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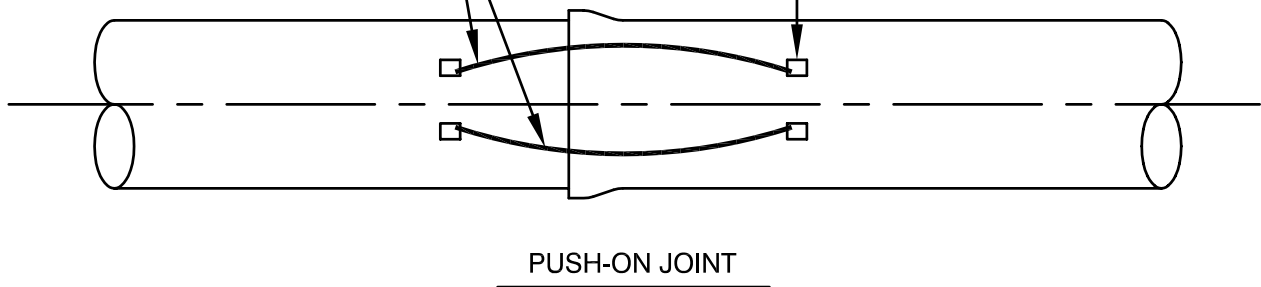
Test Station at Foreign Pipeline Crossing

C/4.7



TWO WIRES, MAXIMUM LENGTH = 18" TO 24",
SEE SIZES BELOW

THERMITE WELD (TYPICAL),
SEE DETAIL C/2.0

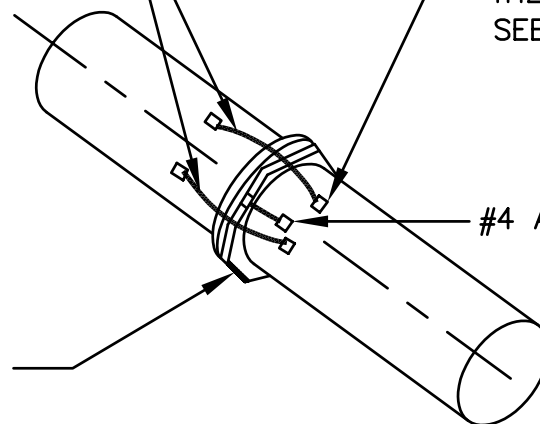


TWO WIRES, MAXIMUM LENGTH = 24",
SEE SIZES BELOW

THERMITE WELD (TYPICAL),
SEE DETAIL C/2.0

#4 AWG COPPER WIRE (MINIMUM)

GLAND



MECHANICAL JOINT

BOND WIRE SIZE	
PIPE DIAMETER	WIRE SIZE
3" THRU 18"	# 4 AWG
OVER 18"	# 2 AWG

GENERAL NOTE:

1. THE BOND WIRE SHALL BE STRANDED COPPER WIRE WITH HMWPE INSULATION.

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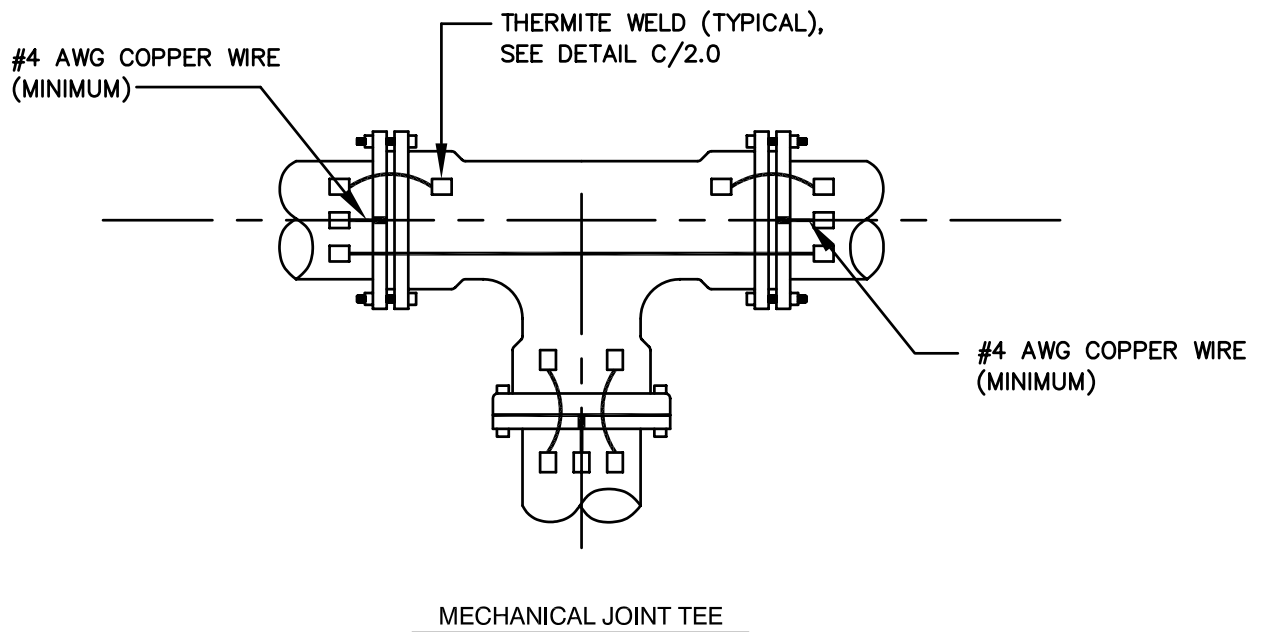
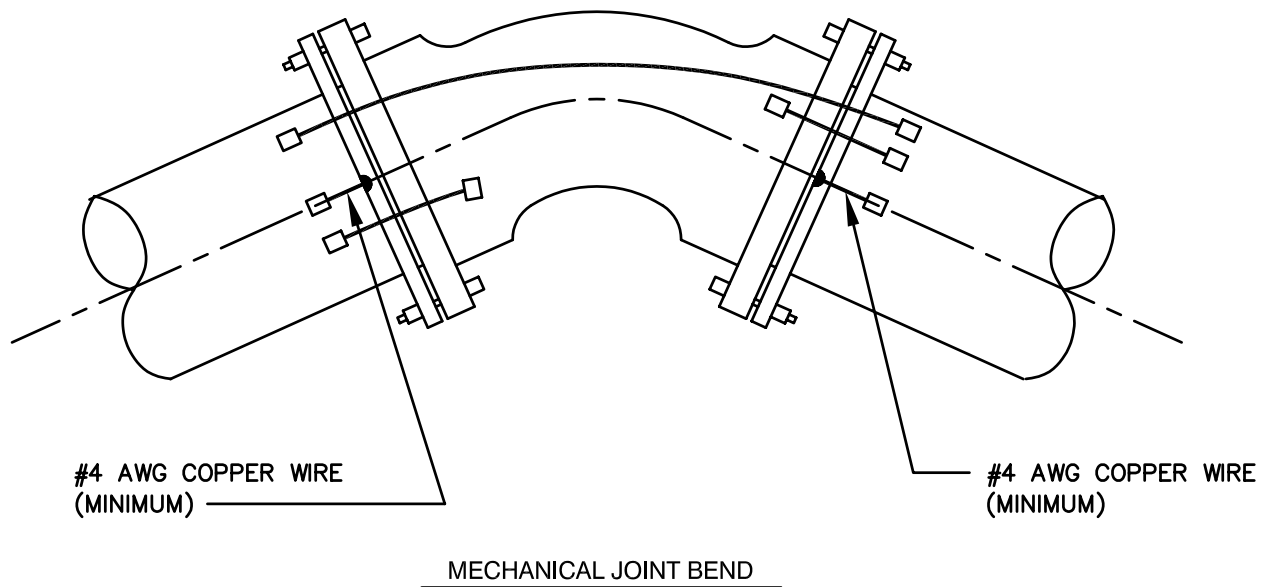
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Chief Engineer

STANDARD DETAIL

DUCTILE IRON
PIPE JOINT BOND

C
1.0



GENERAL NOTES:

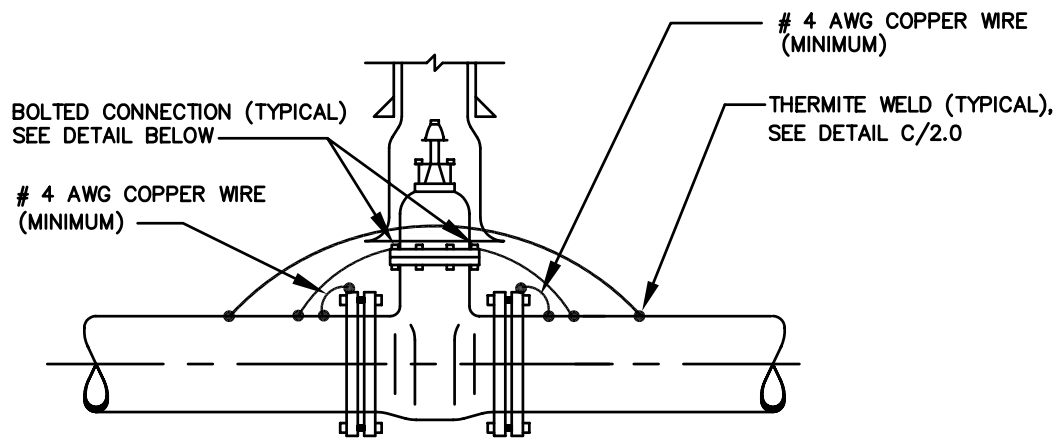
1. SEE DETAIL C/1.0 FOR BOND WIRE SIZE AND INSULATION.
2. SEE DETAIL C/1.0 FOR JOINT BONDING OF PUSH-ON JOINT.

