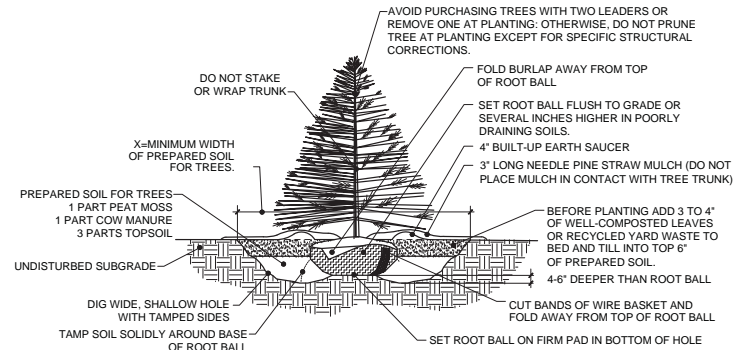


GENERAL RANGE OF SOIL MODIFICATIONS & VOLUMES FOR VARIOUS SOIL CONDITIONS		
POST-CONSTRUCTION SOIL CONDITION	MIN./ WIDTH PREPARED SOIL FOR TREES (X)	TYPE OF PREPARATION
GOOD SOIL (NOT PREVIOUSLY GRADED OR COMPACTED, TOPSOIL LAYER INTACT)	6 FT. OR TWICE THE WIDTH OF THE ROOT BALL, WHICHEVER IS GREATER	GENERAL RANGE OF SOIL MODIFICATIONS & VOLUMES FOR VARIOUS SOIL CONDITIONS
COMPACTED SOIL (NOT PREVIOUSLY GRADED, TOPSOIL LAYER DISTURBED BUT NOT ELIMINATED)	15 Ft	LOOSEN THE EXISTING SOILS TO THE WIDTHS AND DEPTHS SHOWN IN DETAILS ABOVE; ADD COMPOSTED ORGANIC CONTENT UP TO 5% DRY WEIGHT.
GRADED SUBSOILS AND CLEAN FILLS WITH CLAY CONTENT BETWEEN 5 & 35%	20 Ft	MINIMUM TREATMENT: LOOSEN EXISTING SOIL TO WIDTHS AND DEPTHS SHOWN, ADD COMPOSTED ORGANIC MATTER TO BRING ORGANIC CONTENT UP TO 5% DRY WEIGHT. OPTIMUM TREATMENT: REMOVE TOP 8-10 IN. OR THE EXISTING SOILS TO THE WIDTHS AND DEPTHS SHOWN, ADD 8-10 IN. OF LOAM TOPSOIL.
POOR QUALITY FILLS, HEAVY CLAY SOILS, SOILS CONTAMINATED WITH RUBBLE OR TOXIC MATERIAL	20 Ft	REMOVE EXISTING SOILS TO THE WIDTHS AND DEPTHS CONTAMINATED WITH RUBBLE OR TOXIC MATERIAL.

LANDSCAPE SCHEDULE					
SYMBOL	QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT
EVERGREEN TREES					
PA	8	PICEA ABIES	NORWAY SPRUCE	6' - 8'	B & B
EVERGREEN SHRUBS					
VR	11	VIBURNUM RHYTIDOPHYLLUM	LEATHERLEAF VIBURNUM	3' - 4'	B & B
DECIDUOUS SHRUB					
WF	7	HAMMELIS VIRGINIANA	COMMON WITCHHAZEL	3' - 4'	B & B
TOTAL	26				
ANY DISCREPANCIES BETWEEN QUANTITIES ON THE PLAN AND SCHEDULE, THE PLAN SHALL DICTATE.					



REFERENCE: ARCHITECTURAL GRAPHIC STANDARDS 1998 CUMULATIVE SUPPLEMENT.

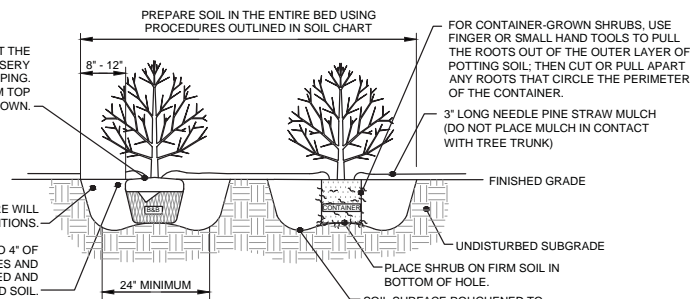
EVERGREEN PLANTING DETAIL 1 NOT TO SCALE

PLANT SHALL BE TRANSPLANTED AT THE SAME GRADE AS IT BORE IN THE NURSERY PLOT PRIOR TO BAILING AND BURLAPPING. CUT AND REMOVE BURLAP FROM TOP ONE-THIRD OF ROOT BALL AS SHOWN.

PLANTING MIX:
1 PART PEAT MOSS
1 PART COW MANURE
3 PARTS TOPSOIL

PLANTING MIXTURE WILL CHANGE WITH SOIL CONDITIONS.

BEFORE PLANTING, ADD 3 TO 4" OF WELL-COMPOSTED LEAVES AND RECYCLED YARD WASTE TO BED AND TILL INTO TOP 6" OF PREPARED SOIL.



SHRUB PLANTING DETAIL 2 NOT TO SCALE



NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION	DATE	DETAILS	APPROVALS
0	11/18/2020	ISSUED FOR CONSTRUCTION	TLV	CNS	CDW	AREA CODE 1			REGIONAL ENGINEER
						ACCOUNT NUMBER Q3680			
						PROJECT NUMBER 1880115			
						DRAWING BY TLV			
						STATION ID C350			
						CHECKER INITIALS CNS	11/18/2020	DETAILS	CDW



C350 PROJECT
MLV-02 LANDSCAPING PLAN
HAMILTON COUNTY, OHIO
HAMILTON COUNTY, OH

REF. DWG(S)	C-350-0001340
SHEET(S)	2 OF 2
DWG SCALE	1"=10'
DWG DATE	01-29-2020
SUPERSEDED	
DRAWING NUMBER	PNG L-350-0001001
REVISION	0
HAMILTON COUNTY C350	

CONCRETE THRUST BLOCK SCHEDULE				
ALLOWABLE SOIL BEARING PRESSURE				
THRUST FROM TABLE I (LBS)	THRUST @60% (LBS)	1,000 PSF	1,500 PSF	2,000 PSF
2,500	1,500	18"X18"X8"	12"X12"X8"	12"X12"X8"
5,000	3,000	20"X20"X8"	17"X17"X8"	15"X15"X8"
7,500	4,500	26"X26"X12"	21"X21"X8"	18"X18"X8"
10,000	6,000	30"X30"X12"	24"X24"X8"	21"X21"X8"
15,000	9,000	36"X36"X18"	29"X29"X12"	25"X25"X12"
20,000	12,000	42"X42"X18"	34"X34"X18"	29"X29"X18"
25,000	15,000	46"X46"X24"	38"X38"X18"	33"X33"X18"
30,000	18,000	51"X51"X24"	42"X42"X18"	36"X36"X18"
40,000	24,000	59"X59"X24"	48"X48"X24"	42"X42"X18"

*CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI

THRUST BLOCK AND REST BLOCK REINFORCEMENT	
4" THICK BLOCKS	NONE
6"-12" THICK BLOCKS	ONE LAYER OF 6"X6", 10/10
18" THICK BLOCKS	ONE LAYER OF #5 BARS ON 12" CENTERS BOTH WAYS LOCATED THREE INCHES FROM BOTTOM OF THE BLOCK
24" THICK BLOCK	TWO LAYERS OF #5 BARS ON 12" CENTERS BOTH WAYS LOCATED THREE INCHES FROM TOP AND THREE INCHES FROM BOTTOM, WITH VERTICAL BARS ON 12" CENTERS

*STEEL REINFORCEMENT BAR SHALL CONFORM TO ASTM A-615



NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPR	DESCRIPTION	APPROVALS
0	11/18/2020	ISSUED FOR CONSTRUCTION	HEC	CNS	CDW	AREA CODE - ACCOUNT NUMBER Q3680 PROJECT NUMBER 1880115 DRAWING BY HEC STATION ID C350 CHECKER INITIALS CNS	DATE - DATE - DATE 11/18/2020 DATE 11/18/2020 DATE 11/18/2020 INITIALS - INITIALS - INITIALS CDW
							REGIONAL ENGINEER
							MGR. TECH. REC. & STD.
							PRINCIPAL ENGINEER

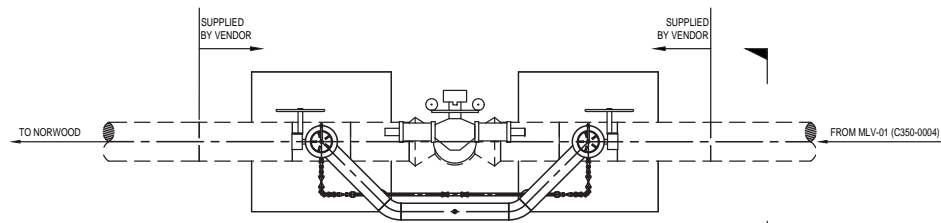


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C350 PROJECT
MAINLINE VALVE STRUCTURAL DETAILS
HAMILTON COUNTY, OHIO
HAMILTON COUNTY, OH

REF. DWG(S) G-350-0001009

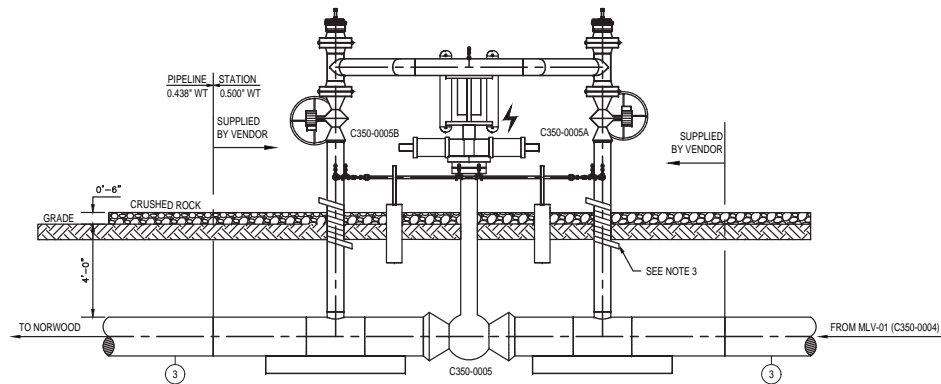
SHEET(S) 1 OF 1	DWG SCALE NONE
DWG DATE 06-12-2020	SUPERSEDED
DRAWING NUMBER PNG -S-350-0001002	REVISION 0
C:\HAMILTON COUNTY\C350	



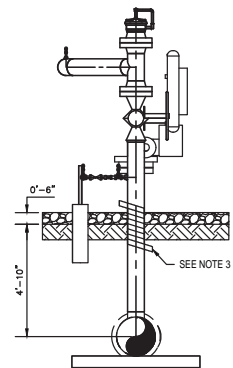
A
THIS DWG

DETAIL 1
SCALE: 3/8"=1'-0" C-350-0001340

B
THIS DWG



SECTION A
SCALE: 3/8"=1'-0"



SECTION B
SCALE: 3/8"=1'-0"

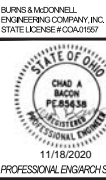
VALVE #	C350-0005A	SIZE	8"
MANUFACTURER	SER. #		
MODEL #	W.O.G.M.O.P.		
GATE	<input type="checkbox"/> PLUG	<input type="checkbox"/> OTHER	
TURNS TO OPEN			
LOCATION:			
FT		IN	
FT		IN	
FT		IN	
BOX	<input type="checkbox"/> PIT	COVER AT MAIN	T IN
PRESSURE STEMS LOCATED N S E W			
REMARKS			

VALVE #	C350-0005	SIZE	20"
MANUFACTURER	SER. #		
MODEL #	W.O.G.M.O.P.		
GATE	<input type="checkbox"/> PLUG	<input type="checkbox"/> OTHER	
TURNS TO OPEN			
LOCATION:			
FT		IN	
FT		IN	
FT		IN	
BOX	<input type="checkbox"/> PIT	COVER AT MAIN	T IN
PRESSURE STEMS LOCATED N S E W			
REMARKS			

VALVE #	C350-0005B	SIZE	8"
MANUFACTURER	SER. #		
MODEL #	W.O.G.M.O.P.		
GATE	<input type="checkbox"/> PLUG	<input type="checkbox"/> OTHER	
TURNS TO OPEN			
LOCATION:			
FT		IN	
FT		IN	
FT		IN	
BOX	<input type="checkbox"/> PIT	COVER AT MAIN	T IN
PRESSURE STEMS LOCATED N S E W			
REMARKS			

- NOTES:**
1. ANY CHANGES REQUIRED DUE TO FIELD CONDITIONS MUST BE APPROVED BY THE ENGINEERING DEPARTMENT.
 2. REFER TO VENDOR EQUIPMENT DRAWINGS FOR ADDITIONAL DETAILS.
 3. CONTRACTOR SHALL APPLY TRENTON MC OUTERWRAP (OR APPROVED EQUAL) TO ALL BELOWGROUND TO ABOVE GROUND PIPE TRANSITIONS. WAX TAPE SHALL BE APPLIED TO ALL ABOVEGROUND FLANGED CONNECTIONS. SEE DUKE CONSTRUCTION MANUAL FOR ADDITIONAL INSTRUCTIONS.

