

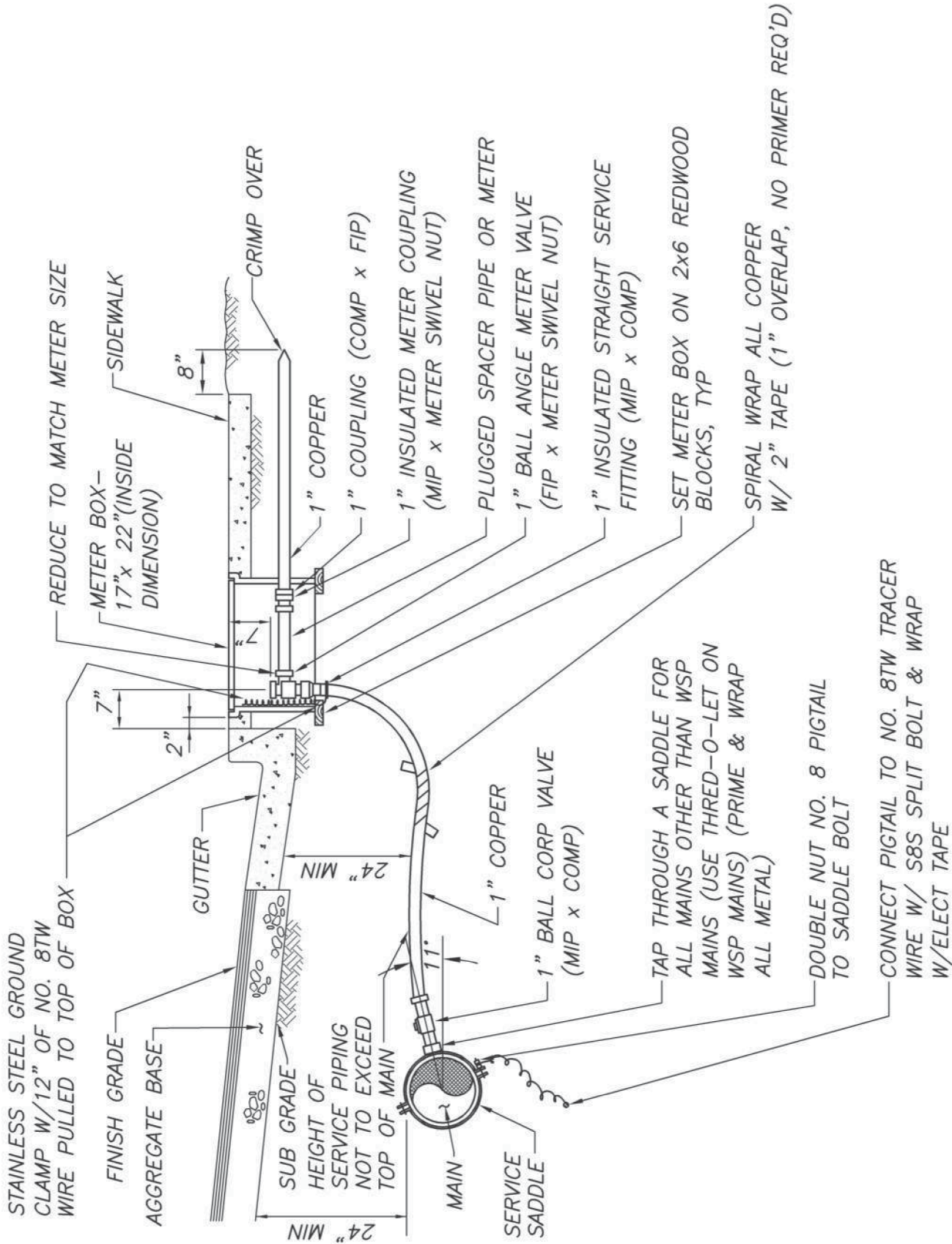


Standard Details : UPDATED: MAY 23, 2025

SD0001 - New 1" Copper Service  
SD0001P- New 1" High Density Polyethylene Service  
SD0001R - New Recycled 1" Copper Service  
SD0002 - Offset  
SD0003 - Hydrant  
SD0004 - Service Pole  
SD0005 - 4" Service Manifold  
SD0006 - New or Renewed 1-1/2" and 2" Copper Service WSP or PVC Main  
SD0006P - New or Renewed 1-1/2" and 2" High Density Polyethylene Service WSP or PVC Main  
SD0006R - New or Renewed 1-1/2" and 2" Copper Service WSP or PVC Main  
SD0007 - 2" Blowoff  
SD0007R - 2" Blowoff for Recycled Water  
SD0008 - Pipeline Tracer Wire Installation  
SD0009 - Test Station with Magnesium Anode  
SD0010 - Test Station  
SD0011 - Meter Insulation 1-1/2" & 2"  
SD0012 - Pipeline Insulation and Bonding Jumper Details  
SD0013 - Adjustable Pipe Support  
SD0014 - Joint Harness  
SD0015 - Survey Monument  
SD0017 - Joint Blocking  
SD0018 - Welded Outlet  
SD0019 - Cased Crossing  
SD0021 - Renewed 1" Copper Service  
SD0021P- Renewed 1" High Density Polyethylene Service  
SD0022 - Transferring a 1" thru 2" "Long" Copper Service  
SD0023 - Transferring a 1" "Short" Copper Service  
SD0024 - Fireline Connection-DELETED  
SD0025 - Mortar Lined & Tape Coated 4" to 36" Steel Pipe  
SD0026 - Continuity Jumper Wire  
SD0027 - 3/4" & 1" Meter Insulation Detail  
SD0028 - Wood Bulkhead Wall  
SD0029 - Fireline, New and Renew  
SD0030 - Level Transmitter Enclosure Mounting Plate Cover  
SD0031 - Level Transmitter Enclosure  
SD0032 - Level Transmitter Assembly Piping  
SD0033 - Thermowell Assembly  
SD0034 - Level Transmitter Assembly  
SD0035 - Typical Conduit Stub Up  
SD0036 - Steel Butt Strap  
SD0037 - 2" Domestic Meter w/ Copper Pipe  
SD0038 - Fireline, Insulation Retrofit  
SD0039 - Erosion Control Board  
SD0040 - Impressed Current Horizontal Ground Bed  
SD0041 - Deep Well Ground Bed  
SD0042 - Typical Air/Vacuum Release Valve  
SD0044 - Typical Air/Vacuum Release Valve  
SD0045 - Wharf Hydrant Drain

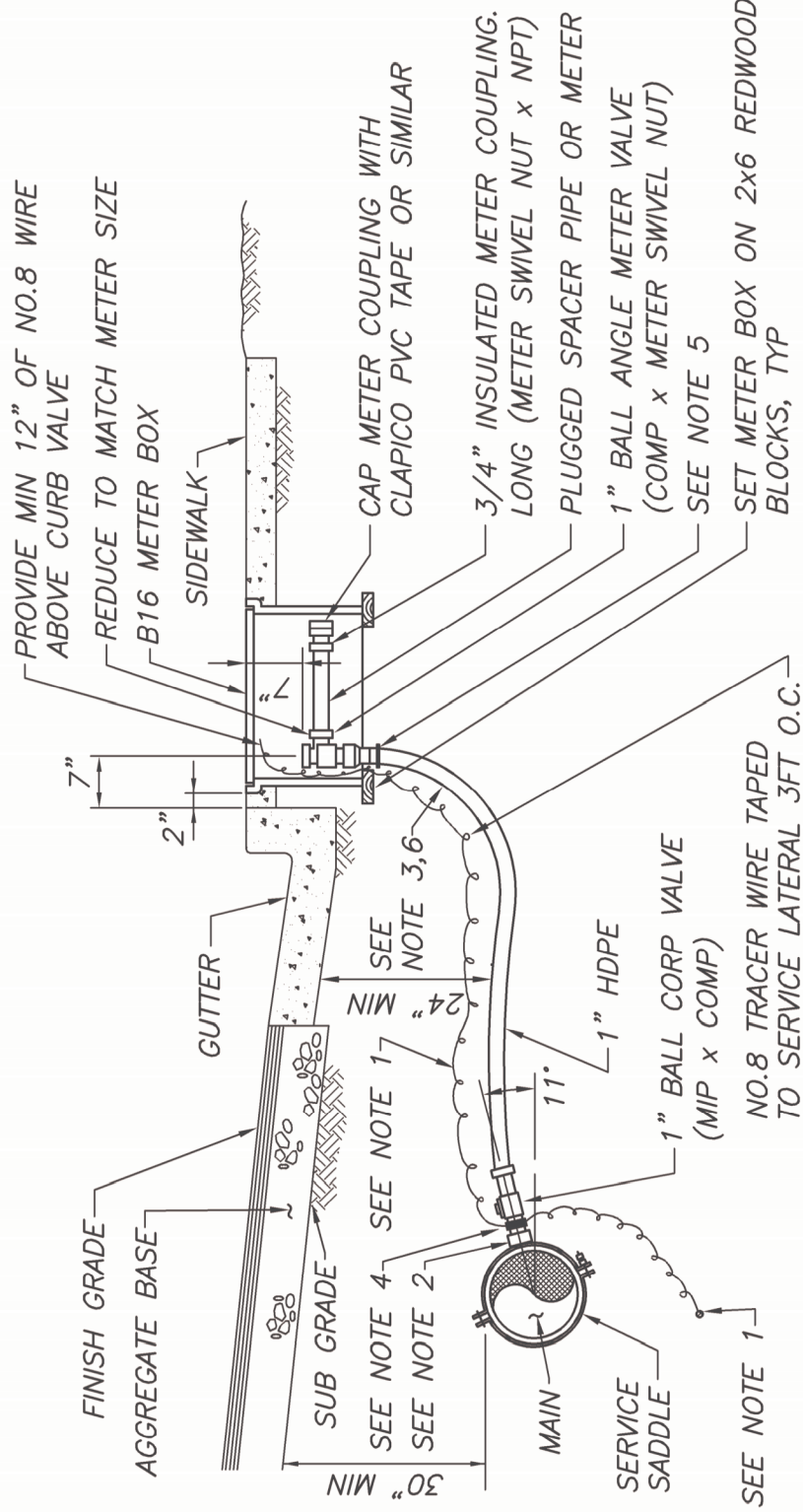
SD0046 - Shallow Well Ground Bed  
SD0047 - Alternate Conduit Stub  
SD0048 - Air / Vacuum Release Valve Assembly  
SD0049 - 3" Turbo Meter  
SD0050 - 3" Compound Meter with By-Pass  
SD0051 - Bullhead  
SD0052 - 24" Manhole / Drain  
SD0053 - 24" Drain  
SD0054 - 2" Bullhead  
SD0055 - 4" Compound Meter w/ Bypass  
SD0056 - 6" Fireline Water Meter  
SD0057 - Emergency Pumping Connection w/ Curb & Gutter  
SD0058 - Hydrant Off Improved Area  
SD0059 - Emergency Pumping Connection w/out Curb & Gutter  
SD0060 - Joint Restraint Assembly  
SD0061 - Concrete Anchor Blocks 6" & 8" Connection  
SD0062 - Concrete Anchor Blocks 12" & 14" Connection  
SD0063 - Bollard  
SD0064 - Rectifier Anode Junction Box Installation  
SD0066 - Fire Flow Project Sign (8'x4')  
SD0067 - 4" Tide Flex Check Valve  
SD0068 - Project Sign (4' x 2' No Board Member Names)  
SD0069 - Temporary Diversion / Sediment Dams & Culverts  
SD0070 - Temperature Transmitter  
SD0071 - Air Relief Valve  
SD0072 - Pressure Relief Valve  
SD0073 - Water Sampling Station  
SD0074 - *Insulating Details* (DELETED)  
SD0075 - Pressure Transmitter Assembly  
SD0076 - Pressure Transmitter  
SD0077 - *Concrete Blocking* (DELETED)  
SD0078 - 2" Irrigation Meter  
SD0079 - *Fireline Transfer Connection* (DELETED)  
SD0080 - Insulating Details w/ Harness  
SD0081 - Typical Anode Trench & Type Splice Box Detail  
SD0082 - Rectifier Installation  
SD0083 - Fireflow Project Sign Detail (4'-2" x 2'-8")  
SD0084 - ID Tag Detail  
SD0085 - Project Sign Detail (4'-2" x 2'-8")  
SD0087 - Rehab Project Sign (4'-2" x 2'-8")  
SD0088 - Meter Box with Magnesium Anode  
SD0089 - Retrofit WSP Fireline Connection to Above Ground Backflow  
SD0090 - Fireline, Inspection and Insulation Retrofit  
SD0091 - 4" Turbine Meter  
SD0092 - Backflow Assembly Standard Installation Diagram  
SD0093 - Fireline, Inspection and Insulation Retrofit  
SD0094 - 2" Fireline Connection  
SD0095 - Aluminum Tubing Valve Cap Rise  
SD0096 - Pothole Details of Anode Installation





## NEW 1" COPPER SERVICE

|          |                 |                |                    |
|----------|-----------------|----------------|--------------------|
| NO SCALE | FILE NO. SD0001 | APPROV. BY: EI | REV. DATE: JUL '19 |
|----------|-----------------|----------------|--------------------|



## NOTES:

1. CONNECT PIGTAIL TO NO.8 STRANDED THWN-2 TRACER WIRE W/S8S SPLIT BOLT & WRAP W/ ELECT TAPE.
2. TAP THROUGH A SADDLE FOR ALL MAINS OTHER THAN WSP MAINS (USE THRED-O-LET ON WSP MAINS)(PRIME & WRAP ALL METAL).
3. HEIGHT OF SERVICE PIPING NOT TO EXCEED TOP OF MAIN.
4. PEEL BACK EXPOSE NO.8 THWN-2 WIRE AT CLAMP LOCATION. CLAMP TO CORP VALVE THREAD W/ STAINLESS STEEL BAND CLAMP. LEAVE 3 FT OF NO.8 STRANDED THWN-2 WIRE.
5. INSTALL STAINLESS STEEL INSERT STIFFENERS AT CORP VALVE AND BALL ANGLE METER VALVE.
6. COLD BEND RADIUS OF PE PIPE IS LIMITED TO 20 TIMES THE OUTER DIAMETER, AND 100 TIMES THE OUTER DIAMETER FOR A DISTANCE 5 TIMES PIPE DIAMETER WHEN FITTING IS PRESENTED IN A BEND. (AWWA MANUAL M55 COLD FIELD BENDING)
7. USE GASKETS BETWEEN FITTINGS WHERE APPROPRIATE.
8. USE NO.8 STRANDED HMWPE WIRE ON PE PIPE IF TRENCHLESS INSTALLATION IS REQUIRED.

## **NEW 1" HIGH DENSITY POLYETHYLENE SERVICE**

NO SCALE

FILE NO. SD0001P

APPROV. BY: ZT

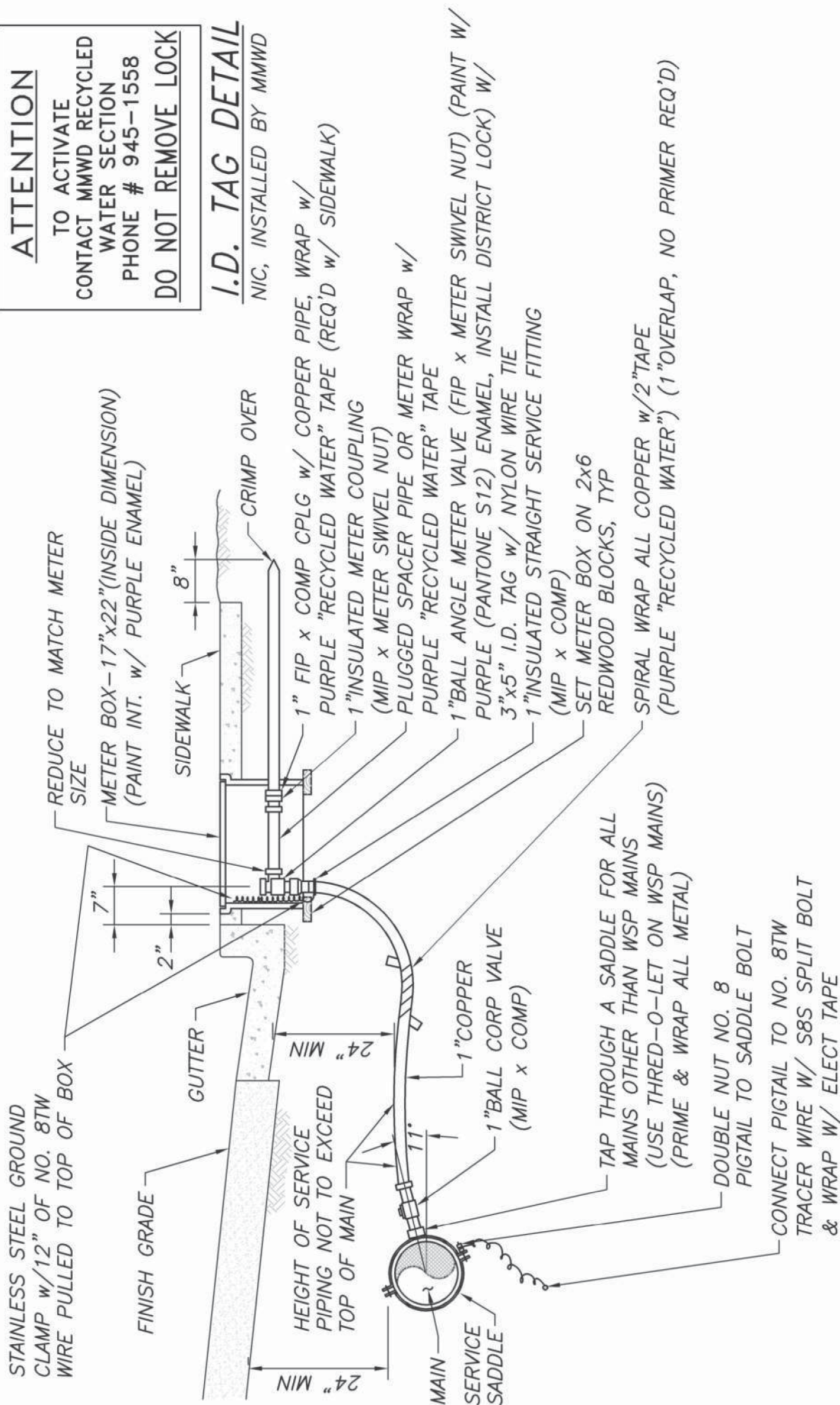
REV. DATE: MAY '25



3"x 5" YELLOW  
CARD

**ATTENTION**  
TO ACTIVATE  
CONTACT MMWD RECYCLED  
WATER SECTION  
PHONE # 945-1558  
DO NOT REMOVE LOCK

**I.D. TAG DETAIL**  
NIC, INSTALLED BY MMWD



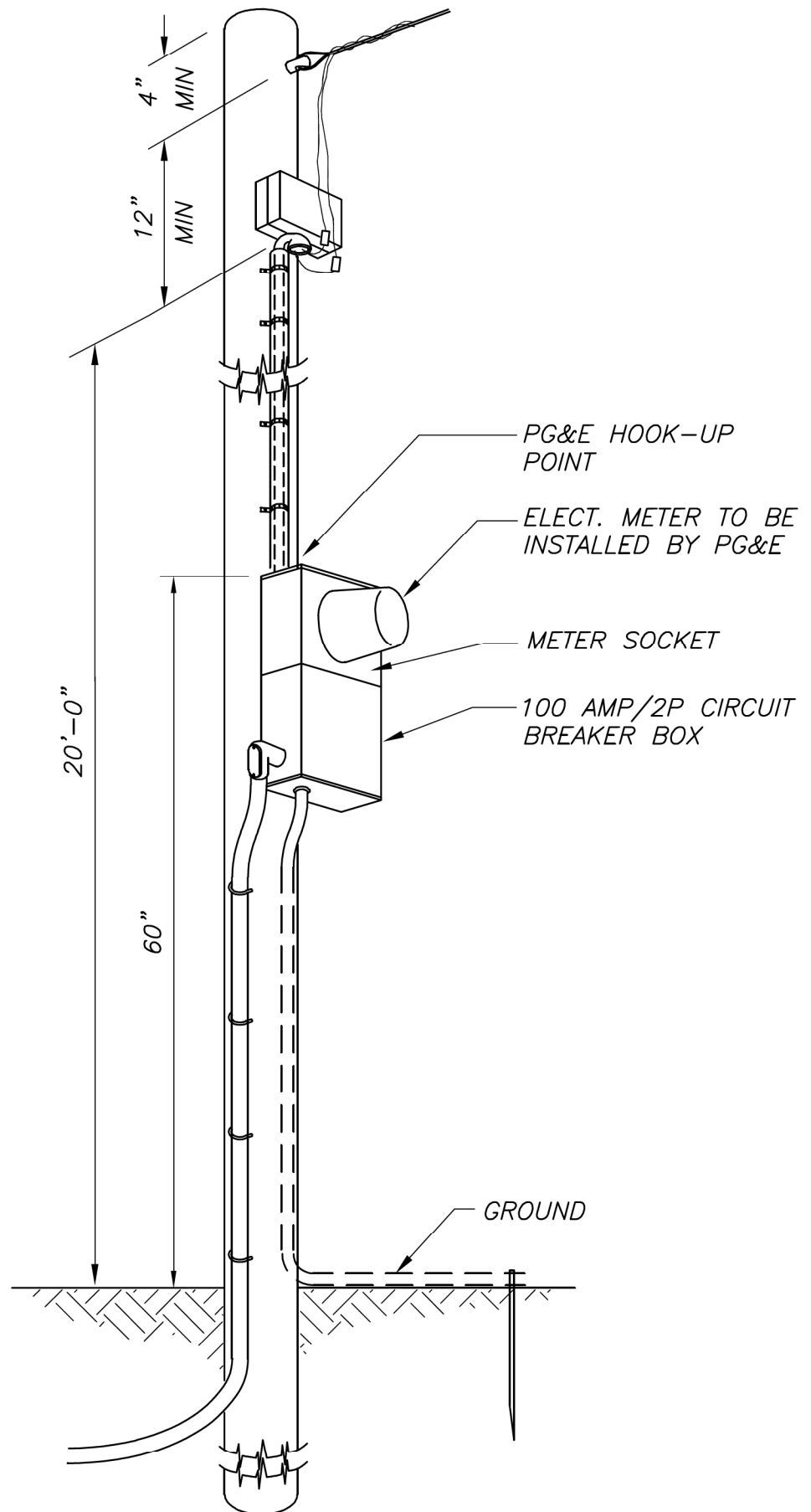
## **NEW RECYCLED 1" COPPER SERVICE**

|          |                  |                |                    |
|----------|------------------|----------------|--------------------|
| NO SCALE | FILE NO. SD0001R | APPROV. BY: EI | REV. DATE: JUL '19 |
|----------|------------------|----------------|--------------------|









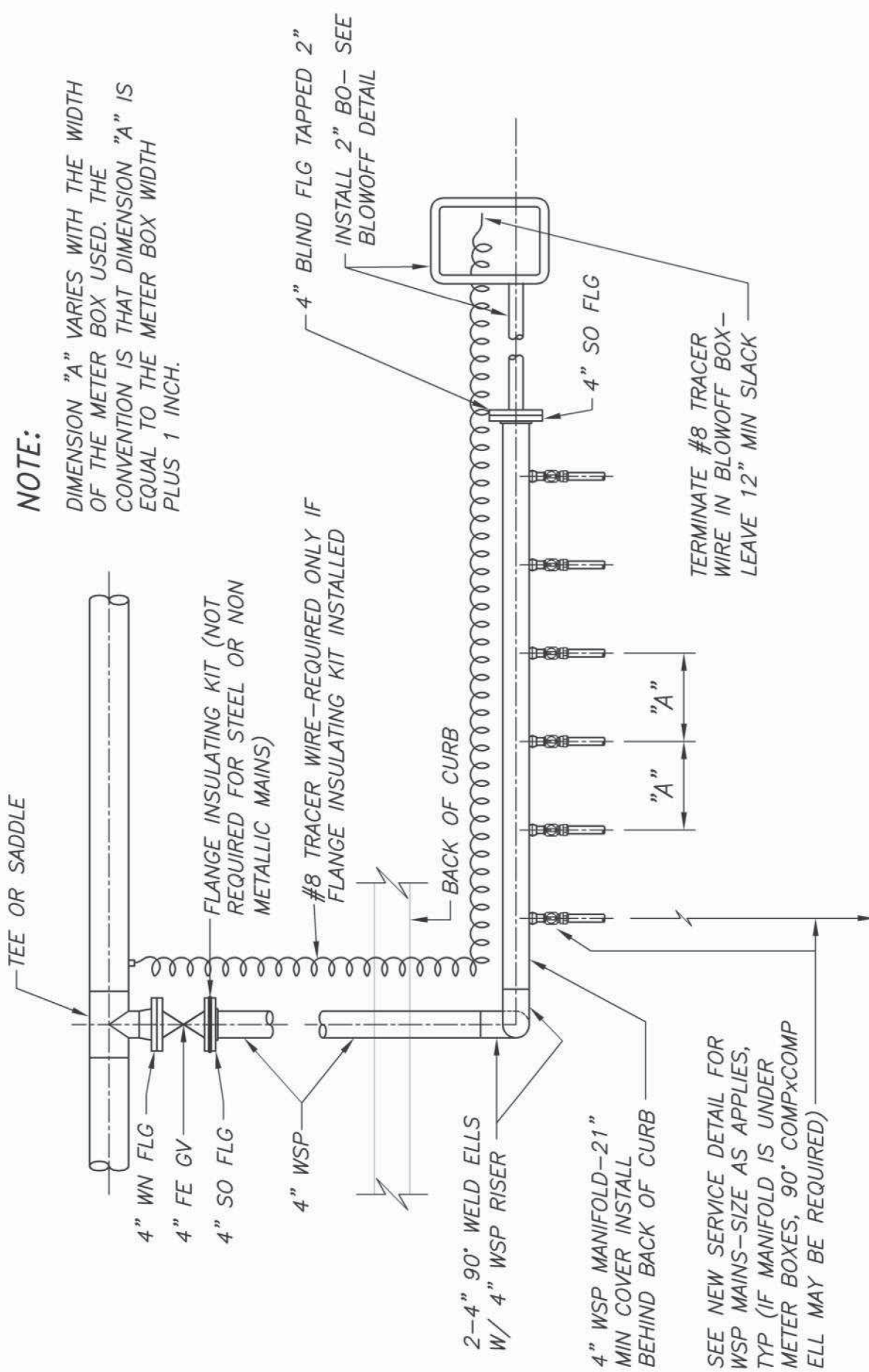
## **SERVICE POLE**

SCALE: NTS

FILE NO. SD0004

APPROV. BY: RKT

REV. DATE: MAY '95



## 4" SERVICE MANIFOLD

NO SCALE

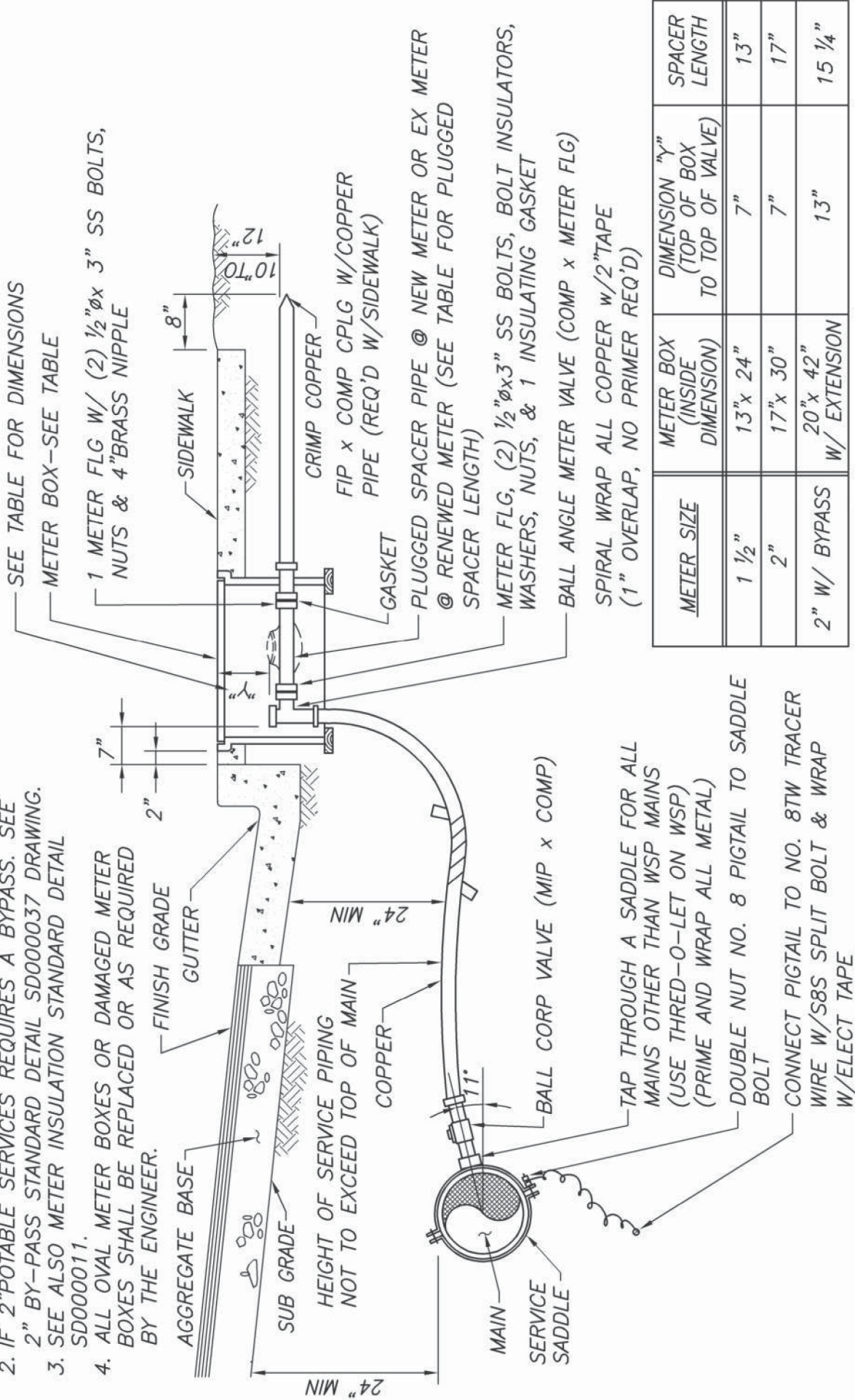
FILE NO. SD0005

APPROV. BY: KMCD

REV. DATE: FEB '05

## NOTES:

1. INSTALL METER BOX ON 2"x6"REDWOOD BLOCKING.
2. IF 2"POTABLE SERVICES REQUIRES A BYPASS. SEE 2" BY-PASS STANDARD DETAIL SD000037 DRAWING.
3. SEE ALSO METER INSULATION STANDARD DETAIL SD000011.
4. ALL OVAL METER BOXES OR DAMAGED METER BOXES SHALL BE REPLACED OR AS REQUIRED BY THE ENGINEER.



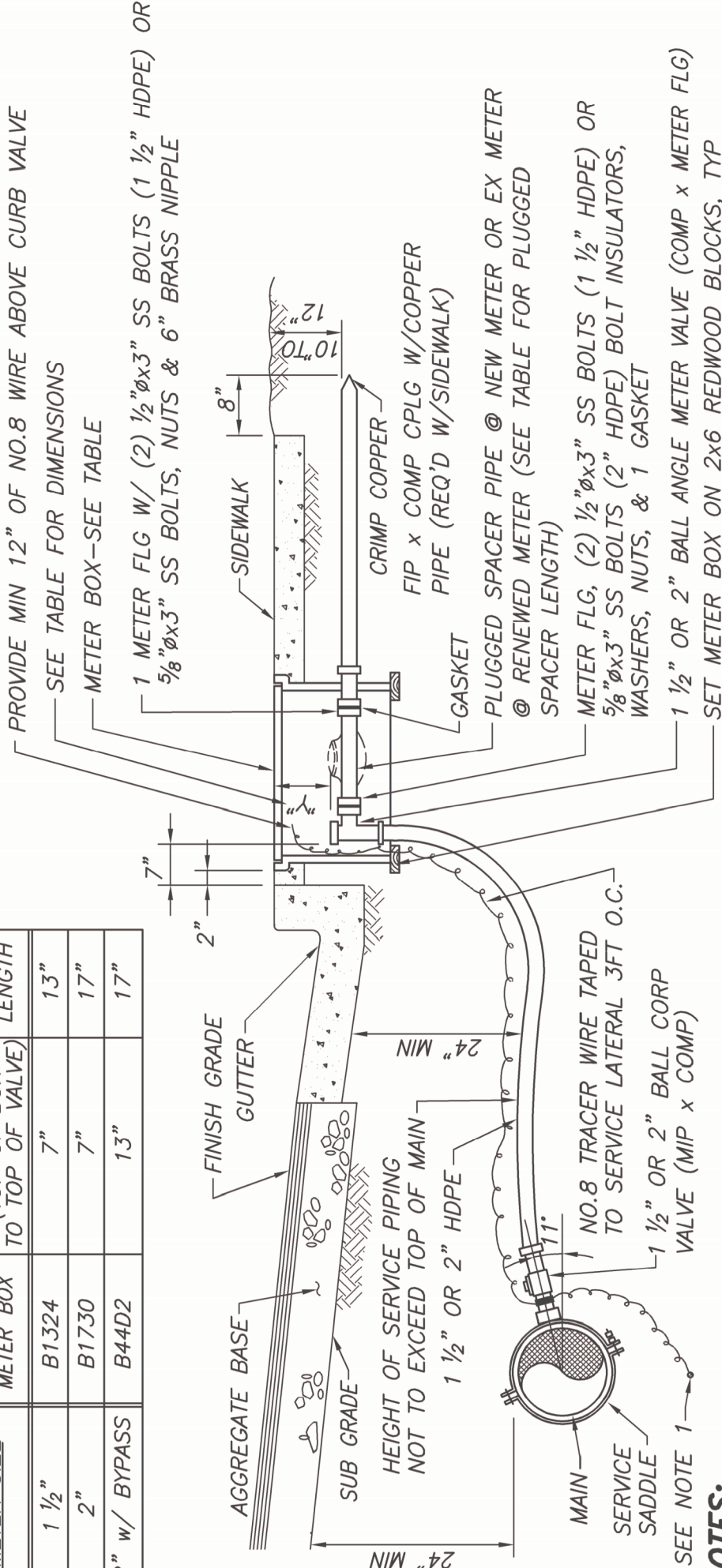
| METER SIZE   | METER BOX (INSIDE DIMENSION) | DIMENSION "Y" (TOP OF BOX TO TOP OF VALVE) | SPACER LENGTH |
|--------------|------------------------------|--|---------------|
| 1 1/2"       | 13"x 24"                     | 7"   | 13"           |
| 2"           | 17"x 30"                     | 7"   | 17"           |
| 2" W/ BYPASS | 20"x 42" W/ EXTENSION        | 13"  | 15 1/4"       |

## NEW OR RENEWED 1 1/2" AND 2" COPPER SERVICES

|          |                  |                |                    |
|----------|------------------|----------------|--------------------|
| NO SCALE | FILE NO. SD00006 | APPROV. BY: EI | REV. DATE: JUL '19 |
|----------|------------------|----------------|--------------------|



| METER SIZE   | CHRISTY METER BOX | DIMENSION "Y" (TOP OF BOX TO TOP OF VALVE) | SPACER LENGTH |
|--------------|-------------------|--|---------------|
| 1 1/2"       | B1324             | 7"   | 13"           |
| 2"           | B1730             | 7"   | 17"           |
| 2" w/ BYPASS | B44D2             | 13"  | 17"           |



**NOTES:**

1. CONNECT PIGTAIL TO NO.8 STRANDED THWN-2 TRACER WIRE W/S8S SPLIT BOLT & WRAP W/ ELECT TAPE. TERMINATE #8 THWN-2 AT SST BAND CLAMP FOR WSP MAIN. BOND #8 TW HOME—RUN FOR NON-METALLIC MAINS.
2. TAP THROUGH A SADDLE FOR ALL MAINS OTHER THAN WSP MAINS (USE THRED-O—LET ON WSP MAINS)(PRIME & WRAP ALL METAL).
3. HEIGHT OF SERVICE PIPING NOT TO EXCEED TOP OF MAIN.
4. PEEL BACK EXPOSE NO.8 TW WIRE AT CLAMP LOCATION. CLAMP TO CORP VALVE THREAD W/ STAINLESS STEEL BAND CLAMP. LEAVE 3 FT OF NO.8 STRANDED THWN-2 WIRE.
5. INSTALL STAINLESS STEEL INSERT STIFFENERS AT CORP VALVE AND BALL ANGLE METER VALVE.
6. COLD BEND RADIUS OF PE PIPE IS LIMITED TO 20 TIMES THE OUTER DIAMETER, AND 100 TIMES THE OUTER DIAMETER FOR A DISTANCE 5 TIMES PIPE DIAMETER WHEN FITTING IS PRESENTED IN A BEND. (AWWA MANUAL M55 COLD FIELD BENDING)
7. IF 2" POTABLE SERVICES REQUIRES A BYPASS, SEE 2" BY-PASS STANDARD DETAIL SD000037 DRAWING.
8. USE NO.8 STRANDED HMWPE WIRE ON PE PIPE IF TRENCHLESS INSTALLATION IS REQUIRED.

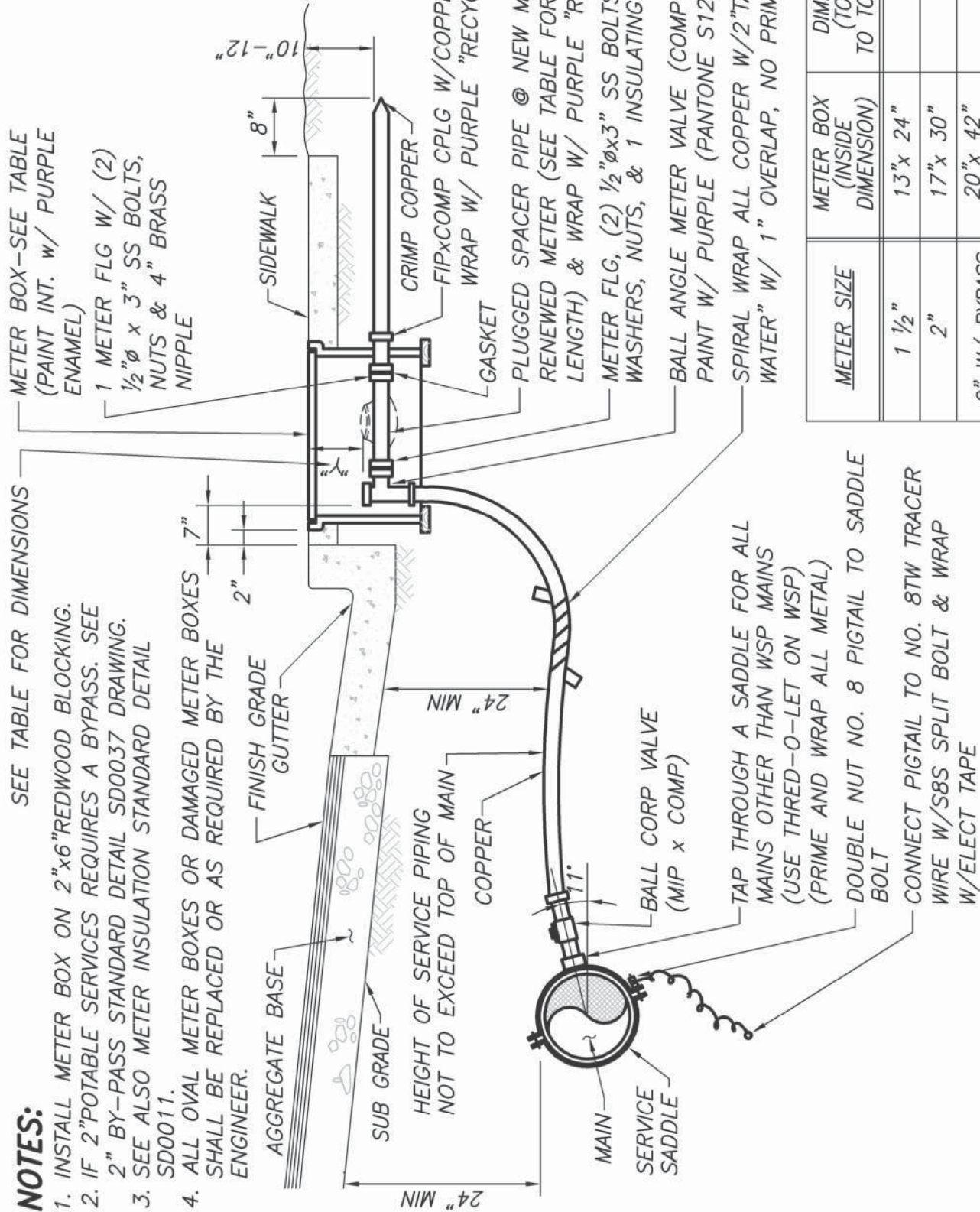
# **NEW OR RENEWED 1 1/2" & 2"** **HIGH DENSITY POLYETHYLENE SERVICE**

|          |                   |                |                    |
|----------|-------------------|----------------|--------------------|
| NO SCALE | FILE NO. SD00006P | APPROV. BY: ZT | REV. DATE: MAY '25 |
|----------|-------------------|----------------|--------------------|

## NOTES:

SEE TABLE FOR DIMENSIONS

1. INSTALL METER BOX ON 2"x6"REDWOOD BLOCKING.
2. IF 2" POTABLE SERVICES REQUIRES A BYPASS. SEE 2" BY-PASS STANDARD DETAIL SD0037 DRAWING.
3. SEE ALSO METER INSULATION STANDARD DETAIL SD0011.
4. ALL OVAL METER BOXES OR DAMAGED METER BOXES SHALL BE REPLACED OR AS REQUIRED BY THE ENGINEER.



