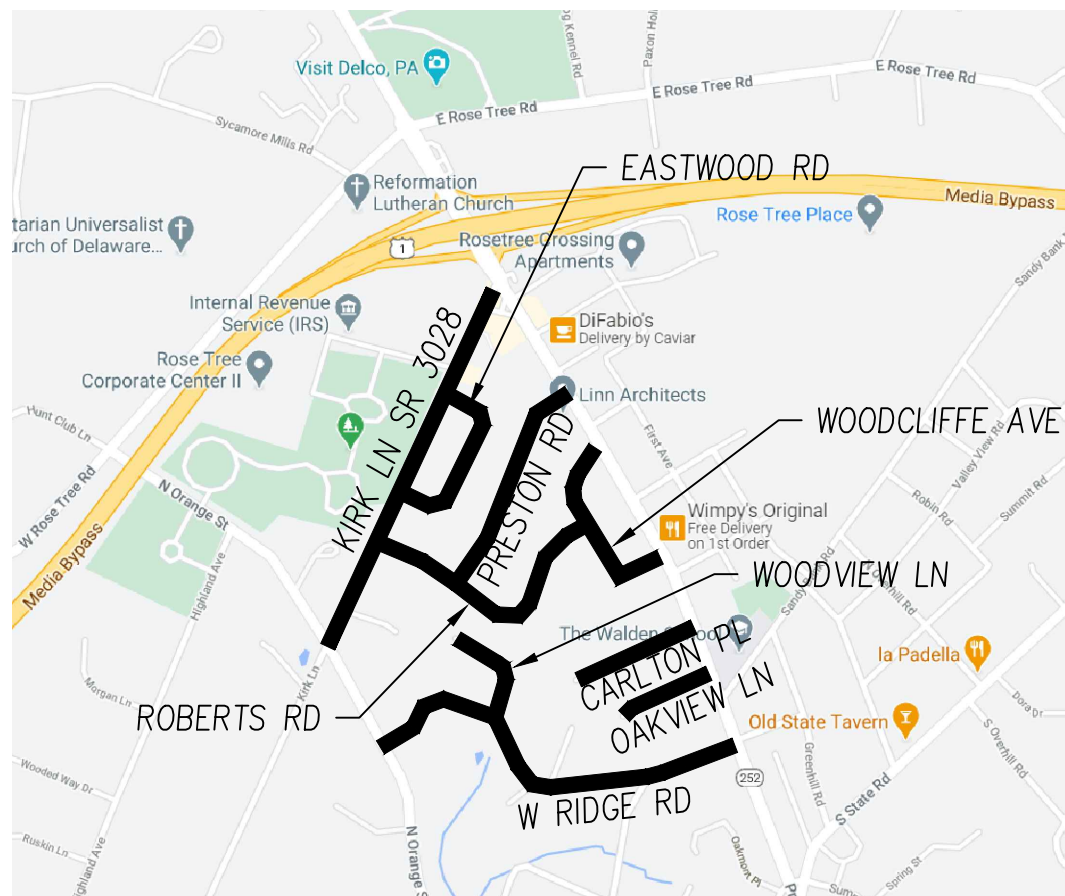
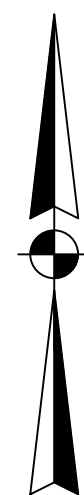




LOCATION MAP

GENERAL NOTES:

1. ALL GATE VALVES ARE TO OPEN LEFT.
2. 1" MAV/CL2 ASSEMBLIES (AQUA PENNSYLVANIA PLAN NO G-17665) ARE REQUIRED ON ALL WATER MAIN EXTENSIONS. THE EXACT QUANTITY AND LOCATION WILL BE DETERMINED AT THE PROJECT SITE BY THE ASSIGNED AQUA PENNSYLVANIA INSPECTOR.
3. ALL DIRECTIONAL CHANGE FITTINGS REQUIRE RETAINING GLANDS (MEGA-LUG OR EQUAL) AND THE PROPER SQUARE FOOTAGE OF CONCRETE BLOCKING.
4. ALL PERMANENT BLOW-OFFS ARE TO BE BLOCKED WITH A STEEL RAIL AND THE PROPER SQUARE FOOTAGE OF CONCRETE BLOCKING (AQUA PENNSYLVANIA, INC PLAN NO E-5563)
5. WHEN THE WORKING PRESSURE OF THE MAIN EXCEEDS 80 PSI, PRESSURE REDUCING VALVES ARE REQUIRED ON THE AFFECTED SERVICES. PRESSURE REDUCING VALVES ARE NOT SUPPLIED OR MAINTAINED BY AQUA PENNSYLVANIA, INC
6. ALL THRUST BLOCK VALUES ARE DETERMINED ACCORDING TO THE INTENDED WORKING PRESSURE OF THE PROPOSED MAIN. WHEN PRESSURES ARE IN EXCESS OF 200 PSI, THE ENGINEERING DEPARTMENT WILL PROVIDE SPECIFIC REQUIREMENTS.
7. THIS PLAN WAS PREPARED FROM INFORMATION OBTAINED FROM PLANS PROVIDED BY: API PLANS & FIELD NOTES.

MATERIAL RECORD				
FEET	PIPE (TYPE & CLASS)	QUAN	SIZE	ARTICLE
-	-	-	-	MAY ASSEMBLY
-	-	-	-	BLOW-OFF ASSEMBLY
-	-	-	-	BLOW-OFF ASSEMBLY
-	-	-	-	TEES
-	-	-	-	TEES
-	-	-	-	TAP VLV
-	-	-	-	VALVES
-	-	-	-	VALVES
-	-	-	-	VALVES
-	-	-	-	BENDS
-	-	-	-	BENDS
-	-	-	-	BENDS
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
EXCAVATION IN CUBIC YARDS				-
EARTH: .		ROCK: .		CONCRETE .
PAVING: .	SF	OTHER: .		-
STARTED: .				-
FINISHED: .				-
WATER ON: .				-
INSPT BY: .				-

[illegible]



PA CALL 1

1-800-242-1776

Dig Safely.

PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE 10 WORKING DAYS IN DESIGN STAGE – STOP CALL

POC: 800-242-1776 (ext. 353)

20203021953,	20203021957,	20203021958,	20203021962,
20203021984,	20203021990,	20203021995,	20203021999,
20203022002,	20210773558,	20210773540,	20210773536,
20210773585,	20210773553,	20210773637,	20210773552,
20210773640,	20210773640,		

0	06/04/21	ISSUED FOR CONSTRUCTION
0	06/04/21	DESIGN COMPLETION
NO	DATE	REVISION

AQUA PENNSYLVANIA, INCORPORATED
762 LANCASTER AVENUE, BRYN MAWR, PA., 19010

PROJECT PLAN FOR:
KIRK LANE S.R. 3028 PROJECT
COVER SHEET

UPPER PROVIDENCE TWP & MEDIA BORO, DELAWARE COUNTY

DRAWN BY: R.L.	CHK'D BY: JPC	EXT No: 18985-
DATE: 12/10/2020	SCALE: NTS	PLATE: F31
PROJECT No: 1350.14	ACTIVITY No: 15900115591	A - 65726
APPROVED 		
		COVER

U.S. FISH AND WILDLIFE SERVICE

RESPONSE:

AVOIDANCE MEASURE: AVOID IN-STREAM IMPACTS BY SPANNING THE WATERWAY OR GOING UNDER IT (E.G., VIA HORIZONTAL BORING OR DIRECTIONAL DRILLING). IF IN-STREAM IMPACTS CANNOT BE AVOIDED, CARRY OUT IN-STREAM WORK - INCLUDING INSTALLATION OF PERMANENT STRUCTURES (E.G., PIPELINES, LIVESTOCK CROSSINGS, RIPRAP), OR INSTALLATION, USE, AND REMOVAL OF TEMPORARY STRUCTURES (E.G., TEMPORARY ROAD CROSSINGS) - BETWEEN OCTOBER 1 AND MARCH 31.

THE FOLLOWING MAIN(S) HAVE BEEN ABANDONED:

8"	DI	17811-S	A-63566
6"	DI	17811-S	A-63566
4"	AC	9453-S	N/P
4"	DI	16368-S	A-60488
6"	AC	9466-S	N/P
6"	DI	13834-S	G-57784
6"	AC	9304-S	N/P
6"	AC	9303-S	N/P
6"	AC	9463-S	N/P
6"	AC	9305-S	N/P
8"	AC	9464-S	N/P
8"	AC	9464-S	N/P
6"	DI	15310-S	E-59675

E & S PLAN

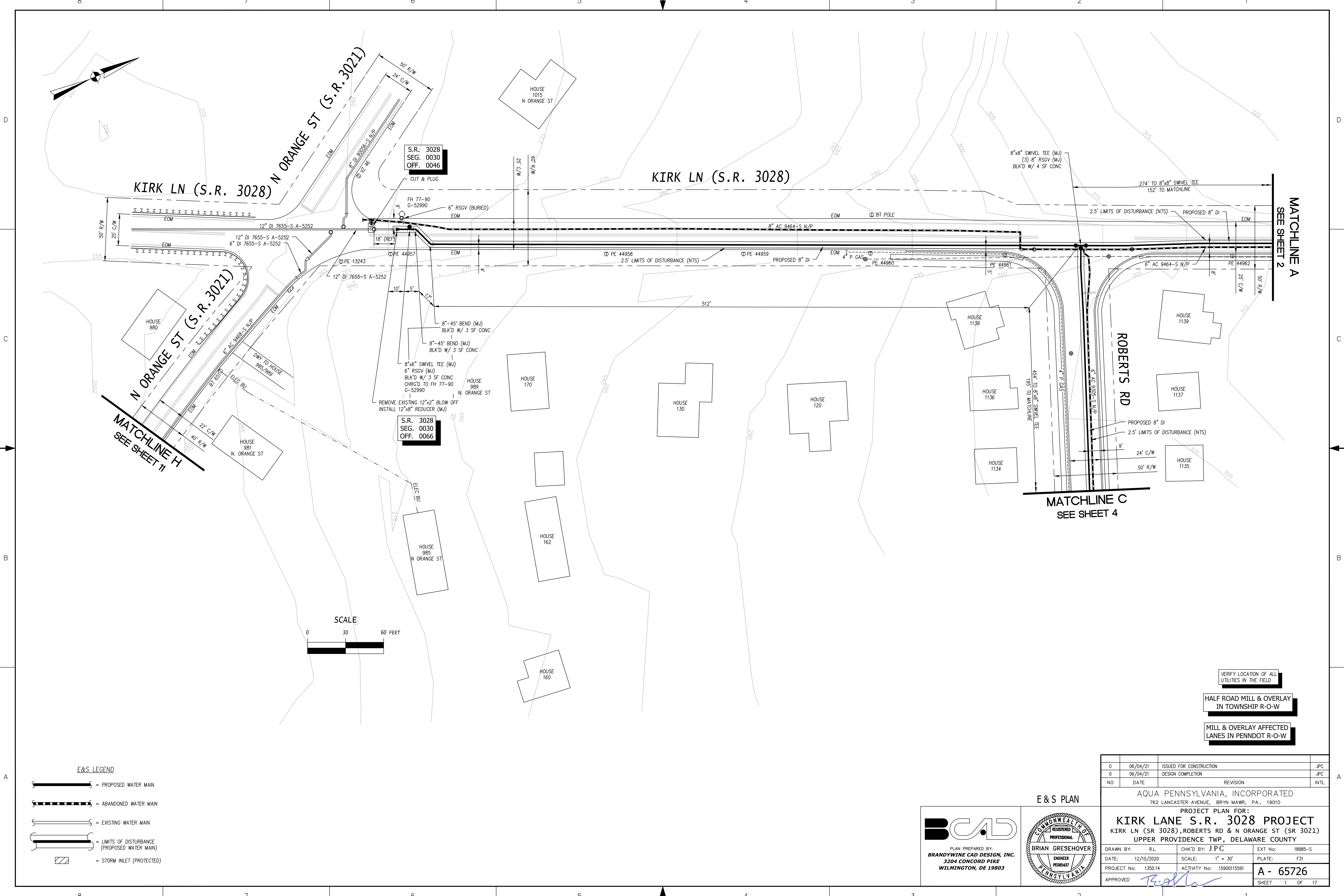


PLAN PREPARED BY:
BRANDYWINE CAD DESIGN, INC.
3204 CONCORD PIKE
WILMINGTON, DE 19803



ELEVATION CONTOURS SHOWN ARE PUBLISHED DELAWARE VALLEY
REGIONAL PLANNING COMMISSION 2015 TOPOGRAPHIC CONTOURS
USING THE NATIONAL GEODETIC VERTICAL DATUM OF 1929
CONTOUR INTERVAL 5 FEET

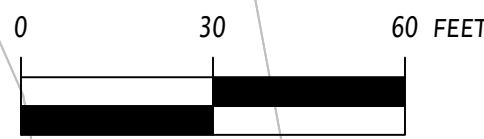
COORDINATE SYSTEM: NAD 1983 STATE PLANE PENNSYLVANIA SOUTH FIPS 3702 (US FEET)



E&S LEGEND

- = PROPOSED WATER MAIN
- = ABANDONED WATER MAIN
- = EXISTING WATER MAIN
- = LIMITS OF DISTURBANCE (PROPOSED WATER MAIN)
- = STORM INLET (PROTECTED)

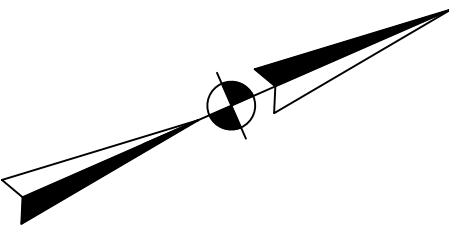
SCALE



E & S PLAN



0	06/04/21	ISSUED FOR CONSTRUCTION	JPC
0	06/04/21	DESIGN COMPLETION	JPC
NO	DATE	REVISION	INTL
AQUA PENNSYLVANIA, INCORPORATED 762 LANCASTER AVENUE, BRYN MAWR, PA., 19010			
PROJECT PLAN FOR: KIRK LANE S.R. 3028 PROJECT KIRK LN (SR 3028), ROBERTS RD & N ORANGE ST (SR 3021) UPPER PROVIDENCE TWP, DELAWARE COUNTY			
DRAWN BY:	R.L.	CHK'D BY: JPC	EXT No: 18985-S
DATE:	12/10/2020	SCALE: 1" = 30'	PLATE: F31
PROJECT No:	1350.14	ACTIVITY No: 15900115591	A - 65726
APPROVED			SHEET 1 OF 17



MATCHLINE A
SEE SHEET 1

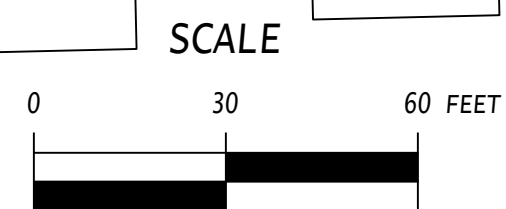
MATCHLINE B
SEE SHEET 3

KIRK LN (S.R. 3028)

EASTWOOD RD

E&S LEGEND

- = PROPOSED WATER MAIN
- = ABANDONED WATER MAIN
- = EXISTING WATER MAIN
- = LIMITS OF DISTURBANCE (PROPOSED WATER MAIN)
- = STORM INLET (PROTECTED)



VERIFY LOCATION OF ALL
UTILITIES IN THE FIELD

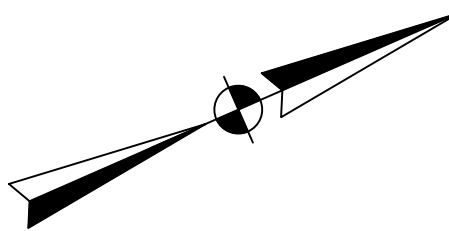
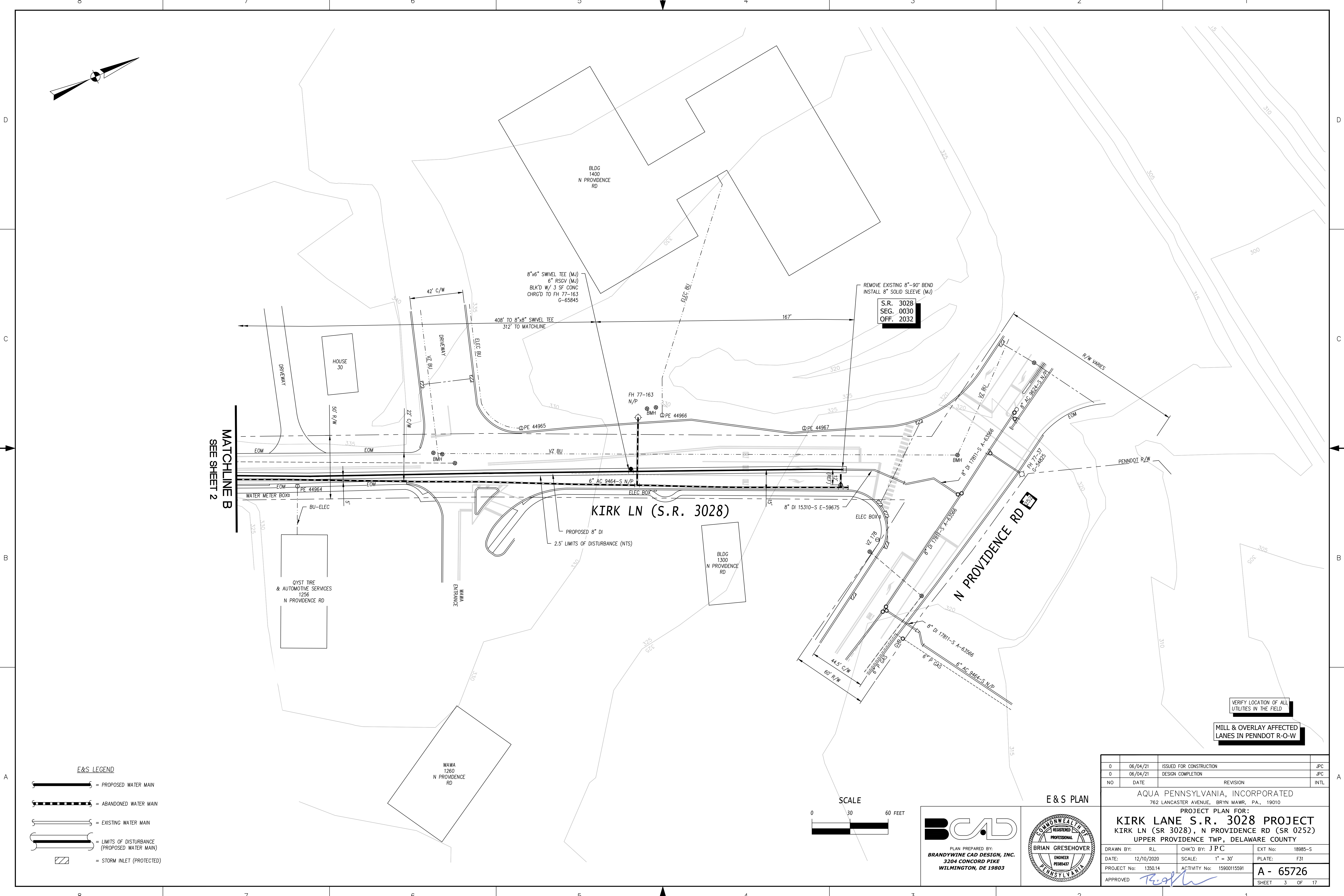
HALF ROAD MILL & OVERLAY
IN TOWNSHIP R-O-W

MILL & OVERLAY AFFECTED
LANES IN PENNDOT R-O-W

E & S PLAN

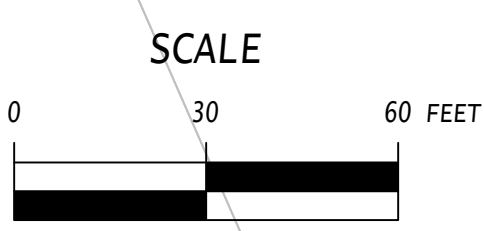


0	06/04/21	ISSUED FOR CONSTRUCTION	JPC
0	06/04/21	DESIGN COMPLETION	JPC
NO	DATE	REVISION	INTL
AQUA PENNSYLVANIA, INCORPORATED 762 LANCASTER AVENUE, BRYN MAWR, PA., 19010			
PROJECT PLAN FOR: KIRK LANE S.R. 3028 PROJECT KIRK LN (SR 3028), EASTWOOD RD UPPER PROVIDENCE TWP, DELAWARE COUNTY			
DRAWN BY:	R.L.	CHK'D BY: JPC	EXT No: 18985-S
DATE:	12/10/2020	SCALE: 1" = 30'	PLATE: F31
PROJECT No:	1350.14	ACTIVITY No: 15900115591	A - 65726
APPROVED			SHEET 2 OF 17



MATCHLINE B
SEE SHEET 2

- E&S LEGEND**
- = PROPOSED WATER MAIN
 - = ABANDONED WATER MAIN
 - = EXISTING WATER MAIN
 - = LIMITS OF DISTURBANCE (PROPOSED WATER MAIN)
 - = STORM INLET (PROTECTED)



BCAD

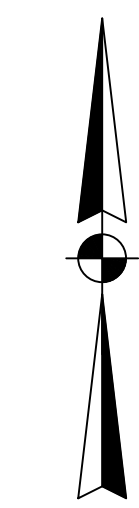
PLAN PREPARED BY:
BRANDYWINE CAD DESIGN, INC.
3204 CONCORD PIKE
WILMINGTON, DE 19803



0	06/04/21	ISSUED FOR CONSTRUCTION	JPC
0	06/04/21	DESIGN COMPLETION	JPC
NO	DATE	REVISION	INTL
AQUA PENNSYLVANIA, INCORPORATED 762 LANCASTER AVENUE, BRYN MAWR, PA., 19010			
PROJECT PLAN FOR: KIRK LANE S.R. 3028 PROJECT KIRK LN (SR 3028), N PROVIDENCE RD (SR 0252) UPPER PROVIDENCE TWP, DELAWARE COUNTY			
DRAWN BY:	R.L.	CHK'D BY: JPC	EXT No: 18985-S
DATE:	12/10/2020	SCALE: 1" = 30'	PLATE: F31
PROJECT No:	1350.14	ACTIVITY No: 15900115591	A - 65726
APPROVED			SHEET 3 OF 17

VERIFY LOCATION OF ALL
UTILITIES IN THE FIELD

MILL & OVERLAY AFFECTED
LANES IN PENNDOT R-O-W



MATCHLINE C
SEE SHEET 1

MATCHLINE D
SEE SHEET 5

MATCHLINE E
SEE SHEET 6

ROBERTS RD

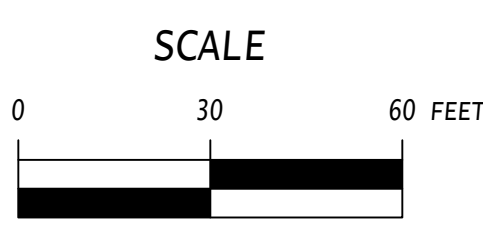
PRESTON RD

ROBERTS RD

ROBERTS RD

- E&S LEGEND**
- = PROPOSED WATER MAIN
 - = ABANDONED WATER MAIN
 - = EXISTING WATER MAIN
 - = LIMITS OF DISTURBANCE (PROPOSED WATER MAIN)
 - = STORM INLET (PROTECTED)

U.S. FISH AND WILDLIFE SERVICE
RESPONSE:
AVOIDANCE MEASURE: AVOID IN-STREAM IMPACTS BY SPANNING THE WATERWAY OR GOING UNDER IT (E.G., VIA HORIZONTAL BORING OR DIRECTIONAL DRILLING). IF IN-STREAM IMPACTS CANNOT BE AVOIDED, CARRY OUT IN-STREAM WORK -- INCLUDING INSTALLATION OF PERMANENT STRUCTURES (E.G., PIPELINES, LIVESTOCK CROSSINGS, RIPRAP), OR INSTALLATION, USE, AND REMOVAL OF TEMPORARY STRUCTURES (E.G., TEMPORARY ROAD CROSSINGS) -- BETWEEN OCTOBER 1 AND MARCH 31.



