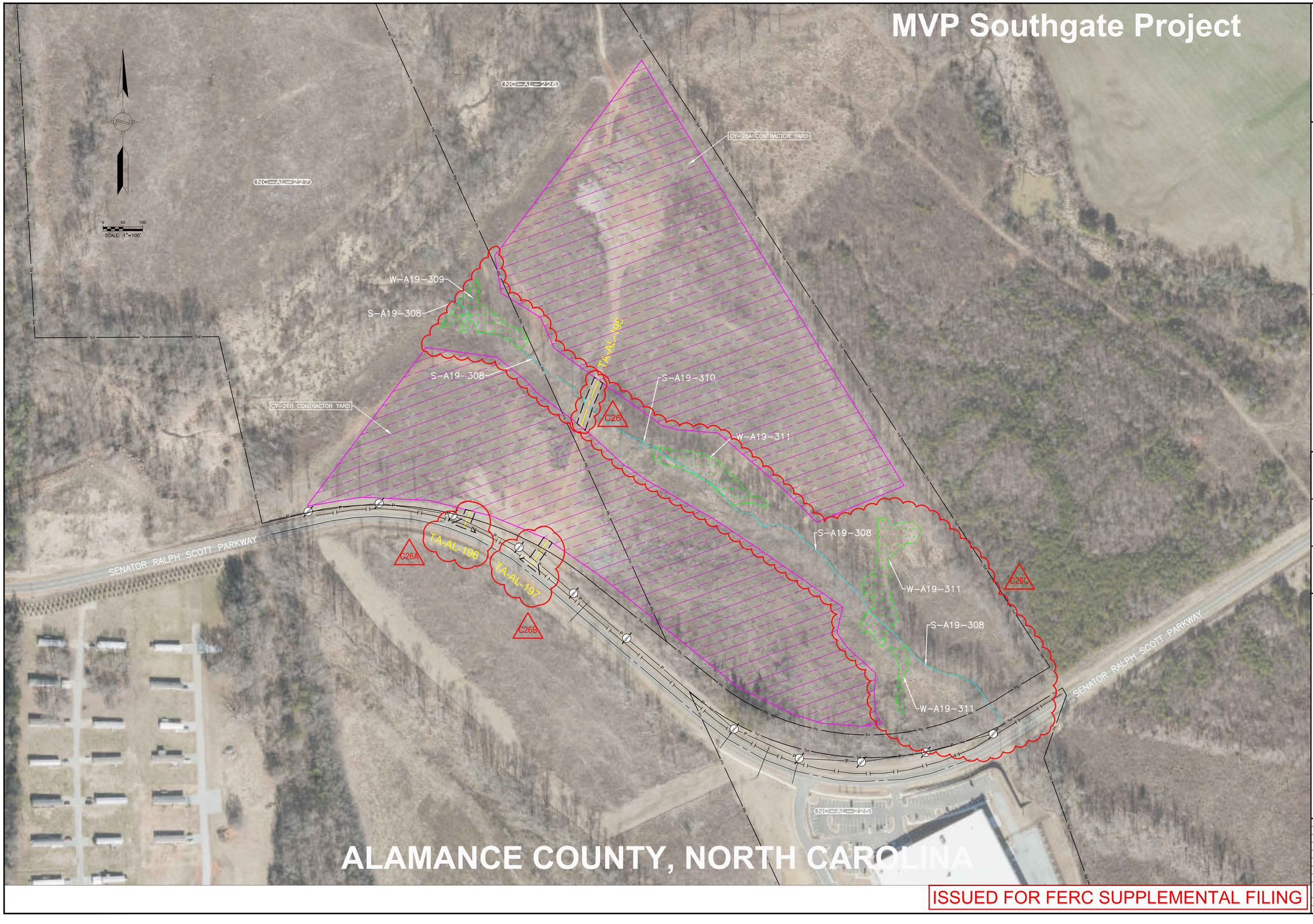
MVP Southgate Project



ALAMANCE COUNTY, NORTH CAROLINA

ISSUED FOR FERC SUPPLEMENTAL FILING

TRC
Results you can rely on

REVISIONS

REV.	BY	DATE	DESCRIPTION
P	TRC	10/4/18	ISSUED FOR FERC SUPPLEMENTAL FILING

APPROVED FOR FERC			APPROVED FOR BIDDING			APPROVED FOR CONSTRUCTION		
REV.	BY	DATE	REV.	BY	DATE	REV.	BY	DATE

Mountain Valley PIPELINE, LLC

PIPELINE CONTRACTOR YARD

MVP SOUTHGATE PROJECT

HORZ. SCALE: 1" = 100'	
DRAWN BY: TRC	
DRAFTING CK:	
ENGINEERING CK:	
CONSTRUCTION CK:	
ENVIRONMENTAL CK:	
AFE/P.O.NO.:	
TRC PROJECT NO.:	300423
DRAWING NO.:	CY-26
SHEET: 1 OF 1	REV. P
DATE OF PLOT: 10/29/2018 12:35:15 PM	

MVP Southgate Project

Docket No. CP19-14-000

Horizontal Direction Drill ("HDD") and Bore Drawings
Dan River HDD
Stony Creek Reservoir HDD
Cascade Creek – Dry Creek
Wolf Island Creek
Deep Creek

October 2019

MVP SOUTHGATE PROJECT

PROPOSED H-650 PIPELINE
ENGINEERING SERVICES DESIGN; JOB NUMBERS 300423
ROAD - RAILROAD - WATERBODY - PERMIT DRAWINGS

DRAWING NO.	REV	DRAWING TITLE
PERMITS-COV	P3	MVP SOUTHGATE PROJECT H-650 PIPELINE - ROAD - RAILROAD - WATERBODY - PERMIT DRAWINGS
HDD-DanRiver-001	P3	MVP SOUTHGATE PROJECT H-650 PIPELINE - DAN RIVER - HDD
HDD-StonyCreek-002	P3	MVP SOUTHGATE PROJECT H-650 PIPELINE - STONY CREEK RESERVOIR - HDD
WXP-RONC-H650-009	P2	MVP SOUTHGATE PROJECT H-650 PIPELINE - CASCADE CREEK - DRY CREEK - CONVENTIONAL BORE
WXP-RONC-H650-010	P2	MVP SOUTHGATE PROJECT H-650 PIPELINE - WOLF ISLAND CREEK - CONVENTIONAL BORE
WXP-ALNC-H650-011	P	MVP SOUTHGATE PROJECT H-650 PIPELINE - DEEP CREEK - CONVENTIONAL BORE

ISSUED FOR FERC SUPPLEMENTAL FILING
10/14/19

O:\PROJECTS\300423 - NEXTERA MVP SOUTHGATE\CA - CADD\PIPELINE\DRAWINGS\PERMITS\COVER PERMITS.DWG

PROJECT ID 300423
DRAWING SCALE NTS

DRAWING TITLE:
MOUNTAIN VALLEY PIPELINE
SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROAD-RAILROAD-WATERBODY-PERMIT DRAWINGS

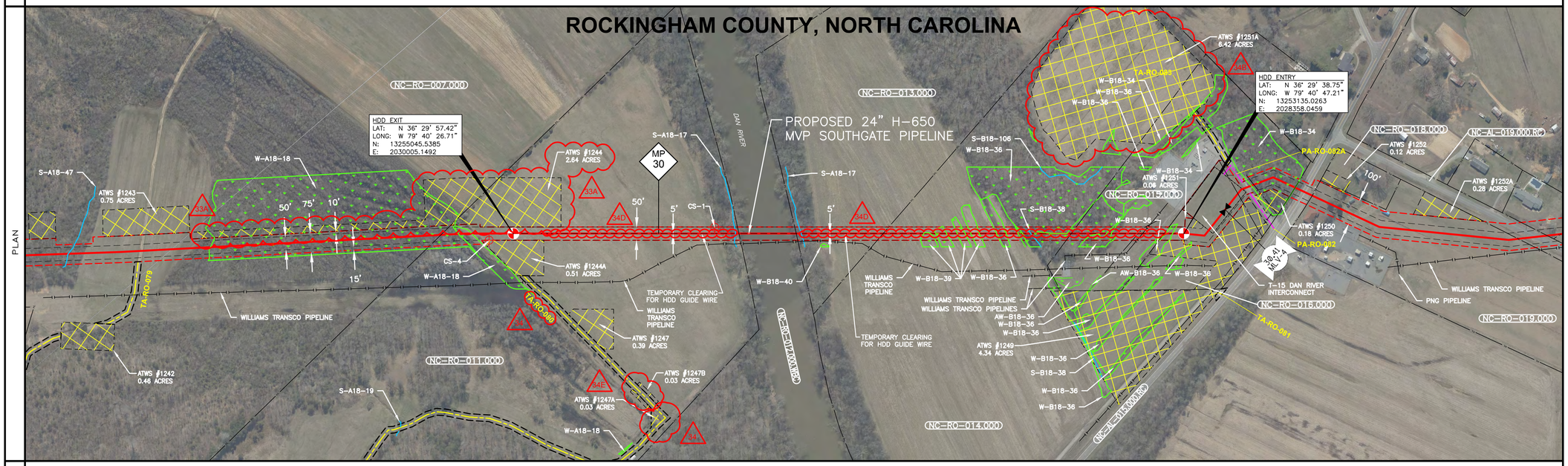
FACILITY	STATE	IDENTIFICATION	SERIES	SHEET	REVISION
MVP	VA/NC	H-650	1	1	P3

PIPE STATIONING

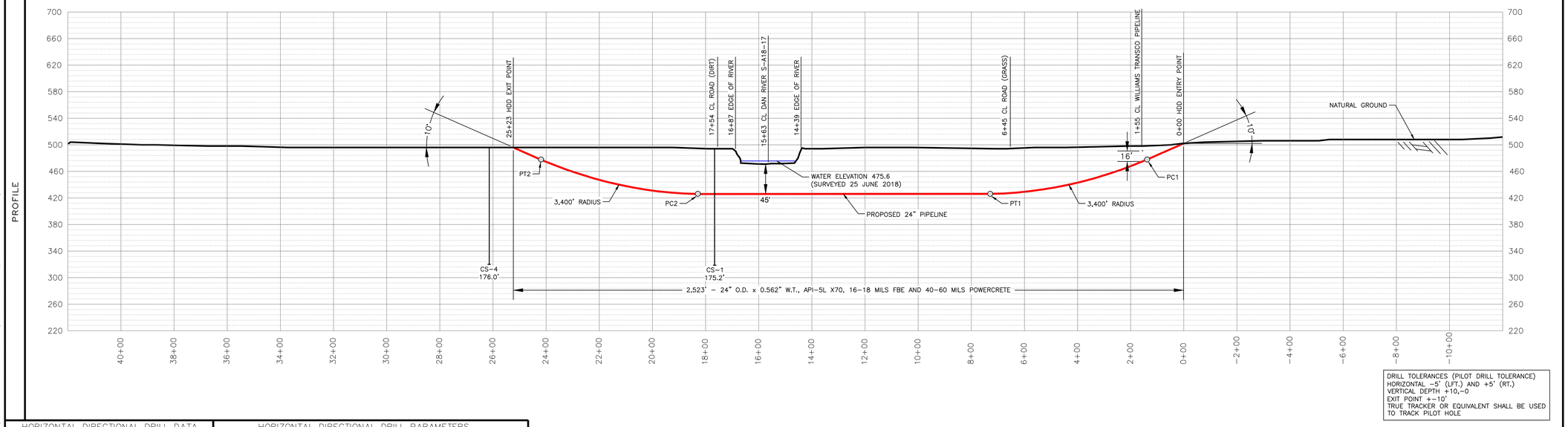
25+23 HDD EXIT POINT | 17+54 CL ROAD (DIRT) | 16+87 EDGE OF RIVER | 15+63 CL DAN RIVER S-A18-17 | 14+39 EDGE OF RIVER | 6+45 CL ROAD (GRASS) | 1+55 CL WILLIAMS TRANSCO PIPELINE | 0+00 HDD ENTRY POINT

PLAN

ROCKINGHAM COUNTY, NORTH CAROLINA



PROFILE



DRILL TOLERANCES (PILOT DRILL TOLERANCE)
HORIZONTAL -5' (LFT.) AND +5' (RT.)
VERTICAL DEPTH +10,-0
EXIT POINT +-10'
TRUE TRACKER OR EQUIVALENT SHALL BE USED TO TRACK PILOT HOLE

LEGEND:

- HDD ENTRY / EXIT POINTS
- GEOTECH BORE HOLE LOCATIONS

GENERAL NOTES:

1.) IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE NECESSARY ARRANGEMENTS IF TRAFFIC CONTROL PLANS AND/OR RAILROAD REPRESENTATION ARE REQUIRED.

2.) CONTRACTOR TO LOCATE, MARK AND POTHOLE FOREIGN LINES PRIOR TO EXCAVATION (AND MONITOR DURING DRILLING).

3.) CONTRACTOR TO MAT OVER ANY FOREIGN PIPELINES CROSSED WITH DRILLING EQUIPMENT.

4.) LOCATIONS OF EXISTING FACILITIES SHOWN ARE APPROXIMATE. CONTRACTOR TO LOCATE AND/OR CONFIRM THE LOCATIONS AND DEPTH OF ALL UTILITIES, PIPELINES OR OTHER OBSTACLES PRIOR TO EXCAVATION.

5.) CONTRACTOR TO SUPPORT EXISTING UTILITIES, PIPELINES AND/OR OTHER FEATURES.

6.) CONTRACTOR TO GRADE EXCAVATION AREA AND RESTORE TO ORIGINAL CONDITIONS.

7.) CONTRACTOR TO CONTACT STATE ONE CALL SYSTEM AT LEAST 72 HOURS PRIOR TO DRILLING.

PHOTOGRAPHY:

2018 FLOWN IMAGERY

PROJECTION SYSTEM:

NAD83 UTM 17N (U.S. SURVEY FEET)

INSTALLATION NOTES:

1.) ACCESS: ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE CONSTRUCTION RIGHT-OF-WAY FROM PUBLIC OR APPROVED PRIVATE ROADS.

2.) WORK SPACE: WORK SPACE LIMITS ARE DEPICTED. CLEARING WILL BE RESTRICTED TO THE WORK SPACES INDICATED AT THE ENTRY AND EXIT POINTS AND PULLBACK MAKE-UP AREA ALONG THE RIGHT-OF-WAY. CLEARING BETWEEN THE ENTRY AND EXIT POINTS IS LIMITED TO THE MINIMUM AMOUNT NECESSARY TO STRING LOCATION WIRES AND INSTALL PUMPS AND PIPING TO OBTAIN WATER (WHERE APPROVED).

3.) WATER SOURCE: DRILL WATER AND PRE-INSTALLATION HYDRO-STATIC TEST WATER SHALL BE OBTAINED FROM AN APPROVED SOURCE.

4.) HYDROSTATIC TEST: ABOVE GROUND PRE-INSTALLATION HYDROSTATIC TEST SHALL BE CONDUCTED IN ACCORDANCE WITH PERMIT REQUIREMENTS. THE CONTRACTOR SHALL DISCHARGE HYDROSTATIC TEST WATER IN ACCORDANCE WITH PROJECT PERMITS.

5.) SPILL-PREVENTION: ALL PUMPS SHALL BE SET IN SECONDARY CONTAINMENT AND IN ACCORDANCE WITH THE SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN (SPCC). EQUIPMENT AND PUMPS OPERATING WITHIN 100 FEET OF ANY WATER BODY OR WETLAND SHALL BE OPERATED AND REFUELED IN ACCORDANCE WITH THE SPCC PLAN. EQUIPMENT REFUELING AND STORAGE OF HAZARDOUS MATERIALS, FUELS, ETC. SHALL BE CONDUCTED AT LEAST 100 FEET FROM WATER BODIES AND WETLAND. EACH CONSTRUCTION CREW SHALL HAVE ON HAND SUFFICIENT TOOLS AND MATERIALS TO STOP LEAKS AND SUPPLIES OF ABSORBENT AND BARRIER MATERIALS TO ALLOW RAPID CONTAINMENT AND RECOVERY OF SPILLED MATERIALS.

6.) EROSION AND SEDIMENT CONTROL: CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SEDIMENT CONTROL STRUCTURES IN ACCORDANCE WITH CONTRACT DOCUMENTS. CONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROL STRUCTURES AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.

7.) TOPSOIL SHALL BE STRIPPED AS REQUIRED BY PROJECT DOCUMENTS.

8.) INSTALLATION: THE PIPE SECTION FOR THE DRILLED CROSSING SHALL BE MADE UP WITHIN THE RIGHT-OF-WAY AT THE DRILL EXIT POINT AS SHOWN, AND THE DRILL RIG SHALL PULL THE PIPE STRING INTO THE BORE HOLE FROM THE ENTRY POINT. CONTRACTOR SHALL ASSESS THE NEED FOR AND SUPPLY APPROPRIATE BALLAST DURING PULLBACK.

9.) MUD DISPOSAL: CONTRACTOR SHALL DISPOSE OF EXCESS DRILLING MUD AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS. UNDER NO CIRCUMSTANCES SHALL DRILLING FLUID BE DISPOSED OF IN WATER BODIES OR WETLANDS. ANY DRILLING MUD WHICH INADVERTENTLY EXISTS AT POINTS OTHER THAN THE ENTRY AND EXIT POINTS SHALL BE CONTAINED AND COLLECTED TO THE EXTENT PRACTICAL AND DISPOSED OF AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS.

10.) CLEANUP/STABILIZATION/RESTORATION: ALL DISTURBED AREAS SHALL BE RETURNED TO THE ORIGINAL CONTOURS. DISTURBED AREAS SHALL BE SEEDED AS SPECIFIED IN PROJECT DOCUMENTS.

11.) REFER TO AMERICAN GEOTECH, INC. (AGI) GEOTECHNICAL REPORTS DATED JANUARY 2019 FOR CS-1 AND CS-4.

ISSUED FOR FERC SUPPLEMENTAL FILING
10/14/19

HORIZONTAL DIRECTIONAL DRILL DATA

DESCRIPTION	STA.	ELEV.
ENTRY ANGLE @ 10°	0+00	502.0'
POINT OF CURVATURE (PC1) (3,400 FT. RADIUS)	1+38	478.7'
POINT OF TANGENCY (PT1)	7+28	427.0'
POINT OF CURVATURE (PC2) (3,400 FT. RADIUS)	18+28	427.0'
POINT OF TANGENCY (PT2)	24+19	478.7'
EXIT ANGLE @ 10°	25+23	496.0'

HORIZONTAL DIRECTIONAL DRILL PARAMETERS

1.) MAX. OPER. PRESS.: 1440 PSIG

2.) PIPE: 24.00" O.D. x 0.562" W.T. GRADE: API-5L X70
DESIGN FACTOR: 0.50

3.) PIPE COATING: 16-18 MILS FBE
EXTERNAL COATING: 40-60 MILS POWERCRETE
LENGTH OF CROSSING: 2,523' HORIZONTAL DISTANCE

4.) TYPE OF PIPE JOINT: WELDED X 60' LG.
LENGTH OF PIPE: 2,532 L.F.

REFERENCE DRAWINGS

DWG. NO	DRAWING TITLE
PA-RONC-H-650-05	ALIGNMENT SHEET
H-650-12-CONST	HORIZONTAL DIRECTIONAL DRILL (HDD)

NO.	DATE	REVISION	BY	APPD.
P1	10/22/18	ISSUED FOR CLIENT REVIEW	SJS	SJO
P1	11/02/18	ISSUED FOR FERC	SJS	SJO
P2	03/26/19	ISSUED FOR FERC SUPPLEMENTAL FILING	SJS	SJO
P3	10/14/19	ISSUED FOR FERC SUPPLEMENTAL FILING	SJS	MI

0 100 200
PLAN SCALE: 1"=200'
0 100 200
PROFILE (H) SCALE: 1"=200'
0 40 80
PROFILE (V) SCALE: 1"=80'

Mountain Valley PIPELINE, LLC

TRC Results you can rely on

MVP SOUTHGATE PROJECT
H-650 PIPELINE
DAN RIVER HDD

DRAWN BY: TRC	DATE: 10/04/18
CHECKED BY: SJO	DATE: 10/19/18
APPROVED BY:	EPO APPROVAL:

SCALE:	PROJ. NO.	DRAWING NO:	REV.
1" = 200'		HDD-DanRiver-001	P3

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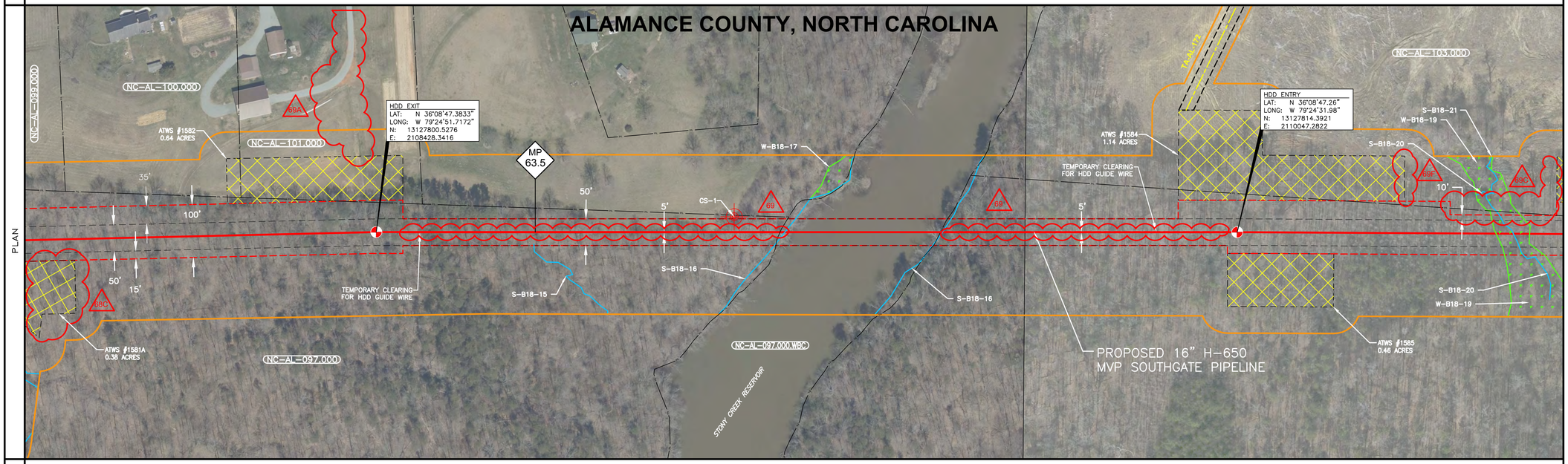
October 09, 2019 - 11:59am

PIPE STATIONING

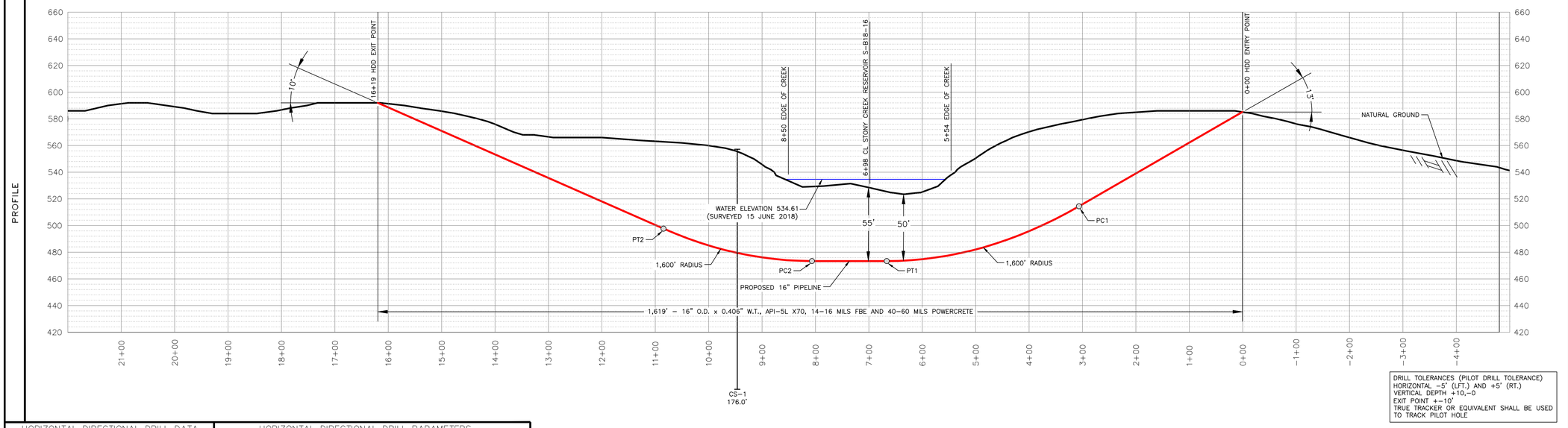
16+19 HDD EXIT POINT | 8+50 EDGE OF CREEK | 6+98 CL STONY CREEK RESERVOIR S-B18-16 | 5+54 EDGE OF CREEK | 0+00 HDD ENTRY POINT

PLAN

ALAMANCE COUNTY, NORTH CAROLINA



PROFILE



DRILL TOLERANCES (PILOT DRILL TOLERANCE)
HORIZONTAL –5' (LFT.) AND +5' (RT.)
VERTICAL DEPTH +10,–0
EXIT POINT +–10'
TRUE TRACKER OR EQUIVALENT SHALL BE USED TO TRACK PILOT HOLE

HORIZONTAL DIRECTIONAL DRILL DATA

DESCRIPTION	STA.	ELEV.
ENTRY ANGLE @ 13°	0+00	585.1'
POINT OF CURVATURE (PC1) (1,600 FT. RADIUS)	3+06	514.4'
POINT OF TANGENCY (PT1)	6+66	473.4'
POINT OF CURVATURE (PC2) (1,600 FT. RADIUS)	8+06	473.4'
POINT OF TANGENCY (PT2)	10+84	497.7'
EXIT ANGLE @ 10°	16+19	592.0'

HORIZONTAL DIRECTIONAL DRILL PARAMETERS

1.) MAX. OPER. PRESS.: 1440 PSIG

2.) PIPE: 16.00" O.D. x 0.406" W.T. GRADE: API-5L X70
DESIGN FACTOR: 0.50

3.) PIPE COATING: 14-16 MILS FBE
EXTERNAL COATING: 40-60 MILS POWERCRETE
LENGTH OF CROSSING: 1,619' HORIZONTAL DISTANCE

4.) TYPE OF PIPE JOINT: WELDED X 60' LG.
LENGTH OF PIPE: 1,640 L.F.

REFERENCE DRAWINGS

DWG. NO	DRAWING TITLE
PA-ALNC-H-650-12	ALIGNMENT SHEET
H-650-12-CONST	HORIZONTAL DIRECTIONAL DRILL (HDD)

NO.	DATE	REVISION	BY	APPD.
P1	10/22/18	ISSUED FOR CLIENT REVIEW	SJS	SJO
P1	11/02/18	ISSUED FOR FERC	SJS	SJO
P2	03/26/19	ISSUED FOR FERC SUPPLEMENTAL FILING	SJS	SJO
P3	10/14/19	ISSUED FOR FERC SUPPLEMENTAL FILING	SJS	MI

0 50 100
PLAN SCALE: 1"=100'
0 50 100
PROFILE (H) SCALE: 1"=100'
0 20 40
PROFILE (V) SCALE: 1"=40'

LEGEND:
- HDD ENTRY / EXIT POINTS
- GEOTECH BORE HOLE LOCATIONS

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PHOTOGRAPHY:

2018 FLOWN IMAGERY

PROJECTION SYSTEM:

NAD83 UTM 17N (U.S. SURVEY FEET)

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11.) REFER TO AMERICAN GEOTECH, INC. (AGI) GEOTECHNICAL REPORTS DATED JANUARY 2019 FOR CS-1.

ISSUED FOR FERC SUPPLEMENTAL FILING
10/14/19

TRC Results you can rely on

Mountain Valley PIPELINE, LLC

MVP SOUTHGATE PROJECT
H-650 PIPELINE
STONY CREEK RESERVOIR HDD

DRAWN BY: TRC	DATE: 10/09/18
CHECKED BY: SJO	DATE: 10/23/18
APPROVED BY:	EPO APPROVAL:

SCALE:	PROJ. NO.	DRAWING NO:	REV.
1" = 100'		HDD-StonyCreek-002	P3

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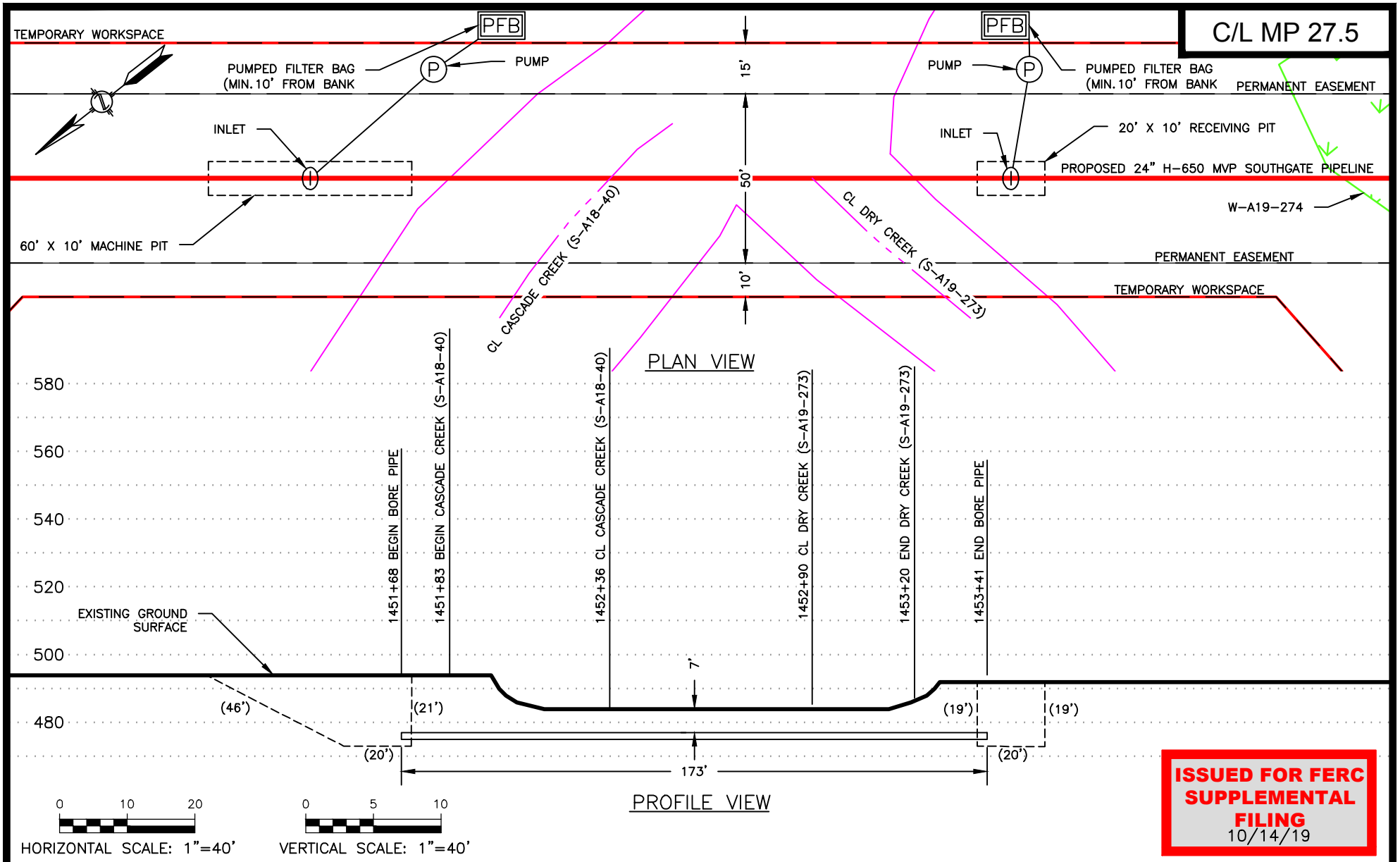
October 08, 2019 – 3:11pm



ISSUED FOR FERC SUPPLEMENTAL FILING
10/14/19

NOTES:

1. MINIMUM 5' OF COVER BETWEEN STREAMBED AND TOP OF PIPELINE.
2. PROPOSED BACKFILL WILL BE IN TRENCH AND WILL BE RESTORED TO PRE-CONSTRUCTION ELEVATIONS.
3. WATER DEPTH SHOWN ON PROFILE IS NOT TO SCALE.
4. E&SC BMPS HAVE BEEN REMOVED FOR CLARITY AND ARE DISPLAYED ON PLAN VIEW.

PREPARED BY:

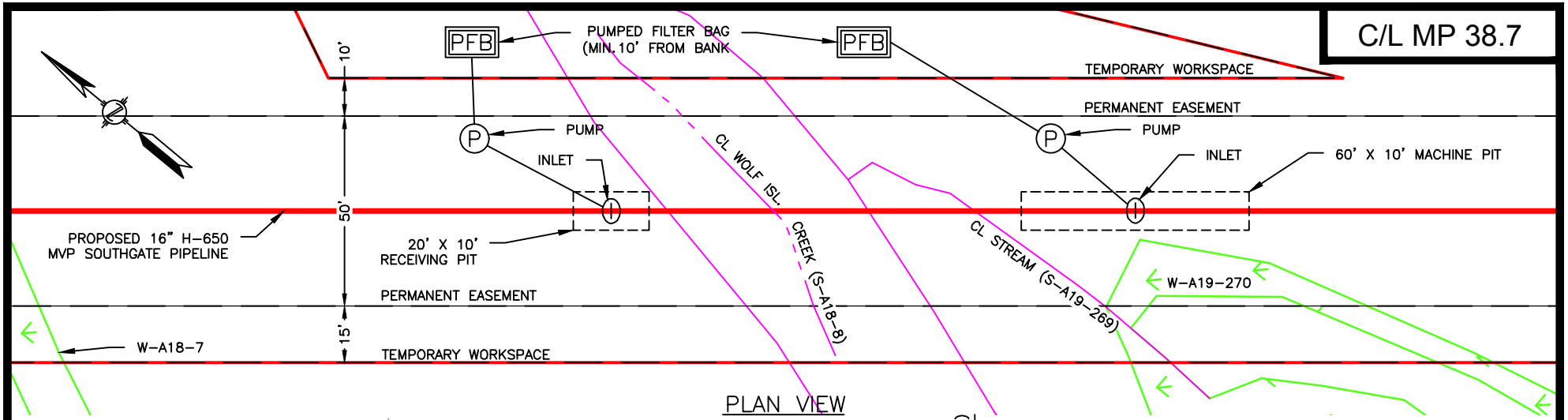
TRC
Results you can rely on

Mountain Valley PIPELINE LLC

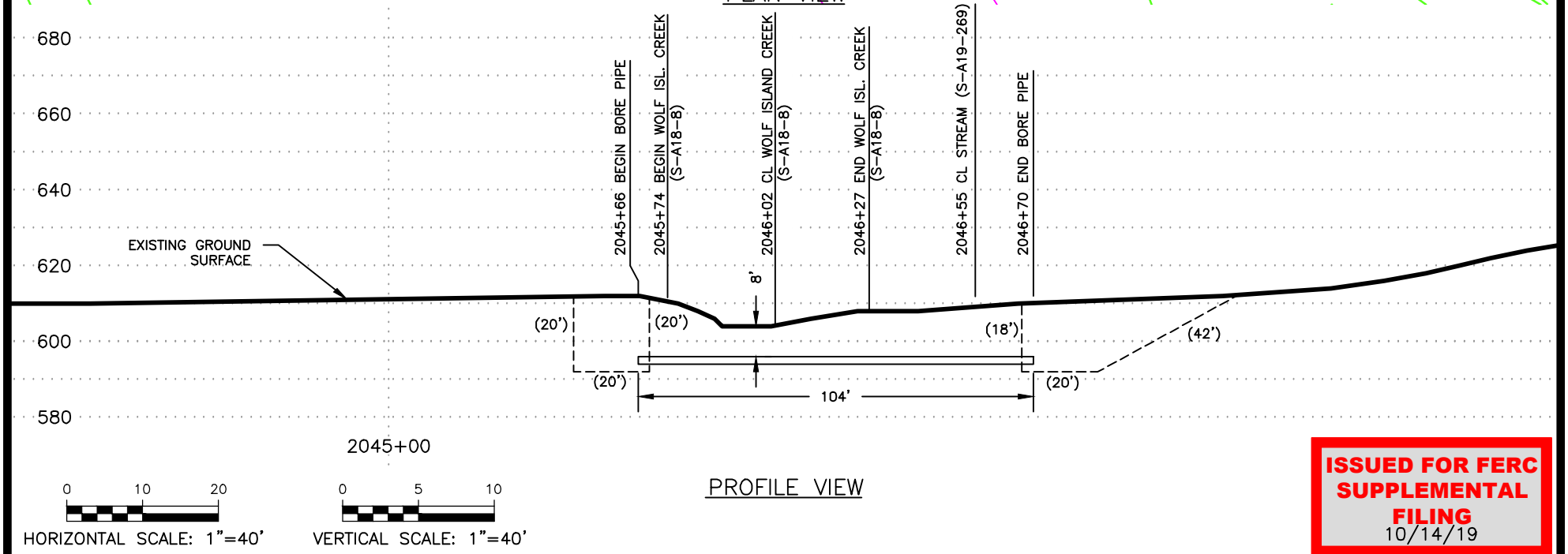
CASCADE CREEK - DRY CREEK
CONVENTIONAL BORE CROSSING DETAIL
MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

DRAWN BY:	AWF	02/20/19
DRAFTING CK:		
ENVIRONMENTAL CK:		
ENGINEERING CK:	.	.
DETAIL SHEET:		
DRAWING NO.:	WXP-RONC-H650-009	
SCALE: 1" = 40'		REV. P2
DATE OF PLOT: 10/8/2019		

C/L MP 38.7



PLAN VIEW



PROFILE VIEW

HORIZONTAL SCALE: 1"=40' VERTICAL SCALE: 1"=40'

ISSUED FOR FERC SUPPLEMENTAL FILING
10/14/19

NOTES:
1. MINIMUM 5' OF COVER BETWEEN STREAMBED AND TOP OF PIPELINE.
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3. WATER DEPTH SHOWN ON PROFILE IS NOT TO SCALE.
4. E&SC BMPS HAVE BEEN REMOVED FOR CLARITY AND ARE DISPLAYED ON PLAN VIEW.

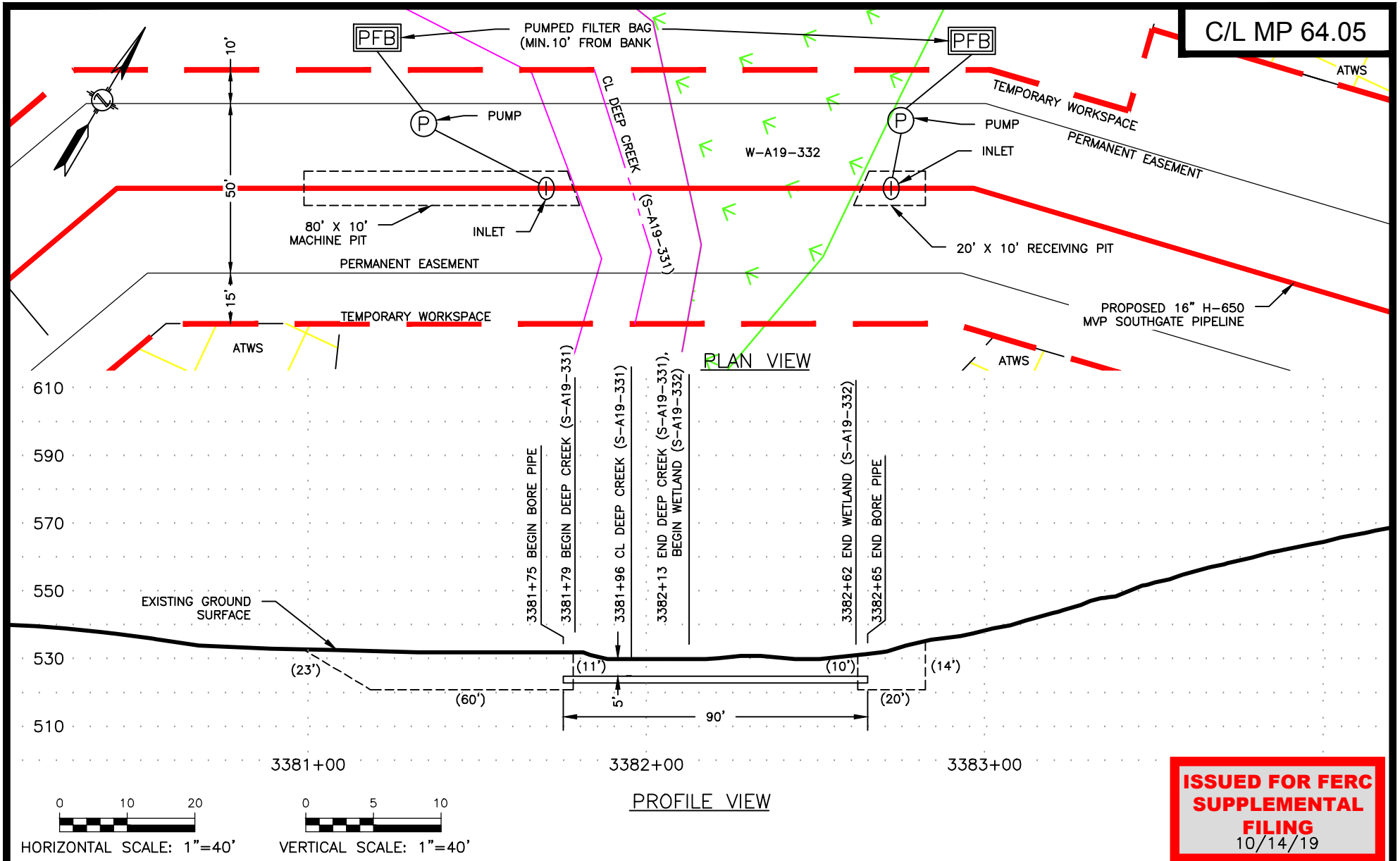
PREPARED BY:
TRC
Results you can rely on

Mountain Valley PIPELINE LLC

WOLF ISLAND CREEK
CONVENTIONAL BORE CROSSING DETAIL
MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

DRAWN BY:	AWF	02/20/19
DRAFTING CK:		
ENVIRONMENTAL CK:		
ENGINEERING CK:	.	.
DETAIL SHEET:		
DRAWING NO.:	**WXP-RONC-H650-010**	
SCALE: 1" = 40'		REV. P2
DATE OF PLOT: 10/8/2019		

C/L MP 64.05



ISSUED FOR FERC SUPPLEMENTAL FILING
10/14/19

NOTES:

1. MINIMUM 5' OF COVER BETWEEN STREAMBED AND TOP OF PIPELINE.
2. PROPOSED BACKFILL WILL BE IN TRENCH AND WILL BE RESTORED TO PRE-CONSTRUCTION ELEVATIONS.
3. WATER DEPTH SHOWN ON PROFILE IS NOT TO SCALE.
4. E&SC BMPS HAVE BEEN REMOVED FOR CLARITY AND ARE DISPLAYED ON PLAN VIEW.

PREPARED BY:

TRC
Results you can rely on

Mountain Valley PIPELINE LLC

DEEP CREEK
CONVENTIONAL BORE CROSSING DETAIL
MVP SOUTHGATE PROJECT
ALAMANCE COUNTY, NORTH CAROLINA

DRAWN BY:	AWF	09/12/19
DRAFTING CK:		
ENVIRONMENTAL CK:		
ENGINEERING CK:	.	.
DETAIL SHEET:		
DRAWING NO.:	**WXP-ALNC-H650-011**	
SCALE: 1" = 40'		REV. P
DATE OF PLOT: 10/8/2019		

MVP Southgate Project

Docket No. CP19-14-000

Construction Typical Drawings

October 2019

MVP SOUTHGATE PROJECT

PROPOSED H-650 PIPELINE
ENGINEERING SERVICES DESIGN; JOB NUMBERS 300423
CONSTRUCTION TYPICAL DRAWINGS

DRAWING NO.	DRAWING TITLE	REV.
CONST-TYP	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE CONSTRUCTION TYPICALS	P2
MVP-3	MAINLINE CONSTRUCTION NON-PARALLEL CONSTRUCTION NO TOP SOIL SEGREGATION 100' R.O.W.	P1
MVP-5	MAINLINE CONSTRUCTION ROAD CROSSING BORED 100' R.O.W.	P1
MVP-7	MAINLINE CONSTRUCTION RAILROAD CROSSING BORED 100' R.O.W.	P1
MVP-9	MAINLINE CONSTRUCTION WATERBODY CROSSING OPEN CUT - FLUME	P1
MVP-10	MAINLINE CONSTRUCTION TYPICAL DIRECTIONAL DRILL ENTRY SITE PLAN & PROFILE	P1
MVP-11	MAINLINE CONSTRUCTION TYPICAL DIRECTIONAL DRILL EXIT SITE PLAN & PROFILE	P1
MVP-12	MAINLINE CONSTRUCTION HORIZONTAL DIRECTIONAL DRILL (HDD)	P1
MVP-13	MAINLINE CONSTRUCTION PARALLEL TO POWER LINES 100' R.O.W.	P1
MVP-17	MAINLINE CONSTRUCTION PARALLEL TO FOREIGN LINES 100' R.O.W.	P1
MVP-25	MAINLINE CONSTRUCTION ROAD CROSSING BORED WITH PARALLEL PIPELINES 100' R.O.W.	P1
MVP-27	MAINLINE CONSTRUCTION RAILROAD CROSSING BORED WITH PARALLEL PIPELINES 100' R.O.W.	P1
MVP-29	MAINLINE CONSTRUCTION WATERBODY CROSSING WITH PARALLEL PIPELINES OPEN CUT - FLUME	P1
MVP-32	MAINLINE CONSTRUCTION WATERBODY CROSSING WITH PARALLEL PIPELINES BORED PIPE	P1
MVP-51	TYPICAL WATERBODY CONVENTIONAL BORE	P1
MVP-SG-17	SLOPE BREAKER/RIGHT-OF-WAY DIVERSION/WATERBAR	P1
MVP-SG-17.1	SLOPE BREAKER/RIGHT-OF-WAY DIVERSION/WATERBAR	P1
MVP-SG-17.2	SLOPE BREAKER/RIGHT-OF-WAY DIVERSION/WATERBAR	P1
MVP-SG-17.3	WATERBAR END TREATMENT PERPENDICULAR TO SLOPE EXAMPLE	P1
MVP-SG-17.4	WATERBAR END TREATMENT CROSS SLOPE EXAMPLE	P1
MVP-SG-17.7	WATERBAR END TREATMENT DETAIL	P1
MVP-SG-20	TYPICAL TRENCH BREAKER REQUIREMENTS	P1
MVP-SG-24	SIDEHILL LOW-POINTS DRAIN TYPICAL	P1
MVP-SG-31	MAINLINE CONSTRUCTION STEEP HILL PARALLEL CONSTRUCTION NO TOP SOIL SEGREGATION	P1
MVP-SG-32	MAINLINE CONSTRUCTION STEEP HILL STOVE PIPE CONSTRUCTION NO TOP SOIL SEGREGATION	P1
MVP-SG-35	TRENCH BREAKER DAYLIGHT DRAIN	P1
MVP-SG-36A	CUTOFF DRAIN-SIDEHILL	P1
MVP-SG-36B	CUTOFF DRAIN-SIDEHILL	P1
MVP-SG-37	CUTOFF DRAIN-PLANAR	P1
MVP-SG-38A	TRANSVERSE TRENCH DRAIN	P1
MVP-SG-38B	TRANSVERSE TRENCH DRAIN	P1
MVP-SG-39	ROCK LINED SWALE	P1
MVP-SG-40	RIP-RAP NATURAL DRAIN	P1
MVP-SG-41	RIP-RAP SLOPE BREAKERS	P1
MVP-SG-42A	GEOGRID-SIDEHILL	P1
MVP-SG-42B	GEOGRID-PLANAR	P1
MVP-SG-42C	GEOGRID-NOTES	P1
MVP-SG-43A	TRENCH BREAKER PASS-THROUGH DRAIN	P1
MVP-SG-43B	TRENCH BREAKER PASS-THROUGH DRAIN	P1
MVP-SG-44A	SLIDE MITIGATION HIGHWALL REVETMENT SIDE VIEW	P1
MVP-SG-44B	SLIDE MITIGATION HIGHWALL REVETMENT FRONT VIEW AND DRAIN DETAIL	P1
MVP-SG-45	STEEP SLOPE REVETMENT	P1
MVP-SG-46	BROW DITCH DETAIL	P1
MVP-SG-47	TIMBER MAT AND PIPE BUNDLE TEMPORARY STREAM CROSSING	P1
MVP-SG-48	TIMBER MAT AND JERSEY BARRIER TEMPORARY STREAM CROSSING	P1
MVP-SG-49	MOBILE BRIDGE	P1
MVP-SG-50	MODULAR TEMPORARY BAILEY BRIDGE	P1
MVP-SG-53	WETLAND CROSSING TYPICAL FOR USACE NORFOLK (VA) DISTRICT	P1

ISSUED FOR FERC SUPPLEMENTAL FILING
10/14/19

PROJECT ID 300423
DRAWING SCALE NTS

DRAWING TITLE:
MOUNTAIN VALLEY PIPELINE
SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
CONSTRUCTION TYPICALS

FACILITY	STATE	IDENTIFICATION	SERIES	SHEET	REVISION
MVP	VA/NC	CONST-TYP	–	1	P2

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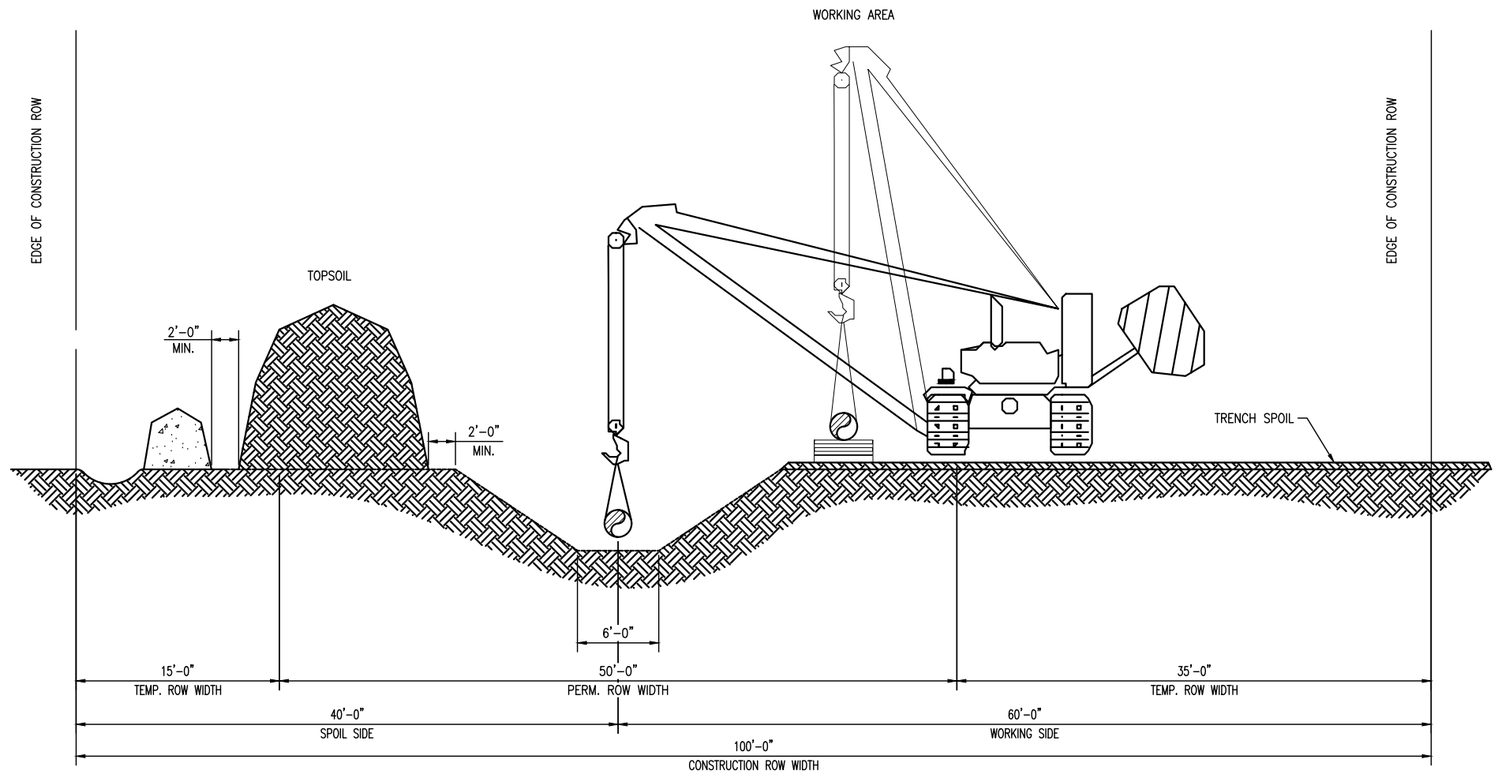

NOTE:
1. DRAWING DEPICTS SOIL SWELL OF 20% AND ROCK SWELL OF 40%.
2. DRAWING ASSUMES TYPE "C" SOIL

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

REFERENCE DRAWINGS		NO.	DATE	REVISION	BY	CHK	APPD
DRAWING NUMBER	DRAWING TITLE	P	05/07/2018	PRELIMINARY FOR REVIEW	JIL	AAL	NFF
		P1	11/02/2018	ISSUED FOR FERC	MEM	AAL	NFF
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NO.	DATE	REVISION	BY	CHK	APPD
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TO THE BEST OF MY KNOWLEDGE, ALL COMPONENTS OF THIS DRAWING ARE DESIGNED IN ACCORDANCE WITH APPLICABLE GUIDELINES AND SPECIFICATIONS

ALINA LAWRENCE — MECHANICAL DESIGN ENGINEER — 06/11/18 — DATE

ELECTRICAL DESIGN ENGINEER — DATE

NOTE: ANY CHANGES TO THE DESIGN SHOWN ON THIS DRAWING MUST BE APPROVED BY THE DESIGN ENGINEER.

Mountain Valley PIPELINE

DESIGN ENGINEERING

PROJECT ID: – – – –

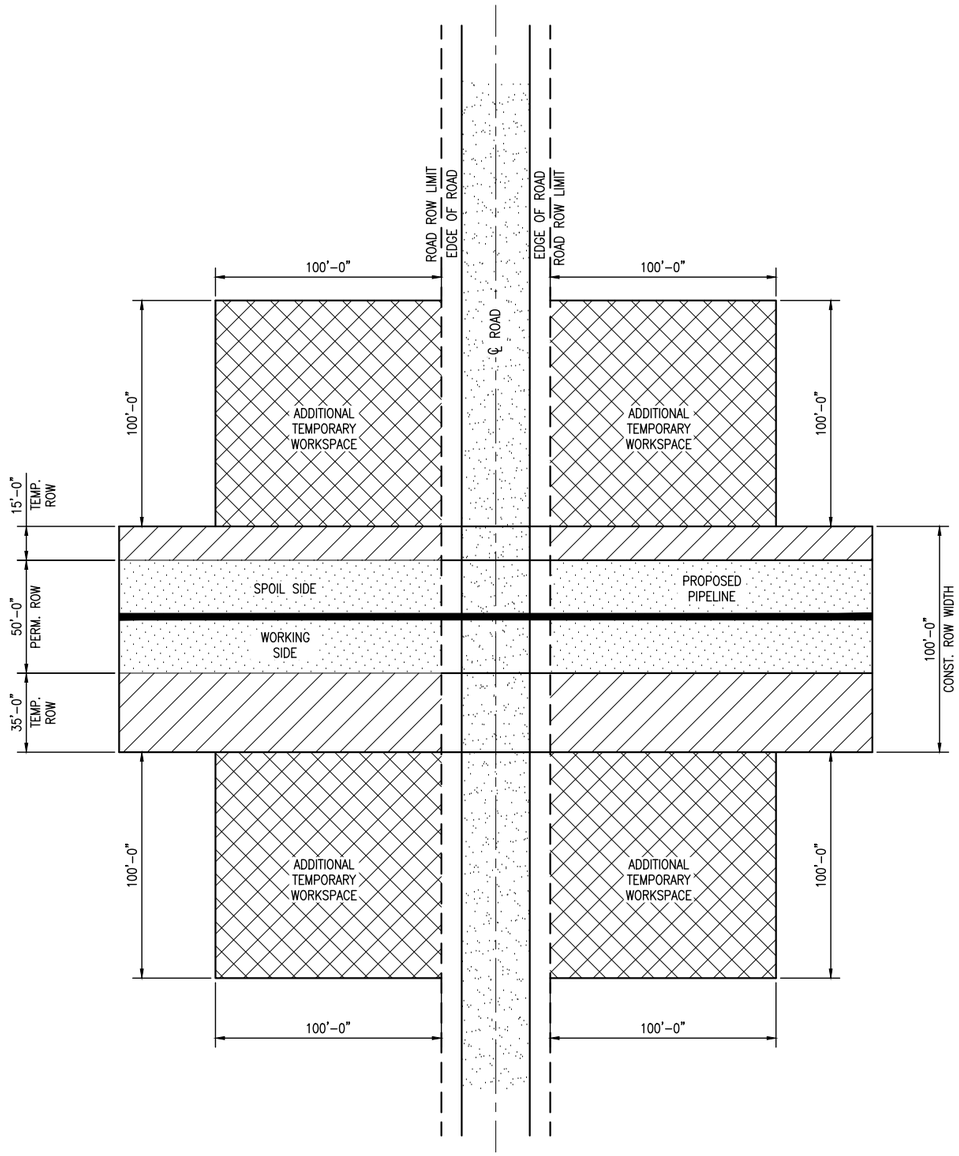
DRAWING SCALE: 3/16" = 1'-0"

DRAWING TITLE:
MAINLINE CONSTRUCTION
NON-PARALLEL CONSTRUCTION
WITH TOP SOIL SEGREGATION
100' RIGHT OF WAY

FACILITY	STATE	IDENTIFICATION	SERIES	SHEET	REVISION
MVP	VA/NC	H-650	3	1	P1

Plotted by: McCarthy, Matthew (Contractor) on: October 15, 2018 - 10:29 AM

File Path: C:\Vault Working\Systems\MVP\SouthGate\Construction Typicals\MVP-3.dwg



THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWING ASSUMES TYPE "C" SOIL

REFERENCE DRAWINGS		NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD
DRAWING NUMBER	DRAWING TITLE	P	05/07/2018	PRELIMINARY FOR REVIEW	JIL	AAL	NFF	–					
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TO THE BEST OF MY KNOWLEDGE, ALL COMPONENTS OF THIS DRAWING ARE DESIGNED IN ACCORDANCE WITH APPLICABLE GUIDELINES AND SPECIFICATIONS

ALINA LAWRENCE — MECHANICAL DESIGN ENGINEER — 06/11/18 — DATE

ELECTRICAL DESIGN ENGINEER — DATE

NOTE: ANY CHANGES TO THE DESIGN SHOWN ON THIS DRAWING MUST BE APPROVED BY THE DESIGN ENGINEER.

Mountain Valley PIPELINE

DESIGN ENGINEERING

PROJECT ID: – – – –

DRAWING SCALE: 1/32" = 1'–0"

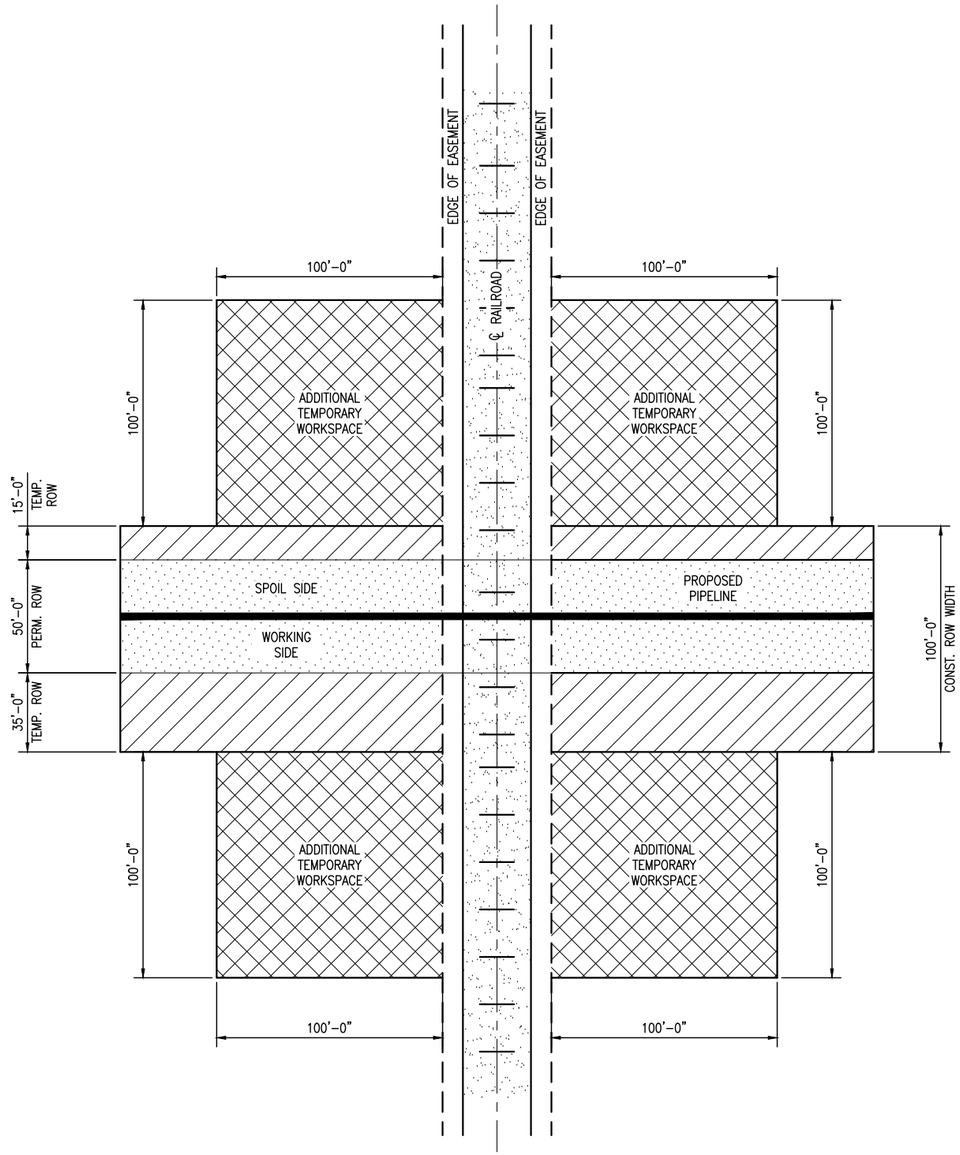
DRAWING TITLE:

MAINLINE CONSTRUCTION ROAD CROSSING BORED 100' RIGHT OF WAY

FACILITY	STATE	IDENTIFICATION	SERIES	SHEET	REVISION
MVP	VA/NC	H–650	5	1	P1

Plotted by: McCarthy, Matthew (Contractor) on October 15, 2018 - 10:29 AM

File Path: C:\Vault Working\Systems\MVP\SouthGate\Construction Typicals\MVP-5.dwg



THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWING ASSUMES TYPE "C" SOIL

REFERENCE DRAWINGS		NO.	DATE	REVISION	BY	CHK	APPD
DRAWING NUMBER	DRAWING TITLE	P	05/07/2018	PRELIMINARY FOR REVIEW	JIL	AAL	NFF
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TO THE BEST OF MY KNOWLEDGE, ALL COMPONENTS OF THIS DRAWING ARE DESIGNED IN ACCORDANCE WITH APPLICABLE GUIDELINES AND SPECIFICATIONS

ALINA LAWRENCE — MECHANICAL DESIGN ENGINEER — 06/11/18 — DATE

ELECTRICAL DESIGN ENGINEER — DATE

NOTE: ANY CHANGES TO THE DESIGN SHOWN ON THIS DRAWING MUST BE APPROVED BY THE DESIGN ENGINEER.

Mountain Valley PIPELINE, LLC

DESIGN ENGINEERING

PROJECT ID: – – – –

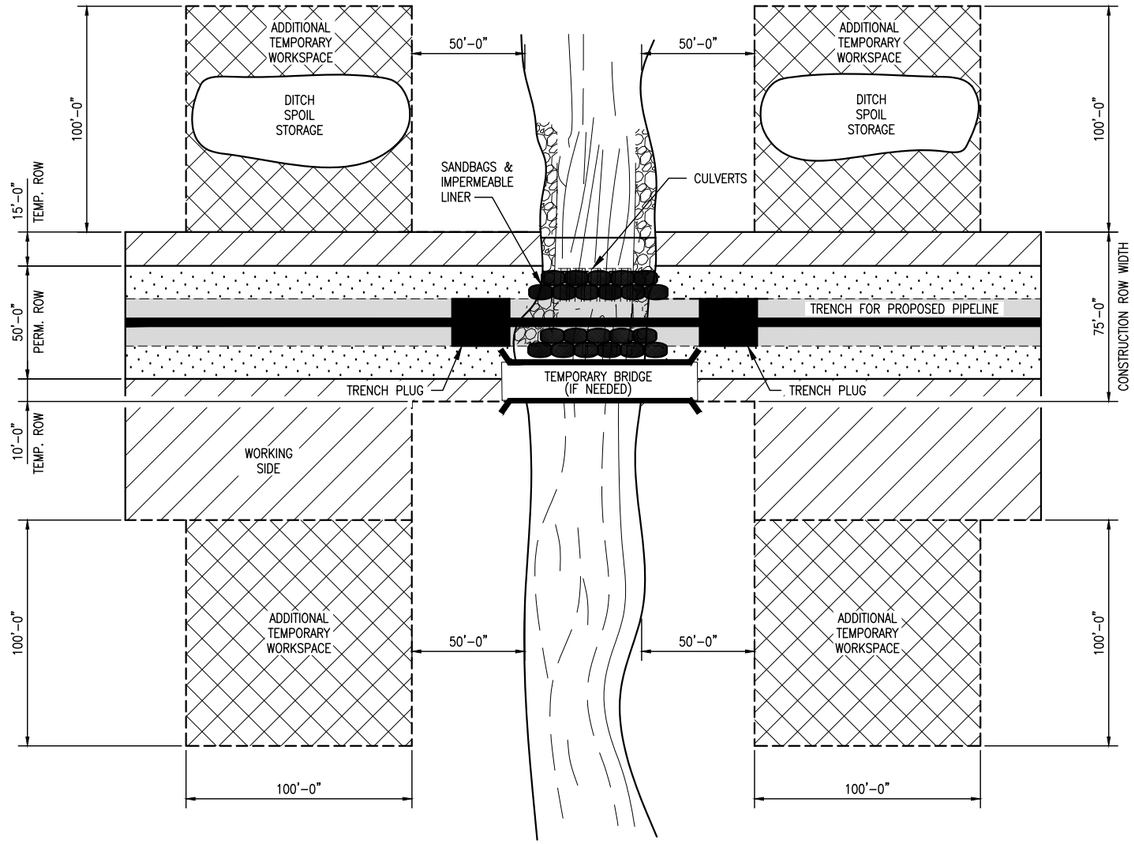
DRAWING SCALE: 1/32" = 1'–0"

DRAWING TITLE:
MAINLINE CONSTRUCTION
RAILROAD CROSSING BORED
100' RIGHT OF WAY

FACILITY	STATE	IDENTIFICATION	SERIES	SHEET	REVISION
MVP	VA/NC	H–650	7	1	P1

Plotted by: McCarthy, Matthew (Contractor) on October 15, 2018 - 10:23 AM

File Path: C:\Vault Working\Systems\MVP\SouthGate\Construction Typicals\MVP-7.dwg



THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWING ASSUMES TYPE "C" SOIL

REFERENCE DRAWINGS		NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD
DRAWING NUMBER	DRAWING TITLE	P	05/07/2018	PRELIMINARY FOR REVIEW	JIL	AAL	NFF	–					
		P1	11/02/2018	ISSUED FOR FERC	MEM	AAL	NFF	–					
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TO THE BEST OF MY KNOWLEDGE, ALL COMPONENTS OF THIS DRAWING ARE DESIGNED IN ACCORDANCE WITH APPLICABLE GUIDELINES AND SPECIFICATIONS

ALINA LAWRENCE — MECHANICAL DESIGN ENGINEER — 06/11/18 — DATE

ELECTRICAL DESIGN ENGINEER — DATE

NOTE: ANY CHANGES TO THE DESIGN SHOWN ON THIS DRAWING MUST BE APPROVED BY THE DESIGN ENGINEER.

Mountain Valley PIPELINE

DESIGN ENGINEERING

PROJECT ID ----

DRAWING SCALE: 1/8" = 1'–0"

DRAWING TITLE:

MAINLINE CONSTRUCTION WATERBODY CROSSING OPEN CUT – FLUME

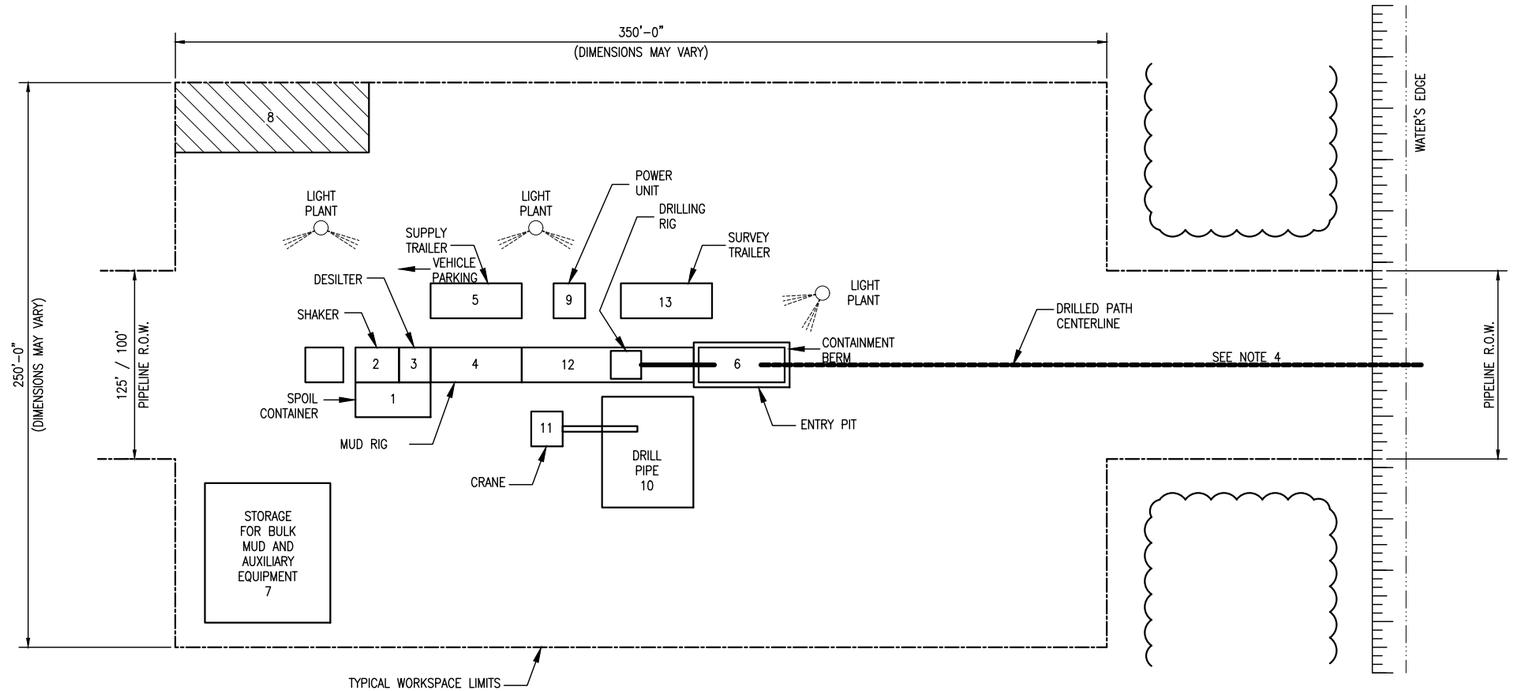
FACILITY	STATE	IDENTIFICATION	SERIES	SHEET	REVISION
MVP	VA/NC	H–650	9	1	P1

Plotted by: McCarthy, Matthew (Contractor) on October 15, 2018 - 10:29 AM

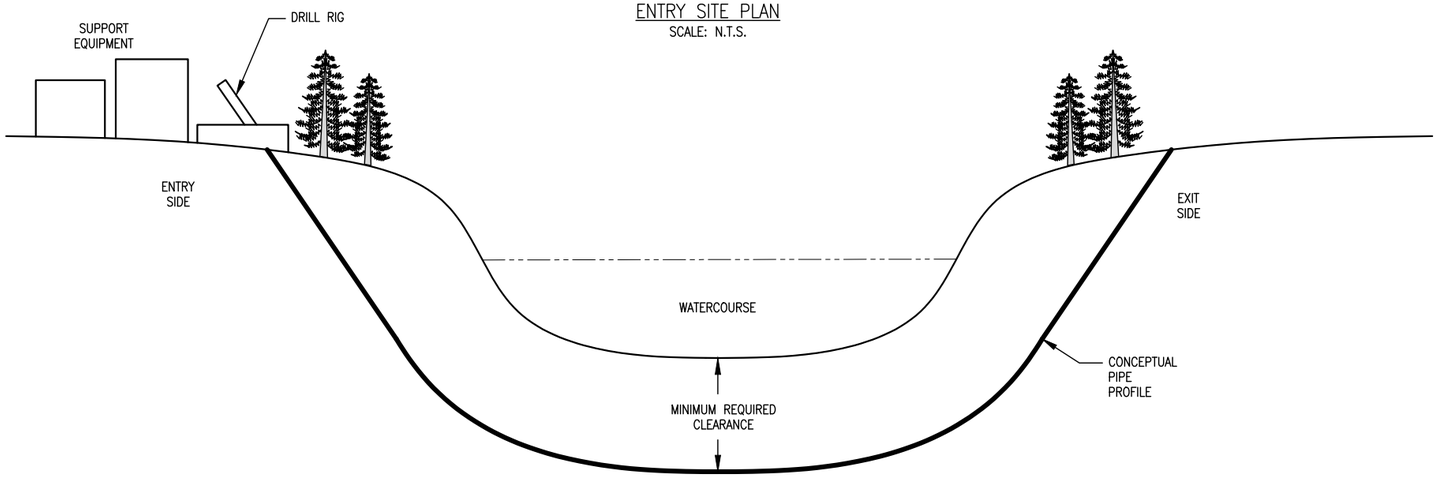
File Path: C:\Vault Working\Systems\MVP\SouthGate\Construction Typicals\MVP-9.dwg

EQUIPMENT:

1. SPOIL CONTAINER: 8' X 20'
2. SHAKER: 8' X 12'
3. DESILTER: 8' X 8'
4. MUD RIG: 8' X 25'
5. SUPPLY TRAILER: 8' X 25'
6. ENTRY PIT: 8' X 20'
7. STORAGE: 30' X 30'
8. VEHICLE PARKING: 15' X 50'
9. POWER UNIT: 8' X 10'
10. DRILL PIPE: 30' X 30'
11. CRANE: 8' X 8'
12. DRILLING RIG: 8' X 45'
13. SURVEY TRAILER: 8' X 25'



ENTRY SITE PLAN
SCALE: N.T.S.



