

# WATER DISTRICT NO. 90

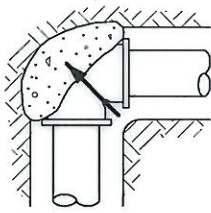
## WATER STANDARD DETAILS

<u>DWG. NO.</u>	<u>DETAIL TITLE (DATE APPROVED)</u>
1	CONCRETE BLOCKING (06-25-02)
2	SERVICE SADDLE, CORP STOP AND SERVICE LINE TYPICAL ROADWAY SECTION (12-5-06)
3	TYPICAL SERVICE DETAIL SINGLE SERVICE (1/13/11)
4	FIRE HYDRANT ASSEMBLY (07-09-02)
5	DELETED (06-13-02)
6	DELETED (06-13-02)
7	MARKER POST (05-23-02)
8	2" BLOW OFF ASSEMBLY (IN PAVING) (05-23-02)
9	2" BLOW OFF ASSEMBLY (OFF PAVING) (06-25-02)
10-1	4" BLOW OFF ASSEMBLY FOR 8" AND LARGER MAINS (IN PAVING) (06-25-02)
10-2	4" BLOW OFF ASSEMBLY FOR 8" OR LARGER MAINS FOR FUTURE EXTENSION (IN PAVING) (06-25-02)
11-1	4" BLOW OFF ASSEMBLY FOR 8" AND LARGER MAINS (OFF PAVING) (05-23-02)
11-2	4" BLOW OFF ASSEMBLY FOR 8" AND LARGER MAINS FOR FUTURE EXTENSION (OFF PAVING) (06-25-02)
12	SACK SLOPE RETAINER (06-25-02)
13	STEEL SLOPE RETAINER (06-25-02)
14	CONCRETE PIPE ANCHOR (06-25-02)
15-1	3", 4" AND 6" METERS (06-25-02)
15-2	3", 4", AND 6" METERS MATERIAL LIST AND GENERAL NOTES (05-15-09)
16	3" AIR/VAC VALVE ASSEMBLY FOR 10" & LARGER MAINS (04-10-07)
17	PIPE ANCHOR (06-25-02)
18	2" AIR/VAC VALVE ASSEMBLY FOR 8" & SMALLER MAINS (04-10-07)
19	DELETED (03-23-07)
20-1	DOUBLE DETECTOR CHECK VALVE BACKFLOW PREVENTION ASSEMBLY (06-25-02)

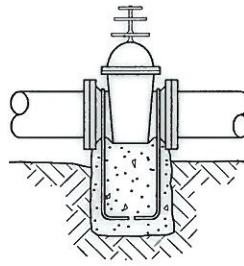
# WATER DISTRICT NO. 90

## WATER STANDARD DETAILS

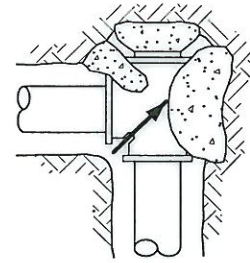
<u>DWG. NO.</u>	<u>DETAIL TITLE (DATE APPROVED)</u>
20-2	DOUBLE DETECTOR CHECK VALVE BACKFLOW PREVENTION ASSEMBLY (05-15-09)
21	WATER SERVICE CONNECTION 1 ½ INCH AND LARGER (06-25-02)
22	1 ½" AND 2" METER SETTERS (ALTERNATE 1) (06-25-02)
23	DELETED (06-25-02)
24	CROSS CONNECTION CONTROL-DCVA (02-03-05)
28	METER BOX LOCATION (1/13/11)
29	DELETED (07-09-02)
30	DELETED (01-25-05)
31	A/C WATER MAIN REPLACEMENT @ SANITARY SEWER CROSSING (03-12-04)
32	CROSS CONNECTION CONTROL-RPBA (02-03-05)
33	TYPICAL TRENCH DETAIL (05-15-09))
34	FIRE/DOMESTIC CONNECTION (05-20-08)
35	INDIVIDUAL PRESSURE REDUCING VALVE ( <del>05-15-09</del> ) (11-22-09)
36	VALVE OPERATION NUT EXTENSION (05-15-09)
37	ZONE VALVE (5/4/10)
C-1	CONSTRUCTION PROVISIONS (02-03-05)
C-2	MATERIALS AND SURFACE RESTORATION (02-03-05)



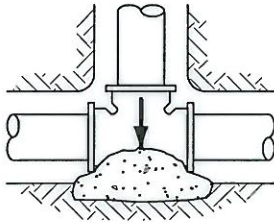
**HORIZONTAL BEND**



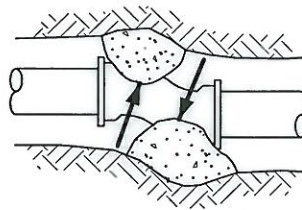
**VALVE ANCHOR**



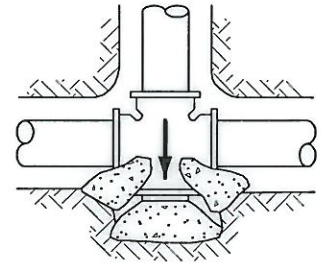
**PLUGGED TEE**



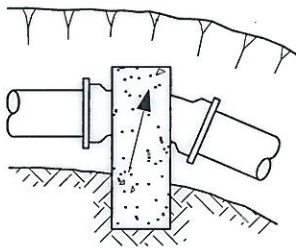
**TEE**



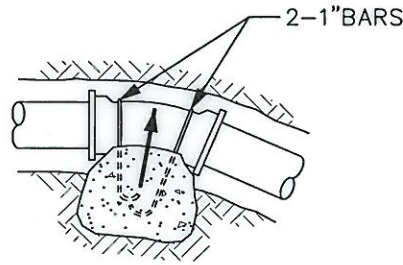
**OFFSET**



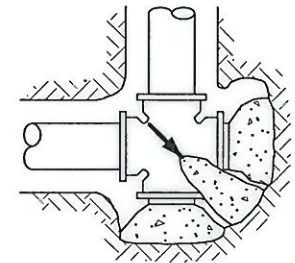
**PLUGGED CROSS**



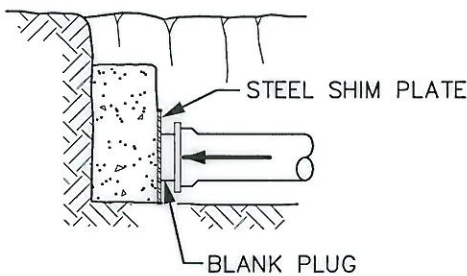
**VERTICAL BEND**



**ALTERNATE VERTICAL BEND**



**PLUGGED CROSS**



**PLUGGED END FOR FUTURE EXPANSION**

**NOTES:**

1. ALL CONCRETE FOR BLOCKING SHALL BE FIVE (5) SACK MIX.
2. ALL BLOCKING SHALL BE POURED AGAINST FIRM, UNDISTURBED EARTH.
3. BLOCKING AGAINST FILL MATERIAL, DISTURBED OR POOR SOILS SHALL BE DESIGNED BY DISTRICT ENGINEER.



Engineering Partners, LLC

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Bellevue, Washington 98004  
Tel 425.869.9448

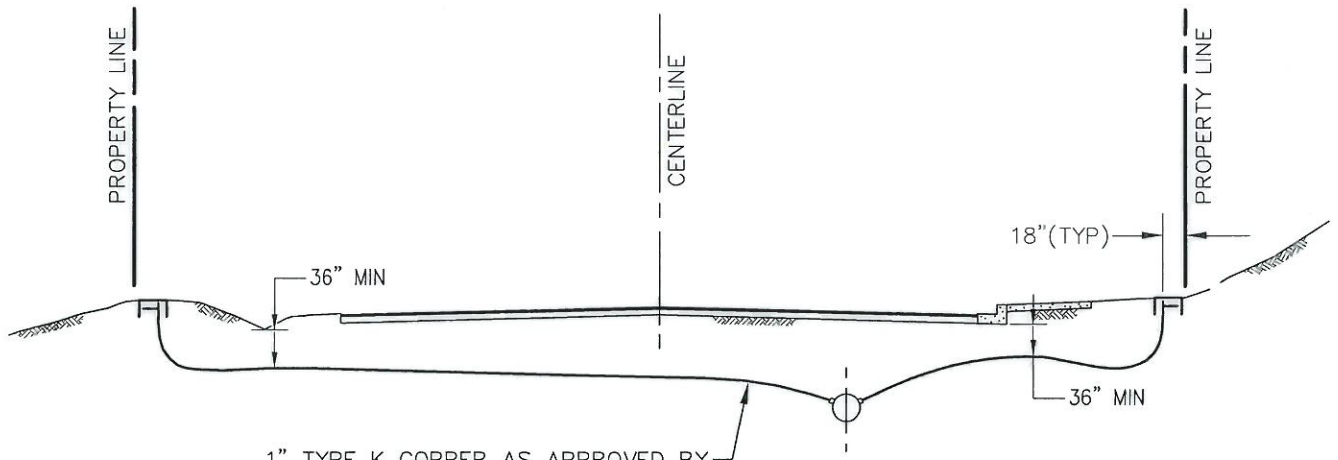
**CONCRETE BLOCKING**

PLOTTING DATE JAN. 2005	DRAWN SH	CHECKED KRG	APPROVED <i>ASF</i>	DISTRICT <i>T.N.H</i>
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0001	DATE APPROVED 6-25-02		



WATER DISTRICT NO.90

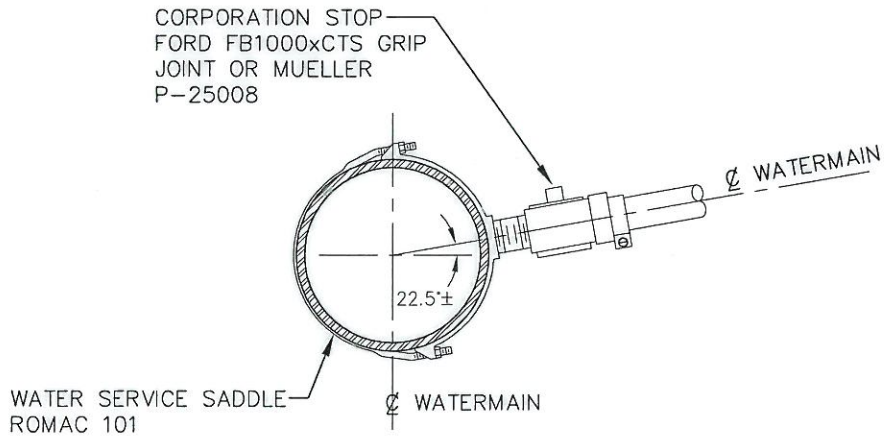
DWG. NO. 1



1" TYPE K COPPER AS APPROVED BY DISTRICT. EXPANSION LOOPS MUST BE HELD FLAT AS POSSIBLE.

ROADWAY WITH DITCHES

ROADWAY WITH CURB & GUTTER



NOTE: COPPER LINE BETWEEN CORP STOP & ANGLE STOP SHALL BE ONE PIECE (NO FITTINGS)



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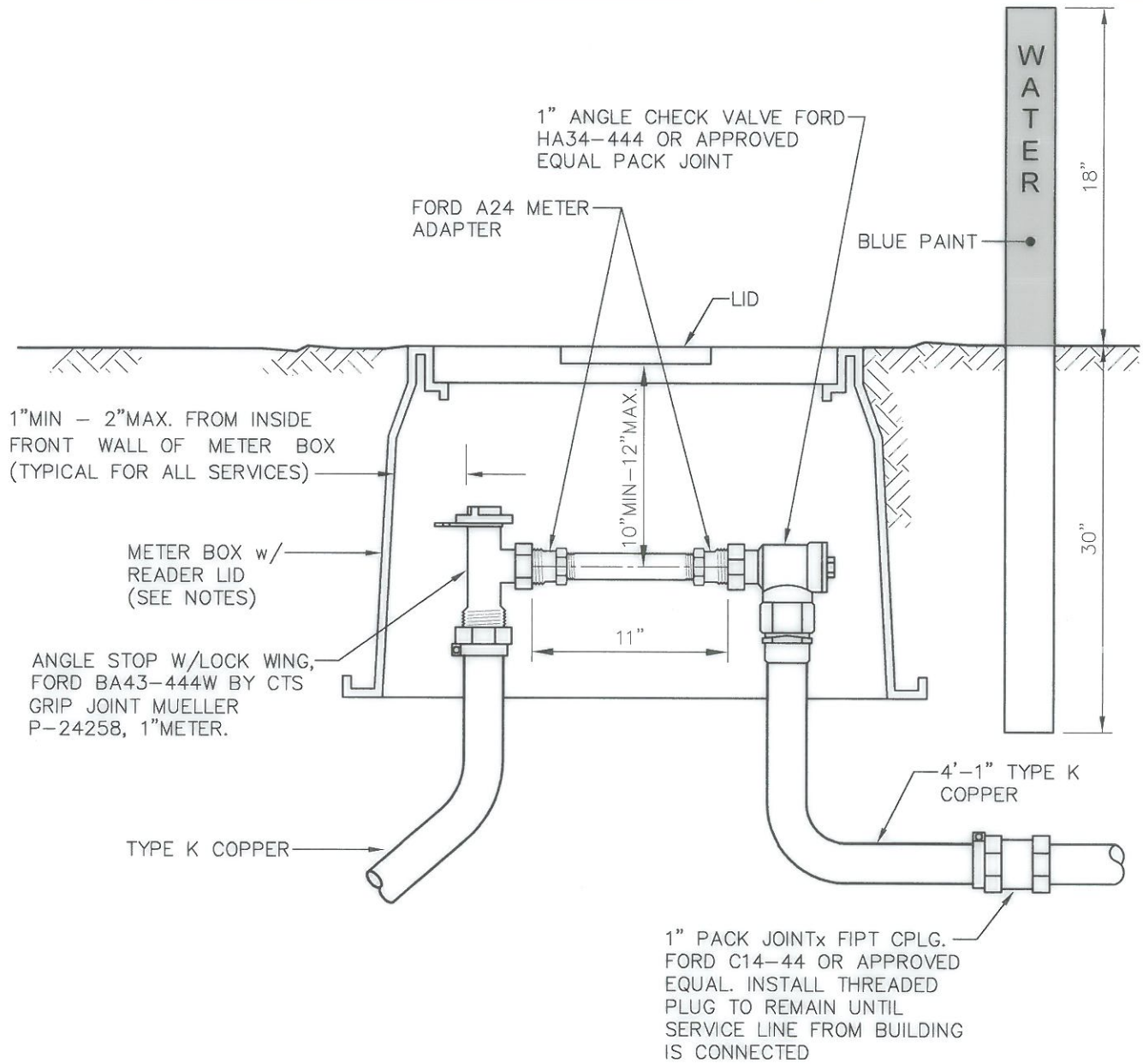
SERVICE SADDLE, CORP STOP  
AND SERVICE LINE  
TYPICAL ROADWAY SECTION



WATER DISTRICT NO.90

PLOTTING DATE DEC. 2006	DRAWN DSH	CHECKED JSD	APPROVED JSD	DISTRICT 90-12-506
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0002	DATE APPROVED 12-5-06		DWG. NO. 2





**NOTES:**

1. DO NOT BACKFILL UNTIL ALL BRASS FITTINGS HAVE BEEN INSPECTED BY THE DISTRICT.
2. SERVICE SIZES ARE 1" UNLESS OTHERWISE DESCRIBED IN THE SPECIFICATIONS.
3. METER BOX SHALL BE:
  - A. IN AREAS WITH ROLLED CURB OR METER BOX IN DRIVEWAY, USE MIDSTATES BOX #MS-BCF-1521-12-B WITH READER LID #MS-BCF-1521-RLA
  - B. IN AREAS WITH VERTICAL CURB OR METER BOX BEHIND SIDEWALK, USE CARSON STANDARD PLASTIC METER BOX #1220-12L WITH READER LID.
4. INSTALL WATER SERVICE MARKER POST ABOVE END OF SERVICE TAIL-PIECE. THE POST SHALL BE 2"x 4" WITH THE 18" ABOVE GRADE PAINTED BLUE ON ALL SIDES. STENCIL "WATER" IN 2" LETTERS WITH BLACK PAINT.

**ROTH HILL**

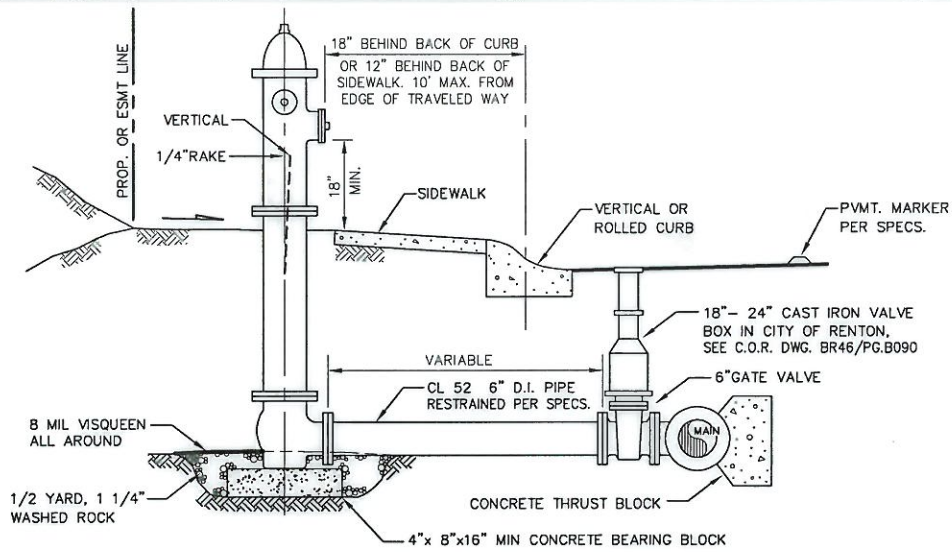
Roth Hill, LLC  
 11130 NE 33rd Place,  
 Suite 200  
 Bellevue, WA 98004  
 Tel. 425.869.9448

**TYPICAL SERVICE DETAIL  
 SINGLE SERVICE**

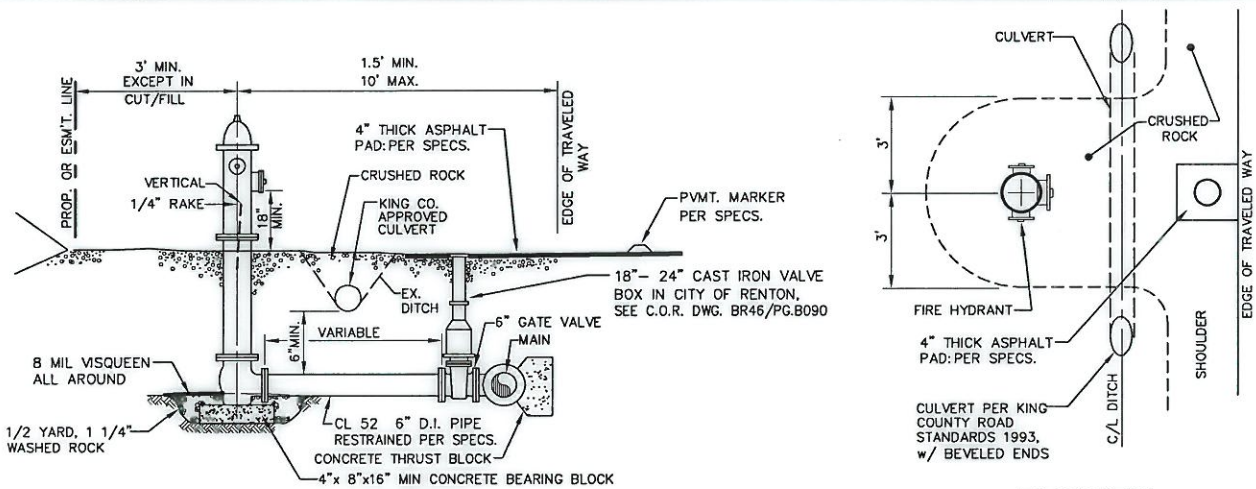


WATER DISTRICT NO. 90

PLOTTING DATE SEPT. 2010	DRAWN TVW	CHECKED <i>LDS</i>	APPROVED <i>JFK</i>	DISTRICT <b>TNH</b>
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0003	DATE APPROVED <b>1/13/11</b>		DWG. NO. <b>3</b>



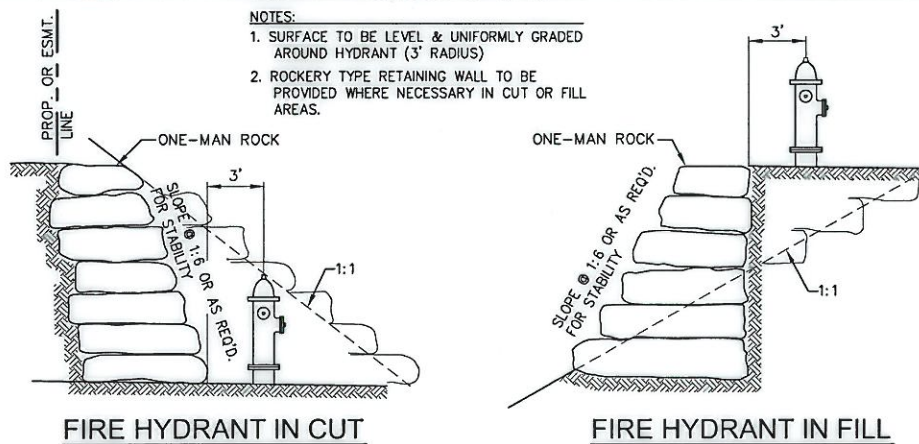
**FIRE HYDRANT ASSEMBLY RESIDENTIAL VERTICAL/ROLLED CURB**



**FIRE HYDRANT ASSEMBLY**

**PLAN VIEW**

**FIRE HYDRANT ASSEMBLY GRAVEL SHOULDER**



**FIRE HYDRANT IN CUT**

**FIRE HYDRANT IN FILL**

**FIRE HYDRANT LOCATION CUT OR FILL**



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**FIRE HYDRANT ASSEMBLY**

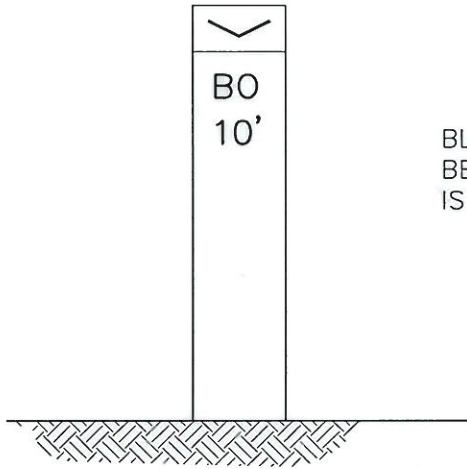
PLOTTING DATE JAN. 2005	DRAWN DSH	CHECKED KRG	APPROVED <i>[Signature]</i>	DISTRICT T.N.H.
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0004	DATE APPROVED 7-9-02		DWG. NO. 4



WATER DISTRICT NO.90

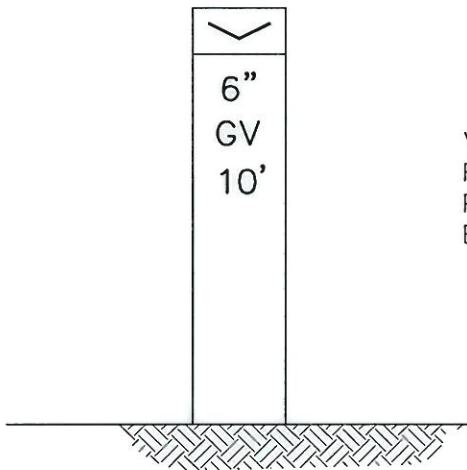
DWG. NO. 4





BLOW-OFF MARKER POST WILL BE REQUIRED UNLESS BLOW-OFF IS IN PAVEMENT.