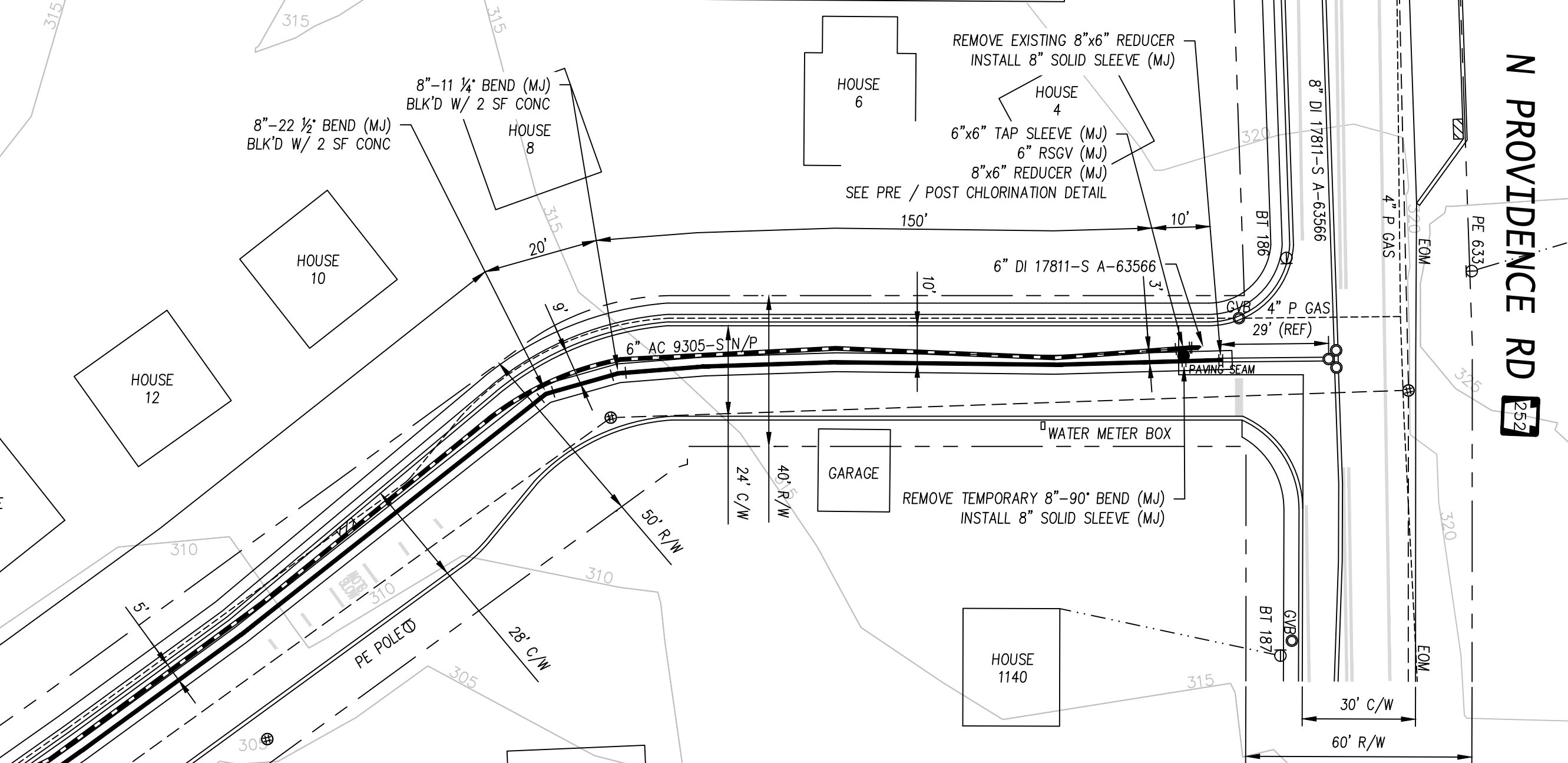
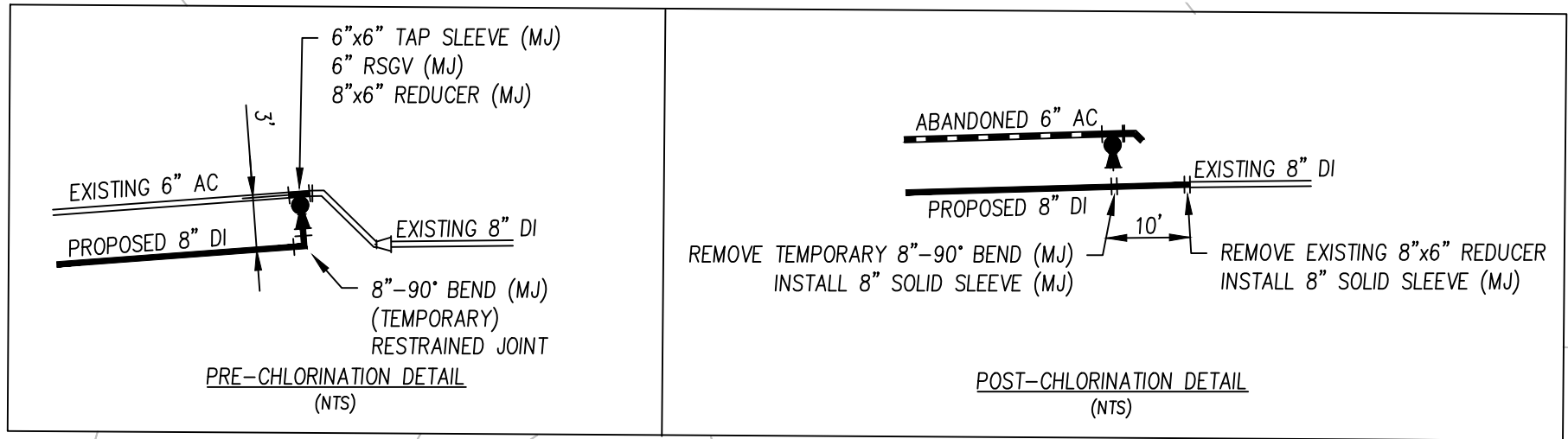
VERIFY LOCATION OF ALL UTILITIES IN THE FIELD

HALF ROAD MILL & OVERLAY IN TOWNSHIP R-O-W

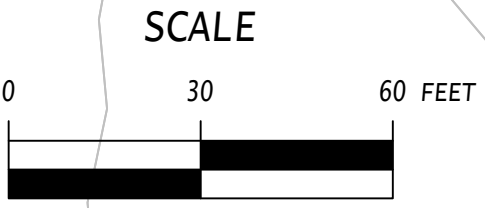
BCAD
PLAN PREPARED BY:
BRANDYWINE CAD DESIGN, INC.
3204 CONCORD PIKE
WILMINGTON, DE 19803



0	06/04/21	ISSUED FOR CONSTRUCTION	JPC
0	06/04/21	DESIGN COMPLETION	JPC
NO	DATE	REVISION	INTL
AQUA PENNSYLVANIA, INCORPORATED 762 LANCASTER AVENUE, BRYN MAWR, PA., 19010			
PROJECT PLAN FOR: KIRK LANE S.R. 3028 PROJECT ROBERTS RD, PRESTON RD UPPER PROVIDENCE TWP, DELAWARE COUNTY			
DRAWN BY:	R.L.	CHK'D BY: JPC	EXT No: 18985-S
DATE:	12/10/2020	SCALE: 1" = 30'	PLATE: F31
PROJECT No:	1350.14	ACTIVITY No: 15900115591	A - 65726
APPROVED			SHEET 4 OF 17



AWWA C900 8" SDR 14 (305#) PVC
SINGLE GASKET IN SAND OR SCREENING
BEDDING WITH TRACER WIRE



MATCHLINE D
SEE SHEET 4

- E&S LEGEND**
- = PROPOSED WATER MAIN
 - = ABANDONED WATER MAIN
 - = EXISTING WATER MAIN
 - = LIMITS OF DISTURBANCE (PROPOSED WATER MAIN)
 - = STORM INLET (PROTECTED)

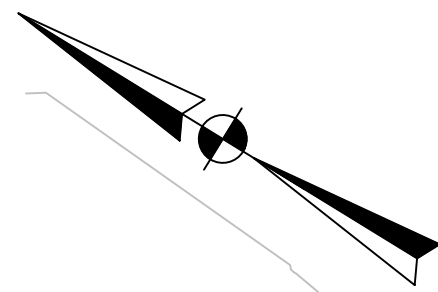
VERIFY LOCATION OF ALL
UTILITIES IN THE FIELD

HALF ROAD MILL & OVERLAY
IN TOWNSHIP R-O-W

PLAN PREPARED BY:
BRANDYWINE CAD DESIGN, INC.
3204 CONCORD PIKE
WILMINGTON, DE 19803

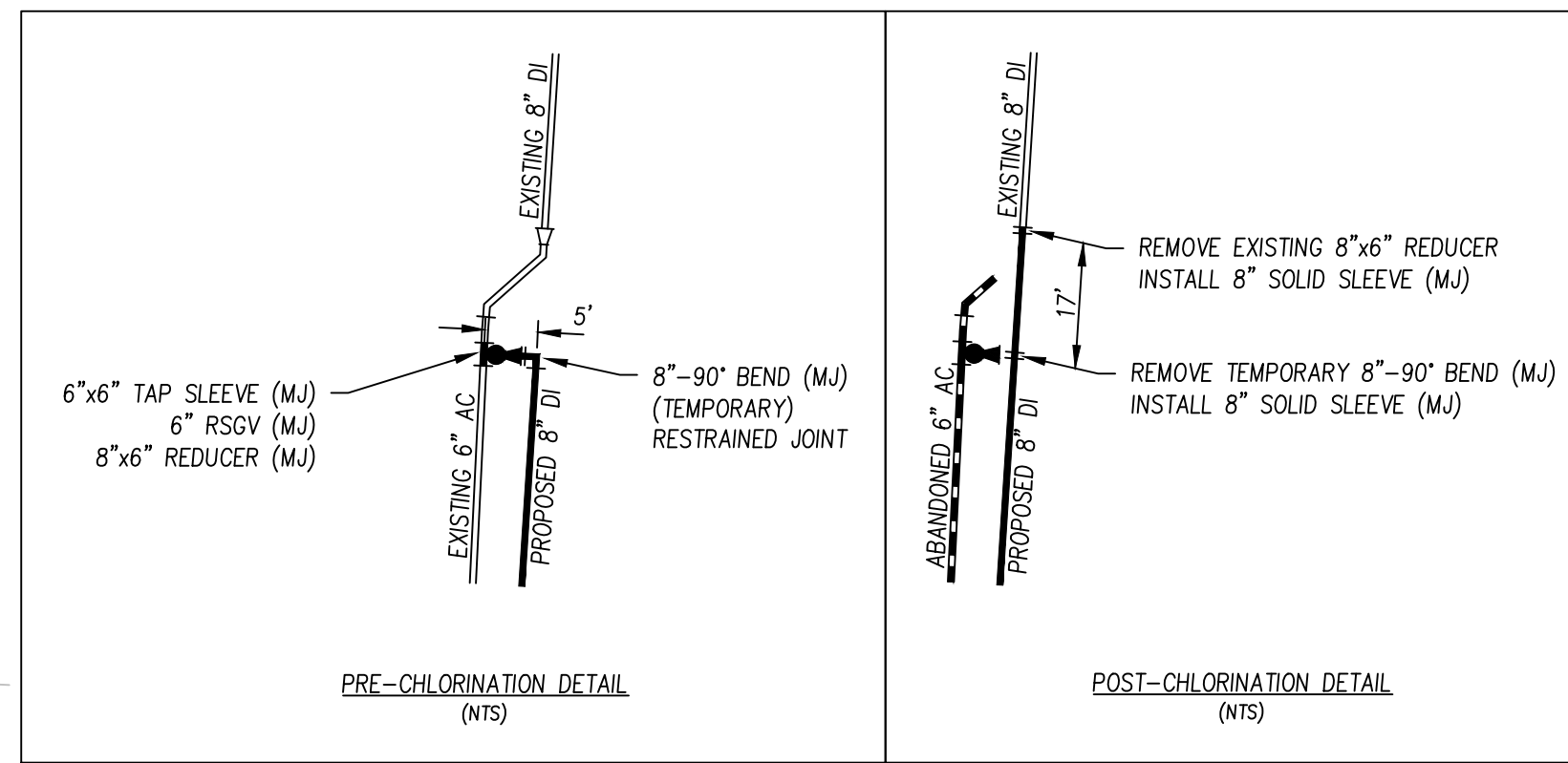


0	06/04/21	ISSUED FOR CONSTRUCTION	JPC
0	06/04/21	DESIGN COMPLETION	JPC
NO	DATE	REVISION	INTL
AQUA PENNSYLVANIA, INCORPORATED 762 LANCASTER AVENUE, BRYN MAWR, PA., 19010			
PROJECT PLAN FOR: KIRK LANE S.R. 3028 PROJECT PRESTON RD, N PROVIDENCE RD (SR 0252) UPPER PROVIDENCE TWP, DELAWARE COUNTY			
DRAWN BY:	R.L.	CHK'D BY: JPC	EXT No: 18985-S
DATE:	12/10/2020	SCALE: 1" = 30'	PLATE: F31
PROJECT No:	1350.14	ACTIVITY No: 15900115591	A - 65726
APPROVED			SHEET 5 OF 17



N PROVIDENCE RD 252

N PROVIDENCE RD 252



S.R. 0252
SEG. 0090
OFF. 0822

REMOVE EXISTING 8"x6" REDUCER
INSTALL 8" SOLID SLEEVE (MJ)

6"x6" TAP SLEEVE (MJ)
6" RSGV (MJ)
8"x6" REDUCER (MJ)
SEE PRE / POST CHLORINATION DETAIL

REMOVE TEMPORARY 8"-90° BEND (MJ)
INSTALL 8" SOLID SLEEVE (MJ)

HOUSE 950

PROPOSED 8" DI

2.5' LIMITS OF DISTURBANCE (NTS)

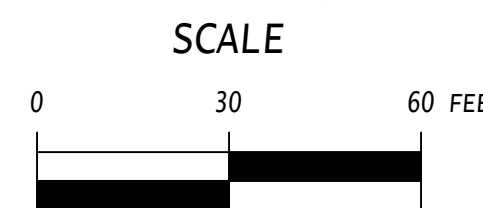
WOODCLIFFE AVE

ROBERTS RD

MATCHLINE E
SEE SHEET 4

E&S LEGEND

- PROPOSED WATER MAIN
- ABANDONED WATER MAIN
- EXISTING WATER MAIN
- LIMITS OF DISTURBANCE (PROPOSED WATER MAIN)
- STORM INLET (PROTECTED)



VERIFY LOCATION OF ALL UTILITIES IN THE FIELD

HALF ROAD MILL & OVERLAY IN TOWNSHIP R-O-W

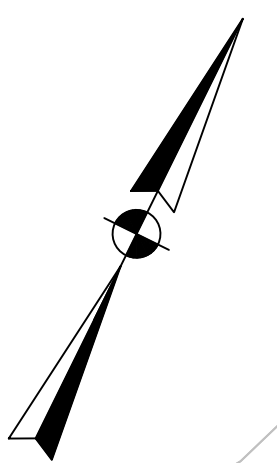
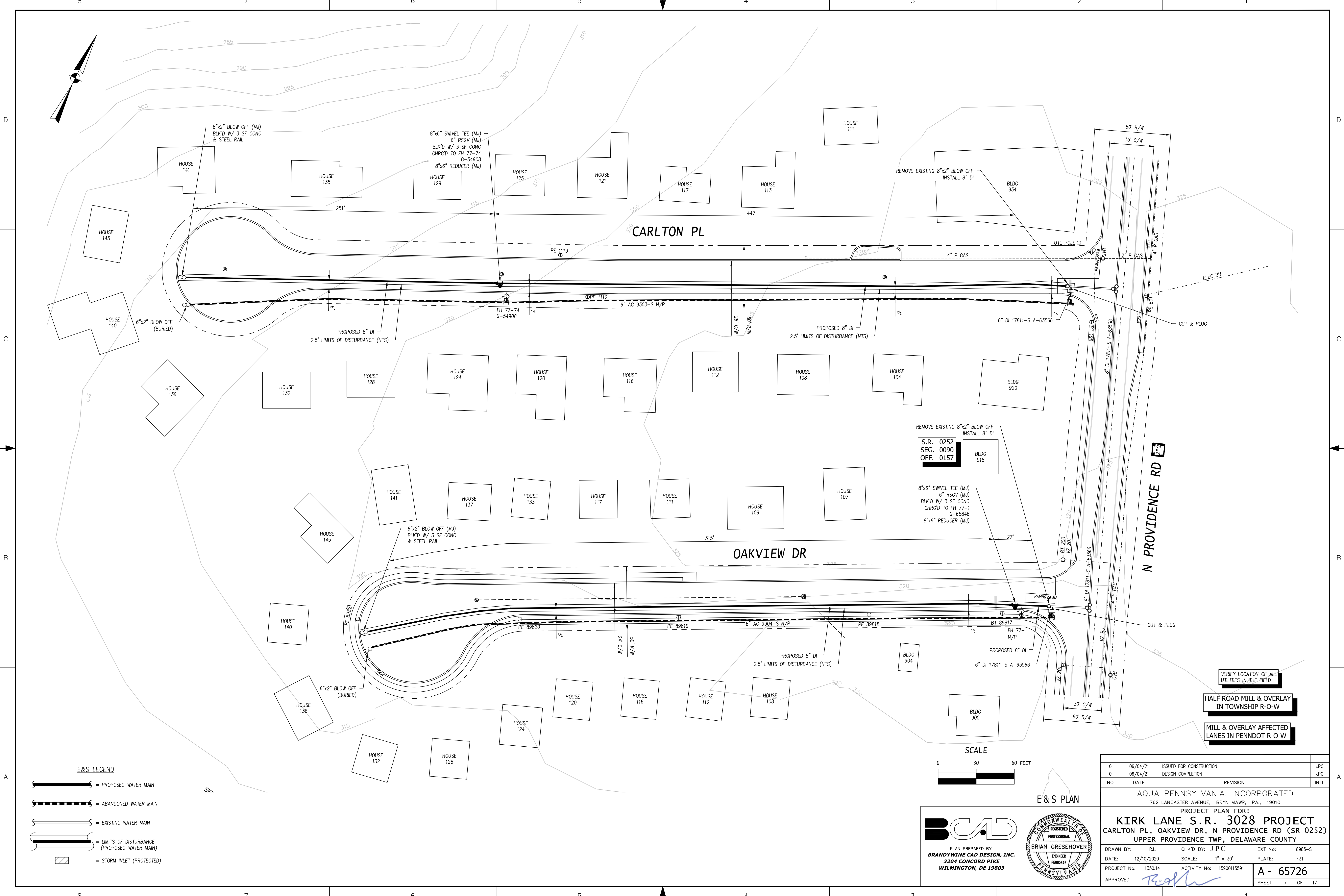
MILL & OVERLAY AFFECTED LANES IN PENNDOT R-O-W

E & S PLAN

PLAN PREPARED BY:
BRANDYWINE CAD DESIGN, INC.
3204 CONCORD PIKE
WILMINGTON, DE 19803

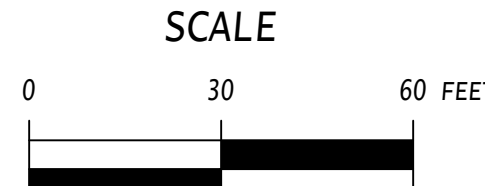


0	06/04/21	ISSUED FOR CONSTRUCTION	JPC
0	06/04/21	DESIGN COMPLETION	JPC
NO	DATE	REVISION	INTL
AQUA PENNSYLVANIA, INCORPORATED 762 LANCASTER AVENUE, BRYN MAWR, PA., 19010			
PROJECT PLAN FOR: KIRK LANE S.R. 3028 PROJECT WOODCLIFFE AVE, ROBERTS RD, N PROVIDENCE RD (SR 0252) UPPER PROVIDENCE TWP, DELAWARE COUNTY			
DRAWN BY:	R.L.	CHK'D BY: JPC	EXT No: 18985-S
DATE:	12/10/2020	SCALE: 1" = 30'	PLATE: F31
PROJECT No:	1350.14	ACTIVITY No: 15900115591	A - 65726
APPROVED			SHEET 6 OF 17



E&S LEGEND

- = PROPOSED WATER MAIN
- = ABANDONED WATER MAIN
- = EXISTING WATER MAIN
- = LIMITS OF DISTURBANCE (PROPOSED WATER MAIN)
- = STORM INLET (PROTECTED)



E & S PLAN

BCAD
PLAN PREPARED BY:
BRANDYWINE CAD DESIGN, INC.
3204 CONCORD PIKE
WILMINGTON, DE 19803

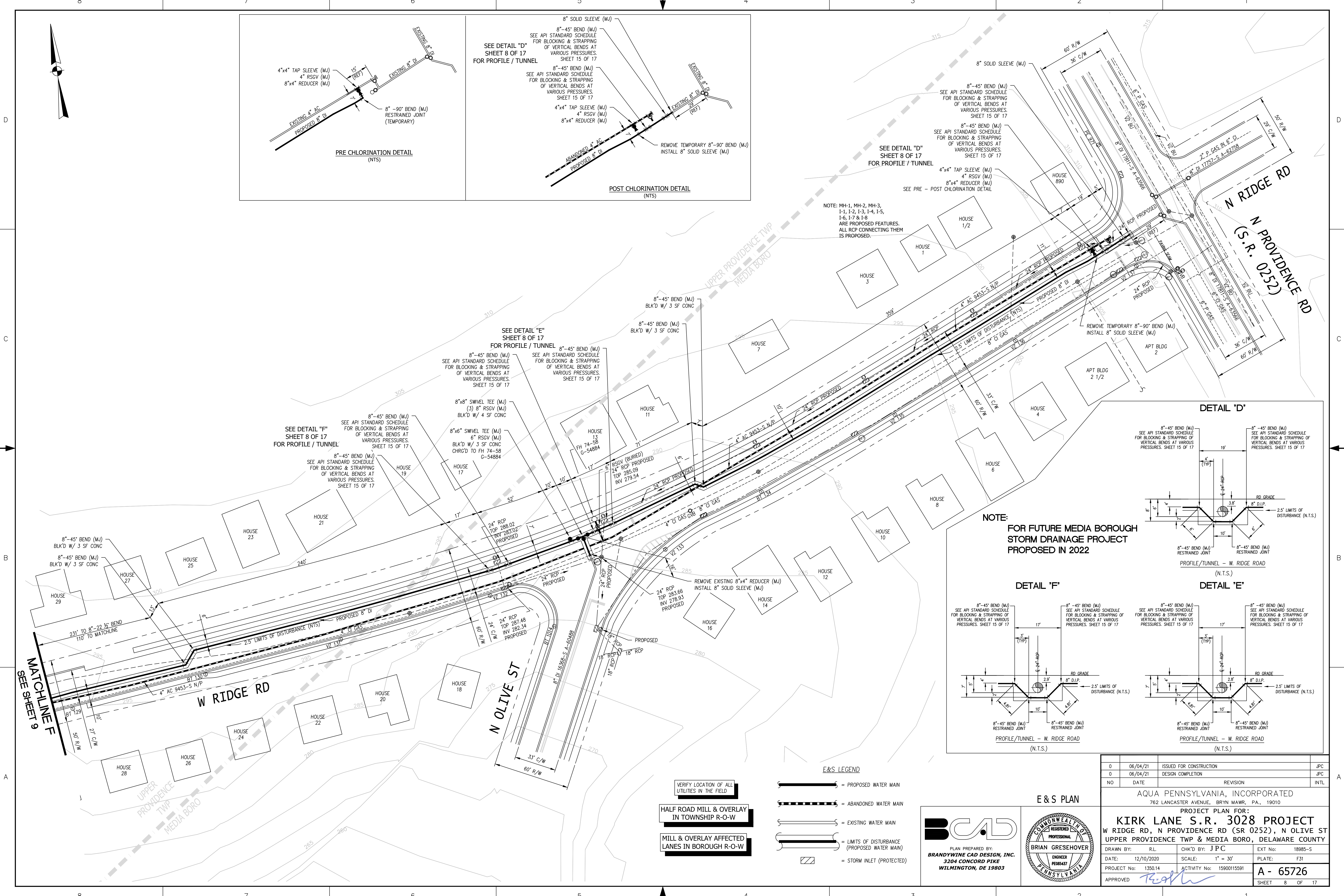


0	06/04/21	ISSUED FOR CONSTRUCTION	JPC
0	06/04/21	DESIGN COMPLETION	JPC
NO	DATE	REVISION	INTL
AQUA PENNSYLVANIA, INCORPORATED 762 LANCASTER AVENUE, BRYN MAWR, PA., 19010			
PROJECT PLAN FOR: KIRK LANE S.R. 3028 PROJECT CARLTON PL, OAKVIEW DR, N PROVIDENCE RD (SR 0252) UPPER PROVIDENCE TWP, DELAWARE COUNTY			
DRAWN BY:	R.L.	CHK'D BY: JPC	EXT No: 18985-S
DATE:	12/10/2020	SCALE: 1" = 30'	PLATE: F31
PROJECT No:	1350.14	ACTIVITY No: 15900115591	A - 65726
APPROVED			SHEET 7 OF 17

VERIFY LOCATION OF ALL UTILITIES IN THE FIELD

HALF ROAD MILL & OVERLAY IN TOWNSHIP R-O-W

MILL & OVERLAY AFFECTED LANES IN PENNDOT R-O-W



U.S. FISH AND WILDLIFE SERVICE
RESPONSE:
AVOIDANCE MEASURE: AVOID IN-STREAM IMPACTS BY SPANNING THE WATERWAY OR GOING UNDER IT (E.G., VIA HORIZONTAL BORING OR DIRECTIONAL DRILLING). IF IN-STREAM IMPACTS CANNOT BE AVOIDED, CARRY OUT IN-STREAM WORK -- INCLUDING INSTALLATION OF PERMANENT STRUCTURES (E.G., PIPELINES, LIVESTOCK CROSSINGS, RIPRAP), OR INSTALLATION, USE, AND REMOVAL OF TEMPORARY STRUCTURES (E.G., TEMPORARY ROAD CROSSINGS) -- BETWEEN OCTOBER 1 AND MARCH 31.

