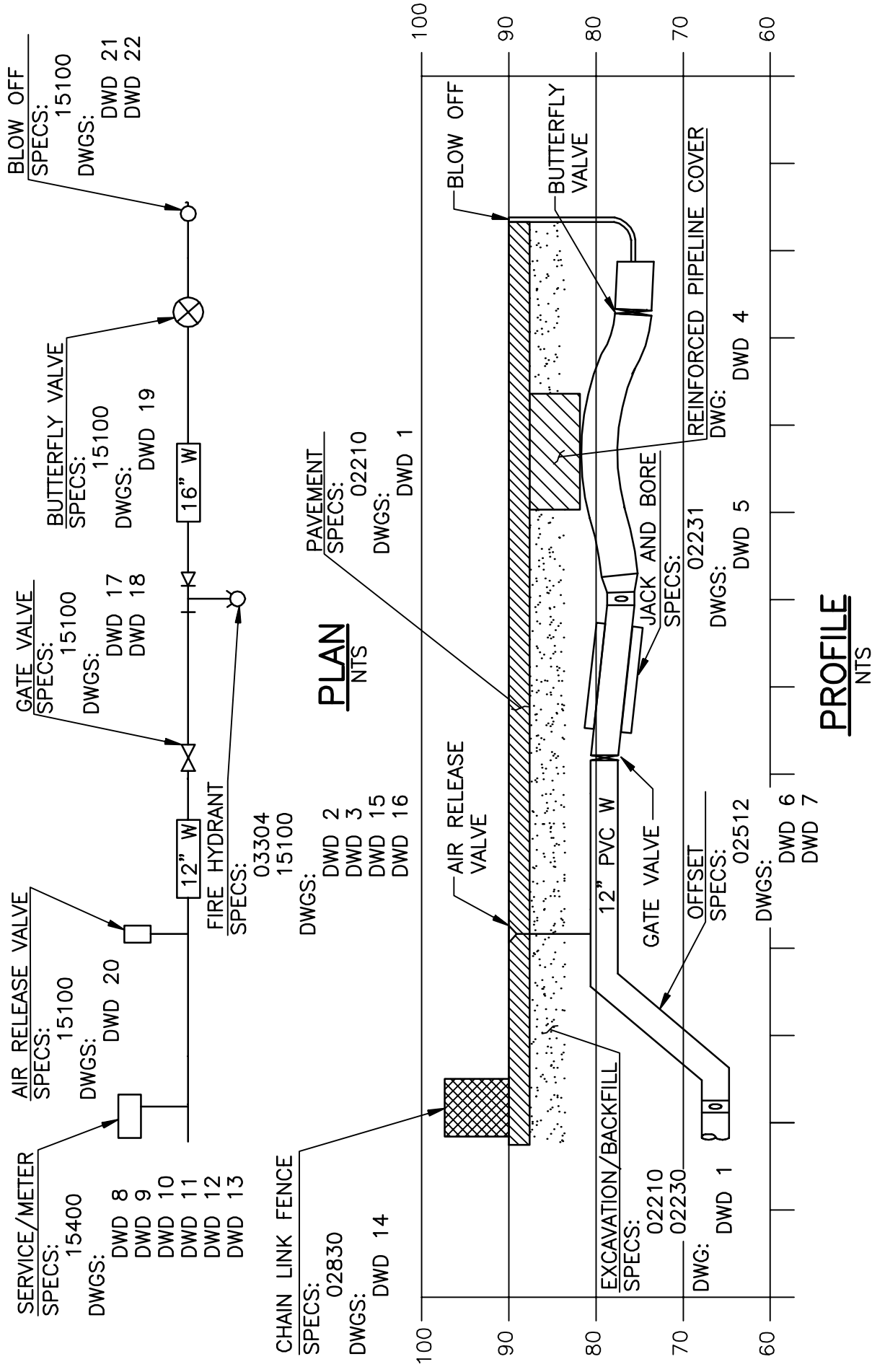


6. Standard Drawings

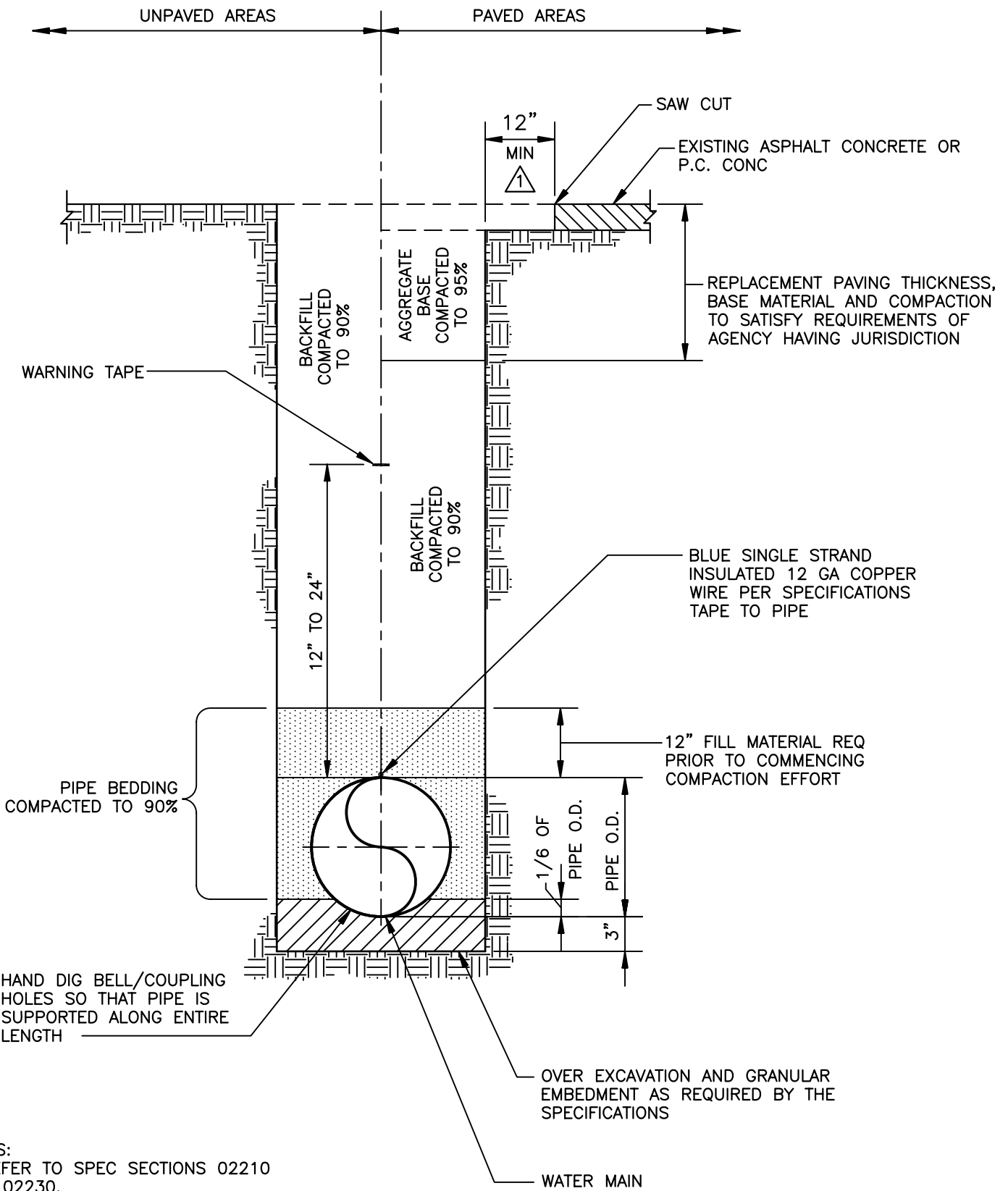
**DIABLO WATER DISTRICT
STANDARD SPECIFICATIONS AND DRAWINGS**

STANDARD DRAWINGS

DWD 1	Standard Trench Section
DWD 2	Concrete Thrust Blocks
DWD 3	Concrete Thrust Blocks for Vertical Bends
DWD 4	Concrete Reinforced Pipeline Cover Section
DWD 5	Partial Bore and Case Requirements
DWD 6	Double Offset Steel Pipe, Cement Mortar Lined and Coated, 6" to 24"
DWD 7	Single Offset Steel Pipe, Cement Mortar Lined and Coated, 6" to 24"
DWD 8	Service and Meter Box Installations, 5/8" to 2"
DWD 9	3" and 4" Compound Meter Installation
DWD 10	Double Check Valve Backflow Preventer Installation, 3/4" to 2"
DWD 11	Reduced Pressure Backflow Preventer Installation, 3/4" to 2"
DWD 12	Reduced Pressure Backflow Preventer Installation, 2½" to 10"
DWD 13	Double Check Detector Assembly Installation, 3" to 10"
DWD 14	Chain Link Fence Enclosure
DWD 15	Fire Hydrant Installation
DWD 16	Reverse Thrust Block at Fire Hydrant on Embankment
DWD 17	Valve Boxes, Lids and Riser Installation, 12" and Smaller
DWD 18	Valve Nut Extension
DWD 19	Butterfly Valve Installation, 16" to 24"
DWD 20	1" Air Release Valve Assembly
DWD 21	2" Blowoff Assembly
DWD 22	4", 6", & 8" Blowoff Assembly



STANDARD DRAWING	
QUICK REFERENCE GUIDE	
DESIGNED <u>WDB</u>	DRAWN <u>CCW</u>
APPROVED <u>MY</u>	DATE <u>JUNE, 2007</u>
DWG. NO. <u>DWD 0</u>	

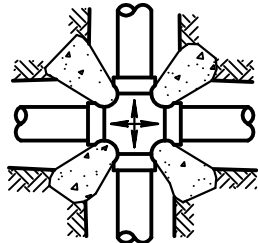


NOTES:

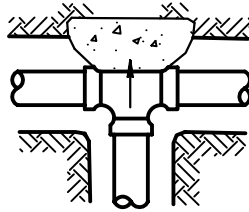
1. REFER TO SPEC SECTIONS 02210 & 02230.

1 REVISD FROM 6" TO 12", 11/20/07

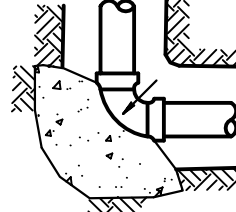
DIABLO WATER DISTRICT		STANDARD DRAWING			
		STANDARD TRENCH SECTION			
DESIGNED <u>WDB</u>	DRAWN <u>A.T.</u>	APPROVED <u>MY</u>	DATE <u>NOVEMBER, 2007</u>	DWG. NO. DWD 1	



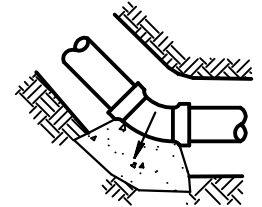
CROSS



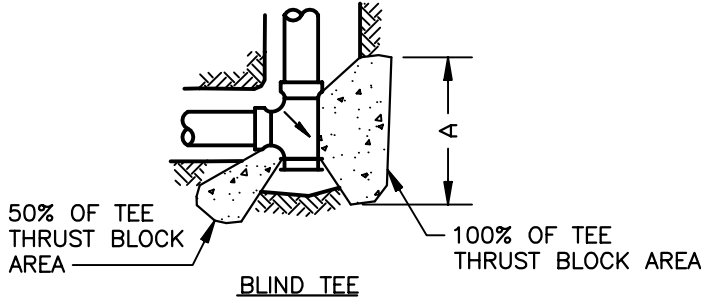
TEE



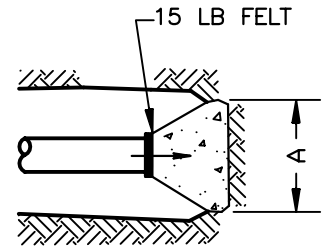
90° ELL



HORIZONTAL BEND



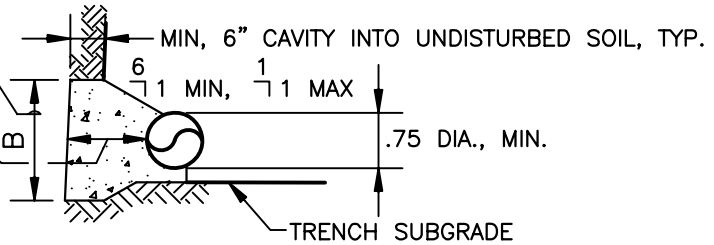
BLIND TEE



DEAD - END
PLAN VIEW

AREA (COMPUTED FROM TABLE)
DIVIDED BY VERTICAL HEIGHT (B)
EQUALS HORIZONTAL WIDTH (A)
OF THRUST BLOCK

SHALL BE GREATER THAN THE
LARGER OF EITHER A/2 OR B/2.
1' MIN.



TYPICAL THRUST BLOCK SECTION-VERTICAL VIEW

THRUST BLOCK AREA OF REQUIRED BEARING (SQ FT)
BASED ON ALLOWABLE SOIL BEARING VALUE OF 2,000 PSF

MULTIPLIERS FOR THRUST BLOCK AREAS

PIPE SIZE	DEAD END, TEE, BO OR PLUG	CROSS (EA BLOCK)	90° ELBOW	45° ELBOW & WYE	22.5° ELBOW
4"	1.5	1.0	2.0	1.5	1.0
6"	3.0	2.5	4.0	2.5	1.5
8"	5.0	2.5	7.0	4.0	2.0
10"	7.5	4.0	10.5	6.0	3.0
12"	10.5	5.5	15.0	8.0	4.5
16"	18.0	9.0	25.5	14.0	7.0
18"	22.5	11.5	32.0	17.5	9.0
20"	27.5	14.0	39.0	21.0	11.0
24"	39.5	20.0	55.5	30.5	15.5

ACTUAL SOIL BEARING VALUE	MULTIPLIER
1,000 PSF	2.0
1,500 PSF	1.33
2,000 PSF	1.0
2,500 PSF	0.8
3,000 PSF	0.67

EXAMPLE:

ACTUAL SOIL BEARING VALUE = 1,000 PSF FOR 8"
BLOW OFF
REQUIRED AREA IS: (2.0)(5.0 SQ FT) = 10.0 SQ FT

NOTES:

- THRUST BLOCKS SHALL BE CLASS B CONCRETE (5 SACK MIX)
- MAXIMUM TEST PRESSURE = 150 PSI
- THRUST BLOCK HORIZONTAL WIDTH (A) SHALL BE AT LEAST TWICE THE VERTICAL HEIGHT (B)
- TOP OF THRUST BLOCK SHALL NOT BE PLACED WITHIN 2' OF FINISHED GRADE.
- REFER TO SPEC SECTIONS 03100 AND 03304.