⚡ INDICATES ELECTRICALLY ISOLATED.

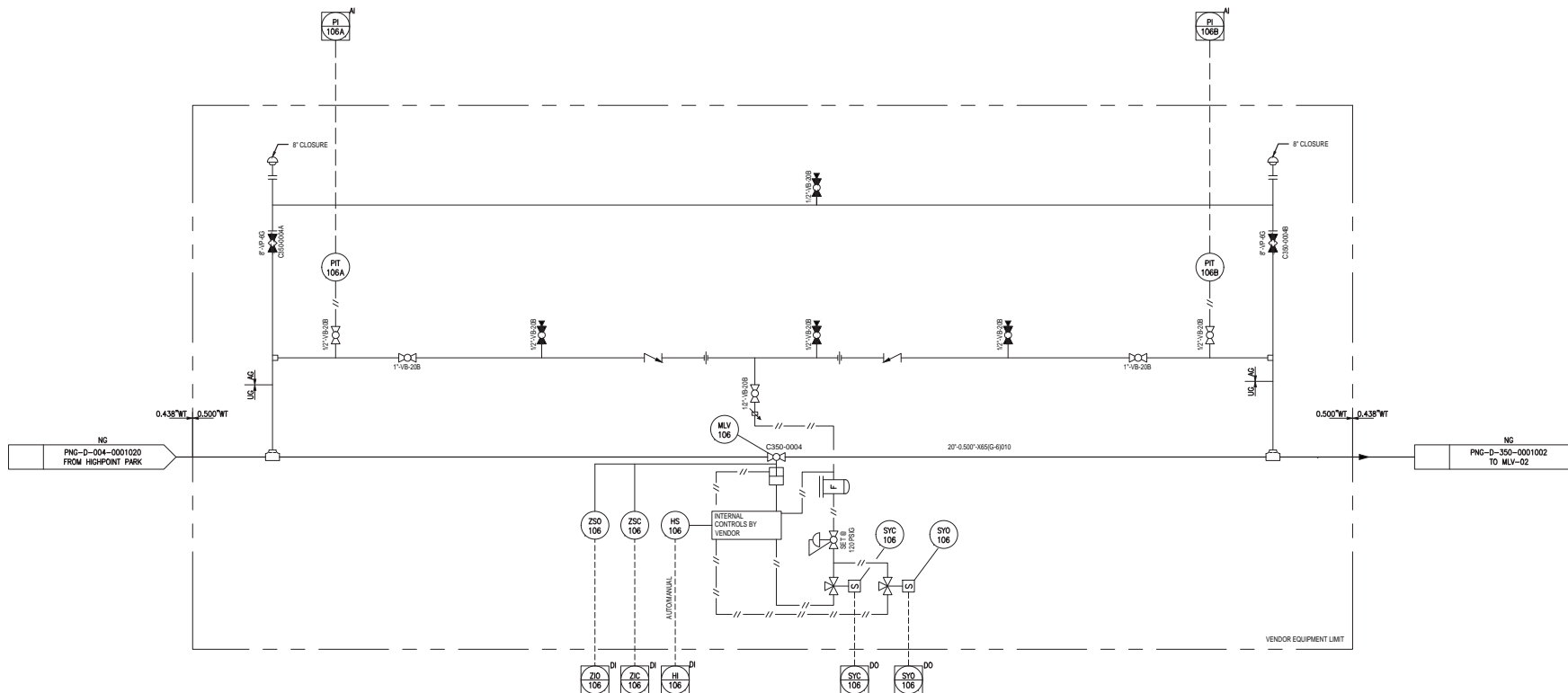


NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPR	DESCRIPTION	APPROVALS
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						ACCOUNT NUMBER	Q3680
						PROJECT NUMBER	1880115
						DRAWING BY	MCR
						STATION ID	C350
						CHECKER INITIALS	JBF
						DATE	11/18/2020
						INITIALS	CAB



C350 PROJECT
20" PROPOSED PIPELINE
MLV-02 (C350-0005)
HAMILTON COUNTY, OHIO

REF. DWG(S)	SHEET(S) 02 OF 02	DWG SCALE 3/8" = 1'-0"
DWG DATE 10/27/2020	SUPERSEDED	
DRAWING NUMBER	REVISION	
PNG -M-350-0001010	0	
DISCIPLINE / RESOURCE CENTER / LINE NUMBER		



- NOTES:**
1. REFER TO VENDOR EQUIPMENT DRAWINGS FOR ADDITIONAL DETAIL.
 2. ANY CHANGES REQUIRED DUE TO FIELD CONDITIONS MUST BE APPROVED BY THE ENGINEERING DEPARTMENT.

REF. DWG(S)

SHEET(S) 01 OF 02	DWG SCALE NONE
DWG DATE 05/14/2018	SUPERSEDED
DRAWING NUMBER	REVISION
PNG -D-350-0001001	0
DISCIPLINE / RESOURCE CENTER / LINE NUMBER	

C350 PROJECT
20" PROPOSED PIPELINE
MLV-01 (C350-0004) P&ID
 HAMILTON COUNTY, OHIO



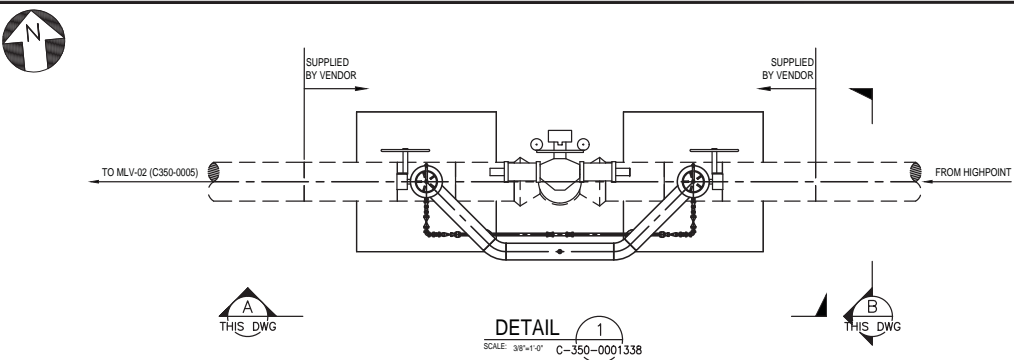
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						PROJECT NUMBER	1880115		
						DRAWING BY	MAS		
						STATION ID	S086701		
						CHECKER INITIALS	CAB	11/18/2020	

REGIONAL ENGINEER	
MGR TECH REC & STD	
PRINCIPAL ENGINEER	

BURNS & MCDONNELL
 ENGINEERING COMPANY, INC.
 STATE LICENSE # 00401557



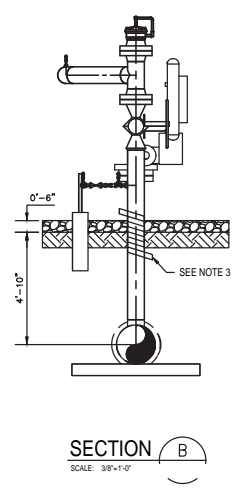
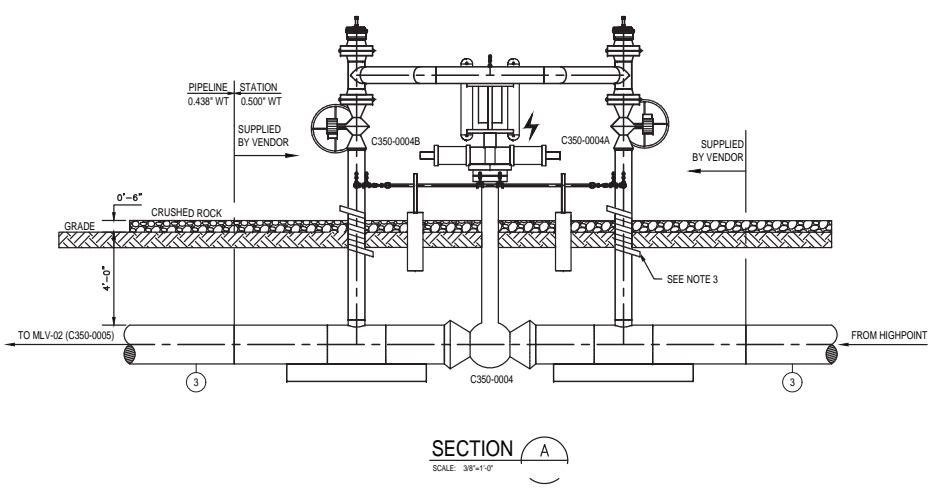
11/18/2020
 PROFESSIONAL ENGINEER STAMP



VALVE #	C350-0004A	SIZE	8"
MANUFACTURER	SER. #		
MODEL #	W.O.G.M.O.P.		
GATE	<input type="checkbox"/> PLUG	<input type="checkbox"/> OTHER	
TURNS TO OPEN			
LOCATION:			
FT		IN	
FT		IN	
BOX		PIT	
COVER AT MAIN		T	
PRESSURE STEMS LOCATED N S E W			
REMARKS			

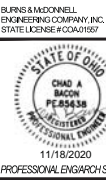
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MANUFACTURER	SER. #		
MODEL #	W.O.G.M.O.P.		
GATE	<input type="checkbox"/> PLUG	<input type="checkbox"/> OTHER	
TURNS TO OPEN			
LOCATION:			
FT		IN	
FT		IN	
BOX		PIT	
COVER AT MAIN		T	
PRESSURE STEMS LOCATED N S E W			
REMARKS			

VALVE #	C350-0004B	SIZE	8"
MANUFACTURER	SER. #		
MODEL #	W.O.G.M.O.P.		
GATE	<input type="checkbox"/> PLUG	<input type="checkbox"/> OTHER	
TURNS TO OPEN			
LOCATION:			
FT		IN	
FT		IN	
BOX		PIT	
COVER AT MAIN		T	
PRESSURE STEMS LOCATED N S E W			
REMARKS			



- NOTES:**
1. ANY CHANGES REQUIRED DUE TO FIELD CONDITIONS MUST BE APPROVED BY THE ENGINEERING DEPARTMENT.
 2. REFER TO VENDOR EQUIPMENT DRAWINGS FOR ADDITIONAL DETAILS.
 3. CONTRACTOR SHALL APPLY TRENTON MC OUTERWRAP (OR APPROVED EQUAL) TO ALL BELOWGROUND TO ABOVE GROUND PIPE TRANSITIONS. WAX TAPE SHALL BE APPLIED TO ALL ABOVEGROUND FLANGED CONNECTIONS. SEE DUKE CONSTRUCTION MANUAL FOR ADDITIONAL INSTRUCTIONS.

⚡ INDICATES ELECTRICALLY ISOLATED.

