



CITY OF SEAL BEACH STANDARD DRAWINGS

2021 Edition

STANDARD DRAWINGS FOR WATER FACILITIES

2021

<i>W-1</i>	<i>DESIGN CRITERIA FOR SEPARATION OF WATER AND SEWER MAINS</i>
<i>W-2</i>	<i>¾" AND 1" WATER SERVICE INSTALLATION</i>
<i>W-3</i>	<i>1 ½" AND 2" WATER SERVICE INSTALLATION</i>
<i>W-4</i>	<i>3" WATER METER ASSEMBLY</i>
<i>W-5</i>	<i>MULTIPLE WATER SERVICE CONNECTIONS</i>
<i>W-6</i>	<i>1" AND 2" COMBINATION AIR & VACUUM RELEASE VALVE ASSEMBLY</i>
<i>W-7</i>	<i>WATER TEST STATION</i>
<i>W-8</i>	<i>HOT TAP CONNECTION</i>
<i>W-9</i>	<i>WATER VALVE BOX INSTALLATION</i>
<i>W-10</i>	<i>THRUST BLOCK DETAILS</i>
<i>W-11</i>	<i>BEDDING DETAILS</i>
<i>W-12</i>	<i>TEMPORARY PLUG AND BLOWOFF</i>
<i>W-13</i>	<i>STANDARD FIRE HYDRANT</i>
<i>W-14</i>	<i>FIRE HYDRANT DEMOLITION</i>
<i>W-15</i>	<i>FIRE DOUBLE CHECK DETECTOR BACKFLOW PREVENTION ASSEMBLY</i>
<i>W-16</i>	<i>REDUCED PRESSURE BACKFLOW ASSEMBLY</i>
<i>W-17</i>	<i>STEEL PIPE JOINT DETAILS</i>
<i>W-18</i>	<i>WATER SIPHON</i>
<i>W-19</i>	<i>PIPE SUPPORT ASSEMBLY</i>
<i>W-20</i>	<i>MAIN LINE VALVE LOCATION</i>
<i>W-21</i>	<i>STANDARD MATERIALS LIST</i>

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH, CRITERIA FOR WATER MAIN SEPARATION [SECTION 64572]

THE CALIFORNIA WATERWORKS STANDARDS (CALIFORNIA CODE OF REGULATIONS (CCR), TITLE 22, DIVISION 4, CHAPTER 16, SECTION 64572) ESTABLISH CRITERIA FOR THE SEPARATION OF NEW WATER MAINS FROM NON-POTABLE PIPELINES. PUBLIC WATER SYSTEMS SHOULD ENSURE THAT THESE DISTANCES ARE MET, WHENEVER FEASIBLE, FOR ALL NEW CONSTRUCTION. THE DIVISION OF DRINKING WATER (DIVISION) RECOGNIZES THAT CERTAIN CONDITIONS MAY CALL FOR THE INSTALLATION OF PIPELINES WITH LESS SEPARATION DISTANCE THAN WHAT IS REQUIRED BY THE REGULATIONS. IN THESE SITUATIONS, THE WATER SYSTEM MAY PROPOSE AN ALTERNATIVE PURSUANT TO CCR, TITLE 22, SECTION 64551.100:

IT WILL BE THE CITY'S RESPONSIBILITY TO DETERMINE IF THE MITIGATION MEASURE SHOULD BE SUBMITTED TO THE HEALTH DEPARTMENT FOR REVIEW.

§64551.100. WAIVERS AND ALTERNATIVES.

(A) A WATER SYSTEM THAT PROPOSES TO USE AN ALTERNATIVE TO A REQUIREMENT IN THIS CHAPTER SHALL:



- (1) DEMONSTRATE TO THE STATE BOARD THAT THE PROPOSED ALTERNATIVE WOULD PROVIDE AT LEAST THE SAME LEVEL OF PROTECTION TO PUBLIC HEALTH; AND
- (2) OBTAIN WRITTEN APPROVAL FROM THE STATE BOARD PRIOR TO IMPLEMENTATION OF THE ALTERNATIVE.

IN PROPOSING AN ALTERNATIVE TO THE WATERWORKS STANDARDS, WATER SYSTEMS SHOULD OBSERVE THE FOLLOWING:

- THE WATER SYSTEM MUST ACCEPT RESPONSIBILITY FOR THE ADEQUACY OF THE PROPOSED ALTERNATIVE. THE DIVISION MAY REQUIRE A WRITTEN STATEMENT, SIGNED BY THE WATER SYSTEM'S MANAGEMENT, CERTIFYING THAT THE PROPOSED ALTERNATIVE ADEQUATELY PROTECTS PUBLIC HEALTH.
- IN MOST CIRCUMSTANCES, THE DIVISION CANNOT OFFER TECHNICAL ASSISTANCE WITH PIPELINE OR INFRASTRUCTURE DESIGN. THE WATER SYSTEM PROPOSING AN ALTERNATIVE MUST DEMONSTRATE ADEQUATE EXPERTISE ON THE PART OF ITS OWN PERSONNEL OR ITS HIRED CONSULTANTS.
- THE WATER SYSTEM SHOULD DESCRIBE HOW THE PROPOSED ALTERNATIVE PROVIDES AT LEAST THE SAME LEVEL OF PROTECTION TO PUBLIC HEALTH AS THE MINIMUM SEPARATION DISTANCES PRESCRIBED IN THE REGULATION.
- WHILE EXORBITANT COST MAY PRESENT A HARDSHIP IN MEETING THE REGULATORY SEPARATION REQUIREMENTS AND CAN BE CONSIDERED, PUBLIC HEALTH MUST BE PRIORITIZED ABOVE CONSTRUCTION COSTS IN DETERMINING AN ACCEPTABLE ALTERNATIVE.

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

DESIGN CRITERIA FOR SEPARATION OF WATER AND SEWER MAINS

DRAWN BY: M. URIBE	APPROVED BY: 		W-1
CHECKED BY: J. LEE	10/7/2021		
DATE: OCT 2021	DATE		
SCALE: NO SCALE	DIRECTOR OF PUBLIC WORKS		SHEET 1 OF 5

§64572. WATER MAIN SEPARATION.

(A) NEW WATER MAINS AND NEW SUPPLY LINES SHALL NOT BE INSTALLED IN THE SAME TRENCH AS, AND SHALL BE AT LEAST 10 FEET HORIZONTALLY FROM AND ONE FOOT VERTICALLY ABOVE, ANY PARALLEL PIPELINE CONVEYING:

- (1) UNTREATED SEWAGE,
- (2) PRIMARY OR SECONDARY TREATED SEWAGE,
- (3) DISINFECTED SECONDARY-2.2 RECYCLED WATER (DEFINED IN SECTION 60301.220),
- (4) DISINFECTED SECONDARY-23 RECYCLED WATER (DEFINED IN SECTION 60301.225), AND
- (5) HAZARDOUS FLUIDS SUCH AS FUELS, INDUSTRIAL WASTES, AND WASTEWATER SLUDGE.

(B) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM, AND ONE FOOT VERTICALLY ABOVE, ANY PARALLEL PIPELINE CONVEYING:

- (1) DISINFECTED TERTIARY RECYCLED WATER (DEFINED IN SECTION 60301.230), AND
- (2) STORM DRAINAGE.

(C) NEW SUPPLY LINES CONVEYING RAW WATER TO BE TREATED FOR DRINKING PURPOSES SHALL BE INSTALLED AT LEAST 4 FEET HORIZONTALLY FROM, AND ONE FOOT VERTICALLY BELOW, ANY WATER MAIN.

(D) IF CROSSING A PIPELINE CONVEYING A FLUID LISTED IN SUBSECTION (A) OR (B), A NEW WATER MAIN SHALL BE CONSTRUCTED NO LESS THAN 45-DEGREES TO AND AT LEAST ONE FOOT ABOVE THAT PIPELINE. NO CONNECTION JOINTS SHALL BE MADE IN THE WATER MAIN WITHIN EIGHT HORIZONTAL FEET OF THE FLUID PIPELINE.

(E) THE VERTICAL SEPARATION SPECIFIED IN SUBSECTIONS (A), (B), AND (C) IS REQUIRED ONLY WHEN THE HORIZONTAL DISTANCE BETWEEN A WATER MAIN AND PIPELINE IS LESS THAN TEN FEET.

(F) NEW WATER MAINS SHALL NOT BE INSTALLED WITHIN 100 HORIZONTAL FEET OF THE NEAREST EDGE OF ANY SANITARY LANDFILL, WASTEWATER DISPOSAL POND, OR HAZARDOUS WASTE DISPOSAL SITE, OR WITHIN 25 HORIZONTAL FEET OF THE NEAREST EDGE OF ANY CESSPOOL, SEPTIC TANK, SEWAGE LEACH FIELD, SEEPAGE PIT, UNDERGROUND HAZARDOUS MATERIAL STORAGE TANK, OR GROUNDWATER RECHARGE PROJECT SITE.

(G) THE MINIMUM SEPARATION DISTANCES SET FORTH IN THIS SECTION SHALL BE MEASURED FROM THE NEAREST OUTSIDE EDGE OF EACH PIPE BARREL.

(H) WITH STATE BOARD APPROVAL, NEWLY INSTALLED WATER MAINS MAY BE EXEMPT FROM THE SEPARATION DISTANCES IN THIS SECTION, EXCEPT SUBSECTION (F), IF THE NEWLY INSTALLED MAIN IS:

- (1) LESS THAN 1320 LINEAR FEET,
- (2) REPLACING AN EXISTING MAIN, INSTALLED IN THE SAME LOCATION, AND HAS A DIAMETER NO GREATER THAN SIX INCHES MORE THAN THE DIAMETER OF THE MAIN IT IS REPLACING, AND
- (3) INSTALLED IN A MANNER THAT MINIMIZES THE POTENTIAL FOR CONTAMINATION, INCLUDING, BUT NOT LIMITED TO:
 - (A) SLEEVING THE NEWLY INSTALLED MAIN, OR
 - (B) UTILIZING UPGRADED PIPING MATERIAL.

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

DESIGN CRITERIA FOR SEPARATION OF WATER AND SEWER MAINS



DRAWN BY:	M. URIBE	APPROVED BY:	
CHECKED BY:	J. LEE	 DIRECTOR OF PUBLIC WORKS	10/7/2021 DATE
DATE:	OCT 2021		
SCALE:	NO SCALE		W-1 SHEET 2 OF 5

FIGURE 1: CASE SECTION 64572 (a) WATER MAIN PARALLEL CONSTRUCTION

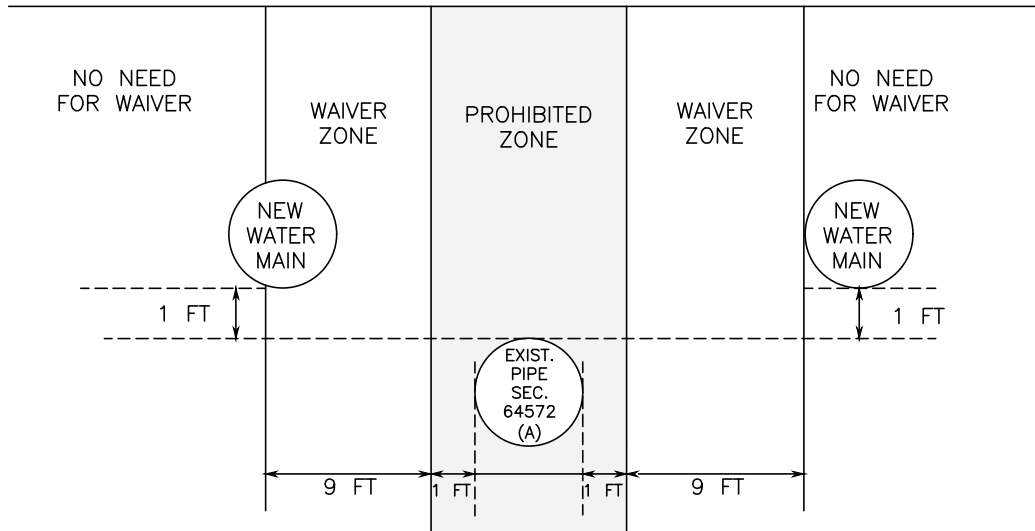
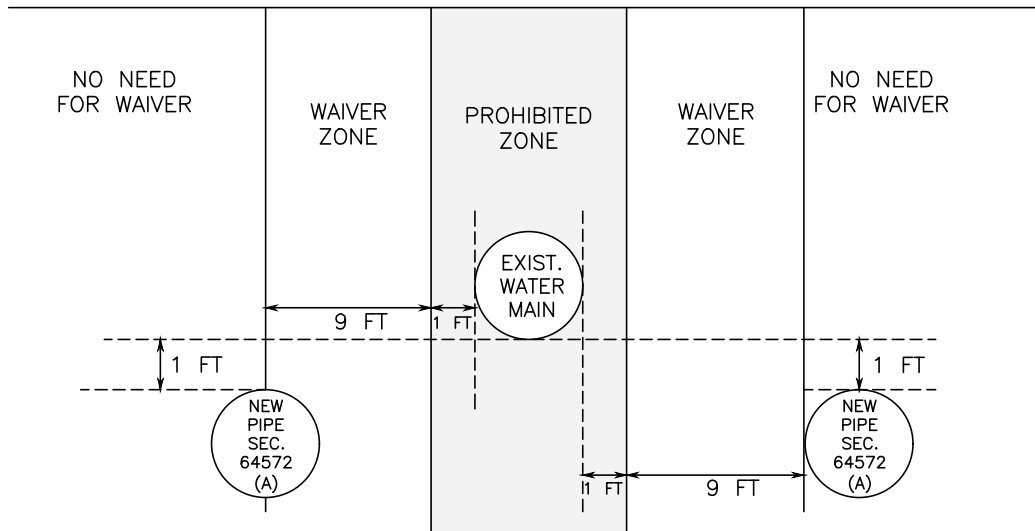