## ATTENTION

TO ACTIVATE  
CONTACT MMWD RECYCLED  
WATER SECTION  
PHONE # 945-1558  
DO NOT REMOVE LOCK

## I.D. TAG DETAIL

NIC, INSTALLED BY MMWD

| METER SIZE   | METER BOX (INSIDE DIMENSION) | DIMENSION "Y" (TOP OF BOX TO TOP OF VALVE) | SPACER LENGTH |
|--------------|------------------------------|--|---------------|
| 1 1/2"       | 13"x 24"                     | 7"   | 13"           |
| 2"           | 17"x 30"                     | 7"   | 17"           |
| 2" W/ BYPASS | 20"x 42" W/ EXTENSION        | 13"  | 15 1/4"       |

# NEW OR RENEWED RECYCLED 1 1/2" AND 2" COPPER SERVICES

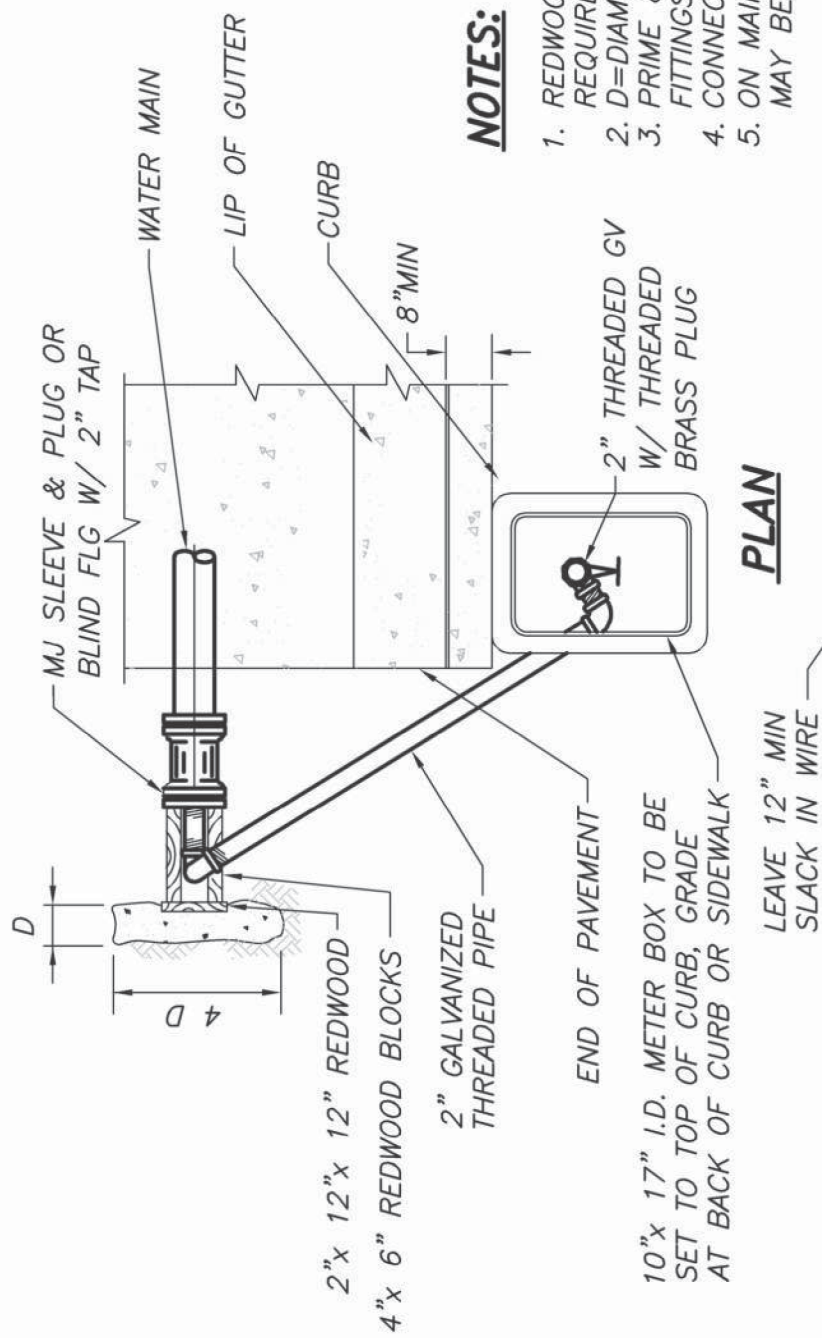
NO SCALE

FILE NO. SD0006R

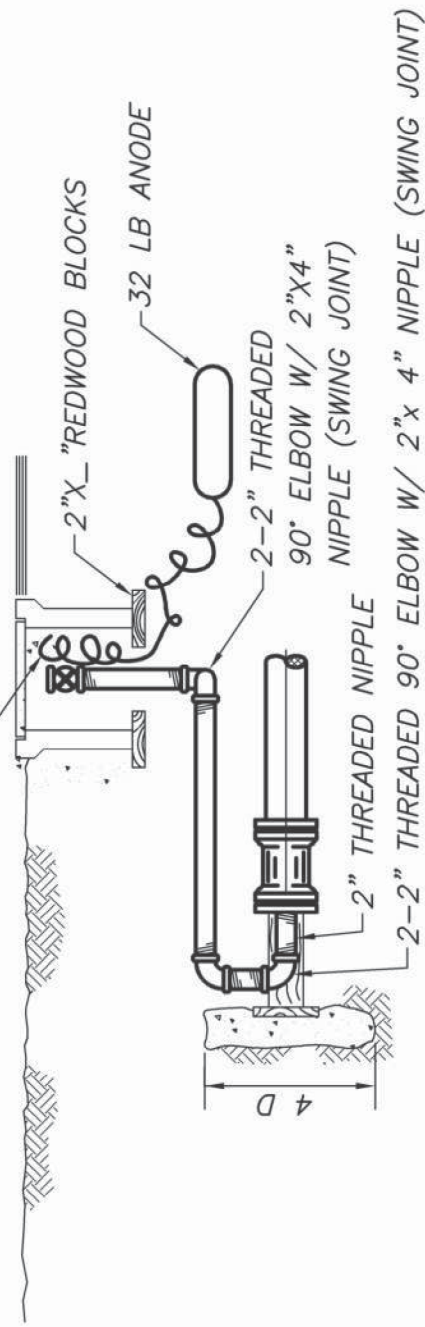
APPROV. BY: EI

REV. DATE: JUL '19





## PLAN



**ELEVATION**

## 2" BLOWOFF

**NOTES:**

1. REDWOOD & CONCRETE BLOCKING NOT REQUIRED ON WELDED STEEL MAINS.
2. D=DIAMETER OF PIPE
3. PRIME & WRAP ALL BLOWOFF PIPING & FITTINGS.
4. CONNECT TRACER WIRE TO SLEEVE
5. ON MAINS 10"AND GREATER A 4" BLOWOFF MAY BE REQUIRED

|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0007 | APPROV. BY: RKT | REV. DATE: NOV '02 |
|----------|-----------------|-----------------|--------------------|

**RECYCLED WATER  
BLOW-OFF**

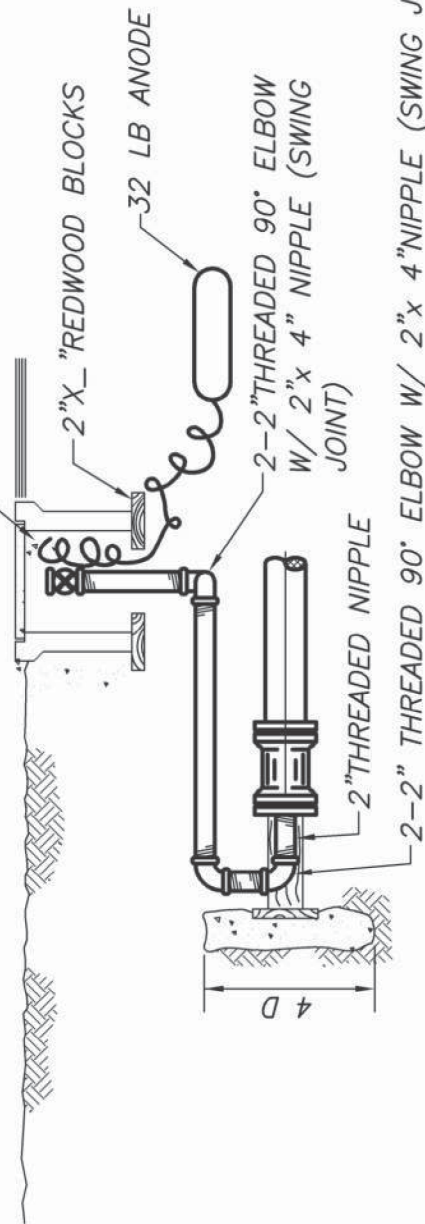
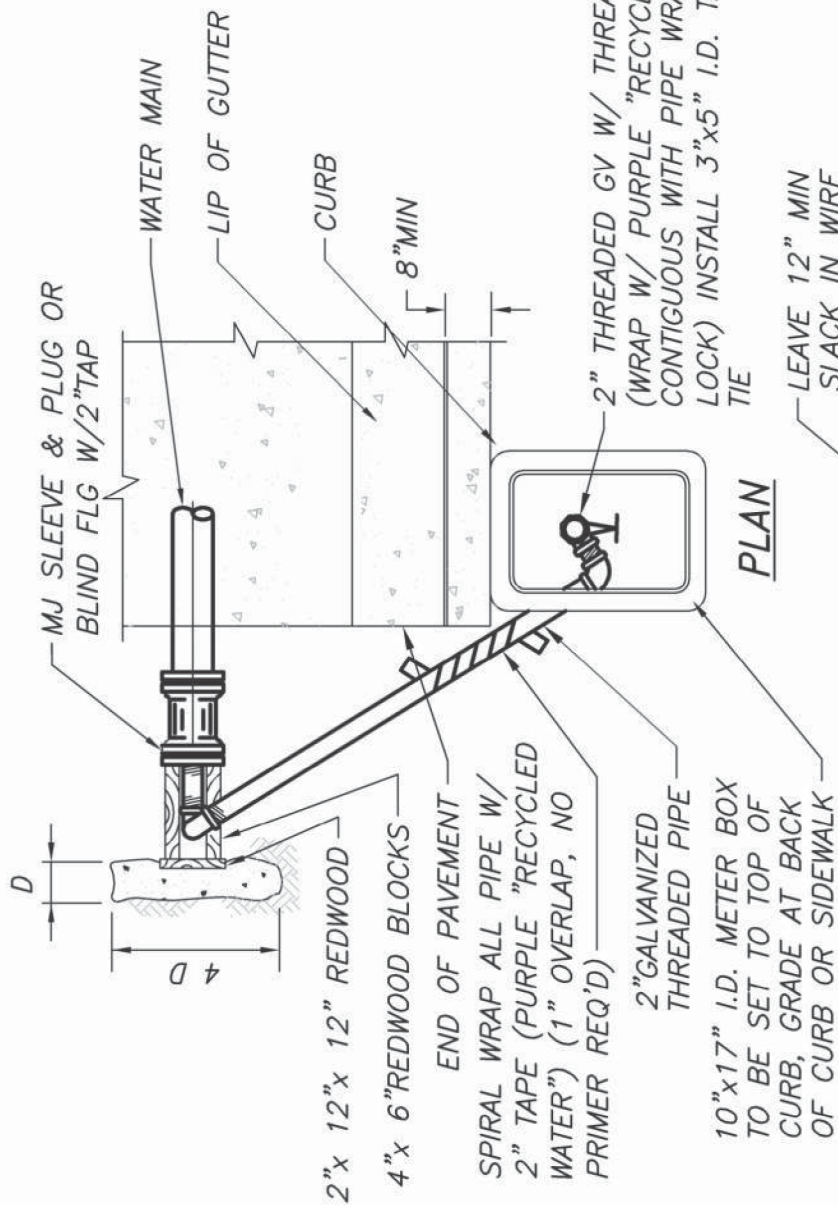
THIS BLOWOFF IS CONNECTED TO THE RECYCLED WATER SYSTEM. DO NOT CONNECT TO ANY POTABLE WATER PIPING. FOR INFORMATION CONTACT THE RECYCLED WATER SECTION.

### I.D. TAG DETAIL

NIC, INSTALLED BY MMWD

**NOTES:**

1. REDWOOD & CONCRETE BLOCKING NOT REQUIRED ON WELDED STEEL MAINS.
2. D=DIAMETER OF PIPE
3. PRIME & WRAP ALL BLOWOFF PIPING & FITTINGS.
4. CONNECT TRACER WIRE TO SLEEVE
5. ON MAINS 10"AND GREATER A 4" BLOWOFF MAY BE REQUIRED



## ELEVATION

## 2" BLOWOFF FOR RECYCLED WATER

|          |                  |                |                    |
|----------|------------------|----------------|--------------------|
| NO SCALE | FILE NO. SD0007R | APPROV. BY: KF | REV. DATE: JAN '04 |
|----------|------------------|----------------|--------------------|

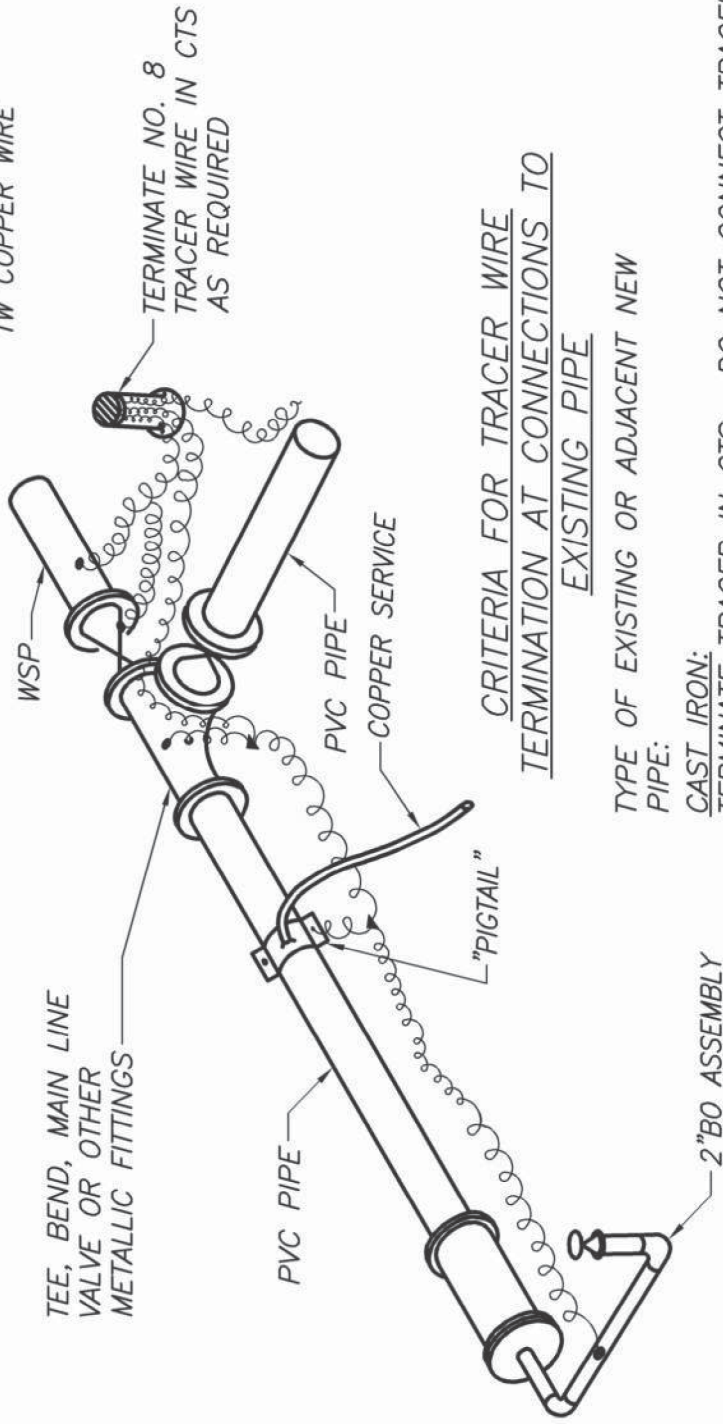


## NOTES:

1. RUN NO. 8 COPPER TRACER WIRE BENEATH PIPE CONTINUOUSLY. AT EACH METALLIC FITTING, STRIP THE INSULATION OFF THE CONTINUOUS WIRE AND CONNECT NO. 8 "PIGTAIL" AS SHOWN.
2. WRAP ALL BARE WIRE WITH 6 MIL 3/4" PVC TAPE.
3. USE S-421 COPPER SLEEVE WHEN CADWELDING NO. 8 WIRE.
4. PRIME & WRAP ALL BARE PIPE, SERVICES AND FITTINGS.
5. ALL WIRE CONNECTIONS SHALL BE INSPECTED BEFORE WRAPPING.

## LEGEND

- CADWELD
- ▲ SPLIT BOLT FOR NO. 8 TW COPPER WIRE



## CRITERIA FOR TRACER WIRE TERMINATION AT CONNECTIONS TO EXISTING PIPE

TYPE OF EXISTING OR ADJACENT NEW  
PIPE:

CAST IRON:

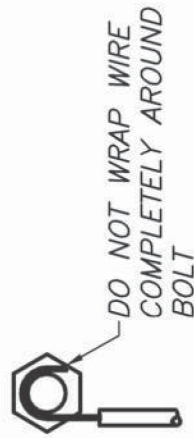
TERMINATE TRACER IN CTS. DO NOT CONNECT TRACER WIRE TO EXISTING PIPE FITTINGS OR NEW FITTINGS IN CONTACT WITH EXISTING PIPE.

NON-METALLIC:

TERMINATE TRACER WIRE IN CTS WITH EXISTING WIRE.

STEEL:

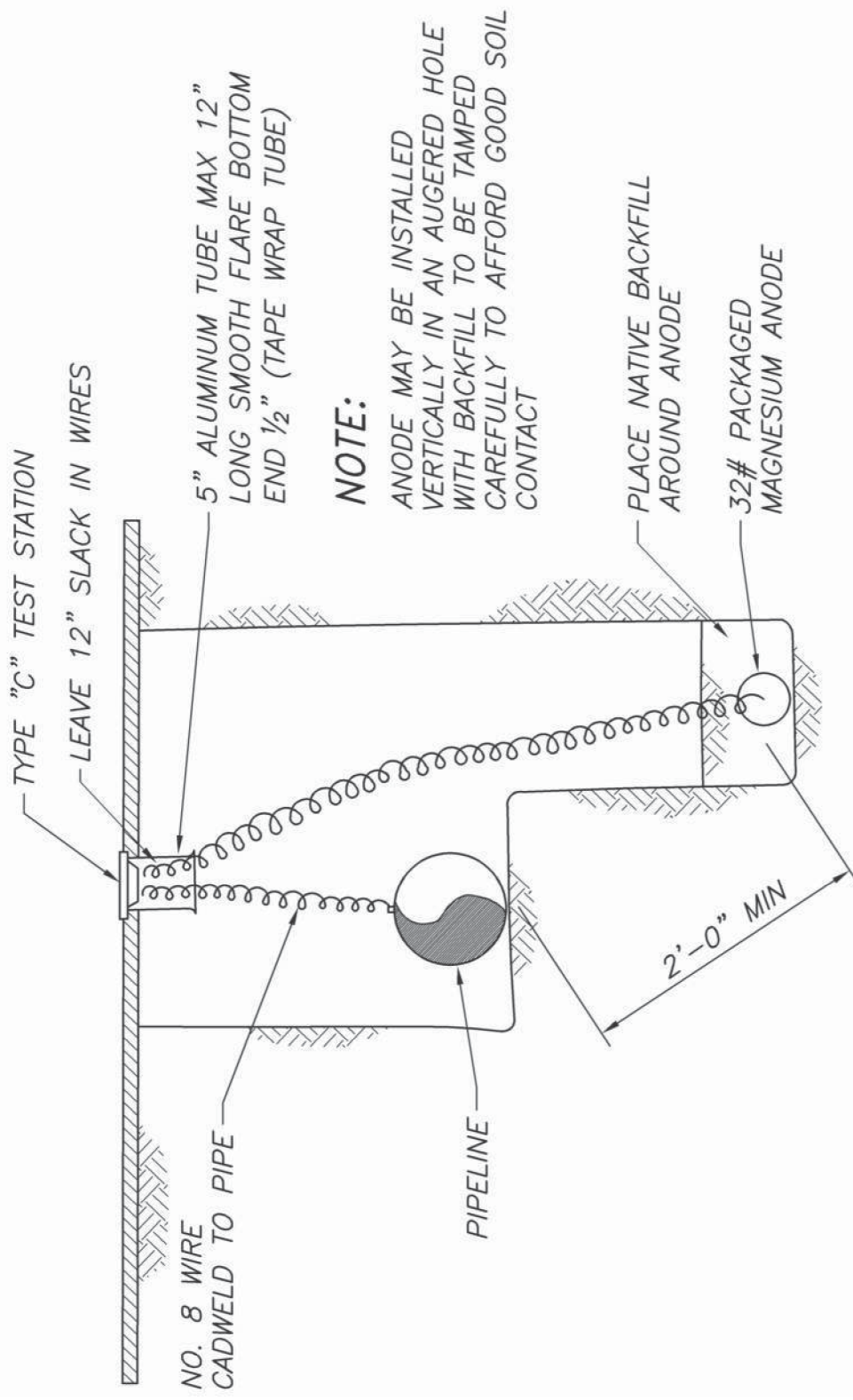
TERMINATE TRACER WIRE IN CTS WITH TEST LEAD FROM EXISTING PIPE, OR CADWELD TO WSP IF NO CTS IS REQUIRED.



## WIRE CONNECTION TO NUT

# PIPELINE TRACER WIRE INSTALLATION

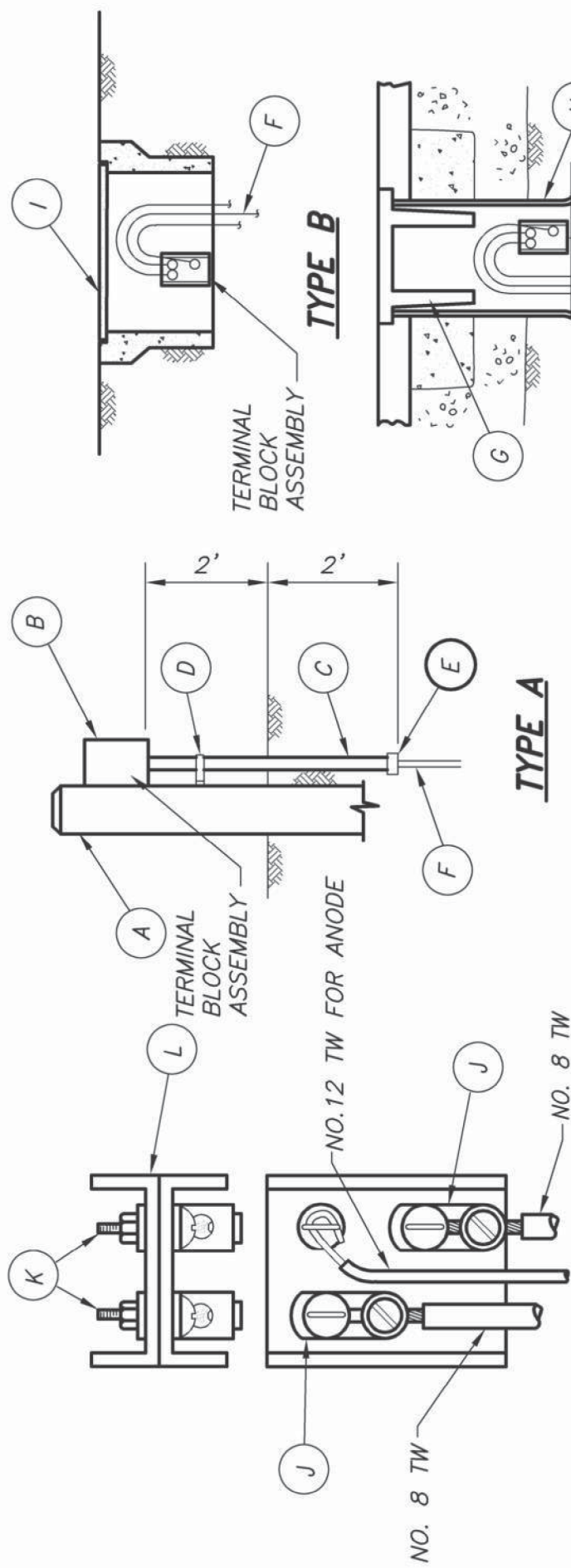
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|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0008 | APPROV. BY: RKT | REV. DATE: MAY '07 |
|----------|-----------------|-----------------|--------------------|



## TEST STATION WITH MAGNESIUM ANODE

|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0009 | APPROV. BY: RKT | REV. DATE: MAY '95 |
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## TERMINAL BLOCK ASSEMBLY

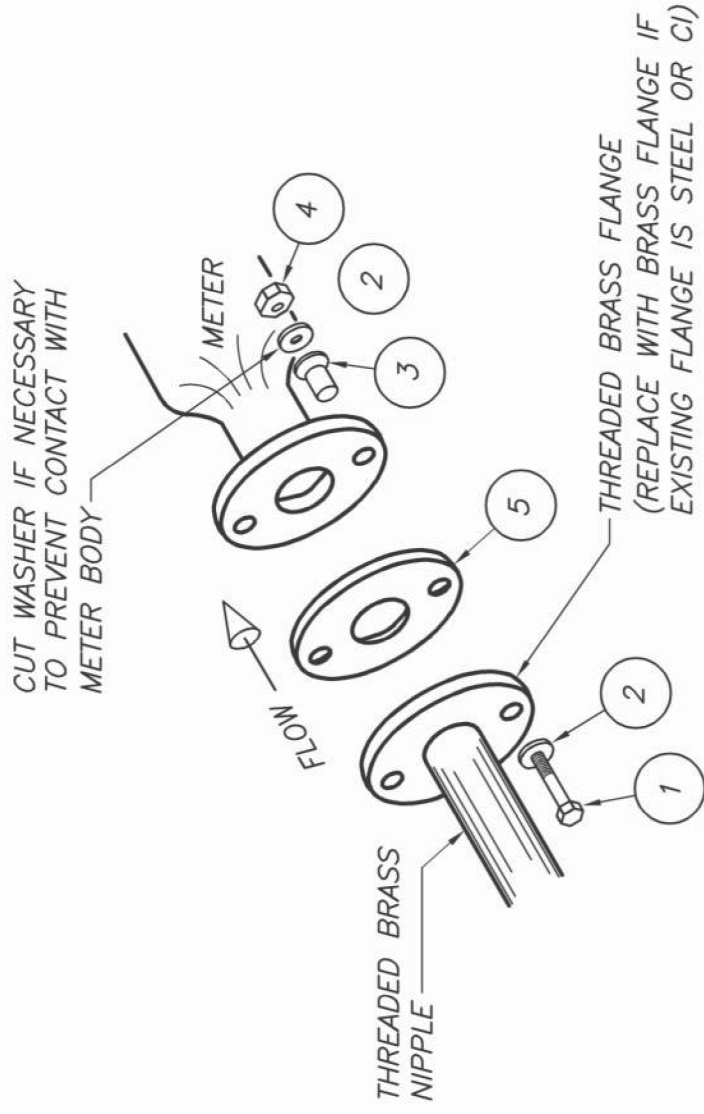
| ITEM | MATERIAL LIST DESCRIPTION                  |
|------|--|
| A    | 4"x4" MARKER POST                          |
| B    | 1 1/4" CONDUIT, TYPE E, W/BLANK COVER      |
| C    | 1 1/4" CONDUIT, RIGID IRON GALV. W/BUSHING |
| D    | 1 1/4" CONDUIT STRAP                       |
| E    | BUSHING                                    |
| F    | TW STRANDED WIRE-NO. 8 OR NO. 12           |
| G    | COVER (8" OR 5" CTS)                       |
| H    | ALUMINUM TUBING 5" DIA.                    |
| I    | 3/4" METER BOX W/COVER                     |
| J    | LUG, 50A                                   |
| K    | NO 12X3/4" R.H BRASS MACH. SCR. W/ NUT     |
| L    | 1 5/8" SQ PHENOLIC TUBING                  |

## NOTES:

1. LEAVE SLACK IN TEST LEADS ADJACENT TO PIPE TO PREVENT DAMAGE BY BACKFILLING. LEAVE 12" OF SLACK IN TEST LEADS AT TEST STATIONS FOR TEST PURPOSES. HORIZ. RUNS ARE TO HAVE 30" MIN. COVER TO TEST STATION. TEST LEADS MAY BE RUN IN PIPE DITCH.
2. COLOR CODE TEST LEADS AT TEST STATION, WHEN INDICATED.
3. AFTER ELECTRICAL TEST OF INSULATING ADAPTORS, ALL PARTS OF VALVES, FLANGED INSULATING ASSEMBLIES, BONDS AND TEST LEADS, AND ALL OTHER BARE METAL & PIPE, SHALL BE PRIMED AND WRAPPED.
4. ITEM "B", DRILL HOLE IN BACK WALL AND MOUNT WITH STEEL ROUND". HEAD WOOD SCREW, NO. 10x1
5. WIRE TERMINATION TO BE MADE BY MMWD CORROSION DEPT.

## TEST STATION

|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0010 | APPROV. BY: RKT | REV. DATE: MAY '95 |
|----------|-----------------|-----------------|--------------------|

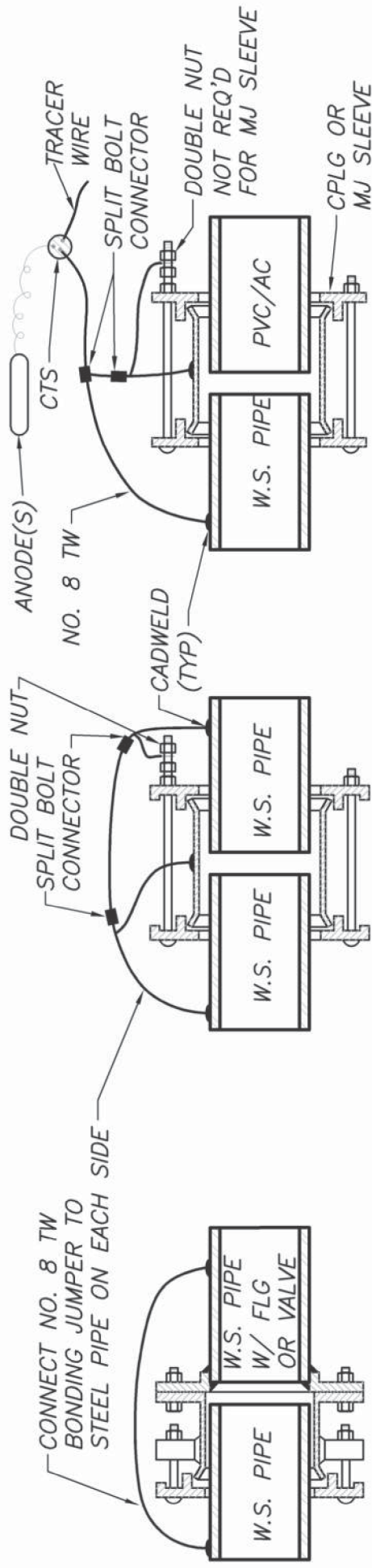


| ITEM                | 1 1/2" METER  | 2" METER      | NO. REQ'D |
|---------------------|---------------|---------------|-----------|
| 1 MACHINE BOLT      | 1/2" X 3"     | 5/8" X 3"     | 2         |
| 2 STEEL WASHER      | 1/2" X 1 1/8" | 5/8" X 1 1/4" | 4         |
| 3 INSULATING SLEEVE | 1/2"          | 5/8"          | 2         |
| 4 HEX. HEAD NUT     | 1/2"          | 5/8"          | 2         |
| 5 INSULATING GASKET | 1 1/2"        | 2"            | 1         |

# **METER INSULATION 1 1/2" & 2"**

|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0011 | APPROV. BY: RKT | REV. DATE: MAY '95 |
|----------|-----------------|-----------------|--------------------|

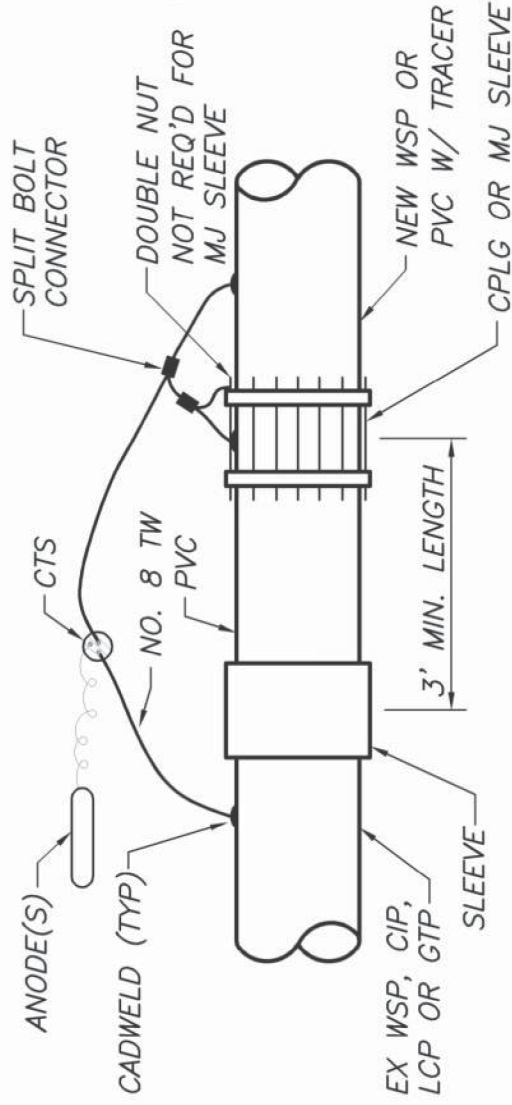




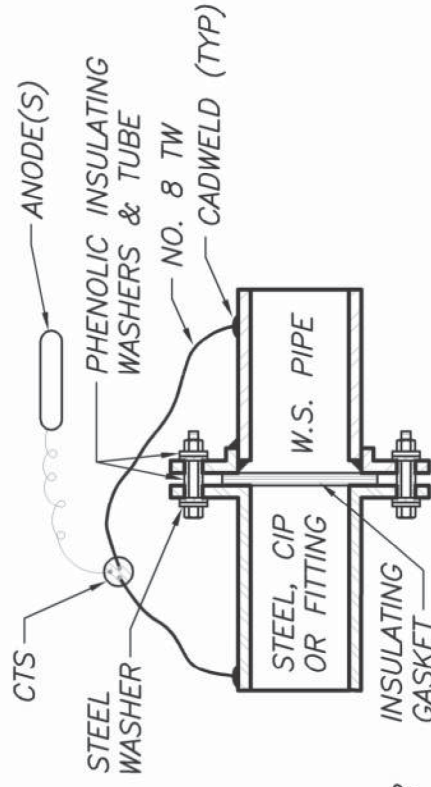
FLANGED COUPLING  
ADAPTER

UNINSULATED  
BOLTED FLEX CPLG

STEEL PIPE TO  
NONMETALLIC PIPE



NONMETALLIC PIPE INSULATOR



FLANGE INSULATOR

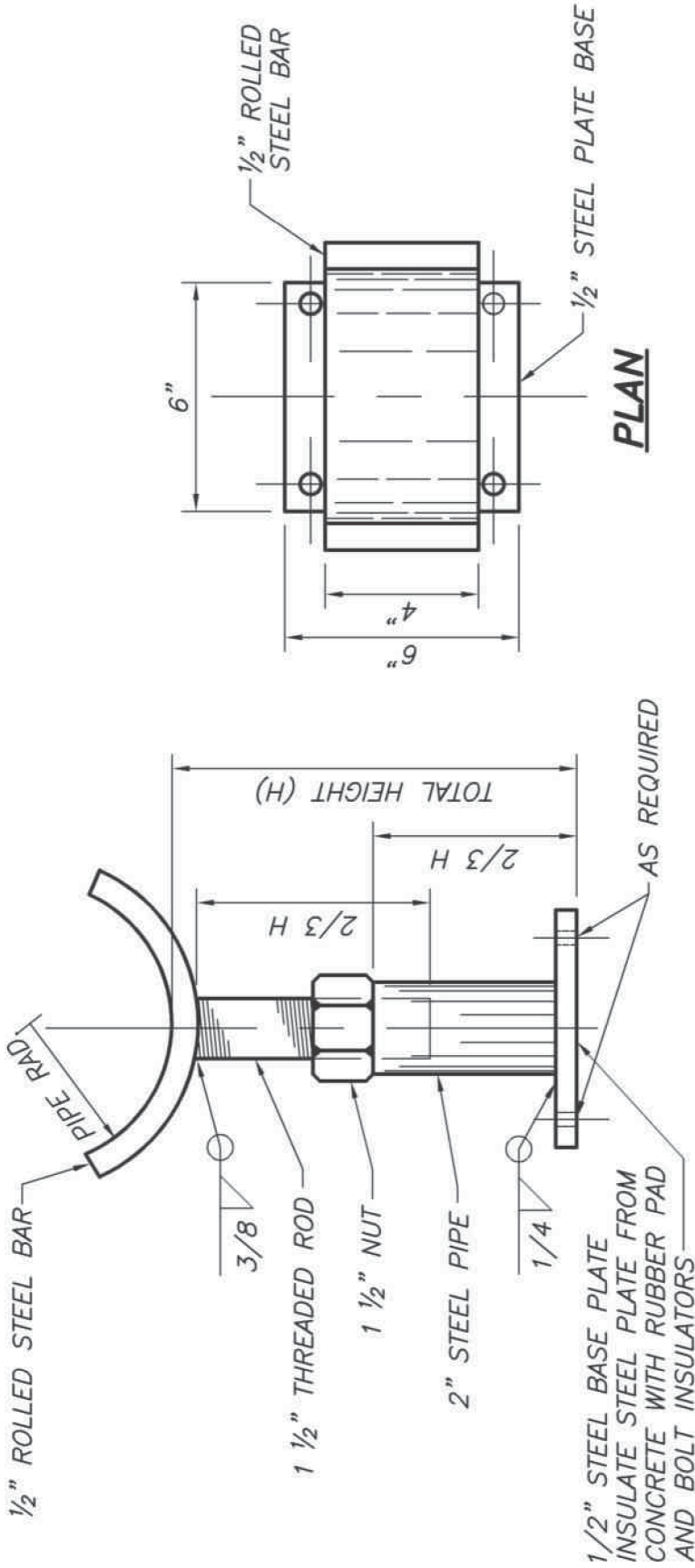
## NOTES:

1. WRAP C.I. PIPE AND FITTINGS MIN. 4' AWAY FROM INSULATING JOINT ON C.I. SIDE
2. TAPE ALL BARE WIRING AND CONNECTORS WITH 7 MIL PVC TAPE BEFORE WRAPPING PIPE AND FITTINGS.

# PIPELINE INSULATION AND BONDING JUMPER DETAILS

|          |                 |                  |                     |
|----------|-----------------|------------------|---------------------|
| NO SCALE | FILE NO. SD0012 | APPROV. BY: KMCD | REV. DATE: FEB. '11 |
|----------|-----------------|------------------|---------------------|

PIPE SUPPORT ASSEMBLY TO BE SUPPLIED BY CONTRACTOR



**NOTE:**

GRINNELL NO. 264 MAY BE USED IN LIEU OF THE ADJUSTABLE PIPE SUPPORT DETAIL

**ELEVATION**

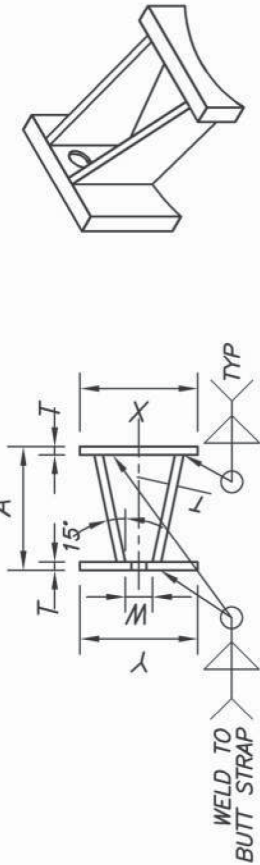
**ADJUSTABLE PIPE SUPPORT**

|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0013 | APPROV. BY: RKT | REV. DATE: MAY '95 |
|----------|-----------------|-----------------|--------------------|



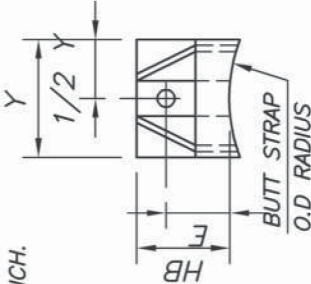
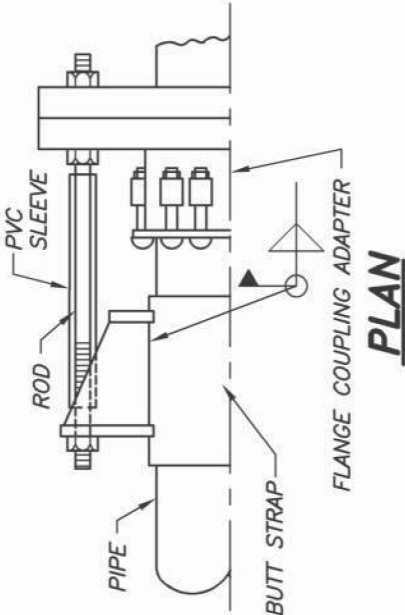
HARNESS JOINT ASSEMBLY TO BE SUPPLIED BY CONTRACTOR

HARNESS JOINT DIMENSIONS



NOTE:

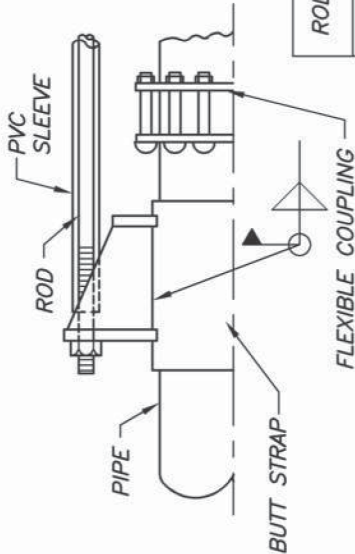
THE MINIMUM WELD THICKNESS SHALL BE 3/8 INCH.



| ROD SIZE AND BUTT STRAP THICKNESS (IN.) |          |                  |          |                  |                  |
|---|----------|------------------|----------|------------------|------------------|
| PIPE O.D.                               | 150 PSI  |                  | 200 PSI  |                  | 250 PSI          |
|   | ROD SIZE | BUTT STRAP THICK | ROD SIZE | BUTT STRAP THICK | BUTT STRAP THICK |
| 4                                       | 1/2      | 1/4              | 1/2      | 1/4              | 1/4              |
| 6                                       | 5/8      | 1/4              | 5/8      | 1/4              | 1/4              |
| 8                                       | 5/8      | 1/4              | 5/8      | 1/4              | 1/4              |
| 10                                      | 3/4      | 1/4              | 3/4      | 1/4              | 1/4              |
| 12                                      | 3/4      | 1/4              | 7/8      | 1/4              | 1/4              |
| 14                                      | 3/4      | 3/8              | 7/8      | 3/8              | 3/8              |
| 16                                      | 7/8      | 3/8              | 1        | 3/8              | 3/8              |
| 18                                      | 1        | 3/8              | 1 1/8    | 3/8              | 3/8              |
| 20                                      | 1        | 3/8              | 1 1/8    | 3/8              | 3/8              |
| 24                                      | 1 1/4    | 1/2              | 1 1/2    | 1/2              | 1 1/2            |

NOTES:

- 1. THE SIZES LISTED ABOVE ARE MINIMUM SIZES. FOR PIPE OF LARGER O.D. ENGINEERING WILL SPECIFY DESIGN.
- 2. TWO RODS REQUIRED FOR EACH HARNESS ASSEMBLY.
- 3. SPLIT BUTT STRAPS TO BE INSTALLED WITH JOINT WELDS ON TOP AND/OR BOTTOM.



| ROD SIZE | STRAP WIDTH | T   | A  | X   | Y  | W   | HB  | E   | HF  | HOLE DIA |
|----------|-------------|-----|----|-----|----|-----|-----|-----|-----|----------|
| 1/2      | 6           | 1/4 | 4  | 1/2 | 4  | 1/4 | 3   | 7/8 | 1   | 7/8      |
| 5/8      | 7           | 3/8 | 5  | 5   | 5  | 3/8 | 3   | 7/8 | 2   | 3/4      |
| 3/4      | 7           | 3/8 | 5  | 5   | 5  | 1/2 | 4   | 1/8 | 2   | 7/8      |
| 7/8      | 12          | 1/2 | 5  | 5   | 5  | 5/8 | 4   | 1/4 | 2   | 1        |
| 1        | 14          | 1/2 | 5  | 6   | 6  | 3/4 | 4   | 1/2 | 2   | 1 1/8    |
| 1 1/8    | 17          | 1/2 | 7  | 7   | 7  | 7/8 | 4   | 3/4 | 2   | 1 1/4    |
| 1 1/4    | 18          | 5/8 | 7  | 7   | 7  | 2   | 5   | 3/4 | 2   | 1 3/8    |
| 1 1/2    | 22          | 3/4 | 10 | 10  | 10 | 2   | 1/4 | 5   | 1/2 | 1 5/8    |

NOTES:

DIMENSIONS ARE BASED ON A.W.W.A. DESIGN MANUAL M-11 SECTION 13.10 AND ASSOCIATED TABLES AND FIGURES. THE FOLLOWING ARE MATERIAL CONFORMANCE SPECIFICATIONS.

| ROD SIZE    | PVC SCH 40 SLEEVE SIZE |
|-------------|------------------------|
| 1/2"        | 3/4"                   |
| 5/8"-3/4"   | 1"                     |
| 7/8"-1 1/4" | 1 1/2"                 |
| 1 1/2"      | 2"                     |

SPECIFICATIONS:

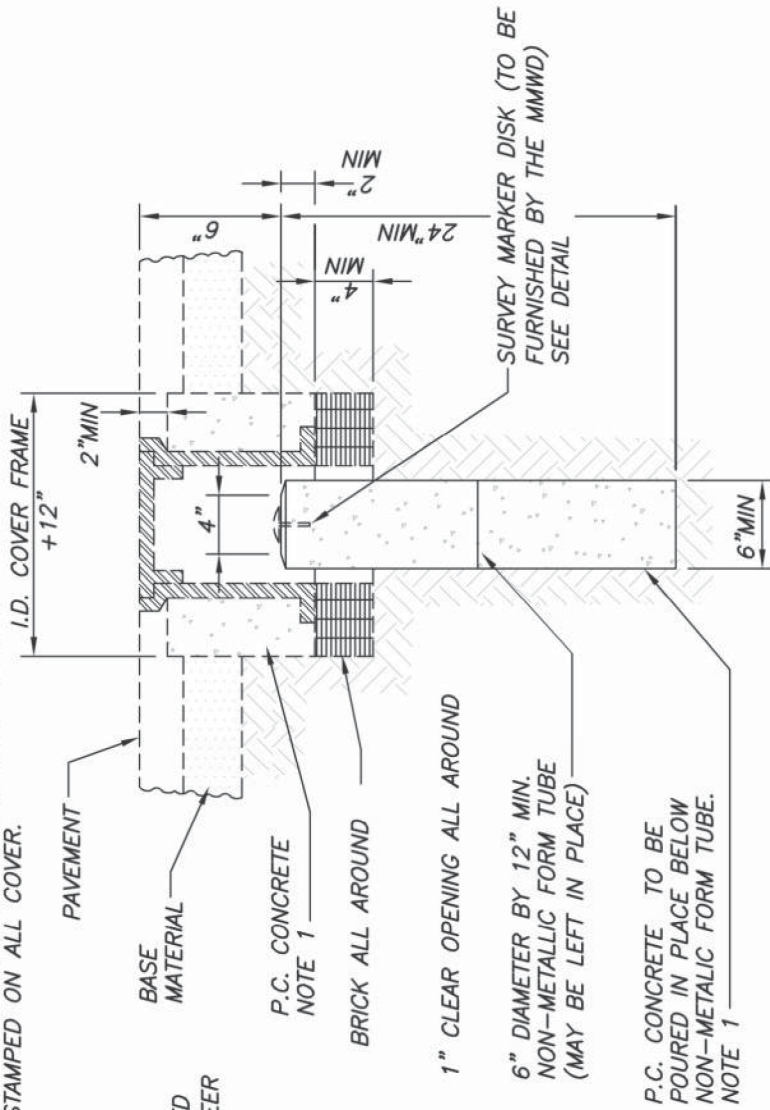
RODS \_\_\_\_\_ ASTM A193, GRADE B7  
NUTS \_\_\_\_\_ ASTM A194, GRADE 2H  
LUG MATERIAL \_\_\_\_\_ ASTM A283, GRADE C OR ASTM A36  
RODS ARE TO HAVE UNC THREADS FOR SIZES<1INCH  
RODS ARE TO HAVE SUN THREADS/INCH FOR SIZES>1

JOINT HARNESS

|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0014 | APPROV. BY: RKT | REV. DATE: MAY '97 |
|----------|-----------------|-----------------|--------------------|



CI MONUMENT RING AND COVER, PHOENIX P-2001-E, OR ARTMARK APC-51, OR BROOKS 10 1/4" TRAFFIC BOX, OR AMERICAN BRASS AND IRON FOUNDRY MONUMENT COVER OR FORNI CORPORATION "IRONSIDE" TYPE "A" BOX & LID OR APPROVED EQUAL. THE WORD "MONUMENT" SHALL BE CLEARLY STAMPED ON ALL COVER.

