

**COUNTY OF VENTURA  
PUBLIC WORKS AGENCY**

**WATER AND SANITATION DEPARTMENT**

VENTURA COUNTY WATERWORKS DISTRICT NO. 1, 16, 17, 19, AND 38  
COUNTY SERVICE AREA NO. 29, 30, 34, AND CAMARILLO UTILITY ENTERPRISE

**WATER AND SEWER  
CONSTRUCTION STANDARDS**



THE VENTURA COUNTY PUBLIC WORKS DIRECTOR OR HIS OR HER DESIGNEE ARE AUTHORIZED TO SET AND/OR REVISE CONSTRUCTION STANDARDS APPLICABLE TO WATER SYSTEM AND SEWER SYSTEM IMPROVEMENTS FOR THE DISTRICTS, AS APPROVED AND ADOPTED BY THE BOARD OF SUPERVISORS ON FEBRUARY 28, 2023. FOR LATEST REVISION SEE INDEX.

## WATER AND SANITATION CONSTRUCTION STANDARDS

WATER CONSTRUCTION STANDARDS		REVISION	
		NO.:	DATE:
W-1	TRENCH DETAILS	0	02-28-2023
W-2	VALVE BOX INSTALLATION	0	02-28-2023
W-3	AIR AND VACUUM VALVE INSTALLATION 1" AND 2"	0	02-28-2023
W-4	AIR GAP AND CONSTRUCTION WATER DETAIL	0	02-28-2023
W-5	1" WATER METER SERVICE INSTALLATION	0	02-28-2023
W-6	2" WATER METER SERVICE INSTALLATION	0	02-28-2023
W-7	3" OR 4" METER ASSEMBLY PLAN AND PROFILE	0	02-28-2023
W-8	3" OR 4" METER ASSEMBLY PLAN AND PROFILE (VAULT)	0	02-28-2023
W-9	FIRE HYDRANT INSTALLATION	0	02-28-2023
W-10	4" BLOW OFF INSTALLATION	0	02-28-2023
W-11	TEMPORARY 2" BLOW OFF INSTALLATION	0	02-28-2023
W-12	3" OR GREATER REDUCED PRESSURE BACKFLOW DEVICE	0	02-28-2023
W-13	DOUBLE DETECTOR CHECK VALVE	0	02-28-2023
W-14	1" OR 2" REDUCED PRESSURE BACKFLOW DEVICE	0	02-28-2023
W-15	CUT-IN TEE FOR PVC, AC, AND DI PIPE	0	02-28-2023
W-16	PIPE ABANDONMENT	0	02-28-2023
W-17	METER BOX CLEARANCE DETAILS	0	02-28-2023
W-18	UTILITY UNDERCROSSING DETAIL	0	02-28-2023
W-19	THRUST AND ANCHOR BLOCK DETAILS	0	02-28-2023
W-20	8" PRESSURE REDUCING STATION ASSEMBLY	0	02-28-2023
W-21	1"-2" COMMERCIAL / INDUSTRIAL WATER METER	0	02-28-2023
W-22	WATER SAMPLE STATION	0	02-28-2023
W-23	TEMPORARY HOSE BIB	0	02-28-2023
SEWER CONSTRUCTION STANDARDS			
S-1	GENERAL NOTES	0	02-28-2023
S-2	SEWER LATERAL DETAIL	0	02-28-2023
S-3	SEWER TRENCH DETAIL	0	02-28-2023
S-4	SAMPLING WELL	0	02-28-2023
S-5	TERMINAL CLEANOUT DETAIL	0	02-28-2023
S-6	CONDUIT TRENCH DETAIL	0	02-28-2023
S-7	STEP TANK AND PUMP	0	02-28-2023
S-8	STEP CONTROL PANEL	0	02-28-2023

THE VENTURA COUNTY PUBLIC WORKS DIRECTOR OR HIS OR HER DESIGNEE ARE AUTHORIZED TO SET AND/OR REVISE CONSTRUCTION STANDARDS APPLICABLE TO WATER SYSTEM AND SEWER SYSTEM IMPROVEMENTS FOR THE DISTRICTS, AS APPROVED AND ADOPTED BY THE BOARD OF SUPERVISORS ON FEBRUARY 28, 2023. FOR LATEST REVISION SEE INDEX.

ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023		<b>COUNTY OF VENTURA PUBLIC WORKS AGENCY</b>
APPROVED	DATE: 02/28/2023	
PWA DIRECTOR		CONSTRUCTION STANDARDS  APPROVED AS LISTED ABOVE
RECOMMENDED	DATE: 02/28/2023	
W&S DIRECTOR		

# WATER & SANITATION CONSTRUCTION STANDARDS

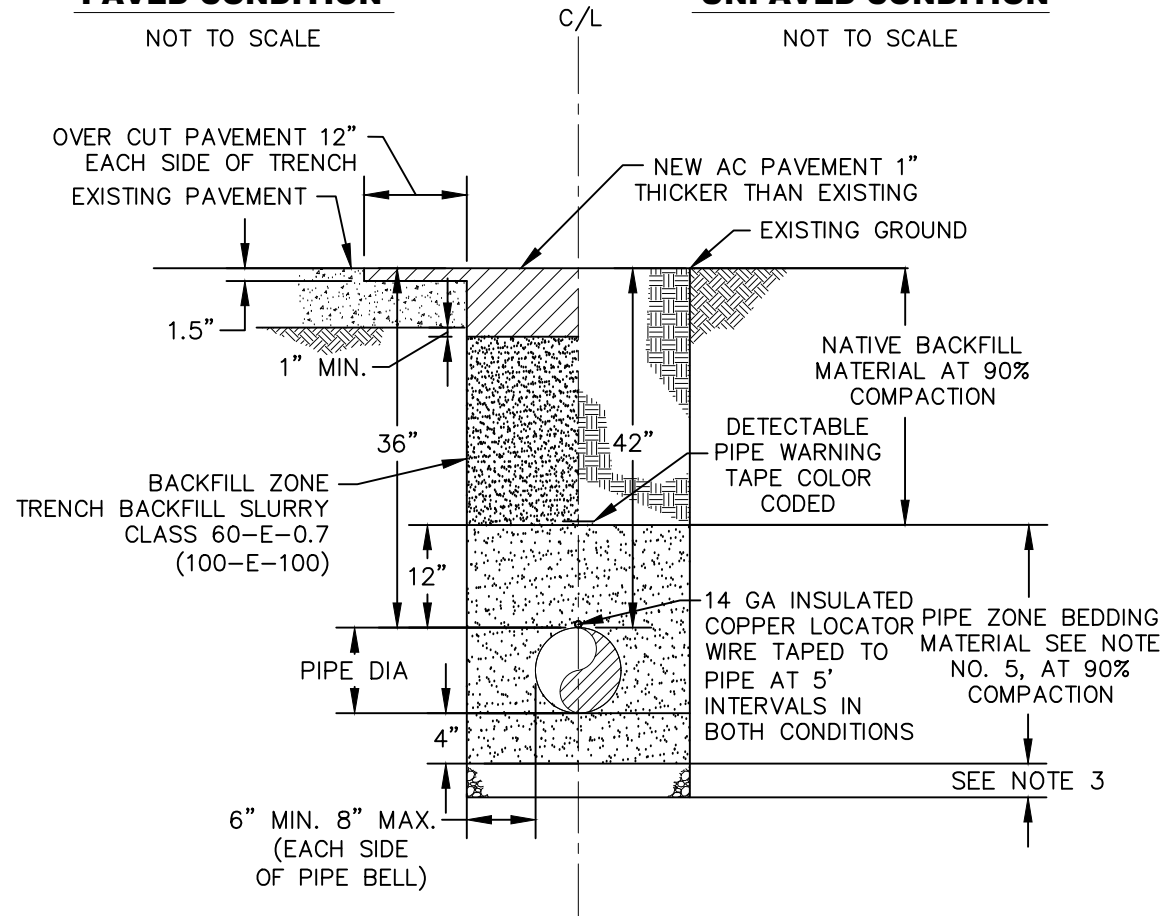
# DRAWING W-1

## PAVED CONDITION

NOT TO SCALE

## UNPAVED CONDITION

NOT TO SCALE



## NOTES:

1. MAINTAIN 36" MIN. COVER FOR ALL PIPES IN PAVED AREAS (ON ALL SIDES OF PIPE).
2. MAINTAIN 42" MIN. COVER FOR ALL PIPES IN UNPAVED AREAS (ON ALL SIDES OF PIPE).
3. FOUNDATION SHALL BE REQUIRED IF NATIVE MATERIAL IS SOFT, SPONGY OR UNSTABLE. WHERE OVER EXCAVATION IS REQUIRED, DEPTH AND MATERIAL SHALL BE DETERMINED BY THE DISTRICT.
4. COMPACTION SHALL NOT BE ACHIEVED BY THE USE OF FLOODING, PONDING, OR JETTING UNLESS RECOMMENDED BY SOIL ENGINEER AND APPROVED BY DISTRICT.
5. BEDDING MATERIAL SHALL BE WASHED CONC. SAND, SE > 30, AND GRANULAR WITH 100% PASSING 3/4" SIEVE, 90% TO 100% PASSING THE 3/8" SIEVE AND NOT MORE THAN 5% PASSING THE 200 SIEVE.
6. PIPE SHALL BE ORIENTED WITH PRODUCT LABEL ON TOP.
7. CONTRACTOR SHALL PROVIDE HAND EXCAVATED "BELL HOLE" FOR EACH PIPE JOINT SO THAT THE WEIGHT OF THE PIPE DOES NOT BEAR ON THE BELL. CONTRACTOR SHALL RE-FILL AND HAND-TAMP EACH "BELL HOLE" PRIOR TO COMPLETING THE PLACEMENT OF THE BEDDING.
8. IF EDGE OF ASPHALT TRENCH CAP IS WITHIN 2 FEET OF THE EXISTING EDGE OF PAVEMENT OR LIP OF GUTTER, THE OVERCUT AND PAVING SHALL BE EXTENDED TO THE EDGE OF PAVING OR LIP OF GUTTER.
9. ALL BELOW GRADE PIPE INSTALLATIONS SHALL BE WRAPPED WITH 10 MIL POLYETHYLENE CASING.

ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023

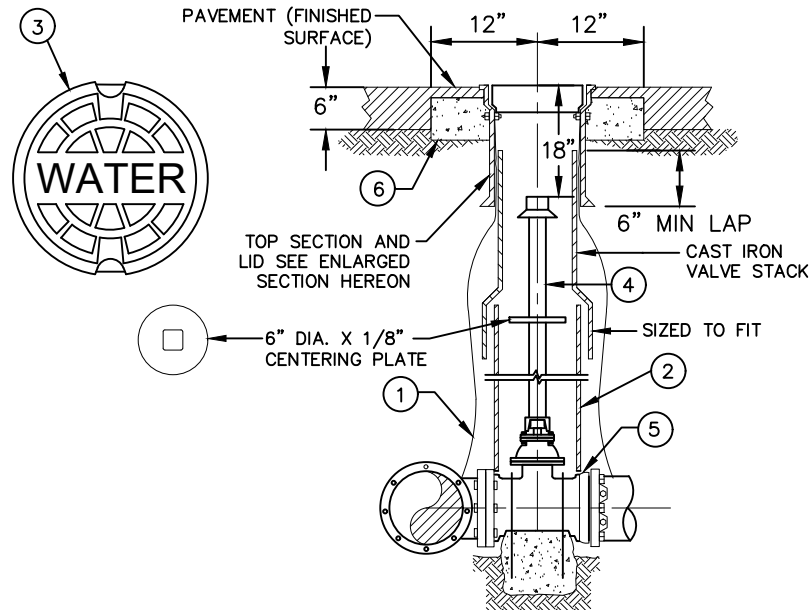
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COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

TRENCH DETAILS

# WATER & SANITATION CONSTRUCTION STANDARDS

# DRAWING W-2



PAVED AREAS

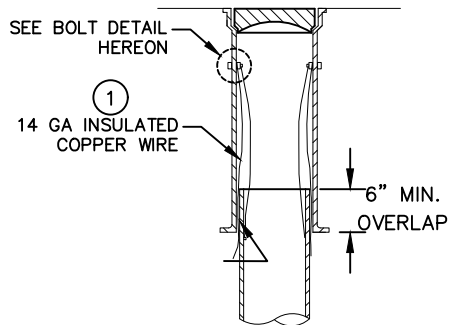


## CONSTRUCTION NOTES:

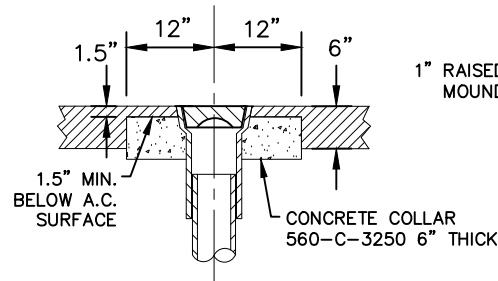
- IDENTIFICATION WIRE TO BE ATTACHED MECHANICALLY TO TEE, VALVE AND TOP OF VALVE STACK.
- IF DEPTH FROM SURFACE TO THE TOP OF VALVE OPERATING NUT IS GREATER THAN 42", A 6" DIA., SDR-35 VALVE BOX EXTENSION SHALL BE INSTALLED (MIN. 12" OR GREATER).
- VALVE COVER SHALL HAVE, "WATER" FOR POTABLE WATER AND RECYCLED WATER SHALL HAVE, "REUSE" IN RAISED LETTERS. RECYCLED WATER COVERS SHALL BE PAINTED PURPLE.
- IF DEPTH FROM SURFACE TO TOP OF VALVE OPERATING NUT IS GREATER THAN 48", INSTALL AN 1 1/4" SQUARE SOLID STEEL STOCK FOR VALVE STEM EXTENSION.
- PROVIDE 2" GAP BETWEEN BOTTOM OF VALVE BOX AND TOP OF VALVE.
- 24" DIA. X 6" THICK CONCRETE COLLAR.

## NOTES:

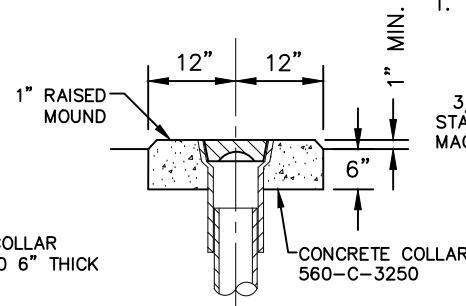
- NON-RESIDENTIAL ROADS OR WHERE POSTED SPEED LIMIT EXCEEDS 35 MPH REQUIRES HEAVY 25 LB VALVE COVER.



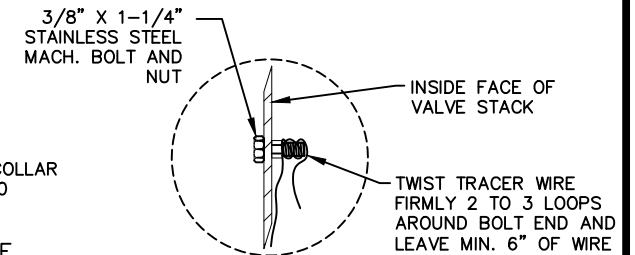
TOP SECTION AND LID



CONCRETE COLLAR FOR VALVE BOXES IN PAVED AREAS



CONCRETE COLLAR FOR VALVE BOXES IN UNPAVED AREAS



BOLT DETAIL

ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023

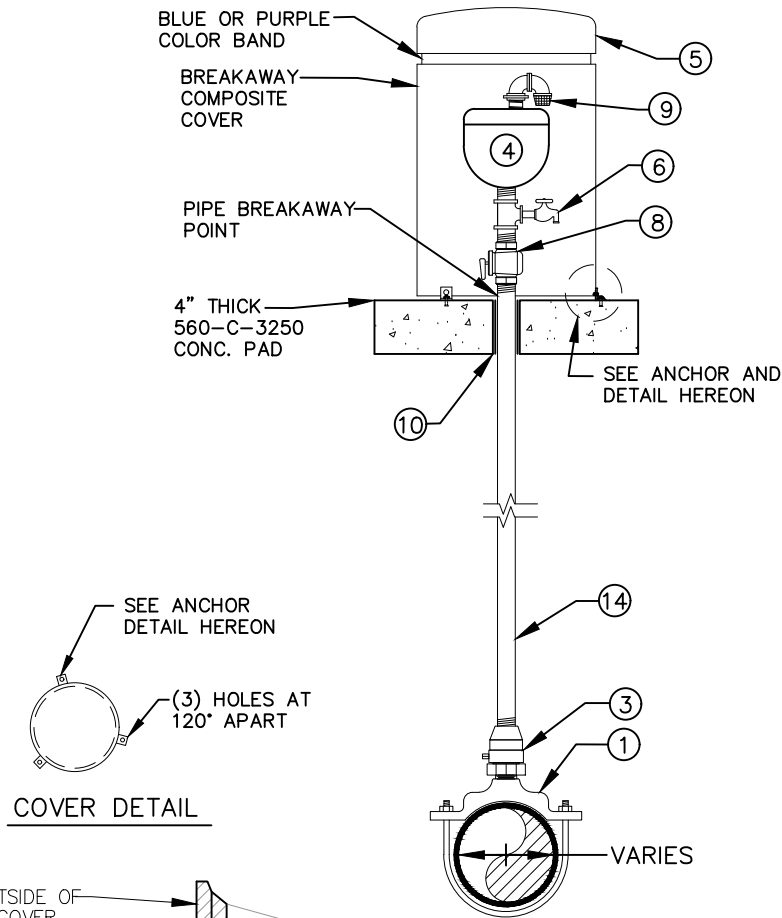
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COUNTY OF VENTURA  
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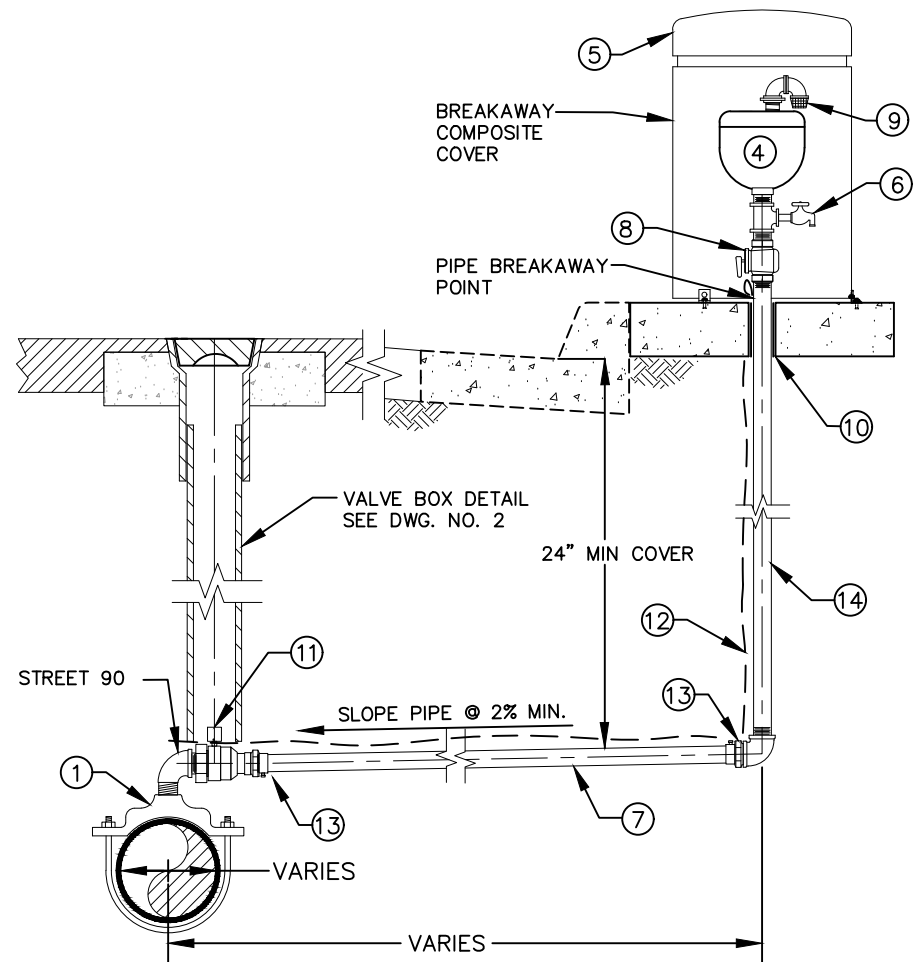
VALVE BOX  
INSTALLATION

# WATER & SANITATION CONSTRUCTION STANDARDS

# DRAWING W-3



ALT "A"



ALT "B"

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COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

AIR AND VACUUM VALVE  
INSTALLATION 1" AND 2"

SHEET 1 OF 2

# WATER & SANITATION CONSTRUCTION STANDARDS

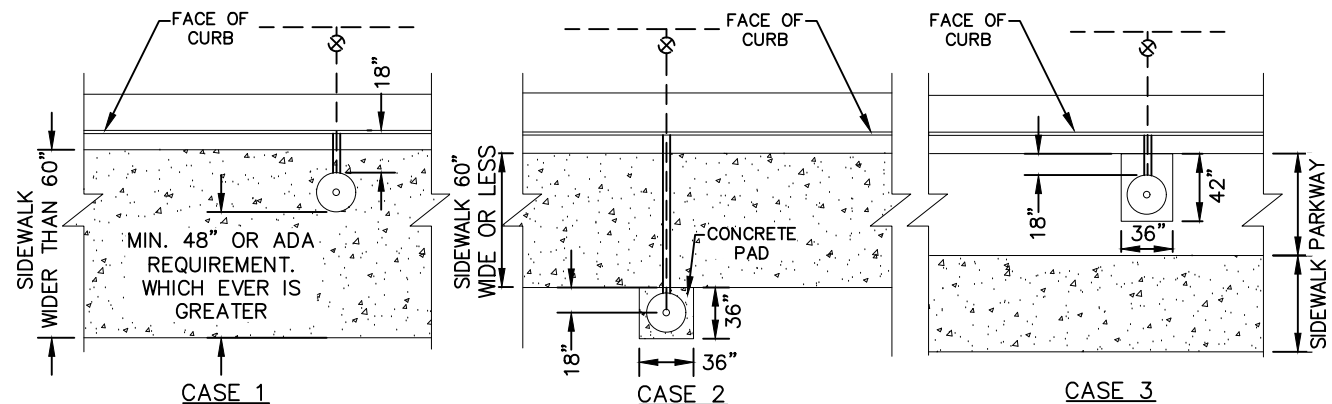
## DRAWING W-3

### CONSTRUCTION NOTES:

- ① WATER MAIN TAP SHALL BE PERFORMED BY HAND WITH AN APPROVED SERVICE SADDLE ON P.V.C., A.C.P. OR D.I. PIPE OR A WELDED COUPLING ON STEEL PIPE. (ALT "B" ONLY)
- ② IF AIR VALVE IS ANCHORED TO STRUCTURE, COVER SHALL BE OMITTED.
- ③ 1" OR 2" MIP X FIP BALL CORP. STOP VALVE.
- ④ AIR RELEASE/VACUUM BREAKER VALVE. (PAINTED PURPLE FOR RECLAIMED WATER)
- ⑤ VALVE COVER SHALL BE LOCATED PER APPLICABLE CASE 1, 2, OR 3, AS SHOWN HEREON. VALVE COVER SHALL BE COMPOSITE OR APPROVED EQUAL. FOR POTABLE WATER, COVER MUST HAVE A BLUE "COLOR BAND" AROUND TOP. FOR RECLAIMED WATER, COVER MUST HAVE PURPLE "COLOR BAND" AROUND TOP.
- ⑥ INSTALL 3/4" BRASS HOSE BIB.
- ⑦ 1" TYPE K COPPER OR 2" MUNICIPEX WATER SERVICE PIPE. SOLDERING TO COPPER IS NOT ALLOWED TO EXTEND RUN ON COMPRESSION FITTINGS.
- ⑧ BRASS BALL VALVE WITH LEVER HANDLE.
- ⑨ USE (2) BRASS STREET 90° ELBOWS WITH STAINLESS STEEL 1/8" MESH BUG SCREEN.
- ⑩ USE 30 POUND FELT OR POLYSTYRENE BOND BREAKER.
- ⑪ 1" OR 2" MIP X CTS PJ BALL CURB STOP VALVE WITH 2" OPERATING NUT ADAPTER ATTACHED.
- ⑫ DETECTABLE WARNING TAPE (FOR MUNICIPEX ALSO INCLUDE TRACER WIRE) PER DWG. NO. W-1.
- ⑬ CTS X MIP ADAPTOR WITH FIPT 90° ELBOW. MUNICIPEX CONNECTIONS REQUIRE ADDITIONAL SS PIPE STIFFENER, SPECIFIC TO CTS FITTING MFG.
- ⑭ USE SOLID PIECE OF BRASS PIPE AND RED BRASS FITTINGS. PIPE SHALL BE SAME SIZE AS AIR/VAC VALVE.

### NOTES:

1. AIR VAC ASSEMBLY SIZE SHALL BE 1" FOR 10" OR SMALLER PIPE SIZE AND 2" FOR 12" OR LARGER PIPE SIZE, OR AS DIRECTED BY DISTRICT.
2. FILL ANNULAR SPACE WITH SAND AND COMPACT. JETTING SHALL NOT BE PERMITTED.
3. WHERE INSTALLATION CONDITIONS ALLOW, EPOXY COAT TAP AT MAIN FOR DI AND STEEL PIPE.
4. BARRICADE SHALL CONFORM TO VCSS SECTION 306-10.5.



