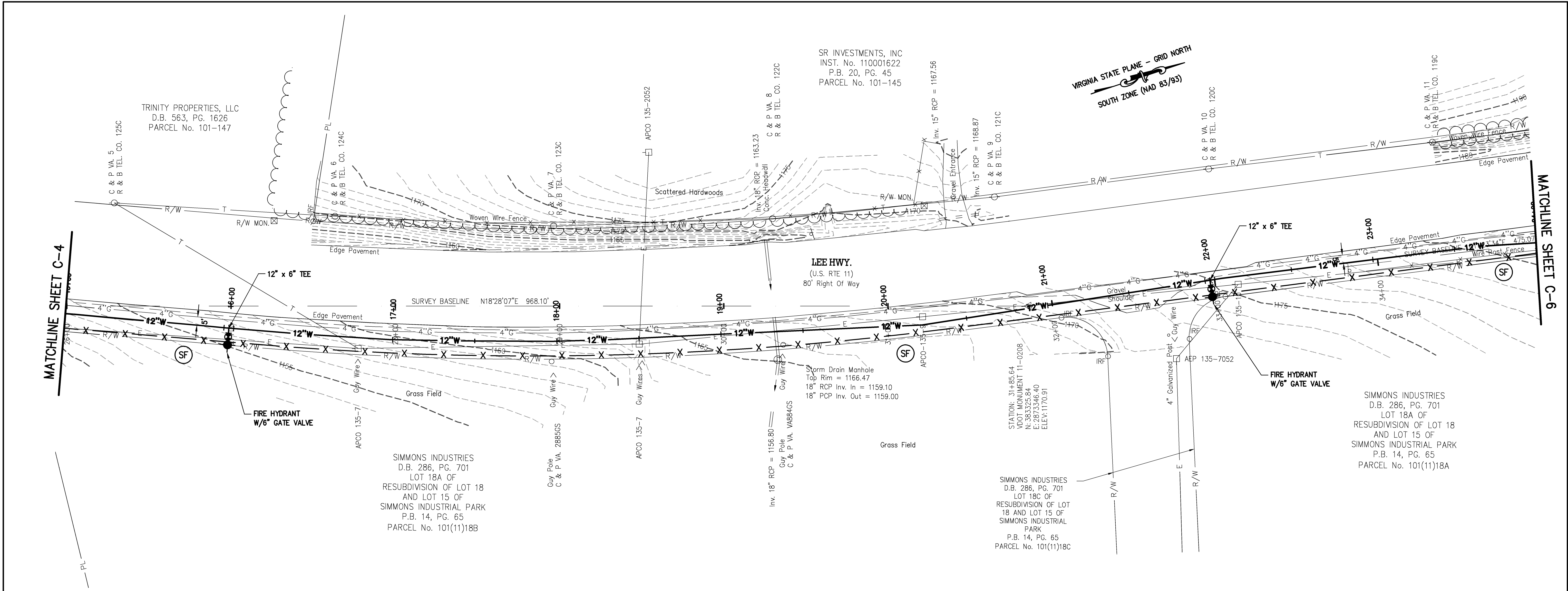
BOTEICOURT COUNTY, VIRGINIA

Vertical Scale:
1" = 10'

Horizontal Scale:
1" = 30'


Commission Number:
3178

Sheet No.:
C-4



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CLOVERDALE WATERLINE EXTENSION

PLAN AND PROFILE- 12" WATERLINE

BOTEICOURT COUNTY, VIRGINIA

Vertical Scale:
1"= 10'

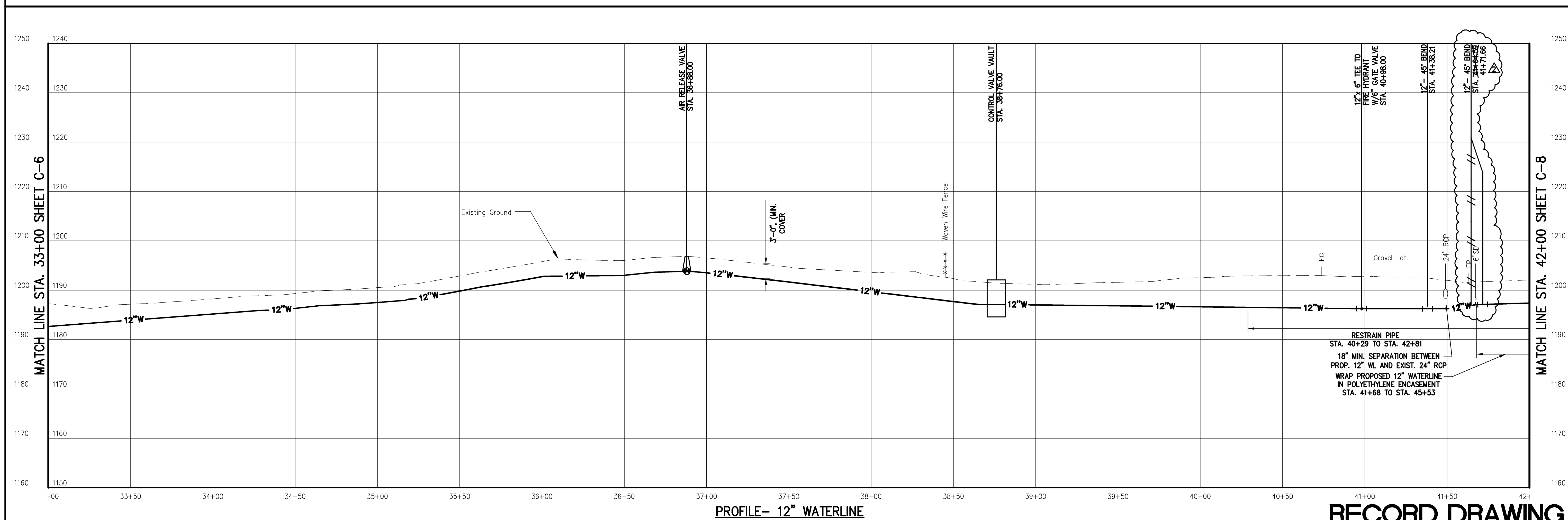
Horizontal Scale:
1"= 30'

Commission Number:
3178

Sheet No.:
C-5

M **Mattern & Craig**
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CLOVERDALE WATERLINE EXTENSION

PLAN AND PROFILE- 12" WATERLINE

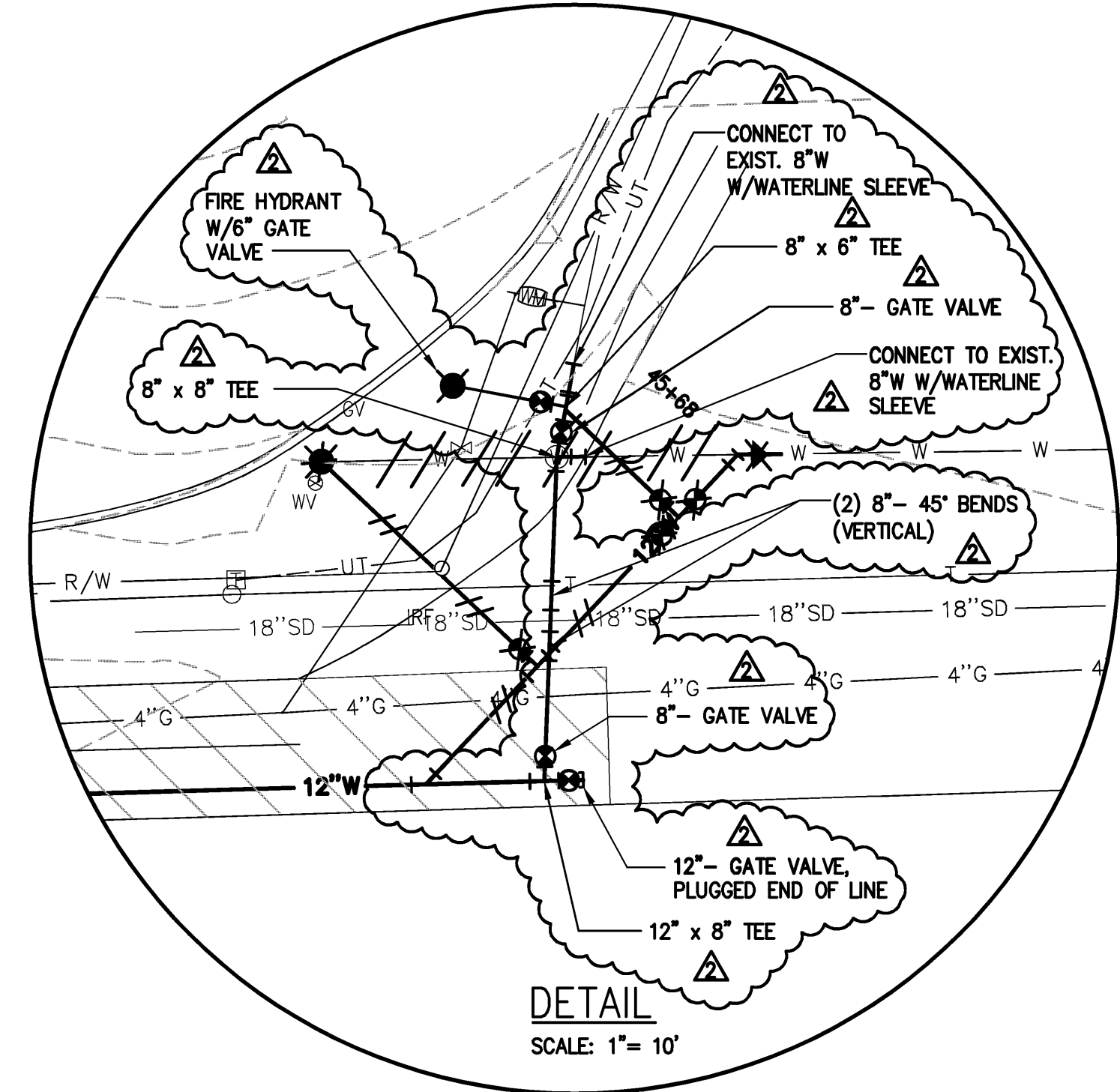
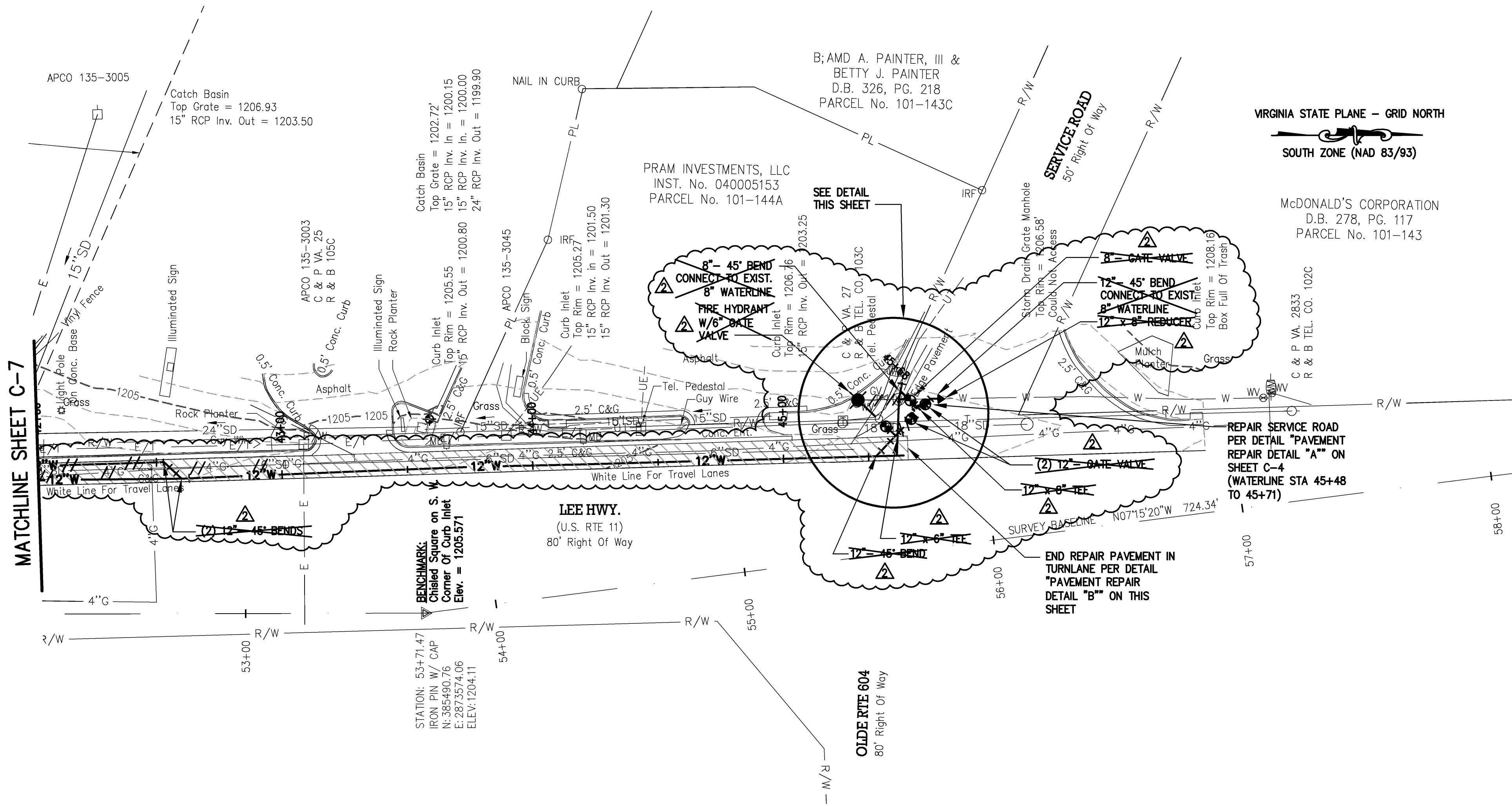
BOTETOURT COUNTY, VIRGINIA