MATCHLINE G
SEE SHEET 10

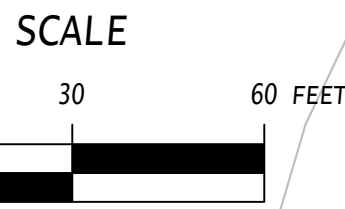
WOODVIEW LN

W RIDGE RD

EDGEWOLD LN
(PRIVATE RD)

MATCHLINE F
SEE SHEET 8

MATCHLINE I
SEE SHEET 11

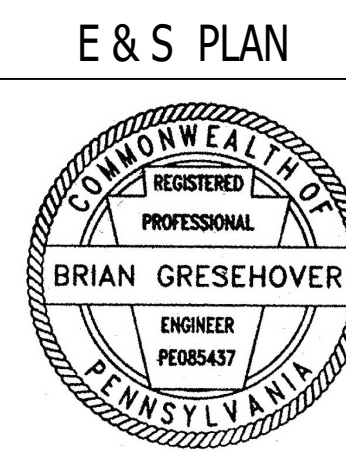


VERIFY LOCATION OF ALL
UTILITIES IN THE FIELD

HALF ROAD MILL & OVERLAY
IN TOWNSHIP R-O-W

- E&S LEGEND
- = PROPOSED WATER MAIN
 - = ABANDONED WATER MAIN
 - = EXISTING WATER MAIN
 - = LIMITS OF DISTURBANCE (PROPOSED WATER MAIN)
 - = STORM INLET (PROTECTED)

PLAN PREPARED BY:
BRANDYWINE CAD DESIGN, INC.
3204 CONCORD PIKE
WILMINGTON, DE 19803



0	06/04/21	ISSUED FOR CONSTRUCTION	JPC
0	06/04/21	DESIGN COMPLETION	JPC
NO	DATE	REVISION	INTL
AQUA PENNSYLVANIA, INCORPORATED 762 LANCASTER AVENUE, BRYN MAWR, PA., 19010			
PROJECT PLAN FOR: KIRK LANE S.R. 3028 PROJECT W RIDGE RD, WOODVIEW LN, EDGEWOLD LN UPPER PROVIDENCE TWP, DELAWARE COUNTY			
DRAWN BY:	R.L.	CHK'D BY:	JPC
DATE:	12/10/2020	SCALE:	1" = 30'
PROJECT No:	1350.14	ACTIVITY No:	15900115591
APPROVED			EXT No: 18985-S
			PLATE: F31
			A - 65726
			SHEET 9 OF 17

8

7

6

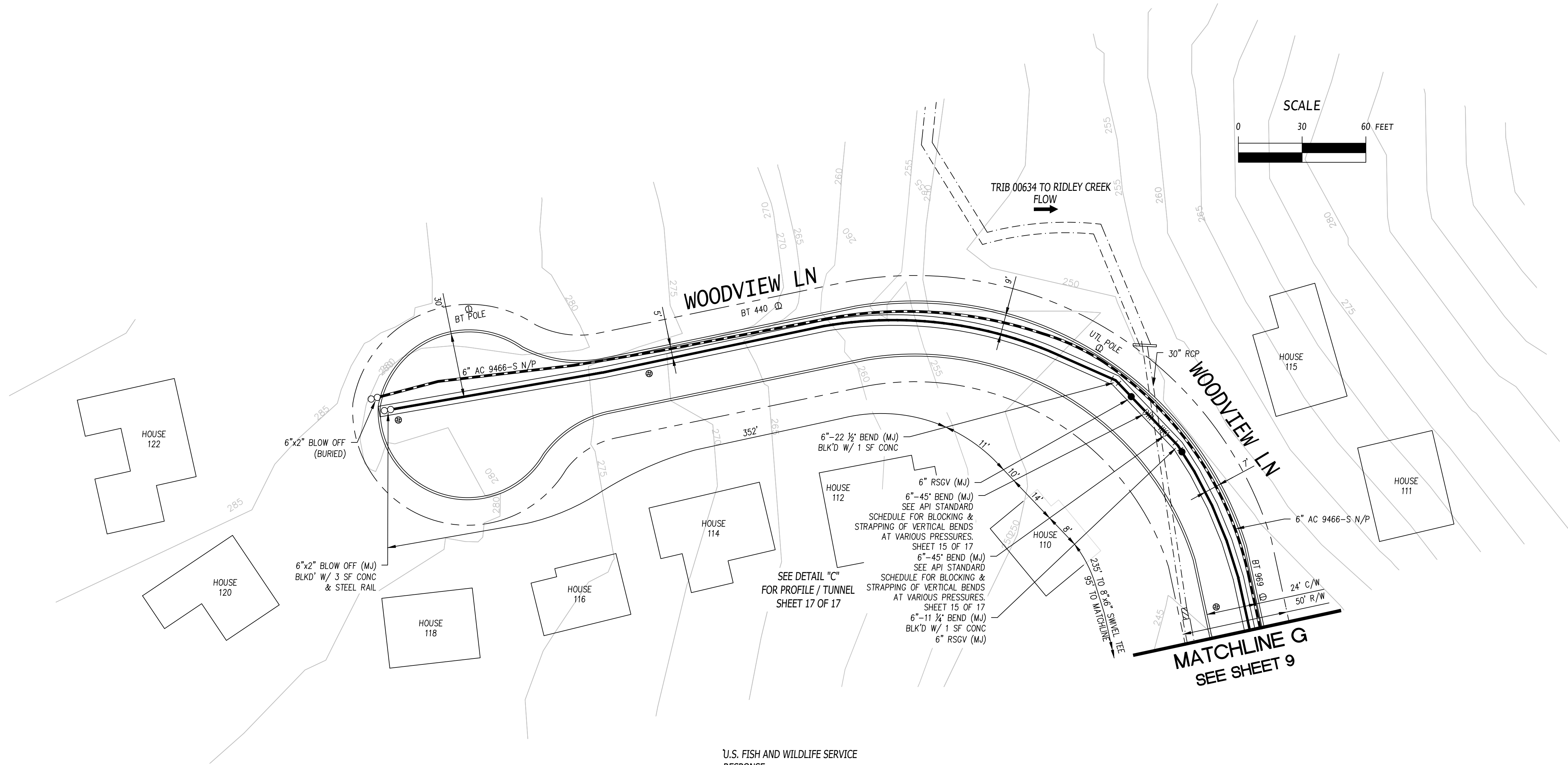
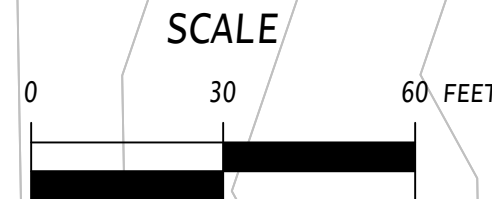
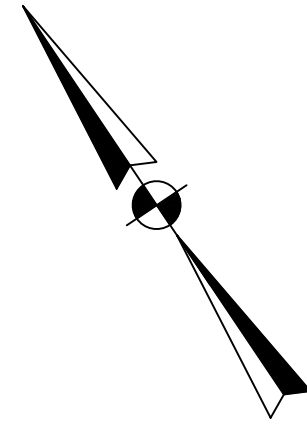
5

4

3

2

1



U.S. FISH AND WILDLIFE SERVICE
RESPONSE:
AVOIDANCE MEASURE: AVOID IN-STREAM IMPACTS BY SPANNING THE WATERWAY OR GOING UNDER IT (E.G., VIA HORIZONTAL BORING OR DIRECTIONAL DRILLING). IF IN-STREAM IMPACTS CANNOT BE AVOIDED, CARRY OUT IN-STREAM WORK -- INCLUDING INSTALLATION OF PERMANENT STRUCTURES (E.G., PIPELINES, LIVESTOCK CROSSINGS, RIPRAP), OR INSTALLATION, USE, AND REMOVAL OF TEMPORARY STRUCTURES (E.G., TEMPORARY ROAD CROSSINGS) -- BETWEEN OCTOBER 1 AND MARCH 31.

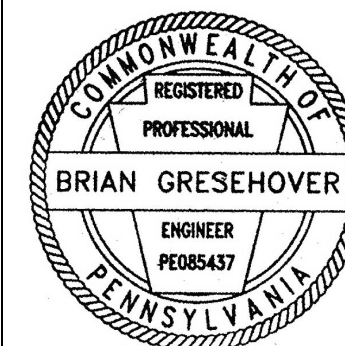
E&S LEGEND

- = PROPOSED WATER MAIN
- = ABANDONED WATER MAIN
- = EXISTING WATER MAIN
- = LIMITS OF DISTURBANCE (PROPOSED WATER MAIN)
- = STORM INLET (PROTECTED)

VERIFY LOCATION OF ALL UTILITIES IN THE FIELD

HALF ROAD MILL & OVERLAY IN TOWNSHIP R-O-W

E & S PLAN



0	06/04/21	ISSUED FOR CONSTRUCTION	JPC
0	06/04/21	DESIGN COMPLETION	JPC
NO	DATE	REVISION	INTL
AQUA PENNSYLVANIA, INCORPORATED 762 LANCASTER AVENUE, BRYN MAWR, PA., 19010			
PROJECT PLAN FOR: KIRK LANE S.R. 3028 PROJECT WOODVIEW LN UPPER PROVIDENCE TWP, DELAWARE COUNTY			
DRAWN BY:	R.L.	CHK'D BY: JPC	EXT No: 18985-S
DATE:	12/10/2020	SCALE: 1" = 30'	PLATE: F31
PROJECT No:	1350.14	ACTIVITY No: 15900115591	A - 65726
APPROVED			SHEET 10 OF 17

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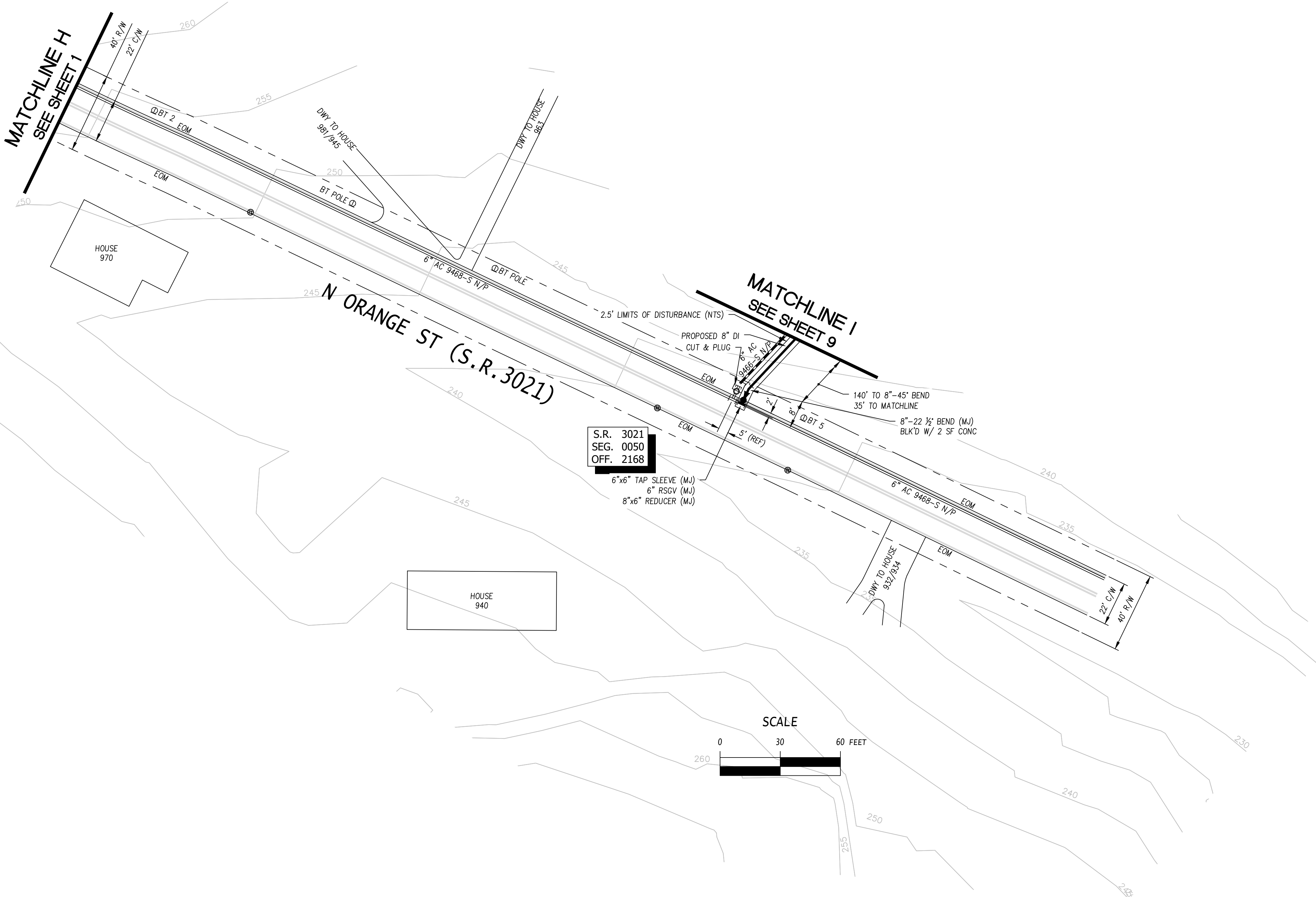
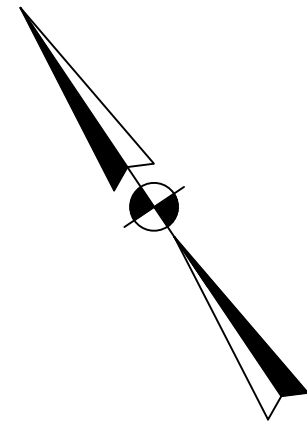
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E&S LEGEND

= PROPOSED WATER MAIN

= ABANDONED WATER MAIN

= EXISTING WATER MAIN

= LIMITS OF DISTURBANCE (PROPOSED WATER MAIN)

= STORM INLET (PROTECTED)

SCALE

0 30 60 FEET

VERIFY LOCATION OF ALL UTILITIES IN THE FIELD

MILL & OVERLAY AFFECTED LANES IN PENNDOT R-O-W

BCAD

PLAN PREPARED BY:
BRANDYWINE CAD DESIGN, INC.
3204 CONCORD PIKE
WILMINGTON, DE 19803

BRIAN GRESEHOVER
REGISTERED PROFESSIONAL
ENGINEER
PE008457

0	06/04/21	ISSUED FOR CONSTRUCTION	JPC
0	06/04/21	DESIGN COMPLETION	JPC
NO	DATE	REVISION	INTL
AQUA PENNSYLVANIA, INCORPORATED 762 LANCASTER AVENUE, BRYN MAWR, PA., 19010			
PROJECT PLAN FOR: KIRK LANE S.R. 3028 PROJECT N ORANGE ST (SR 3021) UPPER PROVIDENCE TWP, DELAWARE COUNTY			
DRAWN BY:	R.L.	CHK'D BY: JPC	EXT No: 18985-S
DATE:	12/10/2020	SCALE: 1" = 30'	PLATE: F31
PROJECT No:	1350.14	ACTIVITY No: 15900115591	A - 65726
APPROVED			SHEET 11 OF 17

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PATA 103

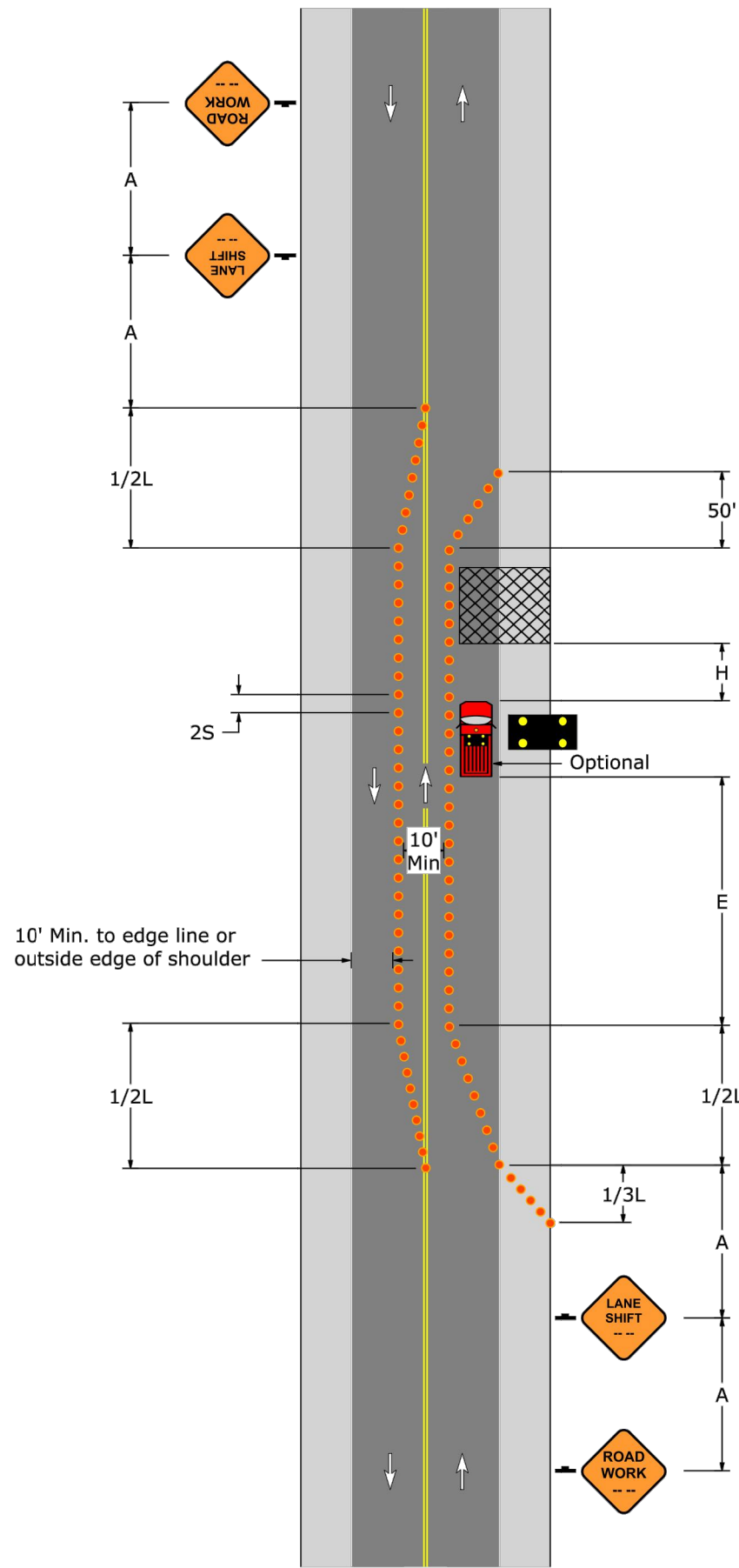
1. The RIGHT REVERSE CURVE sign shall only be used when lane shifts onto shoulder.
2. When a shadow vehicle is not used, distance E is measured from the end of the taper to the beginning of the work space.