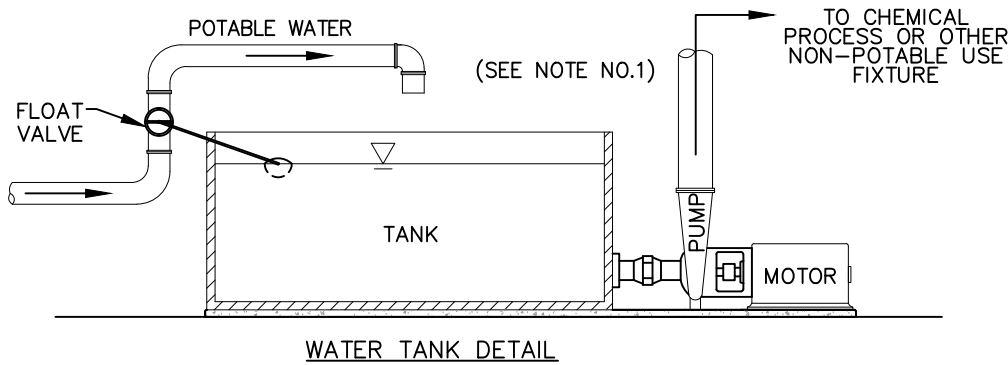
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		W&S DIRECTOR

### COUNTY OF VENTURA PUBLIC WORKS AGENCY

## AIR AND VACUUM VALVE INSTALLATION 1" AND 2"

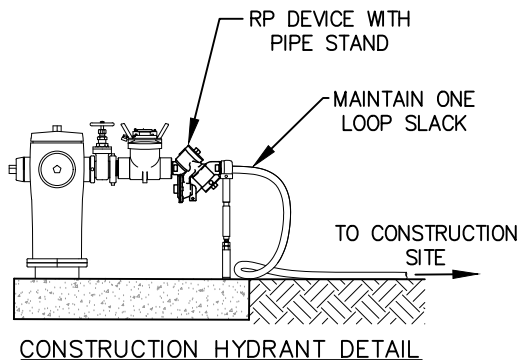
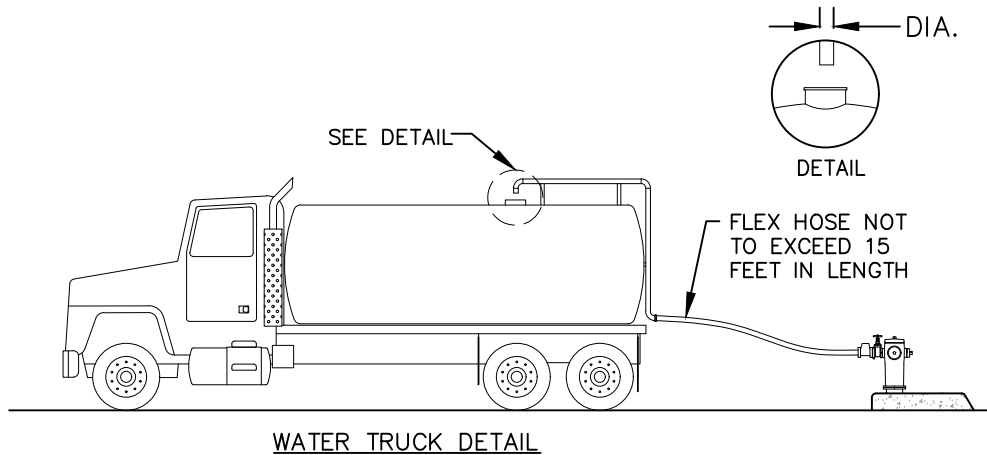
# WATER & SANITATION CONSTRUCTION STANDARDS

## DRAWING W-4



### NOTES:

1. ALL WATER TANKS SHALL BE EQUIPPED WITH AN APPROVED AIR GAP. THE AIR GAP SHALL BE AT LEAST TWICE (2X) THE DIAMETER OF THE SUPPLY PIPE AND IN NO CASE LESS THAN 1".
2. PIPE LINE BETWEEN METER AND AIR GAP SHALL BE EXPOSED WITH NO CONNECTIONS BETWEEN METER AND AIR GAP.
3. APPROVED RP DEVICE AND TEMPORARY PIPE STAND SHALL BE INSTALLED IF AIR GAP CANNOT BE MADE OR HOSE TO CONSTRUCTION SITE EXCEEDS 50 FEET. SEE CONSTRUCTION HYDRANT DETAIL.
4. ALL HOSES USED TO CONNECT PUBLIC WATER SYSTEM TO WATER TANKS OR CONSTRUCTION SITES SHALL BE KEPT IN SANITARY CONDITION AT ALL TIMES.
5. WHERE ELEVATED TANKS ARE HOOKED DIRECTLY TO FIRE HYDRANTS, AN AUTOMATIC VALVE SHALL BE REQUIRED THAT SHALL OPEN AND CLOSE AT A RATE THAT SHALL NOT CAUSE AN EXCESSIVE "HAMMER" TO THE SYSTEM.
6. USE GATE VALVES OR HYDRANT TO OPERATE WATER. BALL VALVES ARE NOT ALLOWED.



ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023

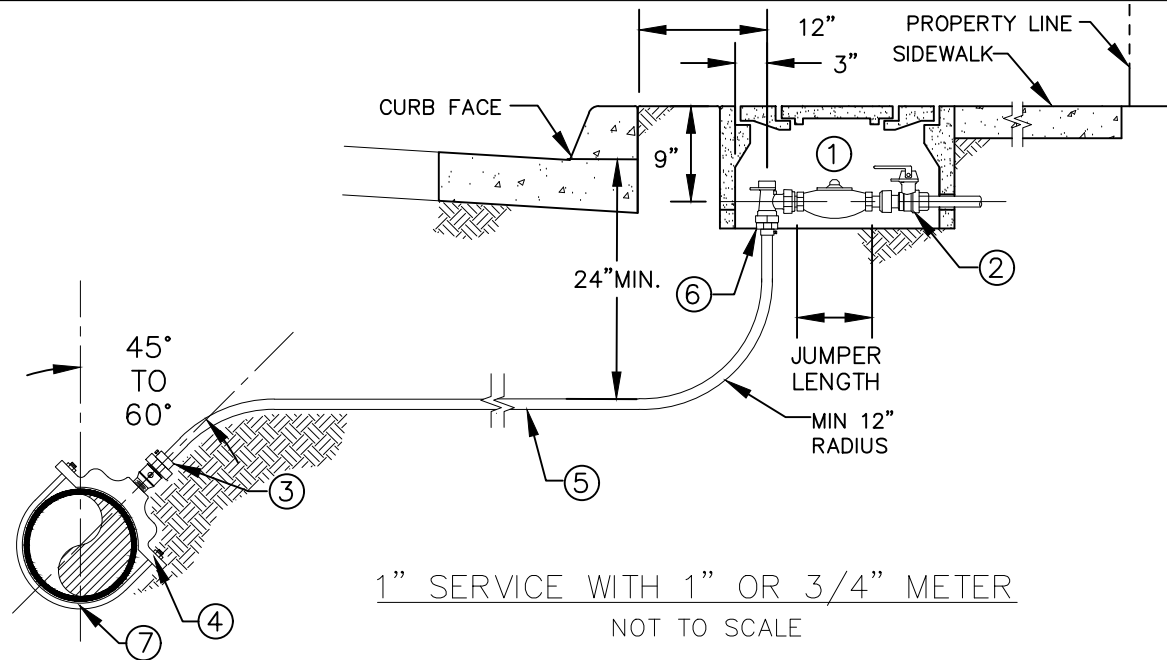
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COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

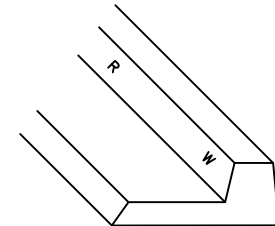
AIR GAP AND  
CONSTRUCTION WATER DETAIL

# WATER & SANITATION CONSTRUCTION STANDARDS

## DRAWING W-5



LOCATION OF LATERAL SHALL BE MARKED WITH A 2" HIGH "W" FOR POTABLE WATER OR "R" FOR RECYCLED WATER STAMPED INTO THE FACE OF THE CURB 1/4" DEEP. A WHEEL GRINDER CAN BE USED TO MAKE THE MARK WITH PRIOR DISTRICT INSPECTOR APPROVAL.



### NOTES:

- JUMPER SHALL BE SUPPLIED BY THE DISTRICT AND INSTALLED BY THE OWNER'S CONTRACTOR.
- FOR PARKWAY AND SIDEWALK CONSTRUCTION, DISTANCE TO R/W OR WHEN SLOPE INTERFERENCE EXISTS ANGLE METER STOP SHALL BE SET 12" BEHIND CURB ON 1" SERVICE.
- SOLDERING TO COPPER IS NOT ALLOWED TO EXTEND RUN ON COMPRESSION FITTINGS. USE SOLID PIECE OF PIPE.
- NO METER BOX SHALL BE LOCATED WITHIN SIDEWALK OR DRIVEWAY.
- COPPER PIPE SHALL BE WRAPPED WITH POLYETHYLENE CASING (10 MIL.).
- LOCATOR TAPE SHALL BE LAID ON TOP OF BEDDING MATERIAL.
- METER BOX LID MUST ACCEPT AMI ANTENNAS.
- NEW SERVICE SHALL BE MIN. 36" FROM OTHER SERVICES OR APPURTENANCES ON SAME SIDE OF MAIN OR 18" IF ON OPPOSITE SIDE.

### CONSTRUCTION NOTES:

- WATER METER FURNISHED BY DISTRICT.
- FIP X METER NUT CUSTOMER HAND VALVE WITH HANDLE.
- 1" MIP X PJ BALL CORP.
- SERVICE SADDLE TO BE ANGLED BETWEEN 60° AND 45°. HOT TAP SHALL BE BY HAND FOR ALL PIPE MATERIALS.
- 1" TYPE K COPPER SERVICE LINE.
- 1" CTS PJ X (1" OR 3/4") METER NUT BALL ANGLE STOP.
- DO NOT OVEREXCAVATE MAIN PIPELINE

ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023

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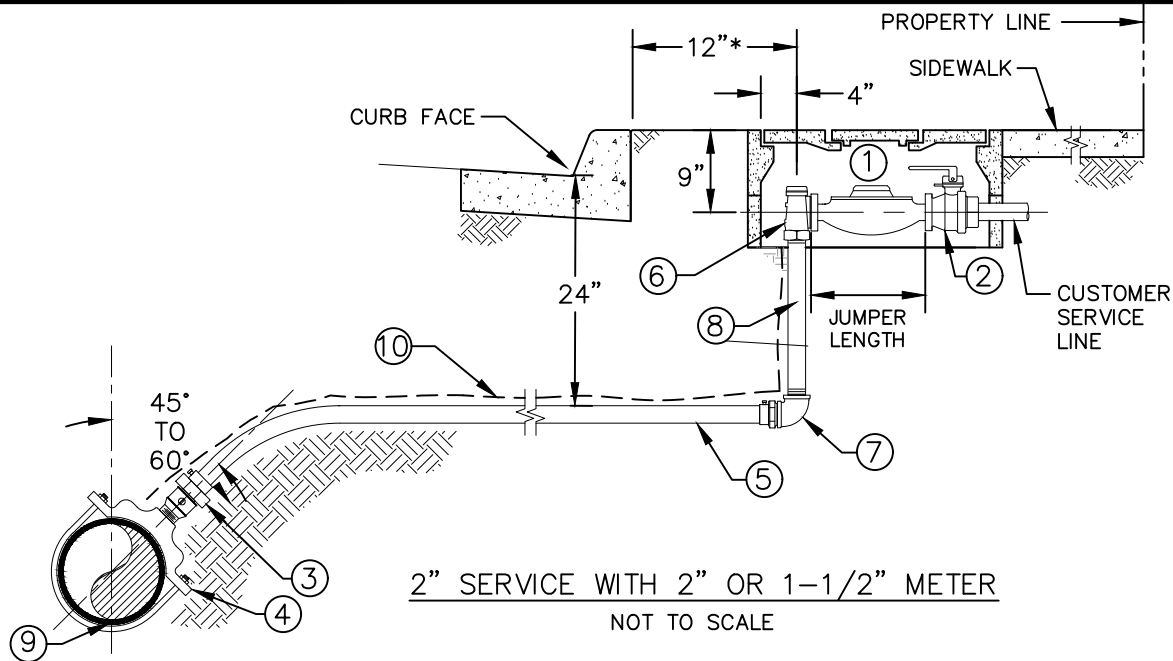
COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

1" WATER METER SERVICE  
INSTALLATION

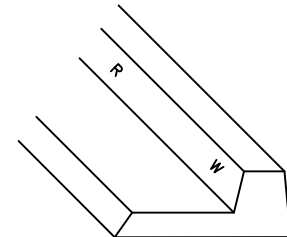


## WATER & SANITATION CONSTRUCTION STANDARDS

**DRAWING W-6**



LOCATION OF LATERAL SHALL BE MARKED WITH A 2" HIGH "W" FOR POTABLE WATER OR "R" FOR RECYCLED WATER STAMPED INTO THE FACE OF THE CURB 1/4" DEEP. A WHEEL GRINDER CAN BE USED TO MAKE THE MARK WITH PRIOR DISTRICT INSPECTOR APPROVAL.



CONSTRUCTION NOTES:

- ① WATER METER FURNISHED BY DISTRICT.
- ② 2" FIP X FL CUSTOMER HAND VALVE WITH HANDLE.
- ③ 2" MIP X PJ BALL CORP.
- ④ SERVICE SADDLE TO BE ANGLED BETWEEN 60° AND 45°. HOT TAP SHALL BE BY HAND FOR ALL PIPE MATERIALS.
- ⑤ 2" MUNICIPEX WATER SERVICE PIPE.
- ⑥ 2" FIP X FL BALL ANGLE STOP.
- ⑦ 2" MIP X CTS PJ ADAPTOR (TYP) WITH 2" FIP BRASS 90° ELBOW.
- ⑧ 2" THREADED BRASS NIPPLE – LENGTH TO FIT.
- ⑨ DO NOT OVEREXCAVATE MAIN PIPELINE.
- ⑩ 14 GA INSULATED COPPER LOCATOR WIRE TAPED TO SERVICE AT 5' INTERVALS.

NOTES:

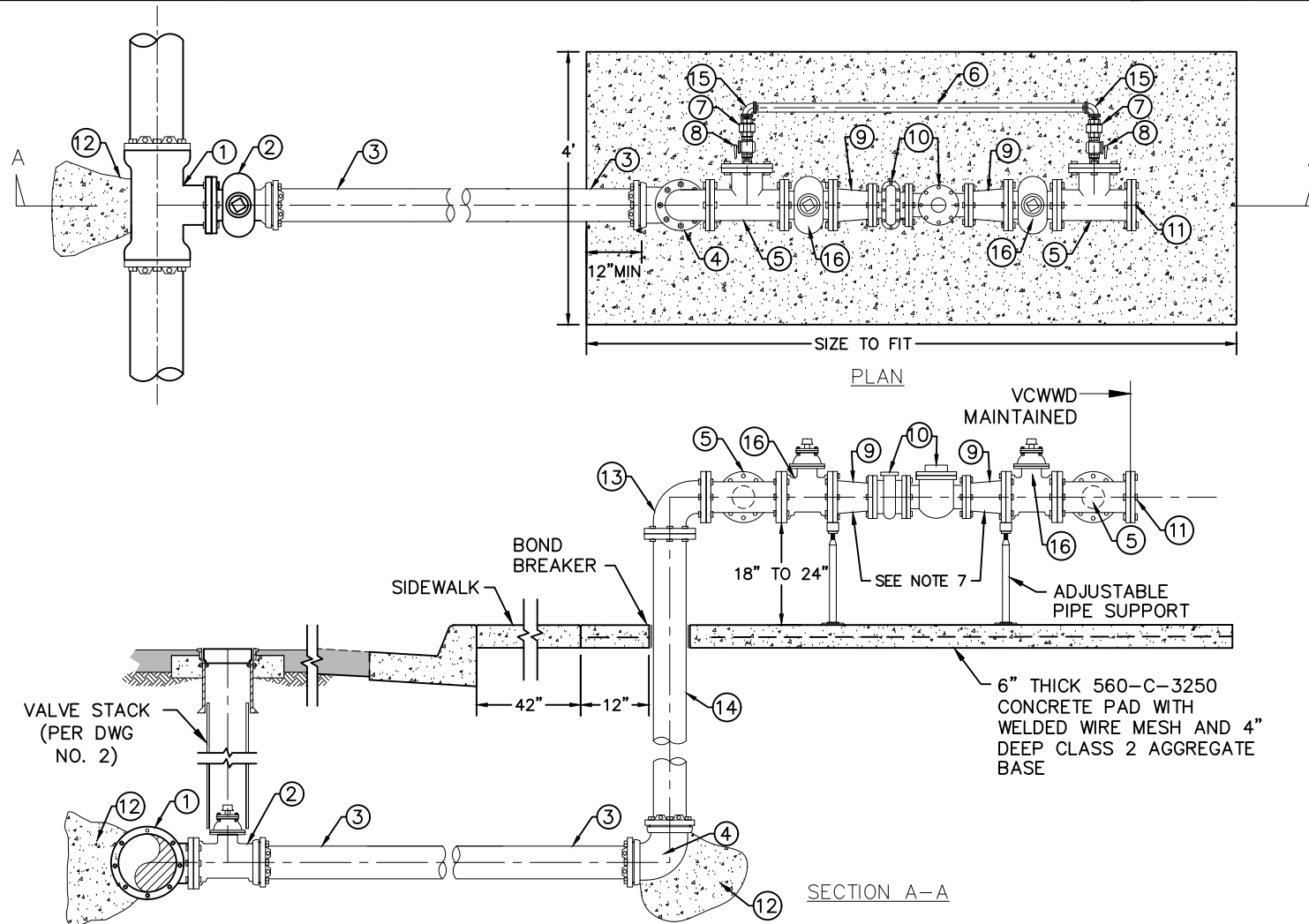
1. JUMPER SHALL BE SUPPLIED BY THE DISTRICT AND INSTALLED BY THE OWNER'S CONTRACTOR.
2. FOR PARKWAY AND SIDEWALK CONSTRUCTION, DISTANCE TO R/W OR WHEN SLOPE INTERFERENCE EXISTS ANGLE METER STOP SHALL BE SET 18" BEHIND CURB ON 2" SERVICE.
3. SOLDERING TO COPPER IS NOT ALLOWED TO EXTEND RUN ON COMPRESSION FITTINGS. USE SOLID PIECE OF PIPE.
4. NO METER BOX SHALL BE LOCATED WITHIN SIDEWALK OR DRIVEWAY.
5. COPPER PIPE SHALL BE WRAPPED WITH POLYETHYLENE CASING (10 MIL.).
6. LOCATOR TAPE SHALL BE LAID ON TOP OF BEDDING MATERIAL.
7. METER BOX MUST ACCEPT AMI ANTENNAS.
8. NEW SERVICE SHALL BE MIN. 36" FROM OTHER SERVICES OR APPURTENANCES ON SAME SIDE OF MAIN OR 18" IF ON OPPOSITE SIDE.
9. MUNICIPEX CONNECTIONS REQUIRE SS PIPE STIFFENER, SPECIFIC TO CTS FITTING MFG.
10. HOT TAP ONLY ALLOWED FOR NEW SERVICES THAT ARE LESS THAN 1/2 MAIN DIAMETER.

ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023		
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		W&S DIRECTOR

**COUNTY OF VENTURA  
PUBLIC WORKS AGENCY**

## 2" WATER METER SERVICE INSTALLATION

\*DISTANCE FROM SIDEWALK  
IF NO PARKWAY STRIP



ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023

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DATE:

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COUNTY OF VENTURA  
PUBLIC WORKS AGENCY3" OR 4" METER ASSEMBLY  
PLAN AND PROFILE

SHEET 1 OF 2

# WATER & SANITATION CONSTRUCTION STANDARDS

# DRAWING W-7

## CONSTRUCTION NOTES:

- ① (MAIN SIZE) MJ X 4" FLG DI TEE.
- ② 4" RESILIENT WEDGE GATE VALVE, FLG X MJ WITH RESTRAINT.
- ③ 4" DI PIPE, CLASS 52.
- ④ 4" DI 90° ELBOW, MJ X MJ WITH RESTRAINTS.
- ⑤ 4" FLG TEE, W/ 4" X 2" COMPANION FLG.
- ⑥ 2" BRASS PIPE, BYPASS ASSEMBLY.
- ⑦ 2" BRASS UNION, FIPT X FIPT.
- ⑧ 2" BRASS BALL VALVE WITH LOCKING HANDLE.
- ⑨ 4" X 3" DI REDUCER, FLG X FLG FOR 3" METER ASSEMBLY ONLY.
- ⑩ WATER METER AND STRAINER ASSY. SIZE TO BE DETERMINED AND SUPPLIED BY THE DISTRICT.
- ⑪ 4" BLIND FLANGE, CONNECT TO DOUBLE DETECTOR CHECK VALVE PER DWG NO. W-13.
- ⑫ INSTALL THRUST BLOCK PER DWG NO. W-19.
- ⑬ 4" DI 90° FLG ELBOW FLG X FLG.
- ⑭ 4" DI SPOOL FLG X PE, CUT TO LENGTH.
- ⑮ 2" BRASS 90° ELBOW FIPT X FIPT.
- ⑯ 4" RESILIENT WEDGE GATE VALVE, FLG X FLG.

## NOTES:

1. THIS DETAIL IS FOR GENERAL INSTALLATION CONDITIONS ONLY. EACH INDIVIDUAL INSTALLATION SHALL BE APPROVED BY THE DISTRICT PRIOR TO CONSTRUCTION.
2. METER SIZE AND TYPE SHALL BE DETERMINED BY THE DISTRICT.
3. METER INSTALLATION IMPROVEMENTS BEYOND DISTRICT RIGHT-OF-WAY REQUIRE AN EASEMENT AS DIRECTED BY THE DISTRICT.
4. WHEN RETAINING WALL IS REQUIRED TO ACCOMMODATE GRADE VARIATIONS THE WALL SHALL BE CONSTRUCTED PER SSPWC STANDARDS AND SHOULD PROVIDE PROPER CLEARANCE FROM THE IMPROVEMENTS.
5. ABOVE GROUND PORTION OF ASSEMBLY SHALL BE PAINTED FOREST GREEN.
6. ABOVE GROUND FITTINGS SHALL BE BRASS/STAINLESS.
7. 4" METER ASSEMBLY REQUIRES TWO 4" FLG X FLG DI PIPE SPOOLS IN PLACE OF REDUCERS, SEE TABLE FOR LENGTH.
8. ISOLATION VALVES FOR MAIN MAY BE REQUIRED AT DISTRICT'S DISCRETION.

METER SIZE	STRAINER LENGTH	METER LENGTH	4" X 3" RED. LENGTH	STRAIGHT PIPE SPOOL
3"	7"	12"	7" EACH	N/A
4"	9"	14"	N/A	5" EACH

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COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

3" OR 4" METER ASSEMBLY  
PLAN AND PROFILE

SHEET 2 OF 2

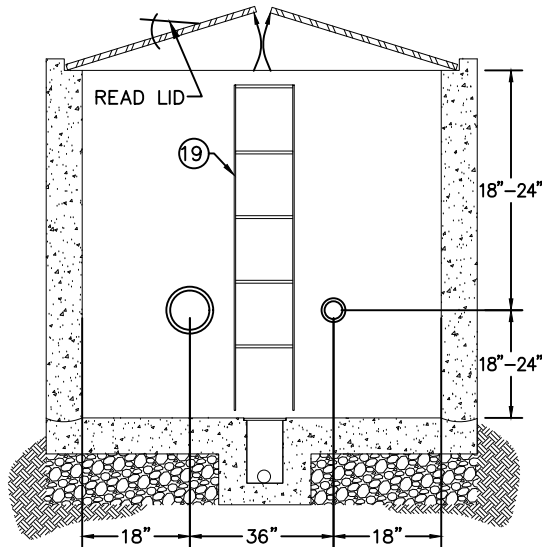


# WATER & SANITATION CONSTRUCTION STANDARDS

# DRAWING W-8

## NOTES:

1. THIS DETAIL IS FOR GENERAL INSTALLATION CONDITIONS ONLY. EACH INDIVIDUAL INSTALLATION SHALL BE APPROVED BY THE DISTRICT PRIOR TO CONSTRUCTION.
2. METER SIZE AND TYPE SHALL BE DETERMINED BY THE DISTRICT.
3. METER INSTALLATION IMPROVEMENTS BEYOND DISTRICT RIGHT-OF-WAY REQUIRE AN EASEMENT AS DIRECTED BY THE DISTRICT.
4. WHEN RETAINING WALL IS REQUIRED TO ACCOMMODATE GRADE VARIATIONS THE WALL SHALL BE CONSTRUCTED PER SSPWC STANDARDS AND SHOULD PROVIDE PROPER CLEARANCE FROM THE IMPROVEMENTS.
5. ASSEMBLY SHALL BE FOREST GREEN.
6. 4" METER ASSEMBLY REQUIRES TWO 4" FLG X FLG PIPE SPOOLS IN PLACE OF REDUCER, SEE TABLE FOR LENGTH.
7. ISOLATION VALVES FOR MAIN MAY BE REQUIRED AT DISTRICT'S DISCRETION.



## CONSTRUCTION NOTES:

- ① (MAIN SIZE) MJ X 4" FLG DI TEE.
- ② 4" RW GATE VALVE, FLG X MJ WITH RESTRAINT.
- ③ 4" DI PIPE, CLASS 52.
- ④ 4" DI 90° ELBOW, MJ X MJ WITH RESTRAINTS.
- ⑤ 4" TEE, FLG X FLG W/ 4" X 2" COMPANION FLG.
- ⑥ 2" BRASS PIPE, BYPASS ASSEMBLY.
- ⑦ 2" BRASS UNION, FIPT X FIPT.
- ⑧ 2" BRASS BALL VALVE WITH LOCKING HANDLE.
- ⑨ 4" X 3" DI REDUCER, FLG X FLG FOR 3" METER ASSEMBLY ONLY.
- ⑩ WATER METER AND STRAINER ASSY. SIZE TO BE DETERMINED AND SUPPLIED BY THE DISTRICT.
- ⑪ 4" BLIND FLANGE, CONNECT TO DOUBLE DETECTOR CHECK VALVE PER DWG NO. W-12.
- ⑫ INSTALL THRUST BLOCK PER DWG NO. W-19.
- ⑬ 4" DI 90° ELBOW FLG X FLG.
- ⑭ 4" DI SPOOL FLG X PE, CUT TO LENGTH.
- ⑮ 2" BRASS 90° ELBOW FIPT X FIPT.
- ⑯ INSTALL 24" x 24" CONCRETE BOX FOR FLOOR DRAIN.
- ⑰ 4" RW GATE VALVE, FLG X FLG.
- ⑱ STAINLESS STEEL LADDER.
- ⑲ 4" VICTAULIC COUPLING.
- ⑳ 3/4" CRUSHED AGGREGATE BASE @ 95% COMPACTION.
- ㉑ SUBMIT 6' X 6' INSIDE DIMENSION PRECAST VAULT OR ENGINEERED VAULT DESIGN FOR APPROVAL.
- ㉒ OVEREXCAVATE 12" AND COMPACT TO 90% AT LEAST 1' OUTSIDE OF THE VAULT FOOTPRINT.
- ㉓ 3/4" LOOSE CRUSHED AGGREGATE BASE.