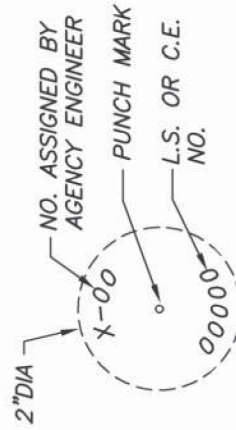
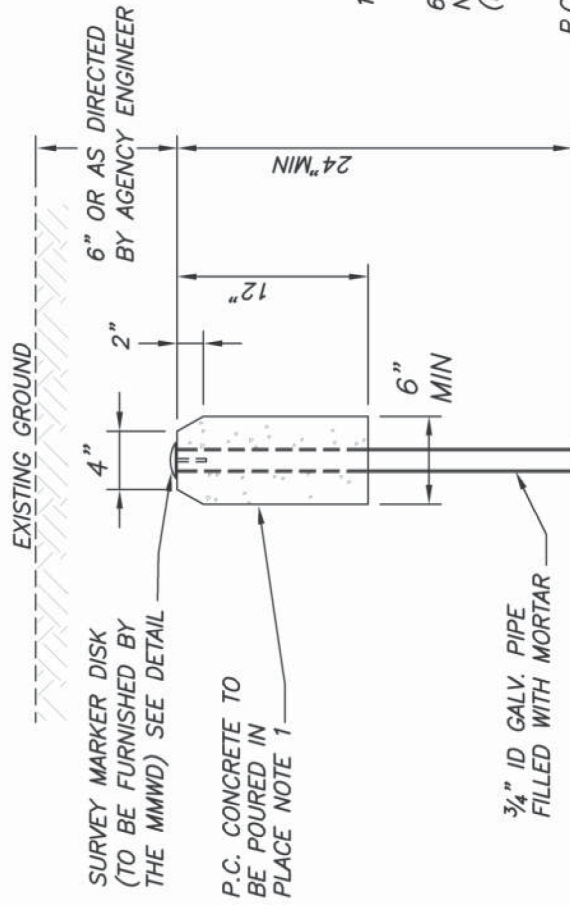


## STREET MONUMENT

### NOTES:

1. ALL PORTLAND CEMENT CONCRETE SHALL BE CLASS "B" OR "MINOR" WITH 1" MAX AGGREGATE.
2. IF RING & COVER ARE SET AFTER PAVING, EXPOSED CONCRETE WILL NOT BE ALLOWED, EXCEPT AS PERMITTED BY AGENCY ENGINEER IN WRITING.
3. MONUMENTS SHALL BE SET AT THE LOCATIONS DESIGNATED ON THE PLANS AND ON THE FINAL MAP.
4. STREET MONUMENTS SHALL BE USED IN ALL PAVED AREAS AND OTHER LOCATIONS AS SHOWN ON THE PLANS. IRON PIPE MONUMENTS SHALL BE USED AT ALL OTHER LOCATIONS IN THE PUBLIC RIGHT OF WAY.
5. NO CONCRETE SHALL BE PLACED PRIOR TO EXCAVATION INSPECTION BY THE AGENCY ENGINEER.
6. MONUMENTS SET ON SUBDIVISION BOUNDARIES SHALL BE 3/4" DIAMETER GALVANIZED IRON PIPE 24" LONG FILLED WITH MORTAR.

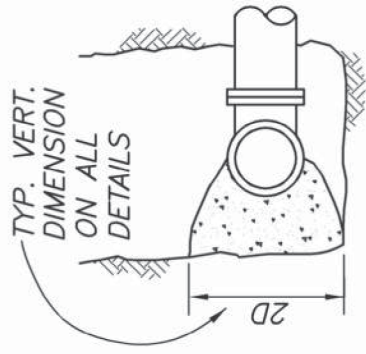
## PIPE MONUMENT



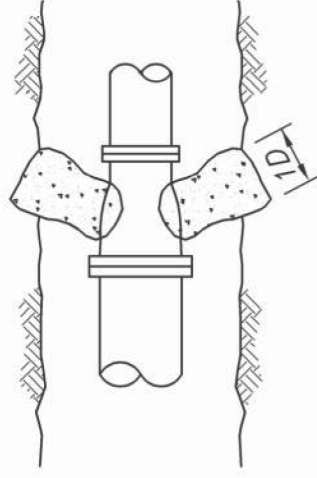
## DETAIL

## SURVEY MONUMENT

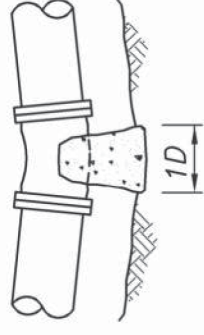
|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0015 | APPROV. BY: RKT | REV. DATE: NOV '96 |
|----------|-----------------|-----------------|--------------------|



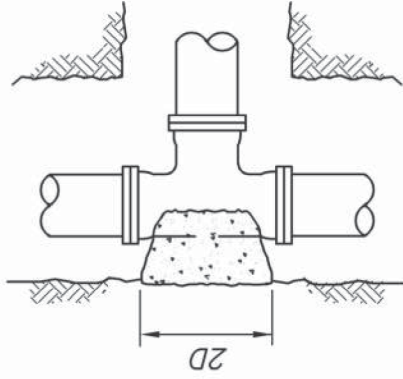
**ELEVATION TEE**



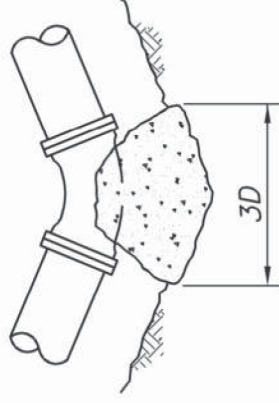
**PLAN OF REDUCER**



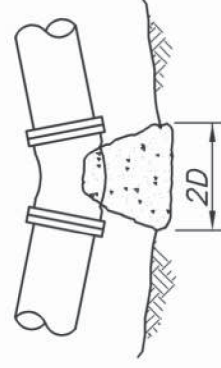
**PLAN OF 11 1/4° BEND**



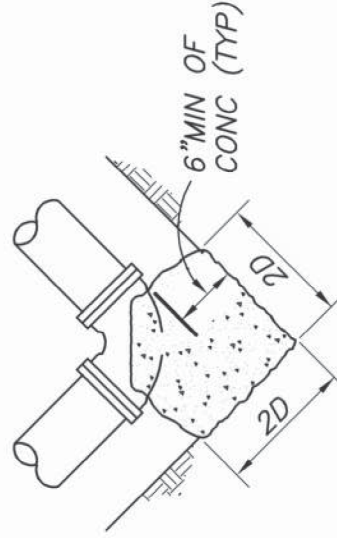
**PLAN OF TEE**



**PLAN OF 45° BEND**



**PLAN OF 22 1/2° BEND**



**PLAN OF 90° BEND**

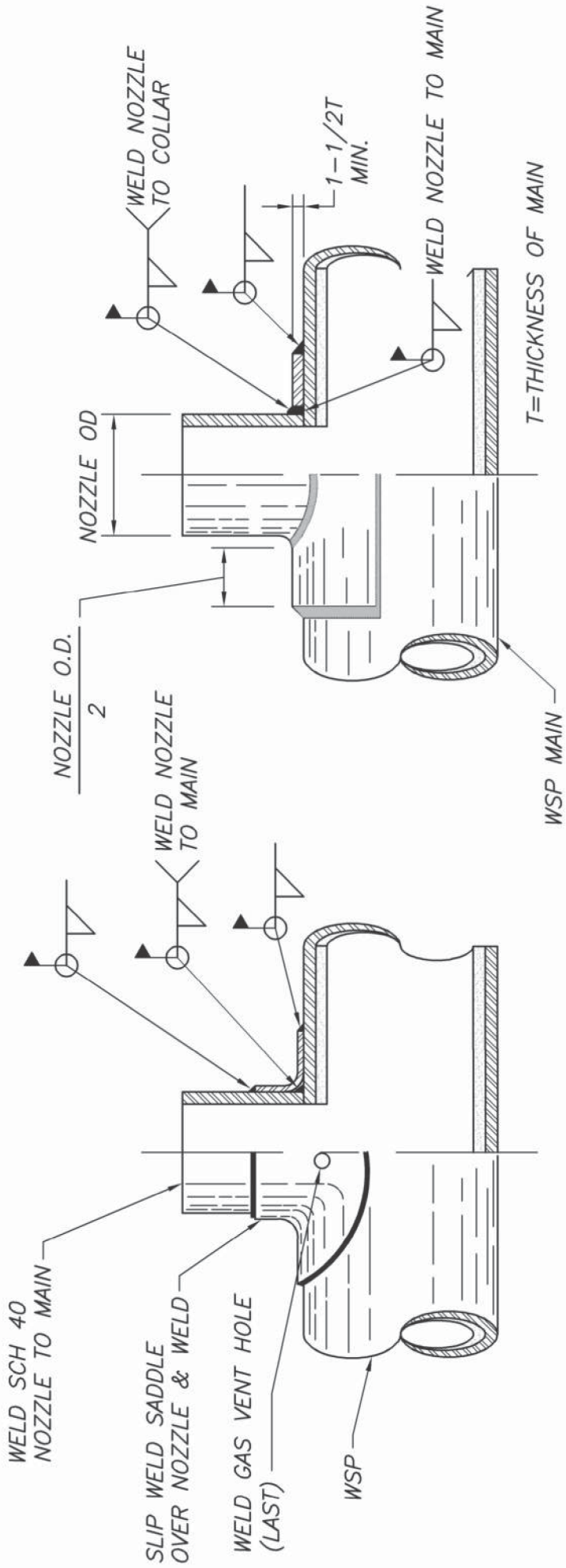
**NOTES:**

1. ALL CONCRETE BLOCKING TO BE SET AGAINST UNDISTURBED GROUND. "D" INDICATES NOMINAL PIPE DIA. BLOCK SIZE BASED ON 3000 LBS/SQ FT SOIL. IF BEARING VALUE OF SOIL IS LESS, THE "D" VALUE SHALL BE INCREASED ACCORDINGLY. MINIMUM BLOCK DIMENSION SHALL BE 1 FOOT SQUARE.
2. THIS DETAIL WILL APPLY TO ALL PUSH-ON, FLEXIBLE OR OTHERWISE UNRESTRAINED JOINTS. ALSO APPLIES TO WELDED STEEL WHEN USED IN CONNECTION WITH FLEXIBLE JOINTS.
3. FITTINGS SHALL BE PRIMED AND WRAPPED PRIOR TO INSTALLATION OF CONCRETE BLOCKS.
4. CONCRETE SHALL NOT BE PLACED ON, OR AROUND BELLS OR BOLTS.

**JOINT BLOCKING**

|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0017 | APPROV. BY: RKT | REV. DATE: MAY '95 |
|----------|-----------------|-----------------|--------------------|





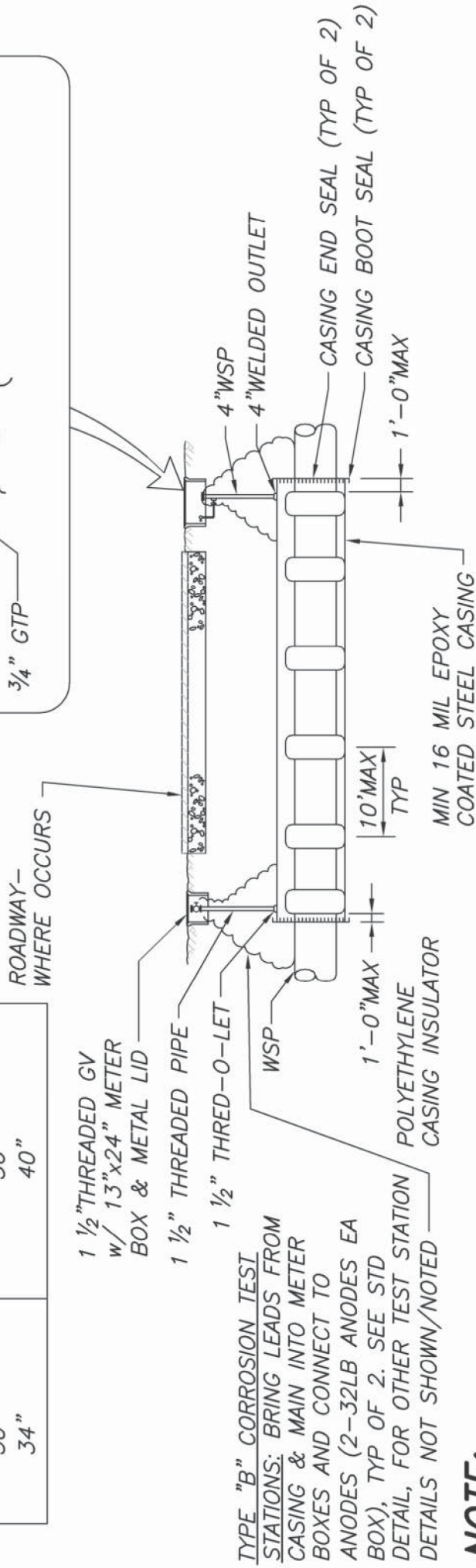
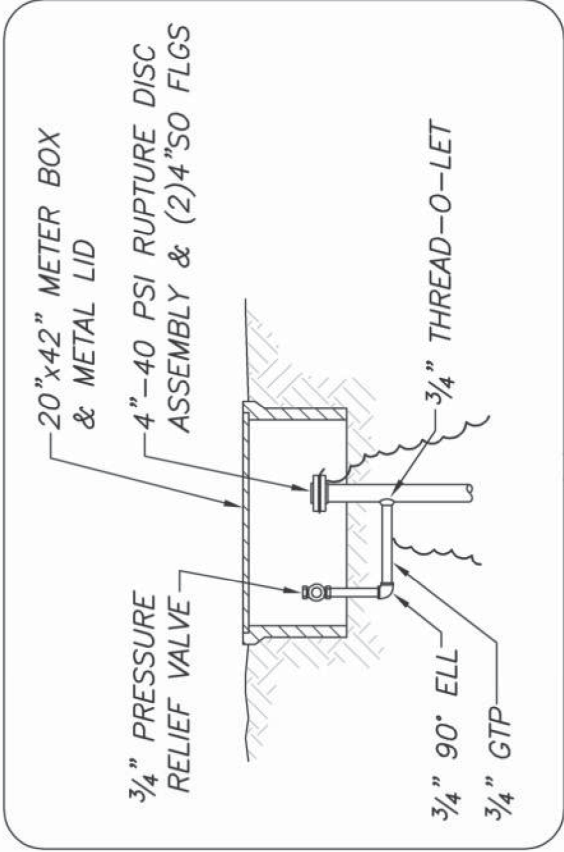
## WELD SADDLE

## REINFORCING COLLAR

## WELDED OUTLET

|            |                 |                |                    |
|------------|-----------------|----------------|--------------------|
| SCALE: NTS | FILE NO. SD0018 | APPROV. BY: JM | REV. DATE: APR '09 |
|------------|-----------------|----------------|--------------------|

| CASING SCHEDULE        |                      |
|------------------------|----------------------|
| WELDED STEEL PIPE O.D. | MIN. CASING DIA O.D. |
| 6.625"                 | 12"                  |
| 8.625"                 | 14"                  |
| 10.75"                 | 16"                  |
| 12.75"                 | 18"                  |
| 14"                    | 20"                  |
| 16"                    | 22"                  |
| 18"                    | 24"                  |
| 20"                    | 26"                  |
| 22"                    | 28"                  |
| 24"                    | 30"                  |
| 30"                    | 36"                  |
| 34"                    | 40"                  |



TYPE "B" CORROSION TEST STATIONS: BRING LEADS FROM CASING & MAIN INTO METER BOXES AND CONNECT TO ANODES (2-32LB ANODES EA BOX), TYP OF 2. SEE STD DETAIL, FOR OTHER TEST STATION DETAILS NOT SHOWN/NOTED

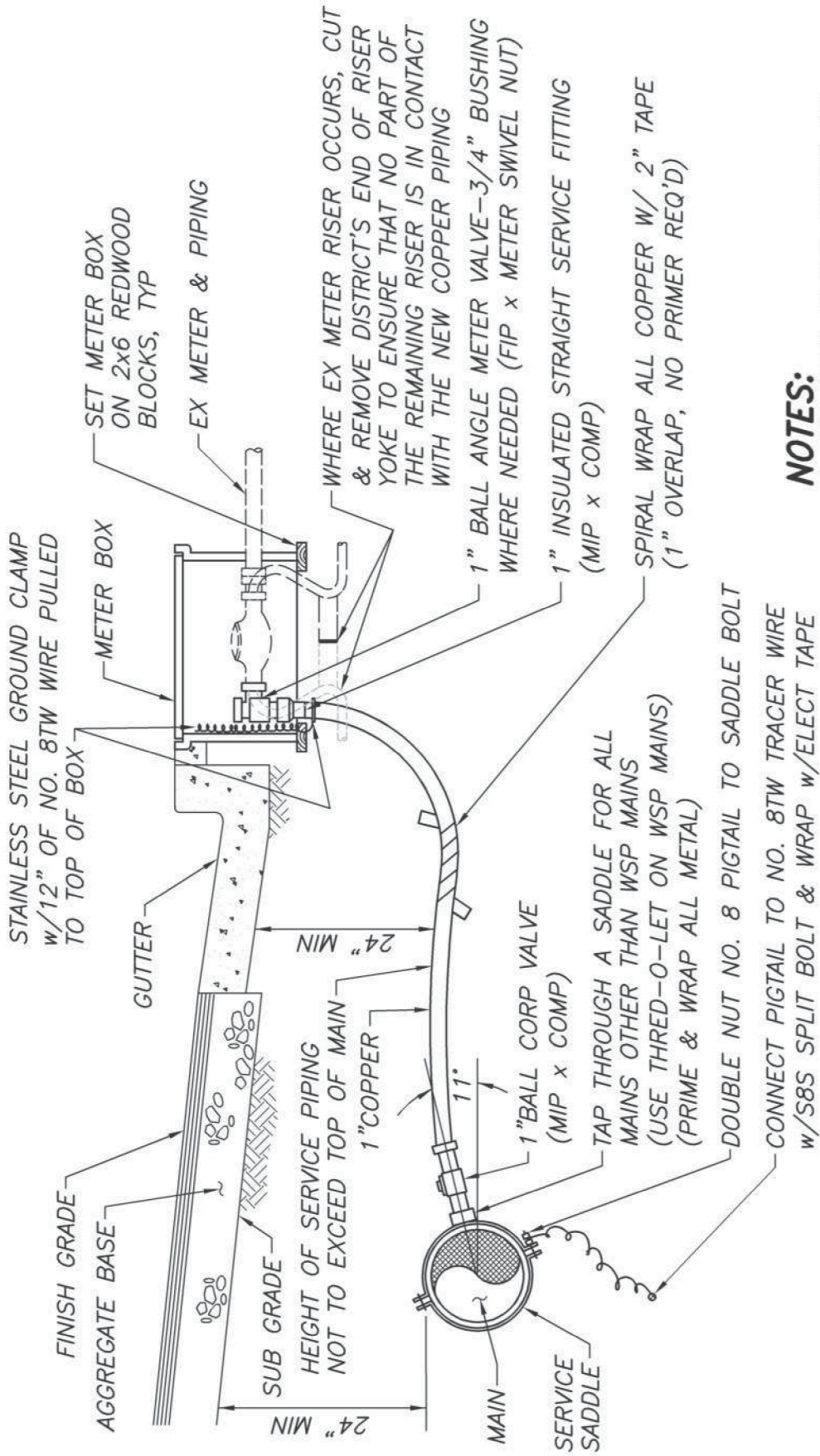
**NOTE:**

1. CONTRACTOR SHALL FURNISH ALL MATERIAL FOR Cased Crossing EXCEPT WATER LINE, METER BOXES & CORROSION TEST STATIONS.
2. SET PRESSURE RELIEF VALVE FOR 30 PSI MAX.

**ELEVATION**

**CASED CROSSING**



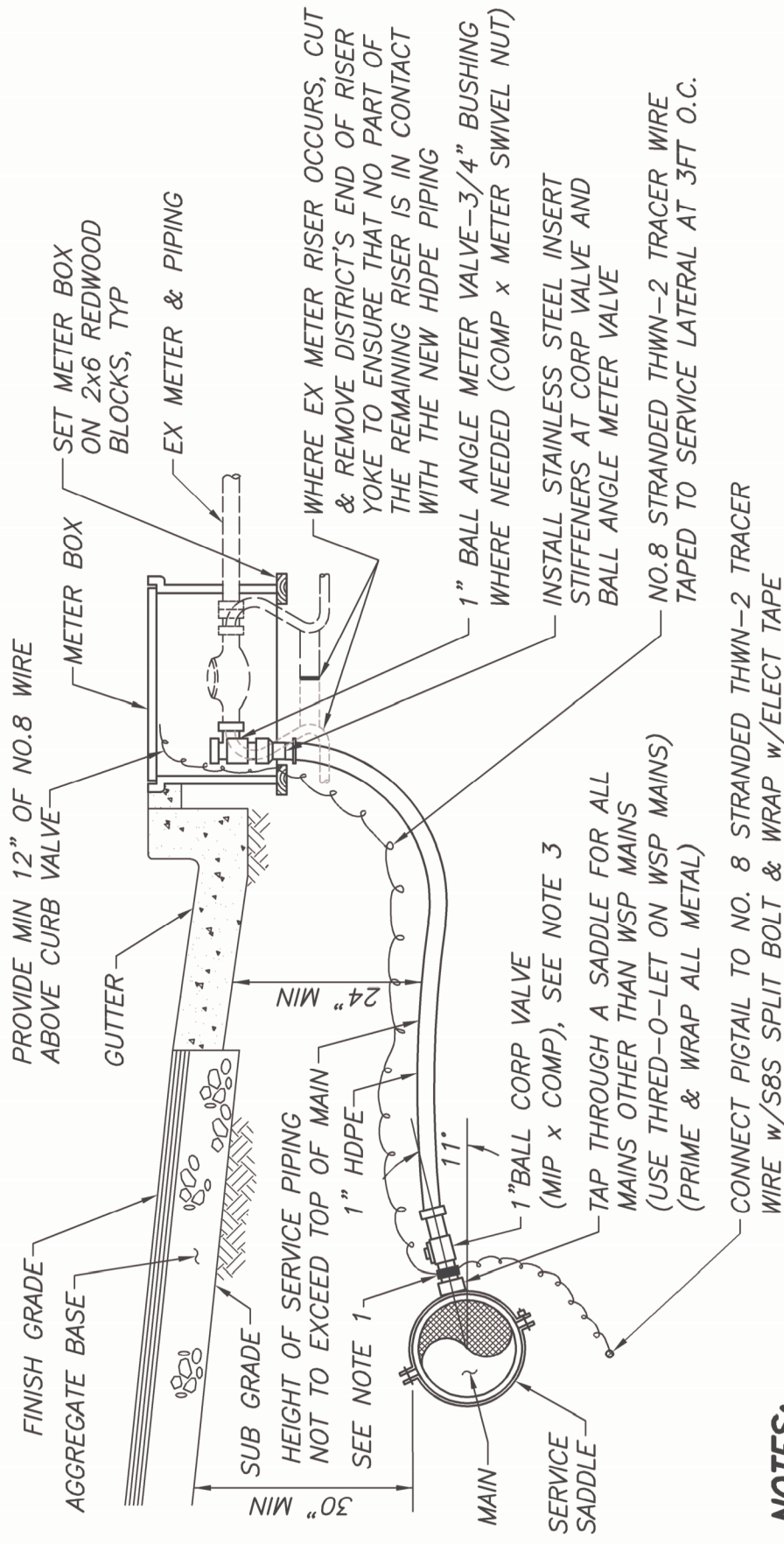


### NOTES:

1. ALL OVAL METER BOXES OR  
DAMAGED METER BOXES SHALL  
BE REPLACED OR AS REQUIRED  
BY THE ENGINEER.

## RENEWED 1" COPPER SERVICE

|          |                 |                |                    |
|----------|-----------------|----------------|--------------------|
| NO SCALE | FILE NO. SD0021 | APPROV. BY: EI | REV. DATE: JUL '19 |
|----------|-----------------|----------------|--------------------|



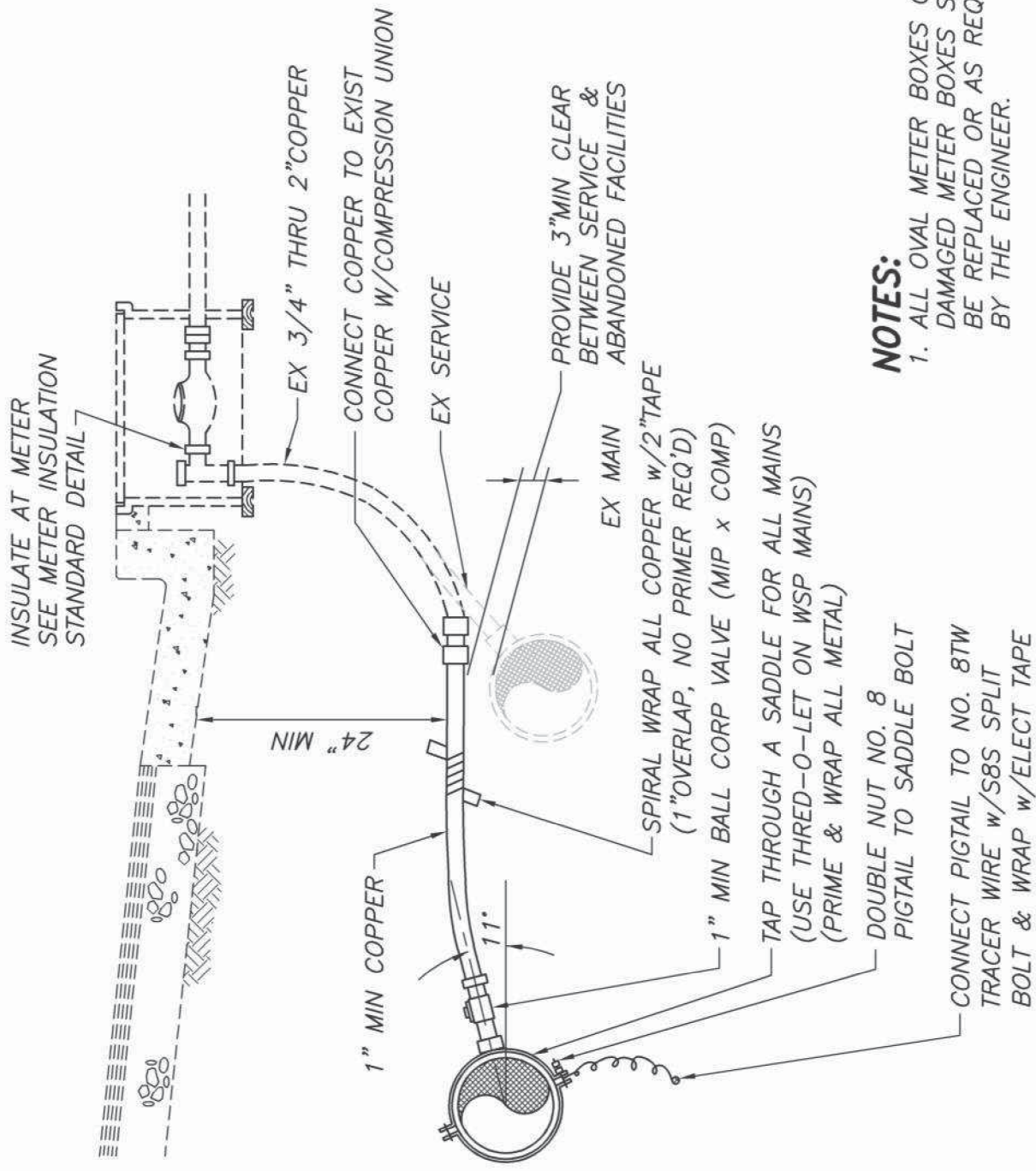
## NOTES:

1. PEEL BACK EXPOSE NO.8 THWN-2 WIRE AT CLAMP LOCATION. CLAMP TO CORP VALVE THREAD W/ STAINLESS STEEL BAND CLAMP. LEAVE 3 FT OF NO.8 STRANDED THWN-2 WIRE.
2. ALL OVAL METER BOXES OR DAMAGED METER BOXES SHALL BE REPLACED OR AS REQUIRED BY THE ENGINEER.
3. INSTALL STAINLESS STEEL INSERT STIFFENERS AT ALL COMPRESSION CONNECTIONS INCLUDING AT CORP BALL VALVE AND BALL ANGLE METER VALVE.
4. COLD BEND RADIUS OF PE PIPE IS LIMITED TO 20 TIMES THE OUTER DIAMETER, AND 100 TIMES THE OUTER DIAMETER FOR A DISTANCE 5 TIMES PIPE DIAMETER WHEN FITTING IS PRESENTED IN A BEND. (AWWA MANUAL M55 COLD FIELD BENDING)
5. USE NO.8 STRANDED HMWPE ON PE PIPE IF TRENCHLESS INSTALLATION IS REQUIRED.

# RENEWED 1" HIGH DENSITY POLYETHYLENE SERVICE

|          |                  |                |                    |
|----------|------------------|----------------|--------------------|
| NO SCALE | FILE NO. SD0021P | APPROV. BY: ZT | REV. DATE: MAY '25 |
|----------|------------------|----------------|--------------------|





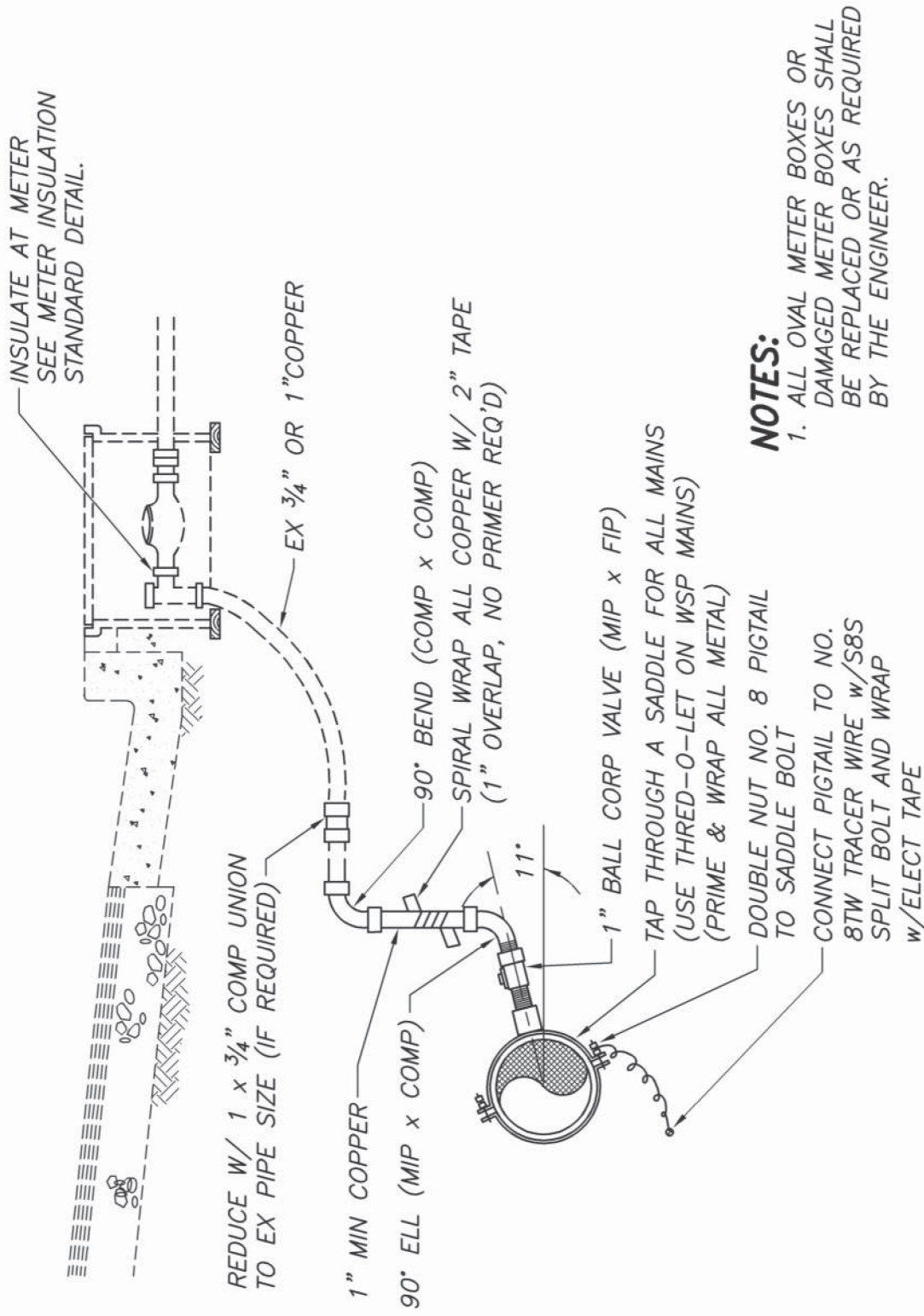
### NOTES:

1. ALL OVAL METER BOXES OR DAMAGED METER BOXES SHALL BE REPLACED OR AS REQUIRED BY THE ENGINEER.

## TRANSFERRING A 1" THRU 2" "LONG" COPPER SERVICE

|          |                 |                |                    |
|----------|-----------------|----------------|--------------------|
| NO SCALE | FILE NO. SD0022 | APPROV. BY: EI | REV. DATE: JUL '19 |
|----------|-----------------|----------------|--------------------|





### NOTES:

1. ALL OVAL METER BOXES OR DAMAGED METER BOXES SHALL BE REPLACED OR AS REQUIRED BY THE ENGINEER.

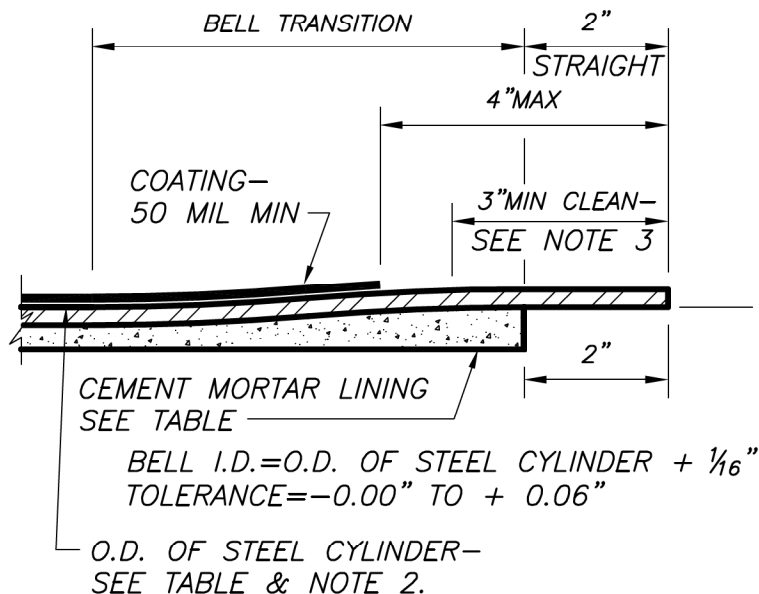
## TRANSFERRING A 1" "SHORT" COPPER SERVICE

SCALE: NTS

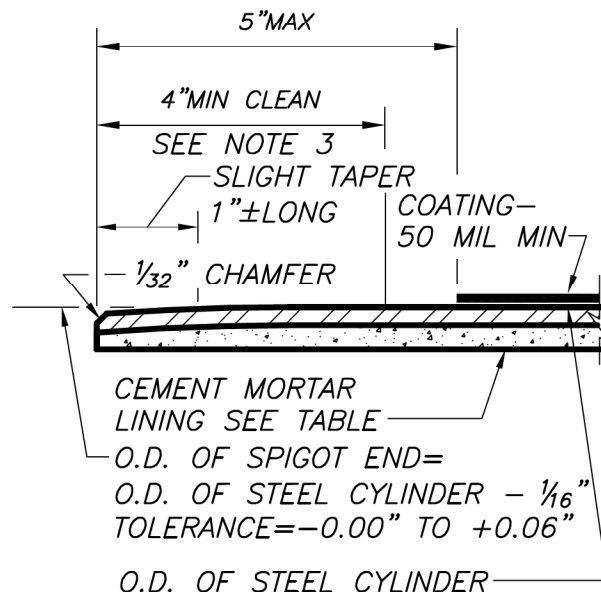
FILE NO. SD0023

APPROV. BY: EA

REV. DATE: JUL '16



**TYPICAL BELL END DETAIL**



**TYPICAL SPIGOT END DETAIL**

| NOMINAL<br>PIPE SIZE | STEEL CYLINDER |  | LINING THICKNESS<br>(TOLERANCE=<br>-1/16" TO +1/8") | MIN<br>PIPE<br>I.D. |
|----------------------|----------------|--|---|---------------------|
|                      | O.D.           | MIN WALL THICKNESS<br>(+0.015" TO -0.030") |   |                     |
| 4"                   | 4.500"         | 0.135"                                     | 1/4"  | 3.450"              |
| 6"                   | 6.625"         | 0.135"                                     | 1/4"  | 5.575"              |
| 8"                   | 8.625"         | 0.135"                                     | 1/4"  | 7.575"              |
| 10"                  | 10.750"        | 0.135"                                     | 1/4"  | 9.596"              |
| 12"                  | 12.750"        | 0.135"                                     | 5/16"   | 11.572"             |
| 14"                  | 14.000"        | 0.156"                                     | 5/16"   | 12.783"             |
| 16"                  | 16.000"        | 0.179"                                     | 5/16"   | 14.737"             |
| 18"                  | 18.000"        | 0.219"                                     | 5/16"   | 16.657"             |
| 20"                  | 20.000"        | 0.219"                                     | 5/16"   | 18.657"             |
| 24"                  | 24.000"        | 0.250"                                     | 3/8"  | 22.470"             |
| 30"                  | 30.000"        | 0.250"                                     | 3/8"  | 28.470"             |
| 36"                  | 36.000"        | 0.250"                                     | 3/8"  | 34.470"             |

**NOTES:**

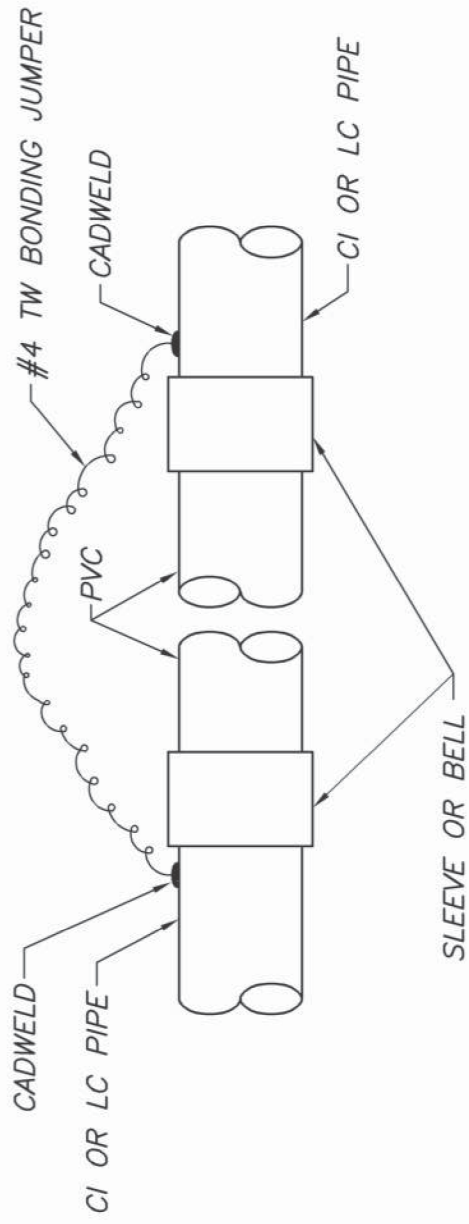
- PIPE CYLINDER, LINING, & COATING SHALL CONFORM TO THE REQUIREMENTS OF MMWD SPECIFICATIONS FOR MANUFACTURE OF MORTAR LINED STEEL PIPE.
- OUT-OF-ROUNDNESS OF STEEL CYLINDER SHALL NOT BE GREATER THAN  $\frac{1}{8}$ " MEASURED AS THE DISTANCE BETWEEN MAJOR AND MINOR OUTSIDE DIAMETERS.
- "CLEAN" AREAS SHALL BE FREE OF ALL COATING MATERIALS OR SHALL BE TAPED FOR EASY STRIPPING IN THE FIELD TO CLEAN BARE STEEL.
- THE PIPE SHALL BE MARKED LONGITUDINALLY OR SPIRALLY, AS FOLLOWS:  
"PIPE SIZE" MMWater "CONTRACT NO." "LINING TYPE" "COATING TYPE" "COATING DATE"  
"WALL THICKNESS" "MINIMUM YIELD STRENGTH".

EXAMPLE: 8.625 MMWater 1189ML-TC50 AUG 1998 - t=0.135" - Y=36KSI

THE LETTERING SHALL BE OF A HEIGHT NOT LESS THAN 1/4" NOR GREATER THAN 2 INCHES REPEATED CONTINUOUSLY FOR THE LENGTH OF THE PIPE.

