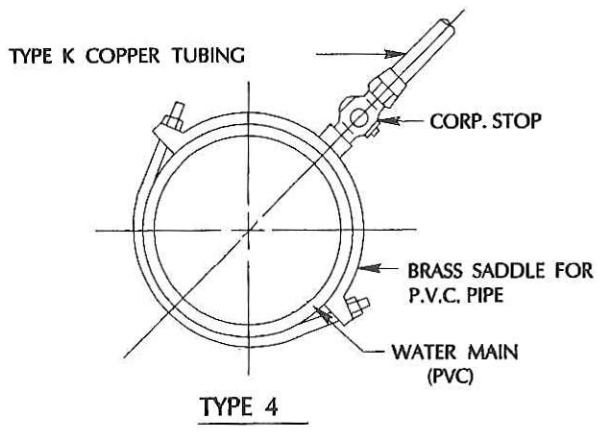
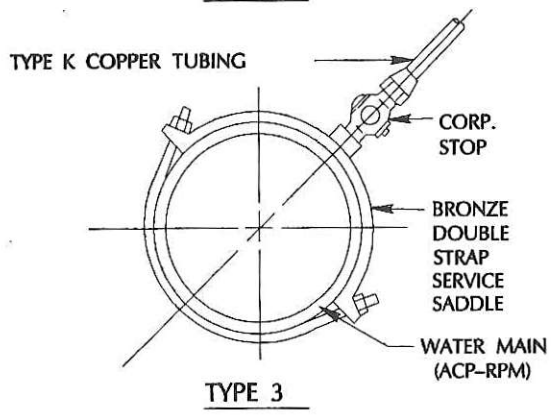
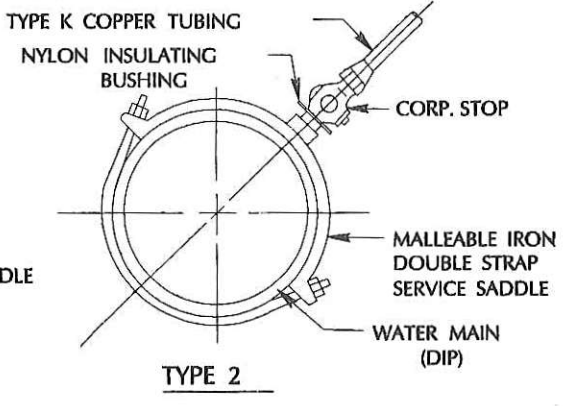
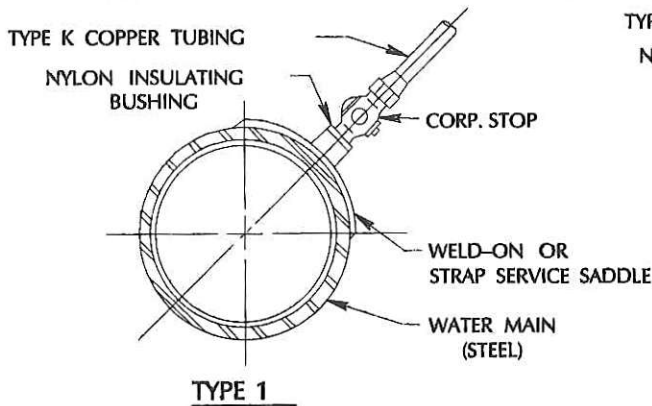



MUNICIPAL WATER SYSTEMS

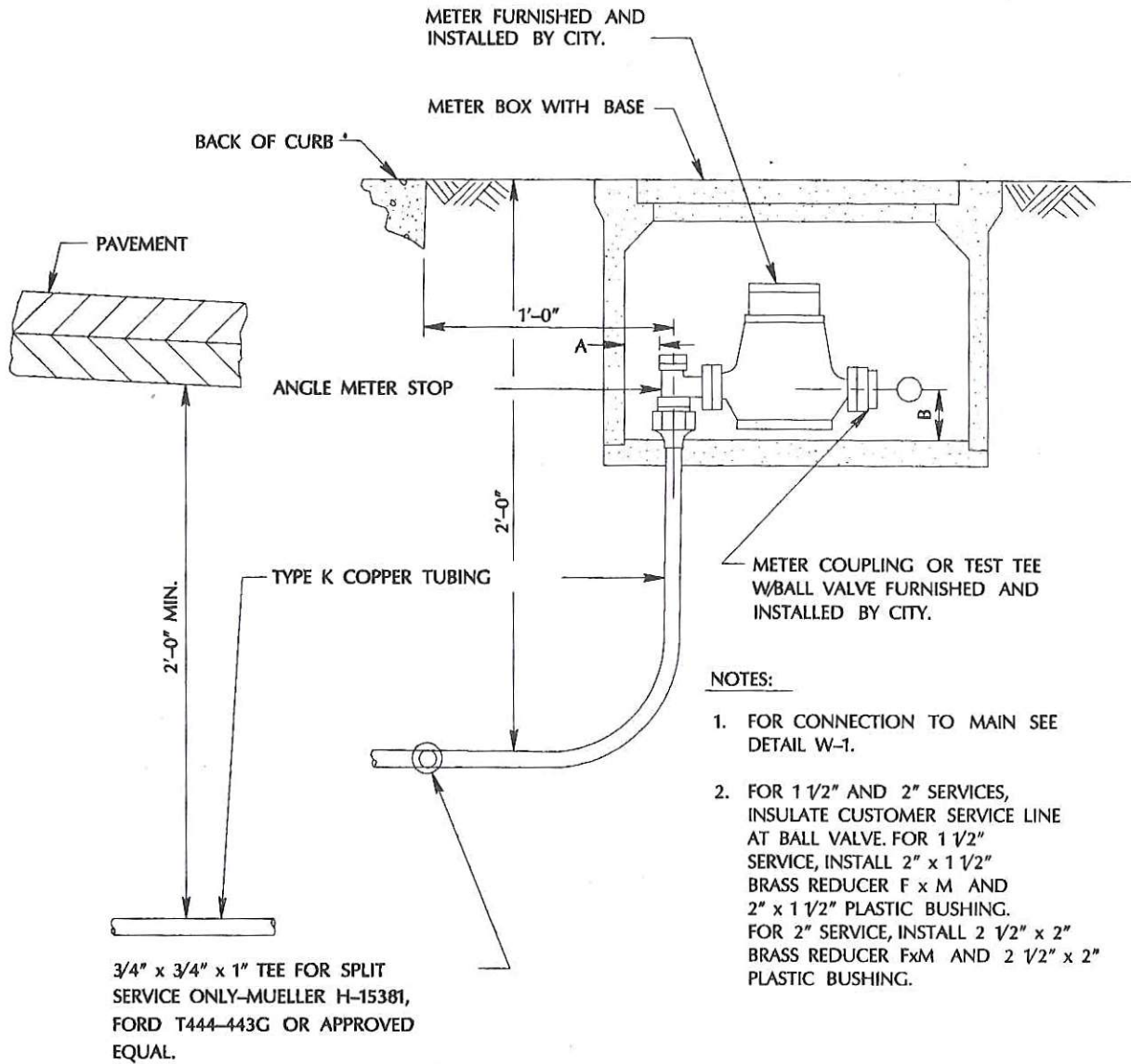


CORP. STOP	TYPE 1 & 2	TYPE 3 & 4
FORD	F1100G	F1000G
MUJELLER	H15024	H15006

- NOTES:**
1. TYPE 1-INSTALL ANODE AS SHOWN IN STANDARD DETAIL W-15.
 2. TYPES 1 & 2-WRAP CORPORATION STOP AND 5' OF COPPER TUBING WITH 10 MIL PVC TAPE (1/2" LAPPED).
 3. TYPE 1-IF WATER MAIN IS COATED, REPLACE COATING ON MAIN AND COAT WELD-ON SERVICE SADDLE AND INSULATING BUSHING WITH 1/4" MIN. COATING OF SAME MATERIAL (OR 10 MIL PVC TAPE)
 4. TYPE 2- IF MAIN IS POLYWRAPPED, REPAIR AND EXTEND POLYWRAP TO COVER CORPORATION STOP.
 5. FOR WATER METER INSTALLATION SEE STANDARD DETAIL W-2.
 6. ALL BRASS CORPS FOR BRASS SADDLES SHALL HAVE CC THREADS (SADDLES AND CORPS)

SERVICE CONNECTION SCHEDULE					
SERVICE SIZE	WATER MAIN MATERIAL				
	STEEL	D.I.P.	A.C.P.	R.P.M.	P.V.C.
3/4"	TYPE 1	TYPE 2	TYPE 3	TYPE 3	TYPE 4
1"	"	"	"	"	"
1- 1/2"	"	"	"	"	"
2"	"	"	"	"	"

APPROVED BY <i>WEL</i>	CONNECTION TYPES FOR 3/4" - 2" SERVICE TAPS		DRAWING NO.
DATE <i>4/2/91</i>			W-1
DEPARTMENT OF PUBLIC WORKS			



METER SIZE	METER BOX	ANGLE METER STOP		BALL VALVE		CRITICAL DIMENSIONS	
	CHRISTY	FORD	MUELLER	FORD	MUELLER	A	B
5/8" x 3/4"	B12, B125, B30SL	KV43-332WG	H-14258	NOT REQUIRED	NOT REQUIRED	1" MIN.	2 3/4"
1"	B12, B125, B30SL	KV43-342WG	H-14258	NOT REQUIRED	NOT REQUIRED	1 1/2" MIN.	3"
1 1/2" D	B44, B44E2, B44X4, B44SL	FV43-666WG	H-14277	BF13-666	B20283	1 1/2" MIN.	3 1/4"
2" D	B44, B44E2, B44X4, B44SL	FV43-777WG	H-14277	BF11-777	B20283	2" MIN.	3 3/4"
2" T	B44, B44E2, B44X4, B44SL	FV43-777WG	H-14277	BF11-777	B20283	2" MIN.	2 3/4"