METER SIZE	STRAINER LENGTH	METER LENGTH	4"X3" RED. LENGTH	STRAIGHT PIPE SPOOL LENGTH
3"	7"	12"	7" EACH	N/A
4"	9"	14"	N/A	5" EACH

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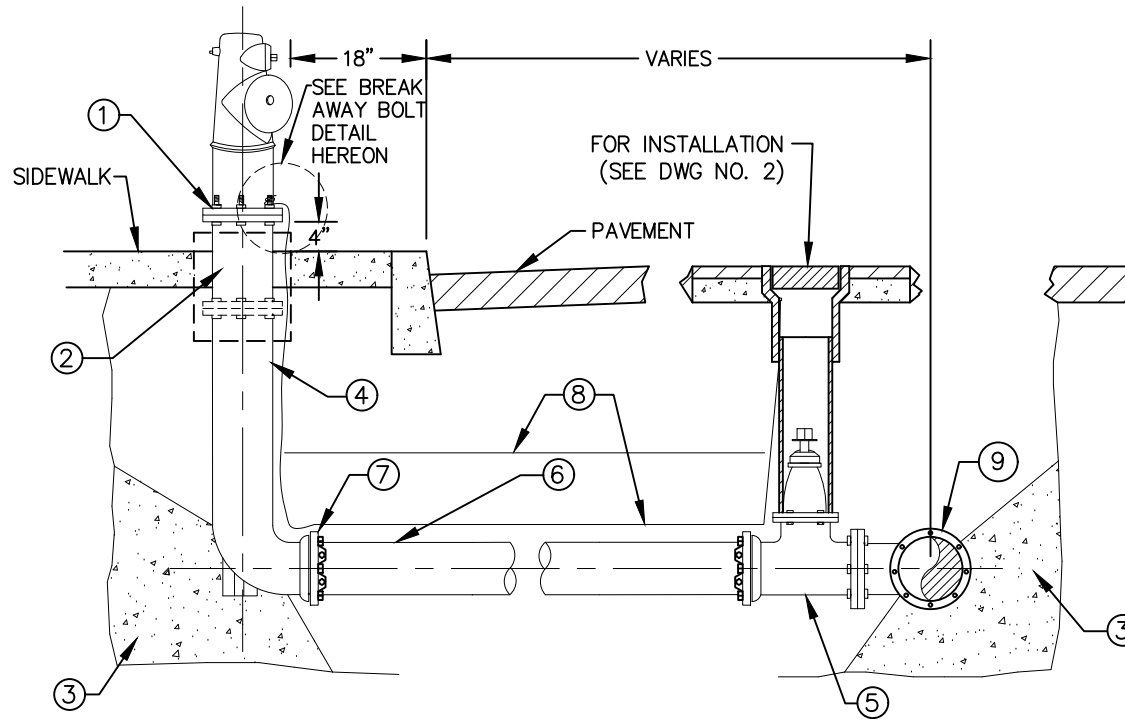
COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

3" OR 4" METER ASSEMBLY  
PLAN AND PROFILE (VAULT)

SHEET 2 OF 2

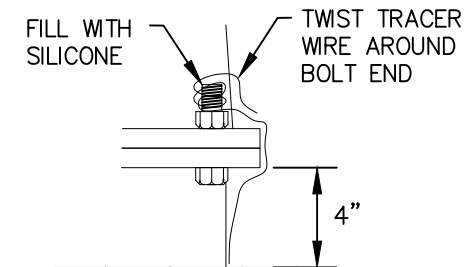
# WATER & SANITATION CONSTRUCTION STANDARDS

# DRAWING W-9



## CONSTRUCTION NOTES:

- ① USE ZINC PLATED, DRILLED BREAK-AWAY BOLTS (BOLT FACING UP) WITH SILICONE SEALANT. HYDRANT GASKETS SHALL BE FULL FACE AND RUBBER COMPOSITION.
- ② BREAK-AWAY SPOOLS NOT ALLOWED FOR INSTALLATIONS WITH CONCRETE PAD. USE EXTENSION SPOOLS IF NEEDED.
- ③ THRUST BLOCK PER DWG NO. W-19.
- ④ 6" FLG X MJ DI BURY.
- ⑤ 6" RESILIENT WEDGE GATE VALVE, FLG X MJ WITH RESTRAINT.
- ⑥ IF THE STATIC WATER PRESSURE AT THE POINT OF HYDRANT INSTALLATION EXCEEDS 130 PSIG, PIPE SHALL BE CLASS 52 D.I.P.
- ⑦ ALL JOINTS AND FITTINGS SHALL BE RESTRAINED.
- ⑧ DETACTABLE TAPE AND TRACER WIRE PER DWG NO.1.
- ⑨ (MAIN SIZE) MJ X 6" FLG DI TEE.



BREAK AWAY BOLT DETAIL

## NOTES:

1. FIRE HYDRANT CAPS AND OPERATOR STEMS SHALL BE EQUIPPED WITH OPERATOR NUTS MEASURING 1-3/4" POINT TO FLAT.
2. FIRE HYDRANT SHALL BE PAINTED SAFETY YELLOW.
3. NO PART OF THE HYDRANT FLANGE, BURY FLANGE OR ADJUSTING SPOOL FLANGE SHALL BE WITHIN THE CONCRETE SIDEWALK.
4. 4" OUTLET SHALL BE PERPENDICULAR TO THE CURB LINE.
5. INSTALLATION IN AREAS NOT IN SIDEWALK REQUIRES 42" X 42" X 4" CONCRETE PAD.
6. ALL SUB-GRADE INSTALLATIONS SHALL BE WRAPPED IN 10 MIL. POLYETHYLENE WRAP.

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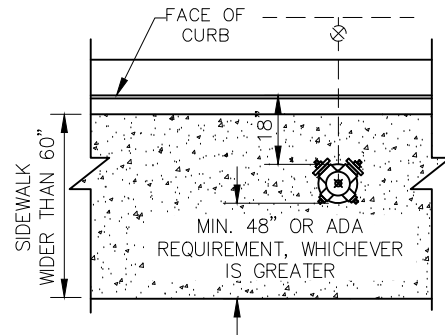
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FIRE HYDRANT INSTALLATION

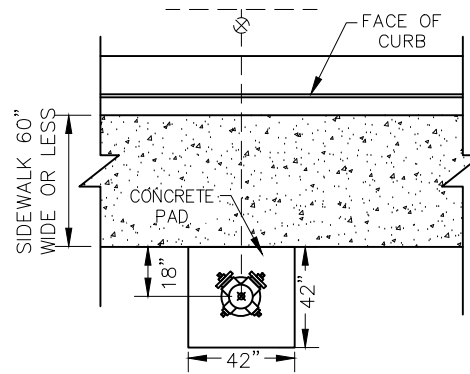
SHEET 1 OF 2

# WATER & SANITATION CONSTRUCTION STANDARDS

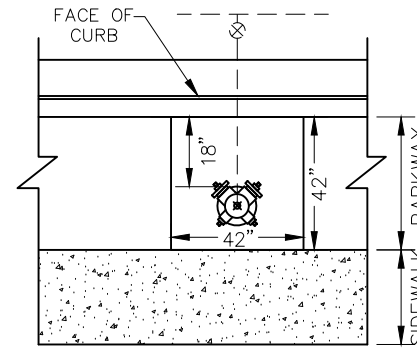
# DRAWING W-9



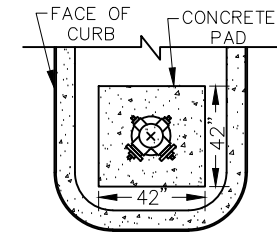
CONDITION 1



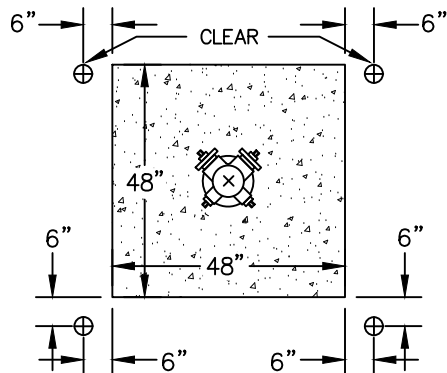
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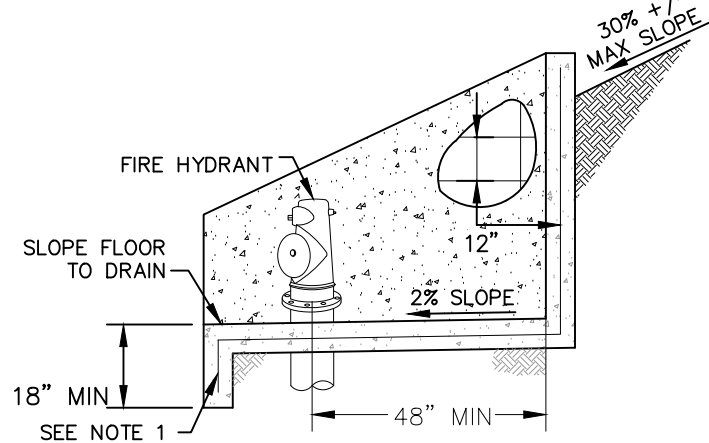
CONDITION 3



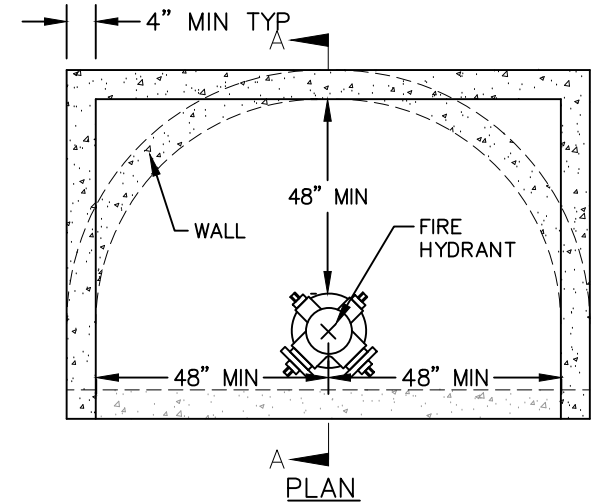
CONDITION 4



BARRICADE PLACEMENT  
(WHEN SPECIFIED)



SECTION A-A  
CONCRETE (OR BLOCK) RETAINING WALL  
(TO BE USED WHERE GROUND SLOPE  
EXCEEDS 30% OR AS REQUIRED)



## NOTES:

1. ALL REBAR SHALL BE NO. 4 @ 12" O.C., CONCRETE BLOCK MAY BE SUBSTITUTED FOR WALL SECTION. CONSULT LOCAL BUILDING AND SAFETY FOR ALL WALLS HIGHER THAN 30". CONSULT LOCAL AUTHORITY FOR SIDEWALK BUMP-OUT IN CONDITION 2.
2. BARRICADES SHALL CONFORM TO VCSS SECTION 306-10.5.
3. LOCATION OF FRONT BARRICADES SHALL BE ADJUSTED TO PROVIDE CLEARANCE FOR DISCHARGE PIPING.

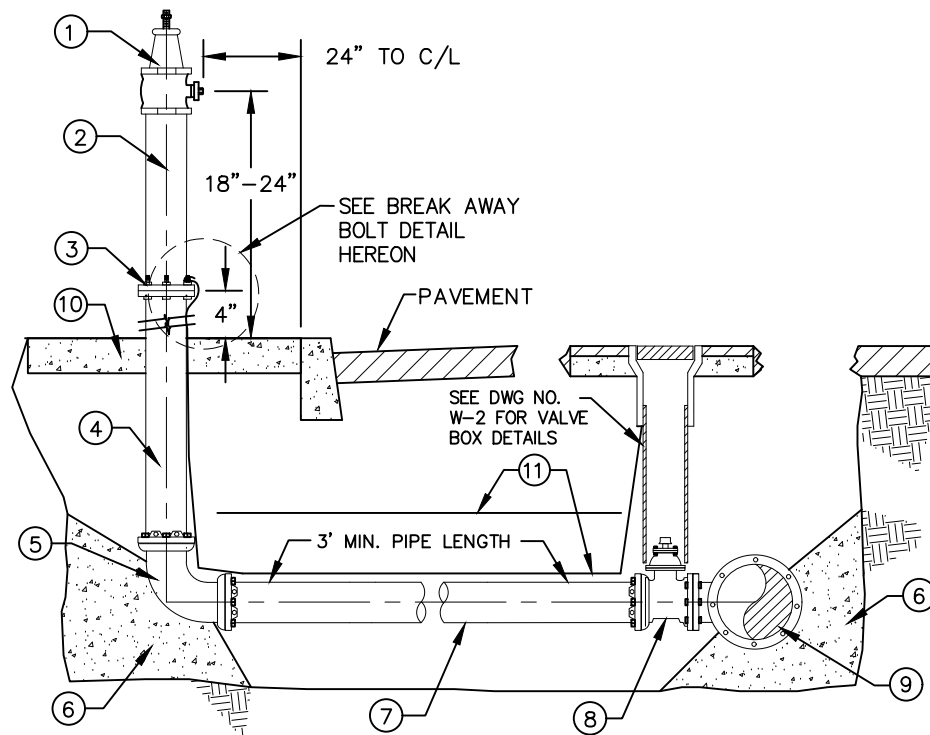
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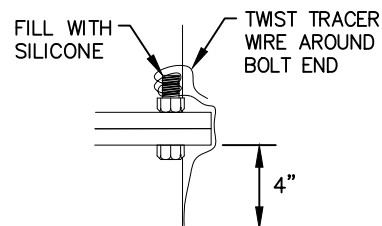
COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

FIRE HYDRANT INSTALLATION

SHEET 2 OF 2



2-1/2" x 4" PERMANENT LINE BLOW-OFF  
NOT TO SCALE



BREAK AWAY BOLT DETAIL

#### CONSTRUCTION NOTES:

- ① 2 1/2" X 4" WHARF HEAD FIRE HYDRANT.
- ② 4" BRASS OR STAINLESS STEEL NIPPLE, MIPT X MIPT.
- ③ 4" STAINLESS STEEL COMPANION FLANGE X FIPT, ( ZINC PLATED DRILLED BREAK AWAY BOLTS, BOLTS FACING UP, WITH SILICONE SEALANT).
- ④ 4" CL 52 DI FLG X PE SPOOL, CUT TO LENGTH.
- ⑤ 4" DI 90° BASE ELBOW, MJ X MJ WITH RESTRAINTS.
- ⑥ THRUST BLOCK PER DWG NO. W-19.
- ⑦ 4" CL 52 DI PIPE.
- ⑧ 4" RESILIENT WEDGE GATE VALVE, FLG X MJ WITH RESTRAINT.
- ⑨ (MAIN SIZE) MJ X 4" FLG DI TEE.
- ⑩ 560-C-3250 CONCRETE PAD.
- ⑪ DETECTABLE TAPE AND TRACER WIRE PER DWG NO.1.

#### NOTES:

1. FOR DEAD END BLOW-OFF USE 4" REDUCER IN PLACE OF TEE. FOR ROADS WITHOUT CURBS, BLOW-OFFS SHALL BE LOCATED WITHIN THE ROAD RIGHT-OF-WAY, ONE FOOT CLEAR FROM PROPERTY LINE.
2. BLOW OFF HYDRANT AND RISER SHALL BE PAINTED DESERT TAN.
3. NO PART OF THE BLOW-OFF FLANGE OR ADJUSTING SPOOL FLANGE SHALL BE WITHIN THE CONCRETE SIDEWALK.
4. PIPE SHALL BE WRAPPED WITH POLYETHYLENE CASING (10 MIL).

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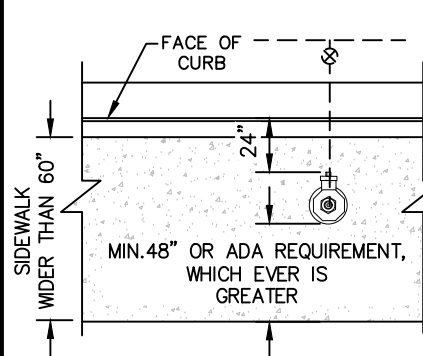
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PUBLIC WORKS AGENCY

4" BLOW OFF INSTALLATION

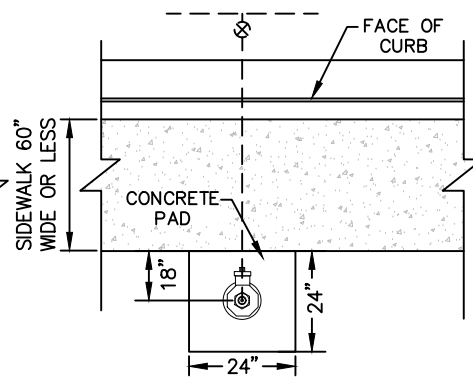


# WATER & SANITATION CONSTRUCTION STANDARDS

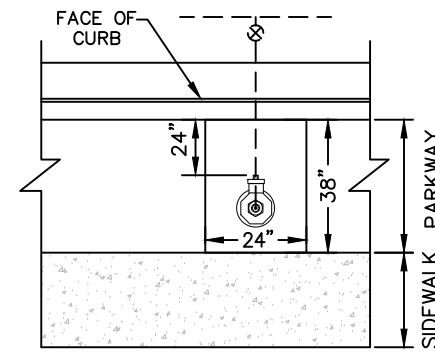
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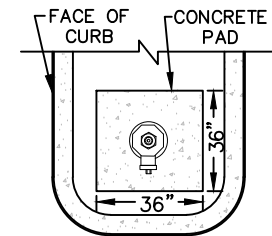
CONDITION 1



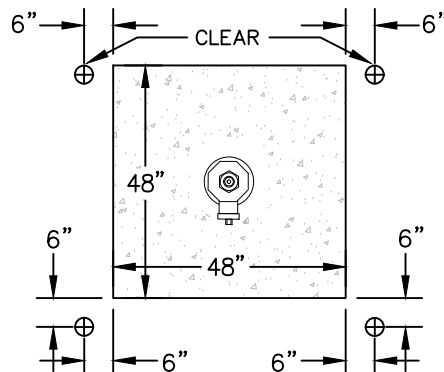
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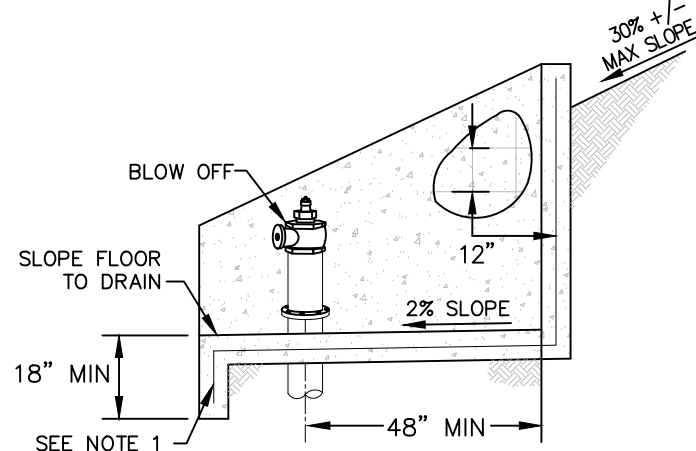
CONDITION 3



CONDITION 4

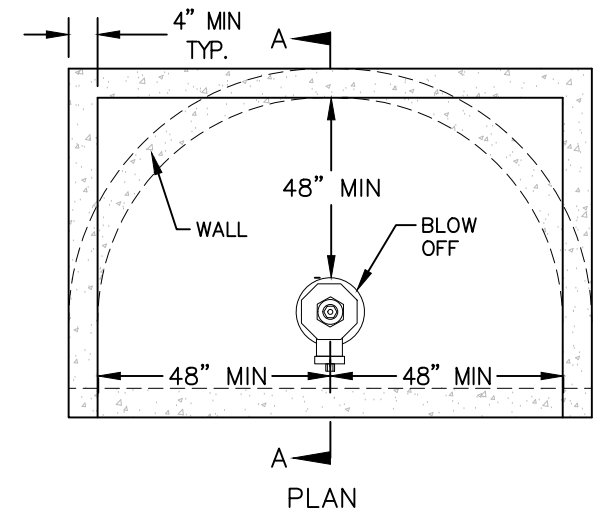


BARRICADE PLACEMENT  
(WHEN SPECIFIED)



SECTION A-A  
CONCRETE (OR BLOCK) RETAINING WALL

(TO BE USED WHERE GROUND SLOPE  
EXCEEDS 30% OR AS REQUIRED)



PLAN

## NOTES:

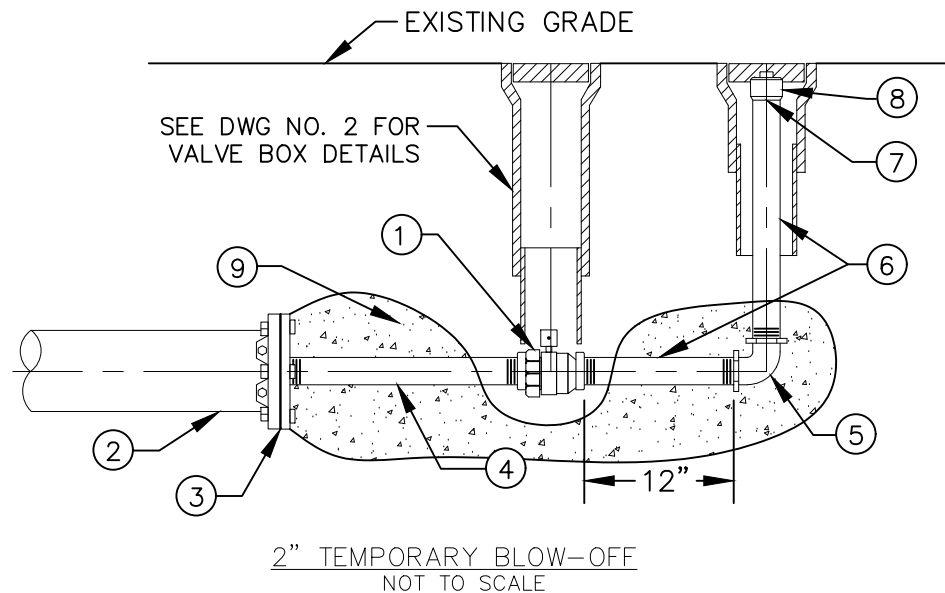
1. ALL REBAR SHALL BE NO. 4 @ 12" O.C. CONCRETE BLOCK MAY BE SUBSTITUTED FOR WALL SECTION. CONSULT LOCAL BUILDING AND SAFETY FOR ALL WALLS HIGHER THAN 30". CONSULT LOCAL AUTHORITY FOR SIDEWALK BUMP-OUT IN CONDITION 2.
2. BARRICADES SHALL CONFORM TO VCSS SECTION 306-10.5.
3. LOCATION OF FRONT BARRICADES SHALL BE ADJUSTED TO PROVIDE CLEARANCE FOR DISCHARGE PIPING.

ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023

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COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

4" BLOW OFF INSTALLATION



CONSTRUCTION NOTES:

- ① 2" FIP X FIP BALL CURB STOP VALVE WITH 2" OPERATING NUT ADAPTER ATTACHED.
- ② WATER MAINLINE, SIZE VARIES.
- ③ RESTRAINED MJ CAP WITH 2" FIPT TAP.
- ④ 2" BRASS NIPPLE THROUGH CONCRETE (NOTE: DO NOT ENCASE THE BALL VALVE IN CONCRETE.)
- ⑤ 2" 90° BRASS ELBOW, FIPT X FIPT.
- ⑥ 2" BRASS NIPPLE.
- ⑦ 2" BRASS COUPLING, FIPT X FIPT.
- ⑧ 2" BRASS SQUARE HEAD PLUG, MIPT.
- ⑨ INSTALL THRUST BLOCK PER DWG NO. W-19.