PROFILE
SCALE: N.T.S.

NOTES:

1. EQUIPMENT ORIENTATION MAY VARY DEPENDING ON CONTRACTOR OR SITE CONDITIONS.
2. EQUIPMENT TO BE SUPPORTED ON THE GROUND SURFACE OR TIMBER MATS AS CONDITIONS DICTATE.
3. SILT FENCE, BERMS AND/OR STRAW BALE BARRIER TO BE USED AS REQUIRED TO PREVENT IMPACTS FROM OCCURRING OUTSIDE OF PROJECT LIMITS.
4. HAND CLEARED ACCESS PATH WILL BE USED TO OBTAIN WATER FROM SOURCE WHERE PERMITTED.
5. ENTRANCE & EXIT ANGLES VARY BY LOCATION. REFER TO BORE PROFILE FOR DETAILED INFORMATION.

GENERAL NOTES:

1. PIPE DEPTHS MAY VARY.

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWING ASSUMES TYPE "C" SOIL

REFERENCE DRAWINGS		NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD
DRAWING NUMBER	DRAWING TITLE	P	05/07/2018	PRELIMINARY FOR REVIEW	JIL	AAL	NFF	–					
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TO THE BEST OF MY KNOWLEDGE, ALL COMPONENTS OF THIS DRAWING ARE DESIGNED IN ACCORDANCE WITH APPLICABLE GUIDELINES AND SPECIFICATIONS

ALINA LAWRENCE — MECHANICAL DESIGN ENGINEER — 06/11/18 — DATE

ELECTRICAL DESIGN ENGINEER — DATE

NOTE: ANY CHANGES TO THE DESIGN SHOWN ON THIS DRAWING MUST BE APPROVED BY THE DESIGN ENGINEER.

Mountain Valley PIPELINE

DESIGN ENGINEERING

PROJECT ID

DRAWING SCALE:
NTS

DRAWING TITLE:
MAINLINE CONSTRUCTION
TYPICAL DIRECTIONAL DRILL
ENTRY SITE PLAN & PROFILE

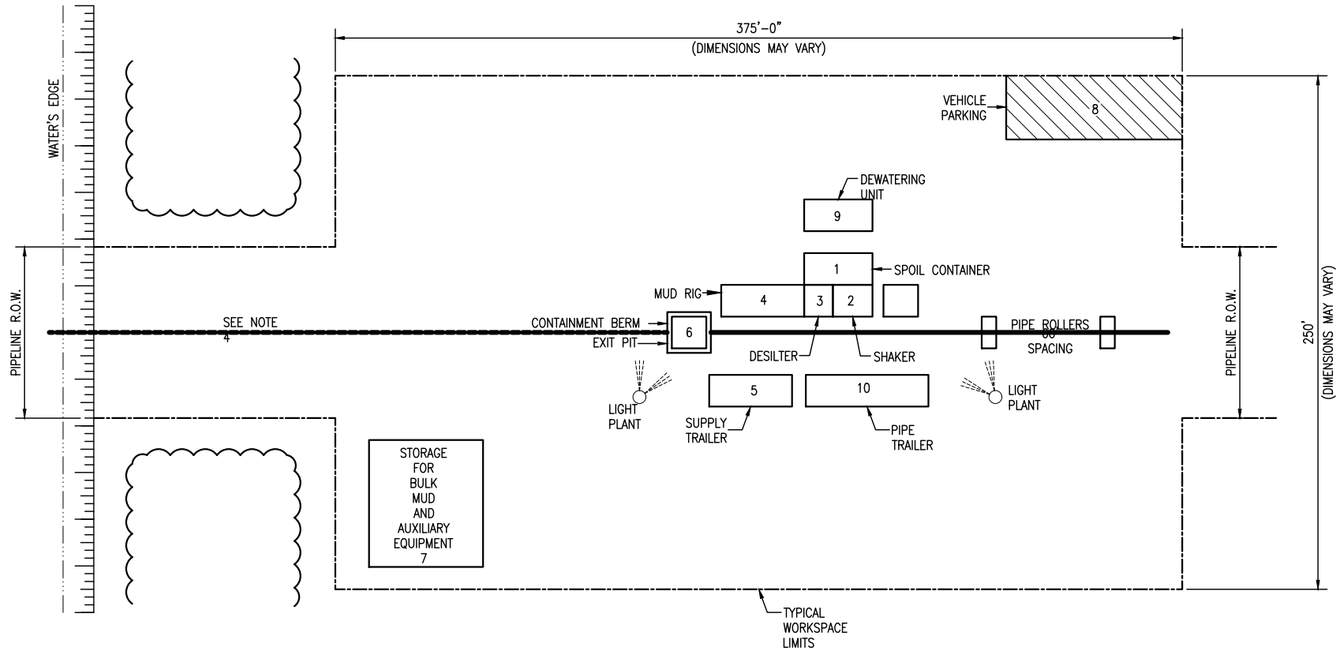
FACILITY	STATE	IDENTIFICATION	SERIES	SHEET	REVISION
MVP	VA/NC	H-650	10	1	P1

Plotted by: McCarthy, Matthew (Contractor) on October 15, 2018 - 10:29 AM

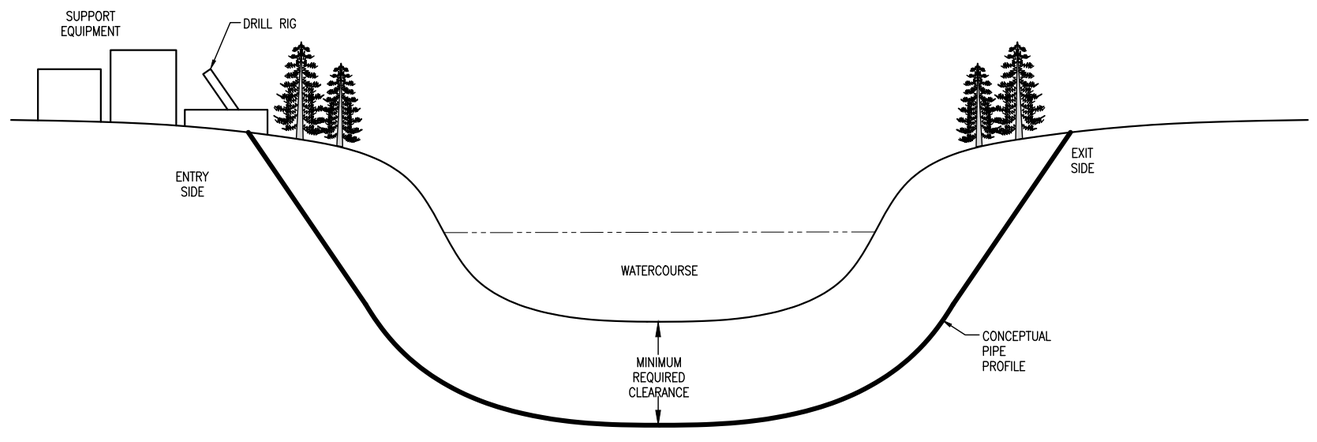
File Path: C:\Vault Working\Systems\MVP\SouthGate\Construction Typicals\MVP-10.dwg

EQUIPMENT:

1. SPOIL CONTAINER: 8' X 20'
2. SHAKER: 8' X 12'
3. DESILTER: 8' X 8'
4. MUD RIG: 8' X 25'
5. SUPPLY TRAILER: 8' X 25'
6. EXIT PIT: 8' X 10'
7. STORAGE: 30' X 30'
8. VEHICLE PARKING: 15' X 50'
9. DEWATERING UNIT: 8' X 20'
10. PIPE TRAILER: 8' X 40'



EXIT SITE PLAN
SCALE: N.T.S.



PROFILE
SCALE: N.T.S.

NOTES:

1. EQUIPMENT ORIENTATION MAY VARY DEPENDING ON CONTRACTOR OR SITE CONDITIONS.
2. EQUIPMENT TO BE SUPPORTED ON THE GROUND SURFACE OR TIMBER MATS AS CONDITIONS DICTATE.
3. SILT FENCE, BERMS AND/OR STRAW BALE BARRIER TO BE USED AS REQUIRED TO PREVENT IMPACTS FROM OCCURRING OUTSIDE OF PROJECT LIMITS.
4. HAND CLEARED ACCESS PATH WILL BE USED TO OBTAIN WATER FROM SOURCE WHERE PERMITTED.

GENERAL NOTES:

1. PIPE DEPTHS MAY VARY.

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DRAWING ASSUMES TYPE "C" SOIL

REFERENCE DRAWINGS		NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD
DRAWING NUMBER	DRAWING TITLE	P	05/07/2018	PRELIMINARY FOR REVIEW	JIL	AAL	NFF	–					
		P1	11/02/2018	ISSUED FOR FERC	MEM	AAL	NFF	–					
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TO THE BEST OF MY KNOWLEDGE, ALL COMPONENTS OF THIS DRAWING ARE DESIGNED IN ACCORDANCE WITH APPLICABLE GUIDELINES AND SPECIFICATIONS

ALINA LAWRENCE — MECHANICAL DESIGN ENGINEER — 06/11/18 — DATE

ELECTRICAL DESIGN ENGINEER — DATE

NOTE: ANY CHANGES TO THE DESIGN SHOWN ON THIS DRAWING MUST BE APPROVED BY THE DESIGN ENGINEER.

Mountain Valley PIPELINE

DESIGN ENGINEERING

PROJECT ID ----

DRAWING SCALE: 1/32" = 1'-0"

DRAWING TITLE:

MAINLINE CONSTRUCTION
TYPICAL DIRECTIONAL DRILL
EXIT SITE PLAN & PROFILE

FACILITY	STATE	IDENTIFICATION	SERIES	SHEET	REVISION
MVP	VA/NC	H-650	11	1	P1

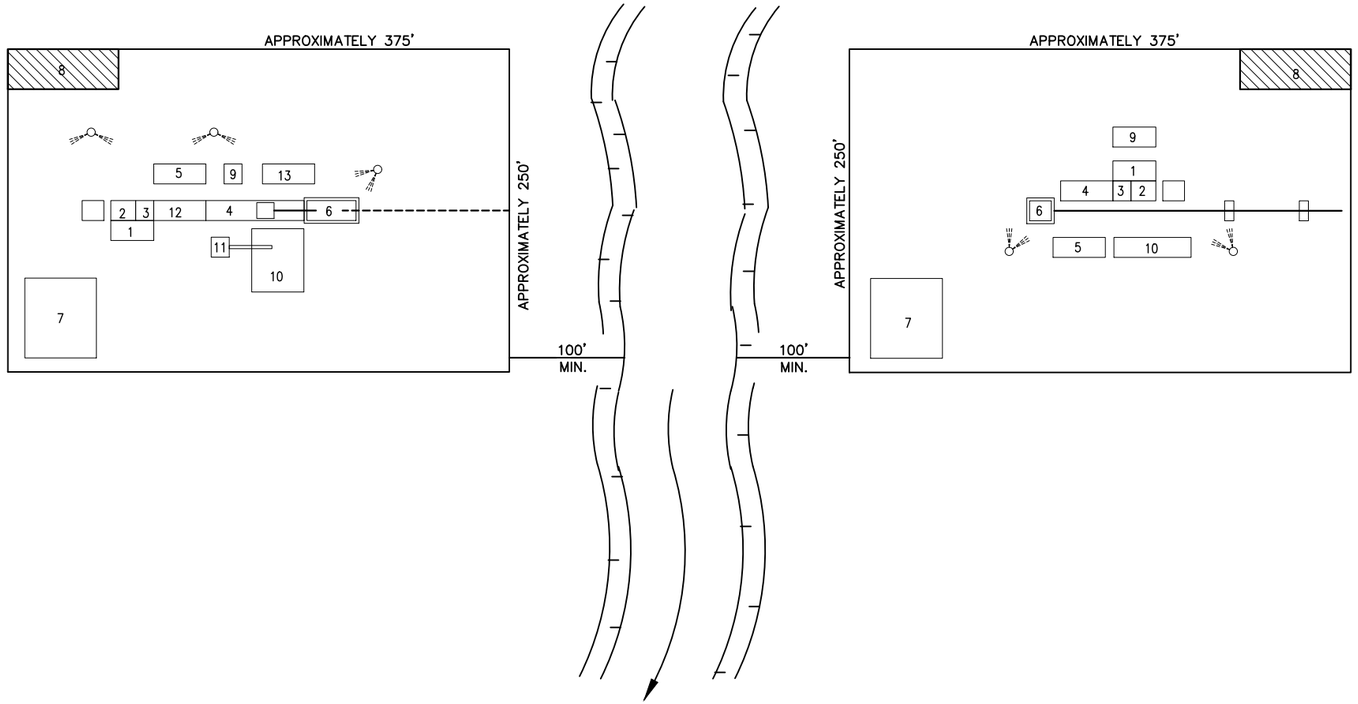
Plotted by: McCarthy, Matthew (Contractor) on October 15, 2018 - 10:29 AM

File Path: C:\Vault Working\Systems\MVP\SouthGate\Construction Typicals\MVP-11.dwg

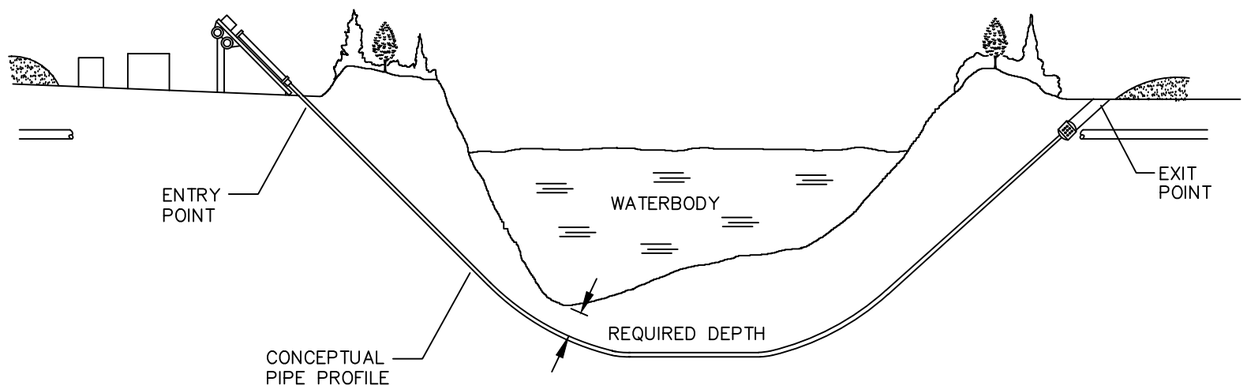
EQUIPMENT:

1. SPOIL CONTAINER: 8' X 20'
2. SHAKER: 8' X 12'
3. DESILTER: 8' X 8'
4. MUD RIG: 8' X 25'
5. SUPPLY TRAILER: 8' X 25'
6. EXIT PIT: 8' X 10'
7. STORAGE: 30' X 30'
8. VEHICLE PARKING: 15' X 50'
9. DEWATERING UNIT: 8' X 20'
10. PIPE TRAILER: 8' X 40'

HORIZONTAL DIRECTIONAL DRILL METHOD 7



PLAN



PROFILE

NOTES:

1. SET UP DRILLING EQUIPMENT A MINIMUM OF 100 FEET FROM THE EDGE OF THE WATERCOURSE. DO NOT CLEAR OR GRADE WITHIN THE 100 FOOT ZONE.
2. ENSURE THAT ONLY BENTONITE BASED DRILLING MUD IS USED. DO NOT ALLOW THE USE OF ANY ADDITIVES TO THE DRILLING MUD WITHOUT THE APPROVAL OF COMPANY INSPECTOR.
3. INSTALL SUITABLE DRILLING MUD TANKS OR SUMPS TO PREVENT CONTAMINATION OF WATERCOURSE.
4. INSTALL BERMS DOWNSLOPE FROM THE DRILL ENTRY AND ANTICIPATED EXIT POINTS TO CONTAIN ANY RELEASE OF DRILLING MUD.
5. DISPOSE OF DRILLING MUD IN ACCORDANCE WITH THE APPROPRIATE REGULATORY AUTHORITY REQUIREMENTS.
6. A SEDIMENT BARRIER SHALL BE PLACED ON THE DOWN SLOPE SIDE OF RIGHT-OF-WAY, PER THE PROJECT NARRATIVE.

NOTES:

1. EQUIPMENT ORIENTATION MAY VARY DEPENDING ON CONTRACTOR OR SITE CONDITIONS.
2. EQUIPMENT TO BE SUPPORTED ON THE GROUND SURFACE OR TIMBER MATS AS CONDITIONS DICTATE.
3. SILT FENCE, BERMS AND/OR STRAW BALE BARRIER TO BE USED AS REQUIRED TO PREVENT IMPACTS FROM OCCURRING OUTSIDE OF PROJECT LIMITS.
4. HAND CLEARED ACCESS PATH WILL BE USED TO OBTAIN WATER FROM SOURCE WHERE PERMITTED.
5. ENTRANCE & EXIT ANGLES VARY BY LOCATION. REFER TO BORE PROFILE FOR DETAILED INFORMATION.

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DRAWING ASSUMES TYPE "C" SOIL

REFERENCE DRAWINGS		NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD
DRAWING NUMBER	DRAWING TITLE	P	05/07/2018	PRELIMINARY FOR REVIEW	JIL	AAL	NFF	–					
		P1	11/02/2018	ISSUED FOR FERC	MEW	AAL	NFF	–					
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TO THE BEST OF MY KNOWLEDGE, ALL COMPONENTS OF THIS DRAWING ARE DESIGNED IN ACCORDANCE WITH APPLICABLE GUIDELINES AND SPECIFICATIONS

ALINA LAWRENCE — MECHANICAL DESIGN ENGINEER — 06/11/18 — DATE

ELECTRICAL DESIGN ENGINEER — DATE

NOTE: ANY CHANGES TO THE DESIGN SHOWN ON THIS DRAWING MUST BE APPROVED BY THE DESIGN ENGINEER.

Mountain Valley PIPELINE, LLC

DESIGN ENGINEERING

PROJECT ID ----

DRAWING SCALE: 1/64" = 1'-0"

DRAWING TITLE: MAINLINE CONSTRUCTION HORIZONTAL DIRECTIONAL DRILL (HDD)

FACILITY	STATE	IDENTIFICATION	SERIES	SHEET	REVISION
MVP	VA/NC	H-650	12	1	P1

Plotted by: McCarthy, Matthew (Contractor) on: October 15, 2018 - 10:29 AM

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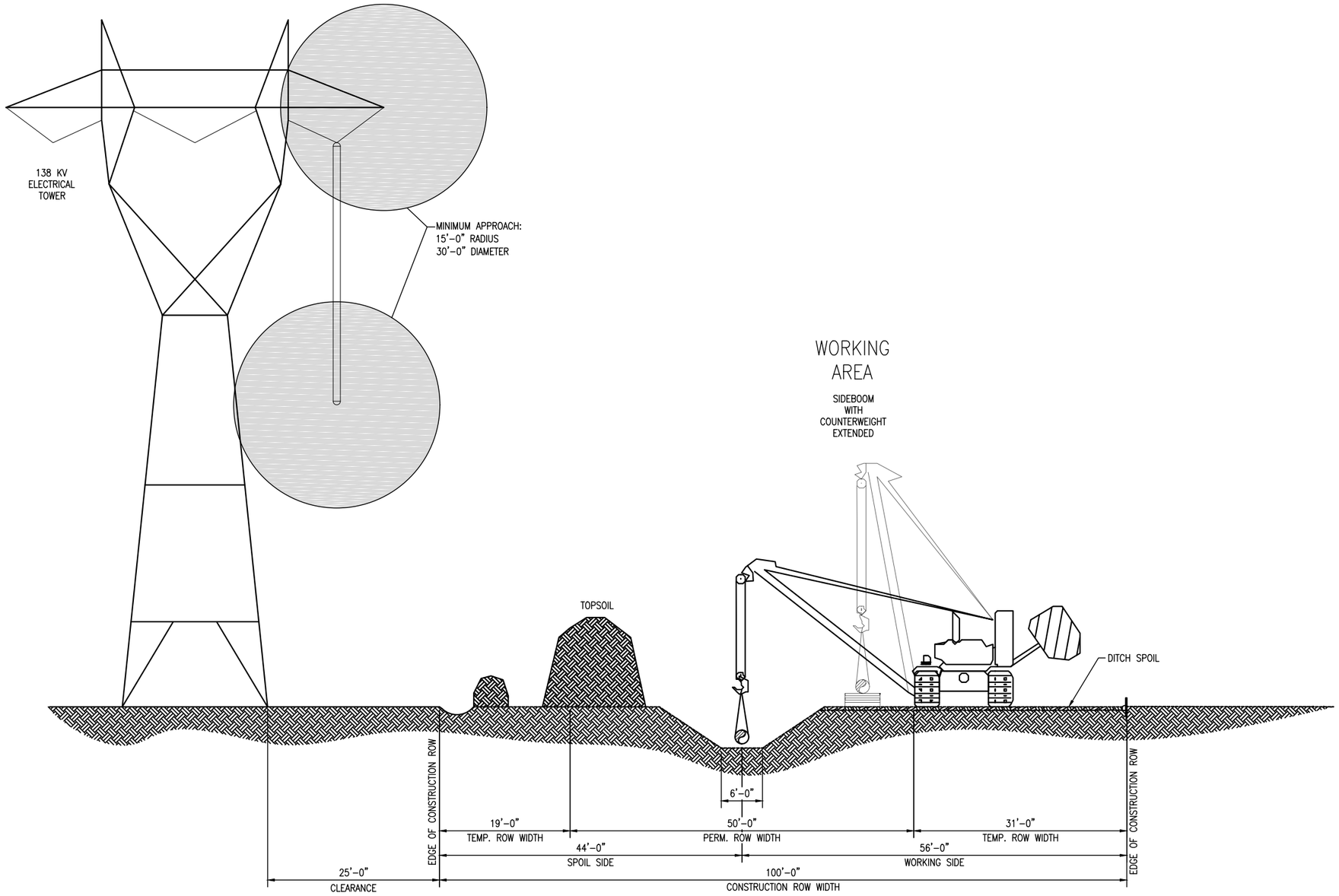

WORKING
AREA

SIDEBOOM
WITH
COUNTERWEIGHT
EXTENDED

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWING ASSUMES TYPE "C" SOIL

REFERENCE DRAWINGS		NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD
DRAWING NUMBER	DRAWING TITLE	P	05/07/2018	PRELIMINARY FOR REVIEW	JIL	AAL	NFF	–					
		P1	11/02/2018	ISSUED FOR FERC	MEW	AAL	NFF	–					
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TO THE BEST OF MY KNOWLEDGE, ALL COMPONENTS OF THIS DRAWING ARE DESIGNED IN ACCORDANCE WITH APPLICABLE GUIDELINES AND SPECIFICATIONS

ALINA LAWRENCE — MECHANICAL DESIGN ENGINEER — 06/11/18 — DATE

ELECTRICAL DESIGN ENGINEER — DATE

NOTE: ANY CHANGES TO THE DESIGN SHOWN ON THIS DRAWING MUST BE APPROVED BY THE DESIGN ENGINEER.

Mountain Valley PIPELINE, LLC

DESIGN ENGINEERING

PROJECT ID

– – – –

DRAWING SCALE: 1/8" = 1'–0"

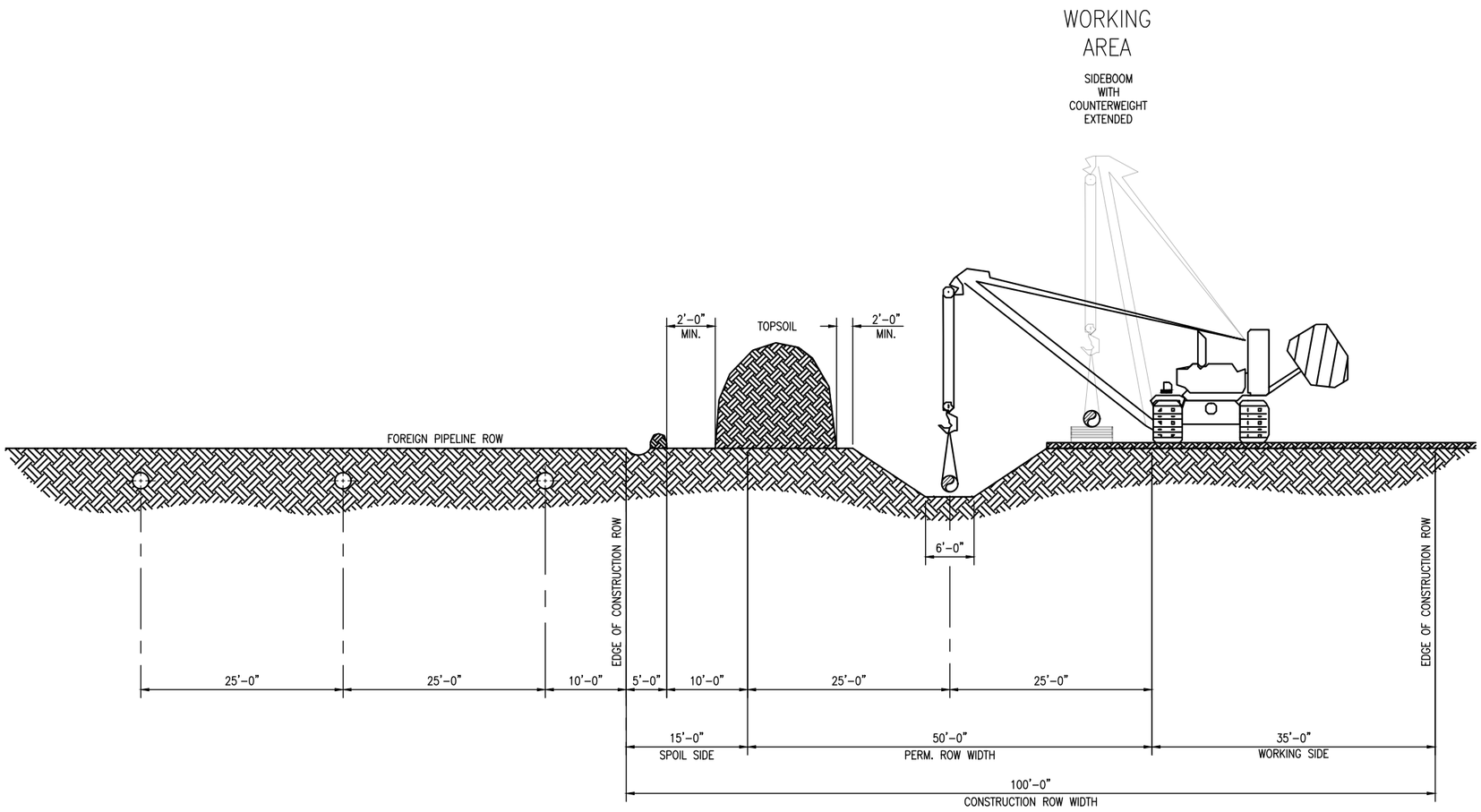
DRAWING TITLE:

MAINLINE CONSTRUCTION
PARALLEL TO POWER LINES
100' RIGHT OF WAY

FACILITY	STATE	IDENTIFICATION	SERIES	SHEET	REVISION
MVP	VA/NC	H–650	13	1	P1

Plotted by: McCarthy, Matthew (Contractor) on: October 15, 2018 - 10:29 AM

File Path: C:\Vault Working\Systems\MVP\SouthGate\Construction Typicals\MVP-13.dwg



THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWING ASSUMES TYPE "C" SOIL

REFERENCE DRAWINGS		NO.	DATE	REVISION	BY	CHK	APPD
DRAWING NUMBER	DRAWING TITLE	P	05/07/2018	PRELIMINARY FOR REVIEW	JIL	AAL	NFF
		P1	11/02/2018	ISSUED FOR FERC	MEM	AAL	NFF
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NO.	DATE	REVISION	BY	CHK	APPD
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ALINA LAWRENCE — MECHANICAL DESIGN ENGINEER — 06/11/18 — DATE

ELECTRICAL DESIGN ENGINEER — DATE

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Mountain Valley PIPELINE

DESIGN ENGINEERING

PROJECT ID: – – – –

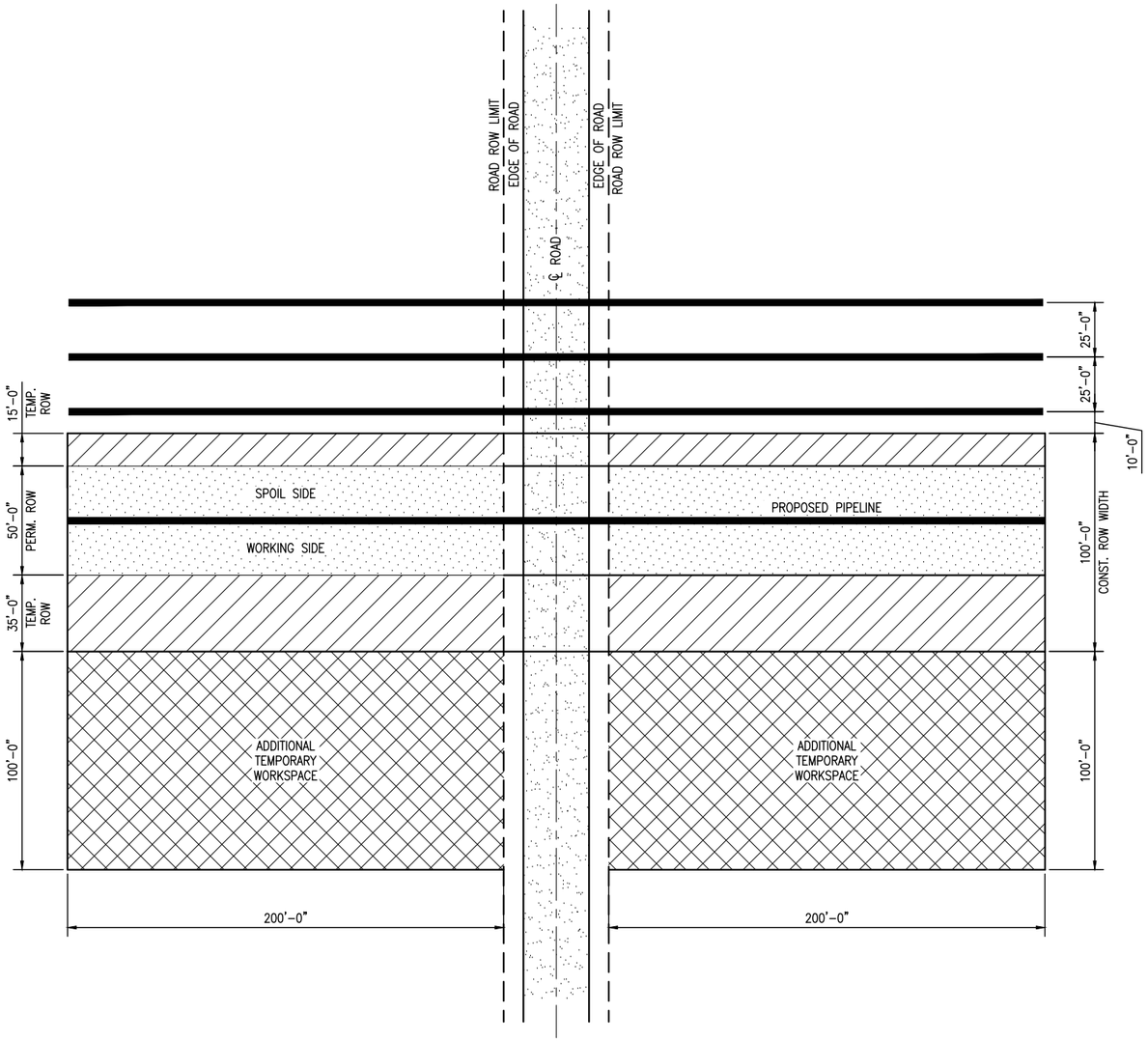
DRAWING SCALE: 1/8" = 1'-0"

DRAWING TITLE:
MAINLINE CONSTRUCTION
PARALLEL TO FOREIGN LINES
100' RIGHT OF WAY

FACILITY	STATE	IDENTIFICATION	SERIES	SHEET	REVISION
MVP	VA/NC	H-650	17	1	P1

Plotted by: McCarthy, Matthew (Contractor) on October 15, 2018 - 10:29 AM

File Path: C:\Vault Working\Systems\MVP\SouthGate\Construction Typicals\MVP-17.dwg



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DRAWING ASSUMES TYPE "C" SOIL

REFERENCE DRAWINGS		NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD
DRAWING NUMBER	DRAWING TITLE	P	05/07/2018	PRELIMINARY FOR REVIEW	JIL	AAL	NFF	–					
		P1	11/02/2018	ISSUED FOR FERC	MEM	AAL	NFF	–					
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TO THE BEST OF MY KNOWLEDGE, ALL COMPONENTS OF THIS DRAWING ARE DESIGNED IN ACCORDANCE WITH APPLICABLE GUIDELINES AND SPECIFICATIONS

ALINA LAWRENCE — MECHANICAL DESIGN ENGINEER — 06/11/18 — DATE

ELECTRICAL DESIGN ENGINEER — DATE

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Mountain Valley PIPELINE

DESIGN ENGINEERING

PROJECT ID: – – – –

DRAWING SCALE: 1/32" = 1'-0"

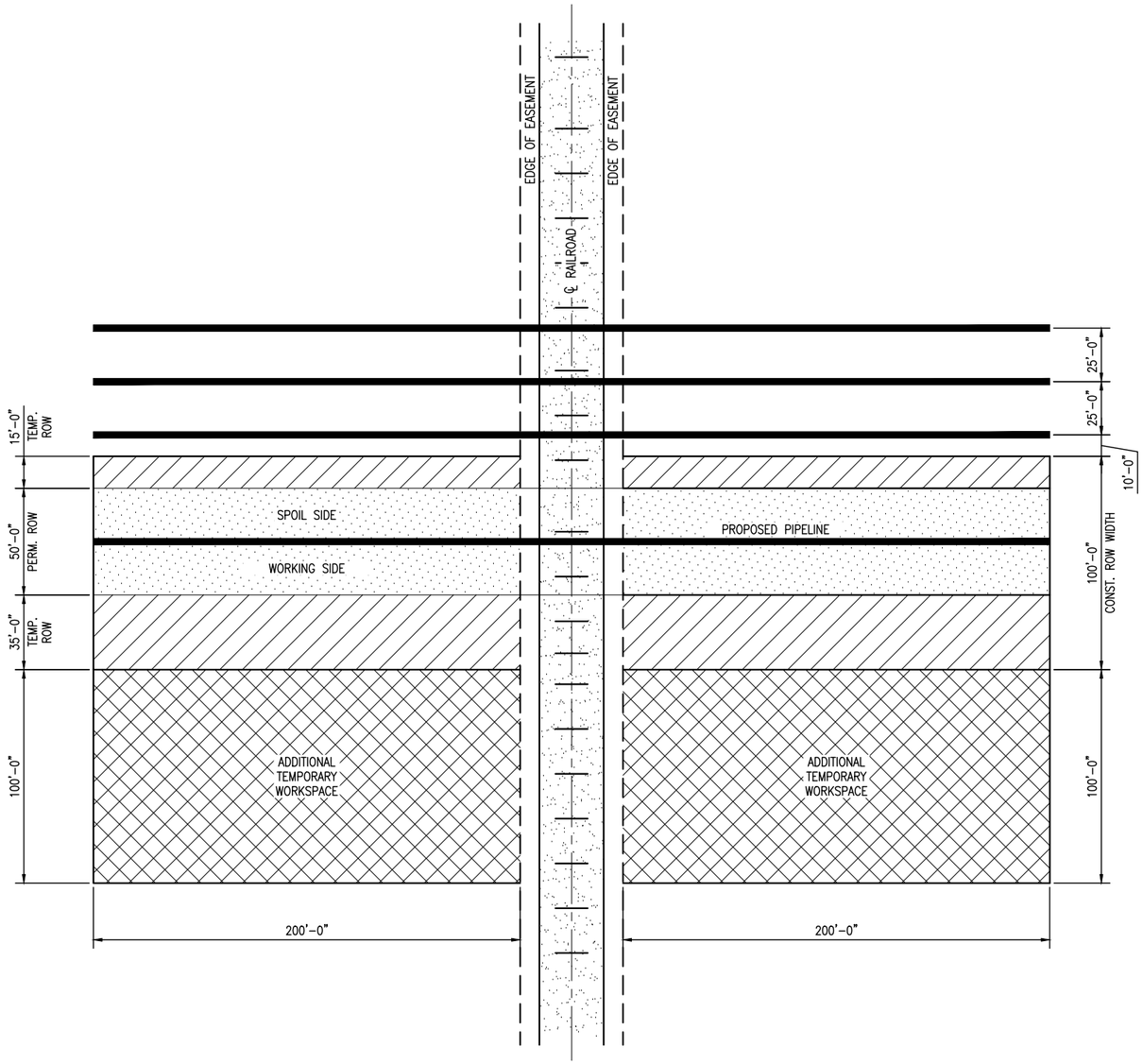
DRAWING TITLE:

MAINLINE CONSTRUCTION
ROAD CROSSING BORED WITH PARALLEL PIPELINES
100' RIGHT OF WAY

FACILITY	STATE	IDENTIFICATION	SERIES	SHEET	REVISION
MVP	VA/NC	H-650	25	1	P1

Plotted by: McCarthy, Matthew (Contractor) on October 15, 2018 - 10:29 AM

File Path: C:\Vault Working\Systems\MVP\SouthGate\Construction Typicals\MVP-25.dwg



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DRAWING ASSUMES TYPE "C" SOIL

REFERENCE DRAWINGS		NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD
DRAWING NUMBER	DRAWING TITLE	P	05/07/2018	PRELIMINARY FOR REVIEW	JIL	AAL	NFF	–					
		P1	11/02/2018	ISSUED FOR FERC	MEM	AAL	NFF	–					
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ALINA LAWRENCE — MECHANICAL DESIGN ENGINEER — 06/11/18 — DATE

ELECTRICAL DESIGN ENGINEER — DATE

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Mountain Valley PIPELINE

DESIGN ENGINEERING

PROJECT ID: – – – –

DRAWING SCALE: 1/32" = 1'-0"

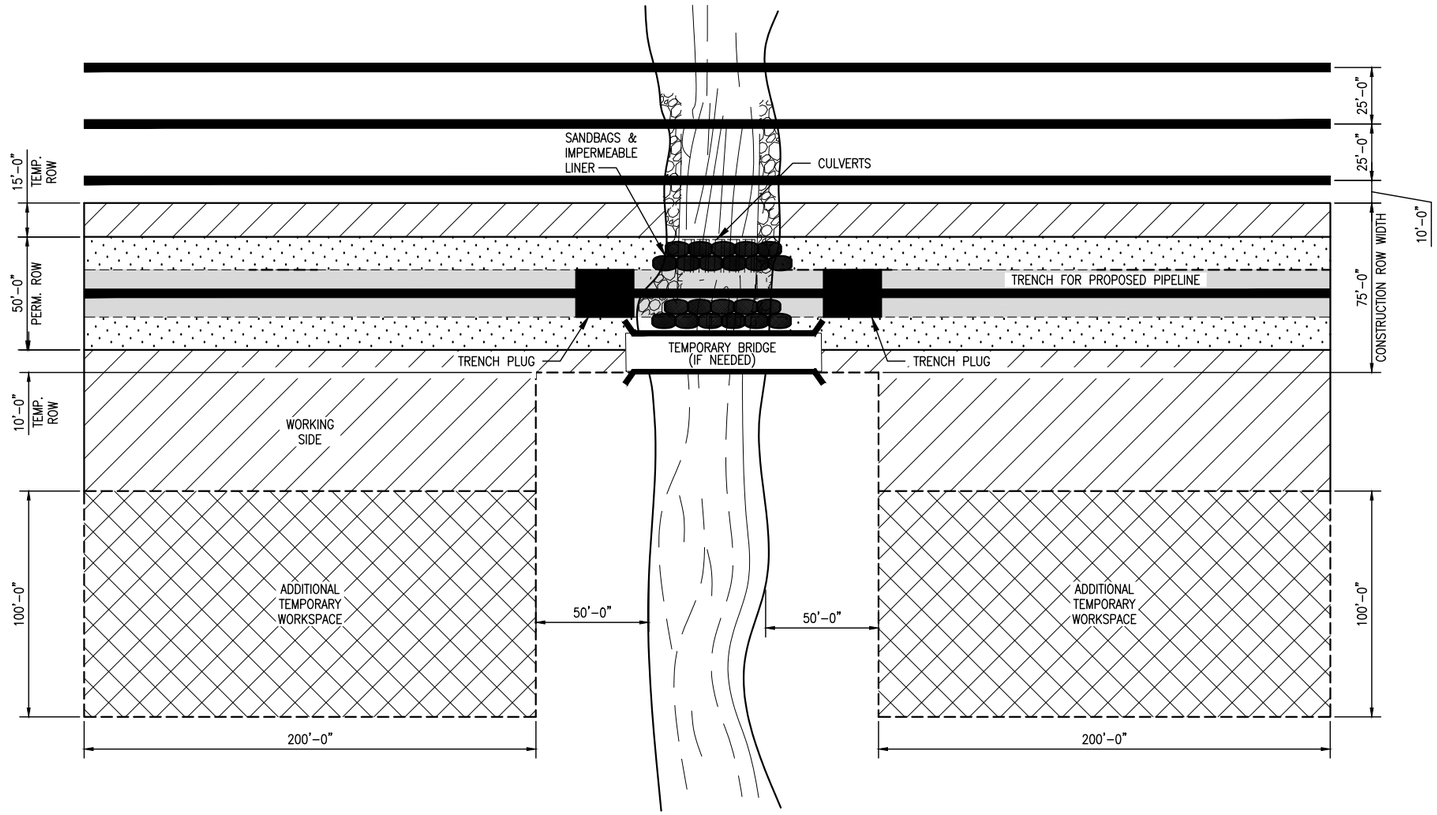
DRAWING TITLE:

MAINLINE CONSTRUCTION
RAILROAD CROSSING BORED WITH PARALLEL PIPELINES
100' RIGHT OF WAY

FACILITY	STATE	IDENTIFICATION	SERIES	SHEET	REVISION
MVP	VA/NC	H-650	27	1	P1

Plotted by: McCarthy, Matthew (Contractor) on October 15, 2018 - 10:29 AM

File Path: C:\Vault Working\Systems\MVP\SouthGate\Construction Typicals\MVP-27.dwg



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DRAWING ASSUMES TYPE "C" SOIL

REFERENCE DRAWINGS		NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD
DRAWING NUMBER	DRAWING TITLE	P	05/07/2018	PRELIMINARY FOR REVIEW	JIL	AAL	NFF	–					
		P1	11/02/2018	ISSUED FOR FERC	MEM	AAL	NFF	–					
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TO THE BEST OF MY KNOWLEDGE, ALL COMPONENTS OF THIS DRAWING ARE DESIGNED IN ACCORDANCE WITH APPLICABLE GUIDELINES AND SPECIFICATIONS

ALINA LAWRENCE — MECHANICAL DESIGN ENGINEER — 06/11/18 — DATE

ELECTRICAL DESIGN ENGINEER — DATE

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Mountain Valley PIPELINE

DESIGN ENGINEERING

PROJECT ID ----

DRAWING SCALE: 1/8" = 1'-0"

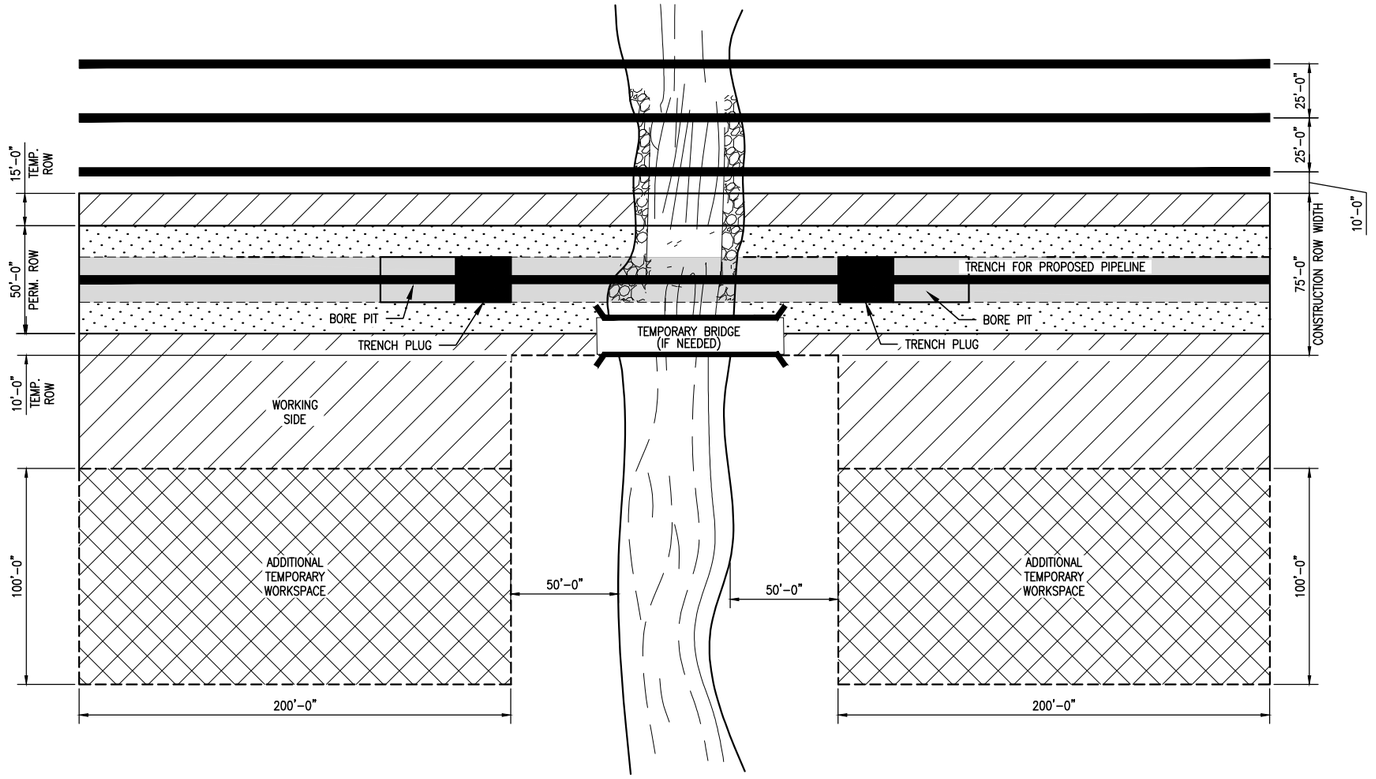
DRAWING TITLE:

MAINLINE CONSTRUCTION WATERBODY CROSSING WITH PARALLEL PIPELINES OPEN CUT – FLUME

FACILITY	STATE	IDENTIFICATION	SERIES	SHEET	REVISION
MVP	VA/NC	H-650	29	1	P1

Plotted by: McCarthy, Matthew (Contractor) on October 15, 2018 - 10:29 AM

File Path: C:\Vault Working\Systems\MVP\SouthGate\Construction Typicals\MVP-29.dwg



THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWING ASSUMES TYPE "C" SOIL

REFERENCE DRAWINGS		NO.	DATE	REVISION	BY	CHK	APPD
DRAWING NUMBER	DRAWING TITLE	P	05/07/2018	PRELIMINARY FOR REVIEW	JIL	AAL	NFF
		P1	11/02/2018	ISSUED FOR FERC	MEM	AAL	NFF

NO.	DATE	REVISION	BY	CHK	APPD
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TO THE BEST OF MY KNOWLEDGE, ALL COMPONENTS OF THIS DRAWING ARE DESIGNED IN ACCORDANCE WITH APPLICABLE GUIDELINES AND SPECIFICATIONS

ALINA LAWRENCE — MECHANICAL DESIGN ENGINEER — 06/11/18 — DATE

ELECTRICAL DESIGN ENGINEER — DATE

NOTE: ANY CHANGES TO THE DESIGN SHOWN ON THIS DRAWING MUST BE APPROVED BY THE DESIGN ENGINEER.

Mountain Valley Pipeline

DESIGN ENGINEERING

PROJECT ID ----

DRAWING SCALE: 1/8" = 1'-0"

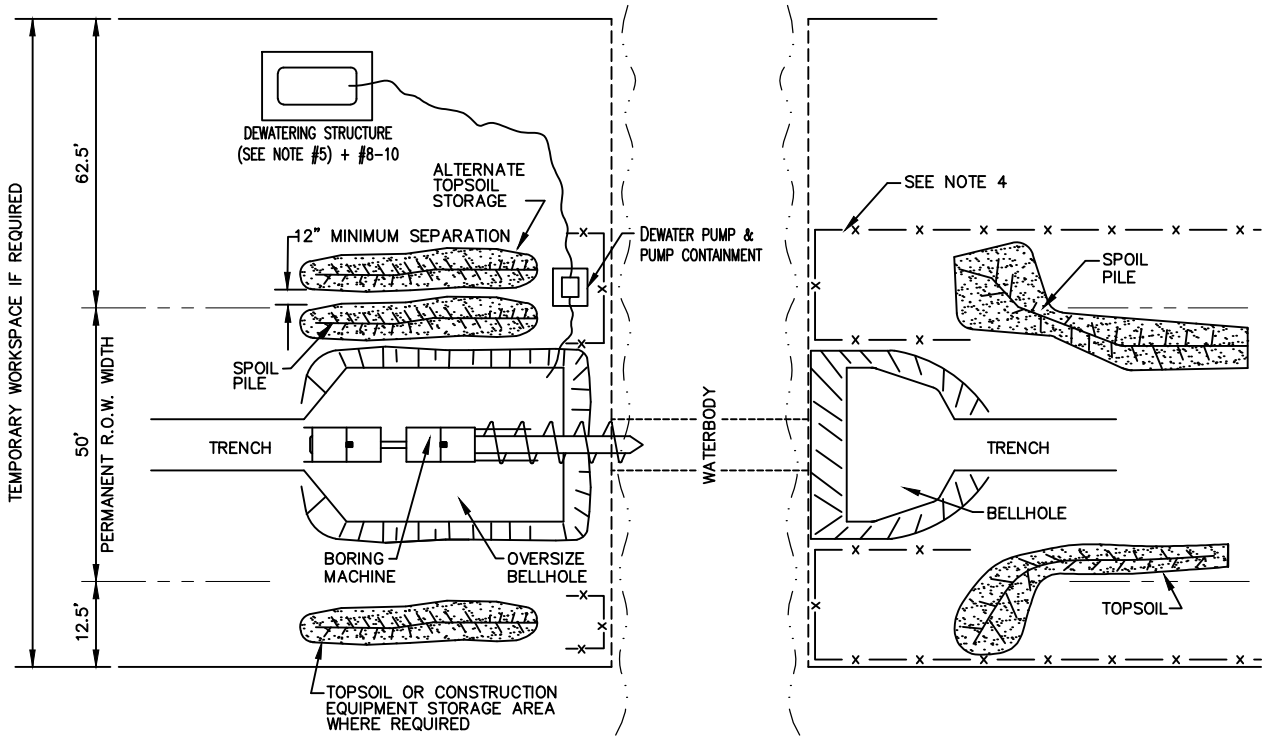
DRAWING TITLE:

MAINLINE CONSTRUCTION WATERBODY CROSSING WITH PARALLEL PIPELINES BORED PIPE

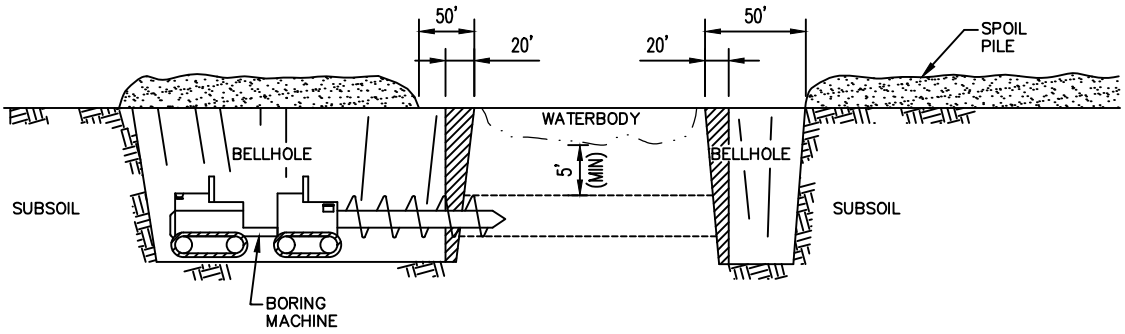
FACILITY	STATE	IDENTIFICATION	SERIES	SHEET	REVISION
MVP	VA/NC	H-650	32	1	P1

Plotted by: Debogovich, Travis on March 19, 2019 - 2:11 PM

File Path: C:\Vault Working\Systems\MVP\SouthGate\Construction Typicals\MVP-32.dwg



PLAN VIEW
(NOT TO SCALE)



PROFILE

NOTES:

1. STRIP TOPSOIL FROM THE BELLHOLE AREA IN UNMANAGED WOODLAND. STRIP TOPSOIL FROM THE BELLHOLE AND SPOIL STORAGE AREA.
2. EXCAVATE BELLHOLE, STORING SPOIL ON OPPOSITE SIDE OF R.O.W. FROM TOPSOIL OR ADJACENT TO TOPSOIL MAINTAINING A MINIMUM 12 INCHES OF SEPARATION TO AVOID MIXING TOPSOIL AND SPOIL.
3. THE SIDES OF THE BORE PITS SHALL BE SLOPED BACK TO STABLE CONFIGURATION UNLESS SUPPORTED BY SHEET PILING OR OTHER SHORING MEANS. INSTALL SAFETY FENCE AROUND BORE PITS AS NECESSARY.
4. INSTALL TEMPORARY EROSION CONTROL PROCEDURES AS SPECIFIED IN THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. DEWATER BORE PIT TO CONTROL SEEPAGE WATER FLOW. DEWATER INTO AN APPROPRIATE DEWATERING STRUCTURE. REFER TO TYPICAL MVP-ES2 PUMPED WATER FILTER BAG AND STD & SPEC 3.26 DEWATERING STRUCTURE.
6. UPON COMPLETION OF PIPE INSTALLATION AND TIE-INS, BACKFILL PIT SPOIL. MINIMIZE POST CONSTRUCTION SETTLEMENT BY COMPACTING BACKFILL USING STANDARD PIPELINE CONSTRUCTION EQUIPMENT AVAILABLE AT SITE. LEAVE A CROWN TO ALLOW FOR SUBSIDENCE OF THE BACKFILL. RESPREAD SALVAGED TOPSOIL AND COMPACT. NO EXCESS SPOIL WILL BE SPREAD WITHIN FLOOD PLAINS OR DELINEATED WETLANDS AREAS.
7. BORE DEPTH WILL BE DETERMINED BASED ON SCOUR ANALYSIS MINIMUM OF 5' SEPARATION BETWEEN TOP OF BORE PROFILE & BOTTOM OF WATERBODY CHANNEL.
8. DEWATERING STRUCTURE WILL BE PLACED IN A STABILIZED AREA AWAY FROM WATERBODY AND WETLANDS.
9. PUMPING RATE WILL NOT EXCEED MFG'S RECOMMENDATIONS AND WILL NOT RESULT IN INCREASED EROSION.
10. DEWATERING ACTIVITY SHALL BE MONITORED DURING OPERATION.

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN EPG	DATE 01/30/2017
CHECKED –	DATE –
APP'D –	DATE –
SCALE N.T.S.	SHEET 1 OF 1
JOB NO.	
PROJECT ID: H-650-TYP	

Mountain Valley PIPELINE

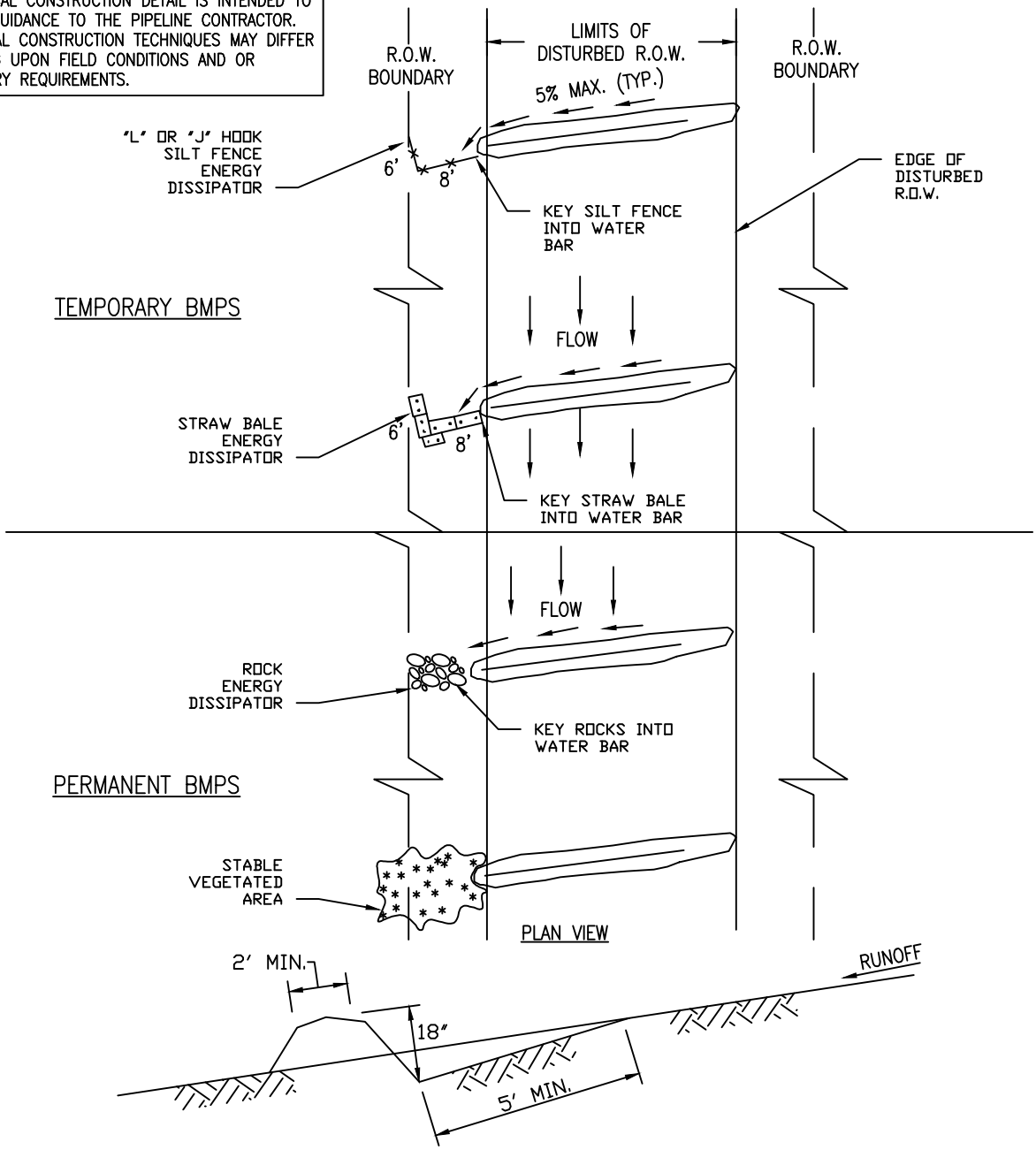
DESIGN ENGINEERING

TYPICAL CONSTRUCTION DETAIL

TYPICAL WATERBODY
CONVENTIONAL BORE

DRAWING NO.	REV.
MVP-51	P1

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.



NOTES:

1. SLOPE BREAKERS SHALL BE CONSTRUCTED OF COMPACTED NATIVE SOIL AND INSTALLED AT LOCATIONS AS SHOWN ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE COMPANY'S INSPECTOR.

2. SLOPE BREAKERS SHALL BE ORIENTED AS SHOWN OR OTHER PATTERN AS DIRECTED BY THE COMPANY'S INSPECTOR TO DIRECT THE WATER OFF THE R.O.W.

3. SLOPE BREAKERS SHALL BE CONSTRUCTED AT A 5% MAXIMUM GRADIENT ACROSS THE SLOPE.

4. THE SLOPE BREAKERS SHALL BE 18" DEEP (AS MEASURED FROM THE TROUGH TO THE TOP OF THE SLOPE BREAKER). THE TROUGH WILL BE A MINIMUM OF 5' WIDE ACROSS THE WIDTH OF THE RIGHT-OF-WAY.

5. THE OUTLET OF THE SLOPE BREAKER MUST FREELY DISCHARGE RUNOFF OFF FROM THE DISTURBED RIGHT-OF-WAY INTO A STABLE, WELL VEGETATED AREA OR INTO AN ENERGY DISSIPATER.

6. WHERE SLOPE BREAKERS EXTEND BEYOND THE EDGE OF THE CONSTRUCTION R.O.W. DIRECT RUNOFF INTO STABLE, WELL VEGETATED AREAS, THESE LOCATIONS MUST BE APPROVED BY THE COMPANY'S INSPECTOR.

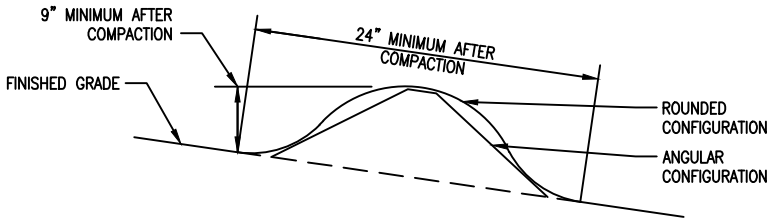
DRAWN	TRC	DATE	8/7/2018
CHECKED	XXX	DATE	X/X/2018
APP'D	XXX	DATE	X/X/2018
SCALE	N.T.S.	SHEET	1 OF 1
JOB NO.			
PROJECT ID: H-650-TYP			

Mountain Valley PIPELINE LLC

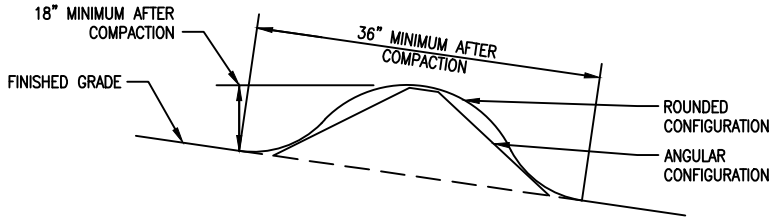
TYPICAL CONSTRUCTION DETAIL

SLOPE BREAKER/RIGHT-OF-WAY DIVERSION/WATERBAR

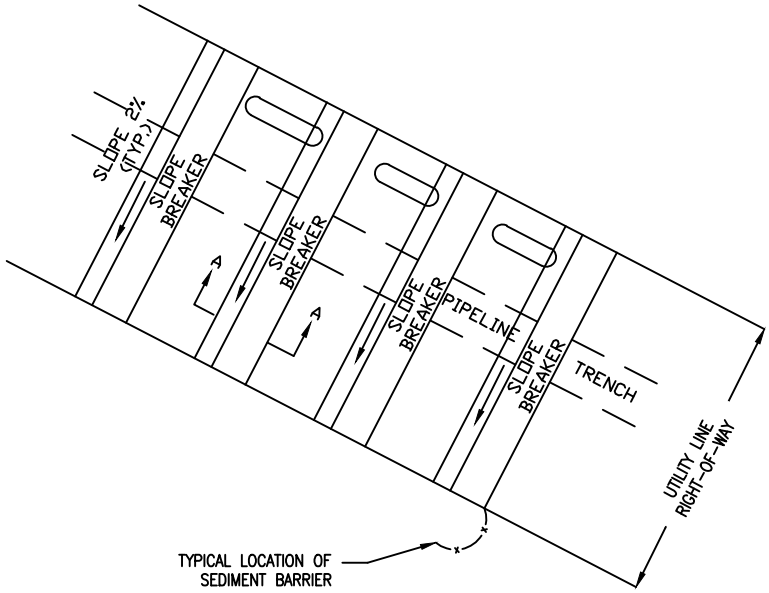
DRAWING NO.	REV.
MVP-SG-17	P1



SECTION A–A
(TEMPORARY INSTALLATION)



SECTION A–A
(PERMANENT INSTALLATION)



SKETCH

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN	TRC	DATE	8/7/2018
CHECKED	XXX	DATE	X/X/2018
APP'D	XXX	DATE	X/X/2018
SCALE	N.T.S.	SHEET	1 OF 1
JOB NO.			
PROJECT ID: H–650–TYP			

Mountain Valley PIPELINE LLC

TYPICAL CONSTRUCTION DETAIL

SLOPE BREAKER/RIGHT–OF–WAY DIVERSION/WATERBAR

DRAWING NO.	REV.
MVP–SG–17.1	P1

RECOMMENDED MAXIMUM SPACING FOR **PERMANENT SLOPE BREAKERS**	
PIPELINE GRADE	**DISTANCE (FEET)**
<2%	- [1,2]
2-5%	400
6-15%	200
16-30%	100
>31%	50 [3]

[1] PERMANENT SLOPE BREAKERS WILL BE INSTALLED AS NEEDED BASED ON FIELD CONDITIONS.

[2] PERMANENT SLOPE BREAKERS WILL BE INSTALLED 25 FEET FROM EACH WATERBODY BOUNDARY REGARDLESS OF SLOPE CONDITIONS.

[3] SLOPES GREATER THAN 65% MAY REQUIRE SITE SPECIFIC STABILIZATION MEASURES BASED ON FIELD CONDITIONS AS APPROVED BY MVP DESIGN ENGINEERING AND MVP ENVIRONMENTAL INSPECTOR.

NOTES:

WATERBARS SHALL BE INSPECTED WEEKLY (DAILY ON ACTIVE ROADS) AND AFTER EACH RUNOFF EVENT. DAMAGED OR ERODED WATERBARS SHALL BE RESTORED TO ORIGINAL DIMENSIONS WITHIN 24 HOURS OF INSPECTION

MAINTENANCE OF WATERBARS SHALL BE PROVIDED UNTIL ROADWAY, SKIDTRAIL, OR RIGHT-OF-WAY HAS ACHIEVED PERMANENT STABILIZATION

WATERBARS ON RETIRED ROADWAYS, SKIDTRAILS, AND RIGHT-OF-WAYS SHALL BE LEFT IN PLACE AFTER PERMANENT STABILIZATION HAS BEEN ACHIEVED

SUMP FILTERS TO BE INSTALLED AT END OF WATERBARS. REFER TO SUMP FILTER DETAIL ON SHEET 0.09 FOR MORE DETAIL.

OUTLET PROTECTION/COMPOST FILTER SOCK SHOULD BE INSTALLED AT THE OUTLET OF ALL WATERBARS.