Vertical Scale:
1" = 10'

Horizontal Scale:
1" = 30'

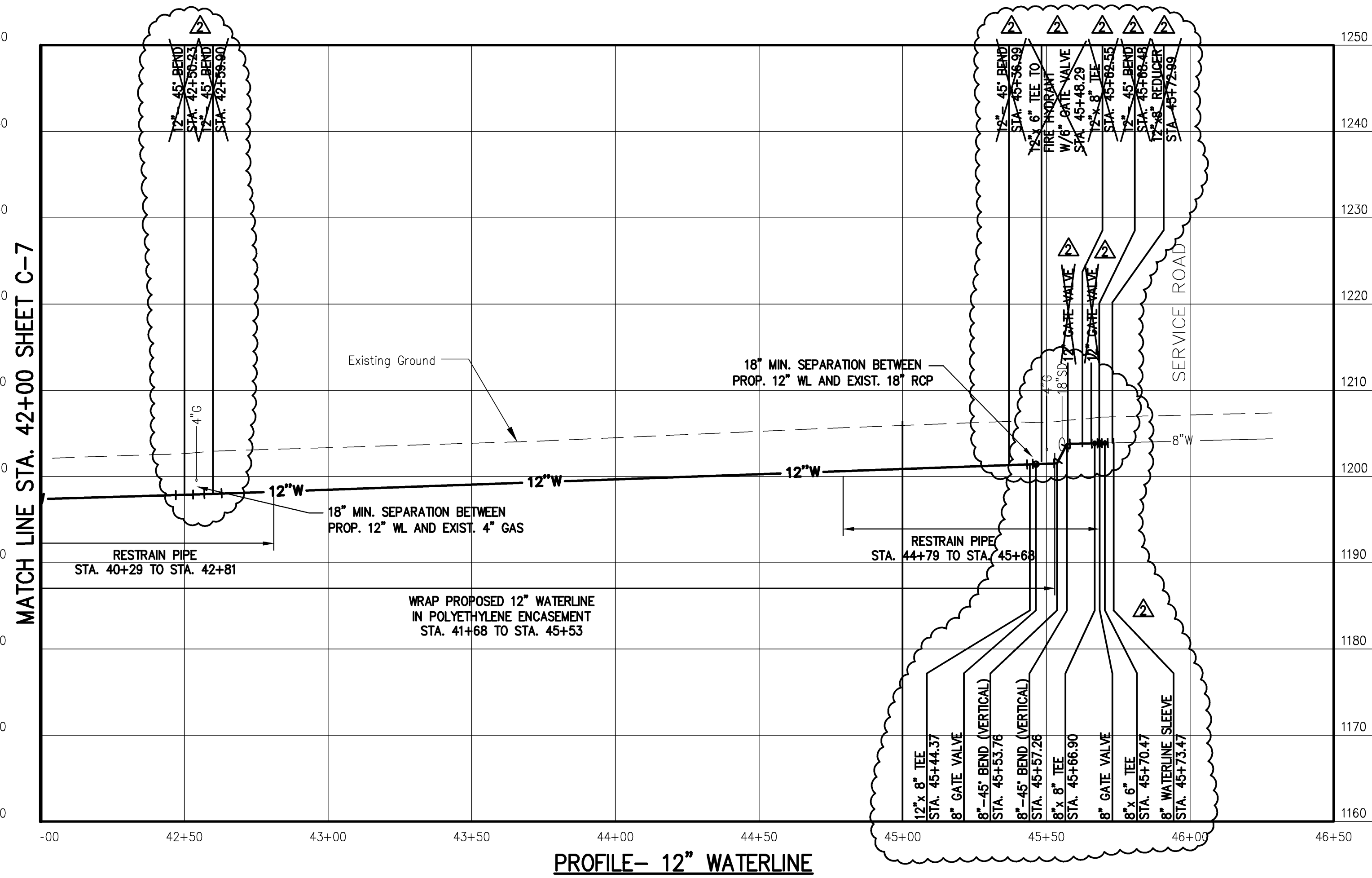
Commission Number:
3178

Sheet No.:
C-7

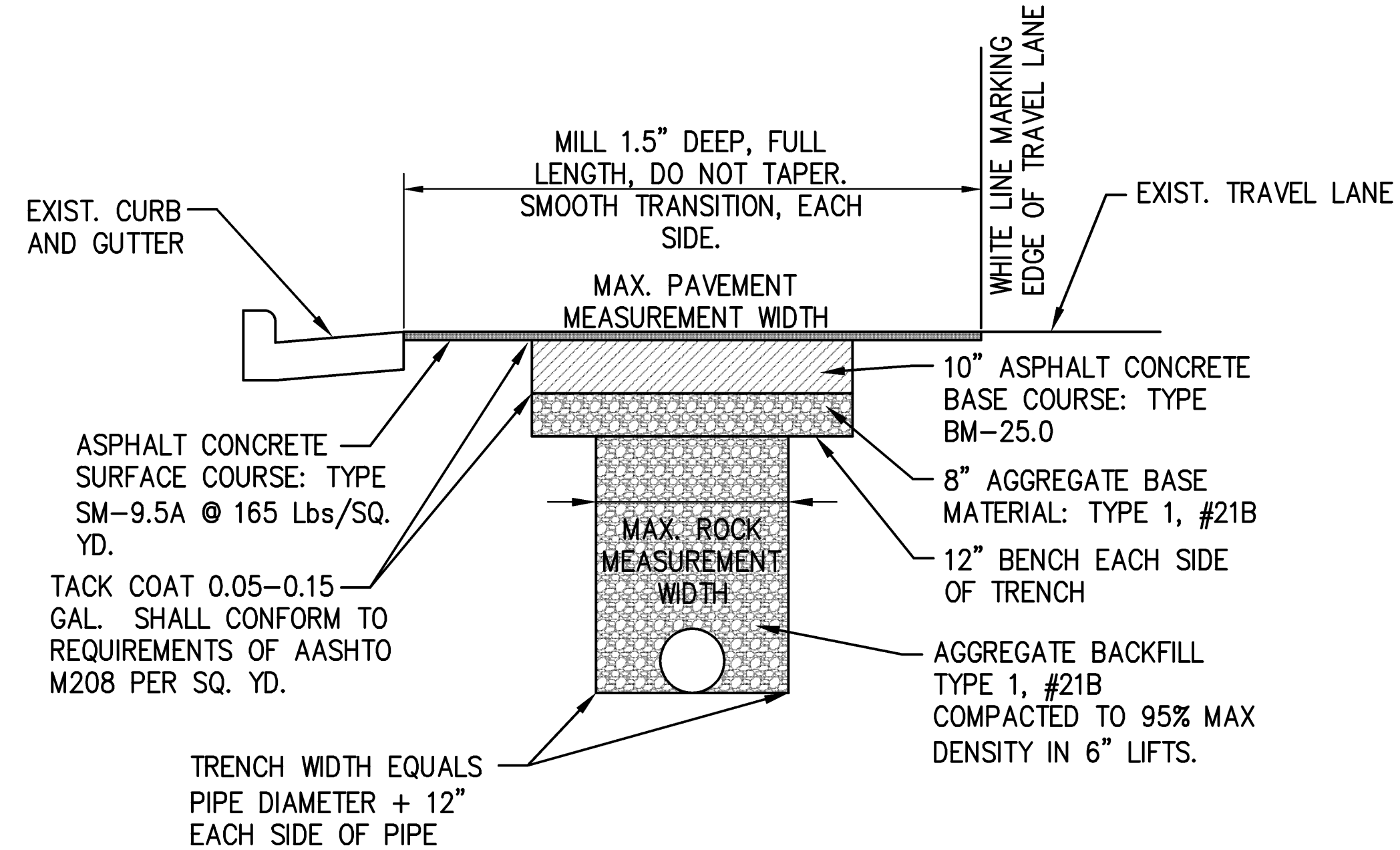


- NOTES:
1. PROPOSED 12" WATER MAIN TO BE WRAPPED IN POLYETHYLENE ENCASEMENT FROM STA. 41+68 TO 45+53. SEE PROJECT SPECIFICATIONS FOR DETAILS ON POLYETHYLENE ENCASEMENT

PAVEMENT REPAIR PER "PAVEMENT REPAIR DETAIL "B"" THIS SHEET

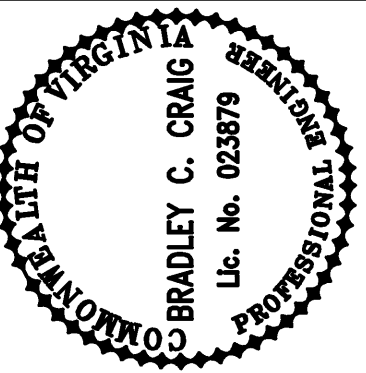


RECORD DRAWING



PAVEMENT REPAIR DETAIL "B"
NO SCALE

NOTE: THIS DETAIL SHALL BE USED TO ILLUSTRATE MAXIMUM WIDTHS TO BE UTILIZED FOR ROCK AND PAVEMENT MEASUREMENT QUANTITIES. THIS DETAIL SHALL ALSO APPLY TO ROCK ENCOUNTERED IN ALL AREAS.



Revisions	Date
1. VDOT COMMENTS	12/13/11
2. RECORD DRAWINGS	9/26/12

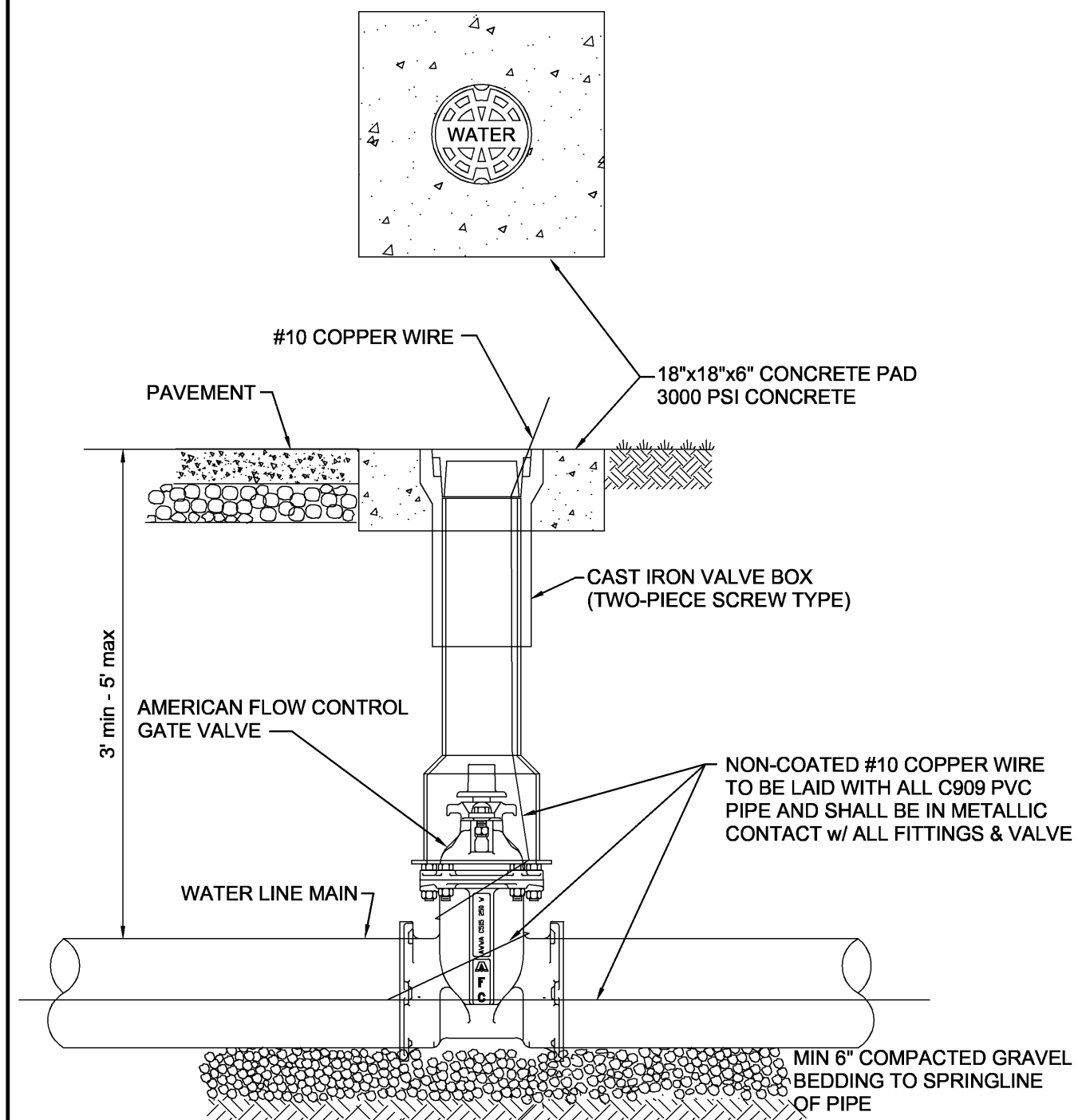
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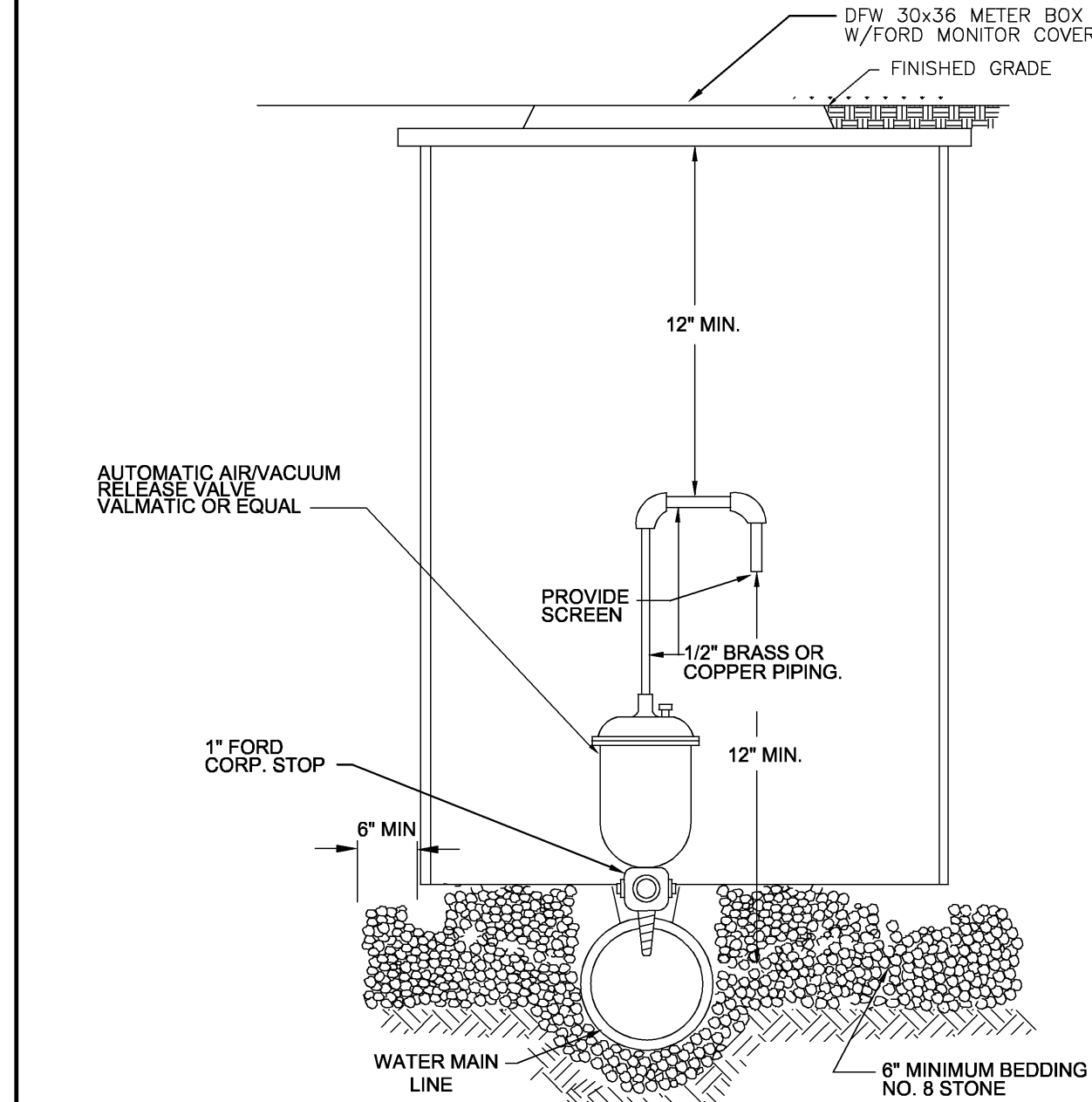
PLAN AND PROFILE- 12" WATERLINE