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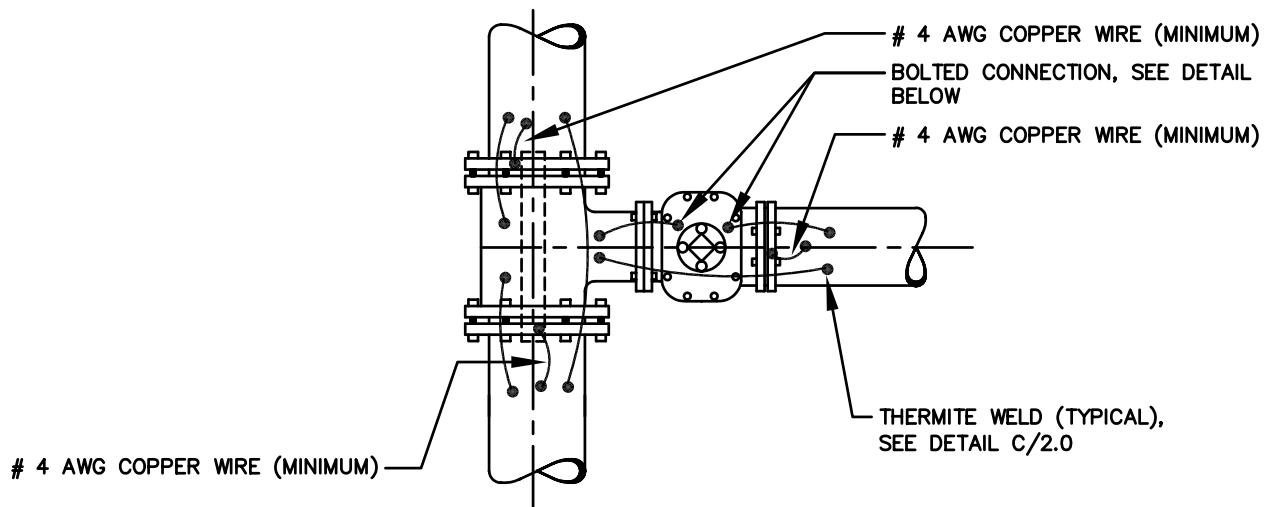
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Chief Engineer

STANDARD DETAIL
DUCTILE IRON PIPE
BONDING OF FITTING
JOINTS

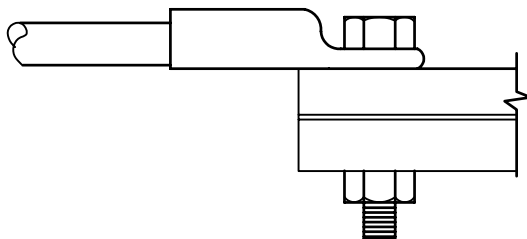
C
1.1



IN LINE VALVE BONDING



TEE OR TAPPING SLEEVE AND VALVE BONDING



BOLTED CONNECTION

GENERAL NOTES:

1. SEE DETAIL C/1.0 FOR
BOND WIRE SIZE AND INSULATION.
2. CLEAN VALVE TO BRIGHT METAL AT
POINT OF BOLTED CONNECTION.
3. SEE DETAIL C/1.0 FOR
JOINT BONDING OF PUSH-ON JOINTS.

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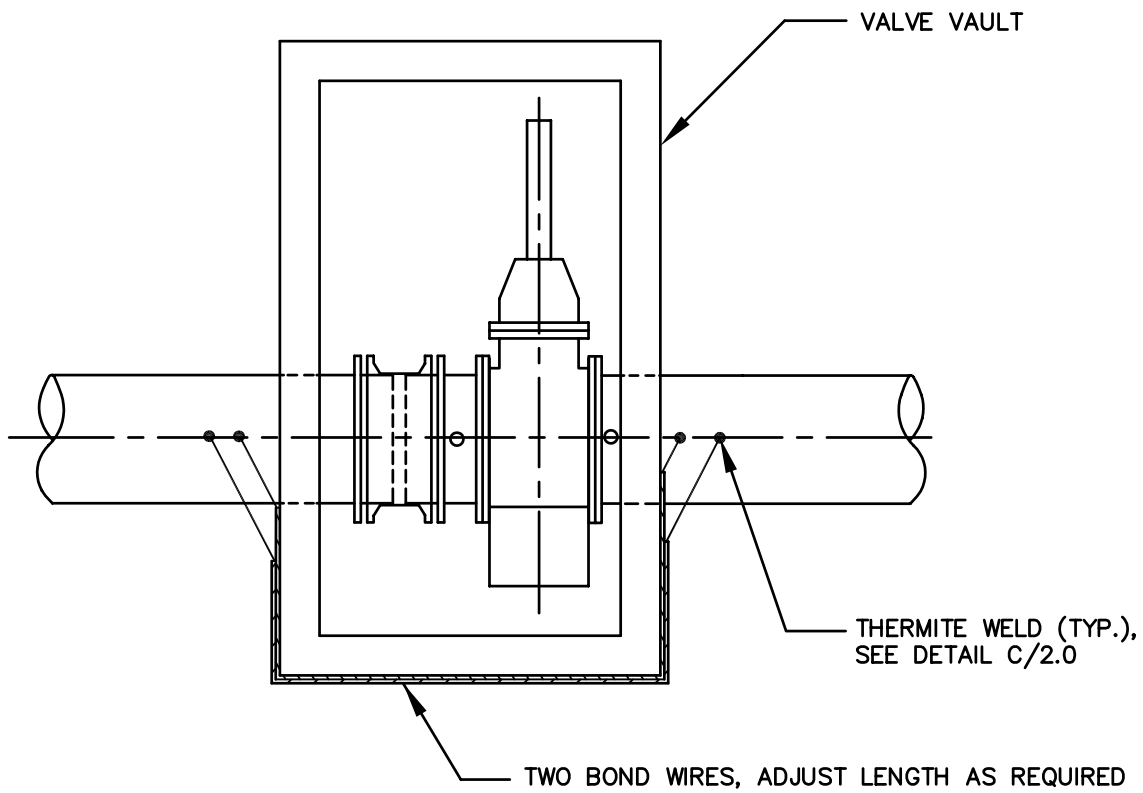
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Chief Engineer

STANDARD DETAIL

DUCTILE IRON
MECHANICAL JOINT
VALVE BONDING

C
1.2



PLAN VIEW
NO SCALE

GENERAL NOTES:

1. SEE DETAIL C/1.0 FOR BOND WIRE SIZE AND INSULATION.
2. PROVIDE SLACK IN WIRES AND FASTEN TO VAULT TO PROTECT WIRES FROM DAMAGE.

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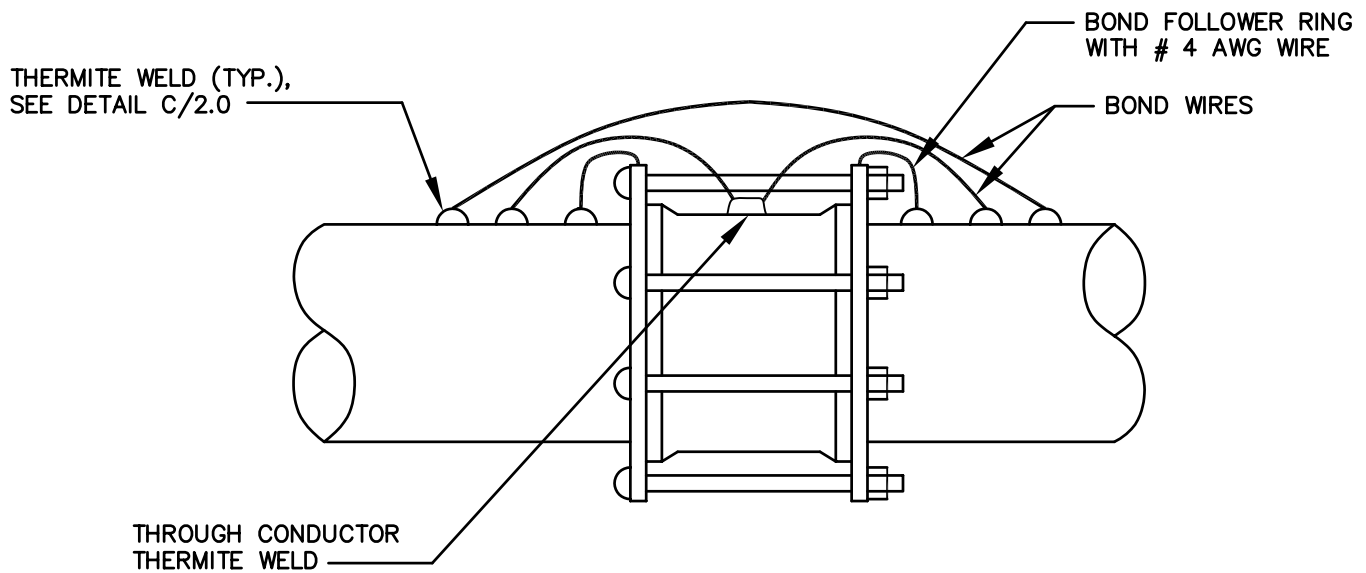
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STANDARD DETAIL

DUCTILE IRON PIPE
BONDING AROUND
VALVE VAULT

C
1.3



GENERAL NOTE:

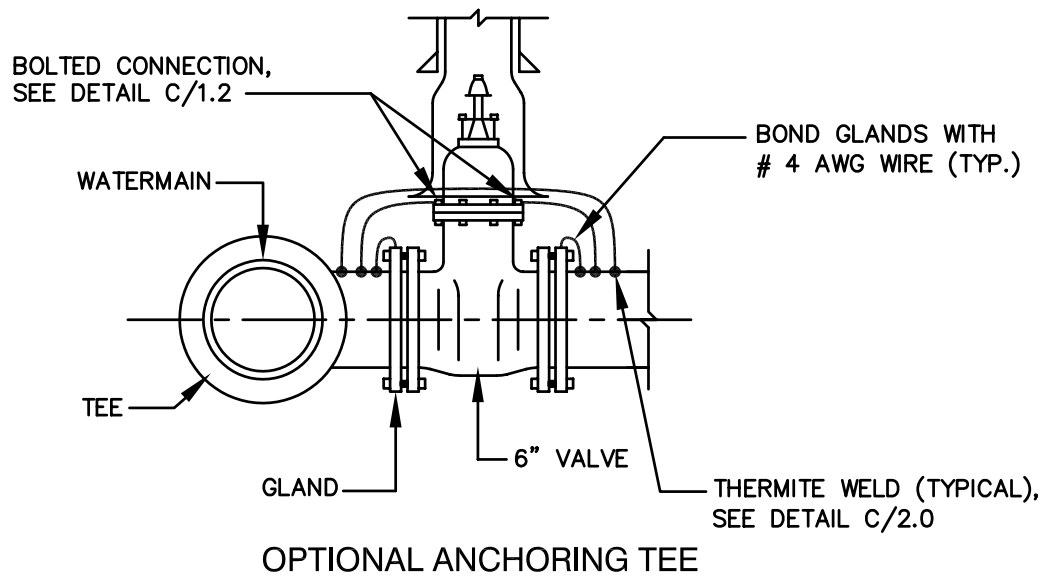
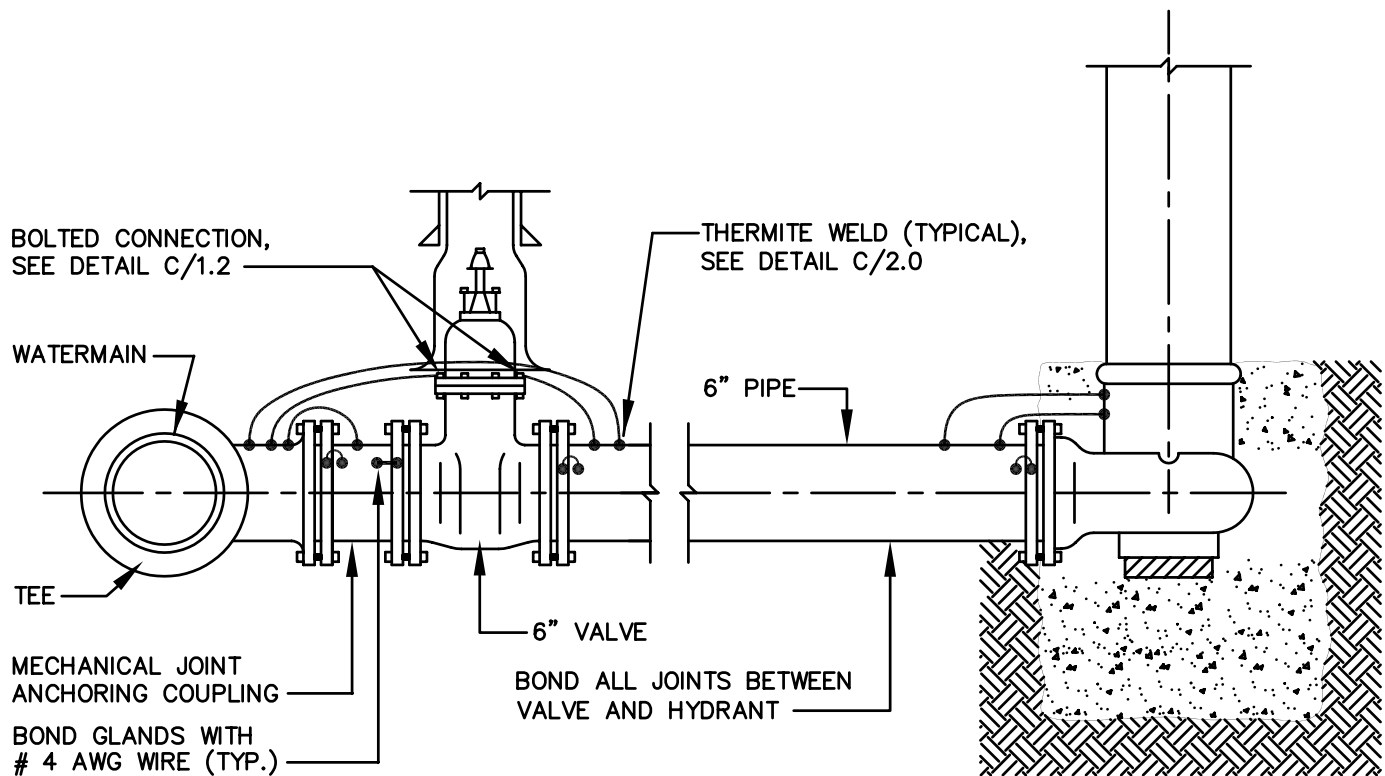
1. SEE DETAIL C/1.0 FOR BOND WIRE SIZE AND INSULATION.