### BLOW-OFF ASSEMBLY MARKER POST



VALVE MARKER POST WILL BE REQUIRED UNLESS VALVE IS IN PAVEMENT AND TOP OF VALVE BOX IS AT FINISHED GRADE.

### VALVE MARKER POST

NOTE: MARKER POST PAINTED WITH 2 TOP COATS OF FARWEST PAINT CASE YELLOW PN #X3472. LETTERS SHALL BE 2" HIGH AND STENCILED IN BLACK PAINT.



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## MARKER POST

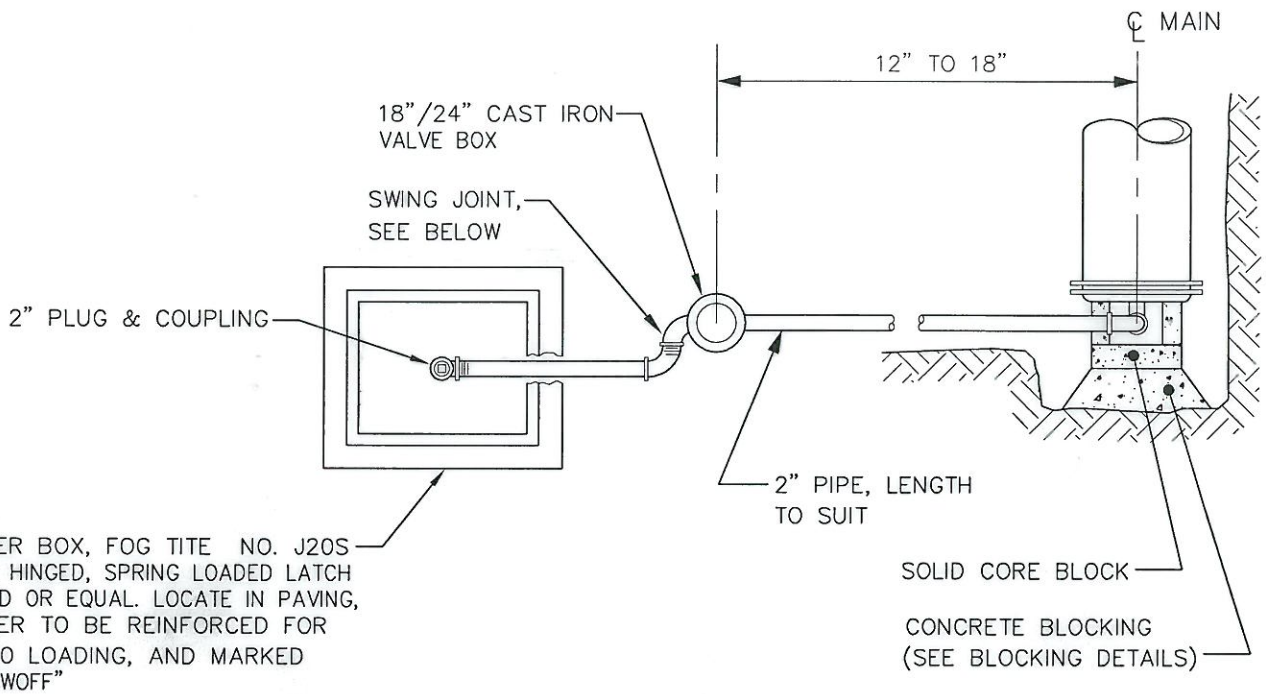


WATER DISTRICT NO.90

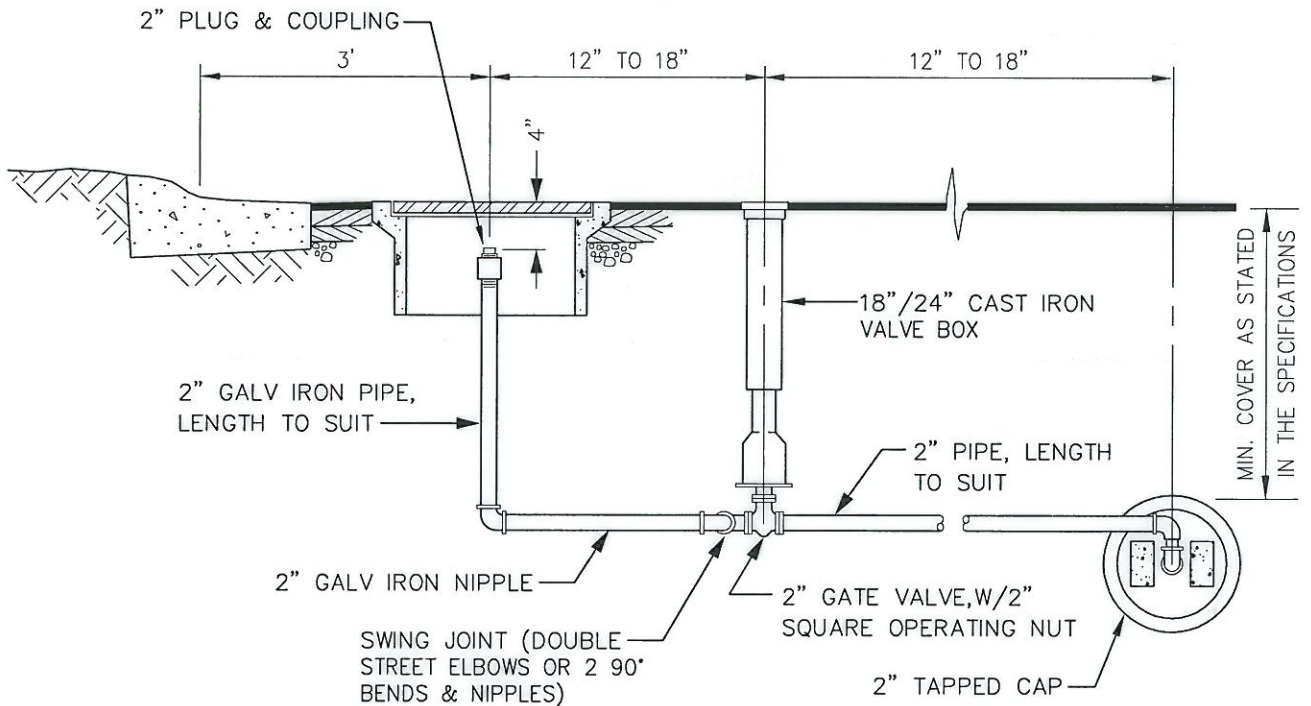
PLOTTING DATE JAN. 2005	DRAWN DSH	CHECKED KRG	APPROVED <i>OSF</i>	DISTRICT T.N.H.
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0007	DATE APPROVED 5-23-02		

DWG. NO.

7



**PLAN**



**ELEVATION**

**NOTES:**

1. LOCATE BLOWOFF ASSEMBLY AS CLOSE AS POSSIBLE TO MAIN.
2. ALL PIPE AND FITTINGS BETWEEN MAIN & GATE VALVE SHALL BE WATERWORKS BRASS.



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**2" BLOWOFF ASSEMBLY  
FOR 6" AND SMALLER MAINS  
(IN PAVING)**

PLOTTING DATE JAN. 2005	DRAWN DSH	CHECKED KRG	APPROVED <i>DSF</i>	DISTRICT T.N.H.
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0008	DATE APPROVED 5-23-02		

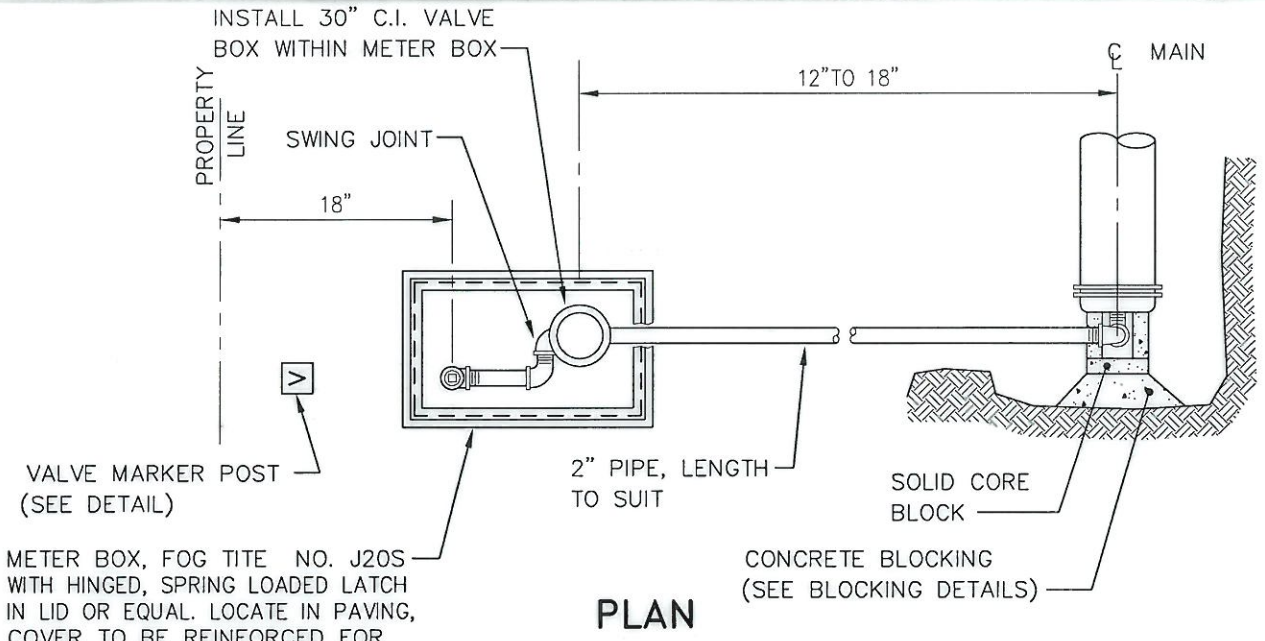


WATER DISTRICT NO.90

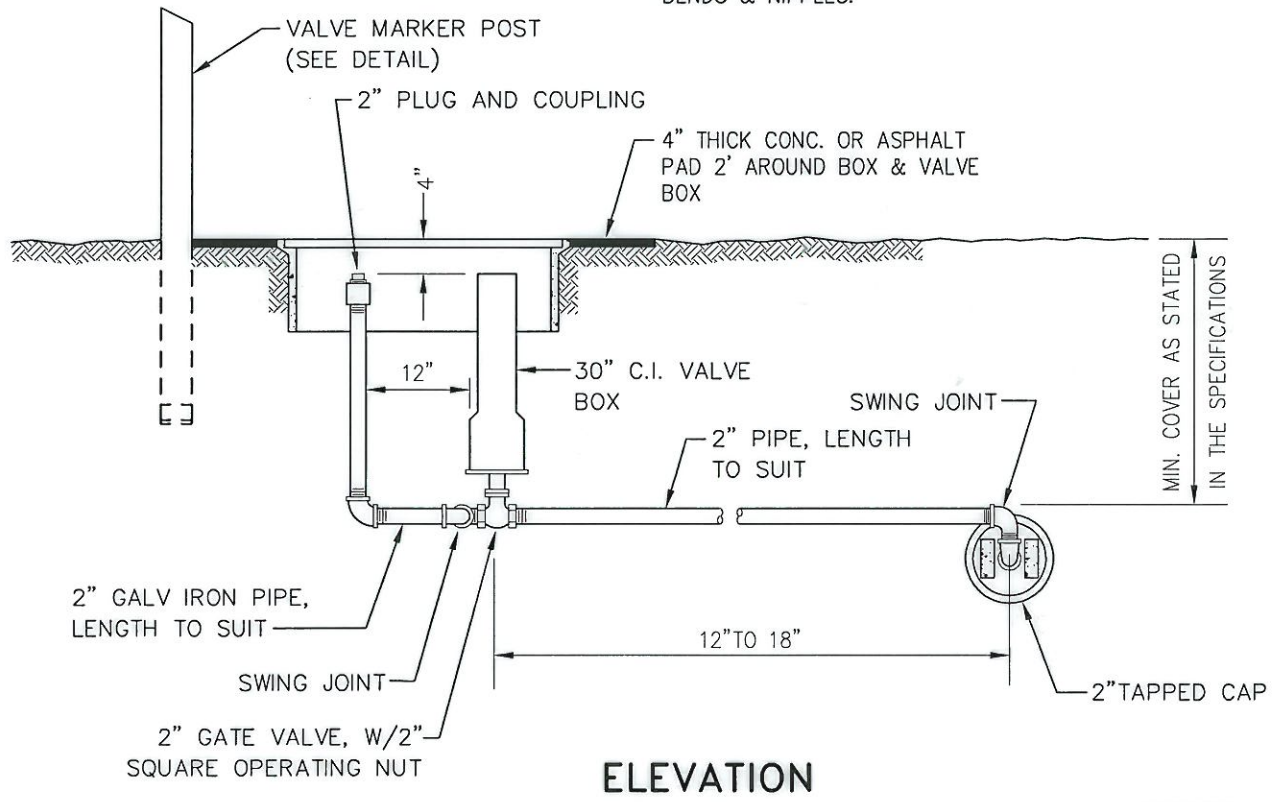
DWG. NO.

8





- NOTES:
1. LOCATE BLOW-OFF AS CLOSE AS POSSIBLE TO MAIN.
  2. ALL PIPE & FITTINGS BETWEEN MAIN & GATE VALVE SHALL BE WATERWORKS BRASS CONFORMING TO AWWA C800.
  3. THE GROUND WITHIN 3' RADIUS OF BLOW-OFF SHALL BE GRADED UNIFORMLY.
  4. SWING JOINTS SHALL BE DOUBLE STREET ELBOWS OR 2 90° BENDS & NIPPLES.



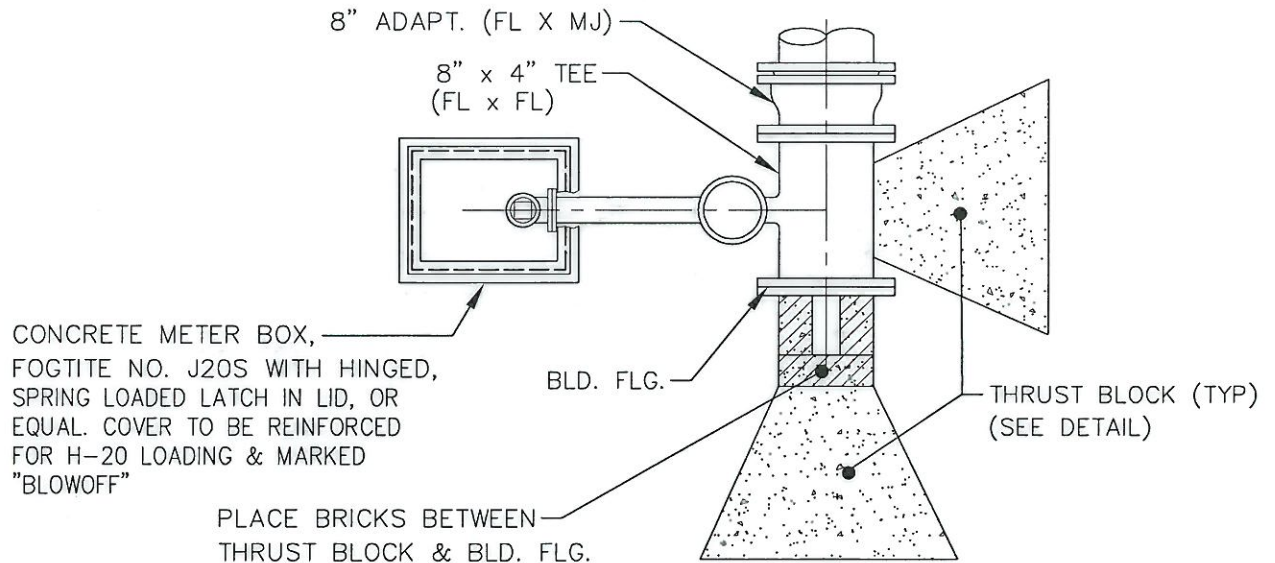
**RothHill**  
 Engineering Partners, LLC  
 2600 116th Avenue NE #100  
 Bellevue, Washington 98004  
 Tel 425.869.9448

**2" BLOWOFF ASSEMBLY FOR 6" & SMALLER MAINS (OFF PAVING)**

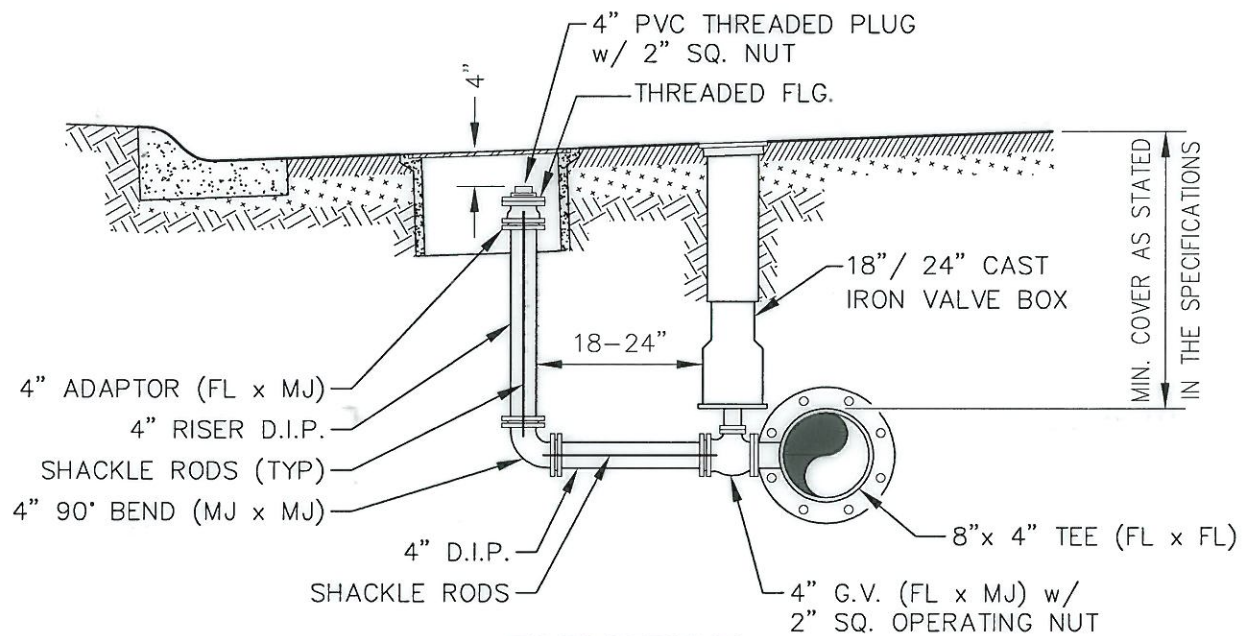


PLOTTING DATE JAN. 2005	DRAWN DSH	CHECKED KRG	APPROVED <i>[Signature]</i>	DISTRICT T.N.H.
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0009	DATE APPROVED 6-25-02	WATER DISTRICT NO.90	

DWG. NO. **9**



### PLAN



### ELEVATION

#### NOTES:

1. LOCATE BLOW-OFF AS CLOSE AS POSSIBLE TO MAIN, OR AS DIRECTED BY DISTRICT.
2. SHACKLE RODS TWO EA. 3/4" GALV. STEEL TIE RODS WITH ONE HEAVY COAT OF COAL TAR PRESERVATIVE ON TIE RODS, NUTS AND BOLTS AFTER INSTALLATION OR MEG-A-LUGS.
3. MARKING POST NOT NEEDED.