Vertical Scale:
1" = 10'
Horizontal Scale:
1" = 30'
Commission Number:
3178

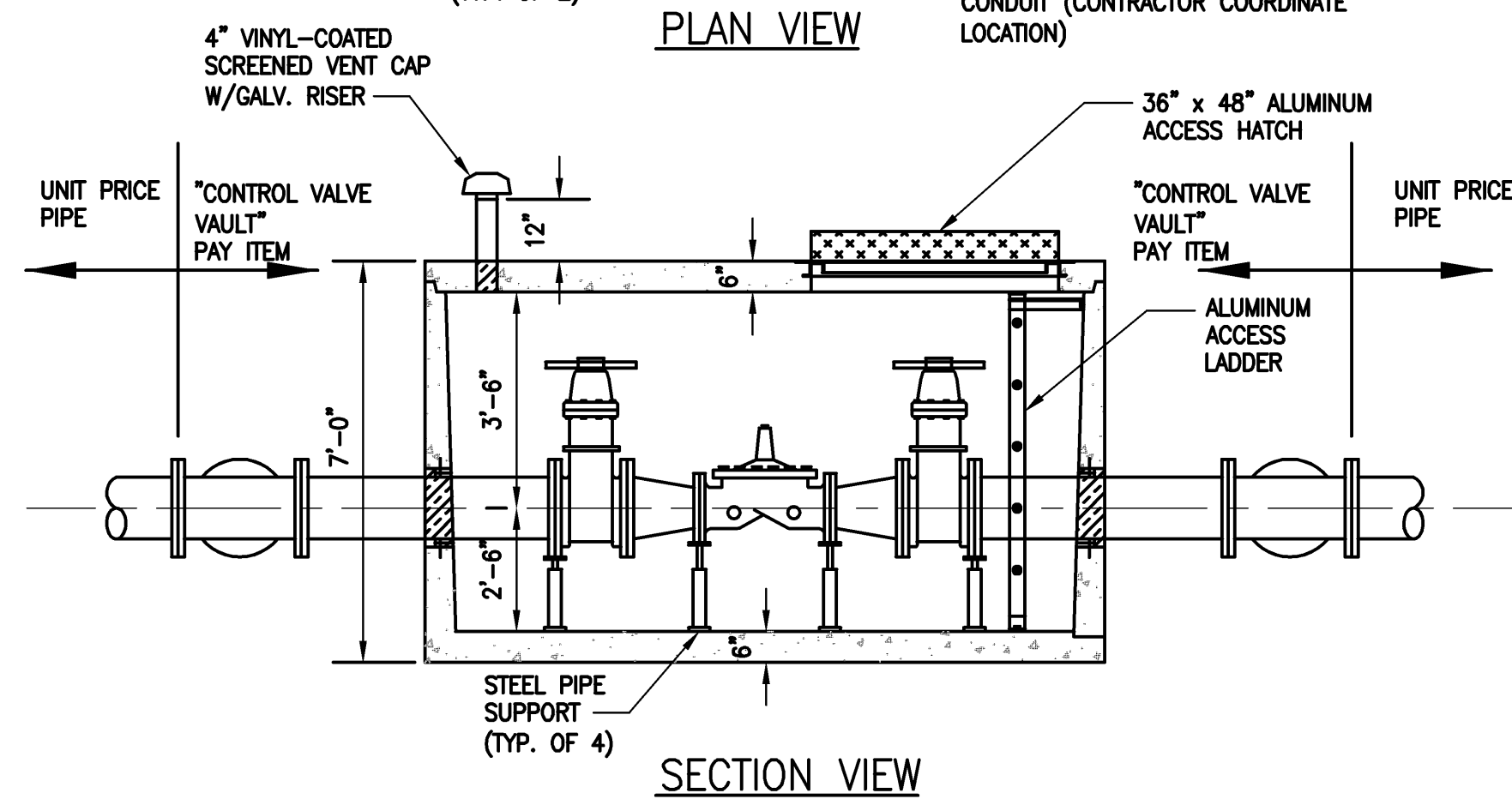
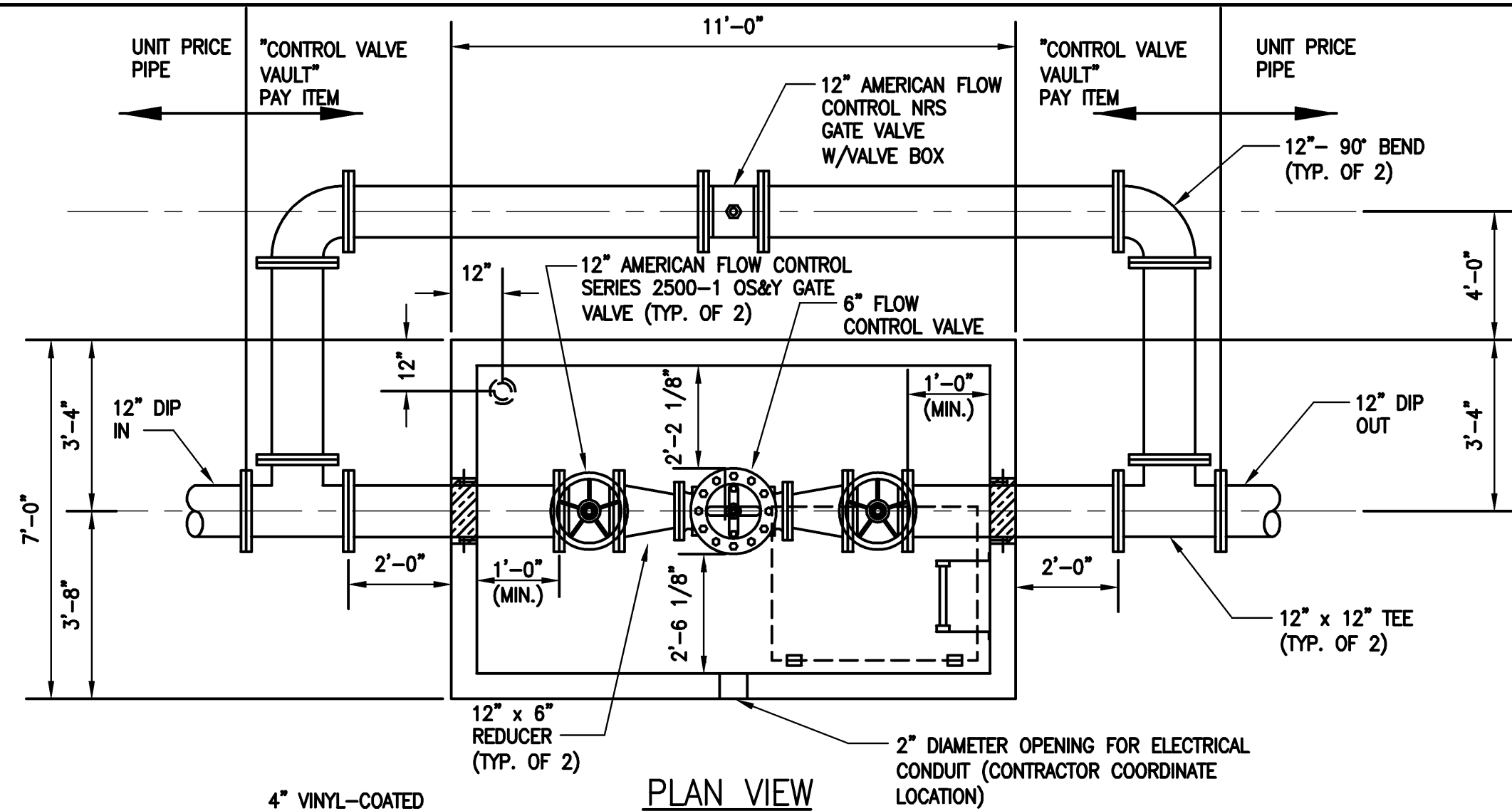
Sheet No.:
C-8



	BOTETOURT COUNTY PUBLIC FACILITIES & PROGRAMS 30 WEST BACK STREET, NUMBER 4 FINCASTLE, VA 24099 TEL: 540-473-8316 FAX: 540-473-8360	CONSTRUCTION STANDARDS STANDARD VALVE BOX INSTALLATION	DATE: MARCH 2005	BC #
			REVISIONS	W-05