**MORTAR LINED & TAPE COATED**  
**4" TO 36" STEEL PIPE**

|          |                 |                |                     |
|----------|-----------------|----------------|---------------------|
| NO SCALE | FILE NO. SD0025 | APPROV. BY: AA | REV. DATE: SEPT '21 |
|----------|-----------------|----------------|---------------------|

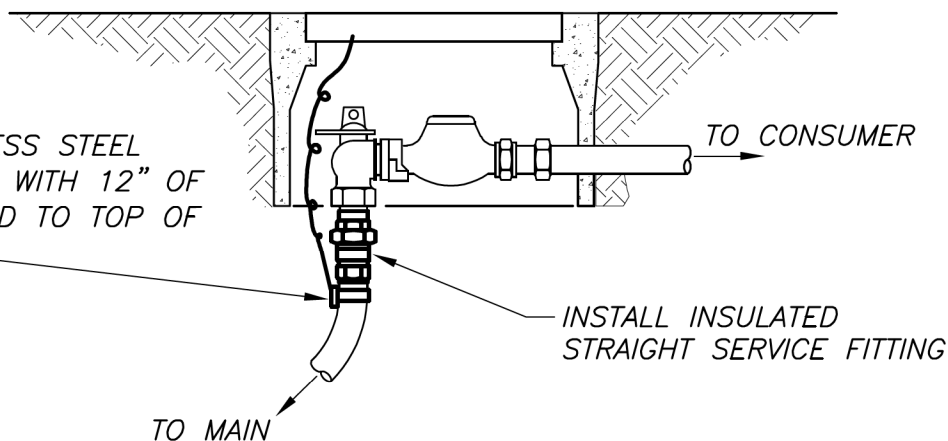


## **CONTINUITY JUMPER WIRE**

|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0026 | APPROV. BY: RKT | REV. DATE: MAY '95 |
|----------|-----------------|-----------------|--------------------|



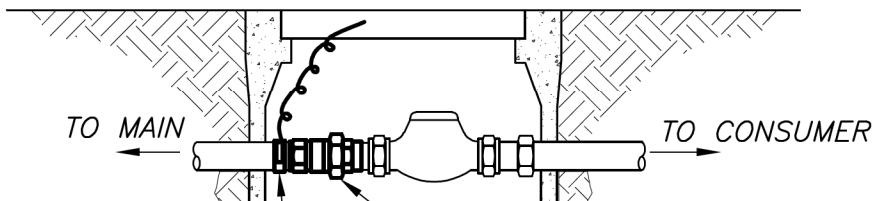
INSTALL STAINLESS STEEL  
GROUND CLAMP WITH 12" OF  
#8 WIRE PULLED TO TOP OF  
BOX



INSTALL INSULATED  
STRAIGHT SERVICE FITTING

### **METER WITH ANGLE STOP**

TO MAIN

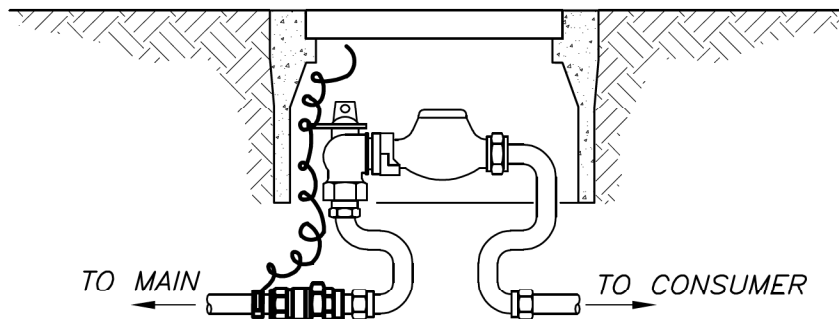


INSTALL STAINLESS STEEL GROUND  
CLAMP WITH 12" OF #8 WIRE  
PULLED TO TOP OF BOX

INSTALL INSULATED  
STRAIGHT SERVICE FITTING

### **METER WITH STRAIGHT STOP**

TO MAIN



INSTALL STAINLESS STEEL GROUND  
CLAMP WITH 12" OF #8 WIRE  
PULLED TO TOP OF BOX

INSTALL INSULATED  
STRAIGHT SERVICE FITTING

### **METER WITH RISER**

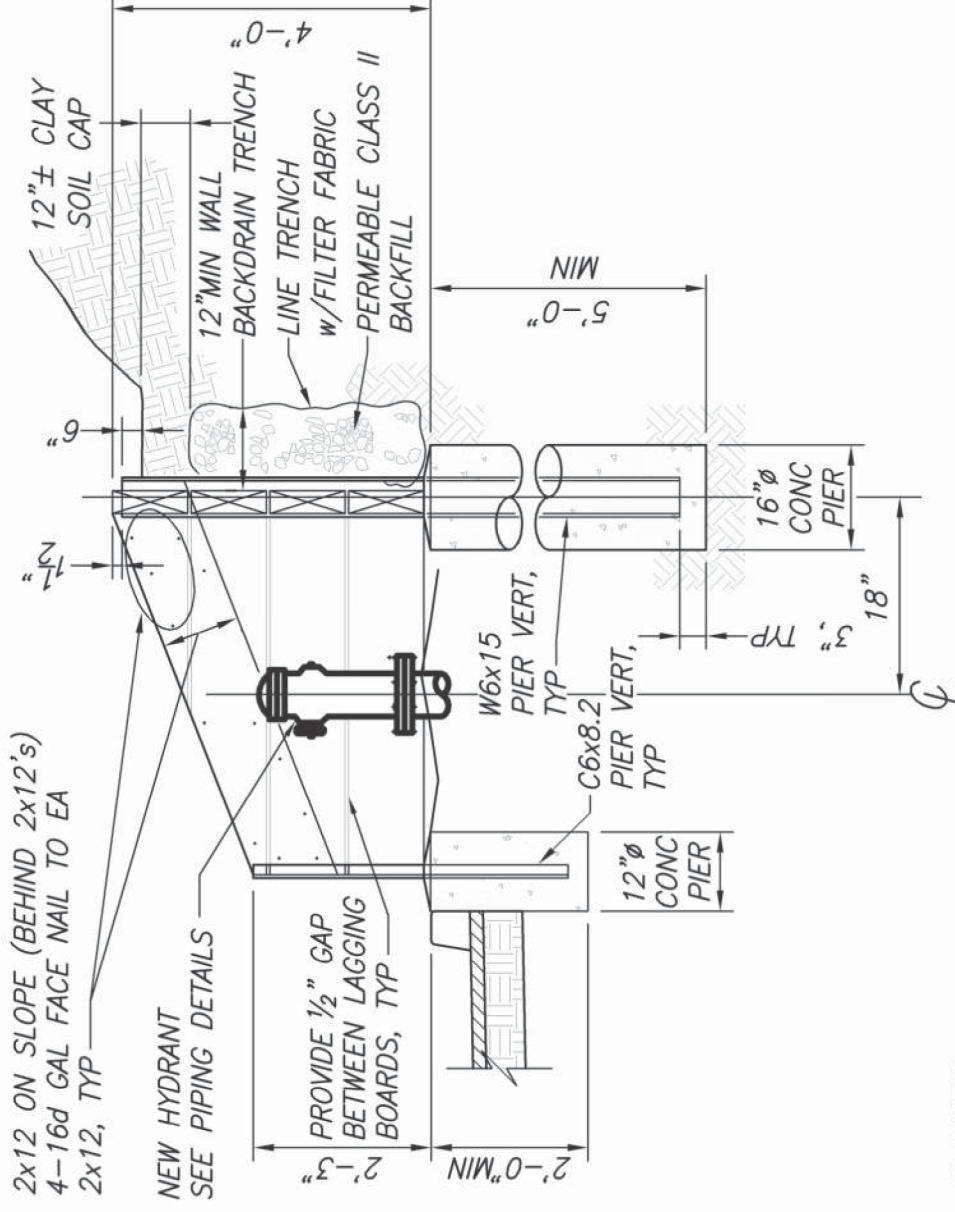
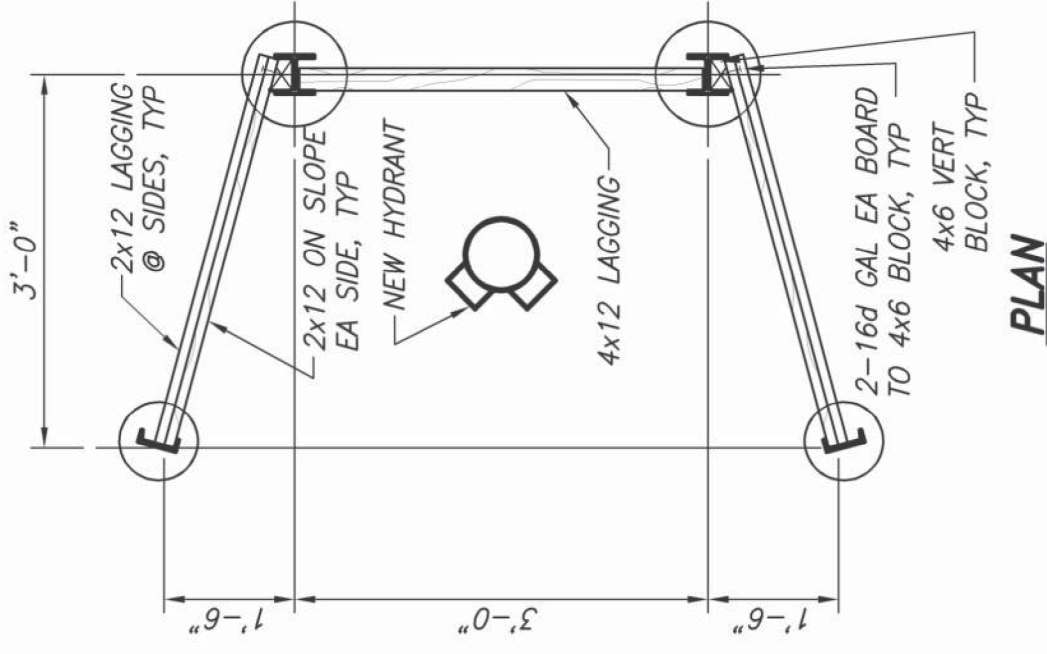
## **3/4" & 1" METER INSULATION DETAIL**

NO SCALE

FILE NO. SD0027

APPROV. BY: EA

REV. DATE: SEPT '17



### **NOTES:**

1. ALL WOOD SHALL BE PRESSURE PRESERVATIVE TREATED (0.6 LBS/FT. ACQ), NO. 1 DOUGLAS FIR.
2. EXPOSED STEEL PIER VERTICALS SHALL BE COATED W/SYSTEM 8 COATING AS FOLLOWS: PRIMER: DIRECT TO METAL CORROSION INHIBITING ACRYLIC PRIMER 3-4 MIL DRY FILM THICKNESS (DFT); SHERWIN WILLIAMS DTM ACRYLIC PRIMER/FINISH OR DISTRICT APPROVED EQUAL INTERMEDIATE AND FINISH COATS - ACRYLIC LATEX 2-3 MIL DFT EACH COAT; SHERWIN WILLIAMS DTM ACRYLIC PRIMER/FINISH OR DISTRICT APPROVED EQUAL. FINISH COLOR TO MATCH TNEMEC COLOR 112GN FOLIAGE. TOTAL SYSTEM THICKNESS 7-10 MIL DFT
3.  $f'c = 3000$  psi

## **WOOD BULKHEAD WALL**

SCALE: 1/2"=1'

FILE NO. SD0028

APPROV. BY: EI

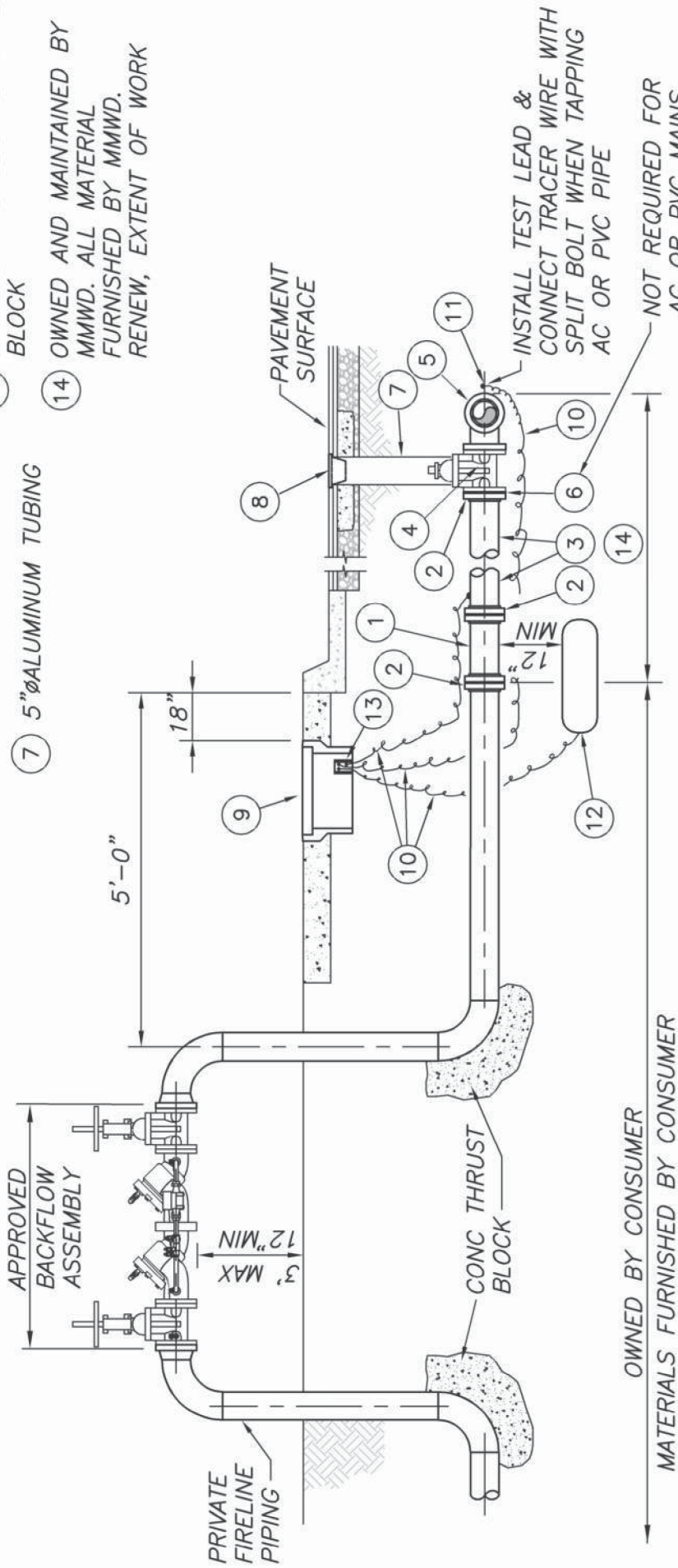
REV. DATE: MAY '19

## NOTES:

1. CONSUMER SHALL MARK LOCATION FOR PROPOSED ASSEMBLY FOR MMWD REVIEW & APPROVAL. ALL MMWD PIPING MUST BE IN THE PUBLIC EASEMENT. ASSEMBLY SHALL HAVE 12" CLEAR ALL AROUND. METER SHALL BE IN ACCESSIBLE LOCATION.
2. CONSUMER FURNISHED APPROVED BACKFLOW ASSEMBLY MUST BE ON SITE FOR MMWD INSPECTION PRIOR TO ANY MMWD PIPING INSTALLATION.
3. WRAP ALL BARE METAL BELOW GROUND.
4. CHLORINATE & TEST PRIOR TO CONNECTION.
5. TEST CORROSION SYSTEM PRIOR TO CONNECTION.
6. HOT TAP OF EX MAIN TO BE COORDINATED WITH MMWD.
7. MMWD WILL NOT TURN ON FIRELINE UNTIL FINAL PAVING & SIDEWALKS ARE COMPLETE.

## MMWD FURNISHED MATERIAL

- |  |  |
|--|--|
| 1 HDPE SPOOL KIT. SEE TORQUE SPEC.     | 8 CI VALVE CAP   |
| 2 SLIP-ON FLANGE                       | 9 B9 METER BOX   |
| 3 WELDED STEEL PIPE                    | 10 #8 THWN STANDARD COPPER WIRE  |
| 4 GATE VALVE                           | 11 #8S SPLIT BOLT CONNECTOR  |
| 5 TAPPING SLEEVE, TEE OR WELDED OUTLET | 12 32# MAGNESIUM ANODE WITH PACKAGED BACKFILL W/ WIRE.                                 |
| 6 FLANGE INSULATING KIT                | 13 2 PIECE PHENOLIC TERMINAL BLOCK   |
| 7 5"ØALUMINUM TUBING                   | 14 OWNED AND MAINTAINED BY MMWD. ALL MATERIAL FURNISHED BY MMWD. RENEW, EXTENT OF WORK |



## FIRELINE, NEW & RENEW

NO SCALE

FILE NO. SD0029

APPROV. BY: EI

REV. DATE: FEB '18

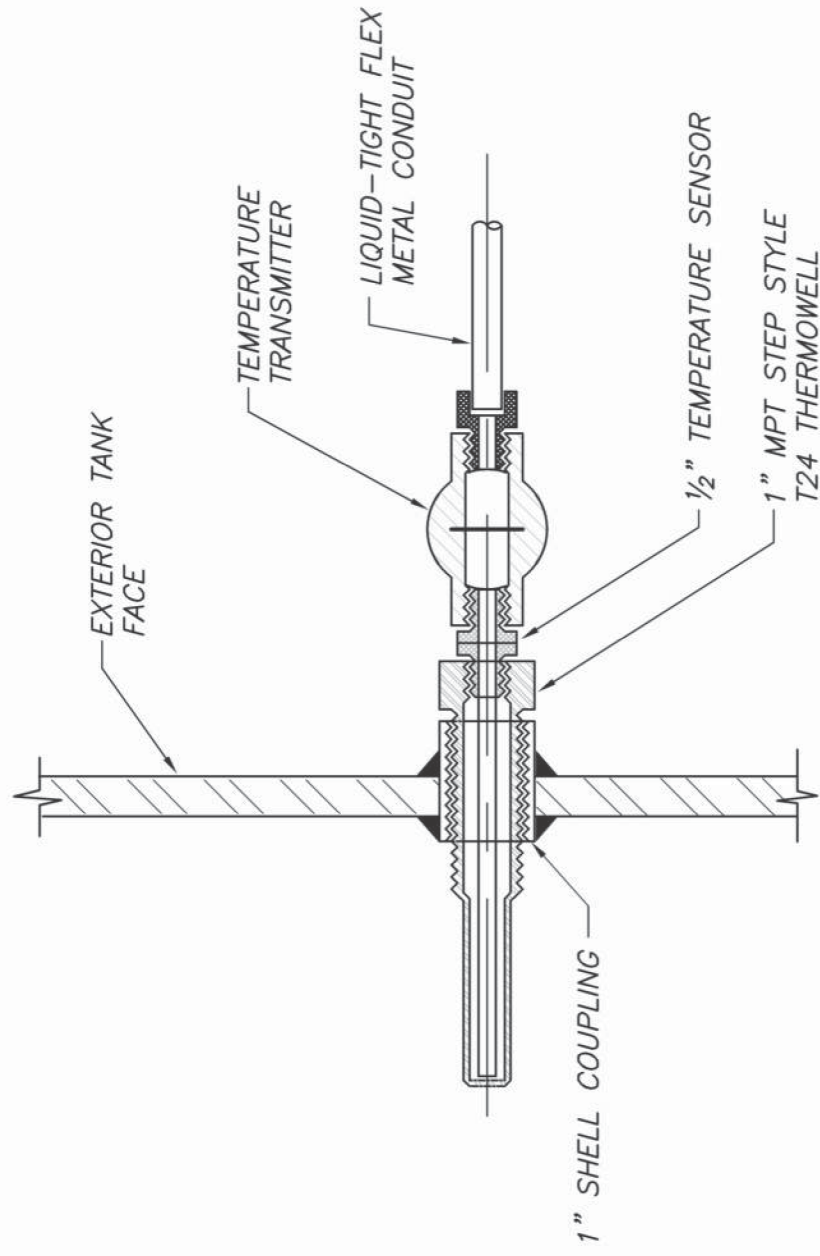






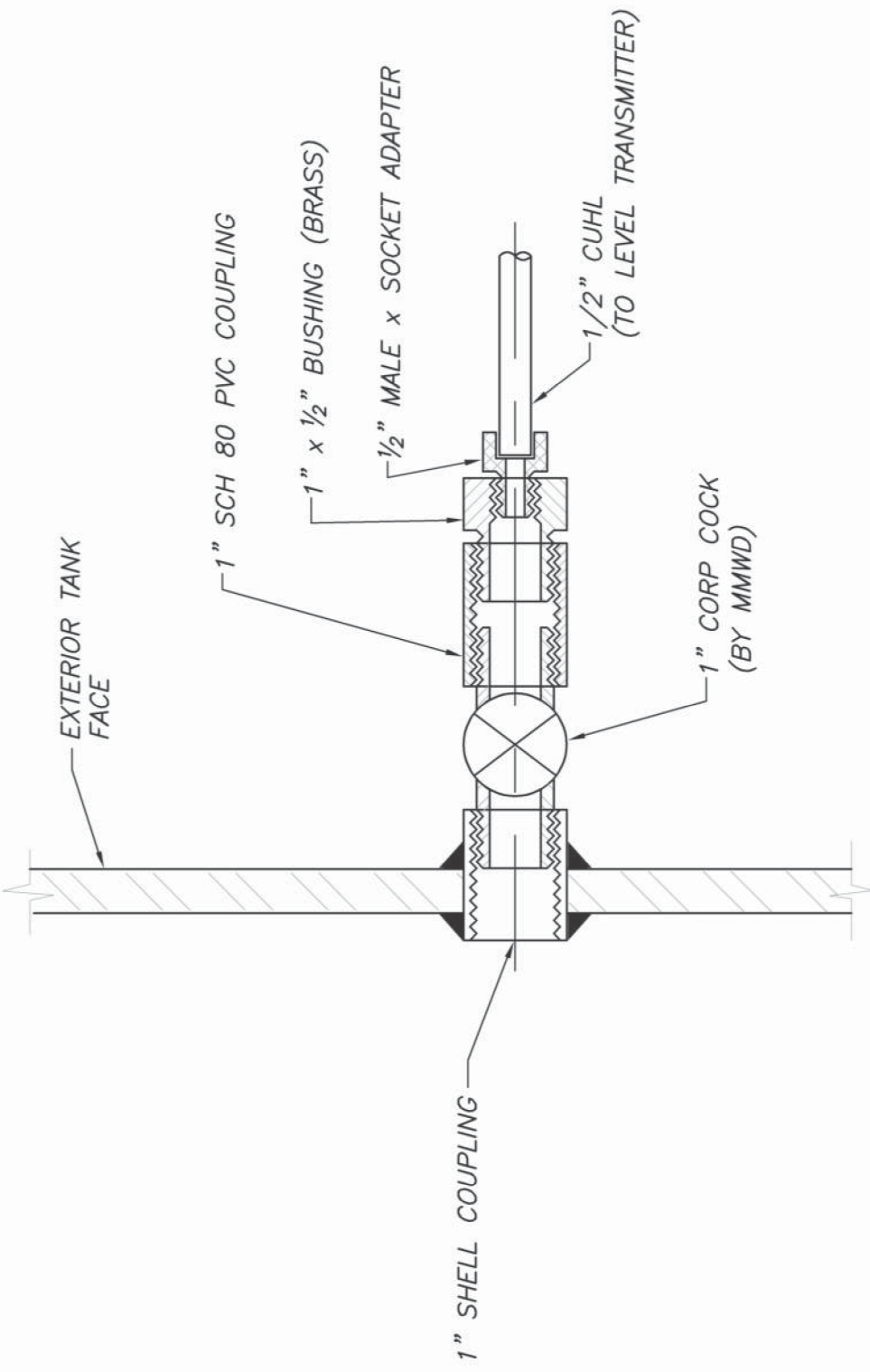






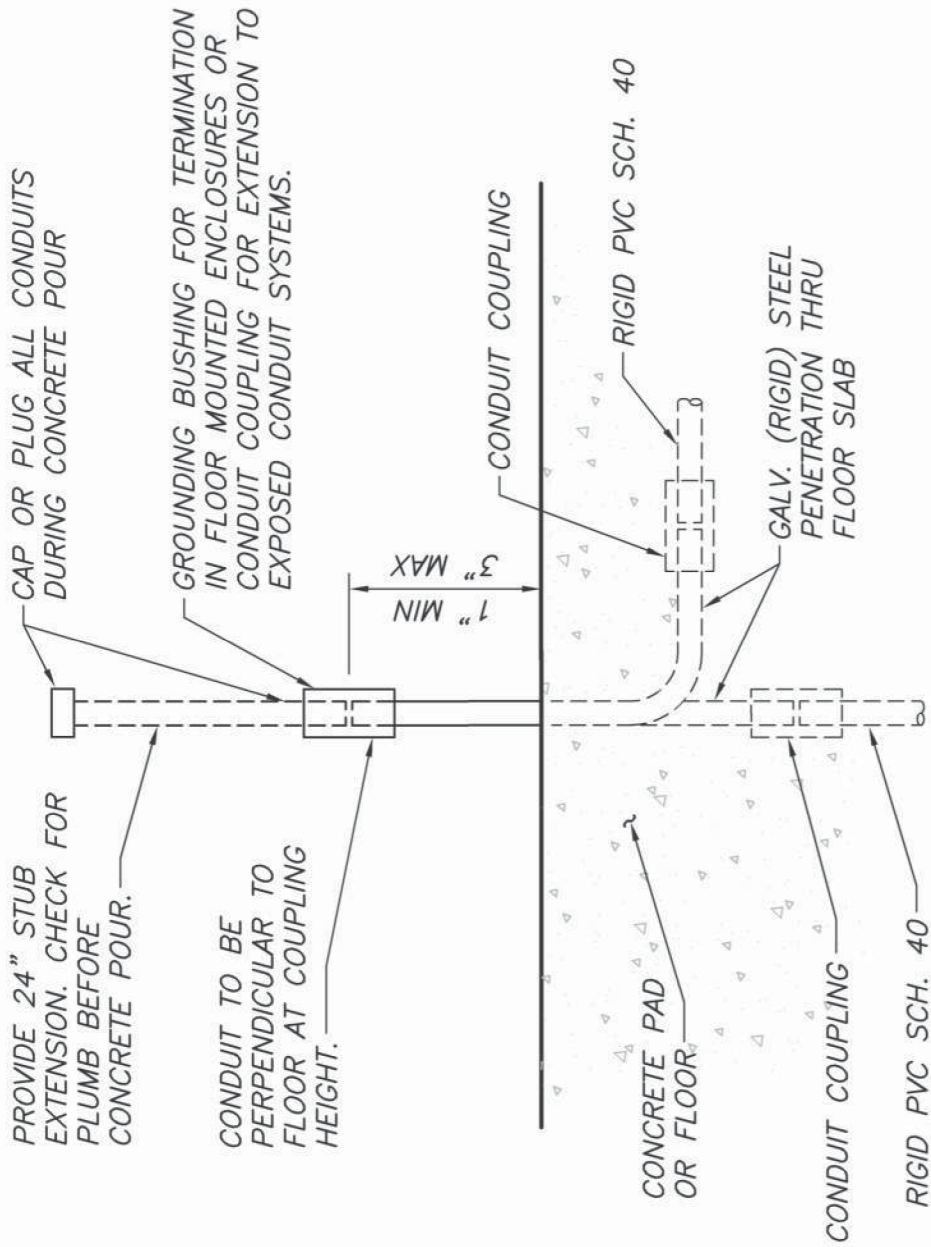
## THERMOWELL ASSEMBLY

|            |                 |                 |                    |
|------------|-----------------|-----------------|--------------------|
| SCALE: NTS | FILE NO. SD0033 | APPROV. BY: RKT | REV. DATE: JUL '95 |
|------------|-----------------|-----------------|--------------------|



## LEVEL TRANSMITTER ASSEMBLY

|            |                 |                 |                    |
|------------|-----------------|-----------------|--------------------|
| SCALE: NTS | FILE NO. SD0034 | APPROV. BY: RKT | REV. DATE: JUL '95 |
|------------|-----------------|-----------------|--------------------|



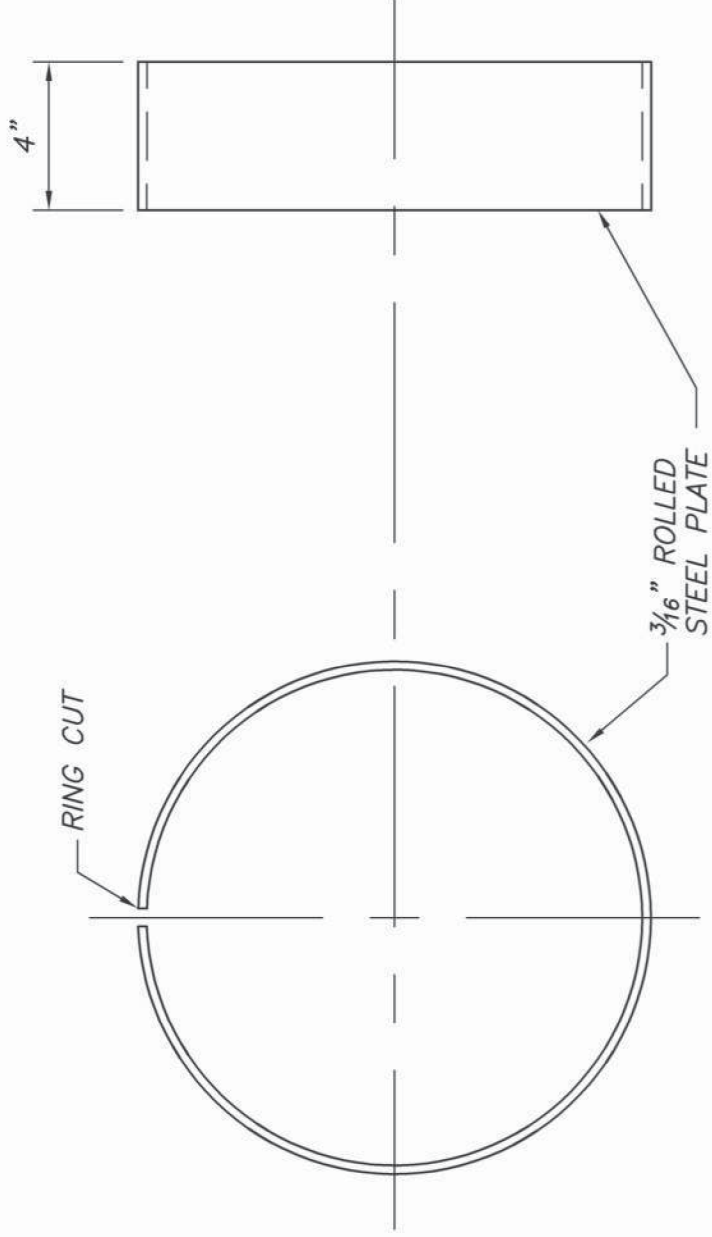
**NOTE:**

APPLICABLE IN ALL AREAS INCLUDING AREAS NOT  
PROTECTED BY A FLOOR MOUNTED ENCLOSURE.

**CONDUIT STUB UP DETAIL**

|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0035 | APPROV. BY: RKT | REV. DATE: JAN '96 |
|----------|-----------------|-----------------|--------------------|

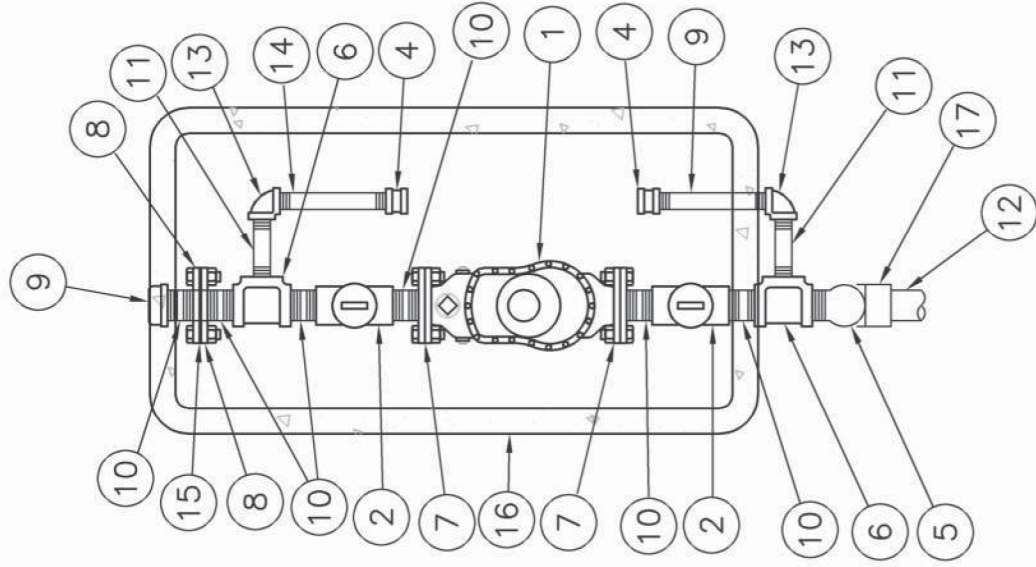




| PIPE SIZE | INSIDE DIAMETER |
|-----------|-----------------|
| 4"        | 4.500"          |
| 6"        | 6.625"          |
| 8"        | 8.625"          |
| 10"       | 10.750"         |
| 12"       | 12.750"         |

**STEEL BUTT STRAP**

|            |                 |                 |                    |
|------------|-----------------|-----------------|--------------------|
| SCALE: NTS | FILE NO. SD0036 | APPROV. BY: RKT | REV. DATE: JAN '98 |
|------------|-----------------|-----------------|--------------------|



## MATERIAL LIST

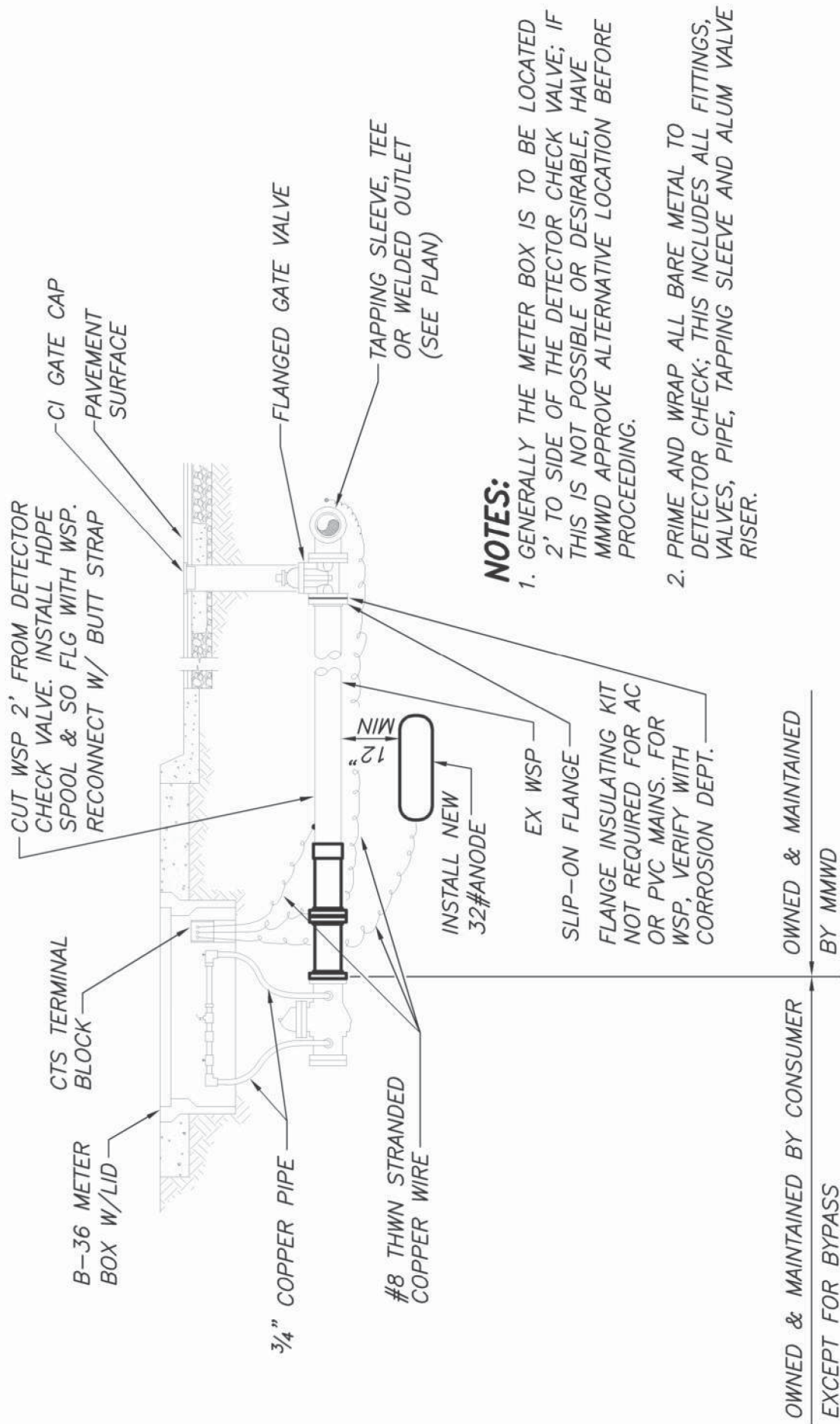
| ITEM<br>NUMBER | DESCRIPTION                            | NUMBER<br>REQUIRED |
|----------------|--|--------------------|
| 1              | 2" METER                               | 1                  |
| 2              | 2" BALL COCKS (FEMALE X FEMALE)        | 2                  |
| 3              | 2" CORPORATION COCK (H15023) NOT USED  |                    |
| 4              | 1 1/2" STRAIGHT CURB COCK              | 2                  |
| 5              | 2" COPPER X MALE 90° BEND              | 1                  |
| 6              | 2" X 1 1/2" THREADED BRASS TEE         | 2                  |
| 7              | 2" METER FLANGE                        | 2                  |
| 8              | 2" THREADED FLANGE                     | 2                  |
| 9              | 2" THREADED CAP                        | 1                  |
| 10             | 2" THREADED BRASS NIPPLE (3" LONG)     | 6                  |
| 11             | 1 1/2" THREADED BRASS NIPPLE (6" LONG) | 2                  |
| 12             | 2" COPPER TUBING                       |                    |
| 13             | 1 1/2" THREADED BRASS ELBOW            | 2                  |
| 14             | 1 1/2" THREADED BRASS NIPPLE (8" LONG) | 2                  |
| 15             | 2" FLANGE INSULATING KIT               | 1                  |
| 16             | METER BOX AND STEEL COVER              | 1                  |
| 17             | 2" COMP X COMP 90° BEND                | 1                  |

### NOTE:

1. PRIME AND WRAP ALL BARE METAL IN CONTACT WITH GROUND
2. INSTALL METER BOX 4" ABOVE FINISH GRADE IF IN PLANTER AREA.

## 2" DOMESTIC METER W/ BYPASS

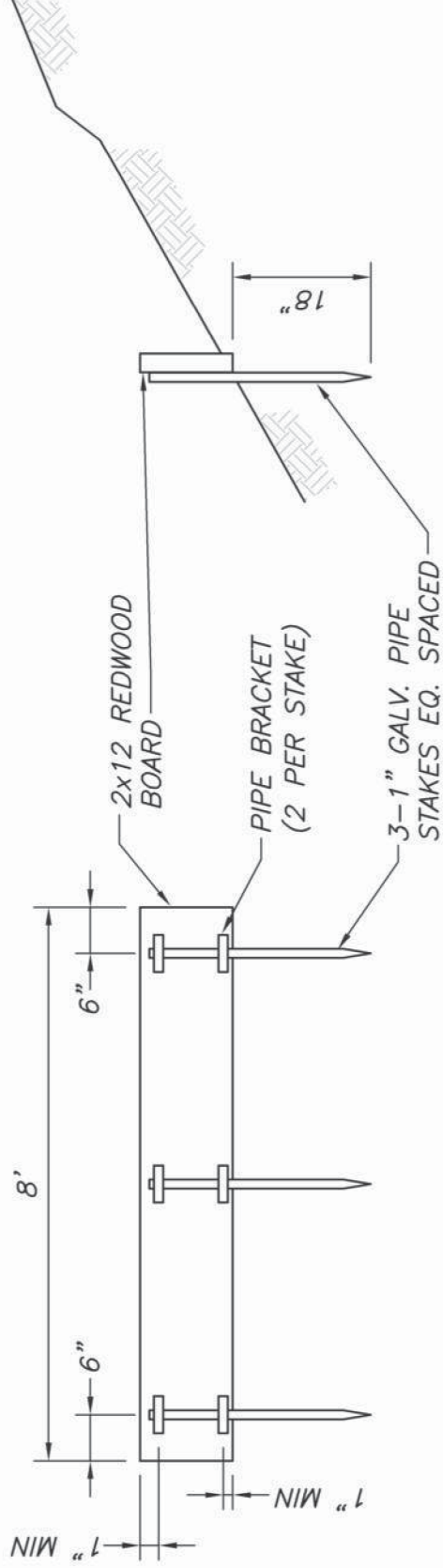
|          |                 |                |                    |
|----------|-----------------|----------------|--------------------|
| NO SCALE | FILE NO. SD0037 | APPROV. BY: JM | REV. DATE: MAY '08 |
|----------|-----------------|----------------|--------------------|



# **FIRELINE, INSULATION RETROFIT**

|          |                 |                |                    |
|----------|-----------------|----------------|--------------------|
| NO SCALE | FILE NO. SD0038 | APPROV. BY: EI | REV. DATE: FEB '18 |
|----------|-----------------|----------------|--------------------|



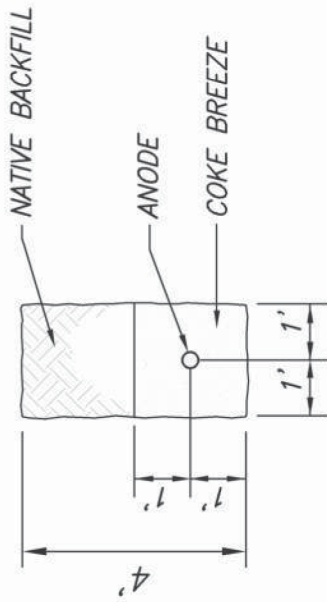


**NOTE:**

EROSION CONTROL BOARDS SHALL BE  
INSTALLED @ 10'-0" O.C. IN R/W.

**EROSION CONTROL BOARD**

|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0039 | APPROV. BY: RKT | REV. DATE: MAY '95 |
|----------|-----------------|-----------------|--------------------|



**SECTION**  
SCALE: NTS

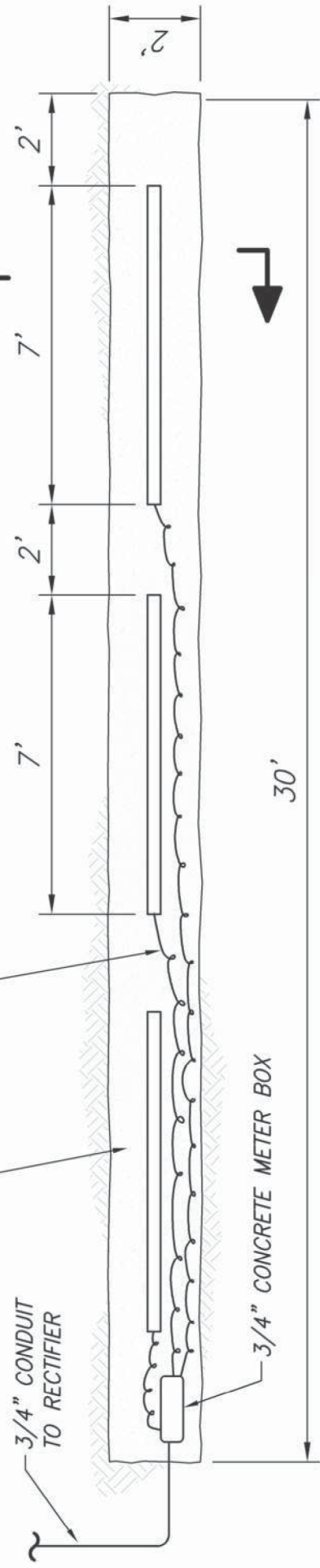


AWG NO.8 HMW/PE  
ANODE LEAD (TYP.)