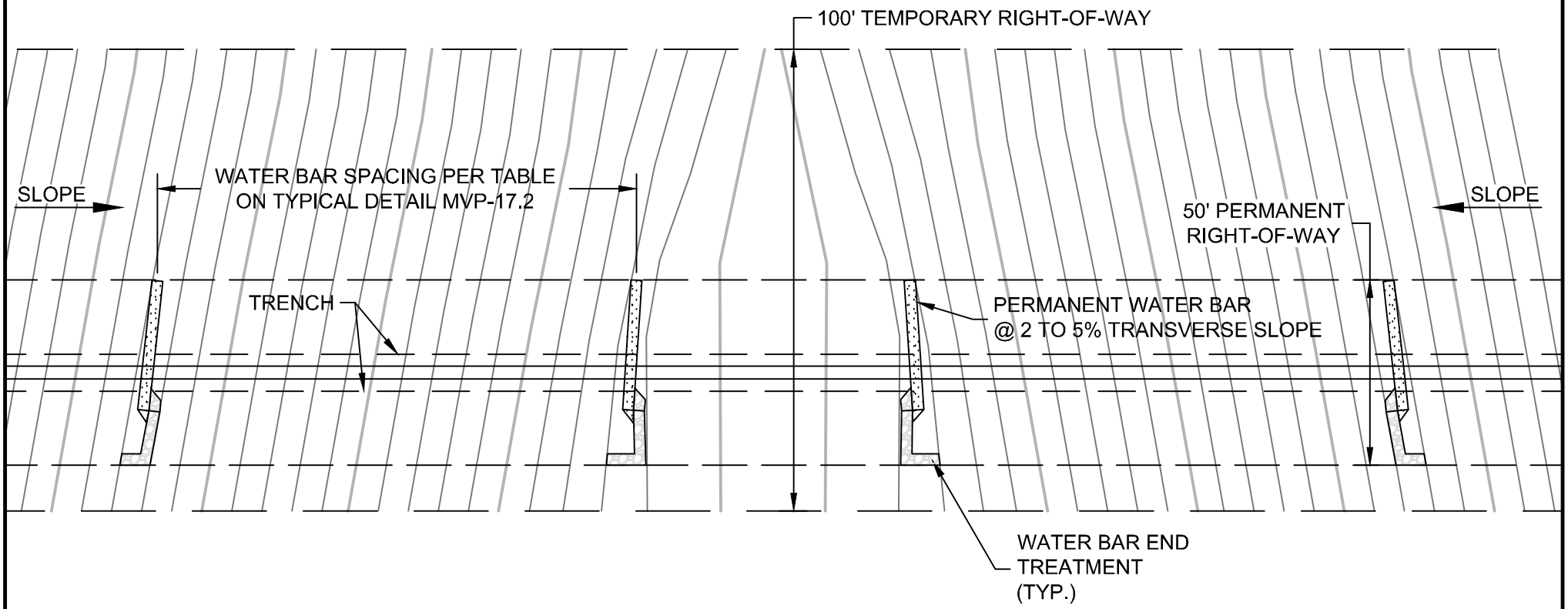
DRAWN	TRC	DATE	8/7/2018
CHECKED	XXX	DATE	X/X/2018
APP'D	XXX	DATE	X/X/2018
SCALE	N.T.S.	SHEET	1 OF 1
JOB NO.			
PROJECT ID: H-650-TYP			

Mountain Valley PIPELINE LLC

TYPICAL CONSTRUCTION DETAIL

SLOPE BREAKER/RIGHT-OF-WAY DIVERSION/WATERBAR

DRAWING NO.	REV.
MVP-SG-17.2	P1



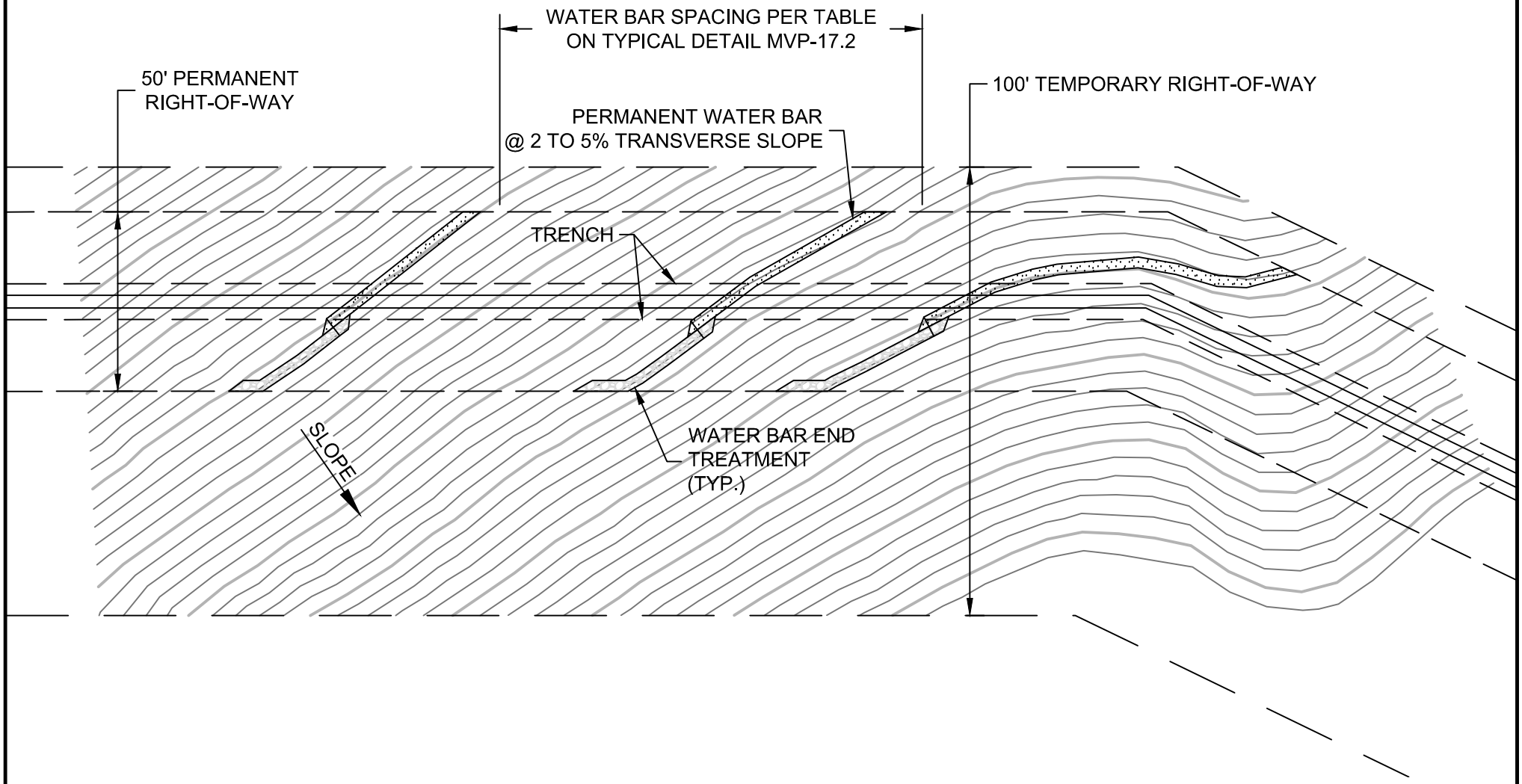
DRAWN	TRC	DATE	8/7/2018
CHECKED	XXX	DATE	X/X/2018
APP'D	XXX	DATE	X/X/2018
SCALE	N.T.S.	SHEET	1 OF 1
JOB NO.			
PROJECT ID:			
H-650-TYP			

Mountain Valley PIPELINE LLC

TYPICAL CONSTRUCTION DETAIL

WATERBAR END TREATMENT
PERPENDICULAR TO SLOPE EXAMPLE

DRAWING NO.	REV.
MVP-SG-17.3	P1



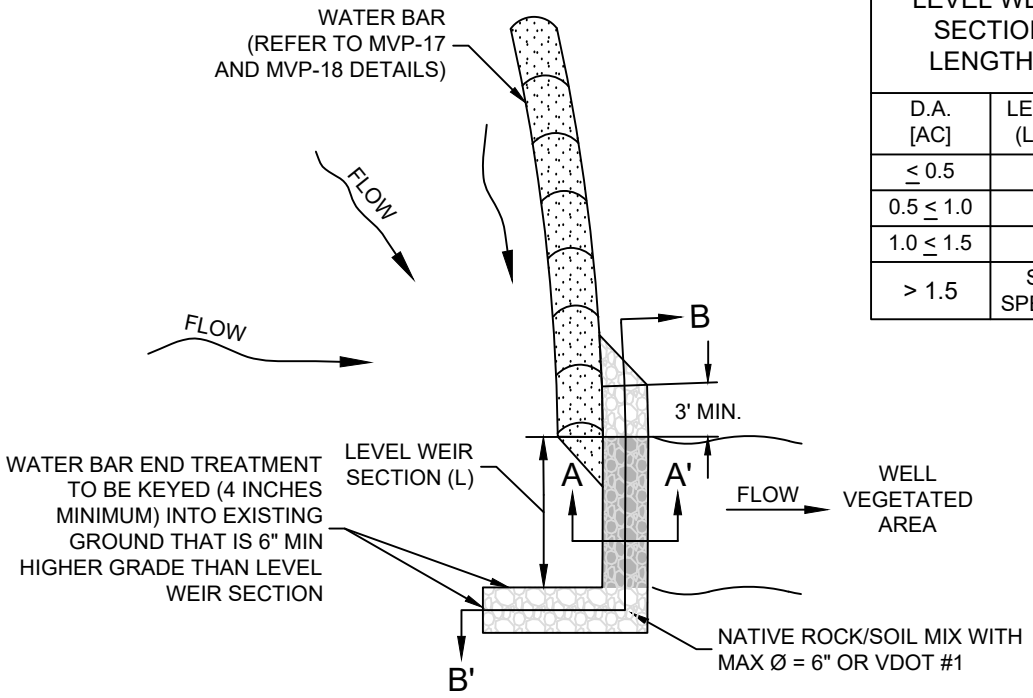
DRAWN	TRC	DATE	8/7/2018
CHECKED	XXX	DATE	X/X/2018
APP'D	XXX	DATE	X/X/2018
SCALE	N.T.S.	SHEET	1 OF 1
JOB NO.			
PROJECT ID: H-650-TYP			

Mountain Valley PIPELINE LLC

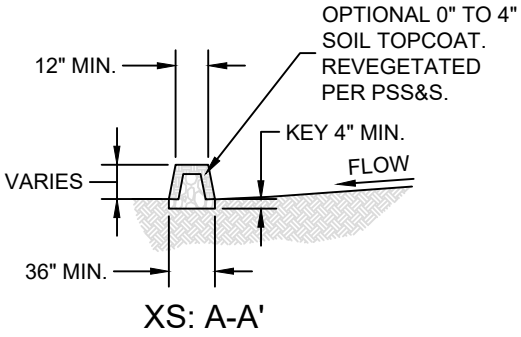
TYPICAL CONSTRUCTION DETAIL

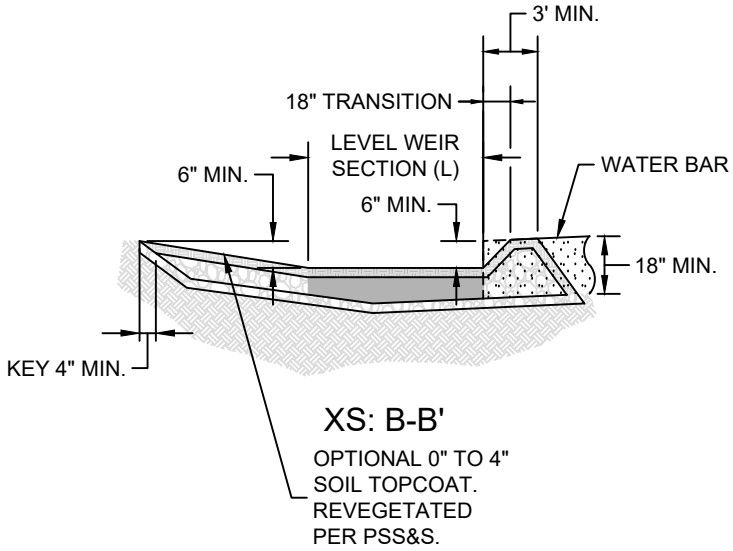
WATERBAR END TREATMENT
CROSS SLOPE EXAMPLE

DRAWING NO.	REV.
MVP-SG-17.4	P1



LEVEL WEIR SECTION LENGTHS	
D.A. [AC]	LENGTH (L) [FT]
≤ 0.5	10
0.5 ≤ 1.0	15
1.0 ≤ 1.5	20
> 1.5	SITE SPECIFIC





DRAWN	TRC	DATE	8/7/2018
CHECKED	XXX	DATE	X/X/2018
APP'D	XXX	DATE	X/X/2018
SCALE	N.T.S.	SHEET	1 OF 1
JOB NO.			
PROJECT ID:			
H-650-TYP			

Mountain Valley PIPELINE LLC

TYPICAL CONSTRUCTION DETAIL

WATERBAR END
TREATMENT DETAIL

DRAWING NO.	REV.
MVP-SG-17.7	P1

SLOPE %	DISTANCE	PLUG MATERIAL
0% – 5%	SEE NOTE 6	CONCRETE FILLED SACKS
5% – 15%	500 FT	SANDBAGS OR CONCRETE FILLED SACKS
15% – 25%	300 FT	SANDBAGS OR CONCRETE FILLED SACKS
25% – 35%	200 FT	SANDBAGS OR CONCRETE FILLED SACKS
35% – 100%	100 FT	SANDBAGS OR CONCRETE FILLED SACKS
> 100%	50 FT	CONCRETE FILLED BAGS (WETTED)

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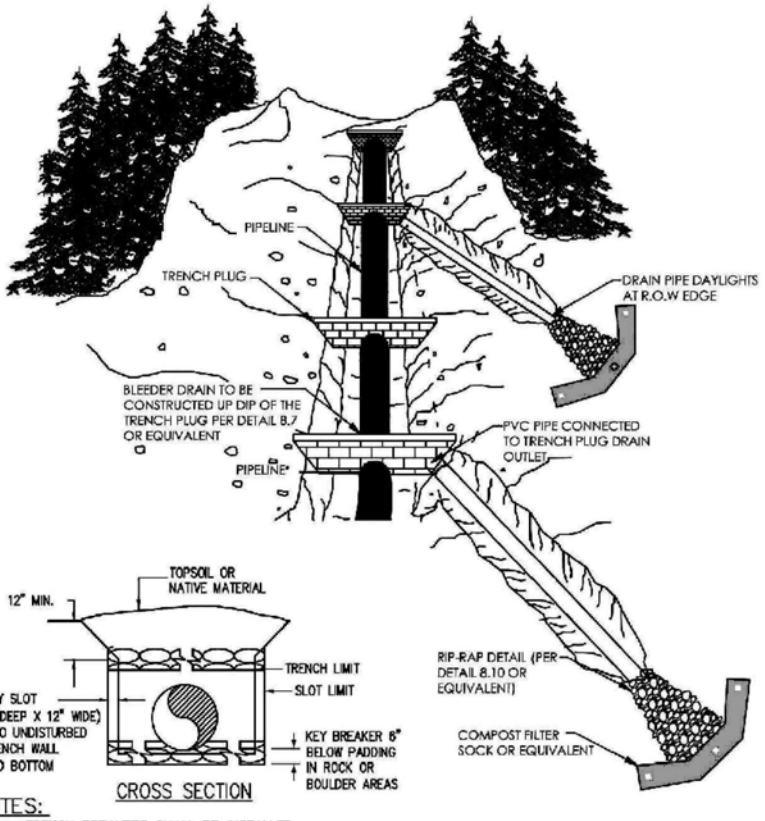
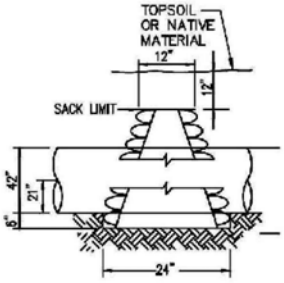


CROSS SECTION



SIDE VIEW

NOTES:

1. TRENCH BREAKERS SHALL BE INSTALLED:
   - ON SLOPES ALONG THE TRENCH LINE WHERE THE NATURAL DRAINAGE PATTERN, PROFILE, AND TYPE OF BACKFILL MATERIAL MAY RESULT IN LOSS OF BACKFILL MATERIAL OR ALTERATION OF THE NATURAL PATTERN;
   - AT THE BASE OF SLOPES ADJACENT TO WATERBODIES AND WETLANDS;
   - WHERE NEEDED TO AVOID DRAINING A WETLAND;
   - ON UPLAND SLOPES, AT THE SAME SPACING AS SLOPE BREAKERS AND UP SLOPE OF SLOPE BREAKERS;
   - IN CULTIVATED LAND AND RESIDENTIAL AREAS WHERE PERMANENT SLOPE BREAKERS ARE NOT TYPICALLY INSTALLED, AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WHERE REQUIRED.
2. MATERIALS APPROPRIATE FOR USE AS PERMANENT TRENCH BREAKERS INCLUDE SANDBAGS OR CONCRETE FILLED SACKS. TOPSOIL SHALL NOT BE USED FOR TRENCH BREAKERS.
3. TRENCH BREAKERS INSTALLED AT WATERBODY AND WETLAND CROSSINGS SHALL BE CONSTRUCTED OF IMPERVIOUS MATERIALS (CONCRETE FILLED SACKS).
4. BREAKER SPACING AND CONFIGURATION MAY BE CHANGED AS DIRECTED BY MVP. DEPTH OF DITCH MAY VARY WITH SITE CONDITIONS.
5. ALL MATERIALS SHALL BE SUPPLIED BY CONTRACTOR.
6. TRENCH BREAKERS ARE REQUIRED AT ALL WATERBODY CROSSINGS REGARDLESS OF TRENCH SLOPE. OTHERWISE NOTE REQUIRED AT SLOPES < 5%.
7. SINGLE TRENCH BREAKERS WILL BE A MINIMUM WIDTH OF 24" AND DOUBLE TRENCH BREAKERS WILL BE A MINIMUM WIDTH OF 36".
8. FOR SUBSURFACE AND TRENCH BREAKER DRAINAGE DETAILS INCLUDING THOSE FOR STEEP SLOPES, SEE LANDSLIDE MITIGATION TYPICAL DETAILS.
9. FOR SLOPES EXCEEDING 50%, CONCRETE FILLED SACKS ARE REQUIRED UNLESS OTHERWISE APPROVED BY MVP.

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DRAWN	TRC	DATE	8/7/2018
CHECKED	XXX	DATE	X/X/2018
APP'D	XXX	DATE	X/X/2018
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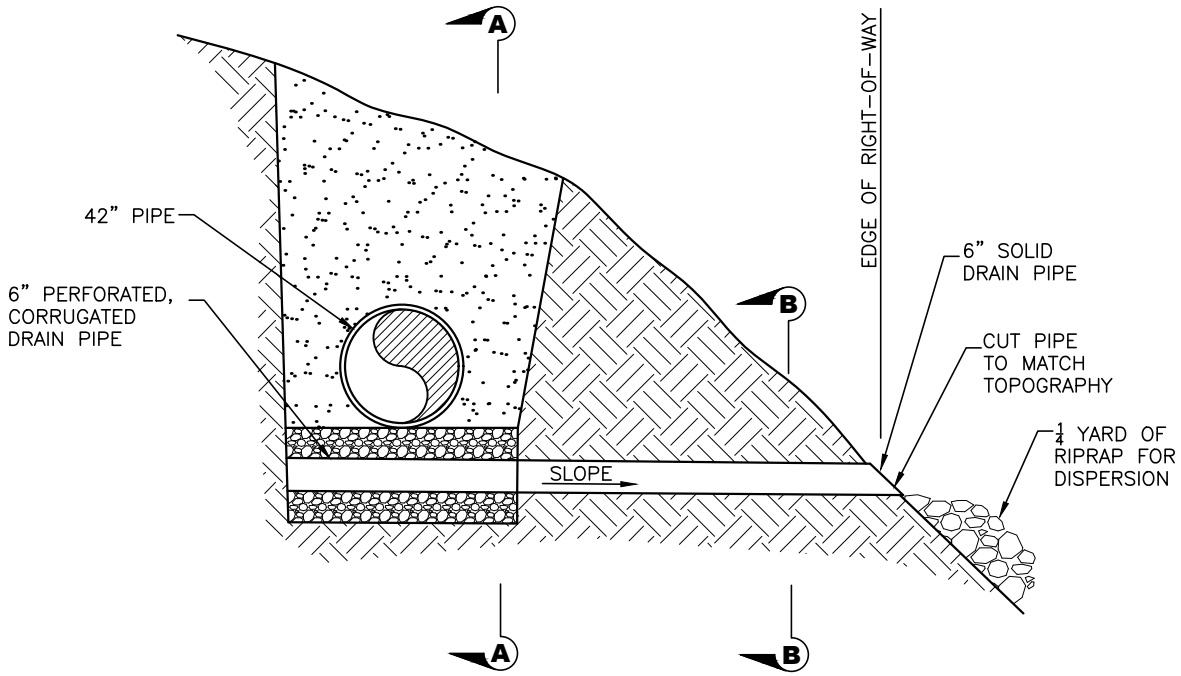
JOB NO.			
PROJECT ID: H-650-TYP			

Mountain Valley PIPELINE LLC

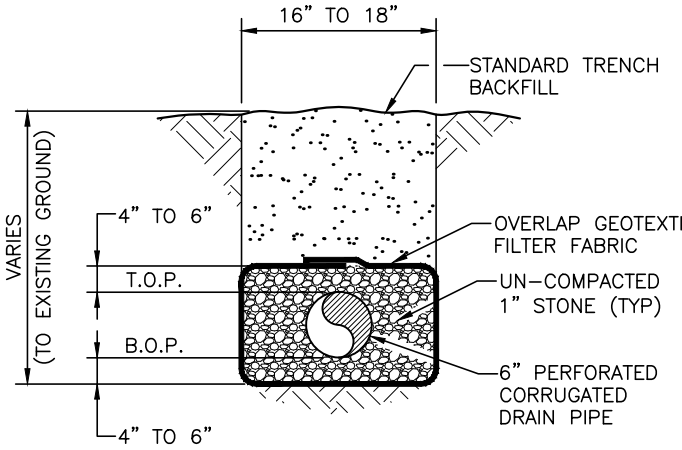
TYPICAL CONSTRUCTION DETAIL

TYPICAL TRENCH BREAKER REQUIREMENTS

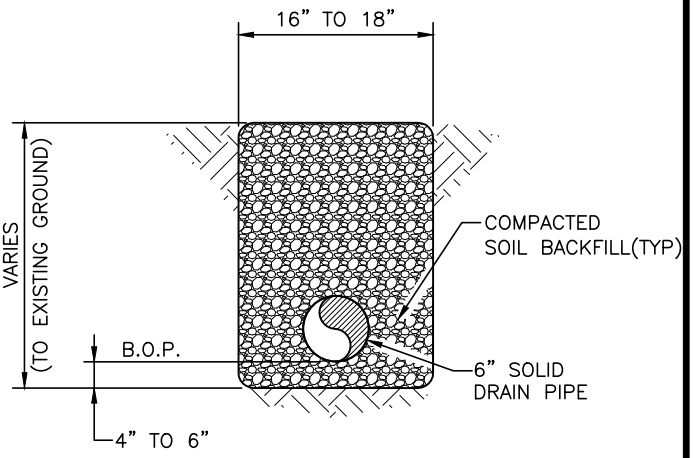
DRAWING NO.	REV.
MVP-SG-20	P1



MAINLINE CROSS SECTION



SECTION A–A



SECTION B–B

NOTES

1. LOW POINT DITCH DRAINS SHALL BE INSTALLED AT LOCATIONS SPECIFIED IN THE APPROVED EROSION & SEDIMENTATION CONTROL PLAN, AND AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
2. FILL STONE SHOULD BE 1" AGGREGATE WITHOUT FINES, CRUSHER RUN WITHOUT FINES, OR EQUIVALENT.
3. DRAIN PIPE TO BE CONNECTED USING STANDARD PIPE COLLARS.

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APP'D	XXX	DATE	X/X/2018
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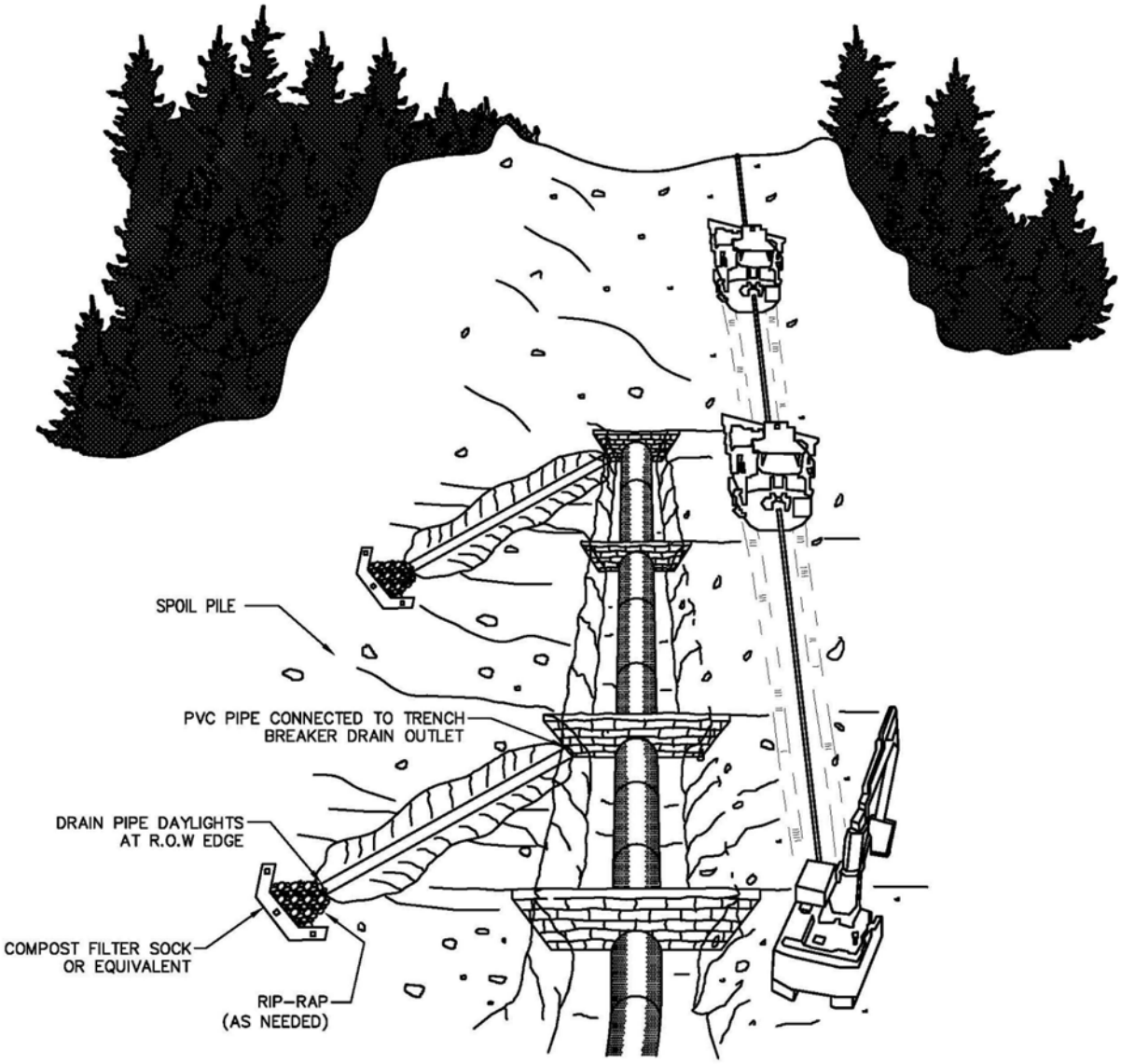
JOB NO.			
PROJECT ID:			
H-650-TYP			

Mountain Valley PIPELINE LLC

TYPICAL CONSTRUCTION DETAIL

SIDEHILL LOW-POINT DRAIN TYPICAL

DRAWING NO.	REV.
MVP-SG-24	P1



NOTES:

1. WINCHES MAY BE REQUIRED FOR MOVING EQUIPMENT AND MATERIAL, AND DURING CONSTRUCTION ON STEEP LONGITUDINAL SLOPES.
2. WINCHES WILL EITHER BE FIXED WINCHES OR TRACKED EQUIPMENT WITH WINCHES.
3. WINCHES WILL TYPICALLY BE REQUIRED FOR SLOPES OF 30% (17°) AND UP.

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWING ASSUMES TYPE "B" SOIL

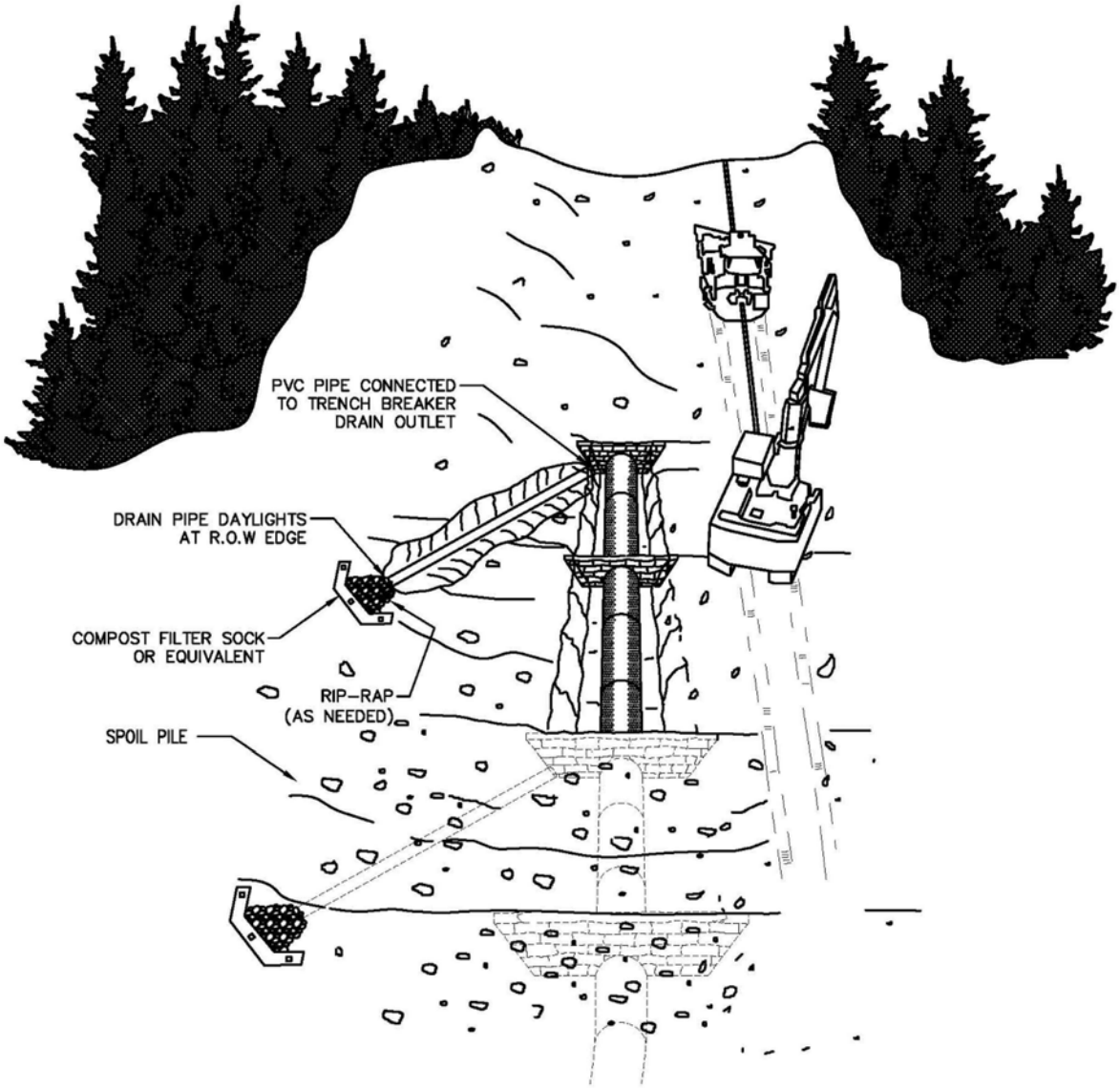
DRAWN	TRC	DATE	8/7/2018
CHECKED	XXX	DATE	X/X/2018
APP'D	XXX	DATE	X/X/2018
SCALE	N.T.S.	SHEET	1 OF 1
JOB NO.			
PROJECT ID: H-650-TYP			

Mountain Valley PIPELINE LLC

TYPICAL CONSTRUCTION DETAIL

MAINLINE CONSTRUCTION
STEEP HILL PARALLEL CONSTRUCTION
NO TOP SOIL SEGREGATION

DRAWING NO.	REV.
MVP-SG-31	P1



NOTES:

1. WINCHES MAY BE REQUIRED FOR MOVING EQUIPMENT AND MATERIAL, AND DURING CONSTRUCTION ON STEEP LONGITUDINAL SLOPES.
2. WINCHES WILL EITHER BE FIXED WINCHES OR TRACKED EQUIPMENT WITH WINCHES.
3. WINCHES WILL TYPICALLY BE REQUIRED FOR SLOPES OF 30% (17°) AND UP.

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWING ASSUMES TYPE "B" SOIL

DRAWN	TRC	DATE	8/7/2018
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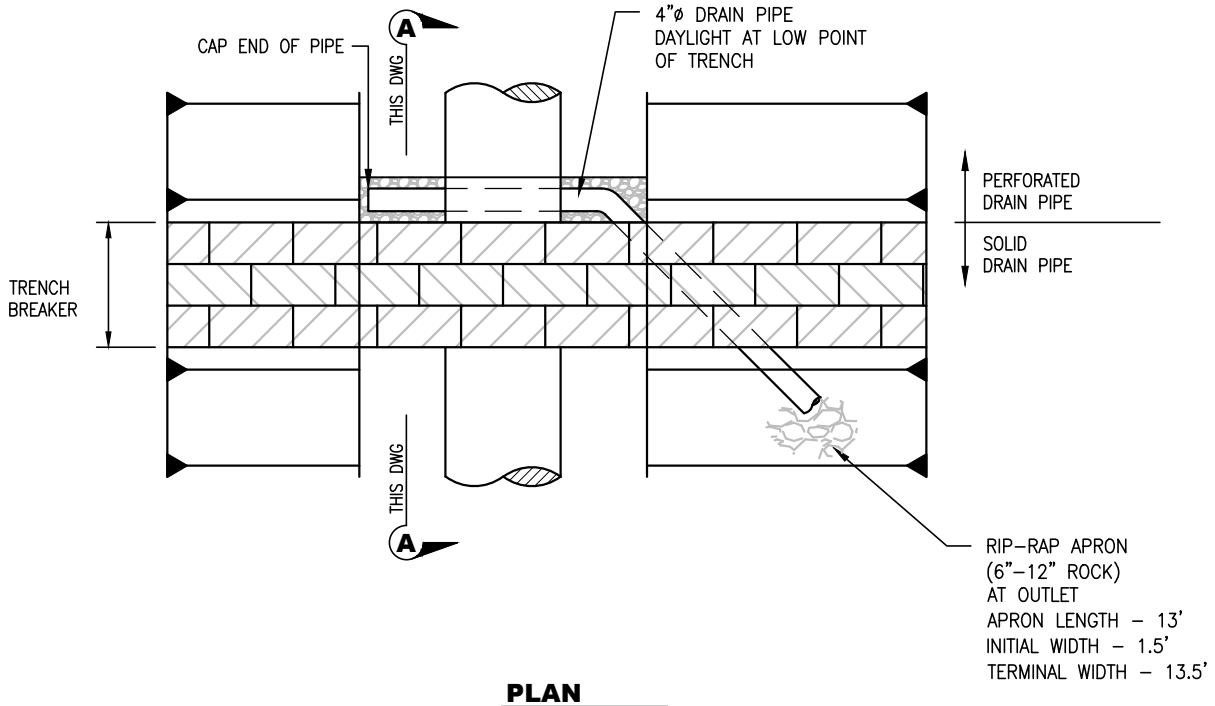
Mountain Valley PIPELINE LLC

TYPICAL CONSTRUCTION DETAIL

MAINLINE CONSTRUCTION
STEEP HILL STOVE PIPE CONSTRUCTION
NO TOP SOIL SEGREGATION

DRAWING NO.	REV.
MVP-SG-32	P1



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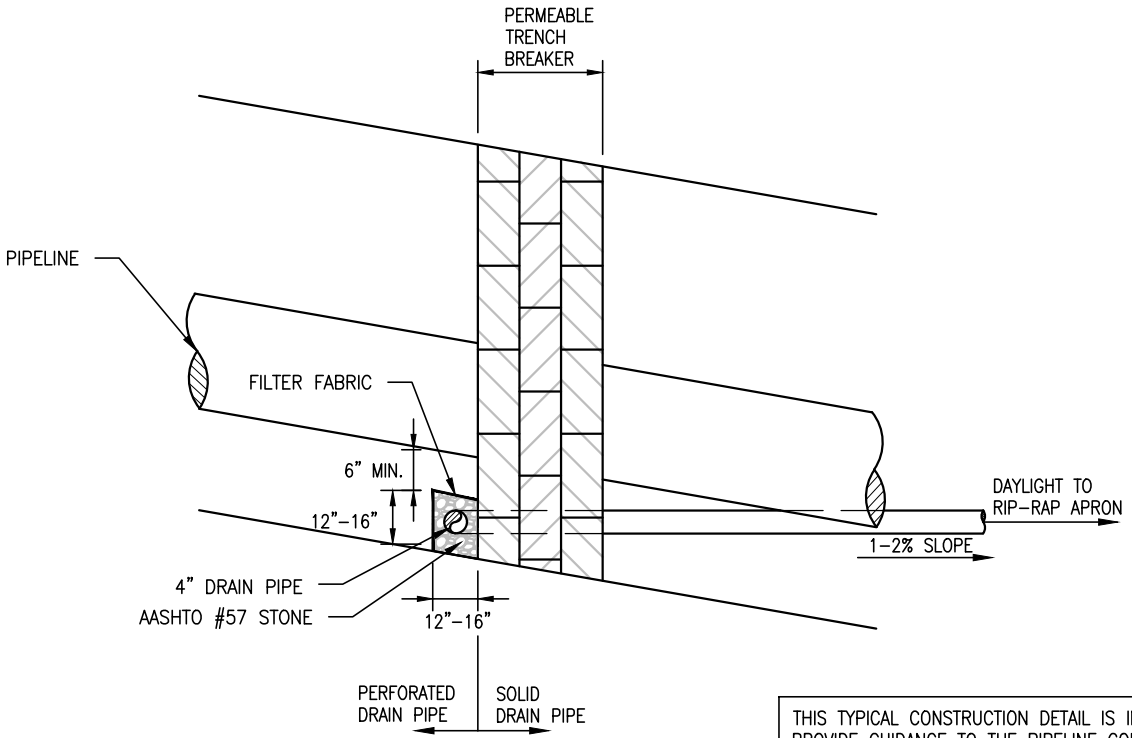

SECTION A-A
SCALE: NOT TO SCALE

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

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Mountain Valley PIPELINE LLC

TYPICAL CONSTRUCTION DETAIL

TRENCH BREAKER DAYLIGHT DRAIN

DRAWING NO.	REV.
MVP-SG-35	P1

Plotted by: Sample, Stanley on: August 16, 2018 - 12:39 PM

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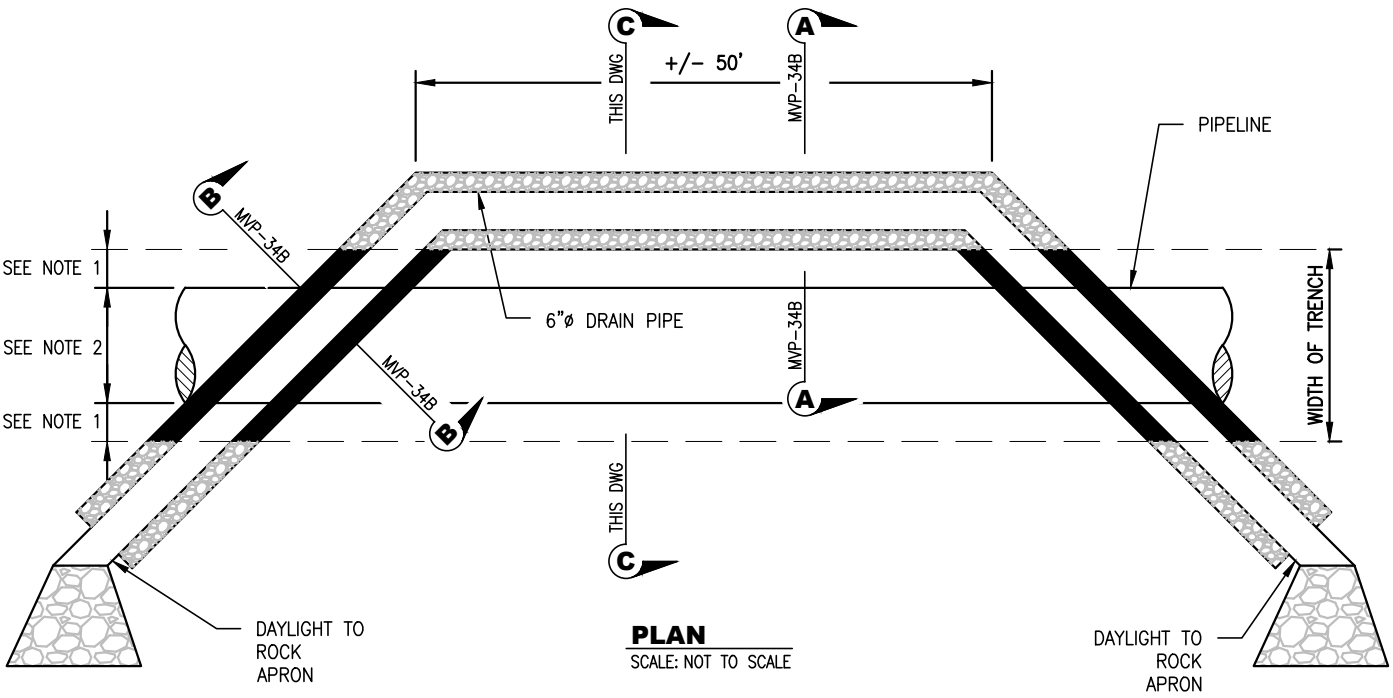

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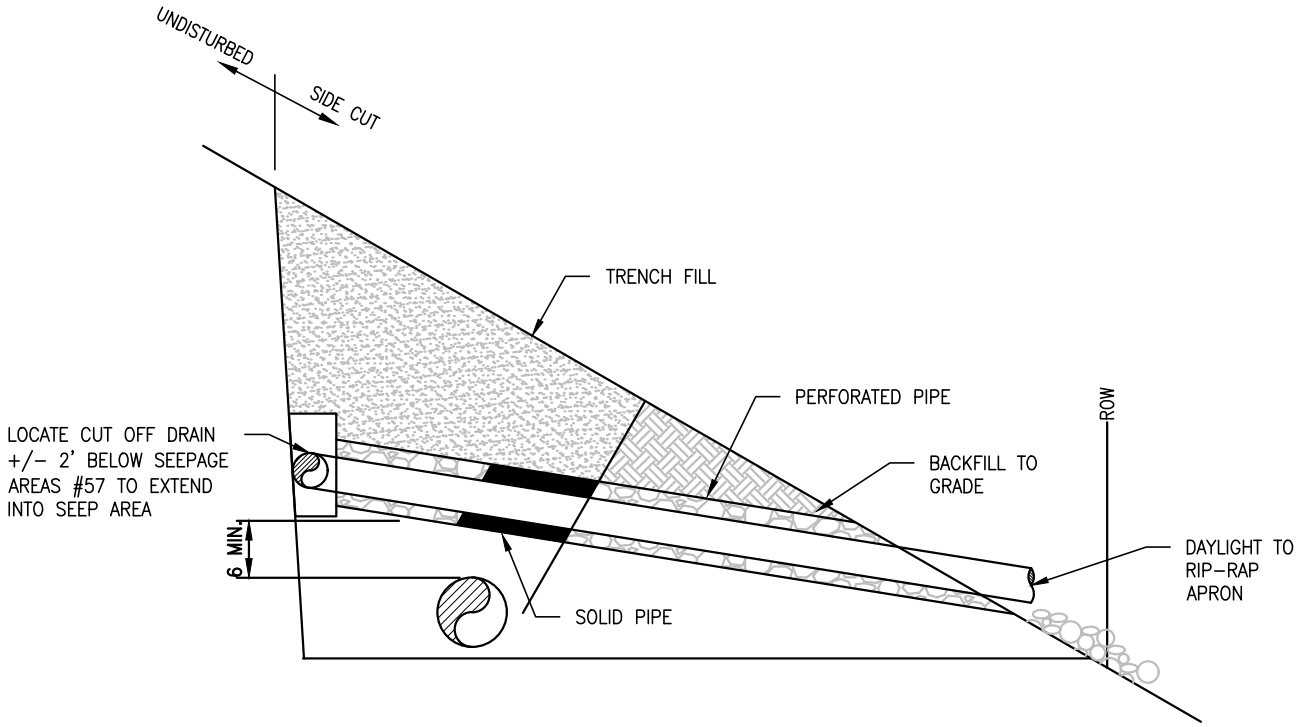

SECTION C-C
SCALE: NOT TO SCALE

NOTES:
1. PERFORATED PIPE SURROUNDED BY #57 STONE.
2. SOLID PIPE (IN TRENCH) SURROUNDED BY TRENCH BACKFILL.

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN	TRC	DATE	8/7/2018
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PROJECT ID:	H-650-TYP		

Mountain Valley PIPELINE LLC

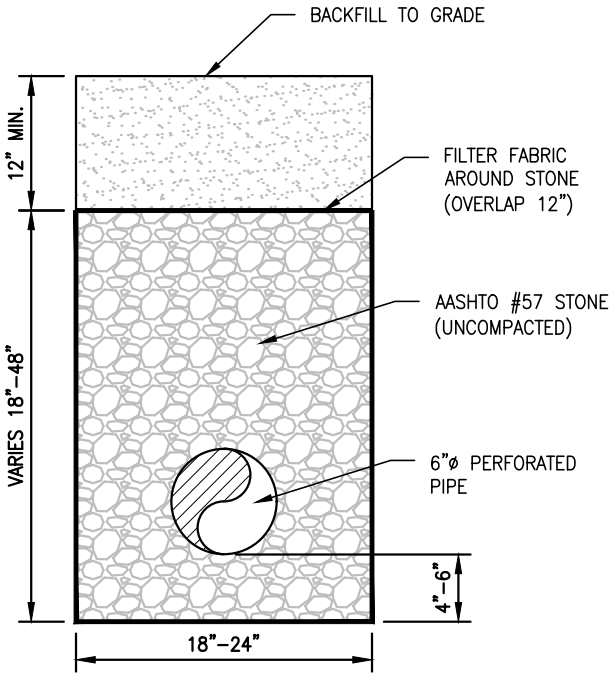
TYPICAL CONSTRUCTION DETAIL

CUTOFF DRAIN-SIDEHILL

DRAWING NO.	REV.
MVP-SG-36A	P1

Plotted by: Sample, Stanley on: August 14, 2018 - 12:39 PM

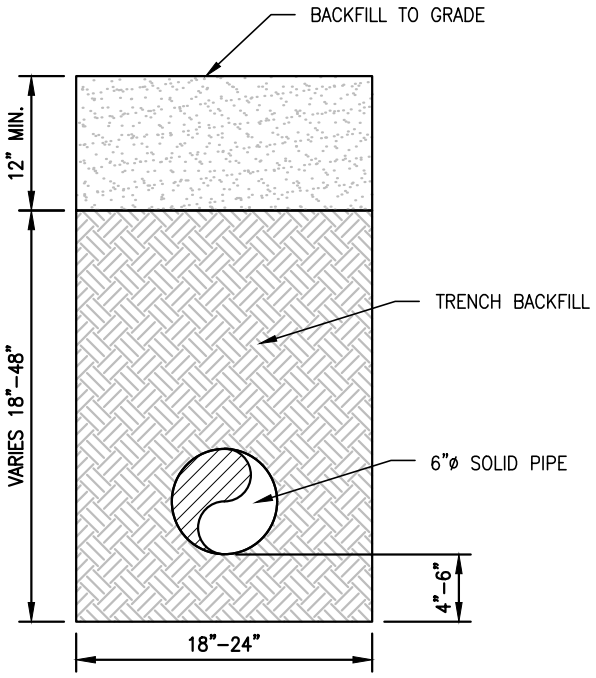
File Path: O:\Projects\300423 - NextEra MVP Southgate\CA - CADD\Pipeline\Drawings\Typicals\MVP-SG-36A.dwg



SECTION A-A

SCALE: NOT TO SCALE

FROM MVP–34A



SECTION B-B

SCALE: NOT TO SCALE

FROM MVP–34A

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN	TRC	DATE	8/7/2018
CHECKED	XXX	DATE	X/X/2018
APP'D	XXX	DATE	X/X/2018
SCALE	N.T.S.	SHEET	2 OF 2
JOB NO.			
PROJECT ID: H–650–TYP			

Mountain Valley PIPELINE LLC

TYPICAL CONSTRUCTION DETAIL

CUTOFF DRAIN–SIDEHILL

DRAWING NO.	REV.
MVP–SG–36B	P1

Plotted by: Sample, Stanley on: August 14, 2018 - 12:39 PM

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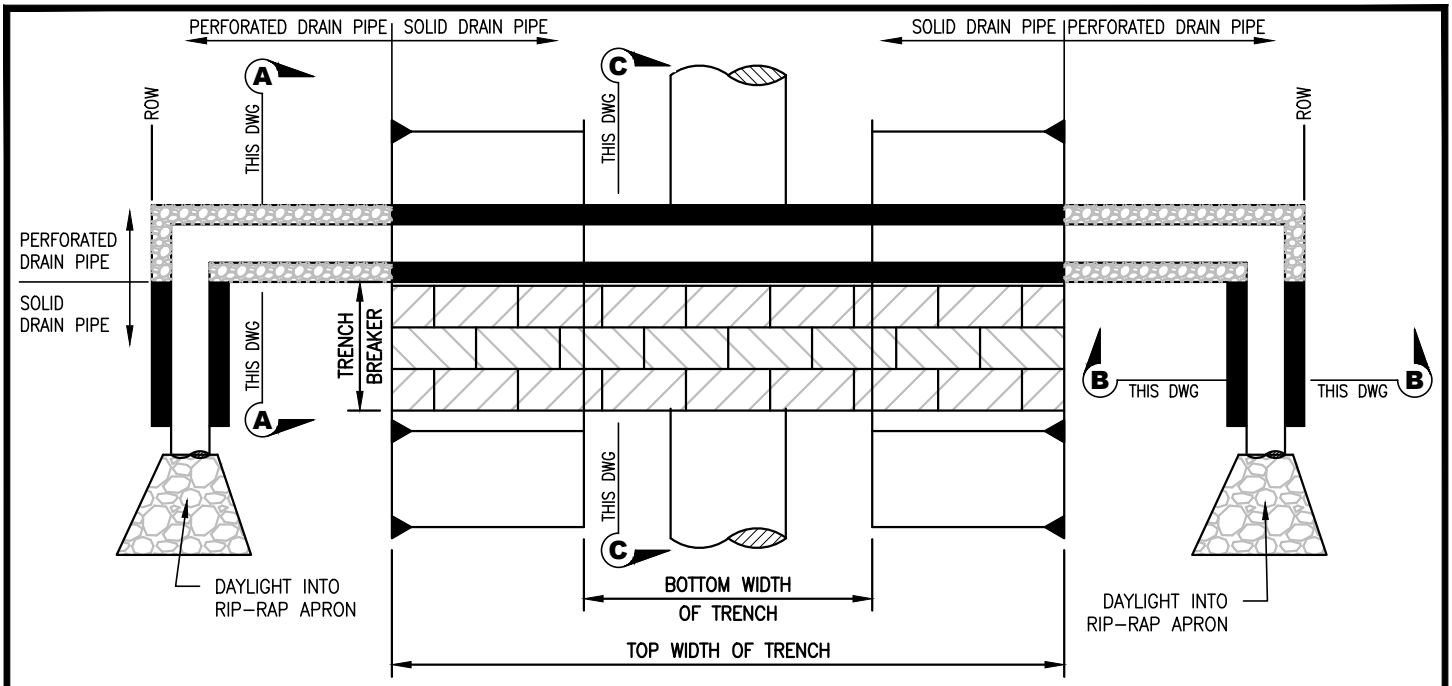

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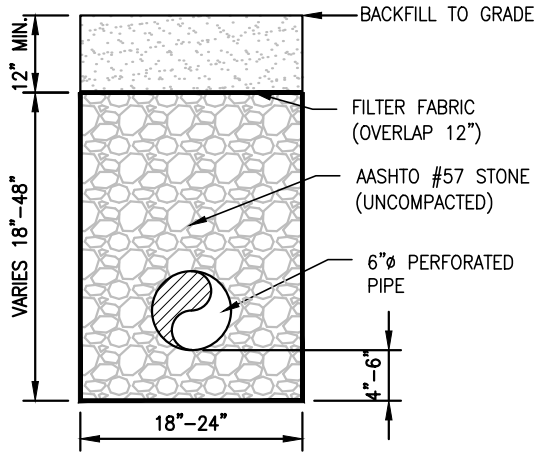

SECTION A-A
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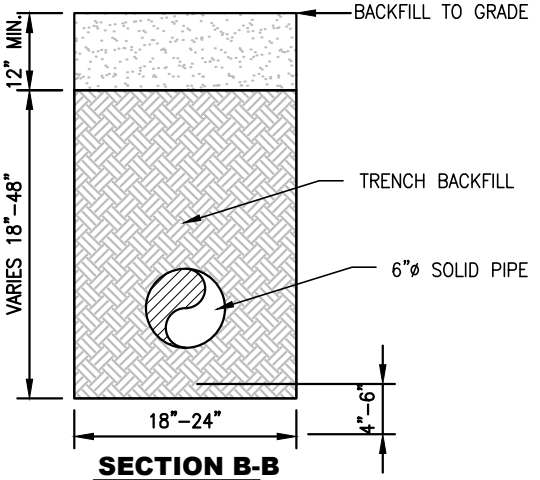
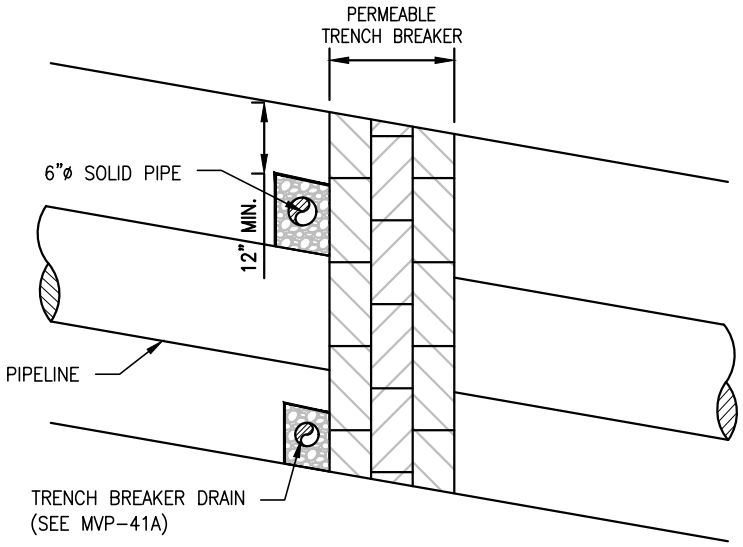


SECTION B-B
SCALE: NOT TO SCALE

NOTES:
1. EACH CUTOFF DRAIN SHALL UTILIZE A TRENCH BREAKER DRAIN (SEE DETAIL 1) TO DRAIN THE TRENCH.



SECTION C-C
SCALE: NOT TO SCALE

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Mountain Valley PIPELINE LLC

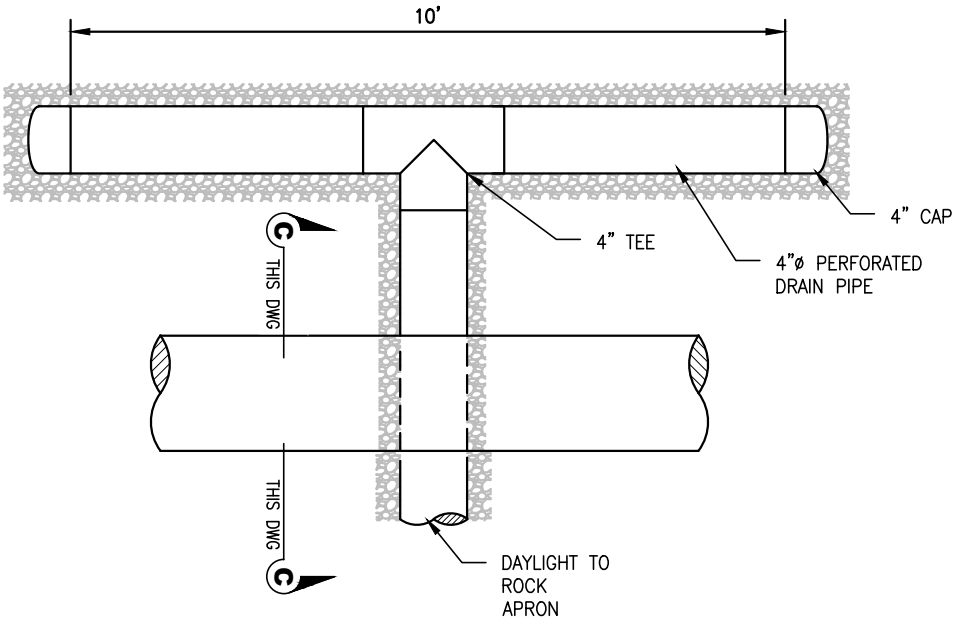
TYPICAL CONSTRUCTION DETAIL

CUTOFF DRAIN-PLANAR

DRAWING NO.	REV.
MVP-SG-37	P1

Plotted by: Sample, Stanley on: August 14, 2018 - 12:39 PM

File Path: O:\Projects\300423 - NextEra MVP Southgate\CA - CADD\Pipeline\Drawings\Typicals\MVP-SG-37.dwg



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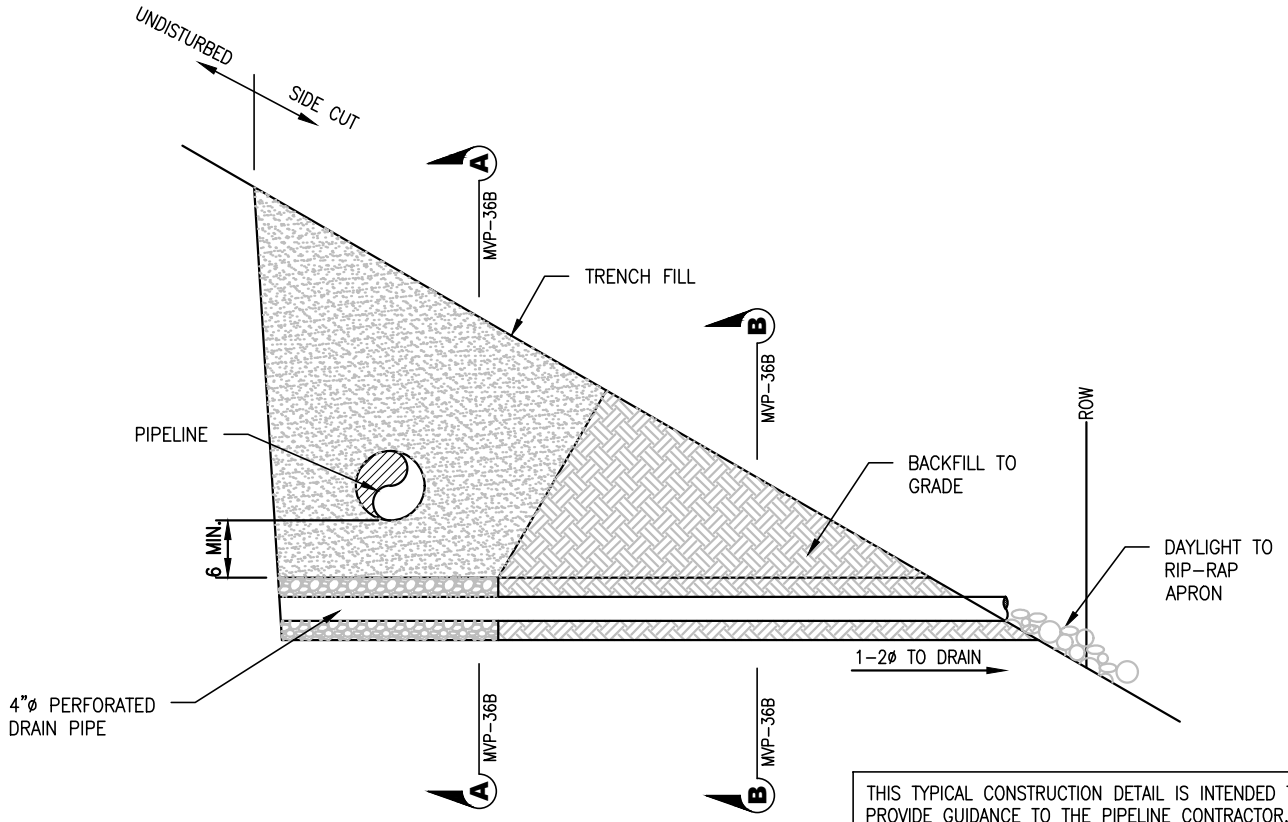

C-C
SCALE: NOT TO SCALE

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JOB NO.			
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H-650-TYP			

Mountain Valley PIPELINE LLC

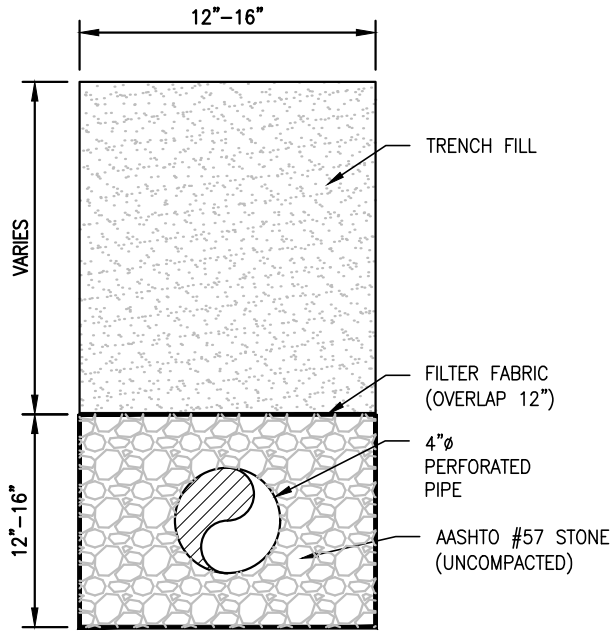
TYPICAL CONSTRUCTION DETAIL

TRANSVERSE TRENCH DRAIN

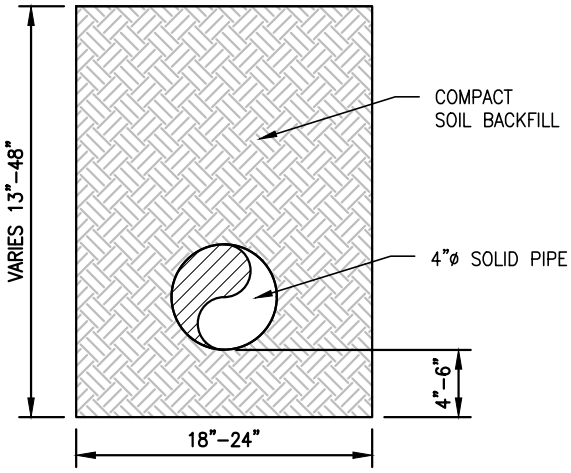
DRAWING NO.	REV.
MVP-SG-38A	P1

Plotted by: Sample, Stanley on: August 14, 2018 - 12:39 PM

File Path: O:\Projects\300423 - NextEra MVP Southgate\CA - CADD\Pipeline\Drawings\Typicals\MVP-SG-38A.dwg



SECTION A-A
SCALE: NOT TO SCALE
FROM MVP–36A



SECTION B-B
SCALE: NOT TO SCALE
FROM MVP–36A

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

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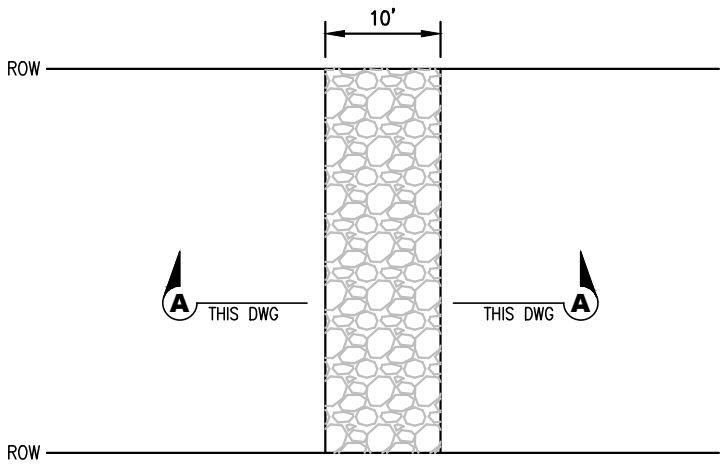
Mountain Valley PIPELINE LLC

TYPICAL CONSTRUCTION DETAIL

TRANSVERSE TRENCH DRAIN

DRAWING NO.	REV.
MVP–38B	P1



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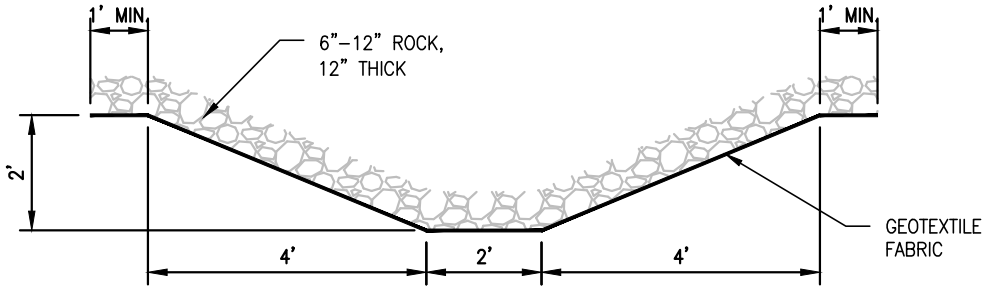

SECTION A-A
SCALE: NOT TO SCALE

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PROJECT ID: H–650–TYP			

Mountain Valley PIPELINE LLC

TYPICAL CONSTRUCTION DETAIL

ROCK LINED SWALE

DRAWING NO.	REV.
MVP–SG–39	P1

Plotted by: Sample, Stanley on: August 14, 2018 - 12:39 PM

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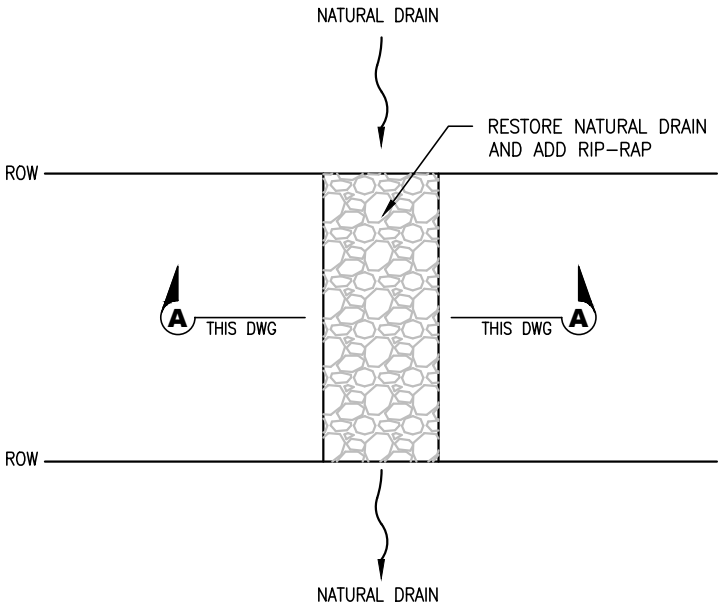

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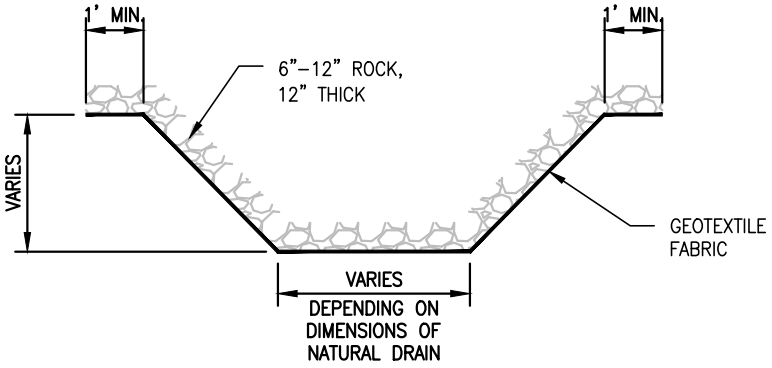

SECTION A-A
SCALE: NOT TO SCALE

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CHECKED	XXX	DATE	X/X/2018
APP'D	XXX	DATE	X/X/2018
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JOB NO.			
PROJECT ID:			
H-650-TYP			

Mountain Valley PIPELINE LLC

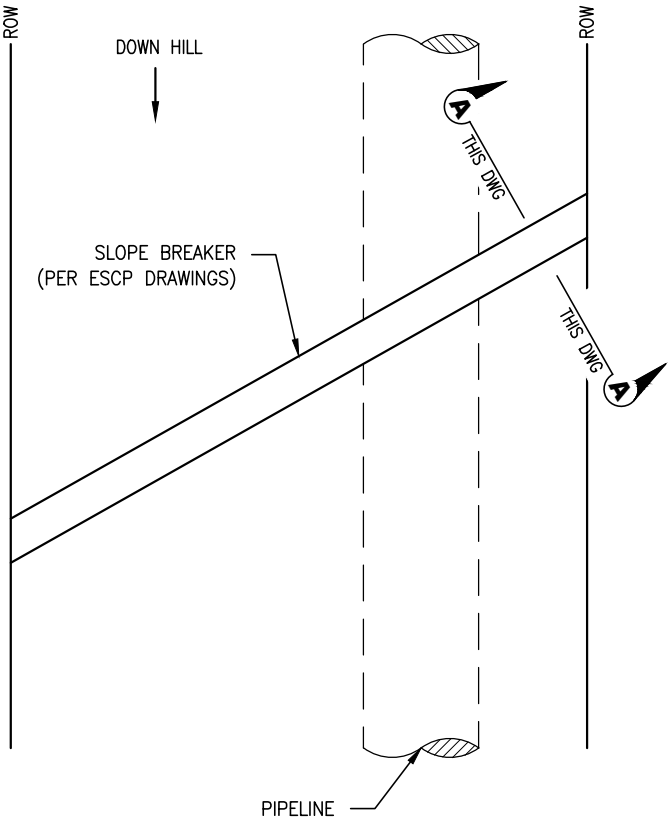
TYPICAL CONSTRUCTION DETAIL

RIP-RAP NATURAL DRAIN

DRAWING NO.	REV.
MVP-SG-40	P1

Plotted by: Sample, Stanley on: August 14, 2018 - 12:39 PM

File Path: O:\Projects\300423 - NextEra MVP Southgate\CA - CADD\Pipeline\Drawings\Typicals\MVP-SG-40.dwg



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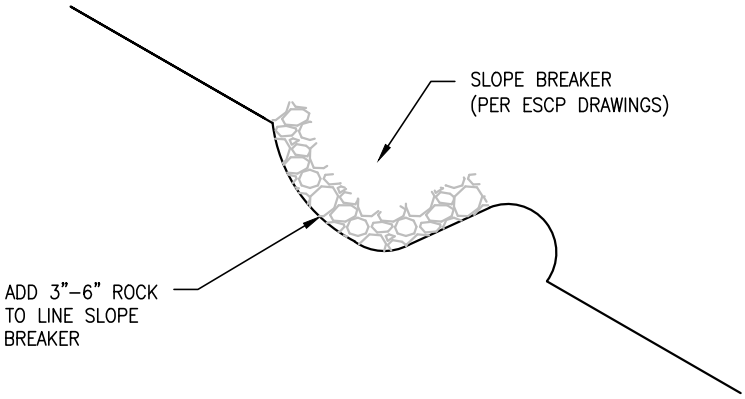

SECTION A-A
SCALE: NOT TO SCALE

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APP'D	XXX	DATE	X/X/2018
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JOB NO.			
PROJECT ID: H–650–TYP			

Mountain Valley PIPELINE LLC

TYPICAL CONSTRUCTION DETAIL

RIP–RAP SLOPE BREAKERS

DRAWING NO.	REV.
MVP–SG–41	P1

Plotted by: Sample, Stanley on: August 14, 2018 - 12:39 PM

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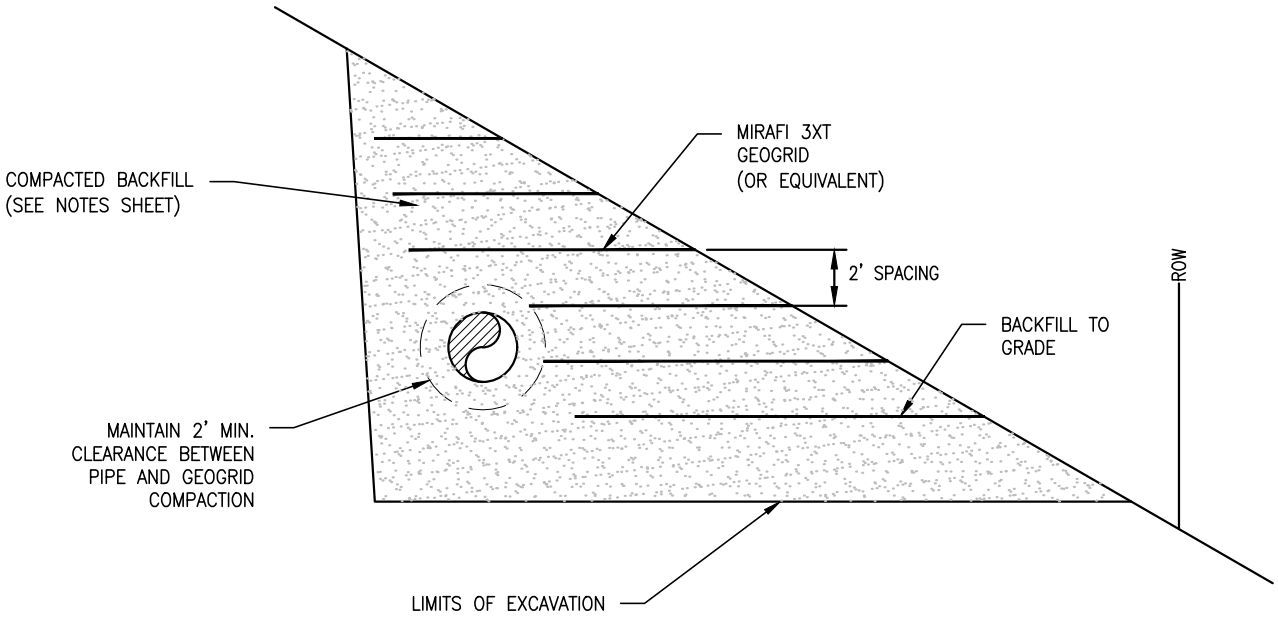

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DRAWN	TRC	DATE	8/7/2018
CHECKED	XXX	DATE	X/X/2018
APP'D	XXX	DATE	X/X/2018
SCALE	N.T.S.	SHEET	1 OF 3
JOB NO.			
PROJECT ID: H-650-TYP			

Mountain Valley PIPELINE LLC

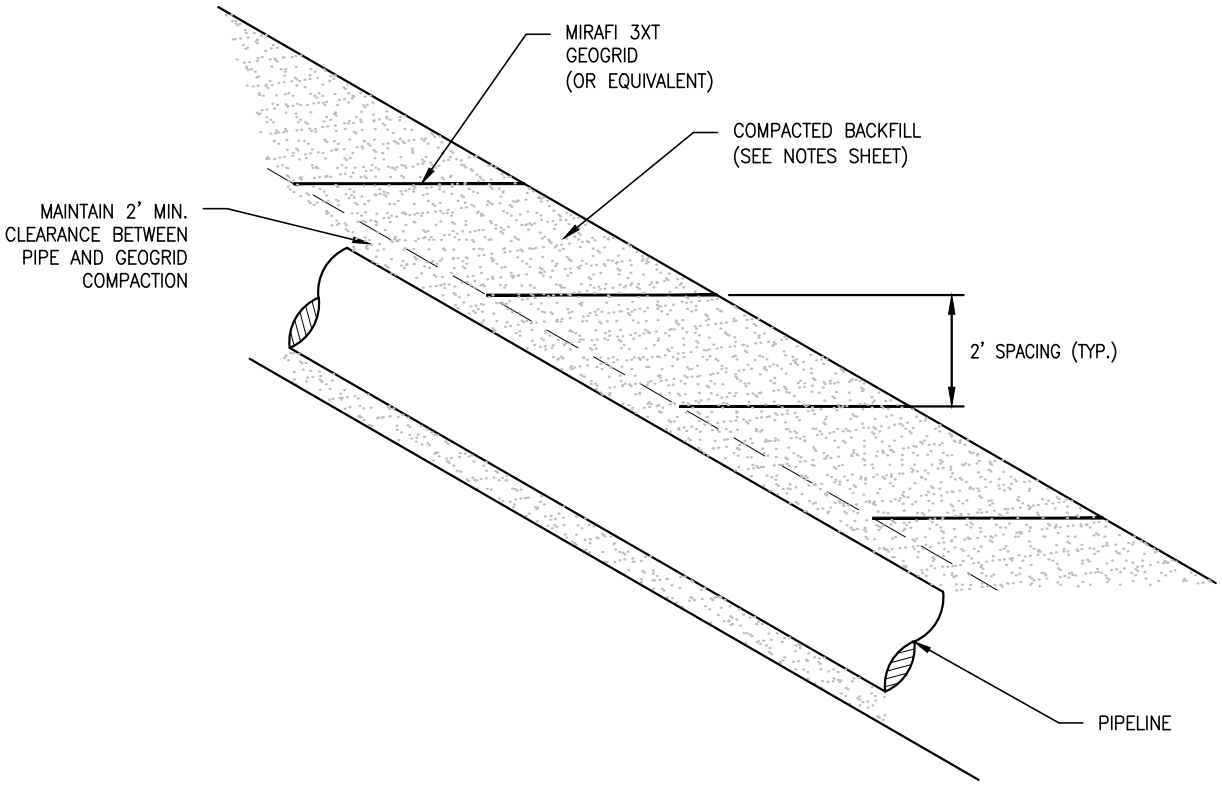
TYPICAL CONSTRUCTION DETAIL

GEOGRID-SIDEHILL

DRAWING NO.	REV.
MVP-SG-42A	P1

Plotted by: Sample, Stanley on: August 14, 2018 - 12:40 PM

File Path: O:\Projects\300423 - NextEra MVP Southgate\CA - CADD\Pipeline\Drawings\Typicals\MVP-SG-42A.dwg



SECTION VIEW
SCALE: NOT TO SCALE

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN	TRC	DATE	8/7/2018
CHECKED	XXX	DATE	X/X/2018
APP'D	XXX	DATE	X/X/2018
SCALE	N.T.S.	SHEET	2 OF 3
JOB NO.			
PROJECT ID: H-650-TYP			

Mountain Valley PIPELINE LLC

SLIDE MITIGATION DETAIL

GEOGRID-PLANAR

DRAWING NO.	REV.
MVP-SG-42B	P1

Plotted by: Sample, Stanley on: August 14, 2018 - 12:58 PM

File Path: O:\Projects\300423 - NextEra MVP Southgate\CA - CADD\Pipeline\Drawings\Typicals\MVP-SG-42B.dwg

COMPACTION NOTES

1) ALL ROCKS LARGER THAN 6 INCHES IN SIZE, AND MORE THAN 10 PERCENT BY VOLUME SHOULD BE REMOVED AND PROPERLY DISPOSED FROM THE BACKFILL MATERIAL.
2) THE SUBGRADE AT THE BASE OF THE EXCAVATION SHOULD BE PROOFROLLED WITH A PNEUMATIC TIRED ROLLER OR VEHICLE.
3) THE EXCAVATED AREA SHALL BE BACKFILLED WITH THE CLEANED EXCAVATED SOIL MATERIAL AND COMPACTED IN PLACE.
4) BACKFILL OPERATIONS SHALL BE PERFORMED WHEN SOIL IS SUITABLE FOR COMPACTION (I.E., NOT IMMEDIATELY FOLLOWING A LARGE RAIN, SNOW, OR ICE EVENT). FROZEN FILL SHALL NOT BE USED.
5) THE BACKFILL SHALL BE PLACED IN COMPACTED LIFTS NO GREATER THAN 12 INCHES.
6) MAINTAIN A MINIMUM 2FT CLEARANCE BETWEEN COMPACTION ACTIVITY AND THE GAS PIPELINE.