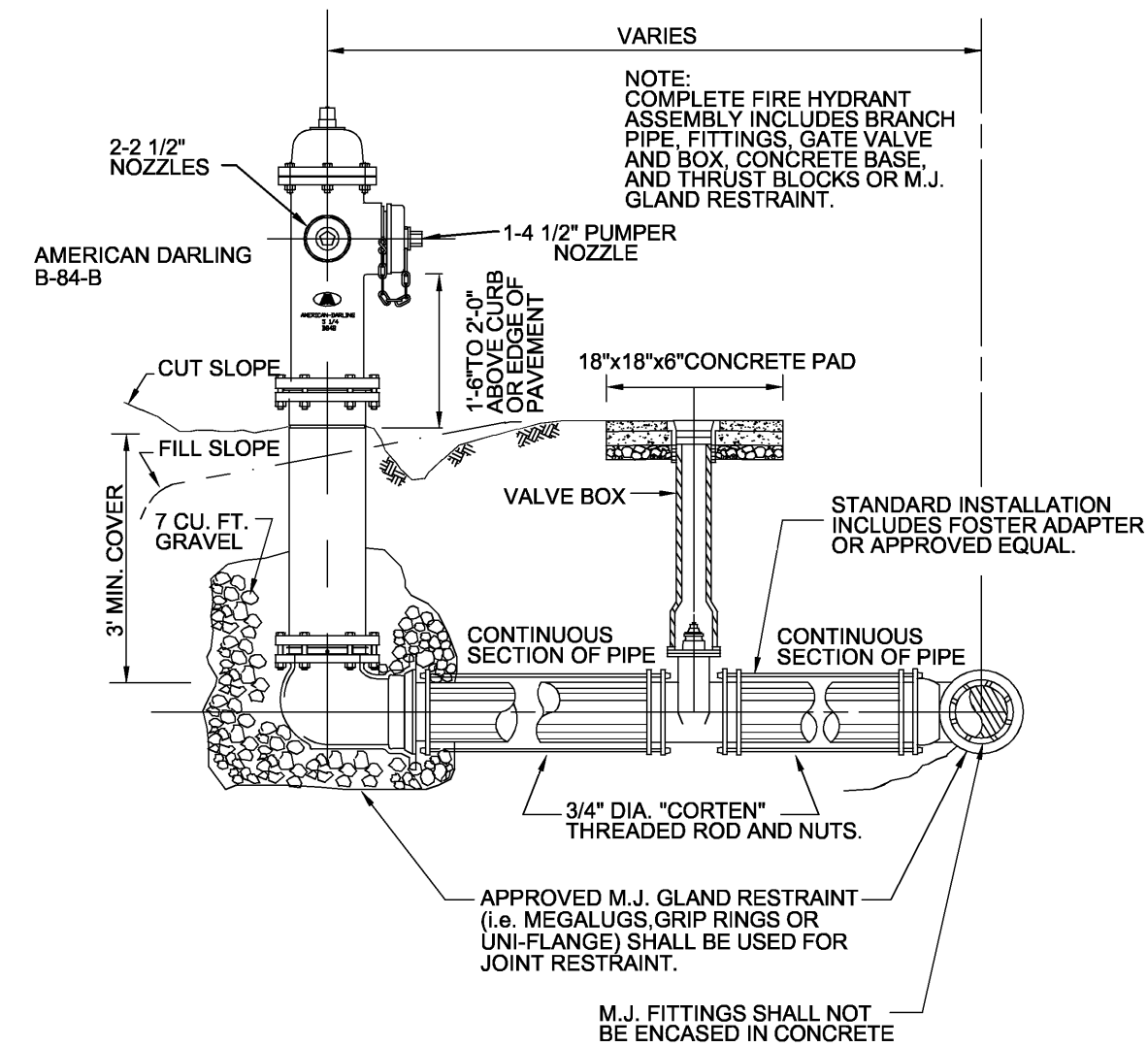
	BOTETOURT COUNTY PUBLIC FACILITIES & PROGRAMS 30 WEST BACK STREET, NUMBER 4 FINCASTLE, VA 24099 TEL: 540-473-8316 FAX: 540-473-8360	CONSTRUCTION STANDARDS AUTOMATIC AIR/VACUUM RELEASE ASSEMBLY	DATE: MARCH 2005	BC #
			REVISIONS	W-10



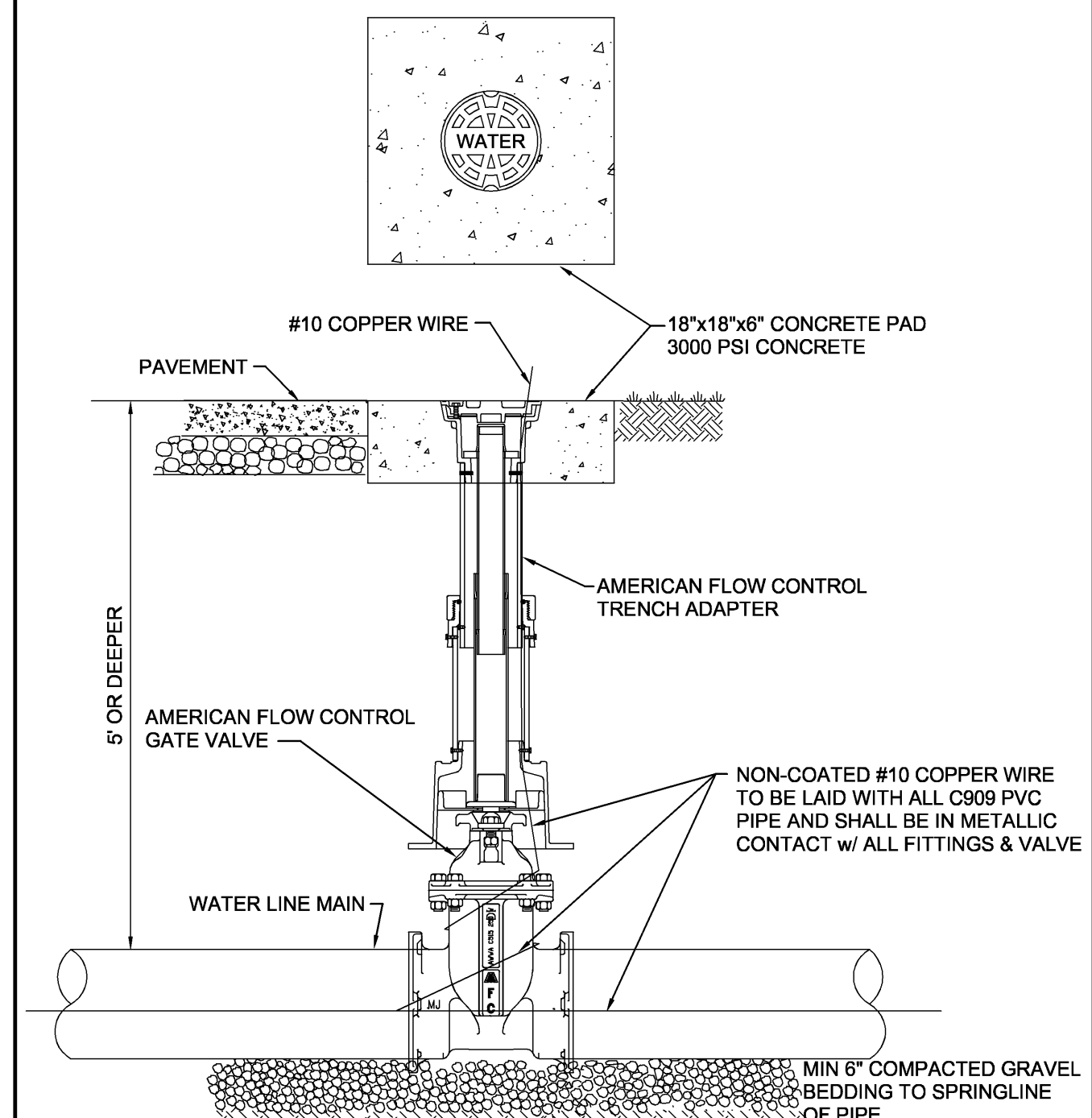
CONTROL VALVE VAULT W/12" BYPASS
NOT TO SCALE

- NOTES:
1. FLOOR, WALLS, AND TOP SHALL BE MINIMUM 6" THICK CONCRETE.
 2. VAULT SHALL BE FORMED FROM 5000 PSI REINFORCED CONCRETE.
 3. EXTERIOR DUCTILE IRON PIPE SHALL BE MECHANICAL JOINT PIPE.

- NOTES:
1. FIRE HYDRANT SHALL BE INSTALLED 2' MIN. AND 4' MAX. FROM BACK OF CURB OR 6' MIN. AND 12' MAX. FROM EDGE OF PAVEMENT BUT NOT IN THE DITCHLINE. FIRE HYDRANT TO BE INSTALLED WITHIN RIGHT-OF-WAY OR EASEMENT LINE.
 2. AREA AROUND HYDRANT AT A RADIUS OF 4' TO BE LEVEL AND UNOBSTRUCTED.
 3. HIGH PRESSURE (OVER 120 PSI) REQUIRES THE USE ALL 3 RESTRAINTS.
 4. FIRE HYDRANT DRAINS THAT ARE NOT PLUGGED SHALL BE DRAINED TO THE GROUND SURFACE OR TO DRY WELLS PROVIDED EXCLUSIVELY FOR THIS PURPOSE. IF DURING CONSTRUCTION THE SEASONAL WATER TABLE IS NOTED TO BE ABOVE THE DRAIN OUTLETS OF THE PROPOSED HYDRANT, THE COUNTY ENGINEER SHALL BE NOTIFIED IMMEDIATELY SO THAT THE FIRE HYDRANT CAN BE RELOCATED TO A SUITABLE LOCATION OR DELETED.



	BOTETOURT COUNTY PUBLIC FACILITIES & PROGRAMS 30 WEST BACK STREET, NUMBER 4 FINCASTLE, VA 24099 TEL: 540-473-8316 FAX: 540-473-8360	CONSTRUCTION STANDARDS FIRE HYDRANT ASSEMBLY AMERICAN DARLING B-84-B	DATE: MARCH 2005	BC #
			REVISIONS	W-12

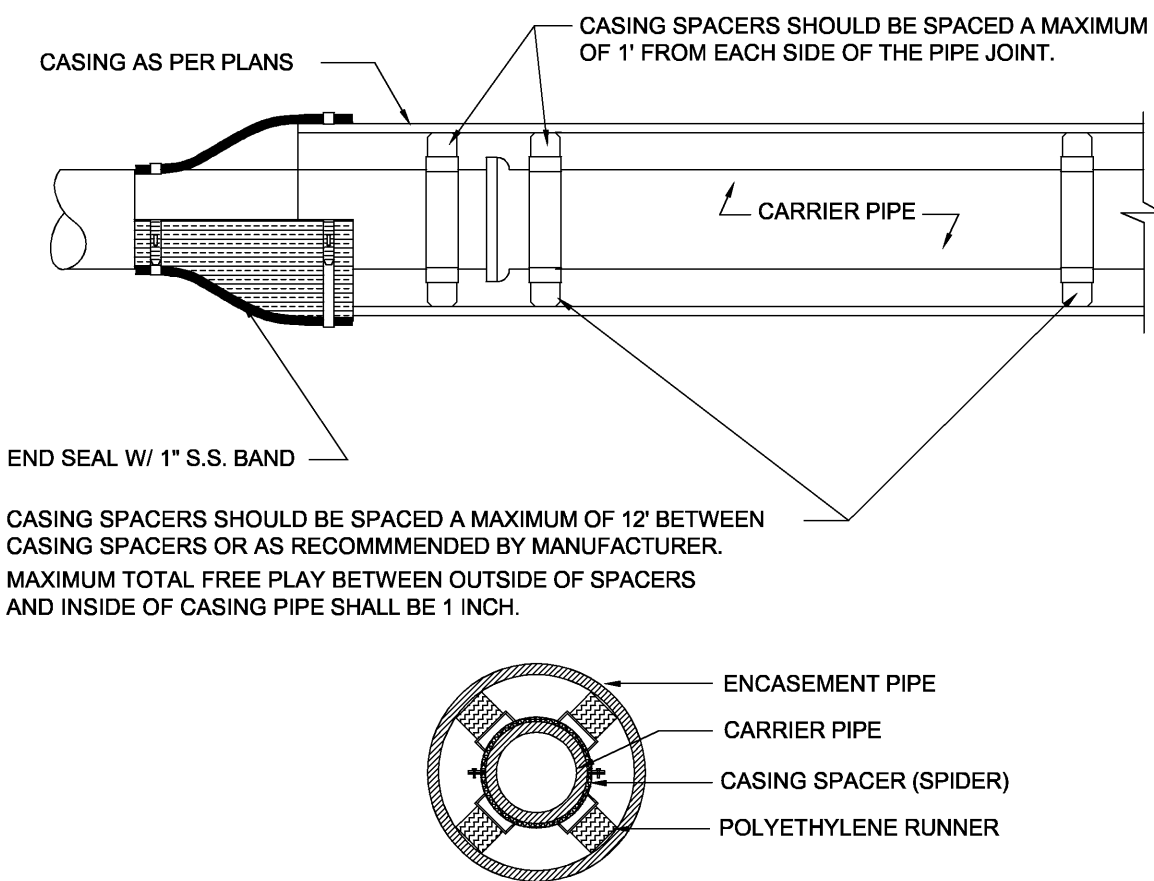


	BOTETOURT COUNTY PUBLIC FACILITIES & PROGRAMS 30 WEST BACK STREET, NUMBER 4 FINCASTLE, VA 24099 TEL: 540-473-8316 FAX: 540-473-8360	CONSTRUCTION STANDARDS VALVE BOX INSTALLATION TRENCH ADAPTER	DATE: MARCH 2005	BC #
			REVISIONS	W-06

FACTOR OF SAFETY = 1.5													
PIPE SIZE	PIPE MAT'L	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	VALVE /PLUG	TEE BRANCH	REDUCER (NOTE 2)	VERT. 45°	VERT. 22 1/2°	VERT. 11 1/4°	VERT. 45°	VERT. 22 1/2°
6"	D.I.	28'	12'	6'	3'	38'	34'	20'	23'	11'	5'		
8"	D.I.	37'	15'	7'	4'	51'	47'	21'	30'	15'	7'		
10"	D.I.	45'	19'	9'	4'	61'	57'	20'	37'	18'	9'		
12"	D.I.	53'	22'	11'	5'	73'	69'	38'	43'	21'	10'		
6"	PVC	30'	12'	6'	3'	56'	38'	29'	35'	17'	8'		
8"	PVC	40'	16'	8'	4'	74'	56'	31'	46'	22'	11'		
10"	PVC	47'	20'	9'	5'	89'	82'	30'	56'	27'	13'		
12"	PVC	56'	23'	11'	6'	106'	88'	56'	66'	32'	16'		

- NOTES:
1. ALL JOINTS SHALL BE RESTRAINED ON BOTH SIDES OF THE FITTING FOR THE LENGTH SHOWN UNLESS OTHERWISE INDICATED.
 2. REDUCER IS ONE SIZE SMALLER THAN PIPE LISTED. RESTRAINED LENGTH IS UPSTREAM ON THE LARGE SIDE OF THE REDUCER.