COKE BREEZE

3/4" CONDUIT  
TO RECTIFIER

3/4" CONCRETE METER BOX

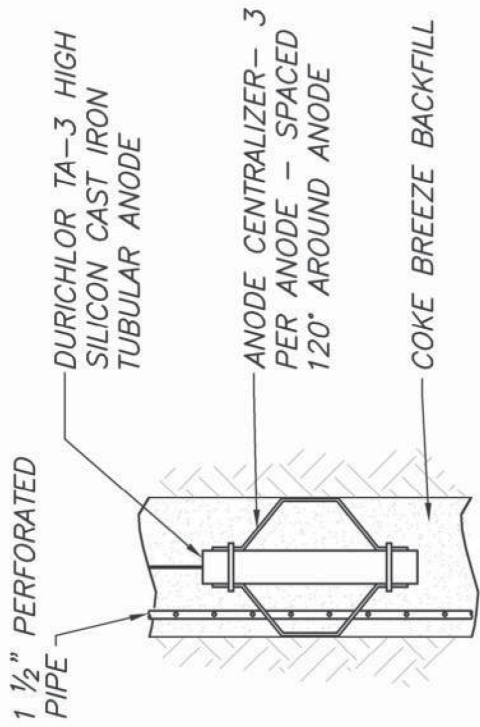
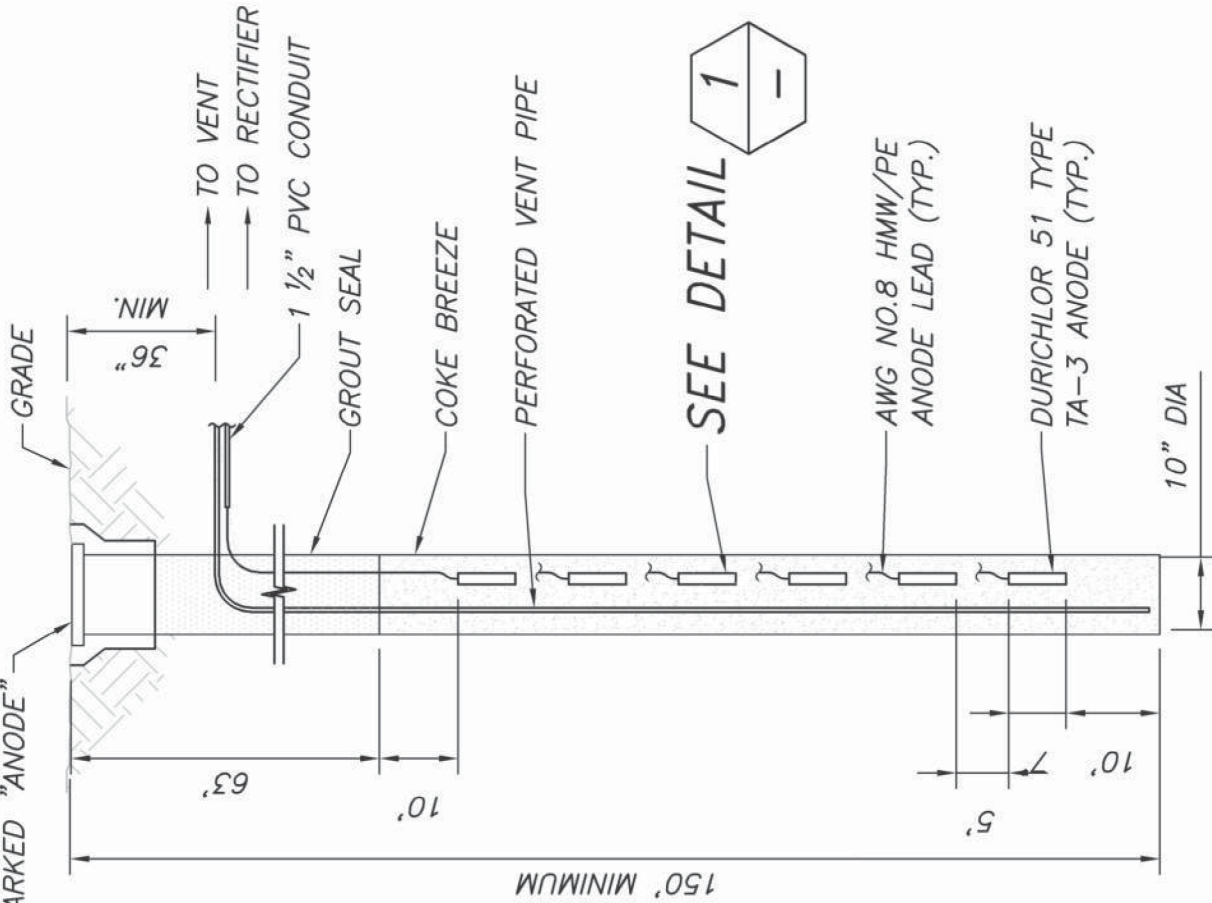


**IMPRESSED CURRENT HORIZONTAL GROUND BED**

**PLAN**  
SCALE: NTS

|                 |                 |                 |                    |
|-----------------|-----------------|-----------------|--------------------|
| SCALE: AS SHOWN | FILE NO. SD0040 | APPROV. BY: RKT | REV. DATE: MAY '95 |
|-----------------|-----------------|-----------------|--------------------|

CONCRETE TRAFFIC BOX WITH  
COVER MARKED "ANODE"



**DETAIL**  
SCALE: NTS

1

IMPRESSED CURRENT  
DEEP WELL GROUND BED

## DEEP WELL GROUND BED

## ELEVATION

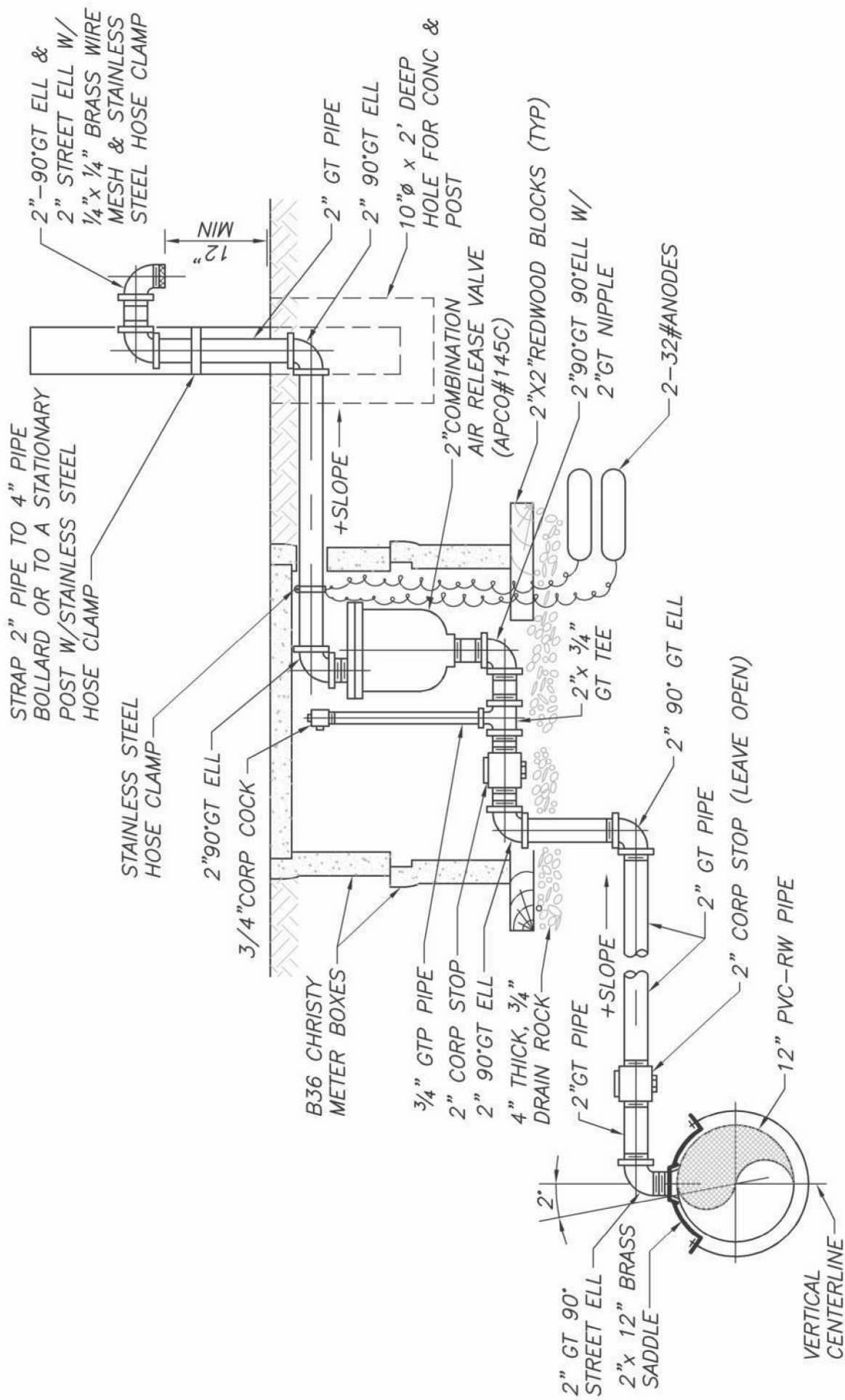
NO SCALE

FILE NO. SD0041

APPROV. BY: RKT

REV. DATE: MAR '98





## ***TYPICAL AIR/VACUUM RELEASE VALVE***

|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0042 | APPROV. BY: RKT | REV. DATE: MAY '95 |
|----------|-----------------|-----------------|--------------------|

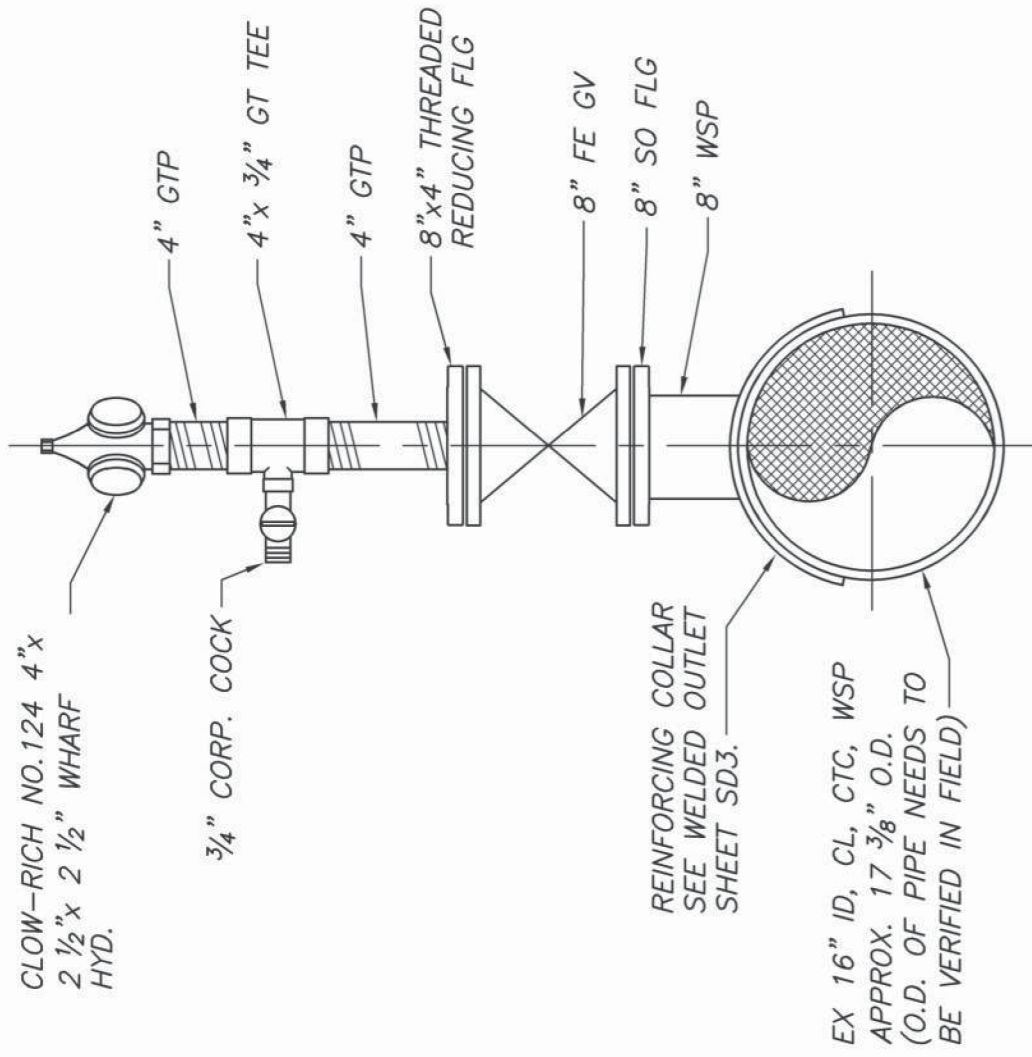








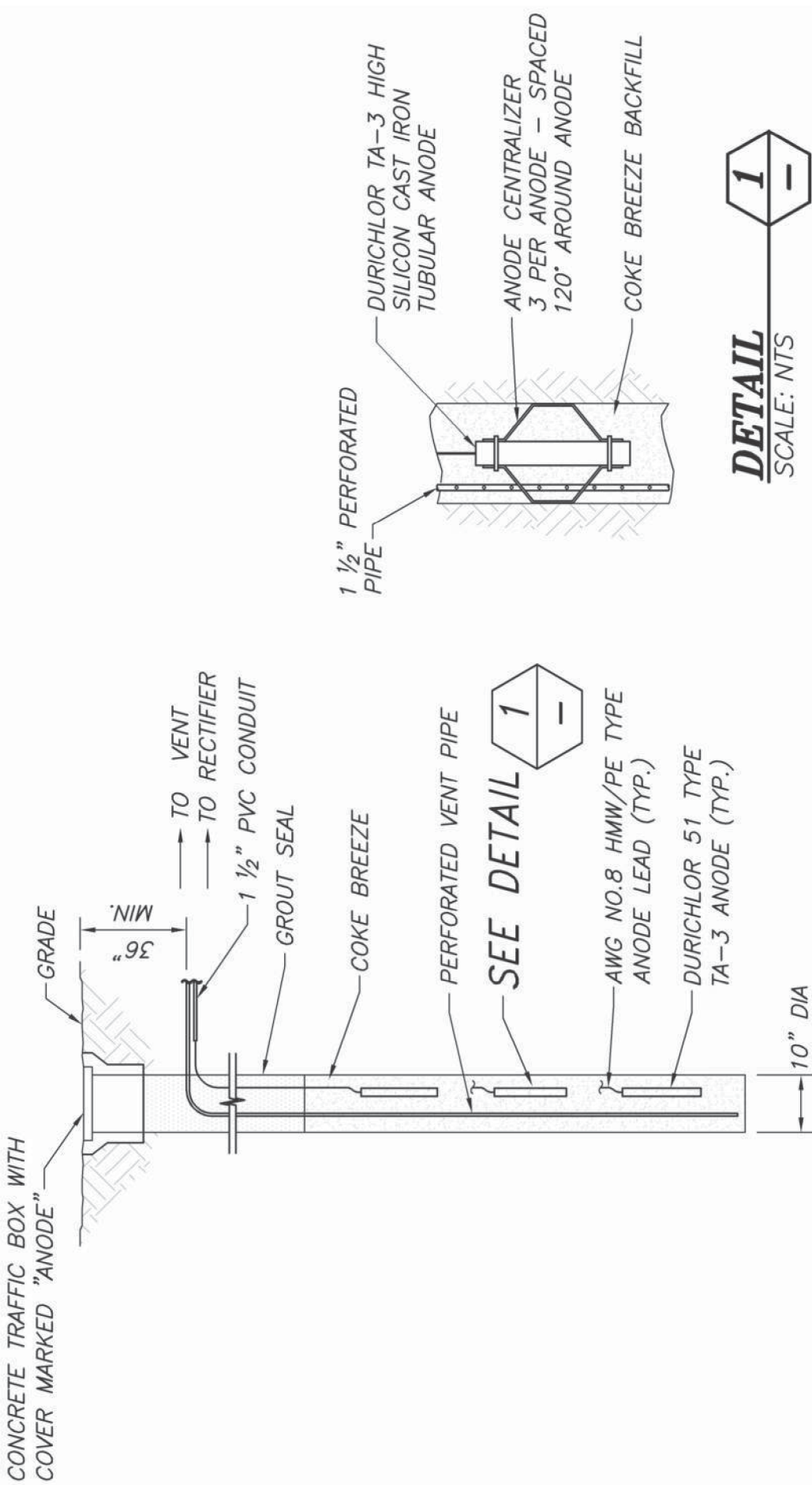
CLOW-RICH NO.124 4" x  
2 1/2" x 2 1/2" WHARF  
HYD.



(1 REQ'D - REINFORCING COLLAR SUPPLIED BY CONTRACTOR  
ALL OTHER MATERIAL IN THIS DETAIL SUPPLIED BY MMWD)

## WHARF HYD DRAIN

|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0045 | APPROV. BY: RKT | REV. DATE: MAY '95 |
|----------|-----------------|-----------------|--------------------|

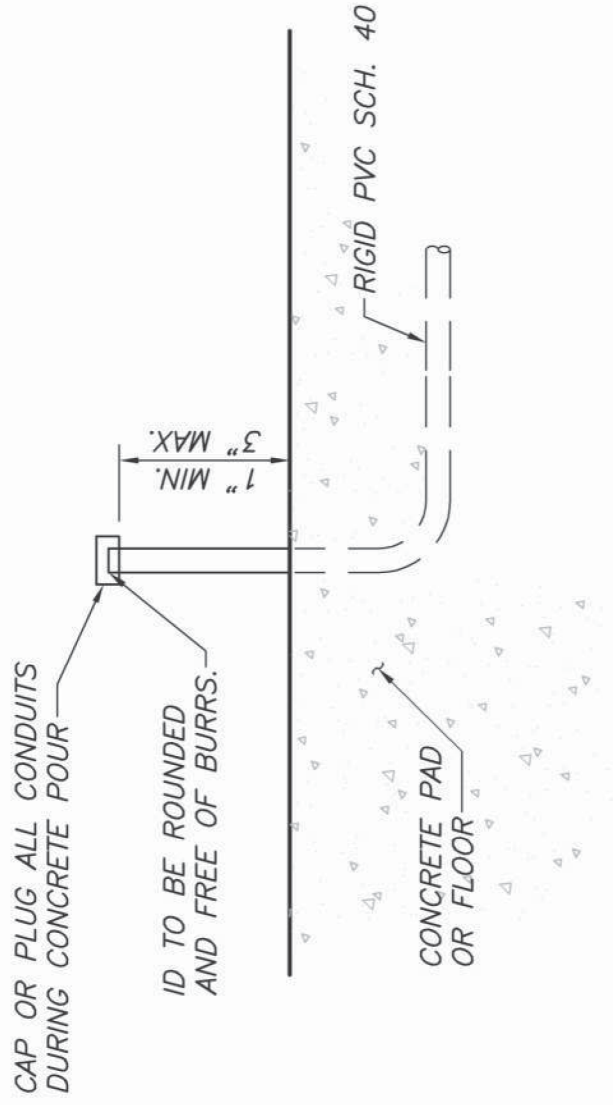


**IMPRESSED CURRENT  
SHALLOW GROUND BED  
ELEVATION**

SCALE: NTS

**SHALLOW WELL GROUND BED**

|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0046 | APPROV. BY: RKT | REV. DATE: MAR '98 |
|----------|-----------------|-----------------|--------------------|

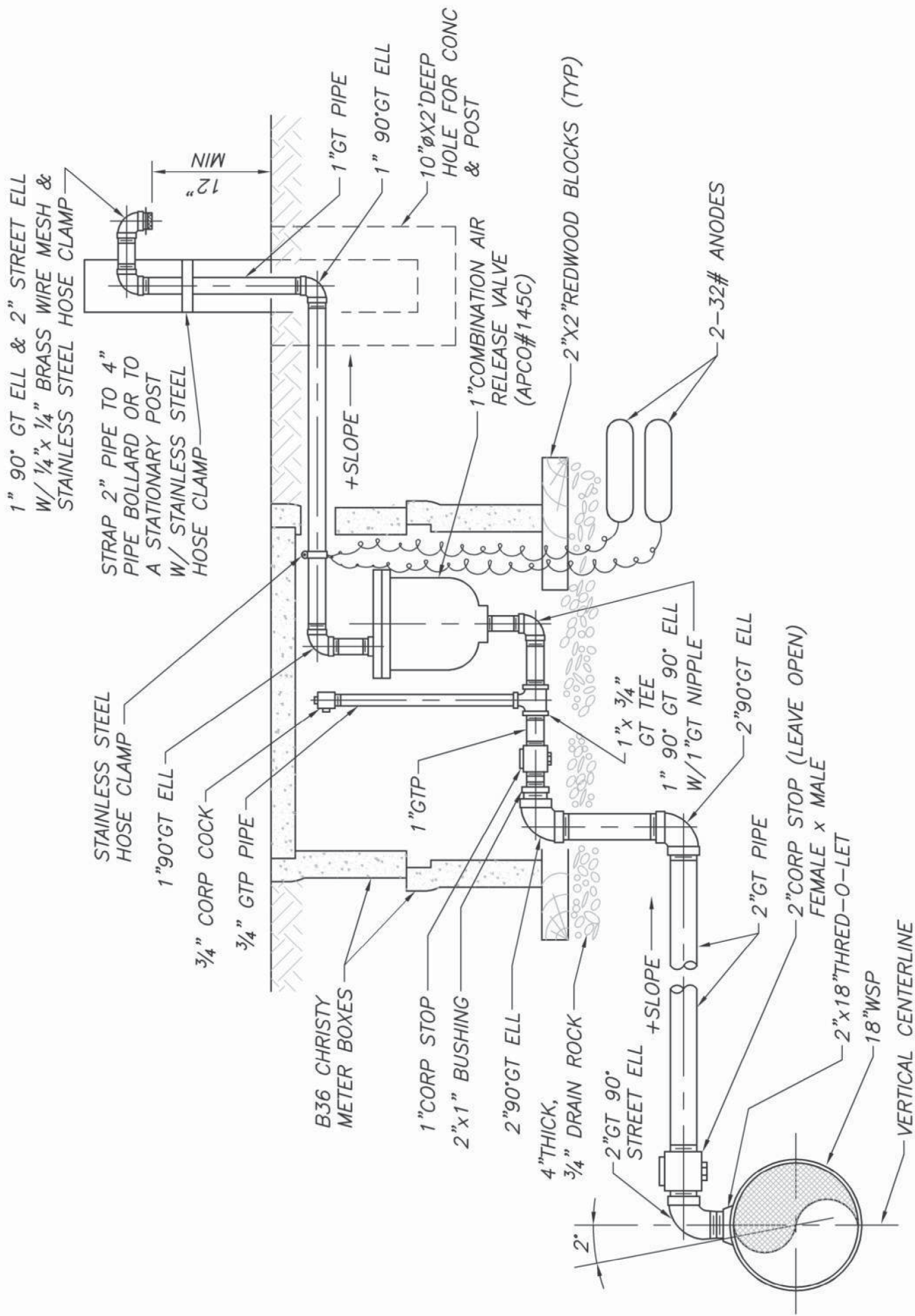


**NOTE:**  
 APPLICABLE IN ALL AREAS PROTECTED BY  
 A FLOOR MOUNTED ENCLOSURE ONLY.

## ALTERNATE CONDUIT STUB UP

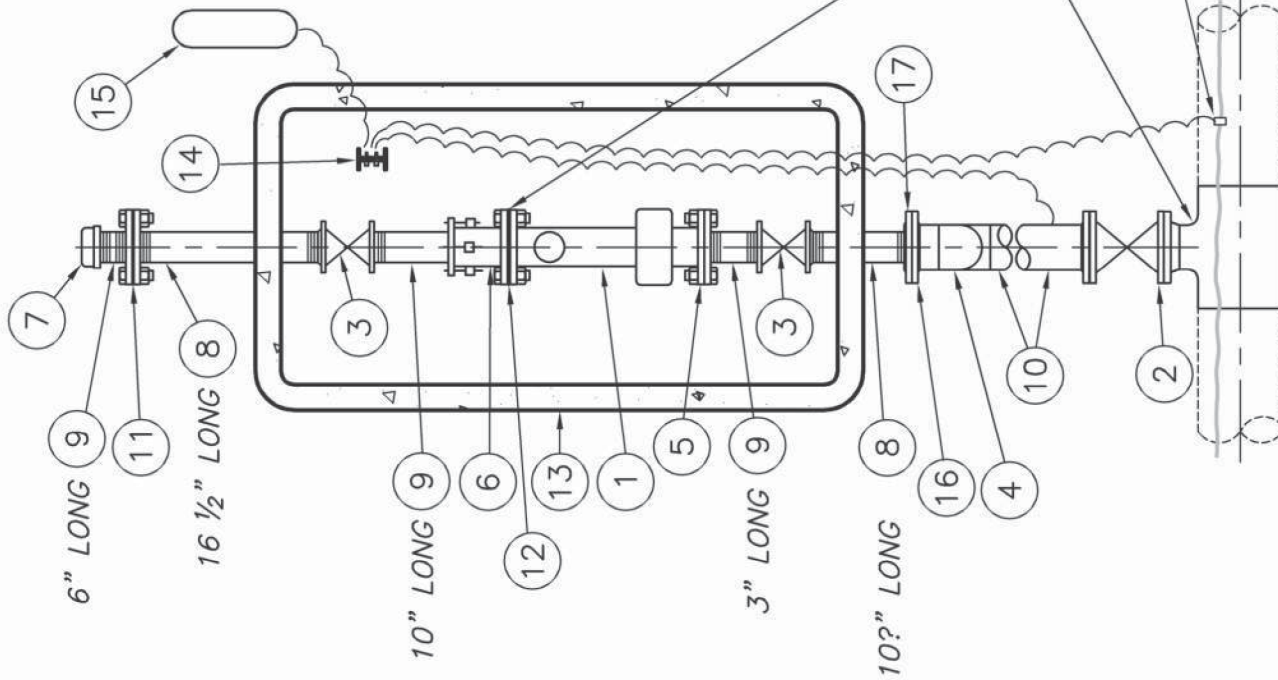
|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0047 | APPROV. BY: RKT | REV. DATE: MAY '95 |
|----------|-----------------|-----------------|--------------------|





## TYPICAL AIR/VACUUM RELEASE VALVE

|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0048 | APPROV. BY: RKT | REV. DATE: JAN '96 |
|----------|-----------------|-----------------|--------------------|



## MATERIAL LIST

| ITEM NUMBER | DESCRIPTION                                      | NUMBER REQUIRED |
|-------------|--|-----------------|
| 1           | 3" FLANGED TURBO METER                           | 1               |
| 2           | 4" FLANGED GATE VALVE                            | 1               |
| 3           | 3" THREADED BRASS GATE VALVE                     | 2               |
| 4           | 4" 90° WELD ELL                                  | 2               |
| 5           | 3" METER FLANGE                                  | 1               |
| 6           | 3" FLANGE COUPLING ADAPTER                       | 1               |
| 7           | 3" THREADED CAP                                  | 1               |
| 8           | 3" THREADED BRASS NIPPLE (10 1/2", 16 1/2" LONG) | 1 EA            |
| 9           | 3" THREADED BRASS NIPPLE (3", 6", 10" LONG)      | 1 EA            |
| 10          | 4" WELDED STEEL PIPE                             |                 |
| 11          | 3" FLANGE INSULATING KIT                         | 1               |
| 12          | 4" FLANGE INSULATING KIT                         | 1               |
| 13          | CHRISTY B-52 METER BOX AND B52-62G STEEL COVER   | 1               |
| 14          | TYPE "B" CTS IN METER BOX                        | 1               |
| 15          | 32# PACKAGED ANODE                               | 1               |
| 16          | 4" SLIP-ON FLANGE                                | 2               |
| 17          | 4" X 3" THREADED REDUCING FLANGE                 | 1               |

### NOTE:

1. PRIME AND WRAP ALL BARE METAL IN CONTACT WITH GROUND EXCEPT METAL BONNET AND 3" CAP.
2. INSTALL METER BOX 4" ABOVE FINISH GRADE IF IN PLANTER AREA.
3. BURY ANODE 2 FEET BELOW PIPE.
4. PROPER BACKFLOW PROTECTION MUST BE INSTALLED ON THE CONSUMER SIDE OF METER ASSEMBLY.

NOT REQUIRED FOR AC OR PVC. FOR WSP, VERIFY WITH CORROSION DEPT.

WHEN TAPPING PVC, AC OR CI PIPE, USE TEE OR TAPPING SLEEVE.

INSTALL TEST LEAD & CONNECT TO TRACER WIRE WITH SPLIT BOLT WHEN TAPPING AC OR PVC PIPE.

## 3" TURBO METER

NO SCALE

FILE NO. SD0049

APPROV. BY: AA

REV. DATE: JUL '22

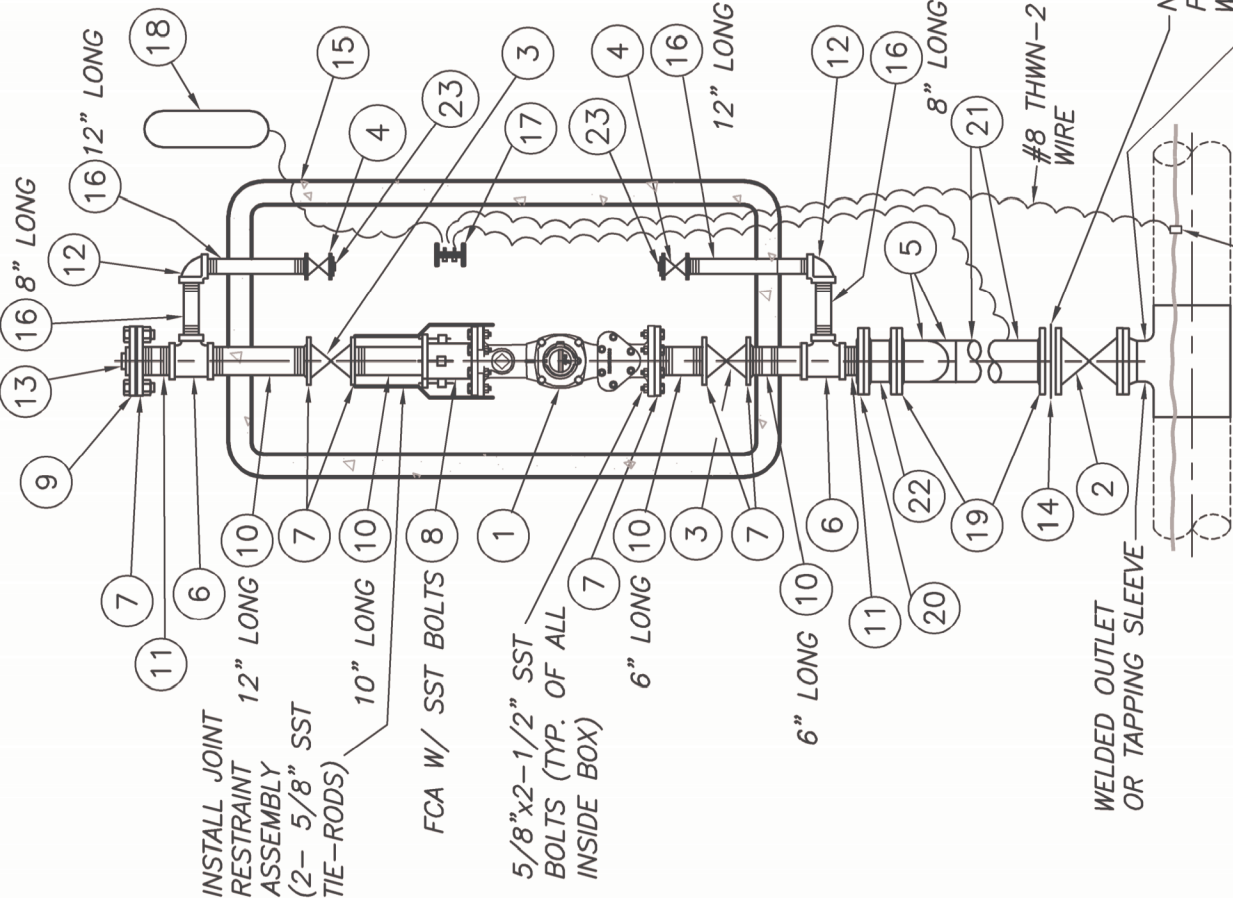


MATERIAL LIST

| ITEM NUMBER | DESCRIPTION  | NUMBER REQUIRED |
|-------------|--|-----------------|
| 1           | 3" FLANGED METER WITH TEST PORT                        | 1               |
| 2           | 4" FLANGED GATE VALVE                                  | 1               |
| 3           | 3" FLANGED GATE VALVE                                  | 2               |
| 4           | 2" THREADED BRASS GATE VALVE                           | 2               |
| 5           | 4" 90° WELD ELL  | 2               |
| 6           | 3"x 2" THREADED BRASS TEE                              | 2               |
| 7           | 3" BRASS STD SCREW FLANGE                              | 6               |
| 8           | 3" FLANGED COUPLING ADAPTER (SHORT BARREL)             | 1               |
| 9           | 3" STD SCREW FLANGE                                    | 1               |
| 10          | 3" THREADED BRASS NIPPLE (6"-2 EA, 10"-1 EA, 12"-1 EA) | 4               |
| 11          | 3" CLOSE BRASS NIPPLE                                  | 2               |
| 12          | 2" THREADED BRASS ELBOW                                | 2               |
| 13          | 3" GTP PLUG  | 1               |
| 14          | 4" FLANGE INSULATING KIT AFTER GATE VALVE              | 1               |
| 15          | 30" x 60" METER BOX AND STEEL COVER                    | 1               |
| 16          | 2" THREADED BRASS NIPPLE (8"-2EA, 12"-2EA.)            | 4               |
| 17          | TYPE "B" CTS IN METER BOX                              | 1               |
| 18          | 32# PACKAGED ANODE                                     | 1               |
| 19          | 4" SLIP-ON FLANGE                                      | 2               |
| 20          | 4" x 3" REDUCING STD SCREW FLANGE                      | 1               |
| 21          | 4" WELDED STEEL PIPE                                   | 1               |
| 22          | 4" HDPE SPOOL KIT                                      | 1               |
| 23          | 2" BRASS PLUG  | 2               |

NOTE:

- NOT REQUIRED FOR AC OR PVC. FOR WSP, VERIFY WITH CORROSION DEPT.
- WHEN TAPPING PVC, AC OR CI PIPE, USE TEE OR TAPPING SLEEVE.
1. PRIME AND WRAP ALL BARE METAL IN CONTACT WITH GROUND EXCEPT METAL BONNET AND 3" CAP.
2. INSTALL METER BOX 4" ABOVE FINISH GRADE IF IN PLANTER AREA.
3. BURY ANODE 2 FEET BELOW PIPE, SEE STD DETAIL SD00009.
4. REFER TO SD0092 FOR BACKFLOW ASSEMBLY STANDARD INSTALLATION DIAGRAM.



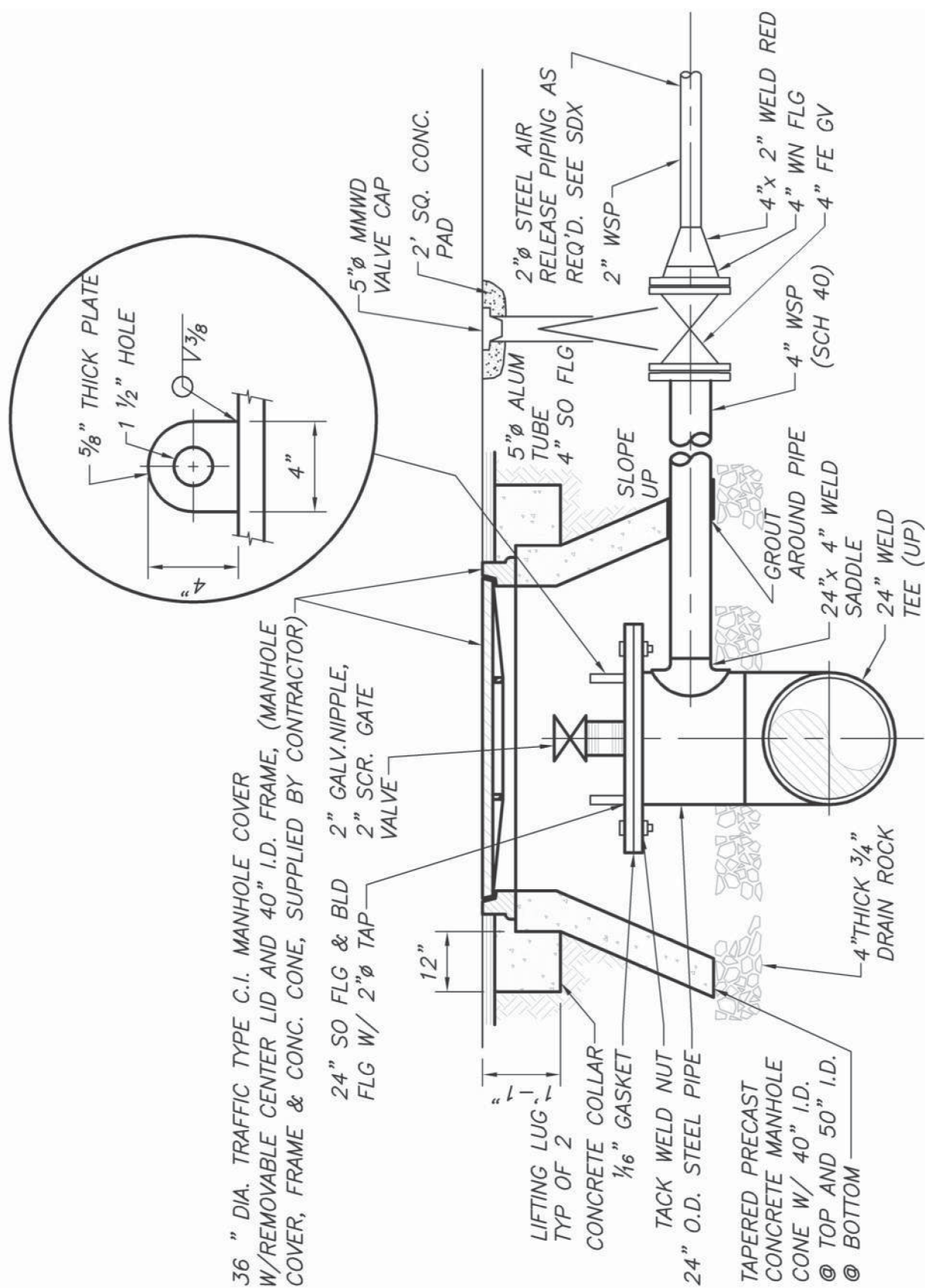
FOR WSP MAINS:  
CONNECT #8 THWN-2 WIRE TO MAIN WITH CADWELD

FOR NON-METALLIC MAINS:  
CONNECT #8 THWN-2 WIRE TO EX. TRACER WIRE WITH SPLIT BOLT

3" DOMESTIC METER WITH BYPASS

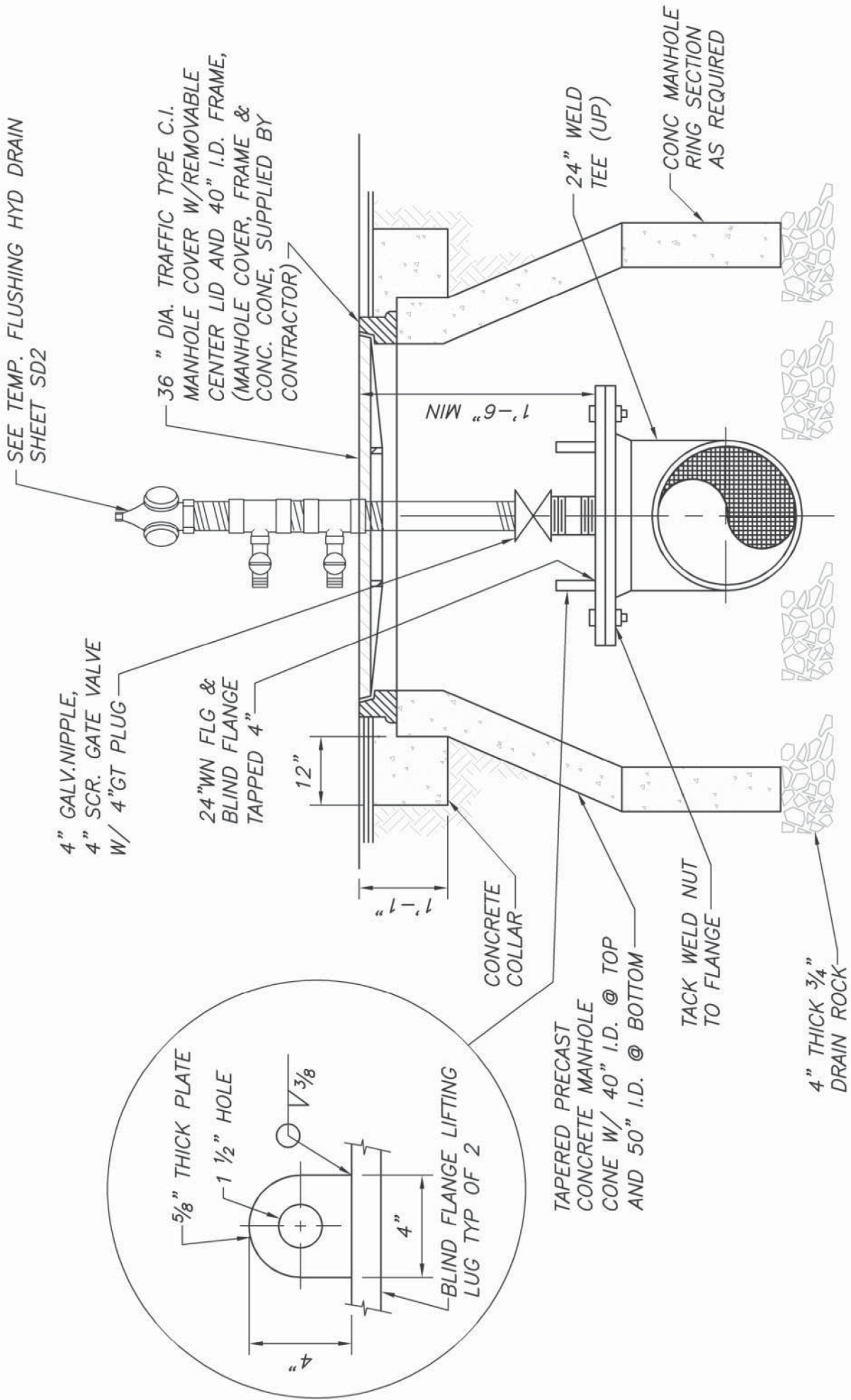






**24" MANWAY/DRAIN**

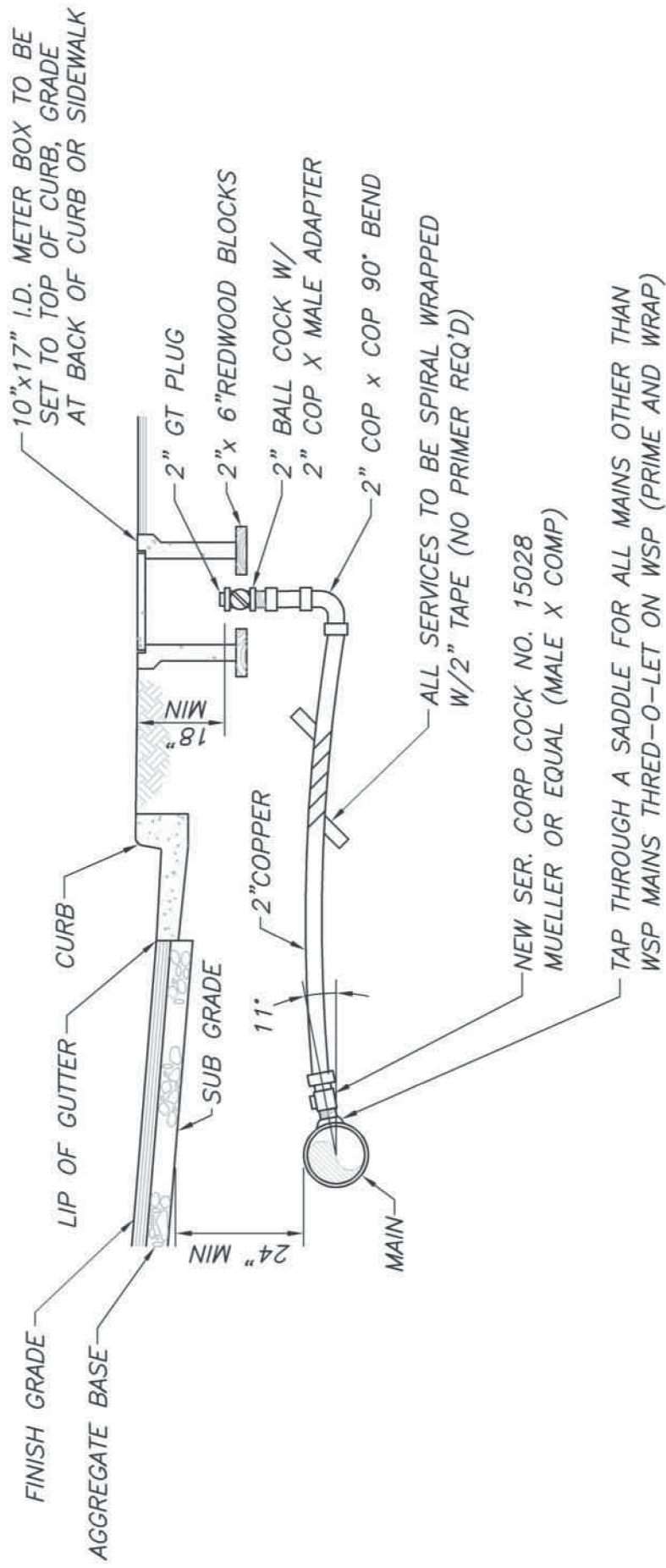
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|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0052 | APPROV. BY: RKT | REV. DATE: JAN '96 |
|----------|-----------------|-----------------|--------------------|



# **24" DRAIN**

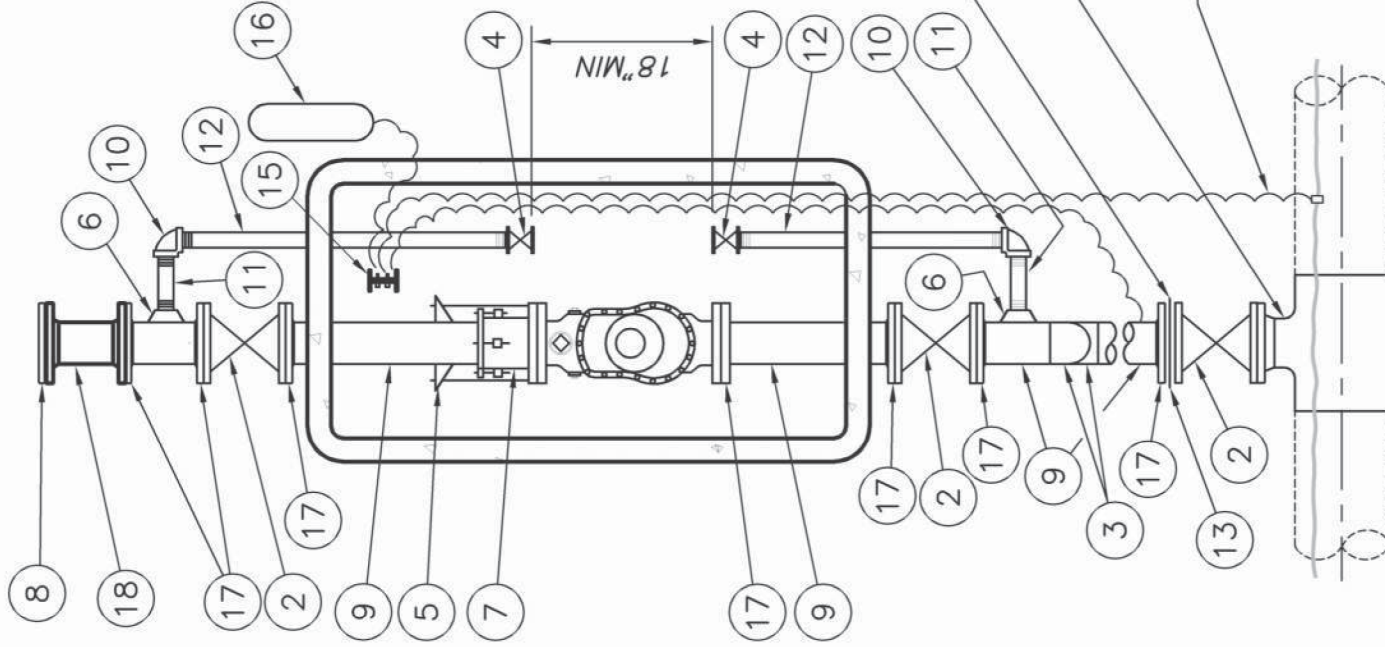
|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0053 | APPROV. BY: RKT | REV. DATE: JAN '96 |
|----------|-----------------|-----------------|--------------------|





## 2" BULLHEAD

|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0054 | APPROV. BY: RKT | REV. DATE: MAR '96 |
|----------|-----------------|-----------------|--------------------|



| MATERIAL LIST |  |             |
|---------------|--|-------------|
| ITEM NO       | DESCRIPTION                                    | NO REQUIRED |
| 1             | 4" FLANGED COMPOUND METER                      | 1           |
| 2             | 4" FLANGED GATE VALVE                          | 3           |
| 3             | 4" 90° WELD ELL                                | 2           |
| 4             | 2" THREADED BRASS GATE VALVE                   | 2           |
| 5             | HARNESS (2 RODS & 2 EARS)                      | 1           |
| 6             | 4"x2" THRED-O-LET                              | 2           |
| 7             | 4" FLANGE COUPLING ADAPTER                     | 1           |
| 8             | 4" BLIND FLG                                   | 1           |
| 9             | 4" WELDED STEEL PIPE                           |             |
| 10            | 2" THREADED BRASS ELBOW                        | 2           |
| 11            | 2" THREADED BRASS NIPPLE (8" LONG)             | 2           |
| 12            | 2" BRASS PIPING                                |             |
| 13            | 4" FLANGE INSULATING KIT                       | 2           |
| 14            | CHRISTY B-52 METER BOX AND B52-62G STEEL COVER | 1           |
| 15            | TYPE "B" CTS IN METER BOX                      | 1           |
| 16            | 32# PACKAGED ANODE                             | 1           |
| 17            | 4" SLIP-ON FLANGE                              | 7           |
| 18            | 4" HDPE SPOOL KIT                              | 1           |

NOT REQUIRED FOR AC OR PVC. FOR WSP, VERIFY WITH CORROSION DEPT.