APPROVED BY

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DATE

4-2-92

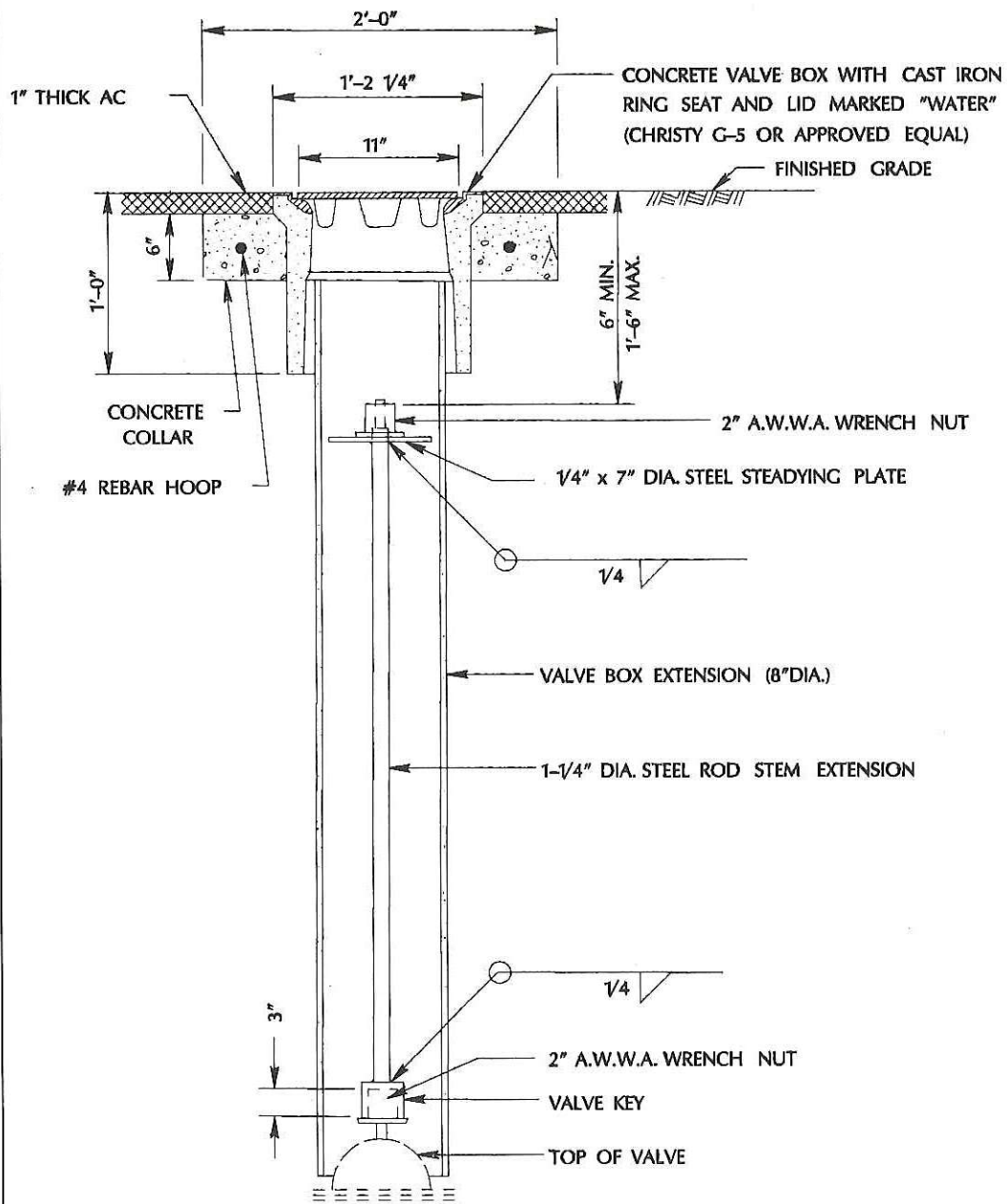
WATER METER SERVICES
3/4" - 2"

DEPARTMENT OF PUBLIC WORKS



DRAWING NO.

W-2



NOTES :

1. MILL TOP OF STEM EXTENSION TO ACCEPT A.W.W.A. WRENCH NUT AND PEEN TOP OF EXTENSION TO SECURE NUT.
2. STEM EXTENSION REQUIRED ONLY WHEN THE DEPTH TO TOP OF VALVE OPERATOR NUT IS GREATER THAN 3'-0".
3. VALVE BOX EXTENSION MAY BE 8" PVC CLASS450 PIPE MATERIAL.

APPROVED BY

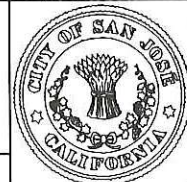
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VALVE BOX INSTALLATION

DEPARTMENT OF PUBLIC WORKS

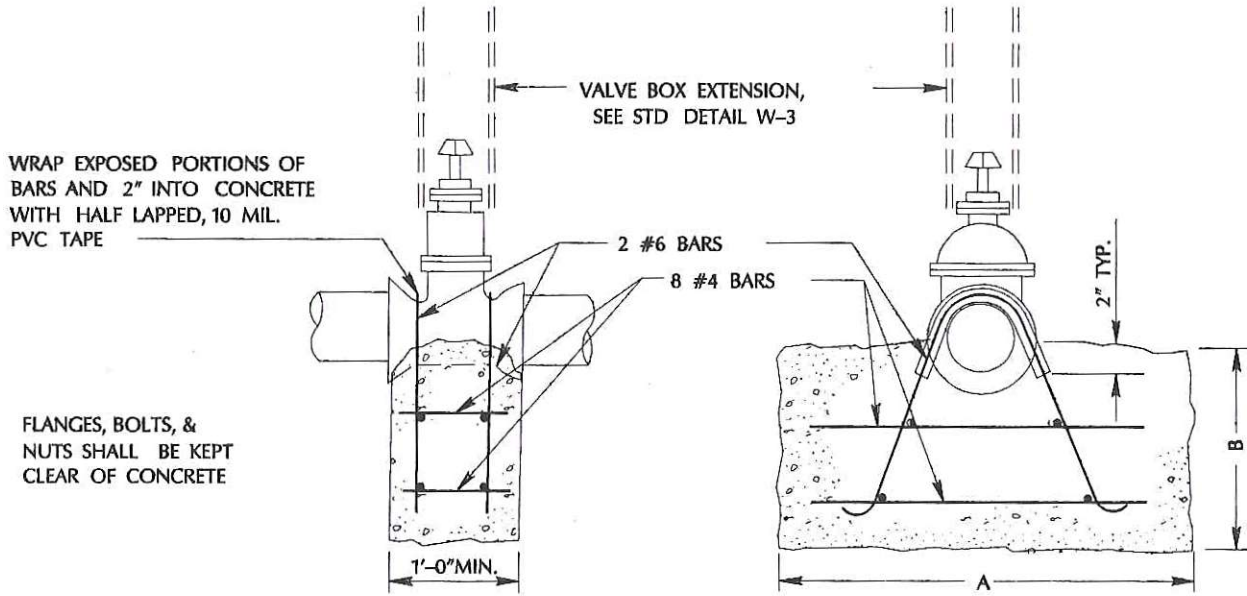


DRAWING NO.

W-3

NOTE:

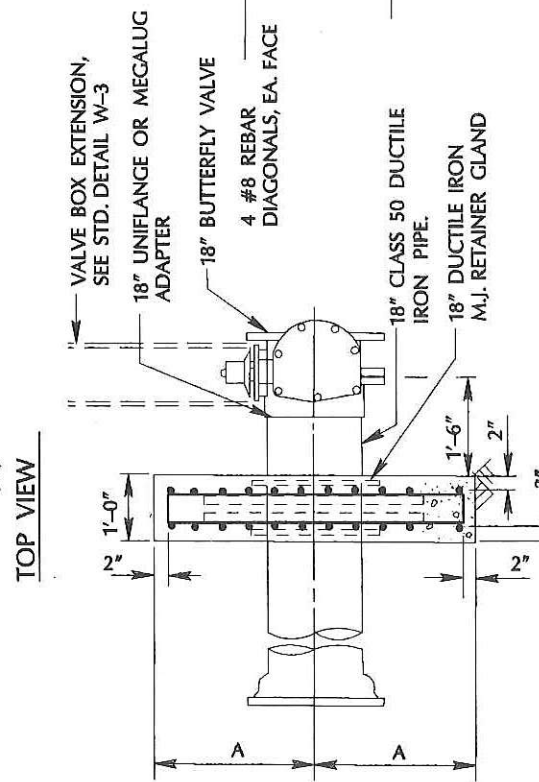
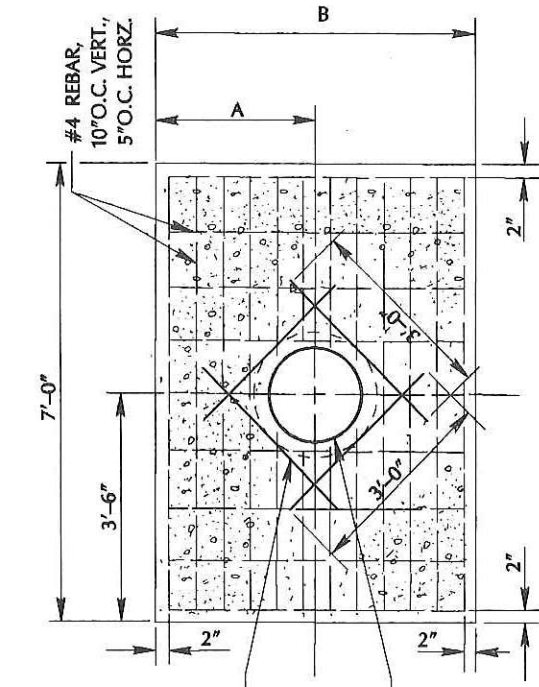
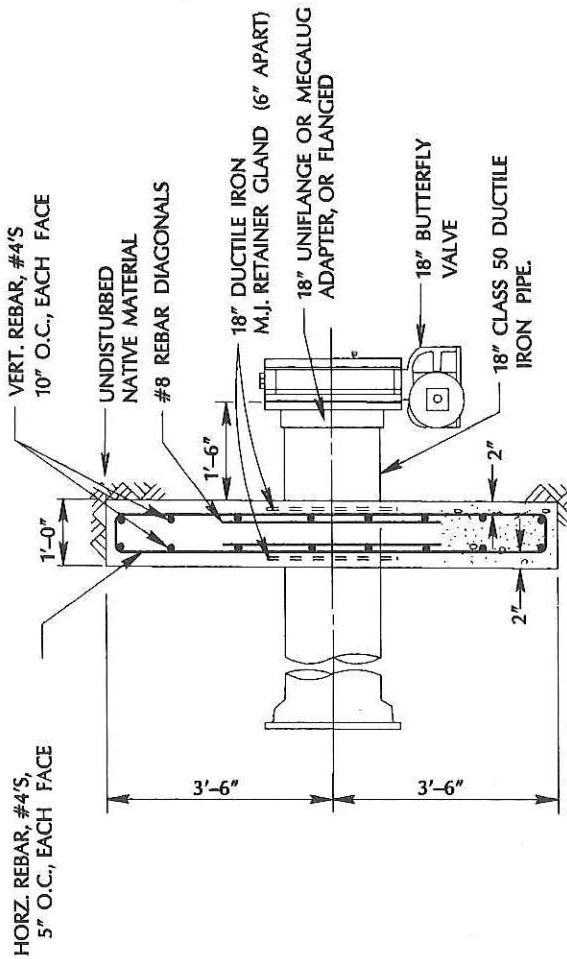
ENCASE ALL BURIED METALLIC SURFACES WITH POLYETHYLENE WRAP (8 MIL. MIN.) AS SPECIFIED IN A.W.W.A. C105.