FIGURE 2: SECTION 64572 (a) UTILITY PIPE PARALLEL CONSTRUCTION



SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

DESIGN CRITERIA FOR SEPARATION OF WATER AND SEWER MAINS

DRAWN BY: M. URIBE	APPROVED BY:		W-1
CHECKED BY: J. LEE	<i>[Signature]</i>		
DATE: OCT 2021	10/7/2021		
SCALE: NO SCALE	DIRECTOR OF PUBLIC WORKS DATE		
			SHEET 3 OF 5

FIGURE 3: SECTION 64572 (b) & (c) NEW WATER MAIN PARALLEL CONSTRUCTION

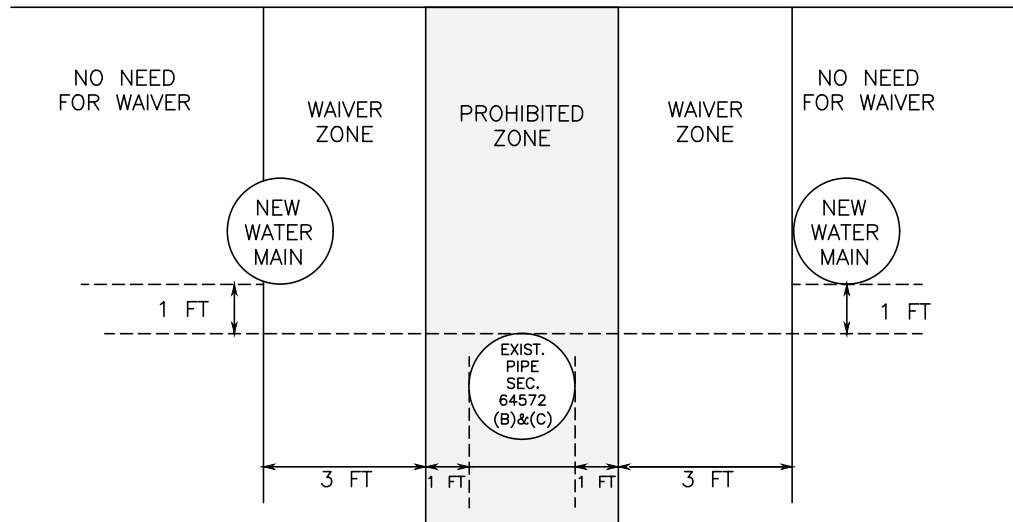
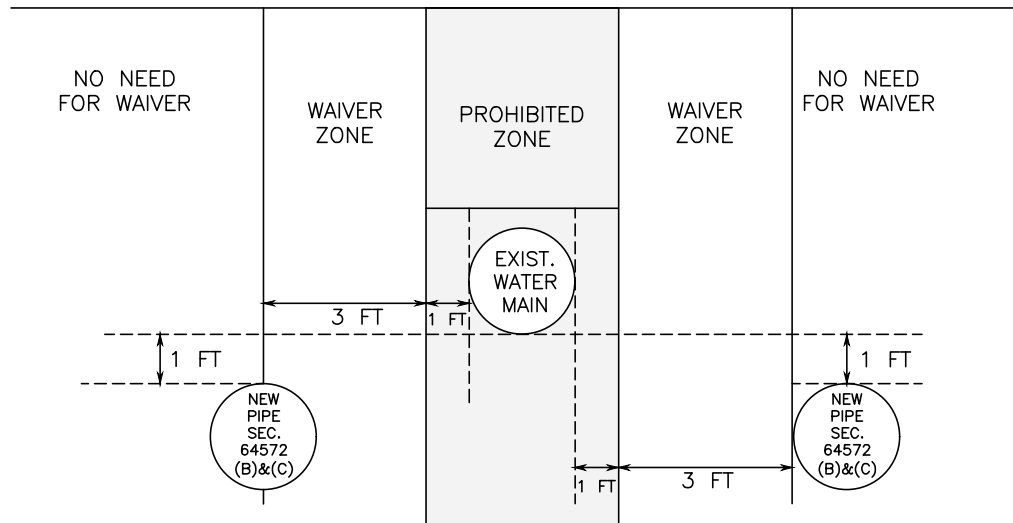


FIGURE 4: SECTION 64572 (b) & (c) UTILITY PIPE PARALLEL CONSTRUCTION

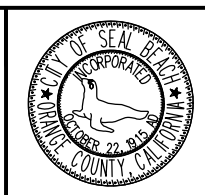


SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

DESIGN CRITERIA FOR SEPARATION OF WATER AND SEWER MAINS

DRAWN BY:	M. URIBE
CHECKED BY:	J. LEE
DATE:	OCT 2021
SCALE:	NO SCALE

APPROVED BY:	
DIRECTOR OF PUBLIC WORKS	
	10/7/2021
	DATE



W-1
SHEET 4 OF 5

FIGURE 5: SECTION 64572 (D) NEW UTILITY MAIN CROSSING CONSTRUCTION

NOTE: TO MAXIMIZE THE LENGTH OF PIPE WITHOUT JOINTS IN ZONE C, AN 18 TO 20+ FOOT PIPE LENGTH CAN BE CENTERED ABOVE A WATER MAIN WITH A DIAMETER OF LESS THAN 24-INCHES

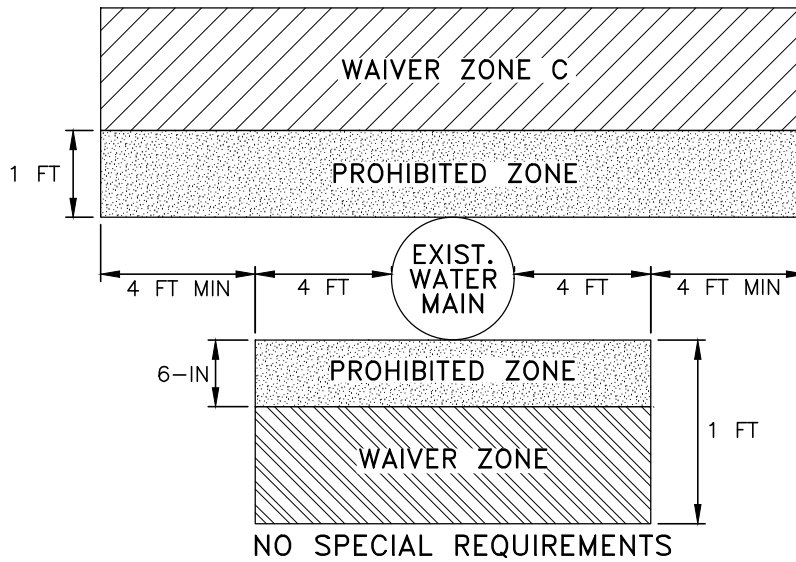
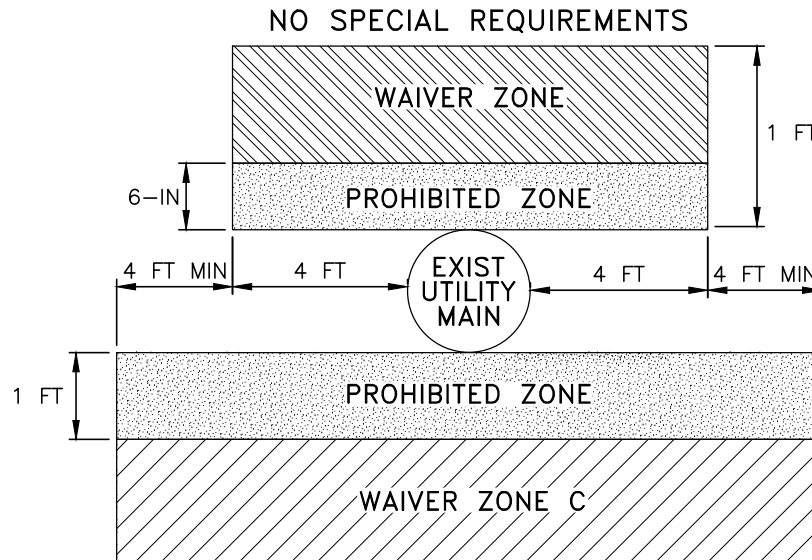




FIGURE 6: SECTION 64572 (D) NEW WATER MAIN CROSSING CONSTRUCTION

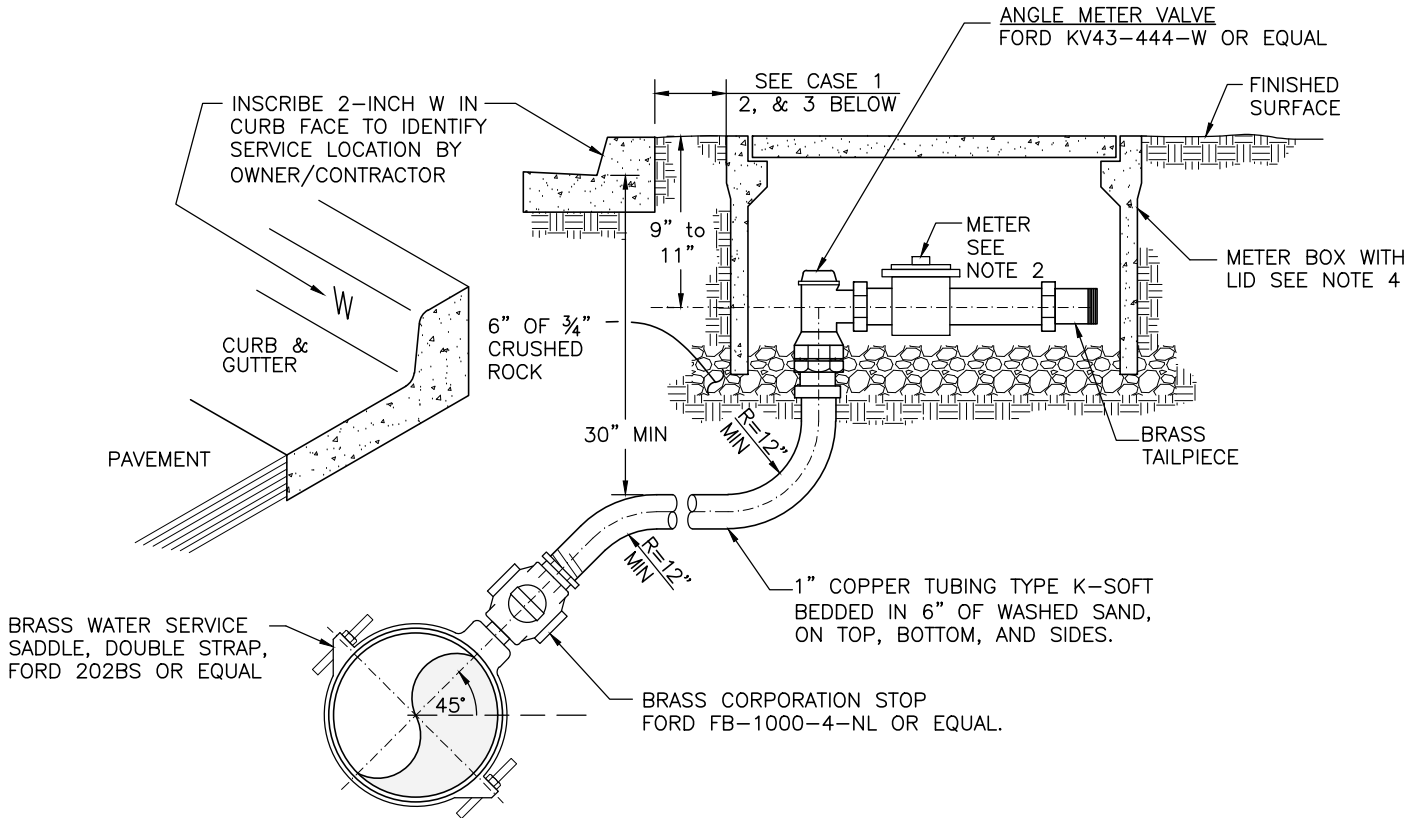
NOTE: TO MAXIMIZE THE LENGTH OF PIPE WITHOUT JOINTS IN ZONE C, AN 18 TO 20+ FOOT PIPE LENGTH CAN BE CENTERED ABOVE A NON-POTABLE MAIN WITH A DIAMETER OF LESS THAN 24-INCHES



SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

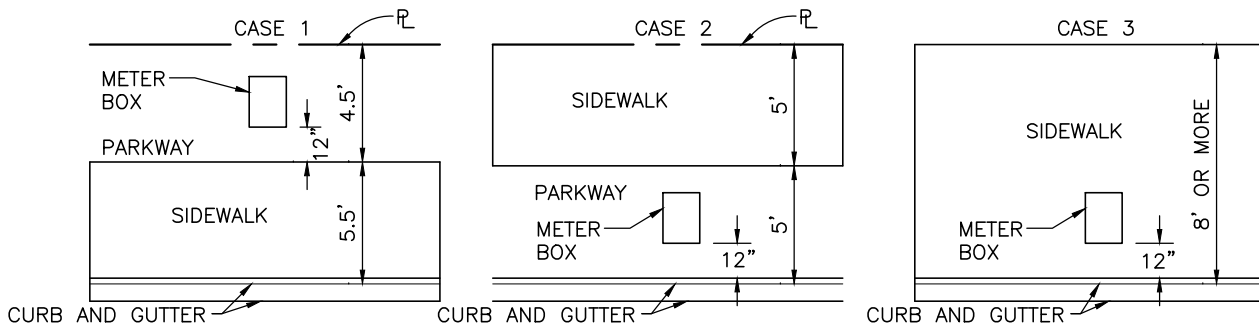
DESIGN CRITERIA FOR SEPARATION OF WATER AND SEWER MAINS

DRAWN BY:	M. URIBE	APPROVED BY:	
CHECKED BY:	J. LEE	 DIRECTOR OF PUBLIC WORKS	10/7/2021 DATE
DATE:	OCT 2021		
SCALE:	NO SCALE		
			W-1 SHEET 5 OF 5




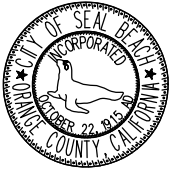
NOTES:

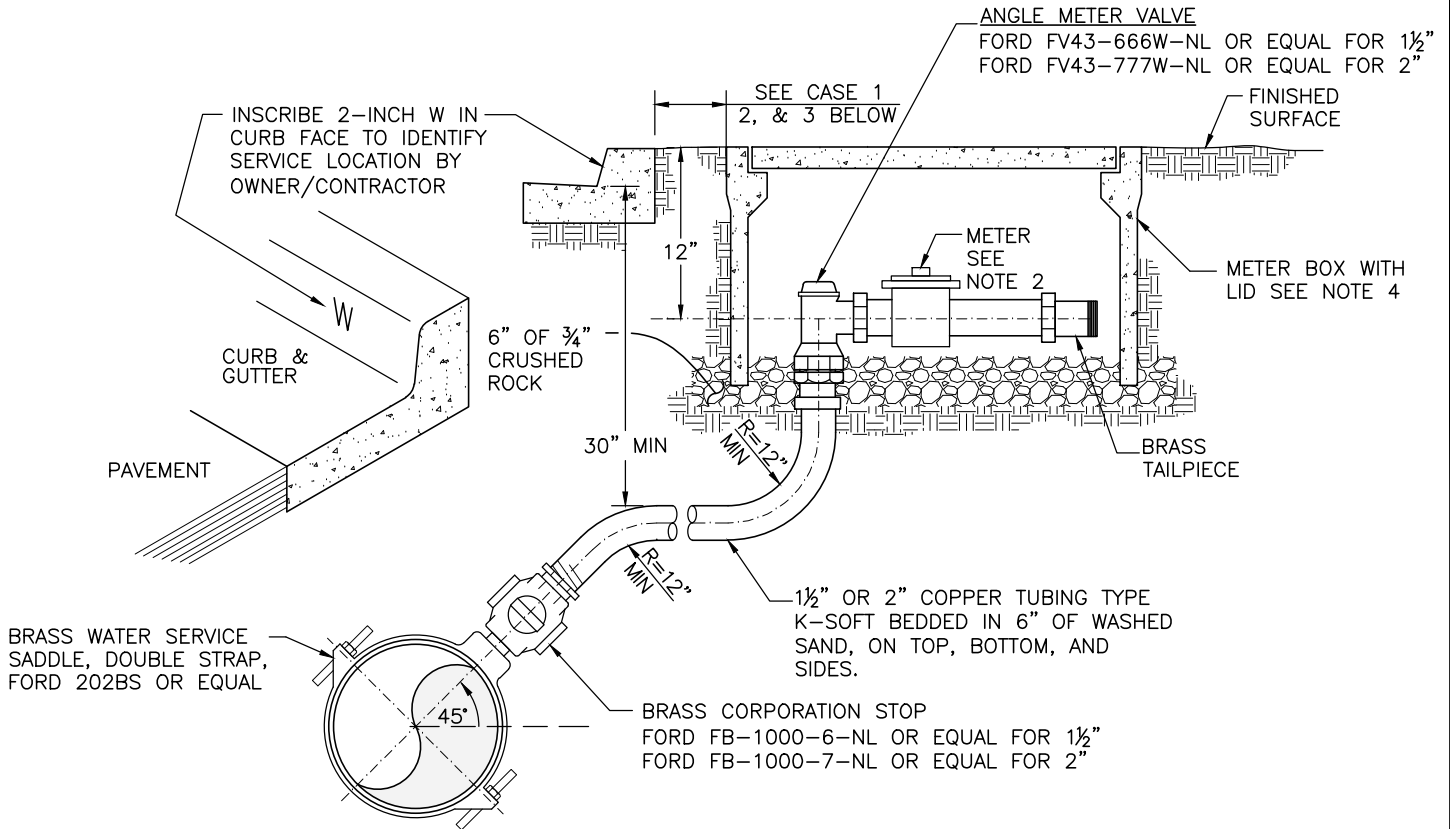
1. SERVICE SADDLE SHALL NOT BE INSTALLED WITHIN 18" OF VALVE, COUPLING, JOINT OR FITTING. TAPPED COUPLINGS ARE NOT PERMITTED.
2. WATER SERVICES AND METER BOXES TO BE INSTALLED BY THE CONTRACTOR AND APPROVED AND INSPECTED BY CITY. METER TO BE INSTALLED BY THE WATER DIVISION AND PAID FOR BY THE DEVELOPER/OWNER.
3. IN ALLEYS, METER BOX SHALL BE 4" TO 6" FROM PROPERTY LINE IN THE PUBLIC RIGHT OF WAY.
4. FOR TRAFFIC LOADING AREAS USE ARMORCAST A600484T-30K. NON-TRAFFIC AREAS USE ARMORCAST A600484. VERIFY WITH CITY PRIOR TO ORDERING.
5. ALL FITTINGS SHALL BE COMPRESSION FITTINGS.
6. ALL COPPER PIPE SHALL BE COVERED WITH 4 MIL PLASTIC SLEEVING. SEAL ENDS WITH 10 MIL TAPE. PLASTIC SLEEVING SHALL BE SPECIALTY PRODUCTS P-3015/P-3016 OR APPROVED EQUAL.



SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

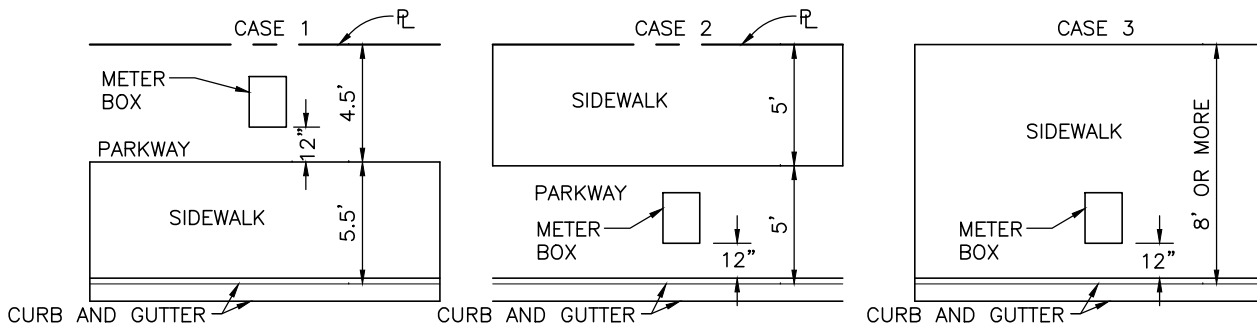
3/4" & 1" WATER SERVICE INSTALLATION

DRAWN BY: M. URIBE	APPROVED BY: 		W-2
CHECKED BY: J. LEE	DIRECTOR OF PUBLIC WORKS		
DATE: OCT 2021			
SCALE: NO SCALE			SHEET 1 OF 1





NOTES:

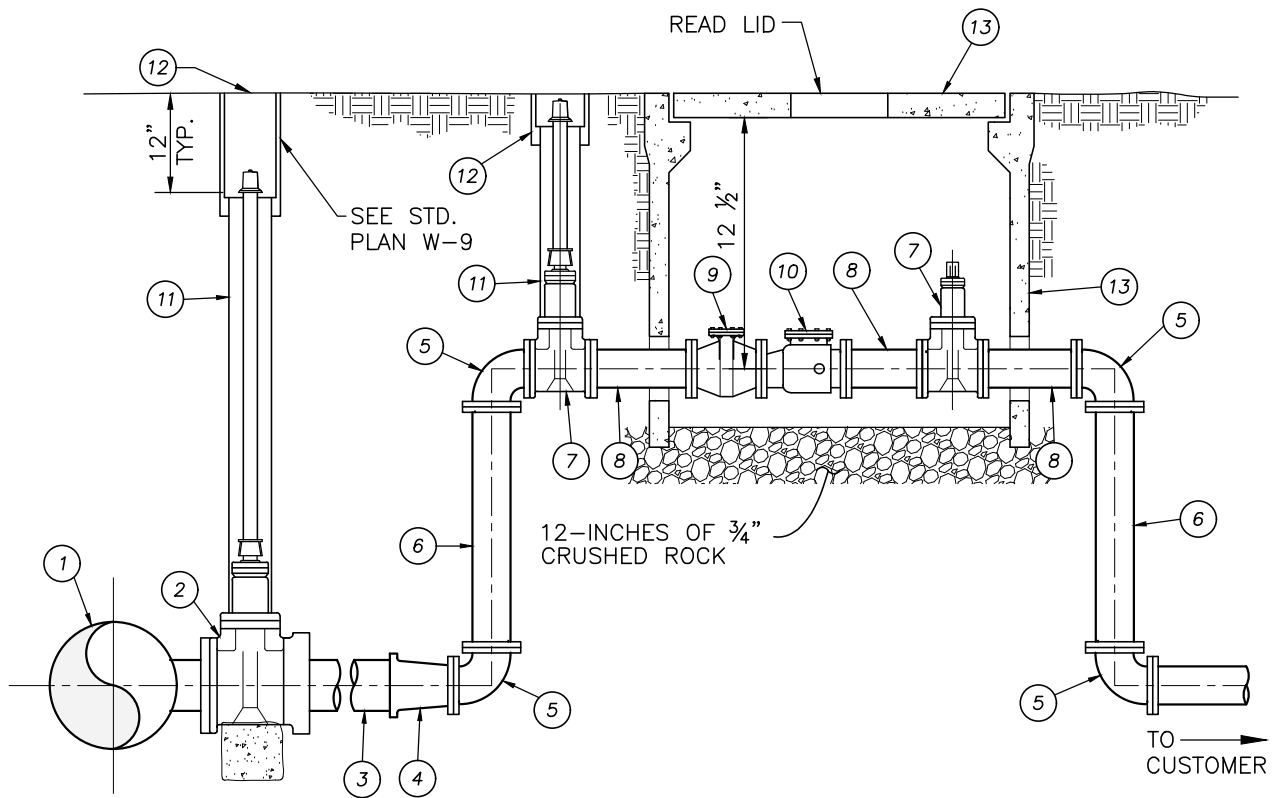
1. SERVICE SADDLE SHALL NOT BE INSTALLED WITHIN 18" OF VALVE, COUPLING, JOINT OR FITTING. TAPPED COUPLINGS ARE NOT PERMITTED.
2. WATER SERVICES AND METER BOXES TO BE INSTALLED BY THE CONTRACTOR AND APPROVED AND INSPECTED BY CITY. METER TO BE INSTALLED BY THE WATER DIVISION AND PAID FOR BY THE DEVELOPER/OWNER.
3. IN ALLEYS, METER BOX SHALL BE 4" TO 6" FROM PROPERTY LINE IN THE PUBLIC RIGHT OF WAY.
4. FOR TRAFFIC LOADING AREAS USE ARMORCAST A600484T-30K. NON-TRAFFIC AREAS USE ARMORCAST A600484. VERIFY WITH CITY PRIOR TO ORDERING.
5. ALL FITTINGS SHALL BE COMPRESSION FITTINGS.
6. ALL COPPER PIPE SHALL BE COVERED WITH 4 MIL PLASTIC SLEEVING. SEAL ENDS WITH 10 MIL TAPE. PLASTIC SLEEVING SHALL BE SPECIALTY PRODUCTS P-3015/P-3016 OR APPROVED EQUAL.



SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

1 1/2" AND 2" WATER SERVICE INSTALLATION

DRAWN BY: M. URIBE	APPROVED BY: 		W-3
CHECKED BY: J. LEE	10/7/2021 DATE		
DATE: OCT 2021	DIRECTOR OF PUBLIC WORKS		
SCALE: NO SCALE			SHEET 1 OF 1



- ① WATER MAIN POINT OF CONNECTION
- ② 4" (RW) GATE VALVE (FLG X MJ) PER STD. PLAN W-9.
- ③ 4" PVC WATER PIPE DR 14 (LENGTH VARIES)
- ④ 4" X 3" REDUCER (MJ X FLG)
- ⑤ 3" FLG'D 90° ELBOW WITH THRUST BLOCK PER STD PLAN W-10
- ⑥ 3" FLG'D D.I.P. SPOOL (LENGTH VARIES)
- ⑦ 3" FLG'D (RW) GATE VALVE (WITH 2" OPERATING NUT)
- ⑧ 3" FLG'D D.I.P. SPOOL (12" LONG)
- ⑨ 3" FLG'D WATER METER STRAINER
- ⑩ 3" WATER METER—TURBO COMPOUND CONTACT PUBLIC WORKS FOR METER SPECS.
- ⑪ 8" DIA. NON-FERROUS VALVE STACK
- ⑫ EISEL 4TT VALVE BOX COVER — MARKED WATER
- ⑬ ARMORCAST #A6001430PCX12 WATER METER BOX.

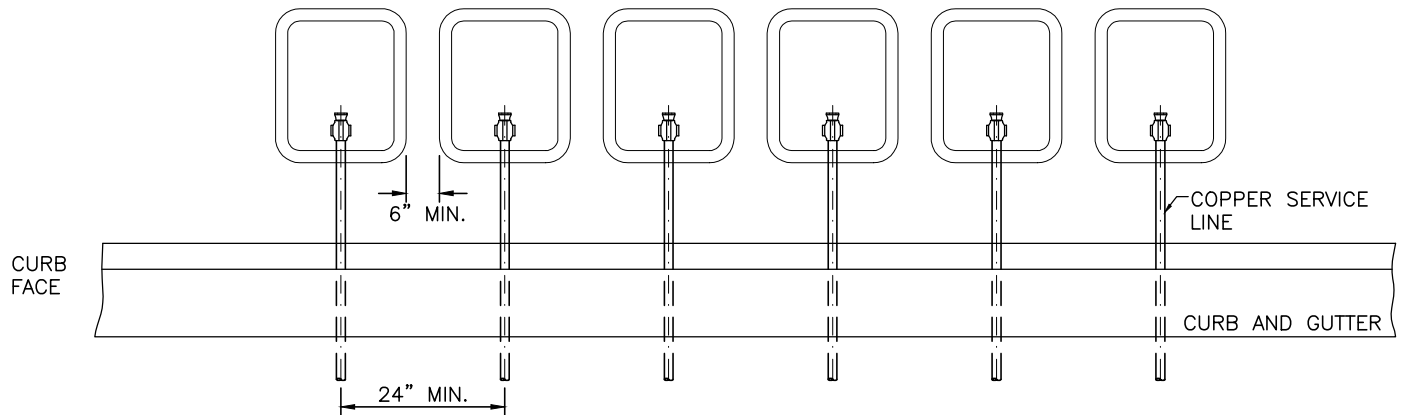
NOTES:

1. THE OVERALL LAYING LENGTH FOR THE 3-INCH WATER METER ASSEMBLY IS ±8 FT.
2. SELECT A LOCATION WHICH WILL ACCOMODATE THE WATER METER ASSEMBLY AND WHERE THE SURFACE IS RELATIVELY FLAT.

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

3" WATER METER ASSEMBLY

DRAWN BY: M. URIBE	APPROVED BY: DIRECTOR OF PUBLIC WORKS	10/7/2021 DATE		<h1 style="margin: 0;">W-4</h1>
CHECKED BY: J. LEE				
DATE: OCT 2021				
SCALE: NO SCALE				SHEET 1 OF 1





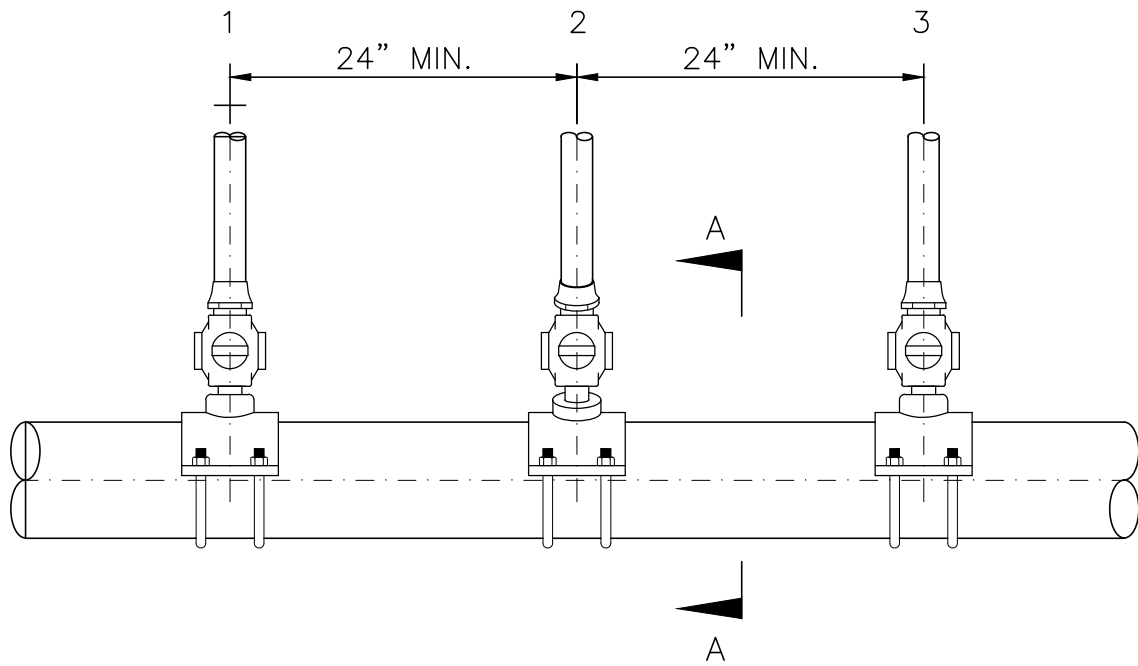
GENERAL NOTES:

1. METER BOXES SHALL BE PLACED SUCH THAT SPACE BETWEEN BOXES IS A MINIMUM OF 4 INCHES.
2. WHERE PRACTICAL, A CONCRETE SLAB SHALL BE POURED AROUND AND BETWEEN METER BOXES.
3. FOR TRAFFIC LOADING AREAS USE ARMORCAST A600484T-30K. NON-TRAFFIC AREAS USE ARMORCAST A600484. VERIFY WITH CITY PRIOR TO ORDERING.
4. NO DRIVEWAY/CURB RAMP INSTALLATIONS. INSTALL PERPENDICULAR TO PARKWAY.

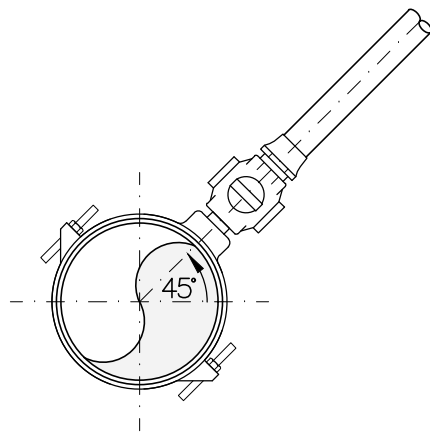
SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

MULTIPLE WATER SERVICE CONNECTIONS

DRAWN BY: M. URIBE	APPROVED BY: 		W-5
CHECKED BY: J. LEE	10/7/2021		
DATE: OCT 2021	DATE		
SCALE: NO SCALE	DIRECTOR OF PUBLIC WORKS		



PLAN VIEW



SECTION A-A

GENERAL NOTES:

1. REFER TO STD. PLAN W-2 AND W-3 FOR ADDITIONAL WATER SERVICE DETAILS.

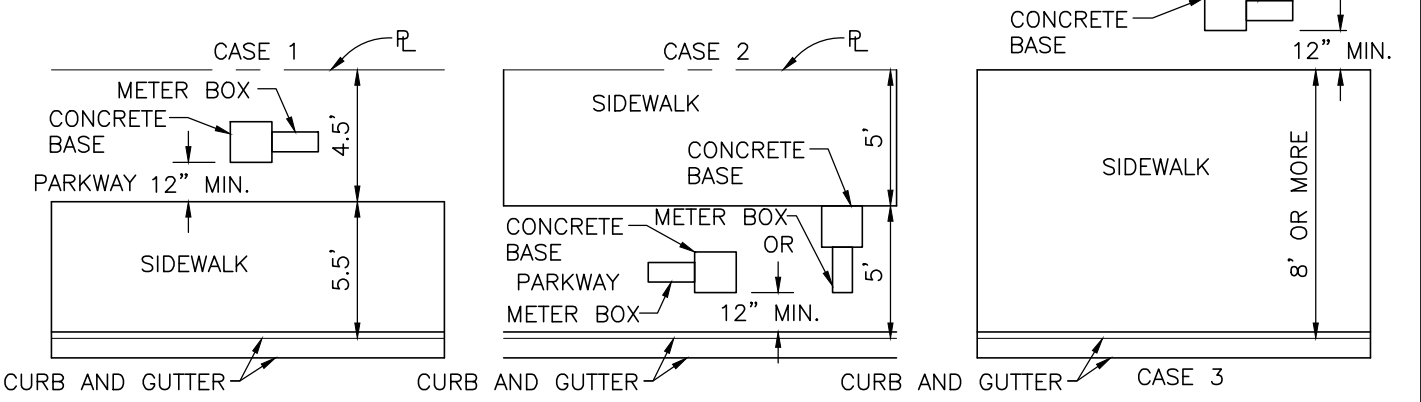
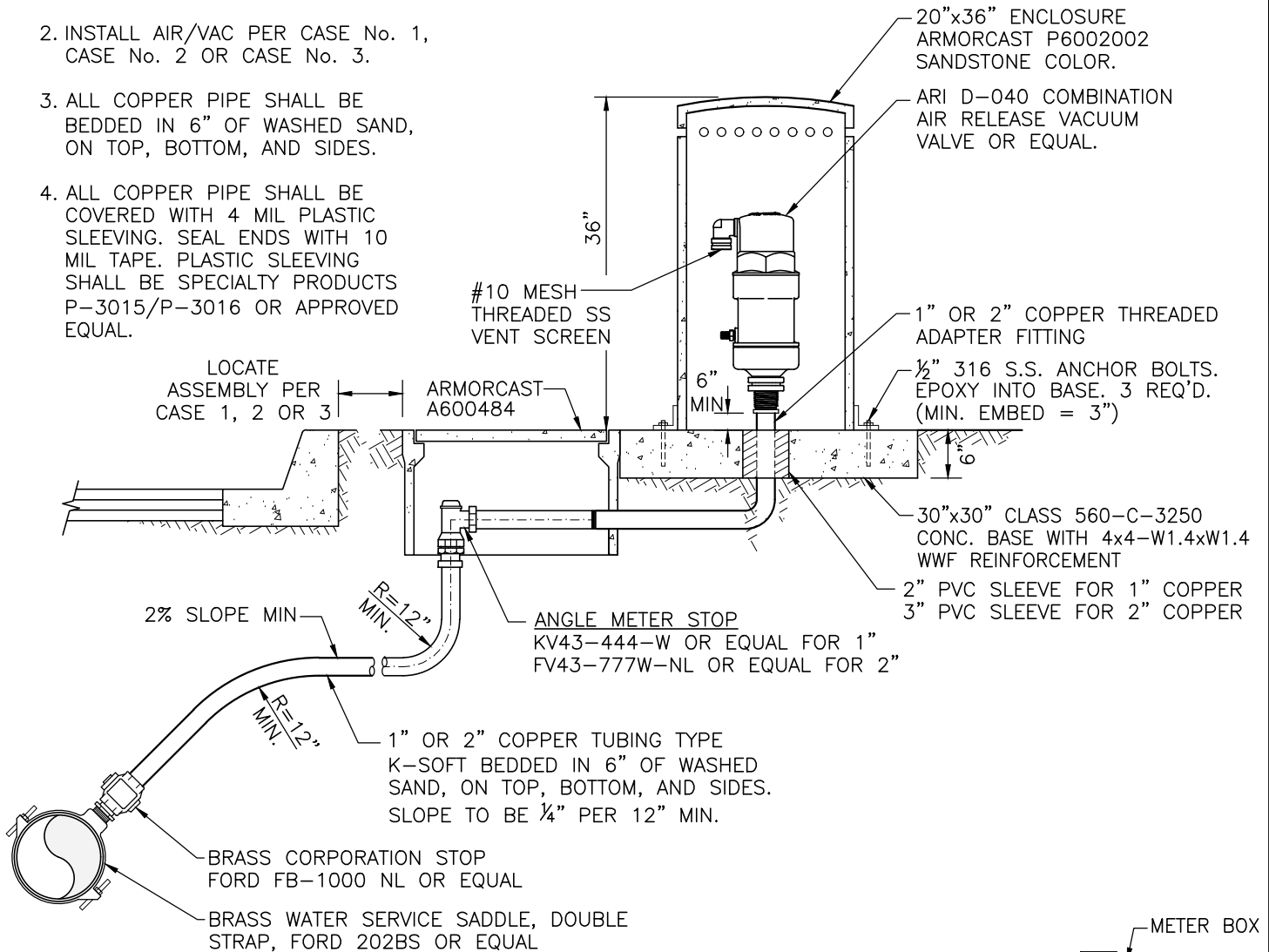
SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