WHEN TAPPING PVC, AC OR CI PIPE, USE TEE OR TAPPING SLEEVE.

INSTALL TEST LEAD & CONNECT TO TRACER WIRE WITH SPLIT BOLT WHEN TAPPING AC OR PVC PIPE.

### NOTES:

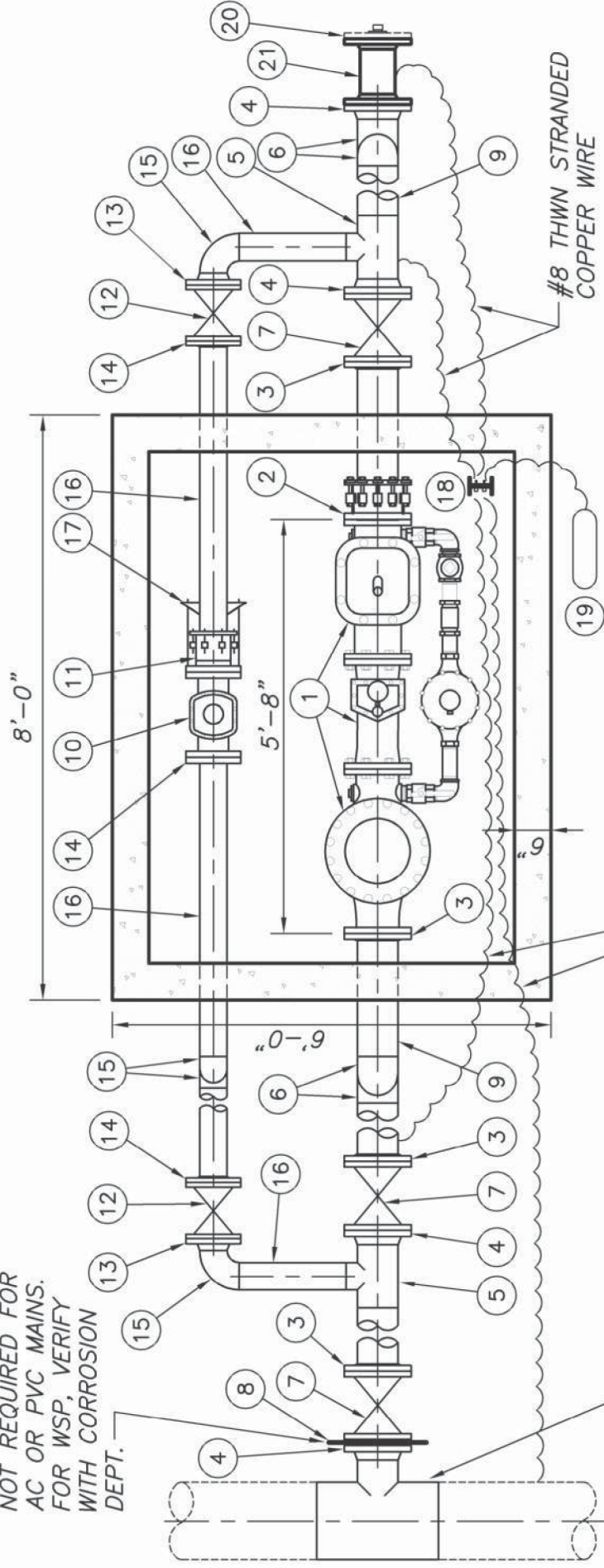
1. PRIME AND WRAP ALL BARE METAL IN CONTACT WITH GROUND EXCEPT METAL BONNET AND 4" BLIND FLG.
2. INSTALL METER BOX 4" ABOVE FINISH GRADE IF IN PLANTER AREA.
3. BURY ANODE 2 FEET BELOW PIPE.
4. SERVICES FOR SCHOOLS, HOSPITALS, LARGE BUILDINGS AND IRRIGATION, INSTALL PROPER BACKFLOW PREVENTION ON CONSUMER SIDE OF BYPASS.

## 4" COMPOUND METER WITH BYPASS

|          |                 |                |                    |
|----------|-----------------|----------------|--------------------|
| NO SCALE | FILE NO. SD0055 | APPROV. BY: EI | REV. DATE: FEB '19 |
|----------|-----------------|----------------|--------------------|



NOT REQUIRED FOR  
AC OR PVC MAINS.  
FOR WSP, VERIFY  
WITH CORROSION  
DEPT.



WHEN TAPPING PVC, AC OR  
CI PIPE, USE TEE OR TAPPING  
SLEEVE.

INSTALL TEST LEAD & CONNECT  
TRACER WIRE WITH SPLIT BOLT  
WHEN TAPPING AC OR PVC PIPE

#### NOTES:

1. PRIME AND WRAP ALL BARE METAL IN CONTACT WITH GROUND EXCEPT METAL BONNET AND 6" BLIND FLG.
2. INSTALL VAULT 4" ABOVE FINISH GRADE IF IN PLANTER AREA.
3. BURY ANODE 2 FEET BELOW PIPE.
4. SERVICES FOR SCHOOLS, HOSPITALS, LARGE BUILDINGS AND IRRIGATION, INSTALL PROPER BACKFLOW PREVENTION ON CONSUMER SIDE OF BYPASS.

#### MATERIAL LIST

| ITEM NUMBER | DESCRIPTION                                      | NUMBER REQUIRED |
|-------------|--|-----------------|
| 1           | 6" COMPACT FIRELINE "ROCKWELL FIRELINE ASSEMBLY" | 1               |
| 2           | 6" FLG CPLG ADAPTER W/ ANCHOR STUDS              | 1               |
| 3           | 6" SO FLG  | 4               |
| 4           | 6" WN FLG  | 4               |
| 5           | 6"x 4" WELD TEE                                  | 2               |
| 6           | 6" 90° WELD ELL                                  | 4               |
| 7           | 6" FE GV   | 3               |
| 8           | 6" FLG INSL KIT                                  | 2               |
| 9           | 6" WELDED STEEL PIPE                             |                 |
| 10          | 4" FE TURBO MTR                                  | 1               |
| 11          | 4" FLG CPLG ADAPTER                              | 1               |
| 12          | 4" FE GV   | 2               |
| 13          | 4" WN FLG  | 2               |
| 14          | 4" SO FLG  | 3               |
| 15          | 4" 90° WELD ELL                                  | 4               |
| 16          | 4" WELDED STEEL PIPE                             |                 |
| 17          | HARNES (2 RODS AND 2 EARS)                       | 1               |
| 18          | TYPE "B" CTS                                     | 1               |
| 19          | 32 LB ANODE                                      | 1               |
| 20          | 6" BLIND FLG TAPPED 2" W/ 2" GTP PLUG            | 1               |
| 21          | 6" HDPE SPOOL KIT                                | 1               |

## 6" FIRE LINE WATER METER ASSEMBLIES

NO SCALE

FILE NO. SD0056

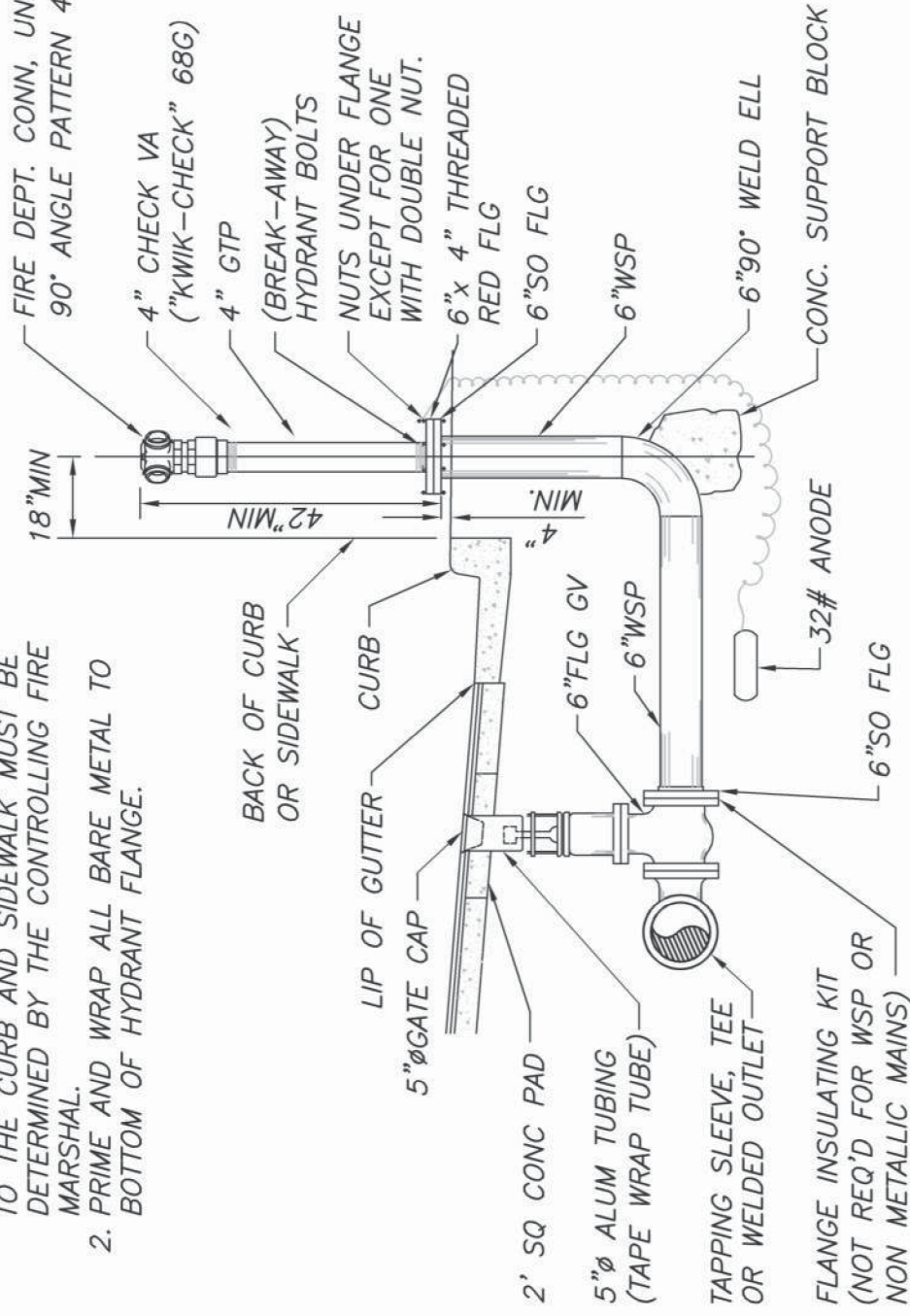
APPROV. BY: EI

REV. DATE: FEB '19



## NOTES:

1. FIRE DEPT CONN LOCATION IN RELATION TO THE CURB AND SIDEWALK MUST BE DETERMINED BY THE CONTROLLING FIRE MARSHAL.
2. PRIME AND WRAP ALL BARE METAL TO BOTTOM OF HYDRANT FLANGE.

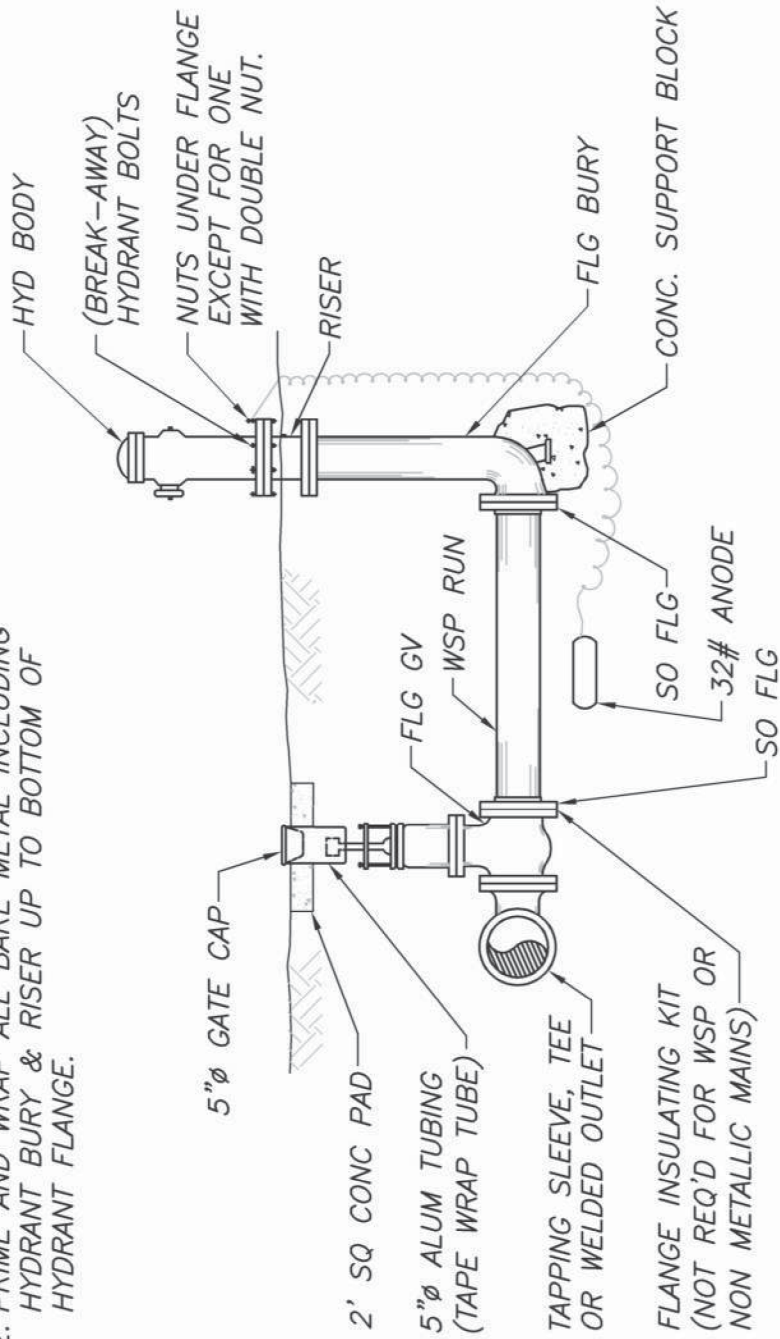


## EMERGENCY PUMPING CONNECTION W/ CURB & GUTTER

|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0057 | APPROV. BY: RKT | REV. DATE: JUL '97 |
|----------|-----------------|-----------------|--------------------|

## NOTES:

1. HYDRANT LOCATION IN RELATION TO THE CURB AND SIDEWALK MUST BE DETERMINED BY THE CONTROLLING FIRE MARSHAL.
2. PRIME AND WRAP ALL BARE METAL INCLUDING HYDRANT BURY & RISER UP TO BOTTOM OF HYDRANT FLANGE.

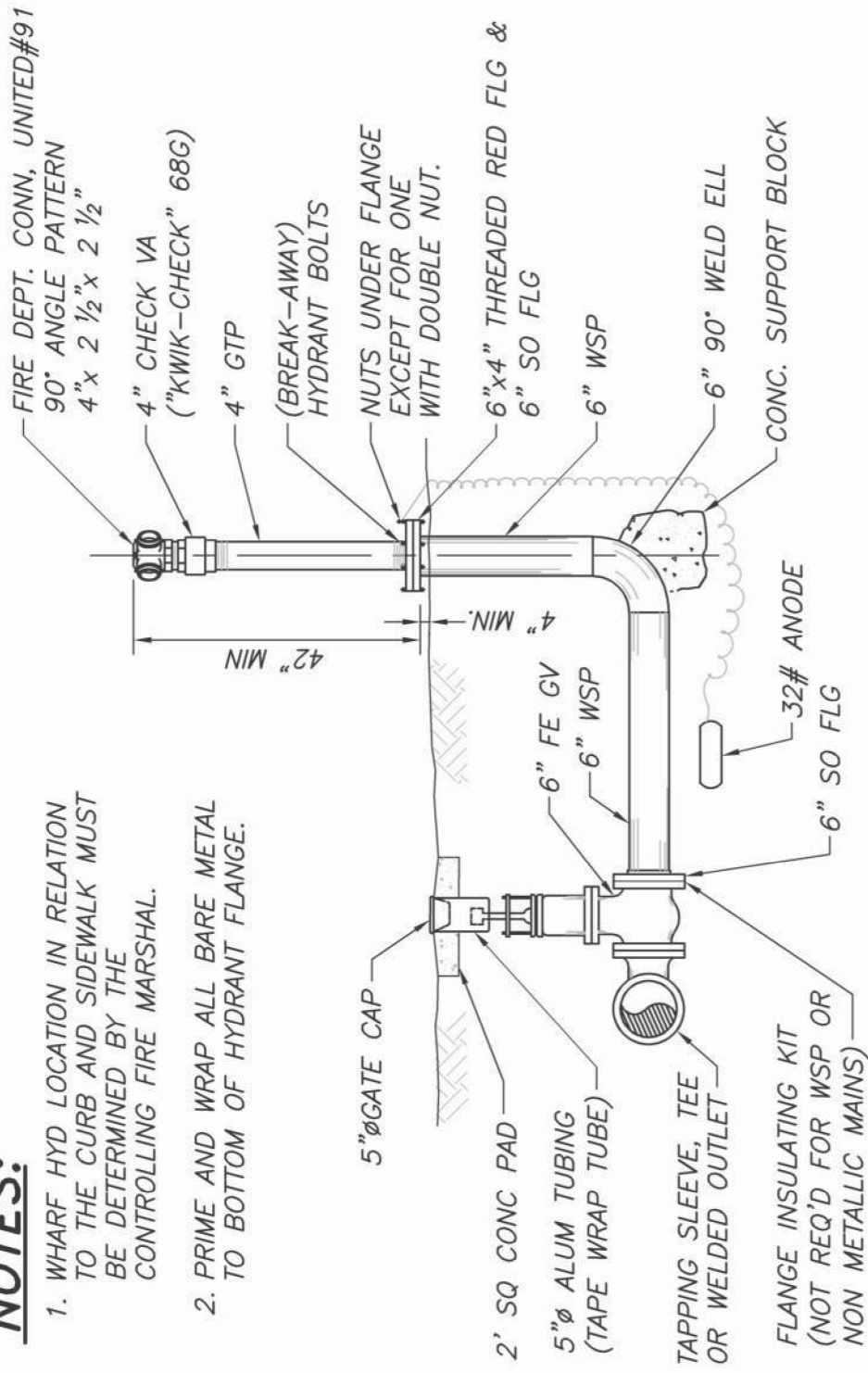


## HYDRANT OFF IMPROVED AREA

|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0058 | APPROV. BY: RKT | REV. DATE: JUL '96 |
|----------|-----------------|-----------------|--------------------|

## NOTES:

1. WHARF HYD LOCATION IN RELATION TO THE CURB AND SIDEWALK MUST BE DETERMINED BY THE CONTROLLING FIRE MARSHAL.
2. PRIME AND WRAP ALL BARE METAL TO BOTTOM OF HYDRANT FLANGE.



## EMERGENCY PUMPING CONNECTION W/O CURB & GUTTER

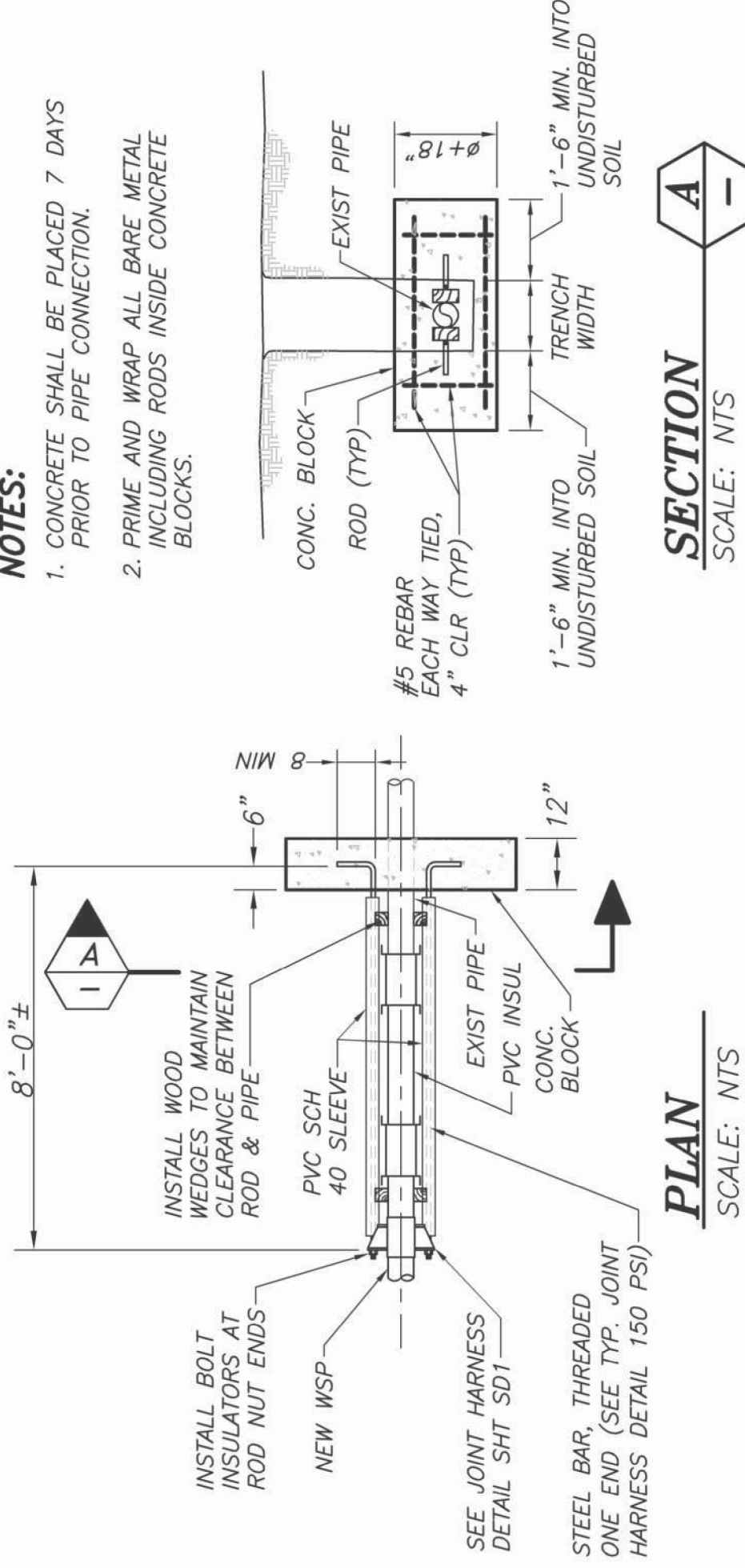
NO SCALE

FILE NO. SD0059

APPROV. BY: RKT

REV. DATE: MAY '03





**NOTES:**

1. CONCRETE SHALL BE PLACED 7 DAYS PRIOR TO PIPE CONNECTION.
2. PRIME AND WRAP ALL BARE METAL INCLUDING RODS INSIDE CONCRETE BLOCKS.

**JOINT RESTRAINT ASSEMBLY**

|        |                 |                |                    |
|--------|-----------------|----------------|--------------------|
| N.T.S. | FILE NO. SD0060 | APPROV. BY: EA | REV. DATE: JUL '17 |
|--------|-----------------|----------------|--------------------|

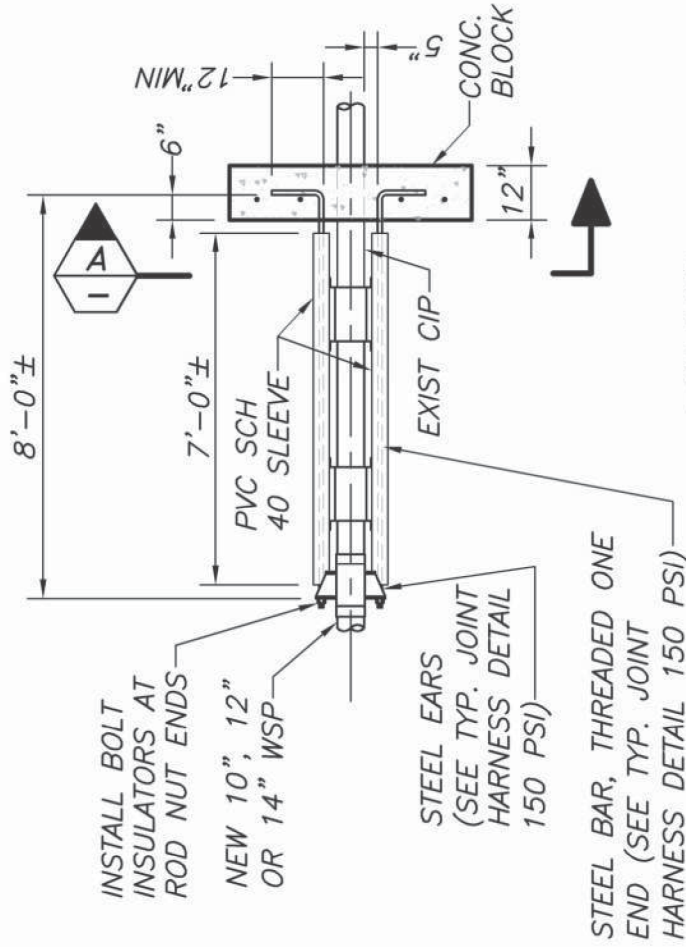


**CONCRETE ANCHOR BLOCK 6" & 8" CONNECTIONS**

|          |                 |                 |                    |
|----------|-----------------|-----------------|--------------------|
| NO SCALE | FILE NO. SD0061 | APPROV. BY: RKT | REV. DATE: DEC '97 |
|----------|-----------------|-----------------|--------------------|

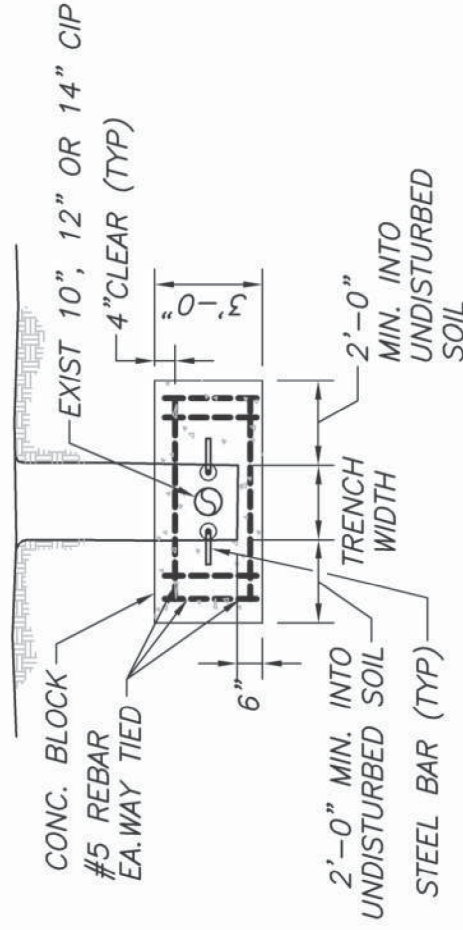
# NOTES:

1. CONCRETE SHALL BE PLACED 7 DAYS PRIOR TO PIPE CONNECTION.
2. PRIME AND WRAP ALL BARE METAL INCLUDING RODS INSIDE CONCRETE BLOCKS, AND INSIDE PVC SLEEVES.



## PLAN

SCALE: NTS



## SECTION

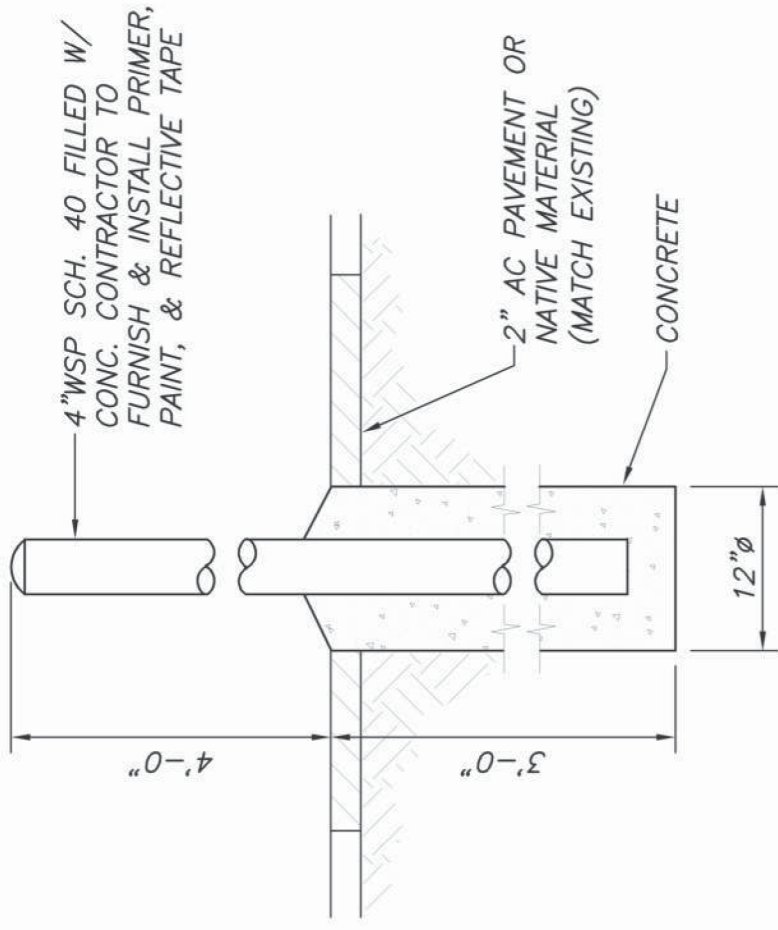
SCALE: NTS



# CONCRETE ANCHOR BLOCK 10", 12" & 14" CONNECTIONS

|          |                 |                |                    |
|----------|-----------------|----------------|--------------------|
| NO SCALE | FILE NO. SD0062 | APPROV. BY: EA | REV. DATE: JUL '17 |
|----------|-----------------|----------------|--------------------|





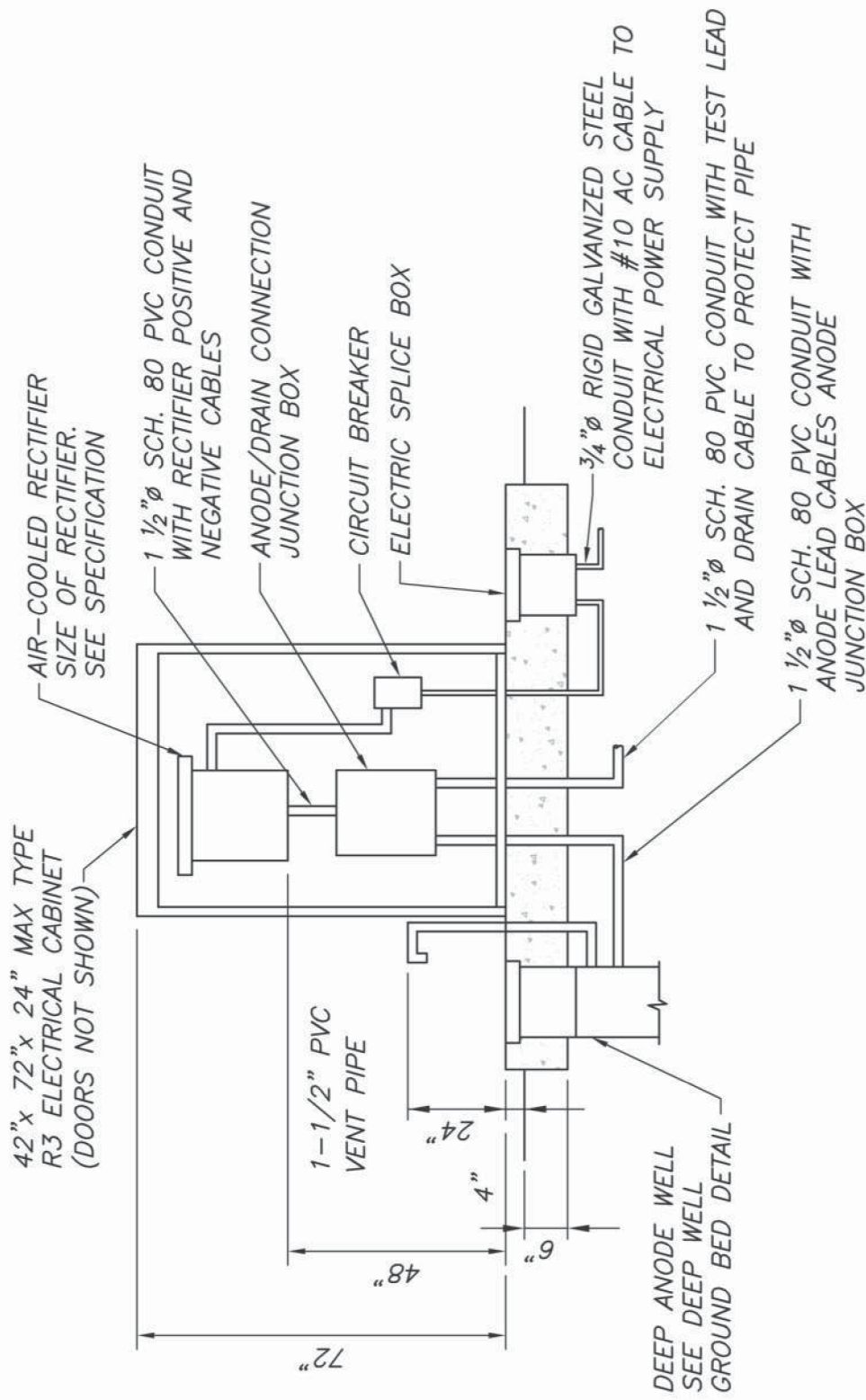
### NOTES:

- PRIMER: 1. COAT ALKYD RUST INHIBITING PRIMER – SHERWIN WILLIAMS KEM-KROMIK UNIVERSAL METAL PRIMER OR APPROVED EQUAL.
- PAINT: 2. COATS HIGH GLOSS EXTERIOR LATEX ENAMEL – SHERWIN WILLIAMS DTM ACRYLIC COATING OR APPROVED EQUAL. FINISH COLOR SHALL BE DETERMINED BY THE ENGINEER.

REFLECTIVE TAPE: APPLY TWO ROUNDS OF TWO INCH WIDE REFLECTIVE TAPE. THE FIRST ROUND SHALL BE PLACED TWO INCHES FROM TOP EDGE OF THE STEEL PIPE. SPACING BETWEEN ROUNDS SHALL BE TWO INCHES. REFLECTIVE TAPE SHALL BE RATED AS REFLECTIVITY 1 ACCORDING TO FEDERAL SPECIFICATION L-S-300C AND SHALL MEET OSHA SPECIFICATIONS [1910.144(A)].

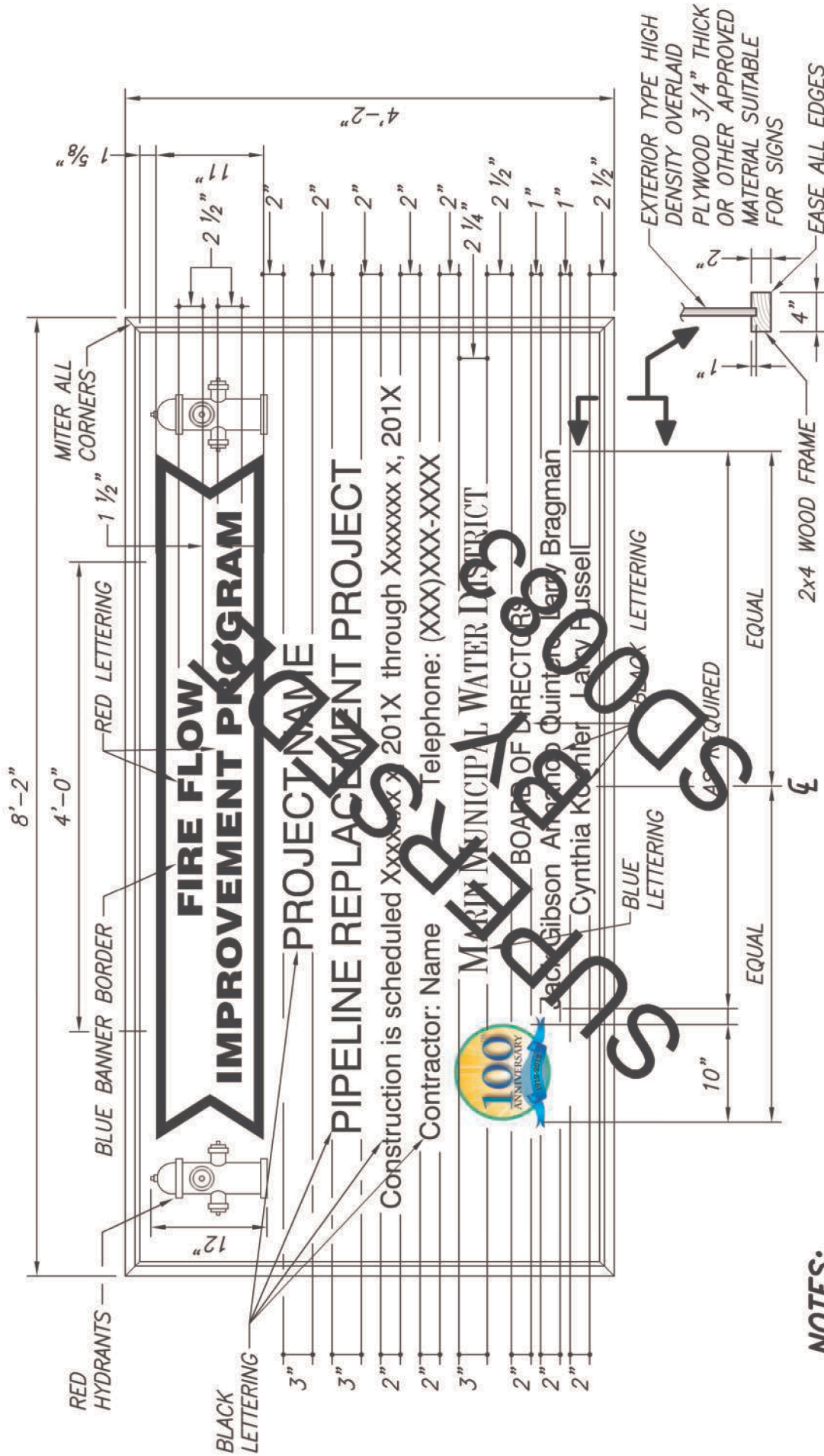
## BOLLARD

|              |                 |                    |                     |
|--------------|-----------------|--------------------|---------------------|
| SCALE: N.T.S | FILE NO. SD0063 | APPROV. BY: R.K.T. | REV. DATE: SEPT '97 |
|--------------|-----------------|--------------------|---------------------|



## RECTIFIER ANODE JUNCTION BOX INSTALLATION

|          |                 |                 |                     |
|----------|-----------------|-----------------|---------------------|
| NO SCALE | FILE NO. SDO064 | APPROV. BY: RKT | REV. DATE: SEPT '97 |
|----------|-----------------|-----------------|---------------------|



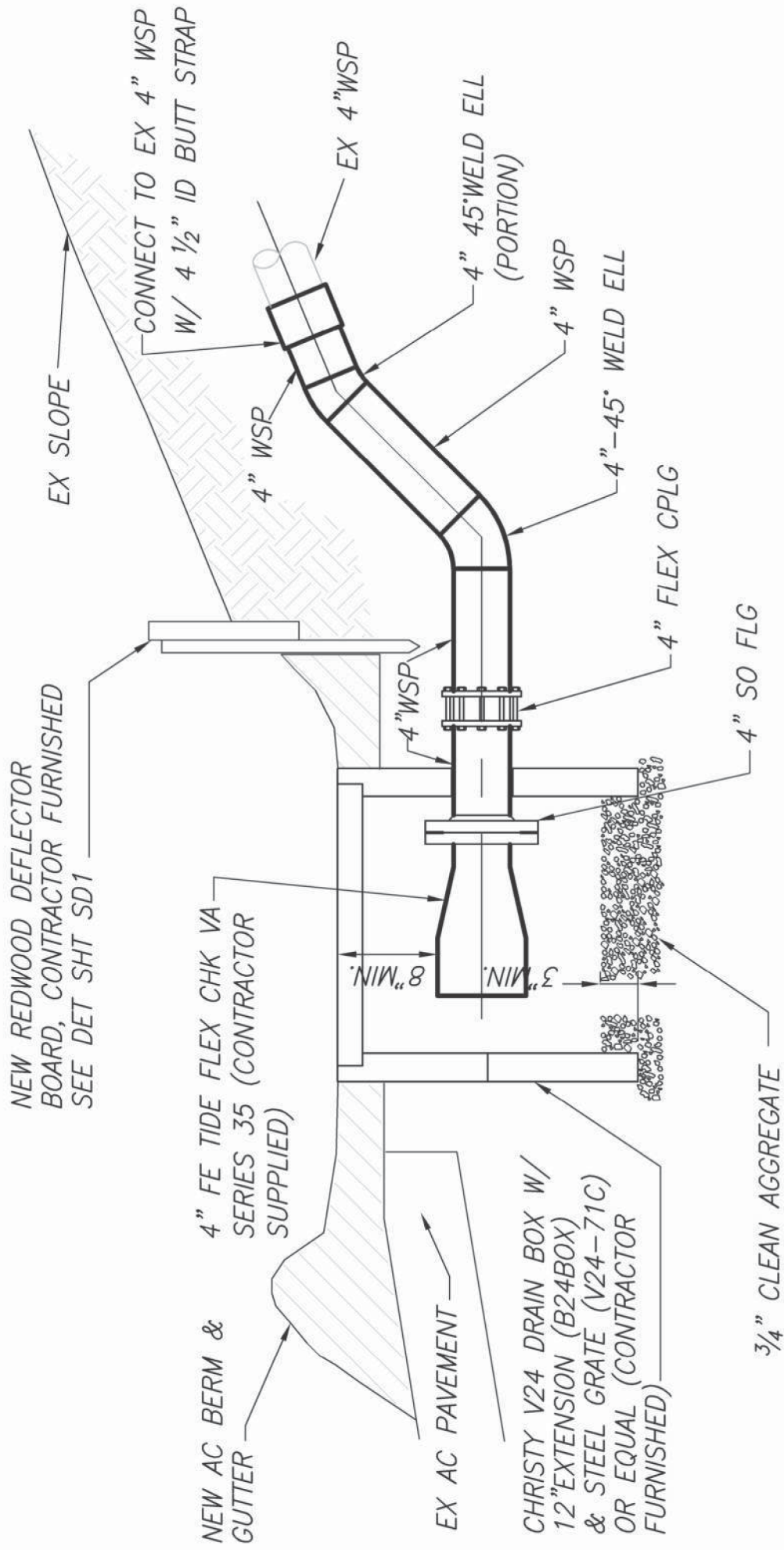
## NOTES:

1. CENTER ALL TEXT WITHIN FIELD OF SIGN UNLESS OTHERWISE NOTED.
2. BACKGROUND AND ALL OTHER SIGN COMPONENTS SHALL BE PAINTED WHITE UNLESS OTHERWISE NOTED
3. PROVIDE ADEQUATE SUPPORTS FOR SIGN AS SITE CONDITIONS MAY REQUIRE. KEEP SIGN A PROPER DISTANCE ABOVE PREVAILING GRADE TO PERMIT PUBLIC VIEWING.
4. THE CONTRACTOR SHALL PROVIDE & ERECT THE PROJECT SIGN CONFORMING TO THESE DETAILS, AND AT THE LOCATION SHOWN ON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL SUBMIT FINAL SIGN LAYOUT TO THE ENGINEER PRIOR TO FABRICATION.