SIZE OF GATE VALVE	ANCHOR BLOCK DIMENSIONS (FT.)		
	A	B	
		200 PSI TEST	250 PSI TEST
3"	1.5	1.5	2.0
4"	2.0	1.5	2.0
6"	3.0	1.5	2.0
8"	3.0	1.5	2.0
10"	3.0	2.0	2.5
12"	3.5	2.0	2.5

APPROVED BY 	<h2 style="margin: 0;">VALVE ANCHOR BLOCKS</h2>		DRAWING NO. W-4
DATE 	DEPARTMENT OF PUBLIC WORKS		

	200 PSI TEST	250 PSI TEST
A	2'-6"	3'-0"
B	5'-0"	6'-0"



APPROVED BY
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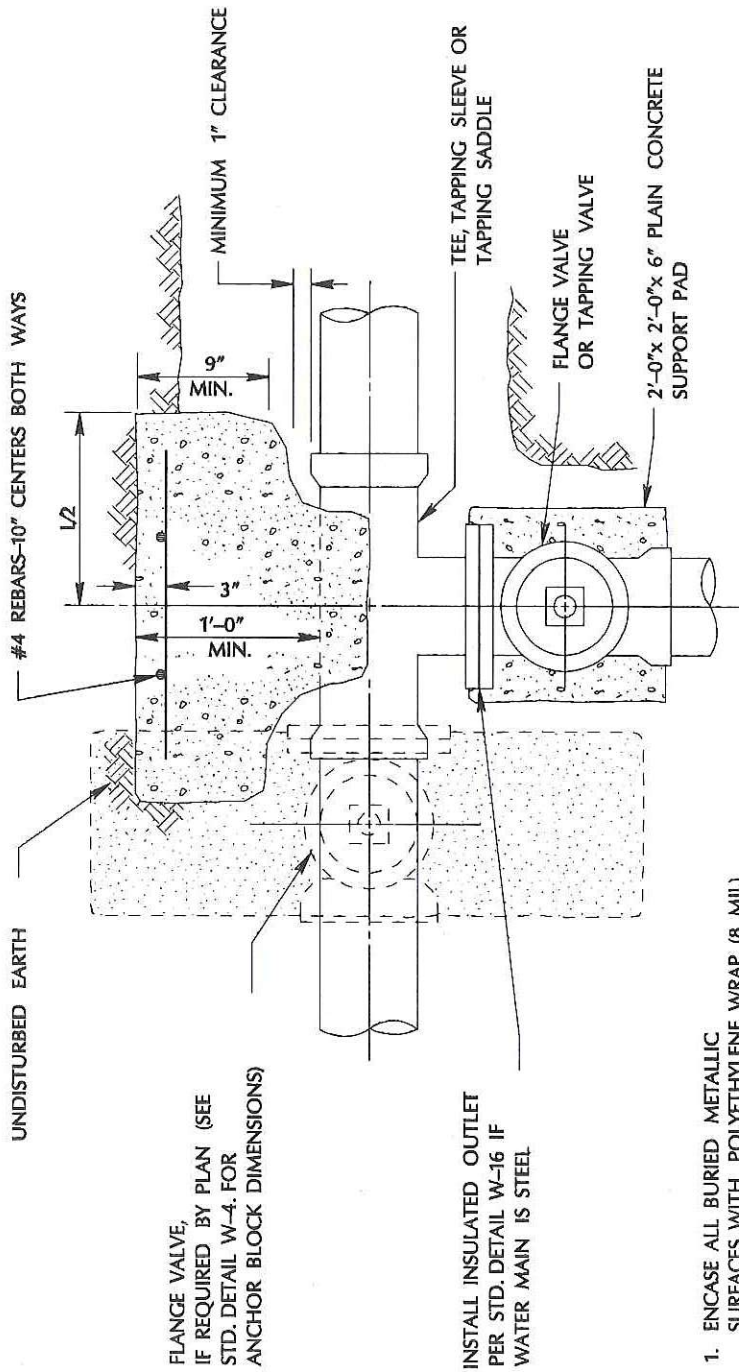
DATE
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**18" BUTTERFLY VALVE
ANCHOR BLOCK**

DEPARTMENT OF PUBLIC WORKS



DRAWING NO.
W-5



NOTES:

1. ENCASE ALL BURIED METALLIC SURFACES WITH POLYETHYLENE WRAP (8 MIL) AS SPECIFIED IN AWWA C105.
2. FLANGES, BOLTS, & NUTS SHALL BE KEPT CLEAR OF CONCRETE
3. AT ALL TEE CONNECTIONS, VALVES SHALL BE FLANGED BY HUB, BOLTED TO TEE

BRANCH PIPE SIZE	L x H	
	200 PSI TEST	250 PSI TEST
3" OR 4"	1'5" x 1'5"	1'7" x 1'7"
6"	1'9" x 1'9"	2'0" x 2'0"
8"	2'3" x 2'3"	2'6" x 2'6"
10"	3'0" x 3'0"	3'6" x 3'6"
12"	3'10" x 3'10"	4'4" x 4'4"
18"	5'10" x 5'10"	6'6" x 6'6"

APPROVED BY

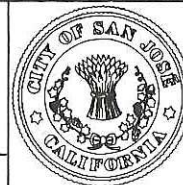
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DATE

4-2-92

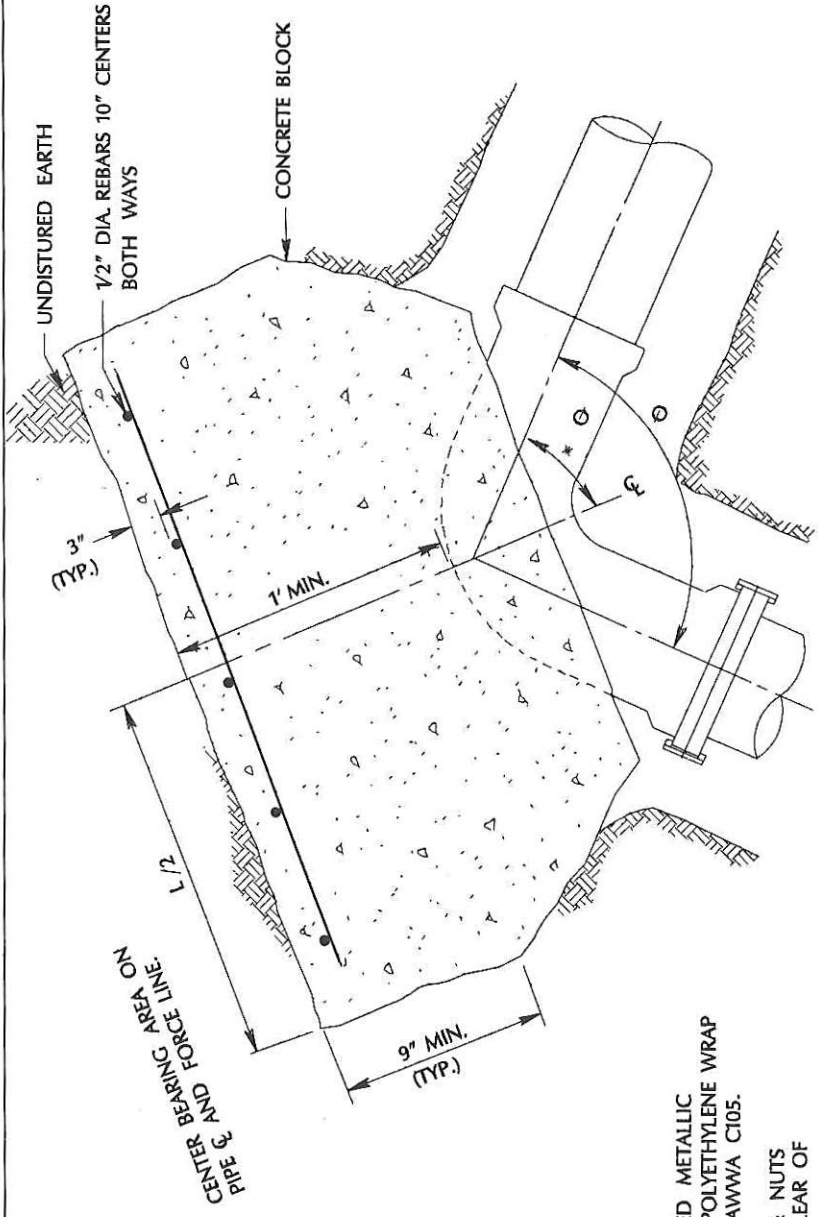
TEE THRUST BLOCK

DEPARTMENT OF PUBLIC WORKS



DRAWING NO.

W-6



H = HEIGHT
L = WIDTH

- NOTES:
1. ENCASE ALL BURIED METALLIC SURFACES WITH POLYETHYLENE WRAP AS SPECIFIED IN AWWA C105.
 2. FLANGES, BOLTS, & NUTS SHALL BE KEPT CLEAR OF CONCRETE.
 3. CENTER OF H COINCIDES WITH CENTERLINE OF PIPE

PIPE SIZE	DIMENSIONS - L x H (200 PSI TEST)			DIMENSIONS - L x H (250 PSI TEST)		
	11 1/4°	45°	90°	11 1/4°	45°	90°
6"	1'0" x 1'0"	1'9" x 1'9"	2'3" x 2'3"	1'3" x 1'0"	2'0" x 2'0"	2'6" x 2'6"
8"	1'0" x 1'0"	2'0" x 2'0"	2'10" x 2'10"	1'3" x 1'0"	2'3" x 2'3"	3'0" x 3'0"
10"	1'5" x 1'5"	2'0" x 2'0"	3'5" x 3'5"	1'8" x 1'8"	3'0" x 3'0"	3'10" x 3'10"
12"	1'9" x 1'9"	2'3" x 2'3"	4'2" x 4'2"	2'0" x 2'0"	4'0" x 3'0"	5'0" x 4'0"
14"	1'9" x 1'9"	2'8" x 2'8"	4'10" x 4'10"	2'0" x 2'0"	4'0" x 4'0"	6'0" x 5'0"
16"	2'0" x 2'0"	2'10" x 2'10"	5'5" x 5'5"	2'6" x 2'0"	5'0" x 4'0"	6'0" x 6'0"
18"	3'0" x 3'0"	4'0" x 4'0"	6'6" x 6'6"	3'9" x 3'0"	7'6" x 4'0"	8'0" x 6'0"

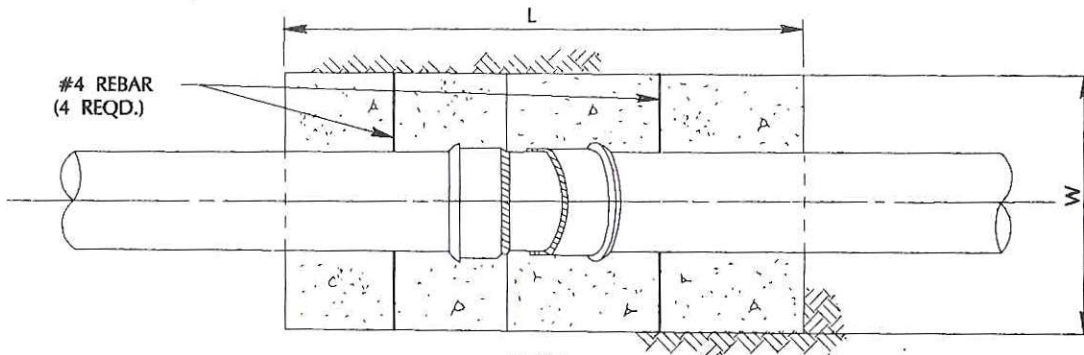
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ELBOW THRUST BLOCK, HORIZONTAL AND DOWNWARD THRUSTS