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STANDARD DETAIL
MECHANICAL
COUPLING JOINT
BOND

C
1.4



GENERAL NOTES:

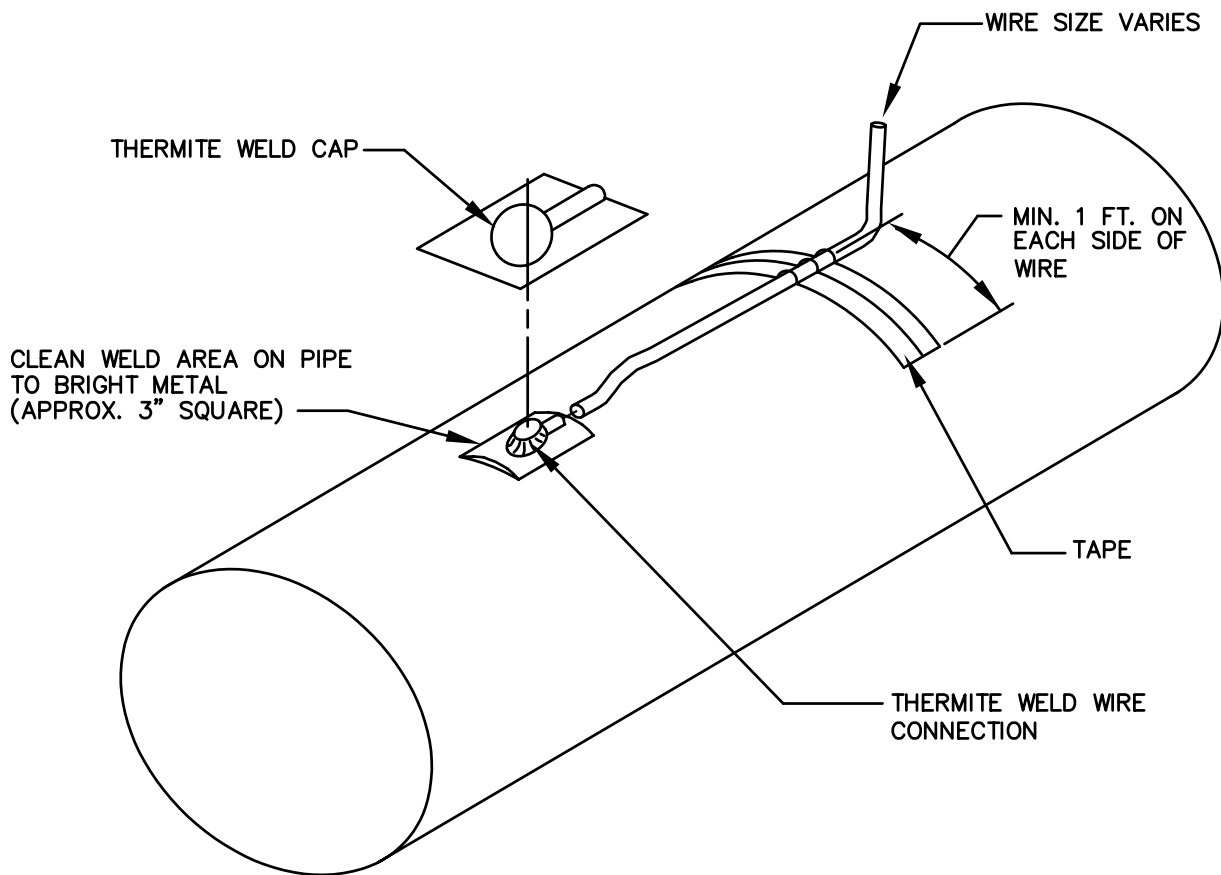
1. SEE DETAIL C/1.0 FOR BOND WIRE SIZE AND INSULATION.
2. SEE DETAIL C/1.0 FOR JOINT BONDING OF PUSH-ON JOINTS.

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Chief Engineer

STANDARD DETAIL
FIRE HYDRANT
BONDING

C
1.6



GENERAL NOTES:

1. FOR DUCTILE IRON, CAST IRON, OR STEEL PIPE, USE CHARGE AND SIZE AS REQUIRED.
2. A COPPER SLEEVE IS REQUIRED FOR THERMITE WELD WIRE CONNECTIONS USING #12 AWG WIRE.
3. SECURE WIRE TO PIPE WITH TAPE OR OTHER APPROVED METHOD WITHOUT DAMAGING PIPE COATING.
4. COAT ANY EXPOSED BARE WELD AREA. FILL RECESS IN THERMITE WELD CAP AND APPLY CAP TO WELD.

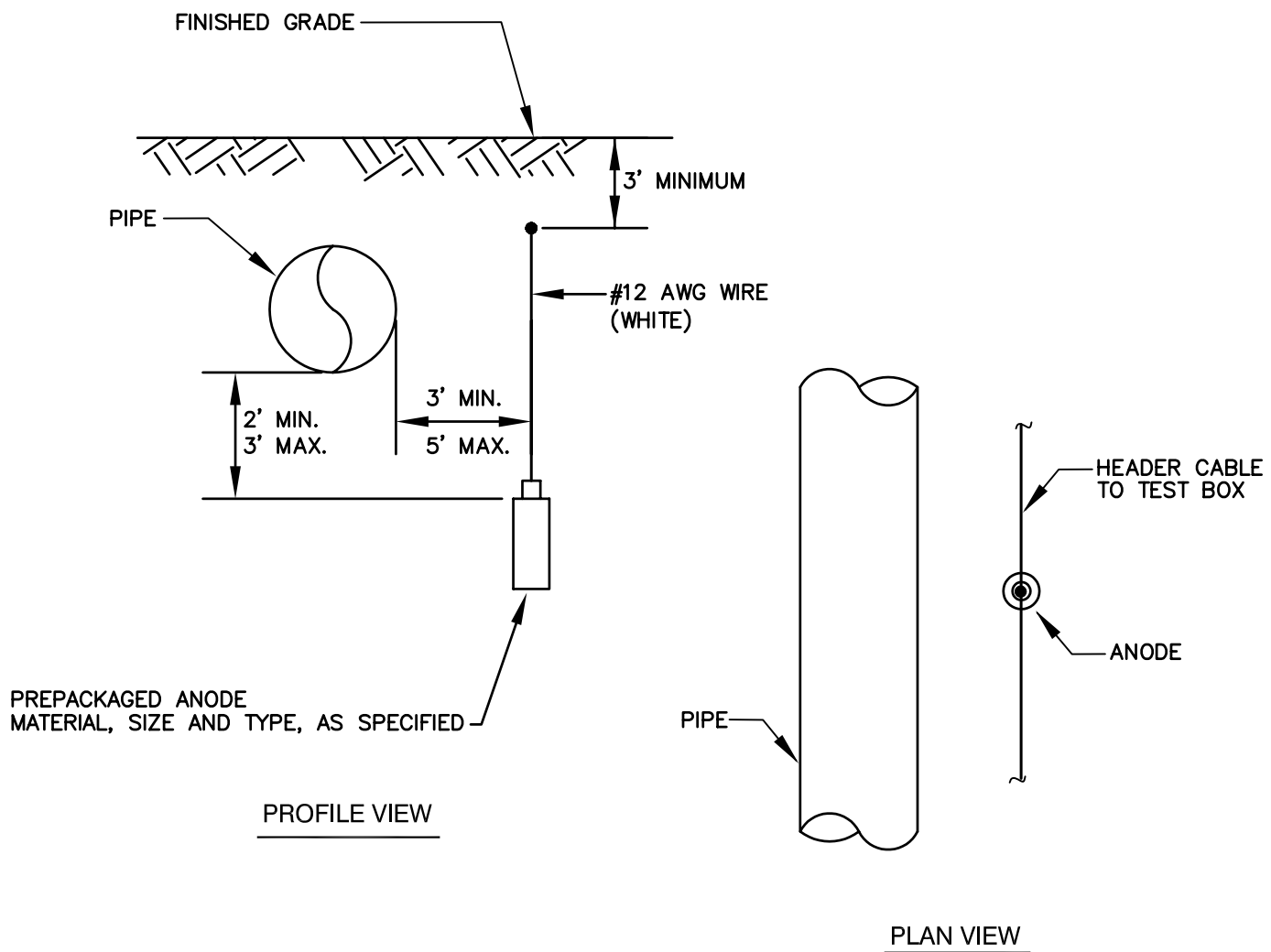
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STANDARD DETAIL
THERMITE WELD
WIRE CONNECTION