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## 4" BLOWOFF ASSY. FOR 8" & LARGER MAINS (IN PAVING)

PLOTTING DATE JAN. 2005	DRAWN DSH	CHECKED KRG	APPROVED <i>JAF</i>	DISTRICT T.N.K.
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0010	DATE APPROVED 6-25-02		

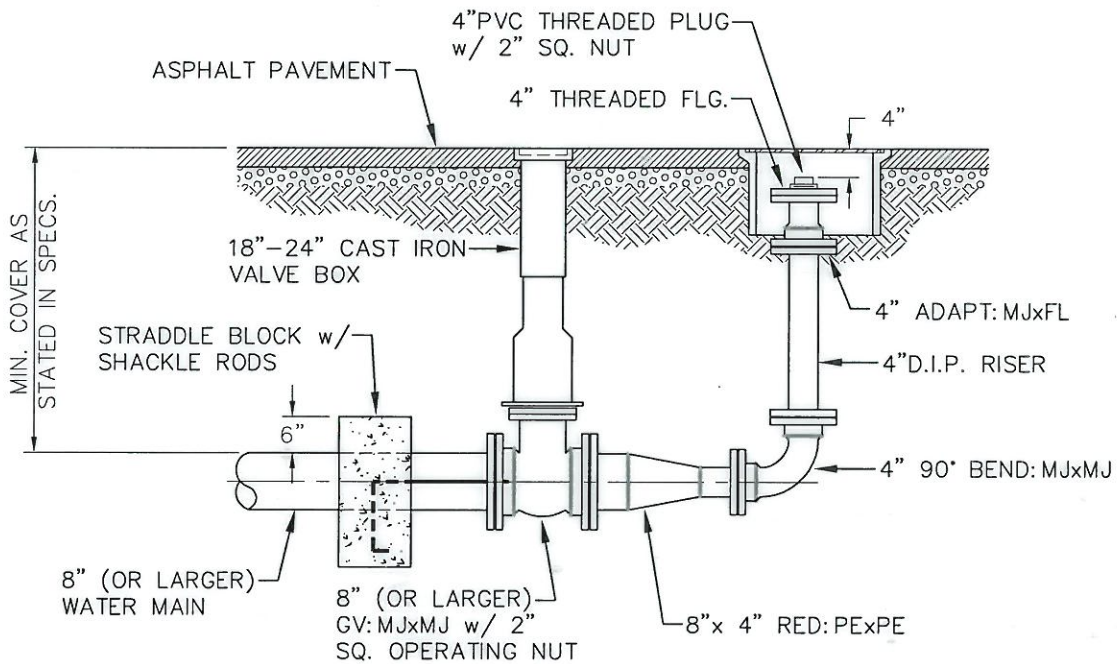
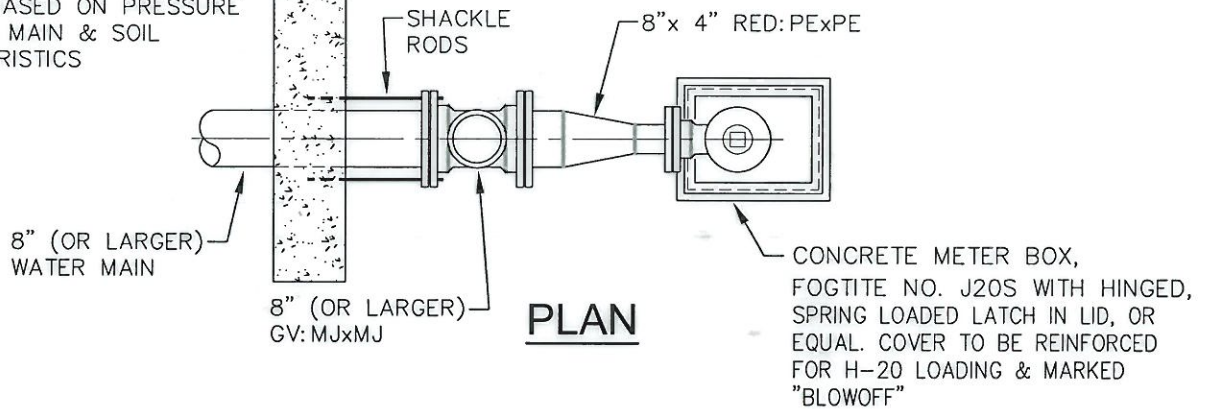


WATER DISTRICT NO.90

DWG. NO. 10-1



CONCRETE STRADDLE BLOCK  
w/ SHACKLE RODS TO G.V.  
BLOCKING SHALL BE POURED  
AGAINST UNDISTURBED EARTH  
& SIZED BASED ON PRESSURE  
OF WATER MAIN & SOIL  
CHARACTERISTICS



**ELEVATION**

**NOTES**

1. SHACKLE RODS: TWO EA. 3/4" GALV. STEEL TIE RODS w/ ONE HEAVY COAT OF COAL TAR PRESERVATIVE ON TIE RODS, NUTS & BOLTS AFTER INSTALLATION.
2. MEGA-LUGS REQUIRED ON ALL MJ FITTINGS.
3. NO MARKING POSTS REQUIRED.
4. SIZE & USE ADDITIONAL REDUCERS AS NECESSARY FOR MAINS LARGER THAN 8".



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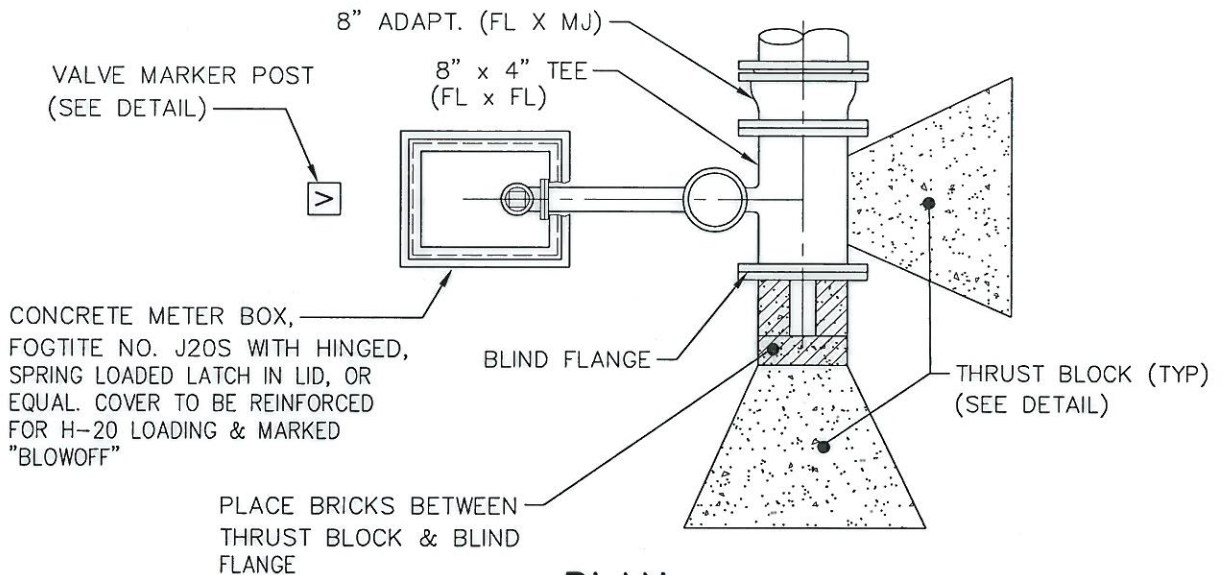
**4" BLOWOFF ASSY. FOR 8" OR LARGER  
MAINS FOR FUTURE EXTENSION  
(IN PAVING)**

PLOTTING DATE JAN. 2005	DRAWN DSH	CHECKED KRG	APPROVED <i>[Signature]</i>	DISTRICT T.N.H.
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0010A	DATE APPROVED 6-25-02		

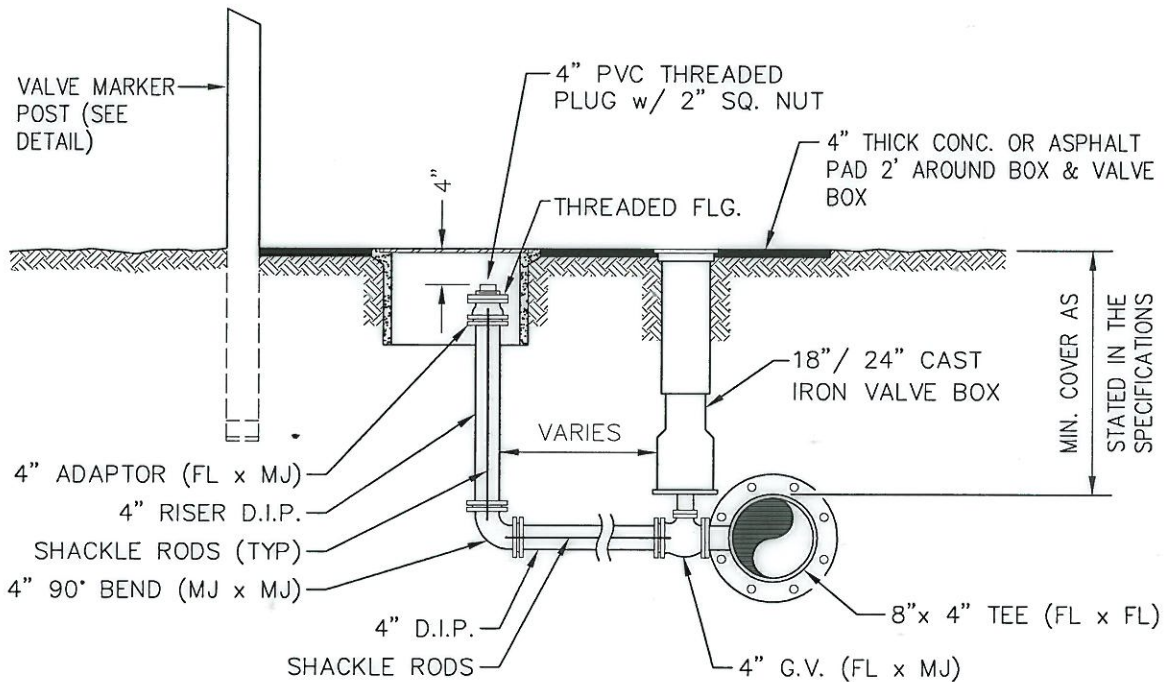


WATER DISTRICT NO.90

DWG. NO. 10-2



**PLAN**



**ELEVATION**

**NOTES:**

1. LOCATE BLOW-OFF AS CLOSE AS POSSIBLE TO MAIN, OR AS DIRECTED BY DISTRICT.
2. THE GROUND WITHIN 3' RADIUS OF BLOWOFF SHALL BE GRADED UNIFORMLY.
3. SHACKLE RODS TWO EA. 3/4" GALV. STEEL TIE RODS WITH ONE HEAVY COAT OF COAL TAR PRESERVATIVE ON TIE RODS, NUTS AND BOLTS AFTER INSTALLATION. OR MEG-A-LUGS



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**4" BLOWOFF ASSY. FOR 8" & LARGER MAINS (OFF PAVING)**

PLOTTING DATE JAN. 2005	DRAWN DSH	CHECKED KRG	APPROVED <i>[Signature]</i>	DISTRICT T.N.H.
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0011	DATE APPROVED 5-23-02		

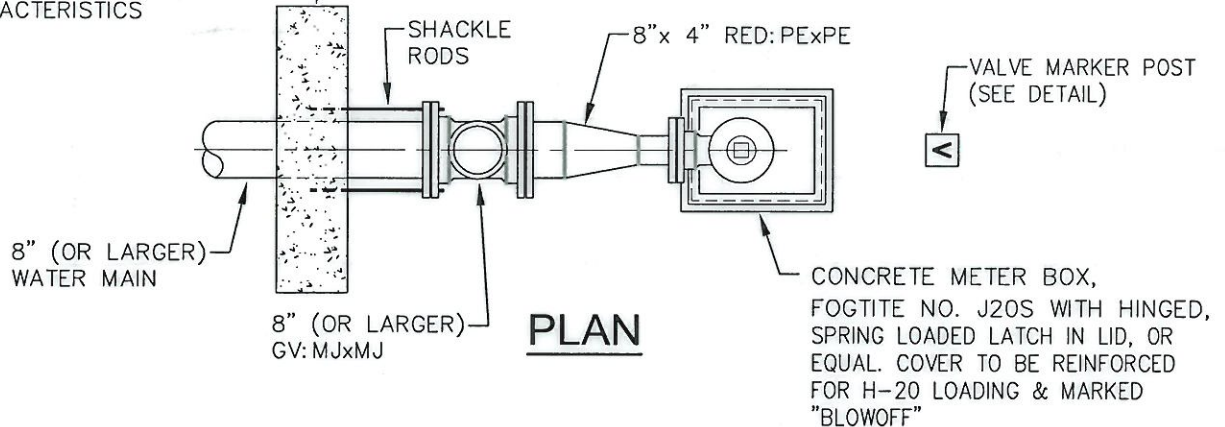


WATER DISTRICT NO.90

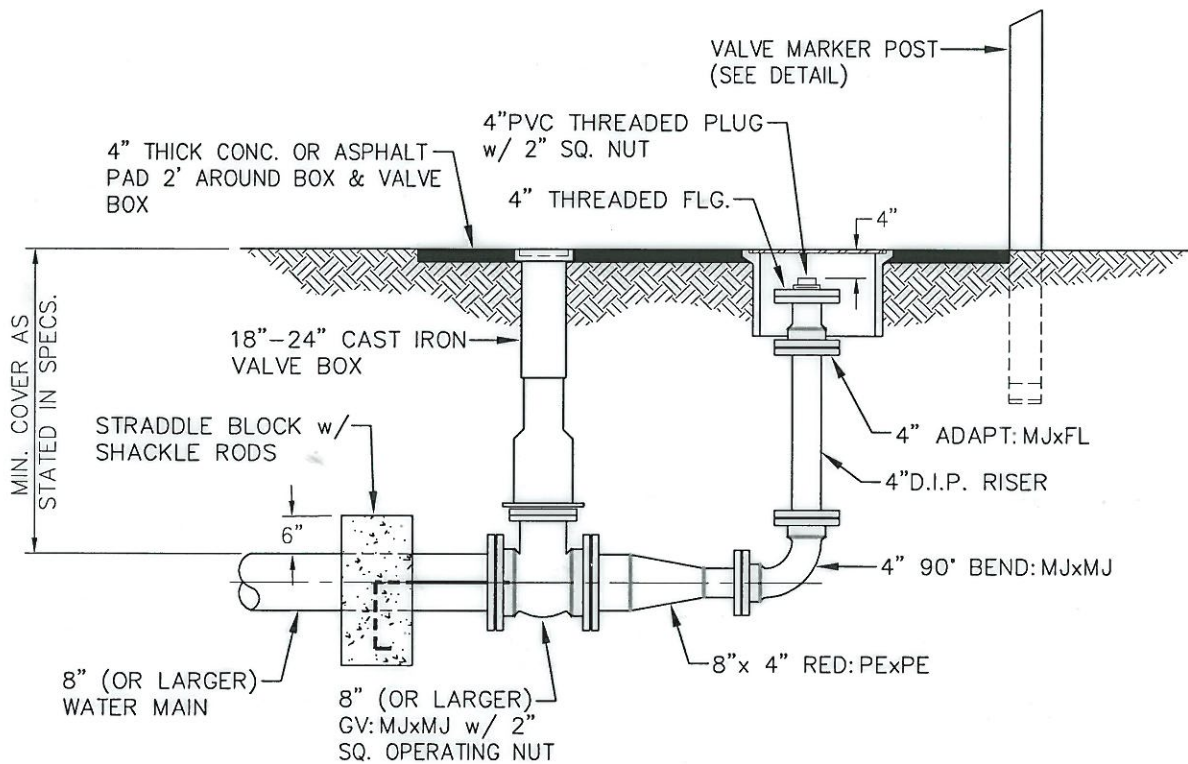
DWG. NO. 11-1



CONCRETE STRADDLE BLOCK  
w/ SHACKLE RODS TO G.V.  
BLOCKING SHALL BE POURED  
AGAINST UNDISTURBED EARTH  
& SIZED BASED ON PRESSURE  
OF WATER MAIN & SOIL  
CHARACTERISTICS



**PLAN**



**ELEVATION**

**NOTES**

1. SHACKLE RODS: TWO EA. 3/4" GALV. STEEL TIE RODS w/ ONE HEAVY COAT OF COAL TAR PRESERVATIVE ON TIE RODS, NUTS & BOLTS AFTER INSTALLATION.
2. MEGA-LUGS REQUIRED ON ALL MJ FITTINGS.
3. SIZE & USE ADDITIONAL REDUCERS AS NECESSARY FOR MAINS LARGER THAN 8".
4. THE GROUND WITHIN 3' RADIUS OF BLOWOFF SHALL BE GRADED UNIFORMLY.



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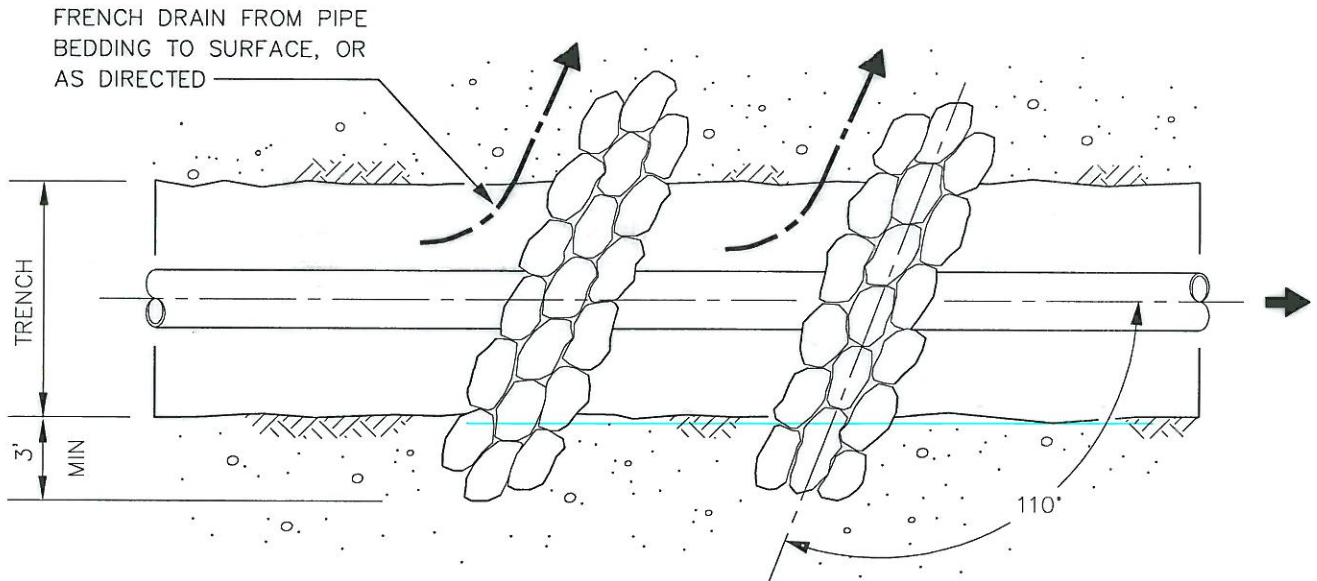
**4" BLOWOFF ASSY. FOR 8" OR LARGER  
MAINS FOR FUTURE EXTENSION  
(OFF PAVING)**

PLOTTING DATE JAN. 2005	DRAWN DSH	CHECKED KRG	APPROVED <i>[Signature]</i>	DISTRICT T.N.H.
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0011A	DATE APPROVED 6-25-02		