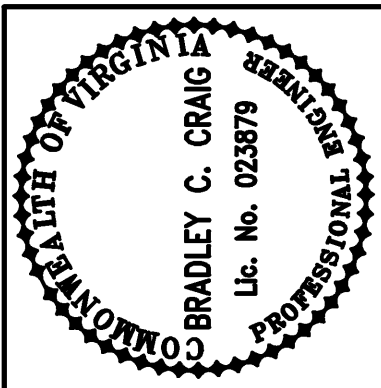
	BOTETOURT COUNTY PUBLIC FACILITIES & PROGRAMS 30 WEST BACK STREET, NUMBER 4 FINCASTLE, VA 24099 TEL: 540-473-8316 FAX: 540-473-8360	CONSTRUCTION STANDARDS THRUST RESTRAINT OF PIPE JOINTS DESIGN LENGTHS	DATE: MARCH 2005	BC #
			REVISIONS	W-14



- NOTES:
1. A 1" DRAIN WILL BE REQUIRED ON THE LOWER END OF THE CASING IF THE CASING ENDS ARE SEALED WITH MORTAR AND BRICK.
 2. CASING PIPE LENGTH SHALL BE FROM R/W TO R/W OR AS SHOWN ON APPROVED PLANS, WHICHEVER IS GREATER.

	BOTETOURT COUNTY PUBLIC FACILITIES & PROGRAMS 30 WEST BACK STREET, NUMBER 4 FINCASTLE, VA 24099 TEL: 540-473-8316 FAX: 540-473-8360	CONSTRUCTION STANDARDS PIPE SUPPORT IN CASING PIPE	DATE: MARCH 2005	BC #
			REVISIONS	W-15

RECORD DRAWING



Date:	12/13/11
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CLOVERDALE WATERLINE EXTENSION
WATER DETAILS
BOTETOURT COUNTY, VIRGINIA

Vertical Scale:
N/A

Horizontal Scale:
N/A

Commission Number:
3178

Sheet No.:
C-9

EROSION AND SEDIMENT CONTROL NARRATIVE

Project Description:

The proposed project consists of installing approximately 3,569 L.F. of 12" DI water line along the east shoulder and west side of Lee Highway with one road crossing, connections to existing 12" waterlines on both ends, located in Cloverdale. The project will be done in Botetourt County. The proposed project is a linear project and will disturb about 0.82 Acres of land.

Existing Site Conditions:

The proposed project will be constructed from the existing 12" waterline along the east shoulder of Lee Highway continuing north, with the exception where the waterline crosses to the west side of Lee Highway following 10 feet parallel to existing R/W within 25' permanent waterline easement approximately 1,600 feet north before continuing east to the west side c.p. of Lee Highway continuing north to connection with existing 12" waterline at intersection of Lee Highway and Service Road.

Adjacent/Off-site Areas:

Most of the project will be constructed either in the VDOT right-of-way, or on farmland. In neighborhood areas, care will need to be taken to ensure that the erosion control measures prevent sediment laden runoff from entering private property or clogging storm drains or ditches. There are no anticipated off-site areas for staging or disposal of material on the project.

Soils:

The majority of the soils throughout this project are clays or silts. The project area is composed of the following soil types as taken from the NRCS soil survey for Botetourt County version 9, dated August 19, 2010. The clay soils that will be encountered are: Chilhowie silty clay loam, Flatwoods silt loam,Lindside silt loam, Sequoia silt loam and Udorthents-Urban land complex. The K-factors for these soils range from 0.28 to 0.37, which represents soils with low to moderate potential for erosion.

Erosion and Sediment Control Measures:

Unless otherwise indicated, all vegetative and structural erosion and sediment control practices shall be constructed and maintained according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook, Third Edition.

Structural Measures:

- 1.) Silt Fence - Silt fence will be installed (where shown on drawings) downslope of disturbed areas with minimal grades to filter sediment-laden runoff from sheet flow. See Section 3.05 of the Virginia Erosion and Sediment Control Handbook, latest edition for the standards and specifications of silt fence.
- 2.) Culvert Inlet Protection - Culvert inlet protection will be installed at the upstream side of drainage pipes along the areas where the sewer line will be in unpaved areas. See Section 3.08 of the Virginia Erosion and Sediment Control Handbook, latest edition for the standards and specifications of culvert inlet protection.
- 3.) Trench Dewatering - Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off-site property.
- 4.) Construction entrance - A construction entrance shall be installed as shown on the erosion and sediment control plan and in conformance with Std. and Spec. 3.02. A construction entrance allows mud and debris to be removed from the construction equipment prior to exiting the site.

Vegetative Measures:

- 1.) Permanent Seeding - Any areas disturbed during the course of the project shall be reseeded upon completion of the project. See project specifications for the permanent seeding schedule and seeding mixtures to be used.
- 2.) Temporary Seeding - Shall only be used on areas that have yet to be restored to finish grade and will not be brought to final grade for longer than 30 days.

Management Strategies:

- 1.) No more than 500 linear feet of trench may be opened at one time.
- 2.) Excavated material shall be placed on the uphill side of trenches.
- 3.) Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off-site property.
- 4.) Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.
- 5.) Restabilization shall be accomplished in accordance with the Virginia Erosion and Sediment Control Regulations.
- 6.) Roadside Drainage ditches shall be maintained in such a way as to allow the conveyance of storm water runoff with minimal erosion.
- 7.) Applicable safety regulations shall be complied with.
- 8.) Silt fence shall be installed on steep slopes perpendicular to the direction of slope as shown on the plans in order to prevent erosion and allow time for the slope to stabilize after construction is complete.
- 8.) The banks and stream bed of all watercourses shall be stabilized immediately after work in the watercourse is complete.

Permanent Stabilization:

All areas disturbed by construction shall be stabilized with permanent seeding following backfilling of the utility trench. Seeding shall be done in accordance with the Permanent Seeding schedule in the project specifications. Roadside ditches shall be stabilized with silt fence or straw bails placed in the ditch until a good stand of grass has developed in order to reduce erosion during storm events. In all seeding operations, seed, fertilizer and lime will be applied prior to mulching.

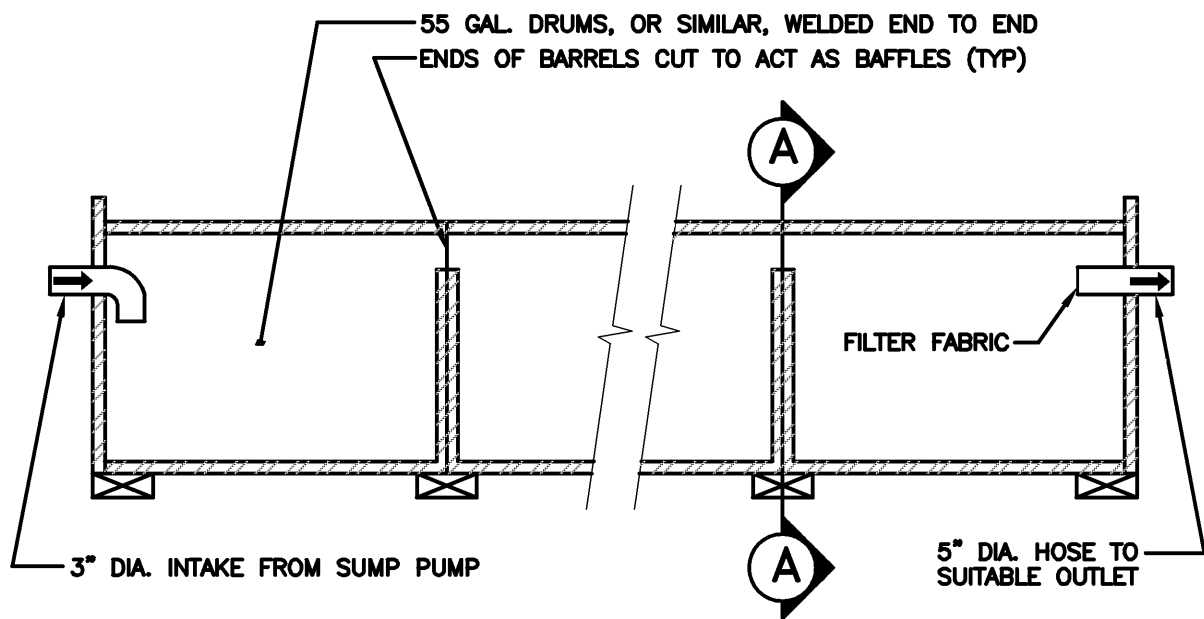
Maintenance:

In general, all erosion and sediment control measures will be checked daily and after each significant rainfall. The following items will be checked in particular:

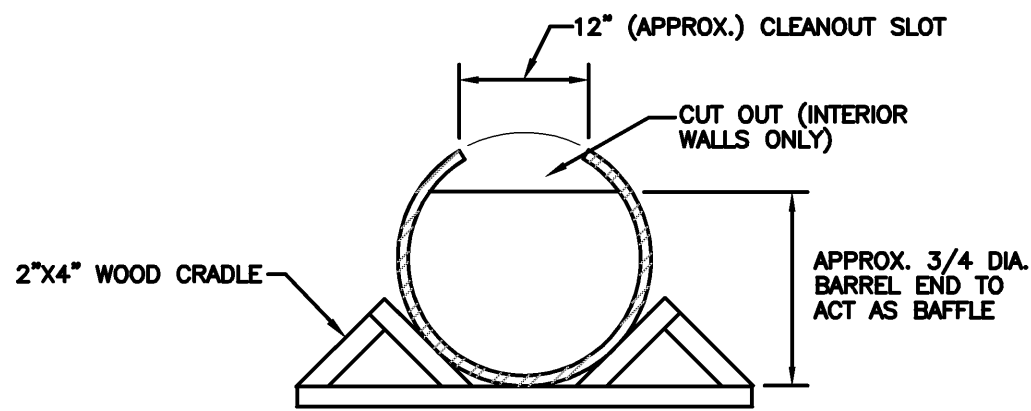
- 1.) All seeded areas will be checked regularly to ensure that a good stand is maintained. Areas should be fertilized and reseeded as needed to produce a good stand of grass.
- 2.) Any silt fence installed on the project will be checked regularly and after every rainfall event for undermining or deterioration of the fabric. Sediment shall be removed when the level of sediment deposition reaches half way to the top of the barrier.

General Erosion and Sediment Control Notes:

- ES-1: Unless otherwise indicated, all vegetative and structural erosion and sediment control practices will be constructed and maintained according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook and Virginia Regulations VR 625-02-00 Erosion and Sediment Control Regulations.
- ES-2: The plan approving authority must be notified one week prior to the onsite pre-construction conference, one week prior to the commencement of land disturbing activity, and one week prior to the final inspection.
- ES-3: All erosion and sediment control measures are to be placed prior to or as the first step in clearing.
- ES-4: A copy of the approved erosion and sediment control plan & narrative, as well as a copy of the Land Disturbing Permit, shall be maintained on the site at all times. The Erosion and Sediment Control Administrator will deliver these materials at the onsite pre-construction conference.
- ES-5: Prior to commencing land disturbing activities in areas other than indicated on these plans (including, but not limited to, off-site borrow or waste areas), the contractor shall submit a supplementary erosion control plan to the owner for review and approval by the plan approving authority.
- ES-6: The contractor is responsible for installation of any additional erosion control measures necessary to prevent erosion and sedimentation as determined by the plan approving authority.
- ES-7: All disturbed areas are to drain to approved sediment control measures at all times aduring land disturbing activities and during site development until final stabilization is achieved.
- ES-8: During dewatering operations, water will be pumped into an approved filtering device.
- ES-9: The contractor shall inspect all erosion control measures periodically and after each runoff-producing rainfall event. Any necessary repairs or cleanup to maintain the effectiveness of the erosion control devices shall be made immediately. An inspection report must be filed with the Botetourt County Erosion & Sediment Control Administrator once every two weeks, beginning with commencement of the land disturbing activity, and within 48 hours of any runoff-producing rainfall event. Failure to submit a report will be grounds for immediate revocation of the Land Disturbing Permit. Reports must be postmarked within 24 hours of the deadline. A standard inspection report will be supplied, which should be copied as necessary. This provision in no way waives the right of Botetourt County personnel to conduct site inspections, nor does it deny the right of the permittee(s) to accompany the inspector(s).