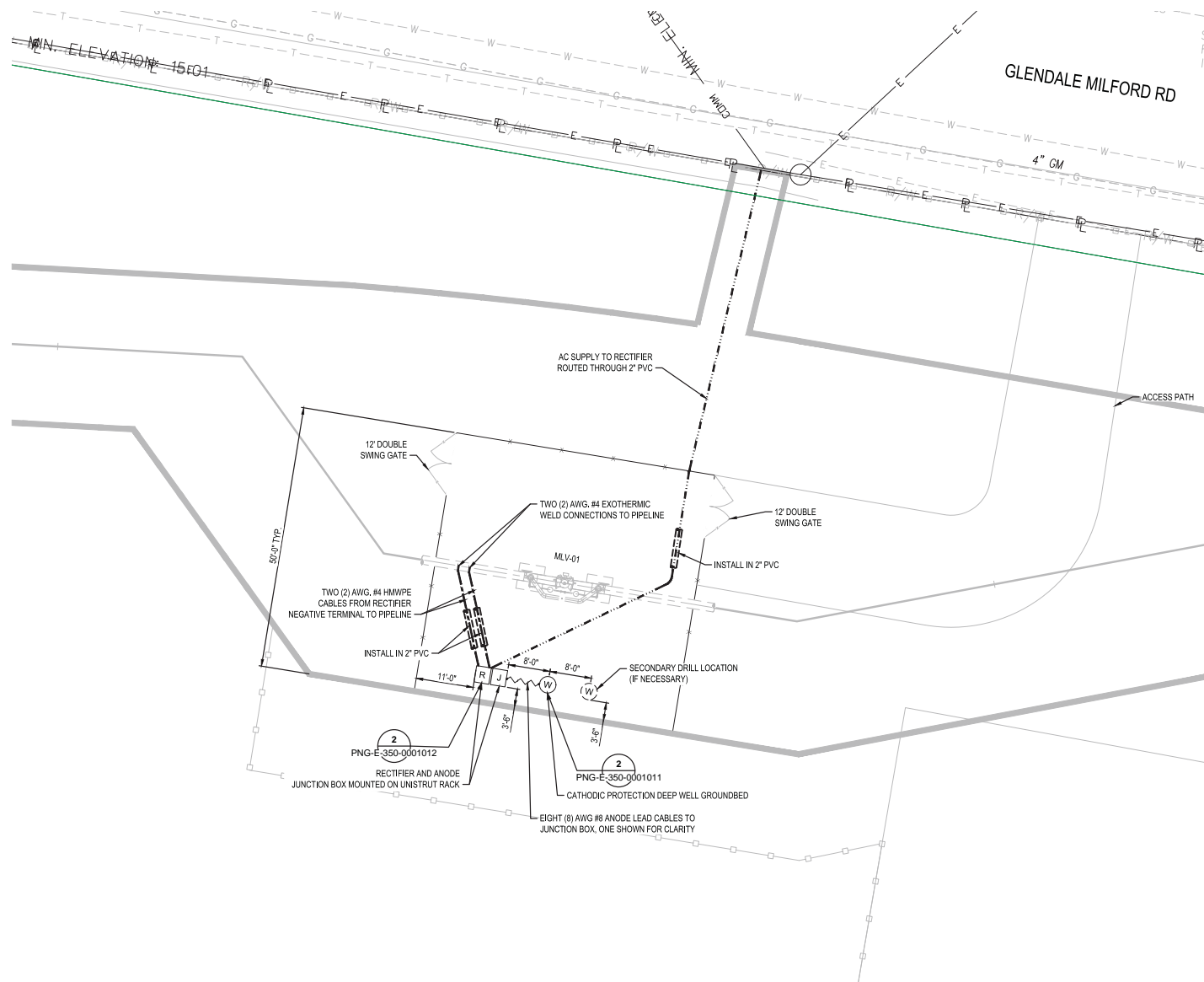


NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPR	DESCRIPTION	APPROVALS
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						ACCOUNT NUMBER	Q3680
						PROJECT NUMBER	1880115
						DRAWING BY	MCR
						STATION ID	C350
						CHECKER INITIALS	JBF
						DATE	11/18/2020
						INITIALS	CAB



C350 PROJECT
20" PROPOSED PIPELINE
MLV-01 (C350-0004)
 HAMILTON COUNTY, OHIO

REF. DWG(S)	
SHEET(S) 01 OF 02	DWG SCALE 3/8" = 1'-0"
DWG DATE 10/27/2020	SUPERSEDED
DRAWING NUMBER	REVISION
PNG -M-350-0001009	0
DISCIPLINE / RESOURCE CENTER / LINE NUMBER	



LEGEND:

- R RECTIFIER
- J ANODE JUNCTION BOX
- W CATHODIC PROTECTION ANODE DEEP WELL

REF. DWG(S) PNG-G-350-0001009

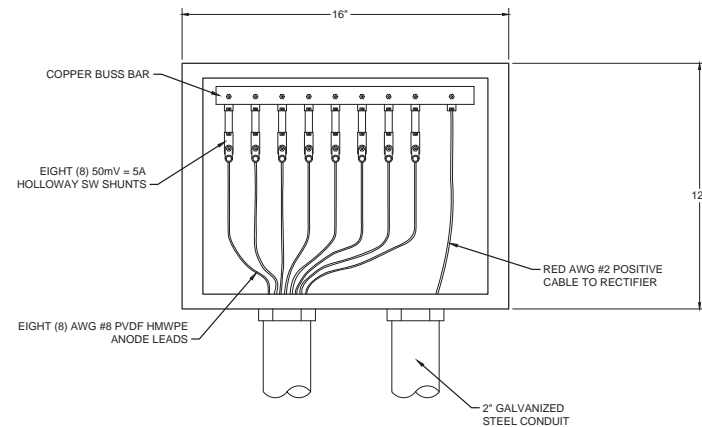
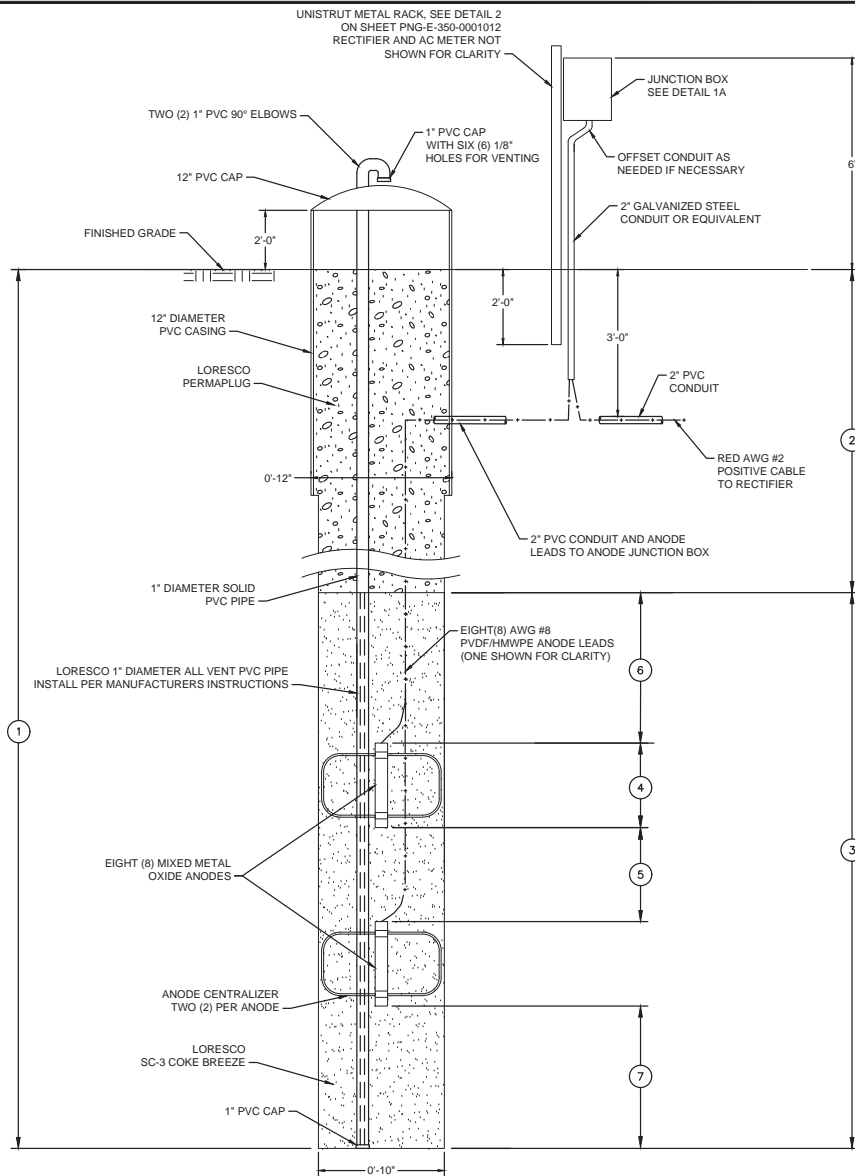
SHEET(S) 1 OF 14		DWG SCALE 1"=10'	
DWG DATE 05-18-20		SUPERSEDED	
DRAWING NUMBER		REVISION	
PNG E-350-0001010		0	
E/ HAMILTON COUNTY/ 350			

C350 PROJECT
MLV-01
HAMILTON COUNTY, OHIO
HAMILTON COUNTY, OH



NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION	APPROVALS
0	11/18/2020	ISSUED FOR CONSTRUCTION	MCR	FFO	AMP	AREA CODE - ACCOUNT NUMBER Q3680 PROJECT NUMBER 1880115 DRAWING BY MCR STATION ID C350 CHECKER INITIALS FFO	DATE - INITIALS - DATE - INITIALS - DATE 11/18/2020 INITIALS AMP
							REGIONAL ENGINEER MGR. TECH REC & STD PRINCIPAL ENGINEER





ANODE JUNCTION BOX

DETAIL 1A
SCALE: NOT TO SCALE

MLV1 DEEP WELL DIMENSIONS

1. TOTAL WELL DEPTH	250'
2. INACTIVE COLUMN LENGTH	145'
3. ACTIVE COLUMN LENGTH	105'
4. ANODE LENGTH	19.7"
5. DISTANCE BETWEEN ANODES	10'
6. DISTANCE FROM TOP OF ACTIVE COLUMN TO FIRST ANODE	11'
7. DISTANCE FROM BOTTOM OF ACTIVE COLUMN TO LAST ANODE	11'
N. NUMBER OF ANODES	8

CP DEEP WELL GROUNDBED

DETAIL 1
SCALE: NOT TO SCALE

REF. DWG(S) PNG-G-350-0001009

SHEET(S) 2 OF 14	DWG SCALE NONE
DWG DATE 06-10-2020	SUPERSEDED
DRAWING NUMBER PNG E-350-0001011	REVISION 0
E / HAMILTON COUNTY / 350	

C350 PROJECT
CATHODIC PROTECTION DEEP WELL
HAMILTON COUNTY, OHIO
HAMILTON COUNTY, OHIO



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NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPRO	DESCRIPTION	DATE	INITIALS	APPROVALS
0	11/18/2020	ISSUED FOR CONSTRUCTION	MCR	FFO	AMP	AREA CODE	-	-	-
						ACCOUNT NUMBER	Q3680	-	-
						PROJECT NUMBER	1880115	-	-
						DRAWING BY	MCR	-	-
						STATION ID	C350	-	-
						CHECKER INITIALS	FFO	11/18/2020	AMP

REGIONAL ENGINEER

MGR TECH REC & STD

PRINCIPAL ENGINEER



4" FLUSH MOUNT TEST STATION

FINISHED GRADE

CAP

24

LEAVE ENOUGH SLACK TO REDUCE STRESS ON WIRES

TWO (2) AWG #10 THIN WELD CONNECTIONS
SEE DWG. PNG-E-350-0001020

12"

Diagram illustrating the connection of two (2) AWG #10 thin test leads to a structure spare (black) and a structure (black).

NOTES:

1. REFER TO DRAWINGS PNG-E-350-0001021 FOR TEST STATION LOCATIONS.
2. INSPECT CABLE INSULATION PRIOR TO INSTALLATION.
3. TEST CABLES TO ENSURE PROPER FUNCTION.
4. LABEL INSIDE OF TEST STATION CAP WITH MILE POST AND STATIONING.
5. ALL CADWELDS AT MONOLITHIC JOINT LOCATIONS SHALL BE MADE ON THE PIPELINE. DO NOT WELD ON MONOLITHIC JOINT.

NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION	APPROVALS			
0	11/18/2020	ISSUED FOR CONSTRUCTION	MCR	FFO	AMP	AREA CODE	-	DATE	INITIALS	REGIONAL ENGINEER
						ACCOUNT NUMBER	Q3680	-	-	
						PROJECT NUMBER	1880115	DATE	INITIALS	MGR TECH REC & ST
						DRAWING BY	MCR	-	-	
						STATION ID	C350	DATE	INITIALS	PRINCIPAL ENGINEER
						CHECKER INITIALS	FFO	11/18/2020	AMP	



DUKE
ENERGY

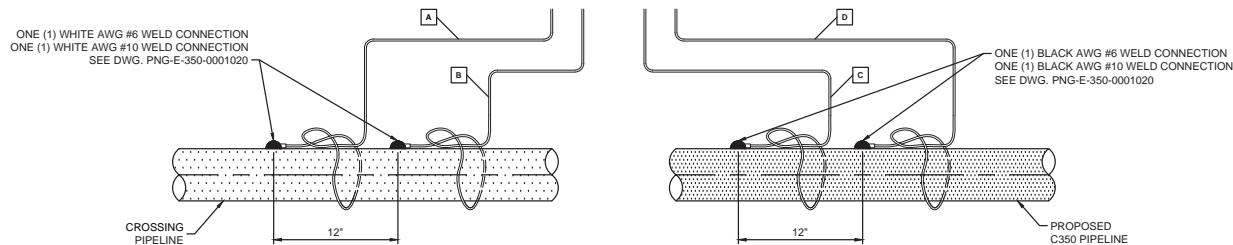
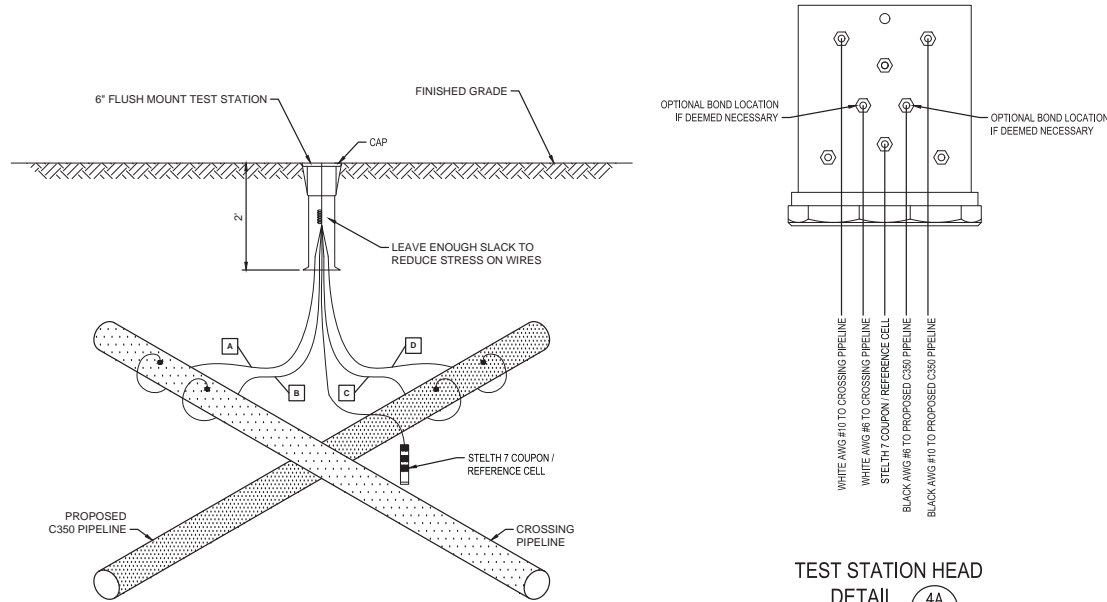


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C350 PROJECT
TWO-WIRE TEST STATION
HAMILTON COUNTY, OHIO
HAMILTON COUNTY, OHIO

REF. DWG(S)		PNG-G-350-0001009	
SHEET(S) 4 OF 14		DWG SCALE	NONE
DWG DATE 06-10-2020		SUPERSEDED	—
DRAWING NUMBER			REVISION
PNG E-350-0001013			0
E / HAMILTON COUNTRY / 350			

FLUSH MOUNT CONFIGURATION



PIPELINE CROSSING TEST STATION

DETAIL 4
SCALE: NOT TO SCALE

NOTES:

1. REFER TO DRAWINGS PNG-E-350-0001021 FOR TEST STATION LOCATIONS.
2. PIPELINE TEST STATION LOCATIONS AND QUANTITIES ARE APPROXIMATE AND SUBJECT TO CHANGE.
3. INSPECT CABLE INSULATION PRIOR TO INSTALLATION.
4. EXOTHERMIC WELD CONNECTIONS SHOULD BE MADE WITHIN 10' OF THE CROSSING LOCATION IF POSSIBLE.
5. TEST CABLES TO ENSURE PROPER FUNCTION.
6. LABEL CABLES ACCORDINGLY.
7. INSTALL COUPON / REFERENCE CELL PER MANUFACTURES INSTRUCTIONS

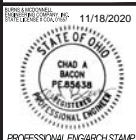
REF. DWG(S) PNG-G-350-0001009

SHEET(S) 5 OF 14	DWG SCALE NONE
DWG DATE 06-10-2020	SUPERSEDED
DRAWING NUMBER	REVISION
PNG E-350-0001014	0
E / HAMILTON COUNTY / 350	

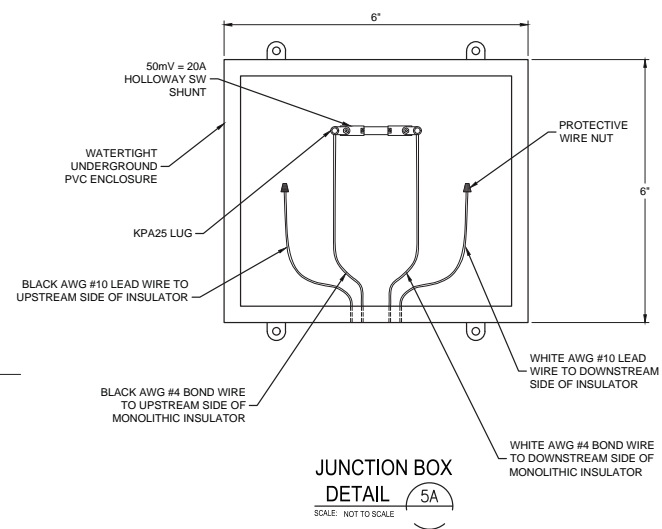
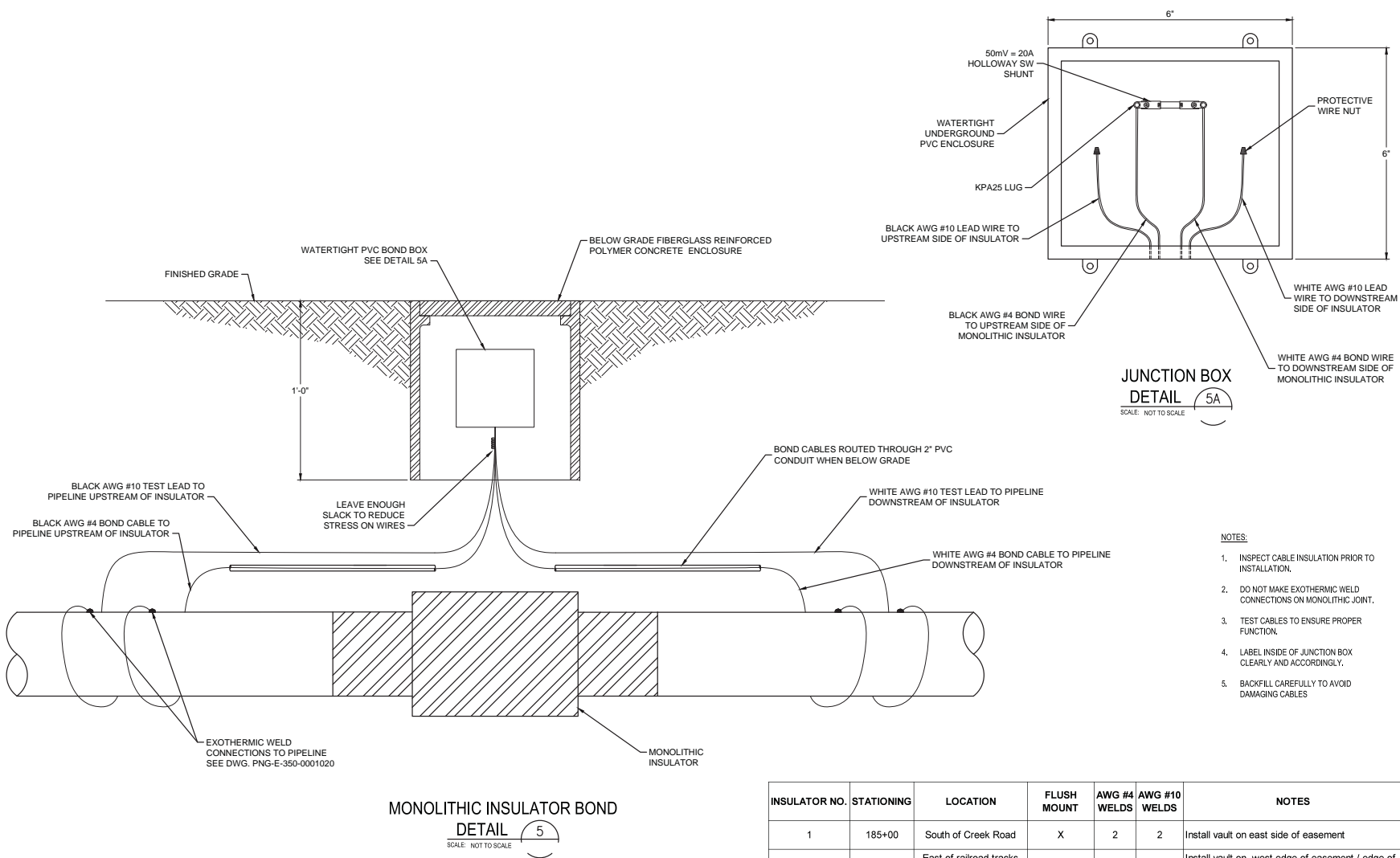
C350 PROJECT
PIPELINE CROSSING TEST STATION
HAMILTON COUNTY, OHIO
 HAMILTON COUNTY, OHIO



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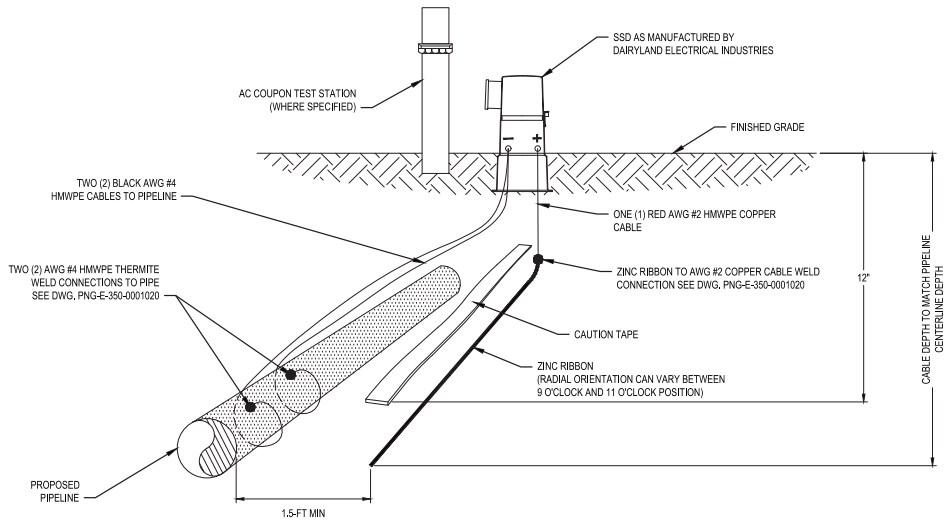
NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPR	DESCRIPTION	APPROVALS
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							REGIONAL ENGINEER MGR TECH REC & STD PRINCIPAL ENGINEER



- NOTES:**
1. INSPECT CABLE INSULATION PRIOR TO INSTALLATION.
 2. DO NOT MAKE EXOTHERMIC WELD CONNECTIONS ON MONOLITHIC JOINT.
 3. TEST CABLES TO ENSURE PROPER FUNCTION.
 4. LABEL INSIDE OF JUNCTION BOX CLEARLY AND ACCORDINGLY.
 5. BACKFILL CAREFULLY TO AVOID DAMAGING CABLES

INSULATOR NO.	STATIONING	LOCATION	FLUSH MOUNT	AWG #4 WELDS	AWG #10 WELDS	NOTES
1	185+00	South of Creek Road	X	2	2	Install vault on east side of easement
2	512+60	East of railroad tracks and library	X	2	2	Install vault on west edge of easement / edge of field

ABOVE GRADE CONFIGURATION



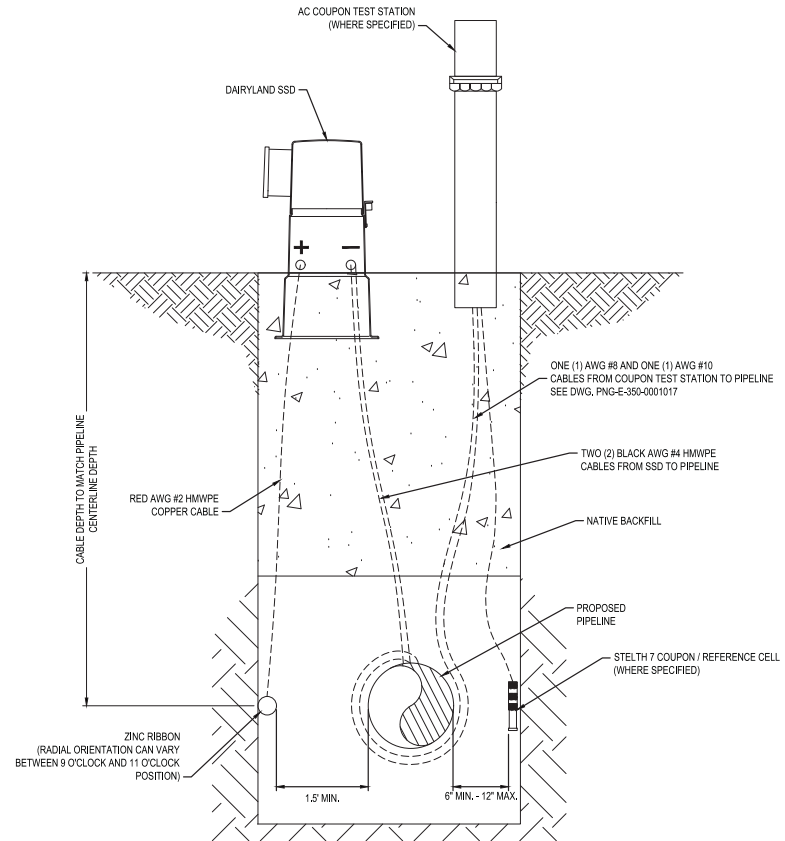
INSTALLATION NOTES:

1. REFER TO DRAWINGS PNG-E-350-0001024 FOR AC MITIGATION CABLE LOCATIONS.
2. GROUNDING CABLE MUST NOT COME IN CONTACT WITH PIPELINE.
3. MAINTAIN MAXIMUM ALLOWABLE SEPARATION BETWEEN PIPELINE AND GROUNDING CABLE (1.5-FT MIN).
4. INSPECT CABLE INSULATION PRIOR TO INSTALLATION.
5. TEST CABLES TO ENSURE PROPER FUNCTION.
6. GROUNDING CABLE TO BE INSTALLED A MINIMUM OF 3' BELOW GRADE.
7. INSTALL GROUNDING CABLE BETWEEN POWERLINE AND PIPELINE.
8. COUPON TO BE INSTALLED ON OPPOSITE SIDE OF PIPE FROM AC GROUNDING CABLE.
9. INSTALL CAUTION TAPE ABOVE GROUNDING CABLE WITH 12" DEPTH OF COVER (DOC).
10. ALL PIPE CONNECTIONS TO BE WRAPPED AROUND PIPE AND TIES WITH HALF-HITCH KNOT.

PARALLEL AC GROUNDING CABLE

DETAIL 6
SCALE: NOT TO SCALE

TYPICAL TRENCH LAYOUT



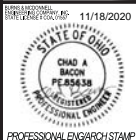
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SHEET(S) 7 OF 14	DWG SCALE NONE
DWG DATE 06-10-2020	SUPERSEDED
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C350 PROJECT
AC GROUNDING CABLE
HAMILTON COUNTY, OHIO
HAMILTON COUNTY, OHIO

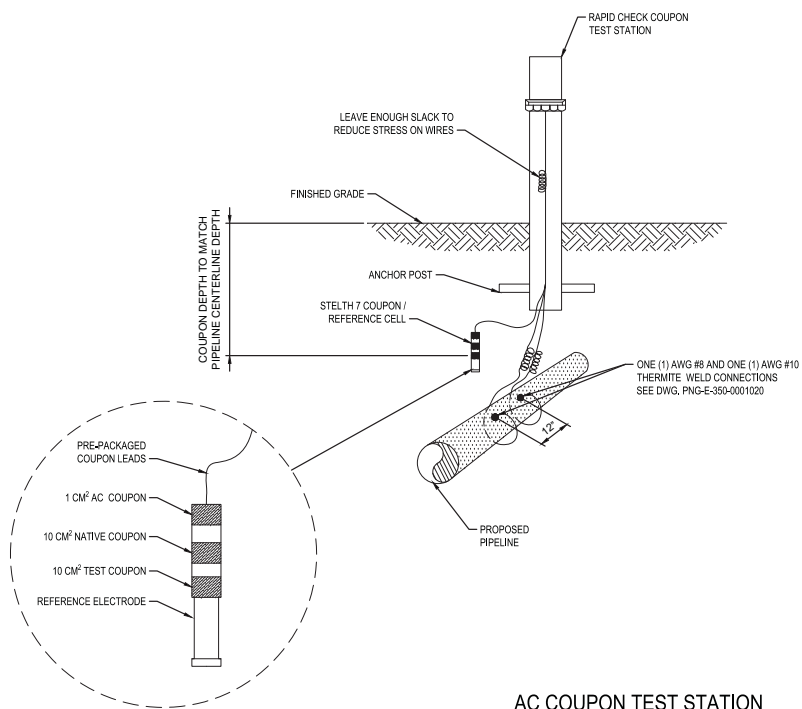


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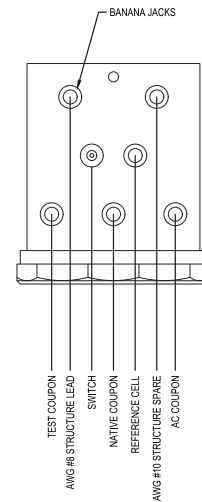
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						ACCOUNT NUMBER Q3680	DATE -
						PROJECT NUMBER 1880115	INITIALS -
						DRAWING BY MCR	DATE -
						STATION ID C350	INITIALS -
						CHECKER INITIALS FFO	DATE 11/18/2020
							AMP

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AC COUPON TEST STATION

DETAIL 7
SCALE: NOT TO SCALE



NOTES:

1. REFER TO DRAWINGS PNG-E-350-0001024 FOR COUPON TEST STATION LOCATIONS.
2. INSTALL AND TERMINATE COUPON TEST STATION ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
3. COUPON TO BE INSTALLED ON OPPOSITE SIDE OF PIPE FROM COPPER AC GROUNDING CABLES.
4. WET SOIL AT COUPON INSTALLATION LOCATION WITH WATER PRIOR TO BACKFILL.
5. BACKFILL COUPON WITH NATIVE SOIL.
6. INSTALL COUPON AT PIPE DEPTH.
7. INSTALL COUPON WITHIN 12" OF PIPE.

REF. DWG(S) PNG-G-350-0001009

11/18/2020



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0	11/18/2020	ISSUED FOR CONSTRUCTION	MCR	FFO	AMP	AREA CODE - ACCOUNT NUMBER Q3680 PROJECT NUMBER 1880115 DRAWING BY MCR STATION ID C350 CHECKER INITIALS FFO	DATE - INITIALS - DATE - INITIALS - DATE 11/18/2020 INITIALS AMP

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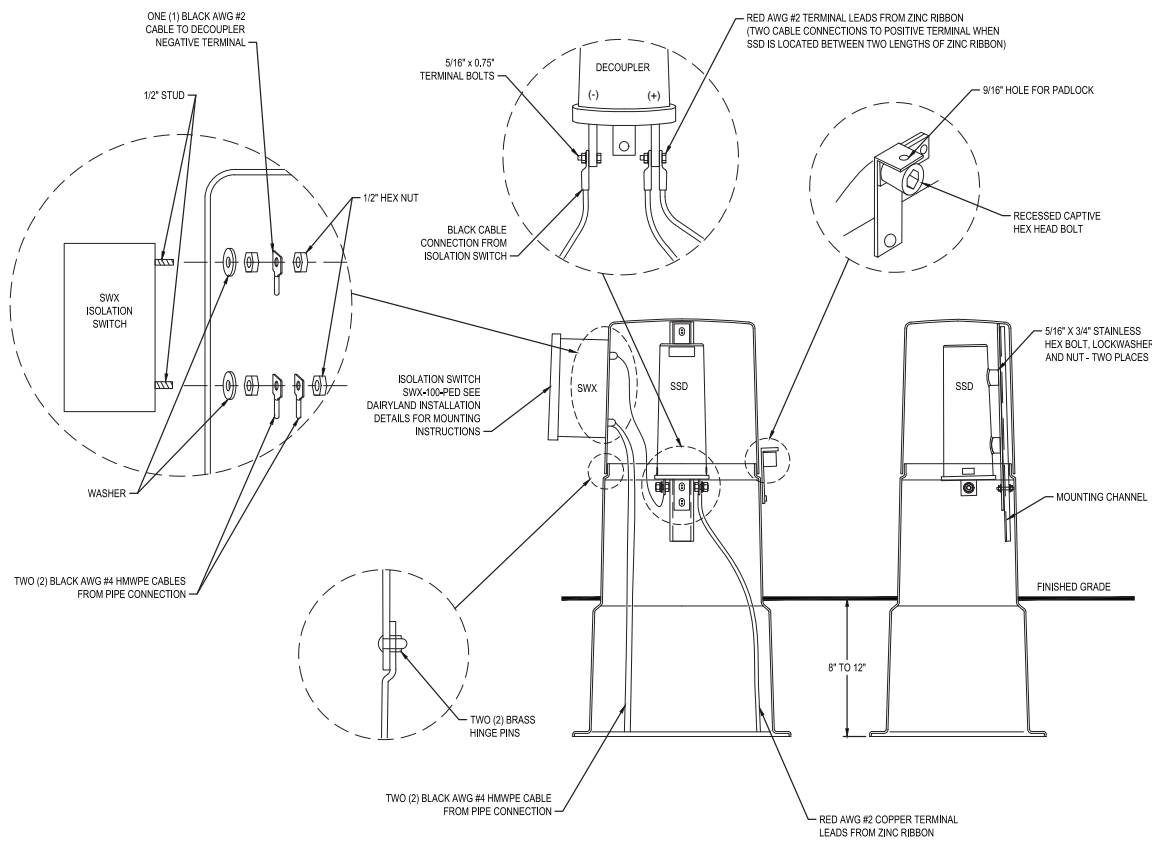
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AC COUPON TEST STATION
HAMILTON COUNTY, OHIO
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ABOVE GROUND PEDESTAL INSTALLATION



- INSTALLATION NOTES:
1. REFER TO DRAWINGS PNG-E-350-0001024 FOR SSD LOCATIONS.
 2. INSPECT ALL CABLE INSULATION PRIOR TO INSTALLATION.
 3. BACKFILL AROUND WIRES TO WITHIN 18" OF FINISHED GRADE.
 4. TAMP A 2'X2' AREA AND PLACE THE PEDESTAL OVER THE WIRES.
 5. BACKFILL CAREFULLY AROUND THE PEDESTAL TO KEEP LEVEL.
 6. REMOVE THE TOP PORTION OF PEDESTAL TO INSTALL SSD.
 7. FILL THE INSIDE OF PEDESTAL WITH 12" OF NATIVE SOIL.
 8. USE THE SUPPLIED HARDWARE TO MOUNT SSD AS SHOWN.
 9. TYPICAL BURIAL DEPTH 8" TO 12".
 10. ISOLATION SWITCH TO BE MOUNTED ON OUTSIDE OF FIBERGLASS PEDESTAL OPPOSITE SIDE OF 9/16" HOLE FOR PADLOCK.
 11. LABEL THE RUNNING DIRECTION OF EACH AC GROUNDING CABLE BROUGHT ABOVE GRADE.

SOLID STATE DECOUPLER

DETAIL 8
SCALE: NOT TO SCALE

REF. DWG(S) PNG-G-350-0001009

SHEET(S) 9 OF 14	DWG SCALE NONE
DWG DATE 06-10-2020	SUPERSEDED
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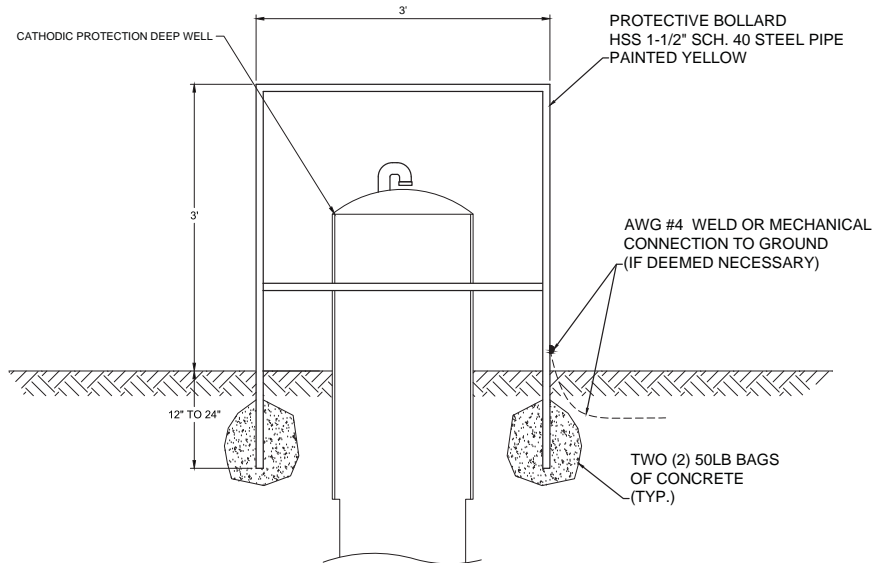
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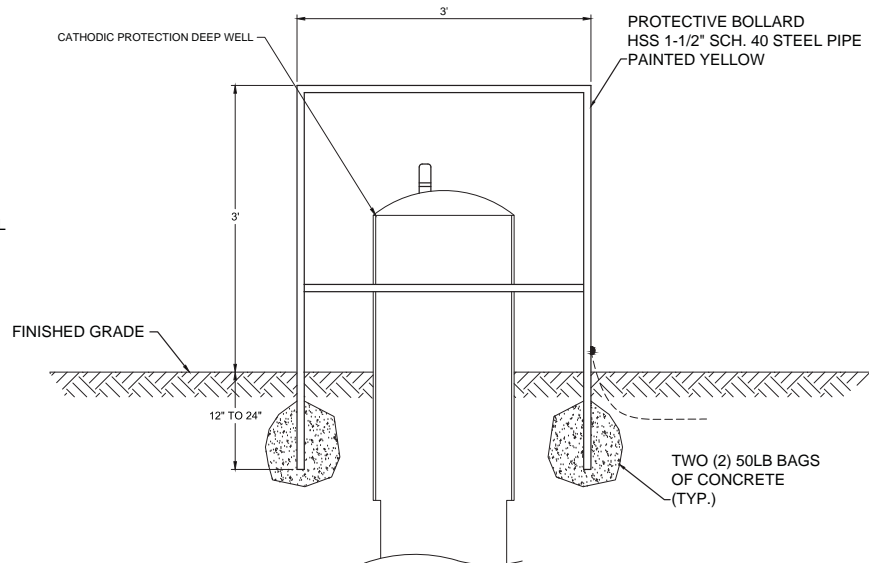
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SOLID STATE DECOUPLER
HAMILTON COUNTY, OHIO
HAMILTON COUNTY, OHIO