DIABLO WATER DISTRICT

STANDARD DRAWING
CONCRETE THRUST BLOCKS

DESIGNED WDB

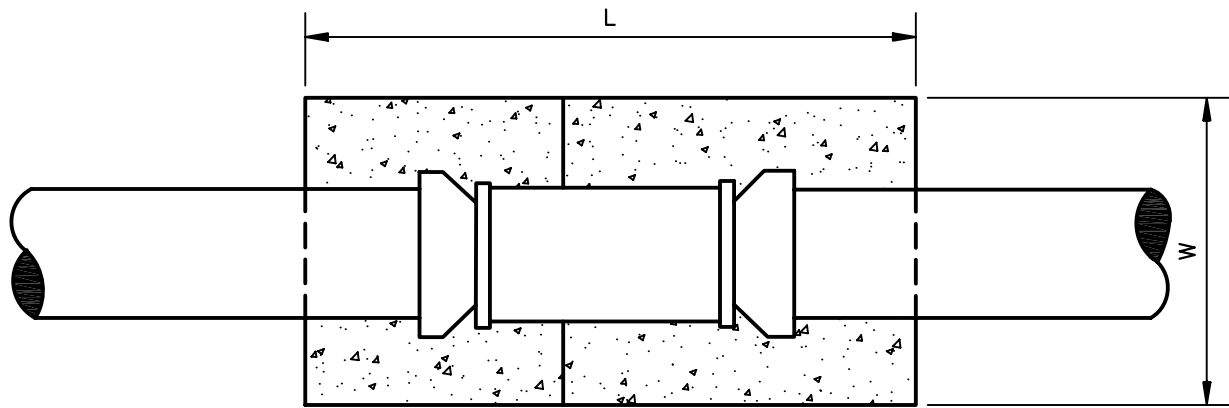
DRAWN

APPROVED MY

DATE JUNE, 2007

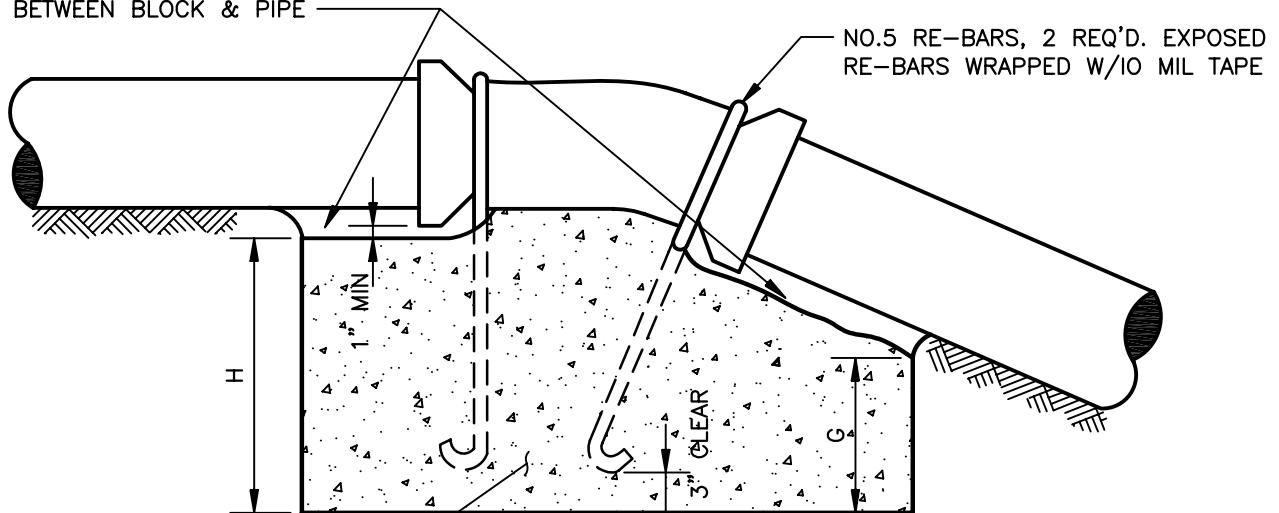
DWG. NO.

DWD 2



PLAN

TAMP BACKFILL MATERIAL BETWEEN BLOCK & PIPE



CLASS B CONCRETE (5 SACK MAX)

ELEVATION

THRUST BLOCK DIMENSIONS ~ UPWARD THRUST

PIPE SIZE	11-¼° BEND				22-½° BEND				45° BEND			
	L	W	H	G	L	W	H	G	L	W	H	G
4"	2'-0"	2'-0"	11"	9"	2'-0"	2'-0"	1'-2"	9"	3'-0"	2'-0"	2'-8"	1'-6"
6"	2'-0"	2'-0"	1'-3"	1'-0"	3'-0"	2'-0"	2'-8"	1'-0"	4'-0"	2'-6"	3'-11"	2'-6"
8"	3'-0"	2'-0"	2'-0"	1'-9"	4'-0"	2'-0"	3'-4"	2'-6"	5'-0"	3'-0"	5'-4"	3'-6"
10"	3'-6"	2'-6"	2'-2"	1'-9"	5'-0"	3'-0"	3'-6"	2'-6"	6'-0"	3'-0"	6'-8"	4'-6"
12"	4'-0"	3'-0"	2'-11"	2'-6"	6'-0"	3'-0"	3'-8"	2'-6"	7'-0"	3'-6"	8'-0"	5'-6"

NOTES:
1. REFER TO SPEC SECTION 03304.

DIABLO WATER DISTRICT

STANDARD DRAWING
CONCRETE THRUST BLOCKS
FOR VERTICAL BENDS

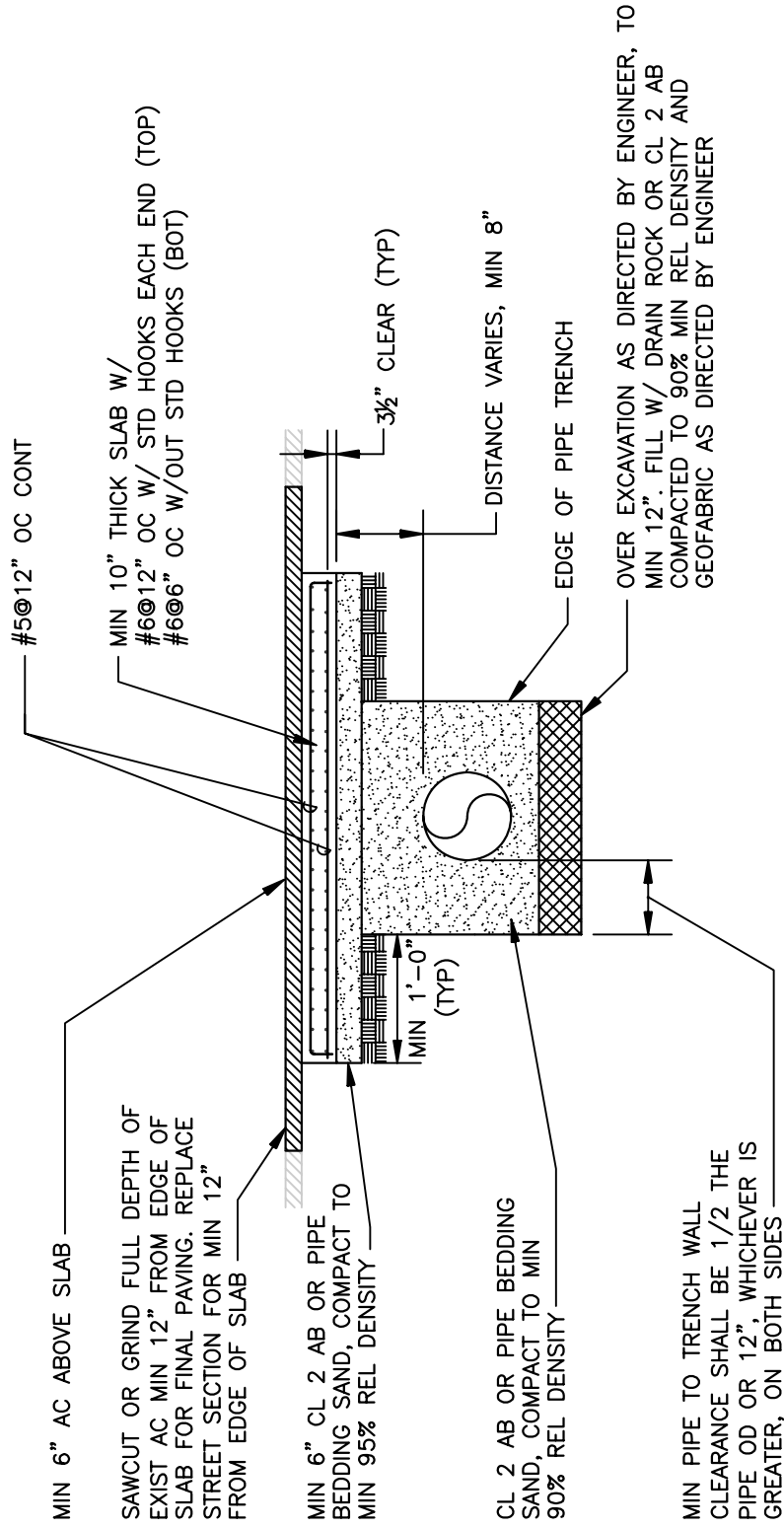
DESIGNED WDB

DRAWN A.T.

APPROVED MY

DATE JUNE, 2007

DWG. NO. **DWD 3**



- NOTES:
1. CONCRETE REINFORCED PIPELINE COVER SECTION SHALL NOT BE SUBSTITUTED FOR INADEQUATE PIPELINE COVER WITHOUT DISTRICT APPROVAL.
 2. CONCRETE SHALL BE CLASS B (5 SACK MIX)
 3. REFER TO SPEC SECTIONS 02210, 02230, & 03304.

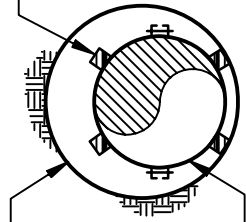
DIABLO WATER DISTRICT

STANDARD DRAWING

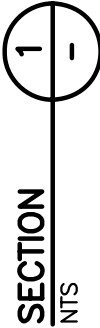
CONCRETE REINFORCED PIPELINE COVER SECTION

DESIGNED	WDB	DRAWN	W.K.L	APPROVED	MY	DATE	JUNE, 2007	DWG. NO.	DWD 4
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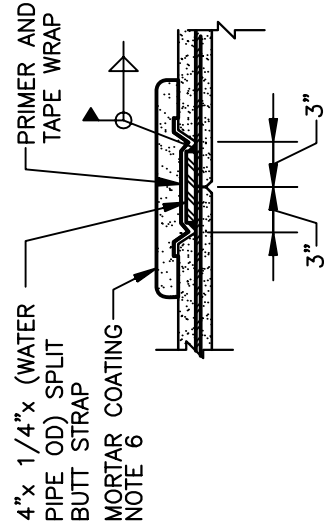
EPOXY COATED STEEL CASING
 CALPICO MODEL W PIPE INSULATOR WITH 304 SS HARDWARE. NUMBER OF HEAVY-DUTY SKIDS VARIES



CEMENT MORTAR LINED AND COATED STEEL WATER PIPE



SECTION
NTS

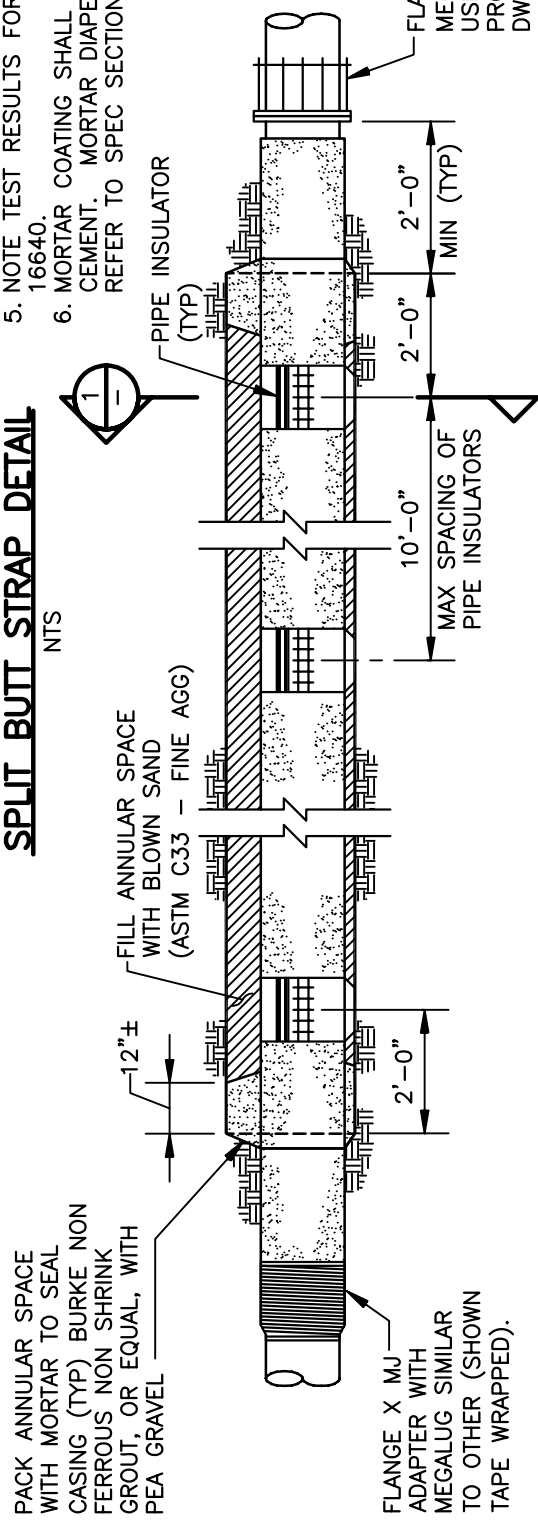


4" x 1/4" x (WATER PIPE OD) SPLIT BUTT STRAP MORTAR COATING NOTE 6
 PRIMER AND TAPE WRAP

NOMINAL WATER PIPE SIZE	ACTUAL WATER PIPE OD	MIN WATER PIPE WALL THICKNESS	WATER PIPE CEMENT MORTAR LINING THICKNESS	WATER PIPE CEMENT MORTAR COATING THICKNESS	MIN CASING OD	MIN CASING WALL THICKNESS	PIPE INSULATOR WIDTH	NO. OF SKIDS PER PIPE INSULATOR
8"	8.625"	0.322"	3/8"	3/4"	16"	0.375"	8"	4
12"	14.00"	0.375"	3/8"	1"	24"	0.375"	12"	4
16"	18.00"	0.375"	1/2"	1"	30"	0.375"	12"	6
18"	20.00"	0.375"	1/2"	1"	30"	0.375"	12"	6

- NOTES:
- RAILROAD, CALTRANS, OR OTHER AGENCY REQUIREMENT MAY SUPERSEDE THESE DETAILS. NOTIFY DIABLO WATER DISTRICT SHOULD THIS BE THE CASE.
 - ALL CASING JOINTS ARE TO BE WELDED WATERTIGHT. CONDUIT TO SLOPE SLIGHTLY IN ONE DIRECTION.
 - WATER PIPE SHALL BE JOINED WITH SPLIT BUTT STRAPS. OPTIONAL AIR TEST. AFTER WATER PIPE IS INSTALLED WITHIN THE AIR CASING, THE CONTRACTOR HAS THE OPTION TO PERFORM A PRESSURIZED AIR TEST PRIOR TO THE REQUIRED HYDROSTATIC TEST. THE PRESSURE AND DURATION OF THE AIR TEST SHALL BE DETERMINED BY THE CONTRACTOR.
 - NOTE TEST RESULTS FOR BLOWN SAND PER SECTION 16640.
 - MORTAR COATING SHALL BE 2 PARTS SAND:1 PART CEMENT. MORTAR DIAPERS WILL NOT BE ALLOWED. REFER TO SPEC SECTIONS 02231 & 02512.