C
2.0



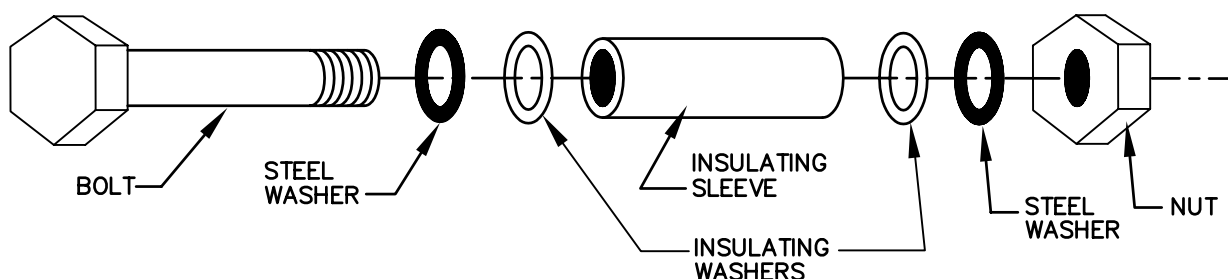
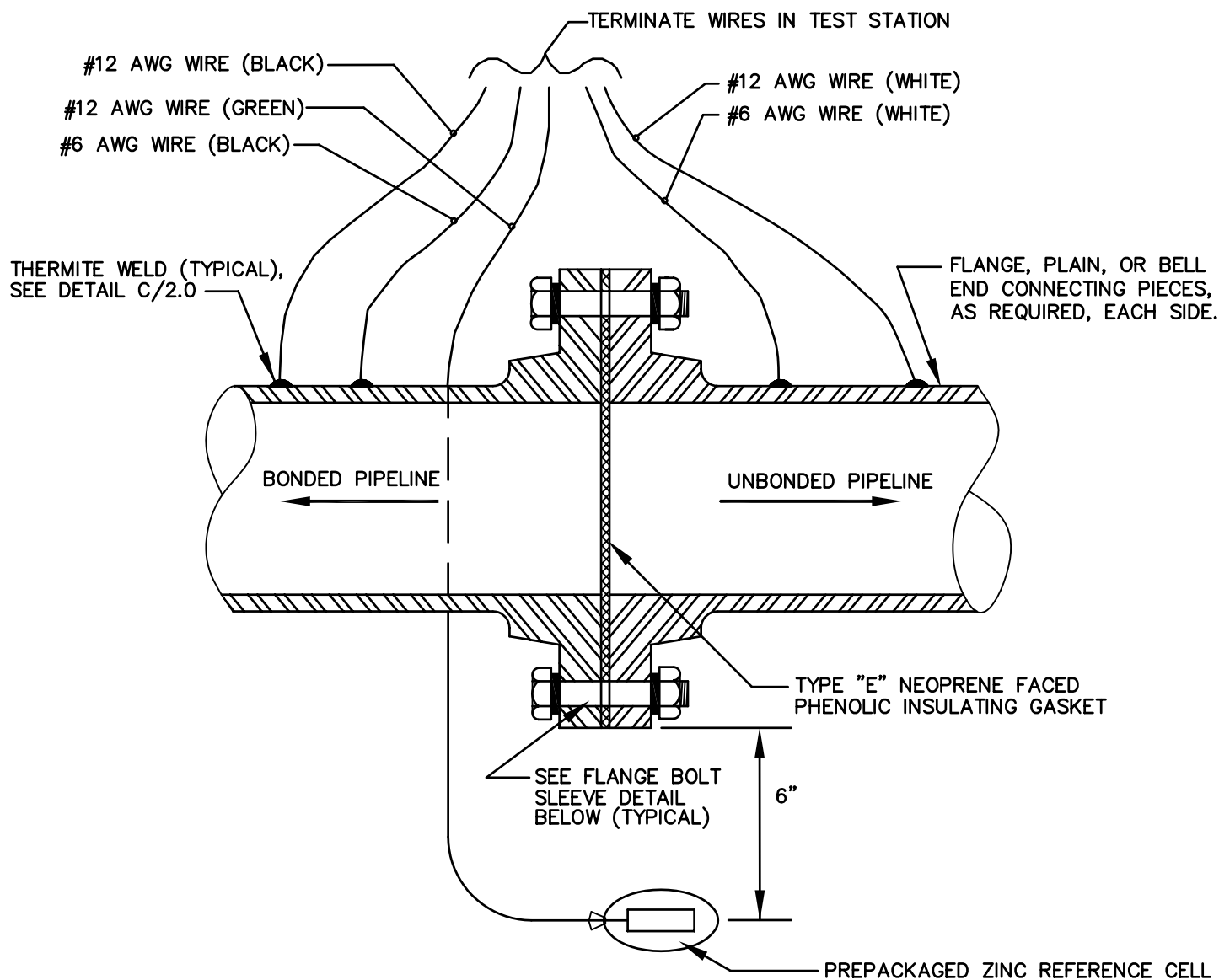
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Chief Engineer

STANDARD DETAIL
SACRIFICIAL ANODE
INSTALLATION

C
2.2

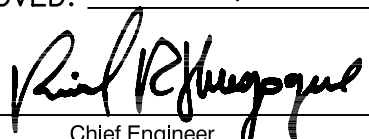


FLANGE BOLT SLEEVE DETAIL

GENERAL NOTES:

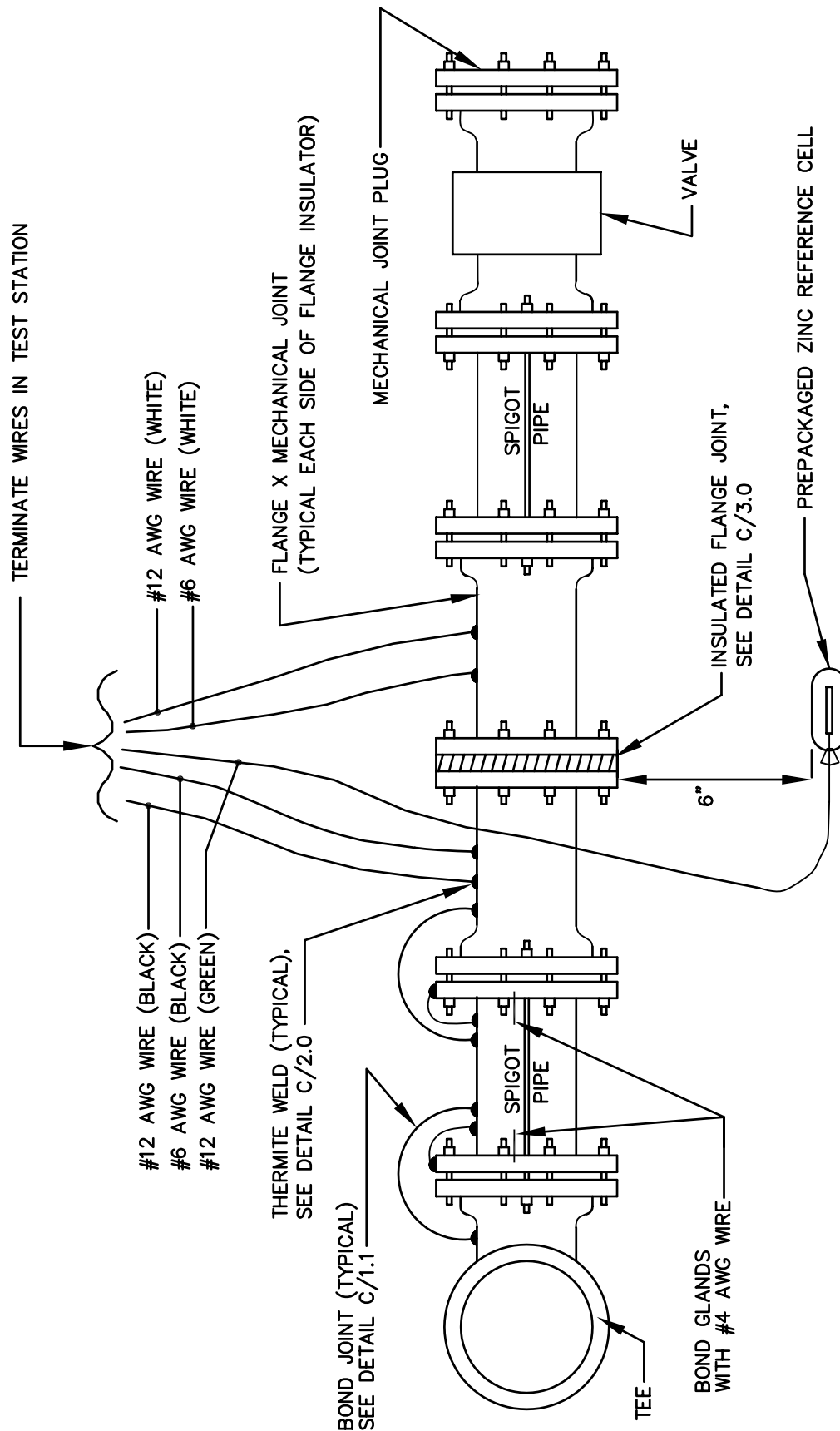
1. THE TEST LEAD WIRES SHALL BE STRANDED COPPER WIRE WITH TW, THW, OR THWN INSULATION. WIRE SIZE AND COLOR SHALL BE AS SHOWN.
2. AFTER INSTALLATION AND ASSEMBLY, TEST INSULATING JOINT.

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STANDARD DETAIL
INSULATED FLANGE
JOINT DETAIL

C
3.0



GENERAL NOTES:

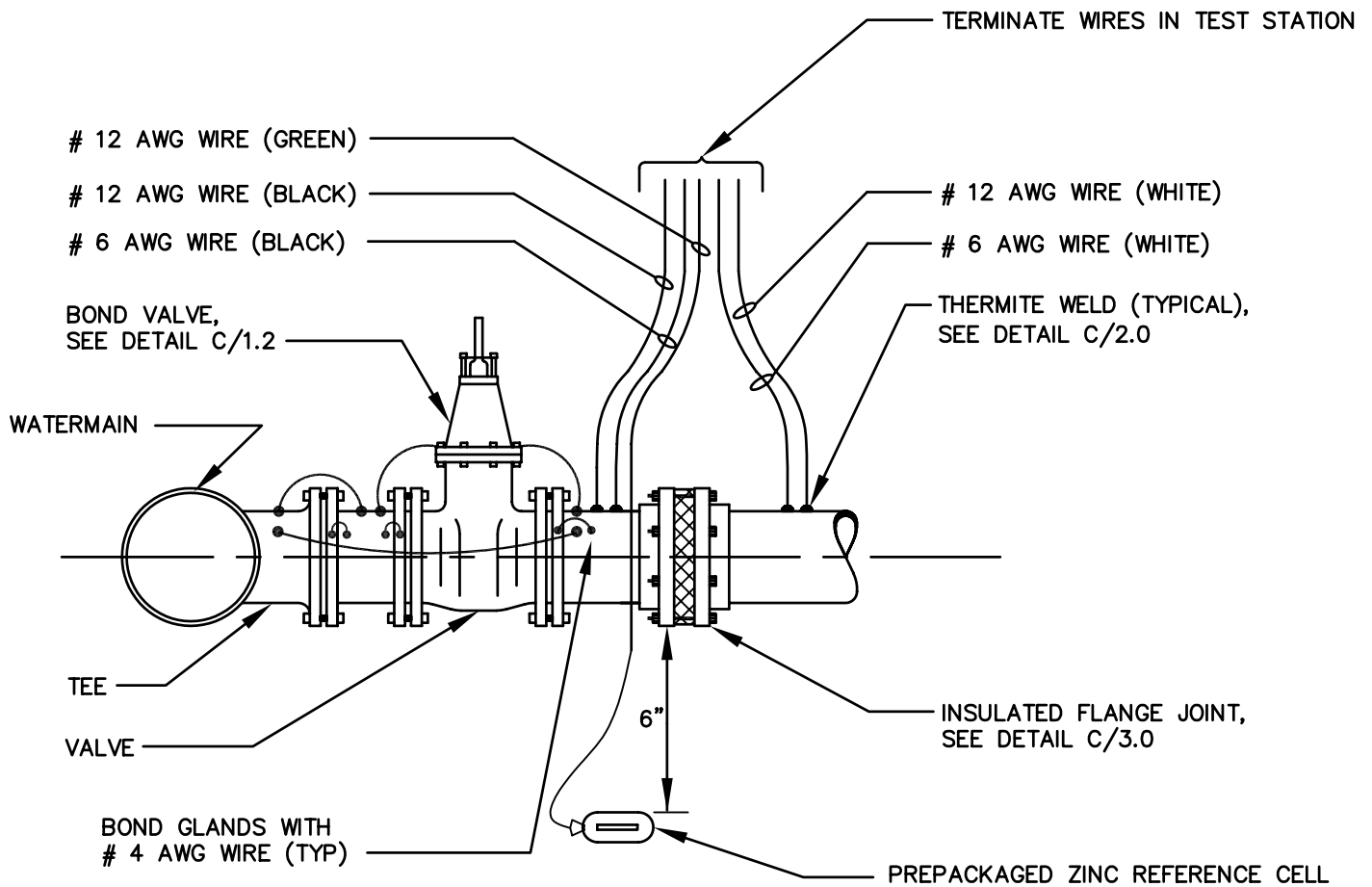
1. SEE DETAIL B/2.0 FOR DETAILS ON STRAPPING JOINTS.
2. SEE DETAIL C/1.0 FOR BOND WIRE SIZE AND INSULATION REQUIREMENTS.
3. FOR TEST LEAD WIRE REQUIREMENTS, SEE DETAIL C/3.0 AND NOTE 1.

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STANDARD DETAIL
VALVE TO MAIN
INSULATED FLANGE
JOINT (RESTRAINED)

C
3.1



GENERAL NOTES:

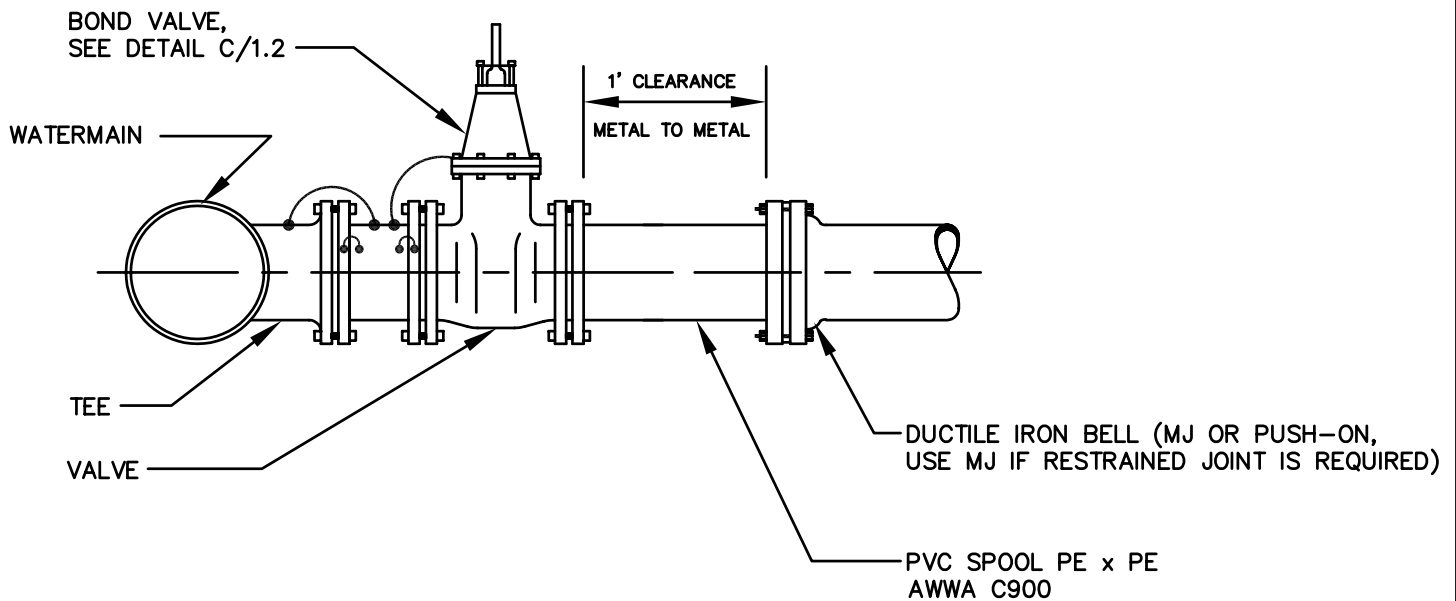
1. SEE DETAIL C/1.0 FOR BOND WIRE SIZE AND INSULATION REQUIREMENTS.
2. FOR TEST LEAD WIRE REQUIREMENTS, SEE DETAIL C/3.0 AND NOTE 1.

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STANDARD DETAIL
VALVE TO MAIN
INSULATED FLANGE
JOINT (UNRESTRAINED)

C
3.2



GENERAL NOTES:

1. SEE DETAIL C/1.0 FOR BOND WIRE SIZE AND INSULATION.
2. RESTRAIN VALVE TO MAINLINE TEE. SEE BLOCKING NOTES ON DRAWINGS FOR OTHER BLOCKING OR RESTRAINED JOINT REQUIREMENTS.

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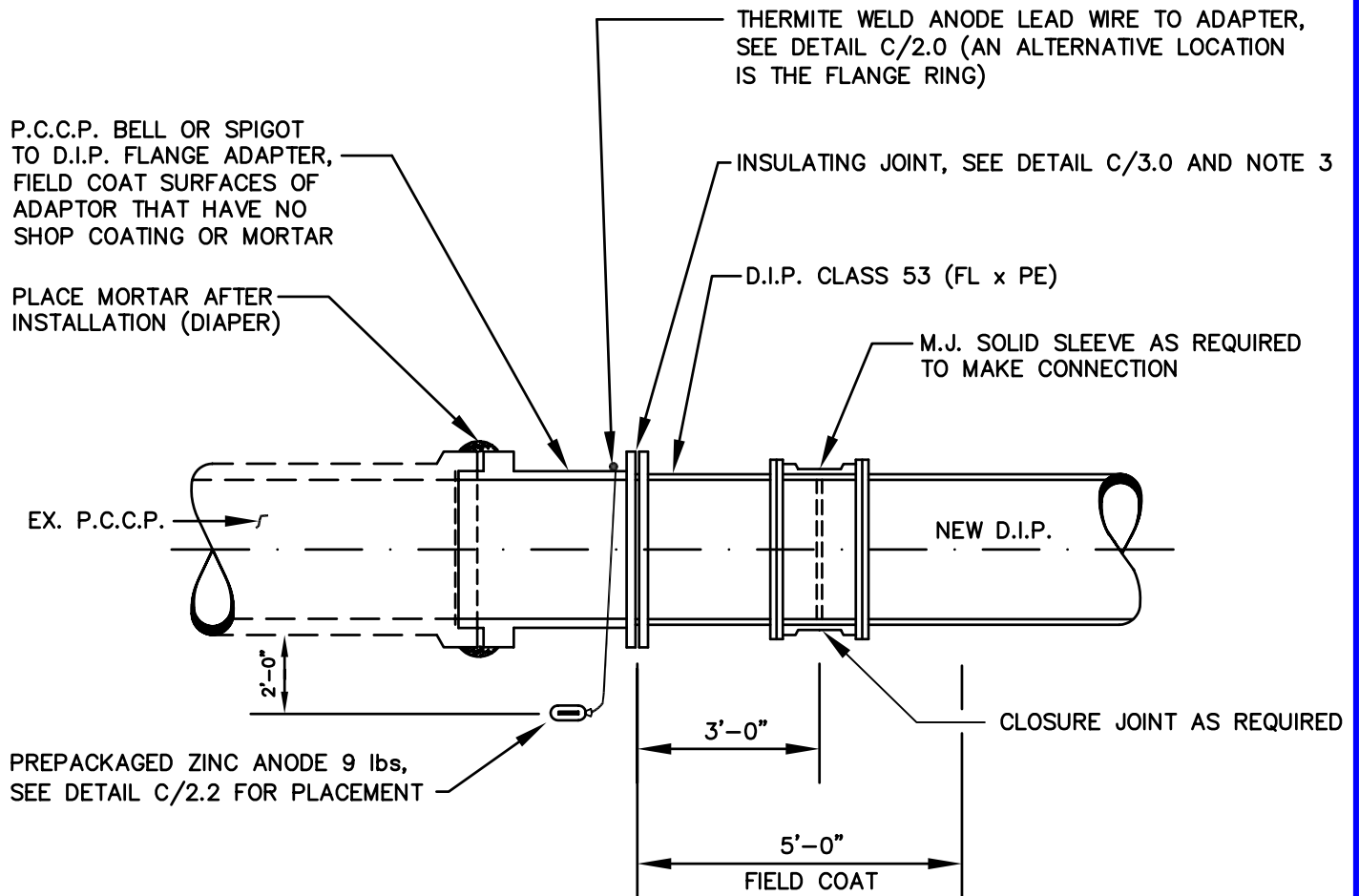
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Chief Engineer

STANDARD DETAIL

PVC INSULATING
SPOOL FOR BRANCH
LINES

C
3.2a



PCCP x DIP TIE-IN DETAIL

GENERAL NOTES:

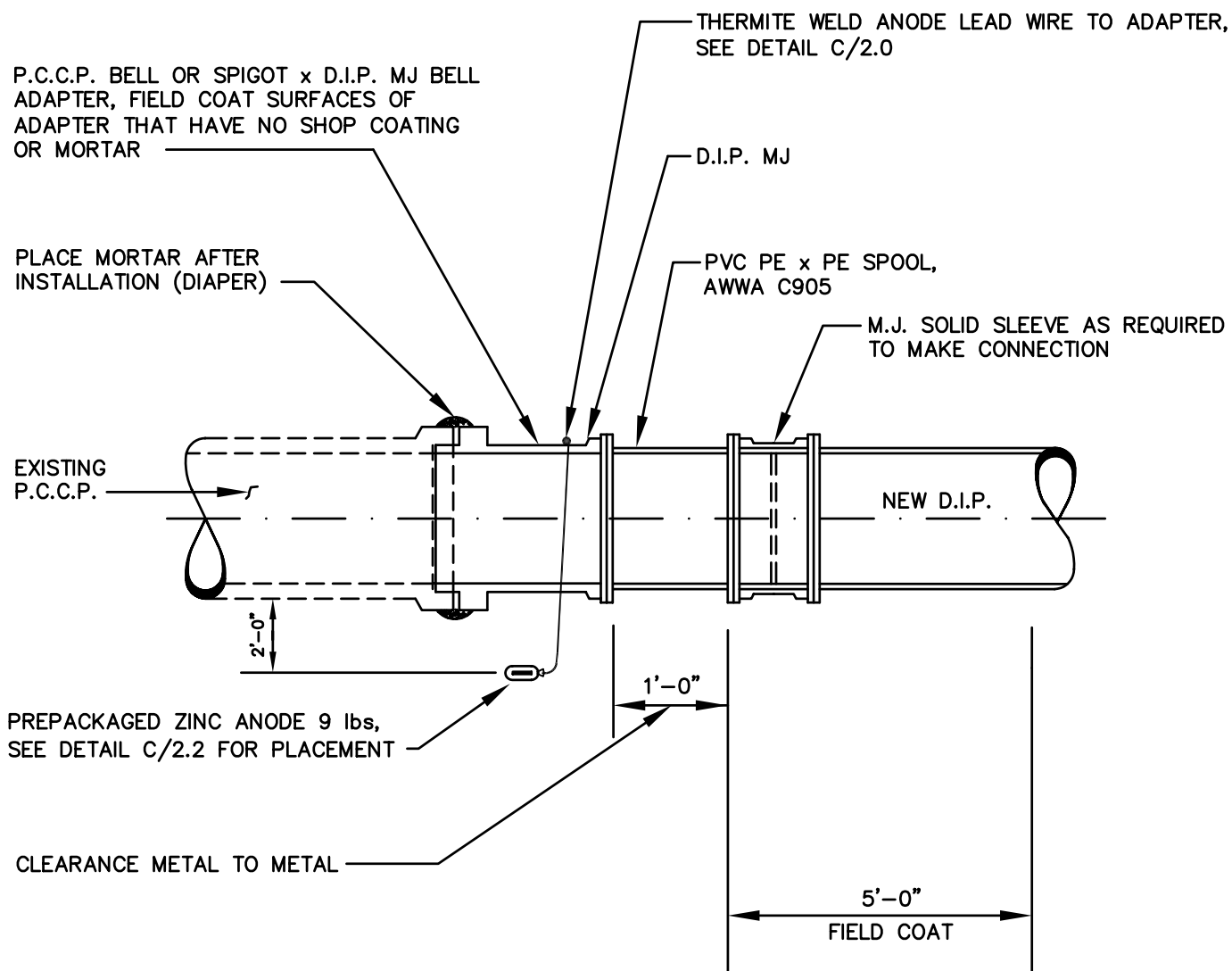
1. CONTRACTOR SHALL VERIFY ELECTRICAL ISOLATION OF INSULATING JOINT BEFORE COATING AND BURIAL.
2. DO NOT INSTALL TEST LEAD WIRES AND REFERENCE CELL.
3. APPLICABLE MANUFACTURERS' RECOMMENDATIONS SHALL BE FOLLOWED FOR INSTALLATION OF ADAPTER AND INSULATING FLANGE ASSEMBLIES.

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STANDARD DETAIL
PCCP x DIP
TIE - IN DETAIL
WITH INSULATING JOINT

C
3.3



PCCP x DIP TIE-IN DETAIL

GENERAL NOTES:

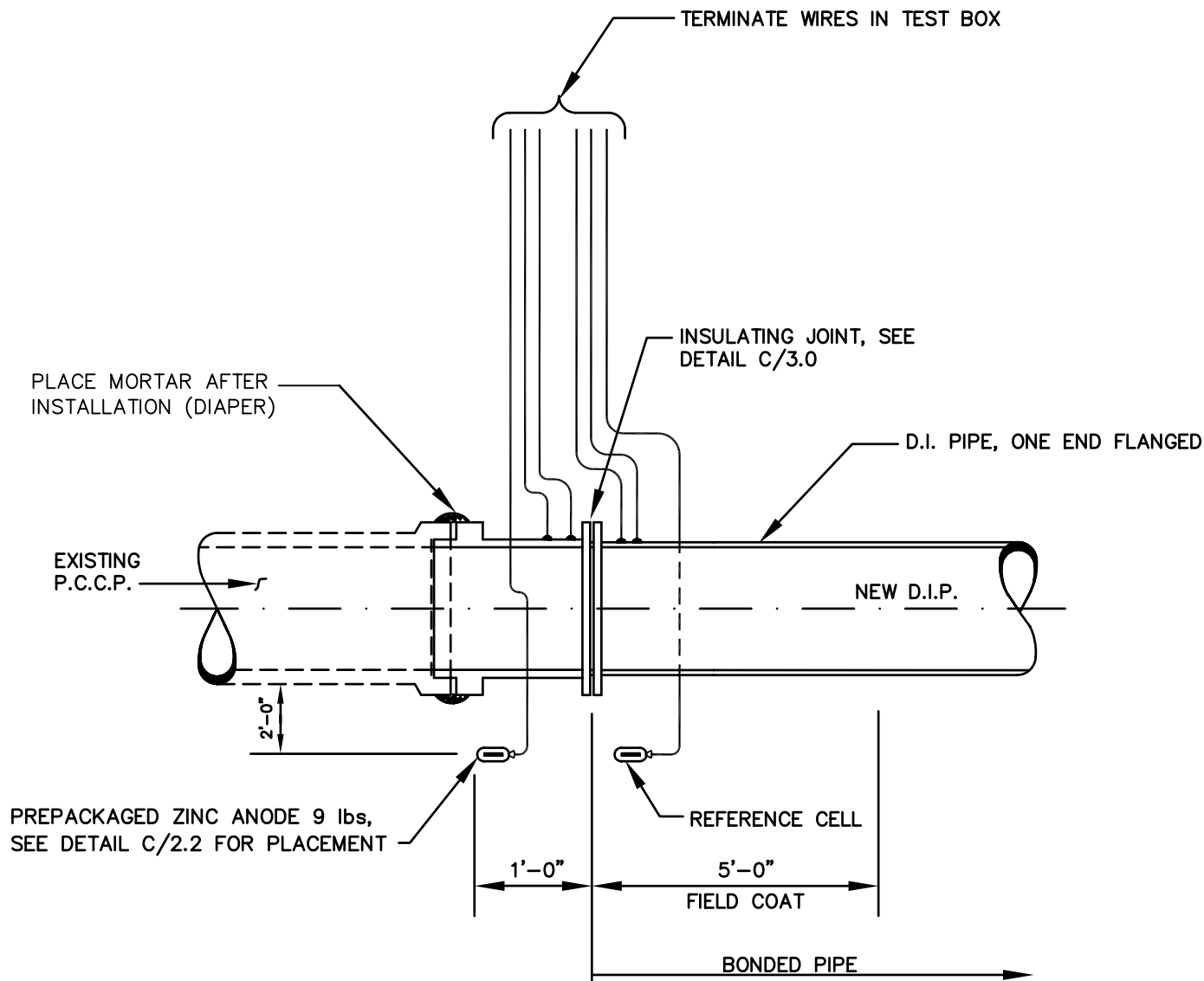
1. CONTRACTOR SHALL VERIFY ELECTRICAL ISOLATION OF INSULATING JOINT BEFORE COATING AND BURIAL.
2. FIELD COAT PIPE AND ADAPTER AS SHOWN.
3. APPLICABLE MANUFACTURERS' RECOMMENDATIONS SHALL BE FOLLOWED FOR INSTALLATION OF ADAPTER.

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STANDARD DETAIL
PCCP x DIP
TIE - IN DETAIL WITH
PVC INSULATING SPOOL

C
3.3a



PCCP x DIP TIE-IN DETAIL

NOTES:

1. FOR PCCP x DIP TIE-IN FITTINGS AND ASSEMBLY, SEE DETAIL C/3.3.
2. CONTRACTOR SHALL VERIFY ELECTRICAL ISOLATION OF INSULATING JOINT BEFORE COATING AND BURIAL.
3. FIELD COATING LIMITS SHALL BE AS SHOWN, UNLESS NOTED OTHERWISE IN CONTRACT DOCUMENTS.
4. APPLICABLE MANUFACTURERS' RECOMMENDATIONS SHALL BE FOLLOWED FOR INSTALLATION OF ADAPTER AND INSULATING FLANGE ASSEMBLIES.

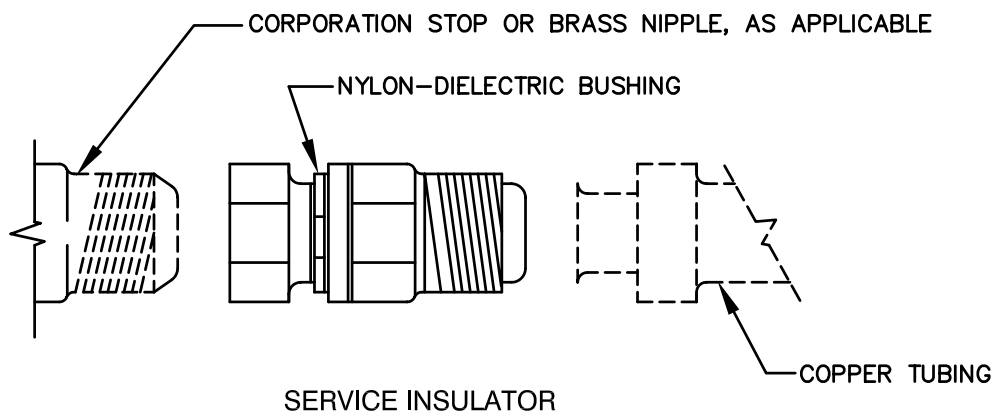
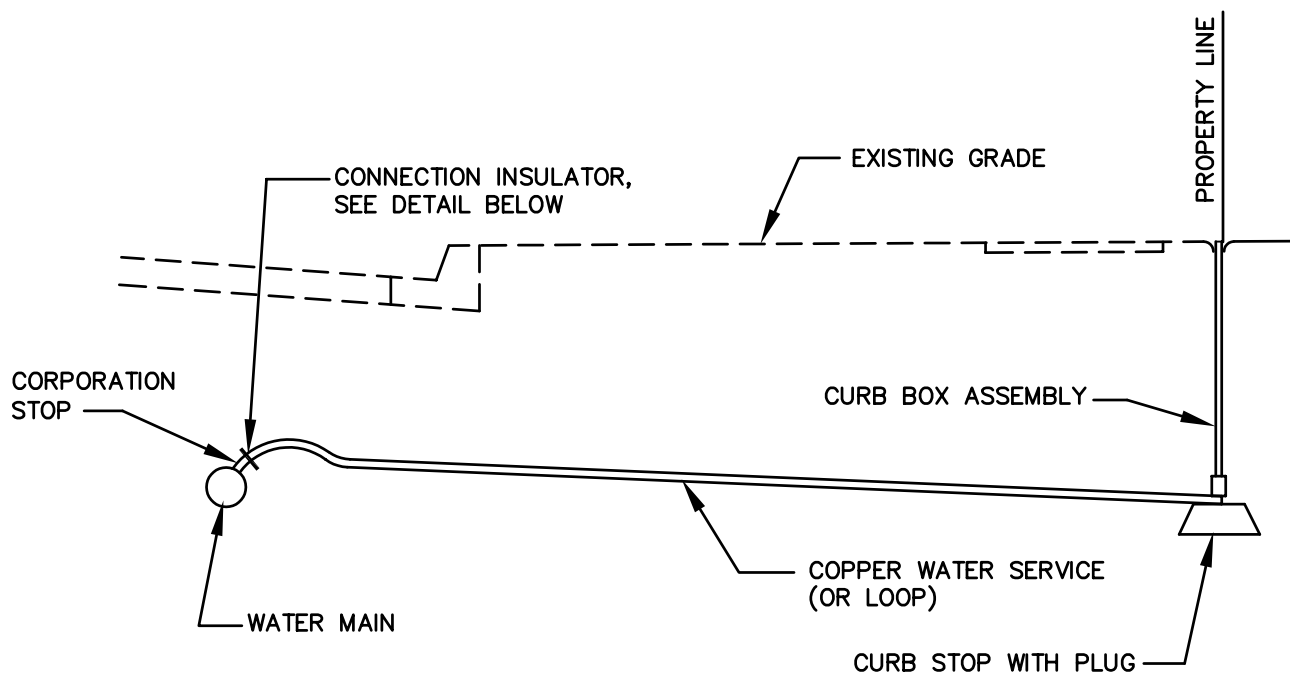
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Chief Engineer