DEPARTMENT OF PUBLIC WORKS

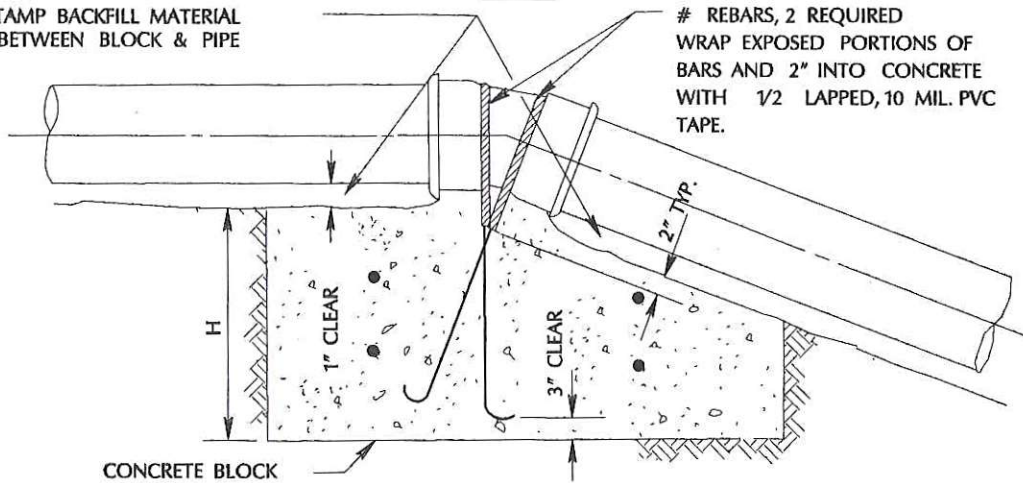


DRAWING NO.
W-7



PLAN

TAMP BACKFILL MATERIAL BETWEEN BLOCK & PIPE



ELEVATION

REBARS, 2 REQUIRED
WRAP EXPOSED PORTIONS OF
BARS AND 2" INTO CONCRETE
WITH 1/2 LAPPED, 10 MIL. PVC
TAPE.

- NOTES:
1. ENCASE ALL BURIED METALLIC SURFACES WITH POLYETHYLENE WRAP AS SPECIFIED IN AWWA C105.
 2. FLANGES, NUTS & BOLTS SHALL BE CLEAR OF CONCRETE.

DIMENSIONS (200 PSI TEST)

PIPE SIZE	11 1/4° BEND			22 1/2° BEND			45° BEND		
	L	W	H	L	W	H	L	W	H
6"	2'0"	2'0"	1'0"	2'0"	2'0"	2'0"	2'0"	2'0"	2'0"
8"	2'0"	2'0"	1'0"	2'0"	3'0"	2'0"	2'0"	4'0"	2'0"
10"	2'0"	3'0"	2'0"	2'0"	4'0"	2'0"	2'0"	4'0"	3'0"
12"	2'0"	3'0"	2'0"	2'0"	6'0"	2'0"	2'0"	6'6"	3'0"
18"	3'0"	3'0"	3'0"	3'0"	6'0"	3'0"	3'0"	5'0"	5'0"

DIMENSIONS (250 PSI TEST)

PIPE SIZE	11 1/4° BEND			22 1/2° BEND			45° BEND		
	L	W	H	L	W	H	L	W	H
6"	2'0"	2'6"	1'0"	2'0"	2'6"	2'0"	2'0"	3'0"	2'0"
8"	2'0"	2'6"	1'0"	2'0"	3'9"	2'0"	2'0"	5'0"	2'0"
10"	2'0"	2'6"	2'0"	2'0"	5'0"	2'0"	2'0"	5'0"	3'0"
12"	2'0"	3'9"	2'0"	2'0"	6'0"	2'6"	2'0"	6'0"	4'0"
18"	3'0"	3'9"	3'0"	3'0"	5'6"	4'0"	3'0"	7'0"	5'0"

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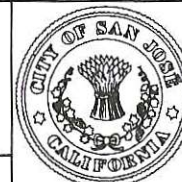
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DATE

9-1-72

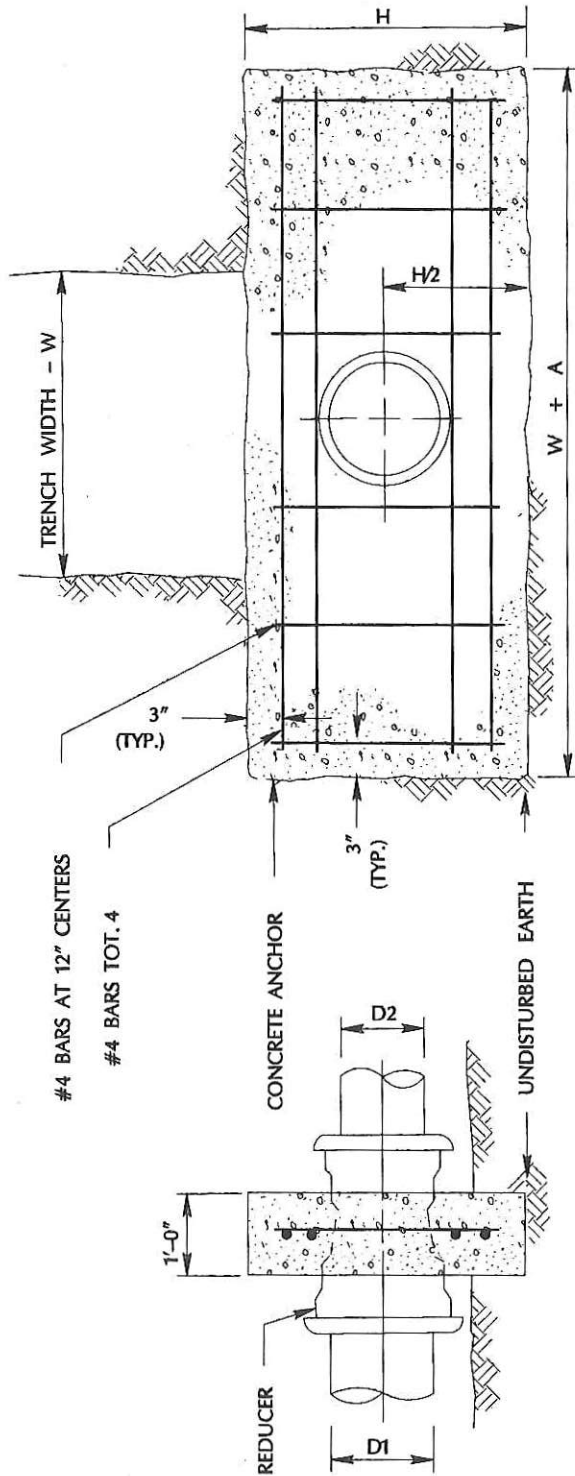
ELBOW ANCHOR BLOCK,
UPWARD THRUST

DEPARTMENT OF PUBLIC WORKS



DRAWING NO.

W-8



REDUCER SIZE D1 x D2	250 PSI TEST		200 PSI TEST	
	H	A	H	A
18" x 12"	3'9"	5'0"	3'0"	5'0"
12" x 10"	1'8"	2'0"	1'4"	2'0"
12" x 8"	2'6"	2'6"	2'0"	2'6"
12" x 6"	2'6"	3'0"	2'0"	3'2"
8" x 6"	1'3"	2'0"	1'0"	2'0"
8" x 4"	1'3"	3'0"	1'0"	2'10"
6" x 4"	1'4"	1'4"	1'0"	1'4"

- NOTES:
1. ENCASE ALL BURIED METALLIC SURFACES WITH POLYETHYLENE WRAP AS SPECIFIED IN AWWA C105.
 2. REDUCER ANCHOR IS REQUIRED ONLY WHEN LARGER CONNECTING JOINT IS OTHER THAN FLANGED.

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DATE

4-27

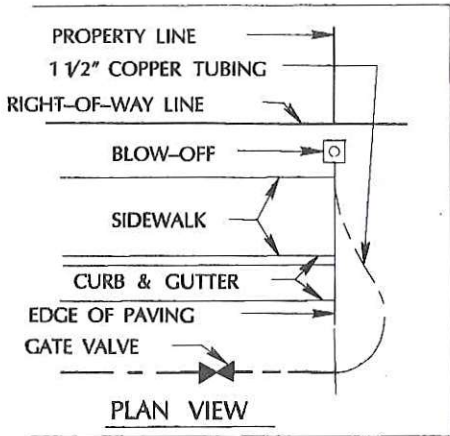
REDUCER ANCHOR BLOCK

DEPARTMENT OF PUBLIC WORKS



DRAWING NO.

W-9

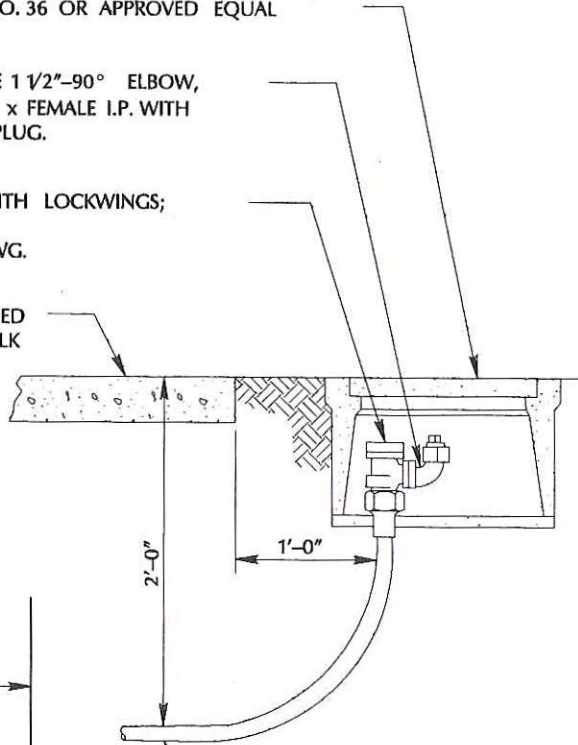


METER BOX WITH BASE; CHRISTY B9, FL9D, B9SL
BROOKS NO. 36 OR APPROVED EQUAL

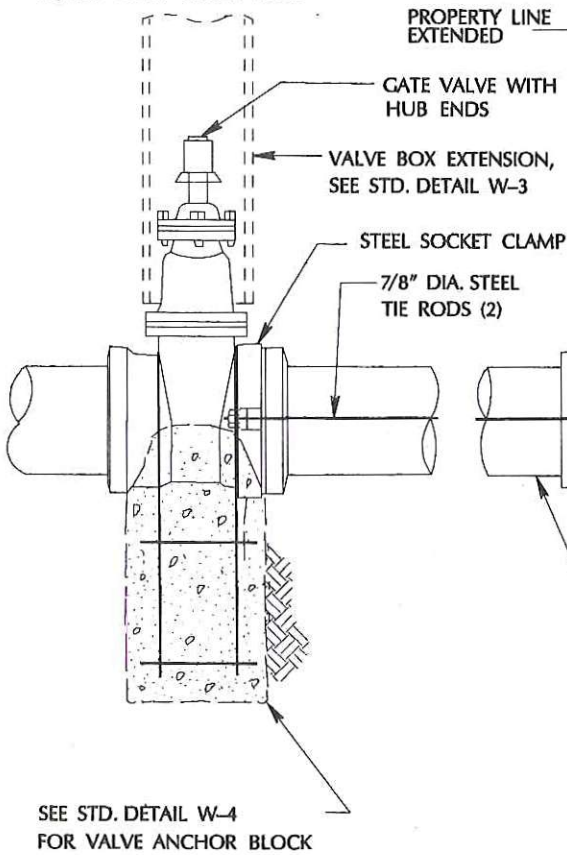
BRONZE 1 1/2"-90° ELBOW,
FLANGE x FEMALE I.P. WITH
BRASS PLUG.