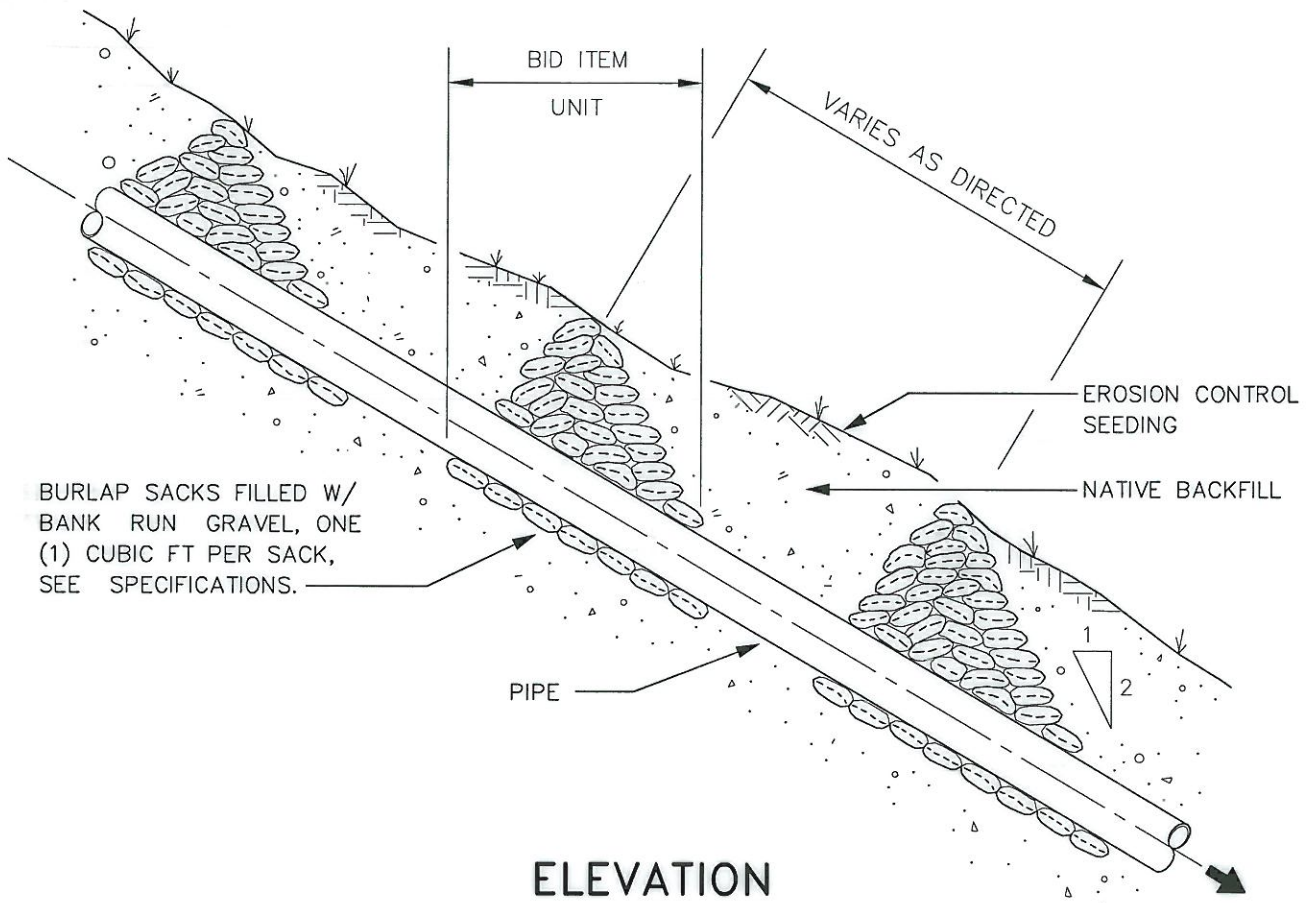


WATER DISTRICT NO.90

DWG. NO. 11-2



PLAN



ELEVATION

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**SACK SLOPE RETAINER**

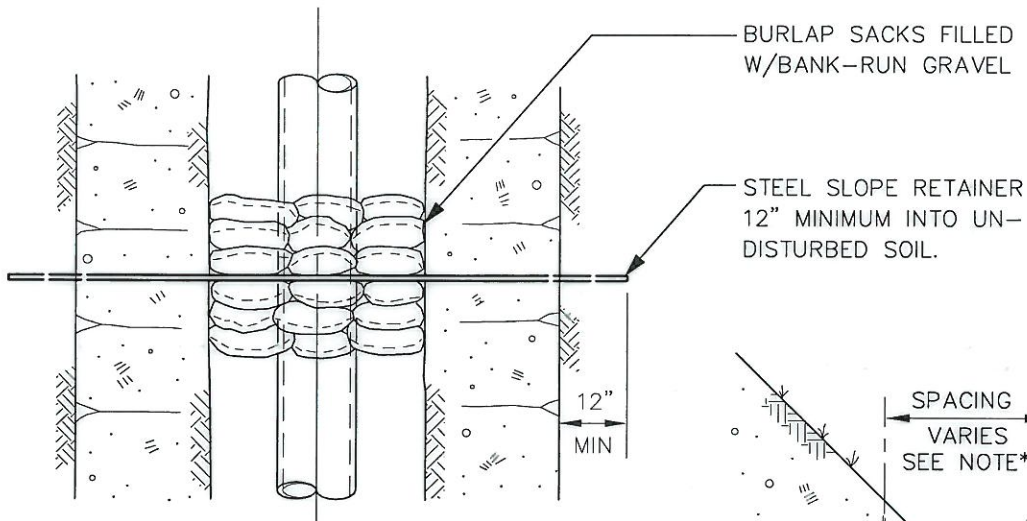
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PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0012	DATE APPROVED 6-25-02		



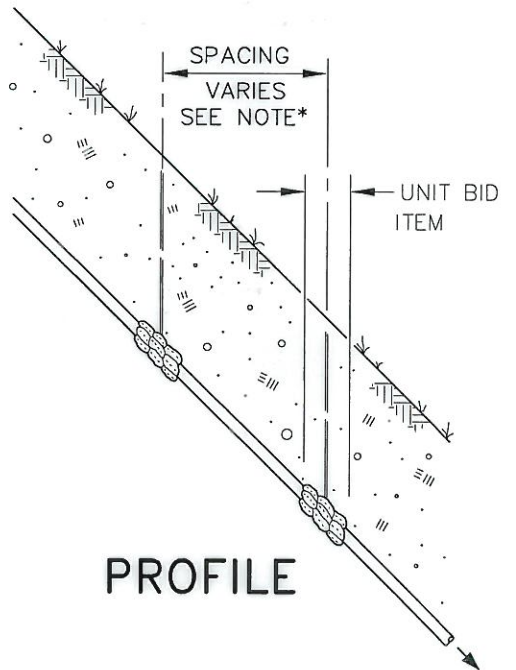
WATER DISTRICT NO.90

DWG. NO. 12

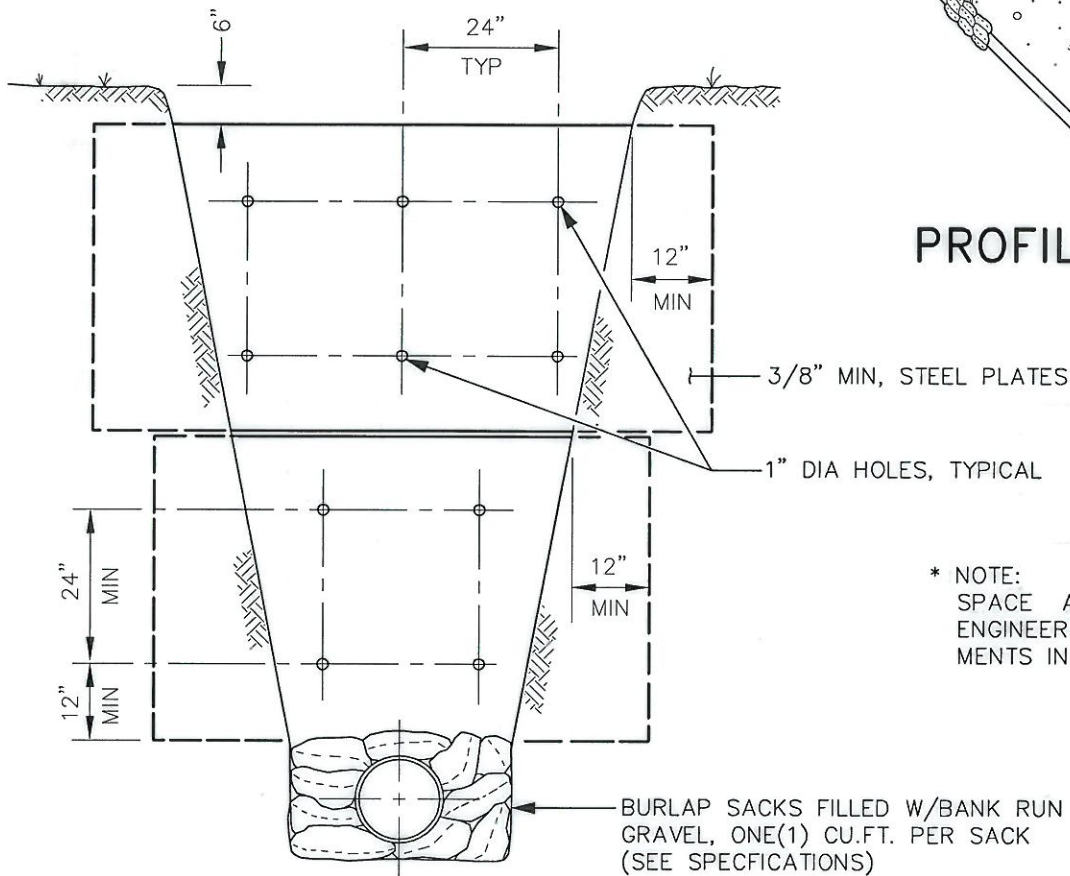




PLAN



PROFILE



SECTION

\* NOTE:  
SPACE ACCORDING TO  
ENGINEERS REQUIRE-  
MENTS IN THE FIELD.



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# STEEL SLOPE RETAINER



WATER DISTRICT NO.90

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PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0013	DATE APPROVED 6-25-02		

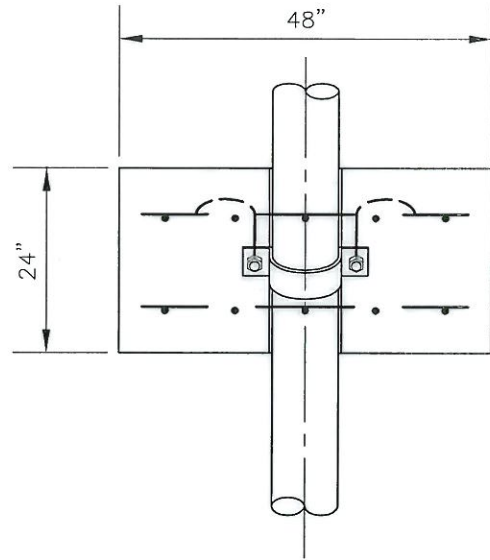
DWG. NO. 13

NOTES:

SLOPE TOP SURFACE OF PIPE ANCHOR TO MATCH PIPE SLOPE.

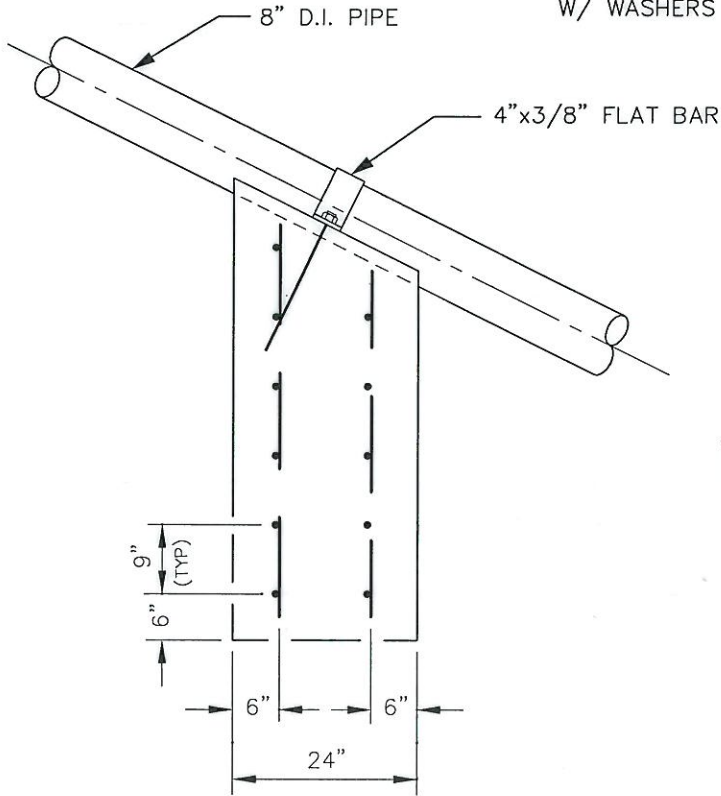
INSTALL J - BOLTS AT RIGHT ANGLES TO TOP SURFACE OF ANCHOR FOR MAXIMUM CONTACT BETWEEN PIPE AND STRAP.

BOLTS, NUTS AND FLAT BAR TO BE HOT-DIPPED GALVANIZED.

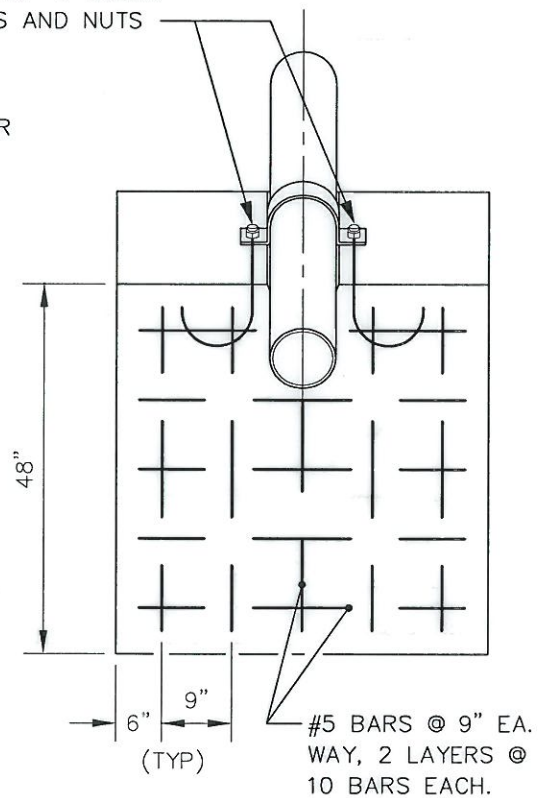


PLAN

2 1-1/4"x 24" J-BOLTS  
W/ WASHERS AND NUTS



END VIEW



ELEVATION

**RothHill**

Engineering Partners, LLC

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Bellevue, Washington 98004  
Tel 425.869.9448

CONCRETE PIPE ANCHOR

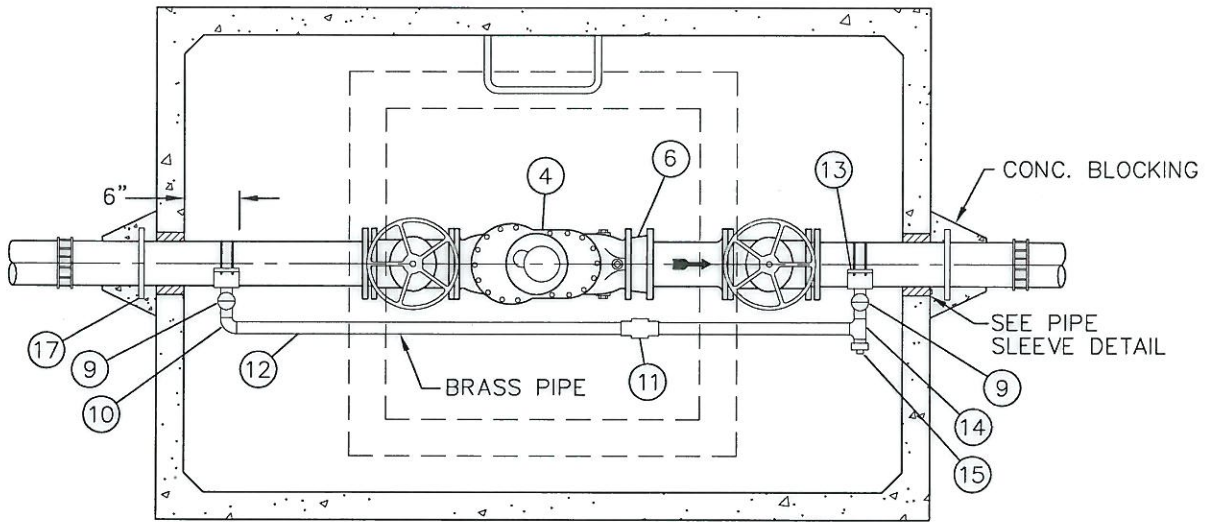
PLOTTING DATE JAN. 2005	DRAWN DSH	CHECKED KRG	APPROVED <i>[Signature]</i>	DISTRICT TNH
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0014	DATE APPROVED 6-25-02		



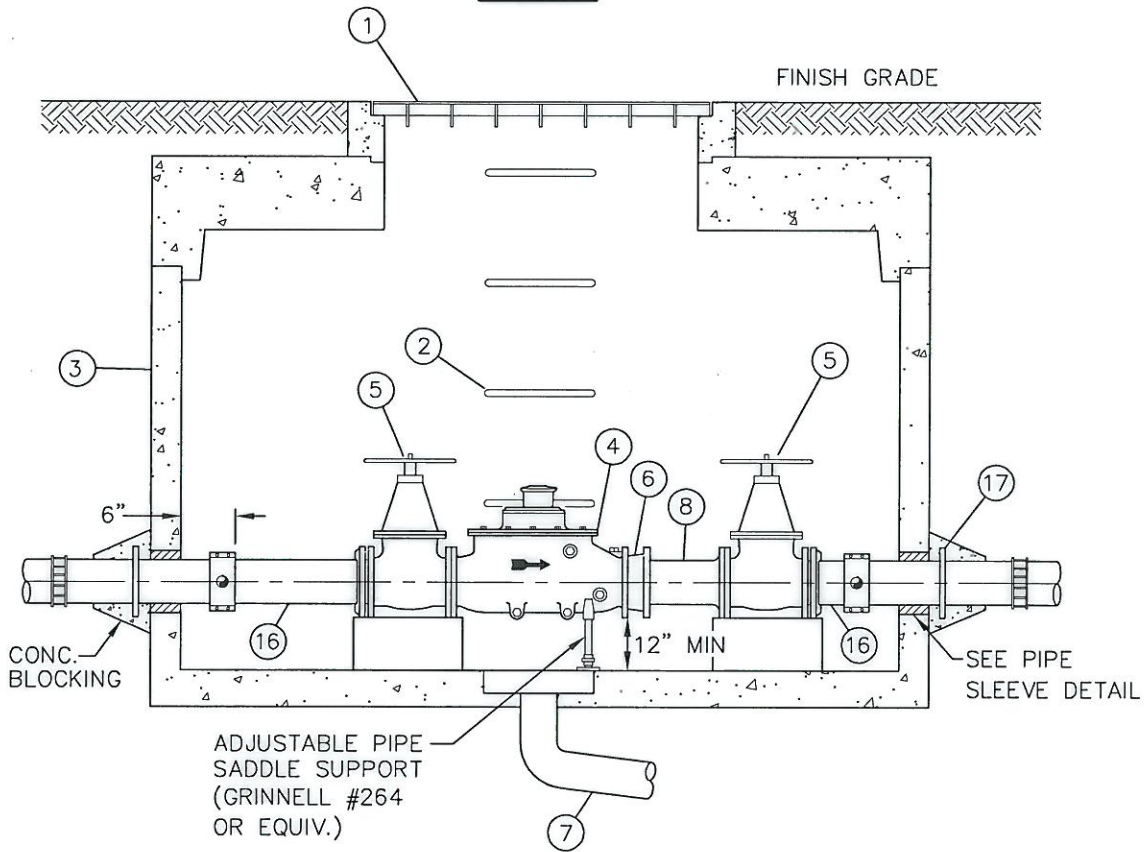
WATER DISTRICT NO.90

DWG. NO. 14





**PLAN**



**ELEVATION**

\* SEE SHEET 2 FOR ADDITIONAL NOTES & MATERIALS

SHEET 1 OF 2



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**3", 4" & 6" METERS**

PLOTTING DATE JAN. 2005	DRAWN DSH	CHECKED KRG	APPROVED <i>[Signature]</i>	DISTRICT T.N.H.
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0015-1	DATE APPROVED 6-25-02		



WATER DISTRICT NO.90

DWG. NO. 15-1

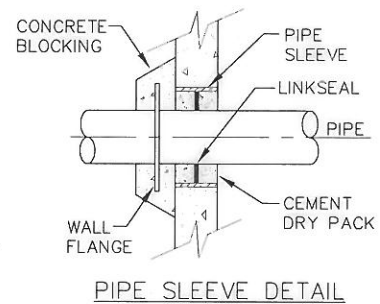
METER SIZE	VAULT SIZES			
	CATALOG#	VAULT#	COVER#	BASE#
3"	575-LA	575-BL	57TL-30C	575-BL
4"	575-LA	575-BL	57TL-30C	575-BL
6"	675-LA	675-ML	675-TL-30C	675-BL

GENERAL NOTES:

- SHOP-COAT ALL INTERIOR METAL INCLUDING PIPE, FITTINGS AND PIPE STANDS WITH TWO COATS OF FARWEST, BLUE, QUICK-DRY ENAMEL, PART NO. 250-1-01-K-04 AS APPROVED BY THE ENGINEER. APPLY PER MANUFACTURERS INSTRUCTIONS. SAND BLAST TO REMOVE EXISTING COATINGS AND PAINT PRIOR TO INSTALLATION, THEN TOUCHUP AS REQUIRED.
- THE ABOVE VAULT SIZES WERE SUPPLIED BY UTILITY VAULT CO. AS A REFERENCE FOR REQUIRED VAULT DIMENSIONS. SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL.
- ALL ACCESS COVERS SHALL BE TRAFFIC BEARING, UTILITY VAULT FRAME NO. 332 w/ 332P COVER AS REQUIRED BY DISTRICT. PROVIDE RECESSED DOOR HANDLE BOX FOR PADLOCK w/ BOLT-DOWN COVER OVER LOCK, BOX SHALL BE LARGE ENOUGH FOR "MASTER LOCK".
- CLASS 52 D.I. PIPE IS REQUIRED.
- ALTERNATE METHODS OF RESTRAINT SHALL BE APPROVED BY THE DISTRICT.
- ALL BRASS FITTINGS SHALL CONFORM TO AWWA C800. (PARTS 9,10,11,12,13 & 14)

MATERIAL LIST

- HATCH ————— CAST IRON MANHOLE OR GALV. STEEL HATCH IN TRAFFIC AREAS (SEE #3 ABOVE)
- LADDER RUNGS ——— 3/4" GALV. BAR AT 12" O.C. GROUTED OR FABRICATED GALV. STEEL LADDER SECURED AT TOP AND BOTTOM.
- CONCRETE VAULT ——— SUBMIT DETAILS FOR APPROVAL. (SEE TABLE ABOVE)
- METER ————— COMPOUND WATER METER FLG. x FLG. SUPPLIED BY DISTRICT.
- MAIN VALVE ————— TWO EACH, AWWA C515-01 (DUCTILE IRON BODY AND BONNET) AND AWWA C550-05:FLxMJ w/ RESTRAINTS OS&Y GATE VALVES w/ HANDWHEEL. MUST BE LOCATED INSIDE OF VAULT.
- COUPLING ADAPTOR — ONE EACH, CAST IRON, (FLANGE BY MECHANICAL JOINT) COUPLING ADAPTOR.
- FLOOR DRAIN ——— 4" PVC, SLOPED TO STORM SEWER OR DAYLIGHT TO DRAINAGE DITCH.  
ALTERNATE: WATERPROOF VAULT W/ XYPEX. ALTERNATE MUST BE APPROVED BY THE DISTRICT AND WILL BE ALLOWED ONLY IF DAYLIGHT DRAIN IS EXTENDED OVER 300 FEET.
- SPOOL ————— SPOOL PLANE-END x FLANGED D.I.P. (CL52)
- 1-1/2" VALVE ——— TWO EA. BRASS GATE VALVES FOR BY-PASS.
- BEND ————— TWO EA. 1-1/2 INCH 90° BRASS BENDS.
- UNION ————— ONE EA. 1-1/2 INCH TWO-PART UNION BRASS.
- BY-PASS PIPE ——— 1-1/2 INCH BRASS PIPE AS NEEDED.
- SADDLE ————— TWO EA. 1-1/2 INCH SMITH BLAIR TYPE 313 OR EQUAL.
- TEE ————— 1-1/2"x 1-1/2" BRASS TEE.
- BUSHING ————— 1 1/2"x 3/4" BUSHING WITH 3/4" PLUG.
- WATER MAIN ——— CLASS 52 DUCTILE IRON PIPE WITH MEGALUG RESTRAINED JOINTS.
- WALL FLANGE ——— TWO EACH



\* SEE SHEET 1 FOR ADDITIONAL DETAILS

SHEET 2 OF 2



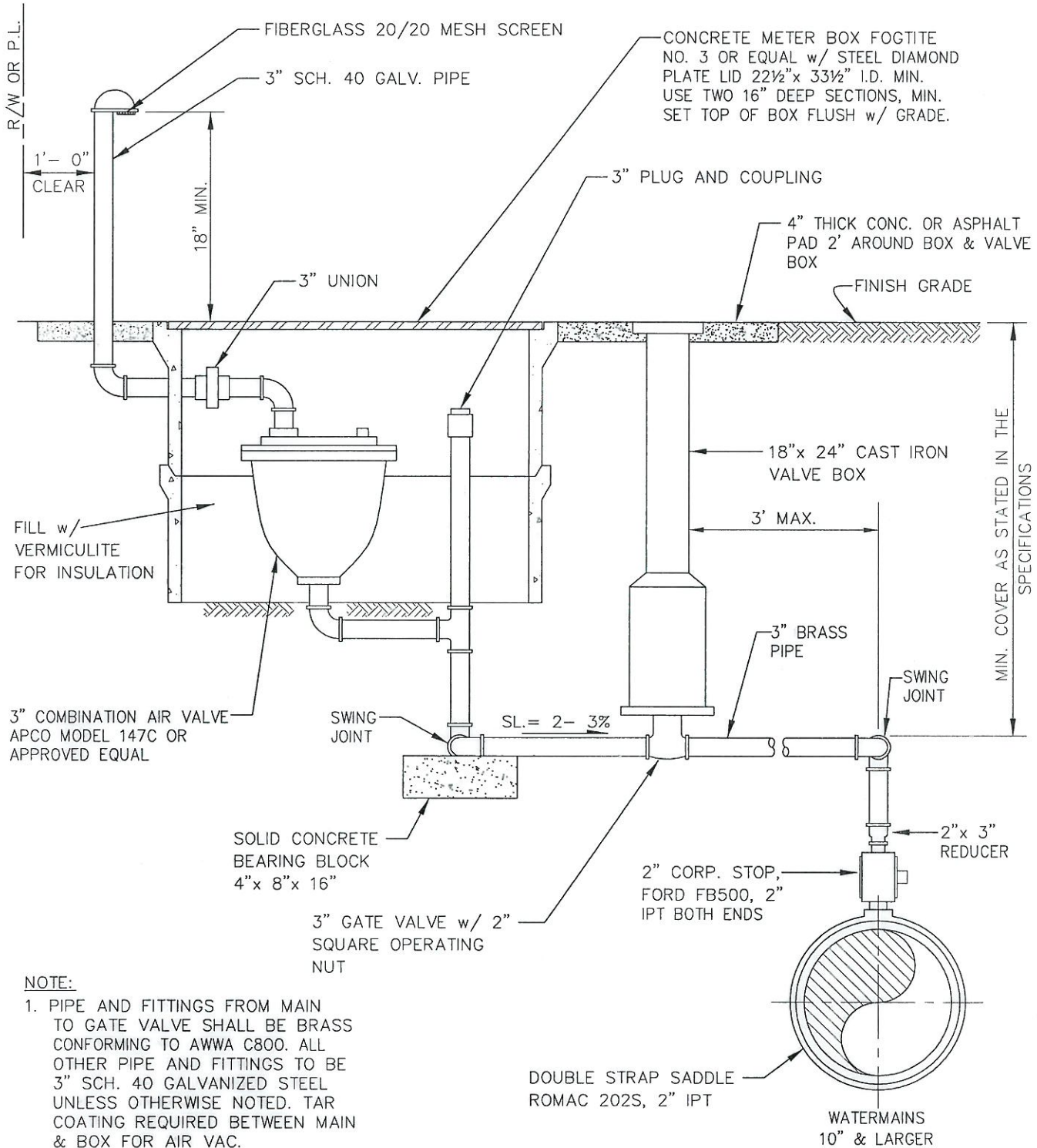
Engineering Partners, LLC  
2600 116th Avenue NE #100  
Bellevue, Washington 98004  
Tel 425.869.9448

## 3", 4" & 6" METERS MAT'L. LIST & GENERAL NOTES



WATER DISTRICT NO.90

PLOTTING DATE MAY 2009	DRAWN DSH	CHECKED LDS	APPROVED <i>[Signature]</i>	DISTRICT TNH
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0015-2	DATE APPROVED 5/28/09		DWG. NO. 15-2

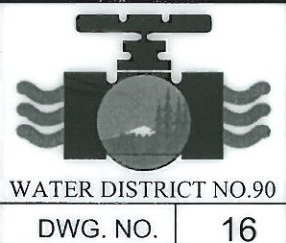


**NOTE:**

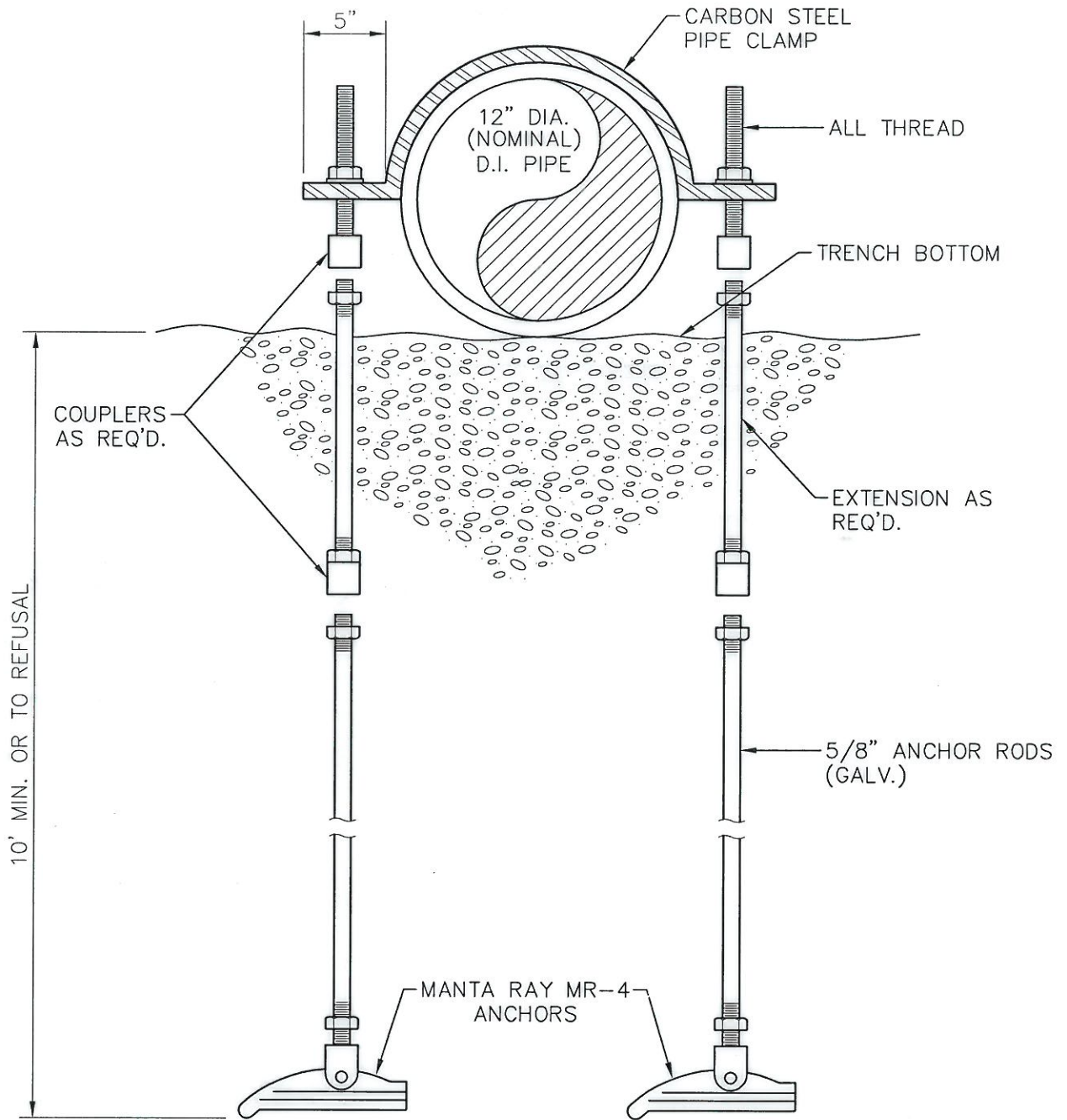
1. PIPE AND FITTINGS FROM MAIN TO GATE VALVE SHALL BE BRASS CONFORMING TO AWWA C800. ALL OTHER PIPE AND FITTINGS TO BE 3" SCH. 40 GALVANIZED STEEL UNLESS OTHERWISE NOTED. TAR COATING REQUIRED BETWEEN MAIN & BOX FOR AIR VAC.
2. ALL ABOVE GROUND GALV. TO BE PAINTED FARWEST PAINT CASE YELLOW PN# X3472, TWO COATS.
3. SWING JOINTS SHALL BE DOUBLE STREET ELBOWS OR 2 90° BENDS & NIPPLES.

**RothHill**  
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 Bellevue, Washington 98004  
 Tel 425.869.9448

<b>3" AIR/VAC VALVE ASSEMBLY FOR 10" &amp; LARGER MAINS</b>		PLOTting DATE APR. 2007		DRAWN DSH	CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DISTRICT <b>TNH</b>
PLOTting SCALE NTS: 1=1		FILE NAME F:\DETAILS\WD90\WATER\0016		DATE APPROVED <b>4/10/07</b>		WATER DISTRICT NO.90 DWG. NO. <b>16</b>	







**NOTES**

1. PIPE CLAMP: FABRICATED FROM 3/4" x 4" BAR, GALVANIZED OR PAINT WITH BITUMASTIC.
2. MANTA RAY MR-4 ANCHORS FROM WILLIAMS FORM ENGINEERING, 206-575-9303.
4. USE BEVELED WASHERS AS REQUIRED TO COMPENSATE FOR BEARING OUT OF ALIGNMENT.
5. INSTALL ANCHORS USING PORTABLE, HAND OPERATED JACKHAMMERS.
3. ANCHOR RODS FROM ANCHOR MANUFACTURER.
6. TEST AND LOCK OFF ANCHORS AT 4000 lbs.
7. TIGHTEN NUTS AND COUPLERS PER ANCHOR MANUFACTURERS RECOMMENDATIONS.



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**PIPE ANCHOR**

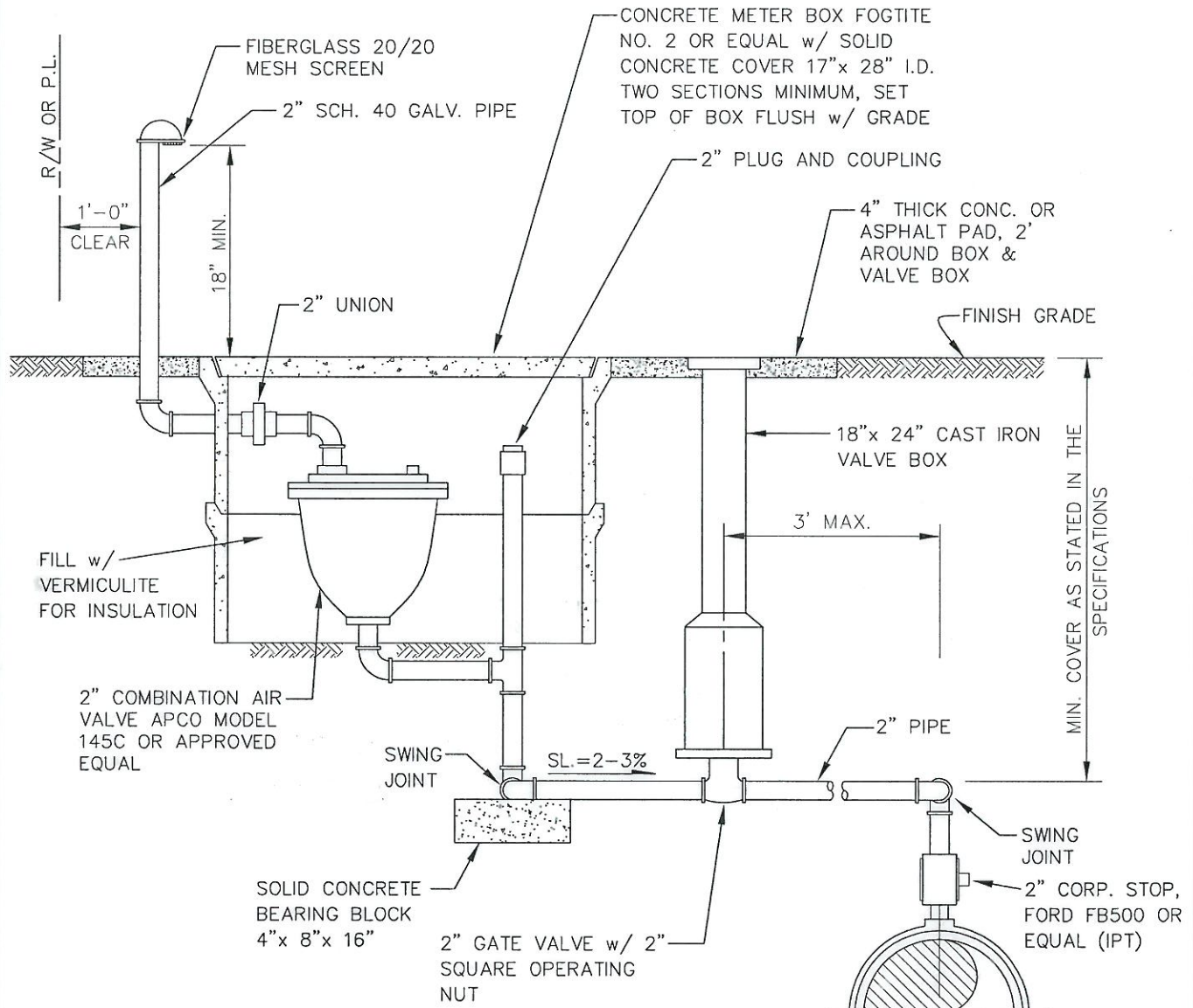


WATER DISTRICT NO.90

PLOTTING DATE JAN. 2005	DRAWN DSH	CHECKED KRG	APPROVED <i>[Signature]</i>	DISTRICT T.N.H.
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0017	DATE APPROVED 6-25-02		

DWG. NO. 17





**NOTE:**

1. PIPE AND FITTINGS FROM MAIN TO GATE VALVE SHALL BE BRASS CONFORMING TO AWWA C800. ALL OTHER PIPE AND FITTINGS TO BE 2" SCH. 40 GALVANIZED STEEL UNLESS OTHERWISE NOTED. TAR COATING REQUIRED BETWEEN MAIN & BOX FOR AIR VAC.
2. ALL ABOVE GROUND GALV. TO BE PAINTED FARWEST PAINT CASE YELLOW PN# X3472, TWO COATS.
3. SWING JOINTS SHALL BE DOUBLE STREET ELBOWS OR 2 90° BENDS & NIPPLES.