MULTIPLE WATER SERVICE CONNECTIONS

DRAWN BY: M. URIBE	APPROVED BY:		W-5
CHECKED BY: J. LEE			
DATE: OCT 2021			10/7/2021 DATE
SCALE: NO SCALE			

NOTES:

1. ALL COPPER TUBING CONNECTIONS SHALL BE MADE WITH COMPRESSION FITTINGS.
2. INSTALL AIR/VAC PER CASE No. 1, CASE No. 2 OR CASE No. 3.
3. ALL COPPER PIPE SHALL BE BEDDED IN 6" OF WASHED SAND, ON TOP, BOTTOM, AND SIDES.
4. ALL COPPER PIPE SHALL BE COVERED WITH 4 MIL PLASTIC SLEEVING. SEAL ENDS WITH 10 MIL TAPE. PLASTIC SLEEVING SHALL BE SPECIALTY PRODUCTS P-3015/P-3016 OR APPROVED EQUAL.



SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

1" AND 2" COMBINATION AIR & VACUUM RELEASE VALVE ASSEMBLY

DRAWN BY:	M. URIBE
CHECKED BY:	J. LEE
DATE:	OCT 2021
SCALE:	NO SCALE

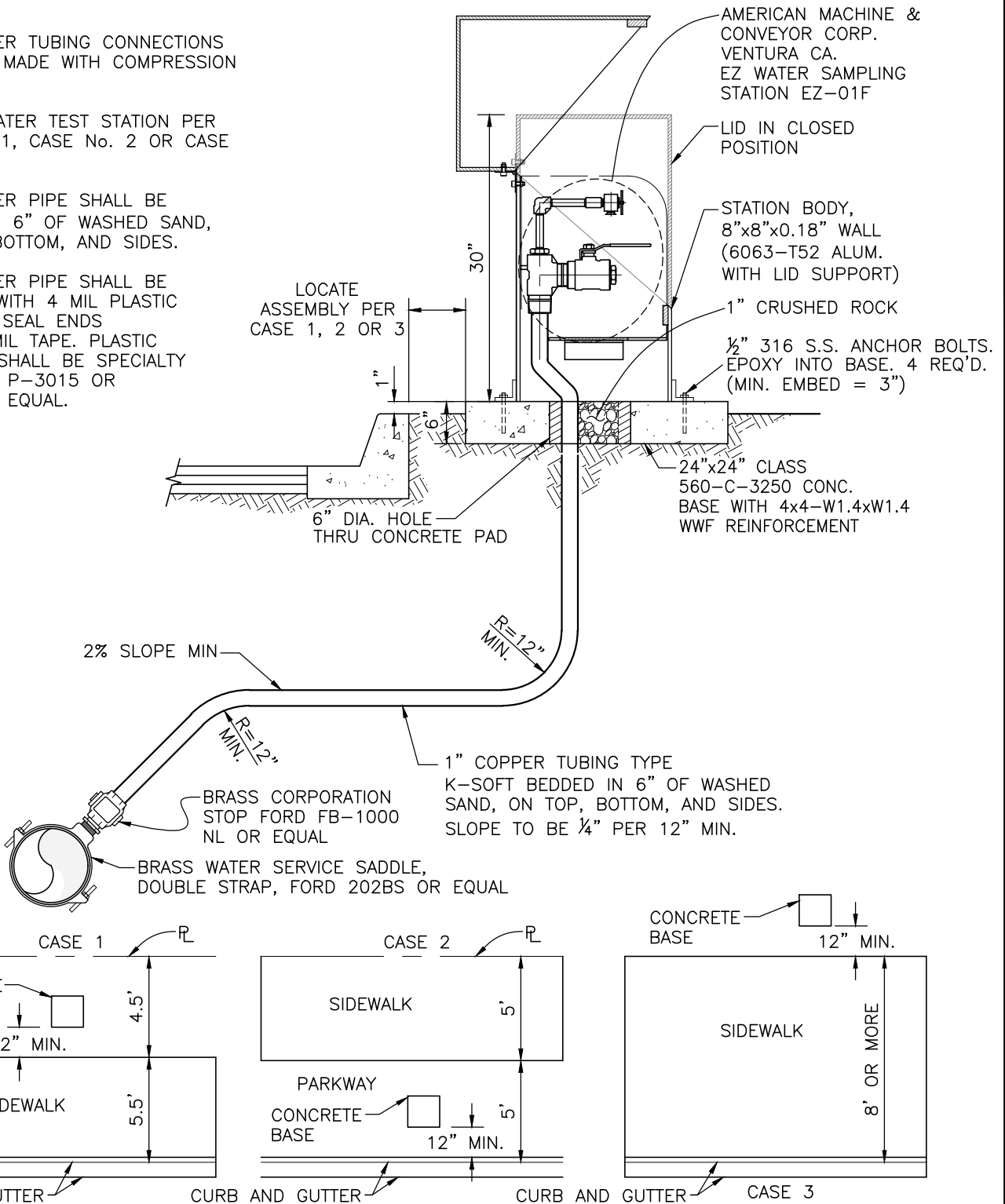
APPROVED BY:	
DIRECTOR OF PUBLIC WORKS	10/7/2021
	DATE



W-6
SHEET 1 OF 1

NOTES:

1. ALL COPPER TUBING CONNECTIONS SHALL BE MADE WITH COMPRESSION FITTINGS.
2. INSTALL WATER TEST STATION PER CASE No. 1, CASE No. 2 OR CASE No. 3.
3. ALL COPPER PIPE SHALL BE BEDDED IN 6" OF WASHED SAND, ON TOP, BOTTOM, AND SIDES.
4. ALL COPPER PIPE SHALL BE COVERED WITH 4 MIL PLASTIC SLEEVING. SEAL ENDS WITH 10 MIL TAPE. PLASTIC SLEEVING SHALL BE SPECIALTY PRODUCTS P-3015 OR APPROVED EQUAL.



SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

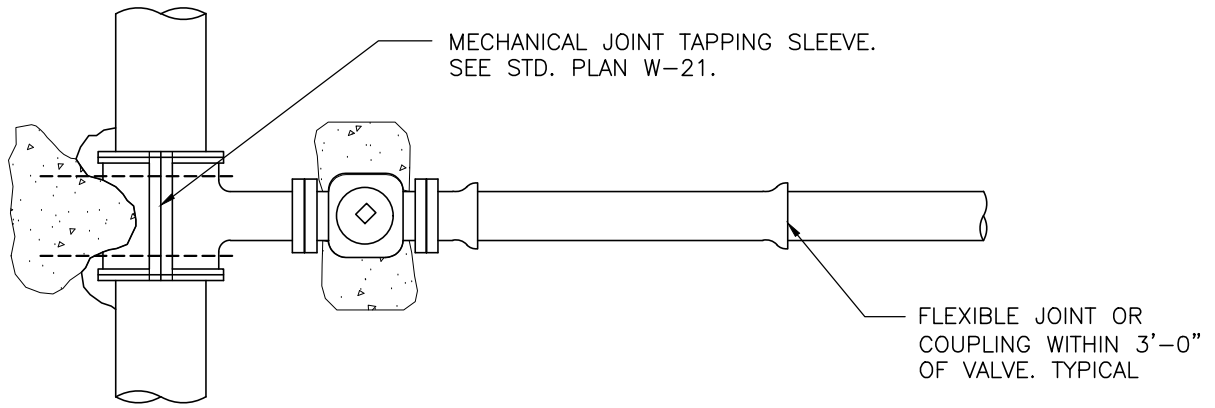
WATER TEST STATION

DRAWN BY:	M. URIBE
CHECKED BY:	J. LEE
DATE:	OCT 2021
SCALE:	NO SCALE

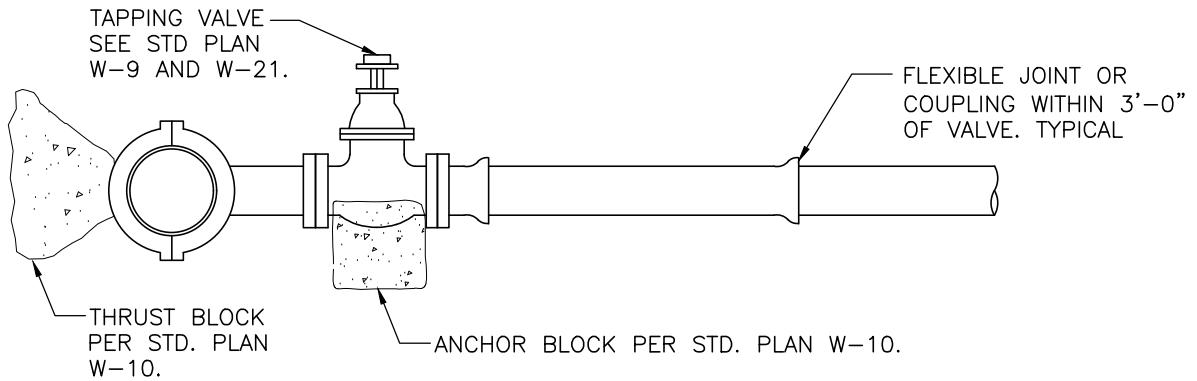
APPROVED BY:	
DIRECTOR OF PUBLIC WORKS	10/7/2021
	DATE