GRAVEL DRAIN NOTES

1) GEOTEXTILE FABRIC SHALL BE TENCATE MIRAFI 140N OR APPROVED EQUIVALENT.
2) THE GEOTEXTILE FABRIC SHALL BE STORED UNDAMAGED PURSUANT TO MANUFACTURERS RECOMMENDATIONS.
3) DO NOT OPERATE CONSTRUCTION EQUIPMENT DIRECTLY ON THE GEOTEXTILE FABRIC.
4) DRAINAGE AGGREGATE SHALL MEET THE REQUIREMENTS OF AASHTO NO. 57 STONE.
5) DRAINAGE AGGREGATE SHALL NOT BE COMPACTED.

GEOGRID NOTES

1) GEOGRID REINFORCEMENT SHALL BE TENCATE MIRAFI 3XT OR APPROVED EQUIVALENT.
2) THE GEOGRID MATERIAL SHALL BE STORED UNDAMAGED PURSUANT TO MANUFACTURERS RECOMMENDATIONS.
3) GEOGRID SHALL BE PLACED HORIZONTALLY ON THE BACKFILL WITH THE PRINCIPAL STRENGTH DIRECTION PERPENDICULAR TO THE FACE OF THE SLOPE. ADJACENT PIECES OF PRIMARY GEOGRID SHALL NOT OVERLAP BUT ARE TO BE BUTTED SIDE TO SIDE.
4) REMOVE ALL SLACK IN THE GEOGRID MATERIAL AND ANCHOR AS NECESSARY WITH PINS, OR BAGS TO PREVENT SLACK FROM DEVELOPMENT DURING FILL PLACEMENT AND COMPACTION.
5) FILL IS TO BE PLACED AND SPREAD DIRECTLY ON THE GEOGRID MATERIAL WITH RUBBER TIRED EQUIPMENT ONLY. SPEEDS ARE TO BE KEPT SLOW WITH AS FEW STOPS AND TURNS AS PRACTICAL.
6) DO NOT OPERATE TRACKED EQUIPMENT DIRECTLY ON THE GEOGRID MATERIAL.
7) MAINTAIN A MINIMUM 2FT CLEARANCE BETWEEN GEOGRID MATERIAL AND THE GAS PIPELINE.

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DRAWN	TRC	DATE	8/7/2018
CHECKED	XXX	DATE	X/X/2018
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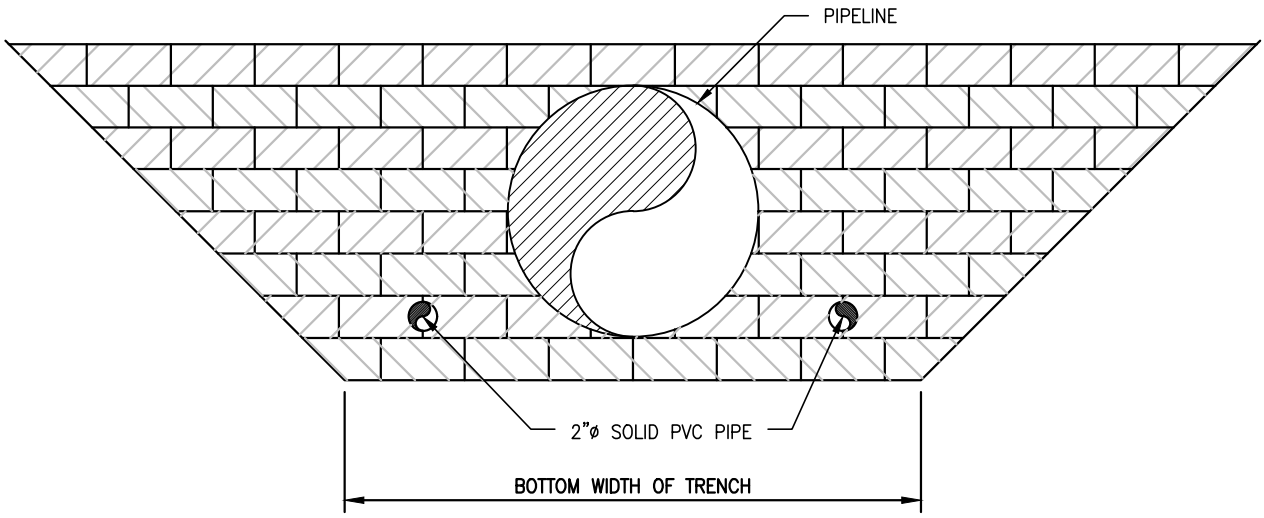
JOB NO.			
PROJECT ID:			
H-650-TYP			

Mountain Valley PIPELINE LLC

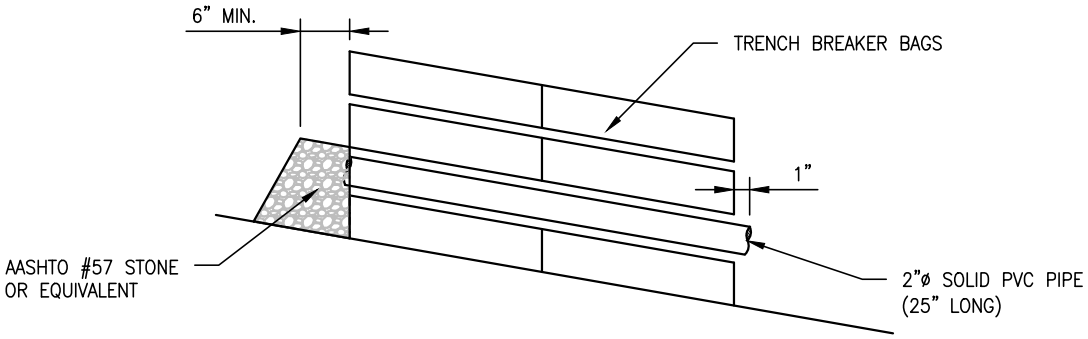
TYPICAL CONSTRUCTION DETAIL

GEOGRID NOTES

DRAWING NO.	REV.
MVP-SG-42C	P1



FRONT VIEW
SCALE: NOT TO SCALE



SECTION VIEW
SCALE: NOT TO SCALE

NOTES:
1. PLACE PVC DRAIN PIPE ON FIRST LAYER OF TRENCH BREAKER BAGS.
2. PLACE PVC DRAIN PIPE EQUADISTANT FROM THE OUTSIDE EDGE OF THE 30" GAS PIPE AND THE BOTTOM LIMITS OF THE TRENCH.
3. EXTEND PVC PIPE THROUGH ENTIRE TRENCH BREAKER AND EXTEND APPROX. 1" PAST END OF BREAKER.
4. AASHTO#57 STONE SHALL BE PLACED TO A MINIMUM 6" THICKNESS UPSLOPE OF THE DRAIN PIPE.

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CHECKED	XXX	DATE	X/X/2018
APP'D	XXX	DATE	X/X/2018
SCALE	N.T.S.	SHEET	1 OF 2
JOB NO.			
PROJECT ID:			
H-650-TYP			

Mountain Valley PIPELINE LLC

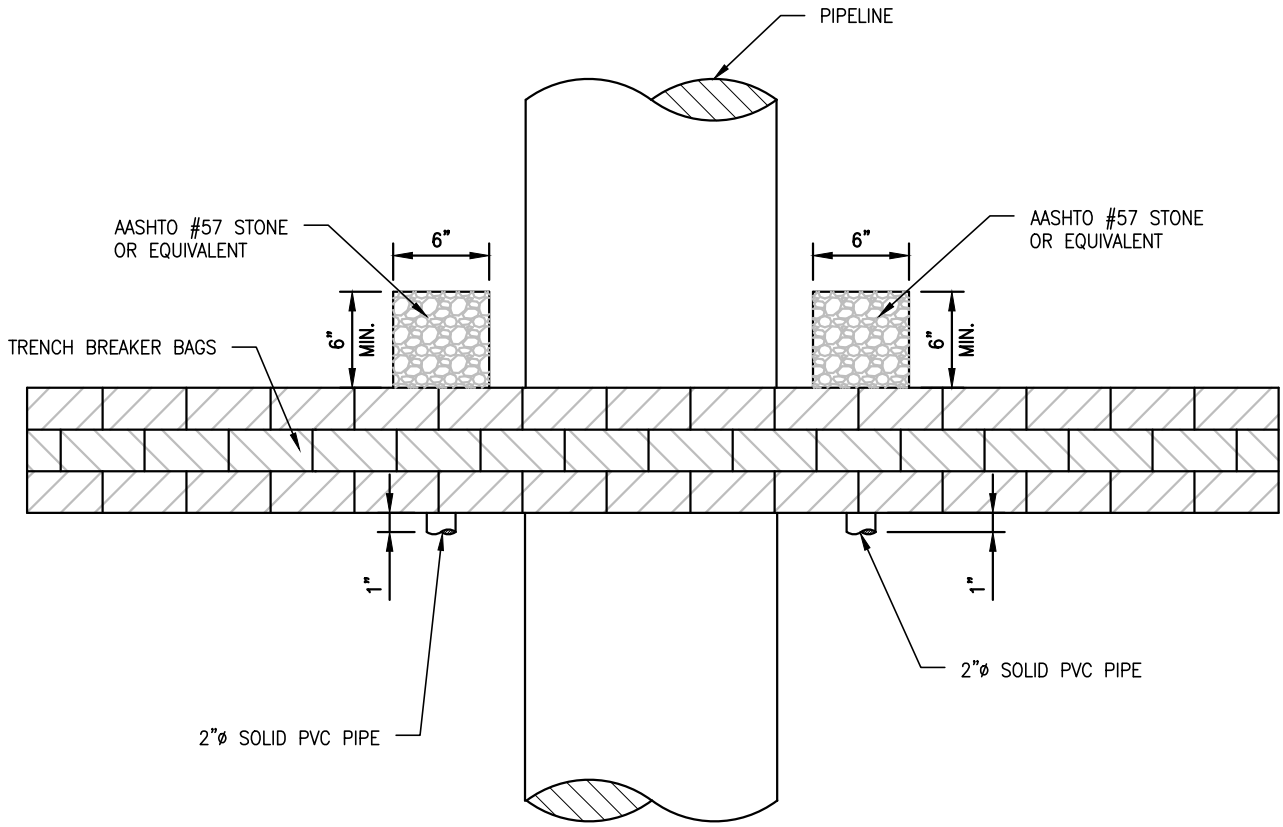
TYPICAL CONSTRUCTION DETAIL

TRENCH BREAKER
PASS-THROUGH DRAIN

DRAWING NO.	REV.
MVP-SG-43A	P1

Plotted by: Sample, Stanley on: August 14, 2018 - 12:40 PM

File Path: O:\Projects\300423 - NextEra MVP Southgate\CA - CADD\Pipeline\Drawings\Typicals\MVP-SG-43A.dwg



PLAN VIEW
SCALE: NOT TO SCALE

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DRAWN	TRC	DATE	8/7/2018
CHECKED	XXX	DATE	X/X/2018
APP'D	XXX	DATE	X/X/2018
SCALE	N.T.S.	SHEET	2 OF 2
JOB NO.			
PROJECT ID:			
H-650-TYP			

Mountain Valley PIPELINE LLC

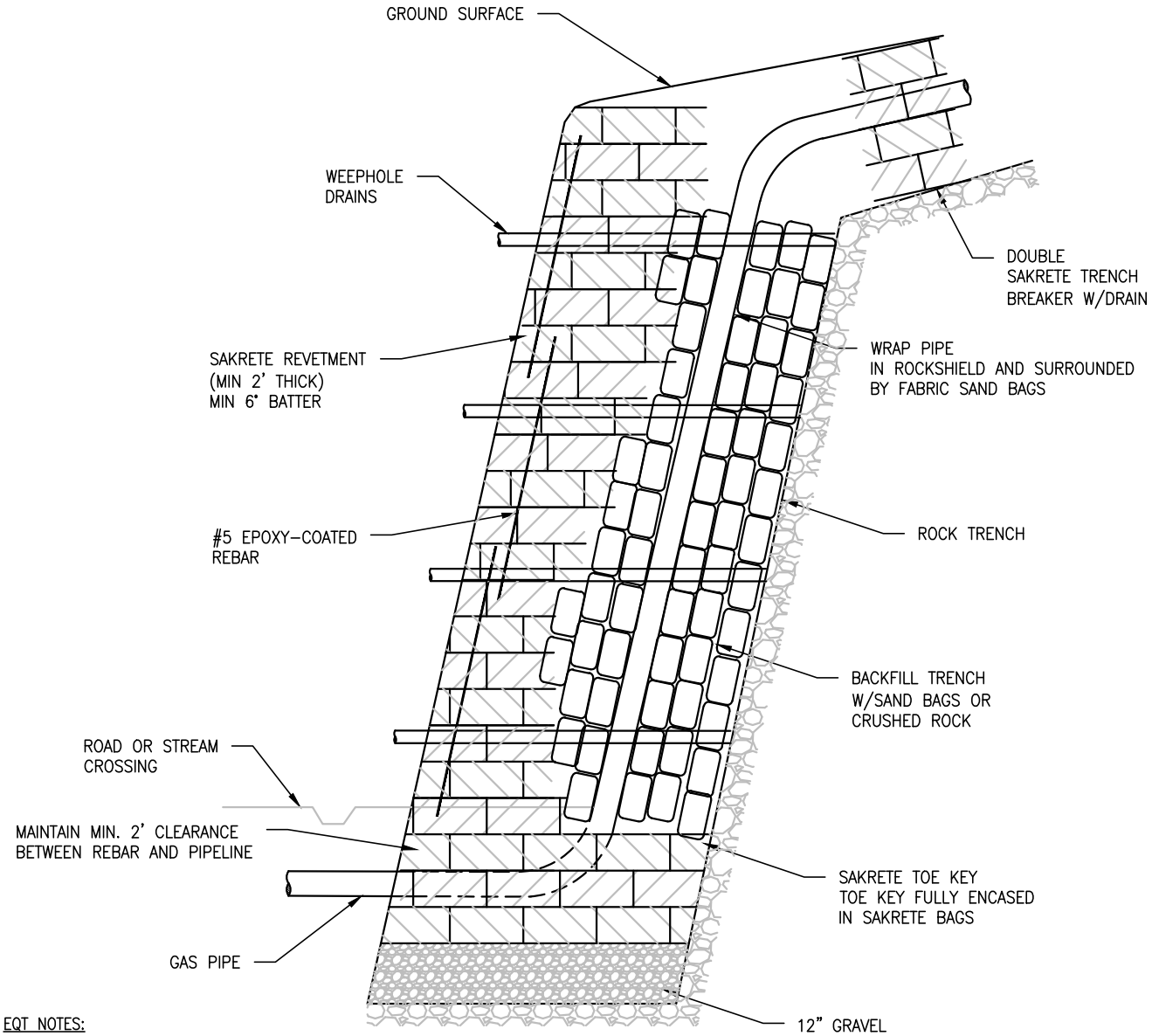
TYPICAL CONSTRUCTION DETAIL

TRENCH BREAKER
PASS-THROUGH DRAIN

DRAWING NO.	REV.
MVP-SG-43B	P1

Plotted by: Sample, Stanley on: August 14, 2018 - 12:40 PM

File Path: O:\Projects\300423 - NextEra MVP Southgate\CA - CADD\Pipeline\Drawings\Typicals\MVP-SG-43B.dwg



SIDE VIEW
SCALE: NOT TO SCALE

EQT NOTES:

1. SAKRETE BAGS SHOULD EXTEND 4 BAGS DEEP PIPE SHOULD BE COMPLETELY SURROUNDED BY SAND BAGS, OR CRUSHED ROCK (MAX 6").
2. SAKRETE BAGS SHOULD BE STAGGERED IN A MASONRY FASHION. THE FACE OF THE WELL SHALL BE INCLINED 6°-10° FROM VERTICAL.
3. #5 REBAR SHOULD BE DRIVEN THROUGH THE SAKRETE BAGS (SEE DETAIL 1).
4. 2"ø PVC WEEPHOLE DRAINS SHALL BE INSTALLED EVERY 15 FT.

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JOB NO.			
PROJECT ID:	H-650-TYP		

Mountain Valley PIPELINE LLC

TYPICAL CONSTRUCTION DETAIL

SLIDE MITIGATION
HIGHWALL REVETMENT
SIDE VIEW

DRAWING NO.	REV.
MVP-SG-44A	P1

Plotted by: Sample, Stanley on: August 14, 2018 - 12:40 PM

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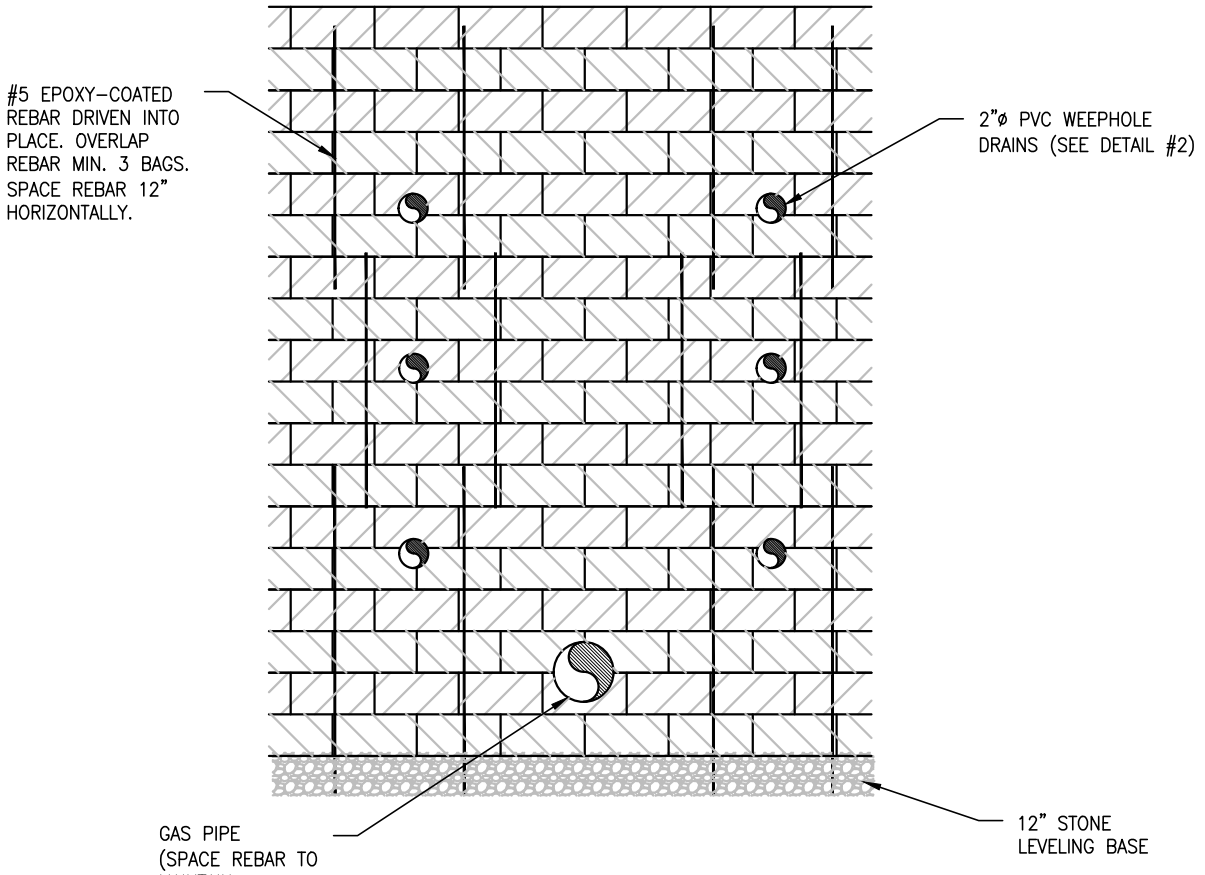
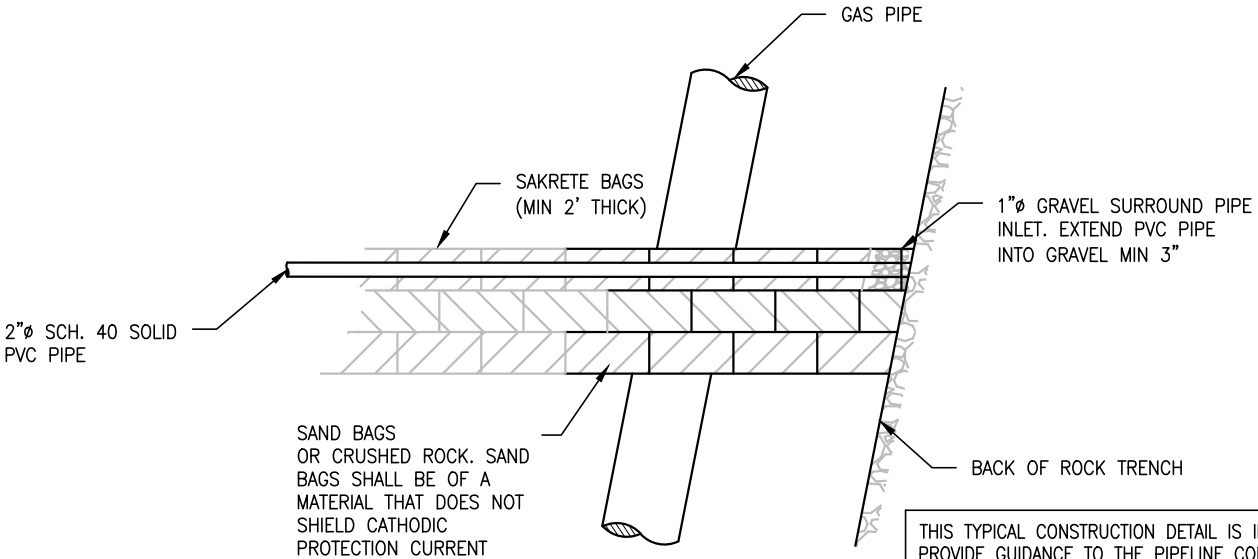


FRONT VIEW
SCALE: NOT TO SCALE



DRAIN DETAIL
SCALE: NOT TO SCALE

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN	TRC	DATE	8/7/2018
CHECKED	XXX	DATE	X/X/2018
APP'D	XXX	DATE	X/X/2018
SCALE	N.T.S.	SHEET	2 OF 2
JOB NO.			
PROJECT ID: H-650-TYP			

Mountain Valley PIPELINE LLC

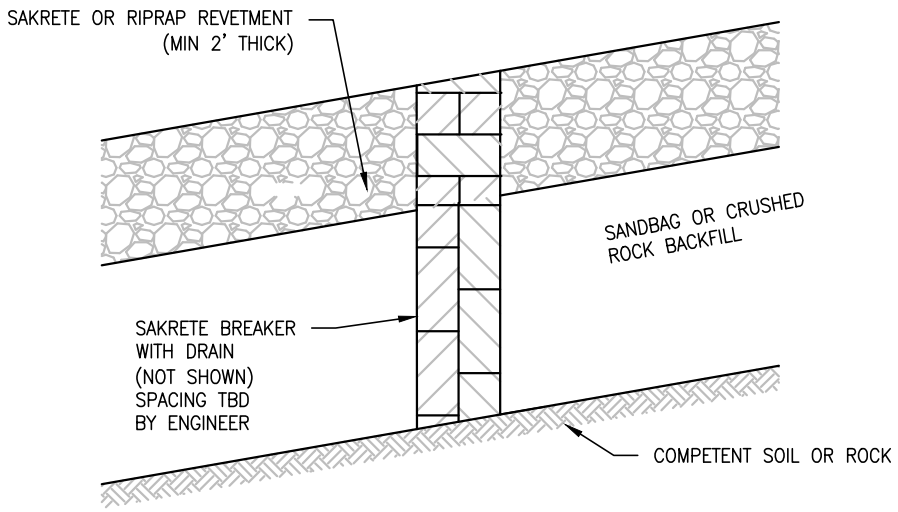
TYPICAL CONSTRUCTION DETAIL

SLIDE MITIGATION
HIGHWALL REVETMENT
FRONT VIEW AND DRAIN DETAIL

DRAWING NO.	REV.
MVP-SG-44B	P1

Plotted by: Sample, Stanley on: August 14, 2018 - 12:40 PM

File Path: O:\Projects\300423 - NextEra MVP Southgate\CA - CADD\Pipeline\Drawings\Typicals\MVP-SG-44B.dwg



SIDE VIEW
SCALE: NOT TO SCALE

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SCALE	N.T.S.	SHEET	1 OF 1
JOB NO.			
PROJECT ID: H-650-TYP			

Mountain Valley PIPELINE LLC

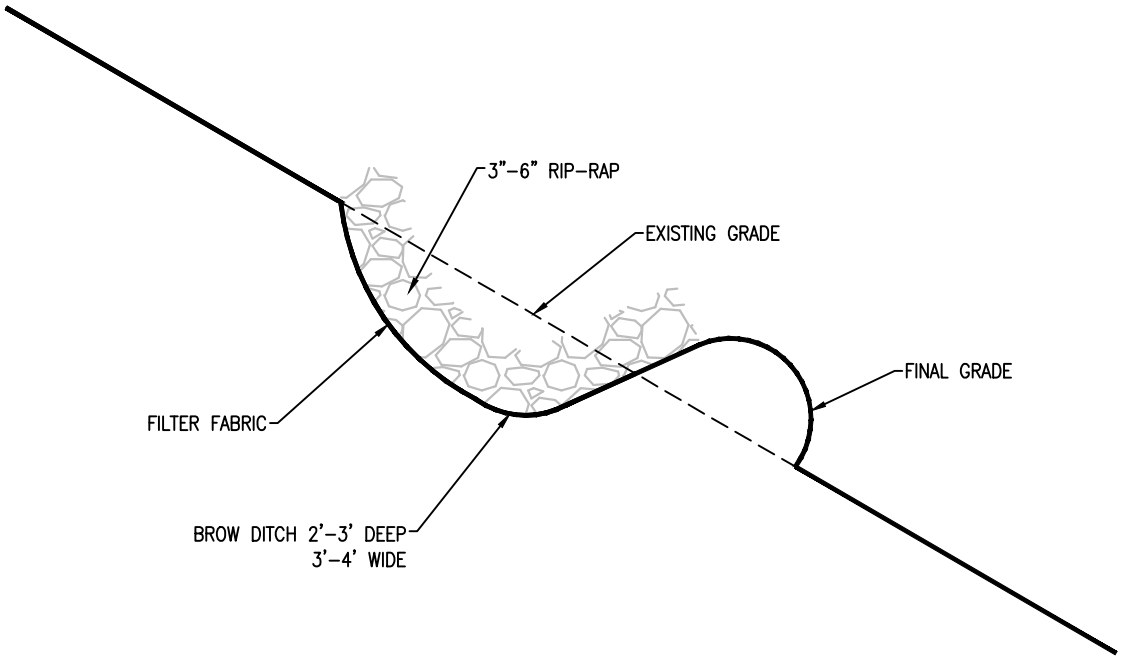
TYPICAL CONSTRUCTION DETAIL

STEEP SLOPE REVETMENT

DRAWING NO.	REV.
MVP-SG-45	P1

Plotted by: Sample, Stanley on: August 14, 2018 - 12:40 PM

File Path: O:\Projects\300423 - NextEra MVP Southgate\CA - CADD\Pipeline\Drawings\Typicals\MVP-SG-45.dwg



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SCALE	N.T.S.	SHEET	1 OF 1
JOB NO.			
PROJECT ID: H–650–TYP			

Mountain Valley PIPELINE LLC

TYPICAL CONSTRUCTION DETAIL

BROW DITCH DETAIL

DRAWING NO.	REV.
MVP–SG–46	P1

Plotted by: Sample, Stanley on: August 14, 2018 - 12:40 PM

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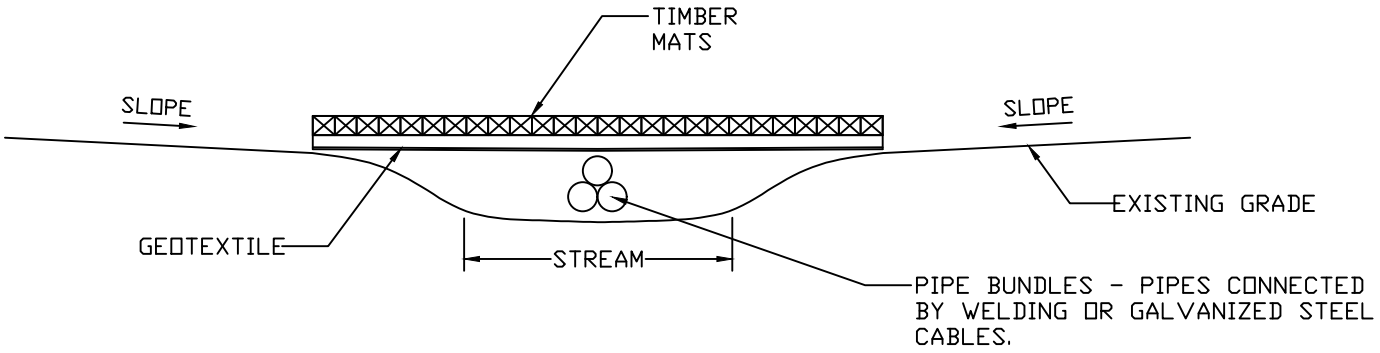

NOTE:

CFS TO BE INSTALLED AT THE END OF EACH WORKING DAY.

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

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SCALE	N.T.S.	SHEET	1 OF 1
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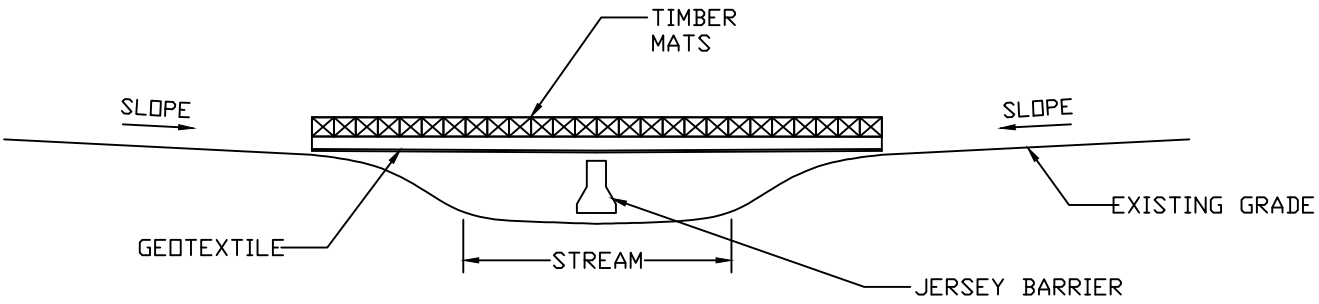
PROJECT ID: H-650-TYP			

Mountain Valley PIPELINE LLC

TYPICAL CONSTRUCTION DETAIL

TIMBER MAT AND PIPE BUNDLE TEMPORARY STREAM CROSSING

DRAWING NO.	REV.
MVP-SG-47	P1



NOTE:

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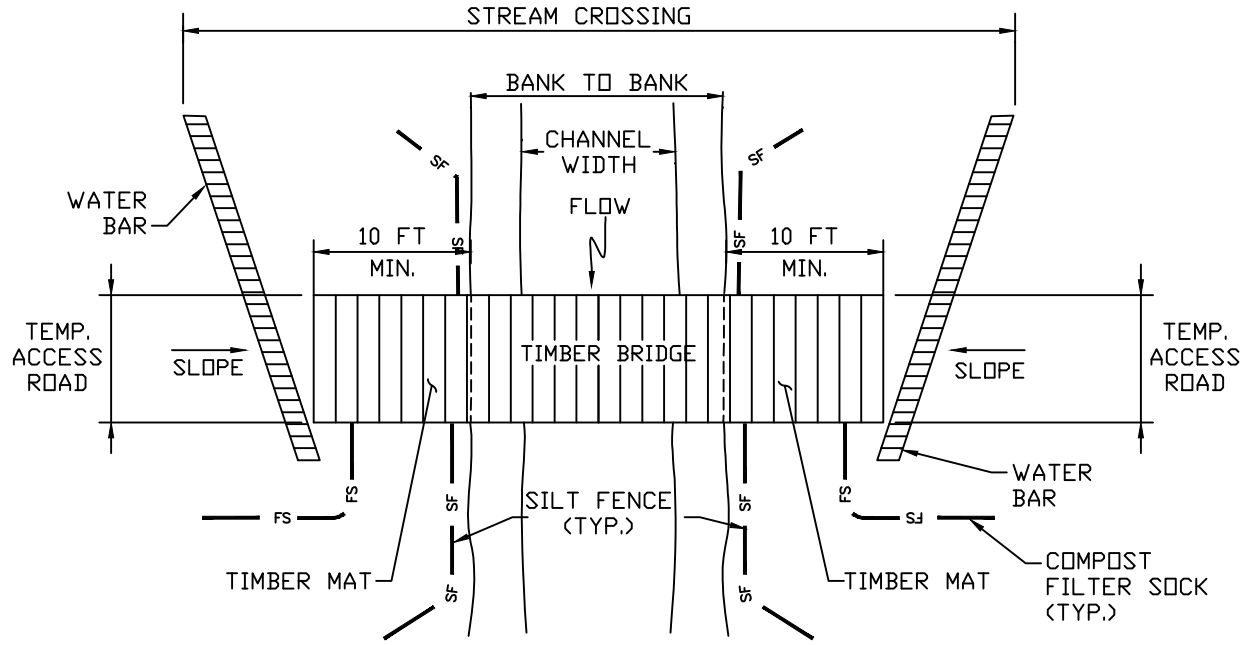
APP'D	XXX	DATE	X/X/2018
SCALE	N.T.S.	SHEET	1 OF 1
JOB NO.			
PROJECT ID: H-650-TYP			

Mountain Valley PIPELINE LLC

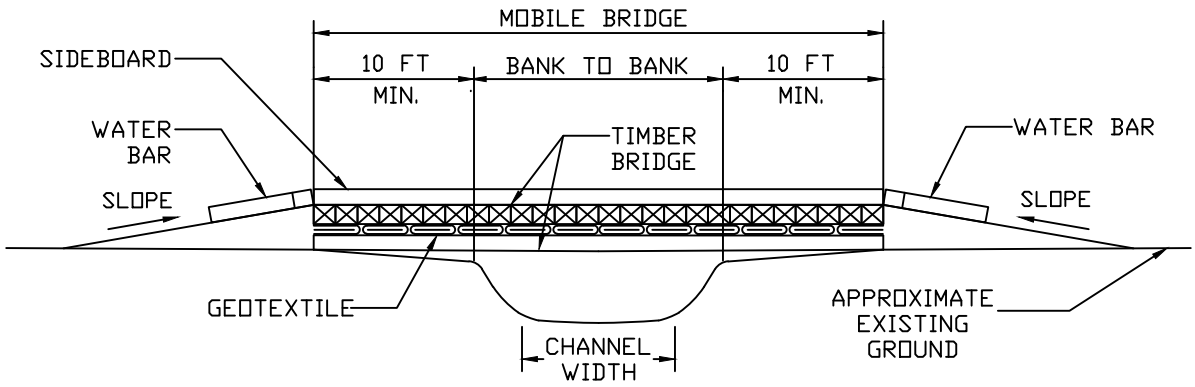
TYPICAL CONSTRUCTION DETAIL

TIMBER MAT AND JERSEY BARRIER
TEMPORARY STREAM CROSSING

DRAWING NO.	REV.
MVP-SG-48	P1



PLAN VIEW



CROSS SECTION - MOBILE BRIDGE

NOTES:

1. INSTALL WATER BARS OR SILT FENCE AT APPROACHES TO STREAM CROSSING AND COMPOST FILTER SOCKS ALONG STREAM BANKS. INSTALL COMPOST FILTER SOCK AT OUTLET OF WATER BARS.
2. MAINTAIN SURFACE OF TEMPORARY EQUIPMENT CROSSING TO PREVENT SOIL DISCHARGES TO STREAM.
3. APPROACHES TO CROSSINGS ARE NOT TO EXCEED A DEPTH OF 6 INCHES ABOVE ORIGINAL GRADE.
4. GEOTEXTILE LINER TO COME UP ON THE SIDES OF THE BRIDGE A MINIMUM OF 18".
5. SIDEBOARDS TO BE ATTACHED TO THE UPPER DECK. GEOTEXTILE TO BE WRAPPED AROUND SIDEBOARDS PRIOR TO FASTENING.

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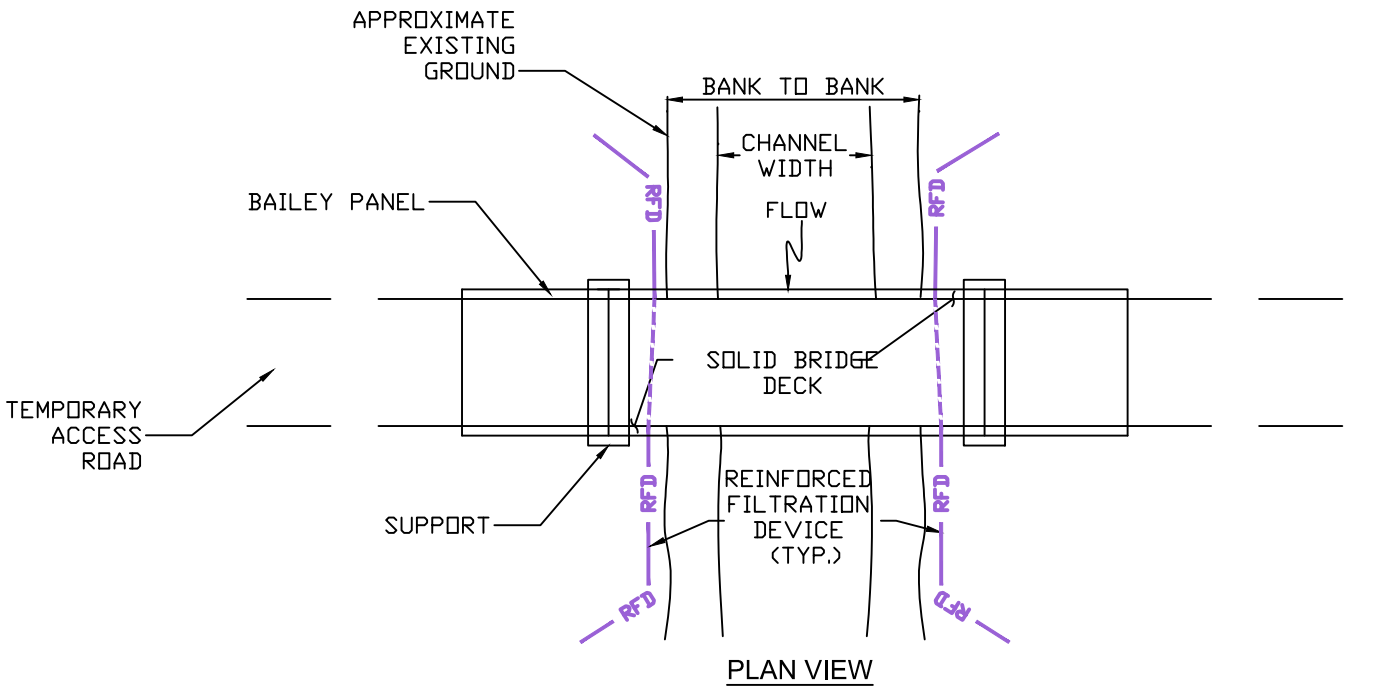
PROJECT ID: H-650-TYP			

Mountain Valley PIPELINE LLC

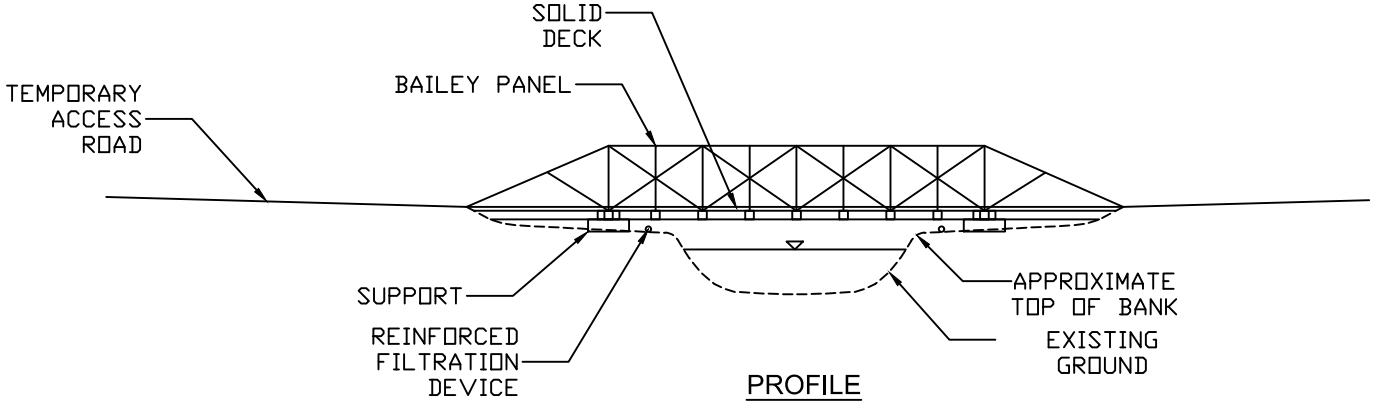
TYPICAL CONSTRUCTION DETAIL

MOBILE BRIDGE

DRAWING NO.	REV.
MVP-SG-49	P1



PLAN VIEW



PROFILE

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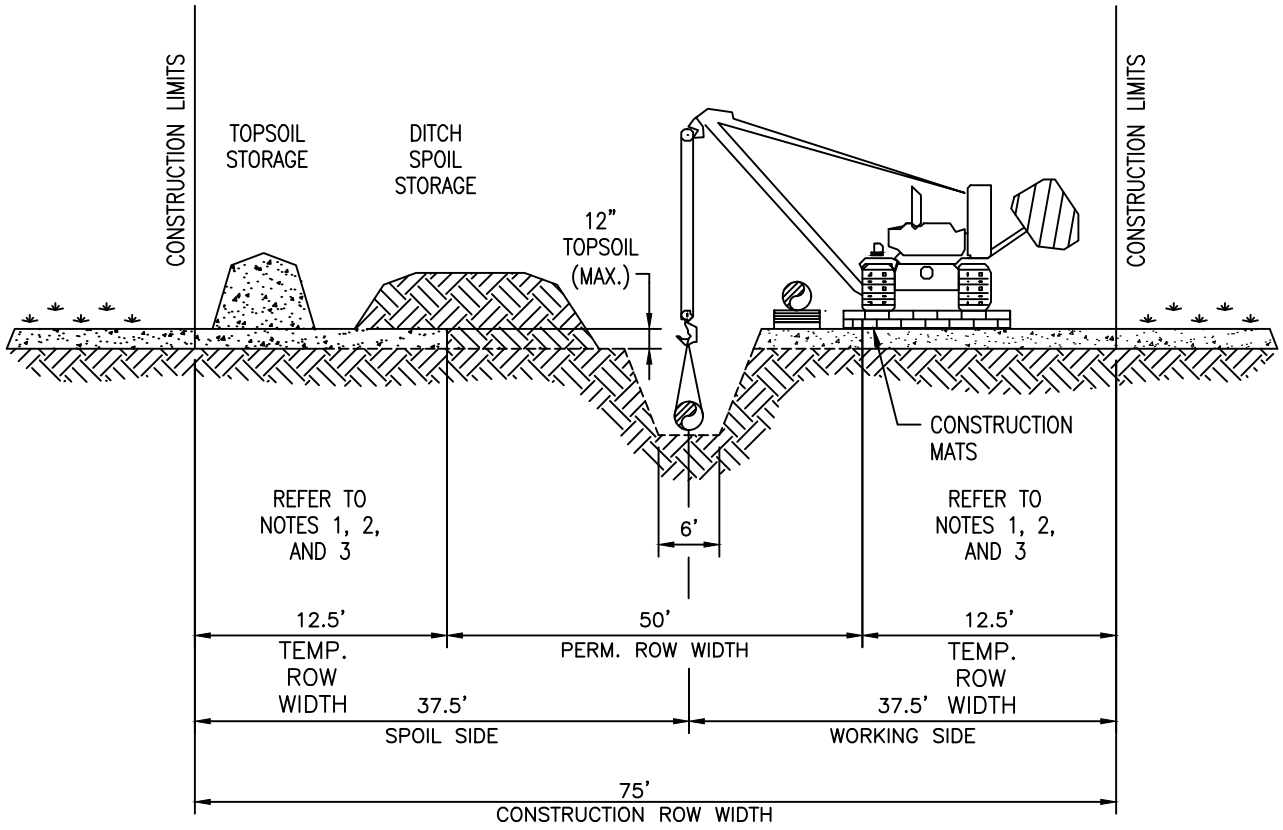
JOB NO.			
PROJECT ID: H-650-TYP			

Mountain Valley PIPELINE LLC

TYPICAL CONSTRUCTION DETAIL

MODULAR TEMPORARY BAILEY BRIDGE

DRAWING NO.	REV.
MVP-SG-50	P1



NOTES:

1. TOPSOIL SEGREGATION/REMOVAL WILL ONLY BE CONDUCTED WITHIN THE PERMANENT EASEMENT AT ALL WETLAND CROSSINGS IN VIRGINIA.

2. GRUBBING ACTIVITIES SHALL BE LIMITED TO THE PERMANENT EASEMENT AT ALL WETLAND CROSSINGS IN VIRGINIA. OUTSIDE OF THE PERMANENT EASEMENT, WETLAND VEGETATION SHALL ONLY BE REMOVED AT OR ABOVE THE GROUND SURFACE. WOODY VEGETATION WITHIN THE TEMPORARY EASEMENT SHALL BE CUT AT GROUND SURFACE WITH THE STUMPS TO REMAIN IN-PLACE.

3. WETLAND CROSSINGS IN VIRGINIA SHALL BE CONDUCTED IN ACCORDANCE WITH NWP12 GENERAL AND NORFOLK DISTRICT REGIONAL CONDITIONS.

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SCALE	N.T.S.	SHEET	1 OF 1
JOB NO.			
PROJECT ID:			
H-650-TYP			

Mountain Valley PIPELINE LLC

TYPICAL CONSTRUCTION DETAIL

WETLAND CROSSING TYPICAL FOR USACE NORFOLK (VA) DISTRICT

DRAWING NO.	REV.
MVP-SG-53	P1

MVP Southgate Project

Docket No. CP19-14-000

Environmental Typical Drawings

October 2019

MVP SOUTHGATE PROJECT

PROPOSED H-650 PIPELINE
ENGINEERING SERVICES DESIGN; JOB NUMBERS 300423
ENVIRONMENTAL TYPICAL DRAWINGS

DRAWING NO.	DRAWING TITLE	REV.
ENV-TYP	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ENVIRONMENTAL TYPICALS	P1
MVP-SG-ES6	PROPOSED ACCESS ROAD TYPICAL LAYOUT	P1
MVP-SG-ES8	DAM AND PUMP	P1
MVP-SG-ES9.1	BELTED SILT RETENTION FENCE (BSRF)	P1
MVP-SG-ES9.2	SUPER SILT FENCE	P1
MVP-SG-ES9.3	STACKED COMPOST FILTER SOCK DETAIL CROSS SECTION VIEW	P1
MVP-SG-ES13.2	COFFERDAM STREAM CROSSING METHOD	P1
MVP-SG-ES14	WATER DEFLECTOR	P1
MVP-SG-ES17	ROCK FILTER OUTLET	P1
MVP-SG-ES19	WATERBAR	P1
MVP-SG-ES20	ROCK CONSTRUCTION ENTRANCE WITH WASH RACK	P1
MVP-SG-ES25	RIPRAP STREAMBANK PROTECTION WITH OPTIONAL LIVE STAKES	P1
MVP-SG-ES33	GAP GRADED GRAVEL DETAIL FOR MAINLINE VALVE PADS & PERMANENT ACCESS ROADS	P1
MVP-SG-ES34	PROPOSED ACCESS ROAD TYPICAL SECTION	P1

DRAWING NO.	DRAWING TITLE	REV.
MVP-SG-ES35	TRENCH DETAIL	P1
MVP-SG-ES37	TIMBER MAT/WETLAND CROSSING	P1
MVP-SG-ES38	DIVERSION DIKE/WATERBARS WITH COMPOST	P1
MVP-SG-ES42	TYPICAL SUMP FILTER	P1
MVP-SG-ES43	TURBIDITY CURTAIN DETAIL	P1
MVP-SG-ES43.1	TURBIDITY CURTAIN DETAIL	P1
MVP-SG-ES43.2	TURBIDITY CURTAIN DETAIL	P1
MVP-SG-ES43.3	TURBIDITY CURTAIN DETAIL	P1
MVP-SG-ES43.4	TURBIDITY CURTAIN DETAIL	P1
MVP-SG-ES46	TOPSOILING & SOIL HANDLING	P1
MVP-SG-ES46.1	TOPSOILING & SOIL HANDLING	P1
MVP-SG-ES46.2	TOPSOILING & SOIL HANDLING	P1
MVP-SG-ES46.3	TOPSOILING & SOIL HANDLING	P1
MVP-SG-ES49	TIMBER MAT BRIDGE STREAM CROSSING	P1
MVP-SG-ES54	TEMPORARY VEHICLE PULL OFF DETAIL	P1

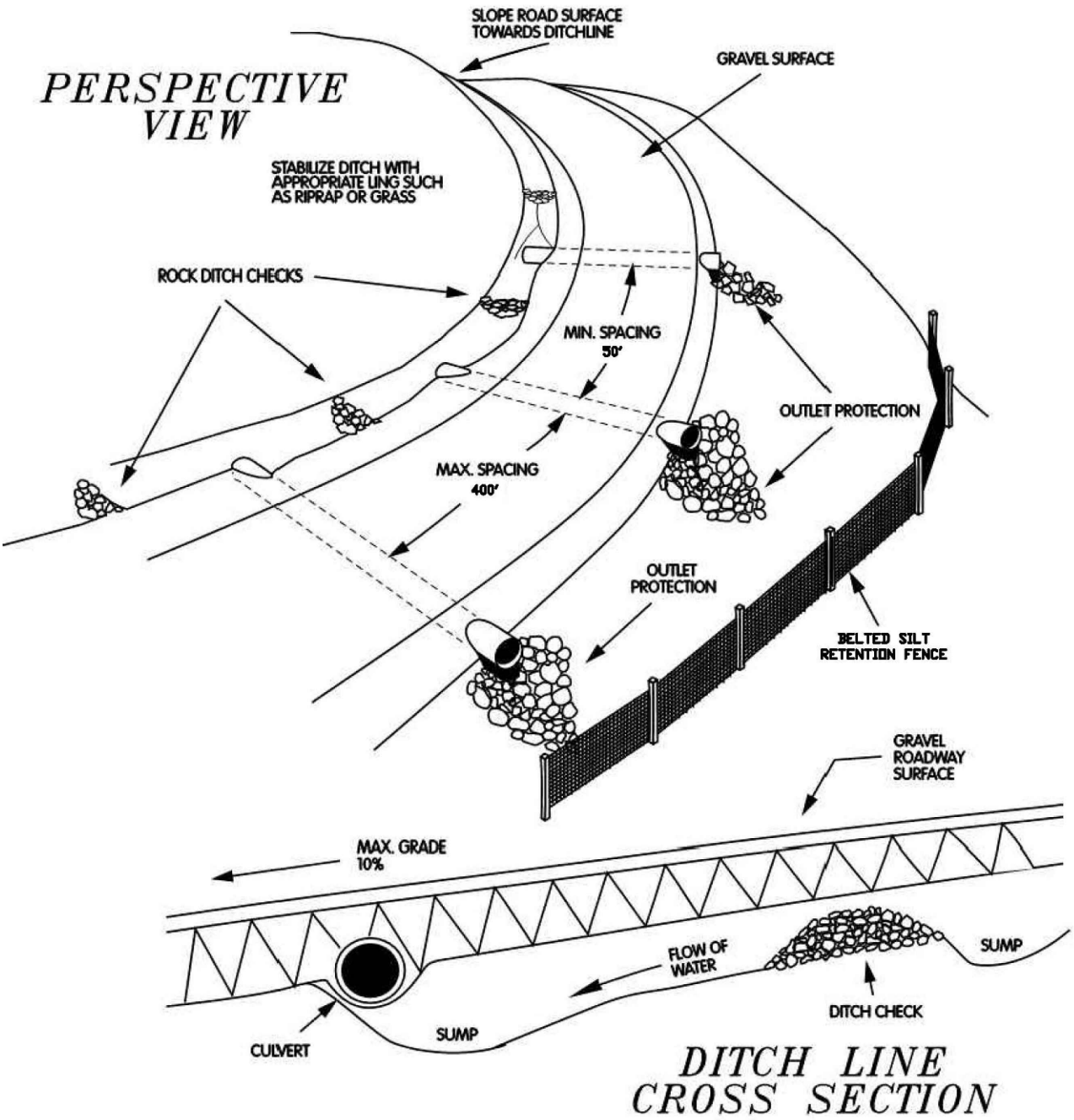
ISSUED FOR FERC
10/14/19

O:\PROJECTS\300423 - NEXTERA MVP SOUTHGATE\CA - CADD\PIPELINE\DRAWINGS\TYPICALS\TYPICAL COVER.DWG

PROJECT ID 300423
DRAWING SCALE NTS

DRAWING TITLE:
MOUNTAIN VALLEY PIPELINE
SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ENVIRONMENTAL TYPICALS

FACILITY	STATE	IDENTIFICATION	SERIES	SHEET	REVISION
MVP	VA/NC	ENV-TYP	-	2	P1



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CHECKED	XXX	DATE	X/X/2018
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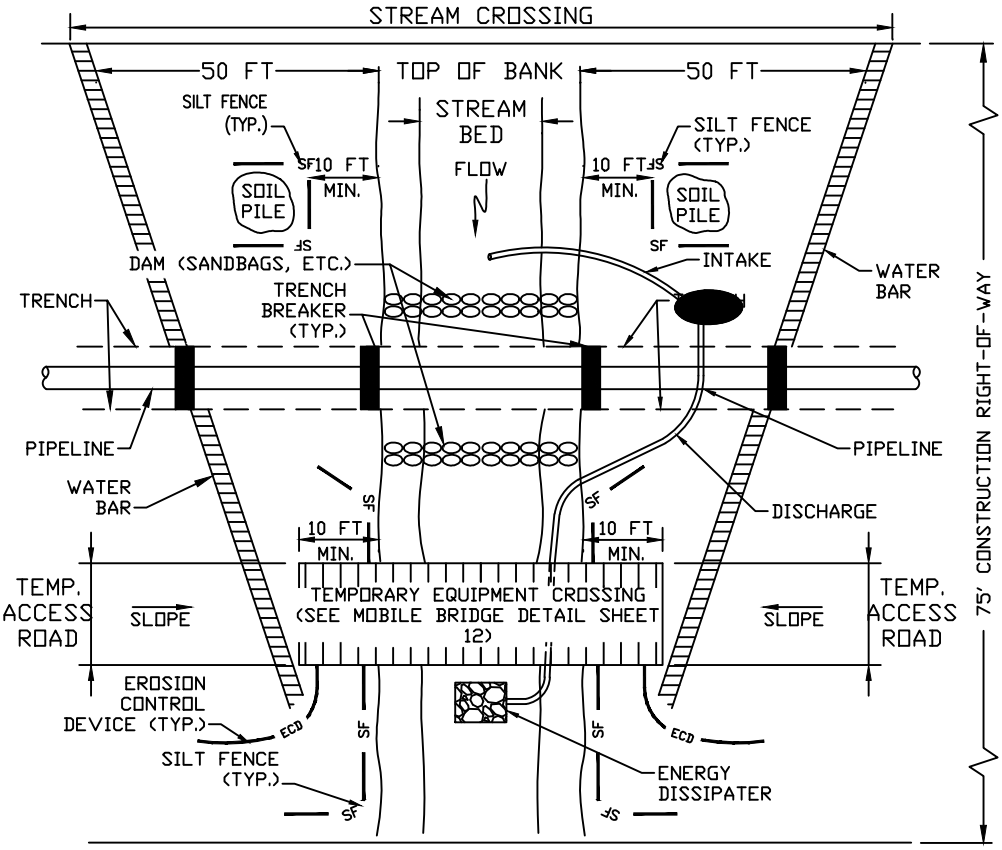
Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

PROPOSED ACCESS ROAD
TYPICAL LAYOUT

DRAWING NO.	REV.
MVP-SG-ES6	P1



PLAN VIEW

NOTES:

1. INSTALL EROSION CONTROL DEVICES, TRENCH BREAKERS, PUMP, ENERGY DISSIPATER, AND DAMS BEFORE TRENCHING STREAM.
2. PUMP MUST BE OF SUFFICIENT CAPACITY TO CONVEY NORMAL AND/OR EXISTING STREAM FLOW OVER TRENCH. A BACK-UP PUMP OF EQUAL CAPACITY MUST BE AVAILABLE ON-SITE DURING CONSTRUCTION OF THE PIPELINE CROSSING. PUMPS WILL BE PLACED WITHIN SECONDARY CONTAINMENT.
3. PLACE SOIL PILES A MINIMUM OF 10 FEET FROM TOP OF BANK.
4. INSTALL WATER BARS AT APPROACHES TO STREAM CROSSING AND EROSION CONTROL DEVICES, SILT FENCE, OR SUPER SILT FENCE (AS INDICATED ON PLAN SHEETS).
5. MAINTAIN SURFACE OF TEMPORARY EQUIPMENT CROSSING TO PREVENT SOIL DISCHARGES TO STREAM.
6. APPROACHES TO CROSSINGS ARE NOT TO EXCEED A DEPTH OF 6 INCHES ABOVE ORIGINAL GRADE.
7. RESTORE AREA TO ORIGINAL CONTOURS.

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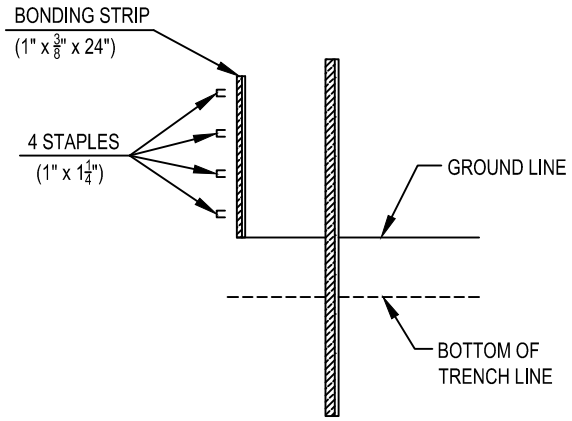
Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

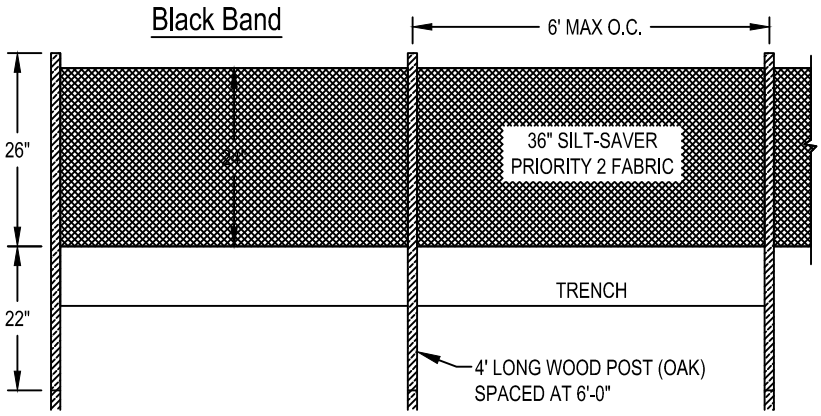
STREAM CROSSING
DAM AND PUMP

DRAWING NO.	REV.
MVP-SG-ES8	P1



POST (OAK)

(1-3/4" X 1-1/4" X 48")



FRONT ELEVATION

PRIORITY 2

TAKEN FROM SILT-SAVER, INC OR EQUAL

NOTES:

THE TYPE OF REINFORCED FILTRATION DEVICE (PRIORITY 1 OR PRIORITY 2) WILL BE SELECTED BASED ON FIELD CONDITIONS DURING CONSTRUCTION

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Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

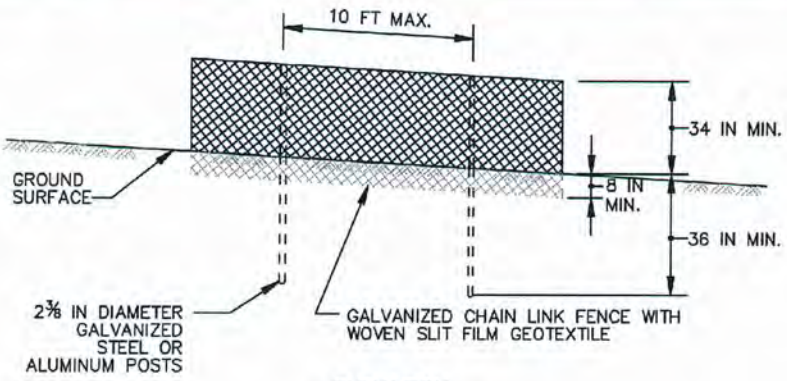
BELTED SILT RETENTION FENCE (BSRF)

DRAWING NO.	REV.
MVP-SG-ES9.1	P1

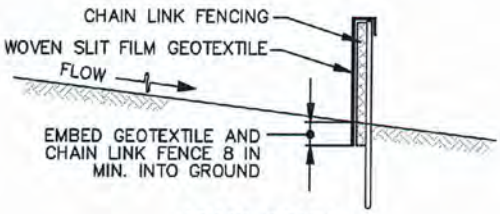
DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL

—SSF—



ELEVATION



CROSS SECTION

CONSTRUCTION SPECIFICATIONS

1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

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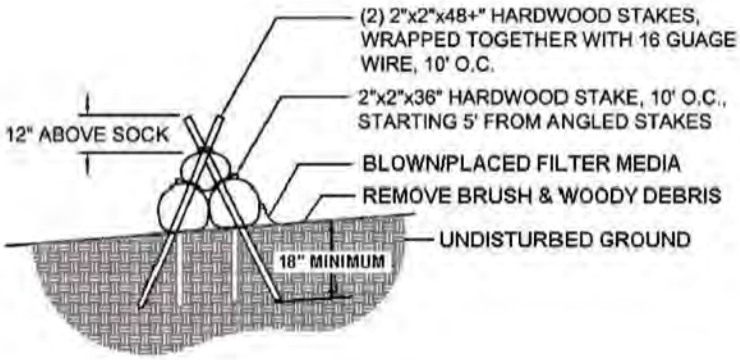
Mountain Valley PIPELINE LLC

TYPICAL CONSTRUCTION DETAIL

SUPER SILT FENCE

DRAWING NO.	REV.
MVP-SG-ES9.2	P1



NOTES:

THE TYPE OF REINFORCED FILTRATION DEVICE (PRIORITY 1 OR PRIORITY 2) WILL BE SELECTED BASED ON FIELD CONDITIONS DURING CONSTRUCTION

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Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

STACKED COMPOST FILTER SOCK
DETAIL CROSS SECTION VIEW

DRAWING NO.	REV.
MVP-SG-ES9.3	P1

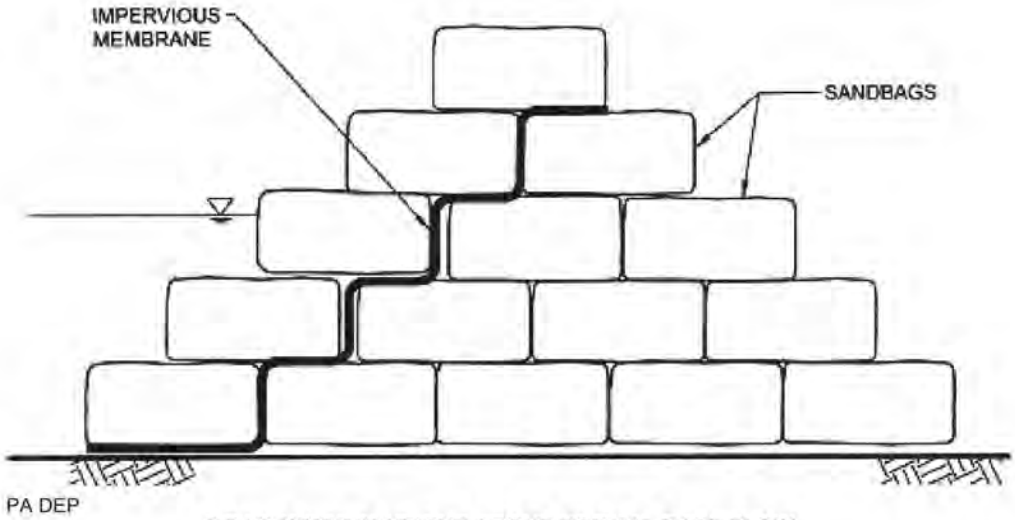
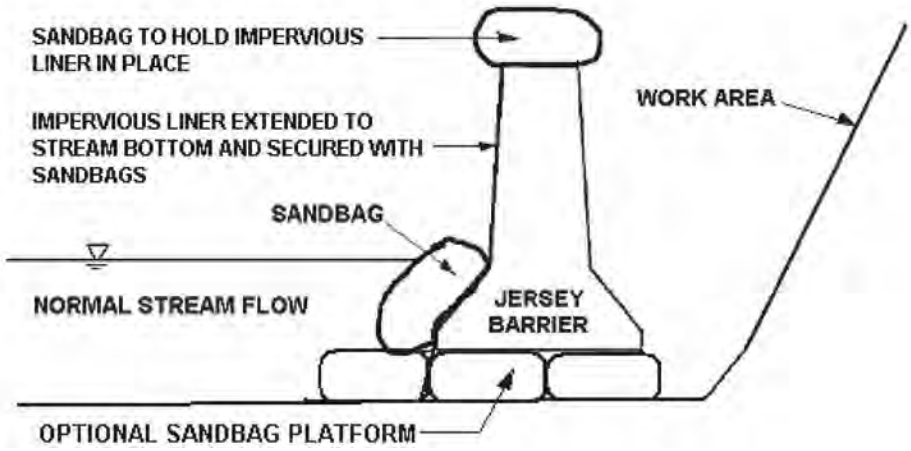


FIGURE 3.13
Jersey Barrier Cofferdam – End View



NOTES: AT NO TIME, SHOULD MORE THE 60% OF THE STREAM CHANNEL WIDTH BE DIVERTED DURING PIPELINE INSTALLATION.

GRUBBING SHALL NOT TAKE PLACE WITHIN 50 FEET OF TOP-OF-BANK UNTIL ALL MATERIALS REQUIRED TO COMPLETE CROSSING ARE ON SITE AND PIPE IS READY FOR INSTALLATION. TRENCH BREAKERS SHALL BE INSTALLED WITHIN THE TRENCH ON BOTH SIDES OF THE STREAM CHANNEL (MVP TYPICAL DETAIL MVP-20). WATER ACCUMULATING WITHIN THE WORK AREA SHALL BE PUMPED TO A PUMPED WATER FILTER BAG OR SEDIMENT TRAP PRIOR TO DISCHARGING INTO ANY RECEIVING SURFACE WATER.
HAZARDOUS OR POLLUTANT MATERIAL STORAGE AREAS SHALL BE LOCATED AT LEAST 100 FEET BACK FROM THE TOP OF STREAMBANK. ALL EXCESS EXCAVATED MATERIAL SHALL BE IMMEDIATELY REMOVED FROM THE STREAM CROSSING AREA.
ALL DISTURBED AREAS WITHIN 50 FEET OF TOP-OF-BANK SHALL BE BLANKETED OR MATTED WITHIN 24 HOURS OF INITIAL DISTURBANCE FOR MINOR STREAMS OR 48 HOURS OF INITIAL DISTURBANCE FOR MAJOR STREAMS UNLESS OTHERWISE AUTHORIZED.