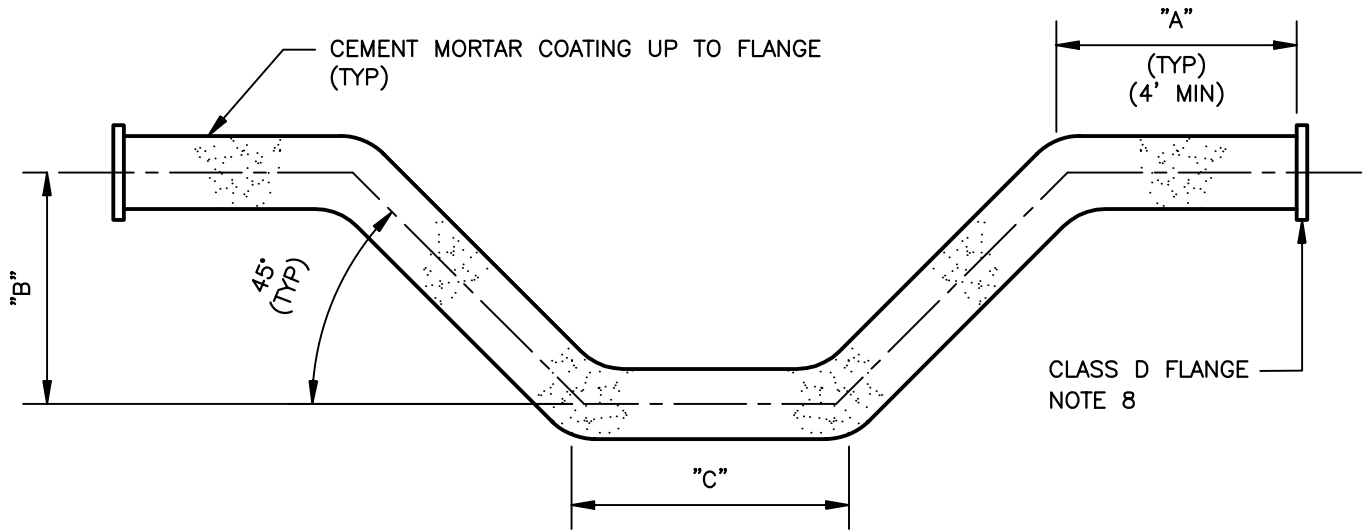
SPLIT BUTT STRAP DETAIL
NTS



DIABLO WATER DISTRICT

STANDARD DRAWING
 PARTIAL BORE AND CASE REQUIREMENTS

DESIGNED WDB DRAWN W.K.L APPROVED MY DATE JUNE, 2007 DWG. NO. DWD 5



NOTES:

1. NOMINAL STEEL PIPE DIMENSIONS ON DRAWINGS REPRESENT THE MINIMUM PIPE INSIDE DIAMETER AFTER LINING.
2. STEEL PIPE SHALL CONFORM TO AWWA C200. LININGS AND COATINGS SHALL CONFORM TO AWWA C205. COATING ON FLANGED ENDS SHALL REACH EDGE OF FLANGE.
3. DOUBLE OFFSET TO BE FABRICATED BY WELDING USING FOUR 45° BUTT WELDING LONG RADIUS ELBOWS. MITRED ELBOWS CONFORMING TO AWWA C208 MAY BE USED ON 16" AND 18" OFFSETS.
4. "C" DIMENSIONS AS REQUIRED, 4'-0" MINIMUM LENGTH.
5. "A" AND "B" DIMENSIONS AS REQUIRED.
6. CEMENT MORTAR LINING SHALL BE SHOP APPLIED AND BE FINISHED SQUARE AND UNIFORM AT THE ENDS OF THE PIPE.
7. OFFSETS MAY BE FABRICATED IN PIECES TO AID INSTALLATION IN THE FIELD. SUCH PIECES TO BE JOINED WITH A WELDED 4" WIDE BY 0.25" THICK (MIN) STEEL BUTTSTRAP. BUTTSTRAP JOINTS TO BE COATED WITH TAPE AND BITUMEN BEFORE BACKFILLING. ALTERNATELY, PIECES MAY BE JOINED BY FLANGES. FLANGES TO BE COATED WITH BITUMEN & TAPE AFTER INSTALLATION.
8. FLANGE PATTERN TO MATCH CONNECTING FITTING. FLANGE TO PIPE WELD SHALL CONFORM TO AWWA C207. FLANGES SHALL BE EPOXY COATED.
9. REFER TO SPEC SECTIONS 02512 & 02675.

NOMINAL PIPE SIZE (MIN ID AFTER LINING)	STANDARD PIPE OD TO ACHIEVE REQD MIN ID	TYP PIPE ID AFTER LINING OF STANDARD PIPE SIZES	PIPE MINIMUM WALL THICKNESS	CEMENT MORTAR LINING THICKNESS	CEMENT MORTAR COATING THICKNESS	"A"
6"	8.625"	7.481"	0.322"	1/4"	3/4"	4'-0"
8"	10.75"	9.520"	0.365"	1/4"	3/4"	4'-0"
10"	12.75"	11.375"	0.375"	5/16"	3/4"	4'-0"
12"	14.0"	12.625"	0.375"	5/16"	3/4"	4'-0"
16"	18.0"	16.625"	0.375"	5/16"	3/4"	4'-0"
18"	20.0"	18.625"	0.375"	5/16"	3/4"	4'-0"
20"	22.0"	20.50"	0.375"	3/8"	3/4"	4'-0"
24"	26.0"	24.50"	0.375"	3/8"	3/4"	4'-0"

DIABLO WATER DISTRICT

STANDARD DRAWING
DOUBLE OFFSET STEEL PIPE, CEMENT MORTAR LINED AND COATED, 6" TO 24"

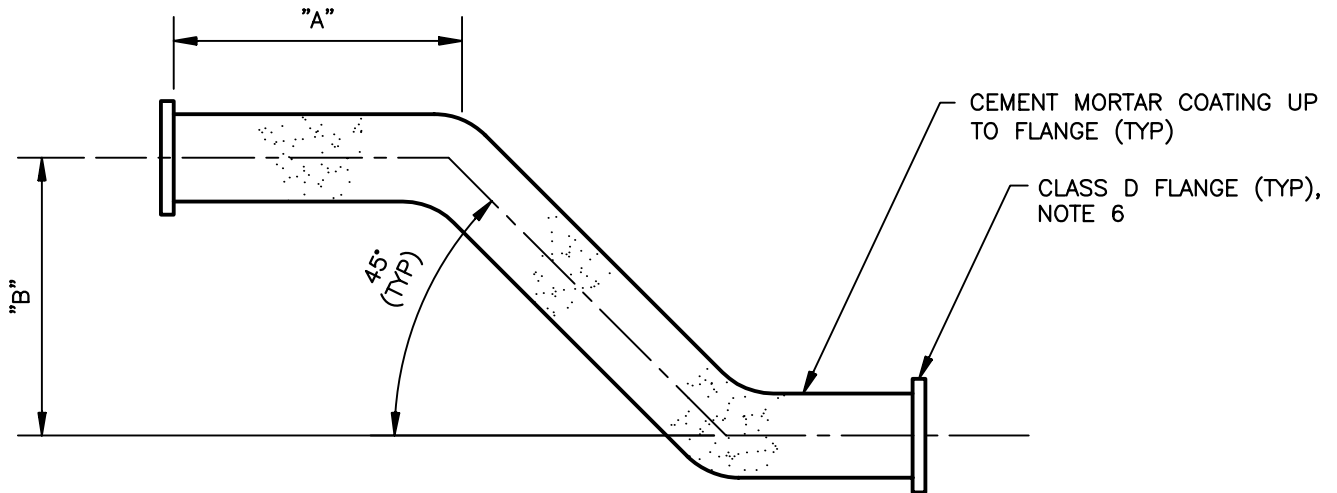
DESIGNED WDB

DRAWN A.T.

APPROVED MY

DATE JUNE, 2007

DWG. NO. **DWD 6**



NOTES:

1. NOMINAL STEEL PIPE DIMENSIONS ON DRAWINGS REPRESENT THE MINIMUM PIPE INSIDE DIAMETER AFTER LINING.
2. STEEL PIPE SHALL CONFORM TO AWWA C200. LININGS AND COATINGS SHALL CONFORM TO AWWA C205.
3. SINGLE OFFSET TO BE FABRICATED BY WELDING USING TWO 45° BUTT WELDING LONG RADIUS ELBOWS. MITRED ELBOWS CONFORMING TO AWWA C208 MAY BE USED ON 16" AND 18" OFFSETS.
4. "B" DIMENSION AS REQUIRED.
5. CEMENT MORTAR LINING SHALL BE SHOP APPLIED AND BE FINISHED SQUARE AND UNIFORM AT THE ENDS OF THE PIPE.
6. FLANGE PATTERN TO MATCH CONNECTING FITTING. FLANGE TO PIPE WELD SIZE SHALL CONFORM TO AWWA C207. FLANGES SHALL BE EPOXY COATED.
7. REFER TO SPEC SECTIONS 02512 & 02675.

NOMINAL PIPE SIZE (MIN ID AFTER LINING)	STANDARD PIPE OD TO ACHIEVE REQD MIN ID	TYP PIPE ID AFTER LINING OF STANDARD PIPE SIZES	PIPE MINIMUM WALL THICKNESS	CEMENT MORTAR LINING THICKNESS	CEMENT MORTAR COATING THICKNESS	"A"
6"	8.625"	7.481"	0.322"	1/4"	3/4"	4'-0"
8"	10.75"	9.520"	0.365"	1/4"	3/4"	4'-0"
10"	12.75"	11.375"	0.375"	5/16"	3/4"	4'-0"
12"	14.0"	12.625"	0.375"	5/16"	3/4"	4'-0"
16"	18.0"	16.625"	0.375"	5/16"	3/4"	4'-0"
18"	20.0"	18.625"	0.375"	5/16"	3/4"	4'-0"
20"	22.0"	20.50"	0.375"	3/8"	3/4"	4'-0"
24"	26.0"	24.50"	0.375"	3/8"	3/4"	4'-0"

DIABLO WATER DISTRICT

STANDARD DRAWING
 SINGLE OFFSET STEEL PIPE, CEMENT
 MORTAR LINED AND COATED, 6" TO 24"

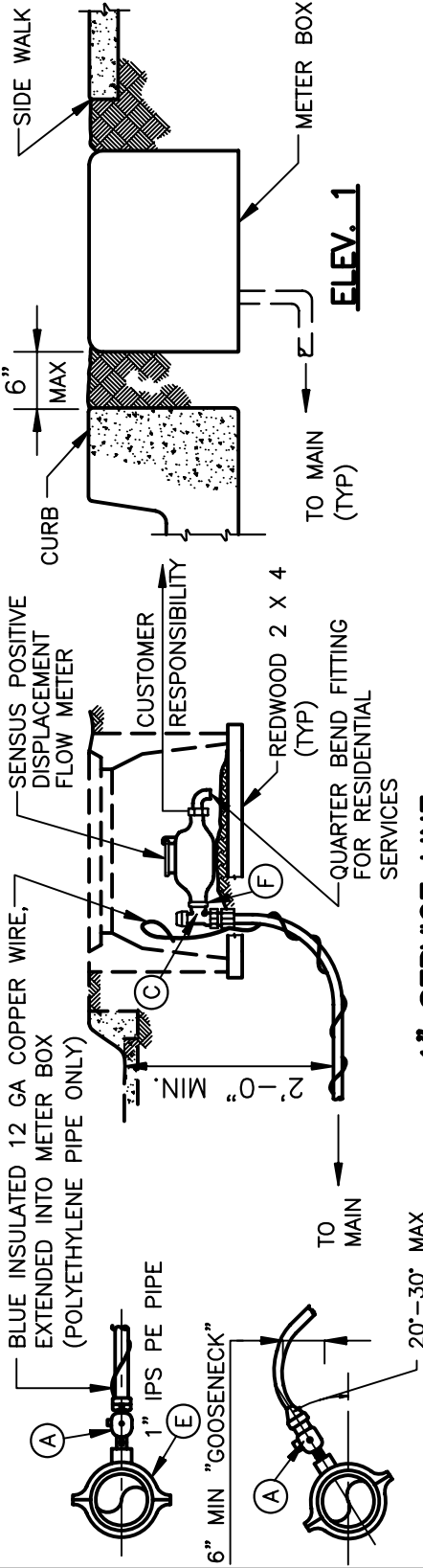
DESIGNED WDB

DRAWN A.T.