1 1/2" ANGLE STOP WITH LOCKWINGS;
MUELLER H-14277
OR FORD FV43-666WG.

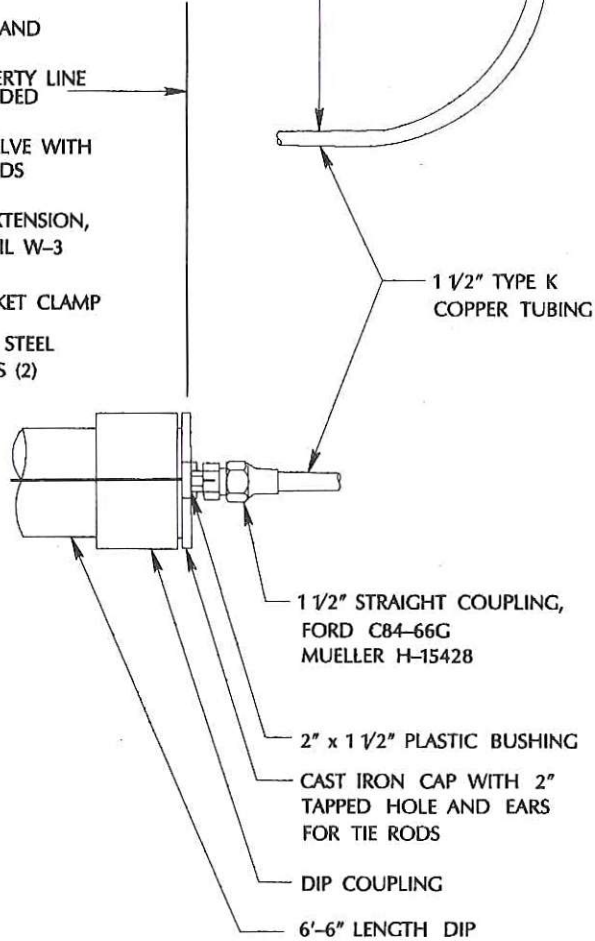
ATTACHED
SIDEWALK



- NOTES: 1. WRAP TIE RODS, STRAIGHT COUPLING
AND 5' OF COPPER TUBING WITH 10 MIL.
PVC TAPE, HALF-LAPPED.
2. ENCASE ALL BURIED IRON SURFACES
WITH POLYETHYLENE WRAP(8 MIL. MIN.)
AS SPECIFIED IN A.W.W.A. C105.
3. ALTERNATE BLOW OFF ASSEMBLY SHALL
INCLUDE AN MJ VALVE WITH MEGA LUGS AND
MJ CAP WITH MAGA LUGS



SEE STD. DETAIL W-4
FOR VALVE ANCHOR BLOCK



APPROVED BY

wsh

DATE

4-2-92

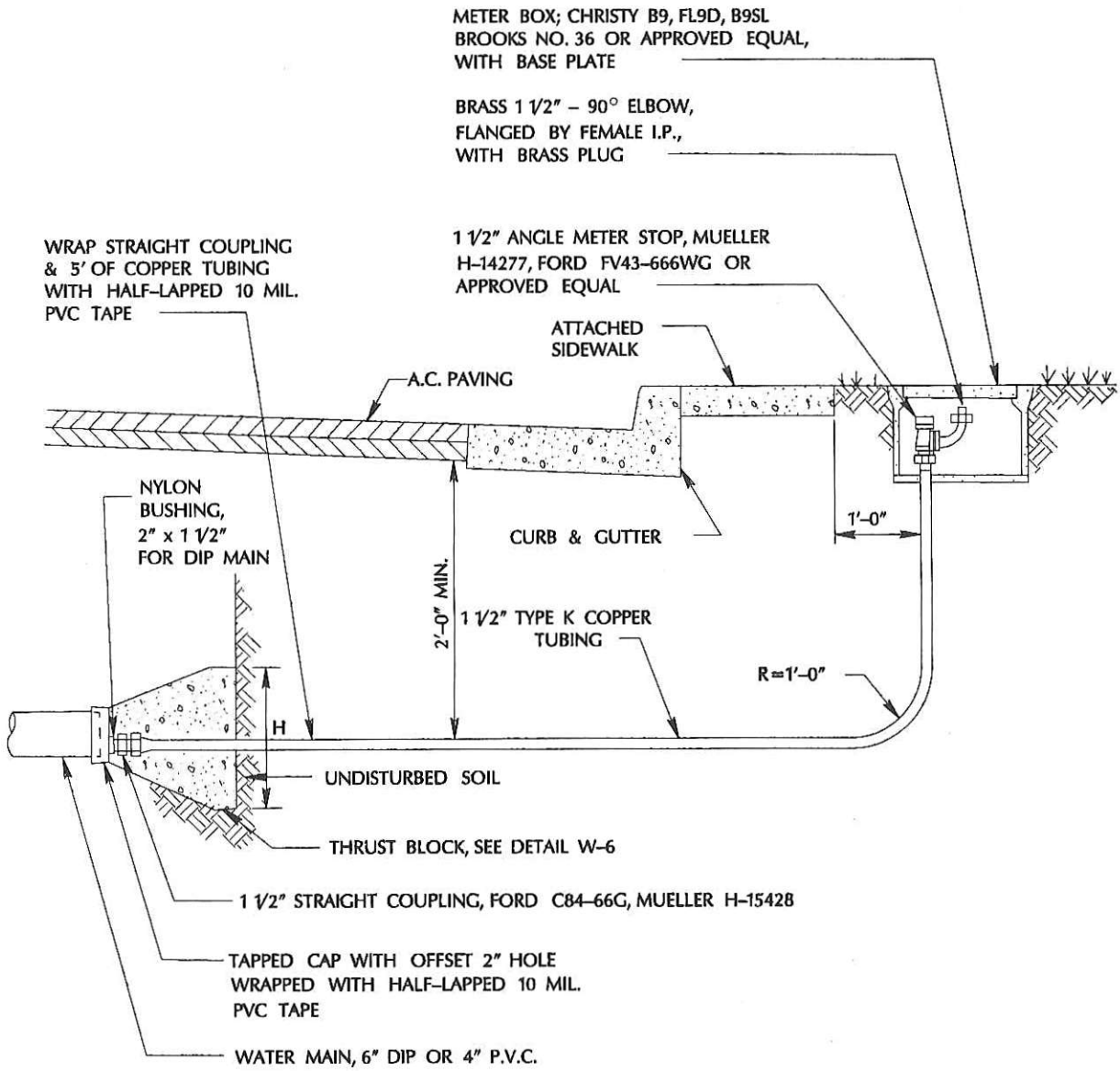
GATE VALVE BLOW-OFF ASSEMBLY

DEPARTMENT OF PUBLIC WORKS



DRAWING
NO.

W-10



DIMENSIONS

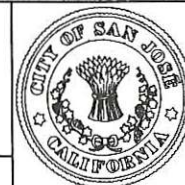
PIPE SIZE	200 PSI TEST		250 PSI TEST	
	W	H	W	H
4"	2'-0"	1'-0"	2'-6"	1'-0"
6"	3'-0"	1'-0"	3'-6"	1'-0"
8"	2'-6"	2'-0"	3'-0"	2'-0"
10"	3'-0"	3'-0"	3'-6"	3'-0"
12"	4'-0"	3'-0"	5'-0"	3'-0"
14"	4'-0"	4'-0"	5'-0"	4'-0"
18"	6'-6"	4'-0"	8'-0"	4'-0"

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DATE

CUL-DE-SAC BLOW-OFF ASSEMBLY

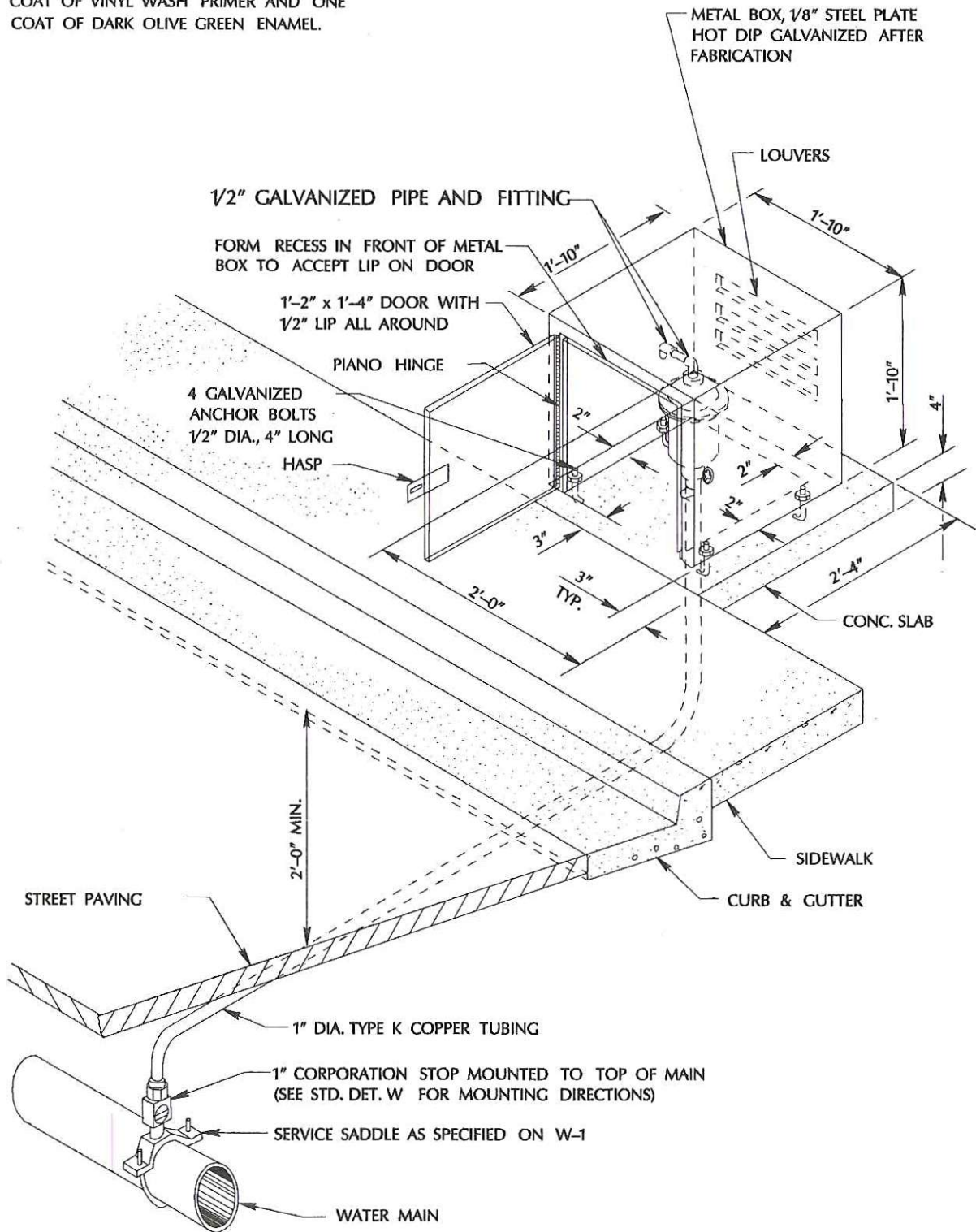
DEPARTMENT OF PUBLIC WORKS



DRAWING NO.