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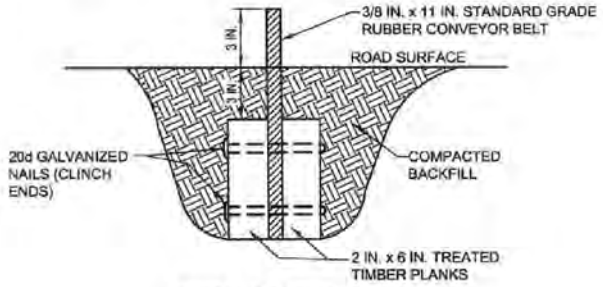
Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

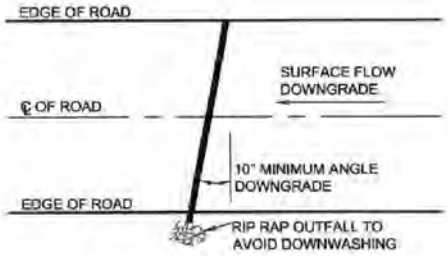
COFFERDAM STREAM CROSSING METHOD

DRAWING NO.	REV.
MVP-SG-ES13.2	P1

STANDARD CONSTRUCTION DETAIL
Water Deflector



TYPICAL CROSS-SECTION



TYPICAL PLAN VIEW

USDA Forest Service

Deflector shall be inspected weekly and after each runoff event.

Accumulated sediment shall be removed from deflector within 24 hours of inspection.

Belt shall be replaced when worn and no longer effective.

Deflectors may be used to direct runoff from an access road to a well-vegetated area or sediment removal facility.

A deflector is typically constructed from rubber belting ranging from 5/16" to 1/2" thick held between two 2" x 6" wooden planks.

This method of directing runoff from an access road works best on low traffic roads. deflectors can be used on roads with grades exceeding 10%.

Table III Spacing of Broad-Based Dips

Road Grade (%)	Distance Between Dams (Ft)
2	300
3	235
4	200
5	180
6	165
7	155
8	150
9	145
10	140

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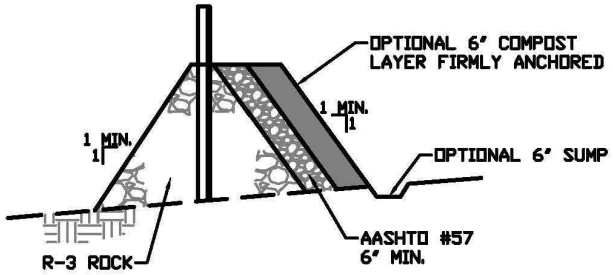
Mountain Valley PIPELINE LLC

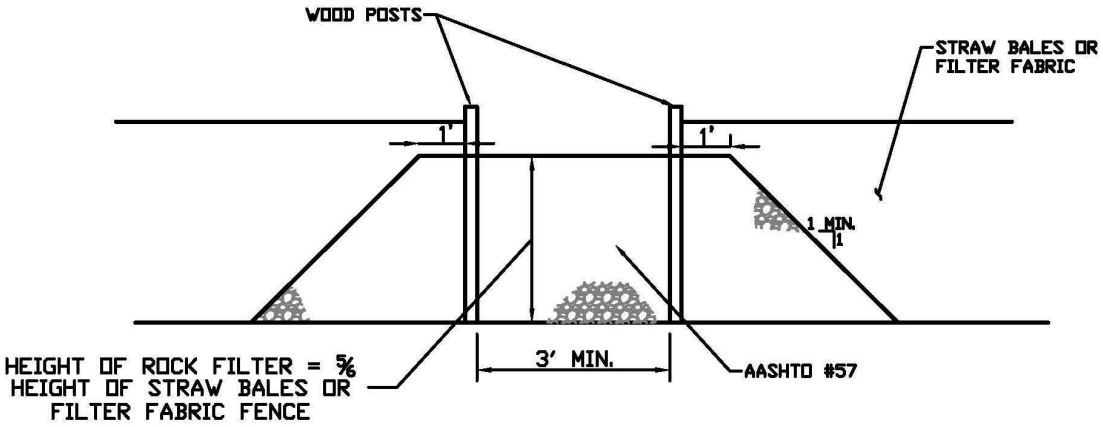
ENVIRONMENTAL DETAIL

WATER DEFLECTOR

DRAWING NO.	REV.
MVP-SG-ES14	P1



OUTLET CROSS SECTION



UP-SLOPE FACE

A ROCK FILTER OUTLET SHALL BE INSTALLED WHERE FAILURE OF A SILT FENCE OR STRAW BALE BARRIER HAS OCCURRED DUE TO CONCENTRATED FLOW. ANCHORED COMPOST LAYER SHALL BE USED ON UPSLOPE FACE IN HQ AND EV WATERSHEDS.

SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE HEIGHT OF THE OUTLET.

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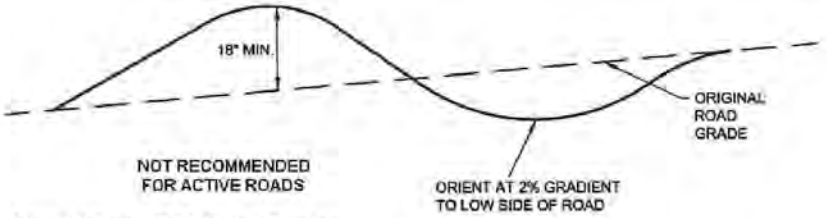
Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

ROCK FILTER OUTLET

DRAWING NO.	REV.
MVP-SG-ES17	P1

STANDARD CONSTRUCTION DETAIL #3-5
Waterbar



Adapted from USDA Forest Service

Waterbars shall discharge to a stable area.

Waterbars shall be inspected weekly (daily on active roads) and after each runoff event. Damaged or eroded waterbars shall be restored to original dimensions within 24 hours of inspection.

Maintenance of waterbars shall be provided until roadway, skidtrail, or right-of-way has achieved permanent stabilization.

Waterbars on retired roadways, skidtrails, and right-of-ways shall be left in place after permanent stabilization has been achieved.

TABLE 3.1 – Maximum Waterbar Spacing

PERCENT SLOPE	SPACING (FT)
<5	250
5 - 15	150
15 - 30	100
> 30	50

Adapted from USDA Forest Service

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Mountain Valley PIPELINE LLC

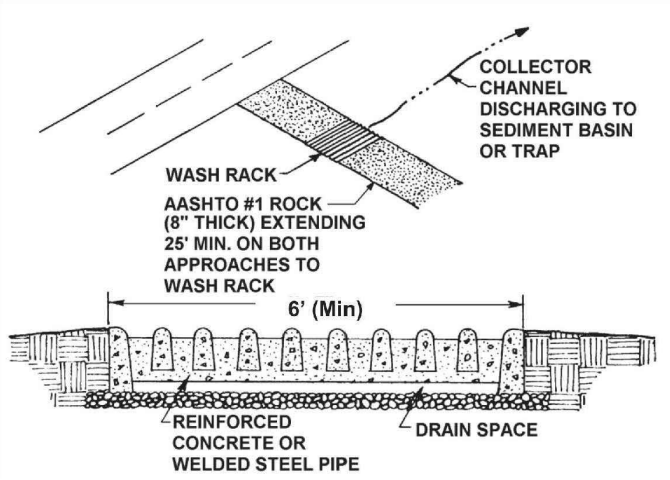
ENVIRONMENTAL DETAIL

WATERBAR

DRAWING NO. MVP-SG-ES19

REV. P1

Rock Construction Entrance with Wash Rack



Modified from Smith Cattleguard Company

IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 70 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK.

Wash rack shall be 20 feet (min.) wide or total width of access.

Wash rack shall be designed and constructed to accommodate anticipated construction vehicular traffic.

A water supply shall be made available to wash the wheels of all vehicles exiting the site.

MAINTENANCE: Rock construction entrance thickness shall be constantly maintained to the specified dimensions by adding rock. A stockpile of rock material shall be maintained on site for this purpose. Drain space under wash rack shall be kept open at all times. Damage to the wash rack shall be repaired prior to further use of the rack. All sediment deposited on roadways shall be removed and returned to the construction site immediately. Washing the roadway or sweeping the deposits into roadway ditches, sewers, culverts, or other drainage courses is not acceptable.

A metal wash rack or livestock grate is an acceptable alternative to the reinforced concrete one shown in the standard detail. Approaches to the wash rack should be lined with aashto #1 at a minimum of 25' on both sides. The wash rack should discharge to a sediment removal facility, such as a vegetated filter strip or into a channel leading to a sediment removal device (e.g. a sediment trap or sediment basin). Rock construction entrances with wash racks should be maintained to the specified dimensions by adding rock when necessary at the end of each workday. A stockpile of rock material should be maintained on site for this purpose. Sediment deposited on paved roadways should be removed and returned to the construction site.

NOTE: Washing the roadway or sweeping the deposits into roadway ditches, sewers, culverts, or other drainage courses is not acceptable. Damaged wash racks should be repaired as necessary to maintain their effectiveness. In lieu of washrack installation, MVP will extend the RCE by 70' increments until mud tracking condition is alleviated.

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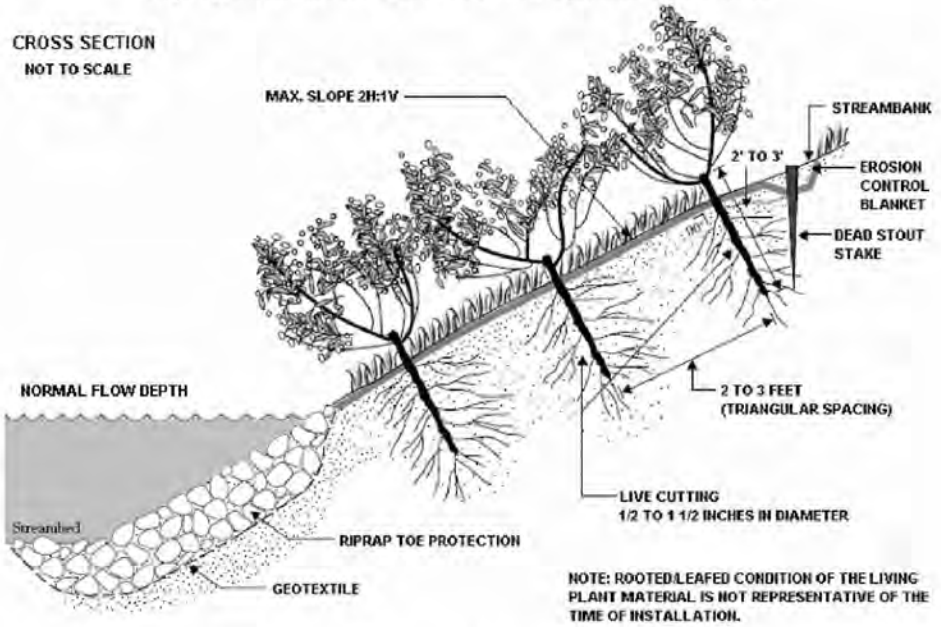
Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

ROCK CONSTRUCTION ENTRANCE WITH WASH RACK

DRAWING NO.	REV.
MVP-SG-ES20	P1

Riprap Streambank Protection with Optional Live Stakes



Adapted from USDA NRCS, *Engineering Field Handbook*, Chapter 16

Filter stone may be substituted for the geotextile where site and soil conditions warrant.

NOTE: Extend riprap into streambed only as far as required to provide proper toe support.

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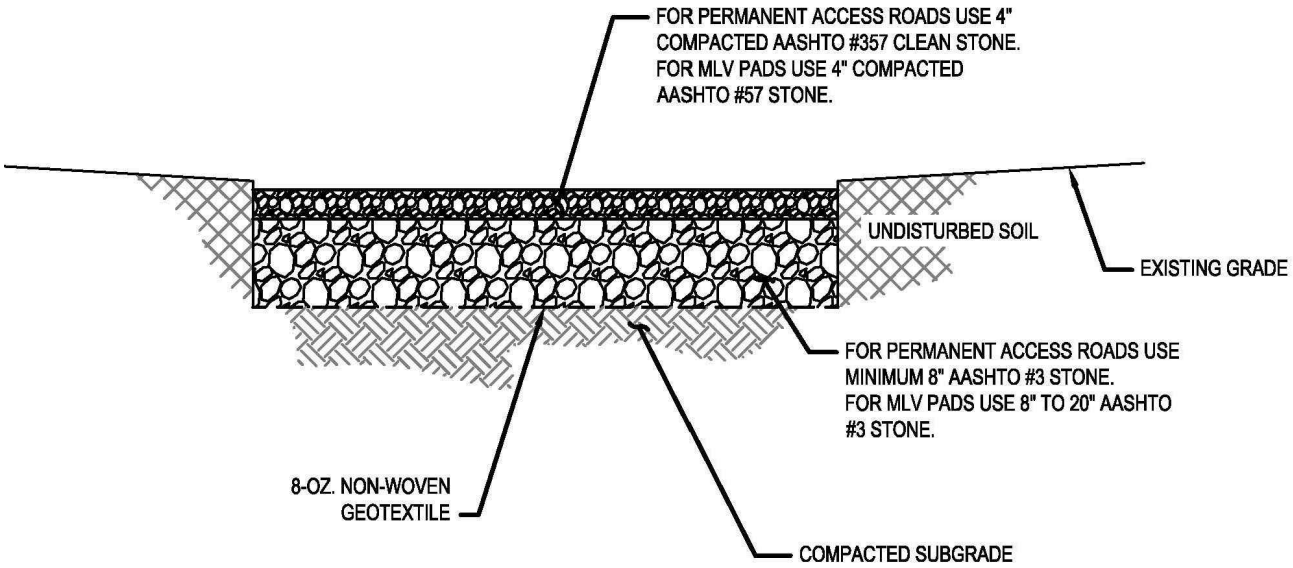
Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

RIPRAP STREAMBANK PROTECTION WITH OPTIONAL LIVE STAKES

DRAWING NO.	REV.
MVP-SG-ES25	P1



NOTES:

1. THICKNESS OF AASHTO #3 STONE/AGGREGATE LAYER FOR MLV PADS TO BE BETWEEN 8" AND 20" DEPENDING ON THE STORAGE VOLUME NEEDED TO MEET STORMWATER QUANTITY REQUIREMENTS.
2. THICKNESS OF ASSHTO #3 STONE/AGGREGATE LAYER FOR ACCESS ROADS TO BE A MINUMUM OF 8" OR MORE AS DIRECTED.
3. COMPACT SUBGRADE PRIOR TO BACKFILL PLACEMENT. FOR BACKFILL, A MIN. 95% COMPACTION (ASTM D 698) IS REQUIRED.
4. UNSUITABLE MATERIAL SHALL BE REMOVED PRIOR TO SUBGRADE COMPACTION AND BACKFILL PLACEMENT. ADDITIONAL SUBGRADE COMPACTION NOT REQUIRED FOR MLV PADS.

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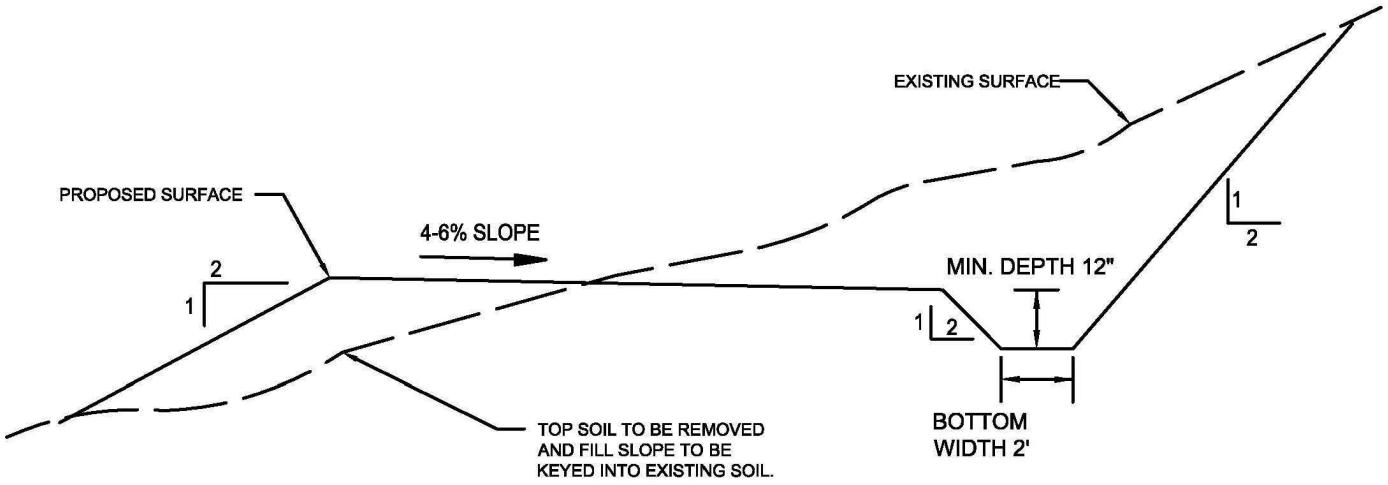
Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

GAP GRADED GRAVEL DETAIL FOR MAINLINE VALVE PADS & PERMANENT ACCESS ROADS

DRAWING NO.	REV.
MVP-SG-ES33	P1



NOTE:

1. INSLOPE WITH DITCH SECTION FOR USE ON STEEP SLOPE AND AREAS WITH POOR SOILS.

2. EROSION CONTROL MATTING TO BE INSTALLED ON CUT AND FILL SLOPES STEEPER THAN 3H:1V. SLOPES LESS THAN 3H:1V WILL BE MULCHED PER MVP-ES45 TO MVP-ES45.5.

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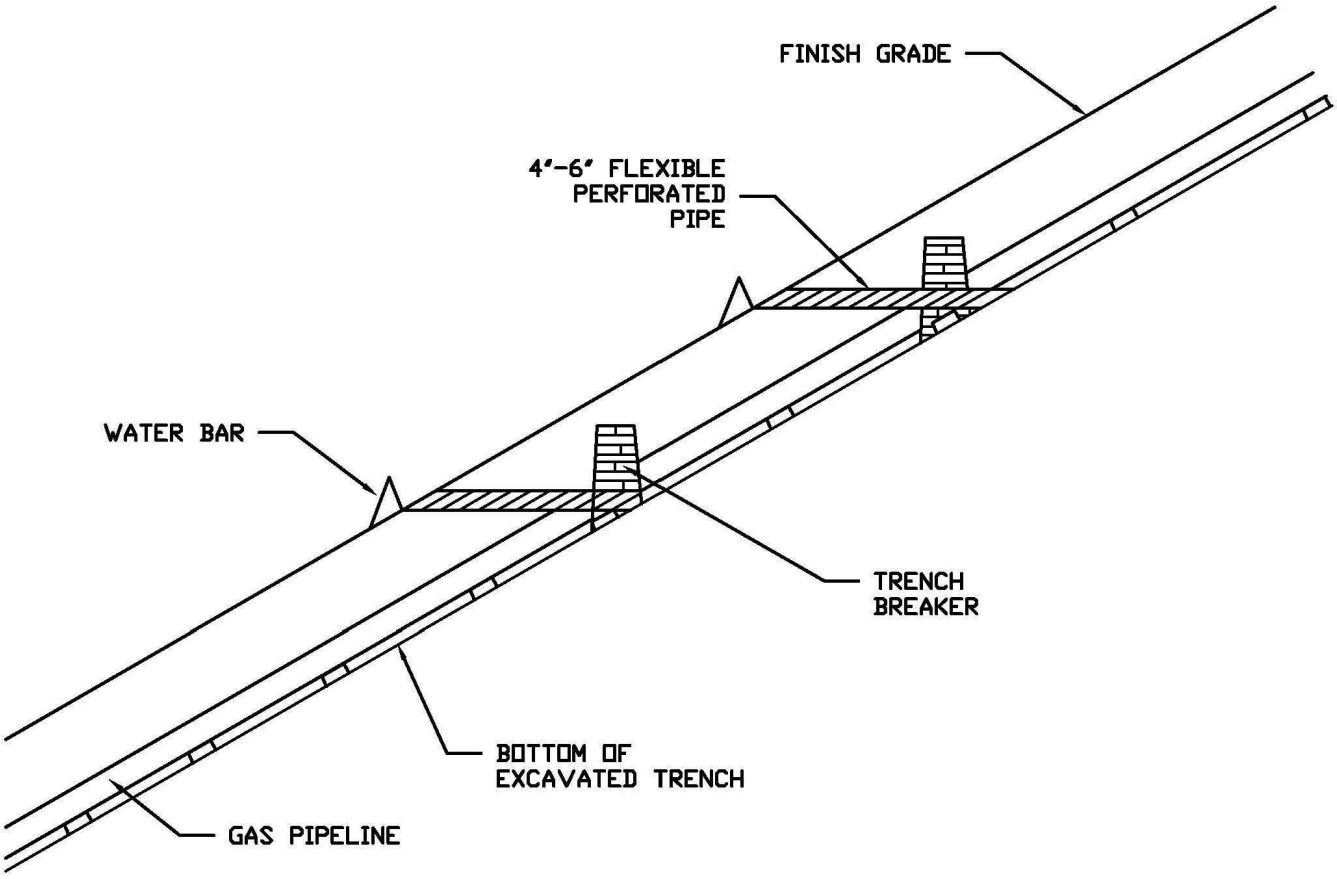
Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

PROPOSED ACCESS ROAD
TYPICAL SECTION

DRAWING NO.	REV.
MVP-SG-ES34	P1



NOTE:

4"-6" FLEXIBLE PERFORATED PIPE TO BE INSTALLED AT TRENCH BREAKERS ON STEEP SLOPES TO DRAIN SUBSURFACE WATER INTO WATER BARS.

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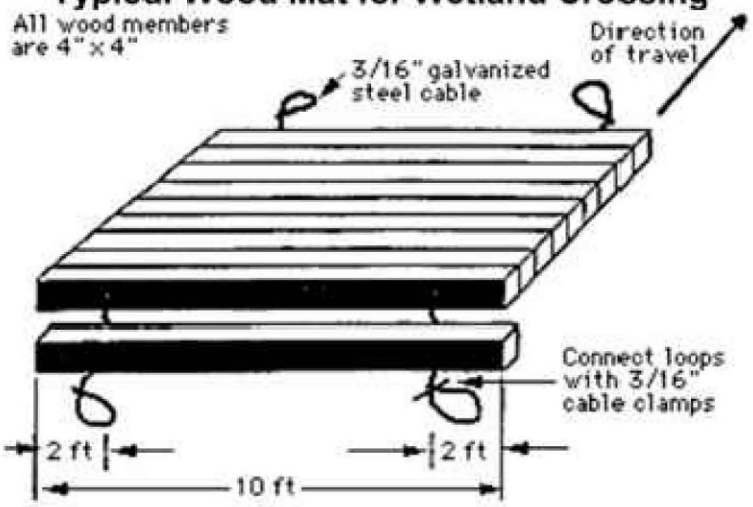
Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

TRENCH DETAIL

DRAWING NO.	REV.
MVP-SG-ES35	P1

Typical Wood Mat for Wetland Crossing



University of Minnesota FS 07009

A geotextile underlayment shall be used under the wood mat.

Source: PaDEP, E&S Pollution Control Manual, March 2012

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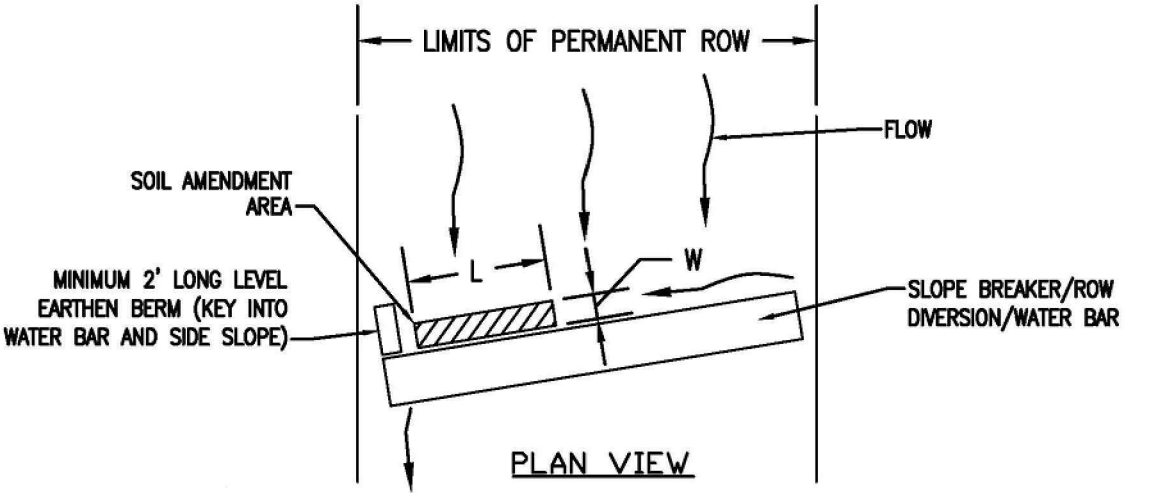
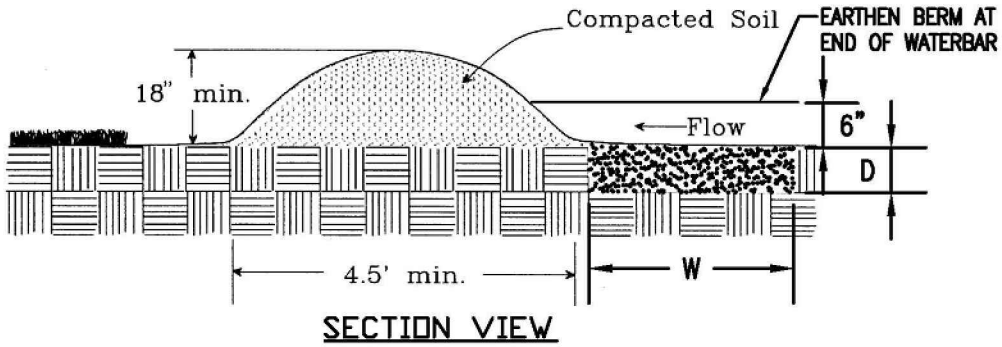
Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

TIMBER MAT/WETLAND CROSSING

DRAWING NO.	REV.
MVP-SG-ES37	P1





NOTES

1. WIDTH "W" OF SOIL AMENDMENT PER PERMANENT DIVERSION DIKE/WATERBAR WITH SOIL AMENDMENT SCHEDULE.
2. THE INCORPORATION DEPTH "D" IS ASSUMED TO BE 1 FT PER TABLE 4.3 IN VA DEQ STORMWATER DESIGN SPEC #4. AN INCORPORATION DEPTH OF 2 FT IS USED IN CASES WHERE ADDITIONAL STORAGE CAPACITY IS NEEDED IN ORDER TO MEET WATER QUANTITY REQUIREMENTS.
3. DEVELOPED FROM VA. DSWC PLATE 3.09-1.
4. SEE SHEET 0.7, TEMPORARY RIGHT OF WAY DIVERSION/WATERBAR ADDITIONAL DETAILS FOR PLAN VIEW.

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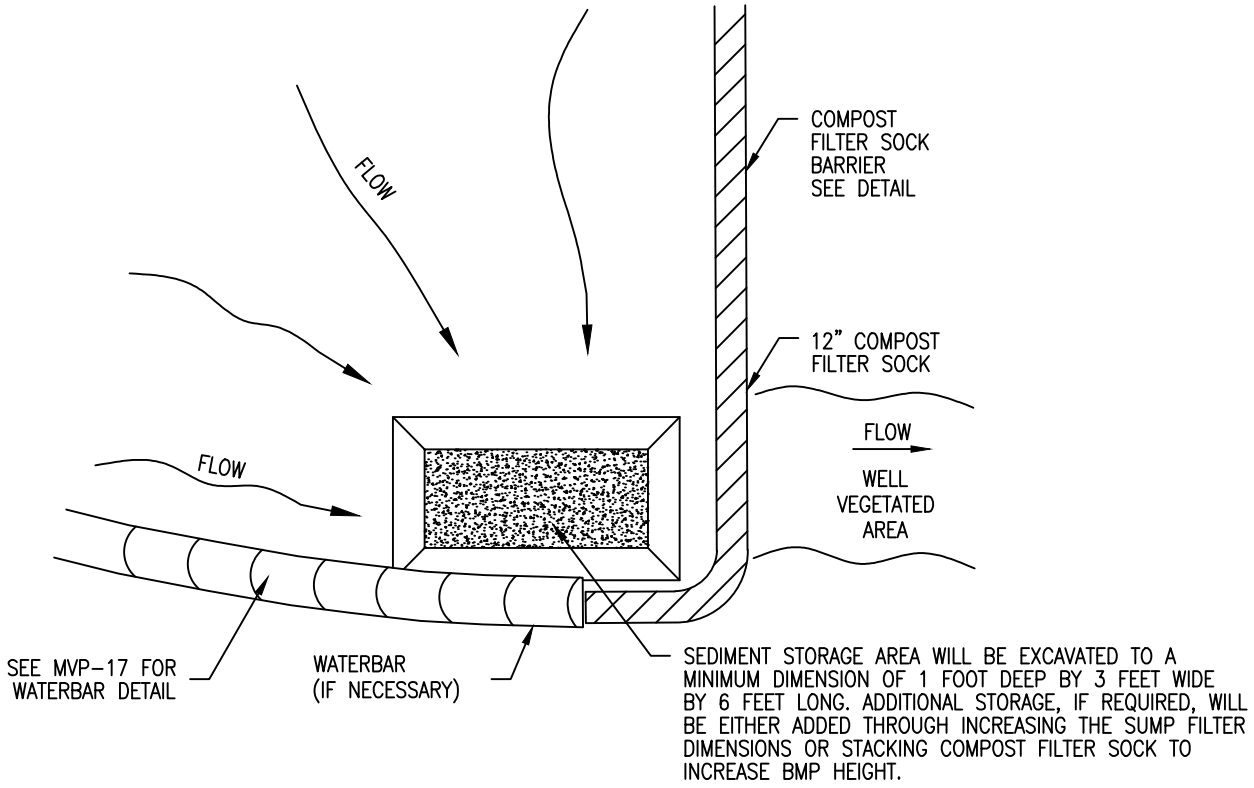
Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

DIVERSION DIKE/WATERBARS WITH COMPOST

DRAWING NO.	REV.
MVP-SG-ES38	P1



NOTES:

1. SUMP FILTER MAY BE USED IN CONJUNCTION WITH TEMPORARY WATERBAR (AS DIRECTED BY OWNER REPRESENTATIVE).
2. SUMP FILTER SHALL BE LOCATED ENTIRELY WITHIN THE LIMITS OF DISTURBANCE.
3. BMP SHOULD BE CHECKED EVERY 4 BUSINESS DAYS FOR SEDIMENT ACCUMULATION, PROPER OPERATION, AND COMPOST FILTER SOCK INTEGRITY.
4. ADDITIONAL COMPOST FILTER SOCKS MAY BE NECESSARY BEYOND WHAT IS SHOWN ON DETAIL TO MEET INTENDED BMP REQUIREMENTS.

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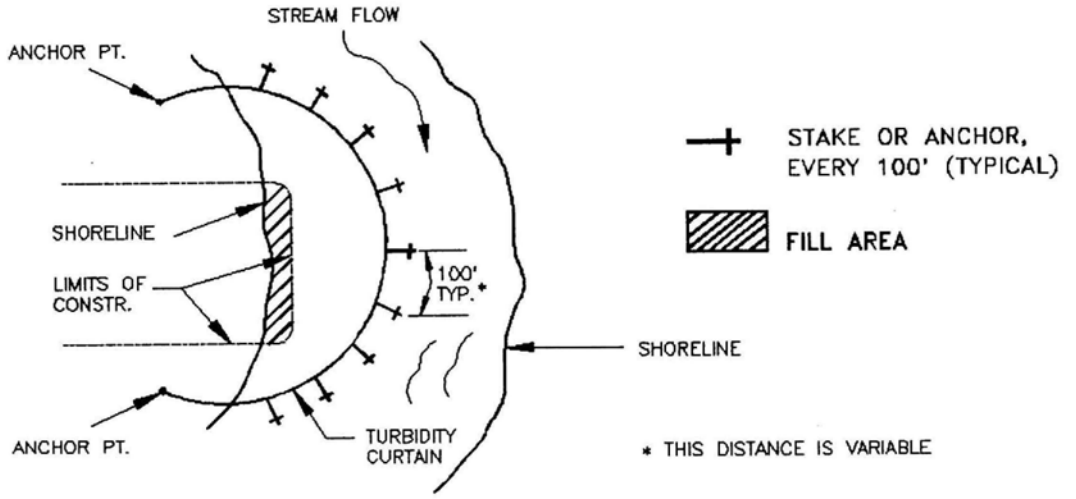
Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

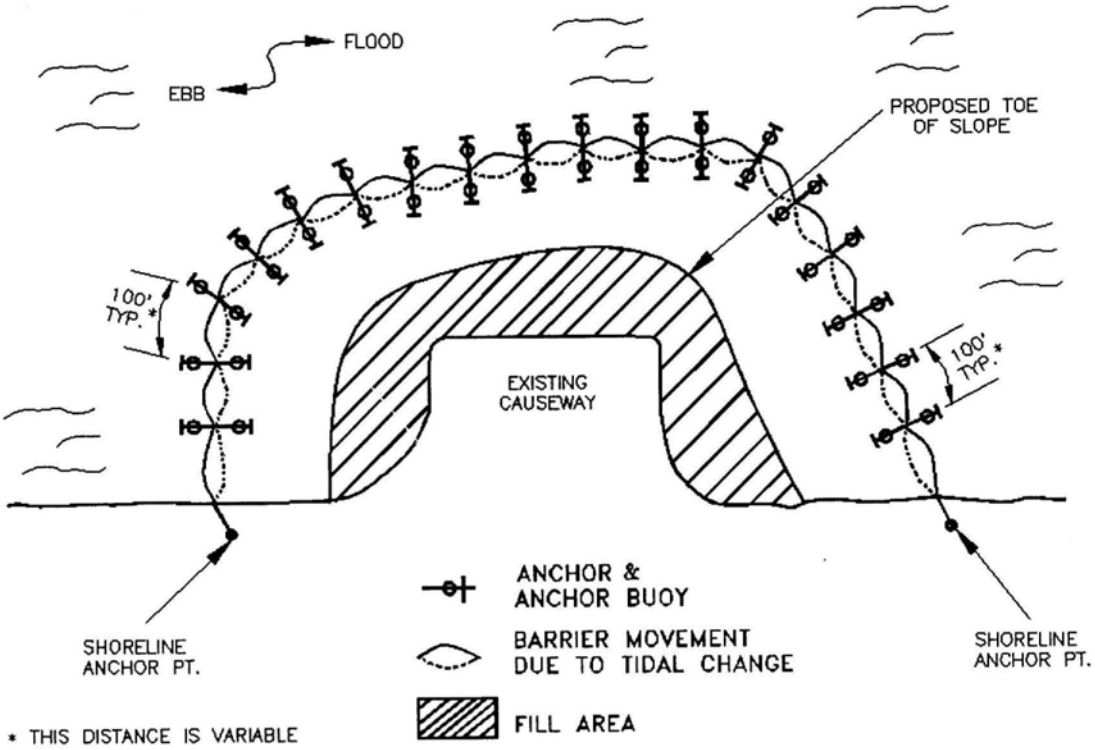
TYPICAL SUMP FILTER

DRAWING NO.	REV.
MVP-SG-ES42	P1

TYPICAL LAYOUTS:
STREAMS, PONDS & LAKES (PROTECTED & NON-TIDAL)



TIDAL WATERS AND/OR HEAVY WIND & WAVE ACTION



DRAWN	TRC	DATE	8/7/2018
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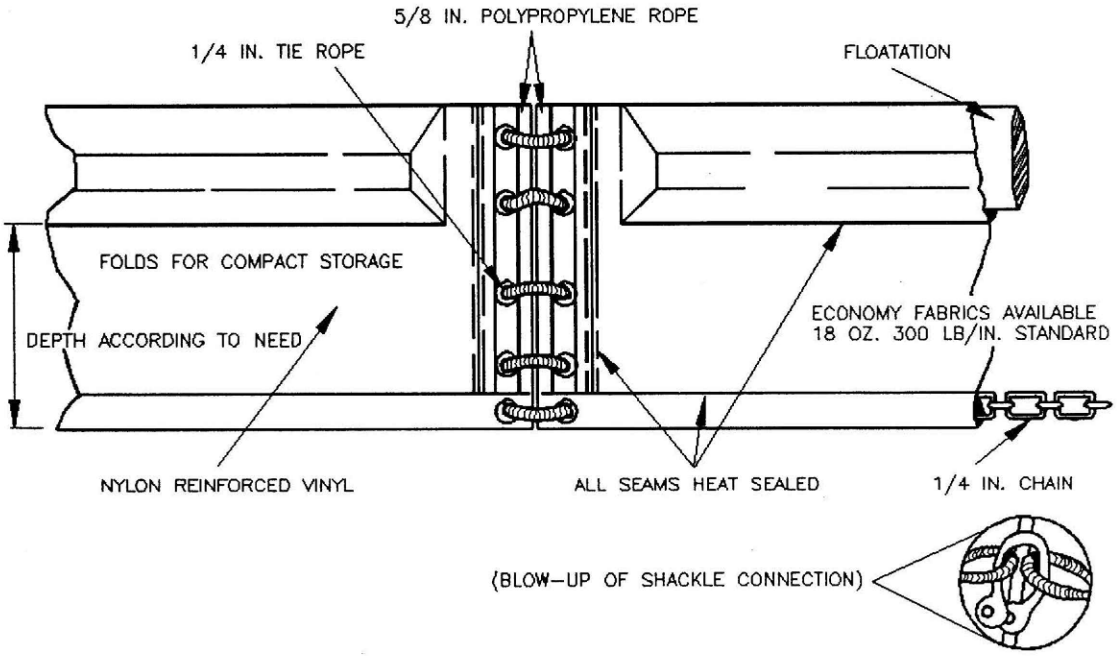
Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

TURBIDITY CURTAIN DETAIL

DRAWING NO.	REV.
MVP-SG-ES43	P1

TYPE I



DRAWN	TRC	DATE	8/7/2018
CHECKED	XXX	DATE	X/X/2018
APP'D	XXX	DATE	X/X/2018
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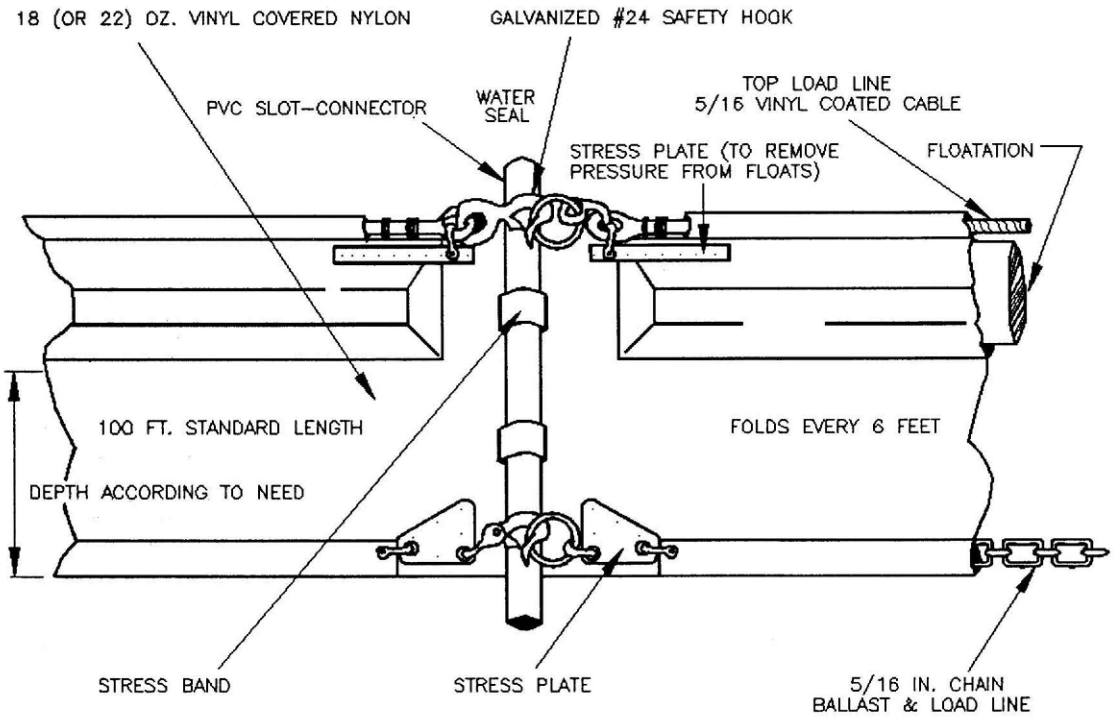
Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

TURBIDITY CURTAIN DETAIL

DRAWING NO.	REV.
MVP-SG-ES43.1	P1

TYPE II



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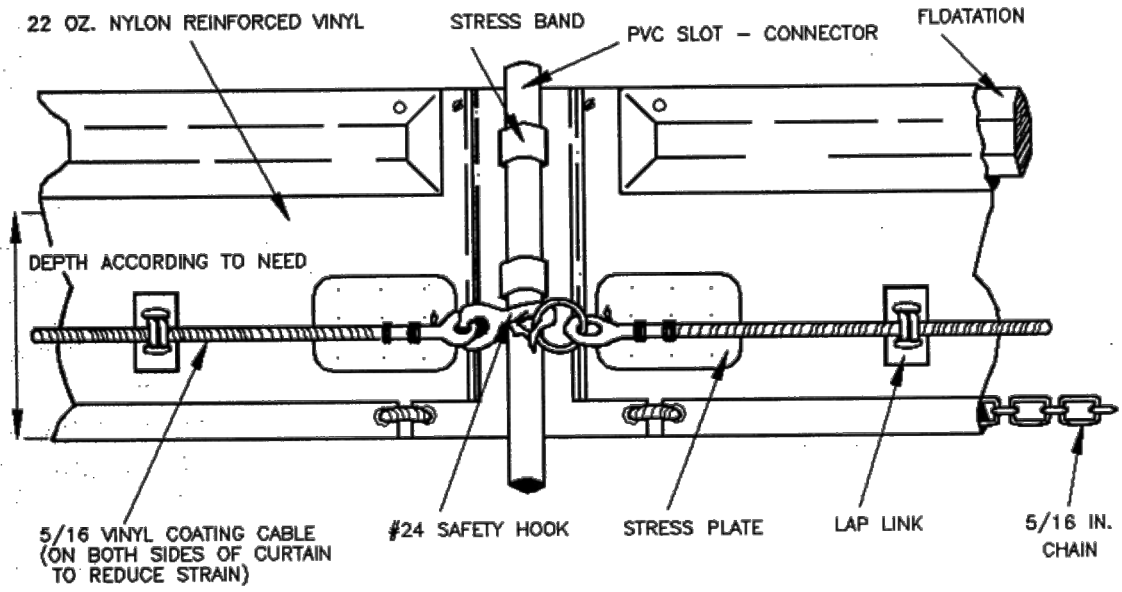
Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

TURBIDITY CURTAIN DETAIL

DRAWING NO.	REV.
MVP-SG-ES43.2	P1

TYPE III



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Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

TURBIDITY CURTAIN DETAIL

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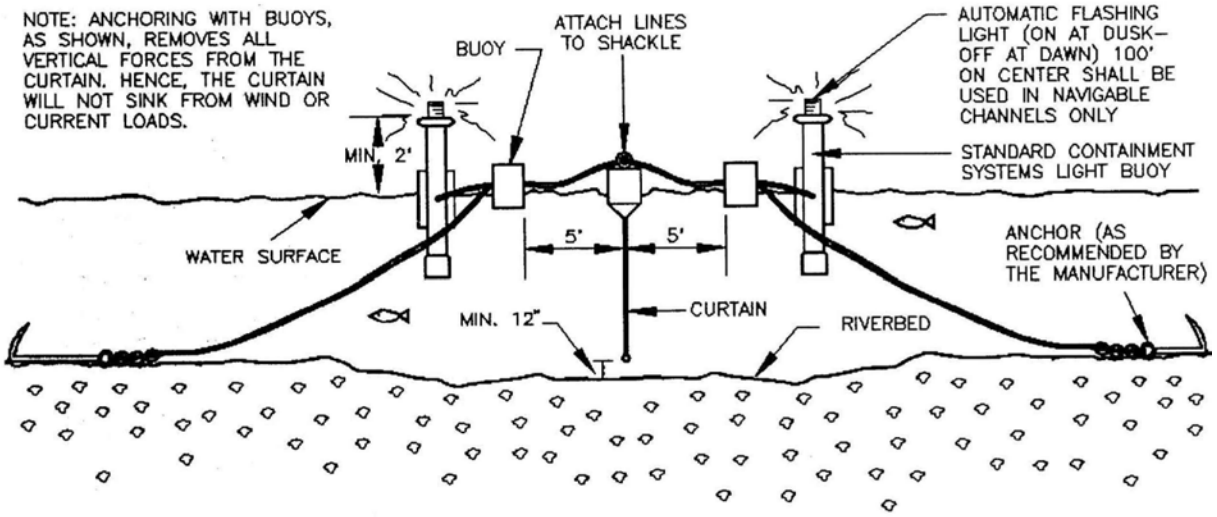
ORIENTATION WHEN INSTALLED
(TIDAL SITUATION – TYPE III)



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Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

TURBIDITY CURTAIN DETAIL

DRAWING NO.	REV.
MVP–SG–ES43.4	P1

TOPSOILING AND SOIL HANDLING FROM SOUTHGATE

Definition

Methods of preserving and using the surface layer of undisturbed soil, often enriched in organic matter, in order to obtain a more desirable planting and growth medium.

Purposes

To provide a suitable growth medium for final site stabilization with vegetation and promote successful reforestation.

Conditions Where Practice Applies

1. Where the preservation or importation of topsoil is determined to be the most effective method of providing a suitable growth medium.

2. Where the subsoil or existing soil presents the following problems:
   a. The texture, pH, or nutrient balance of the available soil cannot be modified by reasonable means to provide an adequate growth medium.
   b. The soil material is too shallow to provide an adequate root zone and to supply necessary moisture and nutrients for plant growth.
   c. The soil contains substances potentially toxic to plant growth.

3. Only on slopes that are 2:1 or flatter unless other measures are taken to prevent erosion and sloughing.

Planning Considerations

Topsoil is the surface layer of the soil profile, generally characterized as being darker than the subsoil due to the presence of organic matter. It is the major zone of root development, carrying much of the nutrients available to plants, and supplying a large share of the water used by plants.

Although topsoil provides an excellent growth medium, there are disadvantages to its use. Stripping, stockpiling, and reapplying topsoil, or importing topsoil, may not always be cost-effective. Topsoiling can delay seeding or sodding operations, increasing the exposure time of denuded areas. Most topsoil contains weed seeds, and weeds may compete with desirable species.

Advantages of topsoil include its high organic matter content and friable consistence, water-holding capacity, and nutrient content.

In site planning, the option of topsoiling should be compared with that of preparing a seedbed in subsoil. The clay content of subsoils does provide high moisture availability and deter leaching of nutrients and, when properly limed and fertilized, subsoils may provide a good growth medium which is generally free

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ENVIRONMENTAL DETAIL

TOPSOILING & SOIL HANDLING

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of weed seeds. In many cases topsoiling may not be required for the establishment of less demanding, lower maintenance plant material. Topsoiling is strongly recommended where ornamental plants or high-maintenance turf will be grown. Topsoiling is a required procedure when establishing vegetation on shallow soils, soils containing potentially toxic materials, and soils of critically low pH (high acid) levels.

If topsoiling is to be done, the following items should be considered:

1. Whether an adequate volume of topsoil exists on the site. Topsoil will be spread at a compacted depth of 2 to 4 inches (depths closer to 4 inches are preferred).

2. Location of the topsoil stockpile so that it meets specifications and does not interfere with work on the site.

3. Allow sufficient time in scheduling for topsoil to be spread and bonded prior to seeding or planting.

4. Care must be taken not to apply topsoil to subsoil if the two soils have contrasting textures. Clayey topsoil over sandy subsoil is a particularly poor combination, as water may creep along the junction between the soil layers, causing the topsoil to slough. Sandy topsoil over a clay subsoil is equally as likely to fail.

5. If topsoil and subsoil are not properly bonded, water will not infiltrate the soil profile evenly and it will be difficult to establish vegetation. Topsoiling of steep slopes should be discouraged unless good bonding of soils can be achieved.

Specifications

Materials

Field exploration of the site shall be made to determine if there is sufficient surface soil of good quality to justify stripping. Topsoil shall be friable and loamy (loam, sandy loam, silt loam, sandy clay loam, clay loam). It shall be free of debris, trash, stumps, rocks, roots, and noxious weeds, and shall give evidence of being able to support healthy vegetation. It shall contain no substance that is potentially toxic to plant growth.

In areas where revegetation is of concern based on existing soil conditions and determined by the MVP Environmental Inspector (EI), topsoil samples shall be taken for analysis. Samples will be collected by the MVP EI and sent to a recognized laboratory for analysis of the following criteria:

Organic matter content shall be not less than 1.5% by weight.

pH range shall be from 6.0-7.5. If pH is less than 6.0, lime shall be added in accordance with soil test results or in accordance with the recommendations of the vegetative establishment practice being used.

Soluble salts shall not exceed 500 ppm.

Soil samples collected and sent for analysis will be identified by the MVP Constructions Spread # and pipeline station from which the sample was obtained. Areas that fail to revegetate following restoration will be sampled and analyzed based on the above parameters.

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Mountain Valley PIPELINE LLC

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TOPSOILING & SOIL HANDLING

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Topsoil Importing

Topsoil would be imported as needed in residential areas only. If additional off-site topsoil is needed, it must meet the standards stated above.

Stripping

Topsoil operations should not be performed when the soil is wet or frozen. Stripping shall be confined to the immediate construction area. A 4-to 6-inch stripping depth is common, but depth may vary depending on the particular soil. All perimeter dikes, basins, and other sediment controls shall be in place prior to stripping.

Stockpiling

Topsoil shall be stockpiled in such a manner that natural drainage is not obstructed and no off-site sediment damage shall result. Stabilize or protect stockpiles in accordance with MS #2.

Excavated subsoil shall be stockpiled separately from topsoil.

Side slopes of the stockpile shall not exceed 2:1.

Perimeter controls must be placed around the stockpile immediately; seeding of stockpiles shall be completed within 7 days of the formation of the stockpile, in accordance with Std. & Spec. 3.31, TEMPORARY SEEDING if it is to remain dormant for longer than 14 days (refer to MS #1 and MS #2).

Site Preparation Prior to and Maintenance During Topsoiling and Excavation

Before topsoiling or excavation, establish needed erosion and sediment control practices such as diversions, grade stabilization structures, berms, dikes, level spreaders, waterways, sediment basins, etc. These practices must be maintained during topsoiling and excavation.

Grading: Previously established grades on the areas to be topsoiled shall be maintained according to the approved plan.

Liming: Where the pH of the subsoil is 6.0 or less, or the soil is composed of heavy clays, agricultural limestone shall be spread in accordance with the soil test or the vegetative establishment practice being used.

Bonding: After the areas to be topsoiled have been brought to grade, and immediately prior to dumping and spreading the topsoil, the subgrade shall be loosened by disking or scarifying to a depth of at least 4-6 inches to ensure bonding of the topsoil and subsoil. Refer to 2.8.3 Soil Compaction Mitigation within the Project Standards and Specifications for additional information.

Applying Topsoil

Topsoil shall not be placed while in a frozen or muddy condition, when topsoil or subgrade is excessively wet, or in a condition that may otherwise be detrimental to proper grading or seeding. The topsoil shall be uniformly distributed to a minimum compacted depth of 2 inches on 3:1 or steeper slopes and 4 inches on flatter slopes or to mimic existing conditions present in the adjacent undisturbed areas. (See Table 3.30-A to determine volume of topsoil required for application to various depths). Any irregularities in the surface, resulting from topsoiling or other operations, shall be corrected in order to prevent the formation of depressions or water pockets.

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Mountain Valley PIPELINE LLC

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TOPSOILING & SOIL HANDLING

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Once the topsoil has been applied to the subgrade the topsoil should be disked and raked. Excess rock will be removed from at least the top 12 inches of soil to the extent practicable in all cultivated or rotated cropland, managed pastures, hayfields, and residential areas, as well as other areas at the landowner's request. The size, density, and distribution of rock on the construction work area shall be similar to adjacent areas not disturbed by construction. The landowner or land management agency may approve other provisions in writing. Refer to Standards and Specifications Section 2.8 Final Grading for additional information.

TABLE 3.30-A

CUBIC YARDS OF TOPSOIL REQUIRED FOR APPLICATION TO VARIOUS DEPTHS

DEPTH (INCHES)	PER 1,000 (SQUARE FEET)	PER ACRE
1	3.1	134
2	6.2	268
3	9.3	403
4	12.4	537
5	15.5	672
6	18.6	806

SOURCE: Va. DSWC

Soil Sterilants

No seed shall be placed on soil which has been treated with soil sterilants until sufficient time has elapsed to permit dissipation of toxic materials.

Special Soil Related Requirements for Working in Wetlands

Norfolk District 2017 Nationwide Permit Regional Conditions, dated March 20, 2017 (subject to revision in Spring of 2017), NWP 12 – Utility Line Activities items 3.b.iii, 5.a, and 5.b require the following:

1. Minimizing clearing of wetlands. Grubbing shall be limited to the permanent easement for underground utility lines. Outside of the permanent easement, wetland vegetation shall only be removed at or above the ground surface unless written justification is provided and the impacts are reviewed and approved by the Corps.

2. Whenever practicable, excavated material shall be placed on a Corps confirmed upland site. However, when this is not practicable, temporary stockpiling is hereby authorized provided that:

   a. All excavated material stockpiled in a vegetated wetland area is placed on filter cloth, mats, or some other semi-permeable surface. The material will be stabilized with straw bales, filter cloth, etc. to prevent reentry into any waterway.

   b. All excavated material must be placed back into the trench to the original contour and all excess excavated material must be completely removed from the wetlands within 30 days after the pipeline has been laid through the wetland areas. Permission must be granted by the District Commander or his authorized representatives if the material is to be stockpiled longer than 30 days.

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H-650-TYP

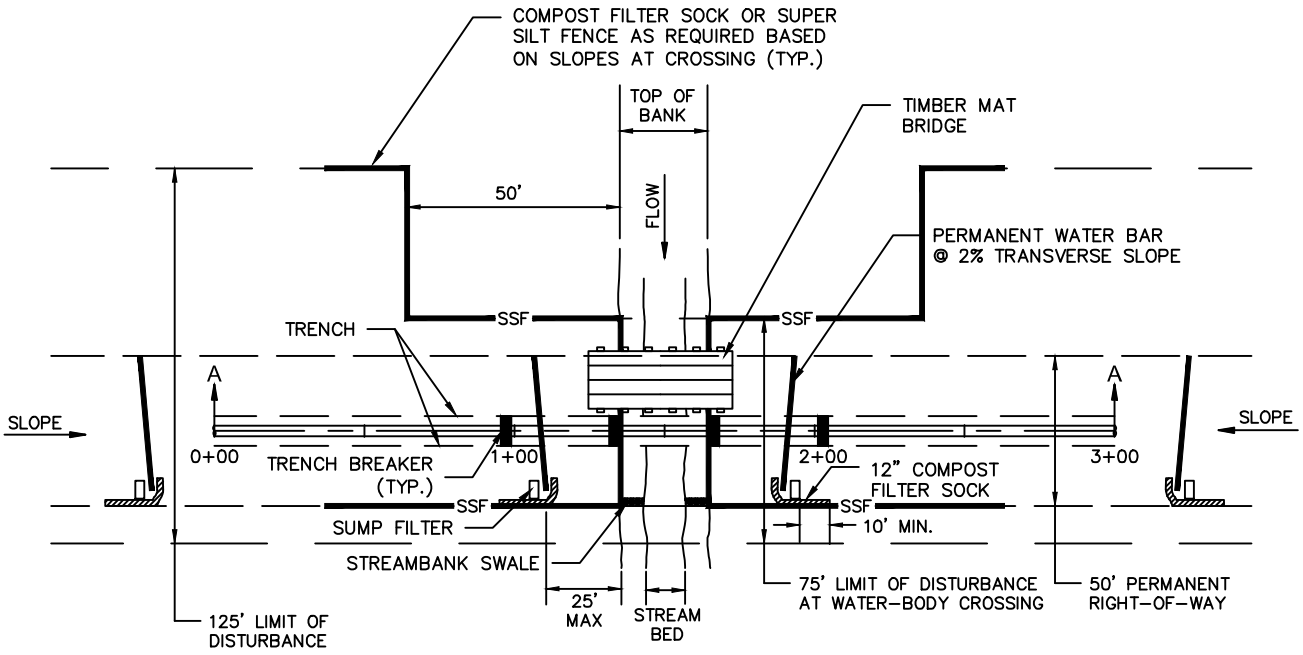
Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

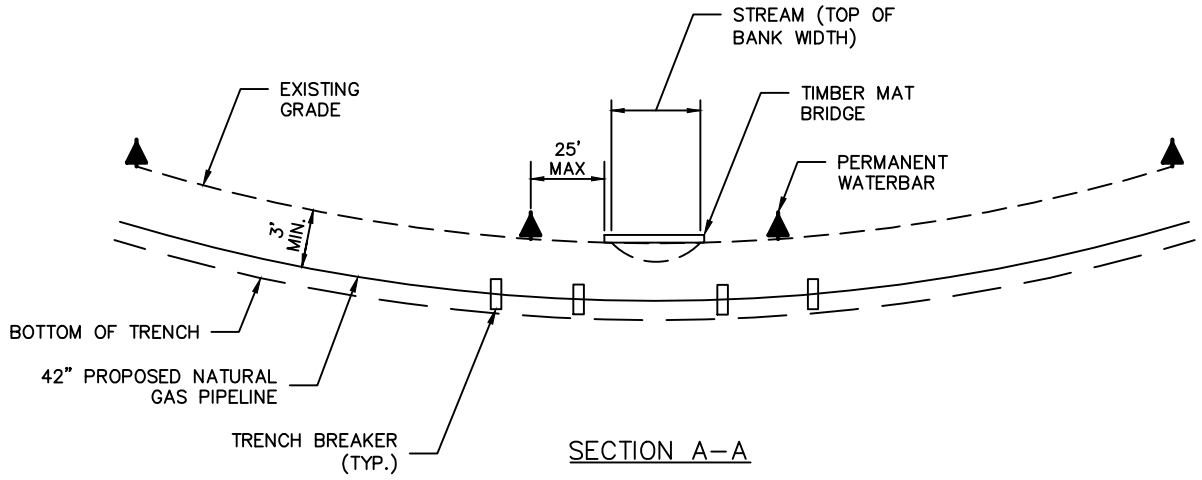
TOPSOILING & SOIL HANDLING

DRAWING NO. MVP-SG-ES46.3

REV. P1



PLAN



SECTION A-A

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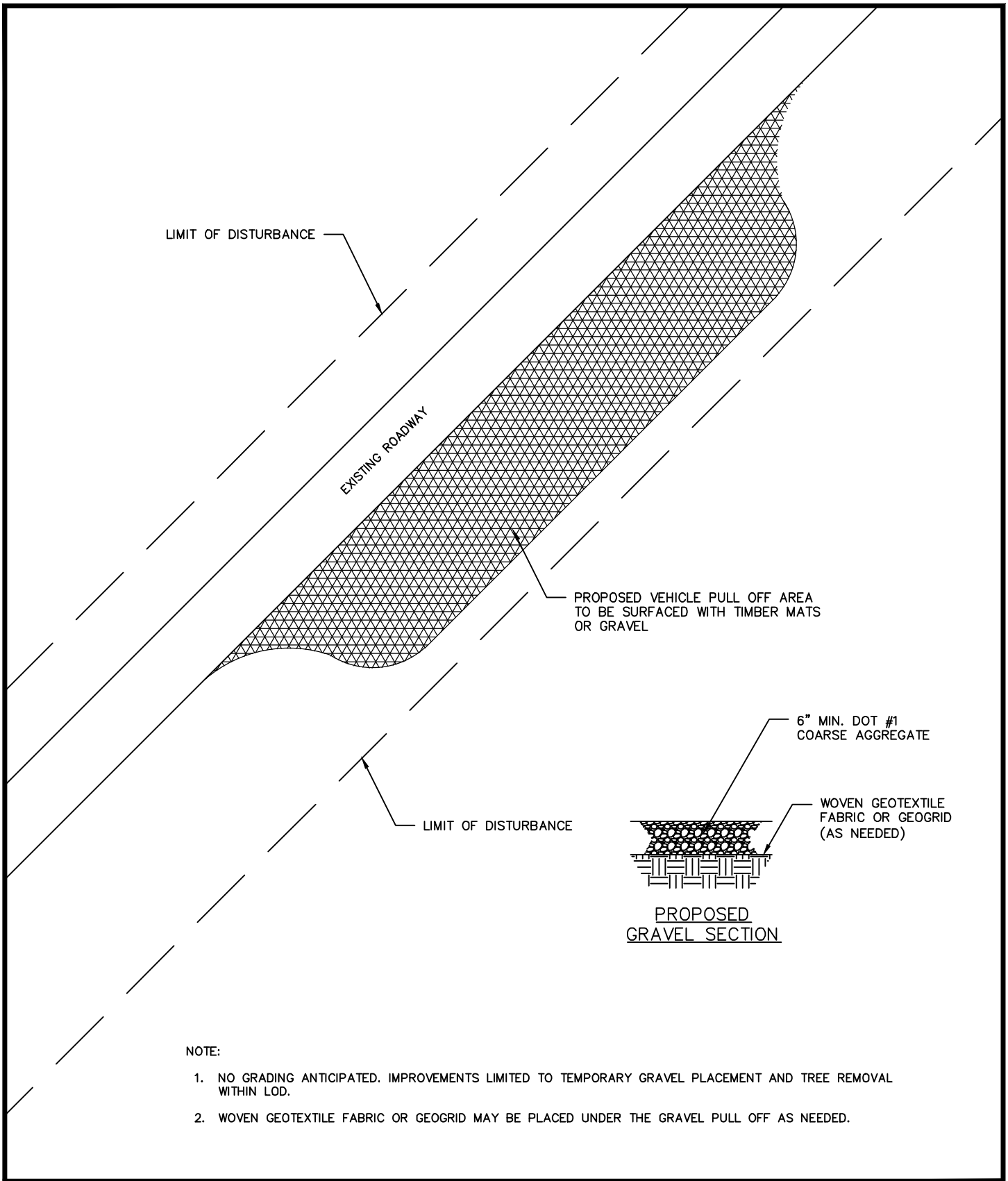
Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

TIMBER MAT BRIDGE
STREAM CROSSING

DRAWING NO.	REV.
MVP-SG-ES49	P1



NOTE:

1. NO GRADING ANTICIPATED. IMPROVEMENTS LIMITED TO TEMPORARY GRAVEL PLACEMENT AND TREE REMOVAL WITHIN LOD.
2. WOVEN GEOTEXTILE FABRIC OR GEOGRID MAY BE PLACED UNDER THE GRAVEL PULL OFF AS NEEDED.

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Mountain Valley PIPELINE LLC

ENVIRONMENTAL DETAIL

TEMPORARY VEHICLE PULL OFF DETAIL

DRAWING NO.	REV.
MVP-SG-ES54	P1

MVP Southgate Project

Docket No. CP19-14-000

Revised Residential Site-specific Drawings

October 2019

MVP SOUTHGATE PROJECT

PROPOSED H-650 PIPELINE
ENGINEERING SERVICES DESIGN; JOB NUMBERS 300423
RESIDENTIAL DRAWINGS

DRAWING NO.	DRAWING TITLE	REV.
RES-COV	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE RESIDENTIAL DRAWINGS	P5
RES-NOTES	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE RESIDENTIAL NOTES	P1
RES-NOTES (CONT.)	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE RESIDENTIAL NOTES	P1
RES-NOTES SITE SPECIFIC	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE RESIDENTIAL NOTES	P3
RSS-H650-001	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY NORTH CAROLINA	P3
RSS-H650-002	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY NORTH CAROLINA	P4
RSS-H650-003	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY NORTH CAROLINA	P4
RSS-H650-004	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE PITTSYLVANIA COUNTY VIRGINIA	P4
RSS-H650-005	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE PITTSYLVANIA COUNTY VIRGINIA	P4
RSS-H650-008	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P4
RSS-H650-009	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P3
RSS-H650-015	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P4
RSS-H650-016	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE PITTSYLVANIA COUNTY VIRGINIA	P2
RSS-H650-024	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE PITTSYLVANIA COUNTY VIRGINIA	P2
RSS-H650-025	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY NORTH CAROLINA	P2
RSS-H650-026	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY NORTH CAROLINA	P2
RSS-H650-027	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY NORTH CAROLINA	P2
RSS-H650-028	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P2
RSS-H650-029	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE PITTSYLVANIA COUNTY VIRGINIA	P1
RSS-H650-030	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY NORTH CAROLINA	P1
RSS-H650-031	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY NORTH CAROLINA	P1
RSS-H650-032	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY NORTH CAROLINA	P1
RSS-H650-033	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE PITTSYLVANIA COUNTY VIRGINIA	P1
RSS-H650-034	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY NORTH CAROLINA	P1
RSS-H650-035	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY NORTH CAROLINA	P1
RSS-H650-036	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P1
RSS-H650-037	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P1
RSS-H650-038	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P1
RSS-H650-039	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY NORTH CAROLINA	P1
RSS-H650-040	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P1
RSS-H650-041	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE PITTSYLVANIA COUNTY VIRGINIA	P1
RSS-H650-043	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE PITTSYLVANIA COUNTY VIRGINIA	P1
RSS-H650-044	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE PITTSYLVANIA COUNTY VIRGINIA	P1
RSS-H650-045	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE PITTSYLVANIA COUNTY VIRGINIA	P
RSS-H650-046	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY NORTH CAROLINA	P
RSS-H650-047	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY NORTH CAROLINA	P
RSS-H650-048	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY NORTH CAROLINA	P
RSS-H650-050	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P
RSS-H650-051	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P

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RESIDENTIAL DETAIL COVER

MOUNTAIN VALLEY PIPELINE
SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
RESIDENTIAL DRAWINGS

DRAWING NO.	REV.
RES-COVER	P5

ISSUED FOR FERC SUPPLEMENTAL FILING
10/14/19

MVP SOUTHGATE PROJECT

PROPOSED H-650 PIPELINE
ENGINEERING SERVICES DESIGN; JOB NUMBERS 300423
RESIDENTIAL DRAWING NOTES

GENERAL NOTES:

SAFETY FENCE, IN CONJUNCTION WITH ANY PROPOSED EROSION AND SEDIMENTATION CONTROL DEVICES, WILL BE INSTALLED AT THE EDGE OF THE LIMIT OF DISTURBANCE (LOD) FOR A DISTANCE OF 100 FEET ON EITHER SIDE OF THE RESIDENCE OR COMMERCIAL ESTABLISHMENT. FENCING WILL BE MAINTAINED THROUGHOUT ACTIVE CONSTRUCTION IN THE AREA. WHERE NECESSARY, HARD BARRIERS SUCH AS JERSEY BARRIERS WILL BE INSTALLED TO PROVIDE A SOLID, PROTECTIVE BARRIER.

STRUCTURES WITHIN LOD WILL BE REMOVED, RELOCATED, OR PROTECTED PER LAND OWNER AGREEMENT.

PROPERTY LINES DEPICTED ON THIS PLAN ARE BASED ON GIS TAX MAP DATA AND/OR FIELD LOCATED PROPERTY EVIDENCE. THEY SHOULD NOT BE RELIED ON AS AN ACCURATE DEPICTION OF THE ACTUAL PROPERTY LINE LOCATIONS. THEY MAY NOT REPRESENT THE RESULTS OF A BOUNDARY SURVEY.

AREAS OF PERMANENT EASEMENT WILL BE PERMANENTLY MAINTAINED PER USDOT PHMSA REQUIREMENTS. TEMPORARY WORKSPACES WOULD BE ALLOWED TO REVERT BACK TO PRE-EXISTING USES. OTHER MINOR ITEMS WILL BE ADDRESSED THROUGH LANDOWNER STIPULATIONS SPECIFIC TO THE PROPERTY.

CONSTRUCTION CREWS WILL UTILIZE DUST CONTROLS MEASURES AS NEEDED, INCLUDING WETTING AND BRUSHING OF ROADS.

WORK HOURS WILL BE LIMITED TO 7 AM TO 7 PM OR SUNSET (WHICHEVER IS LATER) UNLESS OTHER ARRANGEMENTS HAVE BEEN AGREED UPON WITH LANDOWNER.

CONSTRUCTION METHODS:

THE STOVE PIPE METHOD IS A LESS EFFICIENT ALTERNATIVE TO THE MAINLINE METHOD OF CONSTRUCTION. IT IS TYPICALLY USED WHEN THE PIPELINE IS TO BE INSTALLED IN VERY CLOSE PROXIMITY TO AN EXISTING STRUCTURE OR WHEN AN OPEN DITCH WOULD ADVERSELY IMPACT A COMMERCIAL/RESIDENTIAL ESTABLISHMENT. THE TECHNIQUE INVOLVES INSTALLING PIPE ONE JOINT AT A TIME WHEREBY THE WELDING, X-RAY AND COATING ACTIVITIES ARE ALL PERFORMED IN THE OPEN TRENCH. AT THE END OF EACH DAY THE NEWLY INSTALLED PIPE IS BACKFILLED OR THE OPEN TRENCH IS COVERED WITH STEEL PLATES OR TIMBER MATS.

THE DRAG SECTION CONSTRUCTION METHOD, WHILE LESS EFFICIENT THAN MAINLINE METHODS, IS NORMALLY PREFERRED OVER THE STOVE PIPE ALTERNATIVE. THIS TECHNIQUE INVOLVES THE TRENCHING, INSTALLATION AND BACKFILL OF A PREFABRICATED LENGTH OF PIPE CONTAINING SEVERAL SEGMENTS ALL IN ONE DAY. AT THE END OF EACH DAY THE NEWLY INSTALLED PIPE IS BACKFILLED AND/OR COVERED WITH STEEL PLATES OR TIMBER MATS.

MAINLINE CONSTRUCTION IS THE MOST EFFICIENT CONSTRUCTION METHOD. THIS METHOD IS SIMILAR TO STOVE PIPE AND DRAG SECTION INSTALLATION, BUT ON A LARGER SCALE. ALL STEPS OF THE CONSTRUCTION PROCESS (CLEARING, GRADING, TRENCHING, STRINGING & BENDING, WELDING & COATING, LOWERING & BACKFILL) OCCUR OVER LARGE STRETCHES OF RIGHT-OF-WAY TO MAXIMIZE EFFICIENCY OF THE CONSTRUCTION SPREADS. MAINLINE CONSTRUCTION IS TYPICALLY UTILIZED WHERE LARGE STRETCHES OF PIPELINE ROW ARE UNINTERRUPTED. THIS METHOD MAY BE USED NEAR STRUCTURES WHERE OFFSET FROM WORKSPACES IS LARGE ENOUGH TO FACILITATE SAFE AND PRACTICAL IMPLEMENTATION

DRAWN TRC	DATE 05/01/2019
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RESIDENTIAL NOTES

MOUNTAIN VALLEY PIPELINE
SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
RESIDENTIAL DRAWING NOTES

DRAWING NO.	REV.
RES-NOTES	P1

ISSUED FOR FERC SUPPLEMENTAL FILING
10/14/19

MVP SOUTHGATE PROJECT

PROPOSED H-650 PIPELINE
ENGINEERING SERVICES DESIGN; JOB NUMBERS 300423
RESIDENTIAL DRAWING NOTES

CLEANUP AND REVEGETATION PLANS

SUBSOIL AND TOPSOIL (UP TO 12 INCHES) IN RESIDENTIAL AREAS WILL BE SEGREGATED AND RETURNED TO PRE-CONSTRUCTION GRADE AS SHOWN ON DRAWINGS.

IF SOILS ARE REQUIRED TO BE IMPORTED (E.G. IF TOP SOILING IS NOT PRACTICAL), THEY WILL BE CERTIFIED AS FREE OF NOXIOUS WEEDS AND SOIL PESTS, UNLESS OTHERWISE APPROVED BY THE LANDOWNER. IF TREES ARE NEEDED TO BE REMOVED FROM THE LANDSCAPE FOR CONSTRUCTION, THEY WILL BE REPLACED WITH THE SAME SPECIES OR SIMILAR BASED ON LANDOWNER REQUESTS.

RESTORE ALL TURF, ORNAMENTAL SHRUBS, AND SPECIALIZED LANDSCAPING IN ACCORDANCE WITH THE LANDOWNER'S REQUEST, OR COMPENSATE THE LANDOWNER. RESTORATION WORK MUST BE PERFORMED BY PERSONNEL FAMILIAR WITH LOCAL HORTICULTURAL AND TURF ESTABLISHMENT PRACTICES.