APPROVED MY

DATE JUNE, 2007

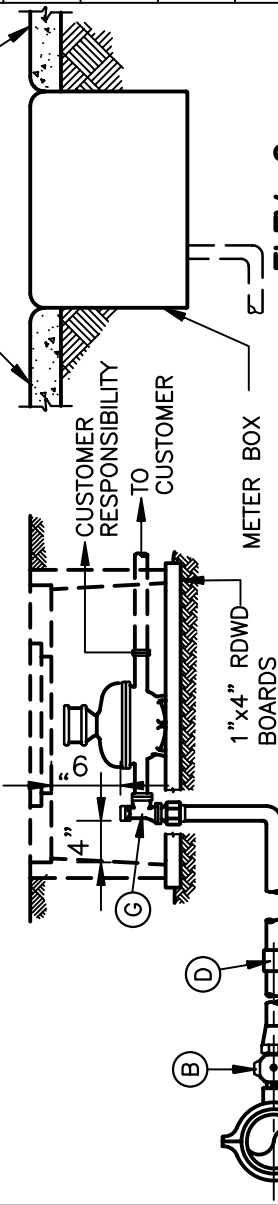
DWG. NO. **DWD 7**



METER BOXES	
METER SIZE	CHRISTY BOX TYPE
5/8" OR 1"	B-12
1 1/2"	B-16
2"	B-30

**1" SERVICE LINE
5/8" & 1 METERS**

KEY	MATERIALS
(A)	CORPORATION STOP, KEY OR BALL TYPE, INLET: AWWA STD (CC) THREAD ONLY
(B)	CORPORATION STOP, BALL TYPE, INLET: AWWA STD (CC) THREAD ONLY
(C)	1" ANGLE STOP, LOCKWING TYPE OUTLET: 1" METER SWIVEL NUT MUELLER B-24258
(D)	3-PART UNION COMP x COMP, BRASS (NOT ALLOWED WHEN DISTANCE FROM WATER MAIN TO ANGLE STOP IS 60 FT OR LESS)
(E)	PVC: BRONZE WIDE BAND OR DOUBLE STRAP SERVICE SADDLE, AWWA STD (CC) THREAD ONLY DIP: MUELLER BR2B OR APAC 113, (CC) THREAD. WRAP DIP W/10 MIL TAPE AT SADDLE ACP: BRONZE DOUBLE STRAP SERVICE SADDLE, AWWA STD (CC) THREAD ONLY
(F)	METER BUSHING, 3/4" x 1" (5/8" METERS ONLY), BR.
(G)	1 1/2" OR 2" ANGLE STOP, LOCKWING TYPE OUTLET: METER FLANGE MUELLER B-24276



- NOTES (CONT'D):
- MINIMUM SERVICE LINE SIZE IS 1 INCH. ALL SERVICE LINES LARGER THAN 1 INCH SHALL BE COPPER.
 - SNAKE POLYETHYLENE PIPE IN TRENCH PER MANUFACTURER'S RECOMMENDATIONS.
 - STAINLESS STEEL INSERT STIFFENERS SHALL BE USED AT CORP AND ANGLE STOPS IN POLYETHYLENE SERVICE LINES WHEN RECOMMENDED BY THE FITTING MANUFACTURER (NOT REQUIRED FOR MUELLER INSTANTITE).
 - REFER TO SPEC SECTIONS 15100, 15400 & 16640.

**1/2" & 2" SERVICE LINES
1 1/2" & 2" METERS**

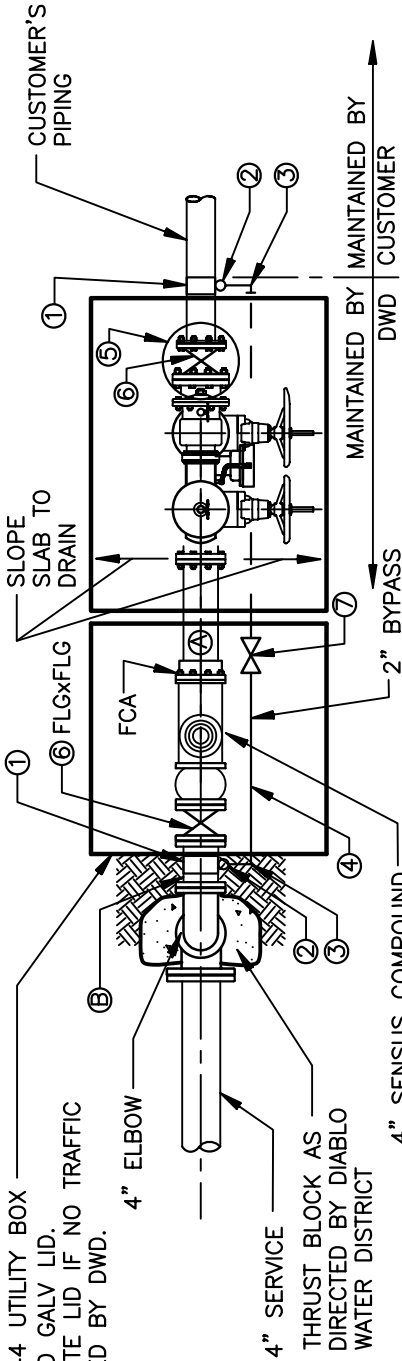
- NOTES:
- ALL METER BOXES MUST BE SET TRUE, PERPENDICULAR TO STREET AND FLUSH WITH EXISTING SURFACE.
 - SPACE BETWEEN BOXES IN MULTIPLE METER INSTALLATIONS SHALL BE 2".
 - DO NOT SET METER BOXES ON PRIVATE PROPERTY.

STANDARD DRAWING

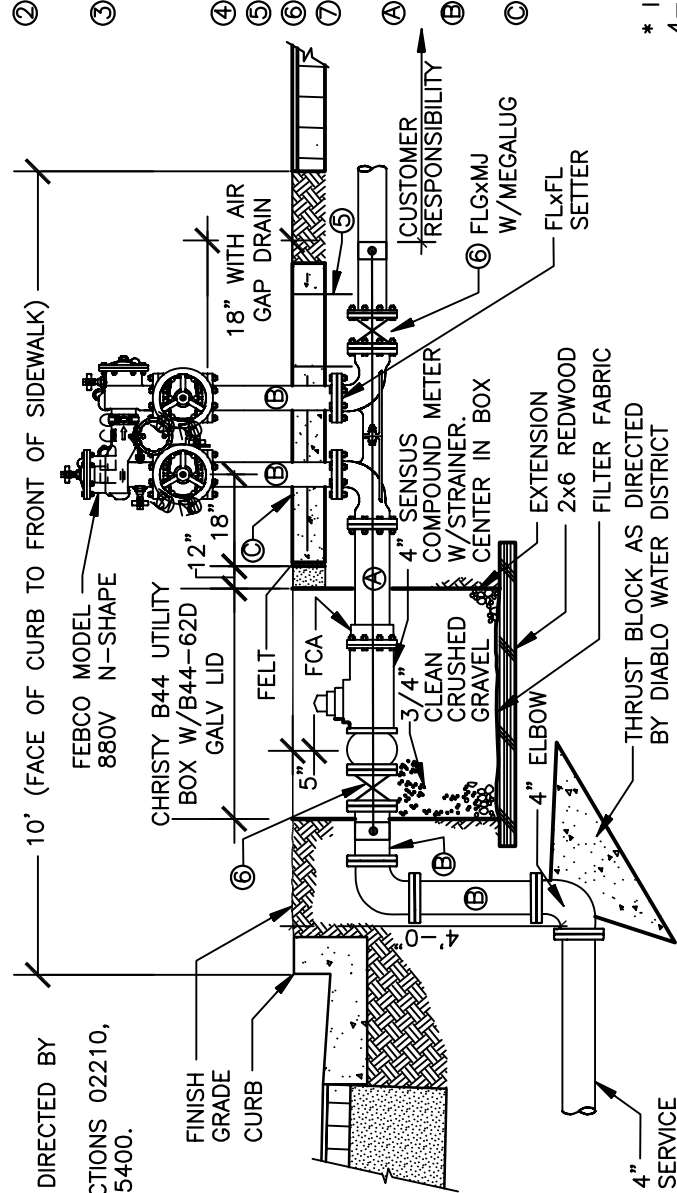
SERVICE AND METER BOX INSTALLATIONS, 5/8" TO 2"

DIABLO WATER DISTRICT

DESIGNED _____ WDB DRAWN _____ W.K.L. APPROVED _____ MY DATE _____ JUNE, 2007 DWG. NO. _____ **DWD 8**



PLAN
NTS



- ITEM DESCRIPTION**
- ① BRONZE MUELLER SADDLE WITH 2" OUTLET
 - ② 2"-H-15014 MUELLER CC THREAD CORPORATION VALVE WITH OUTLET FOR CTS O.D. TUBING X M.I.P.
 - ③ 2"-H-15531 MUELLER QUARTER BEND COUPLING, COMPRESSION CONNECTION FOR CTS O.D. TUBING X M.I.P.
 - ④ 2" COPPER TUBING
 - ⑤ G5 CHRISTY VALVE BOX
 - ⑥ MUELLER 4" GATE VALVE
 - ⑦ MUELLER 300 BALL CURB VALVE B-25209-2" CTS.
 - Ⓐ 4" - DIP FLXPE SPOOL LENGTH AS REQUIRED, C-104.
 - Ⓑ 4" - DIP FLXFL SPOOL LENGTH AS REQUIRED, C-104.
 - Ⓒ 6' WIDE - 4" THICK CONCRETE CENTERED W/#4 BARS @ 12" O.C. EACH WAY. ALL JOINTS FLANGED WITH 304 SS BOLTS.

* INSTALLATION AS SHOWN IS FOR 4-INCH METER. REDUCE PIPES AND VALVES TO 3-INCH FOR 3-INCH METER INSTALLATION.

- NOTES:**
1. OMIT 2" BYPASS IF DIRECTED BY DWD.
 2. REFER TO SPEC SECTIONS 02210, 03304, 03600, & 15400.

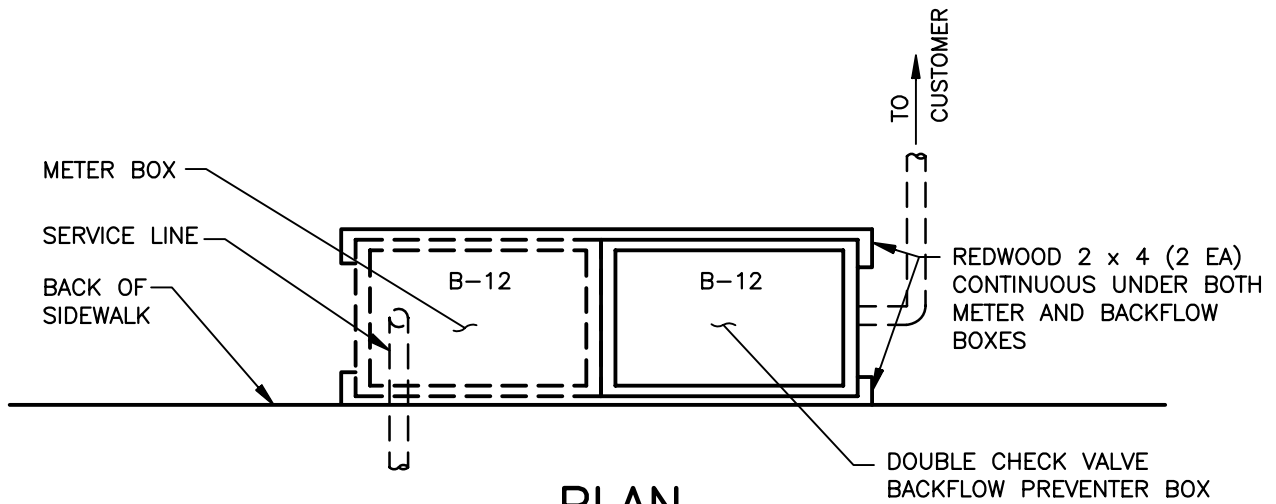
SENSUS 4" COMPOUND METER INSTALLATION (NTS)
SHOWN W/ FEBCO MODEL 880V N-SHAPE REDUCED PRESSURE ASSEMBLY

STANDARD DRAWING

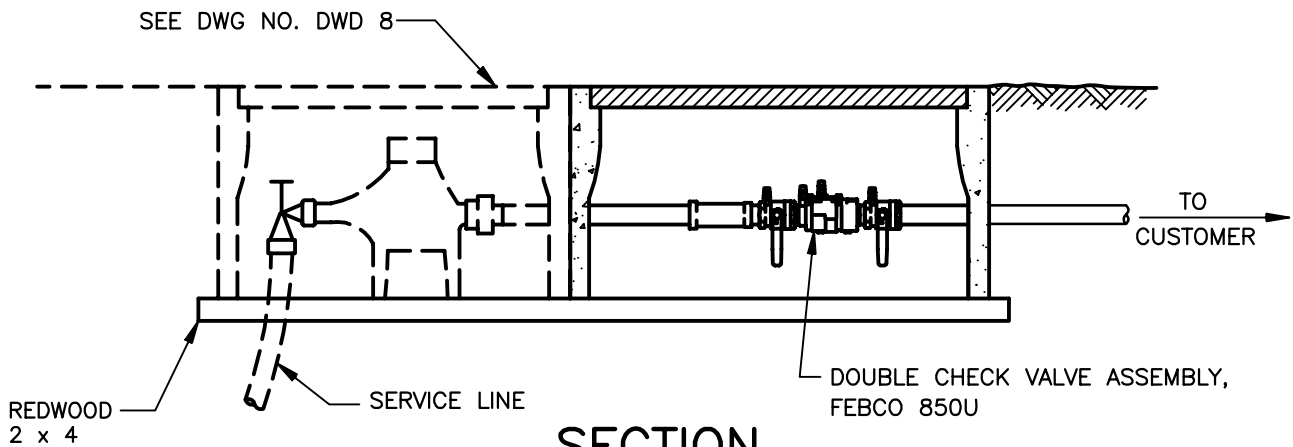
3" AND 4" COMPOUND METER INSTALLATION

DIABLO WATER DISTRICT

DESIGNED	WDB	DRAWN	W.K.L.	APPROVED	MY	DATE	JUNE, 2007	DWG. NO.	DWD 9
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PLAN



SECTION

METER SIZE	5/8"	1"	1"*	1 1/2"	2"
BACKFLOW PREVENTER SIZE	1"	1"	1 1/4"	1 1/2"	2"
BOX MINIMUM INSIDE LENGTH	17"	17"	20"	20"	22"
CHRISTY BOX	B-12	B-12	B-16	B-16	B-30

* REQUIRED WITH FIRE SPRINKLER SYSTEMS

NOTES:

1. SOME MEANS OF PRESSURE RELIEF MUST BE PROVIDED BY THE CUSTOMER SO THAT EXCESSIVE PRESSURE WILL NOT DISRUPT CUSTOMERS' PIPING OR FIXTURES.
2. ALL COMPONENTS SHALL BE BRASS/COPPER.
3. INSTALLATION MUST BE MADE ADJACENT TO METER.
4. BACK FLOW PREVENTER BOX SHALL BE LOCATED OUTSIDE OF TRAFFIC AREAS IF FEASIBLE. IF IN TRAFFIC AREA, FURNISH WITH TRAFFIC COVER.
5. IF CONSUMER'S PIPING IS GALVANIZED IRON, THE UNION BETWEEN THE BACKFLOW PREVENTER AND THE CUSTOMER'S PIPING SHALL BE DIELECTRIC.
6. HOUSES WITH FIRE SPRINKLERS SHOULD USE 1" METER WITH 1-1/4" BACKFLOW PREVENTER.
7. REFER TO SPEC SECTION 15400.