NOTES:

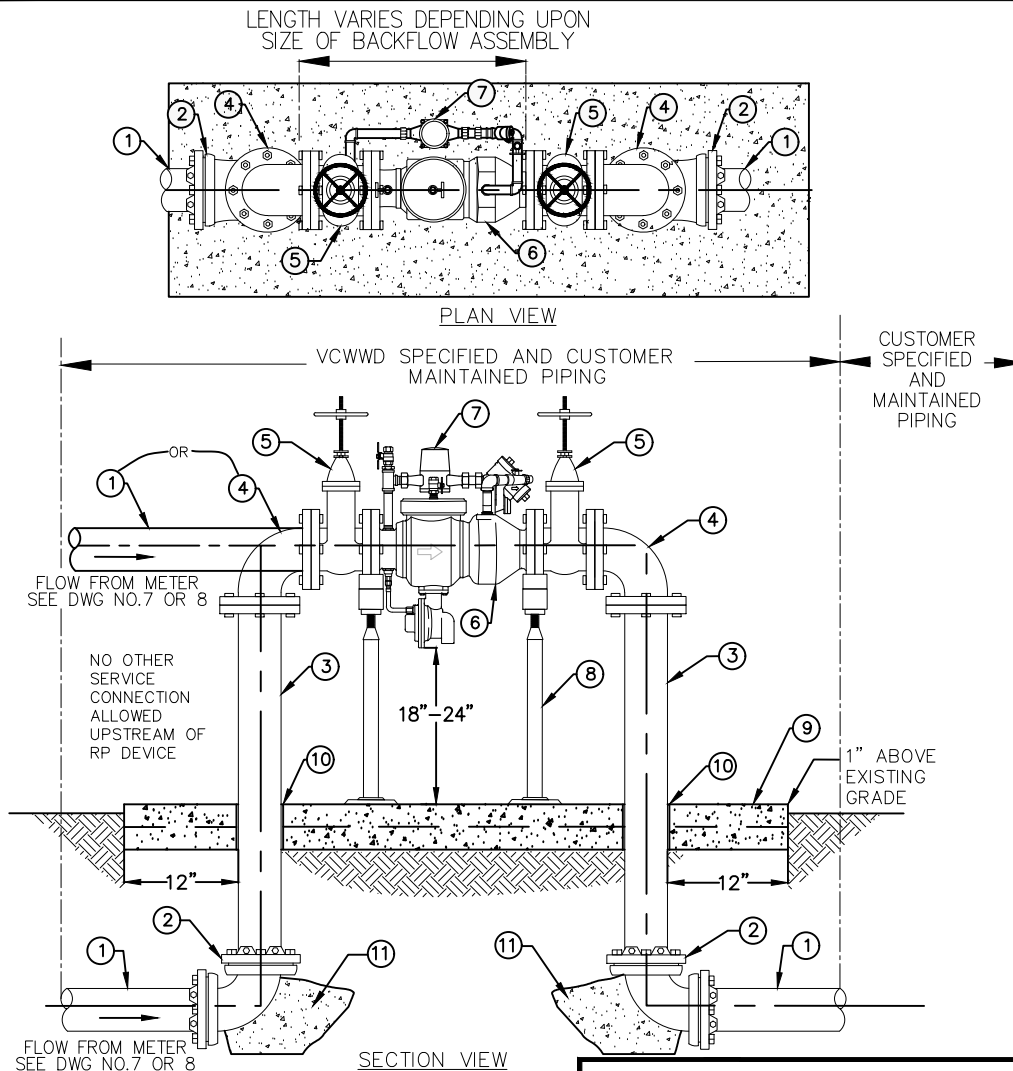
1. FOR ROADS WITHOUT CURBS, BLOW-OFFS SHALL BE LOCATED WITHIN THE ROAD RIGHT-OF-WAY, ONE FOOT CLEAR FROM PROPERTY LINE.
2. PIPE SHALL BE WRAPPED WITH POLYETELYNE CASING (10 MIL).

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COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

TEMPORARY  
2" BLOW OFF INSTALLATION



## CONSTRUCTION NOTES

- ① DI CL 52 PIPE.
- ② DI 90° ELBOW, MJ X MJ WITH RESTRAINTS.
- ③ DI FLG X PE SPOOL, CUT TO LENGTH.
- ④ DI 90° ELBOW, FLG X FLG.
- ⑤ FLG X FLG RESILIENT WEDGE GATE VALVE, RISING STEM.
- ⑥ REDUCED PRESSURE BACKFLOW DEVICE.
- ⑦ FACTORY INSTALLED BYPASS ASSEMBLY CONSISTING OF APPROVED POSITIVE DISPLACEMENT METER, DOUBLE CHECK VALVE AND ASSORTED PIPING.
- ⑧ ADJUSTABLE PIPE SUPPORT WITH SS ANCHORS.
- ⑨ 6" THICK 560-C-3250 CONC. PAD, 12" OUTSIDE ASSEMBLY
- ⑩ EXPANSION JOINT, USE POLYSTYRENE BOND BREAKER.
- ⑪ CONCRETE THRUST BLOCK PER DWG NO. W-19.

## NOTES:

1. THIS DETAIL IS FOR GENERAL INSTALLATION CONDITIONS ONLY. EACH INDIVIDUAL INSTALLATION SHALL BE APPROVED BY THE DISTRICT PRIOR TO CONSTRUCTION.
2. RP DEVICE SHALL BE TESTED BY COUNTY APPROVED TESTER WITHIN 48 HOURS OF SERVICE ACTIVATION. CONTACT COUNTY ENVIRONMENTAL & HEALTH DEPARTMENT FOR APPROVED TESTER LIST.
3. RP DEVICE SHALL BE INSPECTED AND APPROVED BY THE DISTRICT PRIOR TO ACCEPTANCE.
4. MAINTAIN 18" CLEARANCE FROM REDUCED PRESSURE BACKFLOW DEVICE RELIEF OUTLET TO CONCRETE PAD.

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COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

3" OR GREATER REDUCED  
PRESSURE BACKFLOW  
DEVICE

**WATER & SANITATION CONSTRUCTION STANDARDS****DRAWING W-12**NOTES:

5. BACKFLOW ASSEMBLY SHALL BE A MINIMUM OF 36" FROM ANY STRUCTURE, CURB, OR SIDEWALK.
6. BRASS PLUGS SHALL BE PLACED IN ALL TEST VALVE OUTLETS.
7. ALL SUB-GRADE INSTALLATIONS SHALL BE WRAPPED IN 10-MIL POLYETHYLENE CASING.
8. MULTIPLE BACKFLOW DEVICES IN THE SAME VICINITY SHALL BE THE SAME HEIGHT.
9. ABOVE GROUND PORTION OF ASSEMBLY SHALL BE PAINTED FOREST GREEN.
10. ONLY RIGID PIPING ALLOWED BETWEEN METER AND RP DEVICE.
11. MAX 10' DISTANCE BETWEEN METER AND RP DEVICE.

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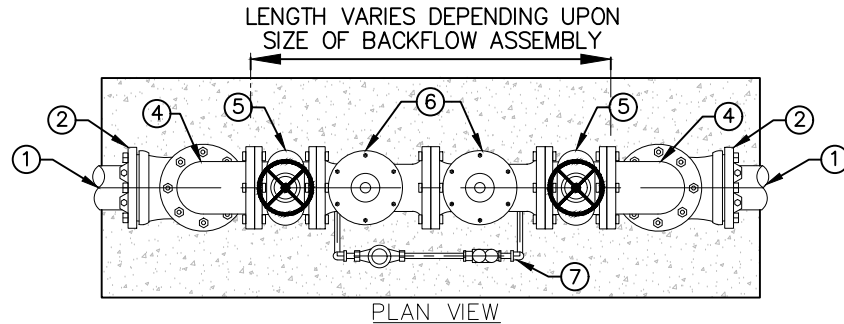
**COUNTY OF VENTURA  
PUBLIC WORKS AGENCY**

3" OR GREATER REDUCED  
PRESSURE BACKFLOW  
DEVICE

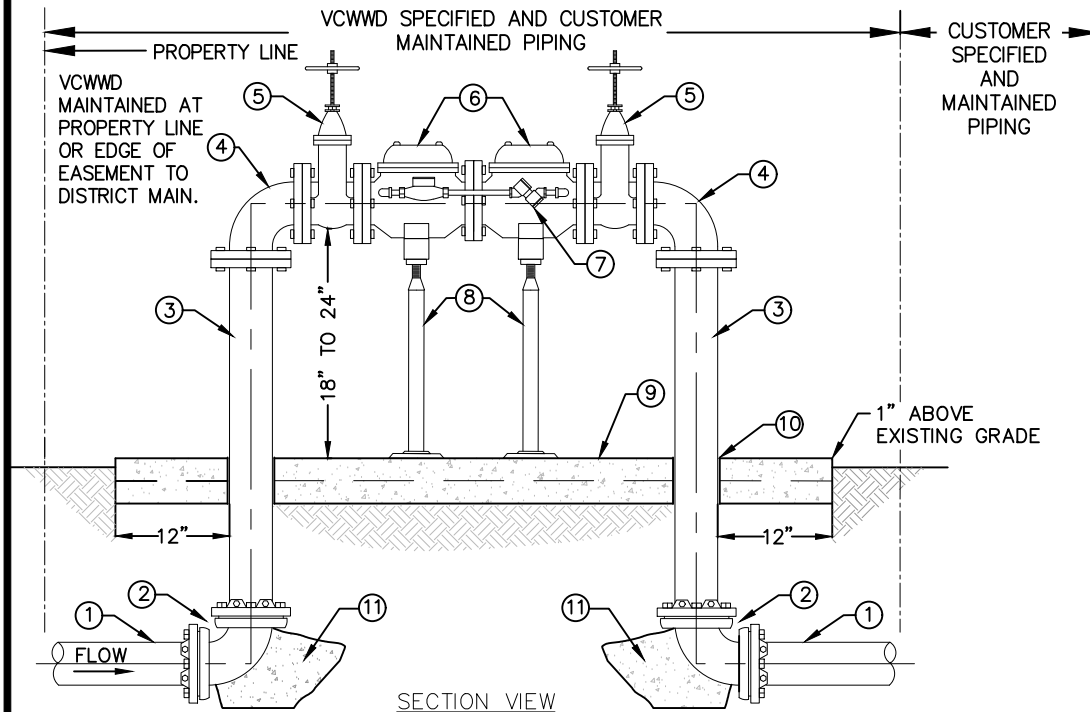
SHEET 2 OF 2

# WATER & SANITATION CONSTRUCTION STANDARDS

# DRAWING W-13



PLAN VIEW



SECTION VIEW

## CONSTRUCTION NOTES:

- ① DI CL-52 PIPE.
- ② DI 90° ELBOW, MJ X MJ WITH RESTRAINTS.
- ③ DI FLG X PE SPOOL, CUT TO LENGTH.
- ④ DI 90° ELBOW, FLG X FLG.
- ⑤ FLG X FLG RESILIENT WEDGE GATE VALVE, RISING STEM.
- ⑥ DOUBLE DETECTOR CHECK VALVE ASSEMBLY.
- ⑦ FACTORY INSTALLED BY-PASS ASSEMBLY CONSISTING OF APPROVED POSITIVE DISPLACEMENT METER, DOUBLE CHECK VALVE AND ASSORTED PIPING.
- ⑧ ADJUSTABLE PIPE SUPPORT WITH SS ANCHORS.
- ⑨ 6" THICK 560-C-3250 CONC. PAD, 12" OUTSIDE ASSEMBLY.
- ⑩ EXPANSION JOINT, USE POLYSTYRENE BOND BREAKER.
- ⑪ CONCRETE THRUST BLOCK PER DWG NO. W-19.

## NOTES:

1. THIS DETAIL IS FOR GENERAL INSTALLATION CONDITIONS ONLY. EACH INDIVIDUAL INSTALLATION SHALL BE APPROVED BY THE DISTRICT PRIOR TO CONSTRUCTION.
2. DDCV ASSEMBLY SHALL BE TESTED BY COUNTY APPROVED TESTER WITHIN 48 HOURS OF SERVICE ACTIVATION. CONTACT COUNTY EHD FOR APPROVED TESTER LIST.
3. DDCV ASSEMBLY SHALL BE INSPECTED AND APPROVED BY THE DISTRICT PRIOR TO ACCEPTANCE.
4. BACKFLOW ASSEMBLY SHALL BE A MINIMUM OF 36" FROM ANY STRUCTURE, CURB, OR SIDEWALK.
5. BRASS PLUGS SHALL BE PLACED IN ALL TEST VALVE OUTLETS.
6. ALL SUB-GRADE INSTALLATIONS SHALL BE WRAPPED IN 10 MIL. POLYETHYLENE WRAP.
7. MULTIPLE BACKFLOW DEVICES IN THE SAME VICINITY SHALL BE THE SAME HEIGHT.

## NOTES:

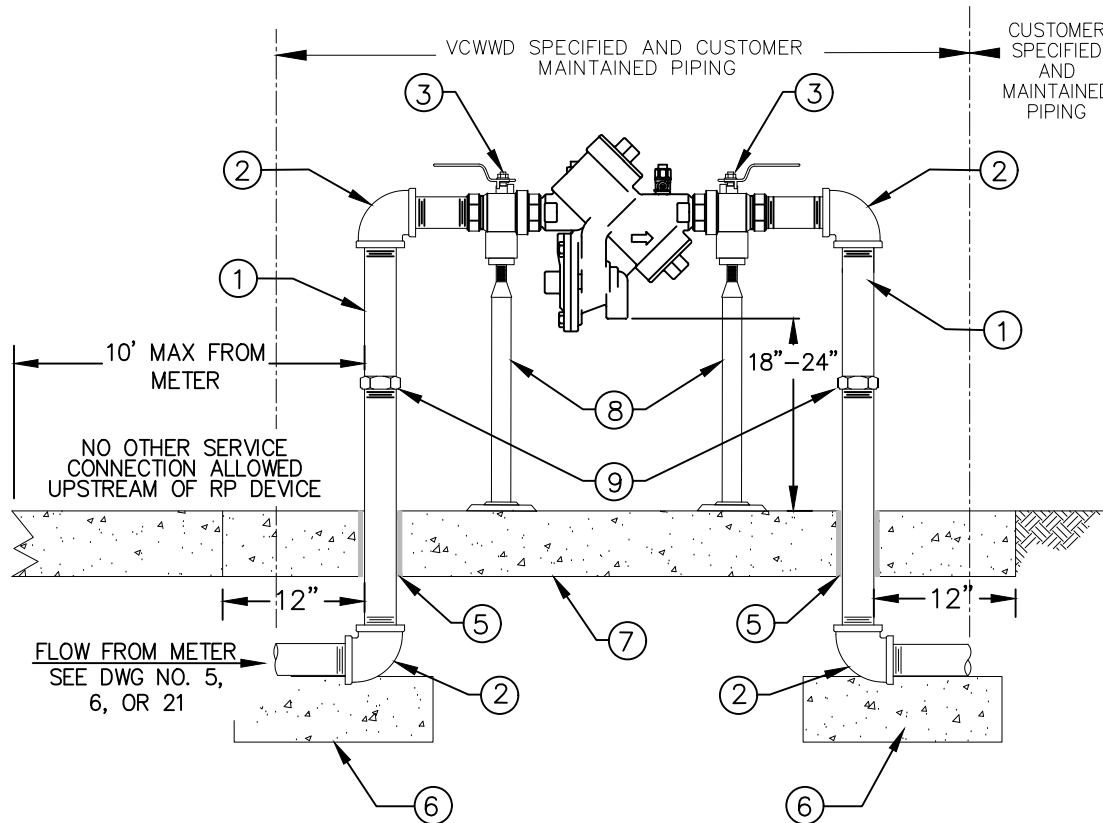
8. ABOVE GROUND PORTION OF ASSEMBLY SHALL BE PAINTED FOREST GREEN.

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COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

DOUBLE DETECTOR  
CHECK VALVE



## CONSTRUCTION NOTES:

- ① RIGID BRASS PIPE.
- ② 90° BRASS ELBOW, FIP X FIP.
- ③ BALL VALVE, FIP X FIP.
- ④ REDUCED PRESSURE BACKFLOW DEVICE.
- ⑤ POLYSTYRENE BOND BREAKER.
- ⑥ 12"x12"x6" THICK 560-C-3250 CONCRETE SUPPORT.
- ⑦ 6" THICK CONCRETE PER DWG NO. W-19.
- ⑧ ADJUSTABLE PIPE SUPPORTS WITH SS ANCHORS, FOR 2" AND ABOVE IF DETERMINED BY THE FIELD REPRESENTATIVE.
- ⑨ BRASS HEX UNION FITTING.

## NOTES:

1. THIS DETAIL IS FOR GENERAL INSTALLATION CONDITIONS ONLY. EACH INDIVIDUAL INSTALLATION SHALL BE APPROVED BY THE DISTRICT PRIOR TO CONSTRUCTION.
2. METER SIZE AND TYPE SHALL BE DETERMINED BY THE DISTRICT.
3. RP DEVICE SHALL BE TESTED BY COUNTY APPROVED TESTER WITHIN 48 HOURS OF SERVICE ACTIVATION CONTACT COUNTY EHD FOR APPROVED TESTER LIST.
4. RP DEVICE SHALL BE INSPECTED AND APPROVED BY THE DISTRICT PRIOR TO ACCEPTANCE.
5. MAINTAIN 18" CLEARANCE FROM REDUCED PRESSURE BACKFLOW DEVICE RELIEF OUTLET TO CONCRETE PAD.
6. BACKFLOW ASSEMBLY SHALL BE A MINIMUM OF 36" FROM ANY STRUCTURE, CURB, OR SIDEWALK.
7. BRASS PLUGS SHALL BE PLACED IN ALL TEST VALVE OUTLETS.
8. ALL SUB-GRADE INSTALLATIONS SHALL BE WRAPPED IN 10 MIL. POLYETHYLENE CASING.
9. MULTIPLE BACKFLOW DEVICES IN THE SAME VICINITY SHALL BE THE SAME HEIGHT.
10. ABOVE GROUND PORTION OF ASSEMBLY SHALL BE PAINTED FOREST GREEN.
11. ONLY RIGID MATERIAL PIPING ALLOWED BETWEEN METER AND RP DEVICE.

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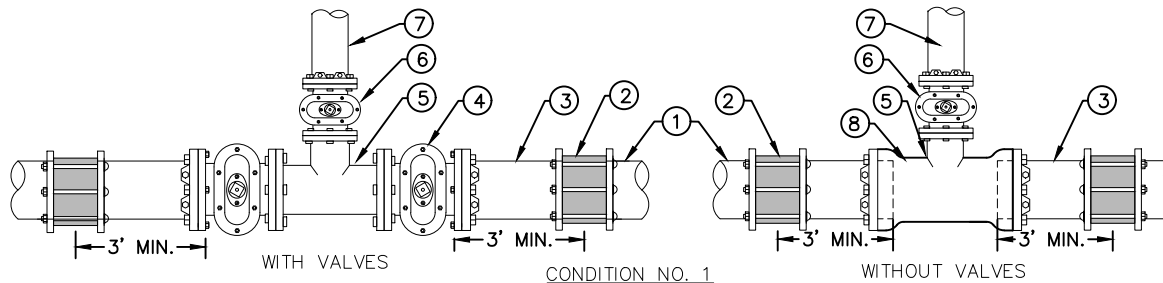
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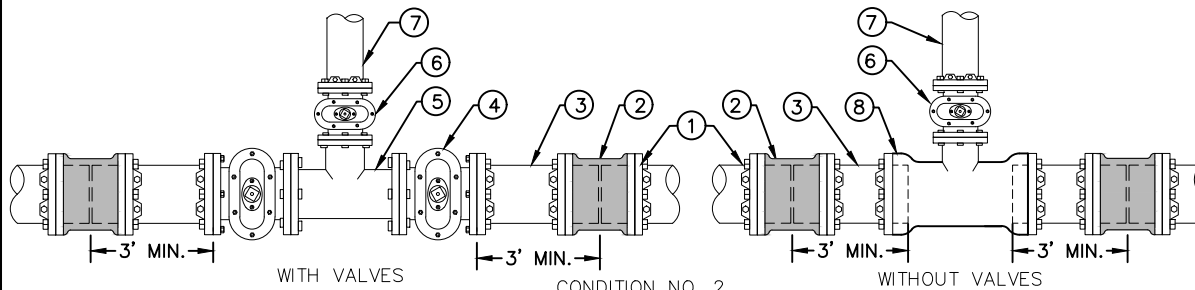
1" OR 2"  
REDUCED PRESSURE  
BACKFLOW DEVICE

# WATER & SANITATION CONSTRUCTION STANDARDS

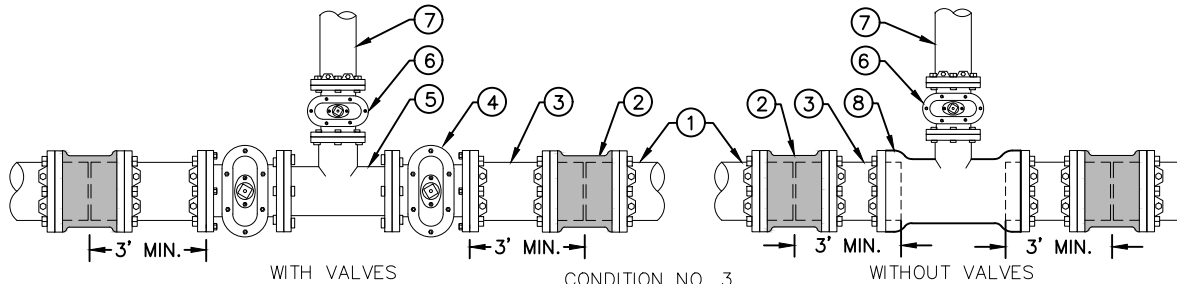
# DRAWING W-15



CONDITION NO. 1  
TEE - TYPICAL CONNECTION FOR AC PIPE



CONDITION NO. 2  
TEE - TYPICAL CONNECTION FOR PVC



CONDITION NO. 3  
TEE - TYPICAL CONNECTION FOR DUCTILE IRON PIPE

## NOTES:

1. WATER MAINS IN PUBLIC STREETS SHALL BE LOCATED PARALLEL TO AND 5 FT NORTH OR WEST OF THE CENTER LINE OF THE STREET.
2. WRAP ALL METALLIC APPURTENANCES WITH 10 MIL. POLYETHYLENE ENCASEMENT PER VCWWD CONSTRUCTION STANDARDS.
3. SEE DWG NO. 19 FOR ANCHOR BLOCKS AND THRUST BLOCK DETAILS.
4. SEE DWG NO. 2 FOR VALVE BOX DETAILS.
5. COUPLINGS SHALL BE A MINIMUM OF 36" AWAY FROM ANY SERVICE OR APPURTENANCE.

## CONDITION # 1 CONSTRUCTION NOTES:

- ① EXISTING PIPE.
- ② TRANSITION COUPLING (ROMAC OR EQUIVALENT.)
- ③ 3' SECTION, PVC C-900 DR 14 (NO BEVEL END).
- ④ MAIN SIZE-IN LINE VALVE, FLG X MJ WITH RESTRAINT.
- ⑤ TEE, MAIN SIZE X LATERAL SIZE, FLG X FLG.
- ⑥ LATERAL VALVE, FLG X MJ WITH RESTRAINT.
- ⑦ LATERAL PIPE
- ⑧ TEE, MAIN SIZE X LATERAL SIZE, MJ X FLG.

## CONDITION # 2 CONSTRUCTION NOTES:

- ① EXISTING PIPE.
- ② SOLID DUCTILE IRON MJ SLEEVE WITH RESTRAINT.
- ③ 3' SECTION, PVC C-900 DR-14 (NO BEVEL END).
- ④ MAIN SIZE-IN LINE VALVE, FLG X MJ WITH RESTRAINT.
- ⑤ TEE, MAIN SIZE X LATERAL SIZE, FLG X FLG.
- ⑥ LATERAL VALVE, FLG X MJ WITH RESTRAINT.
- ⑦ LATERAL PIPE.
- ⑧ TEE, MAIN SIZE X LATERAL SIZE, MJ X FLG.

## CONDITION # 3 CONSTRUCTION NOTES:

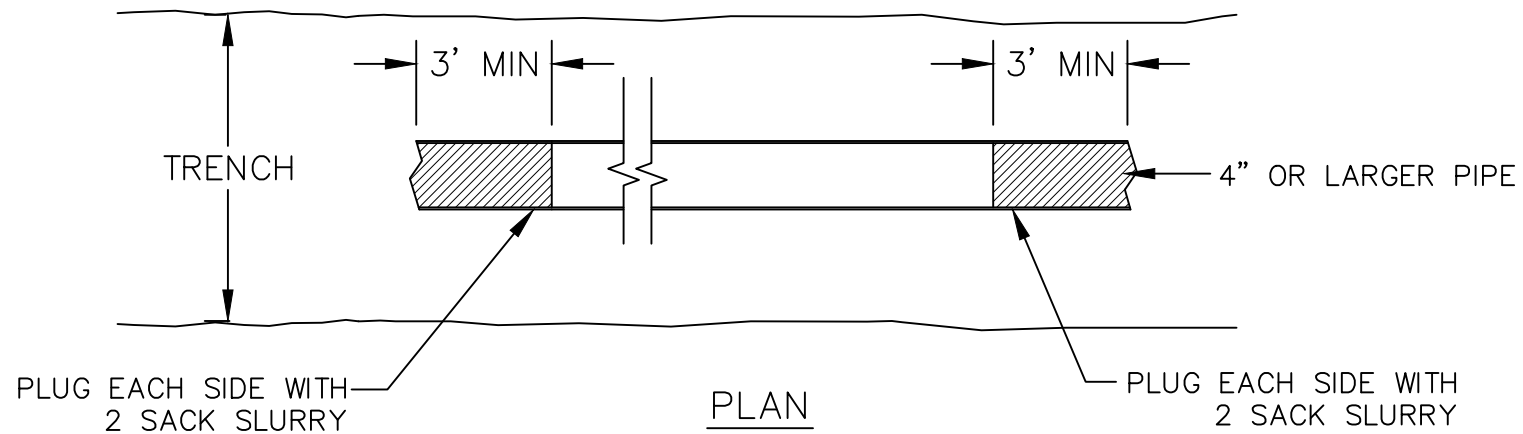
- ① EXISTING PIPE.
- ② SOLID DUCTILE IRON MJ SLEEVE WITH RESTRAINT.
- ③ 3' SECTION - DUCTILE IRON CLASS 52.
- ④ MAIN SIZE-IN LINE VALVE, FLG X MJ WITH RESTRAINT.
- ⑤ TEE, MAIN SIZE X LATERAL SIZE, FLG X FLG.
- ⑥ LATERAL VALVE, FLG X MJ WITH RESTRAINT.
- ⑦ LATERAL PIPE.
- ⑧ TEE, MAIN SIZE X LATERAL SIZE, MJ X FLG.

ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023

REVISION DATE:	DESCRIPTION:	APPROVED:
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		PWA DIRECTOR
		RECOMMENDED:
		JP
		W&S DIRECTOR

COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

CUT-IN TEE FOR  
PVC, AC, AND DI PIPE



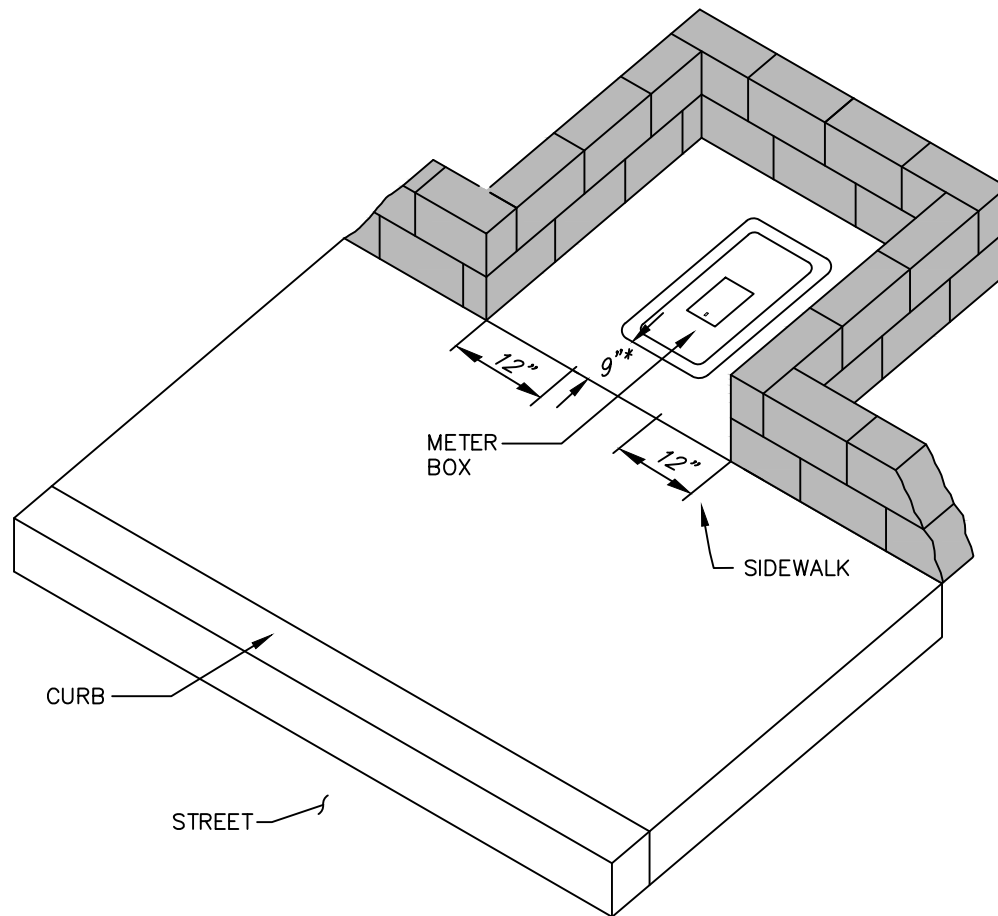
DETAIL FOR CUTTING AND PLUGGING  
ABANDONED WATER MAINS

NOTES:

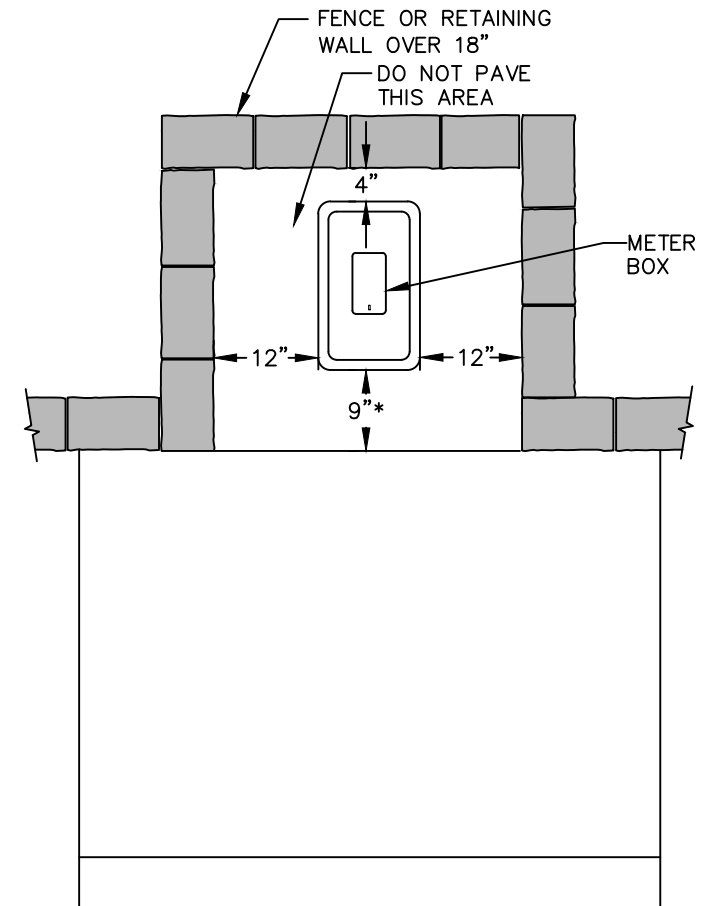
1. FOR PIPES SMALLER THAN 4" — CRIMP ENDS AND ABANDON IN PLACE.

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REVISION DATE:	DESCRIPTION:	APPROVED: JP PWA DIRECTOR	
		RECOMMENDED: JP W&S DIRECTOR	PIPE ABANDONMENT





FOR FENCES OR RETAINING WALLS



PLAN VIEW

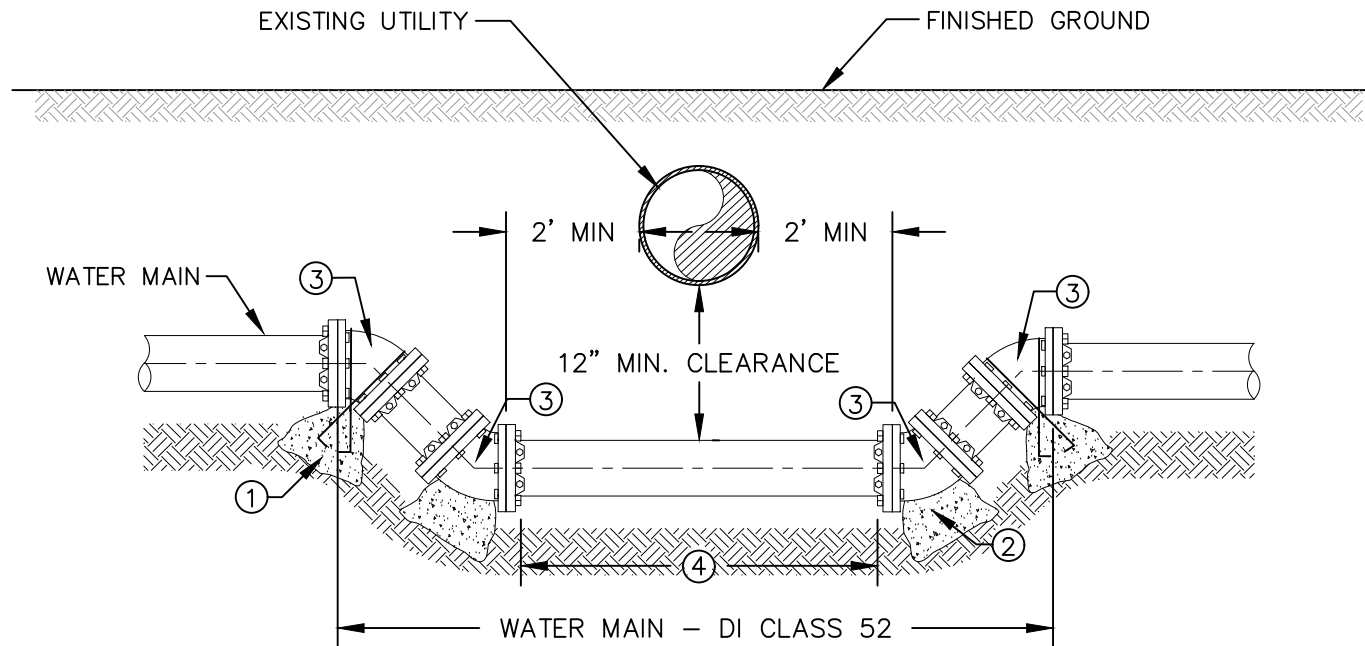
**NOTES:**

1. DIMENSION IS APPROXIMATE. INSTALL ACCORDING TO WATER METER PLATE.

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		W&S DIRECTOR

**COUNTY OF VENTURA  
PUBLIC WORKS AGENCY**

**METER BOX CLEARANCE  
DETAILS**



**NOTES:**

1. USE DUCTILE IRON (RETAINER TYPE) MECHANICAL JOINT
2. USE DUCTILE IRON PIPE, CLASS 52 THROUGHOUT.
3. SEPARATION DISTANCE IS DETERMINED BY THE TYPE OF OBSTRUCTION BEING CROSSED, REFER TO STATE WATER RESOURCE CONTROL BOARD WATER AND SEWER SEPARATION REQUIREMENTS.
4. SEE DWG NO. W-1 FOR TRENCH DETAILS.
5. AIR RELEASE AND VACUUM BREAKER VALVE AND/OR BLOW-OFF MAY BE REQUIRED AT THE DISTRICT'S DISCRETION.
6. PIPE SHALL BE WRAPPED WITH POLYETHYLENE CASING (10 MIL.).

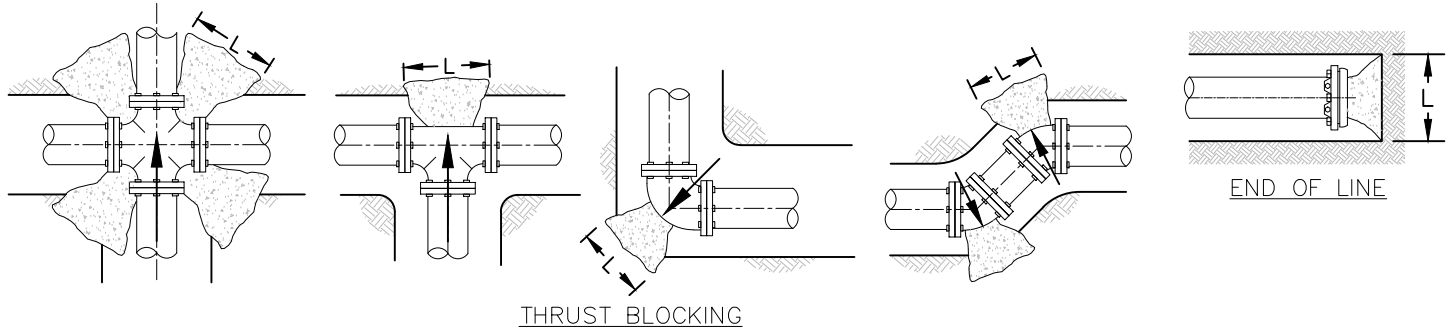
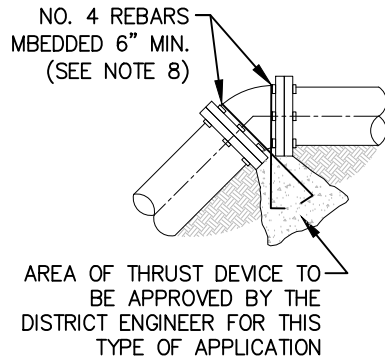
**CONSTRUCTION NOTES:**

- ① INSTALL ANCHOR BLOCK PER STD. DWG NO. 19 (TYP. 2 PLACES).
- ② INSTALL THRUST BLOCK PER STD. DWG NO. 19 (TYP. 2 PLACES).
- ③ INSTALL 45° ELBOW, MJ X MJ WITH RESTRAINT (TYP. 4 PLACES).
- ④ LENGTH PER STATE WATER RESOURCE CONTROL BOARD REQUIREMENTS.

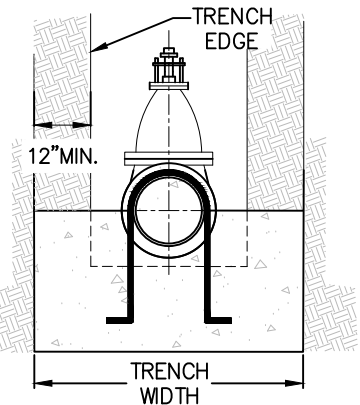
ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023			COUNTY OF VENTURA PUBLIC WORKS AGENCY
REVISION DATE:	DESCRIPTION:	APPROVED:	
		JP PWA DIRECTOR	UTILITY UNDERCROSSING DETAIL
		RECOMMENDED:	
		JP	
		W&S DIRECTOR	

# WATER & SANITATION CONSTRUCTION STANDARDS

# DRAWING W-19



VERTICAL BEND ANCHOR BLOCK



ACTUAL WATER TEST PRESSURE (PSI)	MULTIPLIER
200	1.00
250	1.25
300	1.50
350	1.75

ACTUAL SOIL BEARING (PSF)	MULTIPLIER
1,000	2.00
1,500	1.33
2,000	1.00
2,500	0.80
3,000	0.67

HORIZONTAL BEND THRUST BLOCK																				
PIPE SIZE	11 1/4° BEND				22 1/2° BEND				45° BEND				90° BEND / CROSSES				END OF LINE / TEES			
	L (IN)	H (IN)	AREA (IN <sup>2</sup> )	THRUST (LBS)	L (IN)	H (IN)	AREA (IN <sup>2</sup> )	THRUST (LBS)	L (IN)	H (IN)	AREA (IN <sup>2</sup> )	THRUST (LBS)	L (IN)	H (IN)	AREA (IN <sup>2</sup> )	THRUST (LBS)	L (IN)	H (IN)	AREA (IN <sup>2</sup> )	THRUST (LBS)
4	24	12	288	710	24	12	288	1,412	24	12	288	2,771	27	14	369	5,119	24	12	288	3,620
6	24	12	288	1,462	24	12	288	2,911	29	14	411	5,710	39	19	760	10,550	33	16	537	7,460
8	24	12	288	2,521	27	13	361	5,018	38	19	709	9,843	51	26	1,309	18,187	43	22	926	12,860
10	24	12	288	3,791	33	16	543	7,546	46	23	1,066	14,802	63	31	1,969	27,351	53	26	1,392	19,340
12	28	14	386	5,363	39	20	769	10,675	55	27	1,508	20,940	75	37	2,786	38,693	63	31	1,970	27,360

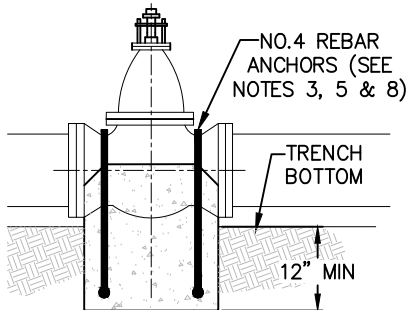
## EXAMPLE OF ALTERED CONDITIONS:

10" PIPE, 90° BEND, 2500 PSF SOIL BEARING LOAD, 300 PSI TEST PRESSURE:

REQUIRED AREA = TABLE VALUE X SOIL MULTIPLIER X WATER MULTIPLIER

REQUIRED AREA = 1969 IN<sup>2</sup> X 0.8 X 1.5  
= 2362 IN<sup>2</sup> OR ROUGHLY L = 70 IN,  
H=34 IN

VERTICAL BEND ANCHOR						
PIPE SIZE	22 1/2° BEND L,H,W (IN)	VOLUME (YD <sup>3</sup> )	THRUST (LBS)	45° BEND L,H,W (IN)	VOLUME (YD <sup>3</sup> )	THRUST (LBS)
4	25	0.5	1,412	31	0.5	2,771
6	32	1.0	2,911	40	1.0	5,710
8	39	1.0	5,018	48	2.0	9,843
10	44	2.0	7,546	54	3.0	14,802
12	50	3.0	10,675	61	5.0	20,940



VALVE ANCHOR BLOCK

ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023

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		RECOMMENDED:
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COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

THRUST AND ANCHOR  
BLOCK DETAILS

**WATER & SANITATION CONSTRUCTION STANDARDS****DRAWING W-19**NOTES:

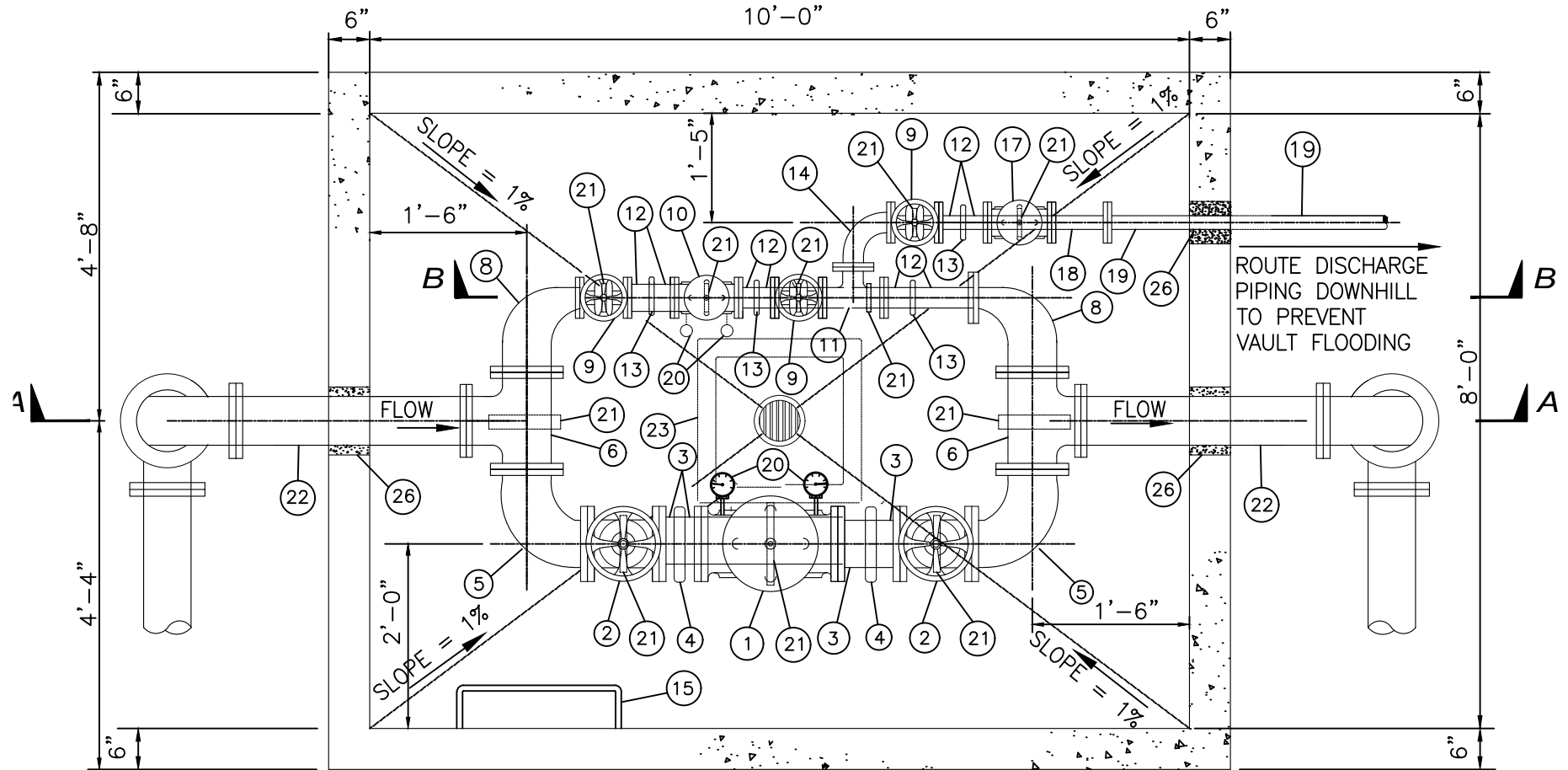
1. THRUST BLOCK BEARING AREA BASED ON SOIL CONSISTING OF SAND AND GRAVEL, CEMENTED WITH CLAY (SAFE BEARING LOAD OF 2000 PSF), MINIMUM 200 PSI WATER PRESSURE, AND 3'-0" COVER MINIMUM.
2. PRIOR TO INSTALLATION, BEARING LOAD OF UNDISTURBED NATIVE SOIL AND WATER TEST PRESSURE MUST BE CONSIDERED.
3. IN NO CASE SHALL THE THRUST BLOCK CONTAIN LESS THAN 3 CUBIC FEET OF CONCRETE.
4. THRUST BLOCK SHALL BEAR SOLIDLY AGAINST FIRM UNDISTURBED EARTH.
5. DO NOT INTERPOLATE BEARING AREA FOR PIPE SIZE OR FITTINGS NOT SHOWN.
6. THE THRUST BLOCK HEIGHT (H) TO LENGTH (L) RATIO SHALL BE MAINTAINED AT MINIMUM 1:2 BUT NOT EXCEED MAXIMUM 1:1.
7. ANCHOR BLOCK IS NOT REQUIRED FOR 6" VALVES OR SMALLER.
8. COAT REBARS WITH APPROVED BITUMASTIC COMPOUND.
9. FOR FLANGED AND MECHANICAL VALVES, KEEP CONCRETE OFF BOLTS.
10. CONCRETE SHALL BE 560-C-3250.
11. RESTRAINT ALL JOINTS FOR SLOPES 30 DEGREES OR STEEPER.
12. DEAD ENDS SHALL HAVE A 3' PUP WITH A RESTRAINED MJ CAP.
13. PROTECT ALL JOINTS FROM POTENTIAL CONCRETE INFILTRATION AND OR ENCASEMENT.

ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023

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		RECOMMENDED:
		JP W&S DIRECTOR

**COUNTY OF VENTURA  
PUBLIC WORKS AGENCY**THRUST AND ANCHOR  
BLOCK DETAILS

SHEET 2 OF 2



PRESSURE REDUCING STATION PLAN

NOT TO SCALE

## NOTES:

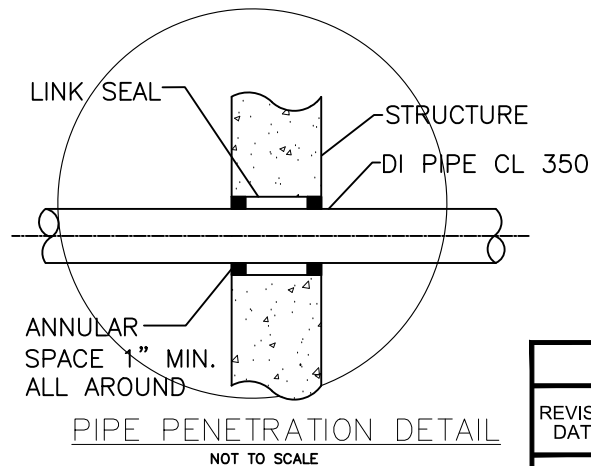
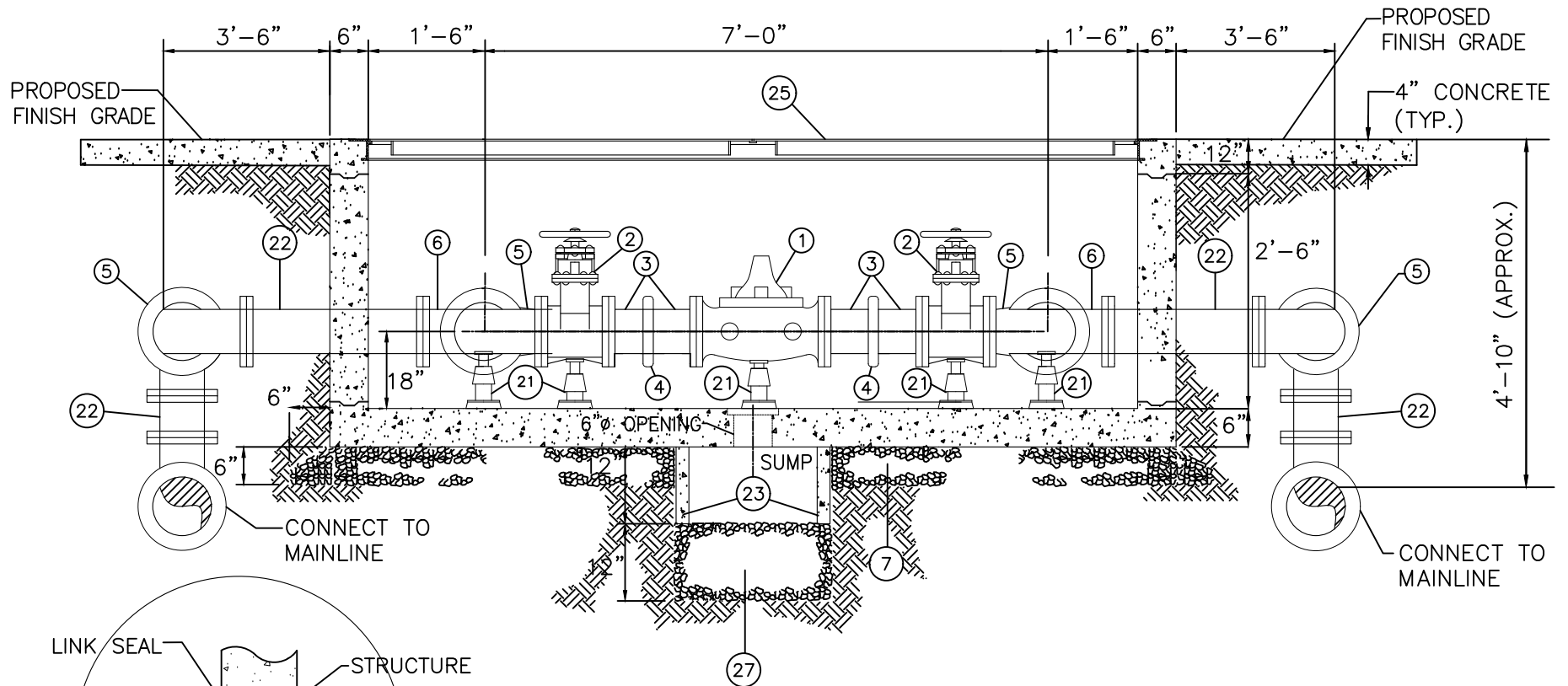
1. CONTRACTOR TO VERIFY LAY LENGTH AND SIZE OF FITTINGS.
2. ASSURE PRESSURE RELIEF DISCHARGE LINE WITHIN VAULT WILL DRAIN TO THE LOWEST ELEVATION.

ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023

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COUNTY OF VENTURA  
PUBLIC WORKS AGENCY8" PRESSURE REDUCING  
STATION ASSEMBLY

SHEET 1 OF 4



A SECTION VIEW  
NOT TO SCALE

ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023

REVISION DATE:	DESCRIPTION:	APPROVED:
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		RECOMMENDED: JP W&S DIRECTOR

COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

8" PRESSURE REDUCING  
STATION ASSEMBLY

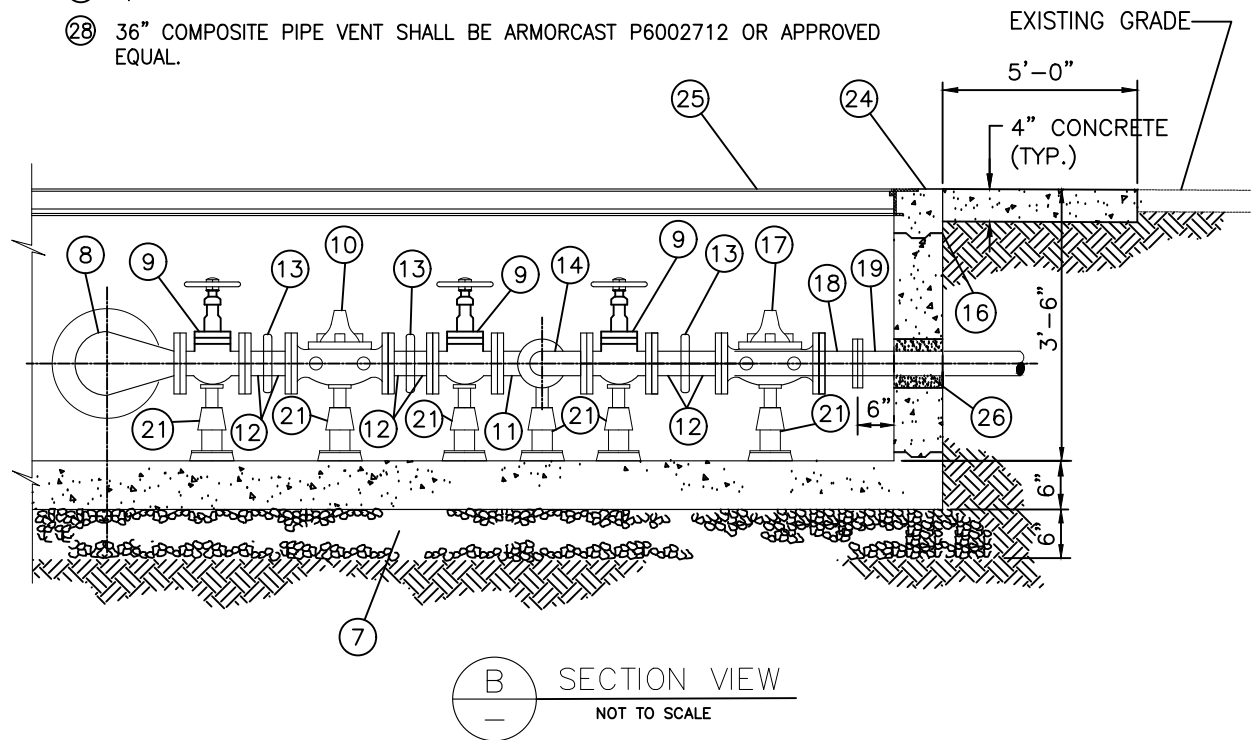
# WATER & SANITATION CONSTRUCTION STANDARDS

# DRAWING W-20

## CONSTRUCTION NOTES:

- ① 8" PRESSURE REDUCING VALVE.
- ② 8" FLG. GATE VALVE.
- ③ 8" SPOOL FLG. x GROOVED END.
- ④ 8" VICTAULIC COUPLING.
- ⑤ 8" 90° FLG. ELBOW.
- ⑥ 8" FLG. TEE.
- ⑦ 3/4" CRUSHED AGGREGATE BASE @ 95% COMPACTION.
- ⑧ 8" x 4" 90° FLG. REDUCING ELBOW.
- ⑨ 4" FLG. GATE VALVE.
- ⑩ 4" PRESSURE REDUCING VALVE.
- ⑪ 4" FLG. TEE.
- ⑫ 4" FLG. X GROOVED END.
- ⑬ 4" VICTAULIC COUPLING.
- ⑭ 4" 90° FLG. ELBOW.
- ⑮ STAINLESS STEEL STEPS PER APWA STD. PLAN 635-3.
- ⑯ CONSTRUCTION JOINT.
- ⑰ 4" PRESSURE RELIEF VALVE (CLA-VAL).
- ⑱ 4" FLG. SPOOL.
- ⑲ 4" BRASS PIPE SCH. 40.
- ⑳ GLYCERIN FILLED PRESSURE GAUGE 0-200 PSI WITH 1/4 GA. COCK.
- ㉑ ADJUSTABLE PIPE SUPPORT FOR ALL VALVES AND TEES.
- ㉒ 8" D.I. CL. 52 FLG. SPOOL.
- ㉓ 24" x 24" CONCRETE BOX.

- ㉔ PRECAST CONCRETE VAULT - 10'-0" X 8'-0" X 3'-6" (INSIDE DIMENSIONS).
- ㉕ ALUMINUM ACCESS COVER (2 PC. 10'-0" X 8'-0"). U.S.F FABRICATION, INC. WITH STAINLESS STEEL NUTS & BOLTS, HINGES AND HOLD OPEN ARM. STAPLE FOR DOOR PADLOCK. DIAMOND PLATE 1/4 - 300 PSF.(OR APPROVED EQUAL).
- ㉖ CONCRETE KNOCKOUT (TO BE GROUTED SOLID AFTER PIPE INSTALLATION).
- ㉗ 3/8" PEA GRAVEL.
- ㉘ 36" COMPOSITE PIPE VENT SHALL BE ARMORCAST P6002712 OR APPROVED EQUAL.



## NOTE:

1. PLAN SHALL SERVE AS A DESIGN GUIDE FOR ALTERNATIVE PRESSURE REDUCING STATIONS OF SMALLER OR LARGER SIZE THAN THE 8" ASSEMBLY DEPICTED.

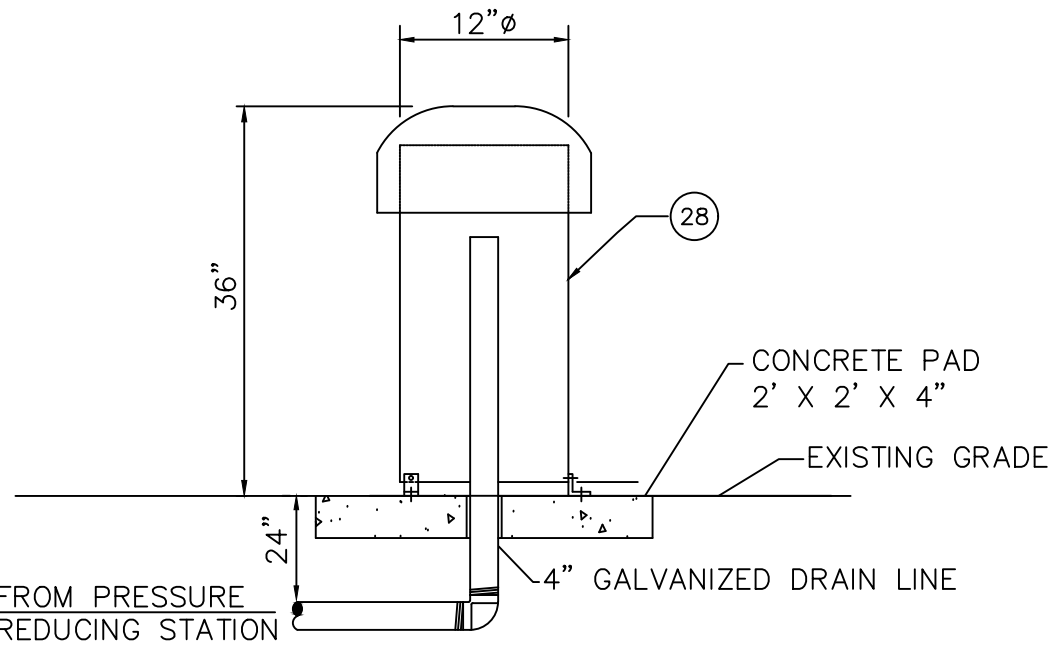
ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023

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		RECOMMENDED:
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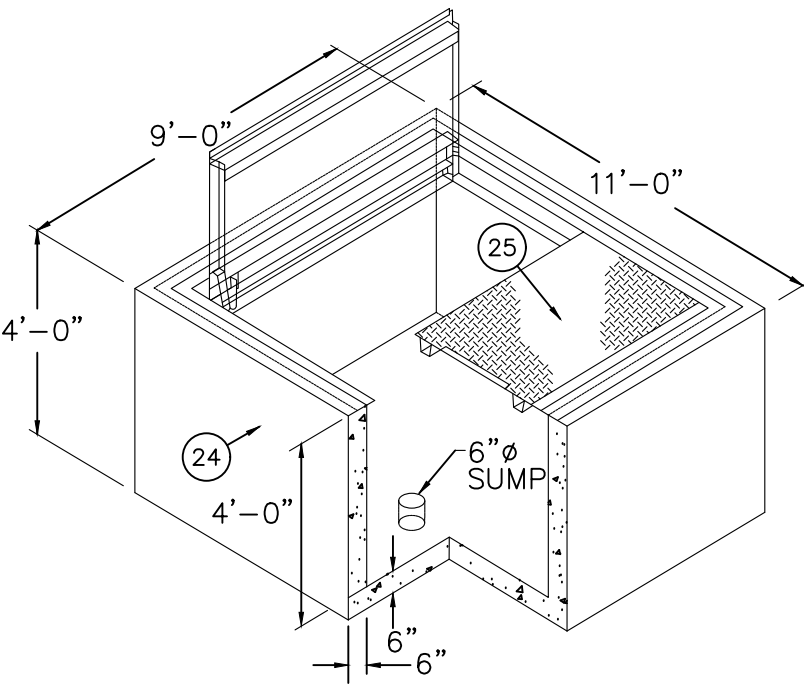
COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

8" PRESSURE REDUCING  
STATION ASSEMBLY

SHEET 3 OF 4



DRAIN DISCHARGE ASSEMBLY DETAIL  
(INSTALL BEHIND CURB)  
NOT TO SCALE



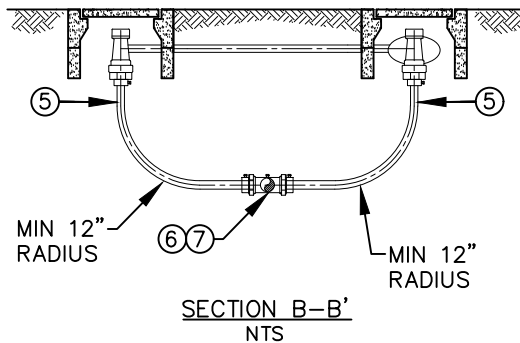
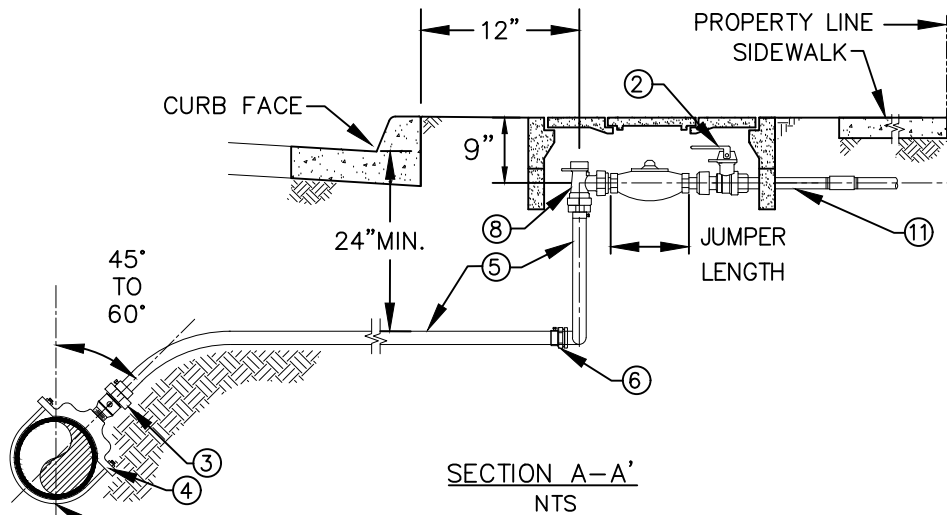
8'-0" x 10'-0" x 3'-6"  
PRESSURE REDUCING VAULT  
NOT TO SCALE

ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023			COUNTY OF VENTURA PUBLIC WORKS AGENCY	
REVISION DATE:	DESCRIPTION:	APPROVED:	8" PRESSURE REDUCING STATION ASSEMBLY	
		JP		
		PWA DIRECTOR		
		RECOMMENDED:		
		JP		
		W&S DIRECTOR	SHEET 4 OF 4	



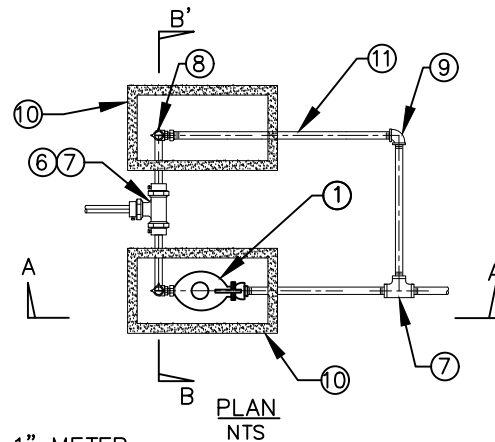
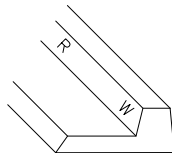
# WATER & SANITATION CONSTRUCTION STANDARDS

# DRAWING W-21



1" SERVICE WITH 1" METER

LOCATION OF LATERAL SHALL BE MARKED WITH A 2" HIGH "W" FOR POTABLE WATER OR "R" FOR RECYCLED WATER STAMPED INTO THE FACE OF THE CURB 1/4" DEEP. A WHEEL GRINDER CAN BE USED TO MAKE THE MARK WITH PRIOR DISTRICT INSPECTOR APPROVAL.



## NOTES:

- JUMPER SHALL BE SUPPLIED BY THE DISTRICT AND INSTALLED BY THE OWNER'S CONTRACTOR.
- FOR PARKWAY AND SIDEWALK CONSTRUCTION, DISTANCE TO R/W OR WHEN SLOPE INTERFERENCE EXISTS ANGLE METER STOP SHALL BE SET 12" BEHIND CURB ON 1" SERVICE.
- SOLDERING TO COPPER IS NOT ALLOWED TO EXTEND RUN ON COMPRESSION FITTINGS. USE SOLID PIECE OF PIPE.
- NO METER BOX SHALL BE LOCATED WITHIN SIDEWALK OR DRIVEWAY.
- COPPER PIPE SHALL BE WRAPPED WITH POLYETHYLENE CASING (10 MIL.).
- LOCATOR TAPE SHALL BE LAID ON TOP OF BEDDING MATERIAL.
- METER BOX MUST ACCEPT AMI ANTENNAS.
- NEW SERVICE SHALL BE MIN. 36" FROM OTHER SERVICES OR APPURTENANCES ON SAME SIDE OF MAIN OR 18" IF ON OPPOSITE SIDE.

## CONSTRUCTION NOTES:

- WATER METER FURNISHED BY DISTRICT.
- 1" FIP X METER NUT CUSTOMER HAND VALVE WITH HANDLE.
- 1" MIP X CTS PJ BALL CORP.
- SERVICE SADDLE TO BE ANGLED BETWEEN 60° AND 45°. HOT TAP SHALL BE BY HAND FOR ALL PIPE MATERIALS.
- 1" TYPE K COPPER SERVICE LINE.
- 1" MIP X CTS PJ ADAPTOR (TYP).
- 1" FIP TEE.
- 1" CTS PJ X METER NUT BALL ANGLE STOP.
- 1" FIP ELBOW.
- 1" METER BOX.
- CUSTOMER SIDE PIPING – COPPER/BRASS/STAINLESS STEEL.

ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023

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COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

1"–2" COMMERCIAL/  
INDUSTRIAL WATER METER

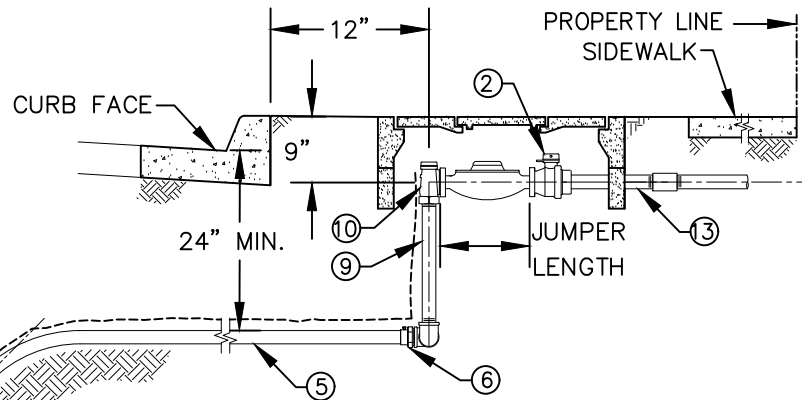
SHEET 1 OF 2

## NOTES:

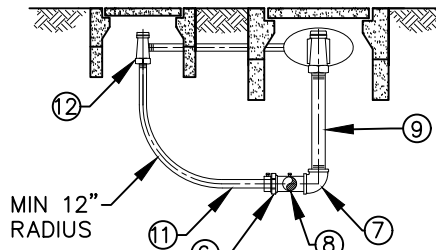
1. JUMPER SHALL BE SUPPLIED BY THE DISTRICT AND INSTALLED BY THE OWNER'S CONTRACTOR.
2. FOR PARKWAY AND SIDEWALK CONSTRUCTION, DISTANCE TO R/W OR WHEN SLOPE INTERFERENCE EXISTS ANGLE METER STOP SHALL BE SET 18" BEHIND CURB ON 2" SERVICE.
3. SOLDERING TO COPPER IS NOT ALLOWED TO EXTEND RUN ON COMPRESSION FITTINGS. USE SOLID PIECE OF PIPE.
4. NO METER BOX SHALL BE LOCATED WITHIN SIDEWALK OR DRIVEWAY.
5. COPPER PIPE SHALL BE WRAPPED WITH POLYETHYLENE CASING (10 MIL.).
6. LOCATOR TAPE SHALL BE LAID ON TOP OF BEDDING MATERIAL. FOR MUNICIPEX ALSO INCLUDE TRACER WIRE.
7. METER BOX MUST ACCEPT AMI ANTENNAS.
8. NEW SERVICE SHALL BE MIN. 36" FROM OTHER SERVICES OR APPURTENANCES ON SAME SIDE OF MAIN OR 18" IF ON OPPOSITE SIDE.
9. MUNICIPEX CONNECTIONS REQUIRE ADDITIONAL SS PIPE STIFFENER, SPECIFIC TO CTS MFG.

## CONSTRUCTION NOTES:

- |   |  |
|---|--|
| ① WATER METER FURNISHED BY DISTRICT.  | ⑧ 2" FIP TEE WITH 1" HEX BUSHING.                      |
| ② 2" FIP X FL CUSTOMER HAND VALVE WITH HANDLE.  | ⑨ 1" FIP ELBOW.  |
| ③ 2" MIP X CTS PJ BALL CORP.  | ⑩ 2" FIP X FL ANGLE METER STOP.                        |
| ④ SERVICE SADDLE TO BE ANGLED BETWEEN 60° AND 45°. HOT TAP SHALL BE BY HAND FOR ALL PIPE MATERIALS. | ⑪ 1" TYPE K COPPER SERVICE LINE.                       |
| ⑤ 2" MUNICIPEX WATER SERVICE PIPE.  | ⑫ 1" CTS PJ X METER NUT ANGLE BALL STOP.               |
| ⑥ MIP X CTS PJ ADAPTOR (TYP).   | ⑬ CUSTOMER SIDE PIPING – COPPER/BRASS/STAINLESS STEEL. |
| ⑦ 2" BRASS STREET 90 ELBOW.   | ⑭ 2" METER BOX.  |
|   | ⑮ 1" METER BOX.  |

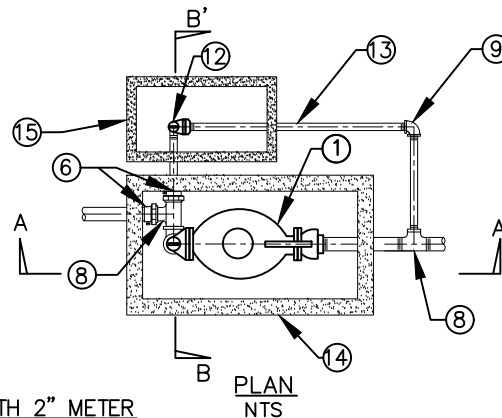


SECTION A-A'  
NTS



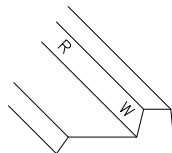
SECTION B-B'  
NTS

2" SERVICE WITH 2" METER



PLAN  
NTS

LOCATION OF LATERAL SHALL BE MARKED WITH A 2" HIGH "W" FOR POTABLE WATER OR "R" FOR RECYCLED WATER STAMPED INTO THE FACE OF THE CURB 1/4" DEEP. A WHEEL GRINDER CAN BE USED TO MAKE THE MARK WITH PRIOR DISTRICT INSPECTOR APPROVAL.



ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023

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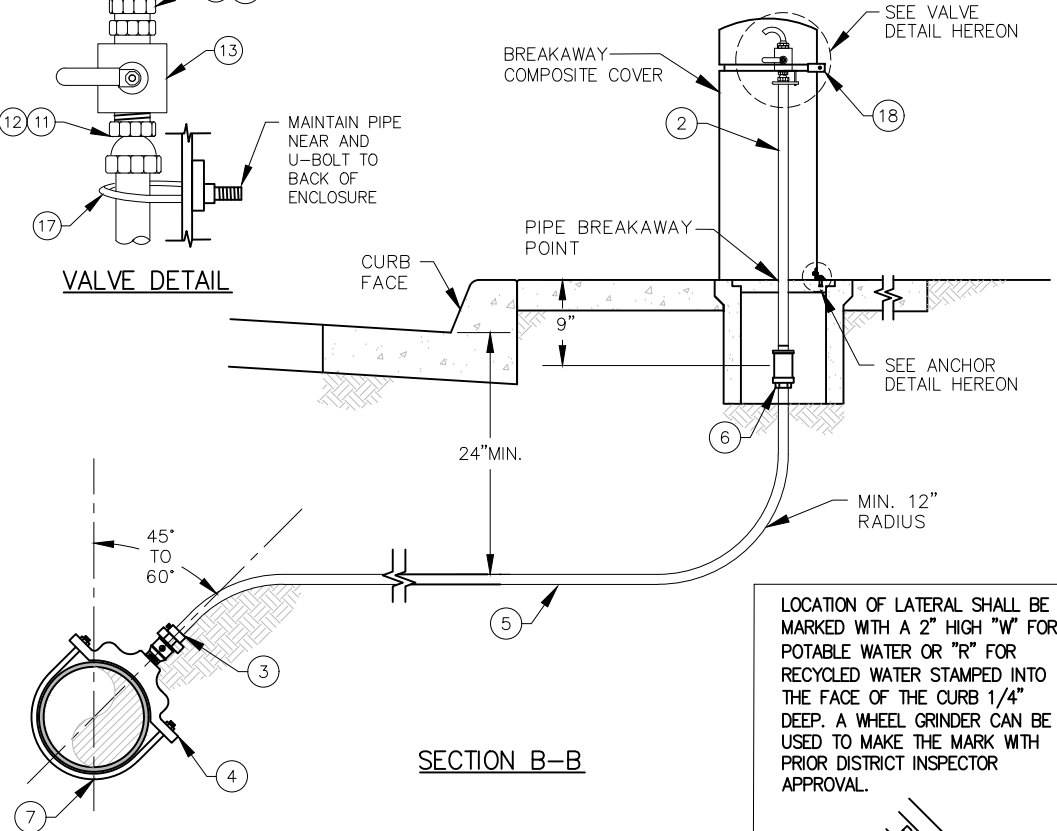
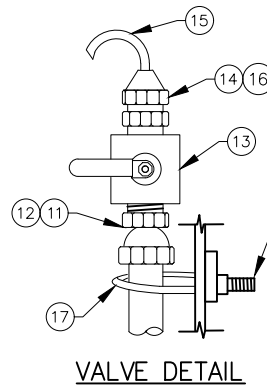
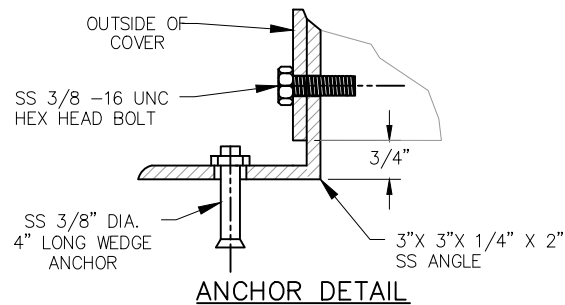
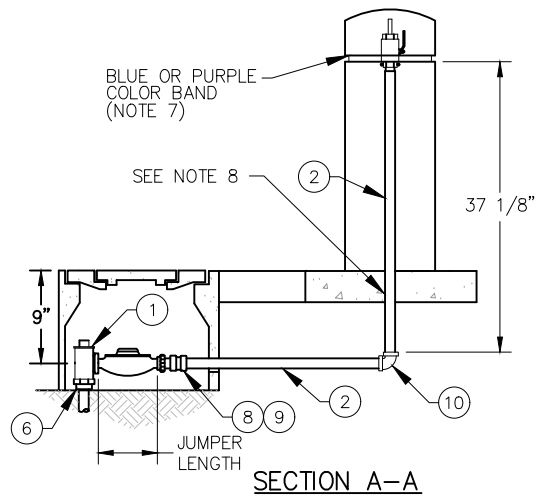
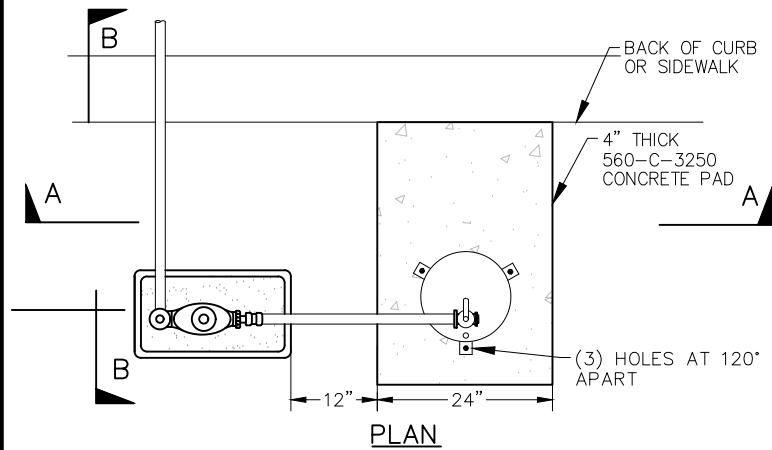
COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

1"–2" COMMERCIAL/  
INDUSTRIAL WATER METER

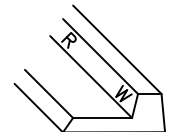
SHEET 2 OF 2

# WATER & SANITATION CONSTRUCTION STANDARDS

# DRAWING W-22



LOCATION OF LATERAL SHALL BE MARKED WITH A 2" HIGH "W" FOR POTABLE WATER OR "R" FOR RECYCLED WATER STAMPED INTO THE FACE OF THE CURB 1/4" DEEP. A WHEEL GRINDER CAN BE USED TO MAKE THE MARK WITH PRIOR DISTRICT INSPECTOR APPROVAL.



ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023

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		PWA DIRECTOR
		RECOMMENDED:
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		W&S DIRECTOR

COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

WATER SAMPLE STATION

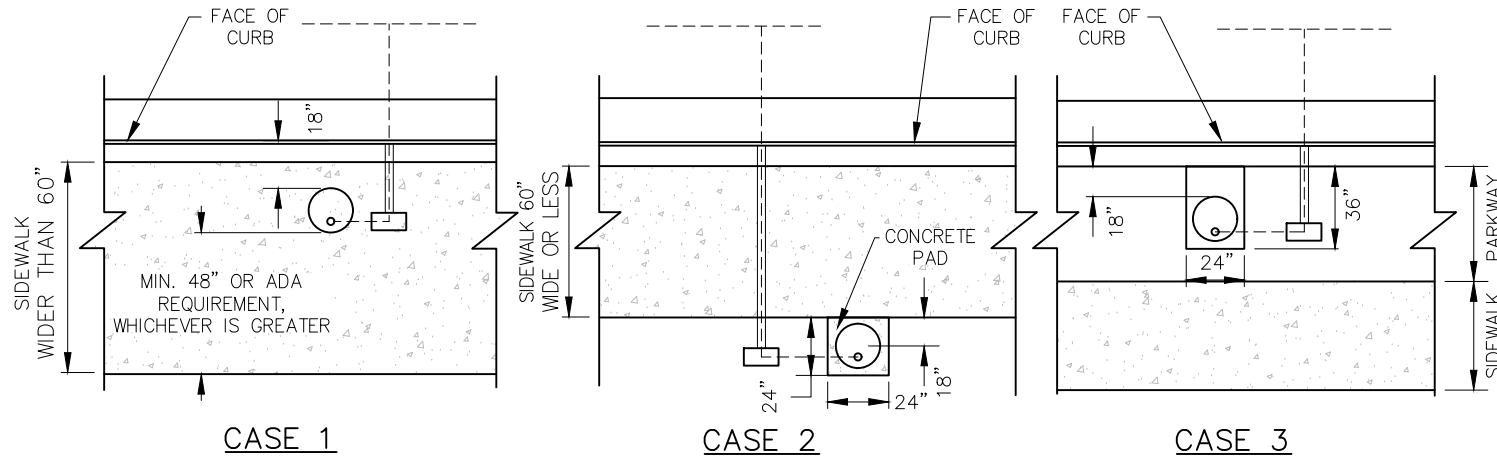
SHEET 1 OF 2

# WATER & SANITATION CONSTRUCTION STANDARDS

# DRAWING W-22

## CONSTRUCTION NOTES:

- ① WATER METER FURNISHED BY DISTRICT.
- ② 3/4" THREADED BRASS NIPPLE.
- ③ 1" MIP x CTS PJ BALL CORP.
- ④ SERVICE SADDLE TO BE ANGLED BETWEEN 60° AND 45°. HOT TAP SHALL BE BY HAND FOR ALL PIPE MATERIALS.
- ⑤ 1" TYPE K COPPER SERVICE LINE.
- ⑥ 1" CTS PJ X 3/4" METER NUT BALL ANGLE STOP.
- ⑦ DO NOT OVEREXCAVATE MAIN PIPELINE.
- ⑧ 3/4" METER SWIVEL NUT X MIP TAIL PIECE.
- ⑨ 3/4" FNPT BRASS COUPLING.
- ⑩ 3/4" FNPT BRASS 90° ELBOW.
- ⑪ 3/4" X 3/8" FNPT BRASS BELL REDUCER.
- ⑫ 3/8" BRASS CLOSE NIPPLE.
- ⑬ 3/8" FNPT TEFLON SEATED TWO-PIECE BRASS BALL VALVE. ORIENT VALVE HANDLE TO COVER OPENING.
- ⑭ 3/8" BRASS OD FLARE X MIP UNION.
- ⑮ 3/8" TYPE "K" SOFT COPPER SPIGOT BEND TO 120° FOR DOWNWARD OPENING W/CAP.
- ⑯ 3/8" COPPER TUBE FLARE NUT.
- ⑰ 5/16" SS U-BOLT.
- ⑱ 12" DIA. X 30" HIGH POLYETHYLENE ENCLOSURE WITH HINGED COVER LID.



## NOTES:

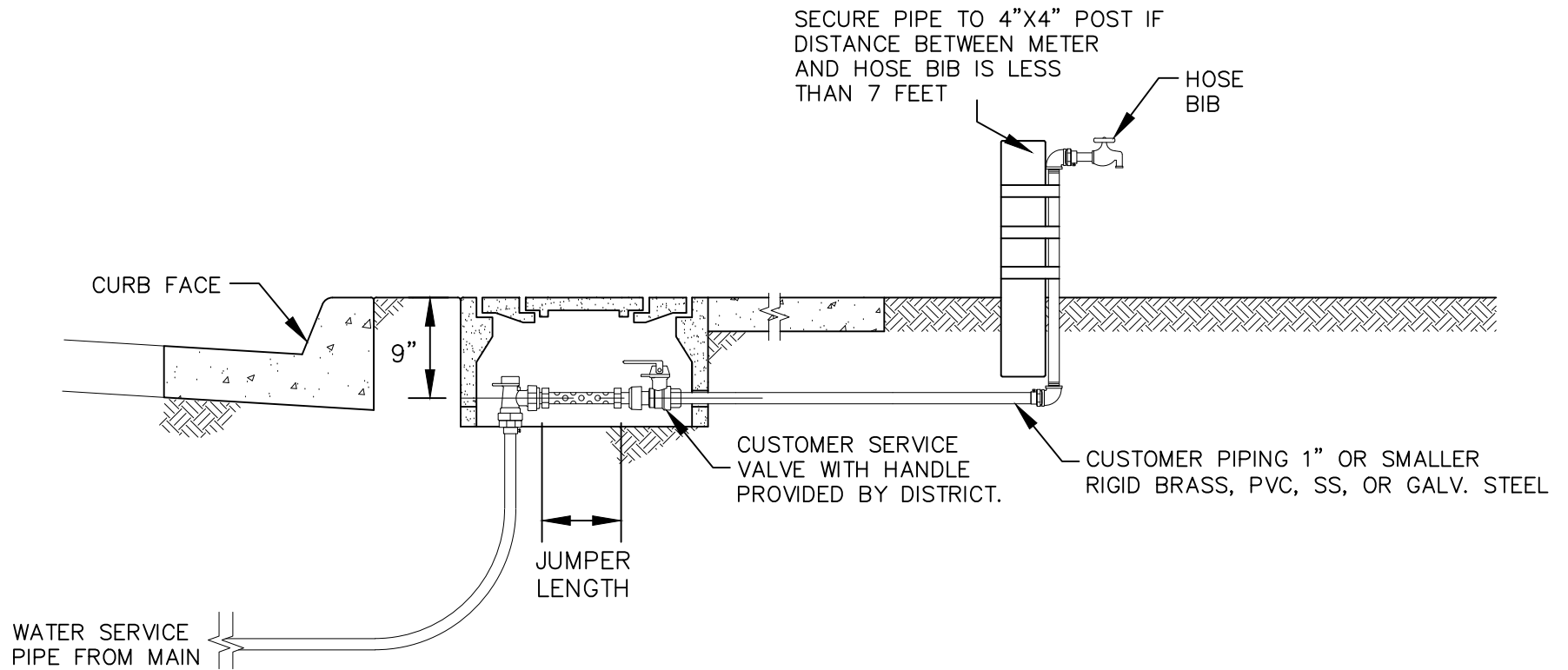
1. SOLDERING TO COPPER IS NOT ALLOWED TO EXTEND RUN ON COMPRESSION FITTINGS. USE SOLID PIECE OF PIPE.
2. COPPER PIPE SHALL BE WRAPPED WITH POLYETHYLENE CASING (10 MIL.).
3. LOCATOR TAPE SHALL BE LAID ON TOP OF BEDDING MATERIAL.
4. NO METER SHALL BE LOCATED WITHIN SIDEWALK OR DRIVEWAY.
5. METER BOX LID MUST ACCEPT AMI ANTENNAS.
6. NEW SERVICE SHALL BE MIN. 36" FROM OTHER SERVICES OR APPURTENANCES ON SAME SIDE OF MAIN OR 18" IF ON OPPOSITE SIDE.
7. POTABLE WATER SHALL HAVE A BLUE "COLOR BAND" AROUND THE TOP OF THE CAN AND RECYCLED WATER SHALL HAVE A PURPLE "COLOR BAND" AROUND TOP OF CAN.
8. PVC TAPE WRAP PIPE THROUGH SLAB PENETRATION.

ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023

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COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

WATER SAMPLE STATION



ADOPTED BY BOARD OF SUPERVISORS: 02-28-2023

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TEMPORARY HOSE BIB

## SEWER STANDARDS

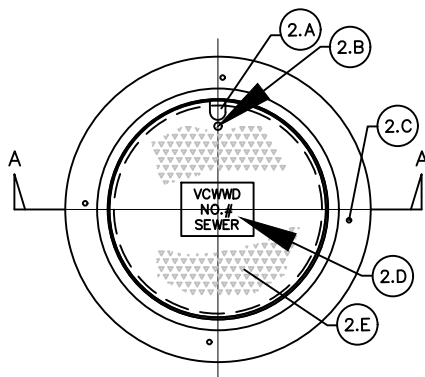
VENTURA COUNTY WATERWORKS DISTRICT ("DISTRICT") HAS ADOPTED SECTION 200, SEWERS AND SANITATION, OF THE STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION (SPPWC), AS THE OFFICIAL DISTRICT STANDARDS FOR SEWER CONSTRUCTION, WITH THE FOLLOWING MODIFICATIONS:

### 1. PRECAST CONCRETE SEWER MANHOLE

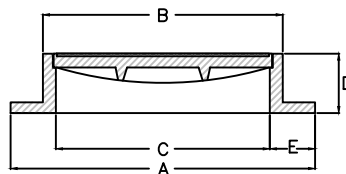
- A. ONLY ONE (1) MANHOLE STEP SHALL BE INSTALLED. THE STEP SHALL BE SS AND PLACED AT A MAX OF 16" FROM TOP OF MANHOLE LID AND PROJECT 5" INSIDE THE MANHOLE.
- B. IF THE SOIL BENEATH A CONCRETE MANHOLE BASE IS DISTURBED, UNSTABLE, OR GROUND WATER EXISTS, A MINIMUM 12" LAYER OF 3/4" CRUSHED GRAVEL SHALL BE PLACED UNDER THE BASE.
- C. MANHOLES SHALL NOT BE PLACED IN SIDEWALKS WITHOUT PRIOR WRITTEN APPROVAL FROM DISTRICT.

### 2. MANHOLE COVER AND FRAME

- A. 1 1/2" LIFTING SLOT.
- B. 1" PICK HOLE.
- C. 5/8" DIAMETER HOLES SHALL BE DRILLED IN FRAME, 4 EQUIDISTANT PLACES.
- D. CAST 2 1/2" LETTERS, RAISED 3/16", WITH "VCWWD NO. 1 SEWER", "VCWWD NO. 16 SEWER", OR "COUNTY OF VENTURA SEWER".
- E. COVER SHALL HAVE 3/16" RAISED DIAMOND TREAD SURFACE.
- F. THERE SHALL BE NO OTHER LANGUAGE ON OUTSIDE OF MANHOLE FRAME OR COVER UNLESS APPROVED BY DISTRICT.



FRAME AND COVER



SECTION A-A

FRAME & COVER DIMENSIONS			
SIZE	24	30	36
A	32	38	44
B	27	33	39
C	24	30	36
D	6	6	6
E	4	4	4

### 3. DROP SEWER MANHOLE

- A. INSTALL A CROSS OR A TEE.
- B. INSTALL CLEAN OUT AND CLEAN OUT COVER AT CROSS OR TEE CONNECTION.

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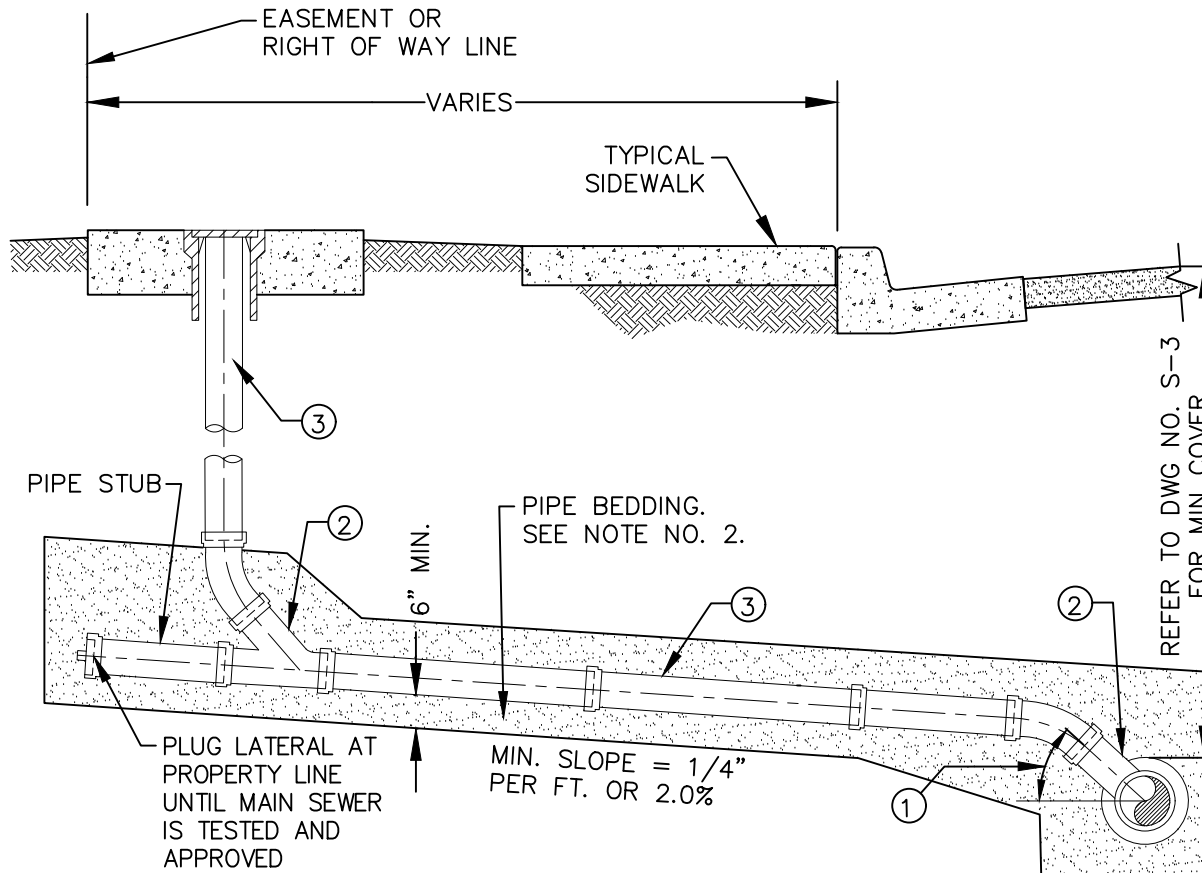
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**COUNTY OF VENTURA  
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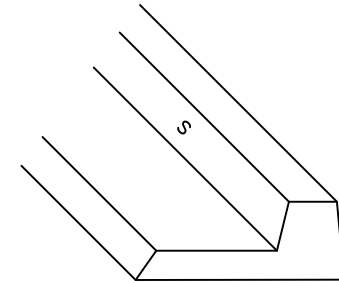
GENERAL NOTES

# WATER & SANITATION CONSTRUCTION STANDARDS

## DRAWING S-2



LOCATION OF LATERAL SHALL BE MARKED WITH A 2" HIGH "S" INTO THE FACE OF THE CURB 1/4" DEEP. "S" STAMP SHALL BE APPROVED PRIOR TO IMPLEMENTATION BY THE DISTRICT INSPECTOR.



### NOTES:

1. CLEANOUT IS REQUIRED ON THE LATERAL MORE THAN 50' FROM THE SEWER MAIN LINE.
2. LATERAL BEDDING TO BE SAME AS SEWER MAIN.
3. PLUG WYE BRANCH WITH ABS STOPPER.
4. TO CONNECT SIX INCH AND SMALLER SEWER LATERALS TO AN EXISTING SEWER, TAP AND INSTALL SEWER SADDLE IN MAIN SEWER WITH DISTRICT'S PRIOR APPROVAL.
5. LARGE SEWER LATERALS MAY BE REQUIRED TO BE CONNECTED WITH A MANHOLE AT THE DISTRICT'S DISCRETION.

### CONSTRUCTION NOTES:

- ① BRANCHES SHALL BE CONNECTED WITH A WYE AND SHALL BE ROTATED UPWARD FROM HORIZONTAL TO AN ANGLE BETWEEN 22 1/2° AND 45°.
- ② WYE BRANCH FITTING.
- ③ PVC SDR-35 PIPE OR DISTRICT APPROVED EQUAL.
- ④ CLEANOUT TO BE INSTALLED AT DISTRICT DISCRETION

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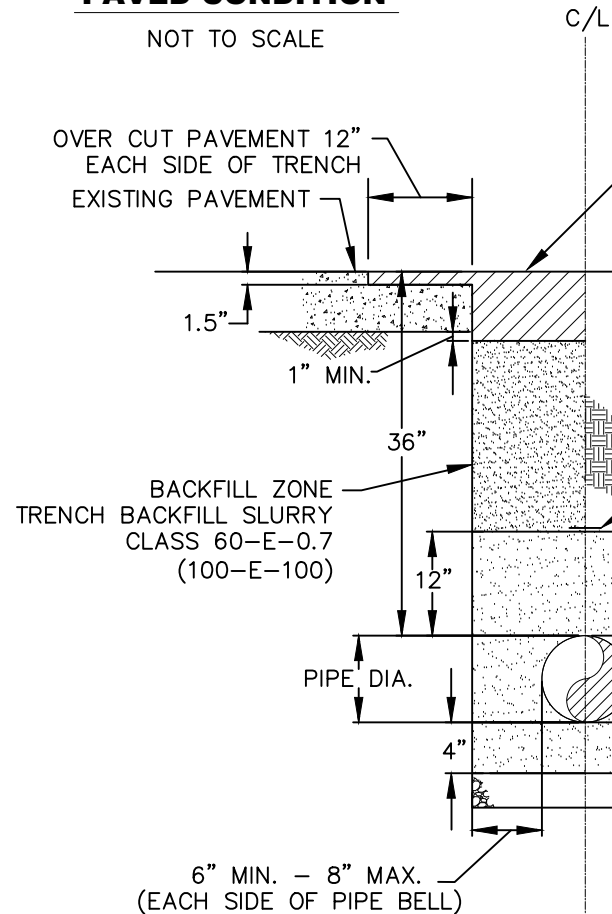
SEWER LATERAL DETAIL

# WATER & SANITATION CONSTRUCTION STANDARDS

# DRAWING S-3

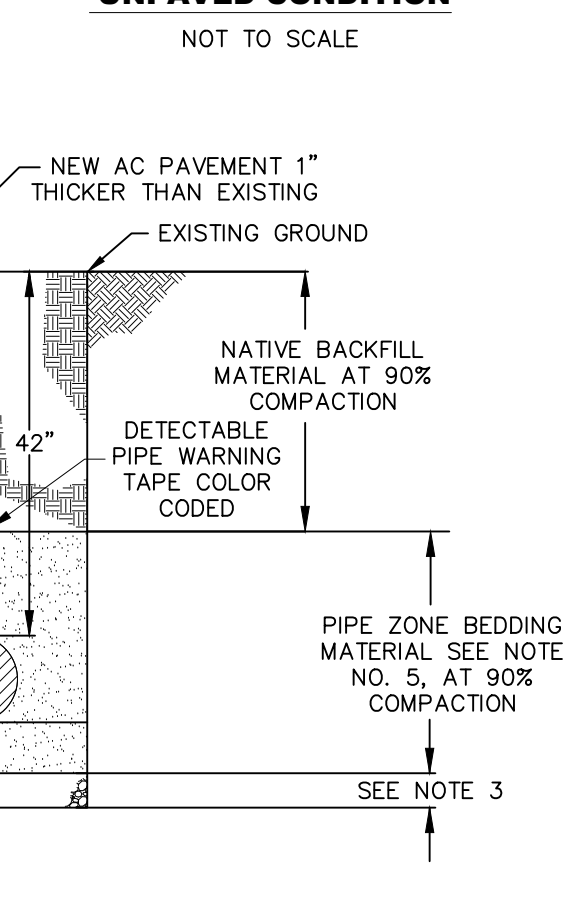
## PAVED CONDITION

NOT TO SCALE



## UNPAVED CONDITION

NOT TO SCALE



## NOTES:

1. MAINTAIN 36" MIN. COVER FOR ALL PIPES IN PAVED AREAS (ON ALL SIDES OF PIPE).
2. MAINTAIN 42" MIN. COVER FOR ALL PIPES IN UNPAVED AREAS (ON ALL SIDES OF PIPE).
3. FOUNDATION SHALL BE REQUIRED IF NATIVE MATERIAL IS SOFT, SPONGY OR UNSTABLE. WHERE OVER EXCAVATION IS REQUIRED, DEPTH AND MATERIAL SHALL BE DETERMINED BY THE DISTRICT.
4. COMPACTION SHALL NOT BE ACHIEVED BY THE USE OF FLOODING, PONDING, OR JETTING UNLESS RECOMMENDED BY SOIL ENGINEER AND APPROVED BY DISTRICT.
5. BEDDING MATERIAL SHALL BE WASHED CONC. SAND, SE > 30, AND GRANULAR WITH 100% PASSING 3/4" SIEVE, 90% TO 100% PASSING THE 3/8" SIEVE AND NOT MORE THAN 5% PASSING THE 200 SIEVE.
6. PIPE SHALL BE ORIENTED WITH PRODUCT LABEL ON TOP.
7. CONTRACTOR SHALL PROVIDE HAND EXCAVATED "BELL HOLE" FOR EACH PIPE JOINT SO THAT THE WEIGHT OF THE PIPE DOES NOT BEAR ON THE BELL. CONTRACTOR SHALL RE-FILL AND HAND-TAMP EACH "BELL HOLE" PRIOR TO COMPLETING THE PLACEMENT OF THE BEDDING.
8. IF EDGE OF ASPHALT TRENCH CAP IS WITHIN 2 FEET OF THE EXISTING EDGE OF PAVEMENT OR LIP OF GUTTER, THE OVERCUT AND PAVING SHALL BE EXTENDED TO THE EDGE OF PAVING OR LIP OF GUTTER.
9. IF DEPTH EXCEEDS 10', SAND BEDDING SHALL BE SUBSTITUTED WITH 3/8" ROCK.