DOUBLE STRAP SADDLE (ROMAC 202S, 2" IPT)

WATERMANS 8" & SMALLER

**RothHill**

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Bellevue, Washington 98004  
Tel 425.869.9448

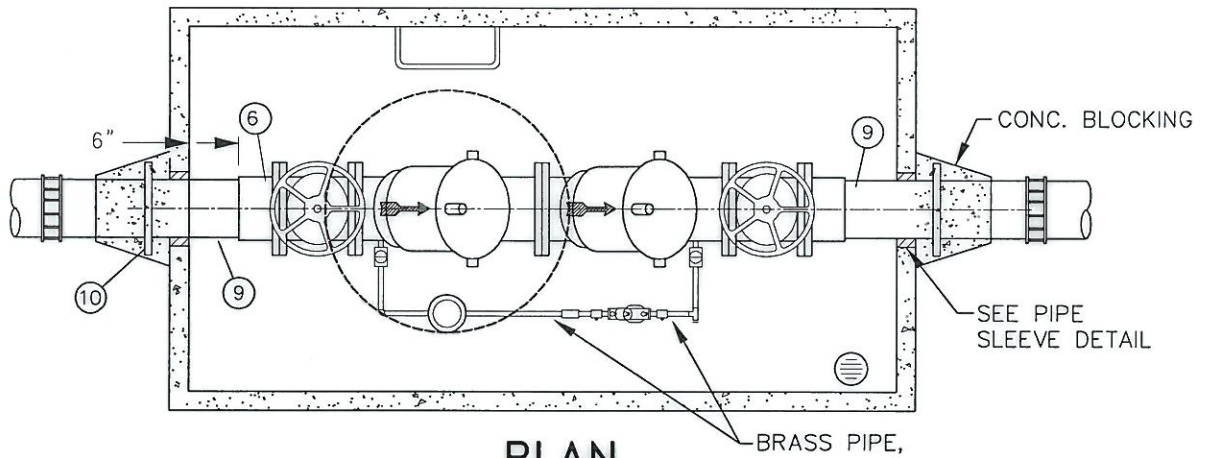
**2" AIR/VAC VALVE ASSEMBLY  
FOR 8" & SMALLER MAINS**

PLOTTING DATE APR. 2007	DRAWN DSH	CHECKED <i>TSD</i>	APPROVED <i>JF</i>	DISTRICT <b>TNH</b>
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0018	DATE APPROVED <b>4/10/07</b>		

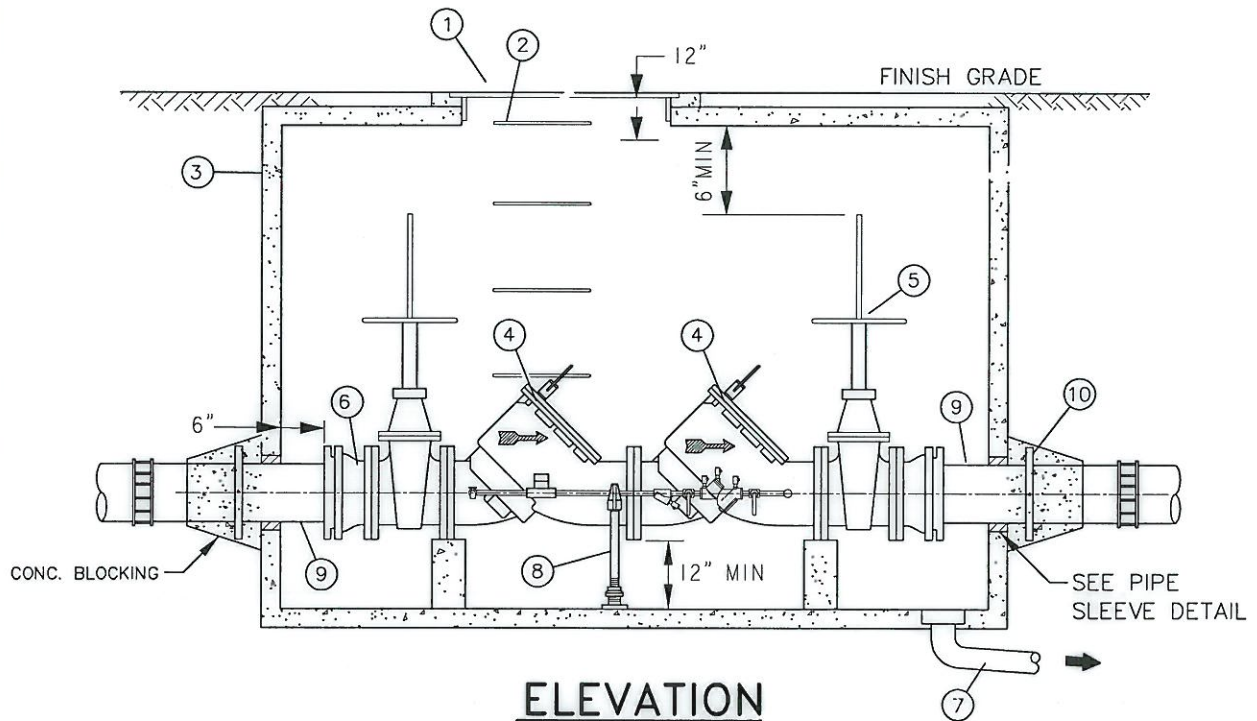


WATER DISTRICT NO.90

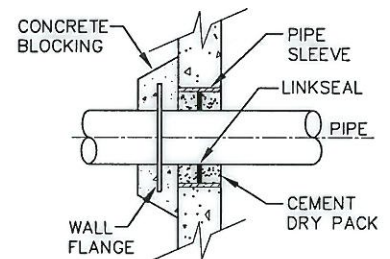
DWG. NO. 18



**PLAN**



**ELEVATION**



**PIPE SLEEVE DETAIL**

\* SEE SHEET 2 FOR ADDITIONAL NOTES & MATERIALS

SHEET 1 OF 2

**RothHill**

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 Tel 425.869.9448

**DBL. DETECTOR CHECK VALVE  
 BACKFLOW PREVENTION ASSY.**

PLOTTING DATE JAN. 2005	DRAWN DSH	CHECKED KRG	APPROVED <i>[Signature]</i>	DISTRICT I.N.H.
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0020-1	DATE APPROVED 6-25-02		



WATER DISTRICT NO.90

DWG. NO. 20-1

PIPE SIZE	VAULT SIZES			
	CATALOG #	VAULT #	COVER #	BASE #
3" & 4"	575-LA	575-BL	57TL-30C	575-BL
6" & 8"	4484-LA	4484-ML	4484TL-30C	4484-BL
10"	5106-LA	5106-ML	5106TL-30C	5106-BL

GENERAL NOTES:

- SHOP-COAT ALL INTERIOR METAL INCLUDING PIPE, FITTINGS AND PIPE STANDS WITH TWO COATS OF FARWEST, BLUE, QUICK-DRY ENAMEL, PART NO. 250-1-01-K-04 AS APPROVED BY THE ENGINEER. APPLY PER MANUFACTURERS INSTRUCTIONS. SAND BLAST TO REMOVE EXISTING COATINGS AND PAINT PRIOR TO INSTALLATION, THEN TOUCHUP AS REQUIRED.
- THE ABOVE VAULT SIZES WERE SUPPLIED BY UTILITY VAULT CO. AS A REFERENCE FOR REQUIRED VAULT DIMENSIONS. SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL.
- ALL ACCESS COVERS MUST BE MARKED "WATER", AND BE LOCKING, & TRAFFIC BEARING AS REQ'D BY DIST. & 1-3/4" HOLE - 9" OFF CENTER AND THREE (3) TAPPED 5/8" HOLES (SEE DWG. 19A). SQUARE HATCH MAY BE USED, SUBJECT TO APPROVAL BY DISTRICT.
- CLASS 52 D.I. PIPE IS REQUIRED.
- ALL BRASS FITTINGS SHALL CONFORM TO AWWA C800 (ALL BYPASS PARTS, PIPING).

MATERIAL LIST

- HATCH ————— CAST IRON MANHOLE OR GALV. STEEL HATCH IN TRAFFIC AREAS (SEE #3 ABOVE)
- LADDER RUNGS ——— 3/4" GALV. BAR AT 12" O.C. GROUTED OR FABRICATED GALV. STEEL LADDER SECURED AT TOP AND BOTTOM.
- CONCRETE VAULT ——— SUBMIT DETAILS FOR APPROVAL. (SEE TABLE ABOVE)
- DETECTOR ————— DOUBLE DETECTOR CHECK VALVE ASSEMBLY MUST BE APPROVED FOR INSTALLATION IN WASHINGTON STATE. TYPE SHALL BE APPROVED BY THE DISTRICT.
- VALVE ————— TWO EACH, AWWA C515-01 (DUCTILE IRON BODY AND BONNET) AND AWWA C550-05:FLxMJ w/ RESTRAINTS OS&Y GATE VALVES w/ HANDWHEEL. MUST BE LOCATED INSIDE OF VAULT.
- COUPLING ADAPTOR — TWO EACH, CAST IRON, (FLANGE BY MECHANICAL JOINT) COUPLING ADAPTORS W/RESTRAINTS.
- FLOOR DRAIN ——— 4" PVC, SLOPED TO STORM SEWER OR DAYLIGHT TO DRAINAGE DITCH.  
ALTERNATE: SUMP PUMP ALTERNATE MUST BE APPROVED BY THE DISTRICT AND WILL BE ALLOWED ONLY IF DAYLIGHT DRAIN MUST BE EXTENDED OVER 300 FEET.
- PIPE STAND ——— 1" SCHEDULE 40 GALVANIZED PIPE STAND AND BASE BOLTED TO FLANGE.
- WATER MAIN ——— CLASS 52 D.I. PIPE WITH RESTRAINED JOINTS.
- WALL FLANGE ——— TWO EACH

\* SEE SHEET 1 FOR ADDITIONAL DETAILS

SHEET 2 OF 2



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Bellevue, Washington 98004  
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DBL. DETECTOR CHECK VALVE  
BACKFLOW PREVENTION ASSY.

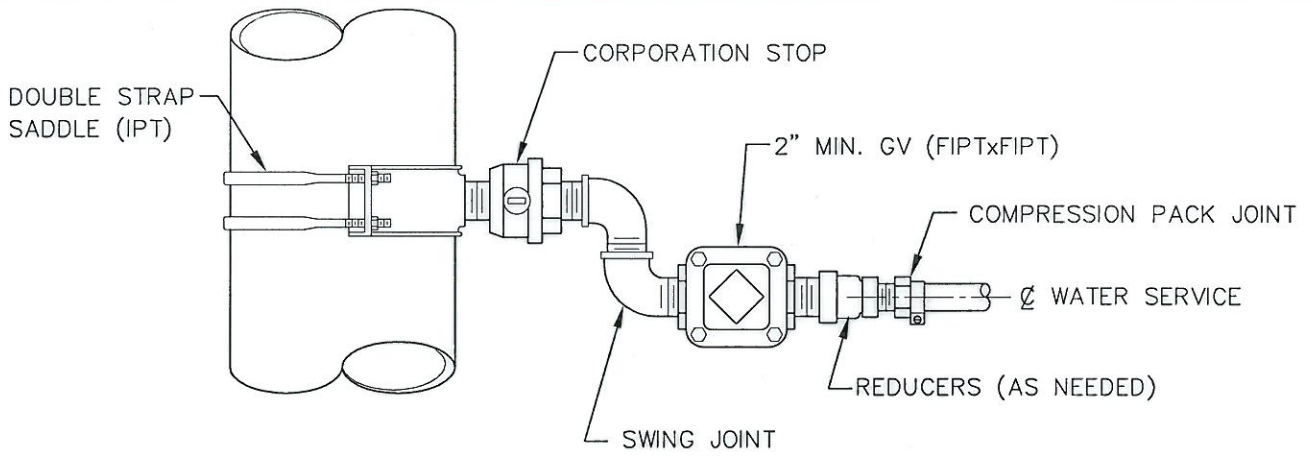


WATER DISTRICT NO.90

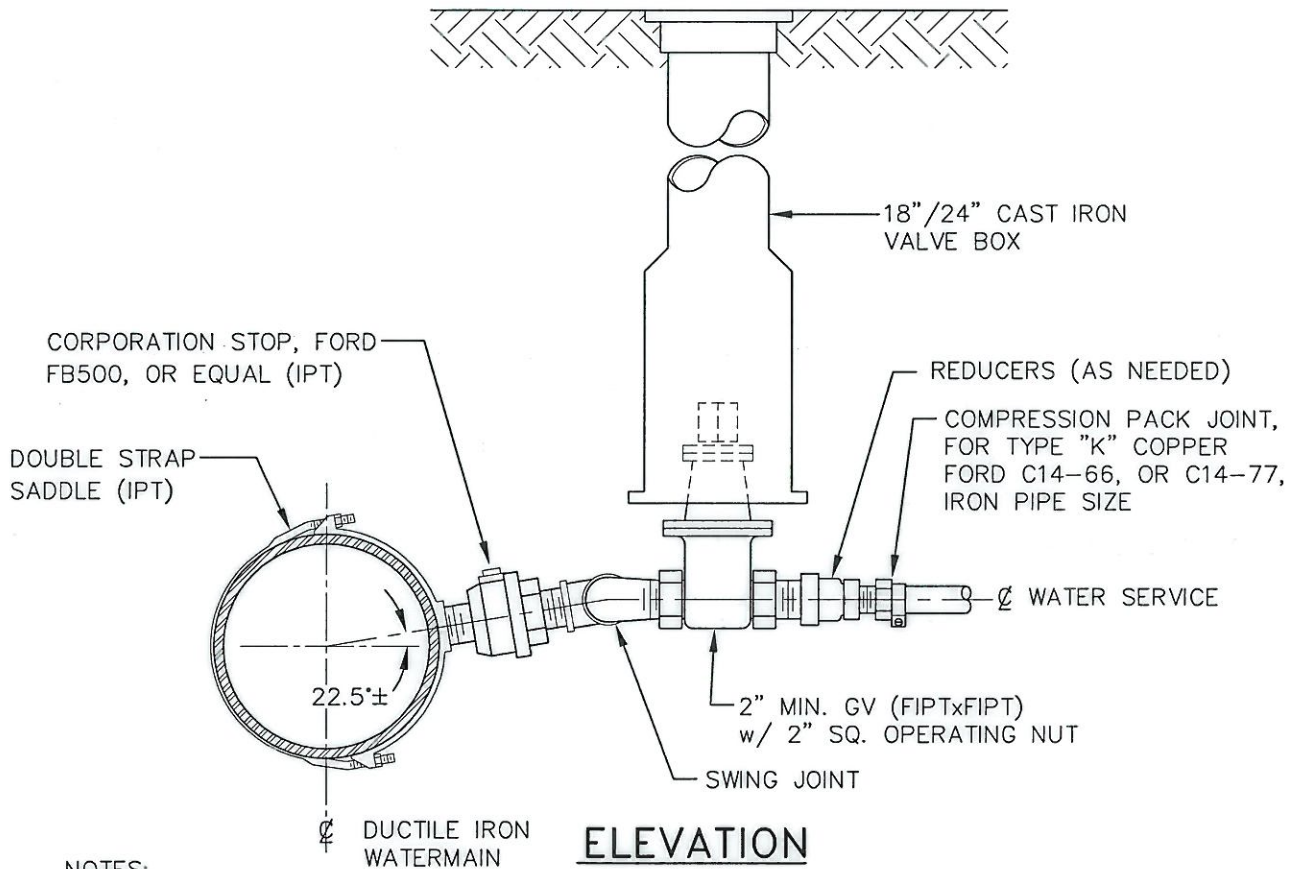
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PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0020-2	DATE APPROVED <i>5/18/09</i>		

DWG. NO. 20-2





**PLAN**



**ELEVATION**

**NOTES:**

1. SERVICE LINE FITTINGS: ALL FITTINGS SHALL BE CAST FROM WATER WORKS BRASS CONFORMING TO AWWA C800.
2. MUNICIPAL SERVICE PIPE: COPPER TYPE "K"
3. LINE SIZING SHALL BE APPROVED BY DISTRICT.
4. SWING JOINT SHALL BE DOUBLE STREET ELBOWS OR 2 90° BENDS & NIPPLES.



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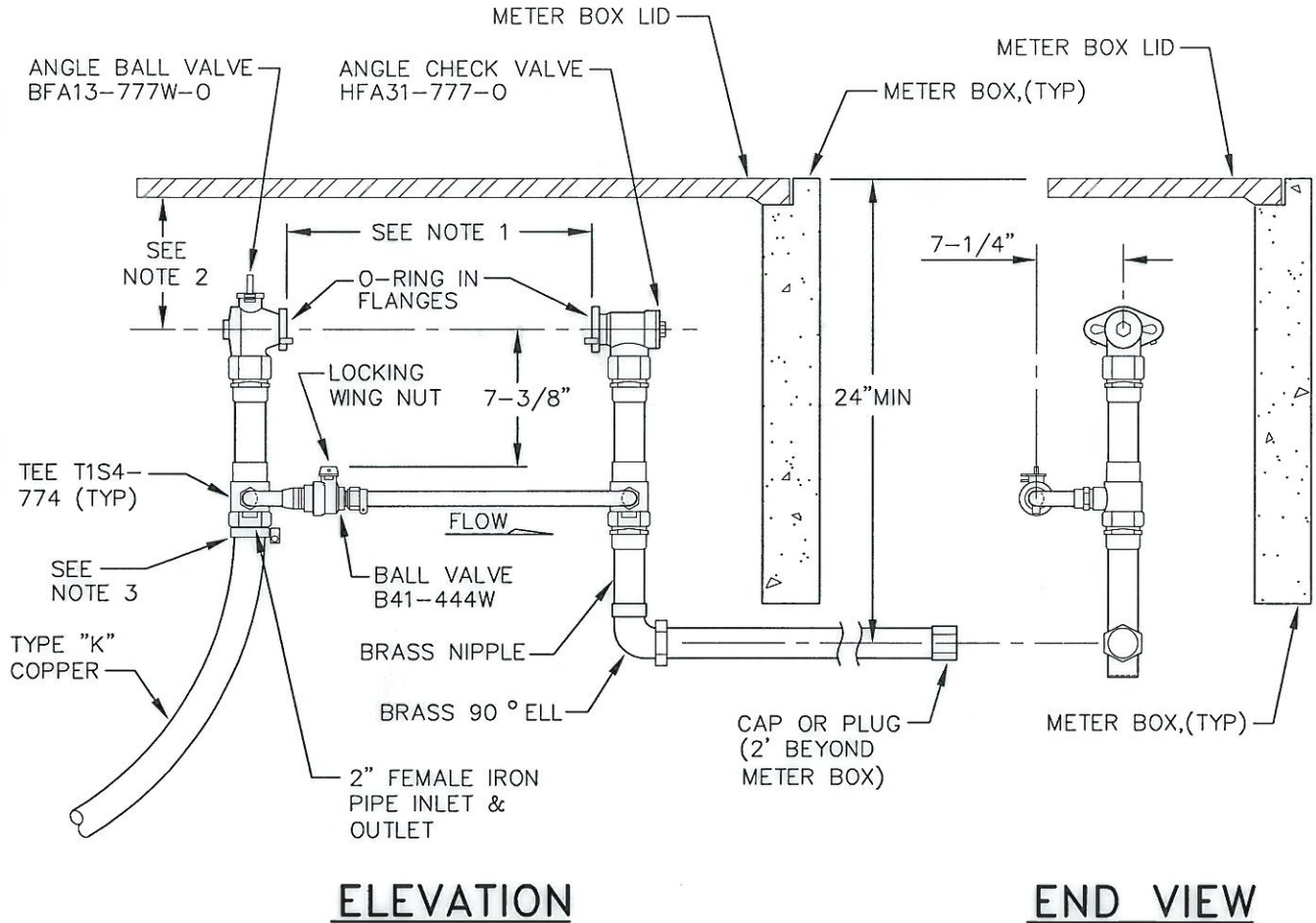
**WATER SERVICE CONNECTION  
1-1/2 INCH & LARGER**

PLOTTING DATE JAN. 2005	DRAWN DSH	CHECKED KRG	APPROVED <i>[Signature]</i>	DISTRICT T.N.H.
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0021	DATE APPROVED 6-25-02		



WATER DISTRICT NO.90

DWG. NO. 21



**ELEVATION**

**END VIEW**

**NOTE 1:**

- 1-1/2" DISK METER = 13-1/4"
- 2" COMPOUND METER = 15-1/4"

**NOTE 2:**

- 1 1/2" DISK METER = 8"
- 2" COMPOUND METER = 18"

**NOTE 3:**

COMPRESSION PACK JOINT:  
 FOR 1-1/2" DIA. USE FORD #C84-66 (PACK END C.T.S.) OR EQUAL.  
 FOR 2" DIA. USE FORD #C84-77 (PACK END C.T.S.) OR EQUAL.

**NOTE 4:**

METER BOXES SHALL BE INSTALLED AS FOLLOWS:  
 2- NO. 3 METER BOX BOTTOMS STACKED UPON EACH OTHER  
 1- NO. 3 SOLID METER BOX LID AS DESCRIBED IN GENERAL NOTES.

**GENERAL NOTES:**

1. FORD CUSTOM SETTER #B-95082-012.
2. METERS TO BE SUPPLIED AND SET BY THE DISTRICT
3. ABOVE REFERENCED PART NUMBERS REFER TO ITEMS MANUFACTURED BY FORD METER BOX CO, INC. THESE OR EQUIVALENT FITTINGS TO BE USED.
4. METER SETTER TO BE APPROVED BY THE DISTRICT PRIOR TO BACKFILL.
5. METER BOXES TO BE SUPPLIED BY OWNER/CONTRACTOR. METER BOX SHALL BE OF PRECAST CONCRETE FOGTITE NO. 3 WITH A SOLID CONCRETE LID WITH LIFT HANDLES AT EACH END OR EQUAL WITH READER LID IF METER BOXES ARE LOCATED IN A HIGH TRAFFIC AREA AN ALTERNATE MAY BE NEEDED AND APPROVED BY THE DISTRICT.
6. ALL BRASS PIPE AND FITTINGS SHALL CONFORM TO AWWA C800.