FRONT VIEW



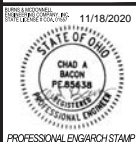
PROFILE VIEW



PROTECTIVE BOLLARDS

DETAIL 9
SCALE: NOT TO SCALE

REF. DWG(S) PNG-G-350-0001009



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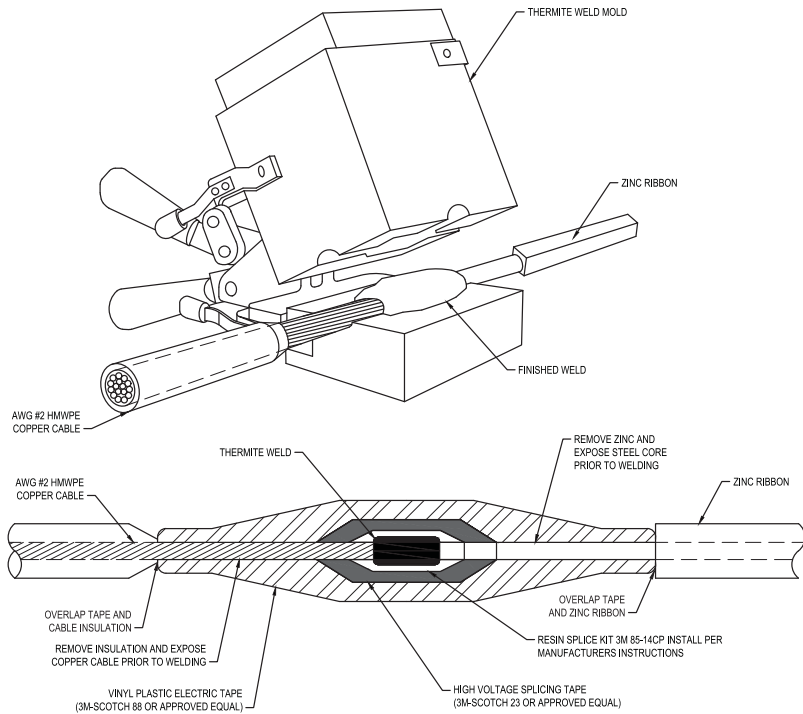


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SHEET(S) 10 OF 14	DWG SCALE NONE
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E / HAMILTON COUNTY / 350	

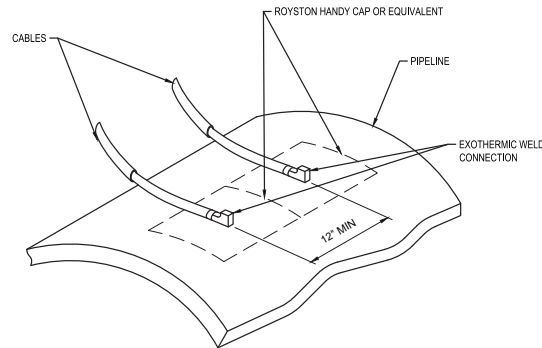
ZINC RIBBION TO AWG #2 COPPER CABLE WELD CONNECTION



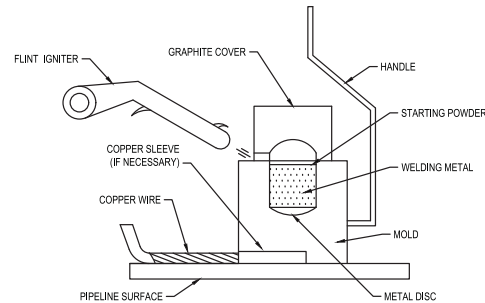
EXOTHERMIC WELDING

DETAIL 10
SCALE: NOT TO SCALE

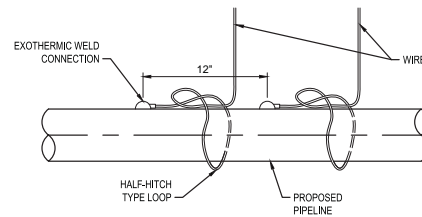
CABLE TO PIPELINE CONNECTIONS



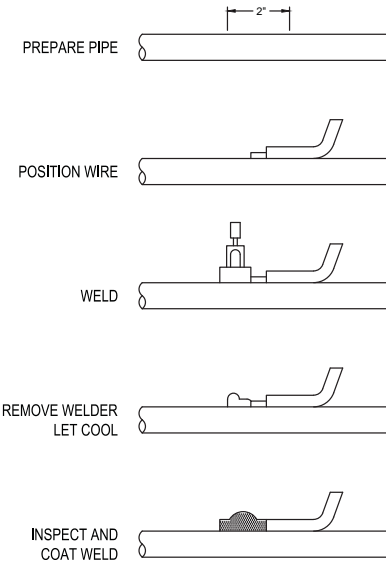
WELDING MOLD SET UP



CABLE ROUTING DETAIL



WELDING PROCEDURE



STEPS FOR PREPARING PIPELINE SURFACE

1. REMOVE A 2" SQUARE SECTION OF COATING, FILE SURFACE TO BRIGHT METAL AND DRY.
2. PIPE MUST BE TESTED FOR WALL LAMINATIONS PRIOR TO WELDING, ULTRASONIC WALL THICKNESS MEASUREMENTS MUST BE TAKEN AT THE LOCATION OF ALL WELDS, TO VERIFY ADEQUATE WALL THICKNESS.
3. WRAP TEST WIRE AROUND THE PIPE OR LEAVE ENOUGH SLACK ON THE WIRE TO REDUCE STRAIN ON WELD. NEVER WRAP CASING WIRE AROUND PIPELINE.
4. STRIP INSULATION FROM WIRE. SLIP ON COPPER SLEEVE (#8 WIRE AND SMALLER) AND CRIMP. PLACE WIRE AGAINST METAL SURFACE.
5. PLACE PREPARED WELDER OVER WIRE AND HOLD FIRMLY WHILE MAKING CONNECTION, APPLY SPARK TO SIDE OF WELDER WITH FLINT GUN.
6. REMOVE MOLD AND LET COOL.
7. AFTER WELD HAS COOLED, HIT WELD SEVERAL TIMES WITH HAMMER TO ENSURE WELD IS INTACT.
8. PROTECT WELDMENT AS REQUIRED.

STEPS FOR PREPARING WELDER

1. PLACE METAL DISC IN BOTTOM OF GRAPHITE MOLD.
2. OPEN CARTRIDGE AND POUR CHARGE IN MOLD USE MAXIMUM 15 GRAM CHARGE.
3. SQUEEZE BASE OF CARTRIDGE AND REMOVE STARTING POWDER.
4. CLOSE COVER AND PLACE WELDER OVER WIRE.

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SHEET(S) 11 OF 14	DWG SCALE NONE
DWG DATE 06-10-2020	SUPERSEDED
DRAWING NUMBER	REVISION
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EXOTHERMIC WELDING
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CATHODIC PROTECTION EQUIPMENT SCHEDULE (LIST 1 OF 2)

SITE	STATIONING	FEATURE(S)	LOCATION	FLUSH MOUNT	AWG #4 WELDS	AWG #6 WELDS	AWG #10 WELDS	NOTES
1	12+70	2-Wire Test Station	West of Highpoint Park Station	X			2	
2	22+50	2-Wire Test Station	West side of Correy Road	X			2	
3	41+50	2-Wire Test Station	West side of Correy Road near school	X			2	North end of HDD
4	56+75	2-Wire Test Station	PI East of Correy Road	X			2	
5	67+25	2-Wire Test Station	West edge of parking lot, south of I-275	X			2	
6	75+00	2-Wire Test Station	Parking lot	X			2	
7	79+45	Pipeline Crossing Test Station	East side of Grooms Road	X	2	2		TS at 79+45, connects to 6" pipeline crossing at 79+60, pull TS to north edge of driveway
8	95+50	2-Wire Test Station	NW Corner of P&G Parking Lot	X			2	
9	110+15	2-Wire Test Station	East of Reed Hartman Highway Crossing	X			2	
10	112+45	2-Wire Test Station	West of Reed Hartman Highway Crossing	X			2	
11	116+35	2-Wire Test Station	North of private drive	X			2	
12	123+40	2-Wire Test Station	South of Cornell Park Drive	X			2	
13	130+60	2-Wire Test Station	South of Ashwood Drive	X			2	
14	136+00	2-Wire Test Station	North of Cornell Road	X			2	
15	137+05	Pipeline Crossing Test Station	South of Cornell Road	X		2	2	TS at 137+05, connects to 6" pipeline crossing at 136+75
16	142+00	Pipeline Crossing Test Station	East of Reed Hartman Highway	X		2	2	TS at 142+00, connects to pipeline crossing at 141+89
17	146+25	2-Wire Test Station	North of Reed Hartman Highway Crossing	X			2	
18	148+40	2-Wire Test Station	South of Reed Hartman Highway Crossing	X			2	
19	160+05	Pipeline Crossing Test Station	South of Osborne Blvd	X	2	2		TS at 160+05, connects to 4" pipeline crossing at 159+95
20	169+45	2-Wire Test Station	North of Imlenau Way	X			2	
21	175+75	2-Wire Test Station	East of Reed Hartman Highway	X			2	
22	181+15	2-Wire Test Station	West of Reed Hartman Highway, North of Creed Road	X			2	
23	183+25	Pipeline Crossing Test Station	South of Creek Road	X	2	2		TS at 183+25, connects to 6" pipeline crossing at 183+03
24	184+00	Monolithic Insulator Bond	South of Creek Road	X	2	2		Install in below grade fiberglass reinforced polymer concrete enclosure
25	190+25	2-Wire Test Station	Between parking lots	X			2	
26	198+00	Pipeline Crossing Test Station	North of Lake Forest Drive	X	2	2		TS at 198+00, connects to 6" pipeline crossing at 198+19
27	199+00	2-Wire Test Station	South of Lake Forest Drive	X			2	
28	217+50	2-Wire Test Station	North of Glendale Milford Road	X			2	
29	222+95	Pipeline Crossing Test Station	West of Lake Forest Drive, North of Glendale Milford Road	X		2	2	TS at 222+95, connects to pipeline crossing at 222+90
30	225+25	Pipeline Crossing Test Station	East of McKinley Road Crossing	X		2	2	TS at 225+25, connects to 12" pipeline crossing at 224+93
31	227+20	Pipeline Crossing Test Station	West of McKinley Road Crossing	X		2	2	TS at 227+20, connects to pipeline crossing at 227+17
32	249+30	2-Wire Test Station	East of Plainfield Road Crossing	X			2	
33	252+00	Pipeline Crossing Test Station	West of Plainfield Road Crossing	X	2	2		TS at 252+00, connects to 6" pipeline crossing at 252+33
34	278+40	Pipeline Crossing Test Station	Glendale Milford Road & Sherondale Road Intersection	X		2	2	TS at 278+40, connects to 4" pipeline crossing at 278+32
35	294+45	Pipeline Crossing Test Station	Glendale Milford Road, West of Giverny Boulevard	X		2	2	TS at 294+45, connects to 20" pipeline crossing at 294+44
36	294+70	Pipeline Crossing Test Station	Glendale Milford Road, West of Giverny Boulevard	X		2	2	TS at 294+70, connects to 16" pipeline crossing at 294+62
37	303+90	Pipeline Crossing Test Station	Glendale Milford Road & Wycarver Road Intersection	X		2	2	TS at 303+90, connects to 4" pipeline crossing at 303+88
38	317+50	Pipeline Crossing Test Station	Glendale Milford & Kingsport Drive Intersection	X		2	2	TS at 317+50, connects to 12" pipeline crossing at 317+24
39	326+75	2-Wire Test Station	East of Reading Road Crossing	X			2	East end of HDD
40	344+00	2-Wire Test Station	PI West of Cunningham Drive, North of Glendale Milford Road	X			2	West of HDD
41	346+00	Pipeline Crossing Test Station	South of Glendale Milford Road Crossing	X		2	2	TS at 346+00, connects to 12" pipeline crossing at 345+87
42	367+80	2-Wire Test Station	South end of Evendale Commons Drive	X			2	
43	373+75	Pipeline Crossing Test Station	North of Formica Plant Access Road	X		2	2	TS at 373+75, connects to pipeline crossing at 373+81
44	377+25	2-Wire Test Station	East of railroad crossing	X			2	
45	379+50	2-Wire Test Station	West of railroad crossing	X			2	