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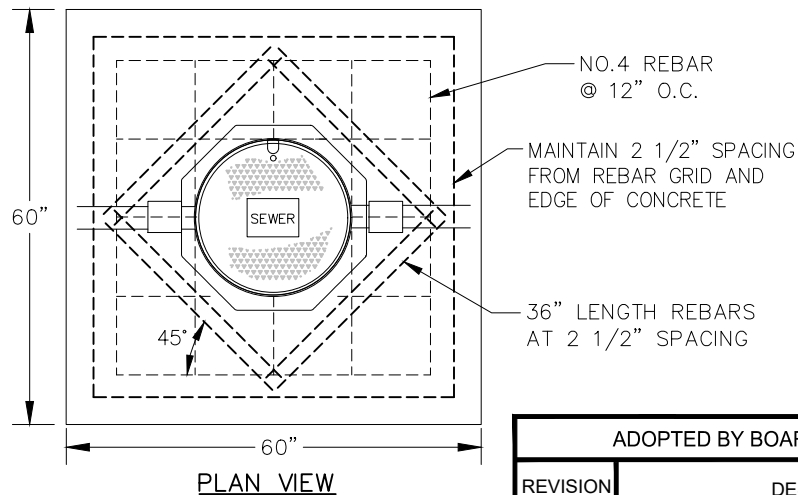
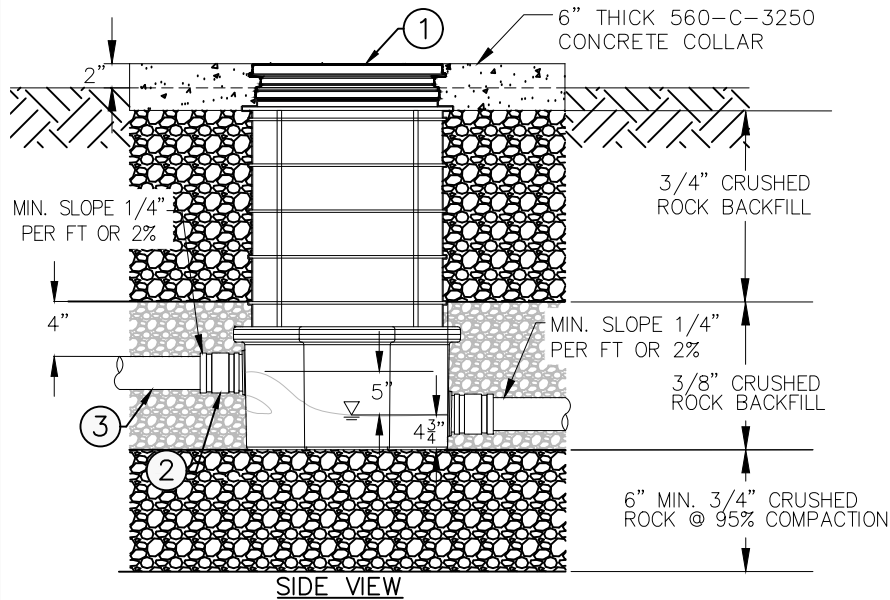
COUNTY OF VENTURA  
PUBLIC WORKS AGENCY

SEWER TRENCH DETAIL



# WATER & SANITATION CONSTRUCTION STANDARDS

# DRAWING S-4



## NOTES:

1. SAMPLING WELL SHALL BE INSTALLED WITHIN PRIVATE LOT AT DISTRICT APPROVED LOCATION AND REMAIN ACCESSIBLE TO DISTRICT OPERATIONS.
2. SAMPLING WELL SHALL BE INSTALLED DOWNSTREAM OF ISOLATED INDUSTRIAL AND/OR DOMESTIC WASTE DISCHARGE POINT WHERE CONDITIONS ALLOW.
3. FOUNDATION SHALL BE REQUIRED IF NATIVE MATERIAL IS SOFT, SPONGY OR UNSTABLE. WHERE OVER EXCAVATION IS REQUIRED, DEPTH AND MATERIAL SHALL BE DETERMINED BY THE DISTRICT.
4. PIPE SHALL BE ORIENTED WITH PIPE LABEL ON TOP.
5. THIS DETAIL IS FOR NON-TRAFFIC RATED GENERAL INSTALLATION CONDITIONS ONLY. EACH INDIVIDUAL INSTALLATION SHALL BE APPROVED BY THE DISTRICT PRIOR TO CONSTRUCTION.
6. DO NOT COMPACT AROUND SAMPLING WELL UNLESS APPROVED BY MANUFACTURER.
7. LEVEL CONCRETE COLLAR WITH EXISTING PAVEMENT FOR PAVED AREA INSTALLATIONS.

## CONSTRUCTION NOTES:

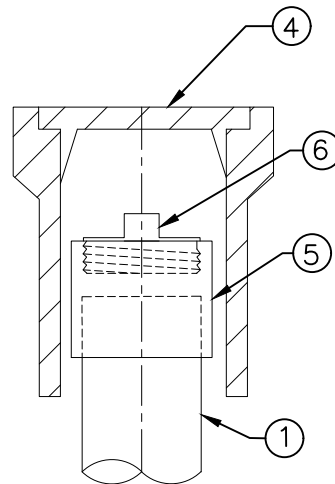
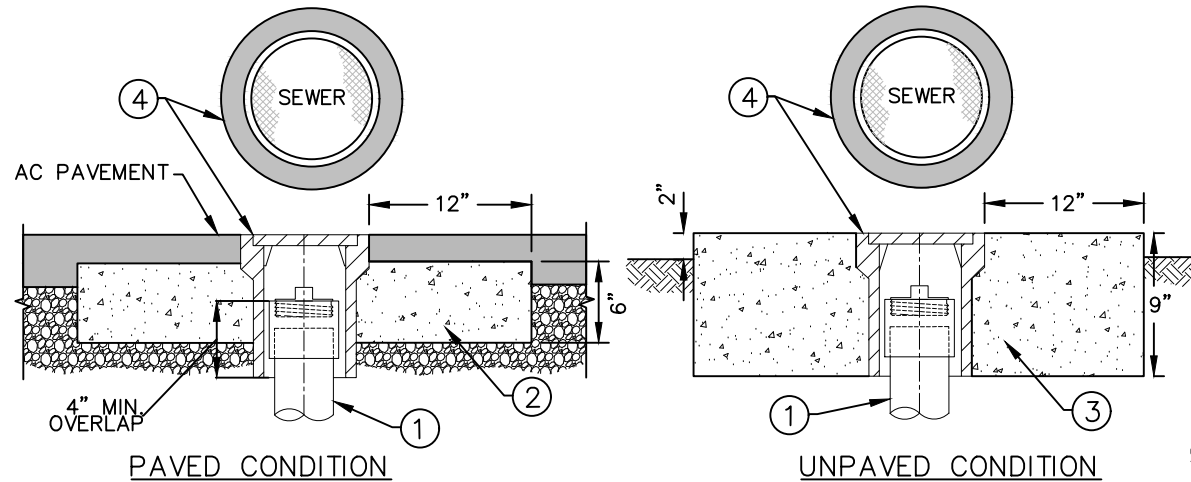
1. POLYETHYLENE SAMPLING PORT AND RISER WITH 24" CAST IRON TRAFFIC RATED COVER MARKED "SEWER".
2. STAINLESS STEEL SHIELDED DOUBLE CLAMP CALDER STYLE COUPLING.
3. PVC SDR-35 PIPE OR DISTRICT APPROVED EQUAL.

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COUNTY OF VENTURA  
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SAMPLING WELL



CONSTRUCTION NOTES:

- ① CLEANOUT RISER PIPE TO BE 8" IN DIAMETER. PVC SDR-35 OR DISTRICT APPROVED EQUAL.
- ② 560-C-3250 CONCRETE COLLAR (ROUND).
- ③ 560-C-3250 CONCRETE COLLAR (SQUARE).
- ④ PRECAST BOX, FRAME AND COVER WITH MARKING AS SHOWN HEREON.
- ⑤ SOLVENT WELD X FIPT SCH. 40 COUPLING OR DISTRICT APPROVED EQUAL.
- ⑥ PVC SCH. 40 STOPPER. MIPT PLUG WITH MALE SQUARE NUT OR DISTRICT APPROVED EQUAL.

NOTES:

1. SEWER LATERALS LARGER THAN 8" SHALL HAVE TERMINAL MANHOLE.

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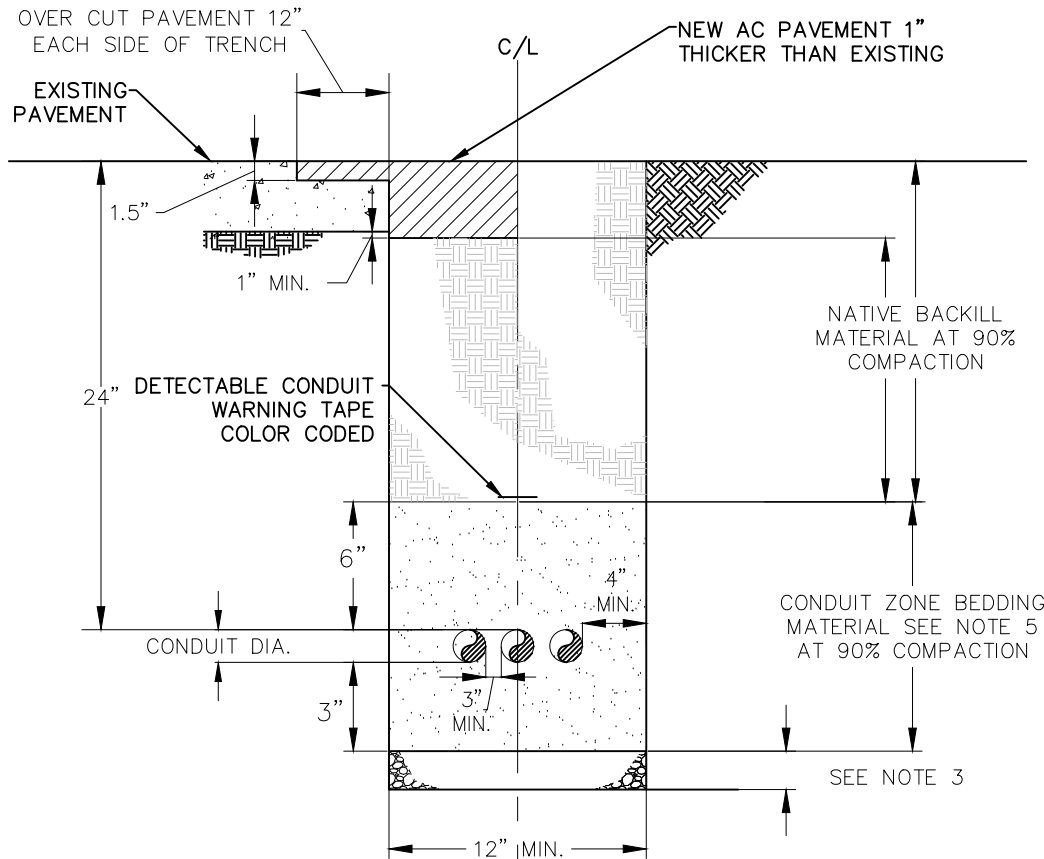
TERMINAL CLEANOUT  
DETAIL

**PAVED CONDITION**

NOT TO SCALE

**UNPAVED CONDITION**

NOT TO SCALE



**NOTES:**

1. MAINTAIN 24" MIN. COVER FOR ALL CONDUITS IN TRENCH.
2. UNDERGROUND CONDUIT SHALL BE RIGID PVC SCHEDULE 40, LABELED FOR UNDERGROUND SERVICE; MEET UL-651 AND NEMA TC-2 STANDARDS.
3. FOUNDATION SHALL BE REQUIRED IF NATIVE MATERIAL IS SOFT, SPONGY OR UNSTABLE. WHERE OVER EXCAVATION IS REQUIRED, DEPTH AND MATERIAL SHALL BE DETERMINED BY THE DISTRICT AND APPROVED BY DISTRICT.
4. COMPACTION SHALL NOT BE ACHIEVED BY THE USE OF FLOODING, PONDING, OR JETTING UNLESS RECOMMENDED BY SOILS ENGINEER.
5. BEDDING MATERIAL SHALL BE WASHED CONC. SAND, SE > 30, AND GRANULAR WITH 100% PASSING 3/4" SIEVE, 90% TO 100% PASSING THE 3/8" SIEVE, AND NOT MORE THAN 5% PASSING THE 200 SIEVE.
6. MULTIPLE CONDUITS SHALL BE INSTALLED AT SAME TRENCH ELEVATION WITH NO OVERLAYING ALLOWED.
7. CONDUIT RUN REQUIRES CONCRETE TRAFFIC RATED PULL BOX WITH COVER MARKED "ELECTRICAL" AT EACH CHANGE OF DIRECTION AND EVERY MIN. 200 FOOT RUN.
8. NO UNDERGROUND CONDUIT SHALL BE SMALLER THAN 1".
9. THIS DETAIL IS FOR GENERAL LOW VOLTAGE 120V MAX CONDITIONS. EACH INDIVIDUAL INSTALLATION SHALL BE APPROVED BY DISTRICT PRIOR TO CONSTRUCTION.

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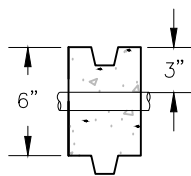
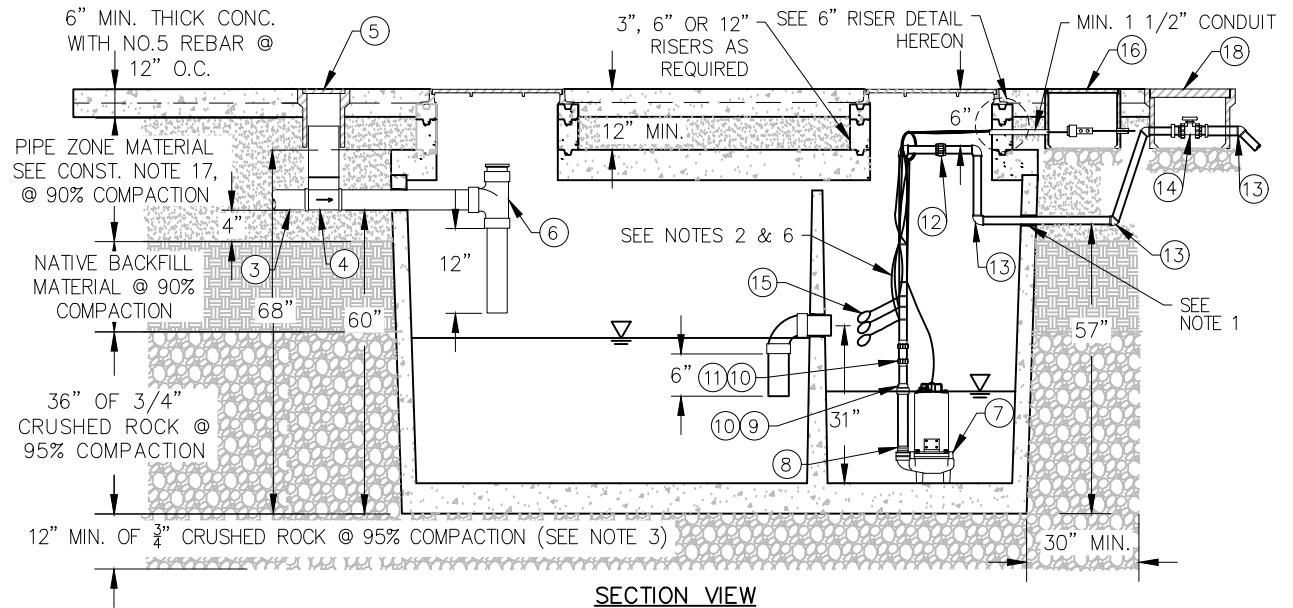
CONDUIT TRENCH  
DETAIL

# WATER & SANITATION CONSTRUCTION STANDARDS

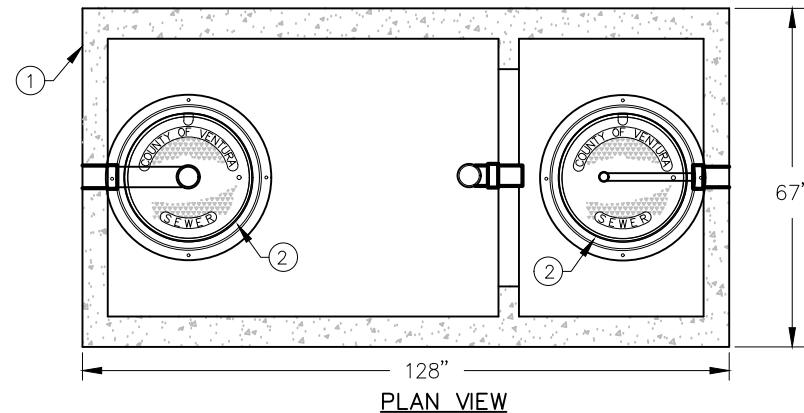
# DRAWING S-7

## CONSTRUCTION NOTES:

- ① 1500 GALLON PRECAST TRAFFIC RATED SEPTIC TANK COATED AND LINED PER DISTRICT REQUIREMENTS.
- ② 24" TRAFFIC RATED MANHOLE COVER AND FRAME PER DWG NO. S-1.
- ③ 4" PVC SDR 35 GRAVITY SEWER PIPE. MAINTAIN MIN. SLOPE 1/4" PER FT OR 2%.
- ④ 4" PVC BACKWATER FLAPPER CHECK VALVE, WITH RISER AND EXTENSION KIT.
- ⑤ SEWER CLEANOUT PER SPPWC 204.
- ⑥ 4" PVC SDR-35 SANITARY TEE.
- ⑦ SUBMERSIBLE EFFLUENT PUMP WITH DOUBLE SEAL 240V SINGLE PHASE POWER.
- ⑧ 2" SCH 80 PVC TOE NIPPLE.
- ⑨ 2" X 1 1/2" SCH 80 PVC SPIGOT REDUCER.
- ⑩ 1 1/2" SCH 80 PVC PIPE.
- ⑪ 1 1/2" PVC TRUE UNION BALL CHECK VALVE.
- ⑫ 1 1/2" SCH 80 PVC UNION.
- ⑬ 1 1/2" SCH 80 PVC ELBOW 90° INSIDE TANK AND 45° OUTSIDE TANK.
- ⑭ 1 1/2" PVC FULL PORT TRUE UNION BALL VALVE WITH TEFLON SEAT AND EPDM SEALS.
- ⑮ ADJUSTABLE LEVEL CONTROL NON-MERCURY FLOAT SWITCHES.
- ⑯ TRAFFIC RATED PULL BOX WITH COVER MARKED "ELECTRICAL".
- ⑰ WASHED CONC. SAND, SE > 30, AND GRANULAR WITH PASSING 3/4" SIEVE, 90%-100% PASSING 3/8" SIEVE AND NOT MORE THAN 5% PASSING 200 SIEVE.
- ⑱ TRAFFIC RATED VALVE BOX WITH COVER MARKED "SEWER".



6" RISER DETAIL



PLAN VIEW

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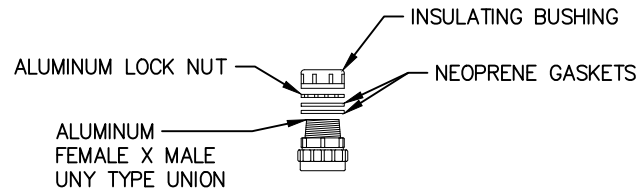
STEP TANK AND PUMP

SHEET 1 OF 2

**WATER & SANITATION CONSTRUCTION STANDARDS****DRAWING S-7**NOTES:

1. SEAL ANNULAR SPACE AROUND ANY PIPE OR CONDUIT PENETRATION WITH WATERPROOF ELASTOMERIC SEALANT SUITABLE FOR SEWER APPLICATION.
2. CONTRACTOR SHALL VERIFY CABLE LENGTHS REQUIRED. TETHER SUFFICIENT LENGTH CABLE TO DISCHARGE PIPE TO ALLOW COMPLETE REMOVAL OF PUMP AND PIPE ASSEMBLY.
3. FOUNDATION SHALL BE REQUIRED IF NATIVE MATERIAL IS SOFT, SPONGY OR UNSTABLE. WHERE OVER EXCAVATION IS REQUIRED, DEPTH AND MATERIAL SHALL BE DETERMINED BY THE DISTRICT.
4. COMPACTION SHALL NOT BE ACHIEVED BY THE USE OF FLOODING, PONDING OR JETTING.
5. UNLESS DETAILED OTHERWISE, ALL PRESSURE PIPING SHALL BE SOCKET WELDED.
6. SECURELY ATTACH FLOATS AND CABLES TO DISCHARGE PIPE. CONFIRM ELEVATION LOCATION OF FLOATS WITH DISTRICT.
7. TRAFFIC RATED BOXES REQUIRE 6" MIN. BASE OF 3/4" CRUSHED ROCK.
8. THIS DETAIL IS FOR GENERAL INSTALLATION CONDITIONS ONLY. EACH INDIVIDUAL INSTALLATION SHALL BE DESIGNED BY A QUALIFIED ENGINEER AND APPROVED BY THE DISTRICT PRIOR TO CONSTRUCTION.
9. LOCATE STEP TANK MIN. OF 5' FROM ANY BUILDING, TREE, OR STRUCTURE; AND NEAR THE PUBLIC RIGHT-OF-WAY.

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			SHEET 2 OF 2

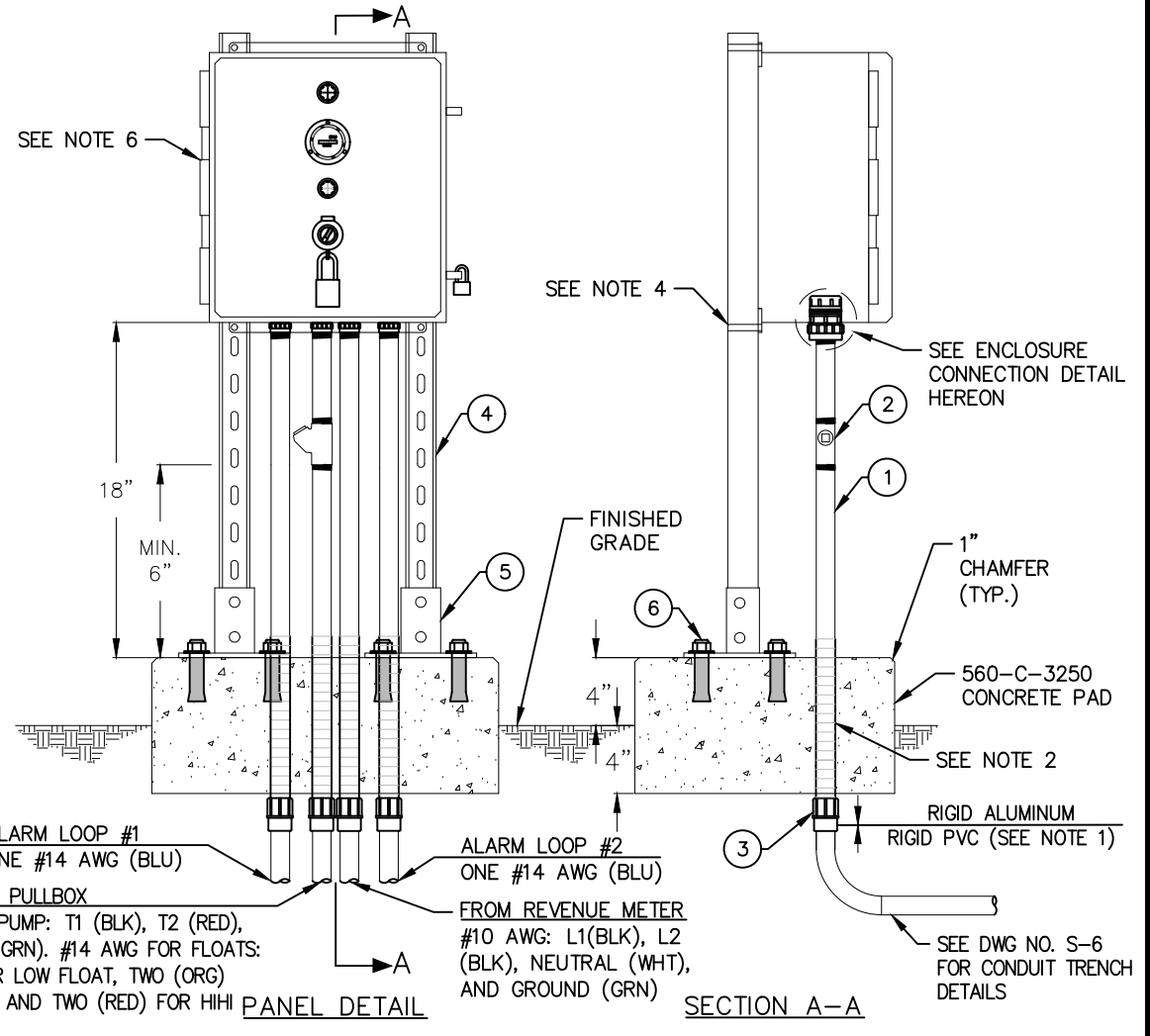


## CONSTRUCTION NOTES:

- ① THREADED RIGID ALUMINUM CONDUIT.
- ② EXPLOSION PROOF SEAL OFF PER UL-1203. SEE NOTE 3.
- ③ FEMALE ADAPTER.
- ④ STAINLESS STEEL UNISTRUT.
- ⑤ STAINLESS STEEL STRUT FLOOR MOUNT.
- ⑥ STAINLESS STEEL 1/2" DIA. 4" LONG WEDGE ANCHOR ASSEMBLY.

## NOTES:

1. ABOVEGROUND CONDUITS AND FITTINGS SHALL BE UL-6A LISTED RIGID ALUMINUM. UNDERGROUND CONDUITS AND FITTINGS SHALL BE RIGID PVC SCHEDULE 40, LABELED FOR UNDERGROUND SERVICE, AND MEET UL-651 AND NEMA TC-2 STANDARDS.
2. PVC TAPE WRAP SLAB PENETRATION THROUGH FEMALE ADAPTER.
3. CONDUIT SEAL-OFFS SHALL BE FILLED AND SEALED USING UL LISTED COMPOUND.
4. ALL UNISTRUT ASSEMBLY HARDWARE SHALL BE STAINLESS STEEL.
5. NO CONDUIT SHALL BE SMALLER THAN 1".
6. CONTACT DISTRICT OFFICE FOR DESIGN REQUIREMENTS FOR PANEL AND WIRING.



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COUNTY OF VENTURA PUBLIC WORKS AGENCY
STEP CONTROL PANEL