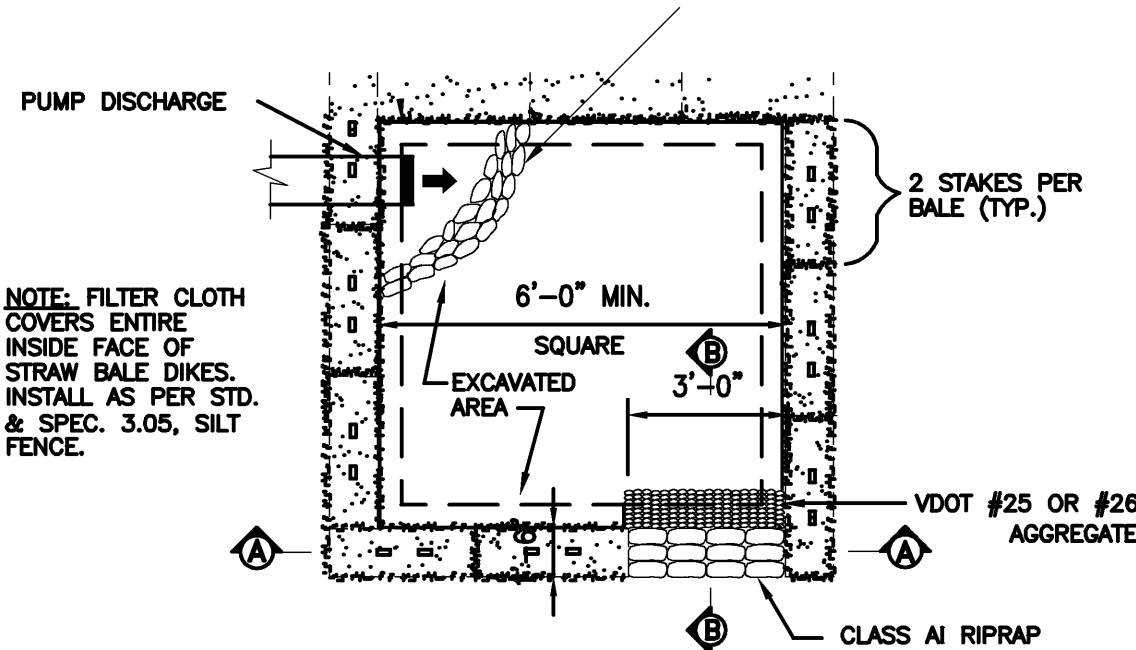
ELEVATION



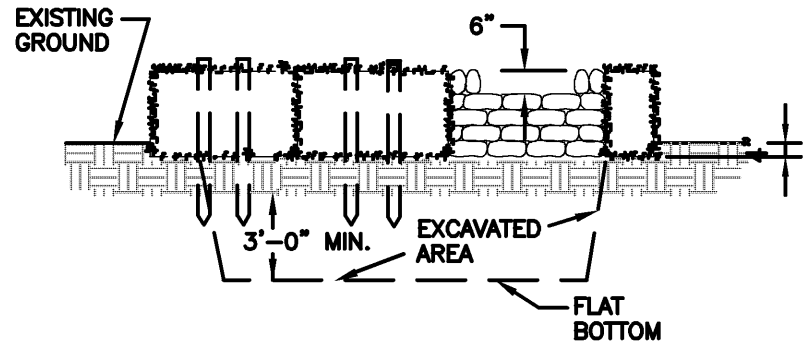
CROSS-SECTION A-A

SOURCE: USDA -- SCS

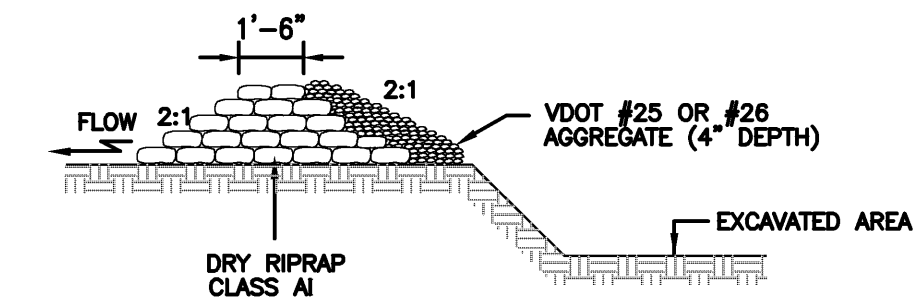
PLATE: 3.26-1



PLAN VIEW



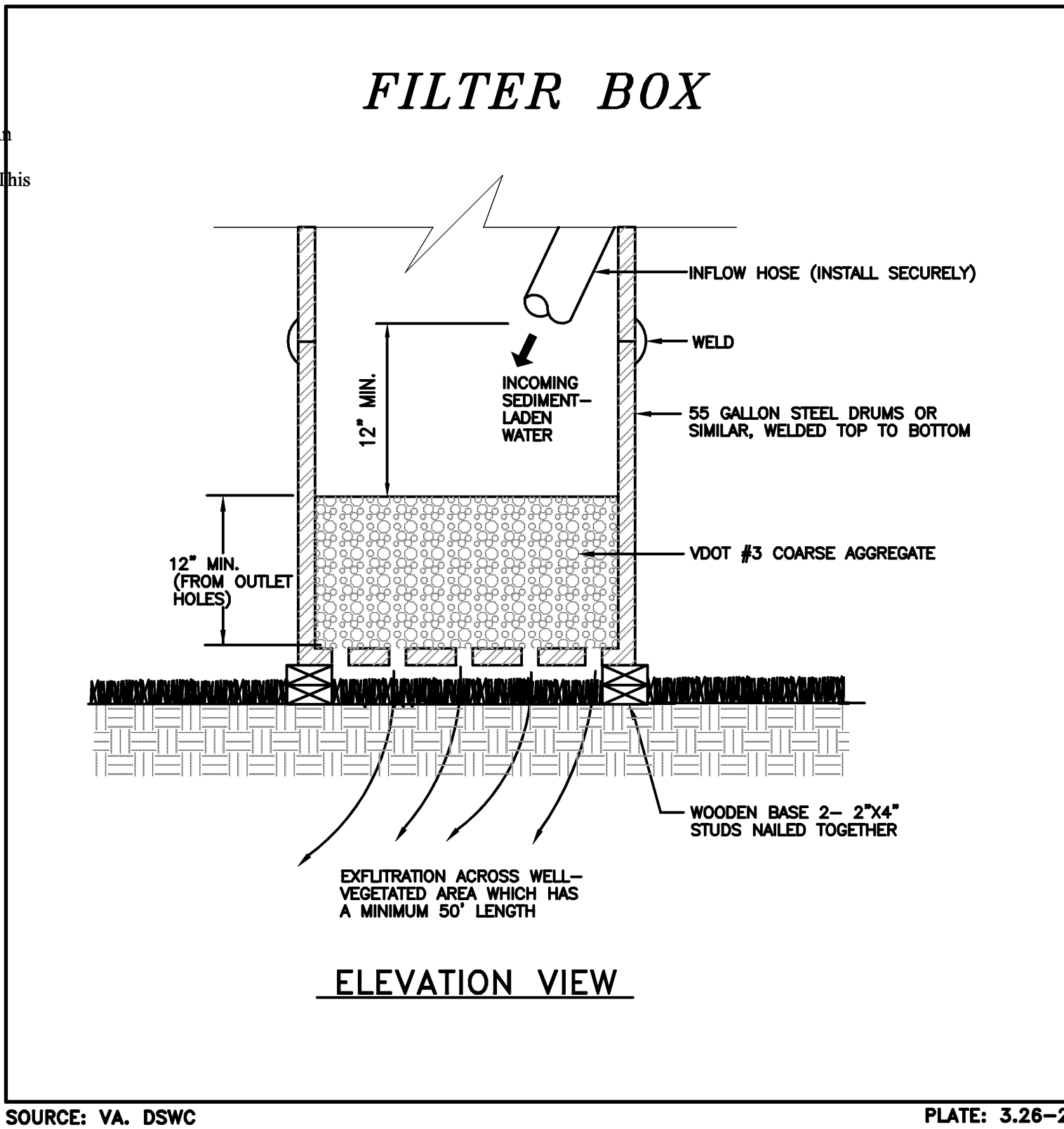
CROSS-SECTION A-A



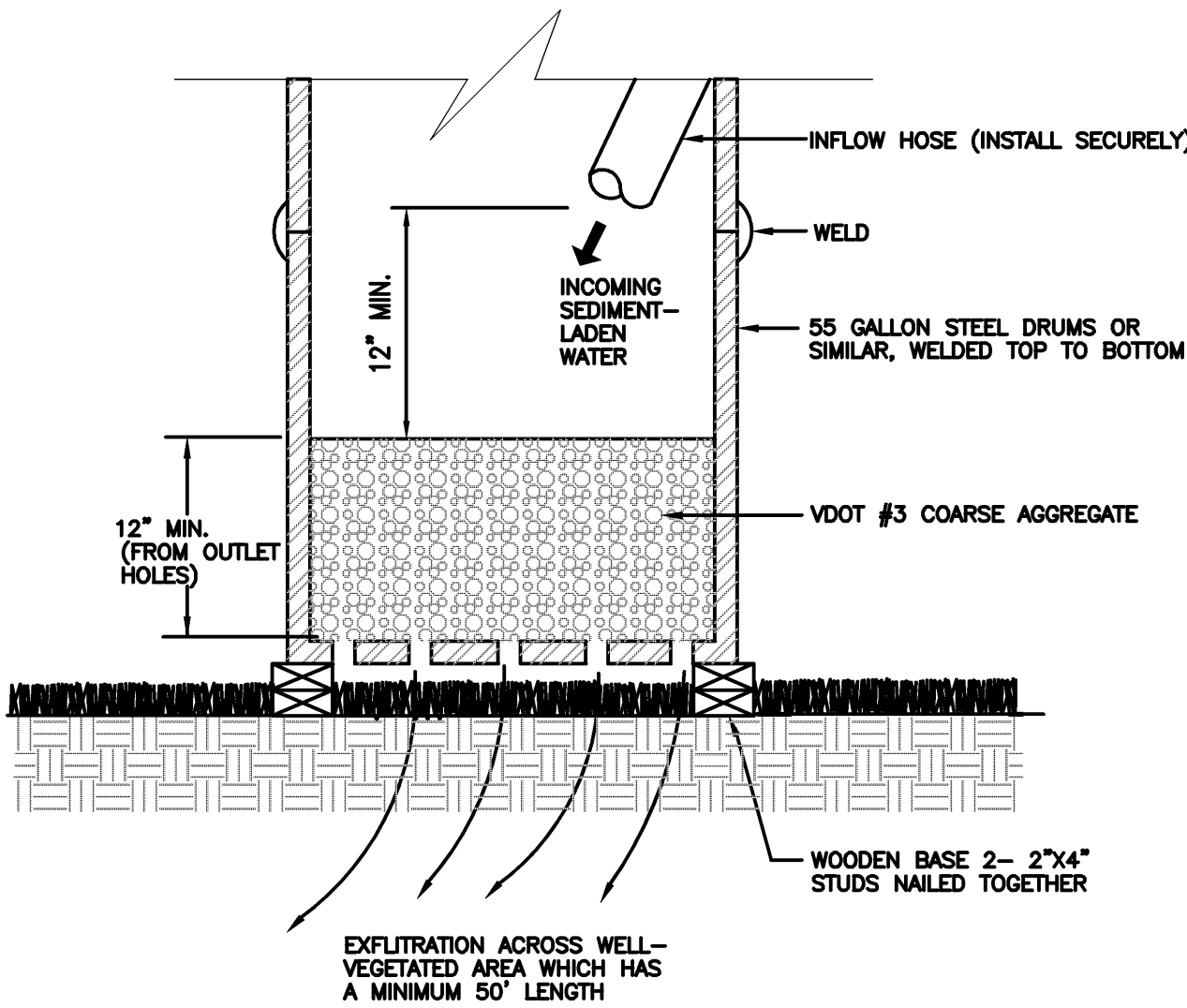
CROSS-SECTION B-B

SOURCE: Va. DSWC

PLATE: 3.26-3



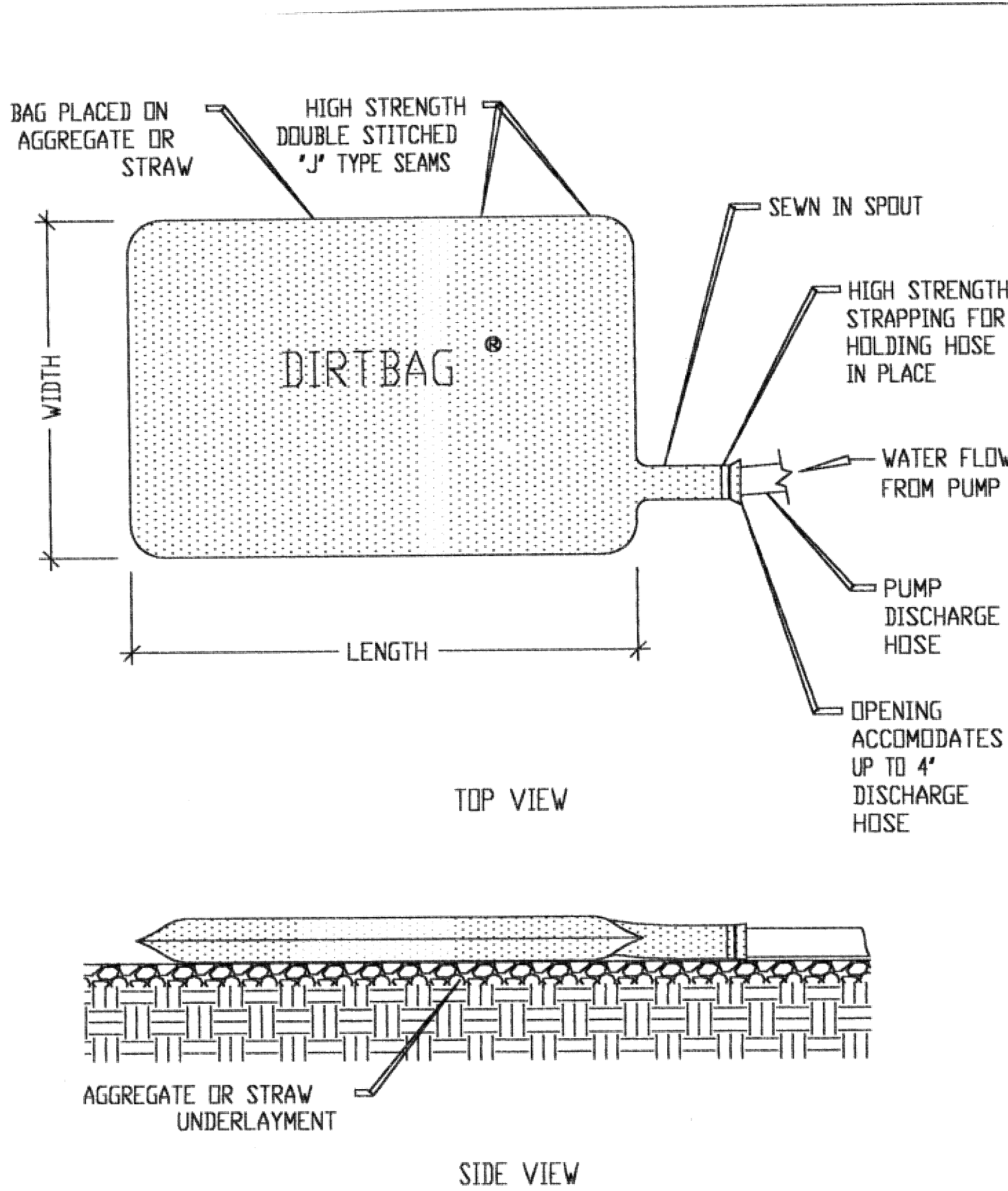
FILTER BOX



ELEVATION VIEW

SOURCE: VA. DSWC

PLATE: 3.26-2



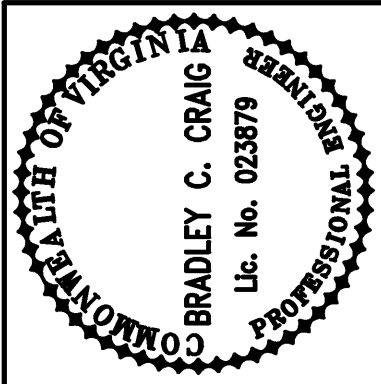
TOP VIEW

SIDE VIEW

DETAIL OF DIRTBAG PUMPED SILT CONTROL SYSTEM

PROJECT:		DR. BY:
CITY:		DR. NO:
STATE:		DATE:

RECORD DRAWING



Revisions	Date
1 VDOT COMMENTS	12/13/11
2 RECORD DRAWINGS	9/28/12

Issue Date:	December 4, 2011
Drawn By:	ARB
Designed By:	ARB
Checked By:	BCC
Date:	12/11/11

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CLOVERDALE WATERLINE EXTENSION
EROSION AND SEDIMENT
CONTROL NARRATIVE AND DETAILS
BOTETOURT COUNTY, VIRGINIA

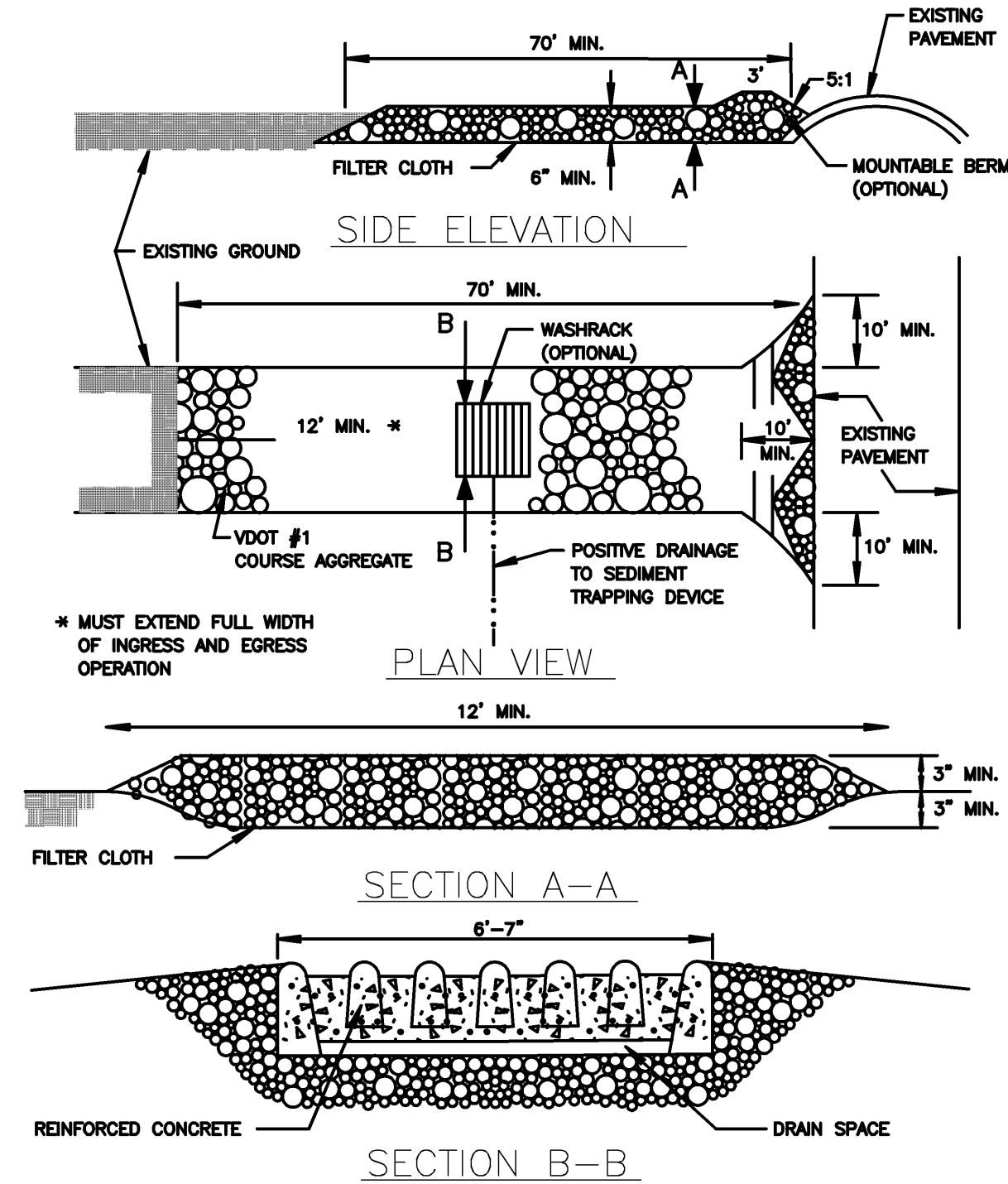
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Commission Number:
3178

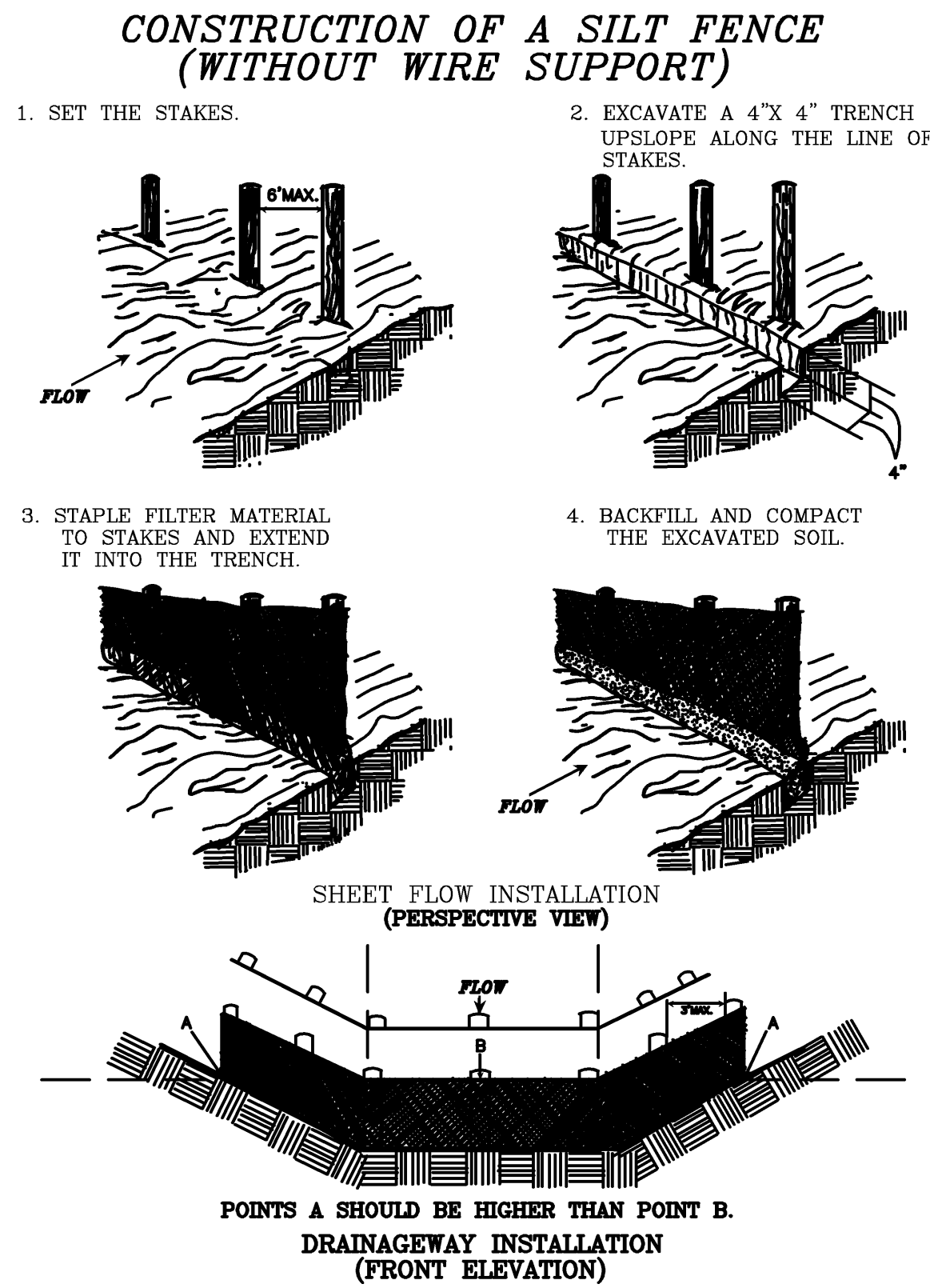
Sheet No.:

C-10



STONE CONSTRUCTION ENTRANCE

CE



SILT FENCE

SF

TABLE 3.31-B ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS "QUICK REFERENCE FOR ALL REGIONS"									
Planting Dates	Species	Rate (lbs./acre)							
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (<i>Lolium multi-florum</i>) & Cereal (Winter) Rye (<i>Secale cereale</i>)	50 - 100							
Feb. 16 - Apr. 30	Annual Ryegrass (<i>Lolium multi-florum</i>)	60 - 100							
May 1 - Aug. 31	German Millet (<i>Sesuvia italica</i>)	50							

TABLE 3.31-C TEMPORARY SEEDING PLANT MATERIALS, SEEDING RATES, AND DATES									
SPECIES	SEEDING RATE		NORTH ^a			SOUTH ^b			PLANT CHARACTERISTICS
	Acres	1000 ft ²	3/1 to 4/30	5/1 to 8/15	8/15 to 11/1	2/15 to 4/30	5/1 to 9/1	9/1 to 11/15	
OATS (<i>Avena sativa</i>)	1 bu. (up to 100 lbs., not less than 50 lbs.)	2 lbs.	X	-	-	X	-	-	Use spring varieties (e.g., Nobles).
RYE ^c (<i>Secale cereale</i>)	2 bu. (up to 100 lbs., not less than 50 lbs.)	2.5 lbs.	X	-	X	X	-	X	Use for late fall seedings, winter cover. Tolerates cold and low moisture.
GERMAN MILLET (<i>Sesuvia italica</i>)	50 lbs.	approx. 1 lb.	-	X	-	-	X	-	Warm-season annual. Dies at first frost. May be added to summer soils.
ANNUAL RYEGRASS ^d (<i>Lolium multi-florum</i>)	60 lbs.	1 1/2 lbs.	X	-	X	X	-	X	May be added in winter. Will grow out of most stands.
WEEPING LOVEGRASS (<i>Eragrostis curvula</i>)	15 lbs.	3/4 lbs.	-	X	-	-	X	-	Warm-season perennial. May branch. Tolerates hot, dry slopes and acid, infertile soils. May be added to winter.
KOREAN LEOPONZA ^e (<i>Lonicera stimuloidea</i>)	25 lbs.	approx. 1 1/4 lbs.	X	X	-	X	X	-	Warm season annual legume. Tolerates acid soils. May be added to winter.

^a Northern Piedmont and Mountain region. See Plates 3.22-1 and 3.22-2.
^b Southern Piedmont and Coastal Plains.
^c May be used as a cover crop with spring seeding.
^d May be used as a cover crop with fall seeding.
^e May be planted between these dates.
^f May not be planted between these dates.

TEMPORARY SEEDING MIXTURE

TS

TYPE A

15 OCTOBER TO 1 FEBRUARY
K-31 FESCUE • 5 LB / 1000 SF

1 FEBRUARY TO 1 JUNE
K-31 FESCUE • 5 LB / 1000 SF
ANNUAL RYE • 1/2 LB / 1000 SF

1 JUNE TO 1 SEPTEMBER
K-31 FESCUE • 5 LB / 1000 SF

1 SEPTEMBER TO 15 OCTOBER
K-31 FESCUE • 5 LB / 1000 SF
ANNUAL RYE • 1/2 LB / 1000 SF

TYPE B (SLOPES 3:1 OR STEEPER)

15 MARCH TO 1 MAY
CROWN VETCH • 1/2 LB / 1000 SF
PERENNIAL RYEGRASS • 1/2 LB / 1000 SF
RED TOP • 1/8 LB / 1000 SF

15 AUGUST TO 1 OCTOBER
CROWN VETCH • 1/2 LB / 1000 SF
PERENNIAL RYEGRASS • 1/2 LB / 1000 SF
RED TOP • 1/8 LB / 1000 SF

LIME: 90 LB / 1000 SF PULVERIZED AGRICULTURAL LIMESTONE

FERTILIZER:

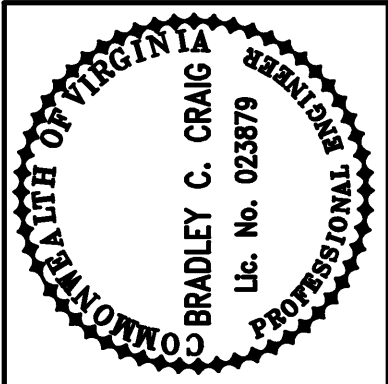
MULCH: IF REQUIRED, SHALL BE USED OVER ALL SEEDING AREAS AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 3.35 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.