ALL DISTURBED RESIDENTIAL UPLAND AREAS WILL BE MULCHED BEFORE SEEDING IF FINAL GRADING AND INSTALLATION OF PERMANENT EROSION CONTROL MEASURES WILL NOT BE INSTALLED WITHIN 10 DAYS OF COMPLETION.

ALL LAWN AREAS AND IMPACTED LANDSCAPING WILL BE RESTORED FOLLOWING CLEAN-UP OPERATIONS AS SOON AS REASONABLY POSSIBLE, OR AS SPECIFIED IN THE LANDOWNER AGREEMENT. IF SEASONAL OR OTHER WEATHER CONDITIONS PREVENT COMPLIANCE WITH THESE TIME FRAMES, TEMPORARY EROSION CONTROLS (SEDIMENT BARRIERS AND MULCH) WILL BE MAINTAINED UNTIL CONDITIONS ALLOW COMPLETION OF RESTORATION.

IF CRUSHED STONE ACCESS PADS ARE USED IN RESIDENTIAL AREAS THEY WILL BE INSTALLED ON TOP OF SYNTHETIC FABRIC TO FACILITATE EASY REMOVAL.

EXCESS ROCK FROM THE TOP 12 INCHES OF SOIL IN RESIDENTIAL AREAS WILL BE REMOVED UNLESS OTHER ARRANGEMENTS WITH LANDOWNER HAVE BEEN AGREED UPON.

TOPSOIL AND SUBSOIL COMPACTION WILL MEET PRECONSTRUCTION CONDITIONS AND WHERE NECESSARY, SOIL COMPACTION MITIGATION MAY BE REQUIRED TO MITIGATE FOR SEVERELY COMPACTED RESIDENTIAL AREAS.

OTHER RESTORATION DETAILS, INCLUDING REVEGETATION REQUIREMENTS RELATED TO LAWNS, MAY BE SPECIFIC TO LANDOWNER STIPULATIONS.

CONDUCT FOLLOW-UP INSPECTIONS OF ALL DISTURBED AREAS, AS NECESSARY, TO DETERMINE THE SUCCESS OF REVEGETATION AND ADDRESS LANDOWNER CONCERNS. AT A MINIMUM, CONDUCT INSPECTIONS AFTER THE FIRST AND SECOND GROWING SEASONS.

LANDOWNER COMPLAINT RESOLUTION PROCESS

IN THE EVENT OF AN ISSUE, LANDOWNERS ARE DIRECTED TO CONTACT THEIR LOCAL MVP SOUTHGATE LAND REPRESENTATIVE. LANDOWNERS CAN ALSO REACH PROJECT PERSONNEL BY CALLING 1-833-MV-SOUTH OR EMAILING MAIL@MVPSOUTHGATE.COM

AFTER WORKING WITH THE SOUTHGATE PROJECT REPRESENTATIVE AND APPROPRIATE RIGHT-OF-WAY AGENT, IF THE LANDOWNER IS STILL NOT COMPLETELY SATISFIED WITH THE RESOLUTION, THE INDIVIDUAL SHOULD CONTACT THE COMMISSION'S LANDOWNER HELPLINE AT (877) 337-2237, OR BY EMAIL, LANDOWNERHELP@FERC.GOV.

DRAWN TRC	DATE 05/08/2019
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SCALE N.T.S.	SHEET 2 OF 2
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RESIDENTIAL NOTES

MOUNTAIN VALLEY PIPELINE
SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
RESIDENTIAL DRAWING NOTES

DRAWING NO.	REV.
RES-NOTES CONT.	P1

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MVP SOUTHGATE PROJECT

PROPOSED H-650 PIPELINE
ENGINEERING SERVICES DESIGN; JOB NUMBERS 300423
RESIDENTIAL DRAWING NOTES

Residential Plan Drawing	Anticipated Construction Method	Approximate Construction Duration	Additional Measures	Restoration Plans
RSS H650 001	Mainline	15 Days	None identified at this time.	See General Restoration Notes
RSS H650 002	Mainline	15 Days	None identified at this time.	See General Restoration Notes
RSS H650 003	NA Yard	400 Days	Install hard barriers	See General Restoration Notes
RSS H650 004	Mainline	15 Days	None identified at this time.	See General Restoration Notes
RSS H650 005	Mainline	15 Days	None identified at this time.	See General Restoration Notes
RSS H650 008	Mainline	15 Days	None identified at this time.	See General Restoration Notes
RSS H650 009	Mainline	15 Days	None identified at this time.	See General Restoration Notes
RSS H650 015	Mainline / Drag	15 Days	None identified at this time.	See General Restoration Notes
RSS H650 016	Mainline	15 Days	None identified at this time.	See General Restoration Notes
RSS H650 024	NA Access Road	200 Days	Install hard barriers	See General Restoration Notes
RSS H650 025	NA Access Road	200 Days	None identified at this time.	See General Restoration Notes
RSS H650 026	NA Access Road	200 Days	Install hard barriers	See General Restoration Notes
RSS H650 027	NA Access Road	200 Days	None identified at this time.	See General Restoration Notes
RSS H650 028	NA Access Road	200 Days	None identified at this time.	See General Restoration Notes
RSS H650 029	NA Access Road	200 Days	None identified at this time.	See General Restoration Notes
RSS H650 030	NA Access Road	200 Days	Install hard barriers	See General Restoration Notes
RSS-H650-031	Mainline	25 Days	None identified at this time.	See General Restoration Notes
RSS-H650-032	Mainline	15 Days	None identified at this time.	See General Restoration Notes
RSS-H650-033	NA - Yard	400 Days	Install hard barriers	See General Restoration Notes
RSS-H650-034	Mainline	35 Days	None identified at this time.	See General Restoration Notes
RSS-H650-035	Mainline	15 Days	None identified at this time.	See General Restoration Notes
RSS-H650-036	Mainline	15 Days	None identified at this time.	See General Restoration Notes
RSS-H650-037	NA - Access Road	200 Days	None identified at this time.	See General Restoration Notes
RSS-H650-038	NA - Access Road	200 Days	None identified at this time.	See General Restoration Notes
RSS-H650-039	Mainline / Road Bore	25 Days	None identified at this time.	See General Restoration Notes
RSS-H650-040	NA - Access Road	200 Days	None identified at this time.	See General Restoration Notes
RSS-H650-041	Mainline	15 Days	None identified at this time.	See General Restoration Notes
RSS-H650-043	NA - Yard	400 Days	None identified at this time.	See General Restoration Notes
RSS-H650-044	NA - Yard	400 Days	None identified at this time.	See General Restoration Notes
RSS-H650-045	NA - Access Road	200 Days	None identified at this time.	See General Restoration Notes
RSS-H650-046	NA - Access Road	200 Days	None identified at this time.	See General Restoration Notes
RSS-H650-047	Mainline	15 Days	None identified at this time.	See General Restoration Notes
RSS-H650-048	NA - Access Road	200 Days	None identified at this time.	See General Restoration Notes
RSS-H650-050	Mainline / Road Bore	25 Days	None identified at this time.	See General Restoration Notes
RSS-H650-051	Mainline	15 Days	None identified at this time.	See General Restoration Notes

NOTE:

CONSTRUCTION METHOD AND DURATION MAY CHANGE DUE TO LANDOWNER REQUESTS, FIELDS CONDITIONS, AND OTHER CONSIDERATIONS.

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APP'D	DATE
SCALE N.T.S.	SHEET 1 OF 2
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RESIDENTIAL NOTES

MOUNTAIN VALLEY PIPELINE
SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
RESIDENTIAL DRAWING NOTES

DRAWING NO.	REV.
RES-NOTES SITE SPECIFIC	P3

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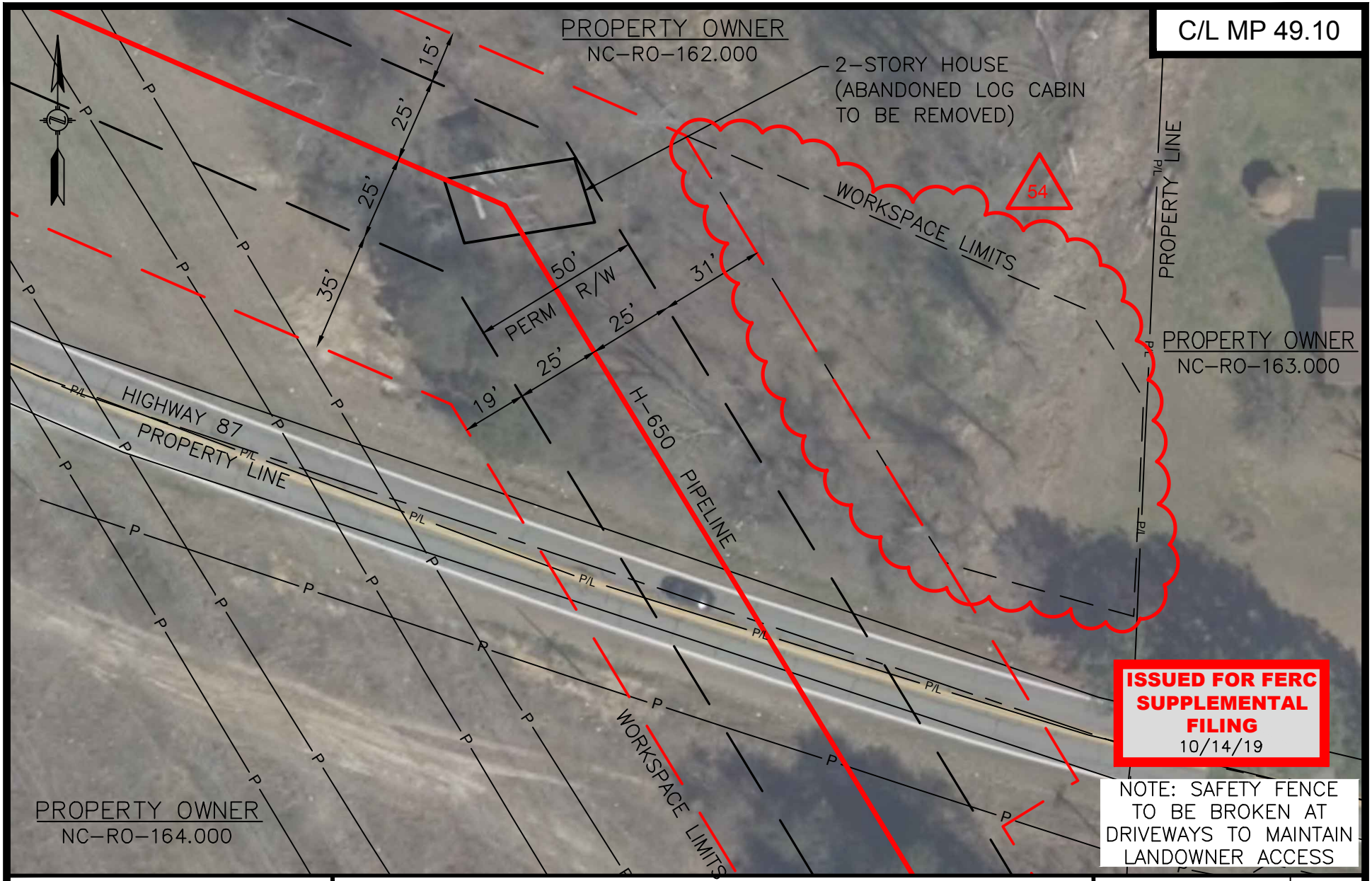
10/14/19



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Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY:	TBH	10/05/18
DRAFTING CK:	SJO	10/19/18
ENVIRONMENTAL CK:		
ENGINEERING CK:	.	.
DETAIL SHEET:		
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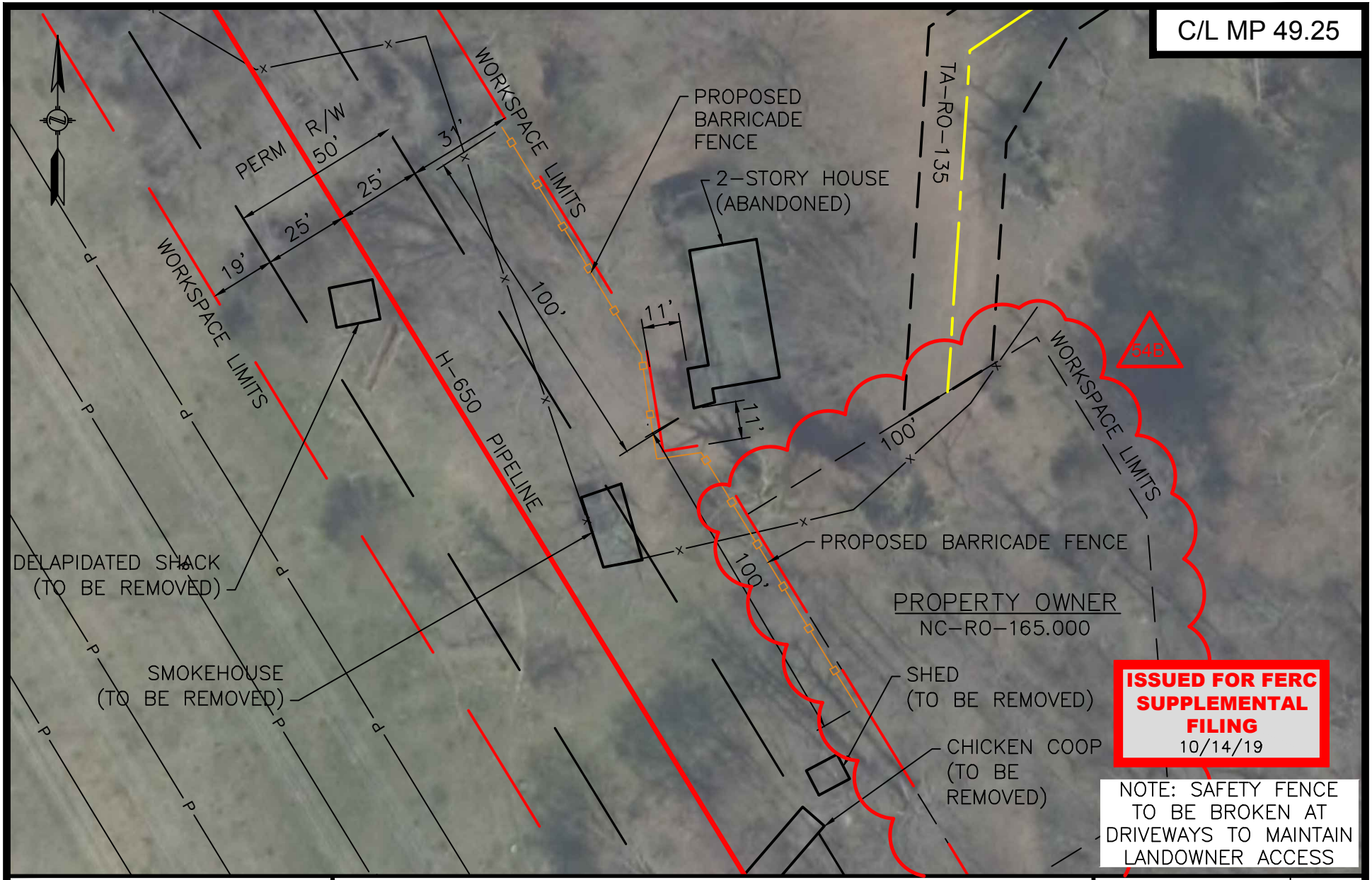

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Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: TBH	10/05/18
DRAFTING CK: SJO	10/19/18
ENVIRONMENTAL CK:	
ENGINEERING CK: .	.
DETAIL SHEET:	
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SCALE: 1" = 40'	REV. P4
DATE OF PLOT: 9/23/2019 12:39 PM	

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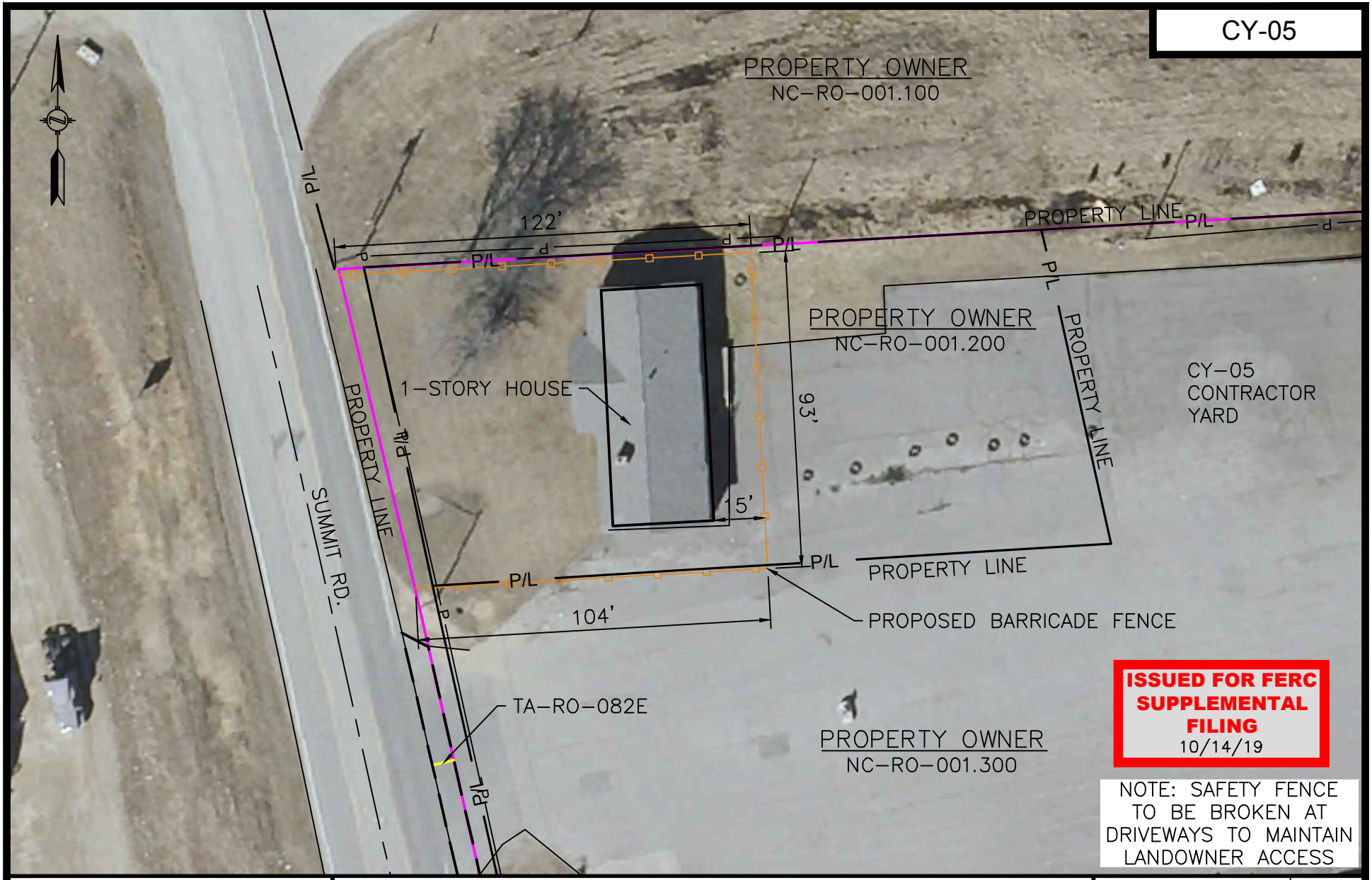

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CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: TBH	10/08/18
DRAFTING CK: SJO	10/19/18
ENVIRONMENTAL CK:	
ENGINEERING CK: .	.
DETAIL SHEET:	
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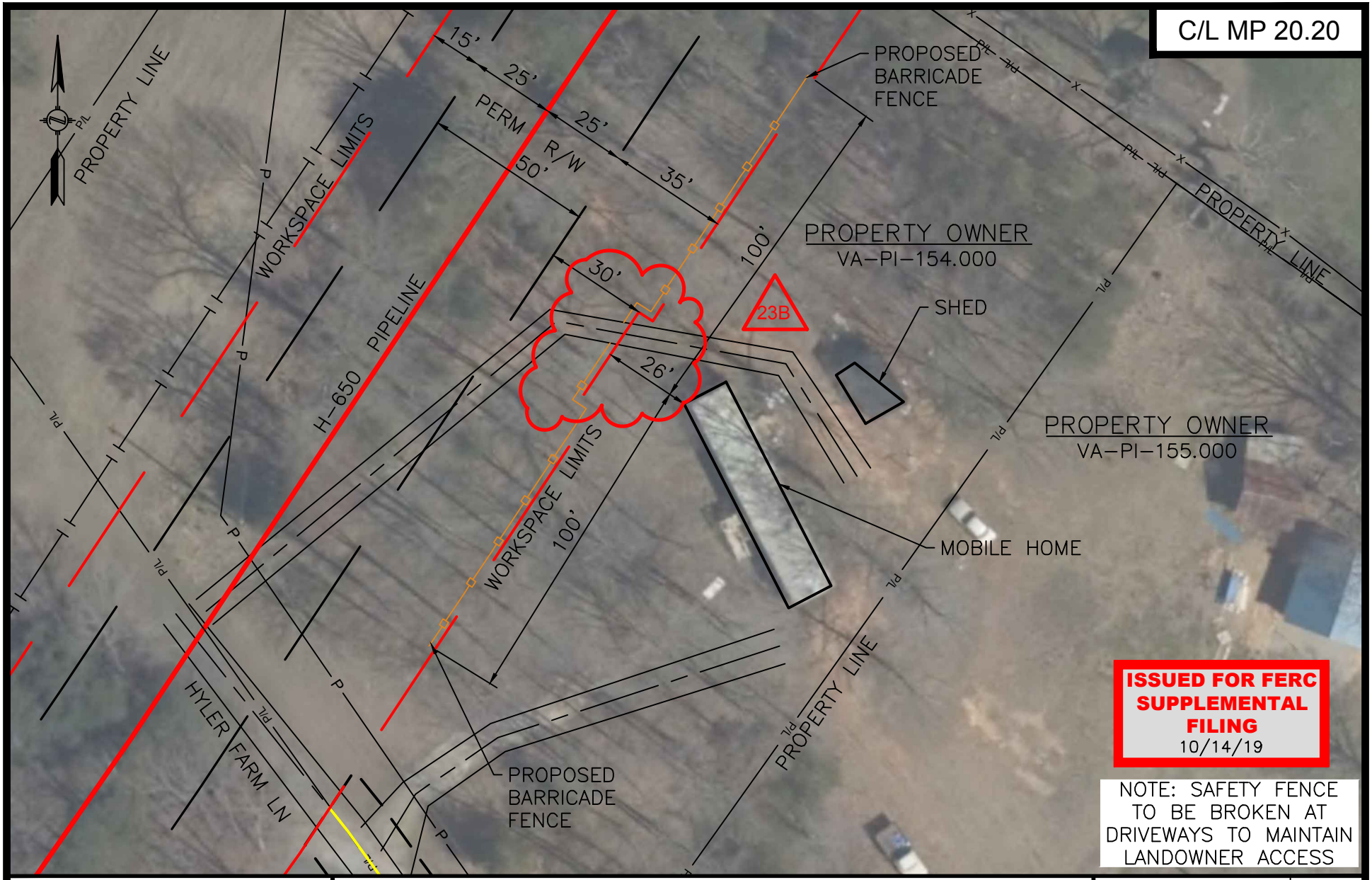

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CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
PITTSYLVANIA COUNTY,VIRGINIA

SHEET 1 OF 1

DRAWN BY: TBH	10/08/18
DRAFTING CK: SJO	10/19/18
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
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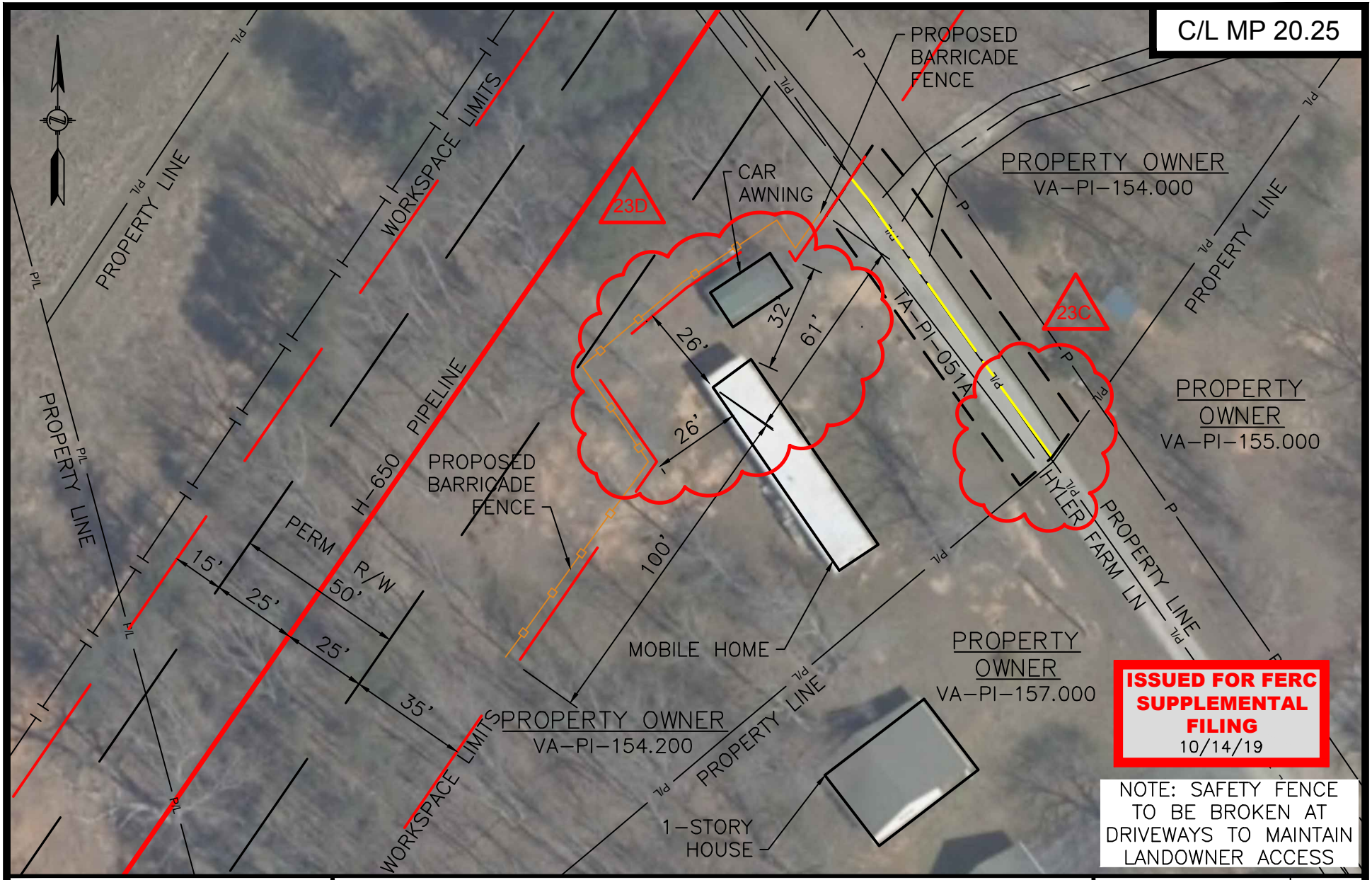
DATE OF PLOT: 9/23/2019 12:44 PM	



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CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
PITTSYLVANIA COUNTY, VIRGINIA

SHEET 1 OF 1

DRAWN BY: TBH	10/09/18
DRAFTING CK: SJO	10/19/18
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
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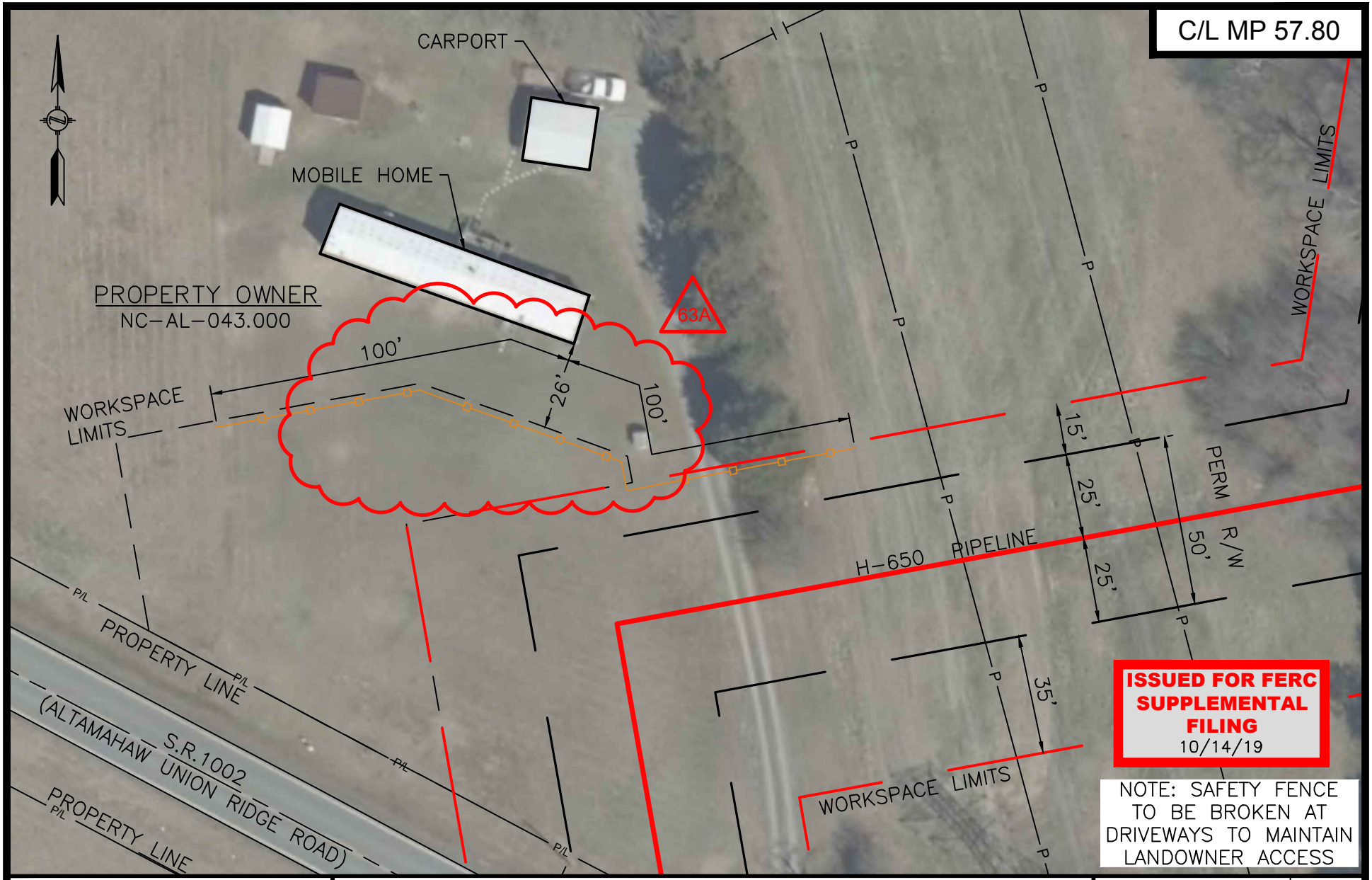

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CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ALAMANCE COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: TBH	10/10/18
DRAFTING CK: SJO	10/19/18
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-008**	
SCALE: 1" = 40'	REV. P4
DATE OF PLOT: 9/23/2019 12:45 PM	

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CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ALAMANCE COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY:	TBH	10/10/18
DRAFTING CK:	SJO	10/19/18
ENVIRONMENTAL CK:		
ENGINEERING CK:	.	.
DETAIL SHEET:		
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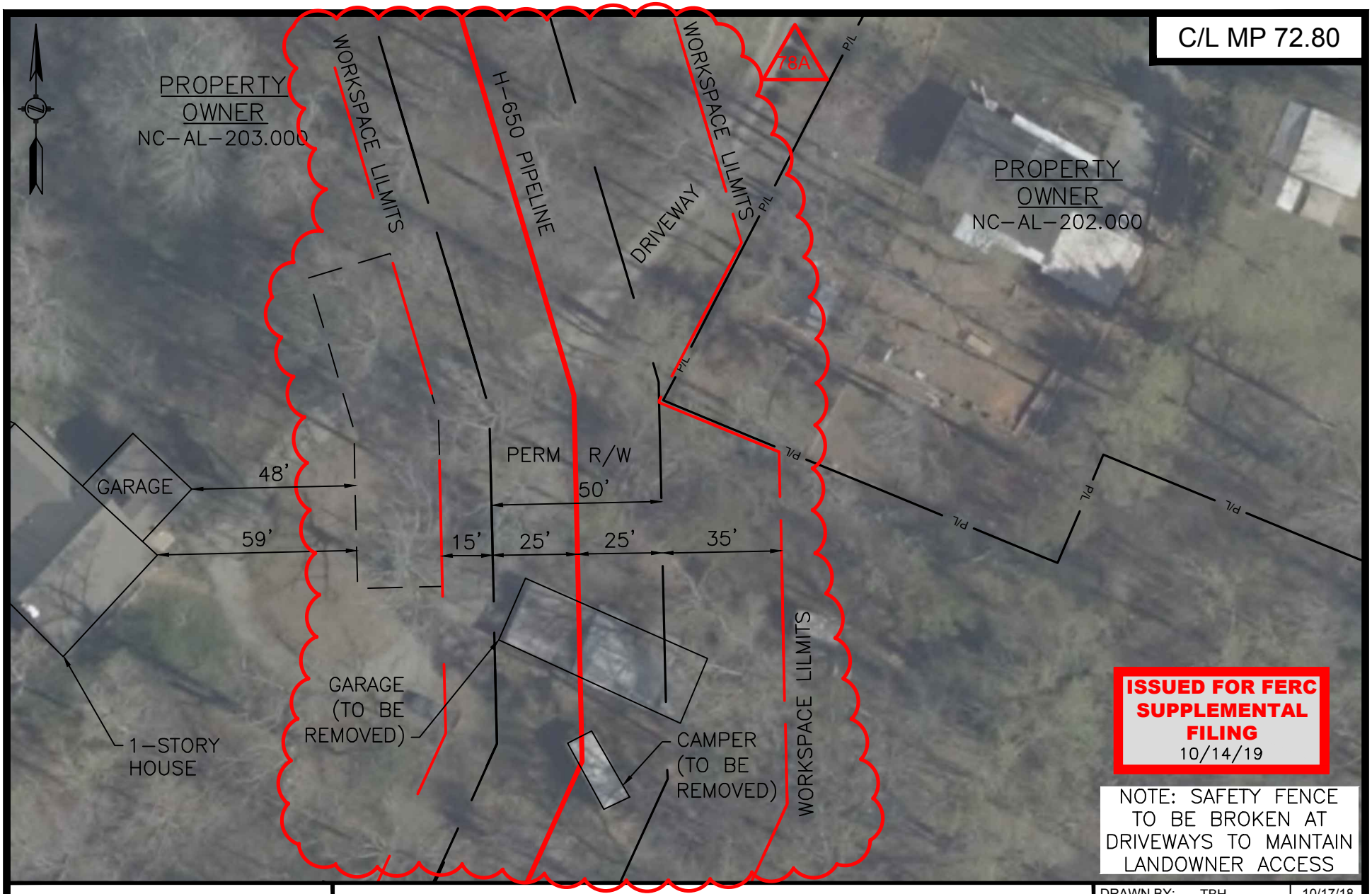

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CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ALAMANCE COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY:	TBH	10/17/18
DRAFTING CK:	SJO	10/22/18
ENVIRONMENTAL CK:		
ENGINEERING CK:	.	.
DETAIL SHEET:		
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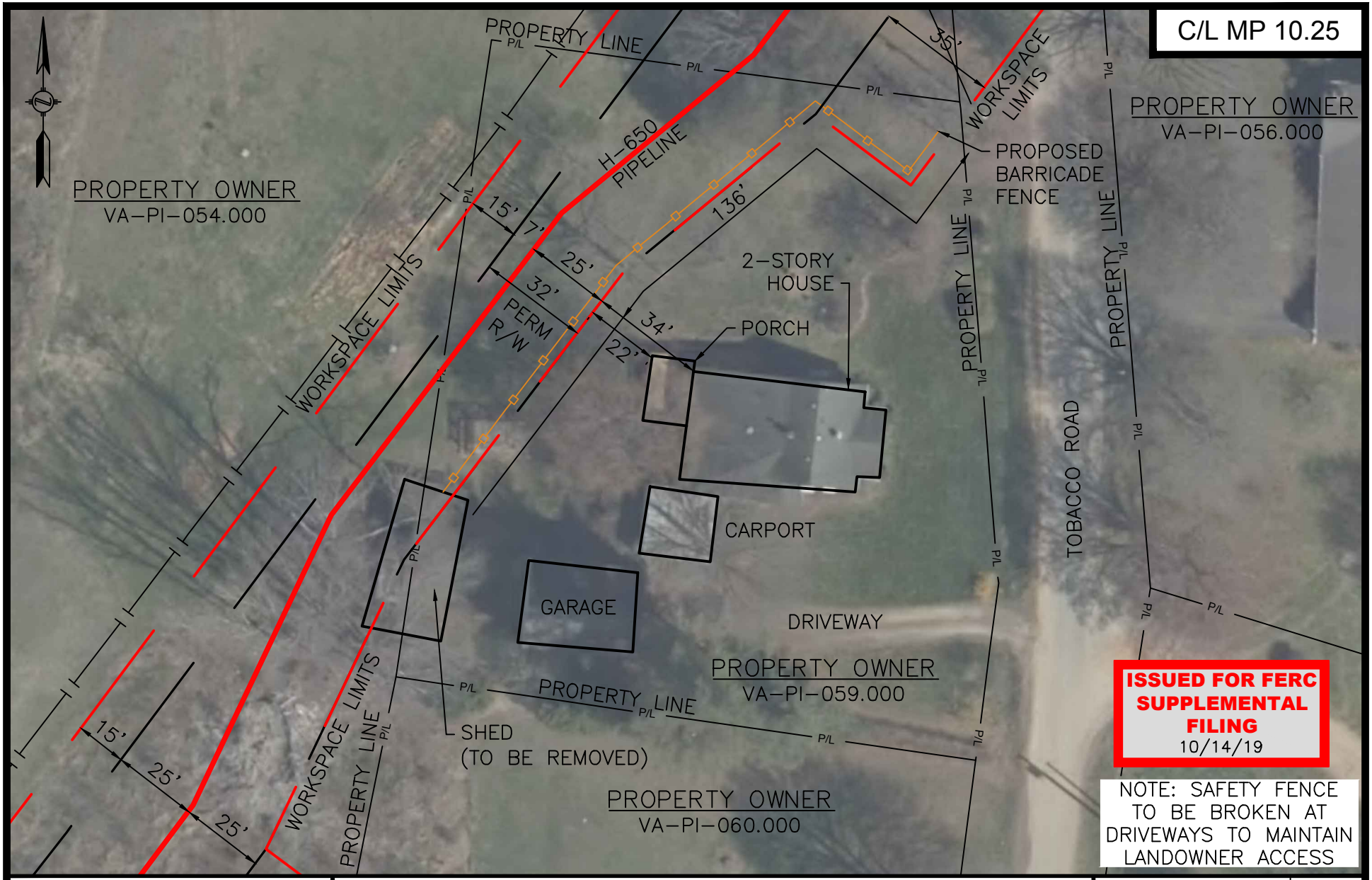

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Results you can rely on

FIRM REGISTRATION NO.:
VA 0407006097

Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
PITTSYLVANIA COUNTY, VIRGINIA

SHEET 1 OF 1

DRAWN BY:	TBH	10/17/18
DRAFTING CK:	SJO	10/22/18
ENVIRONMENTAL CK:		
ENGINEERING CK:	.	.
DETAIL SHEET:		
DRAWING NO.:	**RSS-H650-016**	
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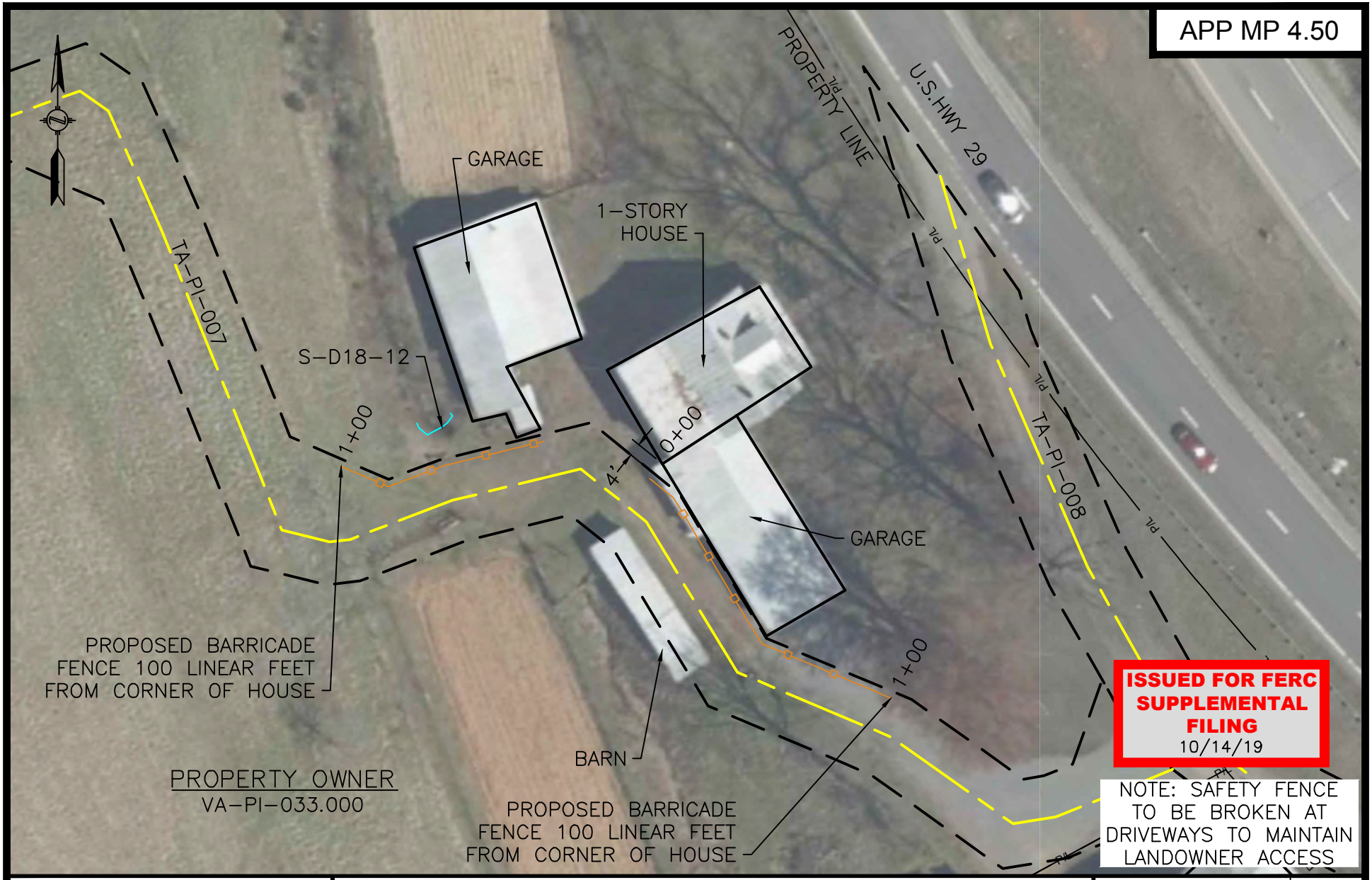
APP MP 4.50



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CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
PITTSYLVANIA COUNTY,VIRGINIA

SHEET 1 OF 1

DRAWN BY:	SJS	03/19/19
DRAFTING CK:	DEM	03/20/19
ENVIRONMENTAL CK:		
ENGINEERING CK:	.	.
DETAIL SHEET:		
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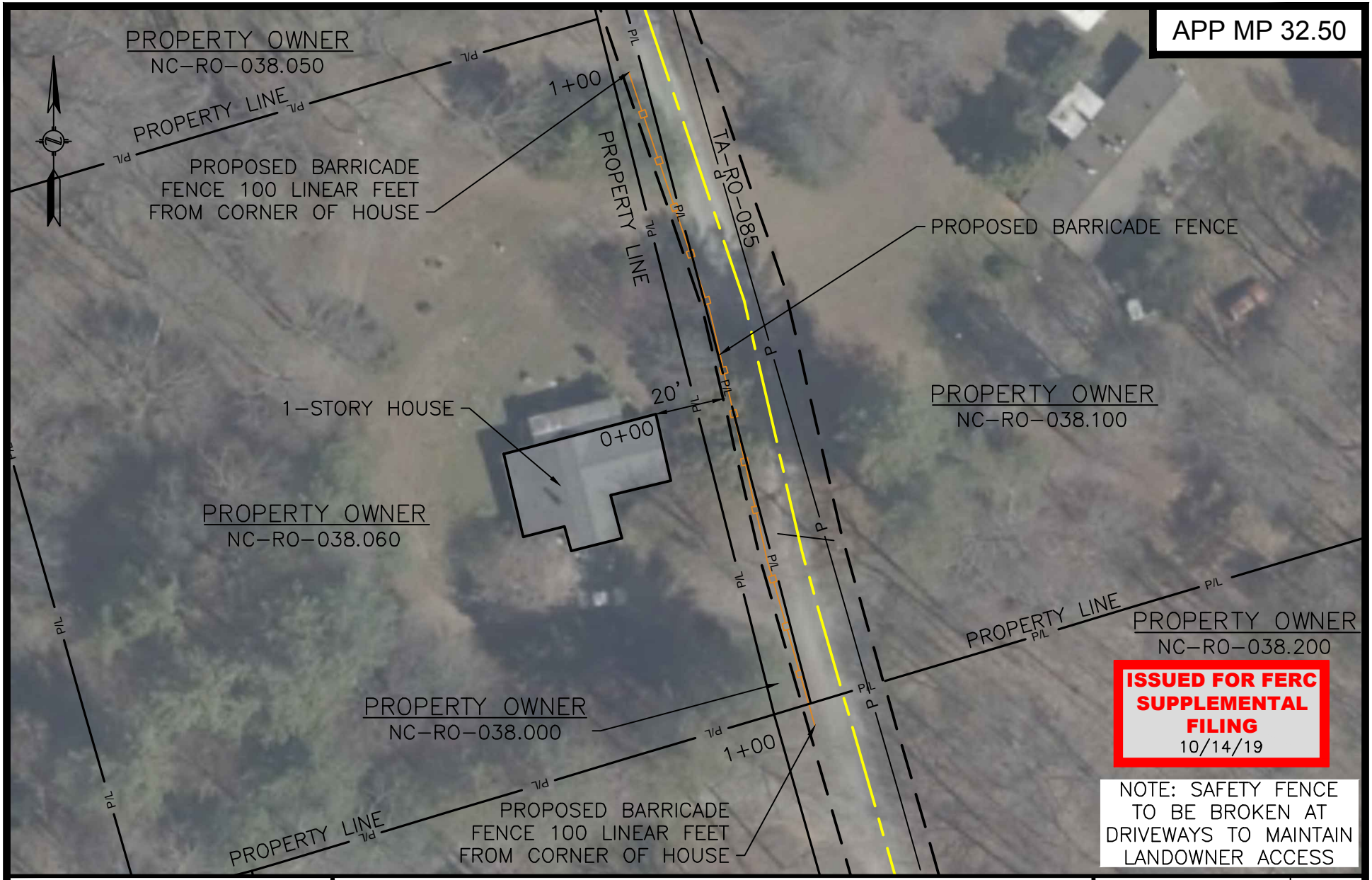
DATE OF PLOT: 9/23/2019 12:48 PM		



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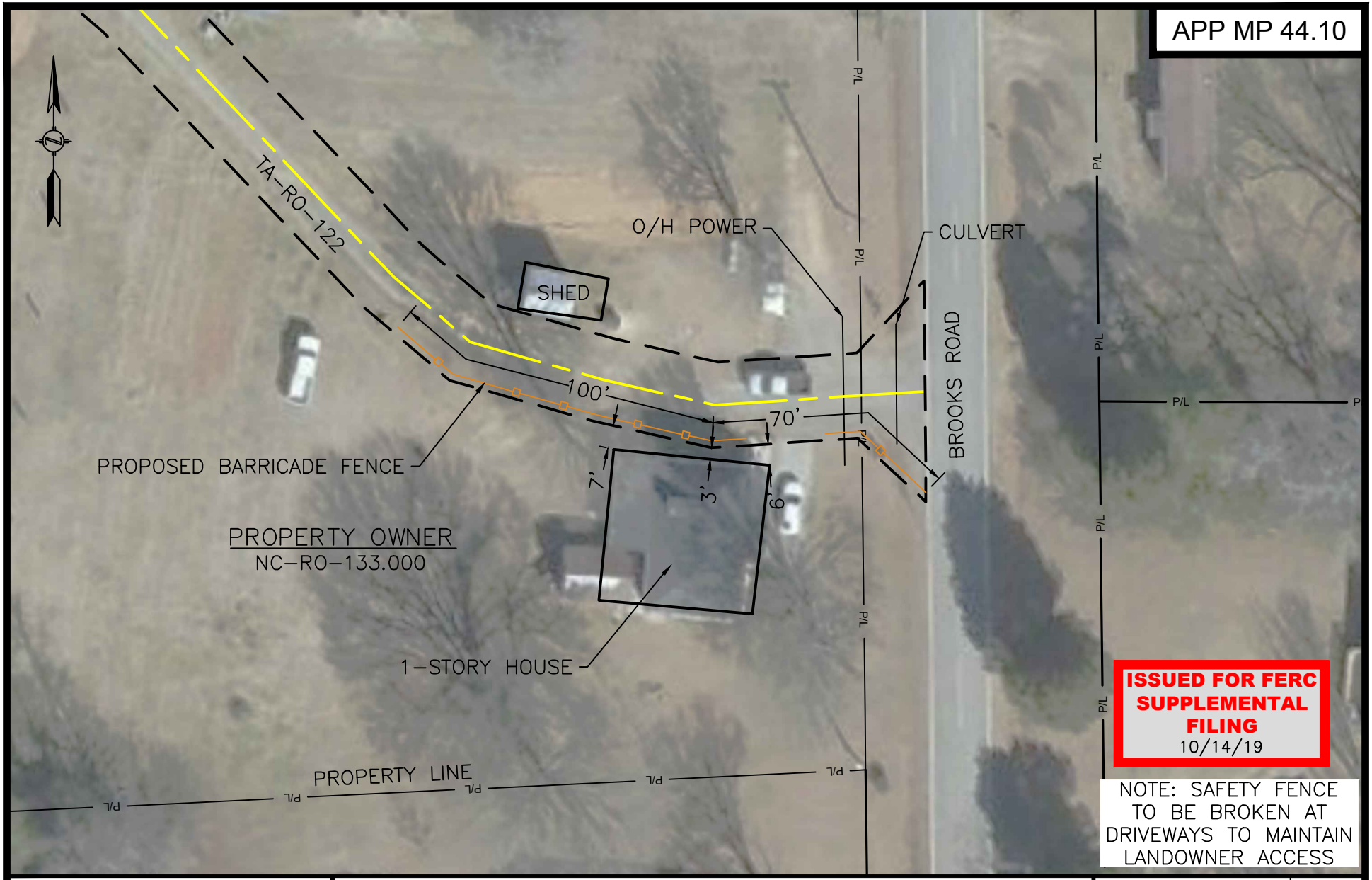
CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: SJS	03/19/19
DRAFTING CK: DEM	03/20/19
ENVIRONMENTAL CK:	
ENGINEERING CK: .	.
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-025**	
SCALE: 1" = 40'	REV. P2
DATE OF PLOT: 9/23/2019 12:49 PM	

APP MP 44.10



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Results you can rely on

Mountain Valley PIPELINE LLC

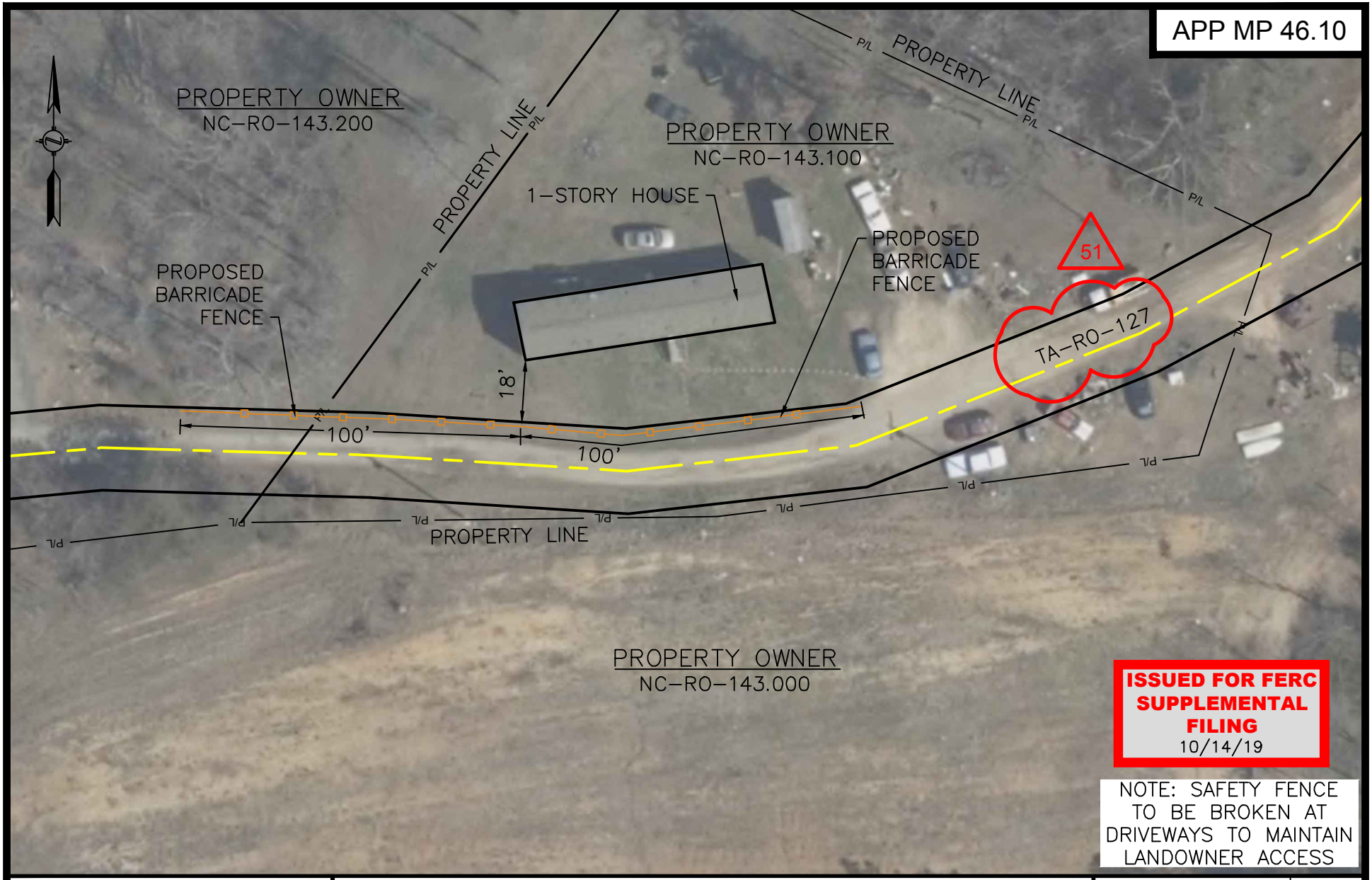
CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: SJS	03/19/19
DRAFTING CK: DEM	03/20/19
ENVIRONMENTAL CK:	
ENGINEERING CK: .	.
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-026**	
SCALE: 1" = 40'	REV. P2
DATE OF PLOT: 9/23/2019 12:49 PM	

APP MP 46.10



ISSUED FOR FERC SUPPLEMENTAL FILING
10/14/19

NOTE: SAFETY FENCE TO BE BROKEN AT DRIVEWAYS TO MAINTAIN LANDOWNER ACCESS

TRC
Results you can rely on

Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: SJS	03/19/19
DRAFTING CK: DEM	03/20/19
ENVIRONMENTAL CK:	
ENGINEERING CK: .	.
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-027**	
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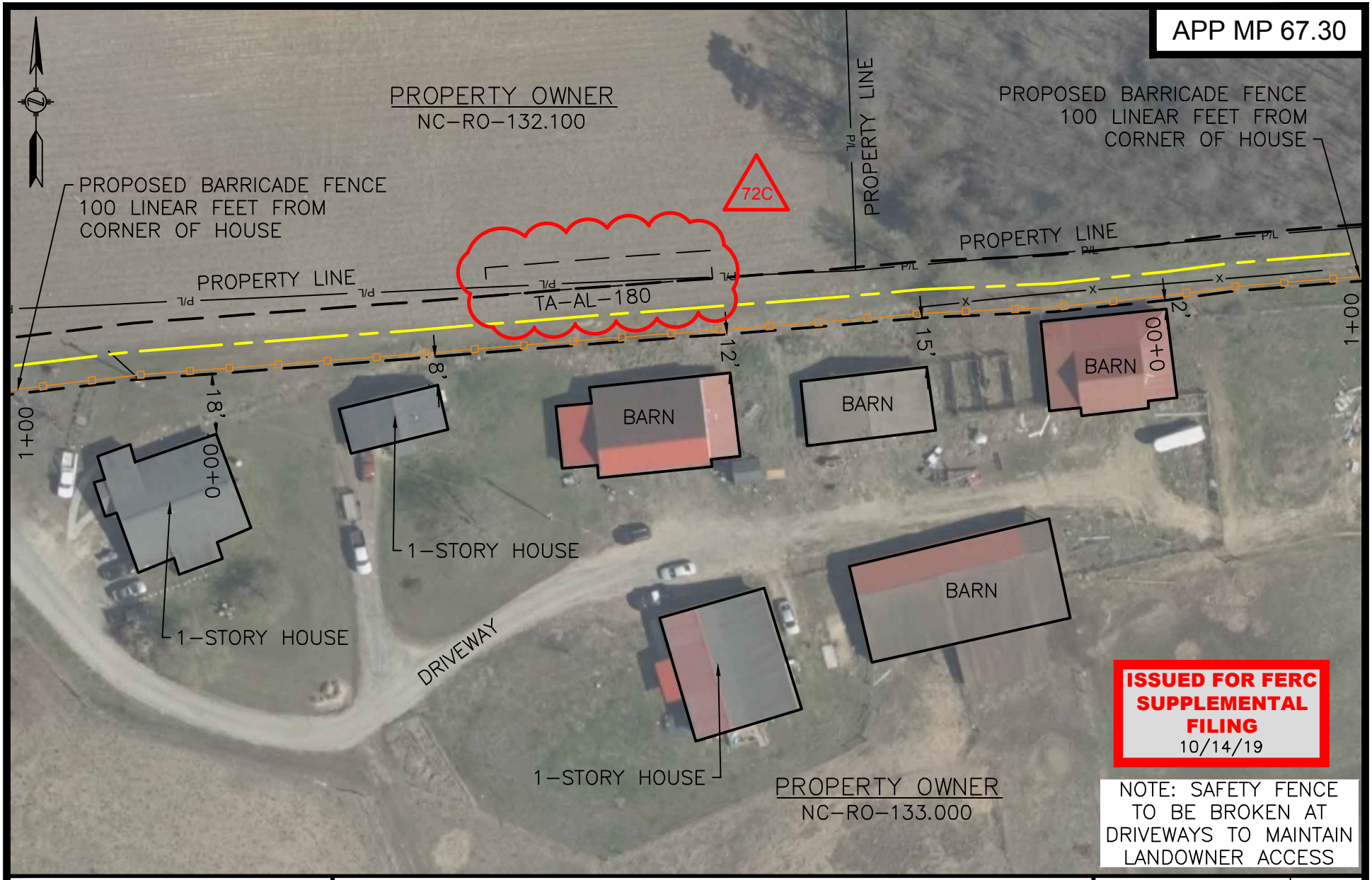
DATE OF PLOT: 9/23/2019 12:50 PM	

APP MP 67.30



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10/14/19

NOTE: SAFETY FENCE TO BE BROKEN AT DRIVEWAYS TO MAINTAIN LANDOWNER ACCESS

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Results you can rely on

Mountain Valley PIPELINE LLC

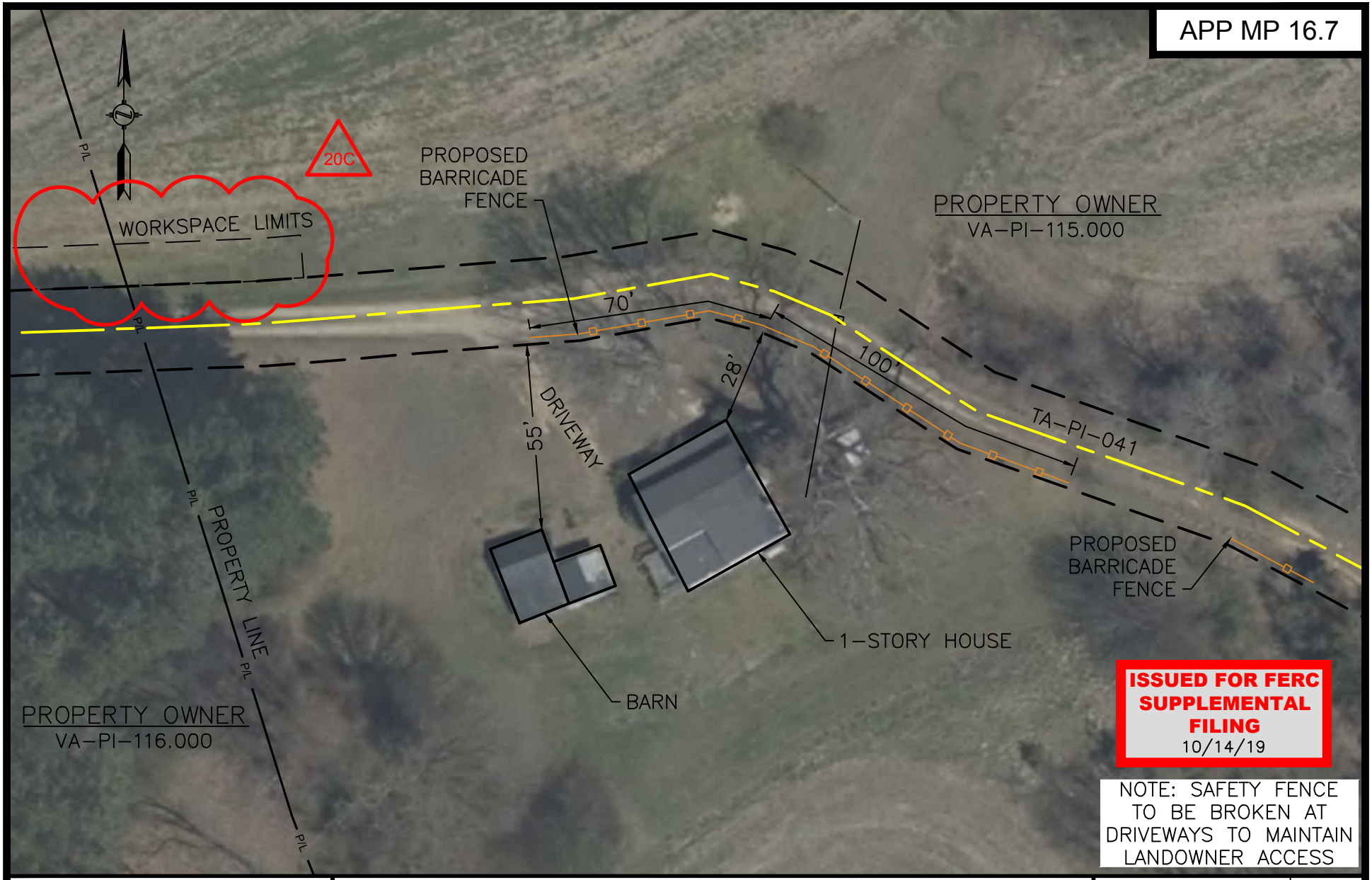
CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ALAMANCE COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: TBH	10/17/18
DRAFTING CK: DEM	03/20/19
ENVIRONMENTAL CK:	
ENGINEERING CK: .	.
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-028**	
SCALE: 1" = 40'	REV. P2
DATE OF PLOT: 9/23/2019 12:50 PM	

APP MP 16.7



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Mountain Valley PIPELINE LLC

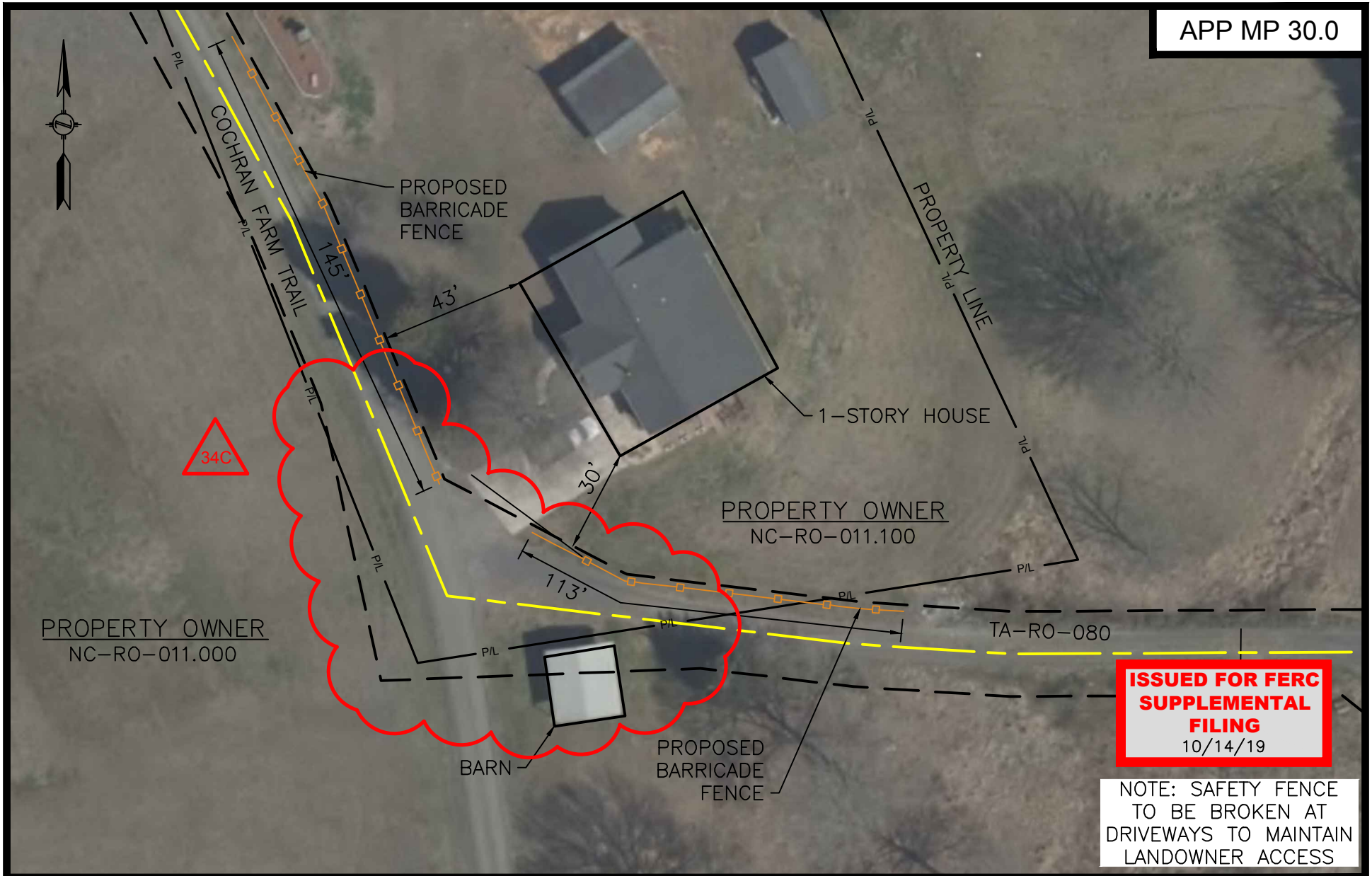
CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
PITTSYLVANIA COUNTY, VIRGINIA

SHEET 1 OF 1

DRAWN BY: KMB	05/02/19
DRAFTING CK: SSL	05/03/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-029**	
SCALE: 1" = 40'	REV. P1
DATE OF PLOT: 9/23/2019 12:51 PM	

APP MP 30.0



TRC
Results you can rely on

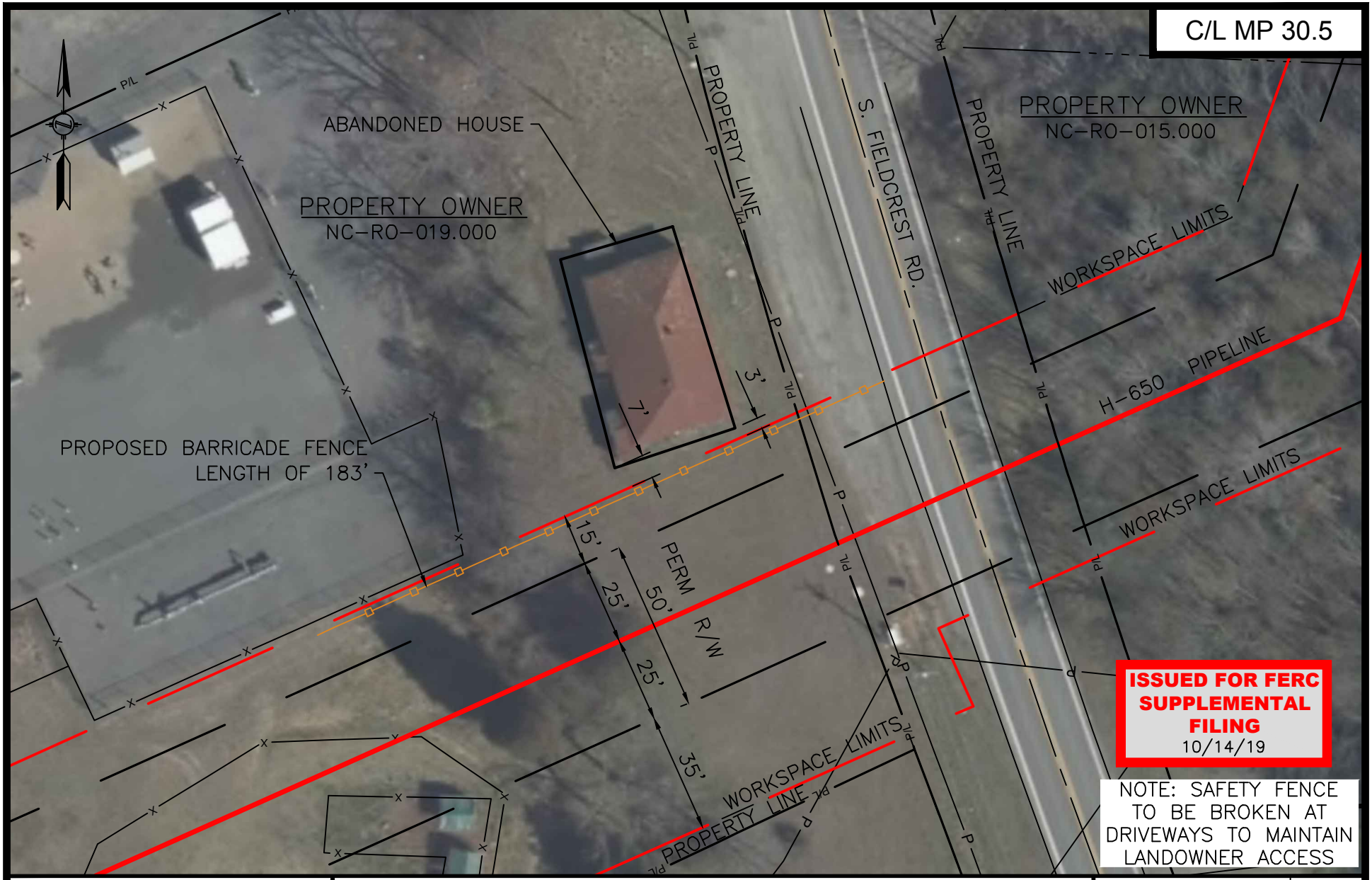
Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: KMB	05/02/19
DRAFTING CK: SSL	05/03/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-030**	
SCALE: 1" = 40'	REV. P1
DATE OF PLOT: 9/23/2019 12:52 PM	