Signs	
	
W20-1	W5-5

Sign Spacing, Channelizing Device Spacing, Buffer Space, and Roll Ahead Space					
Speed S (MPH)	Channelizing Devices Spacing 2S (Feet)	Sign Spacing		Buffer Space E (Feet)	Roll Ahead Space H (Feet)
		Urban A (Feet)	Rural A (Feet)		
25	50	100 - 200	500 - 800	155	150
30	60	100 - 200	500 - 800	200	150
35	70	100 - 200	500 - 800	250	150
40	80	350 - 500	500 - 800	305	150
45	90	350 - 500	500 - 800	360	150
50	100	350 - 500	500 - 800	425	250
55	110	350 - 500	500 - 800	495	250

Taper Lengths and Minimum Number Of Channelizing Devices					
Speed S (MPH)	Shifting Taper: 1/2L Length (Feet)	Shoulder Taper: 1/3L		50' Per Lane Taper	
		Minimum Number Of Devices	Length (Feet)	Minimum Number Of Devices	Length (Feet)
25	65	6	45	6	50
30	90	6	60	6	50
35	125	6	85	6	50
40	160	6	110	6	50
45	270	7	180	6	50
50	300	7	200	6	50
55	330	7	220	6	50

PATA 103



PATA 107

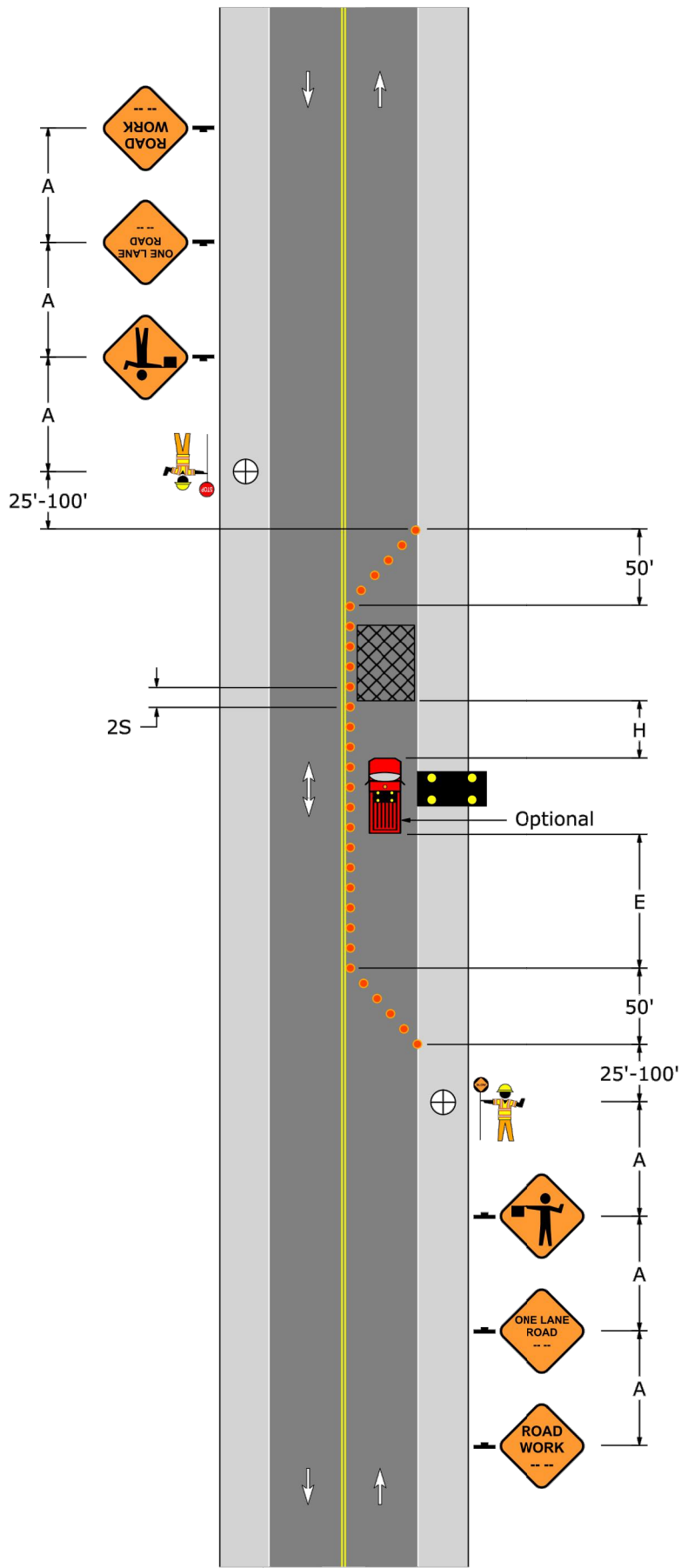
1. Flaggers shall be clearly visible to traffic for a minimum distance of E.
2. For operations of 15 minutes or less:
- a) The ROAD WORK, ONE LANE ROAD, and FLAGGER SYMBOL signs are not required.
- b) All channelizing devices may be eliminated if a shadow vehicle is present and the operation does not proceed against normal traffic flow.
3. When a shadow vehicle is not used, distance E is measured from the end of the taper to the beginning of the work space.

Signs		
		
W20-1	W20-4	W20-7

Sign Spacing, Channelizing Device Spacing, Buffer Space, and Roll Ahead Space					
Speed S (MPH)	Channelizing Devices Spacing 2S (Feet)	Sign Spacing		Buffer Space E (Feet)	Roll Ahead Space H (Feet)
		Urban A (Feet)	Rural A (Feet)		
25	50	100 - 200	500 - 800	155	150
30	60	100 - 200	500 - 800	200	150
35	70	100 - 200	500 - 800	250	150
40	80	350 - 500	500 - 800	305	150
45	90	350 - 500	500 - 800	360	150
50	100	350 - 500	500 - 800	425	250
55	110	350 - 500	500 - 800	495	250

Taper Lengths and Minimum Number Of Channelizing Devices		
Speed S (MPH)	50' Per Lane Taper	
	Length (Feet)	Minimum Number Of Devices
25	50	6
30	50	6
35	50	6
40	50	6
45	50	6
50	50	6
55	50	6

PATA 107



PATA 109 (A Through L)

1. PATA 109 drawings show work spaces on roads that approach and depart T-intersections with through-roads. Single-flagger or multi-flagger intersection control is illustrated for intersections with three types of permanent control:
- a) One-Way Stop
- b) All-Way Stop
- c) Traffic Signal
2. Flaggers shall be clearly visible to traffic for a minimum distance of E.
3. For operations of 15 minutes or less:
- a) The ROAD WORK, ONE LANE ROAD, and FLAGGER SYMBOL signs are not required.
- b) All channelizing devices may be eliminated if a shadow vehicle is present and the operation does not proceed against normal traffic flow.
4. When a shadow vehicle is not used, distance E is measured from the end of the taper to the beginning of the work space.

Signs		
		
W20-1	W20-4	W20-7

Sign Spacing, Channelizing Device Spacing, Buffer Space, and Roll Ahead Space					
Speed S (MPH)	Channelizing Devices Spacing 2S (Feet)	Sign Spacing		Buffer Space E (Feet)	Roll Ahead Space H (Feet)
		Urban A (Feet)	Rural A (Feet)		
25	50	100 - 200	500 - 800	155	150
30	60	100 - 200	500 - 800	200	150
35	70	100 - 200	500 - 800	250	150
40	80	350 - 500	500 - 800	305	150
45	90	350 - 500	500 - 800	360	150
50	100	350 - 500	500 - 800	425	250
55	110	350 - 500	500 - 800	495	250

Taper Lengths and Minimum Number Of Channelizing Devices		
Speed S (MPH)	50' Per Lane Taper	
	Length (Feet)	Minimum Number Of Devices
25	50	6
30	50	6
35	50	6
40	50	6
45	50	6
50	50	6
55	50	6

PATA 109 (A Through L)

Intersection Flagging Options

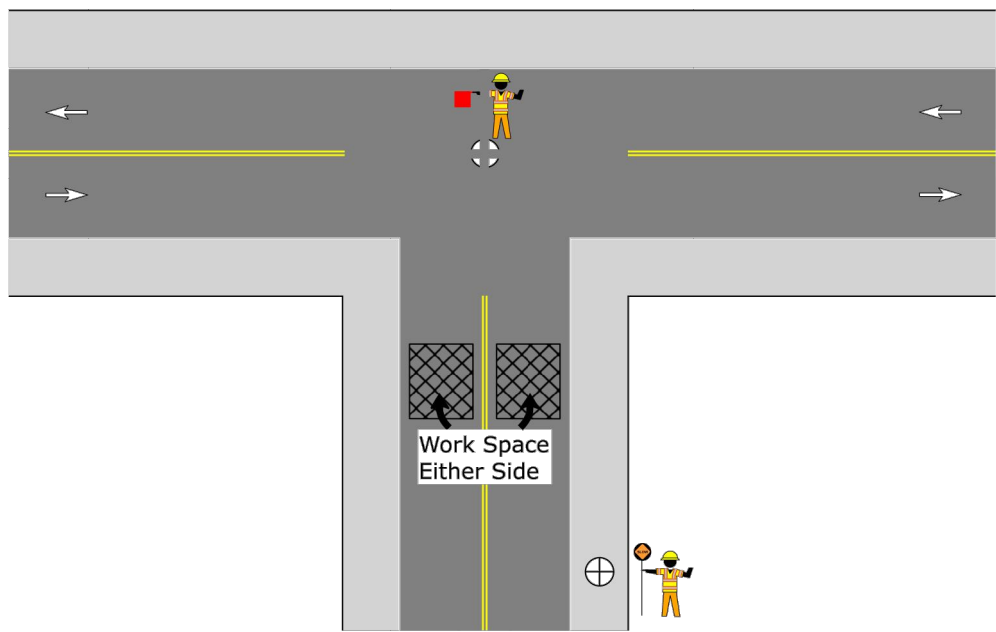


Figure 109-1
One Flagger within Intersection

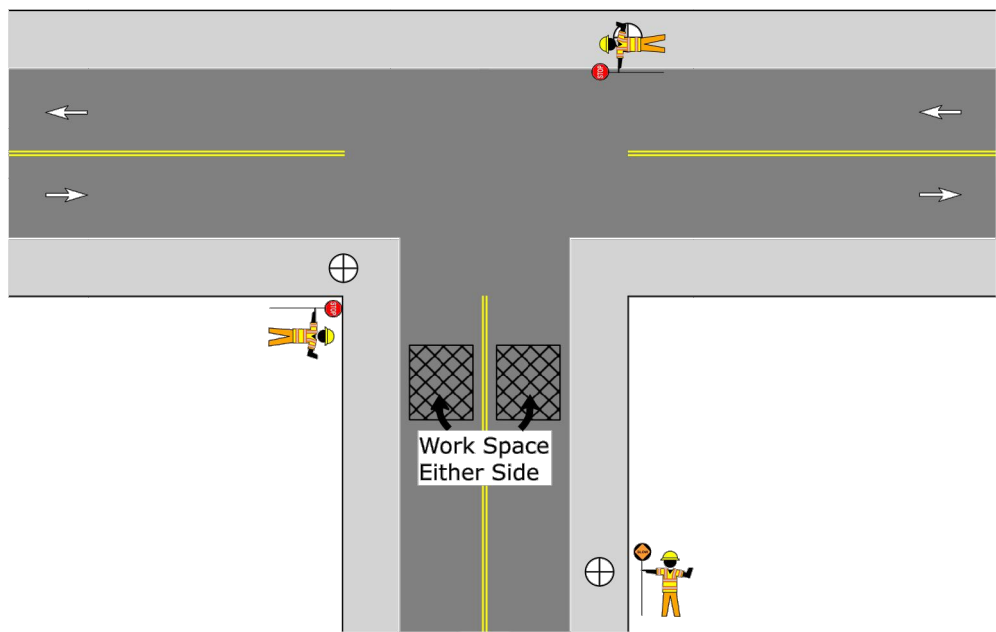
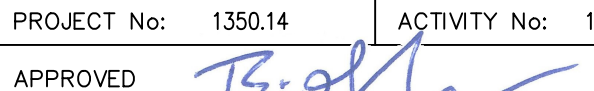


Figure 109-2
Two Flaggers at Intersection

NOTE: CONTRACTOR TO SELECT APPROPRIATE TRAFFIC CONTROL OPTION (PATA 109-A THROUGH PATA 109-L) BASED ON TYPE OF PERMANENT CONTROL AND FIELD CONDITIONS.

PENNDOT CONSTRUCTION NOTES:

1. TOWNSHIP TO BE NOTIFIED PRIOR TO WORKING NEAR SCHOOL SIGNALS AND SHALL MARK OUT AS REQUIRED.
2. SHOULDER AREAS PRONE TO WASHOUT SHALL BE PAVED.
3. ANY DAMAGE TO TREES OR CUT SLOPES CAUSING THEM TO FAIL SHALL BE THE RESPONSIBILITY OF THE PERMITTEE.
4. MAIN TO BE SLEEVED OR ENCASED WHERE PASSING THROUGH GUARDRAIL.
5. PERMITTEE AND HIS CONTRACTOR ARE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH THE REQUIRED EROSION AND SEDIMENTATION CONTROL MEASURES. APPROPRIATE CONTROLS ARE TO BE IN PLACE PRIOR TO SITE DISTURBANCE, CONTINUALLY MAINTAINED DURING CONSTRUCTION UNTIL REMOVED AND LEFT IN PLACE UNTIL SITE IS STABILIZED.
6. TOWNSHIP TO BE NOTIFIED PRIOR TO WORKING NEAR TRAFFIC SIGNAL LOOPS AND SHALL MARK OUT AS REQUIRED.
7. A BRIDGE OCCUPANCY LICENSE SHALL BE OBTAINED FOR THE STRUCTURE. EXCEPT IN EMERGENCY SITUATIONS.
8. EACH FLAGGER STATION SHALL BE ILLUMINATED AT NIGHT WITH AN OVERHEAD LIGHTING SOURCE HAVING 30,000 TO 40,000 LUMENS MINIMUM OF LIGHT OUTPUT FOR AN AREA OF NOT LESS THAN 7,500 SQUARE FEET. THE LIGHTING SOURCE SHALL HAVE A MINIMUM COLOR TEMPERATURE OF 3,000 DEGREES AND A MAXIMUM OF 4,000 DEGREES. POSITION THE LIGHT SO THE FLAGGERS CAN BE SEEN AND NOT CAUSE EXCESSIVE GLARE TO MOTORIST TRAVELING THROUGH THE WORK ZONE.

0	06/04/21	ISSUED FOR CONSTRUCTION	JPC
0	06/04/21	DESIGN COMPLETION	JPC
NO	DATE	REVISION	INTL
AQUA PENNSYLVANIA, INCORPORATED			
762 LANCASTER AVENUE, BRYN MAWR, PA., 19010			
PROJECT PLAN FOR:			
KIRK LANE S.R. 3028 PROJECT			
TRAFFIC CONTROL DETAILS #1			
UPPER PROVIDENCE TWP & MEDIA BORO, DELAWARE COUNTY			
DRAWN BY:	R.L.	CHK'D BY: JPC	EXT No: 18985-S
DATE:	12/10/2020	SCALE: NTS	PLATE: F31
PROJECT No:	1350.14	ACTIVITY No: 15900115591	A - 65726
APPROVED			
SHEET 12 OF 17			



PATA 110 (A Through T)

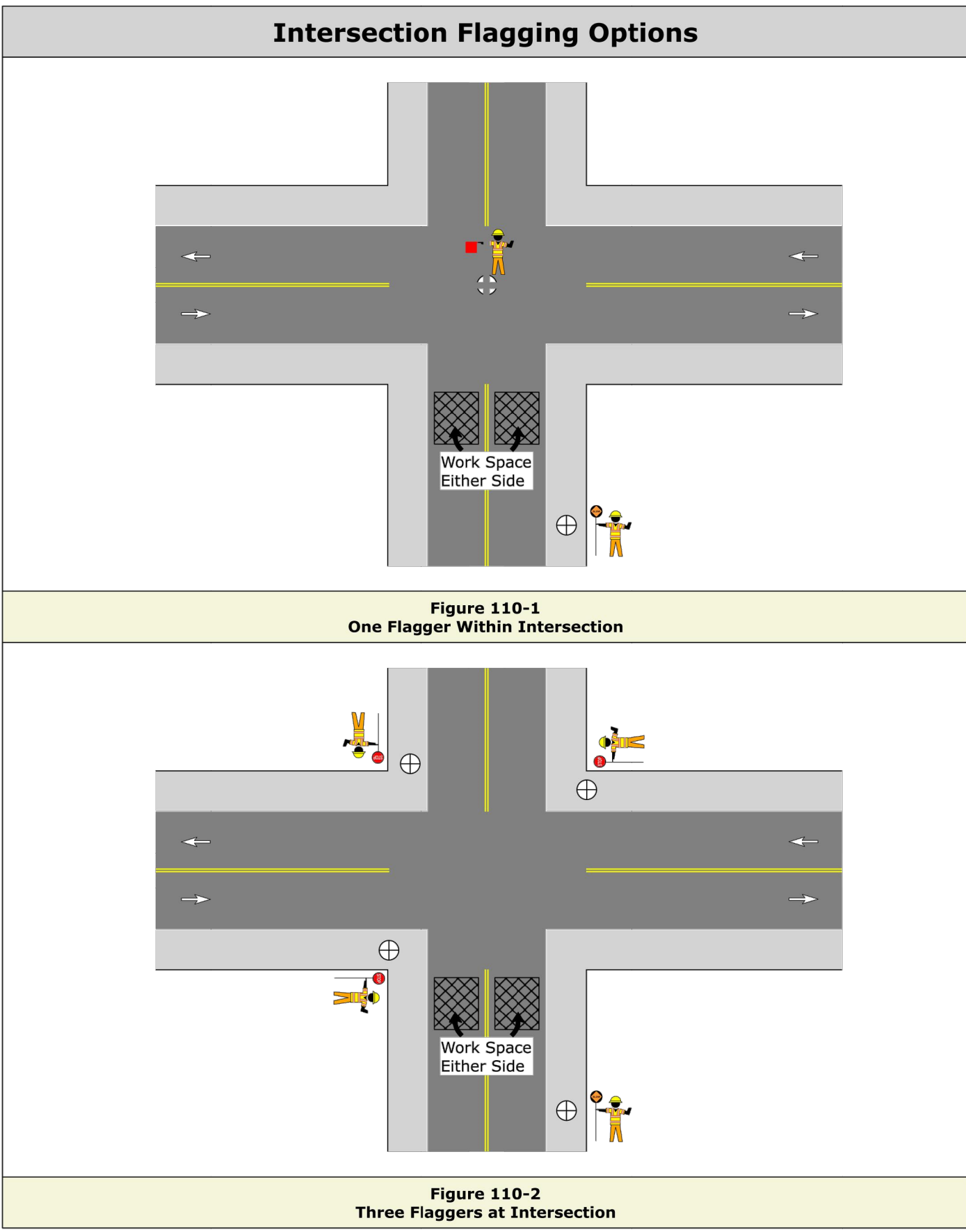
1. PATA 110 drawings show work spaces on roads that approach and depart 4-Way intersections. Single-flagger or multi-flagger intersection control is illustrated for intersections with three types of permanent control:
- a) One-Way Stop
 - b) All-Way Stop
 - c) Traffic Signal
2. Flaggers shall be clearly visible to traffic for a minimum distance of E.
3. For operations of 15 minutes or less:
- a) The ROAD WORK, ONE LANE ROAD, and FLAGGER SYMBOL signs are not required.
 - b) All channelizing devices may be eliminated if a shadow vehicle is present and the operation does not proceed against normal traffic flow.
4. When a shadow vehicle is not used, distance E is measured from the end of the taper to the beginning of the work space.

Signs		
		
W20-1	W20-4	W20-7

Sign Spacing, Channelizing Device Spacing, Buffer Space, and Roll Ahead Space					
Speed S (MPH)	Channelizing Devices Spacing ZS (Feet)	Sign Spacing		Buffer Space E (Feet)	Roll Ahead Space H (Feet)
		Urban A (Feet)	Rural A (Feet)		
25	50	100 - 200	500 - 800	155	150
30	60	100 - 200	500 - 800	200	150
35	70	100 - 200	500 - 800	250	150
40	80	350 - 500	500 - 800	305	150
45	90	350 - 500	500 - 800	360	150
50	100	350 - 500	500 - 800	425	250
55	110	350 - 500	500 - 800	495	250

Taper Lengths and Minimum Number Of Channelizing Devices		
Speed	50' Per Lane Taper	
S (MPH)	Length (Feet)	Minimum Number Of Devices
25	50	6
30	50	6
35	50	6
40	50	6
45	50	6
50	50	6
55	50	6

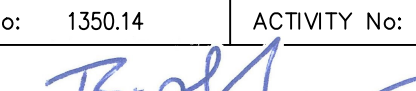
PATA 110 (A Through T)



NOTE:
CONTRACTOR TO SELECT APPROPRIATE TRAFFIC CONTROL OPTION (PATA 110-A THROUGH PATA 110-T) BASED ON TYPE OF PERMANENT CONTROL AND FIELD CONDITIONS.

- PENNDOT CONSTRUCTION NOTES:**
- TOWNSHIP TO BE NOTIFIED PRIOR TO WORKING NEAR SCHOOL SIGNALS AND SHALL MARK OUT AS REQUIRED.
 - SHOULDER AREAS PRONE TO WASHOUT SHALL BE PAVED.
 - ANY DAMAGE TO TREES OR CUT SLOPES CAUSING THEM TO FAIL SHALL BE THE RESPONSIBILITY OF THE PERMITTEE.
 - MAIN TO BE SLEEVED OR ENCASED WHERE PASSING THROUGH GUARDRAIL.
 - PERMITTEE AND HIS CONTRACTOR ARE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH THE REQUIRED EROSION AND SEDIMENTATION CONTROL MEASURES. APPROPRIATE CONTROLS ARE TO BE IN PLACE PRIOR TO SITE DISTURBANCE, CONTINUALLY MAINTAINED DURING CONSTRUCTION UNTIL REMOVED AND LEFT IN PLACE UNTIL SITE IS STABILIZED.
 - TOWNSHIP TO BE NOTIFIED PRIOR TO WORKING NEAR TRAFFIC SIGNAL LOOPS AND SHALL MARK OUT AS REQUIRED.
 - A BRIDGE OCCUPANCY LICENSE SHALL BE OBTAINED FOR THE STRUCTURE. EXCEPT IN EMERGENCY SITUATIONS.
 - EACH FLAGGER STATION SHALL BE ILLUMINATED AT NIGHT WITH AN OVERHEAD LIGHTING SOURCE HAVING 30,000 TO 40,000 LUMENS MINIMUM OF LIGHT OUTPUT FOR AN AREA OF NOT LESS THAN 7,500 SQUARE FEET. THE LIGHTING SOURCE SHALL HAVE A MINIMUM COLOR TEMPERATURE OF 3,000 DEGREES AND A MAXIMUM OF 4,000 DEGREES. POSITION THE LIGHT SO THE FLAGGERS CAN BE SEEN AND NOT CAUSE EXCESSIVE GLARE TO MOTORIST TRAVELING THROUGH THE WORK ZONE.