DIABLO WATER DISTRICT
RESPONSIBILITY

STANDARD DRAWING
DOUBLE CHECK VALVE
BACKFLOW PREVENTER INSTALLATION, 3/4" TO 2"

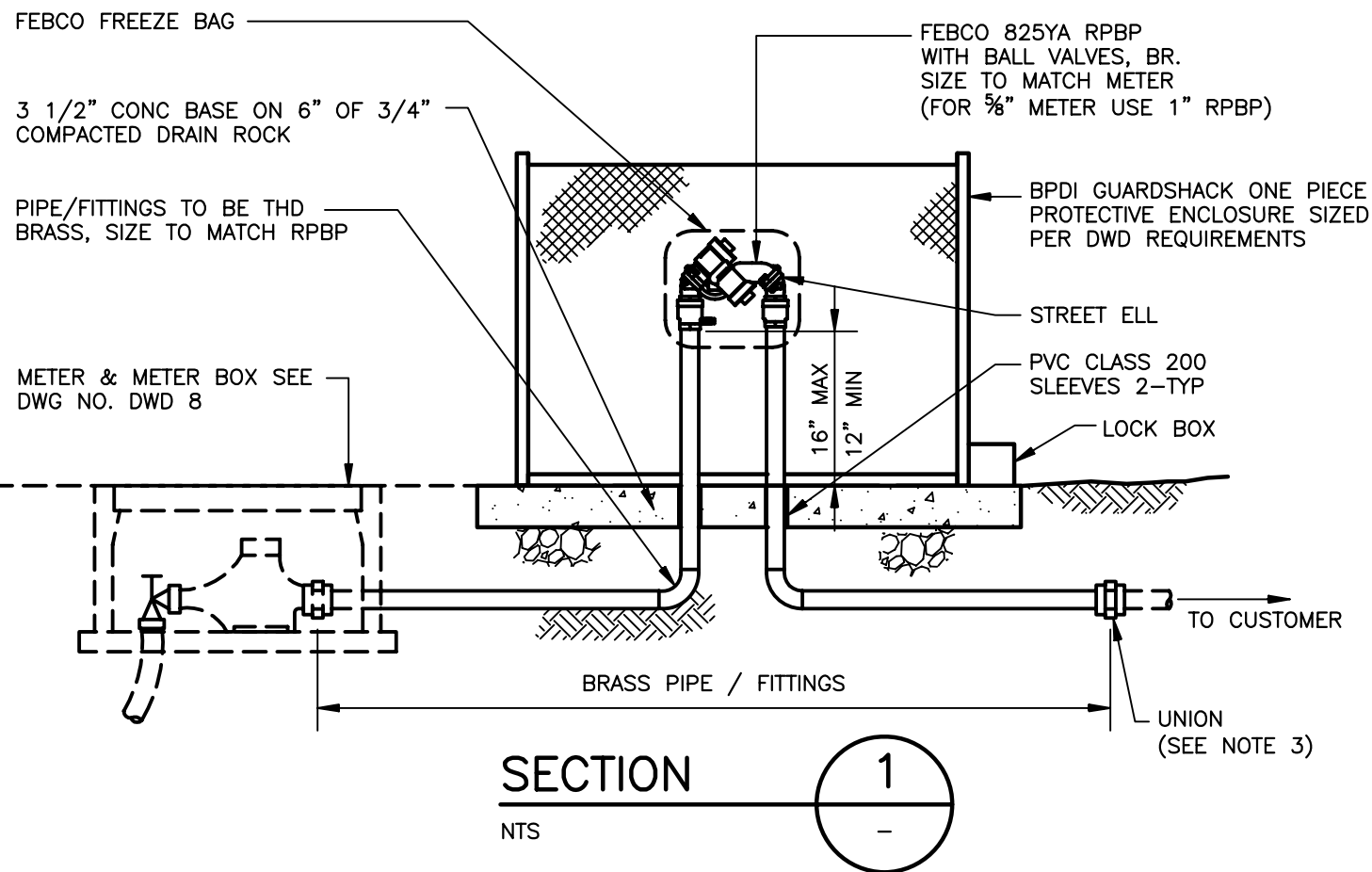
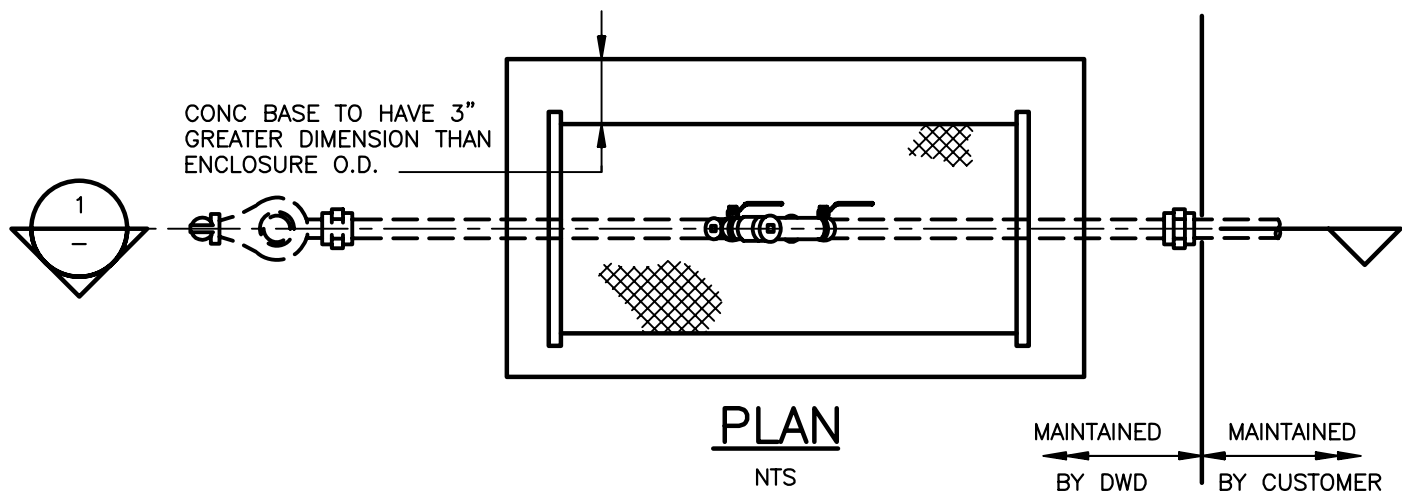
DESIGNED WDB

DRAWN C.R.J

APPROVED MY

DATE JUNE, 2007

DWG. NO. **DWD 10**

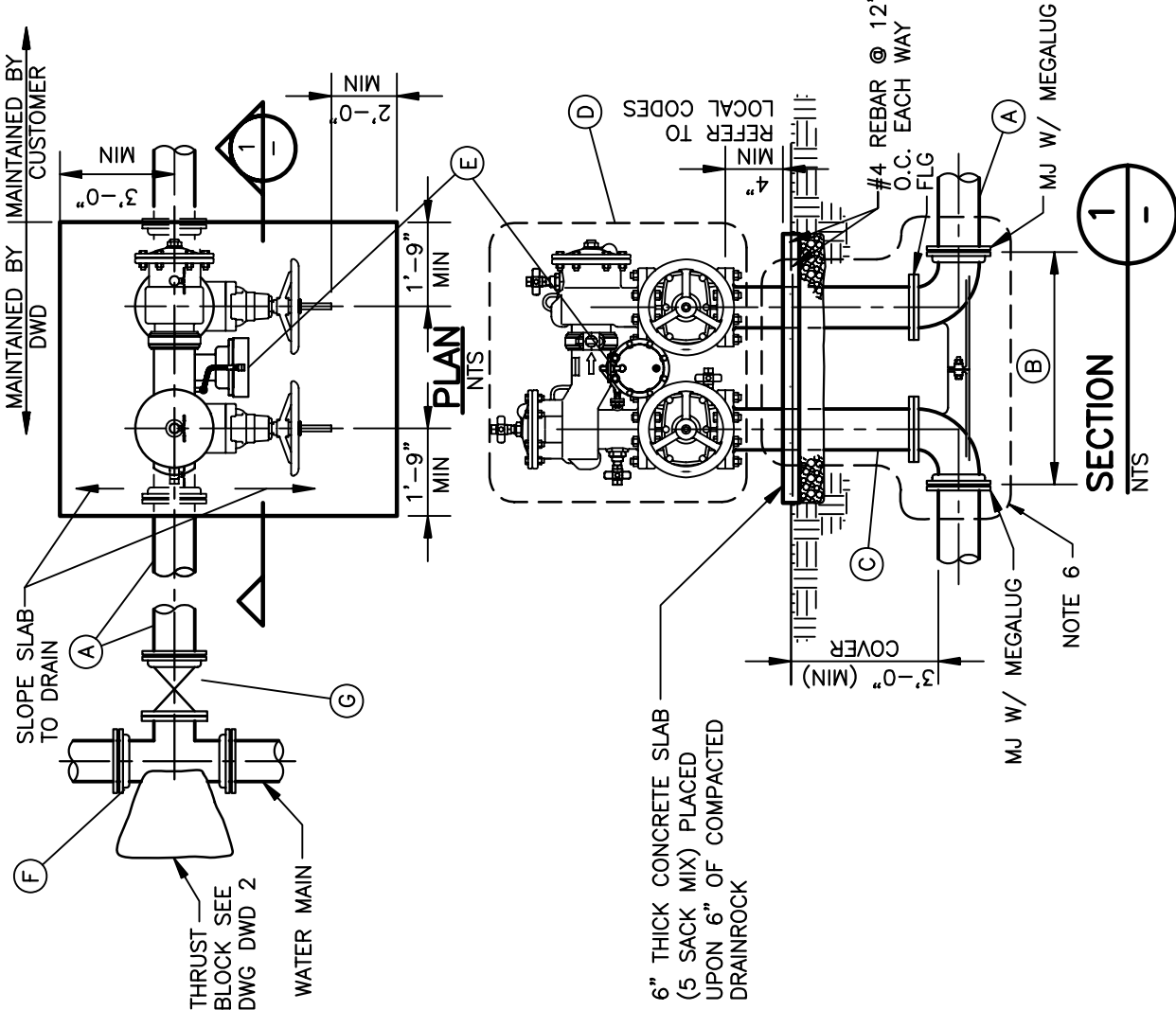


NOTES:

1. DO NOT SET REDUCED PRESSURE BACKFLOW PREVENTER (RPBP) ON PRIVATE PROPERTY.
2. IF RPBP IS LOCATED NEAR TRAFFIC AREAS, DWD WILL REQUIRE A MIN OF TWO 4" GALVANIZED STEEL GUARD POSTS TO BE 42" HIGH, EMBEDDED 36" BELOW GROUND IN CONCRETE, AND FILLED WITH CONCRETE.
3. FITTING SHOULD BE DIELECTRIC WHERE JOINING DISSIMILAR METALS.
4. PROTECTIVE ENCLOSURE SHALL BE FOREST GREEN 5. REFER TO SPEC SECTIONS 02210, 02620, 03304, & 15400.

DIABLO WATER DISTRICT		STANDARD DRAWING REDUCED PRESSURE BACKFLOW PREVENTER INSTALLATION, 3/4" TO 2"			
DESIGNED <u>WDB</u>	DRAWN <u>M.L.V.</u>	APPROVED <u>MY</u>	DATE <u>JUNE, 2007</u>	DWG. NO. DWD 11	

KEY	QTY	MATERIALS
(A)	AS REQ'D	DUCTILE IRON PIPE
(B)	1	MJ x FLG VALVE SETTER (REQ'D)
(C)	2	DUCTILE IRON PIPE FLG BOTH ENDS
(D)	1	REDUCED PRESSURE (RP) BACKFLOW PREVENTER WITH TESTCOCKS
(E)	1	FEBCO MODEL 880V REDUCED PRESSURE ASSEMBLY - NRS GATES OUTDOOR FREEZE PROTECTION INSTALLATION
(F)	1	TAPPING SLEEVE OR TEE
(G)	1	TAPPING OR GATE VALVE FLG x MJ



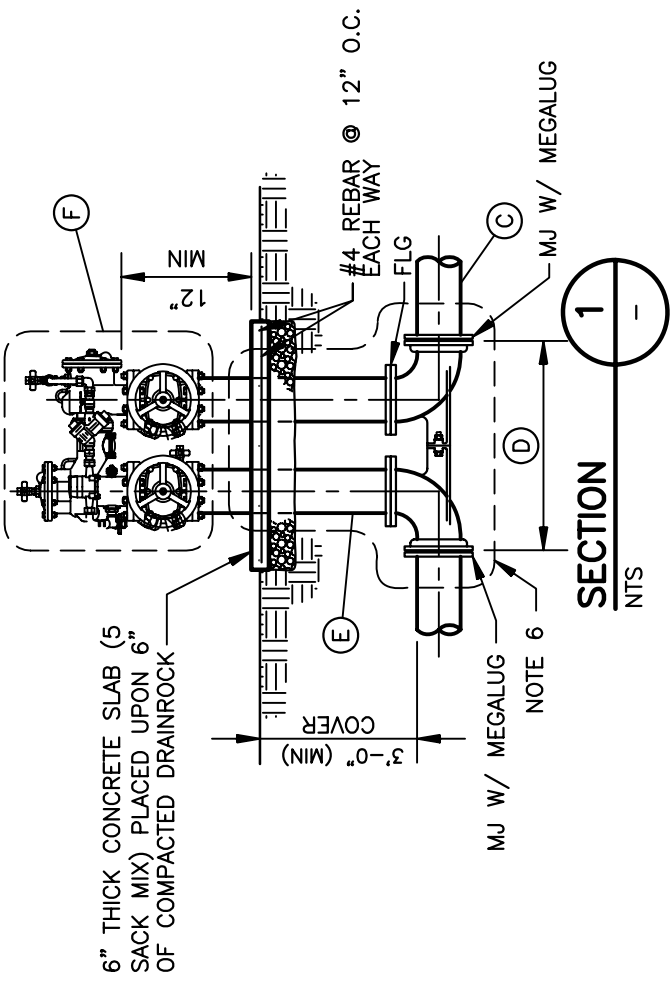
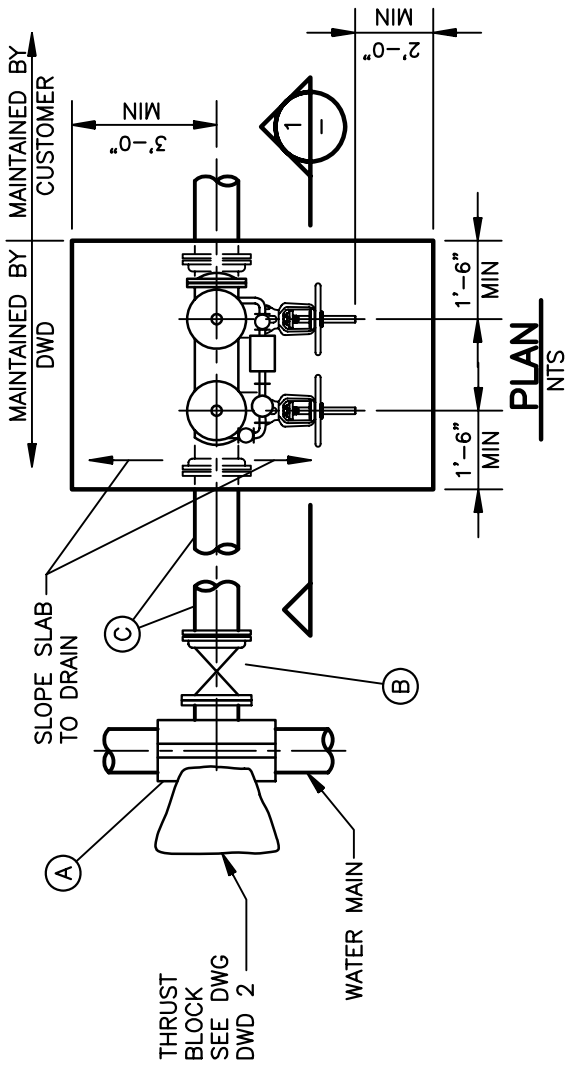
NOTES:

- TEN-INCH RP BACKFLOW PREVENTER ASSEMBLY ILLUSTRATED.
- ALL PIPING TO BE SAME DIAMETER AS RP BACKFLOW PREVENTER ASSEMBLY UNLESS OTHERWISE NOTED.
- IF RP BACKFLOW PREVENTER ASSEMBLY IS LOCATED NEAR TRAFFIC AREAS, DWD REQUIRES 4-INCH GALVANIZED STEEL GUARD POSTS AROUND THE PERIMETER. GUARD POSTS TO BE 42" HIGH, EMBEDDED 36" BELOW GROUND IN CONCRETE AND FILLED WITH CONCRETE.
- PROVIDE FENCE ENCLOSURE PER DRAWING DWD 14.
- RP BACKFLOW PREVENTER MANUFACTURERS: FEBCO MODEL 880V.
- MASTIC COAT BOLTS AND TAPE WRAP PIPE AND VALVE SETTER WITH 10 MIL (MIN) POLY.
- REFER TO SPEC SECTIONS 02221, 03304, & 15400.

STANDARD DRAWING
REDUCED PRESSURE BACKFLOW PREVENTER INSTALLATION,
2 1/2" TO 10"

DIABLO WATER DISTRICT

DESIGNED WDB DRAWN W.K.L APPROVED MY DATE JUNE, 2007 DWG. NO. DWD 12



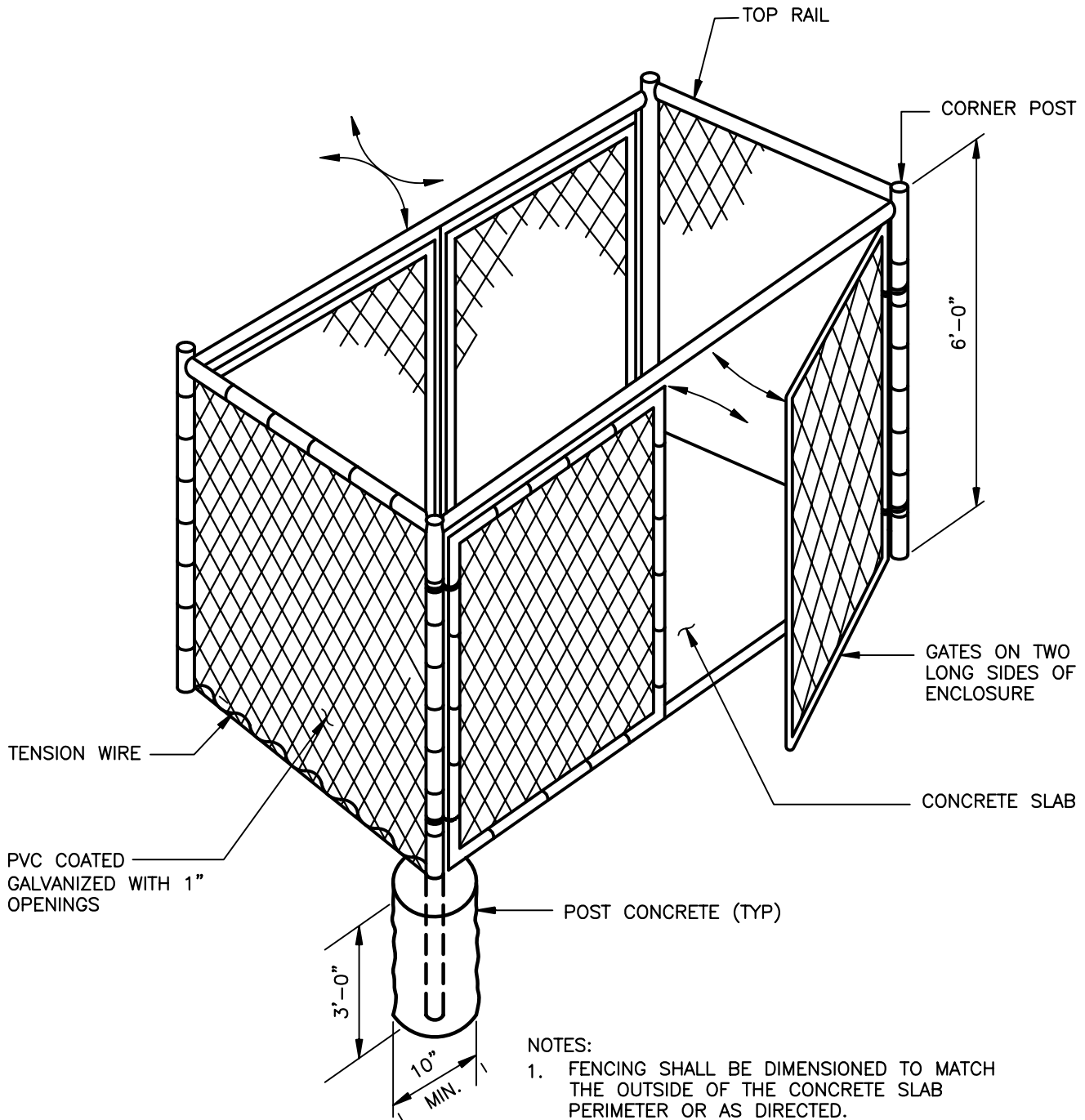
KEY	QTY	MATERIALS
(A)	1	TAPPING SLEEVE OR TEE
(B)	1	TAPPING OR GATE VALVE FLG x MJ
(C)	AS REQ'D	DUCTILE IRON PIPE
(D)	1	MJ x FLG VALVE SETTER (REQ'D)
(E)	2	DUCTILE IRON PIPE FLG BOTH ENDS
(F)	1	DOUBLE CHECK DETECTOR VALVE WITH TESTCOCKS

- NOTES:
1. TEN-INCH DOUBLE CHECK DETECTOR ASSEMBLY ILLUSTRATED.
 2. ALL PIPING TO BE SAME DIAMETER AS DETECTOR CHECK VALVES UNLESS OTHERWISE NOTED.
 3. IF DOUBLE DETECTOR CHECK VALVE IS LOCATED NEAR TRAFFIC AREAS, DWD REQUIRES 4-INCH GALVANIZED STEEL GUARD POSTS AROUND THE PERIMETER. GUARD POSTS TO BE 42" HIGH, EMBEDDED 36" BELOW GROUND IN CONCRETE AND FILLED WITH CONCRETE.
 4. PROVIDE FENCE ENCLOSURE PER DRAWING DWD-14.
 5. DOUBLE CHECK DETECTOR VALVE MANUFACTURER: FEBCO MODEL 876V N-SHAPE.
 6. MASTIC COAT BOLTS AND TAPE WRAP PIPE AND VALVE SETTER WITH 10 MIL (MIN) POLY.
 7. BYPASS METER TO READ IN UNITS OF 100 CUBIC FEET.
 8. REFER TO SPEC SECTIONS 02210, 03304, & 15400.

STANDARD DRAWING
**DOUBLE CHECK DETECTOR ASSEMBLY INSTALLATION,
 3" TO 10"**

DIABLO WATER DISTRICT

DESIGNED WDB DRAWN W.K.L APPROVED MY DATE JUNE, 2007 DWG. NO. DWD 13



- NOTES:
1. FENCING SHALL BE DIMENSIONED TO MATCH THE OUTSIDE OF THE CONCRETE SLAB PERIMETER OR AS DIRECTED.
 2. CONCRETE FOR POST TO BE A 5 SACK MIX AND SHALL BE PROPERLY MIXED BEFORE PLACING. DRY CONCRETE MIX SHALL NOT BE PLACED INTO POST HOLES.
 3. REFER TO SPEC SECTIONS 02830 & 03304.

DIABLO WATER DISTRICT

STANDARD DRAWING
CHAIN LINK FENCE ENCLOSURE

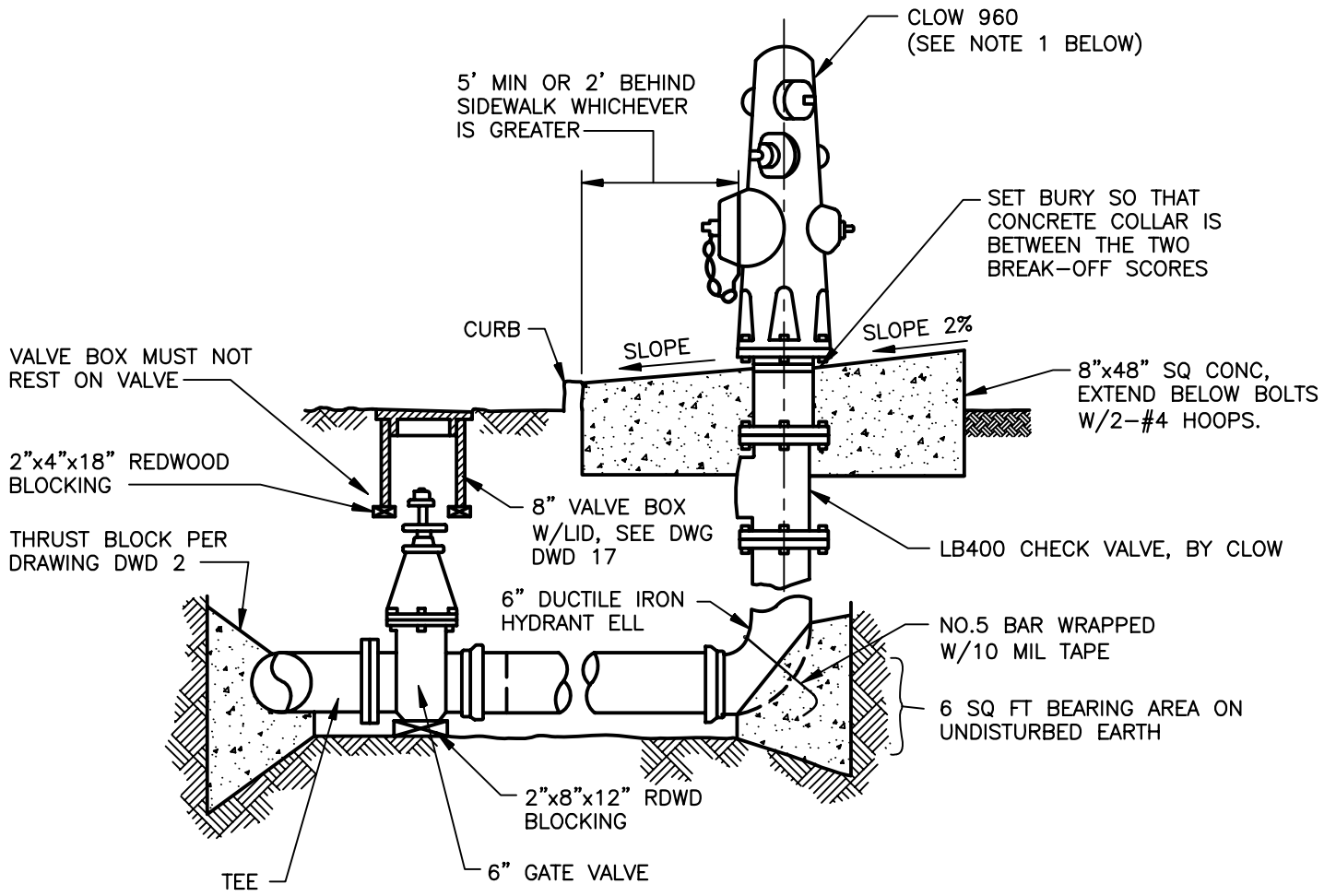
DESIGNED WDB

DRAWN W.K.L.

APPROVED MY

DATE JUNE, 2007

DWG. NO. **DWD 14**



NOTES:

1. FIRE HYDRANT AND HYDRANT PIPING CONFIGURATION SHALL CONFORM TO THE REQUIREMENTS OF THE LOCAL FIRE PROTECTION DISTRICT HAVING JURISDICTION.
2. WHEN NO CURB IS PRESENT CONSULT DISTRICT FOR LOCATION OF HYDRANT.
3. USE MEGALUG RESTRAINT WHERE MJ FITTINGS ARE USED.
4. REFER TO SPEC SECTIONS 03304 & 15100.