W-7
SHEET 1 OF 1



PLAN

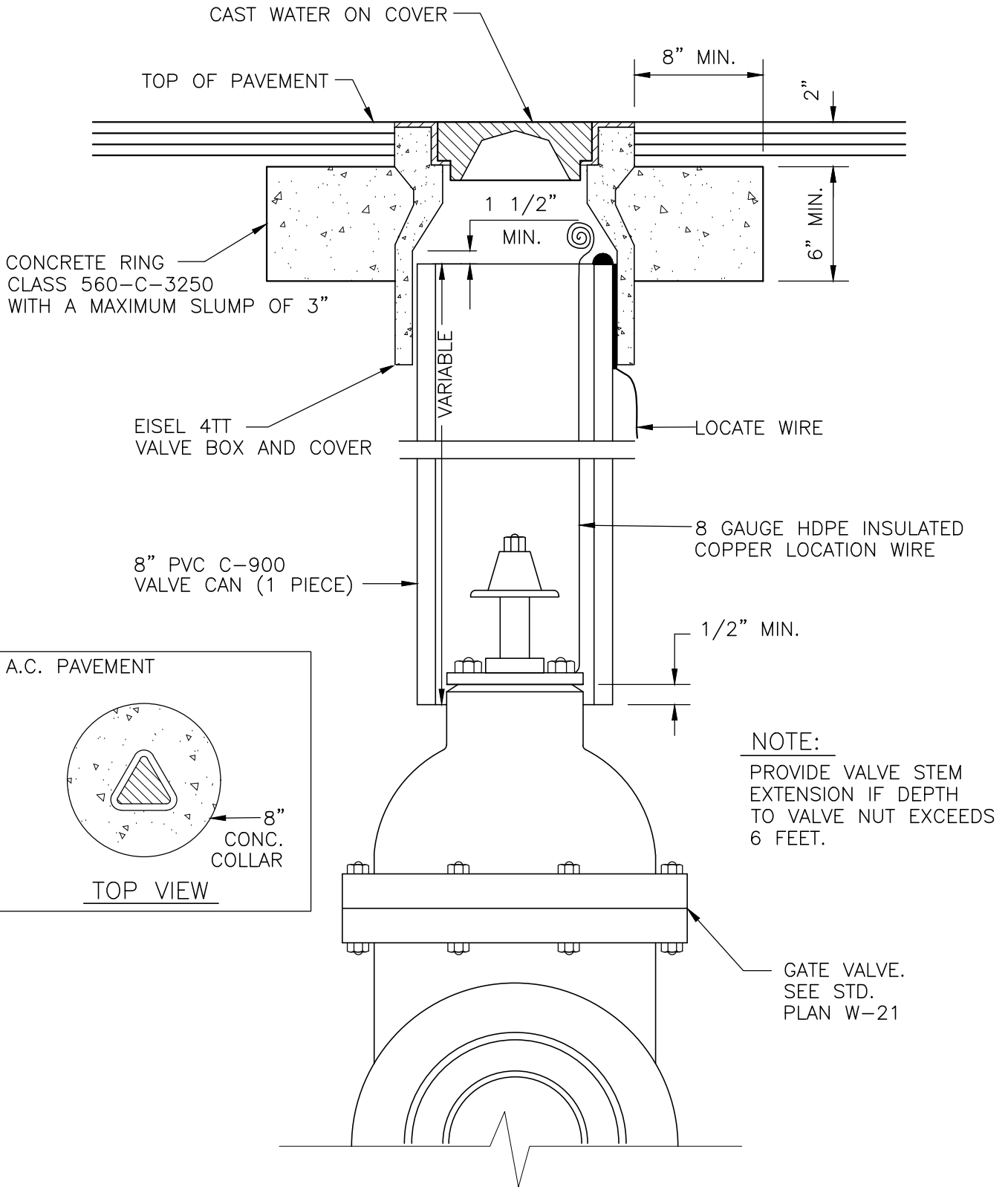


SECTION

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

HOT TAP CONNECTION


DRAWN BY: M. URIBE	APPROVED BY:		W-8
CHECKED BY: J. LEE			
DATE: OCT 2021	10/7/2021		SHEET 1 OF 1
SCALE: NO SCALE	DIRECTOR OF PUBLIC WORKS		

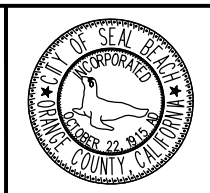


SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

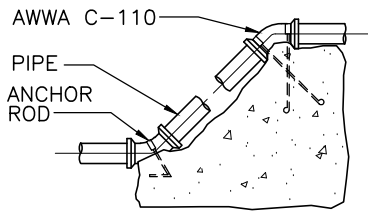
WATER VALVE BOX INSTALLATION

DRAWN BY:	M. URIBE
CHECKED BY:	J. LEE
DATE:	OCT 2021
SCALE:	NO SCALE

APPROVED BY:	
	
DIRECTOR OF PUBLIC WORKS	10/7/2021
	DATE

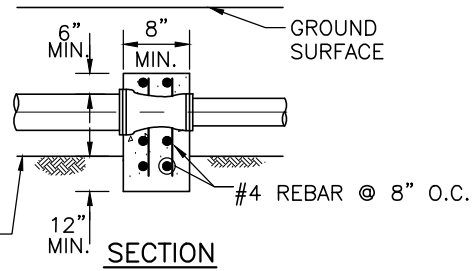
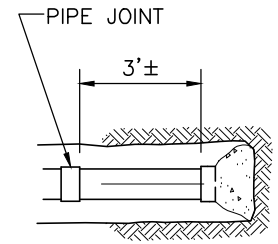
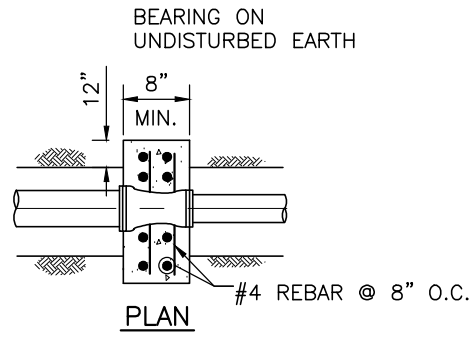


W-9
SHEET 1 OF 1

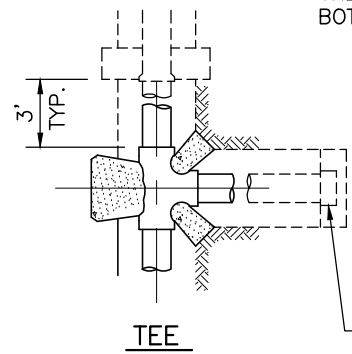


NOTE:
ANCHOR STRAPS SHALL BE #4 EPOXY COATED REBAR OR STAINLESS STEEL WITH ACI HOOKED ENDS. ALL EXPOSED REBAR SHALL BE COATED WITH NO-OX-ID "A SPECIAL" GREASE AND WRAP.

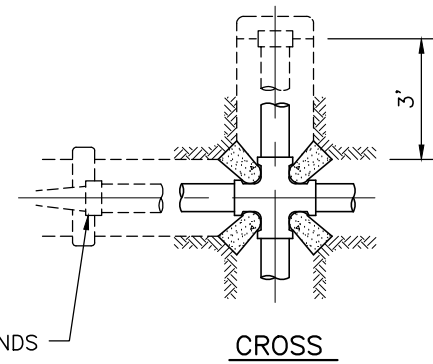
VERTICAL ANCHORS



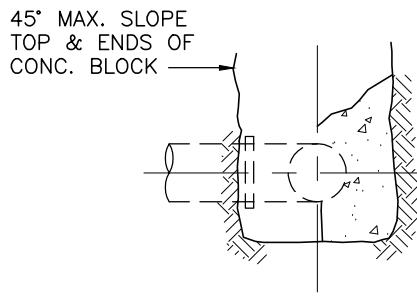
PLUG OR CAPPED END



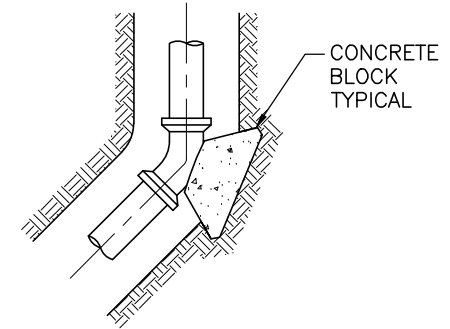
REDUCER



REDUCERS AND CAPPED ENDS WHERE INDICATED



SECTION OF THRUST BLOCK



PLAN VIEW OF THRUST BLOCK

NOTES:

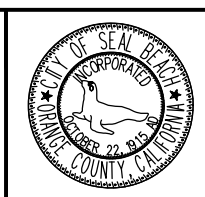
1. ALL FITTINGS SHALL MEET THE AWWA C-110 STANDARDS
2. CONCRETE BLOCKS SHALL BEAR ON UNDISTURBED EARTH
3. FOR SIZES OF CONCRETE BLOCKS, SEE STD. PLAN W-10, SHEET 3 OF 4.
4. INSTALL TRACER WIRE AND DETECTABLE TAPE OVER PIPE.
5. CONCRETE SHALL BE 560-C-3250.

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

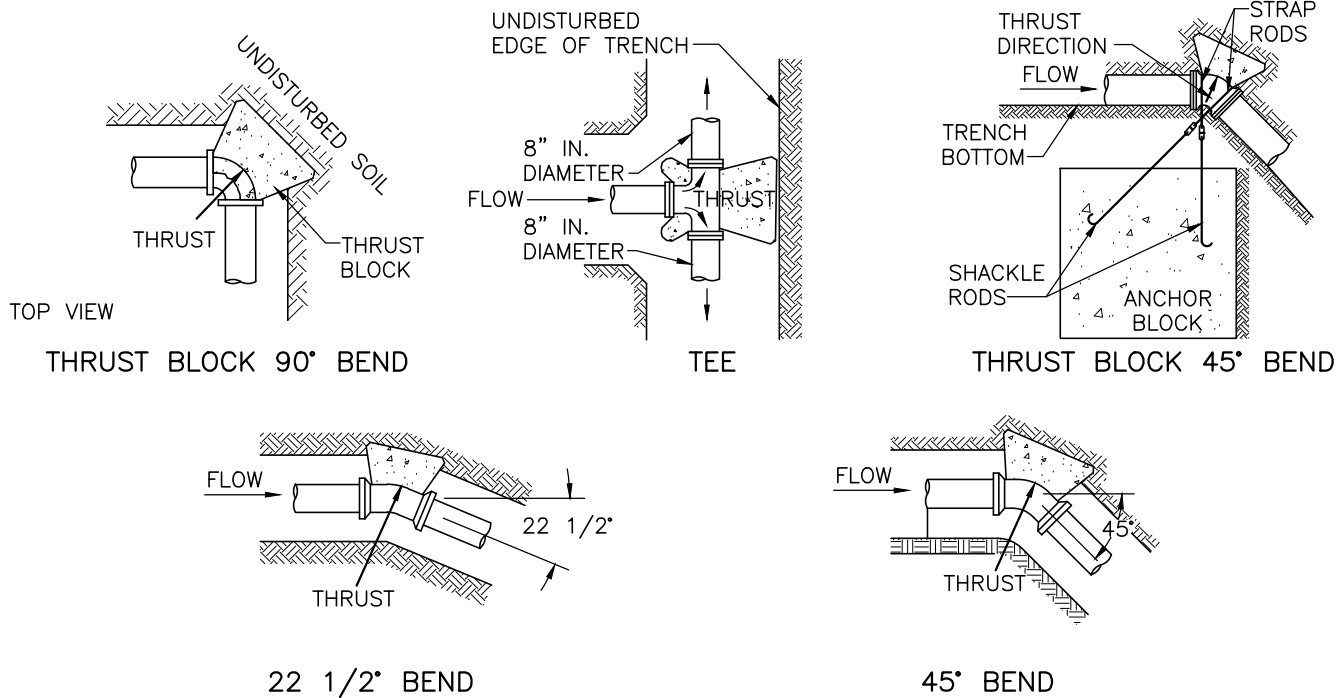
THRUST BLOCK DETAILS

DRAWN BY:	M. URIBE
CHECKED BY:	J. LEE
DATE:	OCT 2021
SCALE:	NO SCALE

APPROVED BY:	
DIRECTOR OF PUBLIC WORKS	
	10/7/2021
	DATE



W-10
SHEET 1 OF 4





FITTING THRUST IN POUNDS AT 100 psig WATER PRESSURE					
DIAMETER INCHES	TYPE OF FITTINGS				
	11 1/4-DEG BEND	22 1/2-DEG BEND	45-DEG BEND	90-DEG BEND	TEES AND DEAD ENDS
3	140	280	540	1,000	710
4	250	490	960	1,800	1,300
6	550	1,100	2,200	4,000	2,800
8	990	2,000	3,800	7,000	5,000
10	1,500	3,100	6,000	11,100	7,900
12	2,200	4,400	8,700	16,000	11,300
14	3,000	6,000	11,800	21,800	15,400
16	3,900	7,800	15,400	28,400	20,100
18	5,000	9,900	19,500	36,000	25,400
20	6,200	12,300	24,000	44,400	31,400
24	7,500	14,800	29,100	53,800	38,000
30	13,900	27,600	54,100	100,000	70,700
36	20,000	40,000	77,900	144,000	102,000
42	27,000	54,100	106,000	196,000	139,000
48	35,000	70,600	138,000	256,000	181,000
54	44,900	89,400	175,000	324,000	229,000
60	55,400	110,000	216,000	400,000	283,000

ESTIMATED BEARING LOAD		
SOIL TYPE	lb/sq ft	N/m ²
MUCK, PEAT, ETC	0	0
SOFT CLAY	500	23,940
SAND	1,000	47,881
SAND AND GRAVEL	1,500	71,821
SAND AND GRAVEL WITH CLAY	2,000	95,761
SAND AND GRAVEL CEMENTED WITH CLAY	4,000	191,523
HARD PAN	5,000	239,403

- NOTES:**
1. ALL FITTINGS SHALL MEET THE AWWA C-110 STANDARDS
 2. CONCRETE BLOCKS SHALL BEAR ON UNDISTURBED EARTH
 3. FOR SIZES OF CONCRETE BLOCKS, SEE STD. PLAN W-10, SHEET 3 OF 4
 4. INSTALL TRACER WIRE AND DETECTABLE TAPE OVER PIPE.
 5. CONCRETE SHALL BE 560-C-3250.