0	06/04/21	ISSUED FOR CONSTRUCTION	JPC
0	06/04/21	DESIGN COMPLETION	JPC
NO	DATE	REVISION	INTL
AQUA PENNSYLVANIA, INCORPORATED 762 LANCASTER AVENUE, BRYN MAWR, PA., 19010			
PROJECT PLAN FOR: KIRK LANE S.R. 3028 PROJECT TRAFFIC CONTROL DETAILS #2 UPPER PROVIDENCE TWP & MEDIA BORO, DELAWARE COUNTY			
DRAWN BY:	R.L.	CHK'D BY: JPC	EXT No: 18985-S
DATE:	12/10/2020	SCALE: NTS	PLATE: F31
PROJECT No:	1350.14	ACTIVITY No: 15900115591	A - 65726
APPROVED			SHEET 13 OF 17

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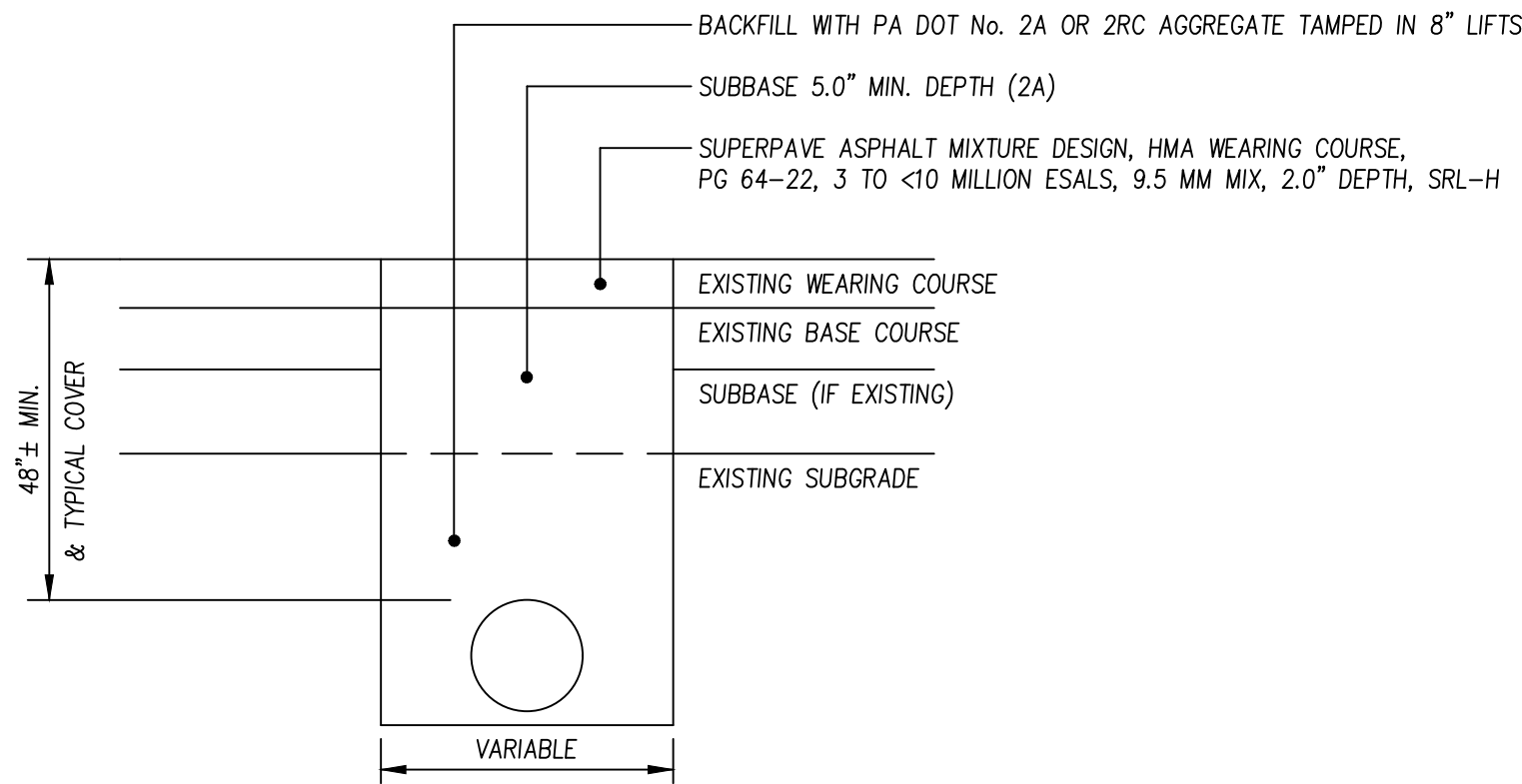
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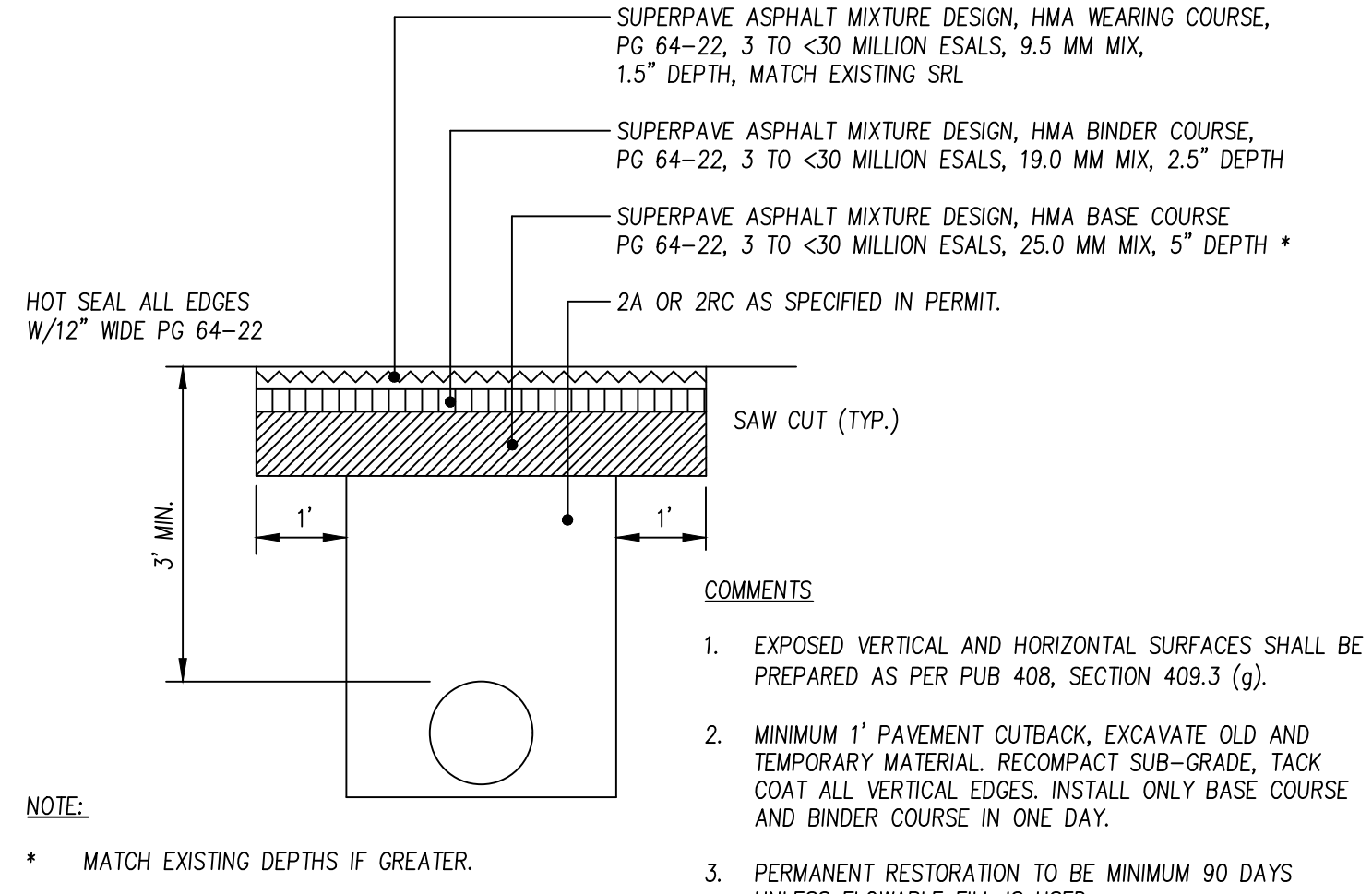
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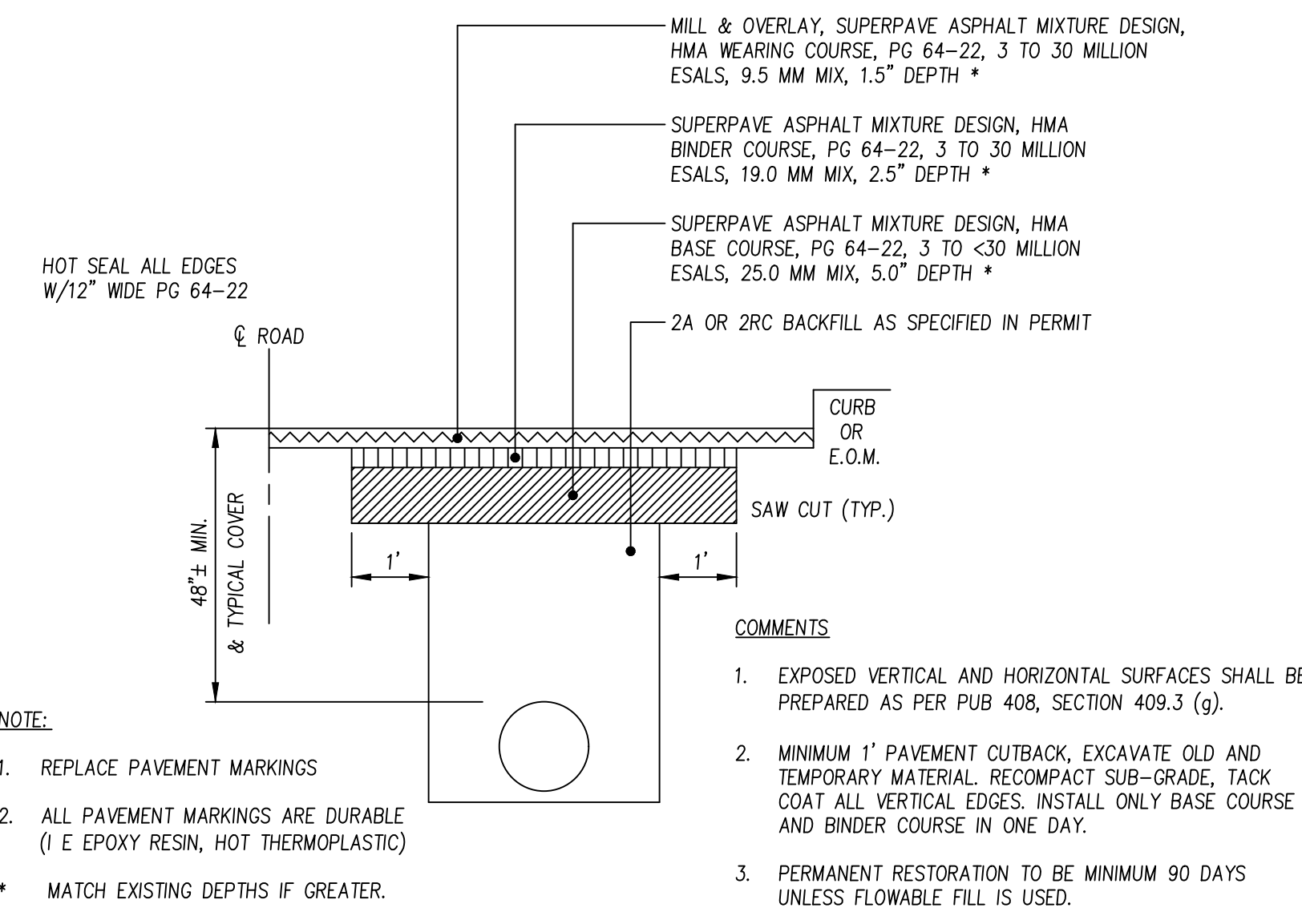
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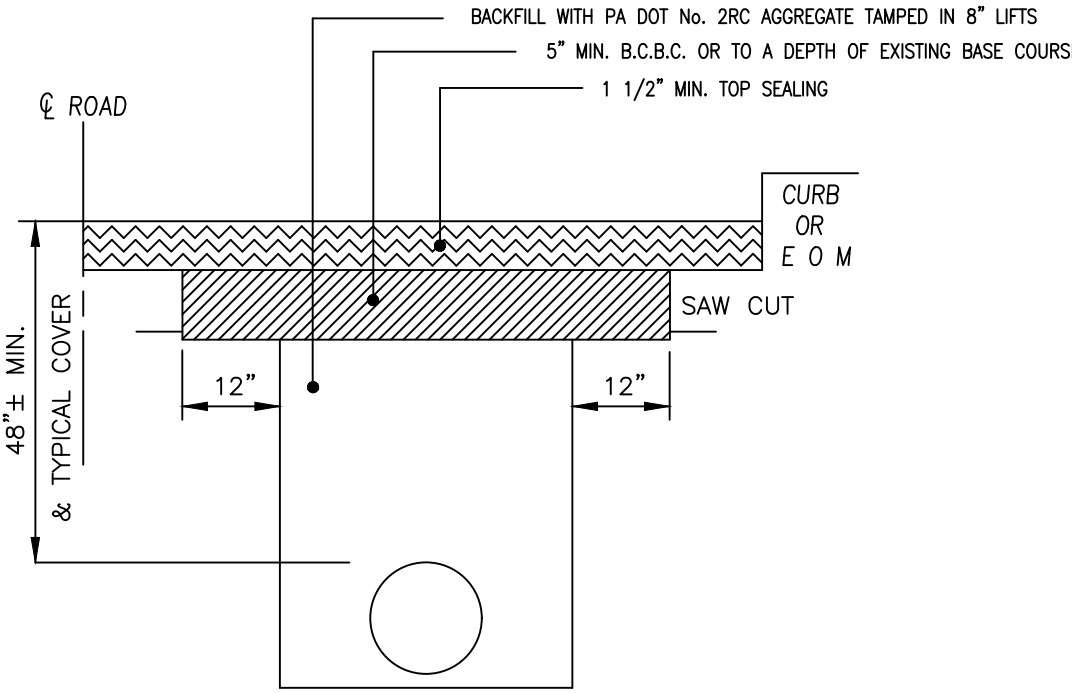
TEMPORARY RESTORATION
PENNDOT FIGURE 7-6
NTS



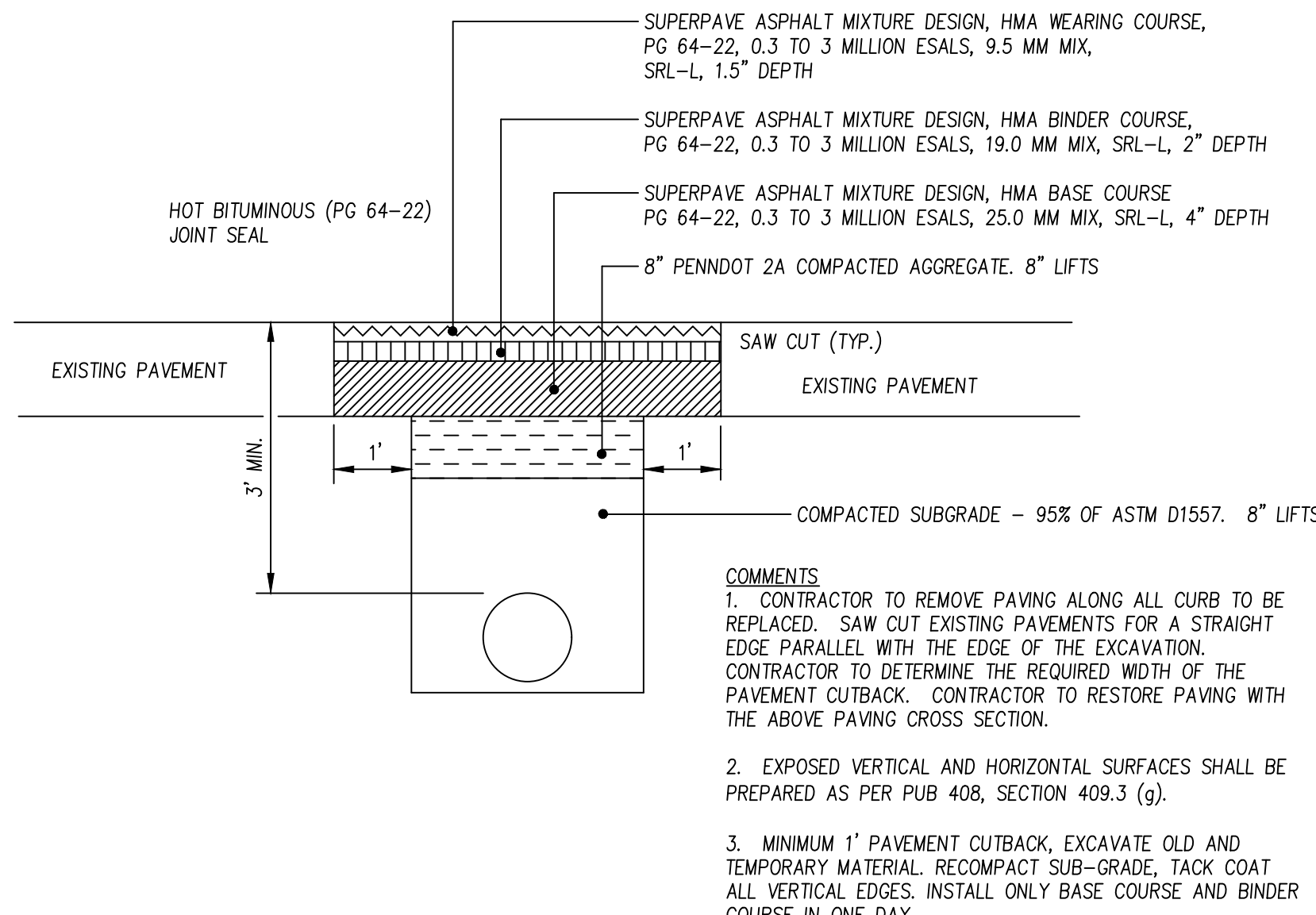
FLEXIBLE PAVEMENT RESTORATION
PENNDOT FIGURE 7-3
NTS



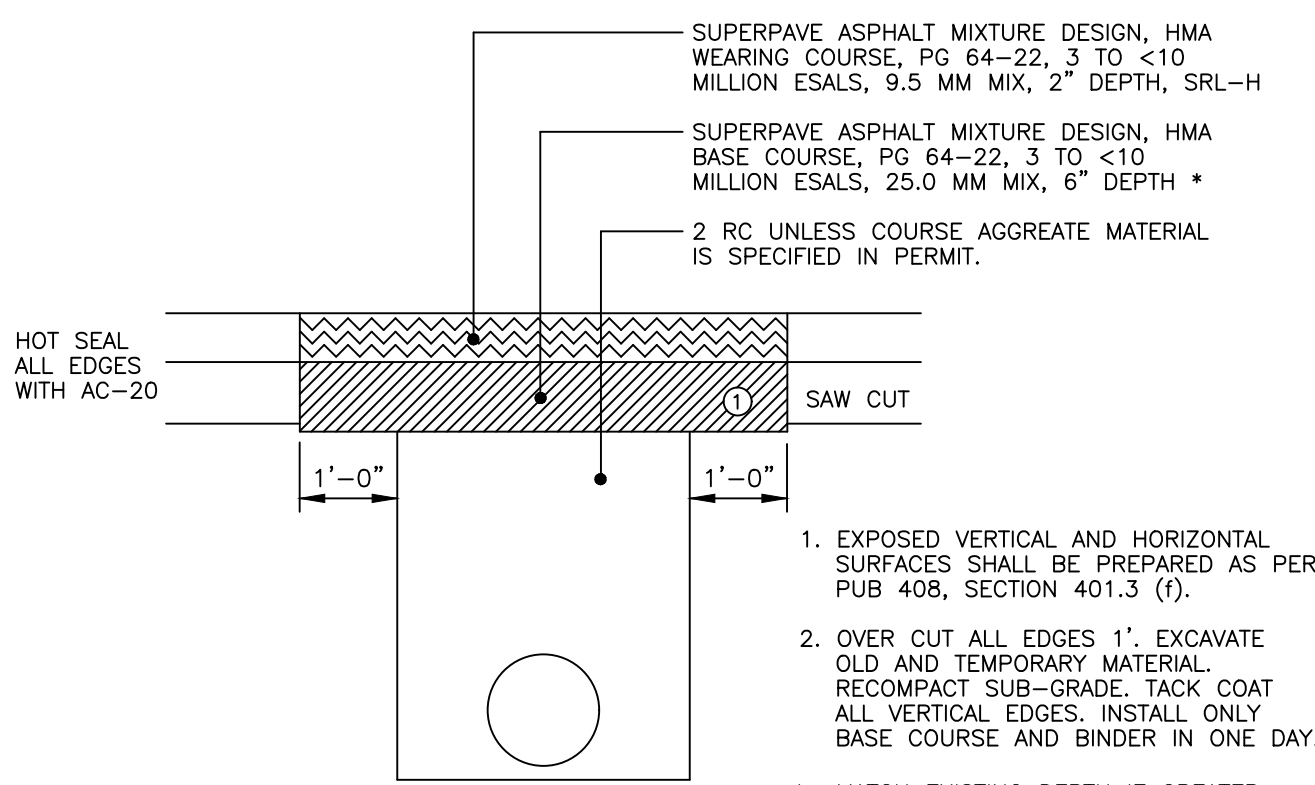
STATE ROAD PAVING RESTORATION DETAIL FOR
PARALLEL TRENCHING WITHIN TRAVEL LANE
NTS



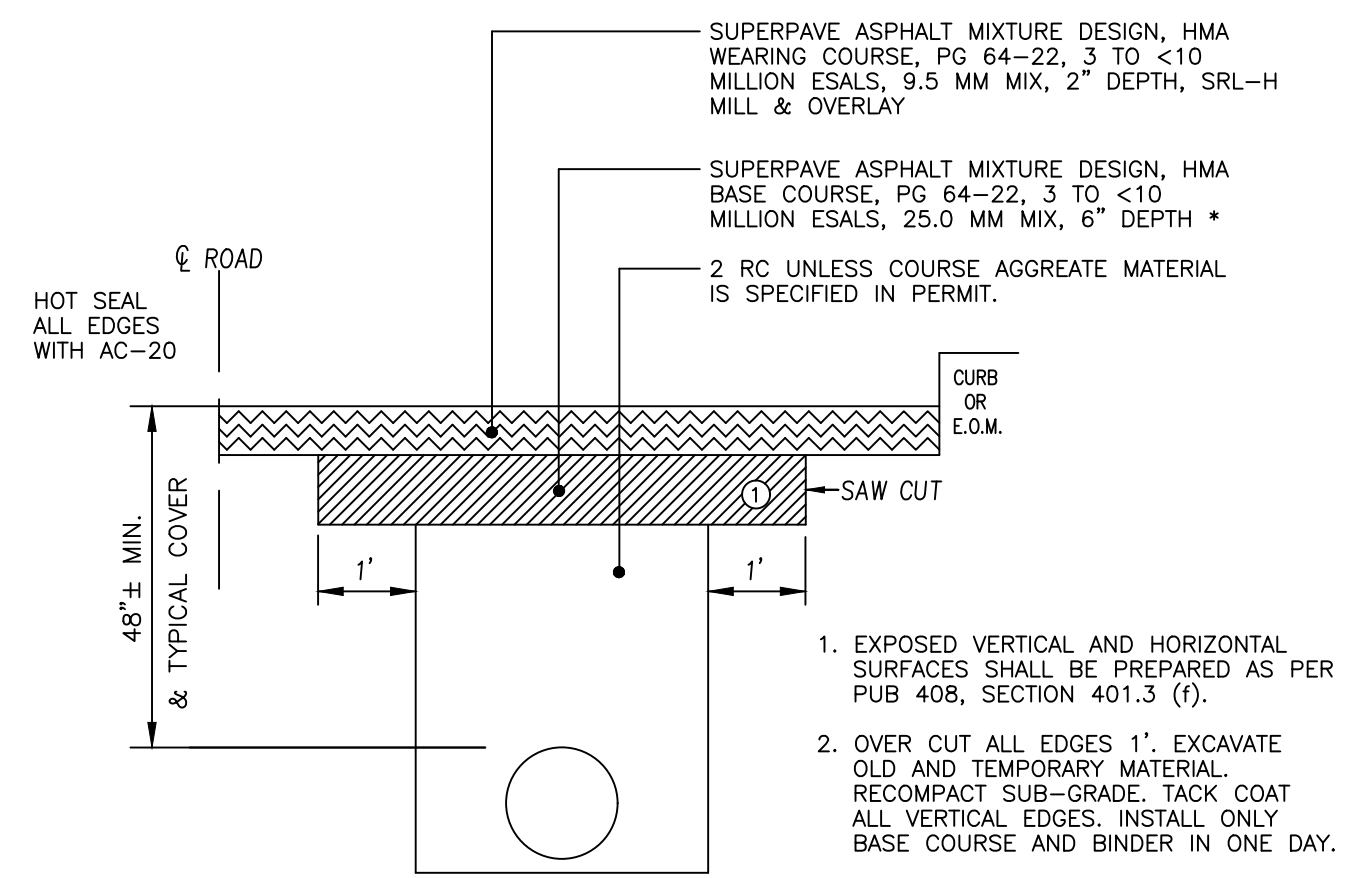
FLEXIBLE PAVEMENT RESTORATION
MEDIA BORO.