SOIL CONDITIONING: INCORPORATION OF LIME AND FERTILIZER, SELECTION OF CERTIFIED SEED, MULCHING, MAINTENANCE OF NEW SEEDLINGS, AND RESEEDING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE VIRGINIA SOIL EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. ADDITIONAL SEEDING TO BE PERFORMED AS REQUIRED BY THE INSPECTOR.

SEED APPLICATION: APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE, SEEDBED. MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.


PERMANENT SEEDING MIXTURE

PS



Issue Date:	12/13/11	9/28/12			
Revisions	1. VDOT COMMENTS	2. RECORD DRAWINGS			

Issue Date: DECEMBER 4, 2011	Drawn By: ARB	Designed By: ARB	Checked By: BCC	Date: 12/11/11
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CLOVERDALE WATERLINE EXTENSION
EROSION AND SEDIMENT
CONTROL DETAILS
BOTETOURT COUNTY, VIRGINIA

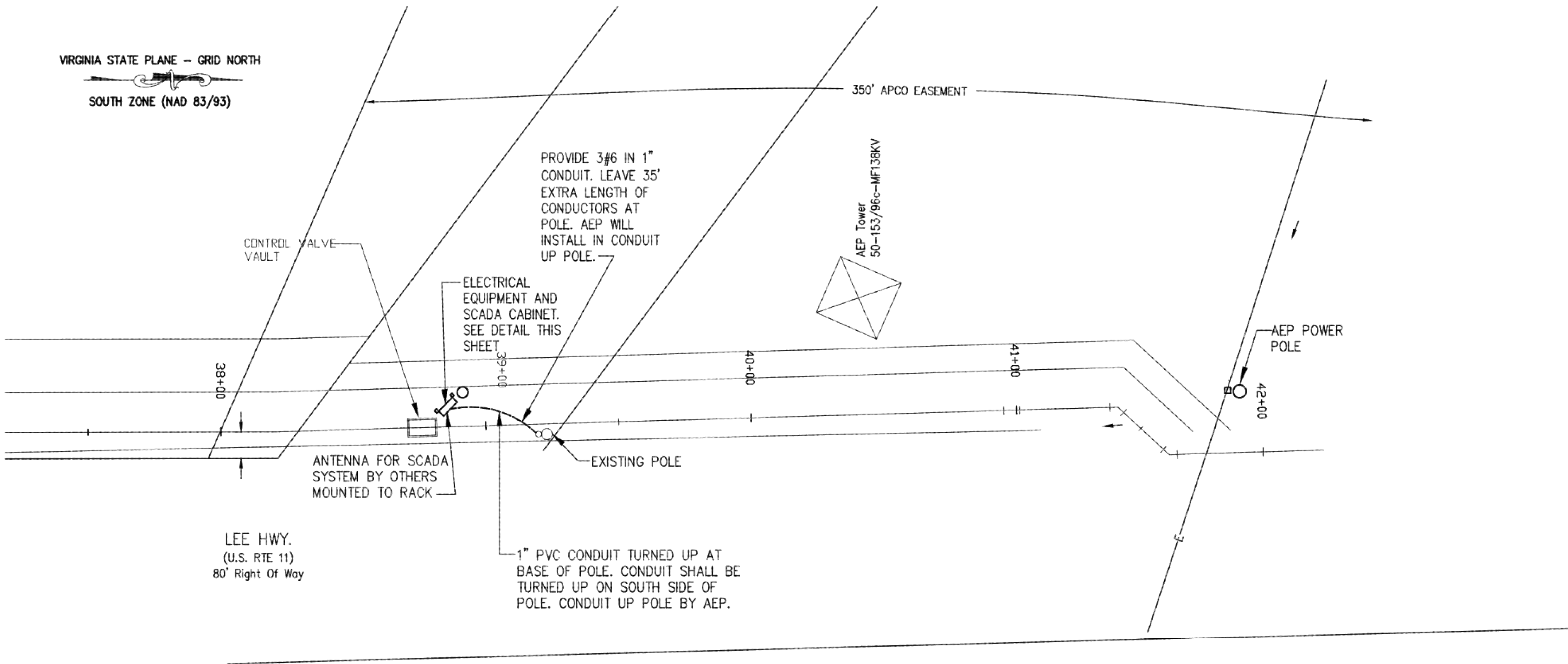
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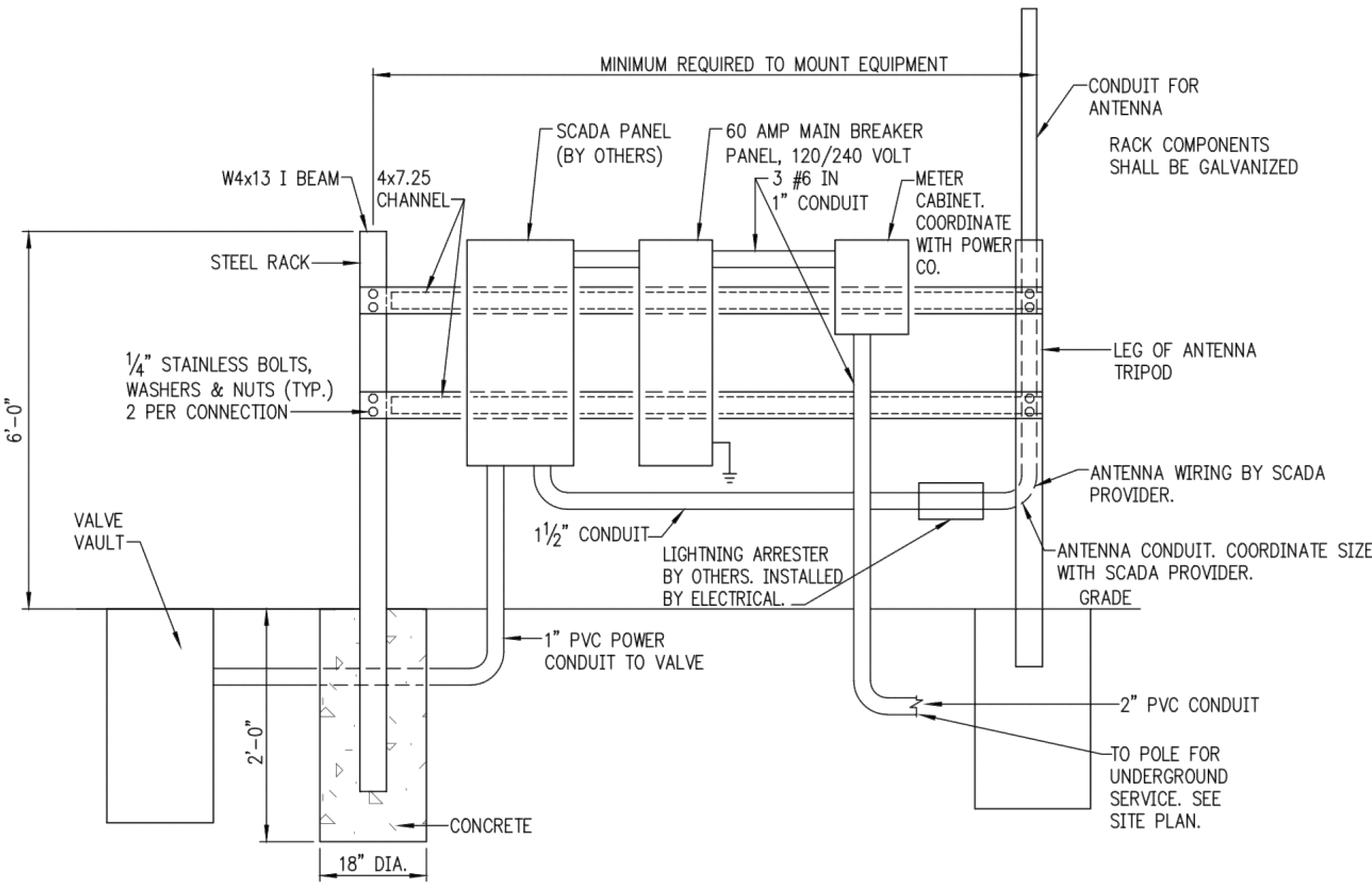
Commission Number:
3178

Sheet No.:

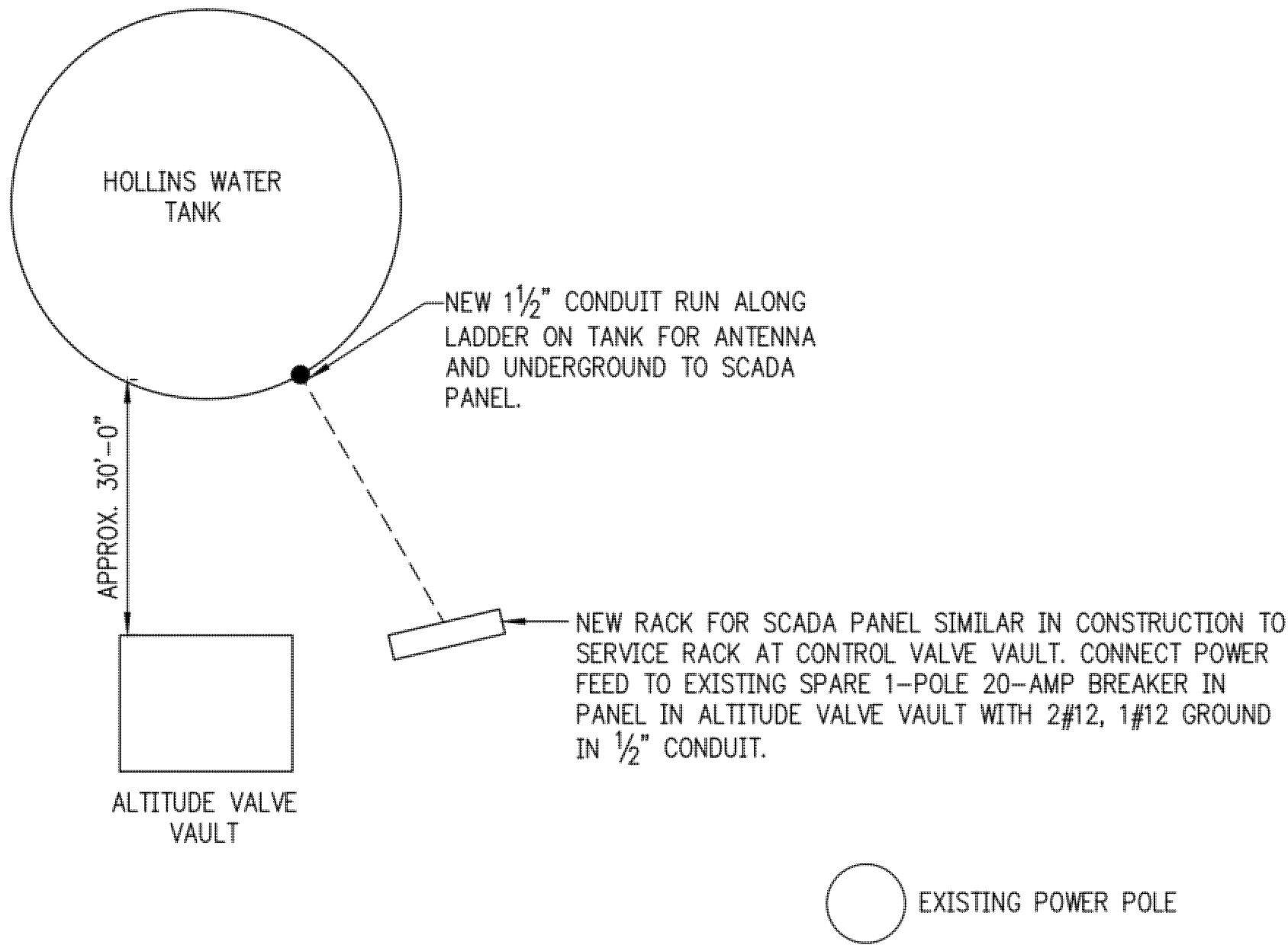
C-11



CONTROL VALVE VAULT SITE PLAN – ELECTRICAL
SCALE: 1" = 30'-0"



SERVICE RACK DETAIL – CONTROL VALVE VAULT
NO SCALE



SITE PLAN SCHEMATIC – HOLLINS TANK
NO SCALE

ELECTRICAL SPECIFICATIONS:

- SCOPE OF WORK:** Provide supervision, labor, material, equipment, machinery, plant and other items necessary for a complete and operable electrical system.
- STANDARDS AND CODES:** The materials and equipment shall be new and listed by Underwriters Laboratories, Inc. The installation shall be in accordance with the 2005 NFPA-70 (National Electric Code, or NEC). Workmanship shall meet the "Standards of Installation" as published by the National Electrical Contractors Association (NECA).
- PERMITS AND FEES:** Obtain permits, bonds, licenses and inspection certificates. Pay inspection fees and taxes. File plans and prepare documents required to obtain approvals of governmental departments having jurisdiction. Utility connection charges will be paid by the Owner.
- CONDUIT:** Provide Schedule 40 PVC conduit underground. Where not underground provide IMC or RGS conduit.
- JUNCTION AND PULL BOXES:** Provide junction, and pull boxes as required by the NEC. Boxes shall be steel.
- WIRING:** Provide copper conductors, THHN or THWN, 600 volt.
- GROUNDING:** Provide an equipment grounding system installed to metallic structures, enclosures, raceways, junction boxes, pull boxes, and other conductive items in close proximity to electrical circuits. All branch and feeder circuits shall include a green grounding conductor. Provide ground bus in panelboard. Provide system ground in accordance with NEC Article 250.

NOTE:
CONTRACTOR SHALL VISIT BOTH
SITES PRIOR TO SUBMITTING BID.



REVISION	DATE

DESIGNED WDC	DRAWN CAD
CHECKED WDC	APPROVED LPA
COMM. NO. 11101.23	DATE 11-29-11
SHEET E1	