W-11

NOTE: PAINT METAL BOX AND DOOR,
 BOTH INSIDE AND OUTSIDE, WITH ONE
 COAT OF VINYL WASH PRIMER AND ONE
 COAT OF DARK OLIVE GREEN ENAMEL.

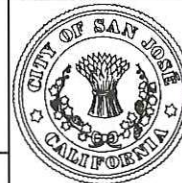


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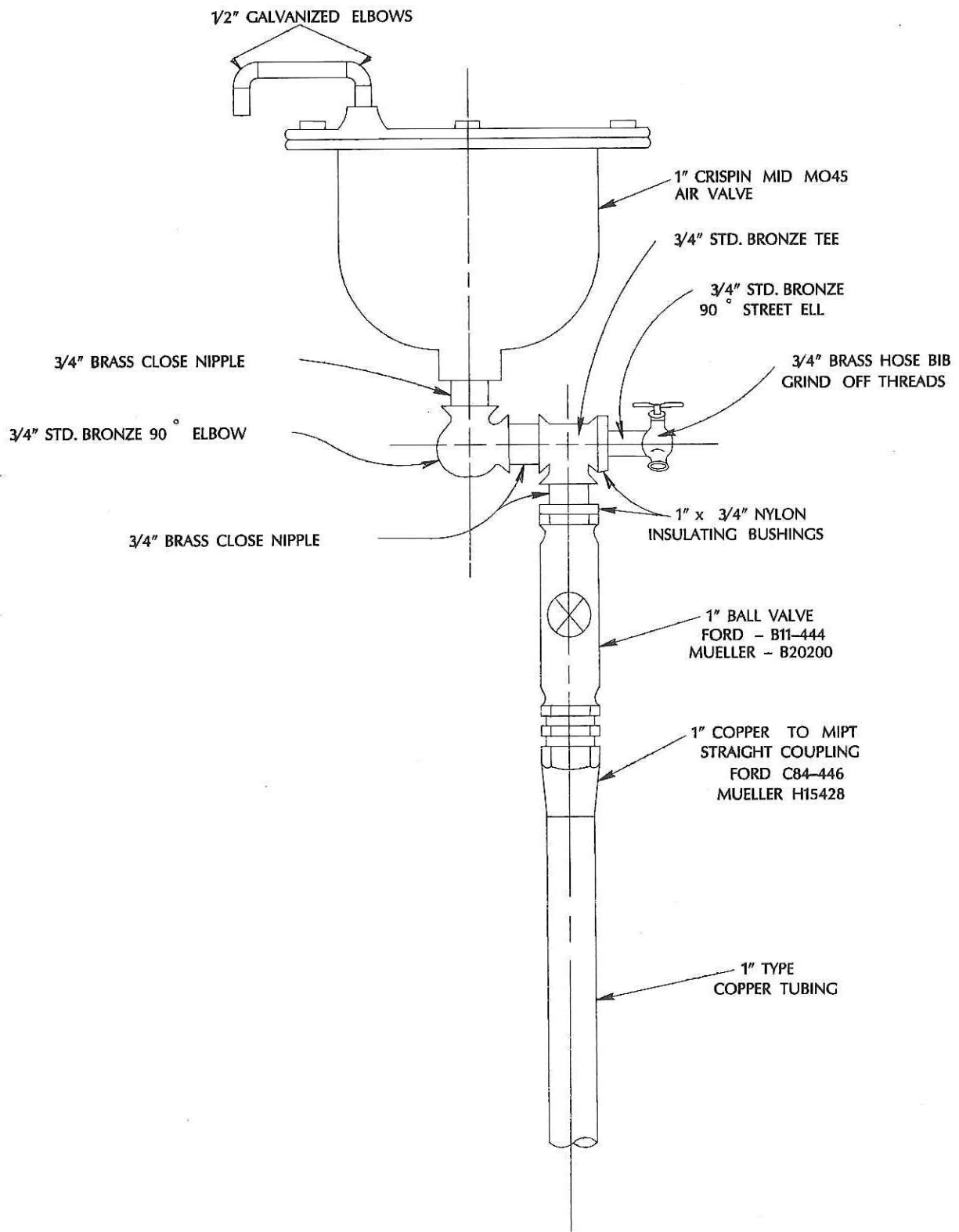
 DATE

**AIR RELIEF VALVE & SAMPLING
 STATION ASSEMBLY**

DEPARTMENT OF PUBLIC WORKS



DRAWING
 NO.
W-12



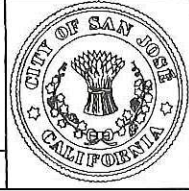
DETAIL - SAMPLING STATION

APPROVED BY
W-26

DATE
12/10/91

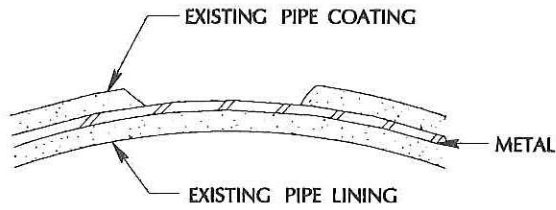
**AIR RELIEF VALVE & SAMPLING
STATION ASSEMBLY**

DEPARTMENT OF PUBLIC WORKS

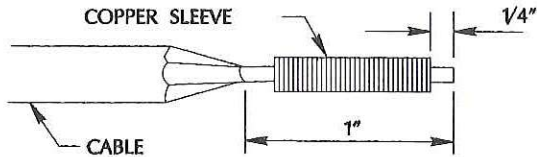


DRAWING
NO.
W-12a

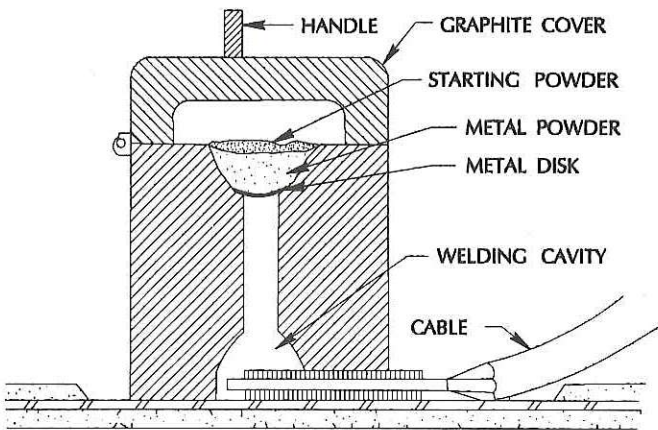
WELDING INSTRUCTIONS



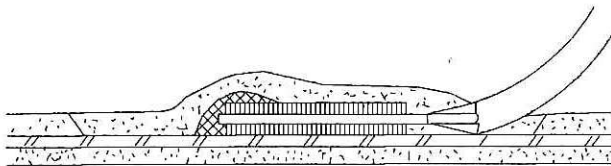
STEP 1



STEP 2



STEP 3



STEP 4

STEP 1

REMOVE EXISTING COATING AND CLEAN PIPE TO WHITE METAL WITH FILE GRINDER OR METAL RASP.

STEP 2

REMOVE INSULATION, SLIP ON COPPER SLEEVE AND CRIMP.

STEP 3

INSTALL CABLE AS SHOWN. PLACE POWDER IN MOLD AND CLOSE COVER. IGNITE WITH FLINT GUN AND HOLD WELD MOLD IN POSITION FOR 10 SECONDS.

STEP 4

REMOVE SLAG AND TEST WELD WITH SHARP HAMMER BLOW. REPLACE COATING ON MAIN & COAT WELD AND BARE COPPER WITH 1/4" MIN. COATING OF SAME MATERIAL OR WITH 10 MIL PVC TAPE, HALF-LAPPED.

WELDING SPECIFICATIONS-

CADWELD

CONDUCTOR- #10 OR #12 SOLID	STEEL OR DUCTILE IRON	CAST IRON
WELDER	CAM-108	CAHBA-1G
SLEEVE	CA-26180	CA-26180
CARTRIDGE	CA15-F33	CA25-XF19

CONDUCTOR- #8 STRANDED	STEEL OR DUCTILE IRON	CAST IRON
WELDER	CAM-109S	CAHBA-1L
SLEEVE	CAS-421	CAS-421
CARTRIDGE	CA15-F33	CA45-X519

APPROVED BY

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DATE

4-2-90

**CABLE TO PIPE
EXOTHERMIC WELD**

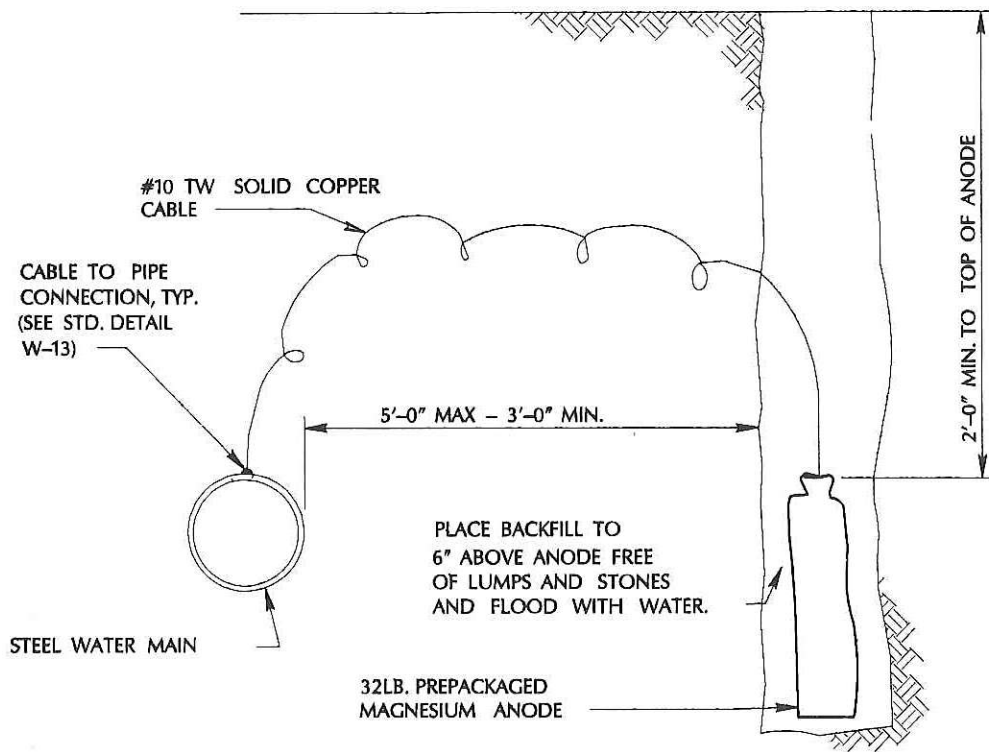
DEPARTMENT OF PUBLIC WORKS



DRAWING
NO.