## PROJECT SIGN

|            |                 |                |                     |
|------------|-----------------|----------------|---------------------|
| SCALE: NTS | FILE NO. SD0066 | APPROV. BY: MB | REV. DATE: FEB. '16 |
|------------|-----------------|----------------|---------------------|





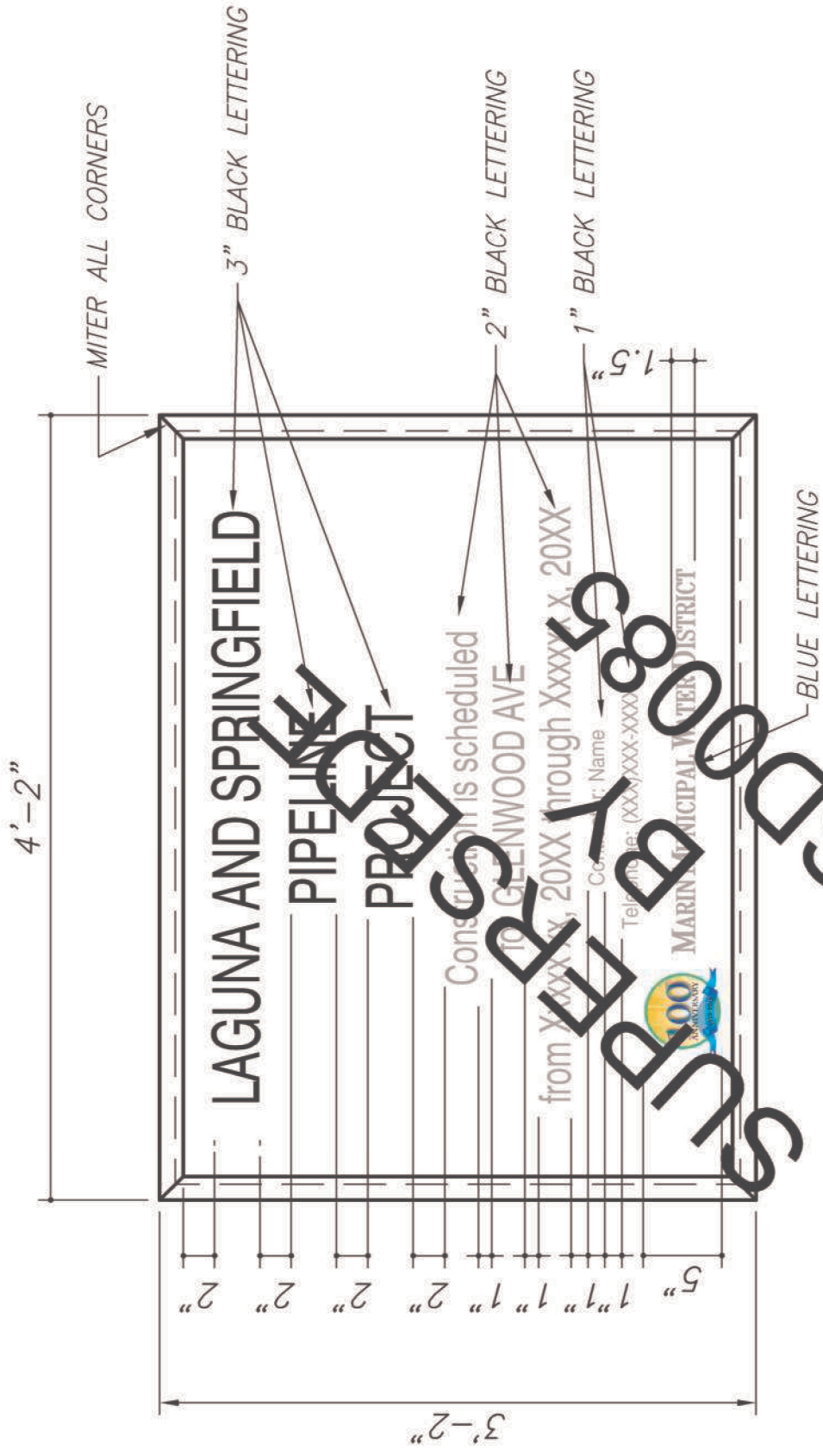
## TIDE FLEX CHECK VALVE

N.T.S

FILE NO. SD0067

APPROV. BY: RKT

REV. DATE: JAN '98



**NOTES**

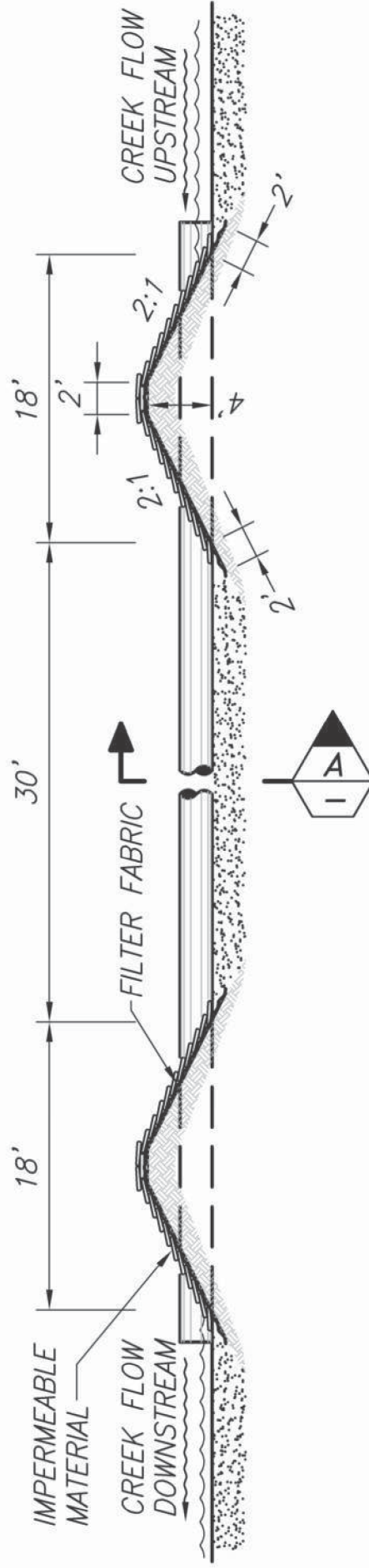
1. CENTER ALL TEXT WITHIN FIELD OF SIGN UNLESS OTHERWISE NOTED.
2. BACKGROUND AND ALL OTHER SIGN COMPONENTS SHALL BE PAINTED WHITE UNLESS OTHERWISE NOTED.
3. PROVIDE ADEQUATE SUPPORTS FOR SIGN AS SITE CONDITIONS MAY REQUIRE. KEEP SIGN A PROPER DISTANCE ABOVE PREVAILING GRADE TO PERMIT PUBLIC VIEWING.
4. THE CONTRACTOR SHALL PROVIDE & ERECT THE PROJECT SIGN CONFORMING TO THESE DETAILS & AT THE LOCATION SHOWN ON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL SUBMIT FINAL SIGN LAYOUT TO THE ENGINEER PRIOR TO FABRICATION.

**PROJECT SIGN**

|            |                 |                |                     |
|------------|-----------------|----------------|---------------------|
| SCALE: NTS | FILE NO. SD0068 | APPROV. BY: MB | REV. DATE: FEB. '13 |
|------------|-----------------|----------------|---------------------|



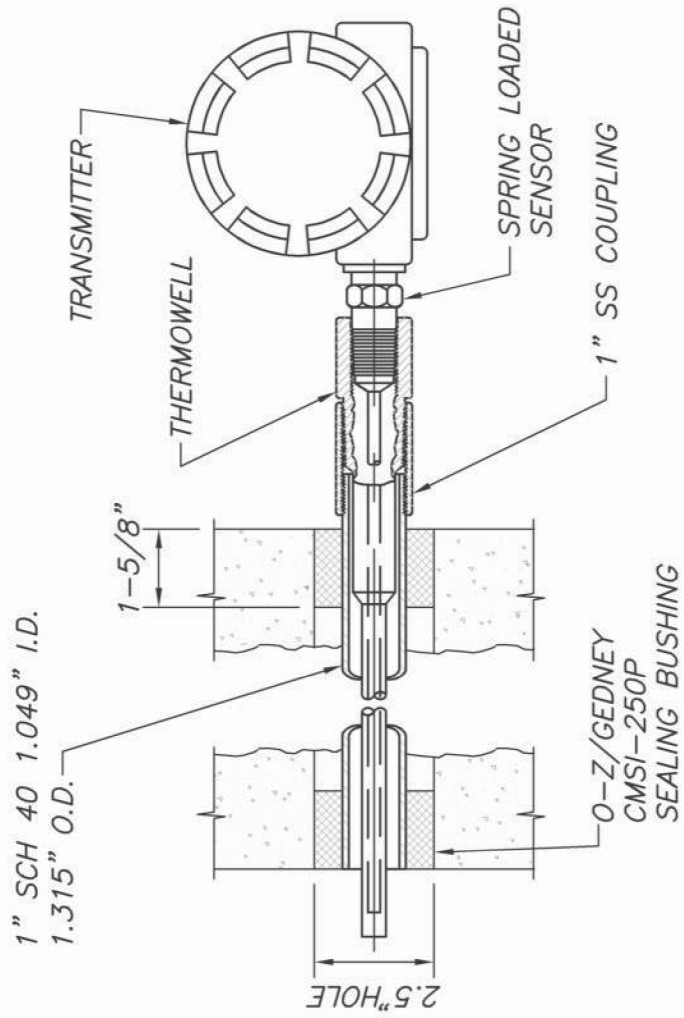
## SECTION A-A



# TEMPORARY DIVERSION / SEDIMENT DAMS & CULVERTS

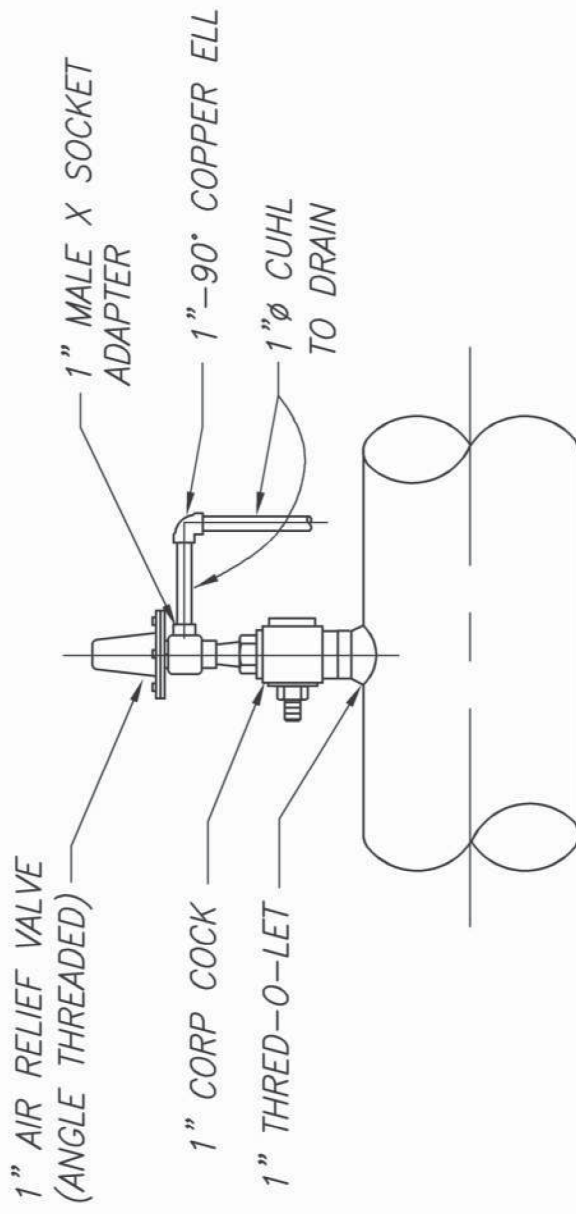
|            |                 |                 |                    |
|------------|-----------------|-----------------|--------------------|
| SCALE: NTS | FILE NO. SD0069 | APPROV. BY: RKT | REV. DATE: MAY '95 |
|------------|-----------------|-----------------|--------------------|





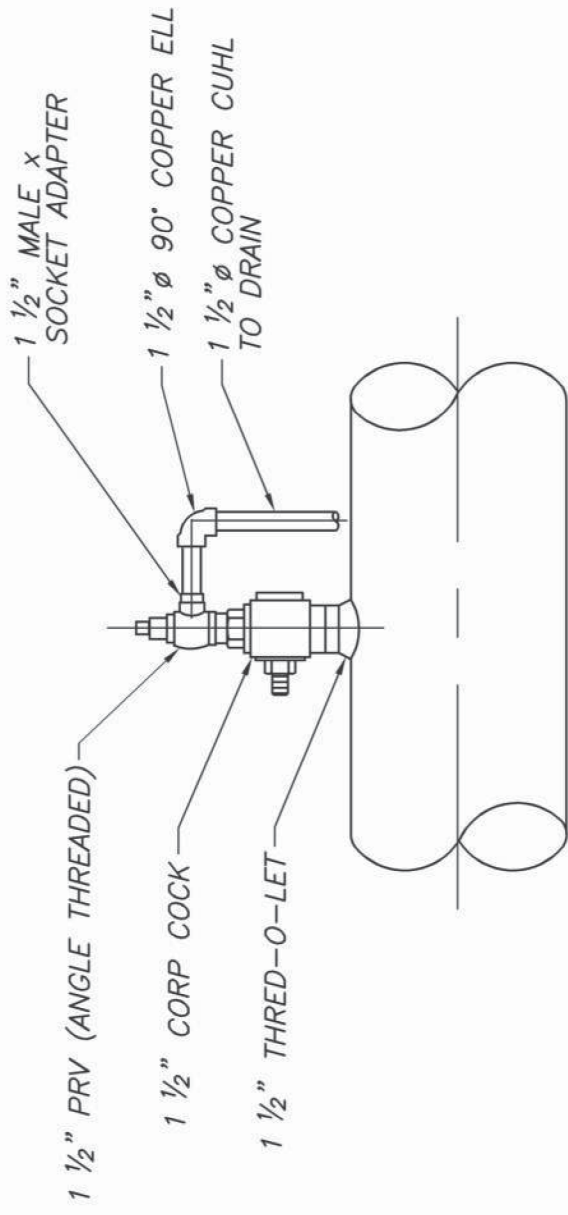
## TEMPERATURE TRANSMITTER

|            |                 |                 |                    |
|------------|-----------------|-----------------|--------------------|
| SCALE: NTS | FILE NO. SD0070 | APPROV. BY: RKT | REV. DATE: JUN '99 |
|------------|-----------------|-----------------|--------------------|



## AIR RELIEF VALVE

|            |                 |                 |                    |
|------------|-----------------|-----------------|--------------------|
| SCALE: NTS | FILE NO. SD0071 | APPROV. BY: RKT | REV. DATE: APR '95 |
|------------|-----------------|-----------------|--------------------|



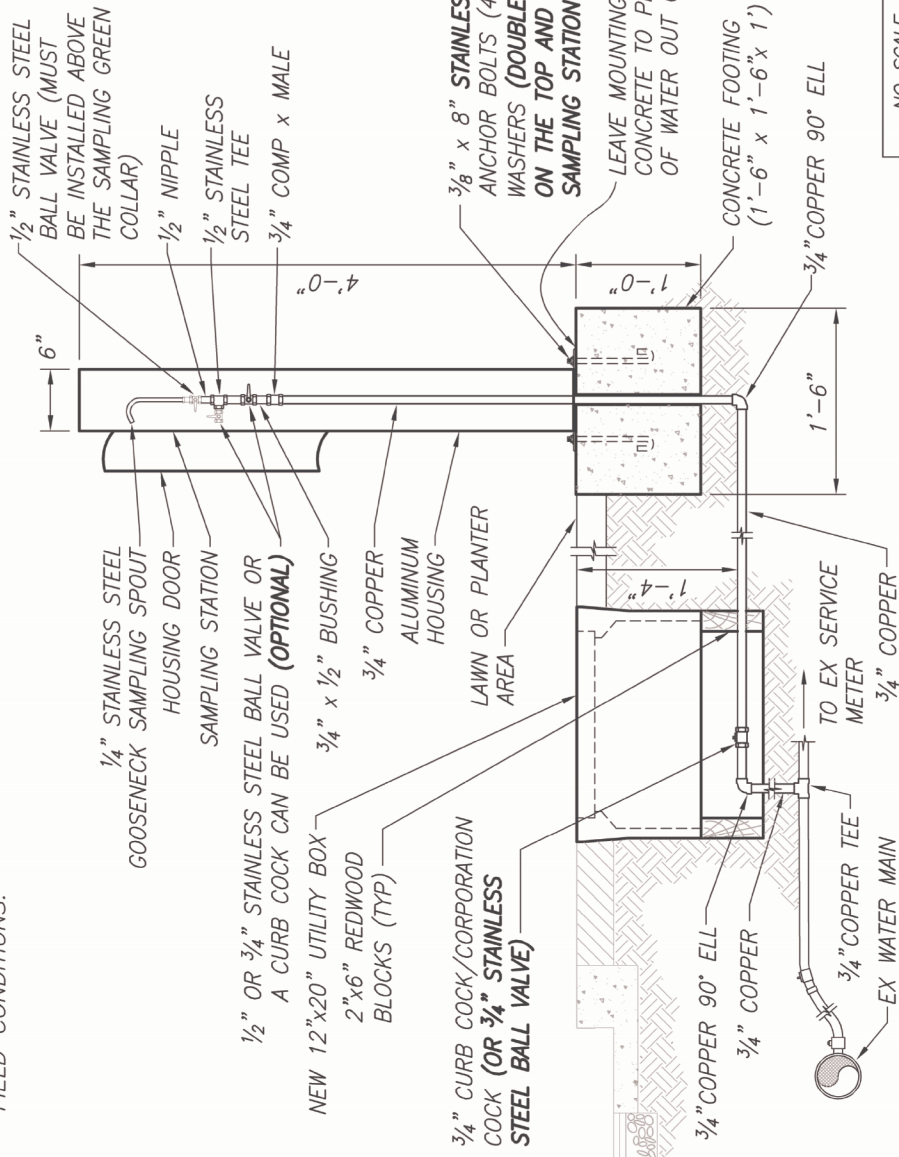
## PRESSURE RELIEF VALVE

|           |                 |                 |                    |
|-----------|-----------------|-----------------|--------------------|
| SCALE:NTS | FILE NO. SD0072 | APPROV. BY: RKT | REV. DATE: APR '95 |
|-----------|-----------------|-----------------|--------------------|



## NOTES:

1. ALL FITTINGS SHALL BE STAINLESS STEEL.
2. MMWD SUPPLY SAMPLE STATION, HOUSING & FITTINGS.
3. CONTRACTOR MAY NEED TO EXTEND BURIED PIPING PRIOR TO SURFACING FOR BEST FIELD FIT.
4. BOLTS & GASKETS SHALL BE SUPPLIED BY CONTRACTOR.
5. INSTALLATION SHOWN IS "TYPICAL". SOME ADJUSTMENTS MAYBE REQUIRED TO SUIT ACTUAL FIELD CONDITIONS.



## WATER SAMPLING STATION INSTALLATION

### PLAN

SCALE: NTS

$\frac{3}{8}$ " x 8" STAINLESS STEEL J-HOOK  
ANCHOR BOLTS (4 TYP) W/ NUTS &  
WASHERS (DOUBLE UP NUTS & WASHERS  
ON THE TOP AND BOTTOM OF THE  
SAMPLING STATION FOOTERS)

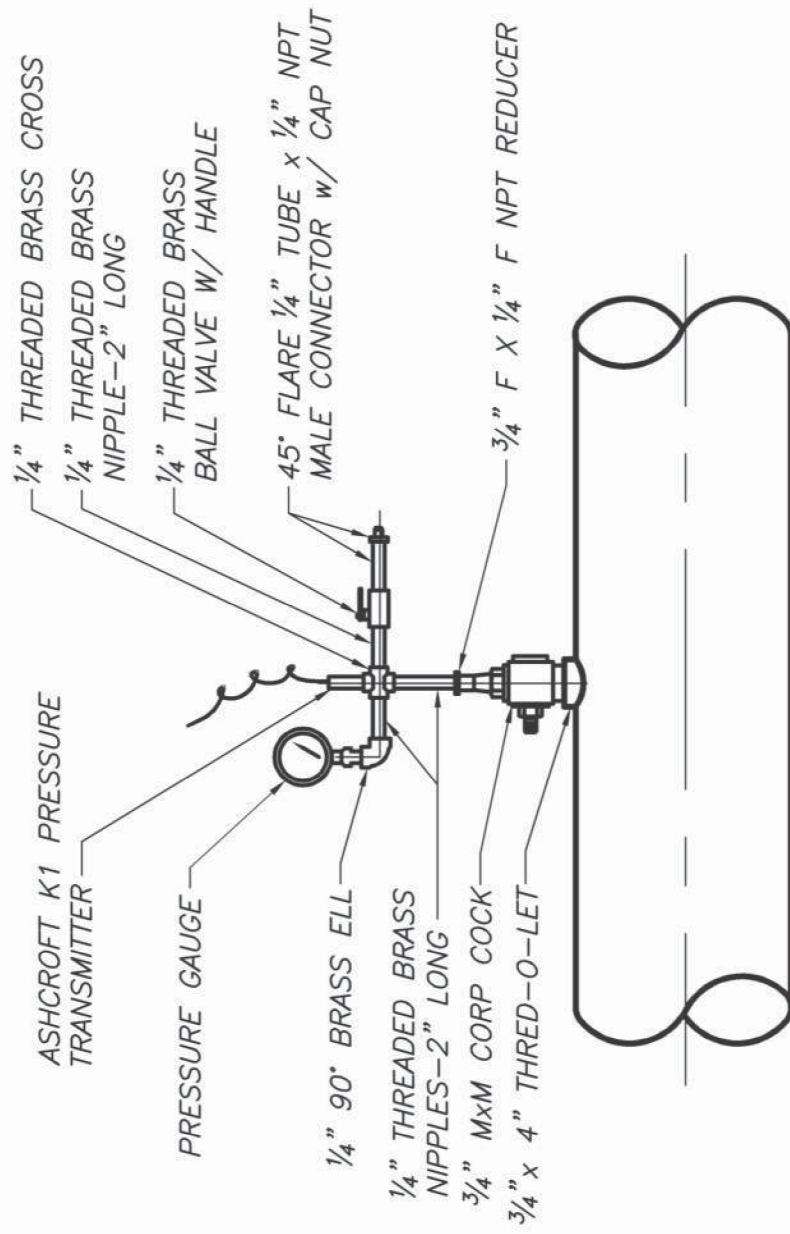
LEAVE MOUNTING FOOTERS ABOVE THE  
CONCRETE TO PROVIDE PROPER DRAINAGE  
OF WATER OUT OF THE SAMPLING STATION.

## WATER SAMPLING STATION

|          |                 |                |                    |
|----------|-----------------|----------------|--------------------|
| NO SCALE | FILE NO. SD0073 | APPROV. BY: AA | REV. DATE: NOV '23 |
|----------|-----------------|----------------|--------------------|

## SECTION

SCALE: 1"=1'



## PRESSURE TRANSMITTER ASSEMBLY

|            |                 |                 |                    |
|------------|-----------------|-----------------|--------------------|
| SCALE: NTS | FILE NO. SD0075 | APPROV. BY: RKT | REV. DATE: MAY '96 |
|------------|-----------------|-----------------|--------------------|



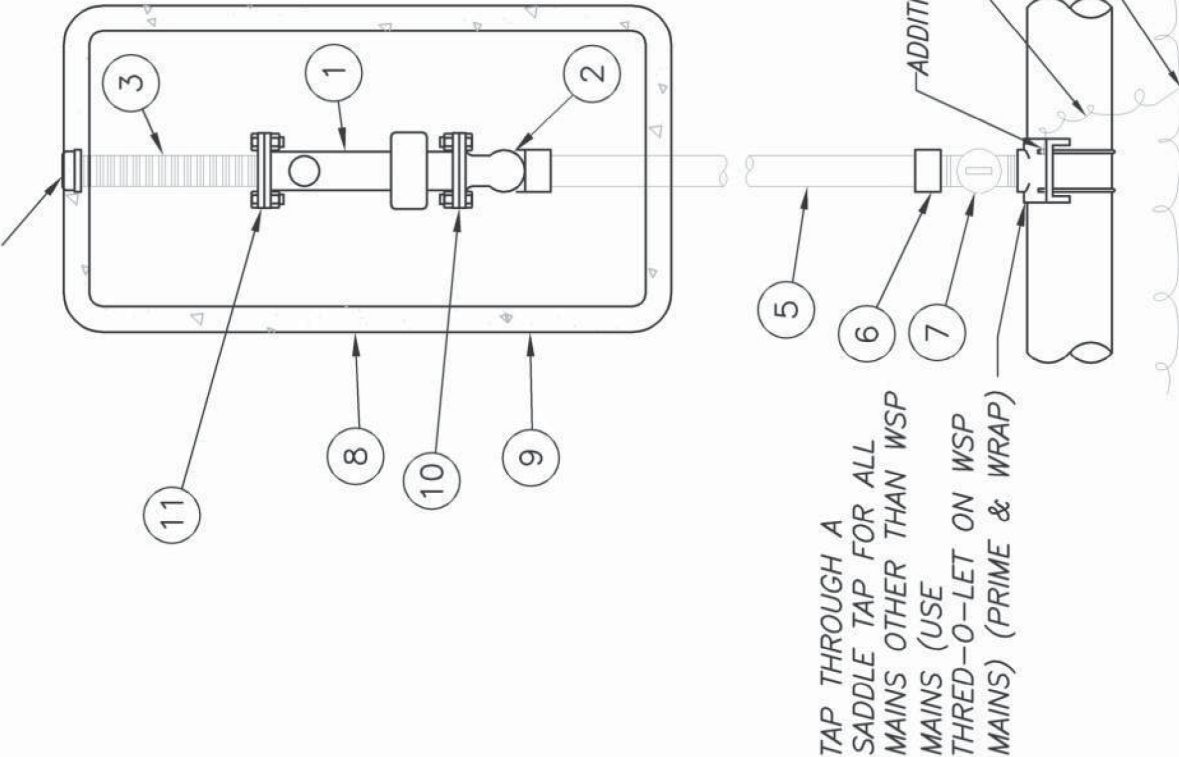


# MATERIAL LIST

| ITEM NUMBER | DESCRIPTION                                      | NUMBER REQUIRED |
|-------------|--|-----------------|
| 1           | 2" FLANGED TURBO METER                           | 1               |
| 2           | 2" COMP x FLG, ANGLE CURB COCK, MUELLER OR EQUAL | 1               |
| 3           | 2" THREADED BRASS NIPPLE (10" LONG)              | 1               |
| 4           | 2" THREADED CAP                                  | 1               |
| 5           | 2" COPPER TUBING                                 |                 |
| 6           | 2" FPT x COMP COUPLING (H15451)                  | 1               |
| 7           | 2" CORPORATION COCK (NO. 15023)                  | 1               |
| 8           | CHRISTY B-36 METER BOX WITH COVER                | 1               |
| 9           | LUMBER BLOCKS (2x12 REDWOOD) (NOTE 5)            | 4               |
| 10          | 2" FLANGE INSULATING KIT                         | 1               |
| 11          | 2" METER FLANGE                                  | 1               |

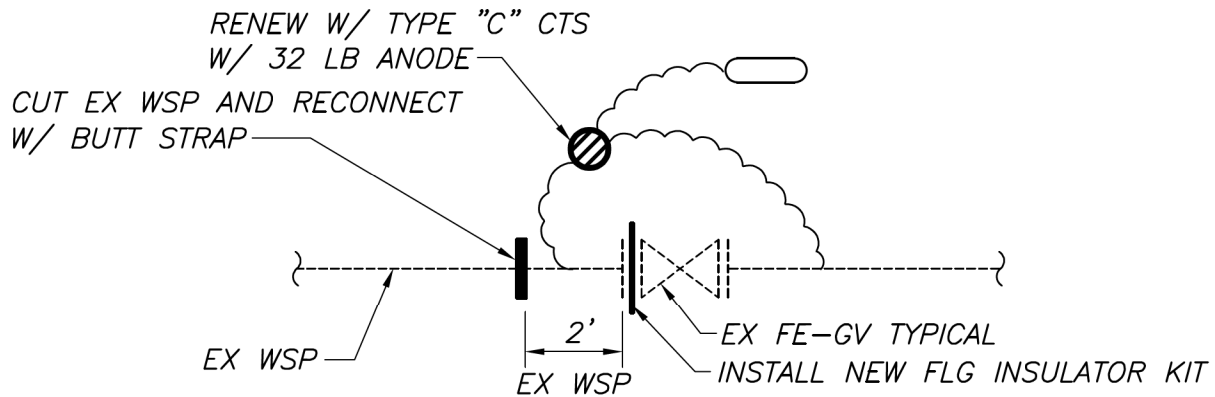
## NOTES:

1. PRIME AND WRAP ALL BARE METAL IN CONTACT WITH GROUND EXCEPT METAL BONNET AND 3" CAP
2. INSTALL METER BOX 4" ABOVE FINISH GRADE IF IN PLANTER AREA.
3. BURY ANODE 2 FEET BELOW PIPE.
4. PROPER BACKFLOW PROTECTION MUST BE INSTALLED ON THE CONSUMER SIDE OF METER ASSEMBLY.
5. INSTALL REDWOOD BLOCKS UNDER METER BOX ALONG EACH EDGE, SIMILAR SERVICE METER BOX.

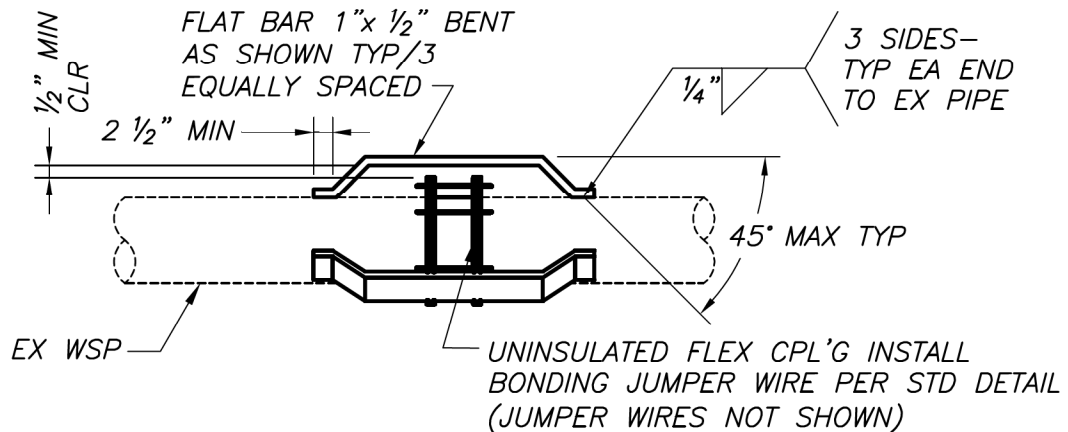


# 2" IRRIGATION METER

|          |                 |                |                    |
|----------|-----------------|----------------|--------------------|
| NO SCALE | FILE NO. SD0078 | APPROV. BY: JM | REV. DATE: MAY '08 |
|----------|-----------------|----------------|--------------------|



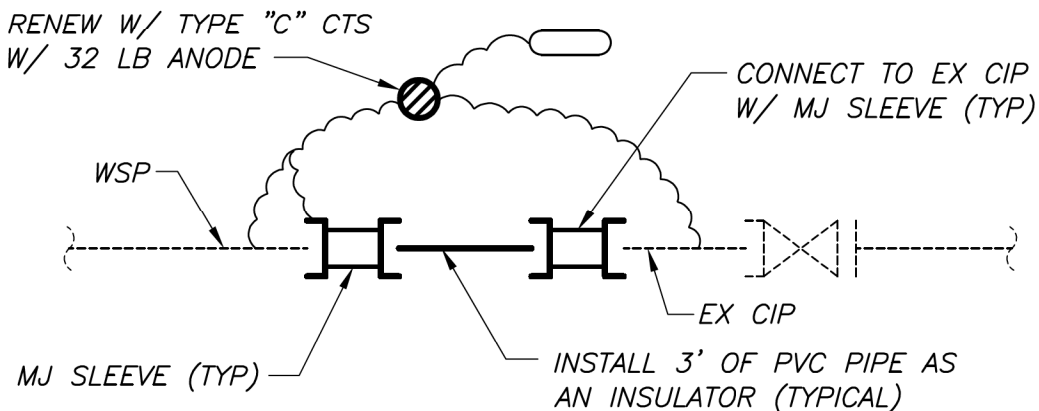
## **FLANGE INSULATING KIT INSTALLATION**



## **RESTRAINING STRAP DETAILS**

### **NOTE:**

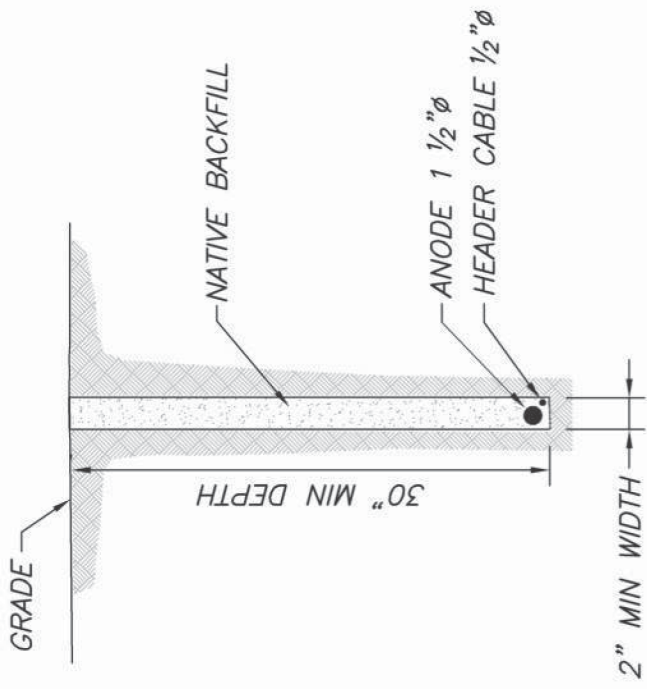
WHEN CONNECTING TO CIP, DO NOT BOND MJ COUPLING TO #8 WIRE. WHEN CONNECTING TO WSP BOND MJ COUPLING TO #8 WIRE. WHEN CONNECTING TO ACP/PVC BOND MJ COUPLING TO TRACER WIRE.



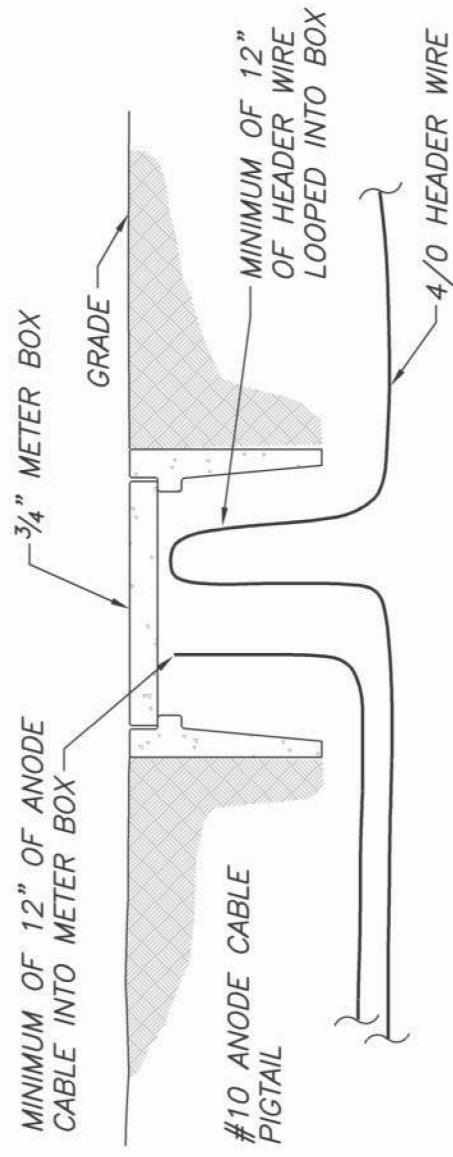
## **PVC INSULATOR INSTALLATION**

## **INSULATING DETAILS WITH HARNESS**

|          |                 |                |                    |
|----------|-----------------|----------------|--------------------|
| NO SCALE | FILE NO. SD0080 | APPROV. BY: EI | REV. DATE: FEB '19 |
|----------|-----------------|----------------|--------------------|



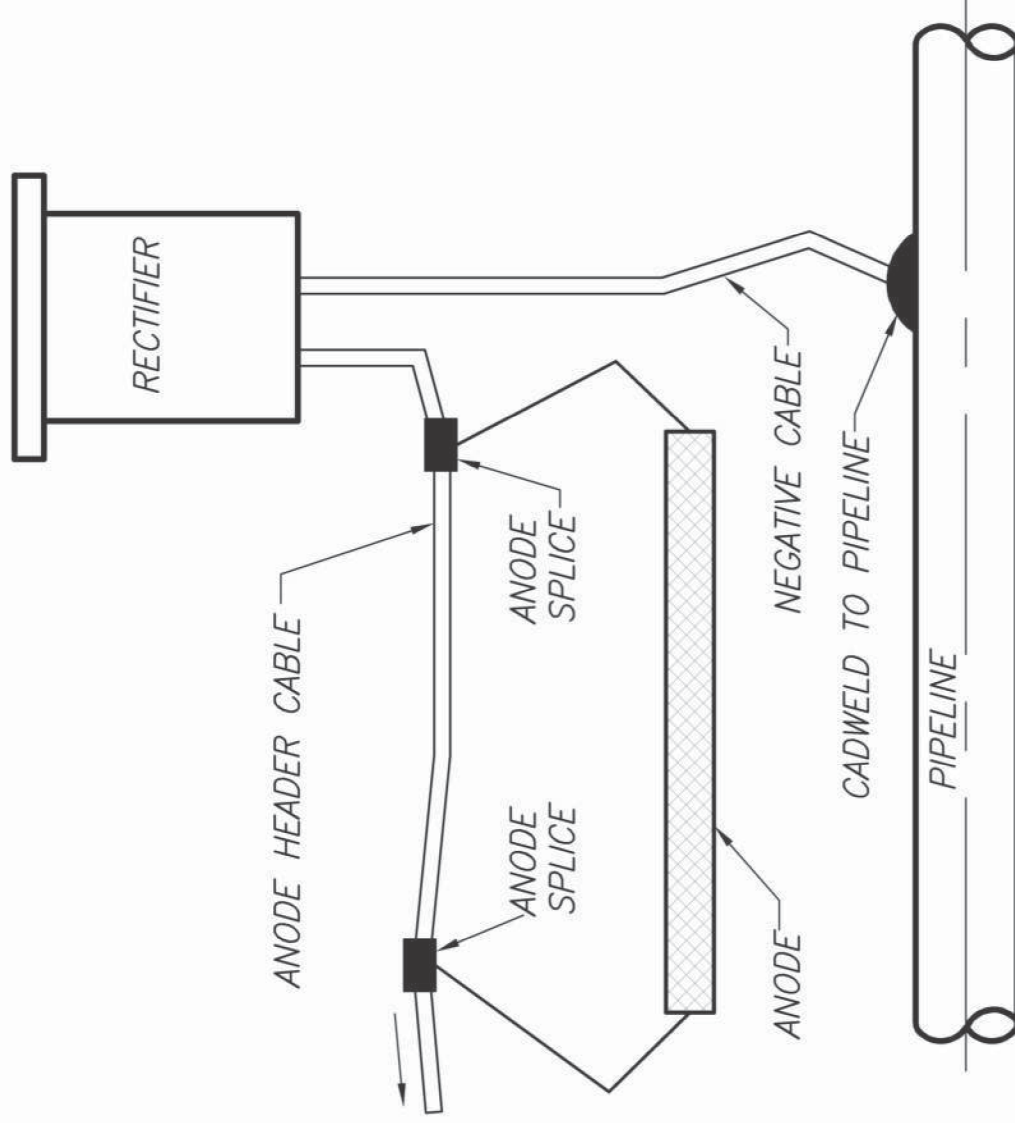
### TYP ANODE TRENCH



### TYP SPLICE BOX DETAIL

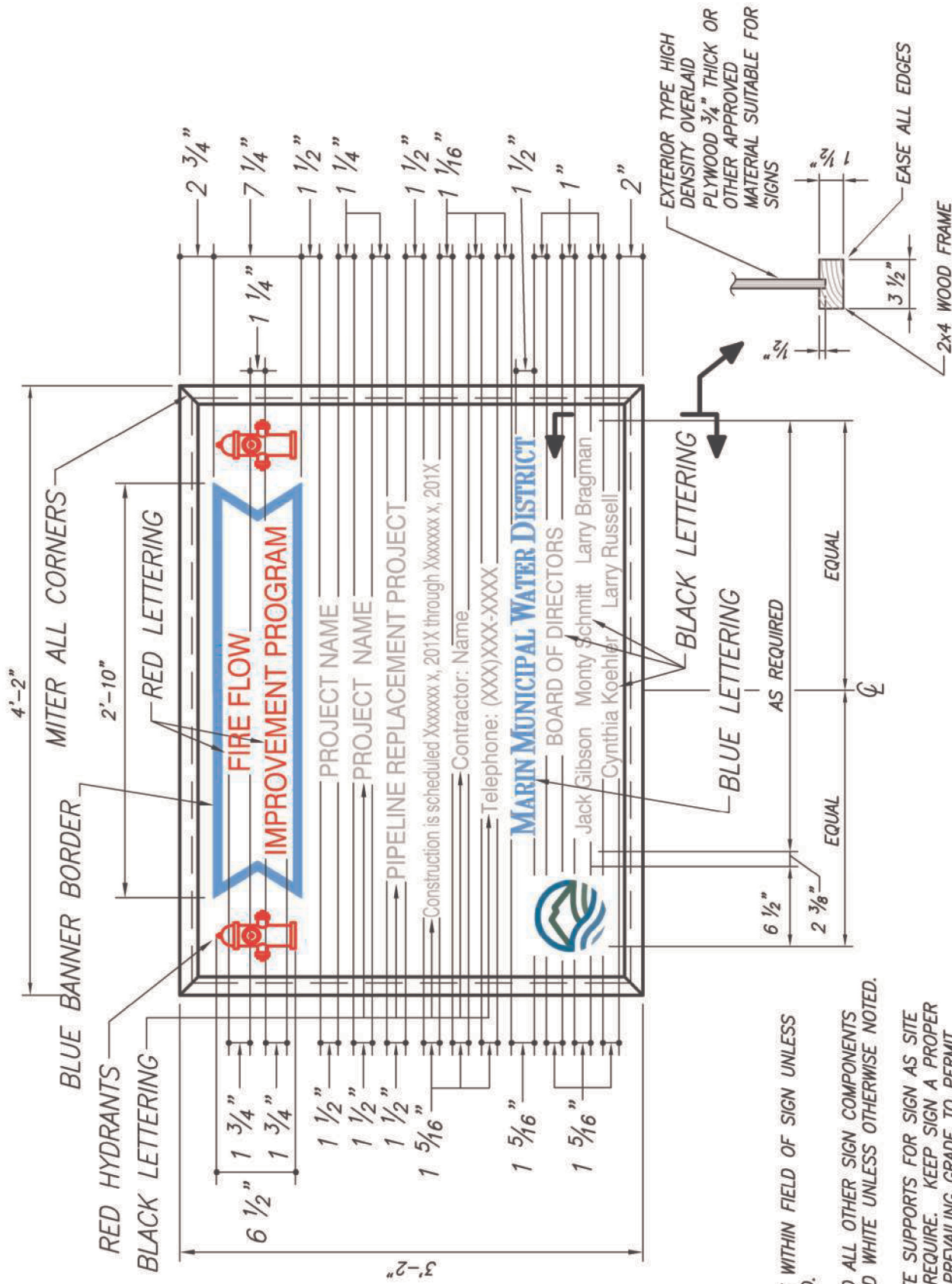
|            |                 |                 |                     |
|------------|-----------------|-----------------|---------------------|
| SCALE: NTS | FILE NO. SD0081 | APPROV. BY: RKT | REV. DATE: SEPT '98 |
|------------|-----------------|-----------------|---------------------|





## RECTIFIER INSTALLATION FOR PIPELINE

|            |                 |                 |                     |
|------------|-----------------|-----------------|---------------------|
| SCALE: NTS | FILE NO. SD0082 | APPROV. BY: RKT | REV. DATE: SEPT '98 |
|------------|-----------------|-----------------|---------------------|

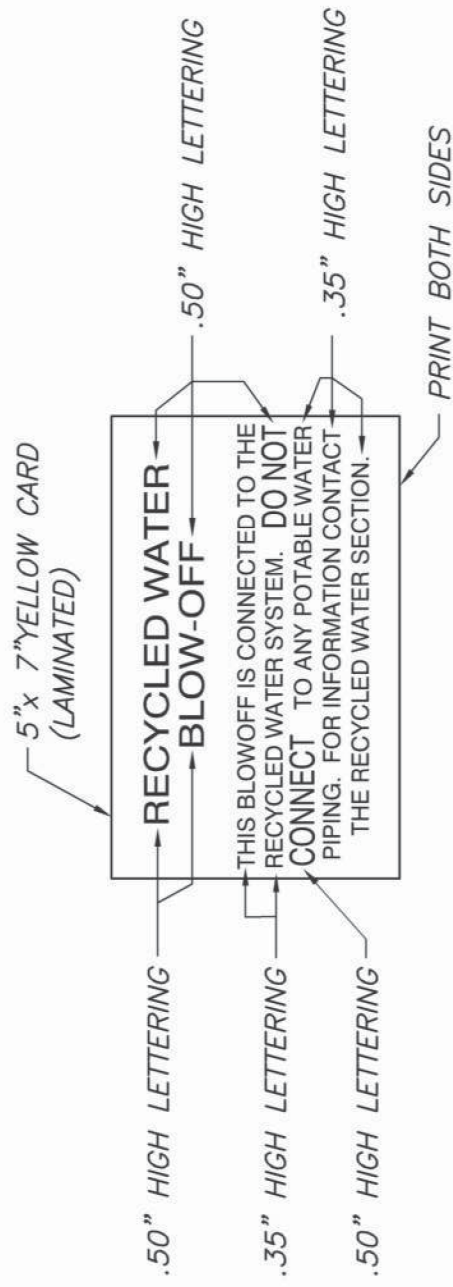


#### NOTES:

1. CENTER ALL TEXT WITHIN FIELD OF SIGN UNLESS OTHERWISE NOTED.
2. BACKGROUND AND ALL OTHER SIGN COMPONENTS SHALL BE PAINTED WHITE UNLESS OTHERWISE NOTED.
3. PROVIDE ADEQUATE SUPPORTS FOR SIGN AS SITE CONDITIONS MAY REQUIRE. KEEP SIGN A PROPER DISTANCE ABOVE PREVAILING GRADE TO PERMIT PUBLIC VIEWING.
4. THE CONTRACTOR SHALL PROVIDE & ERECT THE PROJECT SIGN CONFORMING TO THESE DETAILS & AT THE LOCATION SHOWN ON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL SUBMIT FINAL SIGN LAYOUT TO THE ENGINEER PRIOR TO FABRICATION.