STANDARD DETAIL
PCCP x DIP
TIE - IN DETAIL
WITH INSULATING JOINT
AND TEST LEAD WIRES

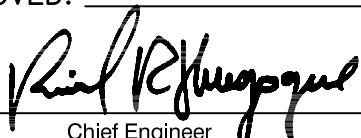
C
3.4



GENERAL NOTES:

1. USE INSULATORS ON 1", 1 1/2", AND 2" COPPER PIPE HOUSE CONNECTIONS.
2. USE INSULATOR ON COPPER PIPE TAPPED ON CAST IRON OR DUCTILE IRON PIPES, PLUGS, OR CAPS (AS SHOWN ON DETAIL B/1.9).

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STANDARD DETAIL
INSULATED JOINT
FOR COPPER PIPE

C
3.5

INSULATED FLANGE,
SEE DETAIL C/3.0

D.I. PIPE WITH ONE END FLANGED

DIP x PCCP ADAPTER

PLATE/TIE ROD CONNECTION,
SEE DETAIL BELOW

ELEVATION VIEW

TIE ROD

INSULATING FLANGE JOINT,
SEE DETAIL C/3.0

ONE PIECE INSULATING SLEEVE
AND WASHER ON EACH TIE ROD

STRAPPING AND STEEL PLATE,
SEE DETAIL B/3.0

STEEL WASHERS

FLANGE BOLT

INSULATING WASHER

INSULATING BOLT SLEEVE

INSULATING GASKET

STEEL WASHER

INSULATING WASHER

INSULATED FLANGED JOINT DETAIL

GENERAL NOTES:

1. SEE DETAIL B/3.1b FOR THRUST BLOCK AND HARNESSSED JOINT DETAIL.
2. SEE DETAIL C/3.0 FOR INSULATING JOINT DETAILS.
3. FOR ANODE AND TEST LEAD WIRES, SEE DETAILS C/3.3 OR C/3.4 AS APPROPRIATE.
4. ALL NUTS AND BOLTS SHALL BE TORQUED IN ACCORDANCE WITH SPECIFICATIONS.

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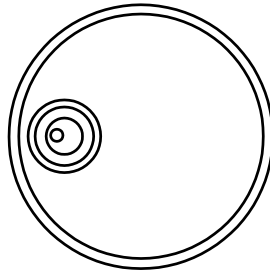
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STANDARD DETAIL

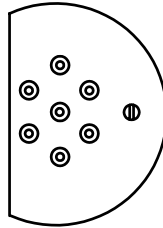
INSULATED TIE RODS
ON INSULATED
FLANGE JOINT

C
3.6

COVER



TERMINAL BLOCK



18"x18"x4"-3000 psi CONCRETE PAD,
TYPICAL FOR ALL FLUSH MOUNTED
TEST STATIONS

FINISHED GRADE

7 3/4"

5 1/8"

1/4"

4"

3"

1 3/4"

5"

CATHODIC PROTECTION
TEST STATION, THE
STREET FINK, BY COTT
MANUFACTURING CO.,
OR EQUAL

1'-6" MINIMUM

COILED TEST LEAD WIRES
WITH MINIMUM 18" OF SLACK

6" DIAMETER PVC OR PE PIPE

6"

2'-0"

R=2"

6"

1"x 6"x 24"
#1 OR #2 PINE BOARDS

SECTION

NOTES:

1. WHEN THE TEST STATION IS NOT DIRECTLY OVER THE PIPELINE, USE DETECTABLE WARNING TAPE ABOVE THE LEAD WIRES.
2. LOCATE TEST STATION OUTSIDE OF PROPOSED OR EXISTING PAVED AREAS.

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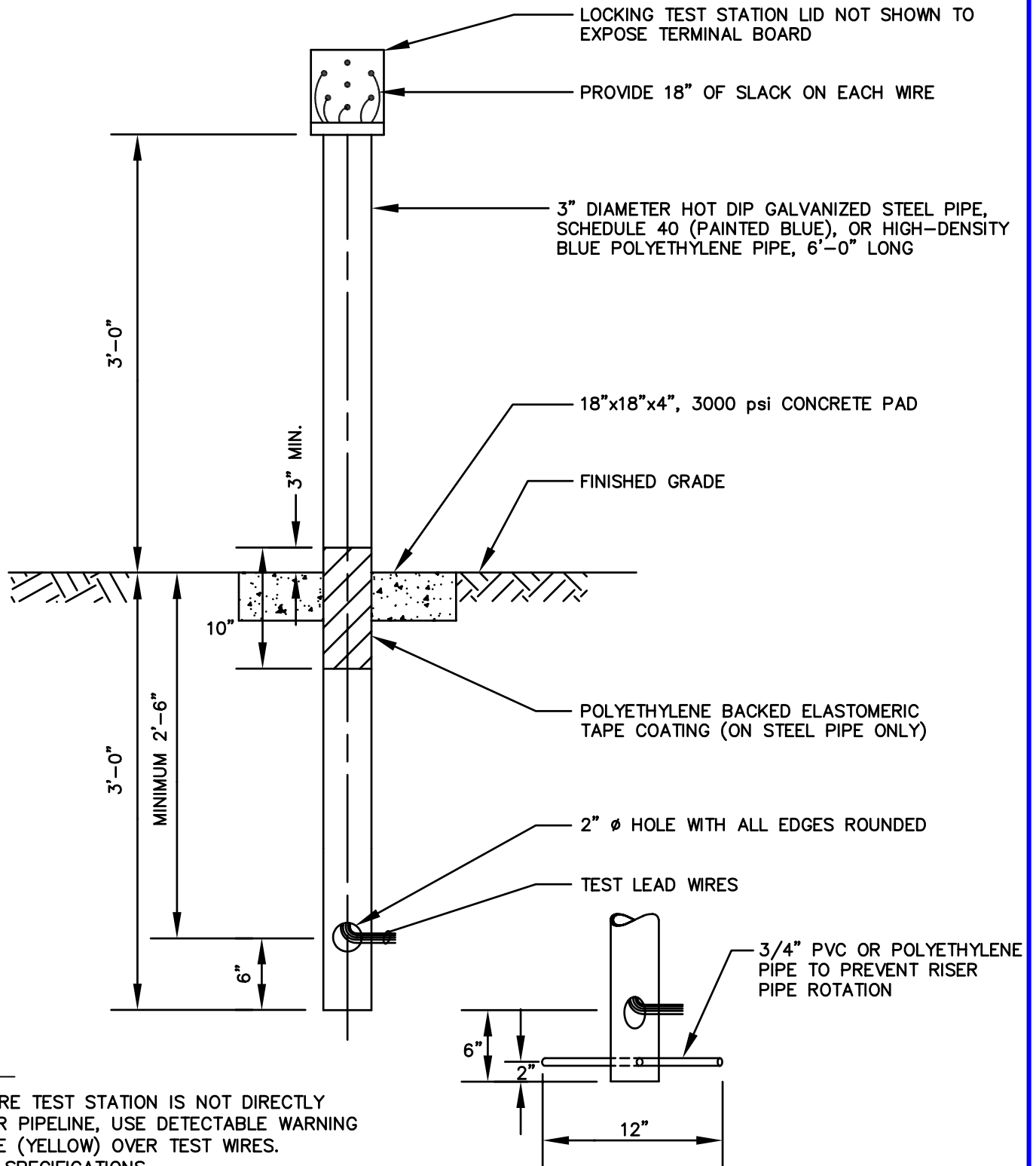
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Chief Engineer

STANDARD DETAIL

FLUSH - MOUNTED
TEST STATION

C
4.0



NOTES:

1. WHERE TEST STATION IS NOT DIRECTLY OVER PIPELINE, USE DETECTABLE WARNING TAPE (YELLOW) OVER TEST WIRES. SEE SPECIFICATIONS.
2. LOCATE TEST STATION OUTSIDE OF THE PROPOSED OR EXISTING PAVED AREAS.