W-13

- NOTES:**
1. ANODE TO BE INSTALLED WITH EVERY SERVICE CONNECTION (STD. DETAIL W-1) ON STEEL MAIN NOT UNDER CATHODIC PROTECTION (SEE ENGINEER).
 2. LEAVE ENOUGH SLACK IN CABLE TO PREVENT DAMAGE DURING BACKFILL OPERATIONS.
 3. ANODE MAY BE INSTALLED HORIZONTALLY IF LOCATED BELOW THE SPRINGLINE OF THE PIPE.



APPROVED BY

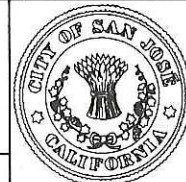
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MAGNESIUM ANODE INSTALLATION

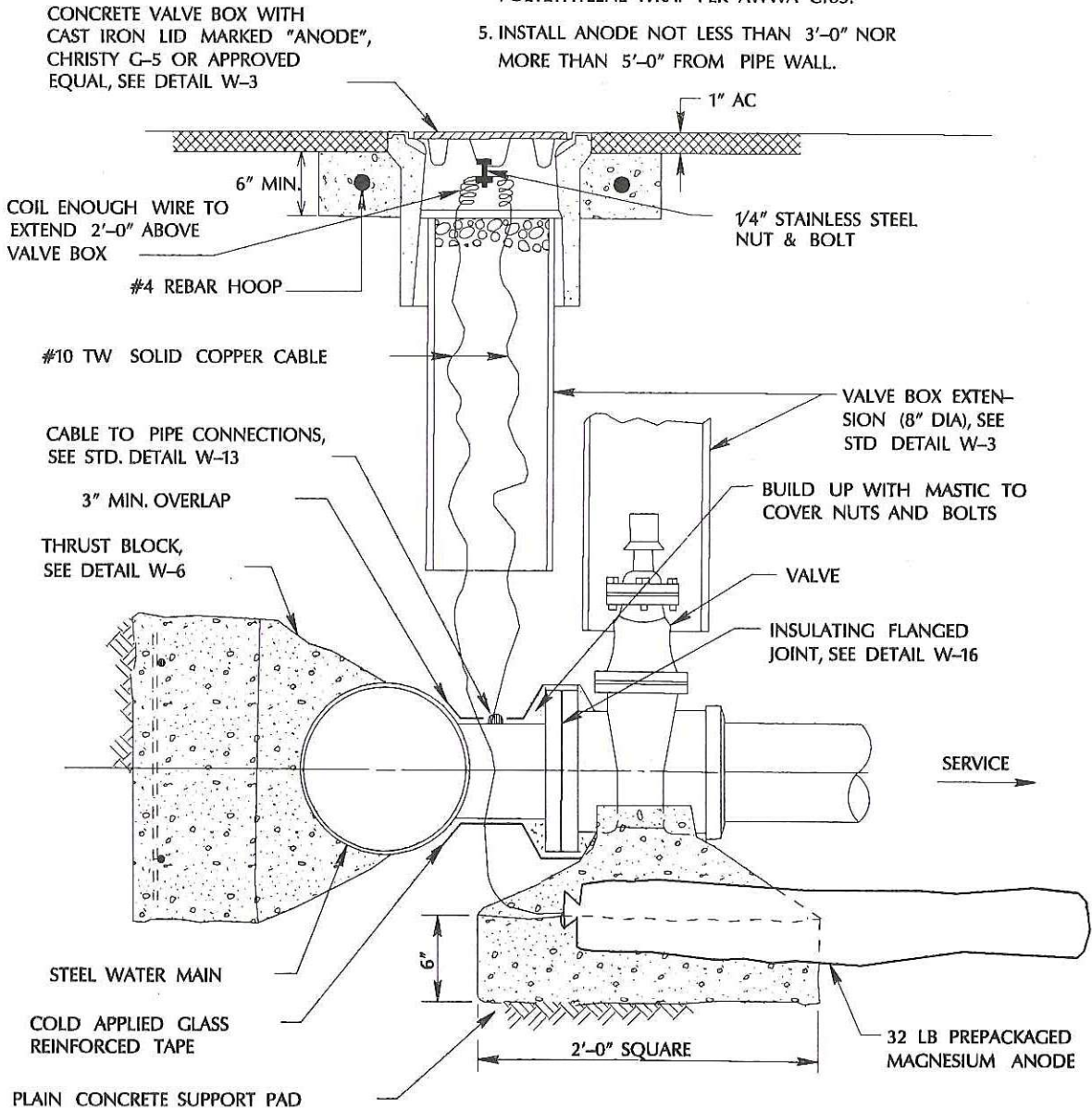
DEPARTMENT OF PUBLIC WORKS



DRAWING NO.

W-14

- NOTES:**
1. ANODE MAY BE INSTALLED HORIZONTALLY BELOW THE SPRINGLINE OF THE PIPE OR VERTICALLY WITH 2'-0" MIN. COVER.
 2. PLACE BACKFILL TO 6" ABOVE ANODE FREE OF LUMPS OR STONES AND FLOOD WITH WATER.
 3. LEAVE ENOUGH SLACK IN CABLE TO PREVENT DAMAGE DURING BACKFILL OPERATIONS.
 4. ENCASE ALL METAL PIPE WITH MIN. 8 MIL POLYETHYLENE WRAP PER AWWA C105.
 5. INSTALL ANODE NOT LESS THAN 3'-0" NOR MORE THAN 5'-0" FROM PIPE WALL.

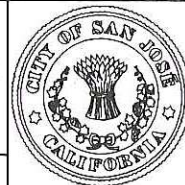


APPROVED BY

DATE

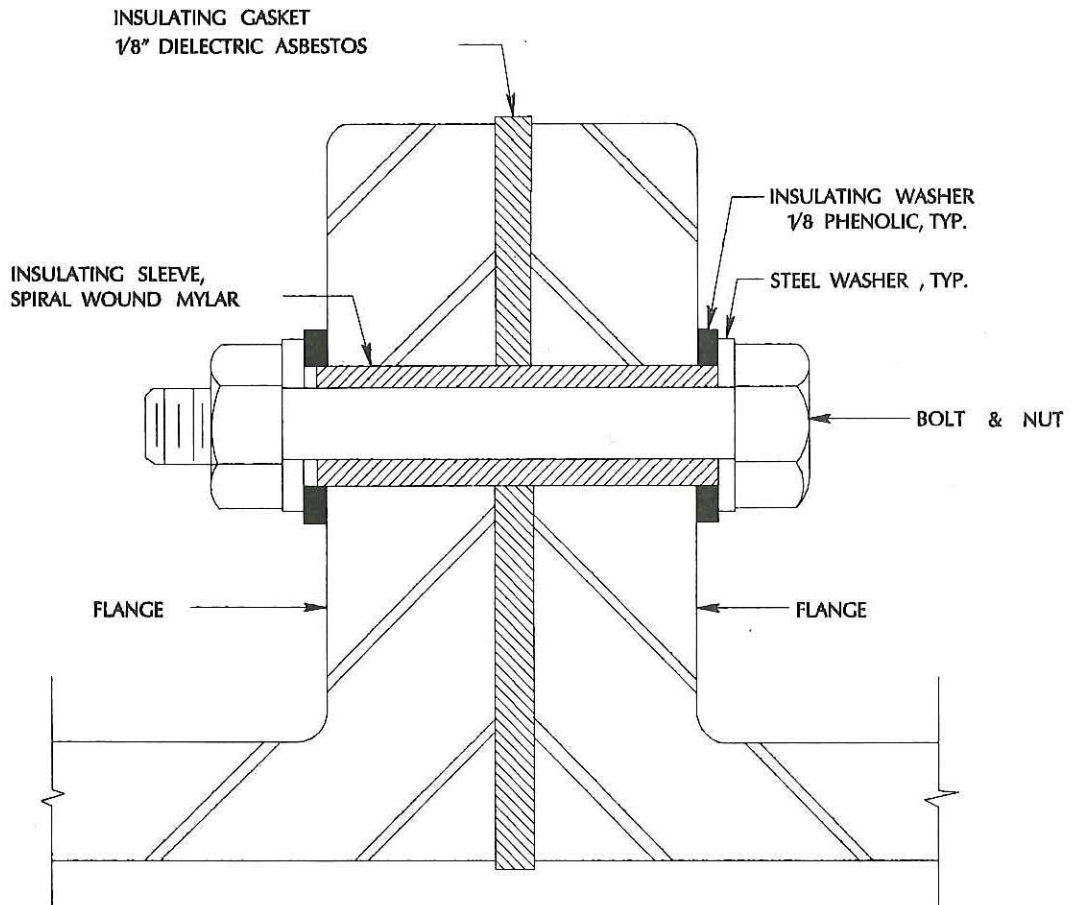
INSULATED OUTLET

DEPARTMENT OF PUBLIC WORKS



DRAWING NO.

W-15



APPROVED BY

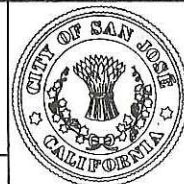
W.S.H.