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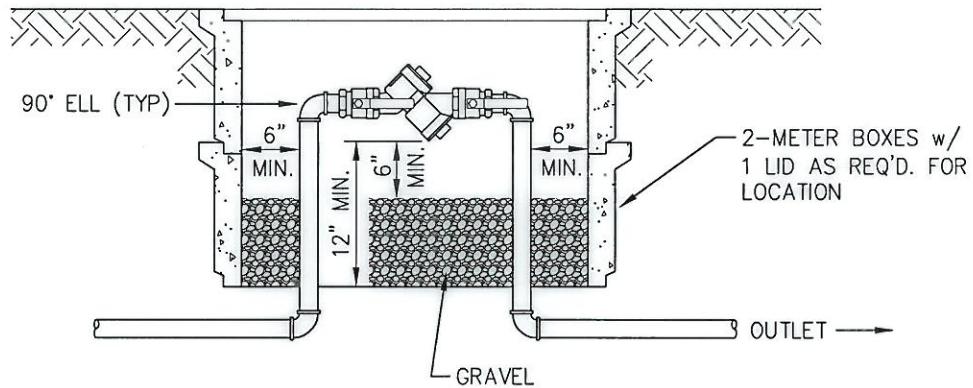
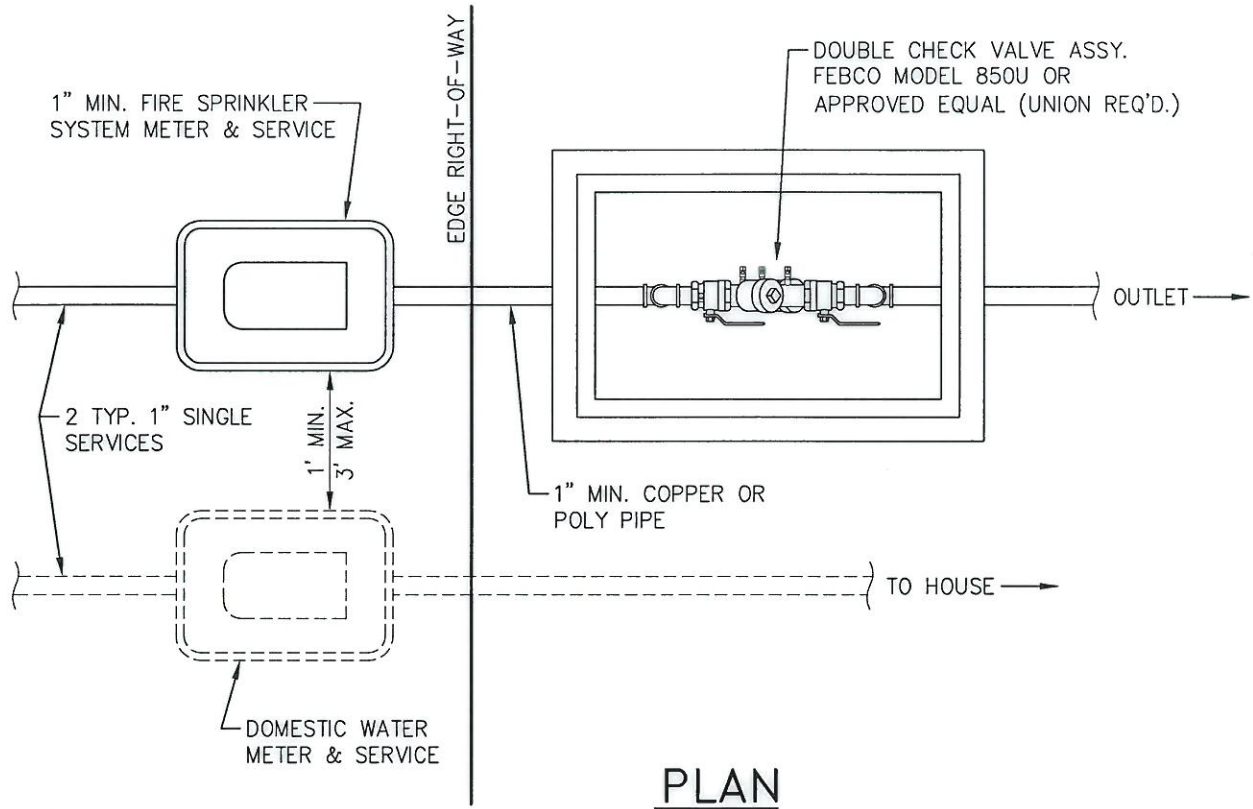
**1-1/2" & 2" METER SETTERS**



WATER DISTRICT NO.90

PLOTTING DATE JAN. 2005	DRAWN DSH	CHECKED KRG	APPROVED <i>[Signature]</i>	DISTRICT T.N.H.
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0022	DATE APPROVED 6-25-02	DWG. NO.	22





**NOTE FOR FIRE SPRINKLER DCVA'S:**  
 DCVA SIZE TO BE SPECIFIED BY THE FIRE SPRINKLER SYSTEM DESIGNER (1" MIN.). PROPOSED VALVE & SIZE IS TO BE SUBMITTED TO KCWD NO. 90 IN WRITING PRIOR TO INSTALLATION.

**NOTE:**  
 DETERMINATION OF DCVA OR RPBA FOR CROSS CONNECTION CONTROL WILL BE MADE BY WD NO. 90 ON A CASE BY CASE BASIS.



Engineering Partners, LLC  
 2600 116th Avenue NE #100  
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## CROSS CONNECTION CONTROL-DCVA

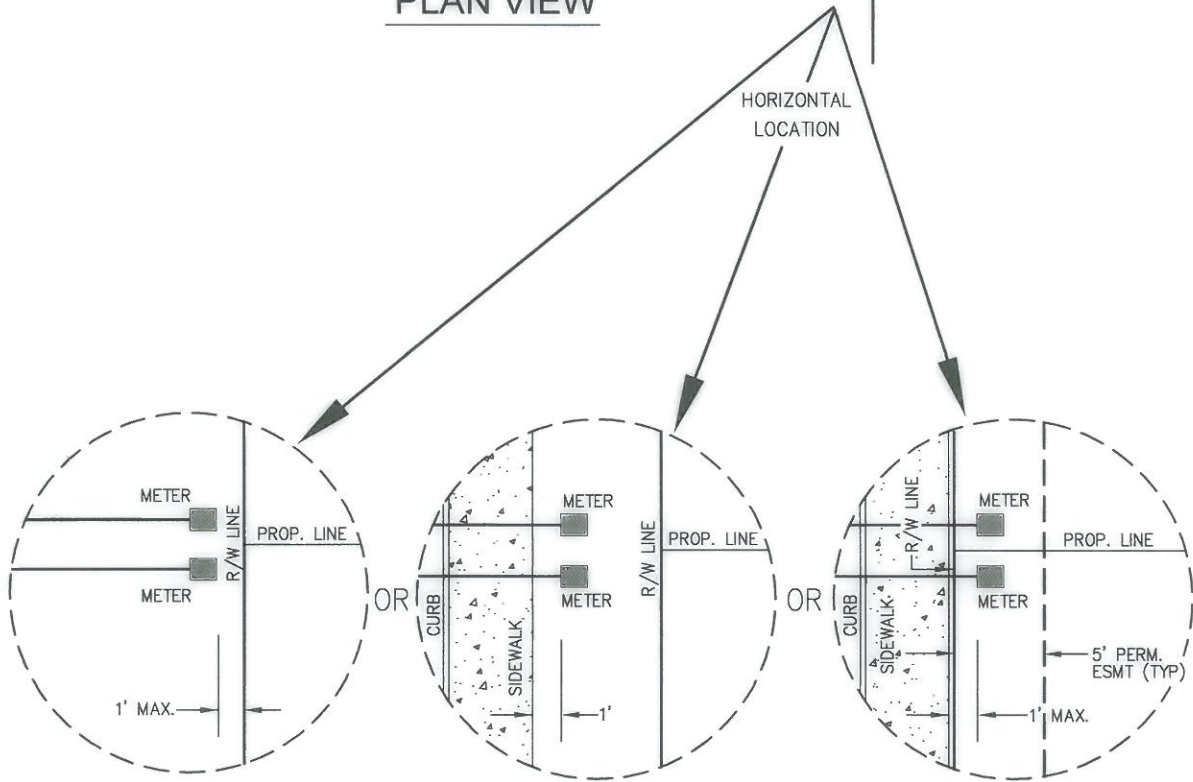
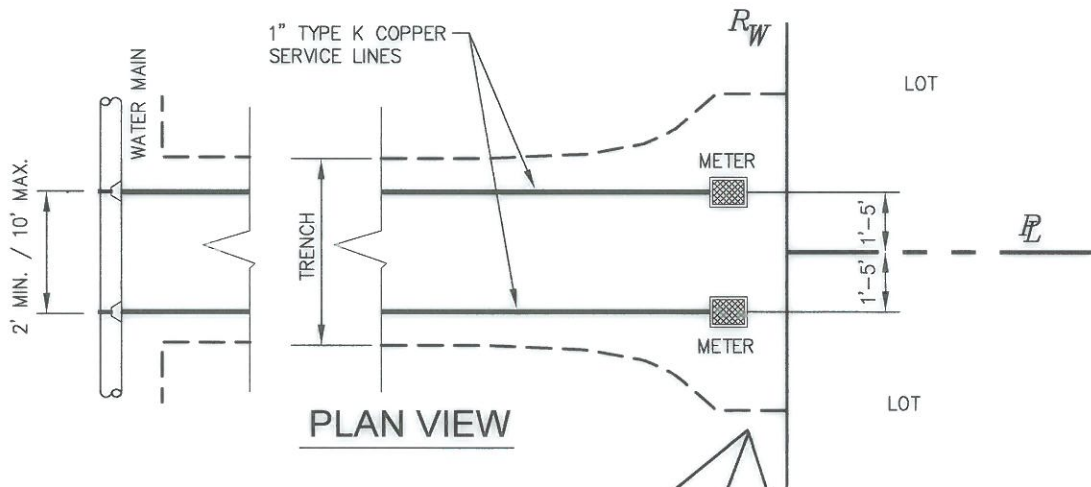
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PLOTTING SCALE NTS: 1=1	FILE NAME F: \DETAILS\WD90\WATER\0024	DATE APPROVED 2-03-05		



WATER DISTRICT NO.90

DWG. NO. 24





WITHOUT SIDEWALK

WITH SIDEWALK  
IN R/W

WITH SIDEWALK  
IN ESMT

NOTES:

1. WATER SERVICES SHALL BE LOCATED AT LEAST 5' FROM POWER VAULTS, HAND HOLES AND/OR LIGHT STANDARDS.
2. CUSTOMER SIDE OF METER BOX APPROXIMATELY 2" INSIDE EACH BOX.

**ROTHHILL**

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Suite 200  
Bellevue, WA 98004  
Tel. 425.869.9448

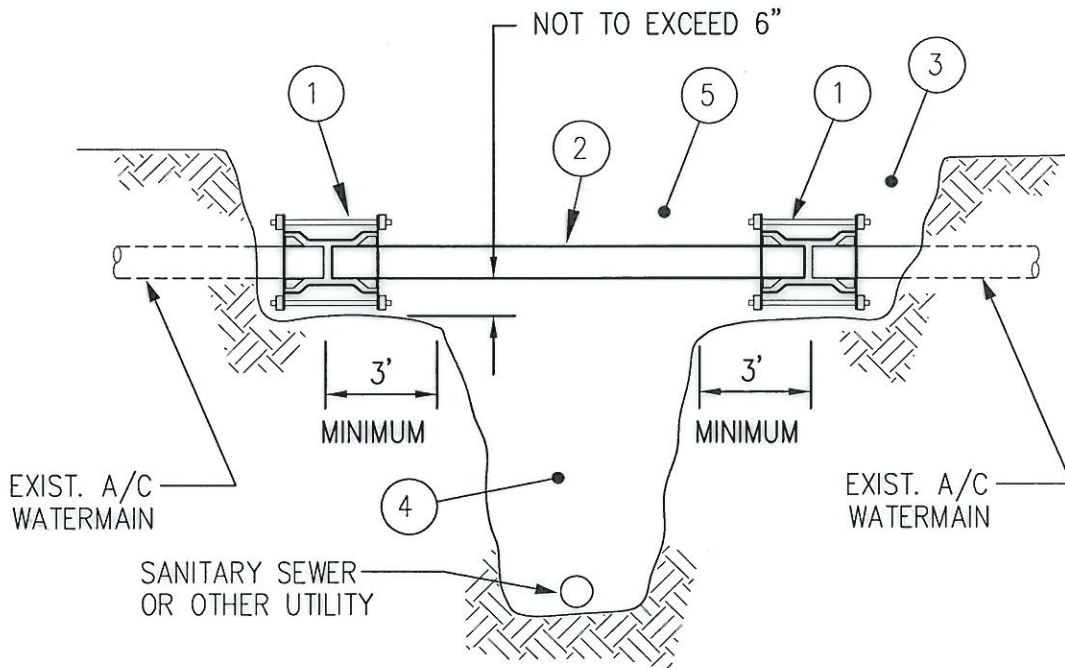
**METER BOX LOCATION**

PLOTTING DATE SEPT. 2010	DRAWN TVW	CHECKED LDS	APPROVED <i>[Signature]</i>	DISTRICT <b>TNH</b>
PLOTTING SCALE NTS/1=1	FILE NAME F: \DETAILS\WD90\WATER\0028	DATE APPROVED <b>1/13/11</b>		



WATER DISTRICT NO.90

DWG. NO. 28



NOTES :

- ① COUPLING: ASBESTOS-CEMENT (A/C) BY DUCTILE IRON (DUCTILE IRON, ROMAC STYLE 501, OR EQUAL).
- ② DUCTILE IRON PIPE, CL. 52, DIAMETER TO MATCH EXISTING A/C.
- ③ BACKFILL EXISTING A/C AND COUPLING WITH PEA GRAVEL TO 1' ABOVE PIPE.
- ④ BACKFILL UNDER WATERLINE WITH CRUSHED ROCK COMPACTED TO 95% MDD, OR CONTROL DENSITY FILL (CDF) PER KING COUNTY MATERIAL REQUIREMENTS.
- ⑤ BACKFILL OVER THE TOP OF THE WATERLINE SHALL BE CRUSHED ROCK COMPACTED TO 95% MDD, OR CONTROL DENSITY FILL (CDF) PER KING COUNTY MATERIAL REQUIREMENTS, WITHIN COUNTY ROAD TRAVEL SURFACE. BACKFILL OVER THE TOP OF THE PIPE WITH NATIVE MATERIAL COMPACTED TO 90% MDD IF LOCATED WITHIN EASEMENT OR UNIMPROVED AREA.
- ⑥ A/C DISPOSAL PER WAC173-400-075, WAC 296-65, PUGET SOUND AIR POLLUTION CONTROL AGENCY REQUIREMENTS.



Engineering Partners, LLC

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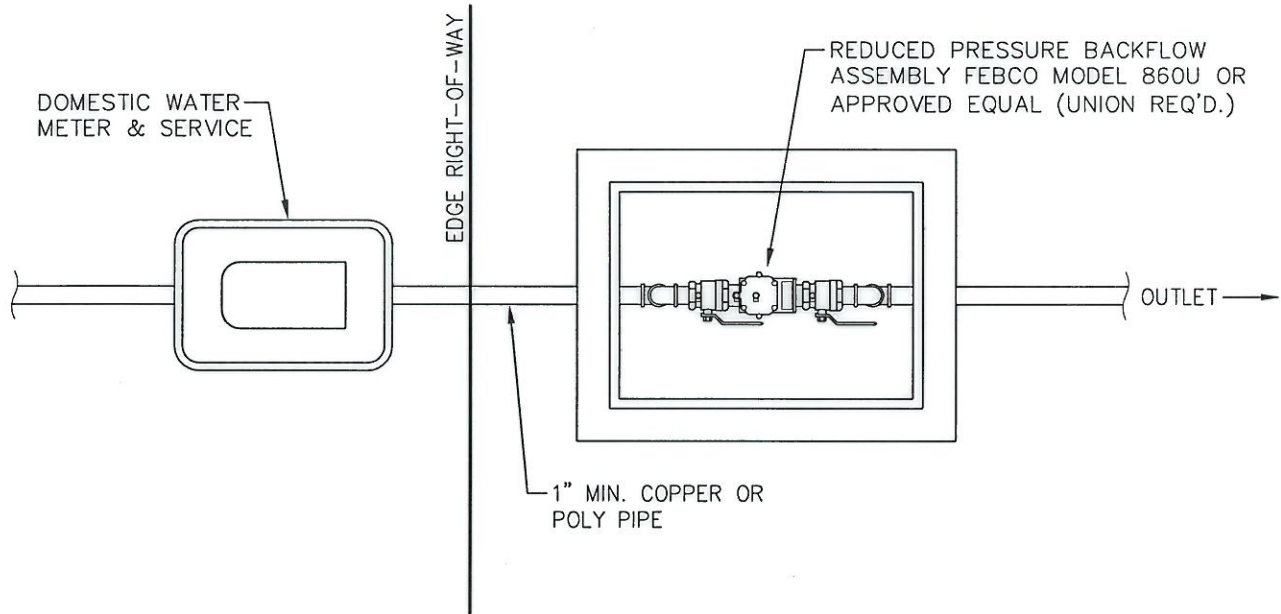
## A/C WATER MAIN REPLACEMENT @ SANITARY SEWER CROSSING

PLOTTING DATE JAN. 2005	DRAWN DSH	CHECKED KRG	APPROVED <i>[Signature]</i>	DISTRICT T.N.H.
PLOTTING SCALE NTS 1=1	FILE NAME F:\DETAILS\WD90\WATER\0031	DATE APPROVED 3-12-04		

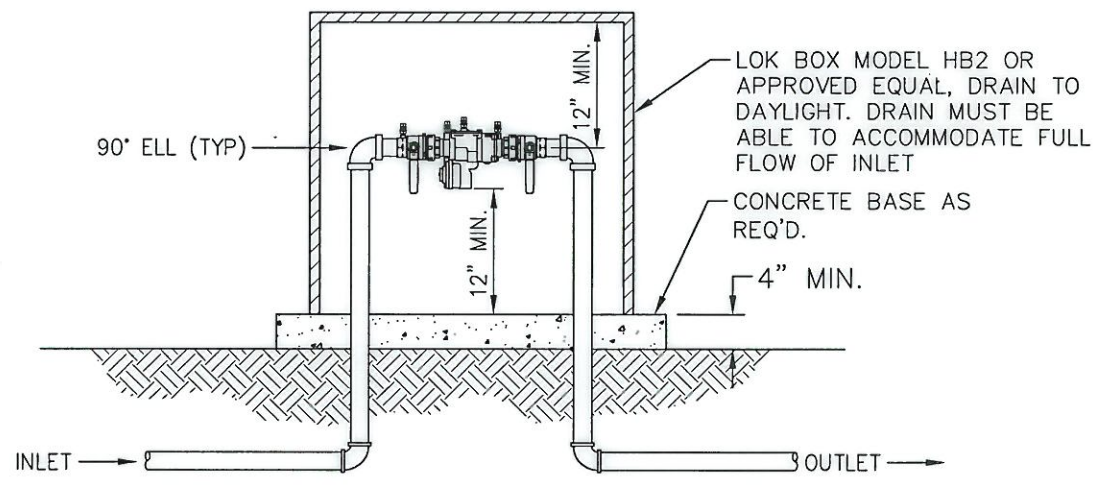


WATER DISTRICT NO.90

DWG. NO. 31



PLAN



ELEVATION

**NOTE:**  
 DETERMINATION OF DCVA OR RPBA FOR CROSS CONNECTION CONTROL WILL BE MADE BY WD NO. 90 ON A CASE BY CASE BASIS.

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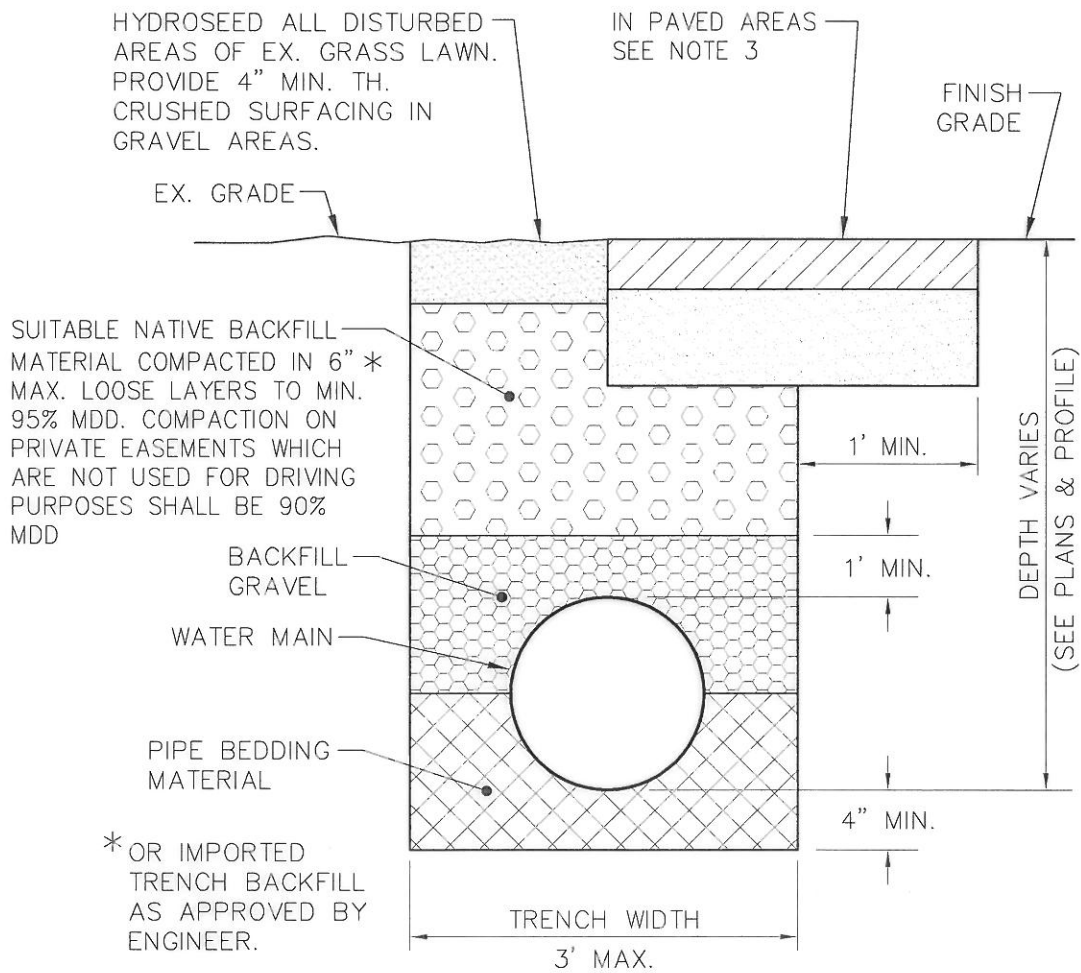
**CROSS CONNECTION CONTROL-RPBA**



PLOTTING DATE JAN. 2005	DRAWN DSH	CHECKED	APPROVED <i>[Signature]</i>	DISTRICT T.N.H.
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0032	DATE APPROVED 2-03-05		

WATER DISTRICT NO.90  
 DWG. NO. 32





**NOTE:**

1. ANY TRENCH TRANSVERSE TO THE RIGHT-OF-WAY SHALL BE BACKFILLED WITH 100% 1/4" CRUSHED SURFACING BASE COURSE.
2. MINIMUM COVER FOR 8" DIAMETER WATER MAINS SHALL BE 3' MINIMUM COVER FOR LARGER THAN 8" DIAMETER WATER MAINS SHALL BE 4'.
3. IN KING COUNTY R.O.W:  
HMA CLASS 1/2" PG. 64-22. MATCH EXISTING PAVEMENT THICKNESS, BUT NOT LESS THAN 2", OVER 6.5" CSTC (COMPACTED THICKNESS) TACK & SEAL MEET LINES.  
IN CITY OF RENTON R.O.W:  
2" ACP CLASS E OR B FOR RESIDENTIAL ACCESS STREETS OVER 6" CSTC (COMPACTED THICKNESS) TACK & SEAL MEET LINES OR 6" ACP CLASS E OR B FOR ALL OTHER STREETS OVER 6" CSTC (COMPACTED THICKNESS) TACK & SEAL MEET LINES.