ITEM	PVC PLASTIC MAIN	DUCTILE IRON MAIN	ASBESTOS-CEMENT MAIN
TEE	PUSH-ON x PUSH-ON x FLG	PUSH-ON x PUSH-ON x FLG MJ x MJ x FLG	RT x RT x FLG
6" VALVE JOINTS	FLG x PUSH-ON	FLG x PUSH-ON FLG x MJ	FLG x RT
PIPE TO HYD ELL	6" PVC	6" DIP	6" PVC
HYD ELL JOINT	PUSH-ON	PUSH-ON OR MJ	PUSH-ON

DIABLO WATER DISTRICT

STANDARD DRAWING
FIRE HYDRANT INSTALLATION

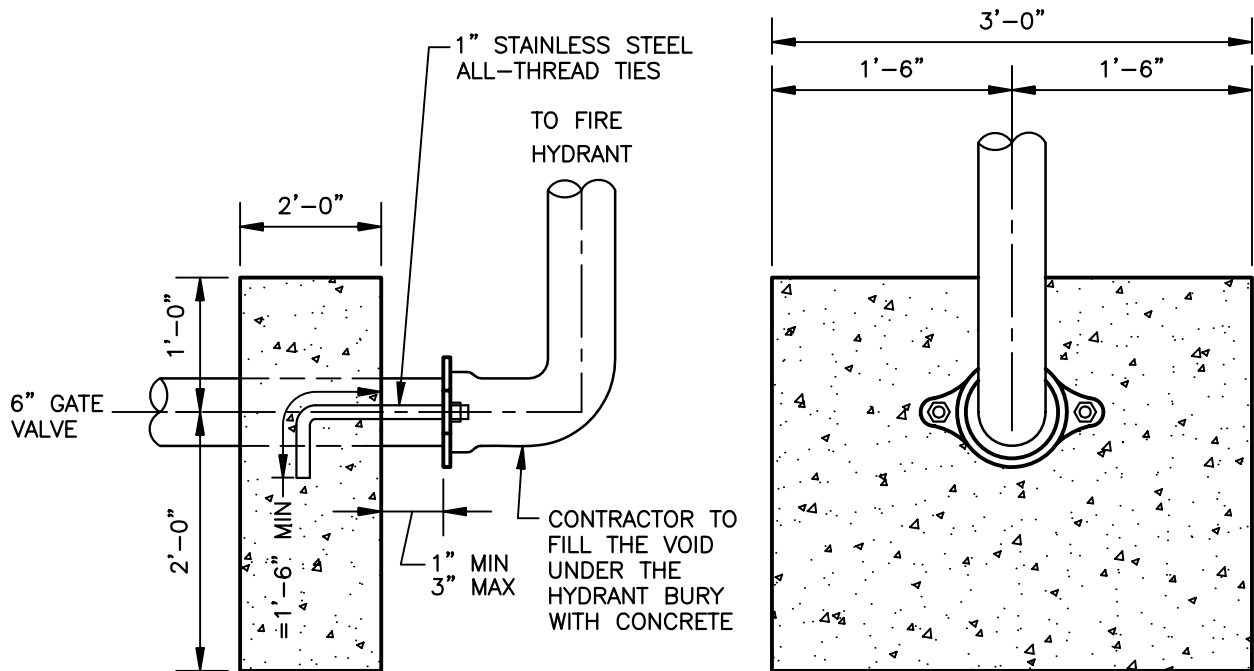
DESIGNED WDB

DRAWN C.R.J

APPROVED MY

DATE JUNE, 2007

DWG. NO. **DWD 15**



NOTE:
 PIPING FROM MAIN TO FH WITHIN 6-FT OF EDGE OF SLOPES
 SHALL BE DIP WITH ALL RESTRAINED JOINTS

DIABLO WATER DISTRICT

STANDARD DRAWING
 REVERSE THRUST BLOCK AT
 FIRE HYDRANT ON EMBANKMENT

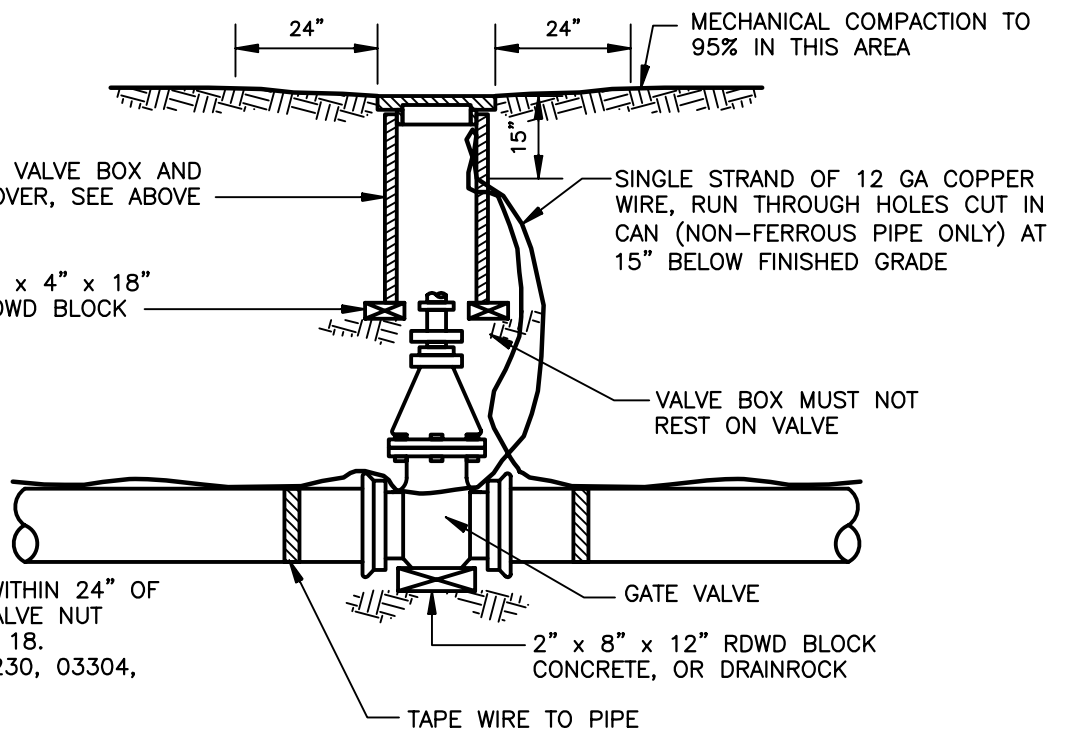
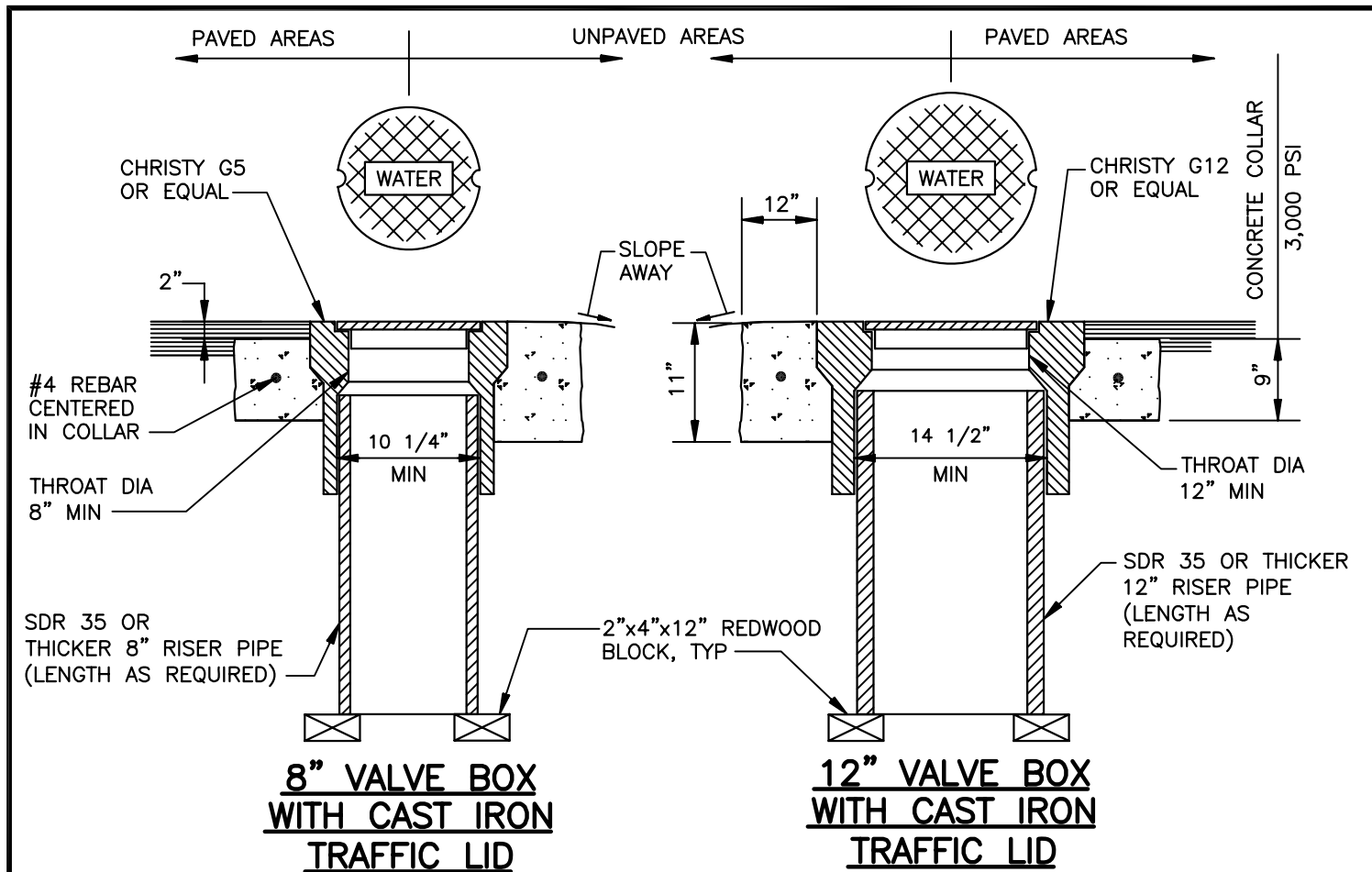
DESIGNED WDB

DRAWN C.R.J

APPROVED MY

DATE JUNE, 2007

DWG. NO. **DWD 16**

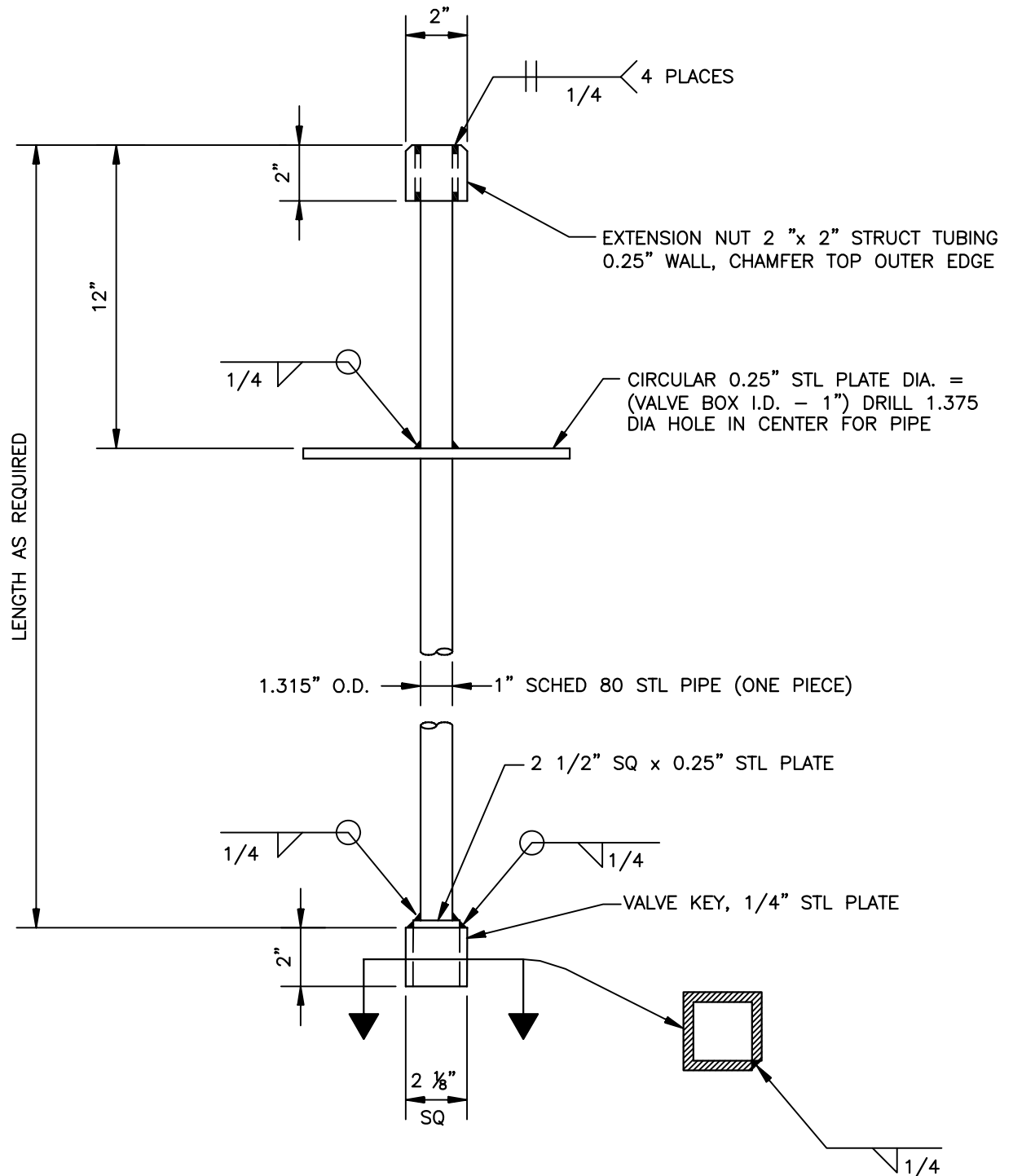


NOTES:

1. VALVE OPERATING NUTS NOT WITHIN 24" OF FINISHED GRADE REQUIRE A VALVE NUT EXTENSION PER DRAWING DWD 18.
2. REFER TO SPEC SECTIONS 02230, 03304, 15100, & 16640.

4" TO 12" GATE VALVE

DIABLO WATER DISTRICT		STANDARD DRAWING VALVE BOXES, LIDS AND RISER INSTALLATION, 12" AND SMALLER			
DESIGNED <u>WDB</u>	DRAWN <u>E.P.M</u>	APPROVED <u>MY</u>	DATE <u>JUNE, 2007</u>	DWG. NO. DWD 17	



NOTES:

1. LENGTH OF EXTENSION IN INCHES SHALL BE INSCRIBED WITH AN ARC WELD BEAD (MIN 2" IN HEIGHT) ON TOP FACE OF CIRCULAR PLATE.
2. VALVE KEY SHALL FIT OVER STANDARD 2" VALVE OPERATING NUT.
3. EXTENSION NUT AND VALVE KEY TO BE ALIGNMENT WITH EACH OTHER.
4. REFER TO SPEC SECTION 15100.