DATE

June 72

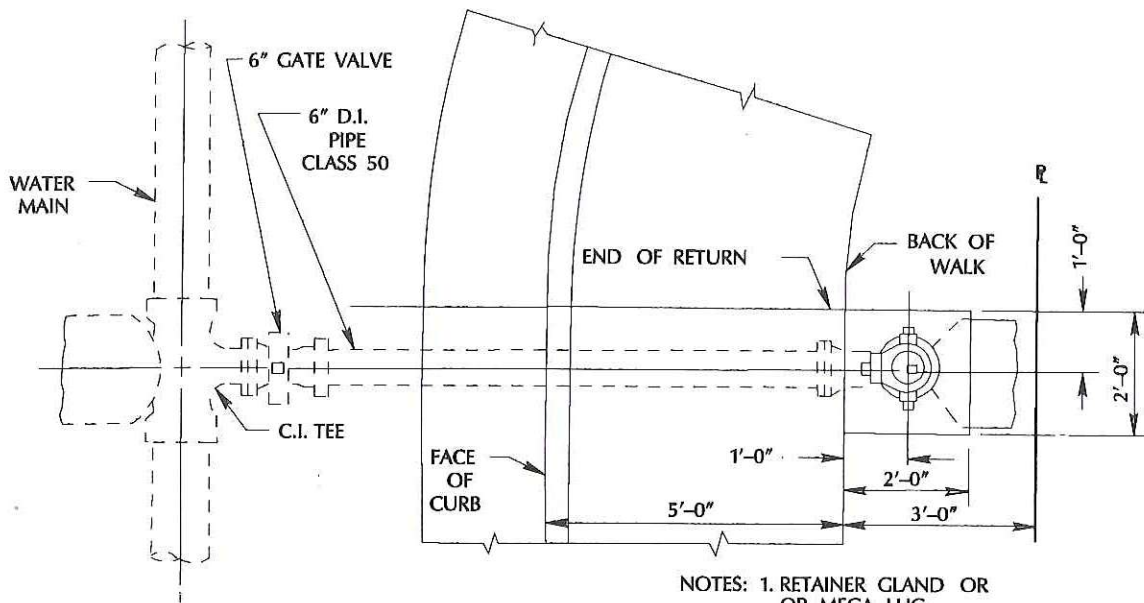
INSULATING FLANGED JOINT

DEPARTMENT OF PUBLIC WORKS



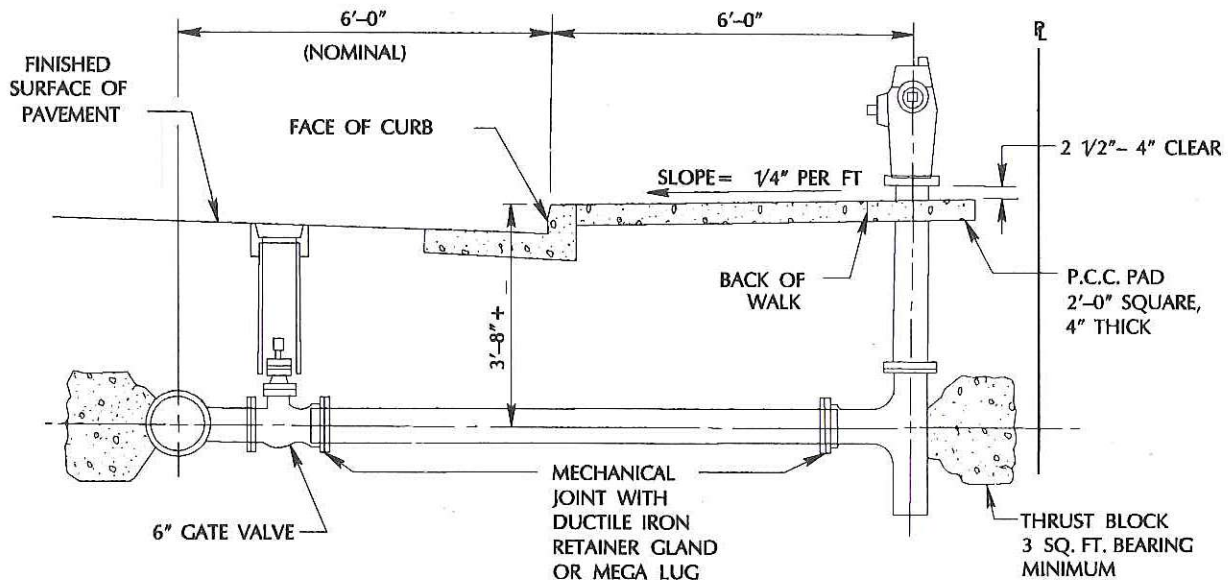
DRAWING NO.

W-16



PLAN

- NOTES: 1. RETAINER GLAND OR OR MEGA LUG INSTALLED IF HYDRANT TEE THRUST BLOCK IS BEARING ON DISTURBED SOIL.
2. ALL FIRE HYDRANTS SHALL BE DRY BARREL.



PROFILE

- NOTE: 3. ENCASE ALL BURIED METALLIC SURFACES WITH POLYETHYLENE WRAP PER AWWA STD. C105 (8 MIL. MIN.)
4. C900 PVC CAN BE SUBSTITUTED FOR DIP.

APPROVED BY

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DATE

4-2-92

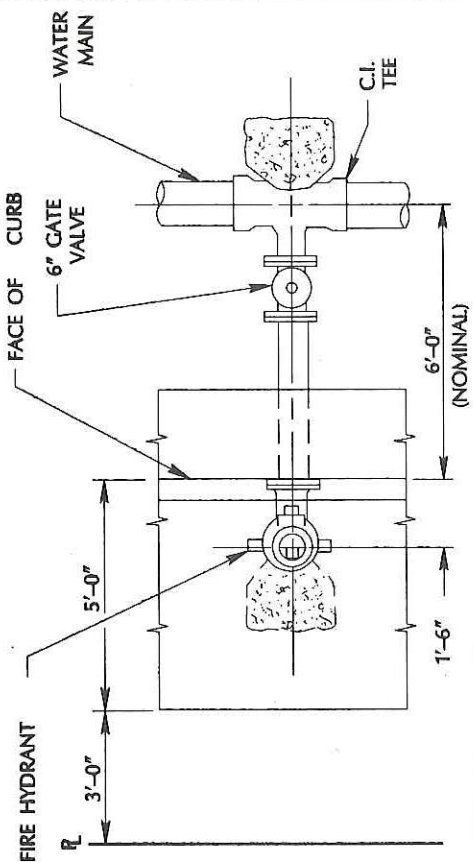
ATTACHED RESIDENTIAL SIDEWALK
FIRE HYDRANT INSTALLATION-
END OF RETURN

DEPARTMENT OF PUBLIC WORKS

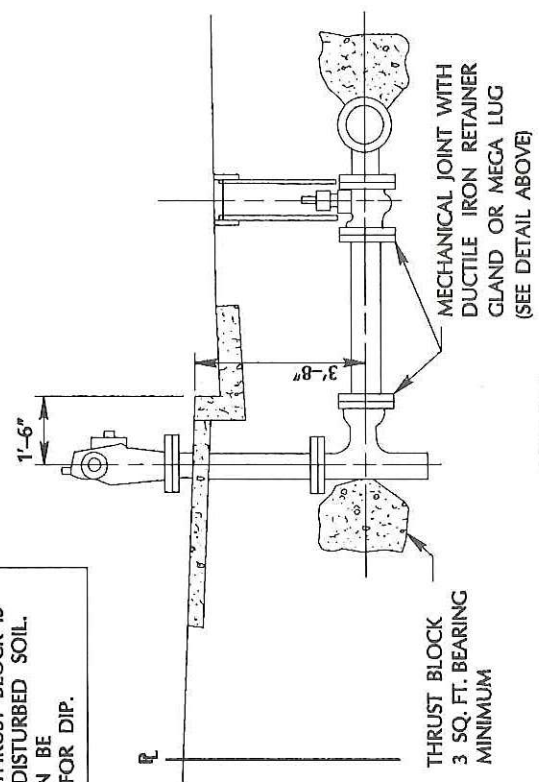


DRAWING NO.

W-17

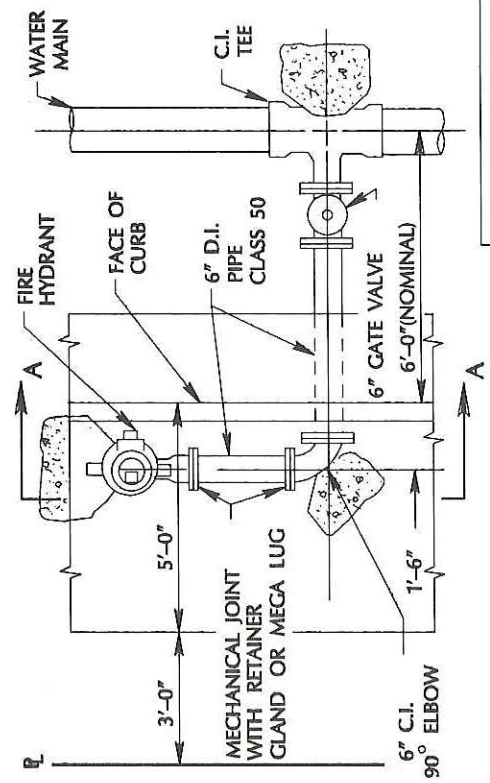


PLAN

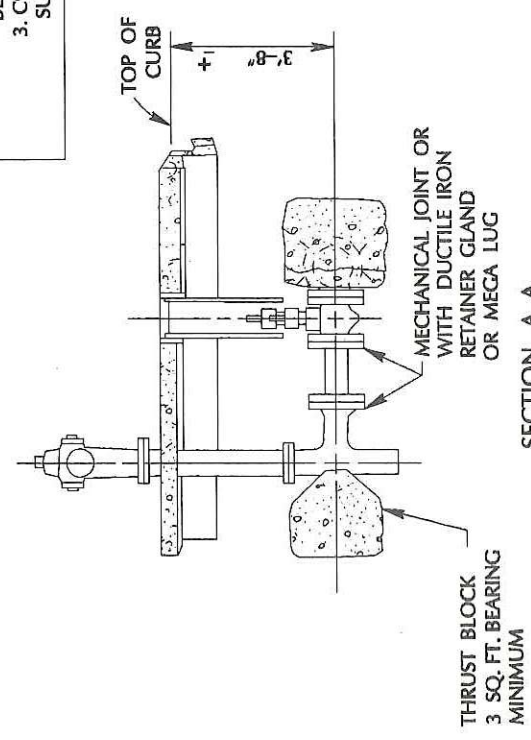


PROFILE

STRAIGHT LATERAL



PLAN



SECTION A-A

OFFSET LATERAL

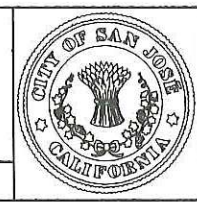
- NOTES:
1. ENCASE ALL BURIED METALLIC SURFACES WITH POLYETHYLENE WRAP PER AWWA STD. C105 (8 MIL. MIN.)
 2. RETAINER GLAND OR MEGA LUG TO BE INSTALLED IF HYDRANT TEE THRUST BLOCK IS BEARING ON DISTURBED SOIL. C900 PVC CAN BE SUBSTITUTED FOR DIP.

APPROVED BY
[Signature]

DATE
[Date]

**ATTACHED RESIDENTIAL SIDEWALK
FIRE HYDRANT
INSTALLATION-MID BLOCK**

DEPARTMENT OF PUBLIC WORKS



DRAWING NO.
W-18