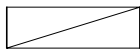
SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

THRUST BLOCK DETAILS

DRAWN BY: M. URIBE CHECKED BY: J. LEE DATE: OCT 2021 SCALE: NO SCALE	APPROVED BY:  DIRECTOR OF PUBLIC WORKS	10/7/2021 DATE		W-10 SHEET 2 OF 4
---	---	-------------------	---	---------------------------------

THRUST BLOCK SIZES

PIPE DIA.	PIPE CLASS	PRESSURE P.S.I.	AREA				SQ. FT.							
			TEE	CAP	LINE VALVE	90 BEND	45 BEND	22 1/2 BEND	11 1/4 BEND					
4														
	150	125	3	2	3	2	3	2	4	3	2	2	1	1
	150	150	3	3	3	3	3	3	4	3	3	2	2	1
	200	175	4	3	4	3	4	3	5	4	3	2	2	1
	200	200	4	3	4	3	4	3	6	4	3	3	2	2
6														
	150	125	5	4	5	4	5	4	7	6	4	4	2	2
	150	150	6	4	6	4	6	4	9	7	5	4	3	2
	200	175	7	6	7	6	7	6	10	8	6	4	3	3
	200	200	8	6	8	6	8	6	11	9	6	5	3	3
8														
	150	125	9	7	9	7	9	7	12	9	7	5	4	3
	150	150	10	8	10	8	10	8	14	11	8	6	4	3
	200	175	12	9	12	9	12	9	17	13	9	7	5	4
	200	200	14	10	14	10	14	10	19	14	11	8	6	4
10														
	150	125	14	10	14	10	14	10	19	15	11	8	6	4
	150	150	17	13	17	13	17	13	23	18	13	10	7	5
	200	175	19	15	19	15	19	15	27	20	15	11	8	6
	200	200	22	17	22	17	22	17	31	23	17	13	9	7
12														
	150	125	20	15	20	15	20	15	27	21	15	11	8	6
	150	150	23	18	23	18	23	18	33	25	18	14	9	7
	200	175	27	20	27	20	27	20	38	29	21	16	11	8
	200	200	31	23	31	23	31	23	44	33	24	18	12	9



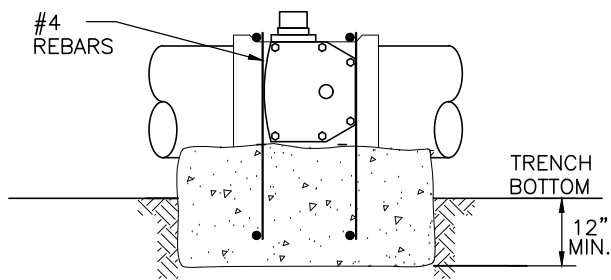
SIZE FOR 1500 LB. PER SQ. FT. BRG. SOIL.
 SIZE FOR 2000 LB. PER SQ. FT. BRG. SOIL.

NOTE: USE SIZES FOR 1500 LB. PER SQ. FT. BRG. SOIL UNLESS HIGHER VALUE IS SUBSTANTIATED BY APPROVED SOILS REPORT. A SPECIAL DESIGN MUST BE SUBMITTED FOR THE DIRECTOR'S APPROVAL FOR ALL VERTICAL ANCHORS.

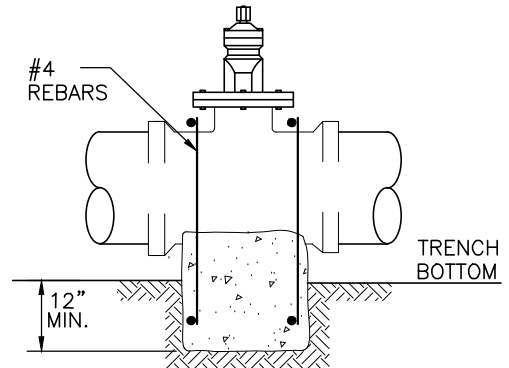
SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

THRUST BLOCK DETAILS

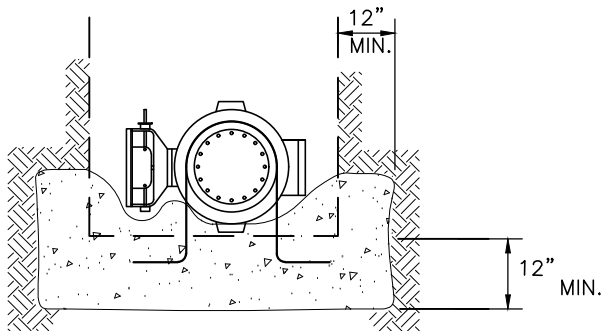
DRAWN BY: M. URIBE	APPROVED BY:		W-10
CHECKED BY: J. LEE			
DATE: OCT 2021	10/7/2021		
SCALE: NO SCALE	DATE		
		DIRECTOR OF PUBLIC WORKS	SHEET 3 OF 4



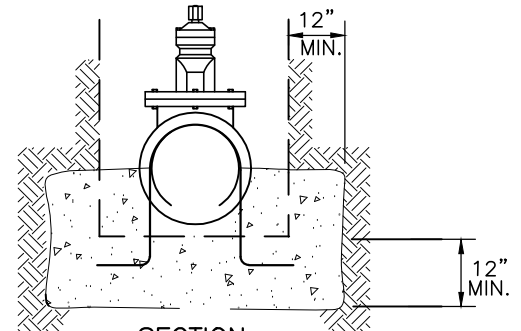
ELEVATION



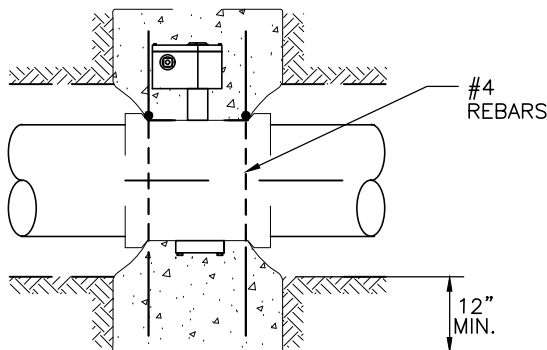
ELEVATION



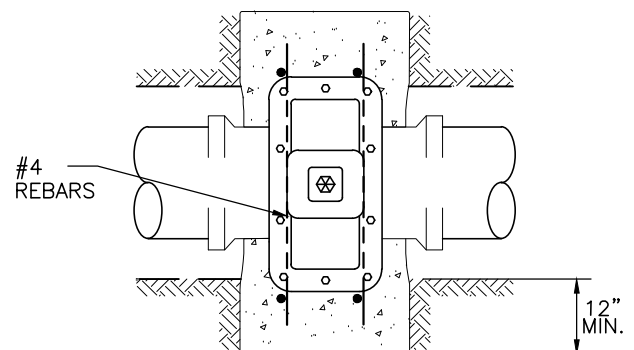
SECTION



SECTION



PLAN



PLAN

BUTTERFLY VALVES

GATE VALVES

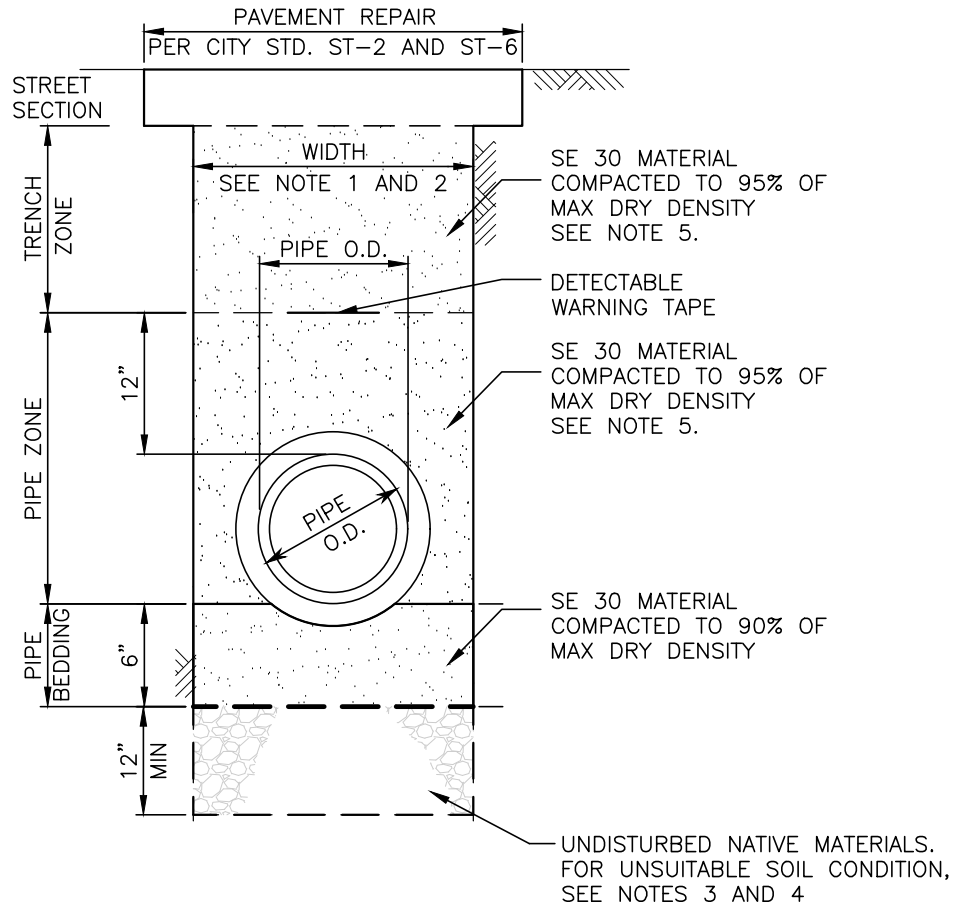
NOTES:

1. THRUST BLOCK BEARING AREA BASED ON ALLOWABLE SOIL BEARING VALUE OF 1500 PSF PRESSURE.
2. CONCRETE BLOCKS SHALL BEAR ON UNDISTURBED EARTH.
3. CONCRETE SHALL BE 560-C-3250.
4. NO CONCRETE SHALL BE POURED ON VALVE OR PIPE JOINT.
5. ALL EXPOSED REBAR SHALL BE COATED WITH NO-OX-ID "A SPECIAL" GREASE AND WRAP.
6. INSTALL TRACER WIRE AND DETECTABLE TAPE OVER PIPE.

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

THRUST BLOCK DETAILS

DRAWN BY: M. URIBE	APPROVED BY: _____ DIRECTOR OF PUBLIC WORKS	10/7/2021 _____ DATE	
CHECKED BY: J. LEE			W-10
DATE: OCT 2021			SHEET 4 OF 4
SCALE: NO SCALE			



PIPE BEDDING

NOTES:

1. TRENCH WIDTH AT THE UPPER LIMIT OF THE PIPE ZONE SHALL BE WITHIN THE FOLLOWING LIMITS FOR TYPICAL NORMAL BEDDING.
 - (A) MAXIMUM TRENCH WIDTH—O.D. PIPE OR BELL PLUS 8—INCHES MAX. EACH SIDE OF PIPE.
 - (B) MINIMUM TRENCH WIDTH—O.D. PIPE OR BELL PLUS 6—INCHES MIN. EACH SIDE OF PIPE.
2. PROVIDE CLASS 100—E—100 CEMENT SLURRY IN PIPE ZONE FOR OVERWIDTH TRENCH CONDITIONS.
3. IF UNSUITABLE SUBGRADE SOIL CONDITIONS ARE ENCOUNTERED, A REGISTERED GEOTECHNICAL ENGINEER SHALL DETERMINE DEPTH OF REMOVAL. MINIMUM DEPTH OF REMOVAL SHALL BE 12—INCHES.
4. FOUNDATION ROCK SHALL BE 1½" GRAVEL WRAPPED IN MIRAFI 140N FILTER FABRIC.
5. USE SLURRY BACKFILL FOR THE PIPE AND TRENCH ZONE IF DETERMINED BY THE CITY REPRESENTATIVE.