#### FIREFLOW PROJECT SIGN DETAIL

|            |                 |                |                     |
|------------|-----------------|----------------|---------------------|
| SCALE: NTS | FILE NO. SD0083 | APPROV. BY: AA | REV. DATE: SEPT '21 |
|------------|-----------------|----------------|---------------------|

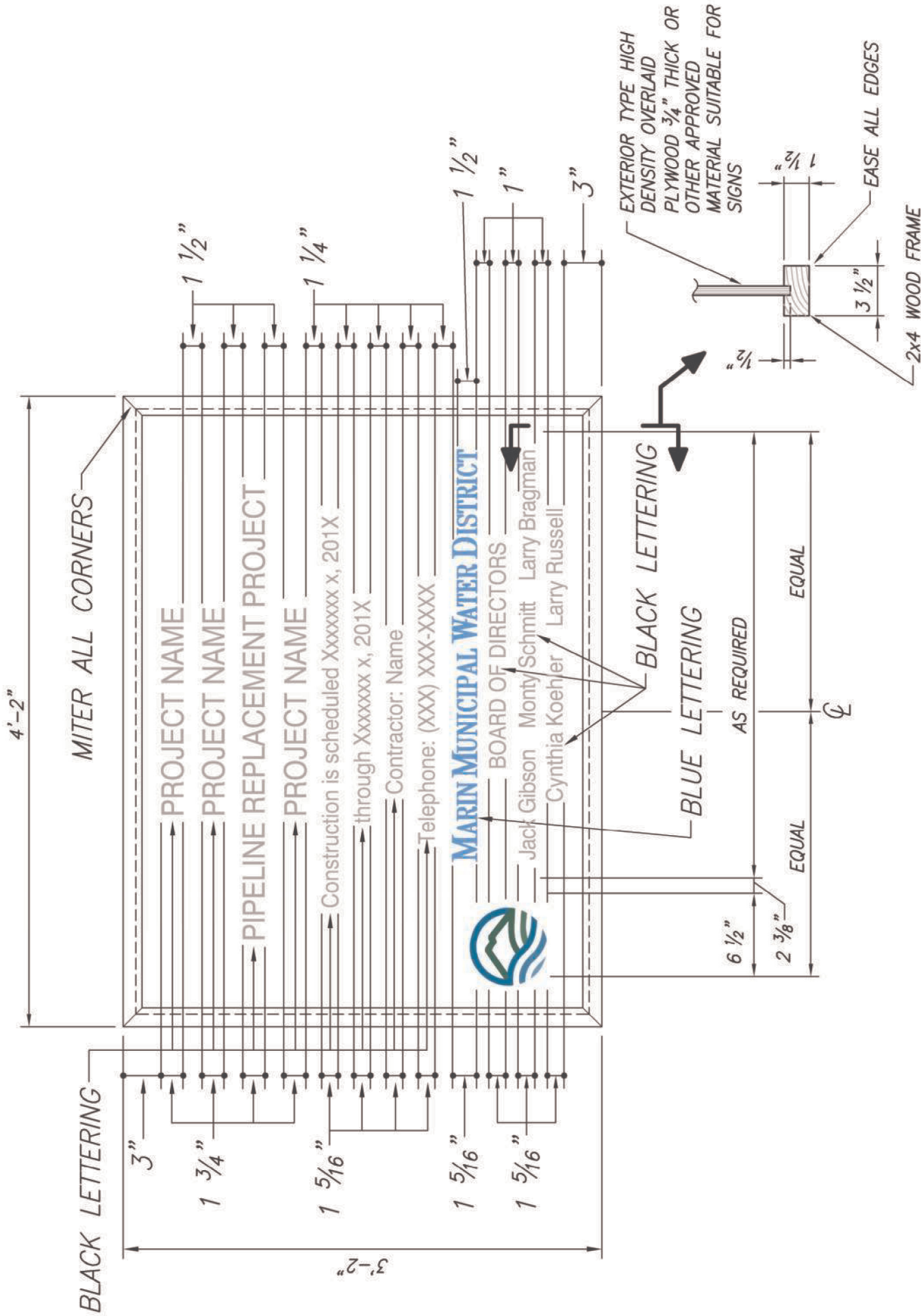


## I.D. TAG DETAIL

|          |                 |                |                    |
|----------|-----------------|----------------|--------------------|
| NO SCALE | FILE NO. SD0084 | APPROV. BY: KF | REV. DATE: FEB '10 |
|----------|-----------------|----------------|--------------------|

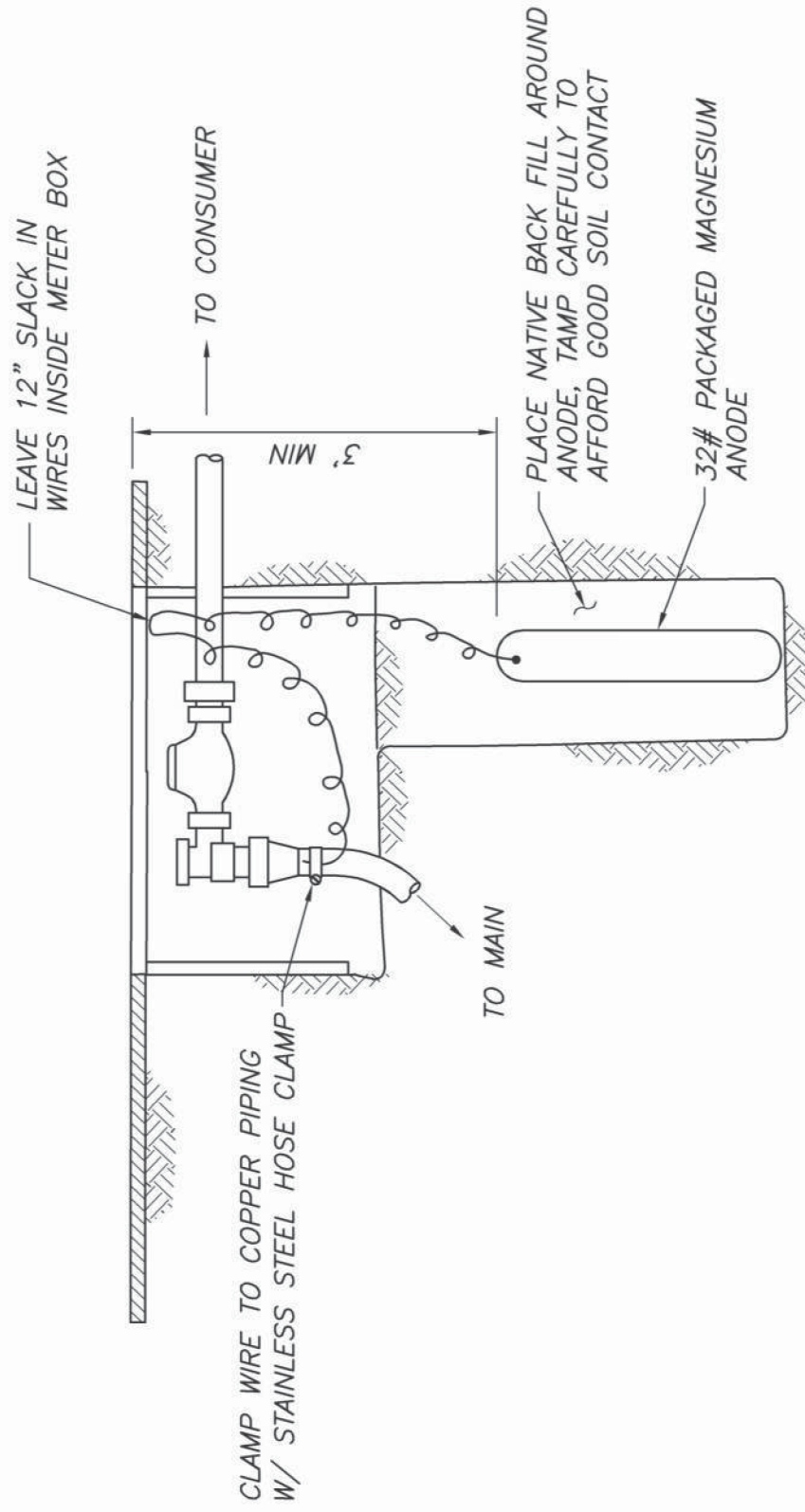


|            |                 |                |                     |
|------------|-----------------|----------------|---------------------|
| SCALE: NTS | FILE NO. SD0085 | APPROV. BY: AA | REV. DATE: SEPT '21 |
|------------|-----------------|----------------|---------------------|



## REHAB PROJECT SIGN DETAIL

|            |                 |                |                     |
|------------|-----------------|----------------|---------------------|
| SCALE: NTS | FILE NO. SD0087 | APPROV. BY: AA | REV. DATE: SEPT '21 |
|------------|-----------------|----------------|---------------------|



## **METER BOX WITH MAGNESIUM ANODE**

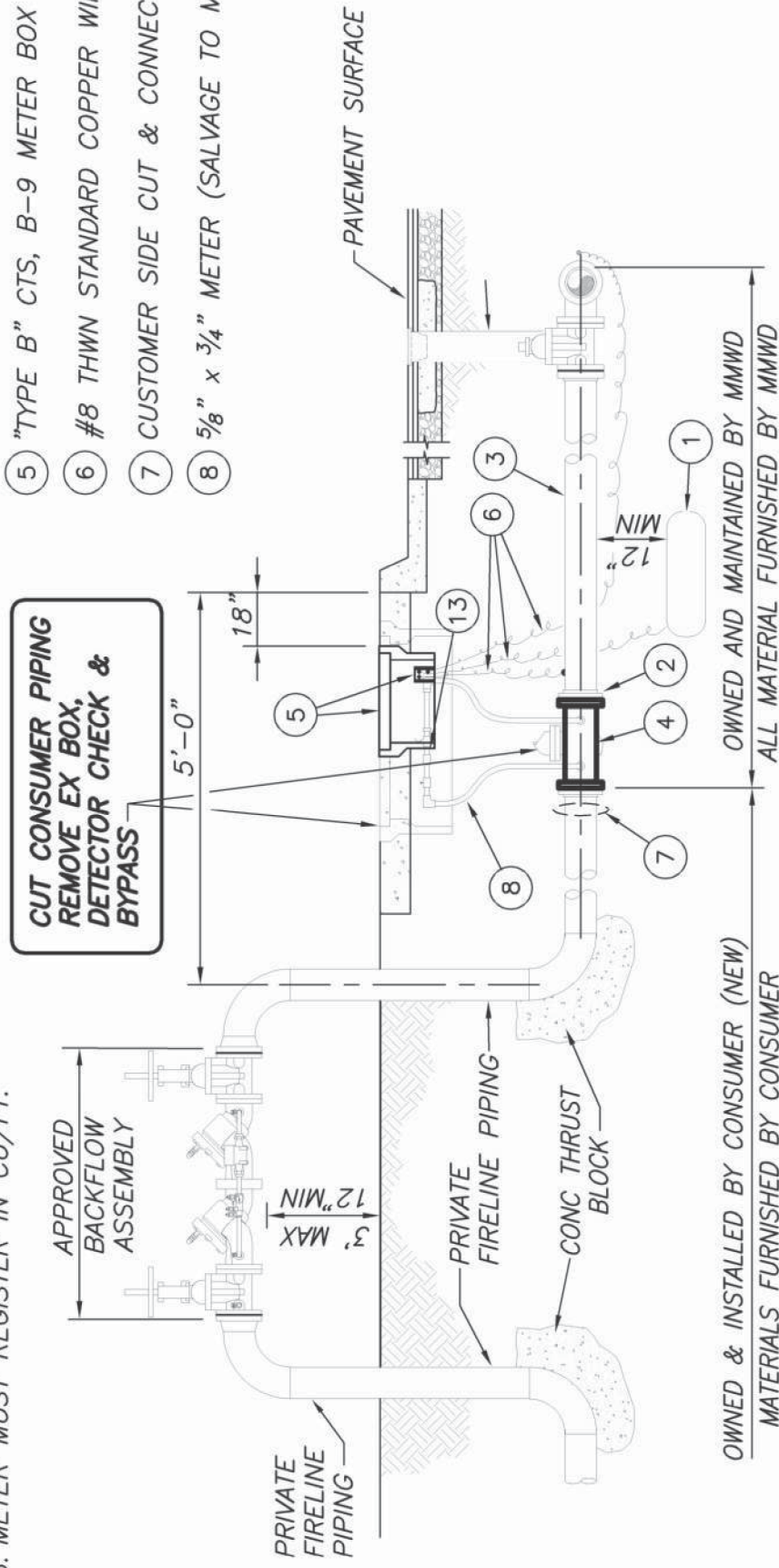
|          |                 |                 |                     |
|----------|-----------------|-----------------|---------------------|
| NO SCALE | FILE NO. SD0088 | APPROV. BY: RKT | REV. DATE: SEPT '98 |
|----------|-----------------|-----------------|---------------------|



## NOTES:

1. CONSUMER SHALL MARK LOCATION FOR PROPOSED ASSEMBLY FOR MMWD REVIEW & APPROVAL. ALL MMWD PIPING MUST BE IN THE PUBLIC EASEMENT. ASSEMBLY SHALL HAVE 12" CLEAR ALL AROUND. METER SHALL BE IN ACCESSIBLE LOCATION.
2. CONSUMER FURNISHED APPROVED BACKFLOW ASSEMBLY MUST BE ON SITE FOR MMWD INSPECTION PRIOR TO ANY MMWD PIPING INSTALLATION.
3. WRAP ALL BARE METAL BELOW GROUND.
4. CHLORINATE & TEST PRIOR TO CONNECTION.
5. TEST CORROSION SYSTEM PRIOR TO CONNECTION.
6. HOT TAP OF EX MAIN TO BE COORDINATED WITH MMWD.
7. MMWD WILL NOT TURN ON FIRELINE UNTIL FINAL PAVING & SIDEWALKS ARE COMPLETE.
8. METER MUST REGISTER IN CU/FT.

- 1 32# MAGNESIUM ANODE WITH PACKAGED BACKFILL W/ WIRE (N).
  - 2 SLIP-ON FLANGE (EX)
  - 3 WELDED STEEL PIPE (EX)
  - 4 HDPE SPOOL KIT (CONTRACTOR INSTALLED)
- PLEASE NOTE & PLAN ACCORDINGLY: THE SPOOL KIT DOES NOT HAVE THE SAME LAY LENGHT AS THE CHECK VALVE.**
- 5 "TYPE B" CTS, B-9 METER BOX
  - 6 #8 THWN STANDARD COPPER WIRE (E)
  - 7 CUSTOMER SIDE CUT & CONNECTION ONLY
  - 8 5/8" x 3/4" METER (SALVAGE TO MMWD)



OWNED & INSTALLED BY CONSUMER (NEW)  
MATERIALS FURNISHED BY CONSUMER

OWNED AND MAINTAINED BY MMWD  
ALL MATERIAL FURNISHED BY MMWD

## FIRELINE RETROFIT WSP BELOW TO ABOVE GROUND BACKFLOW

NO SCALE

FILE NO. SD0089

APPROV. BY: DS

REV. DATE: MAR '19

INSTALL B36 BOX, METER  
& CTS (MMWD OWNED)

EX FIRELINE

BURY OR REPLACE EX  
BOX WITH FIRE DEPT.  
APPROVED VAULT  
(CONSUMER OWNED)

### PLAN VIEW

ALL PIPING TO  
BE 3/4" BRASS  
NIPPLE CLOSE

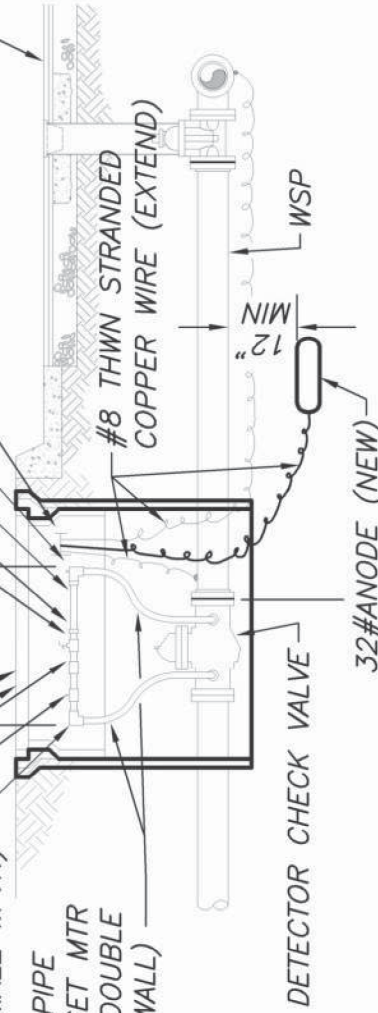
B-36 METER BOX W/LID  
3/4" BRASS CHECK VALVE  
3/4" STRAIGHT CURB COCK  
3/4" BRONZE 90°  
(COPPER TO MALE I.P.T.)  
3/4" COPPER PIPE  
(EXTEND & SET MTR  
IN B9 BOX, DOUBLE  
WRAP THRU WALL)

3/4" BRASS TEE W/  
3/4" BRASS HOSE BIBB  
3/4" BRASS METER CPLG  
5/8" x 3/4" METER SPACER  
3/4" BRASS ANGLE COCK  
CTS TERMINAL BLOCK

PAVEMENT SURFACE

### NOTES:

1. THE METER BOX IS TO BE LOCATED TO  
SIDE OF THE DETECTOR CHECK VALVE  
BOX. IF THIS IS NOT POSSIBLE OR  
DESIRABLE, HAVE MMWD APPROVE  
ALTERNATIVE LOCATION BEFORE  
PROCEEDING.
2. WRAP ALL BARE METAL. INSTALL NEW  
ANODE.
3. TEST LEADS AND INSULATING FITTINGS  
SHALL BE INSPECTED AND TESTED PRIOR  
TO COMPLETION.
4. THE HOSE BIB IS TO ALLOW TESTING OF  
METER & TESTING OF THE CHECK VALVES.



OWNED & MAINTAINED BY  
CONSUMER EXCEPT FOR BYPASS  
MTR

OWNED & MAINTAINED BY MMWD

## FIRELINE, INSPECTION & METER RETROFIT

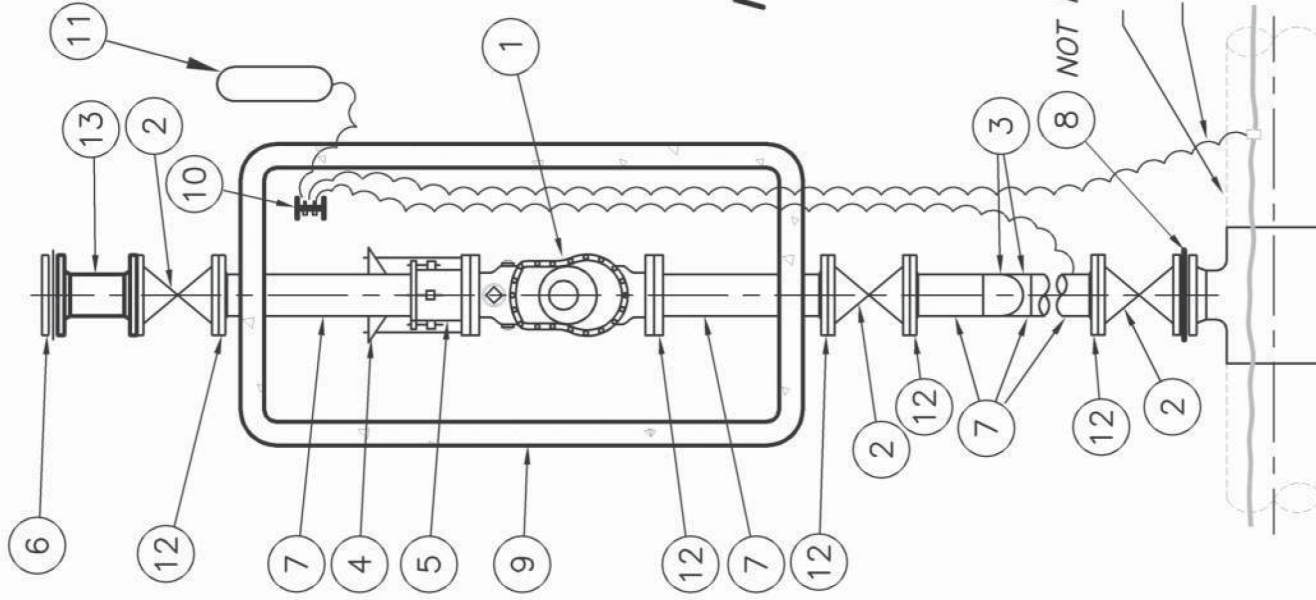
NO SCALE

FILE NO. SD0090

APPROV. BY: EI

REV. DATE: FEB '18





NOT REQUIRED FOR AC OR PVC MAINS. FOR WSP, VERIFY WITH CORROSION DEPT.  
WHEN TAPPING PVC, AC OR CI PIPE, USE TEE OR TAPPING SLEEVE.  
INSTALL TEST LEAD & CONNECT TO TRACER WIRE WITH SPLIT BOLT WHEN  
TAPPING AC OR PVC PIPE.

## MATERIAL LIST

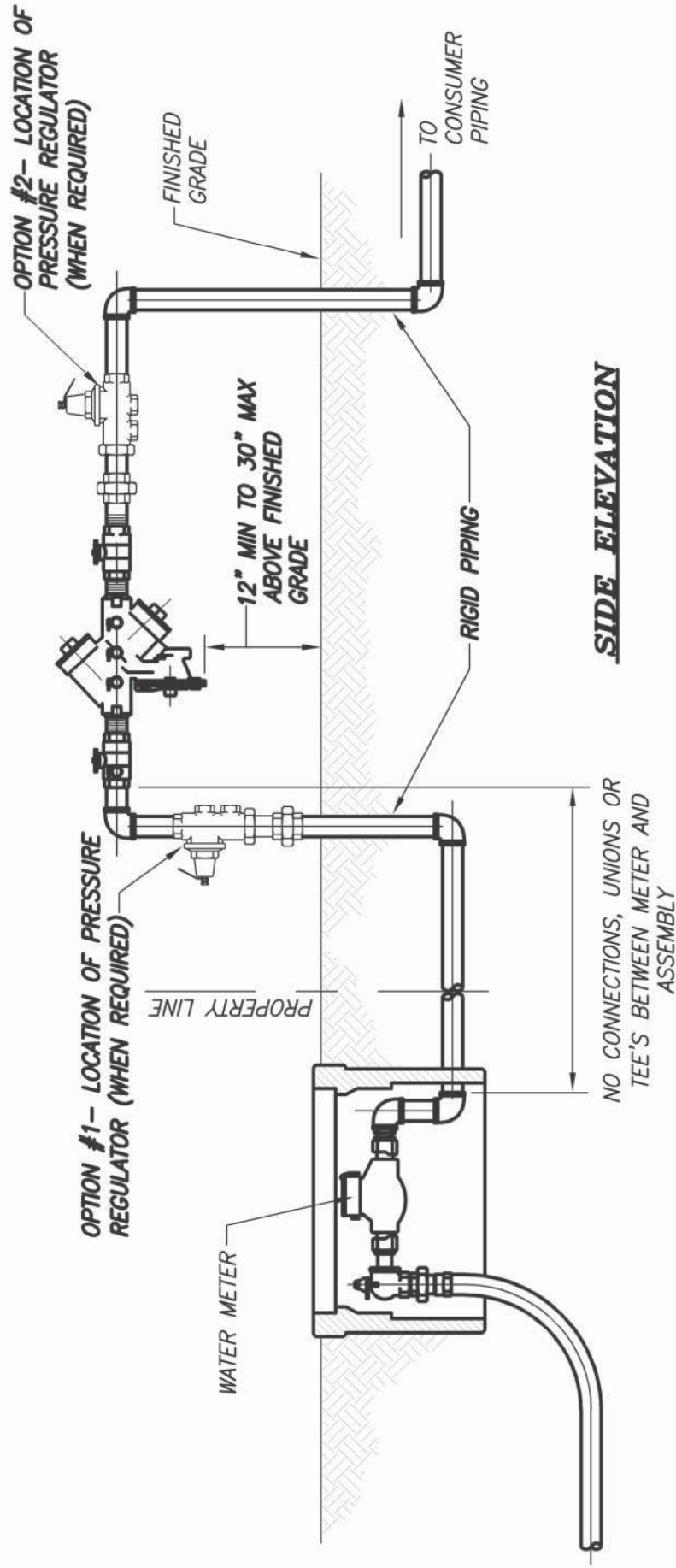
| ITEM NO | DESCRIPTION   | NO. REQUIRED |
|---------|---|--------------|
| 1       | 4" FLANGED COMPOUND METER   | 1            |
| 2       | 4" FLANGED GATE VALVE   | 3            |
| 3       | 4" 90° WELD ELL   | 2            |
| 4       | HARNESS (2 RODS & 2 EARS-SEE DETAIL SD0014)                           | 1            |
| 5       | 4" FLANGE COUPLING ADAPTER  | 1            |
| 6       | 4" BLIND FLG  | 1            |
| 7       | 4" WELDED STEEL PIPE  |              |
| 8       | 4" FLANGE INSULATING KIT  | 1            |
| 9       | CHRISTY B-52 METER BOX AND B52-62G STEEL COVER (SET ON REDWOOD BLOCK) | 1            |
| 10      | TYPE "B" CTS IN METER BOX   | 1            |
| 11      | 32# PACKAGED ANODE  | 1            |
| 12      | 4" SLIP-ON FLANGE   | 5            |
| 13      | HDPE SPOOL KIT  | 1            |

## NOTES:

1. PRIME AND WRAP ALL BARE METAL IN CONTACT WITH GROUND EXCEPT METAL BONNET AND 4" BLIND FLG.
2. INSTALL METER BOX 4" ABOVE FINISH GRADE IF IN PLANTER AREA.

## 4" TURBINE METER





**NOTES:**

1. Backflow prevention assemblies shall be only those approved by the District.
2. Any deviation from the methods described herein must receive approval prior to installation.
3. Backflow prevention assemblies shall be installed on the customer's property, at the meter, in an orientation shown on the MMWD Approved Assembly List with 12 inches clearance completely around the assembly to allow for testing and maintenance.

No outlets, tees, taps, by-passes other connections, temporary or permanent shall be installed between the water meter and the backflow prevention assembly. Wye strainer with plugged tap (no method to flush allowed), pressure reducing valve and union may be installed before the backflow prevention assembly. All other appurtenances shall be installed downstream.

4. Alternate installation locations or arrangements shall be reviewed and approved by the District prior to installation.

**SPECIAL NOTES:**

1. Installation of a backflow prevention assemblies creates a closed water system. Thermal expansion protection is required by the California Plumbing Code.
2. Where necessary the backflow prevention assembly should be protected from vehicle or freeze damage.
3. Water services which cannot be turned off for short durations should have backflow prevention assemblies installed in parallel.
4. Please see the California Plumbing Code for other aspects of installation requirements.

# **BACKFLOW ASSEMBLY STANDARD INSTALLATION DIAGRAM**

NO SCALE

FILE NO. SD0092

APPROV. BY: DS

REV. DATE: APR '12

INSTALL B36 BOX, METER & CTS (MMWD OWNED)

INSTALL HDPE SPOOL. ALL CUT & CONNECTION TO CUSTOMER SIDE.

EX FIRELINE

BURY OR REPLACE EX BOX WITH FIRE DEPT. APPROVED VAULT (CONSUMER OWNED)

PLAN VIEW

ALL PIPING TO BE 3/4" BRASS NIPPLE CLOSE

B-36 METER BOX W/LID  
3/4" BRASS CHECK VALVE  
3/4" STRAIGHT CURB COCK  
3/4" BRONZE 90°  
(COPPER TO MALE I.P.T.)

3/4" COPPER PIPE  
(EXTEND & SET MTR IN B9 BOX, DOUBLE WRAP THRU WALL)

3/4" BRASS TEE W/  
3/4" BRASS HOSE BIBB  
3/4" BRASS METER CPLG  
5/8" x 3/4" METER SPACER  
3/4" BRASS ANGLE COCK  
CTS TERMINAL BLOCK

PAVEMENT SURFACE

### NOTES:

1. THE METER BOX IS TO BE LOCATED TO SIDE OF THE DETECTOR CHECK VALVE BOX. IF THIS IS NOT POSSIBLE OR DESIRABLE, HAVE MMWD APPROVE ALTERNATIVE LOCATION BEFORE PROCEEDING.

2. WRAP ALL BARE METAL. INSTALL NEW ANODE.

3. TEST LEADS AND INSULATING FITTINGS SHALL BE INSPECTED AND TESTED PRIOR TO COMPLETION.

4. THE HOSE BIB IS TO ALLOW TESTING OF METER & TESTING OF THE CHECK VALVES.

CUT & CONNECTION ONLY  
NEW DETECTOR CHECK VALVE  
EX DETECTOR CHECK VALVE

OWNED & MAINTAINED BY  
CONSUMER EXCEPT FOR BYPASS  
MTR

OWNED & MAINTAINED BY MMWD

## FIRELINE, INSPECTION & INSULATION RETROFIT

NO SCALE

FILE NO. SD0093

APPROV. BY: EI

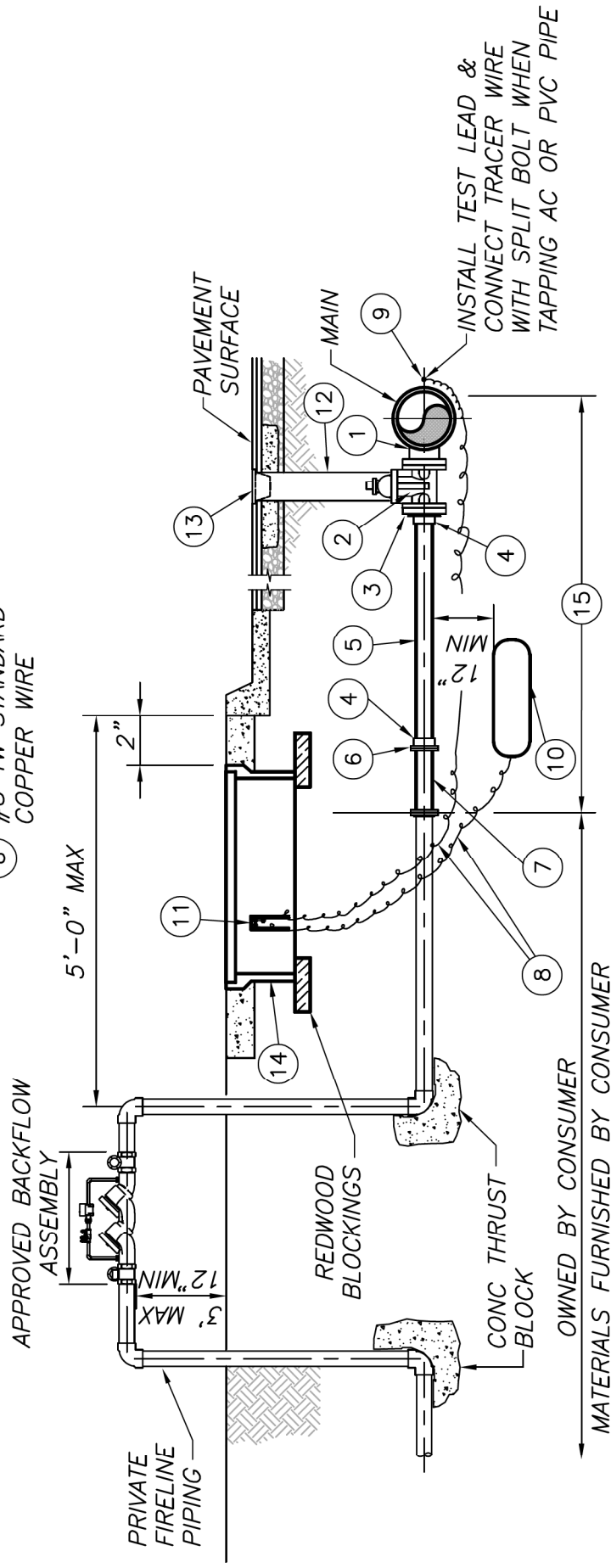
REV. DATE: FEB '18

## NOTES:

1. CONSUMER SHALL MARK LOCATION FOR PROPOSED ASSEMBLY FOR MMWD REVIEW & APPROVAL. ALL MMWD PIPING MUST BE IN THE PUBLIC EASEMENT. ASSEMBLY SHALL HAVE 12" CLEAR ALL AROUND. METER SHALL BE IN ACCESSIBLE LOCATION.
2. CONSUMER FURNISHED APPROVED BACKFLOW ASSEMBLY MUST BE ON SITE FOR MMWD INSPECTION PRIOR TO ANY MMWD PIPING INSTALLATION. THRUST BLOCKS REQUIRED.
3. WRAP ALL BARE METAL BELOW GROUND.
4. CHLORINATE & TEST PRIOR TO CONNECTION.
5. TEST CORROSION SYSTEM PRIOR TO CONNECTION.
6. HOT TAP OF EX MAIN TO BE COORDINATED WITH MMWD.
7. MMWD WILL NOT TURN ON FIRELINE UNTIL FINAL PAVING & SIDEWALKS ARE COMPLETE.
8. CONSUMER PIPING DEPTH PER CALIFORNIA PLUMBING & NFPA CODE REQUIREMENTS.

## MMWD FURNISHED MATERIAL

- |   |   |    |  |
|---|---|----|--|
| 1 | 4" TAPPING SLEEVE, TEE OR WELDED SADDLE | 9  | #S8S SPLIT BOLT CONNECTOR  |
| 2 | 4" FE GATE VALVE                        | 10 | 32# MAGNESIUM ANODE WITH PACKAGED BACKFILL W/ WIRE                                   |
| 3 | 4"x 2" REDUCING FLANGE                  | 11 | TYPE "B" CTS   |
| 4 | 2" MALE X COMP                          | 12 | 5"Ø ALUMINUM TUBING  |
| 5 | 2" COPPER PIPE                          | 13 | CI VALVE CAP   |
| 6 | 2" COMPANION FLANGE                     | 14 | B9 METER BOX   |
| 7 | 2" HDPE SPOOL KIT                       | 15 | OWNED AND MAINTAINED BY MMWD. ALL MATERIAL FURNISHED BY MMWD. RENEW, EXTENT OF WORK. |
| 8 | #8 TW STANDARD COPPER WIRE              |    |  |



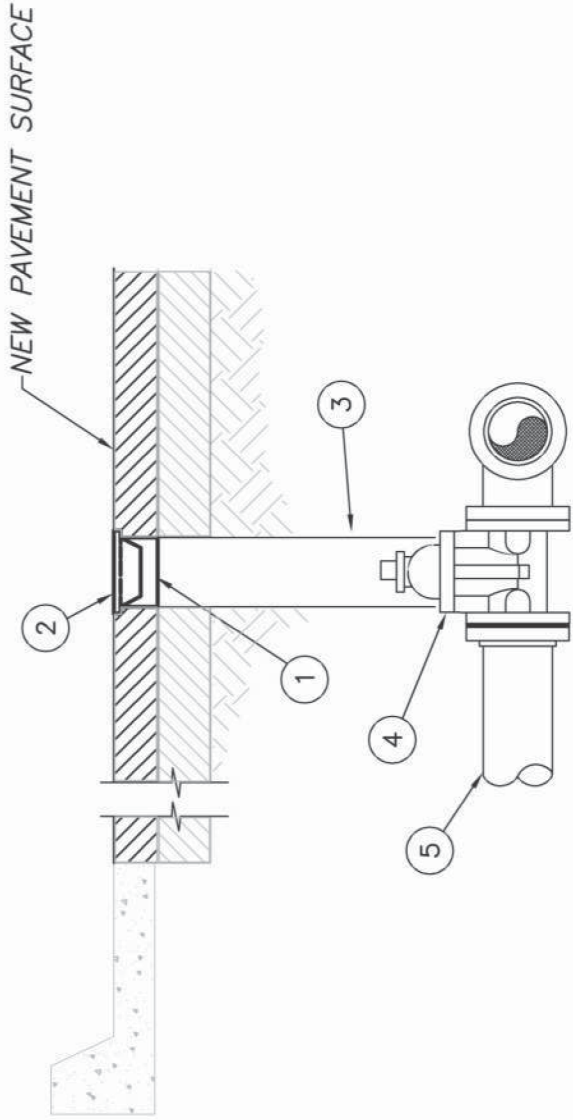
## 2" FIRELINE, NEW & RENEW

|          |                 |                |                    |
|----------|-----------------|----------------|--------------------|
| NO SCALE | FILE NO. SD0094 | APPROV. BY: ZT | REV. DATE: MAY '25 |
|----------|-----------------|----------------|--------------------|



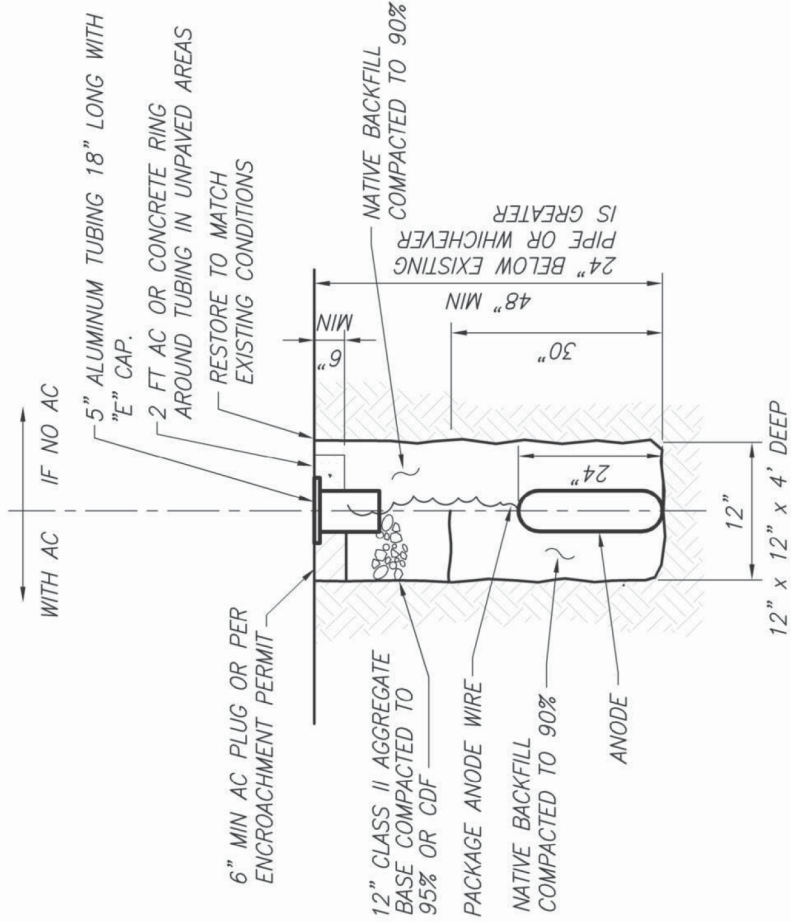
**MMWD FURNISHED MATERIAL**

- ① NEW 5"Ø ALUMINUM TUBING VALVE CAP RISER PLACEMENT
- ② VALVE CAP
- ③ EXISTING 5"ØALUMINUM TUBING
- ④ GATE VALVE
- ⑤ EXISTING WATER PIPE

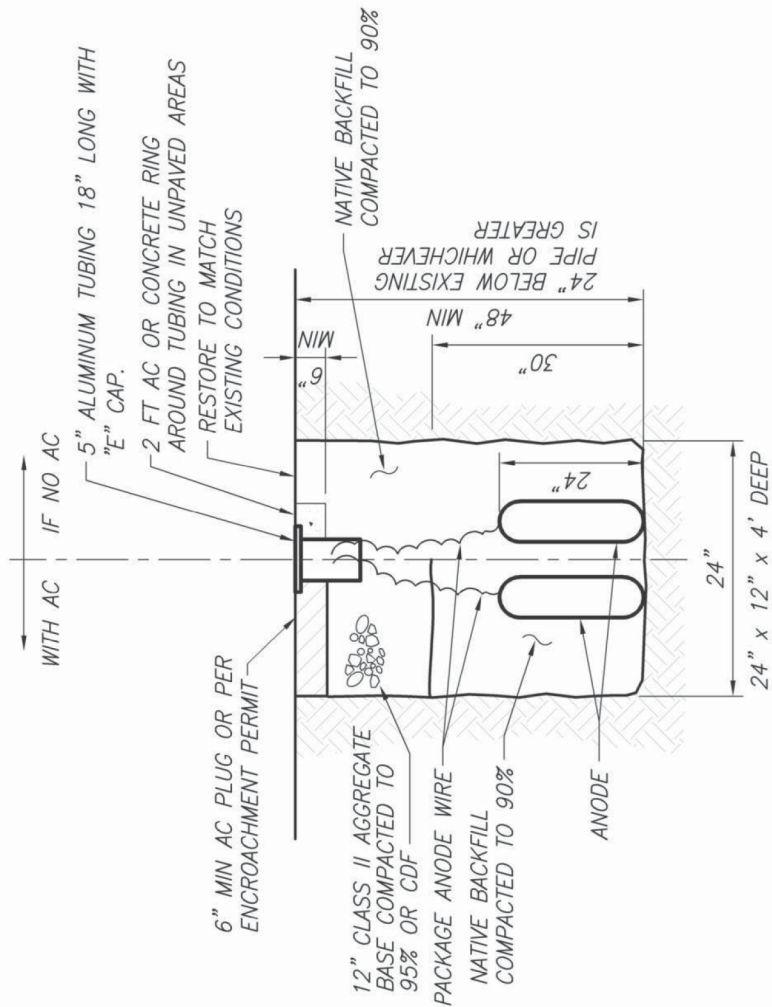


**NEW 5"Ø ALUMINUM TUBING VALVE CAP RISER**

|          |                 |                |                    |
|----------|-----------------|----------------|--------------------|
| NO SCALE | FILE NO. SD0095 | APPROV. BY: EI | REV. DATE: JAN '18 |
|----------|-----------------|----------------|--------------------|



**ONE ANODE POTHOLE DETAIL**



**TWO ANODE POTHOLE DETAIL**

**ANODE POTHOLE DETAILS**

|          |                 |                |                    |
|----------|-----------------|----------------|--------------------|
| NO SCALE | FILE NO. SD0096 | APPROV. BY: GA | REV. DATE: MAY '18 |
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