TRC
Results you can rely on

Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY:	KMB	05/03/19
DRAFTING CK:	SSL	05/07/19
ENVIRONMENTAL CK:		
ENGINEERING CK:		
DETAIL SHEET:		
DRAWING NO.:	**RSS-H650-031**	
SCALE: 1" = 40'		REV. P1
DATE OF PLOT: 9/23/2019 12:52 PM		

TRC
Results you can rely on

Mountain Valley PIPELINE LLC

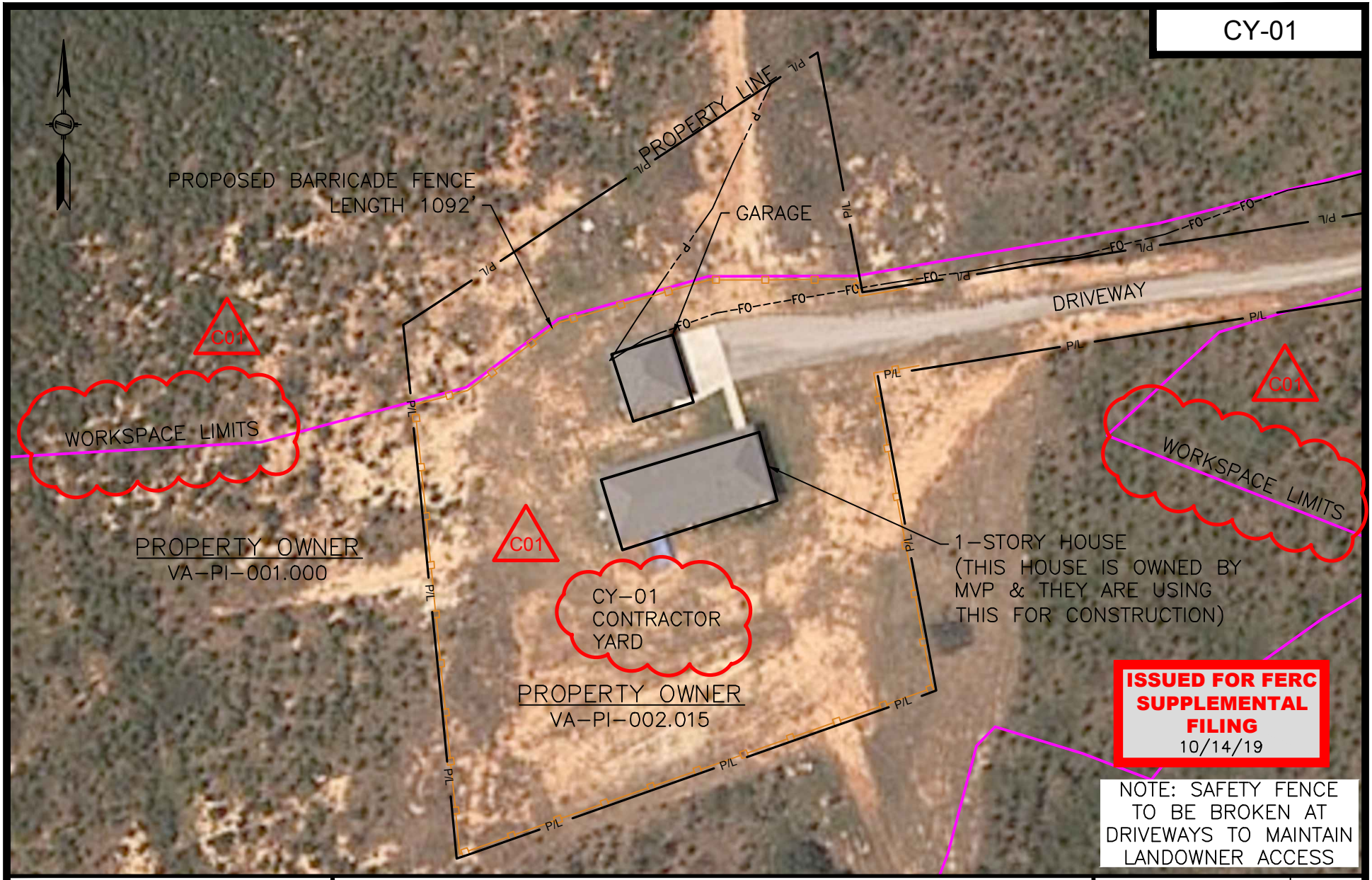
CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: KMB	05/06/19
DRAFTING CK: SSL	05/07/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-032**	
SCALE: 1" = 40'	REV. P1
DATE OF PLOT: 9/23/2019 12:53 PM	

CY-01



ISSUED FOR FERC SUPPLEMENTAL FILING
10/14/19

NOTE: SAFETY FENCE TO BE BROKEN AT DRIVEWAYS TO MAINTAIN LANDOWNER ACCESS

TRC
Results you can rely on

Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
PITTSYLVANIA COUNTY, VIRGINIA

SHEET 1 OF 1

DRAWN BY: KMB	05/06/19
DRAFTING CK: SSL	05/07/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-033**	
SCALE: 1" = 80'	REV. P1
DATE OF PLOT: 9/23/2019 4:54 PM	

TRC
Results you can rely on

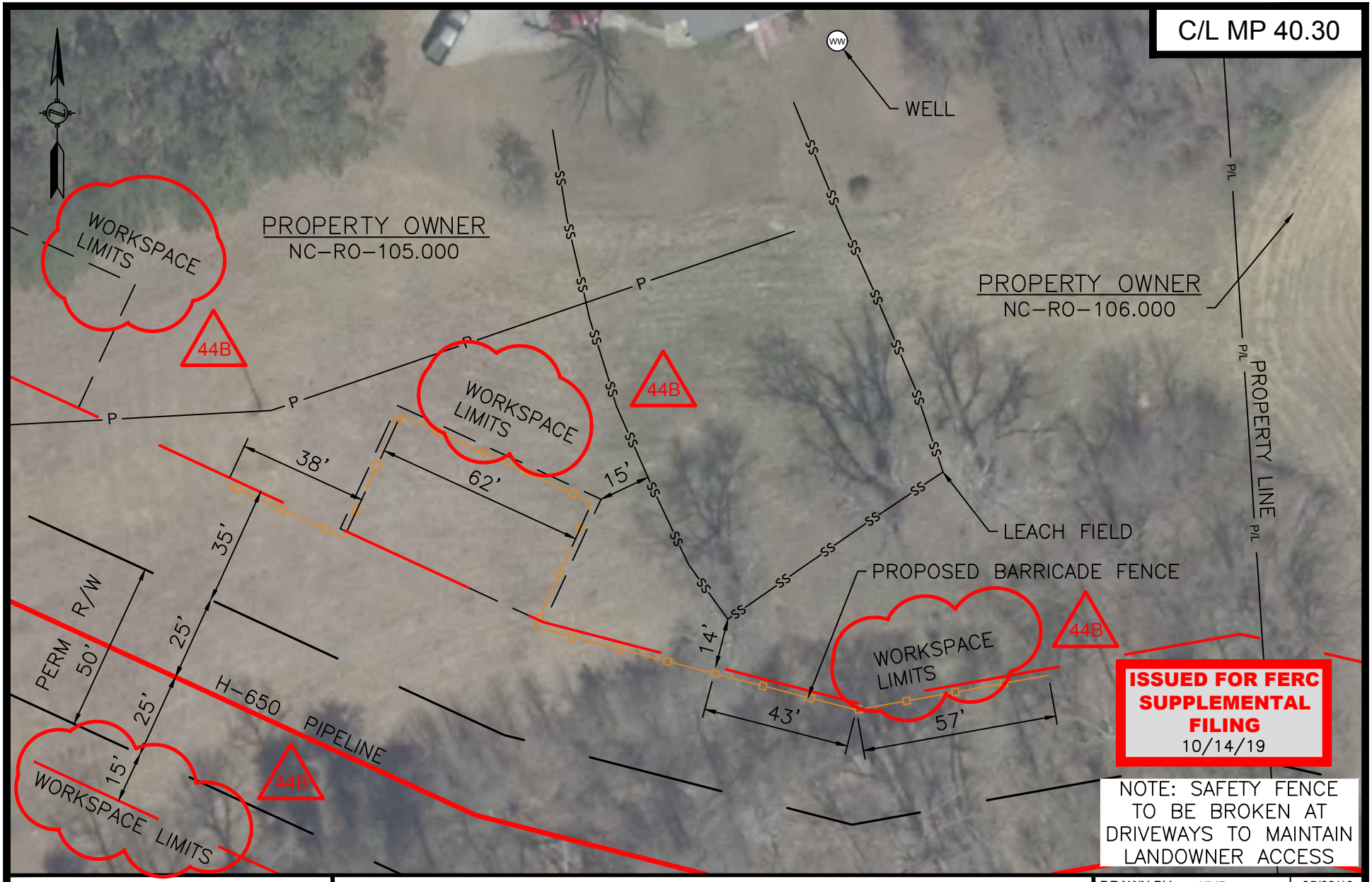
Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: KMB	05/09/19
DRAFTING CK: SSL	05/09/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-034**	
SCALE: 1" = 40'	REV. P1
DATE OF PLOT: 9/23/2019 12:54 PM	



TRC
Results you can rely on

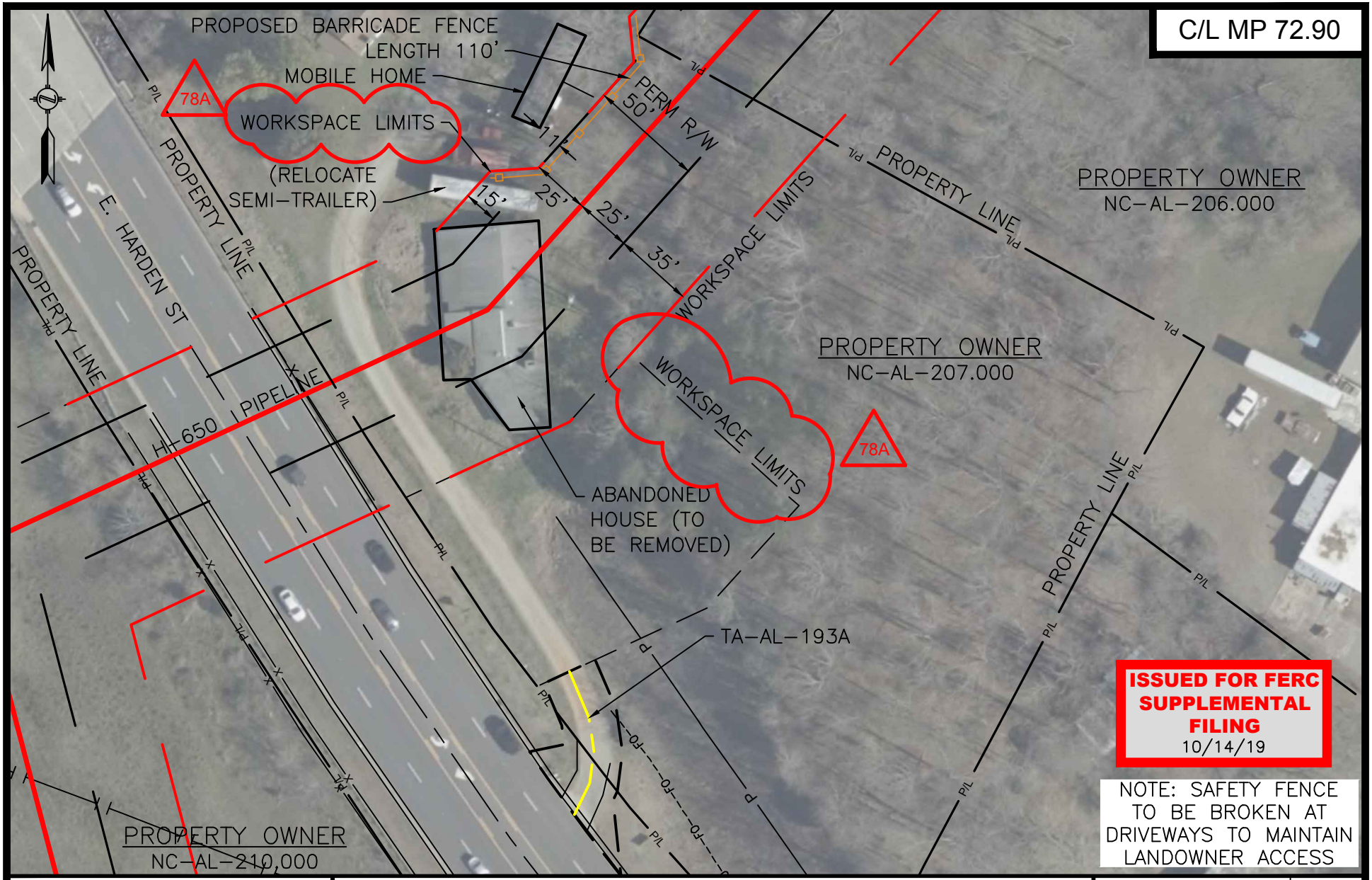
Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: KMB	05/09/19
DRAFTING CK: SSL	05/09/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-035**	
SCALE: 1" = 40'	REV. P1
DATE OF PLOT: 9/23/2019 12:55 PM	



TRC
Results you can rely on

Mountain Valley PIPELINE LLC

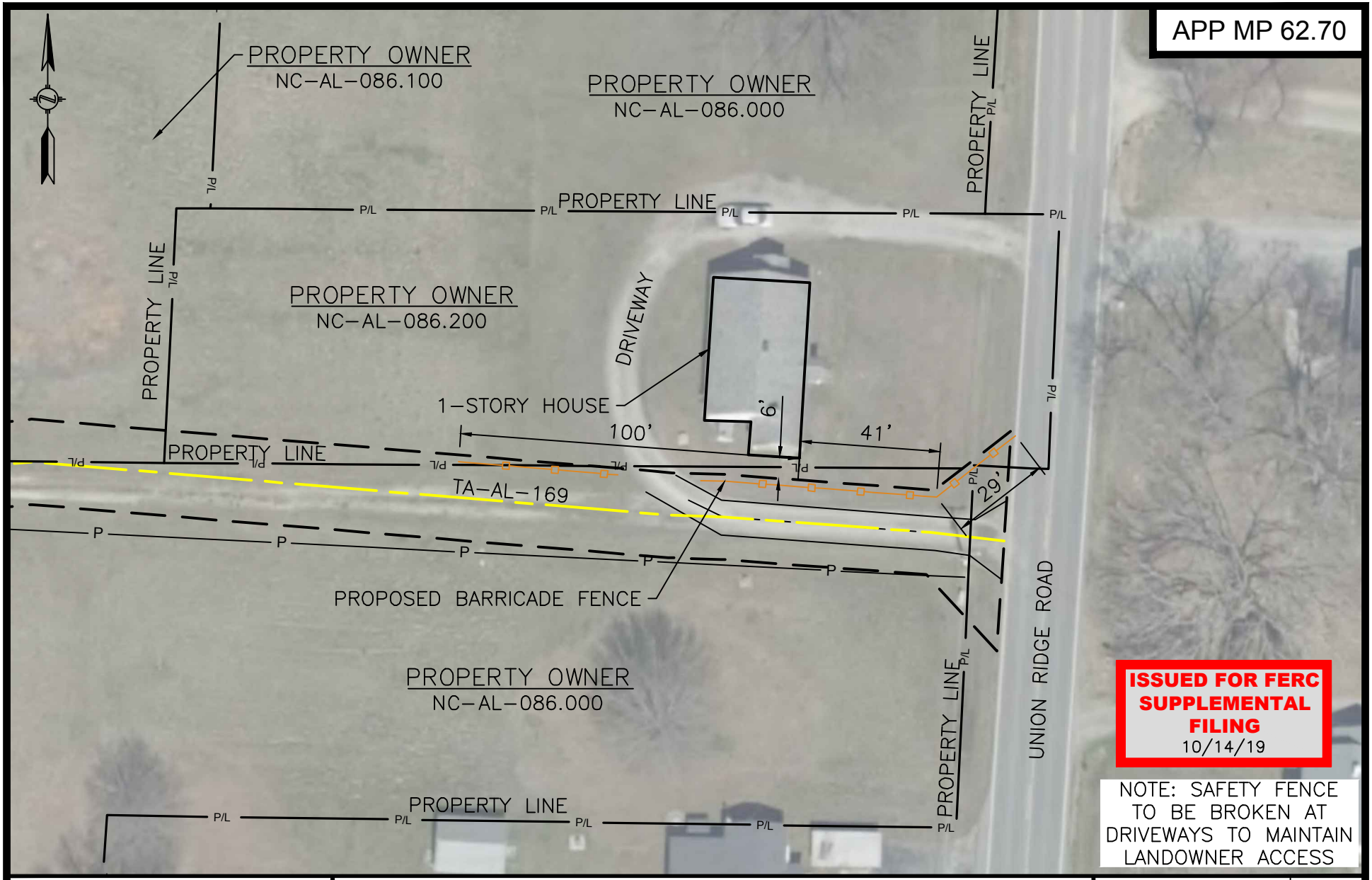
CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ALAMANCE COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: KMB	05/15/19
DRAFTING CK: SSL	05/15/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-036**	
SCALE: 1" = 60'	REV. P1
DATE OF PLOT: 9/23/2019 12:55 PM	

APP MP 62.70



ISSUED FOR FERC SUPPLEMENTAL FILING
10/14/19

NOTE: SAFETY FENCE TO BE BROKEN AT DRIVEWAYS TO MAINTAIN LANDOWNER ACCESS

TRC
Results you can rely on

Mountain Valley PIPELINE LLC

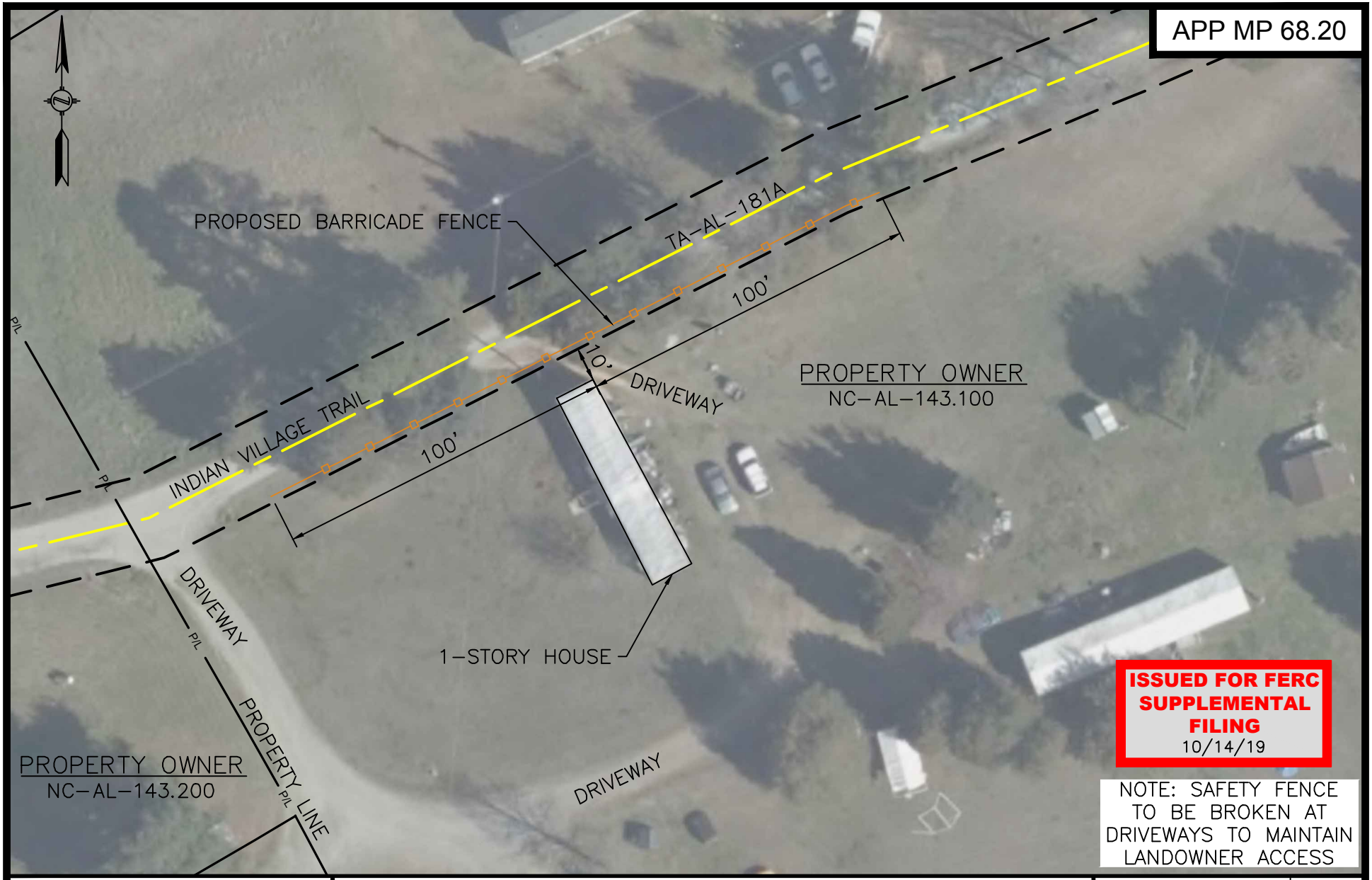
CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ALAMANCE COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: KMB	05/15/19
DRAFTING CK: DEM	09/19/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-037**	
SCALE: 1" = 40'	REV. P1
DATE OF PLOT: 9/23/2019 12:55 PM	

APP MP 68.20



ISSUED FOR FERC SUPPLEMENTAL FILING
10/14/19

NOTE: SAFETY FENCE TO BE BROKEN AT DRIVEWAYS TO MAINTAIN LANDOWNER ACCESS

TRC
Results you can rely on

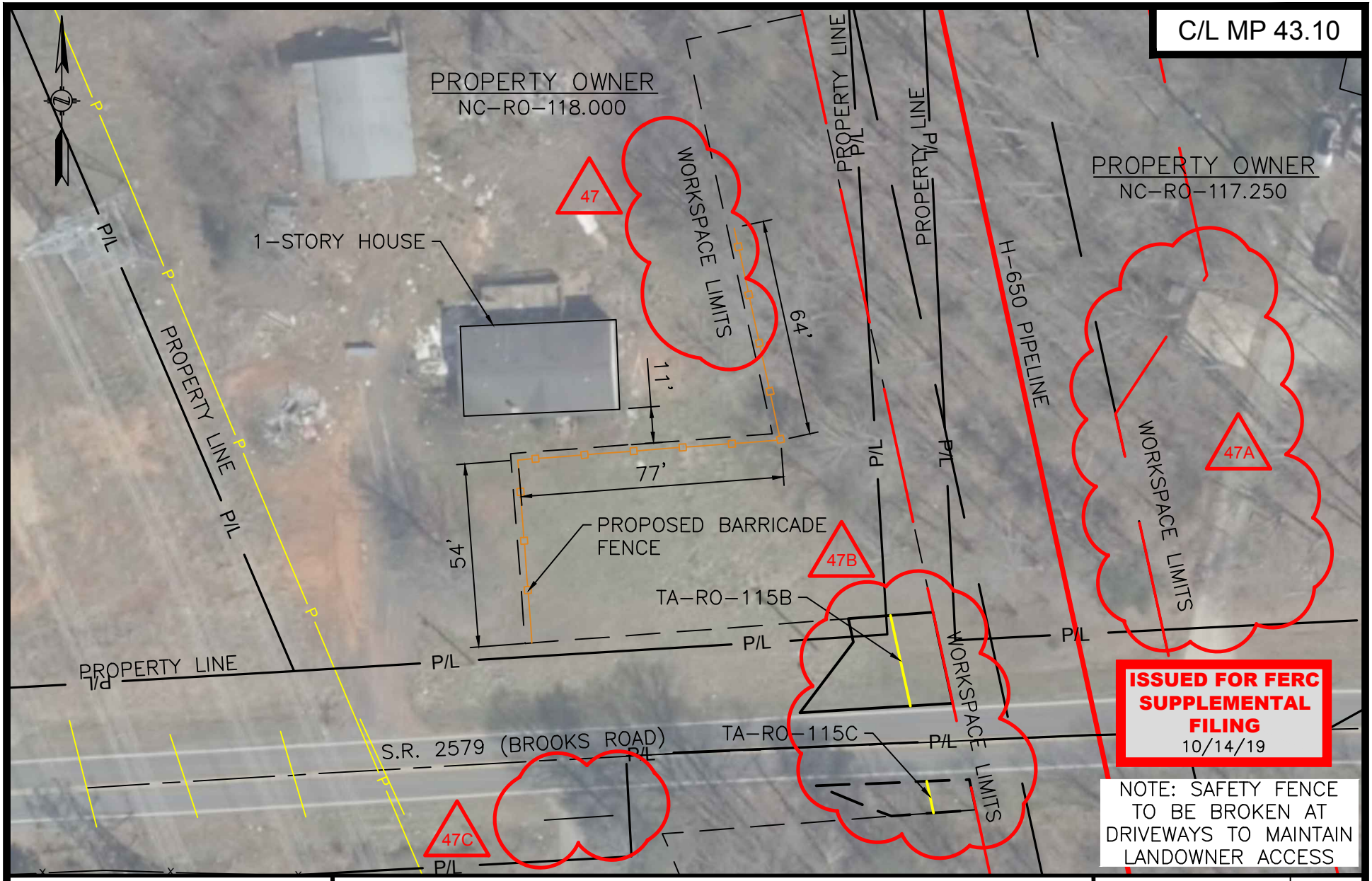
Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ALAMANCE COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: KMB	05/15/19
DRAFTING CK: SSL	05/15/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-038**	
SCALE: 1" = 40'	REV. P1
DATE OF PLOT: 9/23/2019 12:56 PM	



TRC
Results you can rely on

Mountain Valley PIPELINE LLC

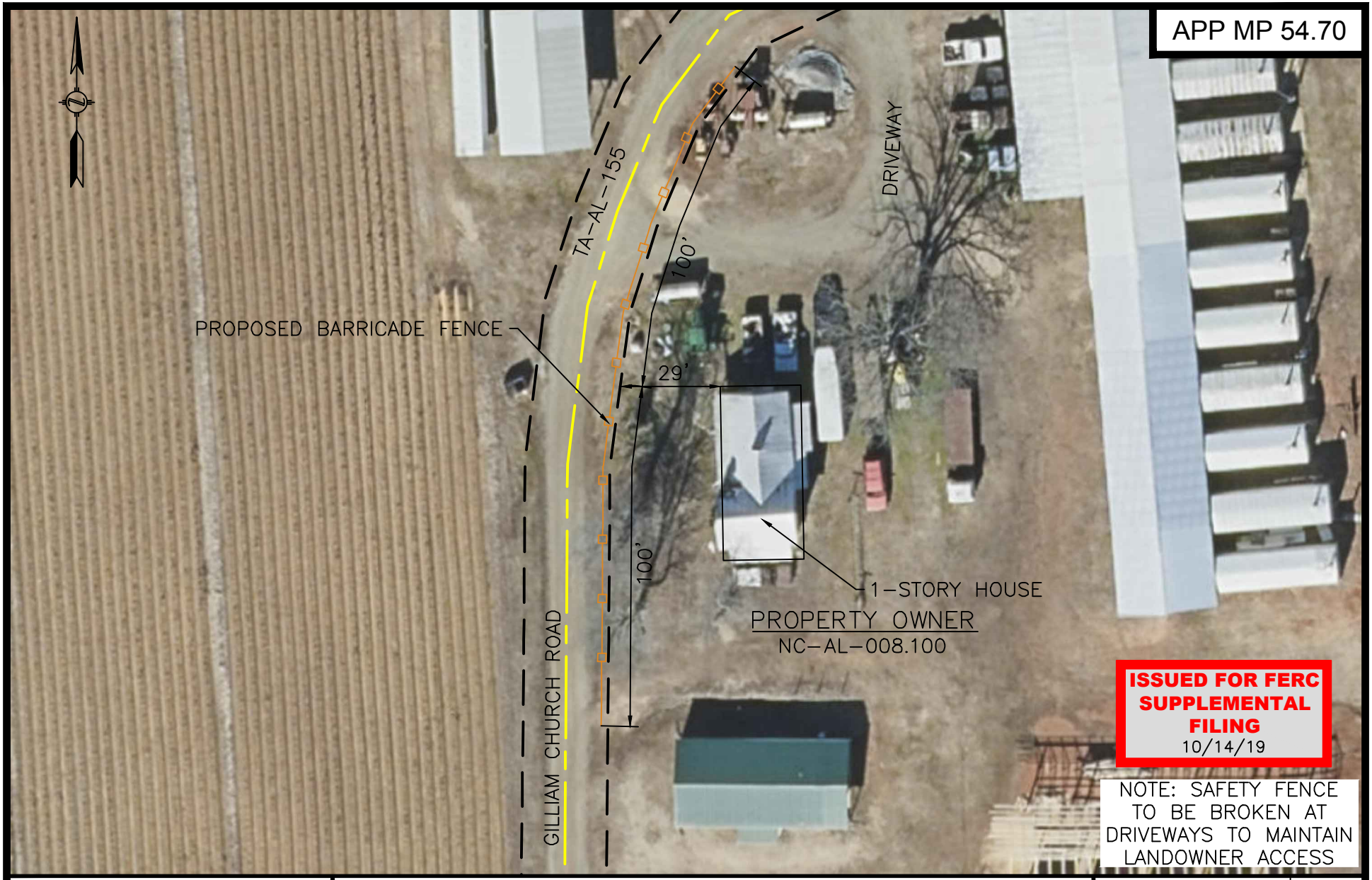
CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: KMB	05/15/19
DRAFTING CK: SSL	05/15/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-039**	
SCALE: 1" = 40'	REV. P1
DATE OF PLOT: 9/23/2019 12:56 PM	

APP MP 54.70



TRC
Results you can rely on

Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ALAMANCE COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: CCH	05/17/19
DRAFTING CK: SSL	05/17/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-040**	
SCALE: 1" = 40'	REV. P1
DATE OF PLOT: 9/23/2019 12:57 PM	

APP MP 22.20

ISSUED FOR FERC SUPPLEMENTAL FILING
10/14/19

NOTE: SAFETY FENCE TO BE BROKEN AT DRIVEWAYS TO MAINTAIN LANDOWNER ACCESS

TRC
Results you can rely on

Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
PITTSYLVANIA COUNTY, VIRGINIA

SHEET 1 OF 1

DRAWN BY: CCH	06/13/19
DRAFTING CK: DEM	09/16/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-041**	
SCALE: 1" = 40'	REV. P1
DATE OF PLOT: 9/23/2019 12:57 PM	

CY-19

TRC
Results you can rely on

Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
PITTSYLVANIA COUNTY, VIRGINIA

SHEET 1 OF 1

DRAWN BY: CCH	06/13/19
DRAFTING CK: DEM	09/16/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-043**	
SCALE: 1" = 40'	REV. P1
DATE OF PLOT: 9/23/2019 5:07 PM	

CY-22

TRC
Results you can rely on

Mountain Valley PIPELINE LLC

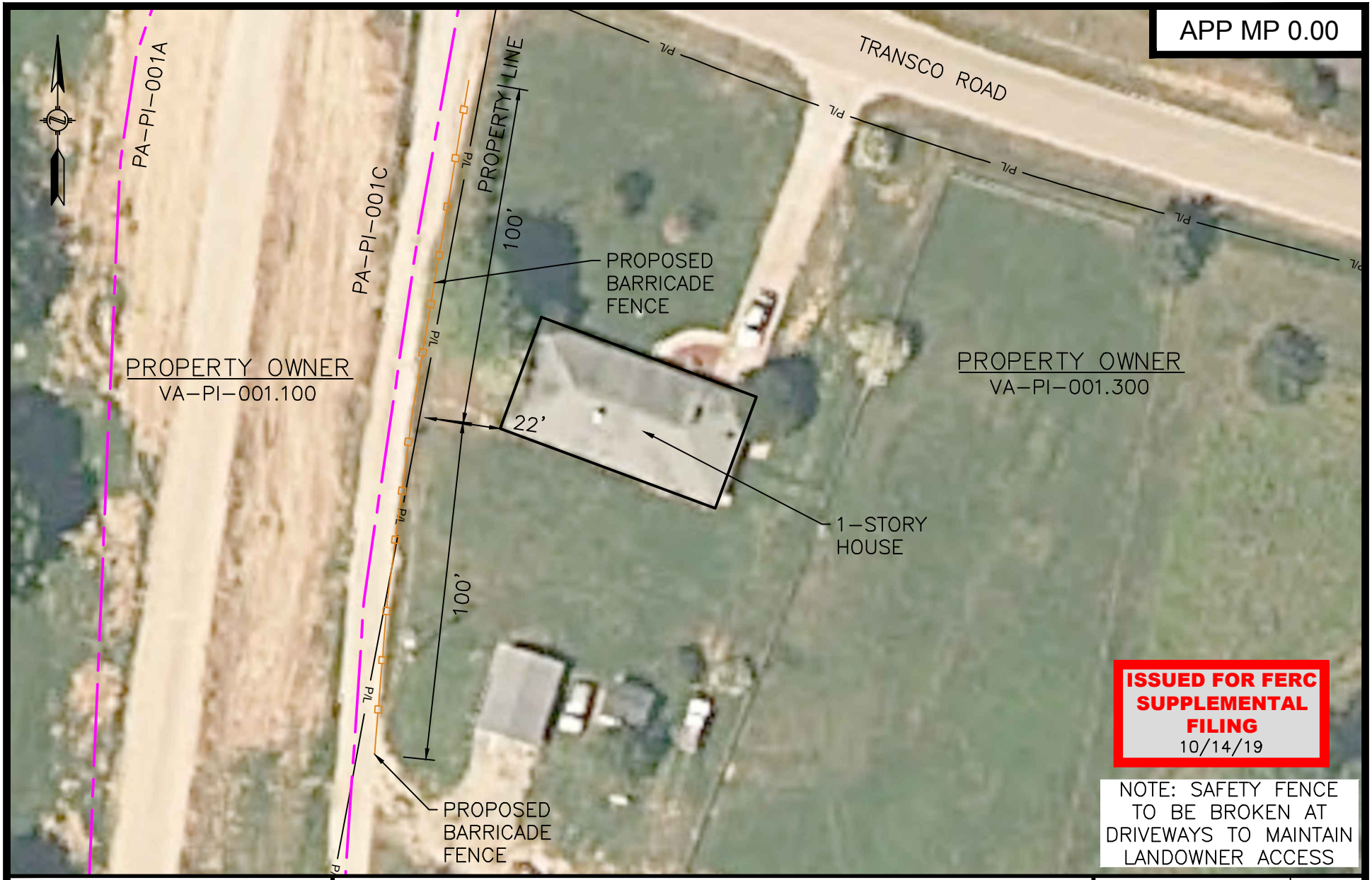
CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
PITTSYLVANIA COUNTY, VIRGINIA

SHEET 1 OF 1

DRAWN BY: CCH	06/13/19
DRAFTING CK: DEM	09/16/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-044**	
SCALE: 1" = 40'	REV. P1
DATE OF PLOT: 9/23/2019 4:56 PM	

APP MP 0.00



ISSUED FOR FERC SUPPLEMENTAL FILING
10/14/19

NOTE: SAFETY FENCE TO BE BROKEN AT DRIVEWAYS TO MAINTAIN LANDOWNER ACCESS

TRC
Results you can rely on

Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
PITTSYLVANIA COUNTY,VIRGINIA

SHEET 1 OF 1

DRAWN BY: SJS	08/29/19
DRAFTING CK: DEM	09/16/19
ENVIRONMENTAL CK:	
ENGINEERING CK: .	.
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-045**	
SCALE: 1" = 40'	REV. P
DATE OF PLOT: 9/23/2019 1:01 PM	

APP MP 39.60

TRC
Results you can rely on

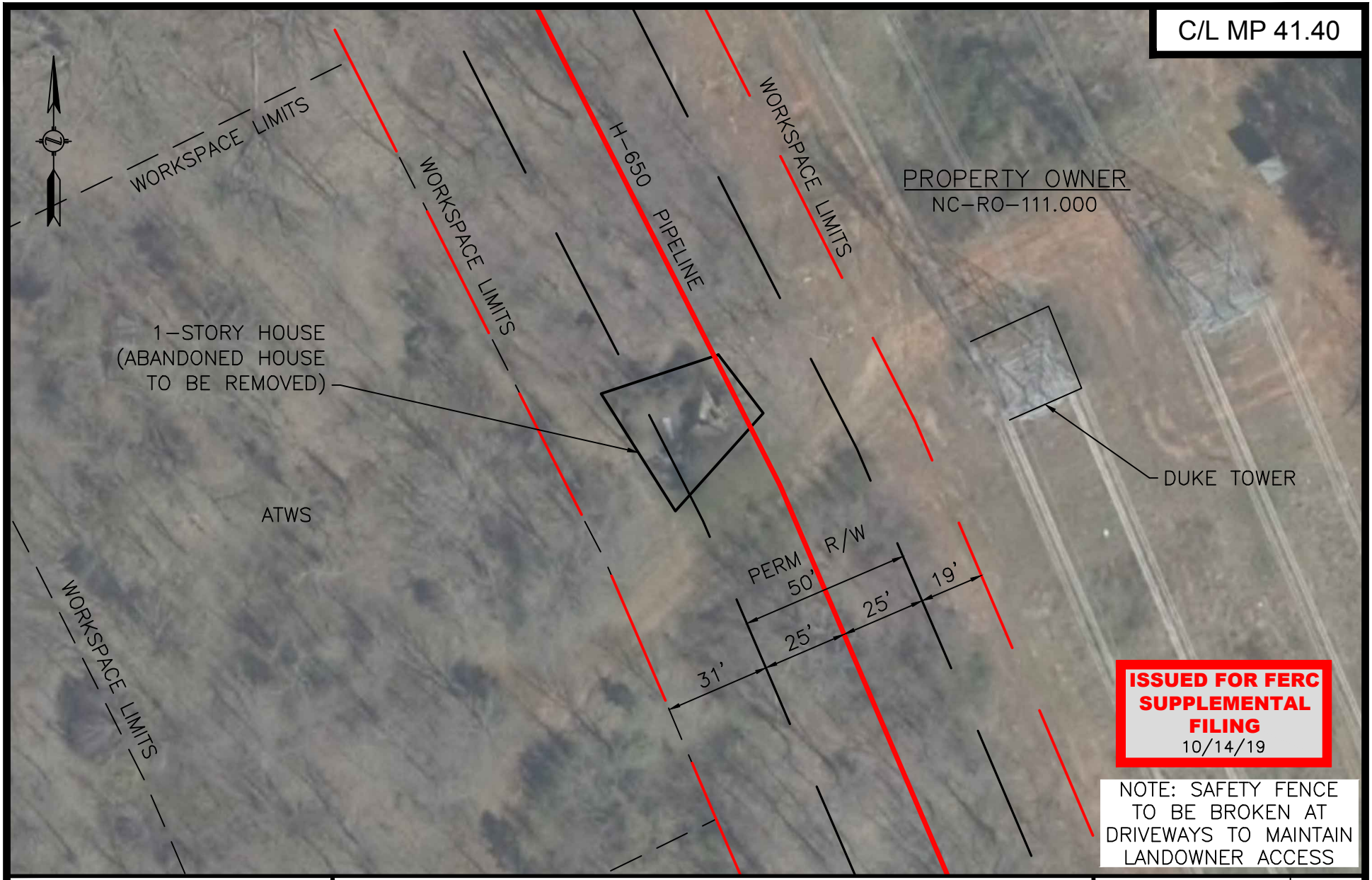
Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY:	SJS	08/30/19
DRAFTING CK:	DEM	09/16/19
ENVIRONMENTAL CK:		
ENGINEERING CK:	.	.
DETAIL SHEET:		
DRAWING NO.:	**RSS-H650-046**	
SCALE: 1" = 40'		REV. P
DATE OF PLOT: 9/23/2019 1:01 PM		



TRC
Results you can rely on

Mountain Valley PIPELINE LLC

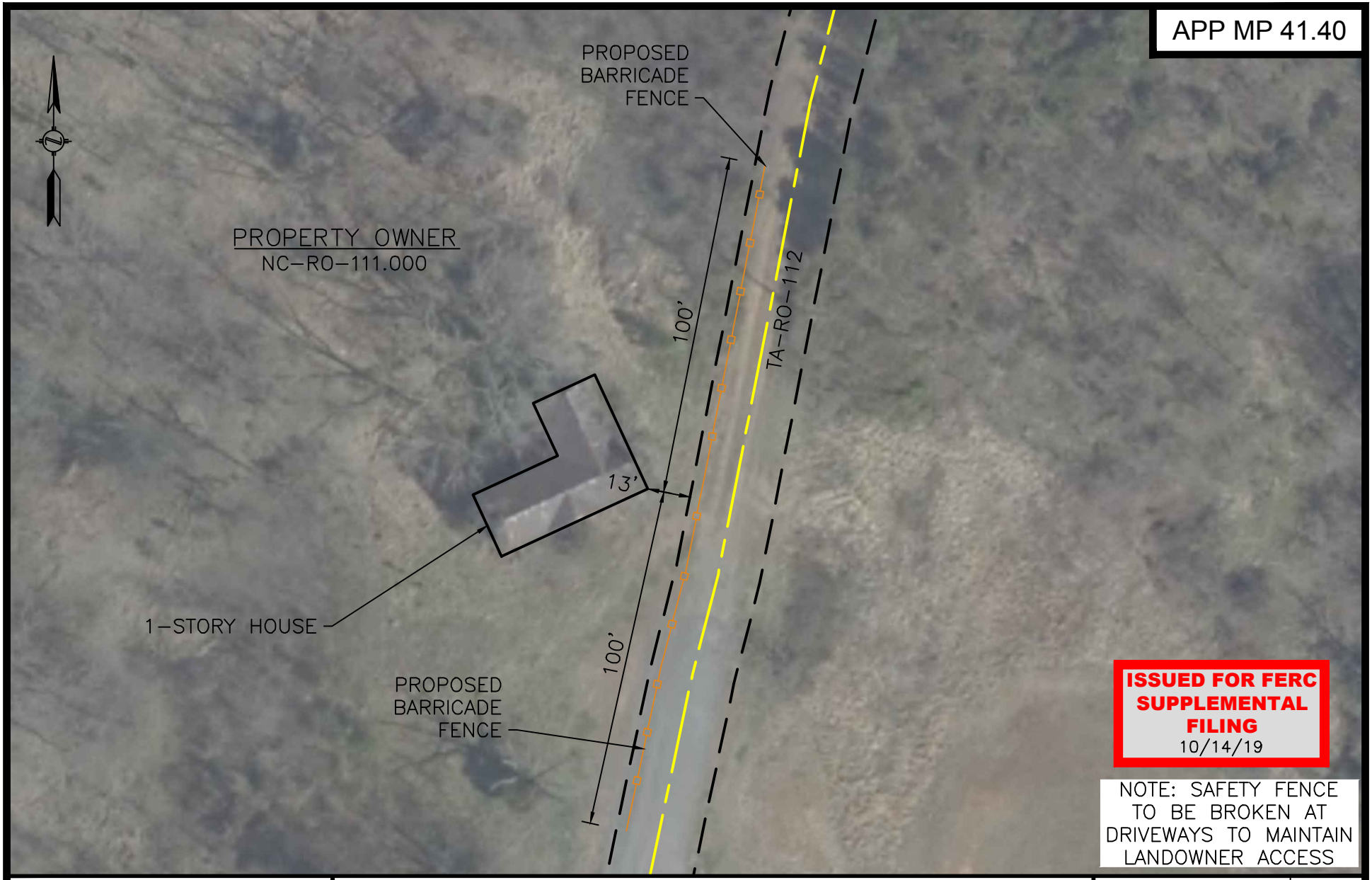
CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: SJS	09/03/19
DRAFTING CK: DEM	09/16/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-047**	
SCALE: 1" = 40'	REV. P
DATE OF PLOT: 9/23/2019 1:02 PM	

APP MP 41.40



ISSUED FOR FERC SUPPLEMENTAL FILING
10/14/19

NOTE: SAFETY FENCE TO BE BROKEN AT DRIVEWAYS TO MAINTAIN LANDOWNER ACCESS

TRC
Results you can rely on

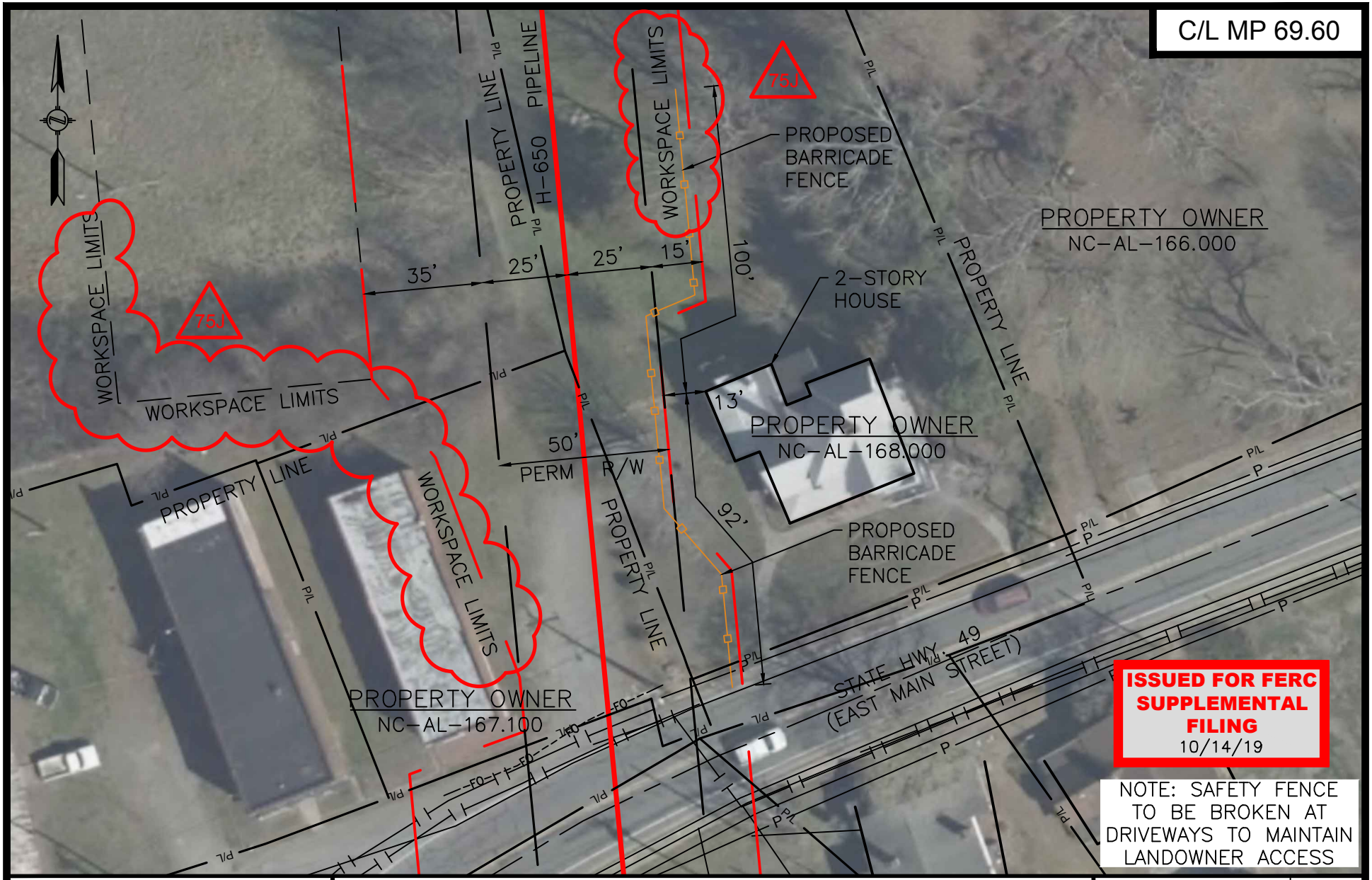
Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: SJS	09/03/19
DRAFTING CK: DEM	09/16/19
ENVIRONMENTAL CK:	
ENGINEERING CK: .	.
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-048**	
SCALE: 1" = 40'	REV. P
DATE OF PLOT: 9/23/2019 1:03 PM	



TRC
Results you can rely on

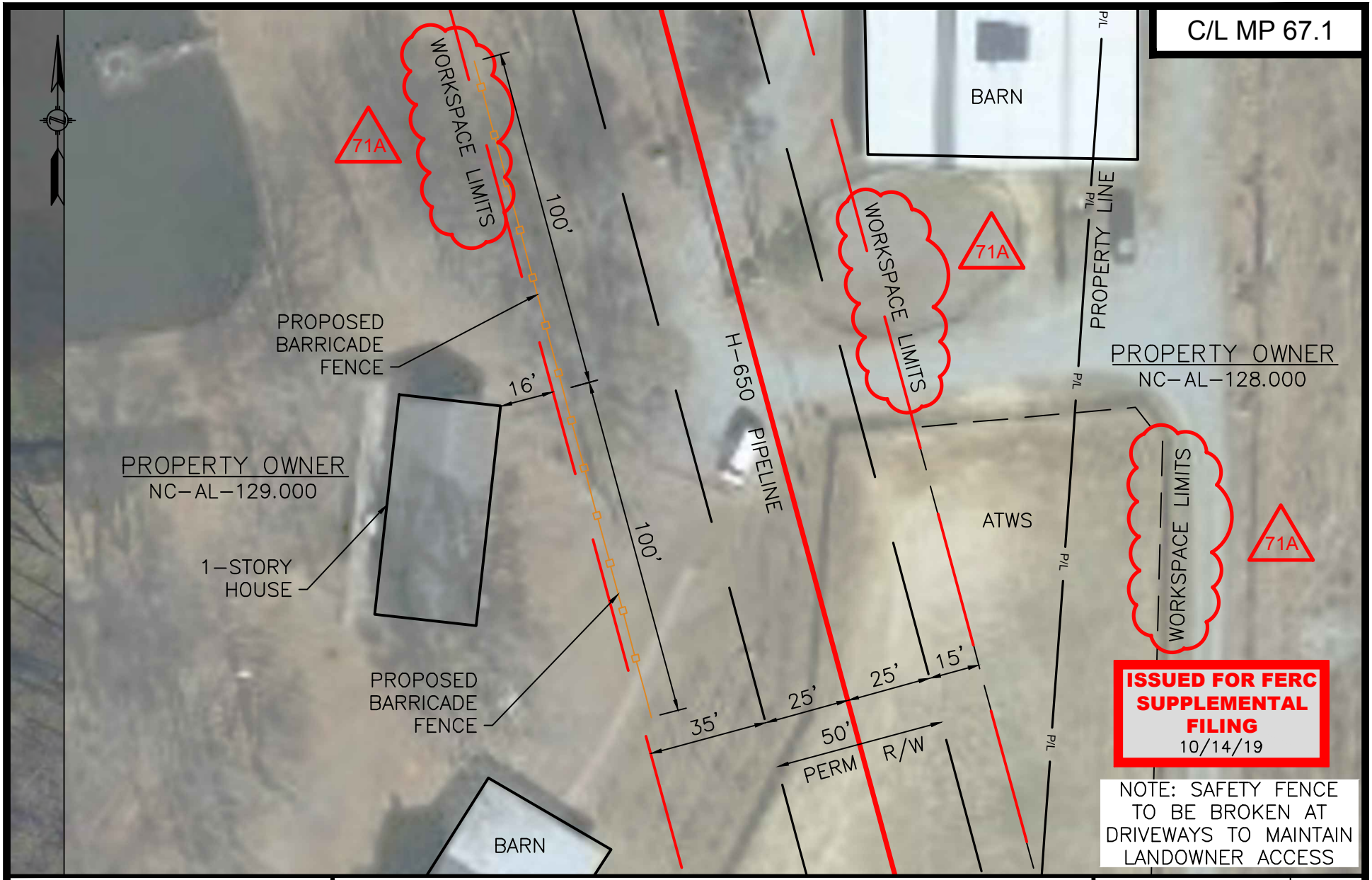
Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ALAMANCE COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: SJS	09/03/19
DRAFTING CK: DEM	09/16/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-050**	
SCALE: 1" = 40'	REV. P
DATE OF PLOT: 9/25/2019 12:26 PM	



TRC
Results you can rely on

Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - RESIDENTIAL SITE SPECIFIC

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ALAMANCE COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: SJS	09/25/19
DRAFTING CK: DEM	09/27/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSS-H650-051**	
SCALE: 1" = 40'	REV. P
DATE OF PLOT: 9/27/2019 11:06 AM	

MVP Southgate Project

Docket No. CP19-14-000

Private Drive Access Road Drawings

October 2019

MVP SOUTHGATE PROJECT

PROPOSED H-650 PIPELINE
ENGINEERING SERVICES DESIGN; JOB NUMBERS 300423
RESIDENTIAL ACCESS ROAD DRAWINGS

DRAWING NO	DRAWING TITLE	REV
RSD-COV	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE RESIDENTIAL ACCESS ROAD DRAWINGS	P1
RSD-NOTES	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE RESIDENTIAL ACCESS ROAD NOTES	P1
RSD-H650-001	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE PITTSYLVANIA COUNTY VIRGINIA	P1
RSD-H650-002	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE PITTSYLVANIA COUNTY VIRGINIA	P1
RSD-H650-003	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE PITTSYLVANIA COUNTY VIRGINIA	P1
RSD-H650-004	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE PITTSYLVANIA COUNTY VIRGINIA	P1
RSD-H650-005	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE PITTSYLVANIA COUNTY VIRGINIA	P1
RSD-H650-007	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE PITTSYLVANIA COUNTY VIRGINIA	P1
RSD-H650-008	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE PITTSYLVANIA COUNTY VIRGINIA	P1
RSD-H650-009	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY VIRGINIA	P1
RSD-H650-010	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY VIRGINIA	P1
RSD-H650-011	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY VIRGINIA	P1
RSD-H650-012	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY VIRGINIA	P1
RSD-H650-014	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY VIRGINIA	P1
RSD-H650-015	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY VIRGINIA	P1
RSD-H650-016	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY VIRGINIA	P1
RSD-H650-017	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY VIRGINIA	P1
RSD-H650-018	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY VIRGINIA	P1
RSD-H650-019	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY VIRGINIA	P1
RSD-H650-020	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY VIRGINIA	P1
RSD-H650-021	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ROCKINGHAM COUNTY VIRGINIA	P1
RSD-H650-023	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P1
RSD-H650-024	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P1
RSD-H650-025	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P1
RSD-H650-026	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P1
RSD-H650-027	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P1
RSD-H650-028	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P1
RSD-H650-029	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P1
RSD-H650-030	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P1
RSD-H650-031	MOUNTAIN VALLEY PIPELINE PROJECT PROPOSED H650 PIPELINE ALAMANCE COUNTY NORTH CAROLINA	P1

DRAWN TRC	DATE 05/17/2019
CHECKED SSL	DATE 05/17/2019
APP'D	DATE
SCALE N.T.S.	SHEET 1 OF 1
JOB NO.	
PROJECT ID:	

RESIDENTIAL ACCESS ROAD COVER

MOUNTAIN VALLEY PIPELINE
SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
RESIDENTIAL ACCESS ROAD DRAWINGS

DRAWING NO.	REV.
RSD-AR COVER	P1

ISSUED FOR FERC SUPPLEMENTAL FILING
10/14/19

MVP SOUTHGATE PROJECT

PROPOSED H-650 PIPELINE
ENGINEERING SERVICES DESIGN; JOB NUMBERS 300423
RESIDENTIAL ACCESS ROAD DRAWING NOTES

GENERAL NOTES:

ACCESS ROADS DENOTED IN THIS PACKAGE MAY SEE THE FOLLOWING CONSTRUCTION ACTIVITIES: PIPE AND MATERIAL DELIVERIES, EQUIPMENT HAULING, HEAVY AND LIGHT TRUCK TRAFFIC.

THE PROJECT WILL UTILIZE FLAGGERS AND COMMUNICATION TO ENSURE ACCESS IS MAINTAINED TO RESIDENCES. WORK HOURS WILL BE LIMITED TO 7 AM TO 7 PM OR SUNSET (WHICHEVER IS LATER) UNLESS OTHER ARRANGEMENTS HAVE BEEN AGREED UPON WITH LANDOWNER.

PROPERTY LINES DEPICTED ON THIS PLAN ARE BASED ON GIS TAX MAP DATA AND/OR FIELD LOCATED PROPERTY EVIDENCE. THEY SHOULD NOT BE RELIED ON AS AN ACCURATE DEPICTION OF THE ACTUAL PROPERTY LINE LOCATIONS. THEY MAY NOT REPRESENT THE RESULTS OF A BOUNDARY SURVEY.

CONSTRUCTION CREWS WILL UTILIZE DUST CONTROLS MEASURES AS NEEDED, INCLUDING WETTING AND BRUSHING OF ROADS.

LANDOWNER COMPLAINT RESOLUTION PROCESS

IN THE EVENT OF AN ISSUE, LANDOWNERS ARE DIRECTED TO CONTACT THEIR LOCAL MVP SOUTHGATE LAND REPRESENTATIVE. LANDOWNERS CAN ALSO REACH PROJECT PERSONNEL BY CALLING 1-833-MV-SOUTH OR EMAILING MAIL@MVPSOUTHGATE.COM

IF AFTER WORKING WITH THE SOUTHGATE PROJECT REPRESENTATIVE AND APPROPRIATE RIGHT-OF-WAY AGENT, THE LANDOWNER IS STILL NOT COMPLETELY SATISFIED WITH THE RESOLUTION, THE INDIVIDUAL SHOULD CONTACT THE COMMISSION'S LANDOWNER HELPLINE AT (877) 337-2237, OR BY EMAIL, LANDOWNERHELP@FERC.GOV.

DRAWN TRC	DATE 05/17/2019
CHECKED SSL	DATE 05/17/2019
APP'D	DATE
SCALE N.T.S.	SHEET 1 OF 1
JOB NO.	
PROJECT ID:	

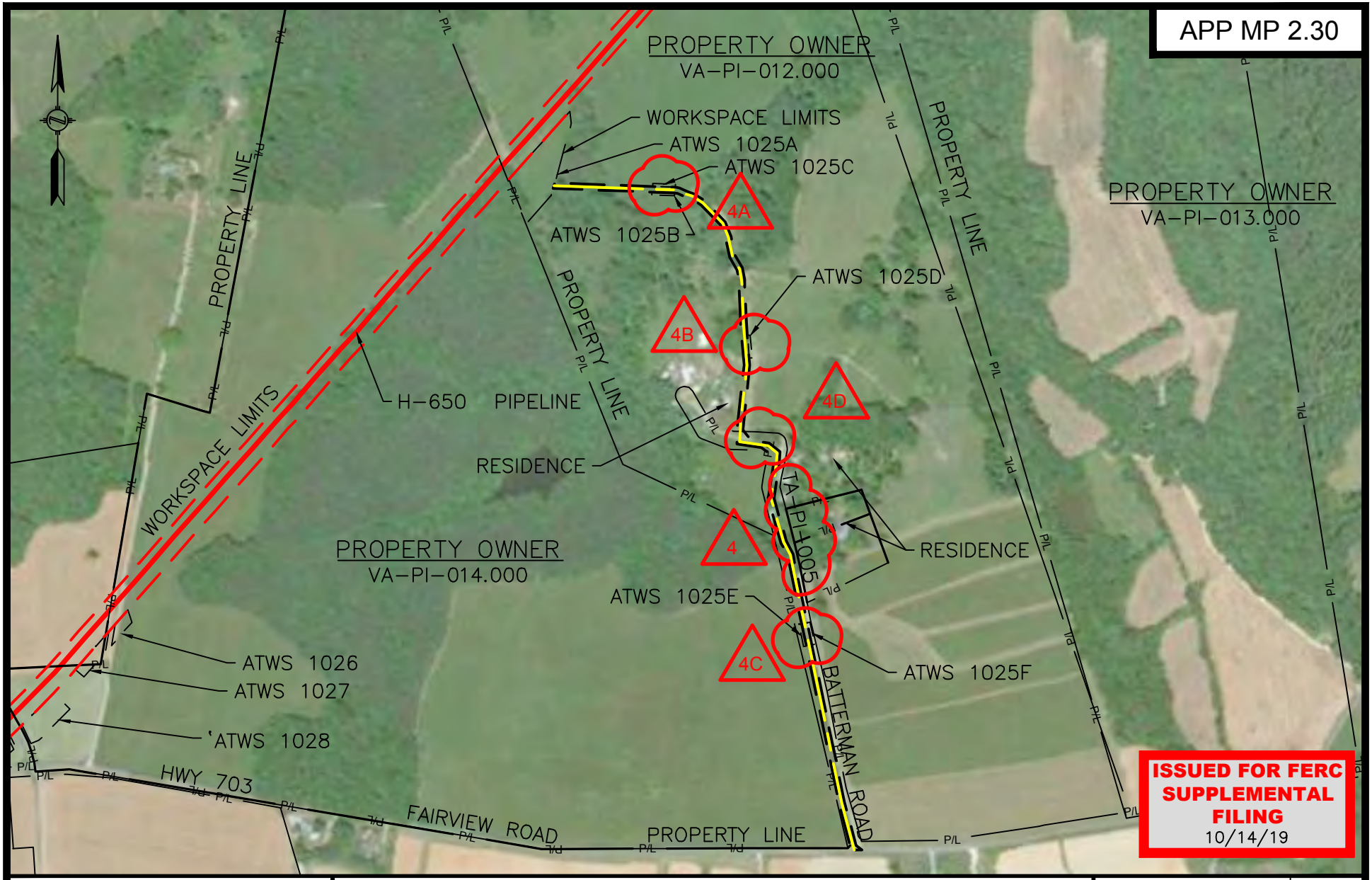
RESIDENTIAL ACCESS ROAD NOTES

MOUNTAIN VALLEY PIPELINE
SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
RESIDENTIAL ACCESS ROAD DRAWINGS

DRAWING NO.	REV.
RSD-NOTES	P1

ISSUED FOR FERC SUPPLEMENTAL FILING
10/14/19

APP MP 2.30



TRC
Results you can rely on

Mountain Valley PIPELINE LLC

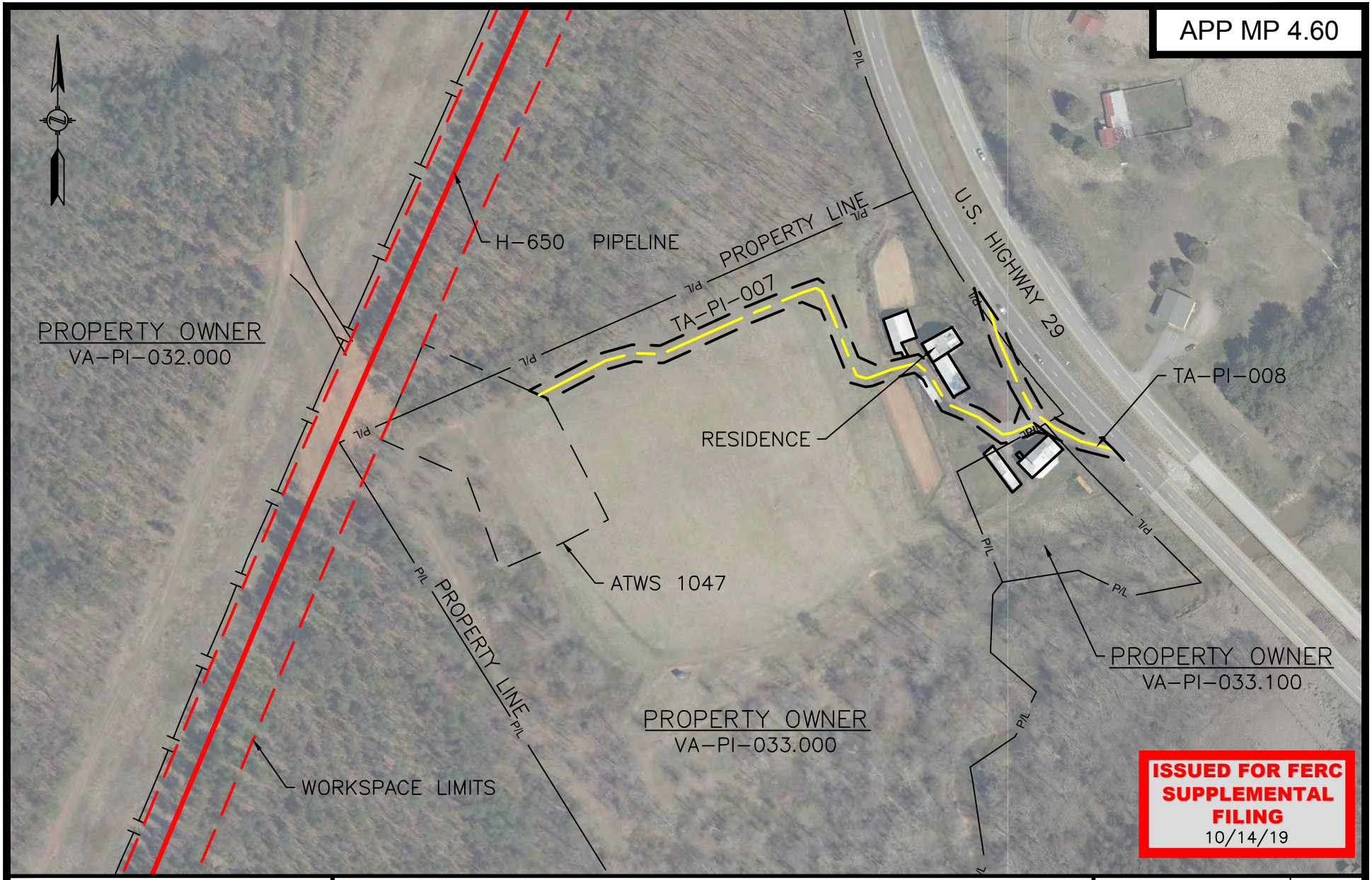
CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
PITTSYLVANIA COUNTY, VIRGINIA

SHEET 1 OF 1

DRAWN BY: KMB	05/14/19
DRAFTING CK: SSL	05/14/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSD-H650-001**	
SCALE: 1" = 600'	REV. P1
DATE OF PLOT: 5/16/2019 9:32 AM	

APP MP 4.60



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Results you can rely on

Mountain Valley PIPELINE LLC

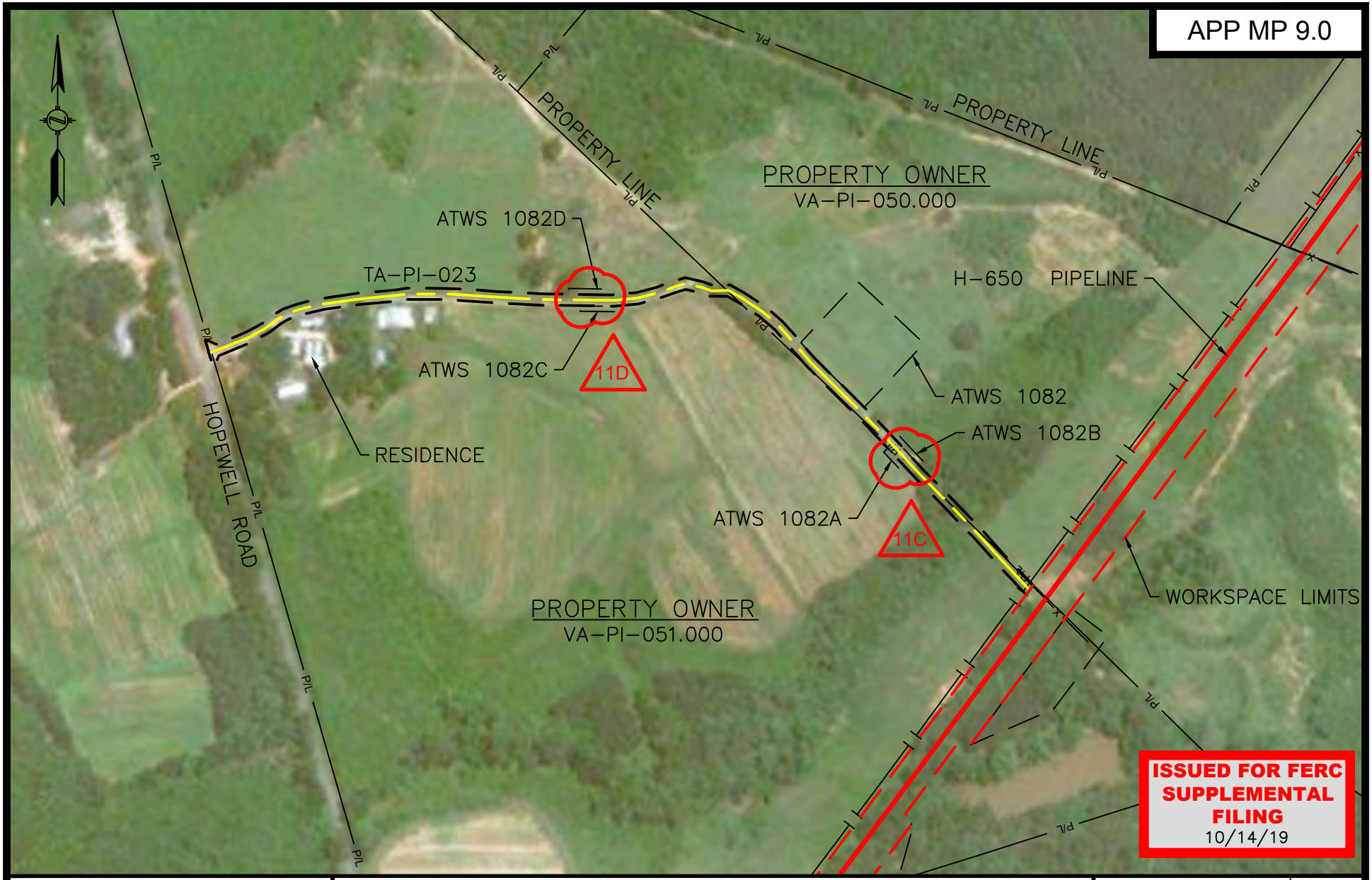
CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
PITTSYLVANIA COUNTY, VIRGINIA

SHEET 1 OF 1

DRAWN BY: KMB	05/14/19
DRAFTING CK: SSL	05/14/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSD-H650-002**	
SCALE: 1" = 200'	REV. P1
DATE OF PLOT: 5/16/2019 9:41 AM	

APP MP 9.0



TRC
Results you can rely on

Mountain Valley PIPELINE LLC

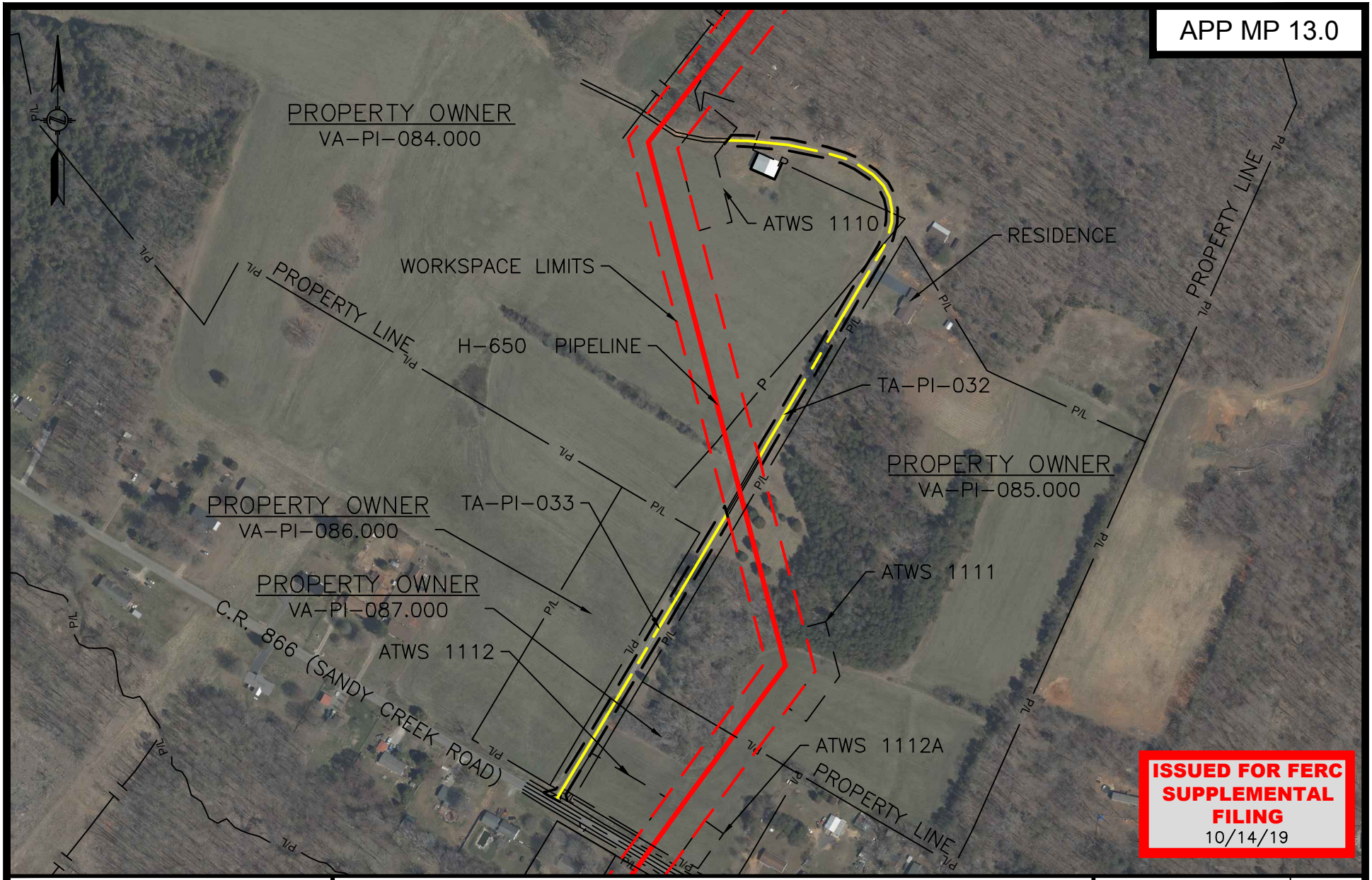
CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
PITTSYLVANIA COUNTY, VIRGINIA