CATHODIC PROTECTION EQUIPMENT SCHEDULE (LIST 2 OF 2)

SITE	STATIONING	FEATURE(S)	LOCATION	FLUSH MOUNT	AWG #4 WELDS	AWG #6 WELDS	AWG #10 WELDS	NOTES
46	412+40	Pipeline Crossing Test Station	South end of field	X		2	2	TS at 412+40, connects to pipeline crossing at 413+26
47	426+20	Pipeline Crossing Test Station	North of Au Chem Plant	X		2	2	TS at 426+20, connects to 6" pipeline crossing at 426+66
48	435+80	2-Wire Test Station	East of railroad crossing	X			2	
49	438+00	Pipeline Crossing Test Station	West of railroad crossing	X		2	2	TS at 438+00, connects to 6" pipeline crossing at 437+94
50	438+20	Pipeline Crossing Test Station	North end of West Street	X		2	2	TS at 438+20, connects to 6" pipeline crossing at 438+11
51	442+35	Pipeline Crossing Test Station	West Street East of Parking Lot	X		2	2	TS at 442+35, connects to 6" pipeline crossing at 442+31
52	446+60	Pipeline Crossing Test Station	West Street East of Soccer Field	X		2	2	TS at 446+60, connects to pipeline crossing at 446+54
53	457+00	Pipeline Crossing Test Station	North of West Street and West Pleasant Street Intersection	X		2	2	TS at 457+00, connects to 6" pipeline crossing at 457+15
54	461+25	2-Wire Test Station	Corner of Pleasant Street and Market Street	X			2	
55	464+75	Pipeline Crossing Test Station	Market Street between Pleasant Street and Columbia Street	X		2	2	TS at 464+75, connects to 12" pipeline crossing at 464+96
56	467+20	Pipeline Crossing Test Station	Market Street between Pleasant Street and Columbia Street	X		2	2	TS at 467+20, connects to 4" pipeline crossing at 467+27
57	468+85	Pipeline Crossing Test Station	Market Street between Columbia Street and Mechanic Street	X		2	2	TS at 468+85, connects to 4" pipeline crossing at 469+05
58	473+00	Pipeline Crossing Test Station	Mechanic Street West of Reading Road	X		2	2	TS at 473+00, connects to 8" pipeline crossing at 473+04
59	479+00	2-Wire Test Station	Corner of East Mechanic Street and 3rd street	X			2	
60	483+00	2-Wire Test Station	3rd Street Between Mechanic and Vine Street	X			2	
61	487+30	Pipeline Crossing Test Station	3rd Street Between Vine Street and E Benson Street	X		2	2	TS at 487+30, connects to 4" pipeline crossing at 487+28
62	488+00	Pipeline Crossing Test Station	3rd Street Between Vine Street and E Benson Street	X		2	2	TS at 488+00, connects to 6" pipeline crossing at 488+09
63	488+75	Pipeline Crossing Test Station	3rd Street Between Vine Street and E Benson Street	X		2	2	TS at 488+75, connects to pipeline crossing at 489+53
64	489+00	Pipeline Crossing Test Station	3rd Street Between Vine Street and E Benson Street	X		2	2	TS at 489+00, connects to 6" pipeline crossing at 488+91
65	489+85	Pipeline Crossing Test Station	3rd Street Between Vine Street and E Benson Street	X		2	2	TS at 489+85, connects to 6" pipeline crossing at 489+76
66	490+00	Pipeline Crossing Test Station	3rd Street Between Vine Street and E Benson Street	X		2	2	TS at 490+00, connects to 6" pipeline crossing at 489+90
67	491+70	Pipeline Crossing Test Station	3rd Street Between Vine Street and E Benson Street	X		2	2	TS at 491+70, connects to 6" pipeline crossing at 491+77
68	492+55	Pipeline Crossing Test Station	3rd Street Between Vine Street and E Benson Street	X		2	2	TS at 492+55, connects to 6" pipeline crossing at 492+47
69	492+85	Pipeline Crossing Test Station	3rd Street Between Vine Street and E Benson Street	X		2	2	TS at 492+85, connects to 6" pipeline crossing at 492+94
70	493+80	Pipeline Crossing Test Station	3rd Street Between Vine Street and E Benson Street	X		2	2	TS at 493+80, connects to 6" pipeline crossing at 493+85
71	494+60	Pipeline Crossing Test Station	3rd Street between East Benson Street and East Vorhees Street	X		2	2	TS at 494+60, connects to 6" pipeline crossing at 494+56
72	497+80	2-Wire Test Station	3rd Street between East Benson Street and East Vorhees Street	X			2	
73	502+05	Pipeline Crossing Test Station	PI on south end of East Vorhees Street	X		2	2	TS at 502+05, connects to 6" pipeline crossing at 502+14
74	504+50	2-Wire Test Station	South of Vorhees Street	X			2	
75	512+60	Monolithic Insulator Bond	East of railroad	X	2		2	Install in below grade fiberglass reinforced polymer concrete enclosure
76	522+25	2-Wire Test Station	East of railroad crossing	X			2	
77	523+50	2-Wire Test Station	West of railroad crossing	X			2	
78	529+25	Pipeline Crossing Test Station	North of Merrill Lane	X		2	2	TS at 529+25, connects to 8" pipeline crossing at 529+18
79	543+40	Pipeline Crossing Test Station	South of East Galbraith Rd	X		2	2	TS at 543+40 connects to 12" pipeline crossing at 544+31 if possible
80	559+25	2-Wire Test Station	North of P&G Plant	X			2	
81	568+40	Pipeline Crossing Test Station	South of Sunnysbrook Drive	X		2	2	TS at 568+40, connects to 6" pipeline crossing at 568+33
82	601+20	Pipeline Crossing Test Station	North of Section Road	X		2	2	TS at 601+20, connects to 12" pipeline crossing at 601+43
83	605+10	2-Wire Test Station	South of Section Road	X			2	
84	612+45	2-Wire Test Station	East of railroad crossing	X			2	
85	619+50	2-Wire Test Station	East of railroad crossing	X			2	
86	626+75	2-Wire Test Station	East of railroad crossing	X			2	
87	628+40	Pipeline Crossing Test Station	North of Losantville Ave	X		2	2	TS at 628+40, connects to 6" pipeline crossing at 628+47
88	664+55	2-Wire Test Station	South of Langdon Farm Road	X			2	
89	678+50	Pipeline Crossing Test Station	North of Station Fence	X		2	2	TS at 678+50, connects to 20" pipeline crossing at 678+56

REF. DWG(S) PNG-G-350-0001009

SHEET(S) 12 OF 14 DWG SCALE NONE

DWG DATE 06-10-2020 SUPERSEDED

DRAWING NUMBER

PNG E-350-0001021

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CATHODIC PROTECTION EQUIPMENT SCHEDULE
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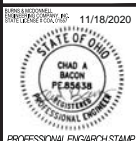


AC MITIGATION EQUIPMENT SCHEDULE (LIST 1 OF 1)

ZONE	SITE NO.	STA.	SSD	SWX ISOLATION SWITCH	AC COUPON TEST STATION	ZINC RIBBON LENGTH (FT)	AWG #4 WELDS	AWG #8 WELDS	AWG #10 WELDS	LOCATION DESCRIPTION	NOTES
1	1	382+25	X	X		-	2			North of Formica Plant	
	2	394+75	X	X		1250	2			West of Formica Plant	
	3	407+25	X	X	X	1250	2	1	1	South of Formica Plant	
2	4	445+25	X	X	X	-	2	1	1	East of Soccer Field	Install near utility pole
	5	457+00	X	X		1175	2			Pleasant Ave North of Cemetery	Install near utility pole
3	6	534+40	X	X		-	2			East of driveway	Install near line marker
	7	543+40	X	X	X	900	2	1	1	North of E Galbraith Rd Crossing	
4	8	546+85	X	X		-	2			North of Highway 126	Install near utility pole
	9	566+35	X	X	X	1950	2	1	1	North of Sunnybrooke Drive	Install near utility pole
	10	586+35	X	X	X	2000	2	1	1	Field west of HVAC transmission line	
5	11	613+75	X	X		-	2			West of railroad	Install near line marker
	12	618+35	X	X	X	460	2	1	1	West of railroad	Install near line marker
6	13	629+40	X	X		-	2			South of Losantiville Ave Crossing	Install near utility pole
	14	638+15	X	X	X	875	2	1	1	West of railroad	
	15	649+15	X	X		1100	2			East of Baseball Fields	Install near utility pole
	16	660+00	X	X	X	1085	2	1	1	Alley NE of Eagle Court	Install near utility pole

REF. DWG(S) PNG-G-350-0001009

SHEET(S) 13 OF 14	DWG SCALE NONE
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DESCRIPTION		APPROVALS	
AREA CODE	-	DATE	INITIALS
ACCOUNT NUMBER	Q3680		
PROJECT NUMBER	1880115	DATE	INITIALS
DRAWING BY	MCR		
STATION ID	C350	DATE	INITIALS
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C350 PROJECT
AC MITIGATION EQUIPMENT SCHEDULE
HAMILTON COUNTY, OHIO
HAMILTON COUNTY, OHIO