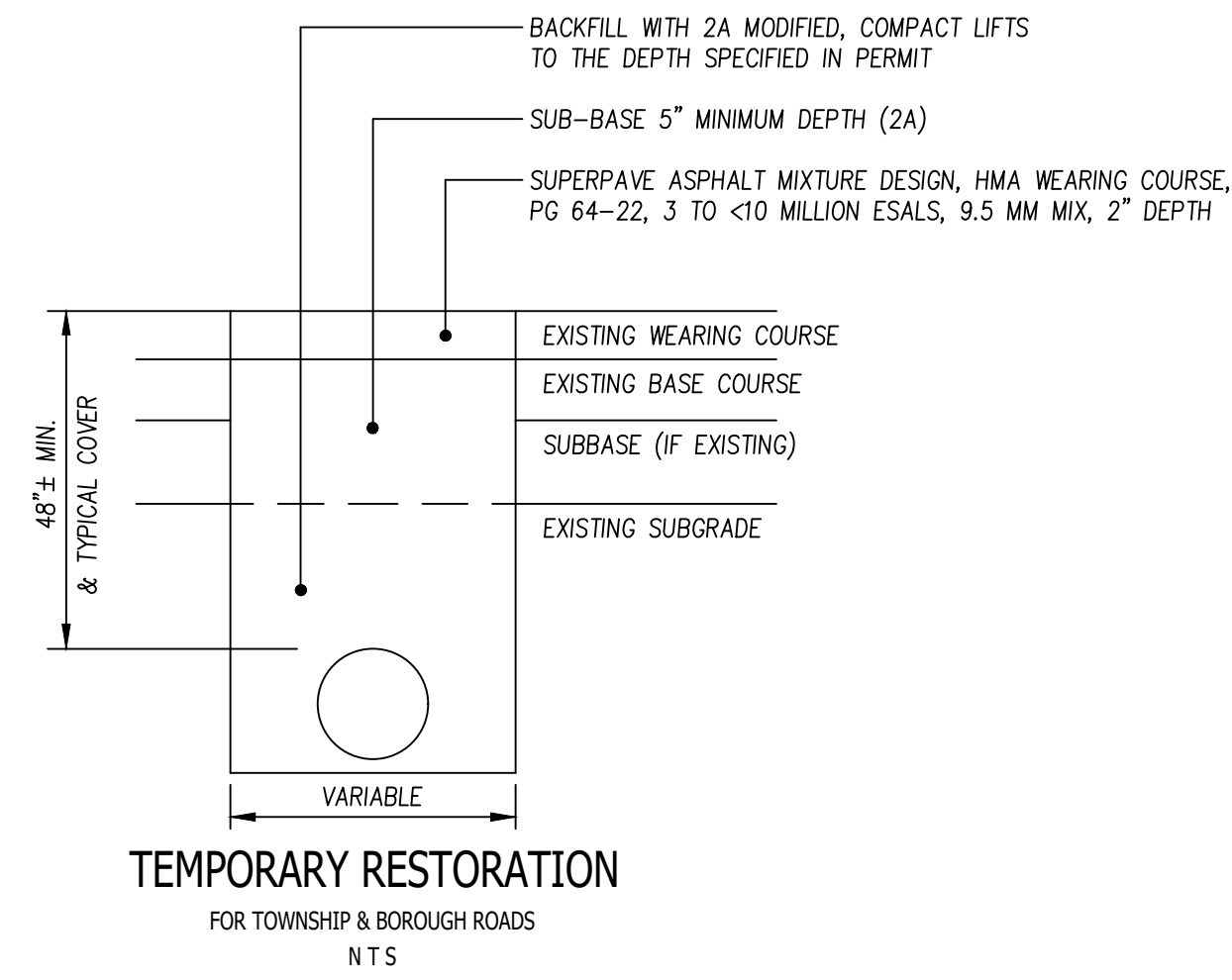
FLEXIBLE PAVEMENT RESTORATION
MEDIA BORO.



FLEXIBLE PAVEMENT RESTORATION
UPPER PROVIDENCE TWP.
NTS.



FLEXIBLE PAVEMENT RESTORATION
UPPER PROVIDENCE TWP.
NTS.



TEMPORARY RESTORATION
FOR TOWNSHIP & BOROUGH ROADS
NTS

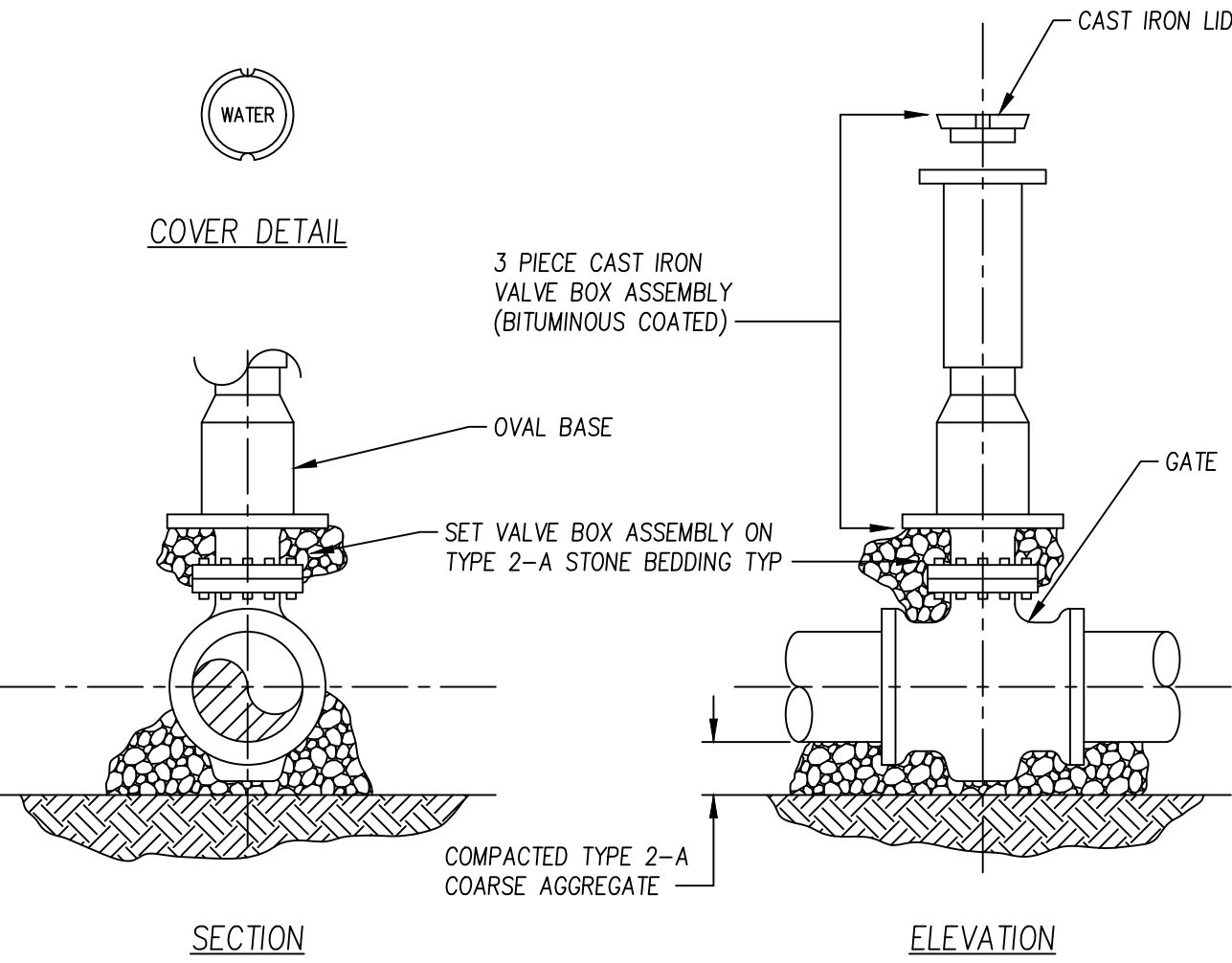
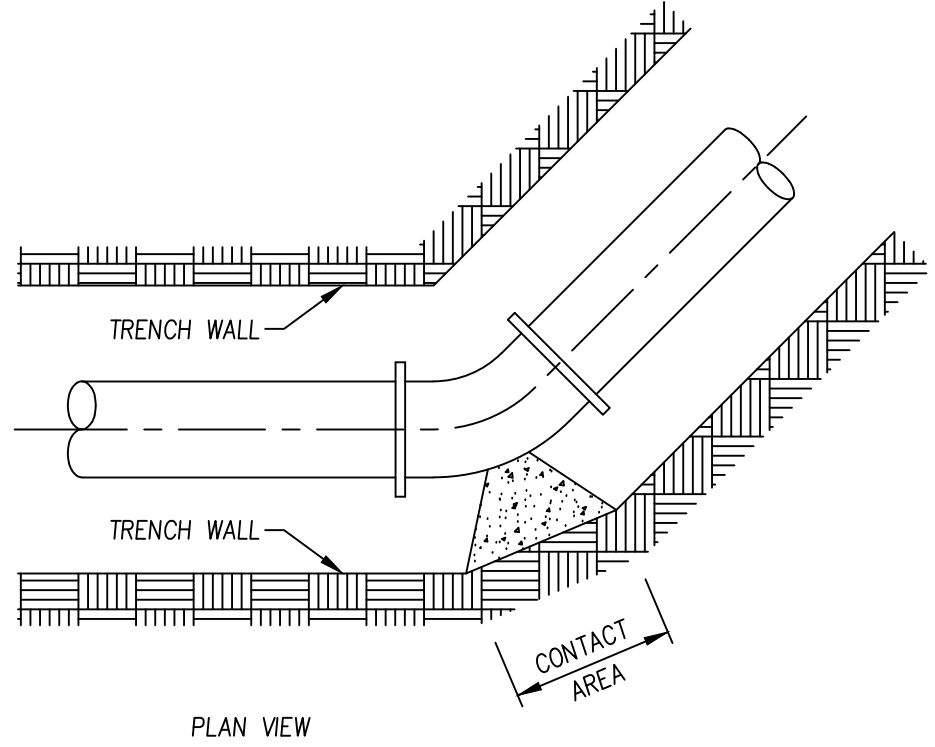
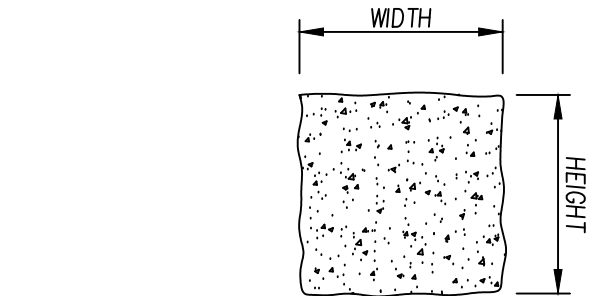


0	06/04/21	ISSUED FOR CONSTRUCTION	JPC
0	06/04/21	DESIGN COMPLETION	JPC
NO	DATE	REVISION	INTL
AQUA PENNSYLVANIA, INCORPORATED			
762 LANCASTER AVENUE, BRYN MAWR, PA., 19010			
PROJECT PLAN FOR:			
KIRK LANE S.R. 3028 PROJECT			
ROAD RESTORATION DETAILS			
UPPER PROVIDENCE TWP & MEDIA BORO, DELAWARE COUNTY			
DRAWN BY:	R.L.	CHK'D BY: JPC	EXT No: 18985-S
DATE:	12/10/2020	SCALE: NTS	PLATE: F31
PROJECT No:	1350.14	ACTIVITY No: 15900115591	A - 65726
APPROVED			SHEET 14 OF 17

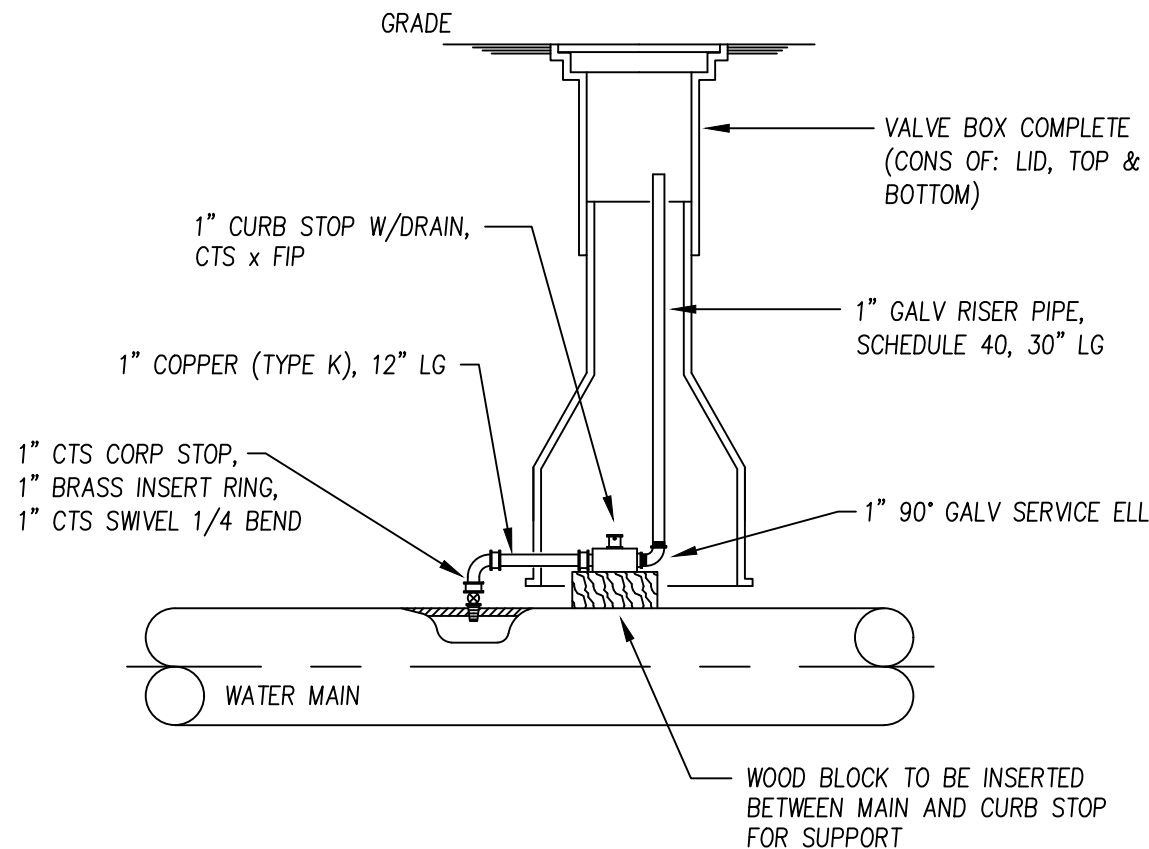
MINIMUM THRUST BLOCK
AREAS REQUIRED
(SQUARE FEET OF CONTACT SURFACE AREA ALONG TRENCH WALL)

PIPE DIAMETER (INCHES)	HYDRANTS, TEES & BLOW-OFFS			90° BENDS			45° BENDS			11 1/4" & 22 1/2" BENDS		
	0-100 PSI	101-150 PSI	151-200 PSI	0-100 PSI	101-150 PSI	151-200 PSI	0-100 PSI	101-150 PSI	151-200 PSI	0-100 PSI	101-150 PSI	151-200 PSI
6	3	4	5	3	5	6	2	3	4	1	2	2
8	4	6	8	6	8	11	3	5	6	2	3	3
12	9	13	17	12	18	24	7	10	13	4	5	7
16	15	23	30	21	32	43	12	17	23	6	9	12
24	36	54	72	48	72	96	26	39	52	13	20	26

NOTE:
REFER TO ENGINEERING DEPT FOR ALL VERTICAL BENDS AND HORIZONTAL BENDS
HAVING ANGLES, PRESSURES OR PIPE DIAMETERS NOT LISTED ABOVE



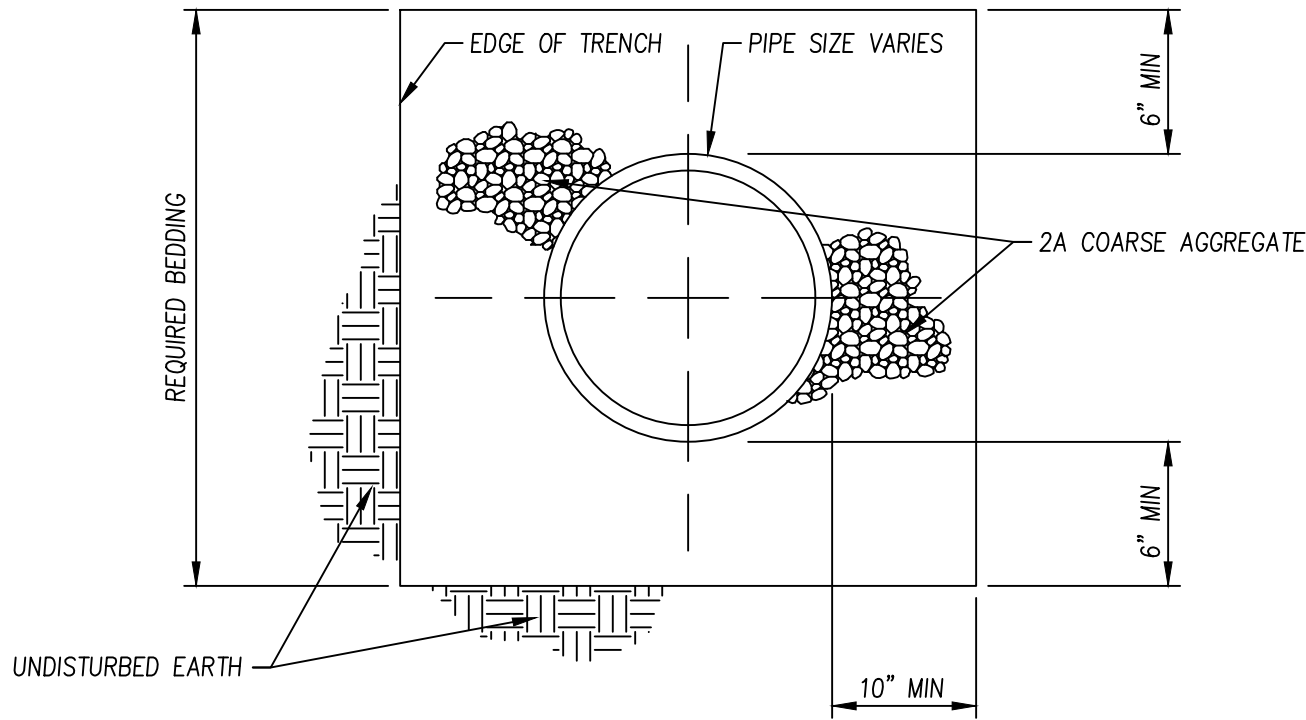
STANDARD GATE VALVE AND VALVE BOX ASSEMBLY DETAIL



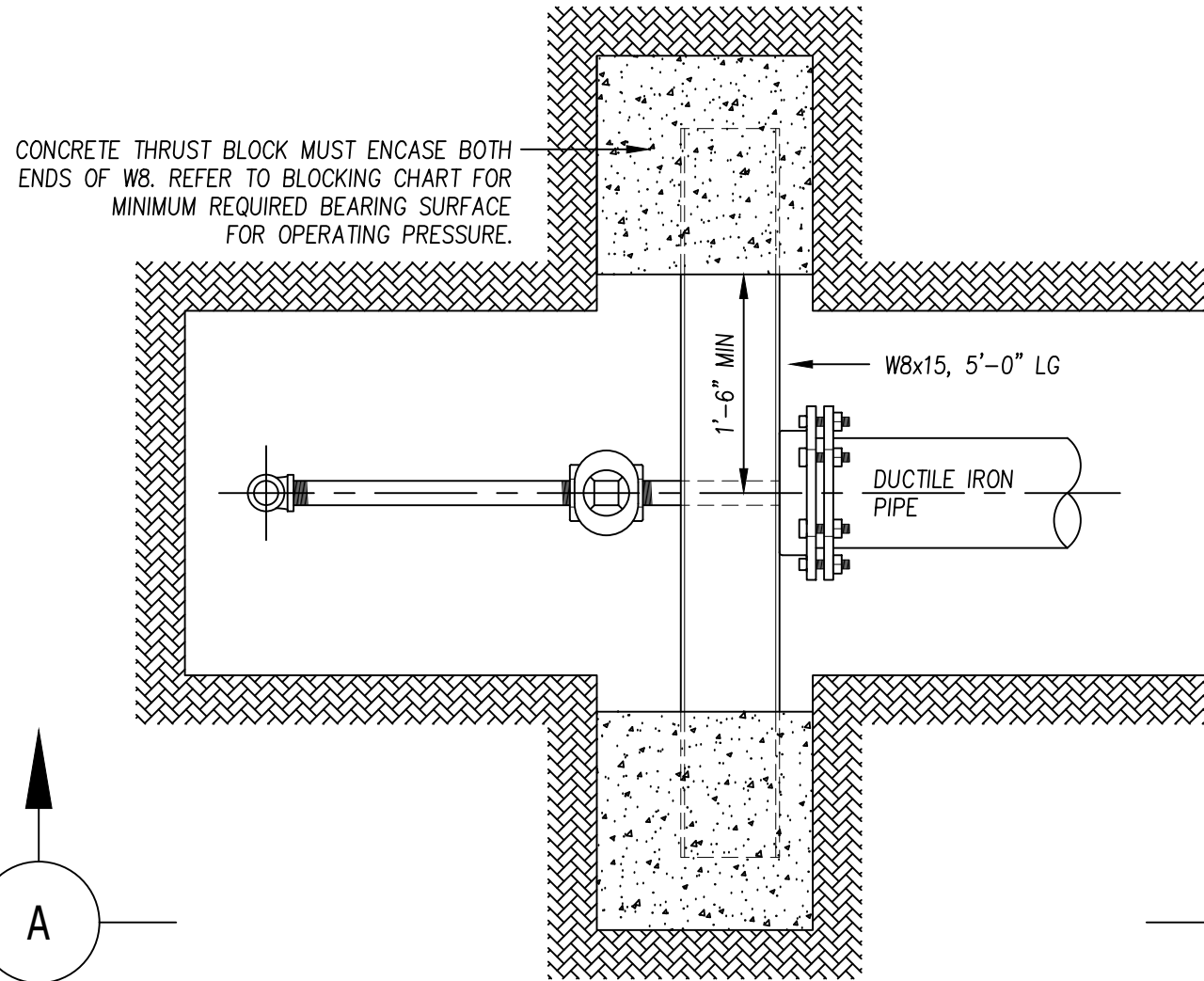
STANDARD 1" MAV & CL2 ASSEMBLY

- NOTES:
- FOR STANDARD 1" CONNECTION, PROVIDE A TAPPED COUPLING WITH THREADED INSERT OR DOUBLE-STRAPPED SADDLE CLAMP.
 - DO NOT PLACE CURB STOP IN PAVED AREAS.
 - ALL SERVICE CONNECTIONS SHALL BE LOCATED AT THE MIDPOINT BETWEEN SIDE LOT LINES OR AS DIRECTED BY A AQUA PA FIELD REPRESENTATIVE.
 - WHERE SIDEWALK PARALLELS ROADWAY, THE CURB BOX SHALL BE PLACED BETWEEN THE CURB AND SIDEWALK. ALL OTHER LOCATIONS, CURB BOX TO BE PLACED AS DIRECTED BY A AQUA PA FIELD REPRESENTATIVE.