Engineering Partners, LLC  
2600 116th Avenue NE #100  
Bellevue, Washington 98004  
Tel 425.869.9448

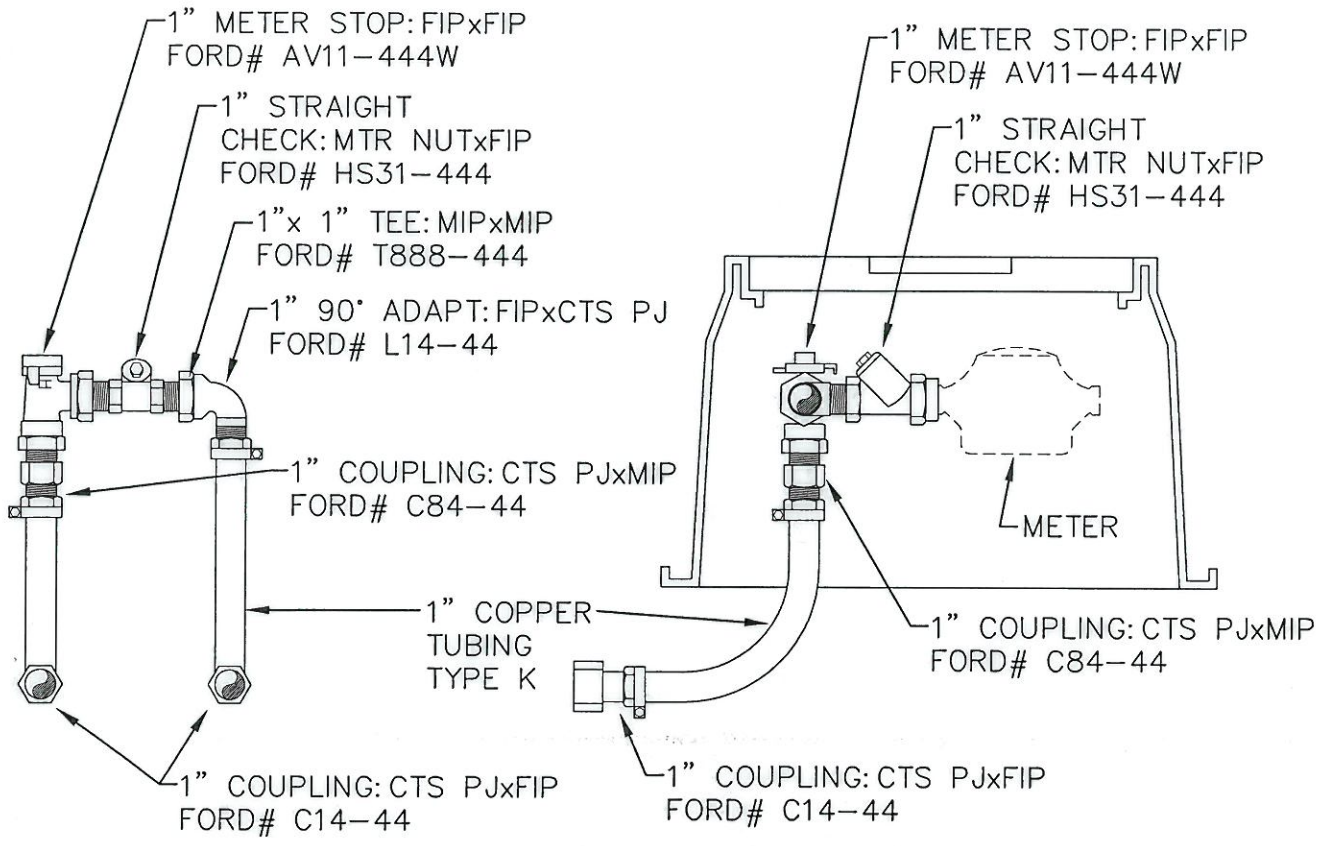
**TYPICAL TRENCH DETAIL**



WATER DISTRICT NO.90

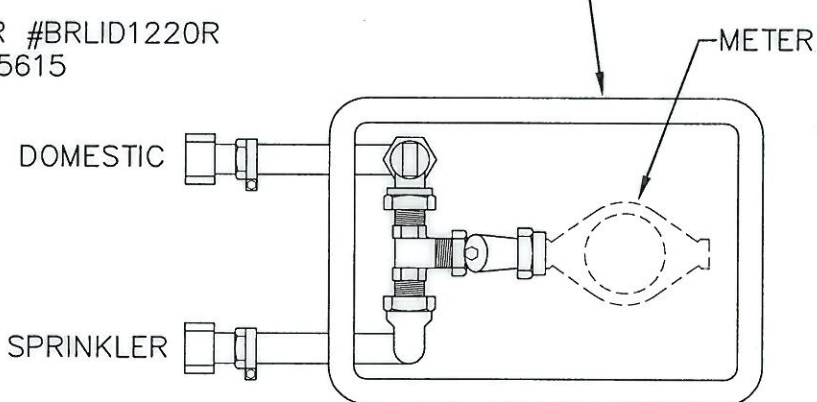
PLOTTING DATE MAY 2009	DRAWN DSH	CHECKED LDS	APPROVED <i>JSK</i>	DISTRICT <i>TMM</i>
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0033	DATE APPROVED <i>5/18/09</i>		

DWG. NO. 33



METER BOX SHALL BE:  
 13"x 20"x 12" DEEP BLACK 1220 CARSON  
 H.D. FOWLER #BRB1220B  
 KCWD 90 #MB5610  
 BLACK WATER LID FOR 1320 CARSON BOX w/  
 READER  
 HD FOWLER #BRLID1220R  
 KCWD #MB5615

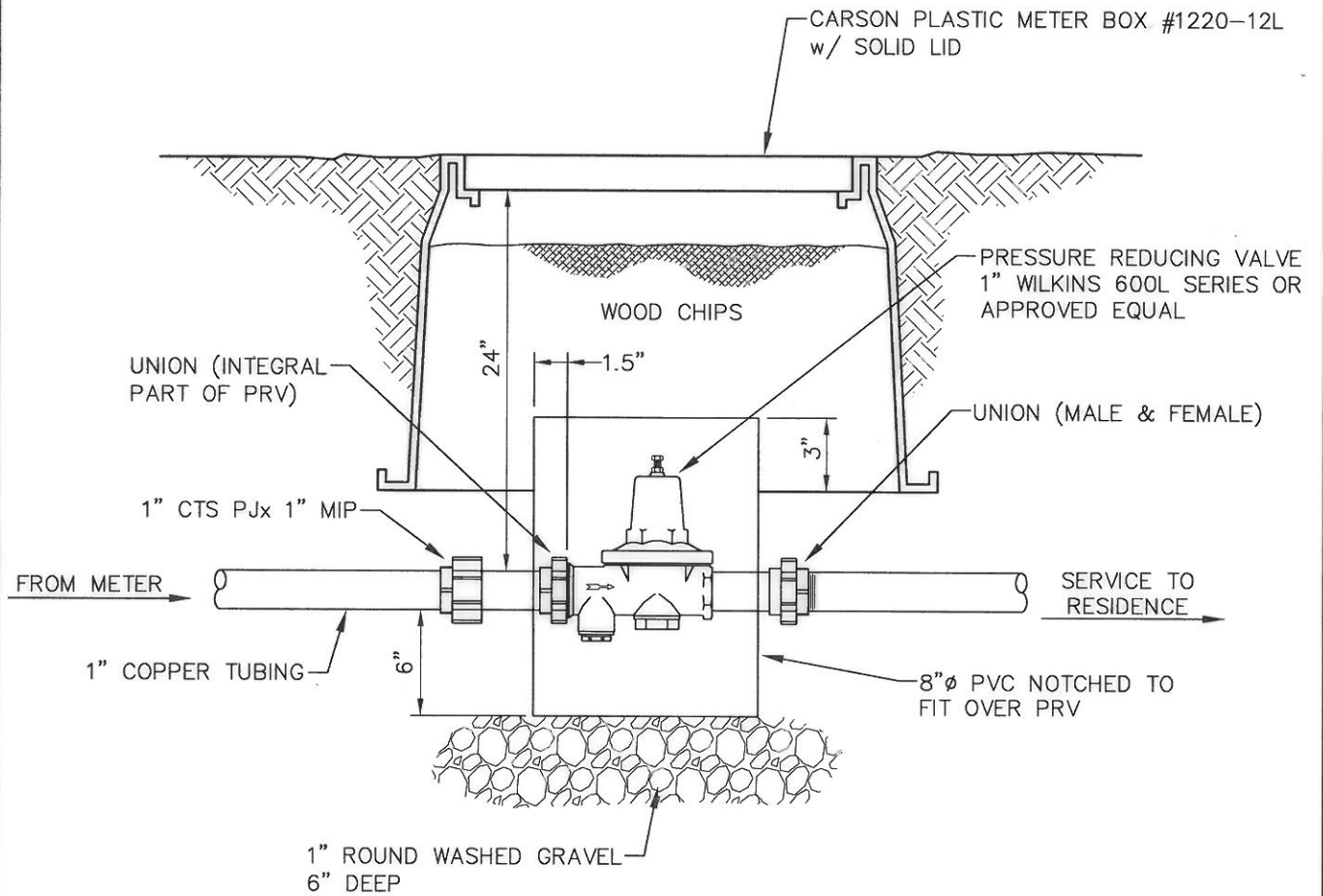
NOTE: ITEMS IN THIS DETAIL  
 TO BE CONSTRUCTED BY  
 DISTRICT PERSONNEL ONLY.



PLAN

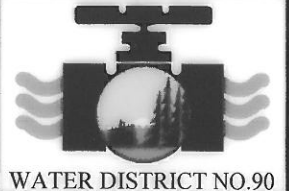
NOTE: TAG METER CURB STOP "DO NOT SHUT OFF. FIRE LINE"

<p><b>Roth Hill</b> Engineering Partners, LLC 2600 116th Avenue NE #100 Bellevue, Washington 98004 Tel 425.869.9448</p>	<b>FIRE/DOMESTIC CONNECTION</b>					<p>WATER DISTRICT NO.90</p>
	PLOTTING DATE	DRAWN	CHECKED	APPROVED	DISTRICT	
	5/2008	DSH	JSD	JSF	TNH	
PLOTTING SCALE	FILE NAME	DATE APPROVED		DWG. NO.		
NTS 1=1	F:\DETAILS\WD90\WATER\0034	6/10/2008		34		



**RothHill**  
Engineering Partners, LLC  
2600 116th Avenue NE #100  
Bellevue, Washington 98004  
Tel 425.869.9448

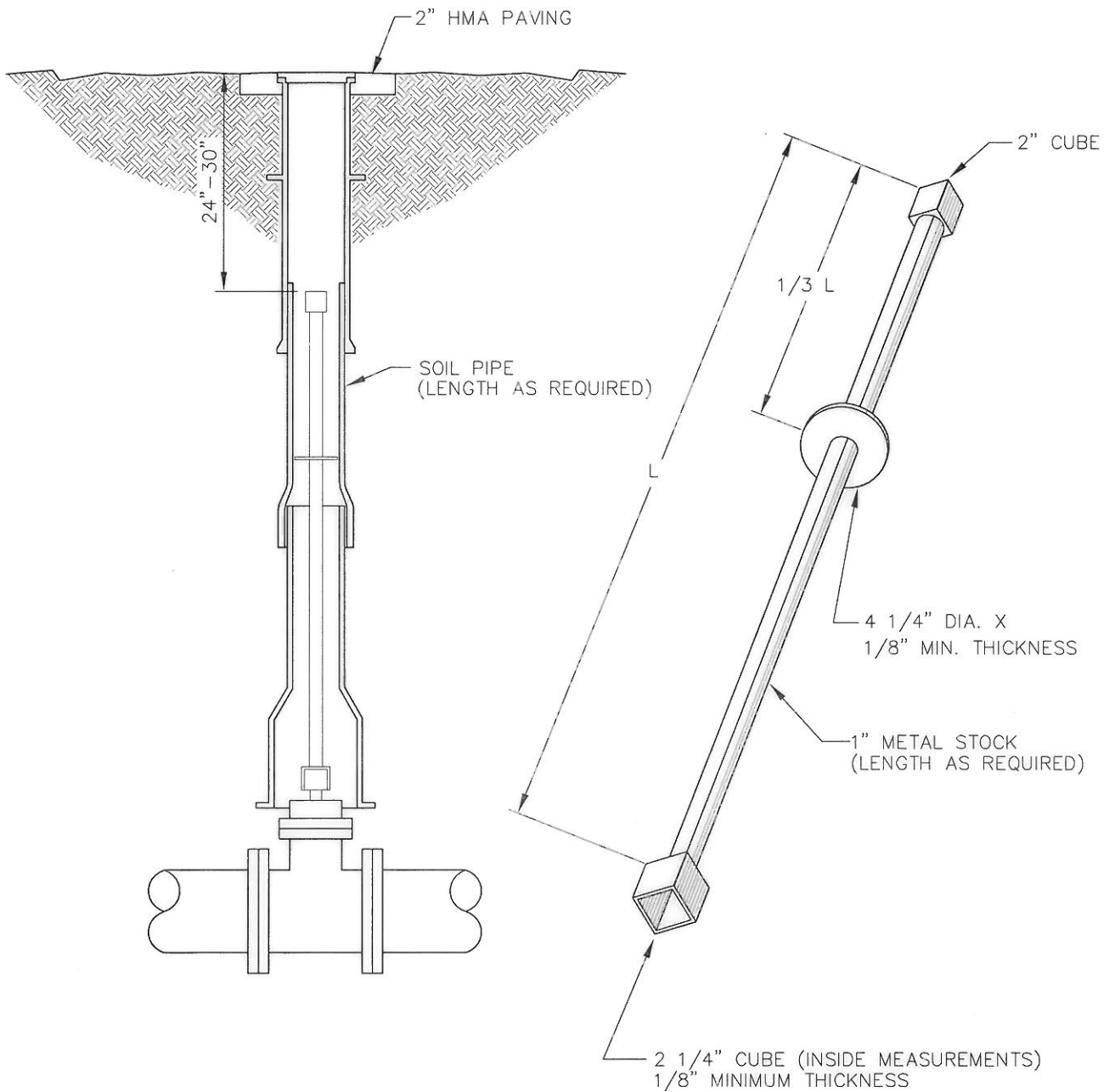
## INDIVIDUAL PRESSURE REDUCING VALVE



PLOTTING DATE OCT. 2009	DRAWN DSH	CHECKED LDS	APPROVED <i>ASF</i>	DISTRICT <i>TNH</i>
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0035		DATE APPROVED <i>10/22/09</i>	

DWG. NO. **35**





**NOTES:**

LENGTH AS REQUIRED TO PUT OPERATING NUT, 24"–30" FROM SURFACE. EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS MORE THAN FOUR (4) FEET BELOW FINISHED GRADE. EXTENSIONS ARE TO BE A MINIMUM OF TWO (2) FEET LONG. ONE EXTENSION IS TO BE USED PER VALVE.

ALL EXTENSIONS ARE TO BE MADE OF STEEL, SIZED AS NOTED, AND PAINTED WITH TWO (2) COATS OF METAL PAINT.



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 Bellevue, Washington 98004  
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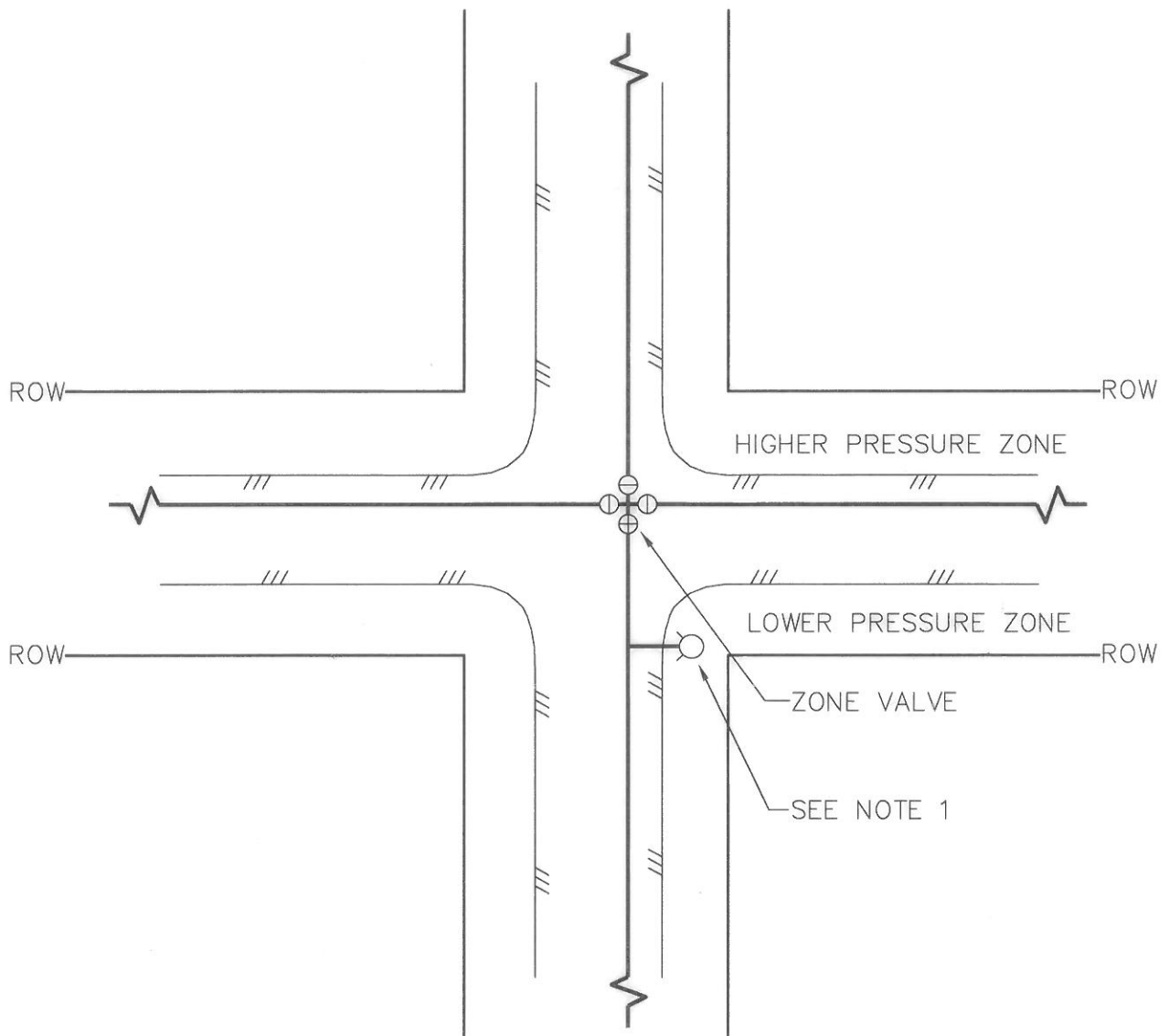
## VALVE OPERATING NUT EXTENSION

PLOTTING DATE MAY 2009	DRAWN DSH	CHECKED LDS	APPROVED <i>ZSF</i>	DISTRICT <i>TNH</i>
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0036	DATE APPROVED <i>5/18/09</i>		




WATER DISTRICT NO.90

DWG. NO. 36



NOTES:

1. INSTALL EITHER A HYDRANT (STD. DETAIL #4) OR THE APPROPRIATE BLOW OFF ASSEMBLY (STD. DETAIL 8, 9, 10-1, 10-2, 11-1 OR 11-2) AT FIRST AVAILABLE LOCATION AS DETERMINED BY THE DISTRICT.

<b>ROTHHILL</b> Roth Hill, LLC 11130 NE 33rd Place, Suite 200 Bellevue, WA 98004 Tel. 425.869.9448	<b>ZONE VALVE</b>				 WATER DISTRICT NO.90
	PLOTTING DATE DEC. 2009	DRAWN TVW	CHECKED <i>[Signature]</i>	APPROVED LDS	
PLOTTING SCALE NTS: 1=1	FILE NAME F:\DETAILS\WD90\WATER\0037		DATE APPROVED 5/4/10		DWG. NO. <b>37</b>