CATHODIC PROTECTION & AC MITIGATION BILL OF MATERIALS

ITEM NO	EST QTY	UOM	AS-BUILT QTY	DESCRIPTION	MAXIMO PART X	NOTES	MODEL NO	MATERIAL SOURCE
1	18	PKG		CAD WELDS & CONNECTIONS				
2	2	PKG		CA-15 WELD METAL (20/PACK)	NON-STOCK	WELD METAL, CABLE TO PIPE CONNECTIONS	CA-15	ERICO
3	1	EA		CA-32 WELD METAL (20/PACK)	NON-STOCK	WELD METAL, AWG #2 TO ZINC RIBBON CONNECTIONS	CA-32	ERICO
4	2	EA		CASST-1V, AWG #2 STRANDED CABLE WELDER	NON-STOCK	AWG #2 CABLE TO ZINC RIBBON CONNECTION	CASST-1V	ERICO
5	2	EA		CAHAA-1L, AWG #4 STRANDED CABLE WELDER	NON-STOCK	AWG #4 CABLE TO PIPE CONNECTION	CAHAA-1L	ERICO
6	10	EA		CAHAA-1H, AWG #6 STRANDED CABLE WELDER	NON-STOCK	AWG #6 CABLE TO PIPE CONNECTION	CAHAA-1H	ERICO
7	200	EA		CAB-133-1L, ADAPTER SLEEVE FOR AWG #8, FOR USE IN AWG #4 WELDER	NON-STOCK	AWG #8 CABLE TO PIPE CONNECTION	CAB-133-1L	ERICO
8	2	EA		CAB-133-1H, ADAPTER SLEEVE FOR AWG #10, FOR USE IN AWG #6 WELDER	NON-STOCK	AWG #10 CABLE TO PIPE CONNECTION	CAB-133-1H	ERICO
9	330	EA		FLUNT IGNITOR FOR THERMITE WELDING, T320	NON-STOCK	CADWELD IGNITOR	T320	ERICO
10	20	EA		ROYSTON HANDY CAP	1552880	CABLE TO PIPE WELD PROTECTION		ROYSTON
11	5	EA		SPLICE KIT, 85-14CP	NON-STOCK	AWG#2 TO ZINC RIBBON WELD PROTECTION	85-14CP	3M
12	5	EA		SUPER 88 TAPE, 66FT ROLL	NON-STOCK	AWG#2 TO ZINC RIBBON WELD PROTECTION		3M
13	6	PKG		SCOTCH 23 HIGH VOLTAGE TAPE	NON-STOCK	AWG#2 TO ZINC RIBBON WELD PROTECTION		3M
14	8	PKG		COMPRESSION RING TERMINAL, AWG #2 WITH 1/2" HOLE, YAD2CM12E12 (5/PACK)	NON-STOCK	AWG #2 TO SSD CONNECTION	YAD2CM12E12	BRUNDY
				COMPRESSION RING TERMINAL, AWG #4 WITH 1/2" HOLE, YAD4CM12E12 (5/PACK)	NON-STOCK	PIPE TO SSD CONNECTION	YAD4CM12E12	BRUNDY
				WIRE				
15	7000	FT		BLACK AWG #10, THHN COATED SOLID COPPER WIRE	NON-STOCK	TEST STATION TO PIPE CONNECTION		GENERIC
16	2500	FT		WHITE AWG #10, THHN COATED SOLID COPPER WIRE	NON-STOCK	TEST STATION TO PIPE CONNECTION		GENERIC
17	400	FT		BLACK AWG #8, THHN COATED STRANDED COPPER WIRE	NON-STOCK	TEST STATION TO PIPE CONNECTION		GENERIC
18	2500	FT		BLACK AWG #6, THHN COATED STRANDED COPPER WIRE	NON-STOCK	TEST STATION TO PIPE CONNECTION		GENERIC
19	2500	FT		WHITE AWG #6, THHN COATED STRANDED COPPER WIRE	NON-STOCK	TEST STATION TO PIPE CONNECTION		GENERIC
20	50	FT		BARE AWG #6 SOLID COPPER WIRE	NON-STOCK	RECTIFIER GROUNDING CONNECTION		GENERIC
21	1500	FT		BLACK AWG #4, HMWPE COATED STRANDED COPPER WIRE	NON-STOCK	SSD TO PIPE CONNECTION, RECTIFIER TO PIPE CONNECTION		GENERIC
22	250	FT		WHITE AWG #4, HMWPE COATED STRANDED COPPER WIRE	NON-STOCK	MONOLITHIC INSULATOR JUNCTION BOX CABLE		GENERIC
23	650	FT		RED AWG #2, HMWPE COATED STRANDED COPPER WIRE	NON-STOCK	ZINC RIBBON TO SSD CONNECTION		GENERIC
				TEST STATIONS & JUNCTION BOXES				
24	41	EA		4" FLUSH MOUNT TEST STATION, 4 TERMINAL POSTS	NON-STOCK	TWO-WIRE TEST STATION (FLUSH MOUNT)	P4HHD	BINGHAM AND TAYLOR
25	46	EA		6" FLUSH MOUNT TEST STATION, 8 TERMINAL POSTS	NON-STOCK	PIPELINE CROSSING TEST STATION (FLUSH MOUNT)	P68DT	BINGHAM AND TAYLOR
26	8	EA		RAPID CHECK AC COUPON TEST STATION, YELLOW	NON-STOCK	AC COUPON TEST STATION		FARWEST
27	54	EA		BORIN STELTH 7 ELECTRODE WITH SOFT LEAD WIRE	1575566	AC/DC COUPON, PIPELINE CROSSING TEST STATIONS	SRE-024-CIY-AC20	BORIN
28	1	EA		12" H X 16" W GALVANIZED ENCLOSURE WITH ONE (1) COPPER BUSS BAR, EIGHT (8) 50 MV = 5 A HOLLOWAY SW SHUNTS, EIGHT (8) KA-4C CIRCUIT LUGS FOR AWG #8 CABLE, ONE (1) KPA-25 HEADER LUG FOR AWG #2 CABLE, TWO(2) 2" STEEL CONDUIT POSTS	NON-STOCK	DEEP WELL ANODE JUNCTION BOX		UNIVERSAL
29	2	EA		50M V = 20A HOLLOWAY SW SHUNT	NON-STOCK	MONOLITHIC INSULATOR BOND/SHUNT		HOLLOWAY
30	2	EA		BELOW GRADE FIBERGLASS REINFORCED POLYMER CONCRETE ENCLOSURE, 13" x 24" x 15"	NON-STOCK	MONOLITHIC INSULATOR BOND VAULT		GENERIC
31	2	EA		WATERTIGHT PVC BOND BOX	NON-STOCK	MONOLITHIC INSULATOR BOND BOX		GENERIC
				DEEP WELL				
32	3	EA		SOLID PVC CASING, 12" DIA. X 20' LENGTHS, BELL ENDS	NON-STOCK	DEEP WELL PASSIVE ZONE PVC CASING		GENERIC
33	5	EA		ALL-VENT 1" DIA. PVC PIPE, 20' LENGTHS	NON-STOCK	DEEP WELL ACTIVE ZONE VENT PIPE		LORESCO
34	16	EA		10" VENTRALIZER (CENTRALIZER), TWO PER ANODE	NON-STOCK	ANODE CENTRALIZER	VENTRALIZER	ELTECH
35	1	EA		12" DIA. PVC CAP	NON-STOCK	DEEP WELL CAP		PVC-CAP
36	8	EA		1" DIA. SOLID PCV PIPE, 20' LENGTHS	NON-STOCK	DEEP WELL PASSIVE ZONE VENT PIPE		GENERIC
37	2	EA		1" DIA. PVC CAP	NON-STOCK	VENT PIPE CAP		GENERIC
38	40	EA		1" DIA. PVC COUPLINGS	NON-STOCK	VENT PIPE COUPLINGS		GENERIC
39	2	EA		1" DIA. 90 DEGREE SOLID PVC ELBOWS	NON-STOCK	VENT PIPE ELBOWS		GENERIC
40	10	FT		2" PVC CONDUIT, 20' LENGTHS	NON-STOCK	RECTIFIER/ANODE CABLE CONDUIT		GENERIC
				RECTIFIER				
41	1	EA		30V/15A AIR-COOLED RECTIFIER, TYPE: ASAI3015SAACR WITH 50 MV = 15 A HOLLOWAY SW SHUNT, HOT DIPPED GALVANIZED CABINET WITH NO MANUFACTURES EXTERNAL	NON-STOCK	RECTIFIER	ASAI5015SAACR	UNIVERSAL
42	1	EA		OMNIMETRIX HERO 2 RMU	NON-STOCK	REMOTE MONITORING UNIT	HERO 2	OMNIMETRIX
43	2	EA		CONDUIT RIDGED STEEL, 2", 20' LENGTHS	NON-STOCK	RECTIFIER/JUNCTION BOX CABLE CONDUIT		GENERIC
44	8	EA		GALVANIZED STEEL CLAMPS, 2"	NON-STOCK	RECTIFIER/JUNCTION BOX CABLE CONDUIT		GENERIC
45	8	EA		LOCKNUTS, 2"	NON-STOCK	RECTIFIER/JUNCTION BOX CABLE CONDUIT		GENERIC
46	8	EA		INSULATING HUB, 2"	NON-STOCK	RECTIFIER/JUNCTION BOX CABLE CONDUIT		GENERIC
47	4	EA		GROUND ROD, 1/8" X 8' COPPER	NON-STOCK	RECTIFIER GROUNDING		GENERIC
48	4	EA		GROUND ROD CLAMP, 5/8"	NON-STOCK	RECTIFIER GROUNDING		GENERIC
49	4	EA		CONCRETE, SOLB BAG	NON-STOCK	RECTIFIER/JUNCTION RACK FOUNDATION		GENERIC
50	2	EA		1-5/8" X 3-1/4", 12 GAGE BACK-TO-BACK SLOTTED UNISTRUT, 8-FT LENGTHS	NON-STOCK	RECTIFIER RACK, VERTICAL MEMBERS	P1001T	UNISTRUT
51	4	EA		1-5/8" X 1-5/8", 12 GAGE SLOTTED UNISTRUT, 6-FT LENGTHS	NON-STOCK	RECTIFIER RACK, HORIZONTAL MEMBER	P1000T	UNISTRUT
52	6	EA		1-5/8" WHITE PLASTIC END CAPS	NON-STOCK	RECTIFIER RACK END CAPS	P2860	UNISTRUT
53	1	PKG		1/2" HEX BOLT, 1-1/2" LENGTH (50/BOX)	NON-STOCK	RECTIFIER RACK FASTENERS		GENERIC
54	1	PKG		1/2" FLAT WASHER (50/BOX)	NON-STOCK	RECTIFIER RACK FASTENERS		GENERIC
55	1	PKG		1/2" HEX NUT (50/BOX)	NON-STOCK	RECTIFIER RACK FASTENERS		GENERIC
				ANODES & BACKFILL				
56	8	EA		MIXED METAL OXIDE TUBULAR ANODE, 1" DIA. X 20" LENGTH WITH 280' AWG #8 PVDF/HMWPE CABLE	NON-STOCK	DEEP WELL ANODES	2.5/50	DE NORA
57	90	EA		LORESCO SC-3 (SOLB BAGS)	NON-STOCK	DEEP WELL ACTIVE ZONE BACKFILL	SC-3	LORESCO
58	160	EA		LORESCO PERMAPLUG (SOLB BAGS)	NON-STOCK	DEEP WELL PASSIVE ZONE BACKFILL	PERMAPLUG	LORESCO
				AC GROUNDING / DECOUPLERS				
59	16	EA		SOLID STATE DECOUPLER	NON-STOCK	SOLID STATE DECOUPLER (SSD)	SSD-2/2-5.0-100-R	DAIRYLAND
60	16	EA		MECHANICAL ISOLATION SWITCHES, SWX-100-PED	NON-STOCK	SSD EXTERNAL DISCONNECT SWITCH	SWX-100-PED	DAIRYLAND
61	16	EA		MTL LEAD KIT FOR ISOLATION SWITCH, MTL-2-32-SWS	NON-STOCK	SSD TO SWITCH CONNECTION	MTL-2-32-SWS	DAIRYLAND
62	16	EA		36" FIBERGLASS PEDESTAL FOR SSD MOUNTING, MTP-36	NON-STOCK	SSD PEDESTAL	MTP-36	DAIRYLAND
63	12045	FT		ZINC RIBBON, STANDARD 1/2" x 9/16", (1) 460-FT, (1) 875-FT, (1) 900-FT, (1) 1085-FT, (1) 1100-FT, (1) 1175-FT, (1) 1950-FT, (1) 2000-FT	NON-STOCK	AC GROUNDING CABLE		PLATLINE
64	12045	FT		CAUTION TAPE, YELLOW, 6" WIDE	1552996	CAUTION TAPE		GENERIC
				INSULATORS				
65	2	EA		INSULATOR, MONOLITHIC, WELD, 20" NPS, FORGED STL, ASTM A105, CLASS 600, ASME B16.11, PIPE PUP STYLE, API 5L PSL-2, GR X65, 0.375" W.T. PIPE PUPS WELDED ON EACH END, BEVEL ENDS 30 - 35 DEG WITH 1/16" LANDING.	1557522	MONOLITHIC INSULATOR		SYPRISTECHOL

NOTE: CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS PARTS TO COMPLETE PROJECT PER CONTRACT DRAWINGS, CONTRACT SPECIFICATIONS, ELECTRICAL CODES, STATE AND LOCAL CODES AND STANDARDS, AND LOCAL ELECTRICAL DISTRIBUTION COMPANY REQUIREMENTS. PARTS INCLUDE, BUT ARE NOT LIMITED TO, WIRING AND MOUNTING MATERIALS, METER SOCKET, DISCONNECT EQUIPMENT, ENCLOSURES, TRANSIENT VOLTAGE SURGE SUPPRESSORS, AC MAIN BUSS TERMINATION, CIRCUIT BREAKERS, AND OTHER ELECTRICAL EQUIPMENT REQUIRED. ACTUAL LENGTH WIRING IS DEPENDENT ON DISTANCE FROM INSTALLATION.



NO.	DATE	REVISION(S) DESCRIPTION	BY	CHK	APPD	DESCRIPTION	DATE	INITIALS	APPROVALS
0	11/18/2020	ISSUED FOR CONSTRUCTION	MCR	FFO	AMP	AREA CODE ACCOUNT NUMBER PROJECT NUMBER DRAWING BY STATION ID CHECKER INITIALS	- Q3680 1880115 MCR C350 FFO	- - - - - -	REGIONAL ENGINEER MGR TECH REC & STD PRINCIPAL ENGINEER



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HAMILTON COUNTY, OHIO

REF. DWG(S) PNG-G-350-0001009

SHEET(S) 14 OF 14	DWG SCALE NONE
DWG DATE 06-10-2020	SUPERSEDED
DRAWING NUMBER PNG E-350-0001025	REVISION 0
E / HAMILTON COUNTY / 350	

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in

Case No(s). 16-0253-GA-BTX

Summary: Exhibit CCP Drawings for Preconstruction Conference Set 2 part 4 electronically filed by Mrs. Debbie L Gates on behalf of Duke Energy Ohio Inc. and Kingery, Jeanne W and Vaysman, Larisa