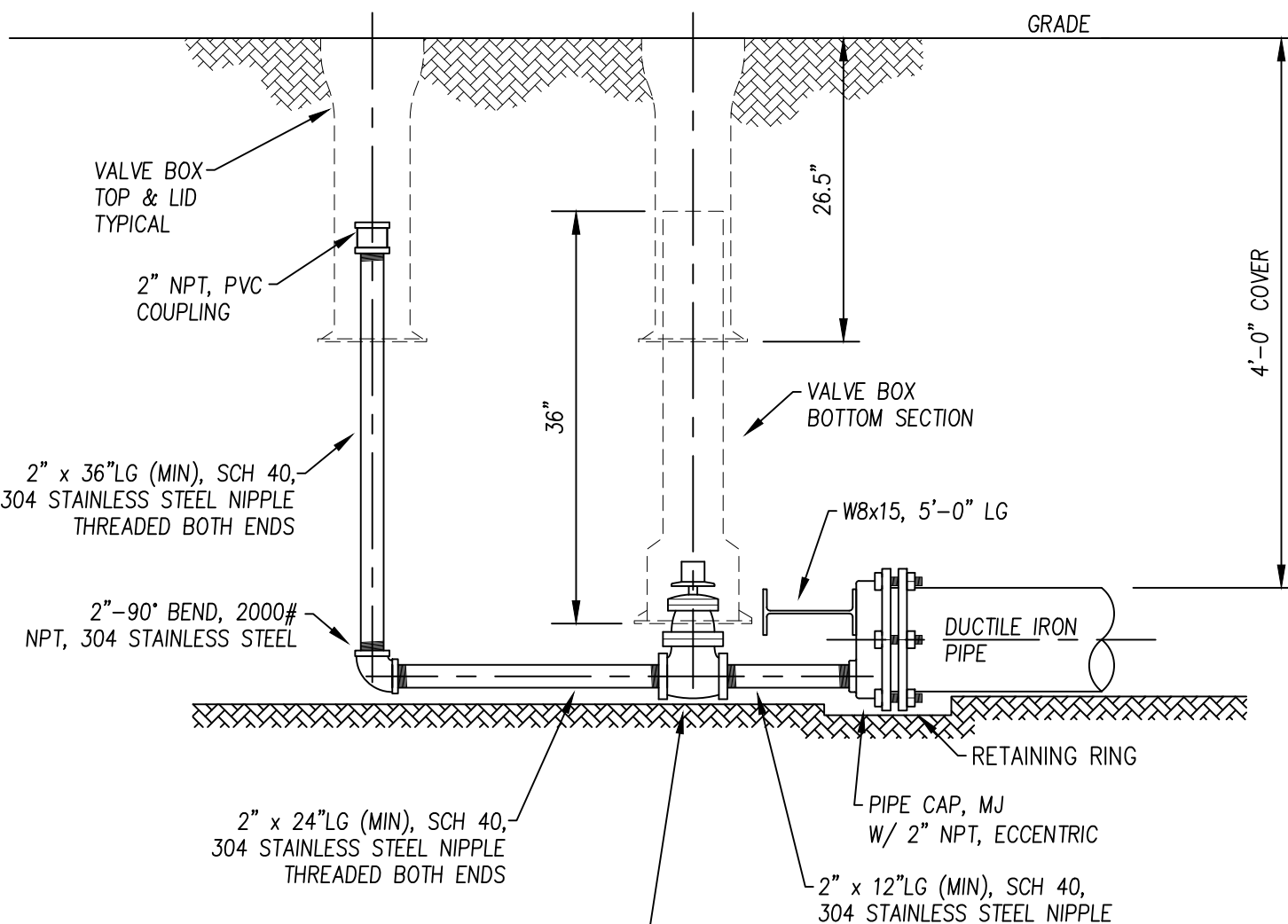
STANDARD SERVICE CONNECTION



STANDARD PIPE BEDDING DETAIL



PLAN VIEW



SECTION A

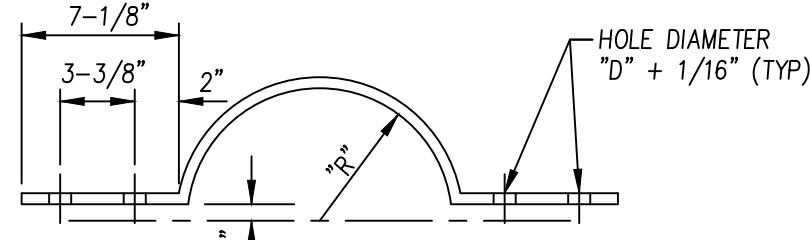
- NOTES:
- WB MEMBER MUST MAKE FULL CONTACT WITH CAP OR PLUG, AND MUST BE SUPPORTED TO PROVIDE 1" MINIMUM VERTICAL CLEARANCE FROM STAINLESS STEEL PIPE.
 - CONCRETE THRUST BLOCKS MUST BE POURED AGAINST UNDISTURBED SOIL. NO EXCAVATION IS PERMITTED DOWNSTREAM OF BLOCKING. CONSULT WITH THE ENGINEERING DEPT OF AQUA PA FOR MINIMUM PERMITTED DISTANCE.
 - ALL MALE PIPE THREADS ARE TO BE COATED WITH 1/2" WIDE PTFE (TEFLON) THREAD SEAL TAPE, MIL SPEC T27730A, 4 TO 6 WRAPS PER JOINT.

STANDARD 2" BLOW OFF

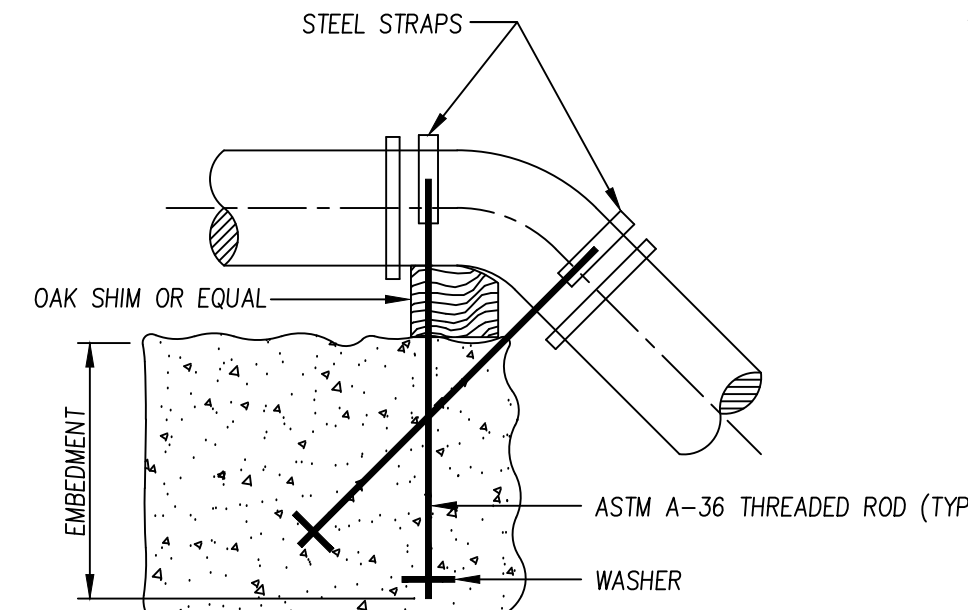
MINIMUM CONCRETE VOLUMES AND STEEL STRAP SIZES REQUIRED FOR BLOCKING 6", 8", & 12" VERTICAL BENDS

KEY	PIPE DIAMETER	PRESSURE (PSI)	BEND ANGLE	CONCRETE REQUIRED (CU YD)	STEEL STRAP SIZE	"R" STRAP RADIUS	ANCHOR BOLT DIAMETER "D" AND NUMBER REQUIRED PER STRAP	EMBEDMENT LENGTH
A	6"	0 - 100	ALL	1.0	1/4" x 2 1/2"	3 5/8"	(2) 3/4"	24"
A-1	6"	101 - 200	ALL	2.5	1/4" x 2 1/2"	3 5/8"	* (2) 1"	36"
B	8"	0 - 100	ALL	2.0	3/8" x 3"	4 3/4"	* (2) 1"	36"
B-1	8"	101 - 200	45°	3.0	3/8" x 3"	4 3/4"	* (2) 1"	36"
B-2	8"	101 - 200	90°	4.0	3/8" x 3"	4 3/4"	(4) 1"	36"
C	12"	0 - 100	ALL	4.5	1/2" x 3"	6 3/4"	(4) 1"	36"
C-1	12"	101 - 200	45°	6.0	(2) 1/2" x 3"	6 3/4"	(4) 1"	36"
C-2	12"	101 - 200	90°	8.5	(2) 1/2" x 3"	6 3/4"	(4) 1"	36"

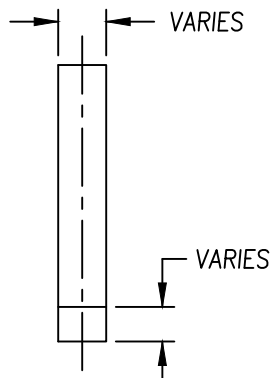
* - WHERE (2) 1" DIAMETER BOLTS ARE REQUIRED
(4) 3/4" DIAMETER BOLTS MAY BE USED



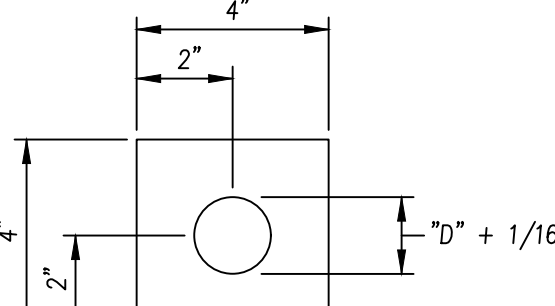
STRAP DETAIL



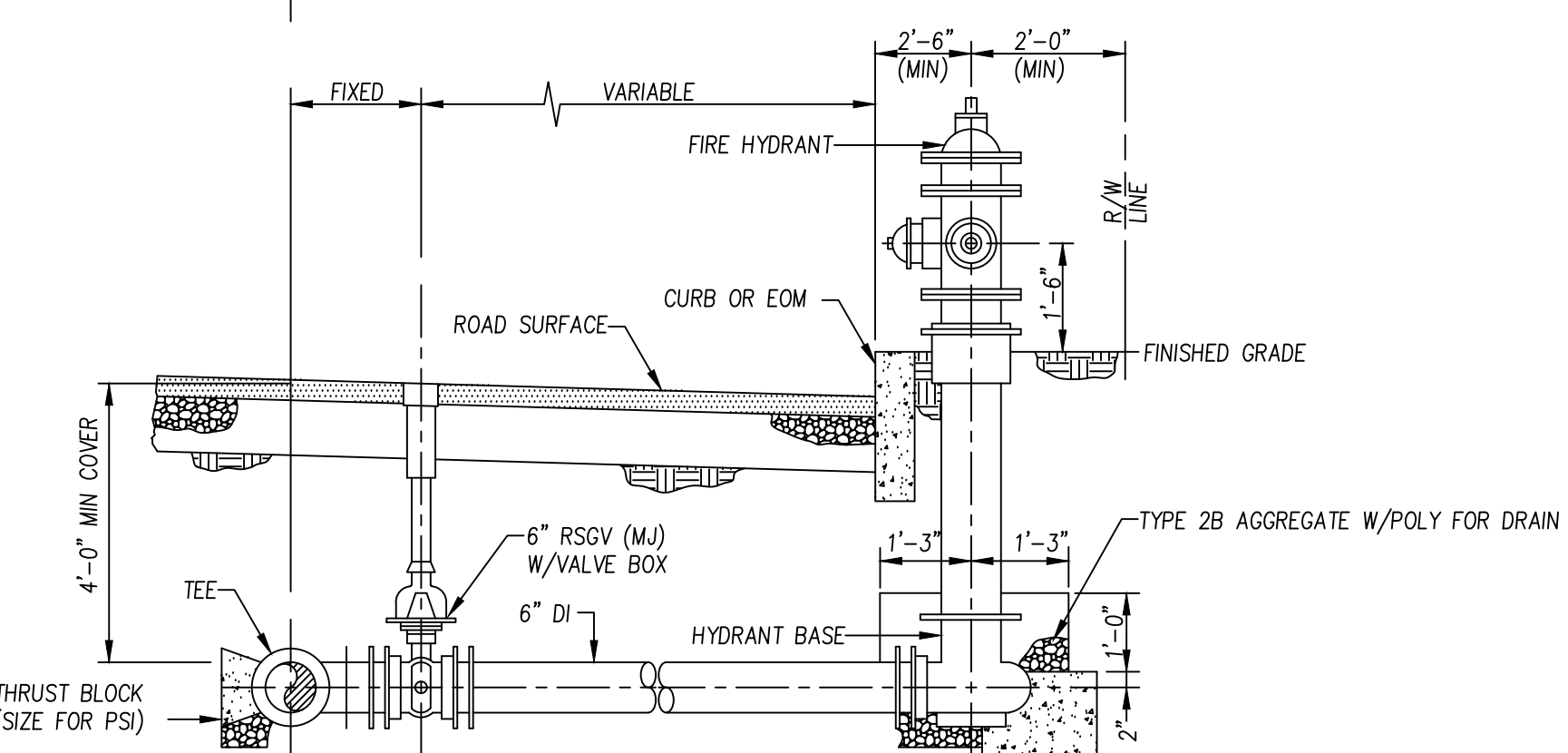
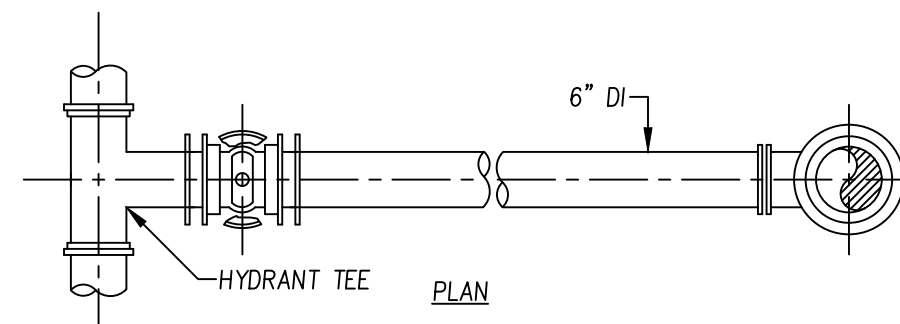
TYPICAL ANCHOR DETAIL



STRAP SECTION



WASHER DETAIL



FIRE HYDRANT DETAIL

NTS

0	06/04/21	ISSUED FOR CONSTRUCTION	JPC
0	06/04/21	DESIGN COMPLETION	JPC
NO	DATE	REVISION	INTL

AQUA PENNSYLVANIA, INCORPORATED
762 LANCASTER AVENUE, BRYN MAWR, PA., 19010

PROJECT PLAN FOR:
KIRK LANE S.R. 3028 PROJECT
MISCELLANEOUS DETAILS
UPPER PROVIDENCE TWP & MEDIA BORO, DELAWARE COUNTY

DRAWN BY:	R.L.	CHK'D BY:	JPC	EXT No:	18985-S
DATE:	12/10/2020	SCALE:	NTS	PLATE:	F31
PROJECT No:	1350.14	ACTIVITY No:	15900115591	A - 65726	
APPROVED					SHEET 15 OF 17

BCAD
PLAN PREPARED BY:
BRANDYWINE CAD DESIGN, INC.
3204 CONCORD PIKE
WILMINGTON, DE 19803



SEEDING NOTE:

1. LIME – AGRICULTURAL GRADE LIMESTONE:

ADDING LIME TO THE SOIL IS VITAL TO YOUR REVEGETATION EFFORTS. THE MAJORITY OF DISTURBED SITES ARE ACID AND INFERTILE. ACID PRECIPITATION COMPLICATES THIS PH PROBLEM. A SOIL TEST FROM A REPUTABLE LABORATORY IS RECOMMENDED. IF SOIL TEST RESULTS ARE NOT AVAILABLE APPLY LIME AT THE FOLLOWING RATES:

Lime	4 tons per acre	190 lbs. per 1000 s.f.
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2. FERTILIZER – COMMERCIAL TYPE: 10-20-20

THE NEED FOR FERTILIZER CAN NOT BE UNDERESTIMATED. FERTILIZER WILL GREATLY INCREASE THE GROWTH OF BOTH THE PLANT AND ITS ROOTS. ONCE AGAIN A SOIL TEST IS THE PREFERRED ALTERNATIVE. IF SOIL TEST RESULTS ARE NOT AVAILABLE APPLY FERTILIZER AS FOLLOWS:

Fertilizer	930 lbs. per acre	25 lbs. per 1000 s.f.
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3. MULCH – HAY OR STRAW:

ALL AREAS WHICH ARE SEEDED WITH EITHER TEMPORARY OR PERMANENT SEED MIXTURES SHOULD BE MULCHED. MULCH IS A LOOSE 3/4" TO 1" DEEP OF HAY OR STRAW. MULCH REDUCES SOIL EROSION, AIDS SEED GERMINATION, AND CONSERVES MOISTURE. HAY OR STRAW SHOULD NOT BE CHOPPED OR FINELY BROKEN DURING APPLICATION. MULCH SHOULD APPLY FOLLOWS:

Mulch	3 tons per acre	1400 lbs. per 1000 s.f.
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4. SEEDING PREPARATION AND SEEDING METHODS:

PRIOR TO SEEDING, APPLY THE RECOMMENDED AMOUNT OF LIMESTONES AND WORK AS DEEPLY AS POSSIBLE INTO THE SOIL. AT SEEDING TIME WORK RECOMMENDED FERTILIZER AS DEEP AS POSSIBLE INTO THE SOIL. SEED AT THE RECOMMENDED RATES AND FOLLOW WITH AN ADEQUATE LAYER OF MULCH. SEED CAN BE APPLIED TO DISTURBED AREAS IN MANY WAYS. BROADCAST SEEDING BY EITHER HAND OR SPREADER, DRILL, AND HYDROSEEDING ARE SOME EXAMPLES. HYDROSEEDING IS A COMMON PRACTICE ON CONSTRUCTION SITES. THE LIME, FERTILIZER, AND SEED MIXTURE IS ADDED AT ONE TIME. WARNING: TO ACHIEVE REVEGETATION THE SEEDED STILL MUST BE PROPERLY GRADED AND TILLED. WOOD CELLULOSE A PAPER LIKE PRODUCT IS OFTEN SUBSTITUTED FOR MULCH. THE RATE OF APPLICATION SHOULD BE 320 LBS. PER 1,000 SQ. YDS. THIS IS NOT THE PREFERRED ALTERNATIVE. WOOD CELLULOSE IS BETTER APPLIED AT A RATE OF 160 LBS. PER 1,000 SQ. YDS. AS A TACK COAT TO HOLD STRAW OR HAY MULCH IN PLACE. IF TEMPORARY SEEDING IS NECESSARY DIVIDE THE FERTILIZER AND LIME RECOMMENDATIONS. APPLY THE FOLLOWING AS PART OF THE TEMPORARY SEEDING:

Lime	1 ton per acre	50 lbs. per 1000 s.f.
Fertilizer	150 lbs. per acre	5 lbs. per 1000 s.f.

THEN APPLY THE REMAINDER OF THE RECOMMENDED RATES DURING THE FINAL SEEDING PROCESS.

5. TEMPORARY SEED MIXTURE:

ANNUAL RYEGRASS IS A QUICK GERMINATING SPECIES OF GRASS WHICH CAN BE SEEDED AT ALMOST ANYTIME. IF YOU PLAN TO LEAVE YOUR PROJECT DISTURBED AND TEMPORARILY INACTIVE A TEMPORARY SEEDING SHOULD BE APPLIED IMMEDIATELY. IF YOUR SITE IS GOING TO REMAIN INACTIVE A PERMANENT SEEDING IS NECESSARY.

Annual Ryegrass	40 lbs. per acre	1 lbs. per 1000 s.f.
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6. PERMANENT SEED MIXTURES:

ESTABLISHING A PERMANENT VEGETATIVE COVER IS THE FINAL STEP TO EFFECTIVE EROSION AND SEDIMENT POLLUTION CONTROL. IT IS RECOMMENDED THAT THE PENN STATE AGRONOMY GUIDE BE CONSULTED. TO MAKE THIS GUIDE COMPREHENSIVE WE HAVE SELECTED A FEW MIXTURES WHICH WILL MEET THE REQUIREMENTS OF CHAPTER 102-EROSION CONTROL.

LAWN AND MOWED AREAS:

Kentucky Bluegrass	30 lbs. per acre	12 oz. per 1000 s.f.
Redtop	3 lbs. per acre	2 oz. per 1000 s.f.
Perennial Ryegrass	20 lbs. per acre	8 oz. per 1000 s.f.
*TOTAL SEEDING	53 lbs. per acre	22 oz. per 1000 s.f.

or

Pennlawn-Fine Fescue	40 lbs. per acre	16 oz. per 1000 s.f.
Redtop	3 lbs. per acre	2 oz. per 1000 s.f.
Perennial Ryegrass	20 lbs. per acre	8 oz. per 1000 s.f.
*TOTAL SEEDING	63 lbs. per acre	26 oz. per 1000 s.f.

SLOPES OR UN-MOWED AREAS:

**Crownvetch	25 lbs. per acre	10 oz. per 1000 s.f.
Perennial Ryegrass	25 lbs. per acre	10 oz. per 1000 s.f.
*TOTAL SEEDING	50 lbs. per acre	20 oz. per 1000 s.f.

* – ALL MIXTURES GIVEN ABOUT ARE FOR PLS-PURE LIVE SEED 100% TO CALCULATE PLS, THE PERCENTAGE OF PURE SEED IS MULTIPLIED BY THE PERCENTAGE OF GERMINATION, AND THE PRODUCT IS DIVIDED BY 100. (85% PURE SEED X 72% GERMINATION) DIVIDED BY=61% PLS. TO DETERMINE HOW MUCH SEED TO PLANT, DIVIDE THE PERCENTAGE INTO 100. EXAMPLE: 100 DIVIDED BY 61=1.63. THUS, EVERY POUND OF SEED MIXTURE CALLED FOR SHOULD THEN BE 1.63 LBS.

** – CROWNVETCH IS A LEGUME AND WILL REQUIRE AN INOCULANT. PLEASE CONTACT YOUR SEED SUPPLIER FOR SPECIFIC DIRECTIONS ON APPLYING THE REQUIRED INOCULANT.

7. TIME OF SEEDING (PERMANENT):

FOR BEST RESULTS, GRASS AND LEGUME SEEDLINGS SHOULD BE MADE IN THE SPRING, HOWEVER, WITH PROPER ESTABLISHMENT TECHNIQUES, DISTURBED SITES CAN BE SEEDED ALMOST ANYTIME FROM SPRING TO FALL.

A GENERAL RULE IS AS FOLLOWS:

- (1) LEGUME SEEDLINGS NEED A GROWING PERIOD OF AT LEAST 10 TO 12 WEEKS PRIOR TO HARD FROSTS.
- (2) GRASSES GENERALLY REQUIRE AT LEAST 4 TO 6 WEEKS OF GROWTH PRIOR TO HARD FROSTS.