SHEET 1 OF 1

DRAWN BY: KMB	05/14/19
DRAFTING CK: SSL	05/14/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSD-H650-003**	
SCALE: 1" = 300'	REV. P1
DATE OF PLOT: 9/24/2019 6:45 AM	

APP MP 13.0



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10/14/19

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Results you can rely on

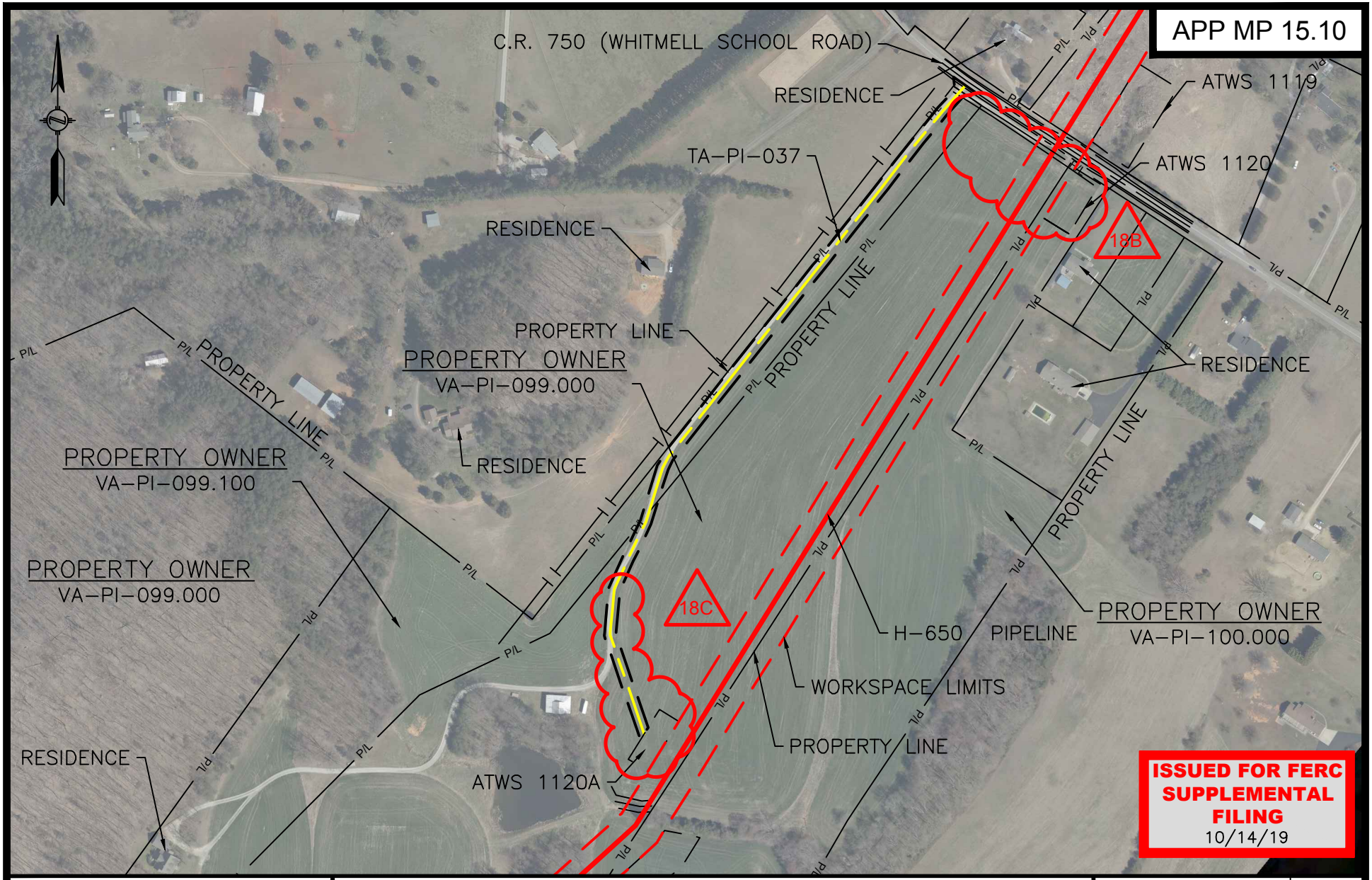
Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
PITTSYLVANIA COUNTY, VIRGINIA

SHEET 1 OF 1

DRAWN BY:	KMB	05/14/19
DRAFTING CK:	SSL	05/14/19
ENVIRONMENTAL CK:		
ENGINEERING CK:		
DETAIL SHEET:		
DRAWING NO.:	**RSD-H650-004**	
SCALE: 1" = 300'		REV. P1
DATE OF PLOT: 5/16/2019 9:32 AM		



TRC
Results you can rely on

Mountain Valley PIPELINE LLC

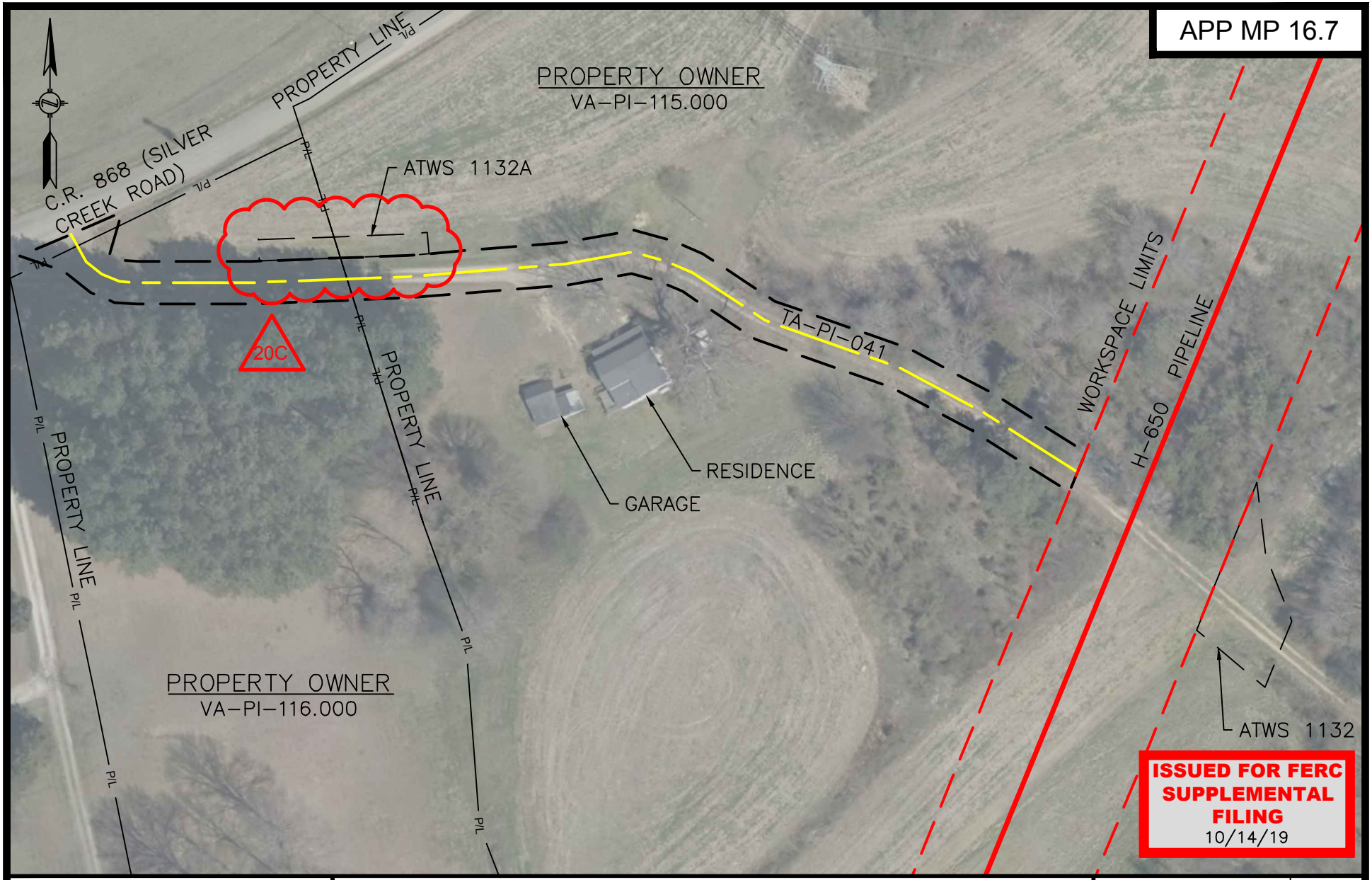
CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
PITTSYLVANIA COUNTY, VIRGINIA

SHEET 1 OF 1

DRAWN BY:	KMB	05/14/19
DRAFTING CK:	SSL	05/14/19
ENVIRONMENTAL CK:		
ENGINEERING CK:		
DETAIL SHEET:		
DRAWING NO.:	**RSD-H650-005**	
SCALE: 1" = 300'		REV. P1
DATE OF PLOT: 5/17/2019 7:35 AM		

APP MP 16.7



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10/14/19

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Results you can rely on

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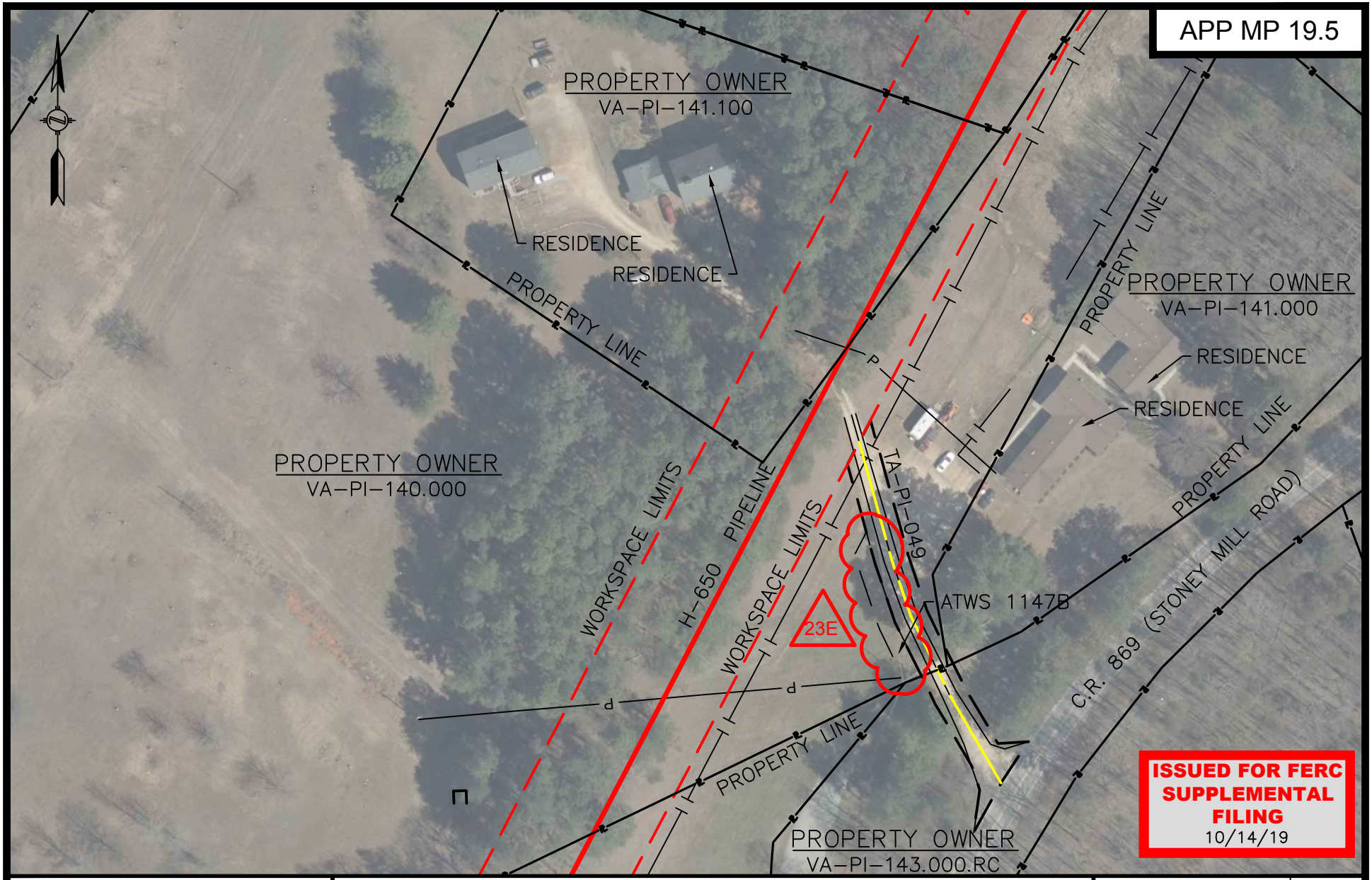
CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
PITTSYLVANIA COUNTY, VIRGINIA

SHEET 1 OF 1

DRAWN BY:	KMB	05/14/19
DRAFTING CK:	SSL	05/14/19
ENVIRONMENTAL CK:		
ENGINEERING CK:		
DETAIL SHEET:		
DRAWING NO.:	**RSD-H650-007**	
SCALE: 1" = 80'		REV. P1
DATE OF PLOT: 5/17/2019 7:59 AM		

APP MP 19.5



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Results you can rely on

Mountain Valley PIPELINE LLC

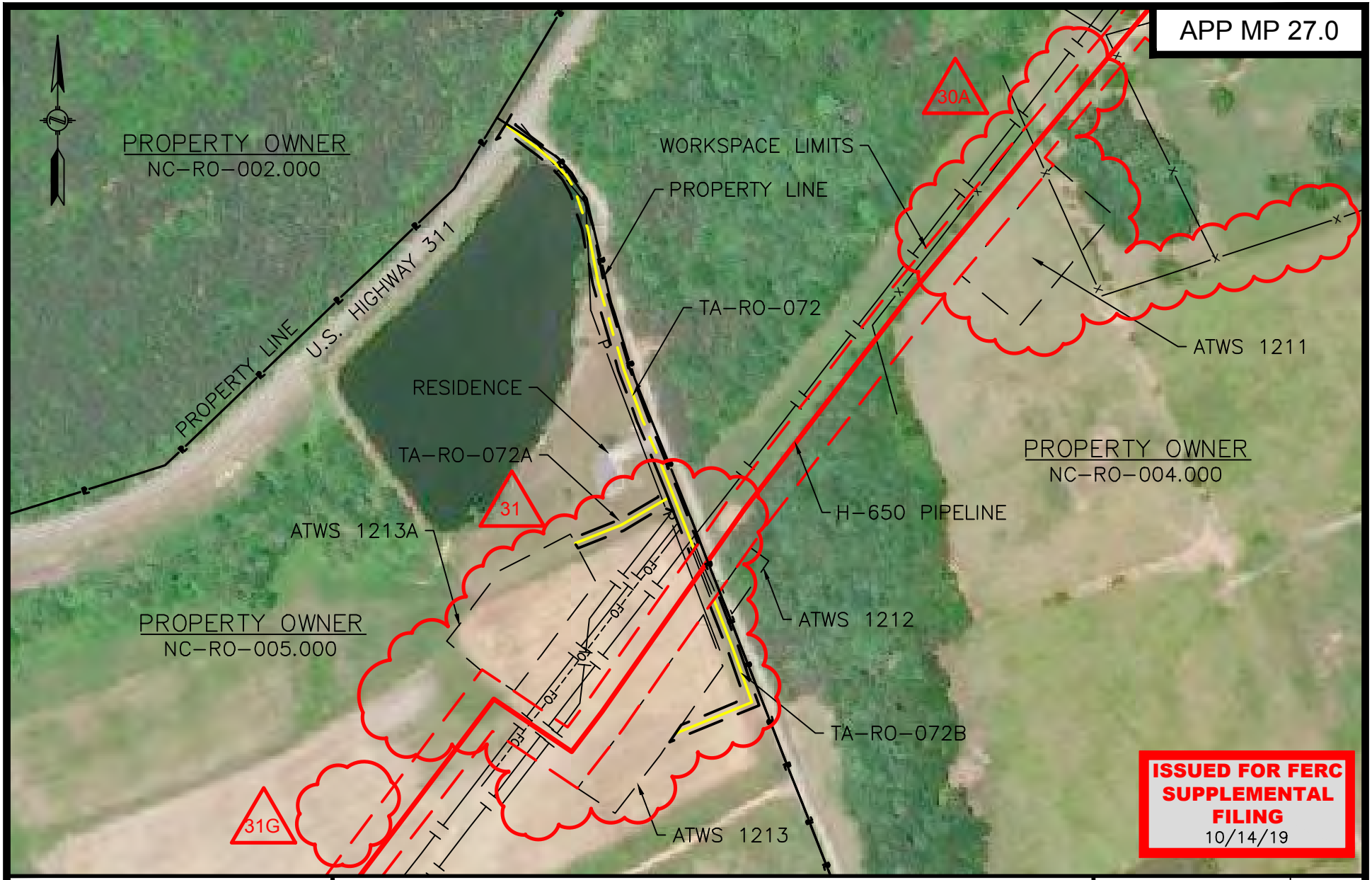
CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
PITTSYLVANIA COUNTY, VIRGINIA

SHEET 1 OF 1

DRAWN BY:	KMB	05/14/19
DRAFTING CK:	SSL	05/14/19
ENVIRONMENTAL CK:		
ENGINEERING CK:		
DETAIL SHEET:		
DRAWING NO.:	**RSD-H650-008**	
SCALE: 1" = 100'		REV. P1
DATE OF PLOT: 5/17/2019 10:18 AM		

APP MP 27.0



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Results you can rely on

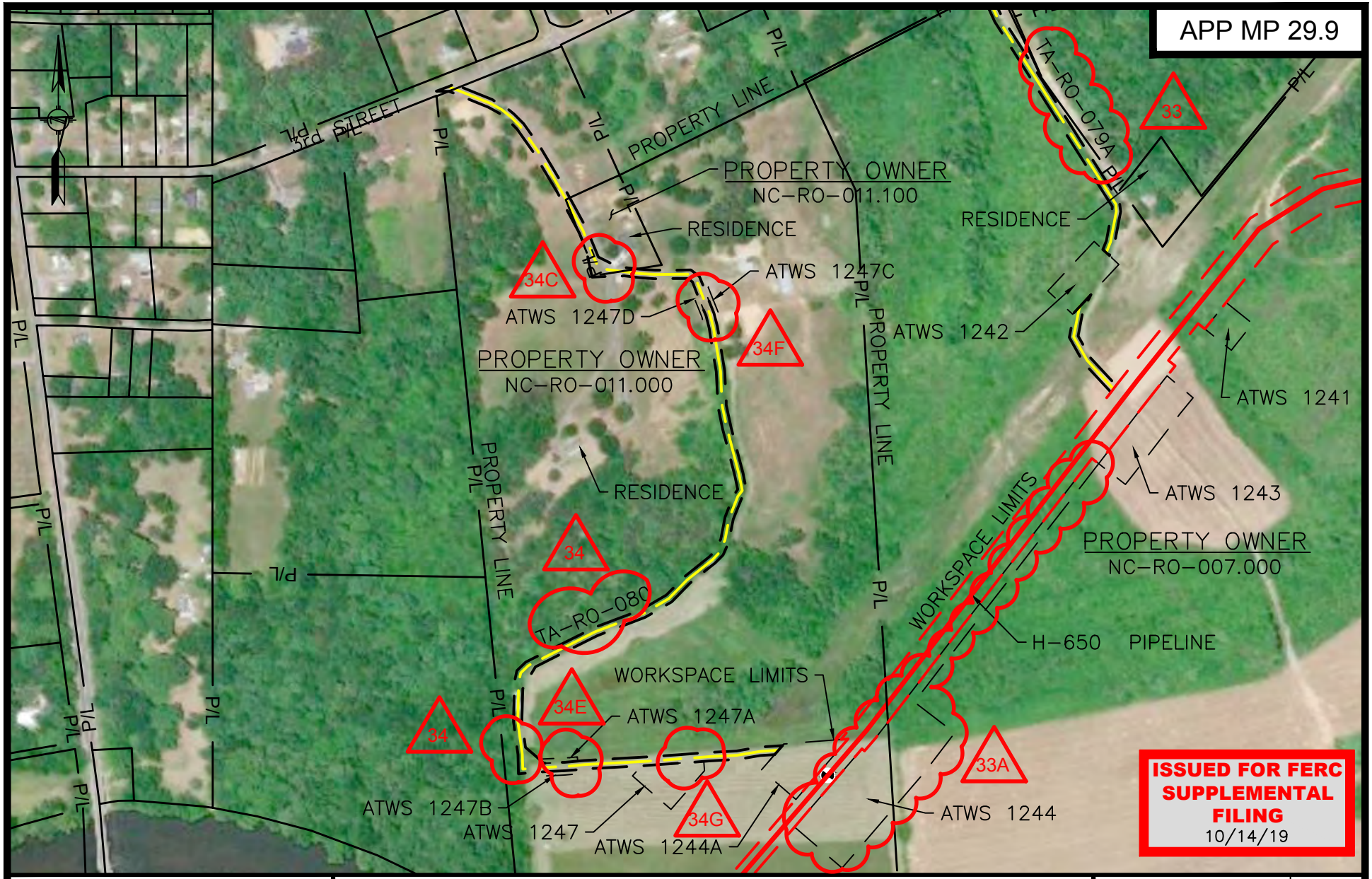
Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY:	KMB	05/14/19
DRAFTING CK:	SSL	05/14/19
ENVIRONMENTAL CK:		
ENGINEERING CK:		
DETAIL SHEET:		
DRAWING NO.:	**RSD-H650-009**	
SCALE: 1" = 300'		REV. P1
DATE OF PLOT: 5/17/2019 9:30 AM		



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Results you can rely on

Mountain Valley PIPELINE LLC

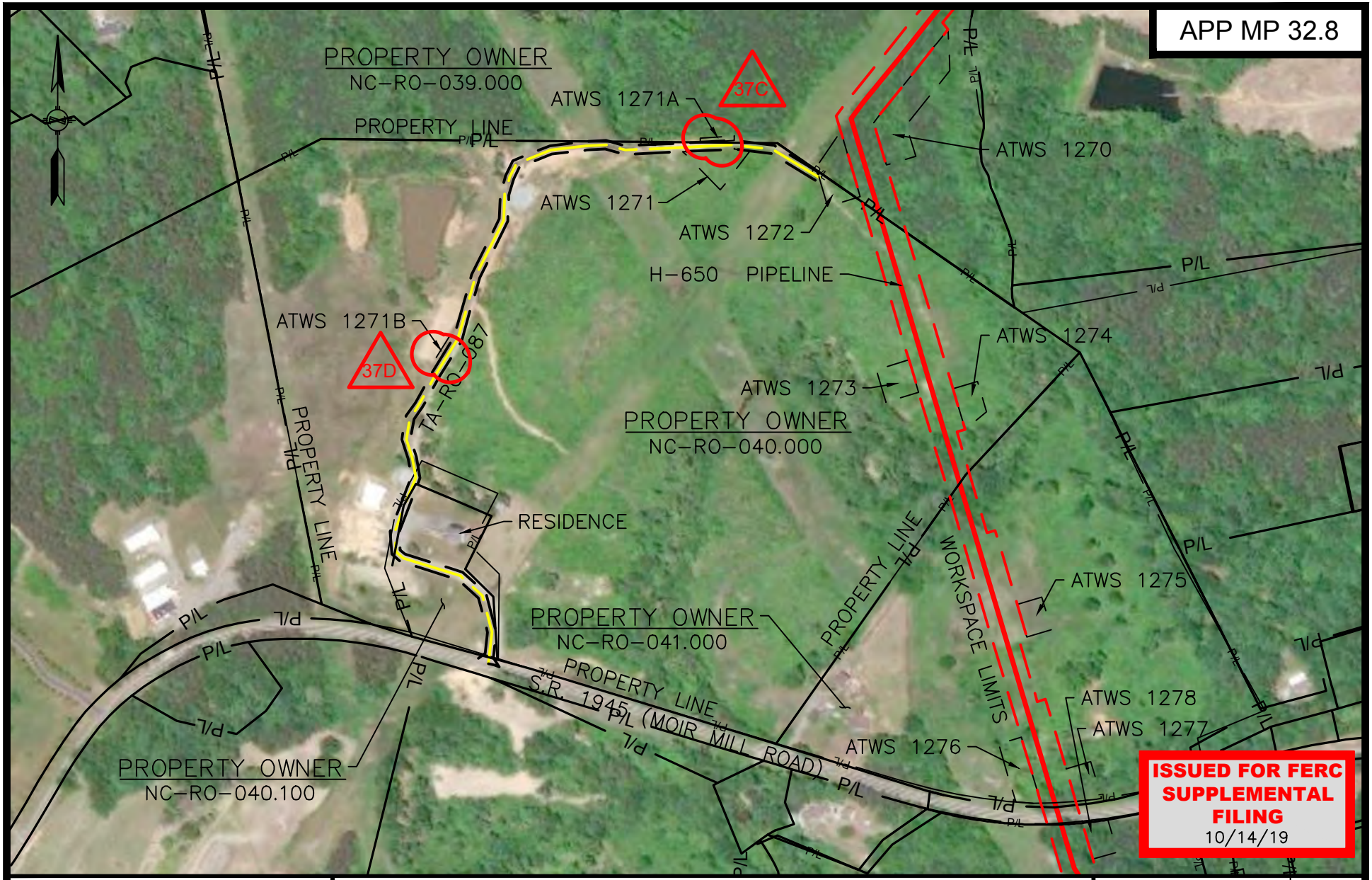
CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY:	PAD	05/16/19
DRAFTING CK:	SSL	05/16/19
ENVIRONMENTAL CK:		
ENGINEERING CK:		
DETAIL SHEET:		
DRAWING NO.:	**RSD-H650-010**	
SCALE: 1" = 400'		REV. P1
DATE OF PLOT: 5/16/2019 9:32 AM		

APP MP 32.8



TRC
Results you can rely on

Mountain Valley PIPELINE LLC

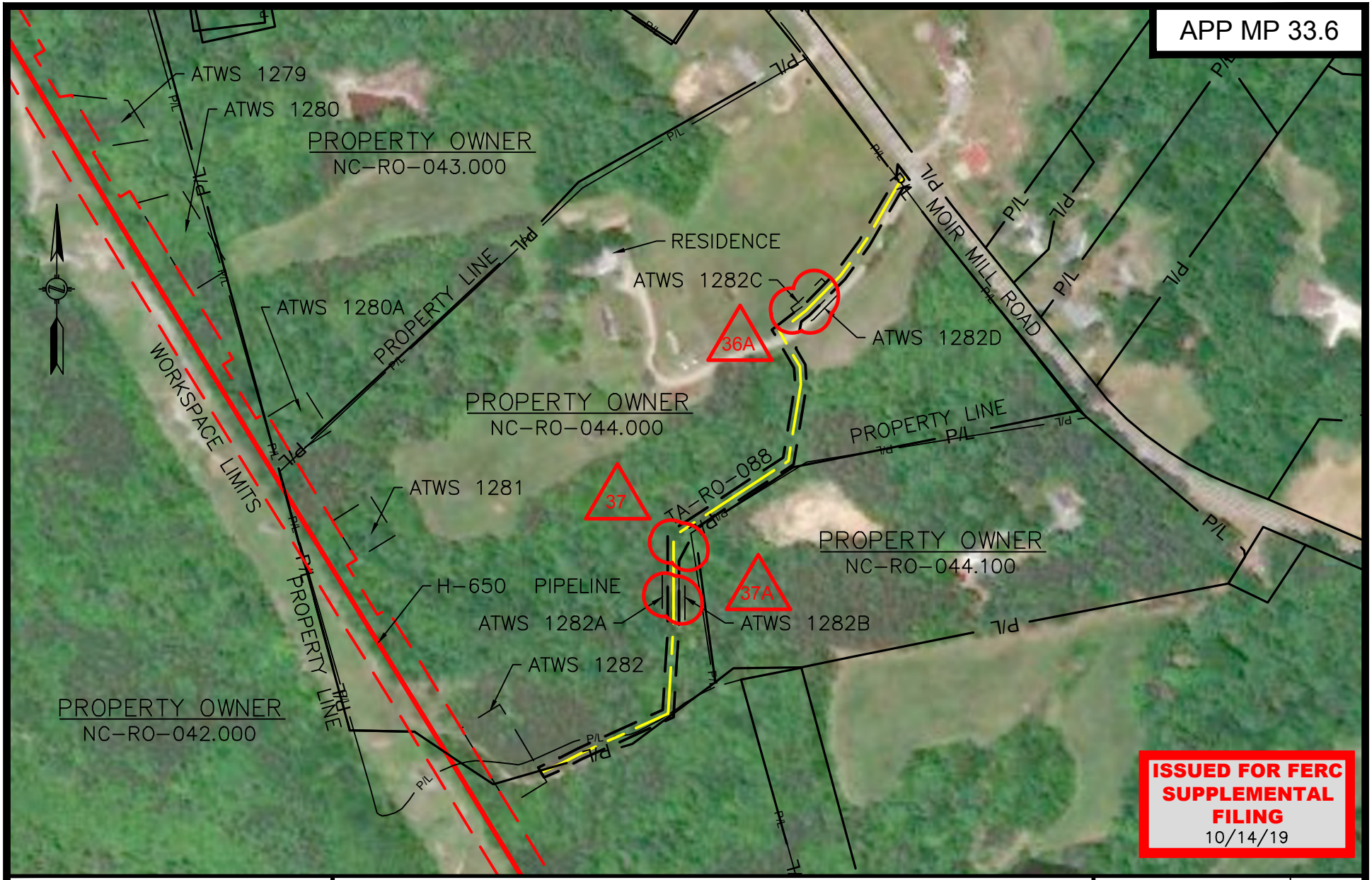
CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY:	PAD	05/16/19
DRAFTING CK:	SSL	05/16/19
ENVIRONMENTAL CK:		
ENGINEERING CK:		
DETAIL SHEET:		
DRAWING NO.:	**RSD-H650-011**	
SCALE: 1" = 400'		REV. P1
DATE OF PLOT: 5/16/2019 9:32 AM		

APP MP 33.6



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CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: PAD	05/16/19
DRAFTING CK: SSL	05/16/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSD-H650-012**	
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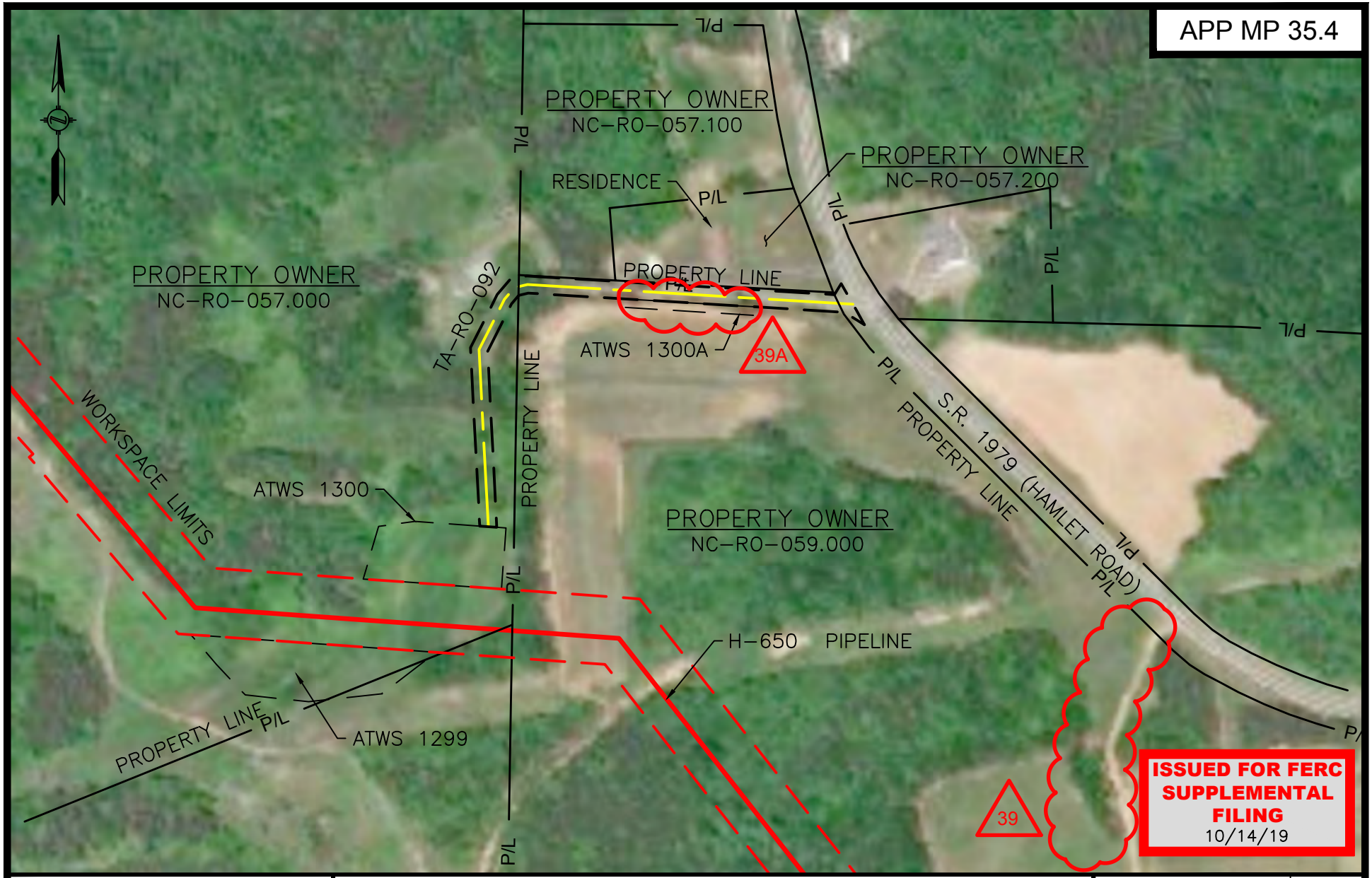
DATE OF PLOT: 5/16/2019 9:32 AM	

APP MP 35.4



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Results you can rely on

Mountain Valley PIPELINE LLC

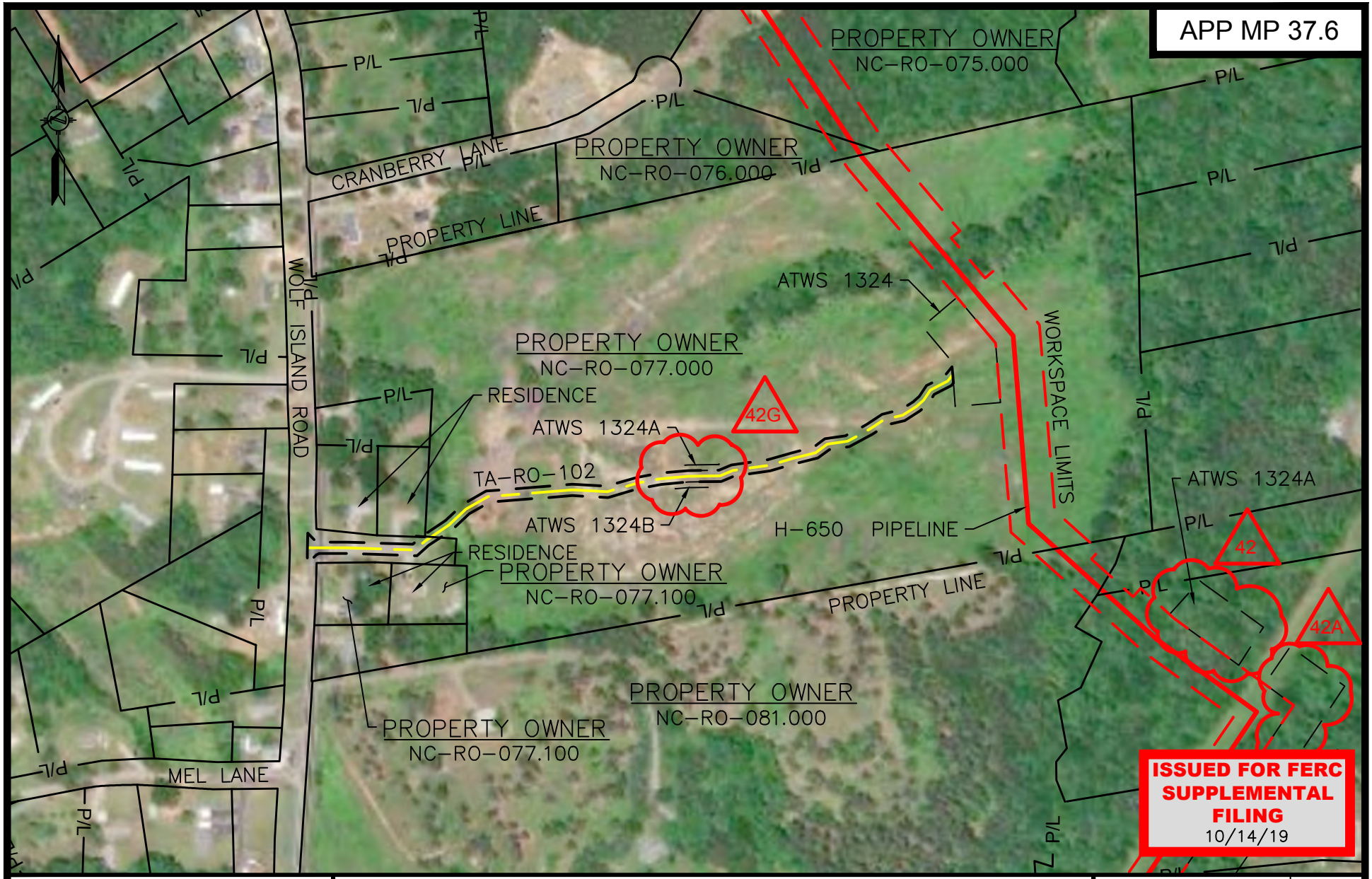
CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY:	PAD	05/16/19
DRAFTING CK:	SSL	05/16/19
ENVIRONMENTAL CK:		
ENGINEERING CK:		
DETAIL SHEET:		
DRAWING NO.:	**RSD-H650-014**	
SCALE: 1" = 200'		REV. P1
DATE OF PLOT: 5/16/2019 9:32 AM		

APP MP 37.6



TRC
Results you can rely on

Mountain Valley PIPELINE LLC

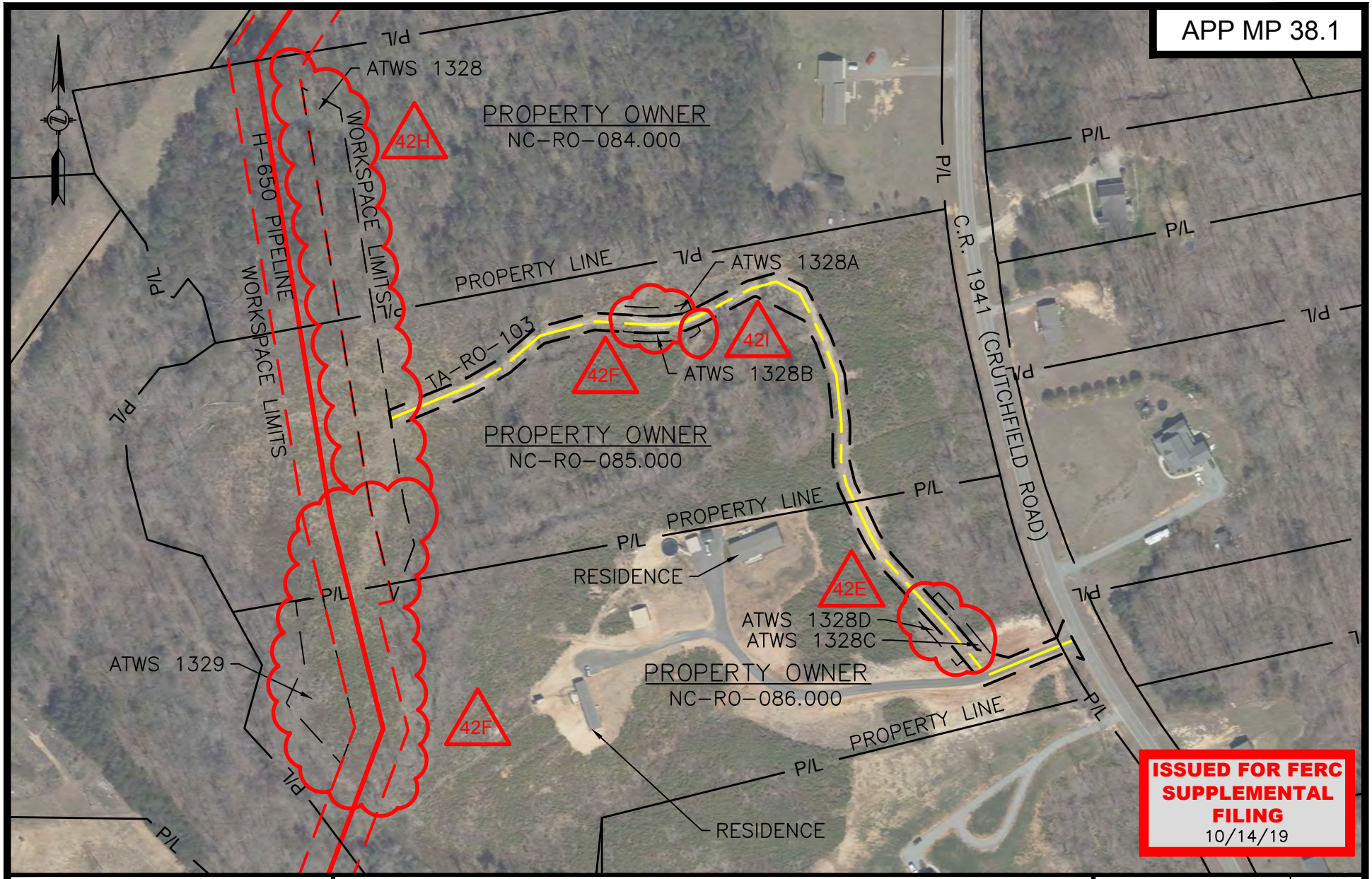
CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: PAD	05/16/19
DRAFTING CK: SSL	05/16/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSD-H650-015**	
SCALE: 1" = 300'	REV. P1
DATE OF PLOT: 5/16/2019 9:32 AM	

APP MP 38.1



TRC
Results you can rely on

Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY:	PAD	05/16/19
DRAFTING CK:	SSL	05/16/19
ENVIRONMENTAL CK:		
ENGINEERING CK:		
DETAIL SHEET:		
DRAWING NO.:	**RSD-H650-016**	
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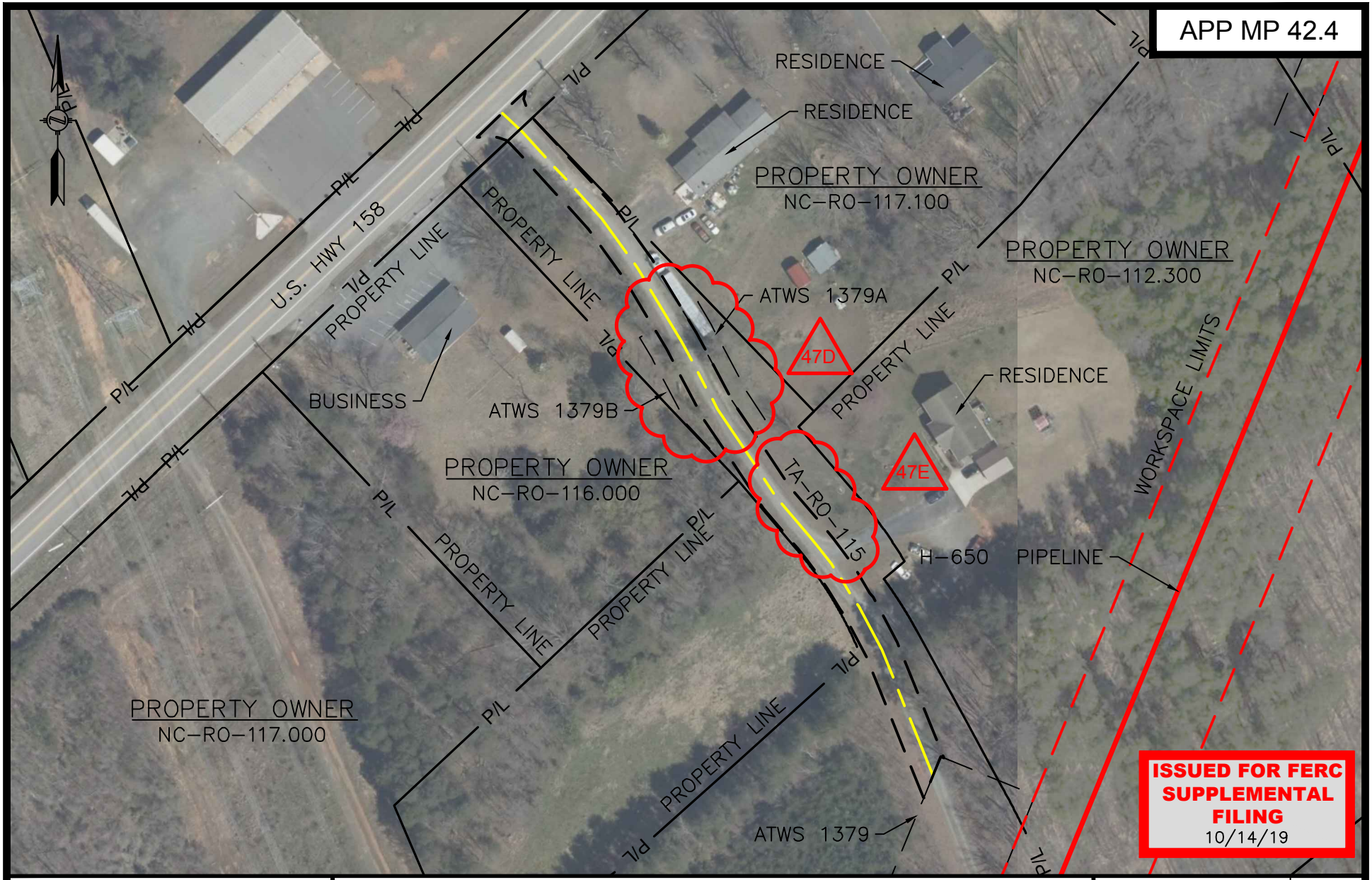
DATE OF PLOT: 5/16/2019 9:32 AM		



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Results you can rely on

Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: PAD	05/16/19
DRAFTING CK: SSL	05/16/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSD-H650-017**	
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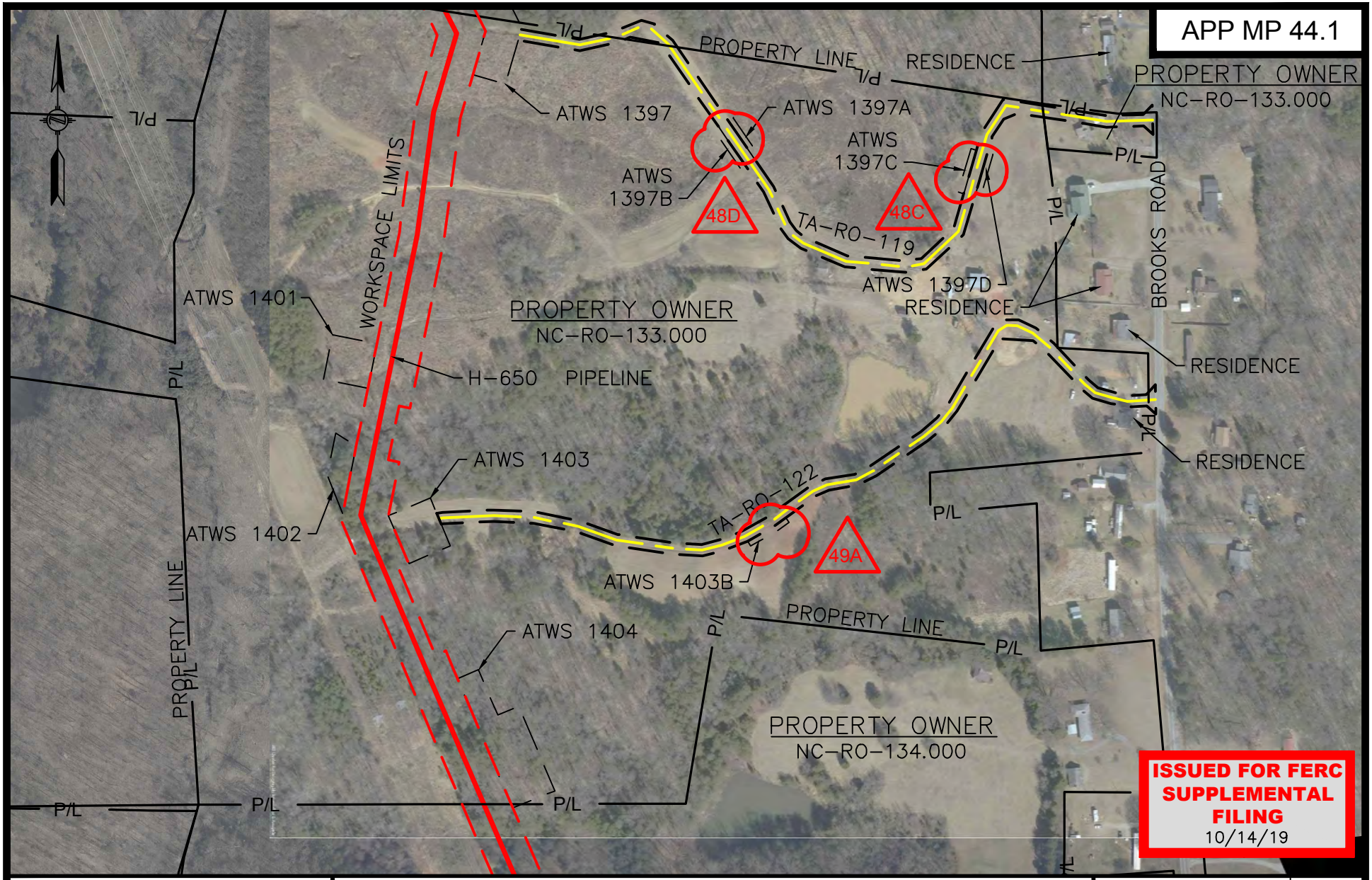
DATE OF PLOT: 5/16/2019 9:32 AM	

APP MP 44.1



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Mountain Valley PIPELINE LLC

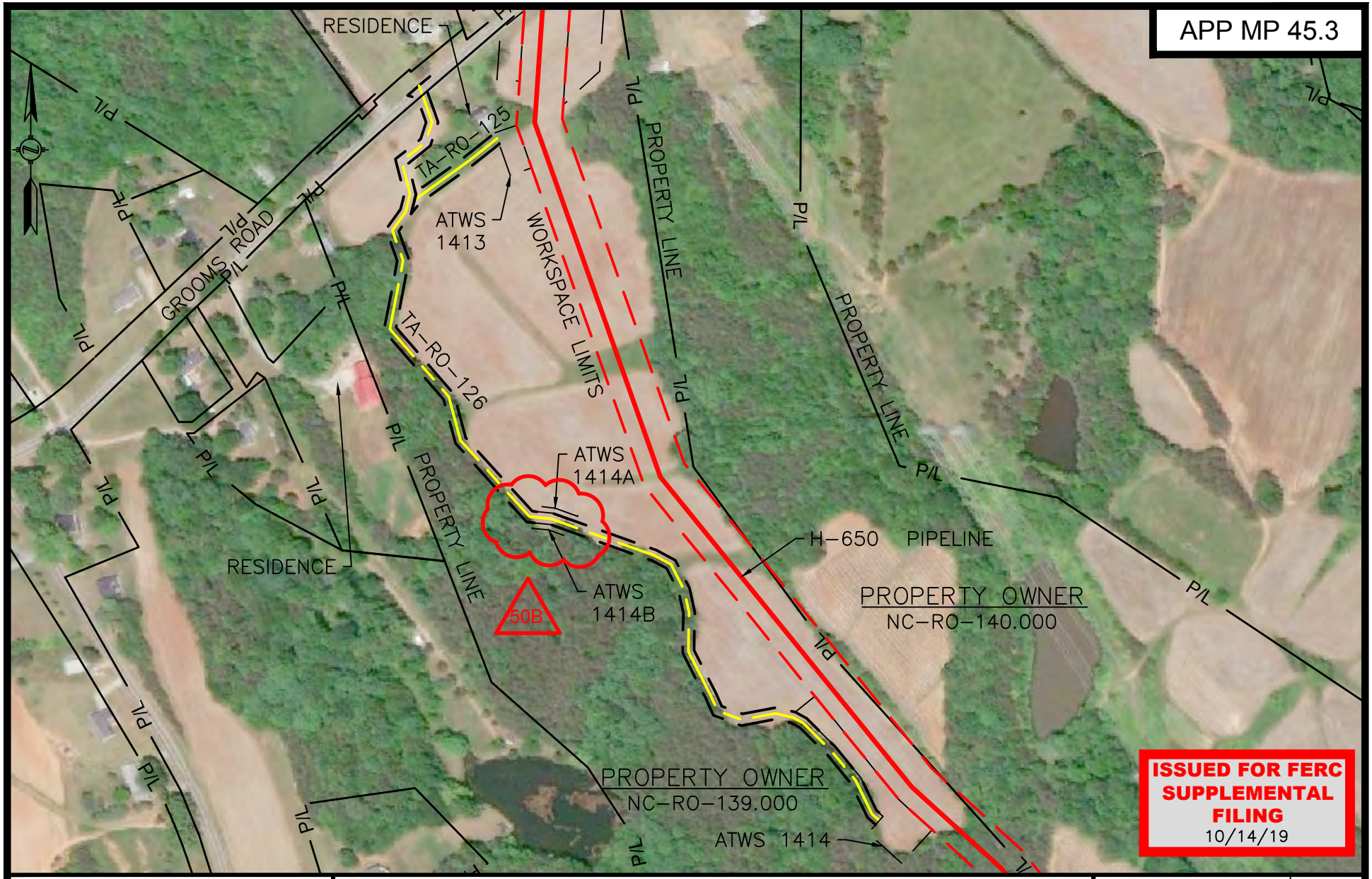
CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: PAD	05/16/19
DRAFTING CK: SSL	05/16/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSD-H650-018**	
SCALE: 1" = 300'	REV. P1
DATE OF PLOT: 5/16/2019 9:32 AM	

APP MP 45.3



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Results you can rely on

Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY:	PAD	05/16/19
DRAFTING CK:	SSL	05/16/19
ENVIRONMENTAL CK:		
ENGINEERING CK:		
DETAIL SHEET:		
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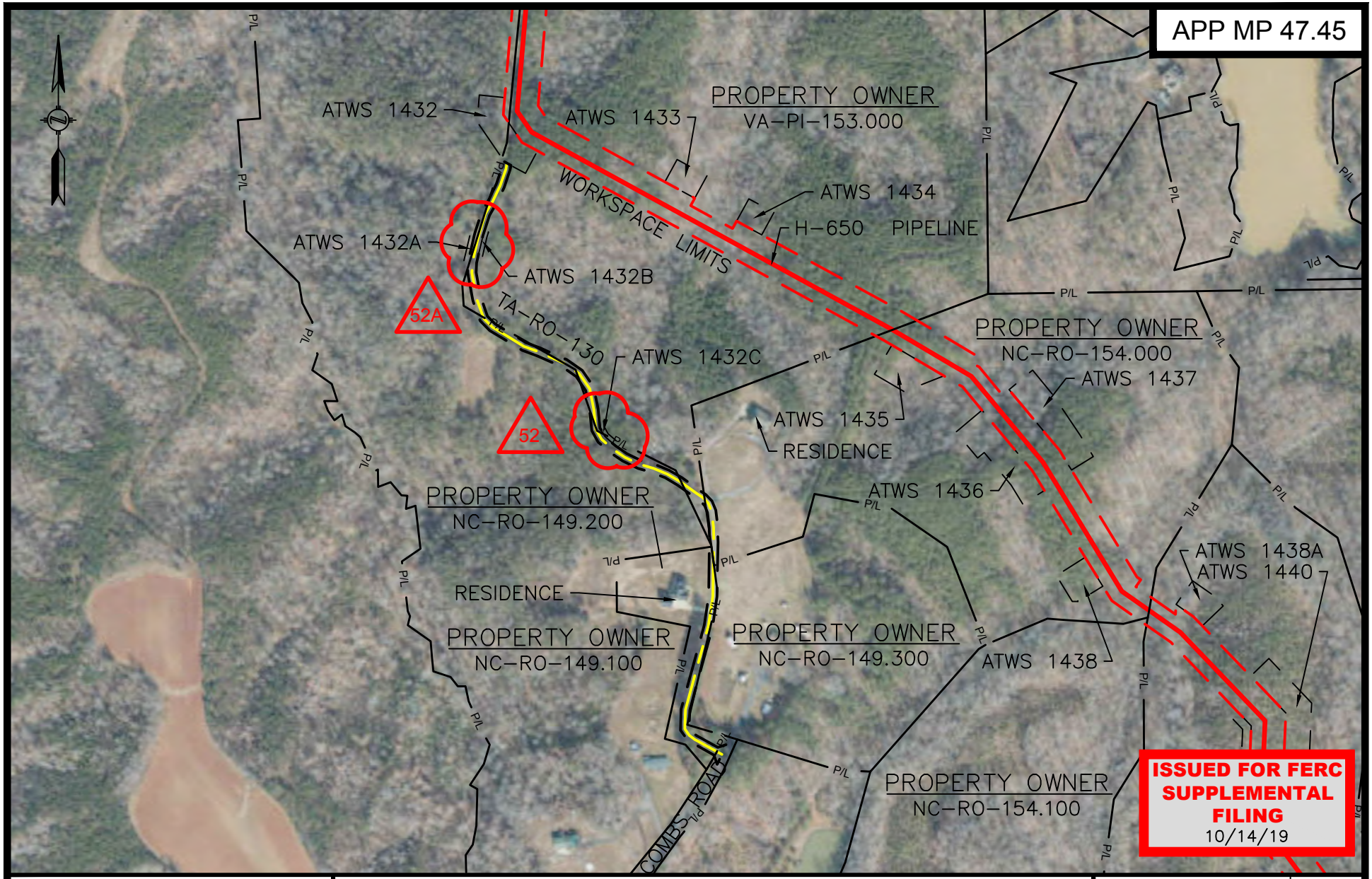
SCALE: 1" = 300'		REV. P1
DATE OF PLOT: 5/16/2019 9:32 AM		



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Results you can rely on

Mountain Valley PIPELINE LLC

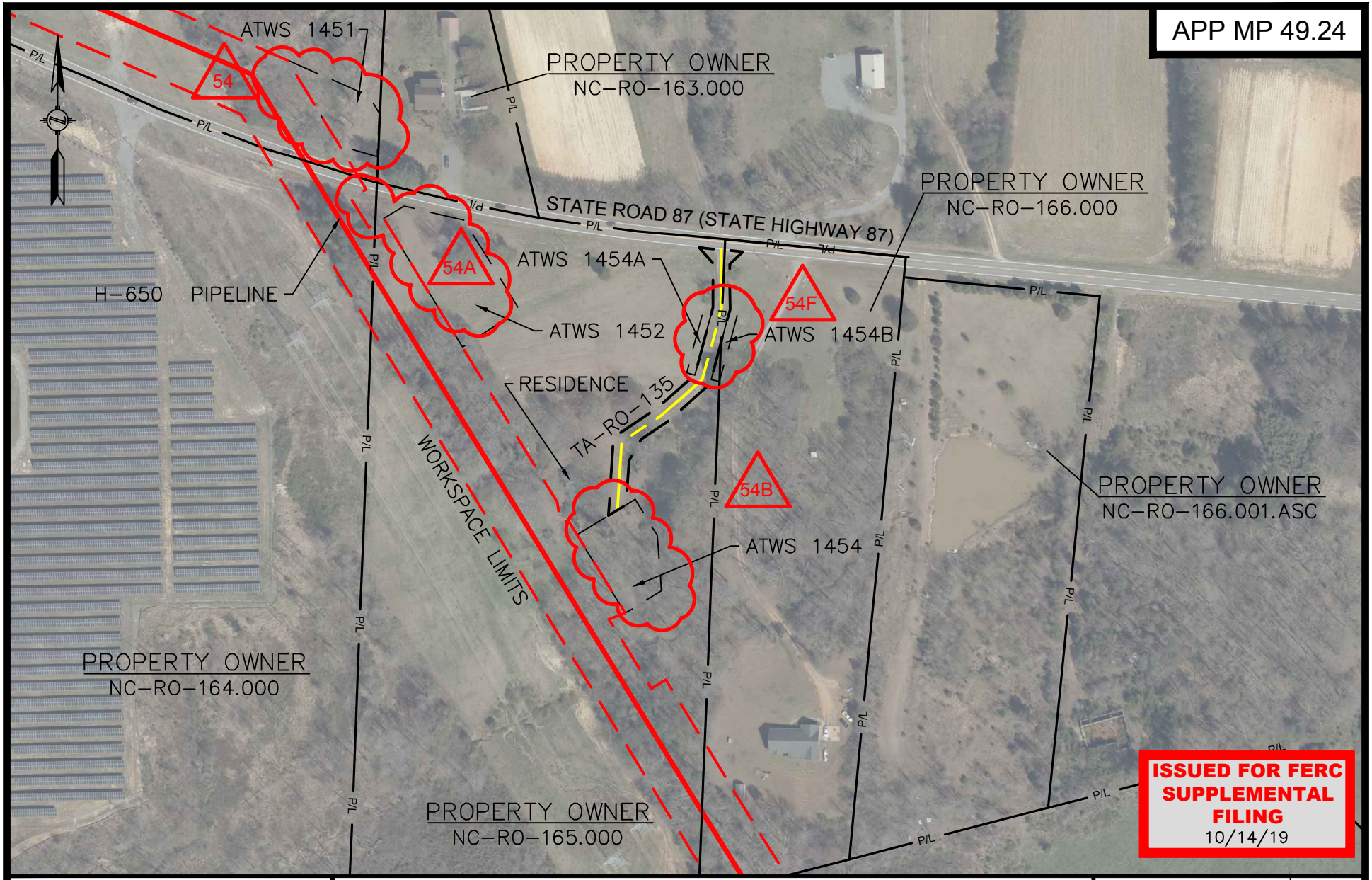
CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: CCH	05/16/19
DRAFTING CK: SSL	05/14/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSD-H650-020**	
SCALE: 1" = 400'	REV. P1
DATE OF PLOT: 5/16/2019 9:36 AM	

APP MP 49.24



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Results you can rely on

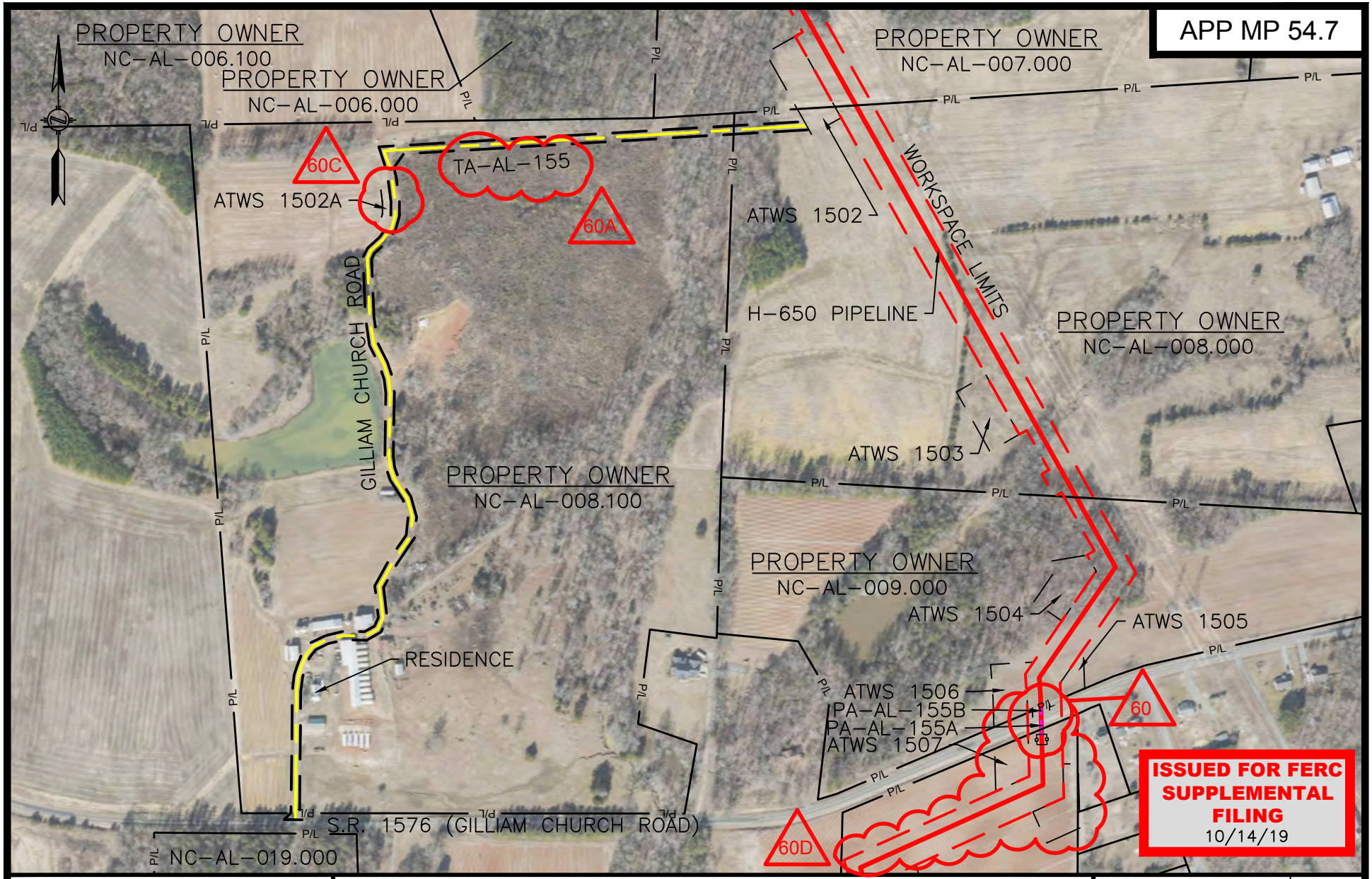
Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ROCKINGHAM COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: CCH	05/16/19
DRAFTING CK: SSL	05/14/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSD-H650-021**	
SCALE: 1" = 200'	REV. P1
DATE OF PLOT: 5/16/2019 9:36 AM	



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Results you can rely on

Mountain Valley PIPELINE LLC

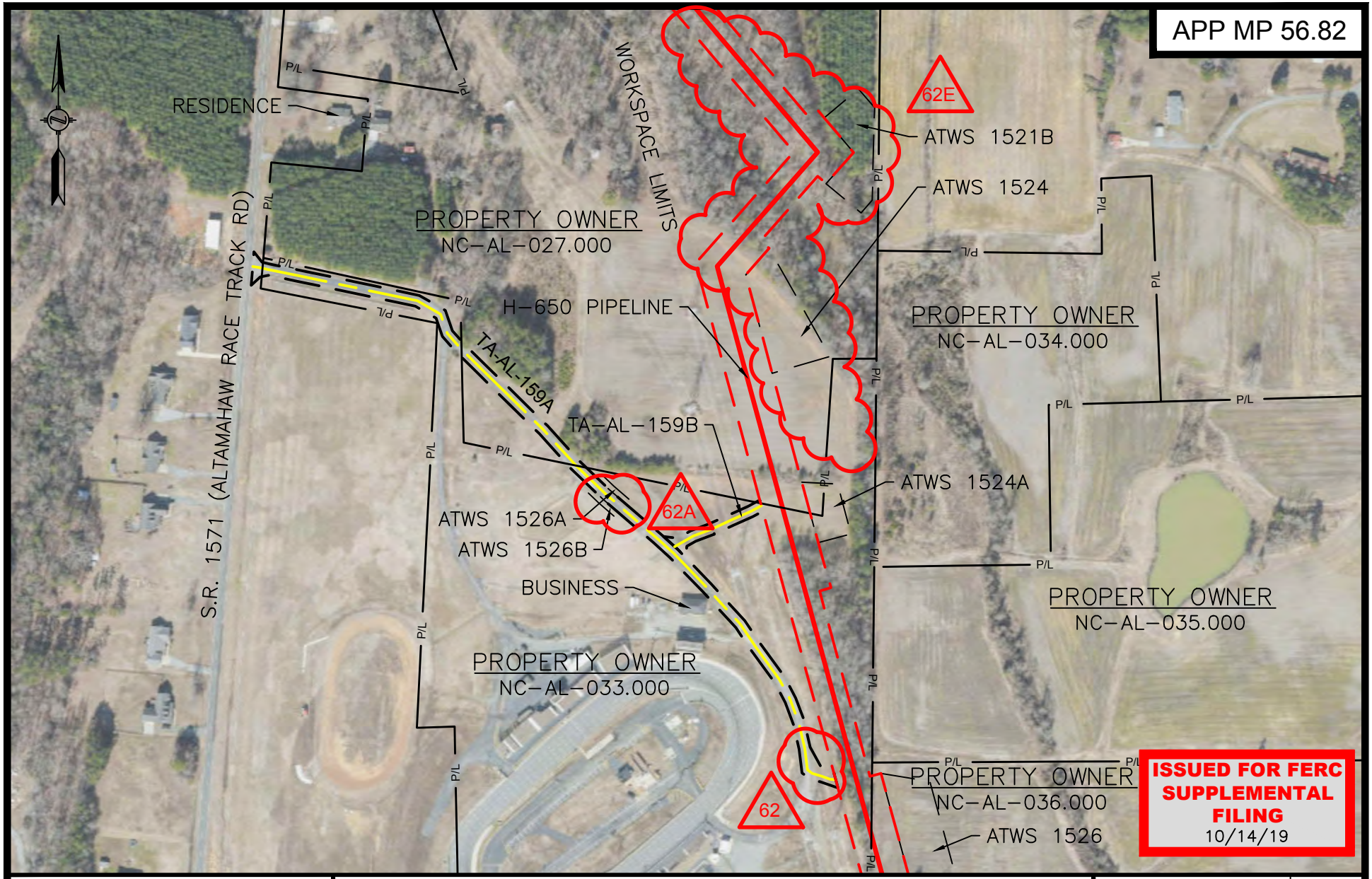
CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ALAMANCE COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY:	CCH	05/16/19
DRAFTING CK:	SSL	05/14/19
ENVIRONMENTAL CK:		
ENGINEERING CK:		
DETAIL SHEET:		
DRAWING NO.:	**RSD-H650-023**	
SCALE: 1" = 400'		REV. P1
DATE OF PLOT: 5/16/2019 9:36 AM		

APP MP 56.82



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Mountain Valley PIPELINE LLC

CONSTRUCTION DETAILS - PRIVATE DRIVE ACCESS ROAD

MVP SOUTHGATE PROJECT
PROPOSED H-650 PIPELINE
ALAMANCE COUNTY, NORTH CAROLINA

SHEET 1 OF 1

DRAWN BY: CCH	05/16/19
DRAFTING CK: SSL	05/14/19
ENVIRONMENTAL CK:	
ENGINEERING CK:	
DETAIL SHEET:	
DRAWING NO.: **RSD-H650-024**	
SCALE: 1" = 200'	REV. P1
DATE OF PLOT: 5/16/2019 9:36 AM	