POLYETHYLENE PIPE INSTALLATION ONLY

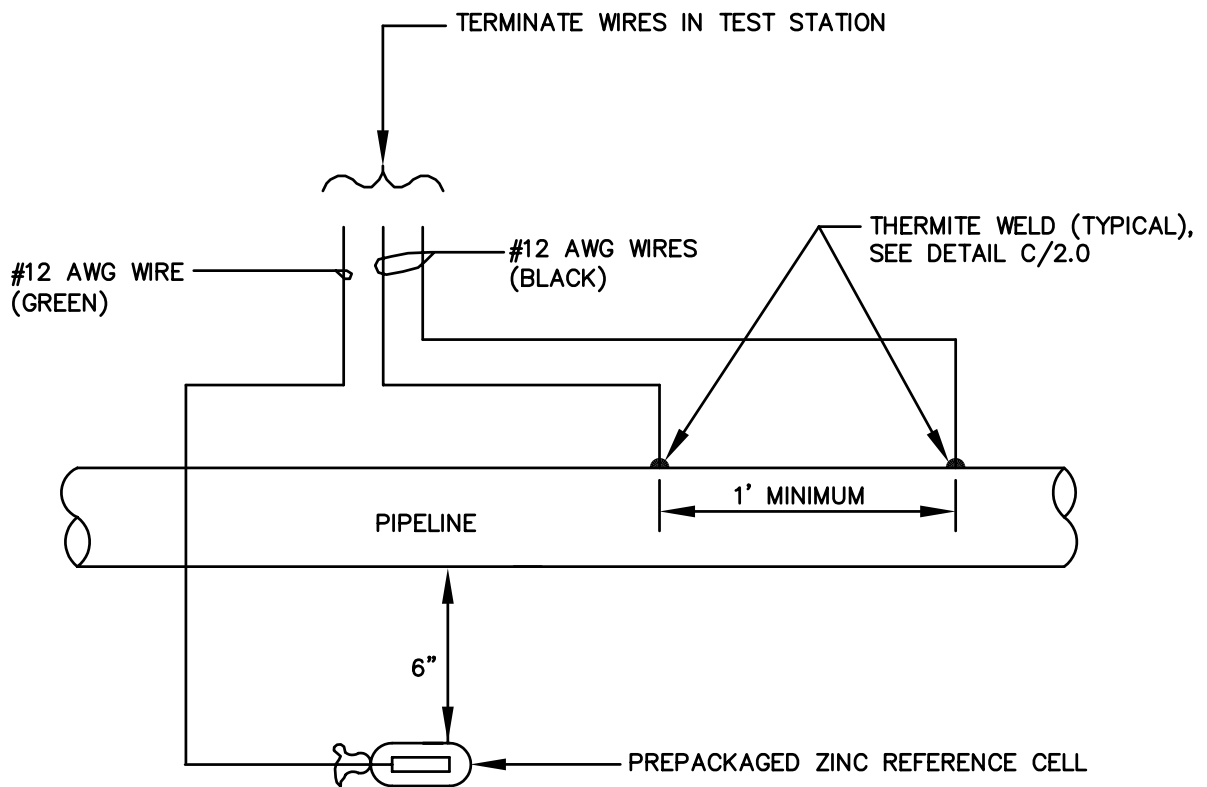
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Chief Engineer

STANDARD DETAIL
PIPE MOUNTED ABOVE
GROUND
TEST STATION

C
4.2



GENERAL NOTE:

1. SEE DETAIL C/3.0, NOTE 1, FOR TEST LEAD WIRE REQUIREMENTS.

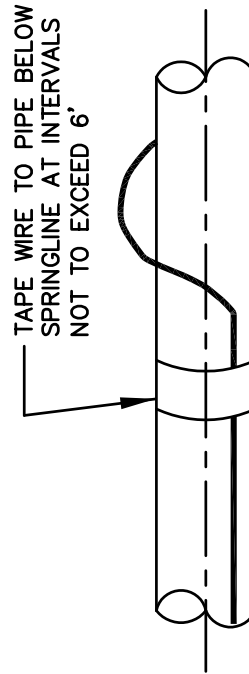
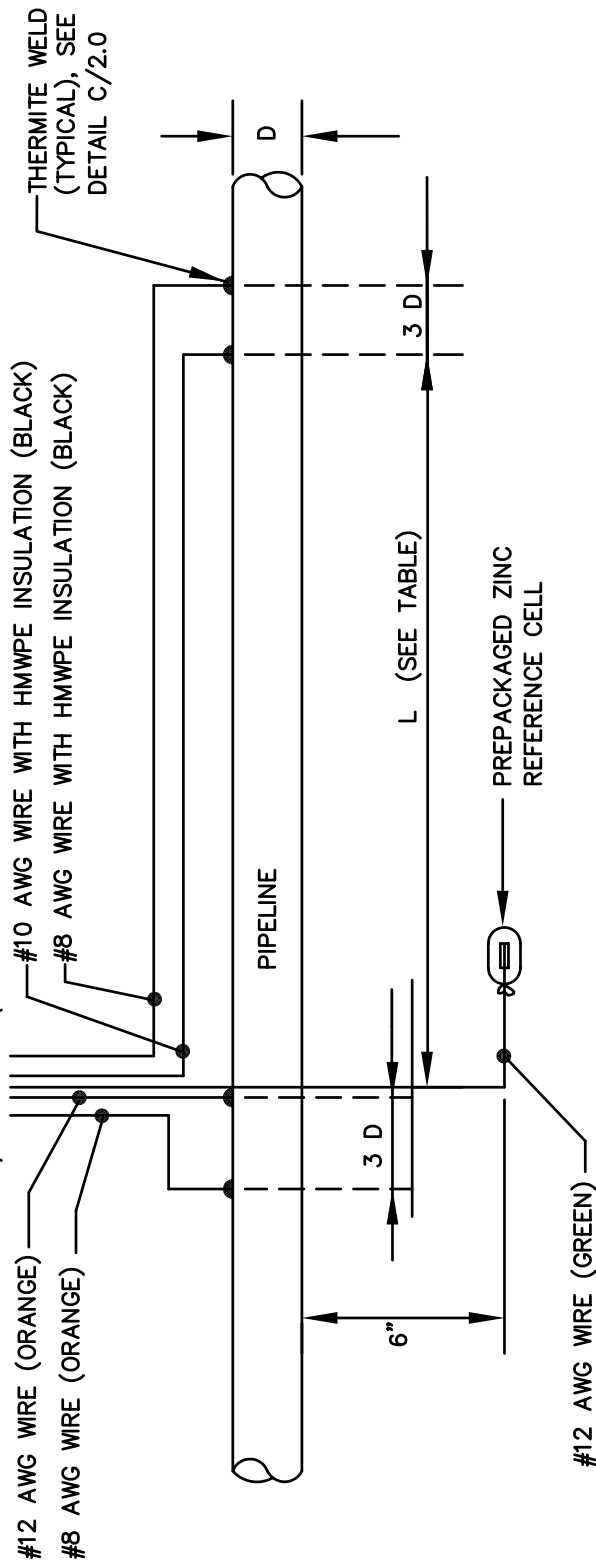
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Chief Engineer

STANDARD DETAIL
TEST STATION
WITH REFERENCE CELL

C
4.5

TERMINATE WIRES IN TEST STATION

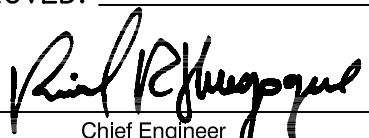


PIPE DIAMETER (D)	L (FEET)
4" TO 18"	100
20"	120
24"	160
30" TO 36"	200
42" TO 48"	240
54" TO 60"	300

GENERAL NOTE:

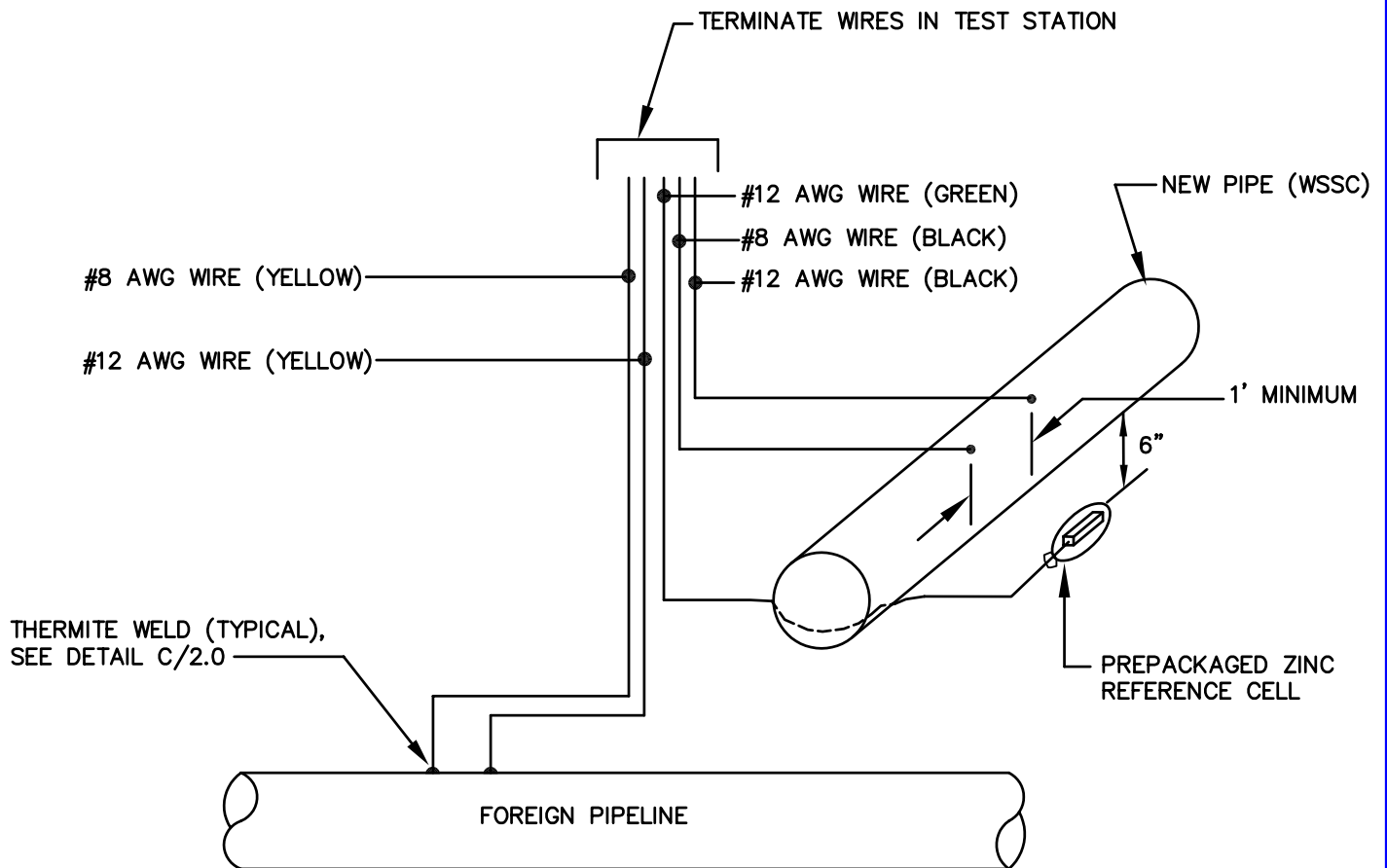
1. EXCEPT AS SPECIFIED ABOVE, TEST LEAD WIRES SHALL MEET REQUIREMENTS OF DETAIL C/3.0.

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STANDARD DETAIL
IR DROP TEST
STATION FOR
DUCTILE IRON PIPE

C
4.6



NOTES:

1. TEST LEAD WIRES SHALL MEET REQUIREMENTS OF DETAIL C/3.0, NOTE 1.
2. NOTIFY FOREIGN PIPELINE COMPANY IN ADVANCE FOR PERMISSION TO ATTACH WIRES TO THEIR PIPE, OR FOR THE FOREIGN PIPELINE COMPANY TO ATTACH WIRES TO THEIR PIPELINE.

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STANDARD DETAIL

TEST STATION AT
FOREIGN PIPELINE
CROSSING

C
4.7