SEQUENCE OF CONSTRUCTION:

1. THE DELAWARE COUNTY CONSERVATION DISTRICT SHALL BE NOTIFIED 72 HOURS PRIOR TO THE START OF CONSTRUCTION BY THE CONTRACTOR. THE STREAM CROSSING ITSELF IS TO BE UNDERTAKEN DURING DRY WEATHER.
2. INSTALL SILT FENCE AND DESILTING FACILITY AS SHOWN.
3. STRIP AND STORE TOPSOIL ABOVE WORK AREAS THEN PLACE SILT FENCE AROUND STOCKPILES.
4. INSTALL TEMPORARY COFFERDAM AND DIVERSION PIPE.
5. EXCAVATE FOR WATER MAIN. IF GROUNDWATER SEEPAGE INTO WATER MAIN TRENCH OCCURS, PUMP WATER INTO SEDIMENT FILTER BAG.
6. INSTALL AND BACKFILL WATER MAIN AND BLOW-OFF ASSEMBLY.
7. REMOVE COFFERDAMS AND DIVERSION PIPE.
8. ALL DISTURBED AREAS SHALL BE RAKED MULCHED, FERTILIZED, AND PERMANENTLY SEEDED IMMEDIATELY AFTER EARTH MOVING IS COMPLETED. INSTALL PEGGED JUTE BLANKET PER PLAN. SEE GENERAL NOTES #4 & #9.
9. UPON COMPLETION OF AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OR PHASE OF AN ACTIVITY, THE SITE SHALL BE IMMEDIATELY SEEDED, MULCHED OR OTHERWISE PROTECTED FROM ACCELERATED EROSION AND SEDIMENT.
10. RESTABILIZE AREA DISTURBED DUE TO THE REMOVAL OF TEMPORARY EROSION CONTROL FACILITIES.

GENERAL NOTES:

1. AREA TO BE DISTURBED SHOULD BE KEPT TO THE IMMEDIATE AREA OF WORK. ALL DISTURBANCE SHOULD BE COMPLETED WITHIN ONE DAY.
2. NO TRACK EQUIPMENT SHOULD OPERATE IN THE CREEK BED. IF POSSIBLE, ALL WORK WITH MACHINERY SHOULD BE DONE FROM EITHER SIDE OF THE BANK.
3. SILT FENCE OR STRAW BALE DYKES SHOULD BE PLACED AROUND THE DISTURBED AREA.
4. ALL AREAS SHOULD BE MULCHED AND PERMANENTLY SEEDED IMMEDIATELY AFTER EARTH MOVING IS COMPLETED. SEED USING 60 lbs. OF TALL FESCUE WITH 15 lbs. OF PERENNIAL RYE GRASS PER ACRE. MULCHING SHOULD BE AT THE RATE OF THREE TONS PER ACRE FOR HAY MULCH.
5. ALL AREAS TO BE UNDISTURBED FOR 72 HOURS OR MORE SHOULD BE TEMPORARILY STABILIZED WITH 40 lbs. OF ANNUAL RYE GRASS AND 3 TONS OF MULCH PER ACRE.
6. THE CONTRACTOR WILL BE FAMILIAR WITH THE CHAPTER 102 EROSION & SEDIMENT CONTROL RULES AND REGULATIONS. A COPY OF THIS EROSION & SEDIMENT CONTROL PLAN WILL BE AVAILABLE AT THE SITE AT ALL TIMES.
7. ALL NECESSARY PUMPED WATER FROM THE EXCAVATION IS TO BE PUMPED TO A DE-SILTING FACILITY (SEE DETAIL). THE STRUCTURE IS TO BE PLACED WHERE THE DISCHARGE WILL FLOW OVER NON-DISTURBED STABLE VEGETATION COVER. THE STRUCTURE IS NOT TO BE PLACED IN WETLANDS.
8. EROSION & SEDIMENT CONTROLS ARE TO REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED IN THE DISTURBED AREAS.
9. PEGGED JUTE BLANKET SHALL BE APPLIED TO STREAM BANKS OVER MULCH PER LOCATION SHOWN ON CROSSING DETAIL, AS AN ADDITIONAL RESTORATIVE MEASURE.
10. AREAS UTILIZING VEGETATIVE STABILIZATION MUST BE SEEDED/PLANTED AND MULCHED IN SUFFICIENT TIME TO GERMINATE BY OCTOBER 15 OF EACH YEAR. SEEDINGS WILL BE ACCOMPLISHED THROUGH THE USE OF HYDROSEEDING OR CONVENTIONAL SEEDING AND MULCHING AS RECOMMENDED IN THE PENN STATE AGRONOMY GUIDE.
11. THE CONTRACTOR SHALL ENSURE THAT ALL CONSTRUCTION DEBRIS AND MATERIALS ARE REMOVED FROM THE SITE UPON COMPLETION OF CONSTRUCTION. THIS WORK SHALL BE DEEMED SATISFACTORY ONLY AFTER INSPECTION AND APPROVAL BY AQUA PENNSYLVANIA INC.
12. AT STREAM CROSSING, 50 FOOT STREAM BANK BUFFER AREAS SHOULD BE MAINTAINED. ON BUFFERS, CLEARING, SOIL DISTURBANCE EXCAVATION, AND EQUIPMENT TRAFFIC SHOULD BE MINIMIZED. ACTIVITIES SUCH AS STACKING CUT LOGS, BURNING CLEARED BRUSH, DISCHARGING RAIN WATER FROM TRENCHES, WELDING PIPE JOINTS, STORING PIPE SECTIONS, REFUELING AND MAINTAINING EQUIPMENT SHOULD BE ACCOMPLISHED OUTSIDE OF BUFFERS.
13. EROSION & SEDIMENT CONTROL MEASURES TO BE INSPECTED WEEKLY & AFTER EACH RAINFALL.
14. ANY MULCH WASHED OUT, SHOULD BE REPLACED.

EROSION & SEDIMENT CONTROL PLAN STANDARD NOTES:

1. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET; STOCKPILE SLOPES MUST NOT EXCEED 2:1 THE OPERATOR/RESPONSIBLE PERSON (O/RP) ON SITE SHALL ENSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.
2. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE O/RP SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO ELIMINATE THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.
3. THE O/RP SHALL ASSURE THAT AN EROSION AND SEDIMENT CONTROL PLAN HAS BEEN PREPARED, APPROVED BY THE DELAWARE COUNTY CONSERVATION DISTRICT, AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOIL AND/OR ROCK SPOIL AND BORROW AREAS REGARDLESS OF THEIR LOCATIONS.
4. ALL PUMPING OF SEDIMENT-LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP SUCH AS A PUMPED WATER FILTER BAG DISCHARGING OVER UNDISTURBED AREAS.
5. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN MUST BE AVAILABLE ON THE PROJECT SITE AT ALL TIMES.
6. EROSION AND SEDIMENT BMP'S MUST BE CONSTRUCTED, STABILIZED AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THE TRIBUTARY AREAS OF THOSE BMP'S.
7. AFTER FINAL STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMP CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING THE REMOVAL OF THE BMP'S MUST BE STABILIZED IMMEDIATELY.
8. AT LEAST SEVEN DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITY, THE O/RP SHALL INVITE ALL CONTRACTORS INVOLVED IN THAT ACTIVITY, THE LAND OWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS, THE EROSION AND SEDIMENT CONTROL PLAN PREPARER AND THE DELAWARE COUNTY CONSERVATION DISTRICT TO A PRE-CONSTRUCTION MEETING. ALSO, AT LEAST THREE DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITY, ALL CONTRACTORS INVOLVED IN THAT ACTIVITY SHALL NOTIFY THE PENNSYLVANIA ONE-CALL SYSTEM INC. 1-800-242-1776 TO DETERMINE ANY UNDERGROUND UTILITIES LOCATION.
9. IF USING PRE-EXISTING ASPHALT ALL ROADWAYS WILL BE KEPT FREE FROM SEDIMENT. CONTRACTOR WILL MAINTAIN A CLEAN WORK AREA AT ALL TIMES.

TRENCH EXCAVATION SIZING:

THE EXCAVATION AND BACK-FILL WORK SHALL CONFORM TO THE AWWA STANDARD C-600 FOR THE INSTALLATION OF DUCTILE IRON WATER MAINS AND THEIR APPURTENANCES, PLUS CHANGES AND ADDITIONS THERETO.

ALL FEDERAL, STATE AND MUNICIPAL, INCLUDING OSHA REGULATIONS GOVERNING WORK OF THIS NATURE SHALL BE COMPLIED WITH BY THE CONTRACTOR.

DIMENSIONS FOR EXCAVATION WILL BE ACCORDING TO THE DEPTH AND WIDTH SPECIFIED FOR THE PIPE SIZE. THE DEPTH OF THE TRENCH WILL BE SUCH SO THE PROPOSED MAIN HAS THE DEPTH OF COVER OF (4.00) FOUR FEET, OR AS SHOWN ON THE DRAWINGS.

EXCEPT AT LOCATIONS WHERE ROCK OR UNSUITABLE MATERIAL IS ENCOUNTERED, EXTRA CARE SHOULD BE TAKEN NOT TO EXCEED THE DEPTH SPECIFIED. IF THE EXCAVATION DOES EXCEED THE PROPOSED DEPTH, THE BOTTOM OF THE TRENCH SHOULD BE BACK-FILLED IN SIX-INCH LIFTS AND PROPERLY COMPACTED UNTIL THE DESIRED LEVEL IS REACHED TO LAY THE PIPE.

SUB-GRADE MATERIAL MUST BE SUITABLE.

THE FOLLOWING ARE THE REQUIRED TRENCH SIZES FOR THE RESPECTIVE PIPE DIAMETERS: UP TO AND INCLUDING:

SERVICES –	2.50' TRENCH WIDTH	20" PIPE –	4.50' TRENCH WIDTH
6" PIPE –	2.50' TRENCH WIDTH	24" PIPE –	4.50' TRENCH WIDTH
8" PIPE –	2.50' TRENCH WIDTH	30" PIPE –	5.00' TRENCH WIDTH
12" PIPE –	2.50' TRENCH WIDTH	36" PIPE –	5.50' TRENCH WIDTH
16" PIPE –	3.00' TRENCH WIDTH	42" PIPE –	6.00' TRENCH WIDTH

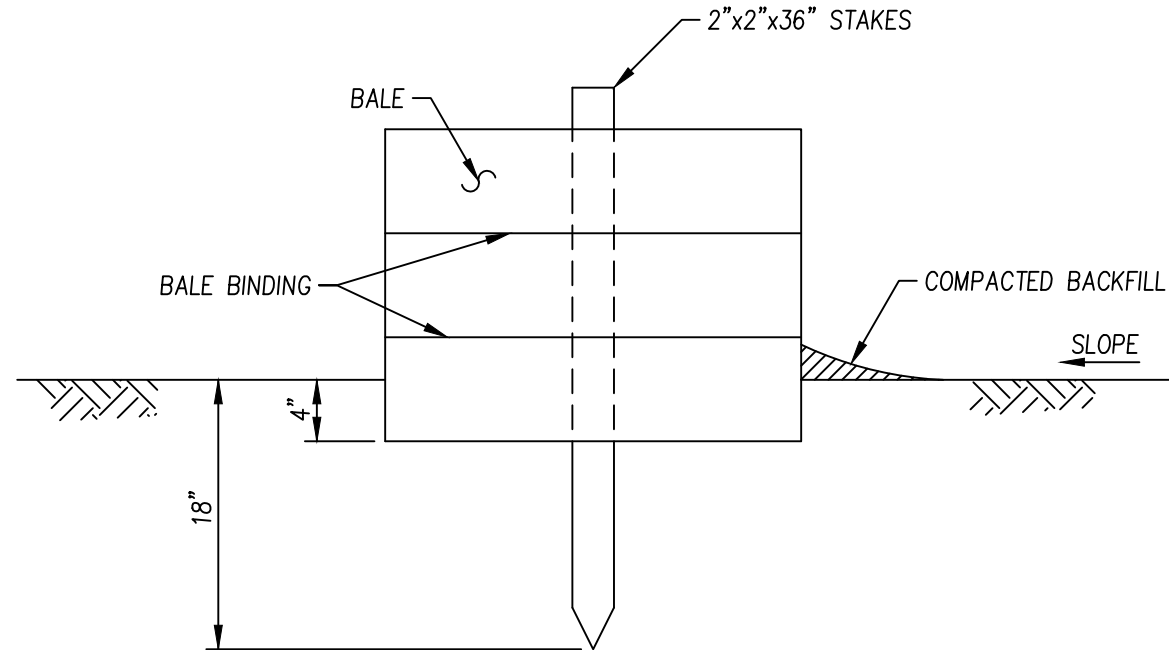
IN AREAS OF EXISTING ROADWAY, THE EXCAVATION SHALL BE COMPLETELY CLOSED AT THE END OF EACH WORK DAY. THE CONTRACTOR SHALL PROVIDE TEMPORARY RESTORATION OF ROADWAY IMMEDIATELY UPON BACK-FILLING THE TRENCH.

DECHLORINATION NOTES:

WATER USED FOR TESTING & CHLORINATING THE MAIN MUST BE DE-CHLORINATED BEFORE DISCHARGING INTO THE STORM SEWER SYSTEM. UTILIZE A PASSIVE TABLET STYLE DEVICE SUCH AS:

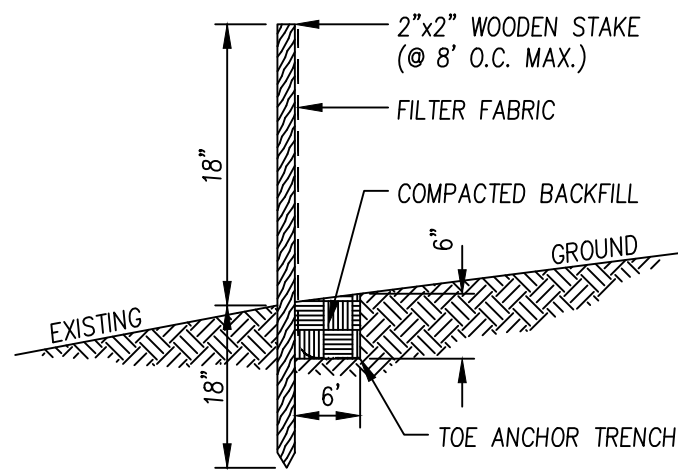
1. ARDEN INDUSTRIES – 2.5" BAZOOKA TABLET FEED.
2. HYDRO FLOW – DECHLOR DAZON
3. DAVCO – LPD-250

ALL OF THE ABOVE DEVICES ARE DESIGNED TO CONNECT TO A 2.5" MNST FIRE HYDRANT THREADED CONNECTION. FOLLOW MANUFACTURER'S RECOMMENDATION FOR QUANTITIES OF TABLETS TO USE BASED ON FLOW RATE & CHLORINE RESIDUAL TO BE TREATED.



1. STRAW BALE BARRIERS SHOULD NOT BE USED FOR MORE THAN 3 MONTHS.
2. STRAW BALE BARRIERS SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT.
3. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE ABOVE GROUND HEIGHT OF THE BARRIER.
4. ANY SECTION OF STRAW BALE BARRIER WHICH HAS BEEN UNDERMINED OR TOPPED SHALL BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET. SEE ROCK FILTER OUTLET DETAIL.

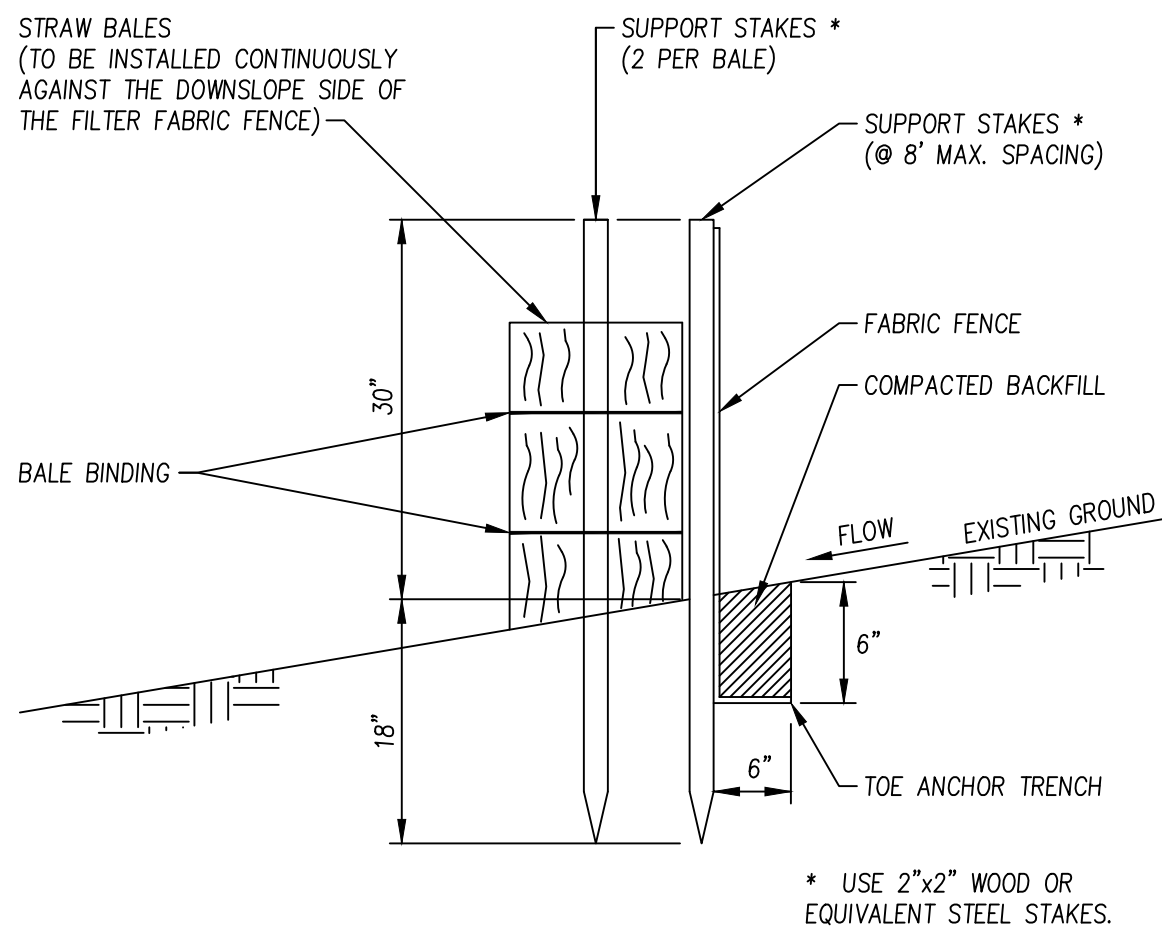
STRAW BALE BARRIER DETAIL
N.T.S.



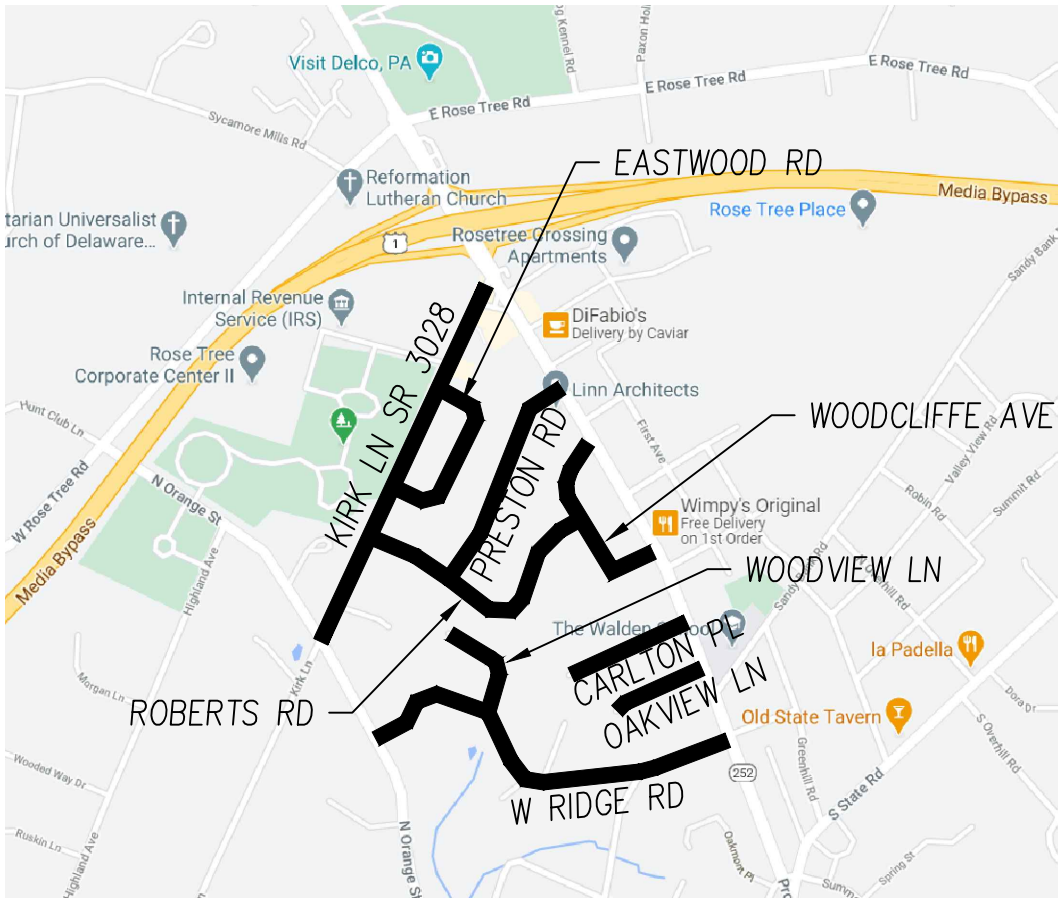
SILT FENCE MAINTENANCE

1. FILTER FABRIC FENCE MUST BE PLACED AT LEVEL GRADE. BOTH ENDS MUST EXTEND AT LEAST 8 FEET UP-SLOPE AT 45° TO MAIN BARRIER.
2. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.
3. ANY SECTION OF FILTER FABRIC FENCE WHICH HAS BEEN UNDERMINED OR TOPPED MUST BE REPLACED IMMEDIATELY WITH A ROCK FILTER OUTLET. (SEE DETAIL)

STANDARD SILT FENCE DETAIL
N.T.S.



* USE 2"x2" WOOD OR EQUIVALENT STEEL STAKES.



LOCATION MAP

MEASURE/FACILITY	ILLUSTRATION	SYMBOL
ROCK ENERGY DISSIPATER		(RD)
ROCK ENERGY DISSIPATER		(RD)
ROCK CONSTRUCTION ENTRANCE		(RCE)
ROCK RIPRAP OR ROCK FILL		(RR) OR (RF)
ROCK CHANNEL LINING		(RCL)
CHECK DAM		(LS)
ROCK FILTERS		(RF)
DROP STRUCTURE		(DS)
BENCH		(B)
TERRACE		(T)
DIVERSION CHANNEL		(DC)
COLLECTION CHANNEL		(CC)
BYPASS CHANNEL		(BC)
NOTE: DENOTE PERMANENT CHANNEL AS =		(PDC) (PCC)
CHECK DAM		(CD)
SEDIMENT TRAP	AS REQ'D TO ILLUSTRATE	(ST)
SEDIMENT BASIN	AS REQ'D TO ILLUSTRATE	(SB)
FABRIC FENCE		(FF)
STRAW BALE BARRIER		(SBB)
VEGETATIVE FILTER STRIP		(VFS)
TEMPORARY SEEDING		(TS)
SURFACE ROUGHENING		(SR)



0	06/04/21	ISSUED FOR CONSTRUCTION	JPC
0	06/04/21	DESIGN COMPLETION	JPC
NO	DATE	REVISION	INTL.
AQUA PENNSYLVANIA, INCORPORATED 762 LANCASTER AVENUE, BRYN MAWR, PA., 19010 PROJECT PLAN FOR: KIRK LANE S.R. 3028 PROJECT EROSION & SEDIMENT CONTROL PLAN FOR: UPPER PROVIDENCE TWP & MEDIA BORO, DELAWARE COUNTY			
DRAWN BY:	R.L.	CHK'D BY: JPC	EXT No: 18985-S
DATE:	12/10/2020	SCALE: NTS	PLATE: F31
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APPROVED			SHEET 16 OF 17