DIABLO WATER DISTRICT

STANDARD DRAWING
VALVE NUT EXTENSION

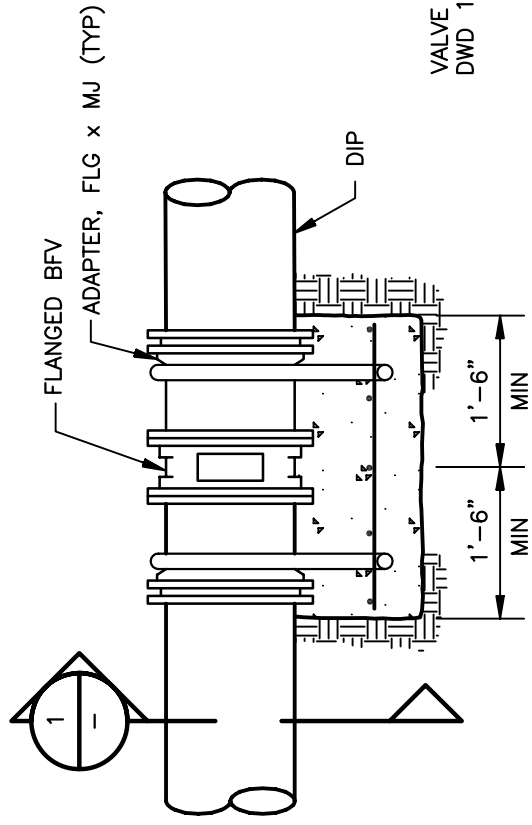
DESIGNED WDB

DRAWN E.P.M

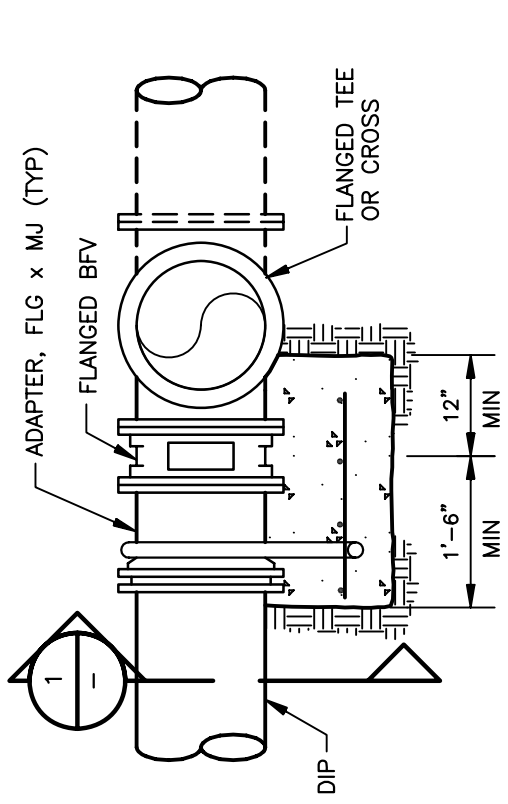
APPROVED MY

DATE JUNE, 2007

DWG. NO. DWD 18

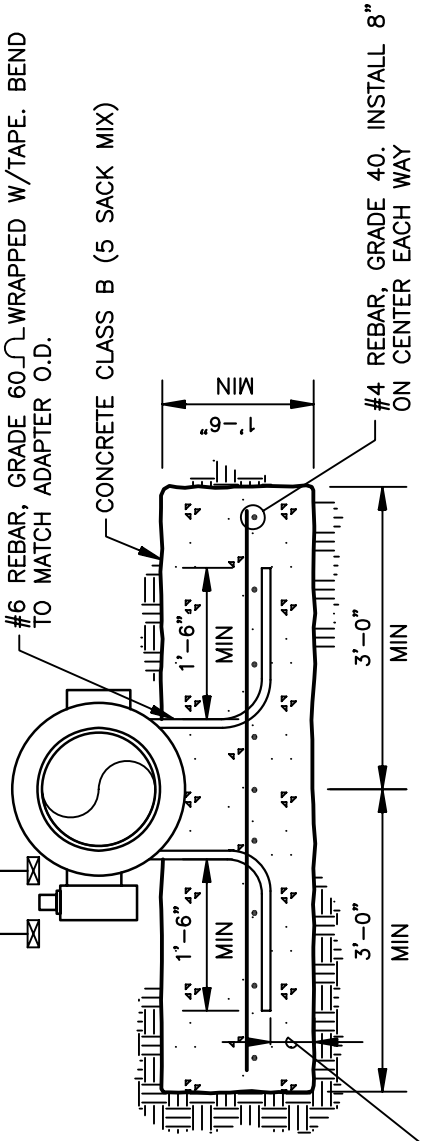


IN-LINE BFV
NTS



BFV AT TEE OR CROSS
NTS

VALVE BOX SEE DWG
DWD 17



SECTION
NTS

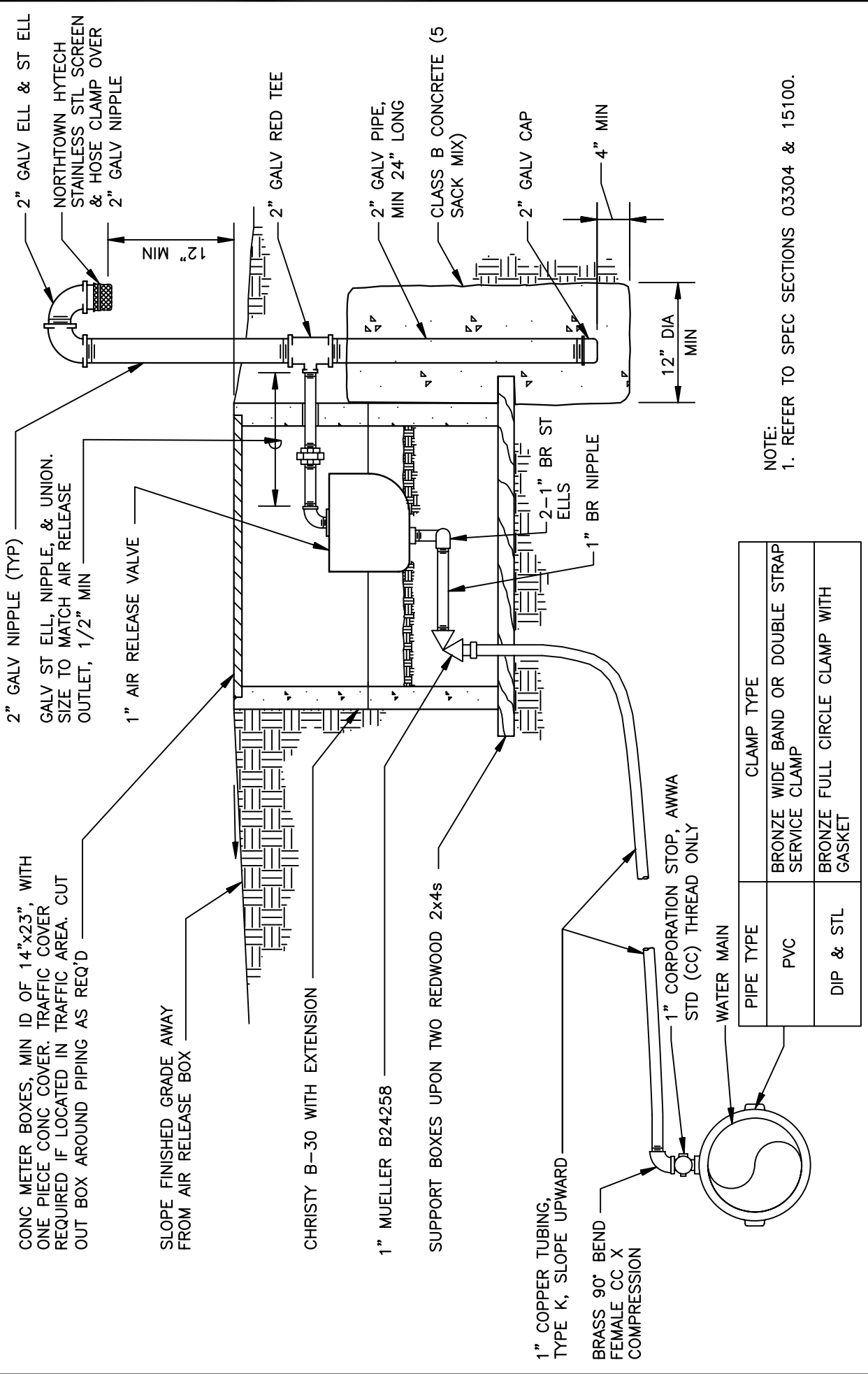
- NOTES:
1. ALL REBAR TO HAVE 3" MIN CONCRETE COVER.
 2. CONCRETE TO BE PLACED AGAINST UNDISTURBED SOIL OR COMPACTED DRAINROCK.
 3. #6 REBAR IS TO BE WRAPPED IN 3M SCOTCHRAP #50 MOULDING TAPE AND COATED WITH BITUMASTIC BEFORE INSTALLATION.
 4. REFER TO SPEC SECTIONS 02610, 03304, & 15100.

STANDARD DRAWING

BUTTERFLY VALVE INSTALLATION, 16" TO 24"

DIABLO WATER DISTRICT

DESIGNED	WDB	DRAWN	E.P.M	APPROVED	MY	DATE	JUNE, 2007	DWG. NO.	DWD 19
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2" GALV NIPPLE (TYP)
 GALV ST ELL, NIPPLE, & UNION.
 SIZE TO MATCH AIR RELEASE
 OUTLET, 1/2" MIN

1" AIR RELEASE VALVE
 12" MIN

2" GALV RED TEE
 2" GALV PIPE,
 MIN 24" LONG
 CLASS B CONCRETE (5
 SACK MIX)
 2" GALV CAP
 4" MIN
 12" DIA
 MIN

2-1" BR ST
 ELLS
 1" BR NIPPLE

1" AIR RELEASE VALVE
 1" BR NIPPLE

2-1" BR ST
 ELLS
 1" BR NIPPLE

2" GALV PIPE,
 MIN 24" LONG
 CLASS B CONCRETE (5
 SACK MIX)
 2" GALV CAP
 4" MIN
 12" DIA
 MIN

2" GALV NIPPLE (TYP)
 GALV ST ELL, NIPPLE, & UNION.
 SIZE TO MATCH AIR RELEASE
 OUTLET, 1/2" MIN

NOTE:
 1. REFER TO SPEC SECTIONS 03304 & 15100.

PIPE TYPE	CLAMP TYPE
PVC	BRONZE WIDE BAND OR DOUBLE STRAP SERVICE CLAMP
DIP & STL	BRONZE FULL CIRCLE CLAMP WITH GASKET

CONC METER BOXES, MIN ID OF 14"x23", WITH ONE PIECE CONC COVER. TRAFFIC COVER REQUIRED IF LOCATED IN TRAFFIC AREA. CUT OUT BOX AROUND PIPING AS REQ'D

SLOPE FINISHED GRADE AWAY FROM AIR RELEASE BOX

CHRISTY B-30 WITH EXTENSION

1" MUELLER B24258

SUPPORT BOXES UPON TWO REDWOOD 2x4s

1" COPPER TUBING, TYPE K, SLOPE UPWARD

BRASS 90° BEND TYPE K, FEMALE CC X COMPRESSION

1" CORPORATION STOP, AWWA STD (CC) THREAD ONLY

WATER MAIN

STANDARD DRAWING

1" AIR RELEASE VALVE ASSEMBLY

DIABLO WATER DISTRICT

DESIGNED WDB DRAWN E.P.M APPROVED MY DATE JUNE, 2007 DWG. NO. DWD 20

12" DIA VALVE BOX AND COVER,
SEE DWG DWD 17

SINGLE STRAND OF 12 GA COATED
COPPER WIRE RUN THROUGH HOLES
CUT 1" BELOW BOTTOM OF CHRISTY
BOX (NON FERROUS MAINS ONLY)

LEAVE 12" OF WIRE IN
CHRISTY BOX

2" PLASTIC CAP

2" NIPPLE BRASS,
LENGTH TO PLACE TOP
END WITHIN 12" OF
FINISHED GRADE

2'-0"

2-2" STREET ELL 90°, BRASS

2"x4" REDWOOD
BLOCK (TYP)

2" STREET ELL 90°, BRASS

2" MUELLER B-20200 METER
COCK OR APPROVED EQUAL

TAPE WIRE TO
TOP OF PIPE

2"x18" NIPPLE, BRASS

2" ELL 90°, BRASS

THRUST BLOCK AGAINST
UNDISTURBED EARTH.
SIZE TO CONFORM TO
DRAWING DWD 2

WATER MAIN

2"x3" NIPPLE, BRASS

CAP W/2" TAP AT INVERT

NOTES:

1. REFER TO SPEC SECTIONS 02620, 03304, 15100, & 16640.

DIABLO WATER DISTRICT

STANDARD DRAWING
2" BLOWOFF ASSEMBLY

DESIGNED WDB

DRAWN E.P.M

APPROVED MY

DATE JUNE, 2007

DWG. NO. **DWD 21**

12" VALVE BOX ASSEMBLY
SEE DWG DWD 17

8" VALVE BOX ASSEMBLY
SEE DWG DWD 17

4" COUPLING WITH 2" NUT
THREAD HAND TIGHT ONLY. TOP
OF PLUG TO BE 6" TO 9"
BELOW FINISHED GRADE

4" GALV IRON PIPE
WITH GALV COMPANION
FLANGE, LENGTH AS
REQUIRED

THRUST BLOCK PER
DWG DWD 2

4" GATE VALVE, FLG.

CAP W/4" TAP, MJ W/
MEGALUG

WATER MAIN

4" GALV IRON PIPE WITH GALV
COMPANION FLANGE, 8" LONG.
INSTALL AT PIPE INVERT
WHERE POSSIBLE.

4" DIP SPOOL, MIN 8" LONG

4" LONG RADIUS 90° ELL, FLG

NOTES:

1. INSTALLATION AS SHOWN IS FOR 4" BLOWOFF. INCREASE PIPES AND VALVES FOR LARGER INSTALLATIONS.
2. PIPING ASSEMBLY SHALL BE WRAPPED IN POLYETHYLENE PRIOR TO PLACING CONCRETE.
3. REFER TO SPEC SECTIONS 02610, 03304, 15100, & 16640.

DIABLO WATER DISTRICT

STANDARD DRAWING

4", 6", & 8" BLOWOFF ASSEMBLY

DESIGNED WDB

DRAWN E.P.M

APPROVED MY

DATE JUNE, 2007

DWG. NO. **DWD 22**