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

BEDDING DETAILS

DRAWN BY: M. URIBE	APPROVED BY: _____ DIRECTOR OF PUBLIC WORKS	10/7/2021 _____ DATE	 W-11
CHECKED BY: J. LEE			SHEET 1 OF 1
DATE: OCT 2021			
SCALE: NO SCALE			

12"x20"x12" POLYMER CONCRETE METER BOX AND COVER (ARMORCAST)

2" BRONZE PLUG

BRASS CURB STOP, FORD No. B11-777 OR EQUAL

(2) BRASS STREET ELBOW

BRASS WATER SERVICE SADDLE, DOUBLE STRAP, FORD 202BS OR EQUAL

8-INCHES OF 3/4" CRUSHED ROCK BASE

2" COPPER TYPE "K" HARD PIPE AND FITTINGS

BRASS CORPORATION STOP FORD FB-1000-7-NL OR EQUAL

BRASS WATER SERVICE SADDLE, DOUBLE STRAP, FORD 202 BS-CC7 OR EQUAL

12"x20"x12" POLYMER CONCRETE METER BOX AND COVER (ARMORCAST)

BRASS STREET ELBOW

2" BRONZE PLUG

BRASS CURB STOP, FORD No. B11-777 OR EQUAL

BRASS STREET ELBOW

RESTRAINED JOINT, DUCTILE IRON CAP

CURB

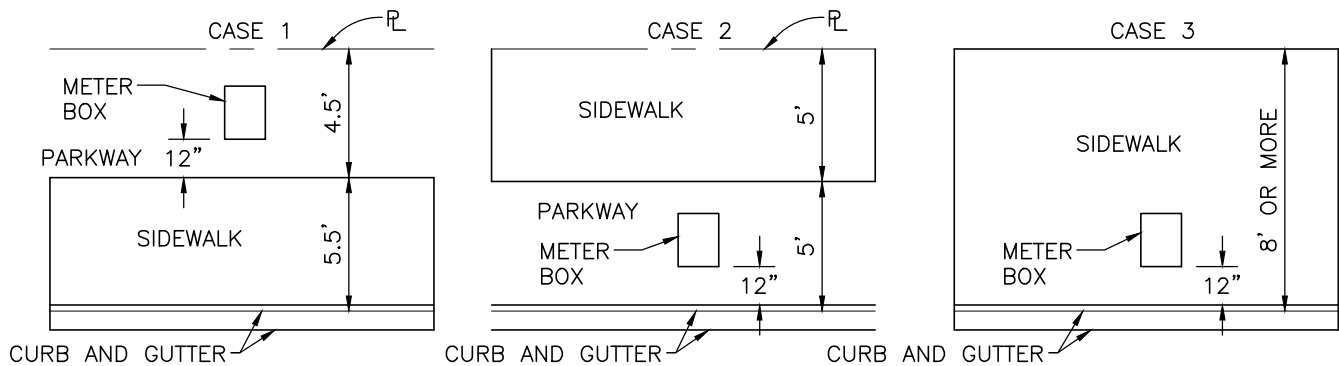
WATERMAIN

18"

CONCRETE THRUST BLOCK PER STD. PLAN W-10

NOTES:

1. ALL COPPER TUBING CONNECTIONS SHALL BE MADE WITH COMPRESSION FITTINGS
2. INSTALL BLOW-OFF PER CASE No. 1, CASE No. 2 OR CASE No. 3.
3. ALL COPPER PIPE SHALL BE BEDDED IN 6" OF WASHED SAND, ON TOP, BOTTOM, AND SIDES.
4. ALL COPPER PIPE SHALL BE COVERED WITH 4 MIL PLASTIC SLEEVING. SEAL ENDS WITH 10 MIL TAPE. PLASTIC SLEEVING SHALL BE SPECIALTY PRODUCTS P-3016 OR APPROVED EQUAL.



SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

TEMPORARY PLUG AND BLOW-OFF

DRAWN BY:	M. URIBE
CHECKED BY:	J. LEE
DATE:	OCT 2021
SCALE:	NO SCALE

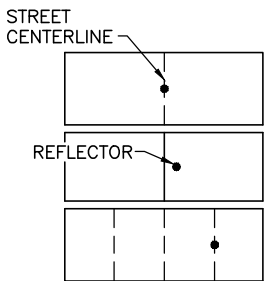
APPROVED BY:	
DIRECTOR OF PUBLIC WORKS	
	10/7/2021
	DATE



W-12
SHEET 1 OF 1

REFLECTOR MARKERS: (ALL FIRE HYDRANTS SHALL HAVE REFLECTORS)

LOCATION OF ALL REFLECTORS SHALL BE AS CLOSE TO THE CENTERLINE OF THE STREET AS POSSIBLE, OR LANE LINES, BUT NEVER IN THE TRAVEL LANE.



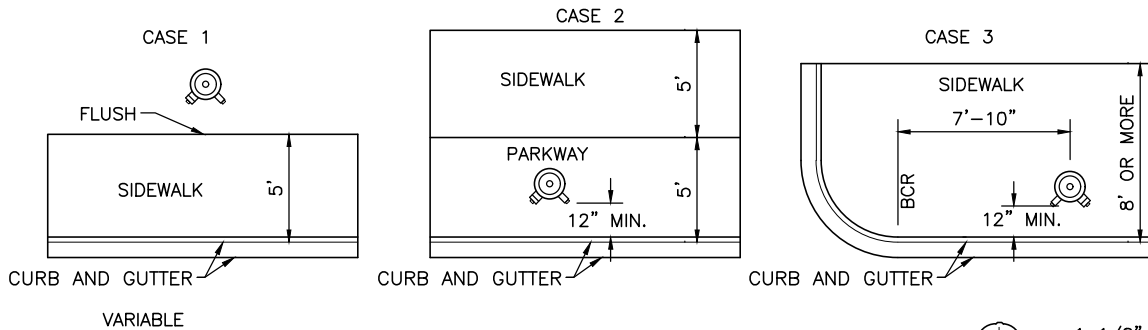
TWO LANE STREET W/ PAINTED BROKEN LINE:
PLACE IN LINE WITH PAINTED LINE

TWO LANE STREET W/ PAINTED SOLID LINE:
PLACE AS CLOSE TO PAINTED LINE AS POSSIBLE

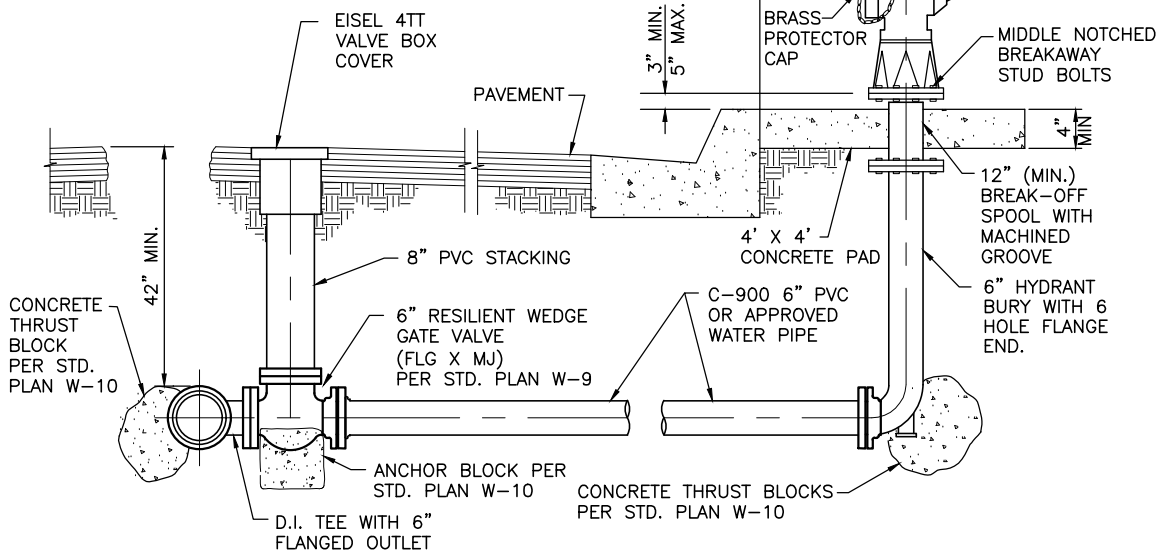
FOUR LANE STREET:
PLACE IN LINE WITH PAINTED LINE

OTHER MARKERS IN THE STREET:
WHEN THERE ARE TRAFFIC MARKERS ALREADY IN THE STREET, FIRE DEPARTMENT REFLECTORS SHOULD NOT BE USED ON THIS STREET AT ALL.

REFLECTIVE MARKERS SHALL BE TYPE D, 2-WAY BLUE.



VARIABLE



NOTES:

1. FIRE HYDRANT RUNS 50' & OVER SHALL HAVE AN ADDITIONAL VALVE 20' FROM FIRE HYDRANT.
2. HYDRANTS IN RESIDENTIAL AREAS USE JONES 3700 WITH BRASS CAPS.
3. HYDRANTS IN INDUSTRIAL/COMMERCIAL AREAS USE JONES 3765 WITH BRASS CAPS.
4. PAINT FIRE HYDRANTS - FINISH COAT TO BE RUST-OLEUM YELLOW #7644 (TWO (2) COATS).
5. CITY MAY MAKE ADJUSTMENTS TO THE FIRE HYDRANT LOCATION, AS NECESSARY.
6. INSTALL 4"Ø GUARD POST IN INDUSTRIAL/COMMERCIAL AREAS (PAINTED SAFETY YELLOW).
7. PROVIDE A MINIMUM 4-FT CLEARANCE FROM FIRE HYDRANT PER ADA REQUIREMENTS,
8. WRAP ALL DUCTILE IRON MATERIAL WITH POLYETHYLENE WRAP.

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

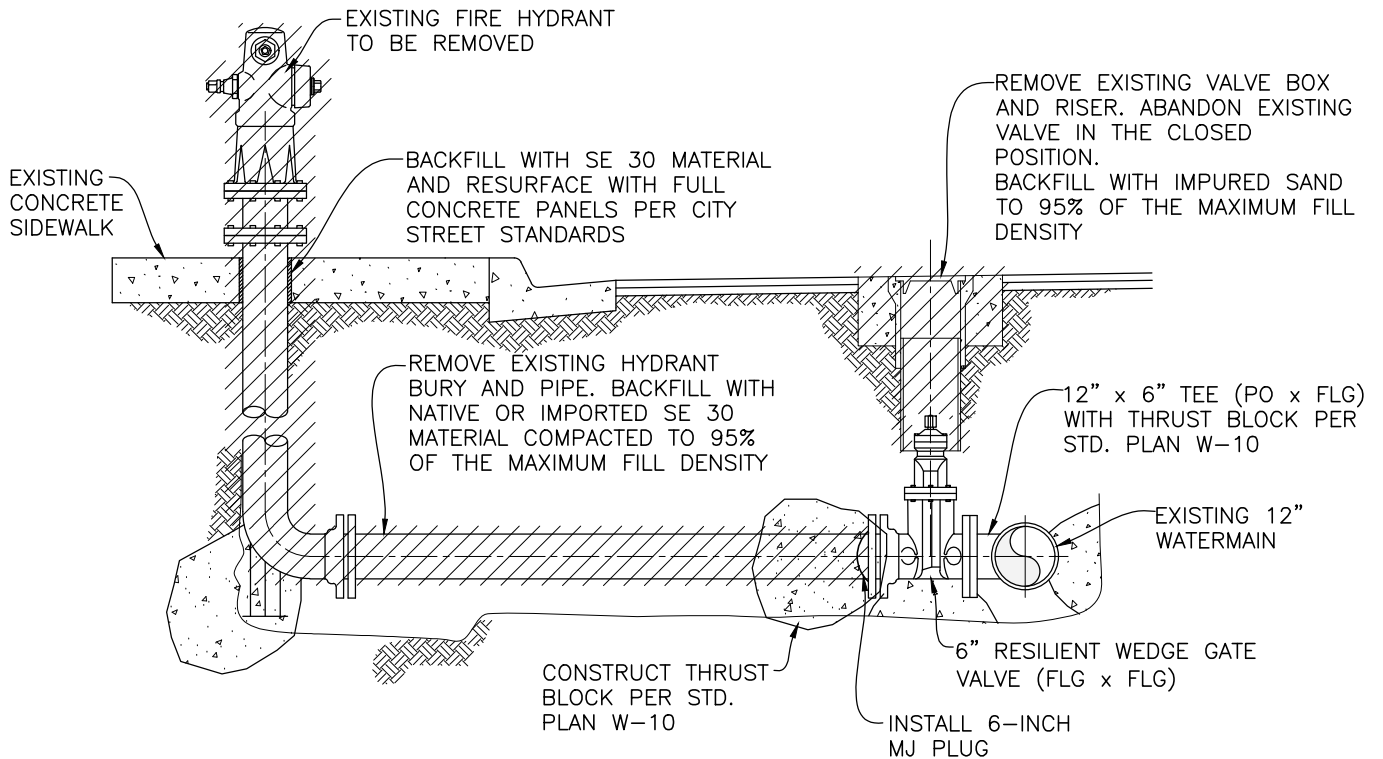
STANDARD FIRE HYDRANT

DRAWN BY:	M. URIBE
CHECKED BY:	J. LEE
DATE:	OCT 2021
SCALE:	NO SCALE

APPROVED BY:	
DIRECTOR OF PUBLIC WORKS	
	10/7/2021
	DATE





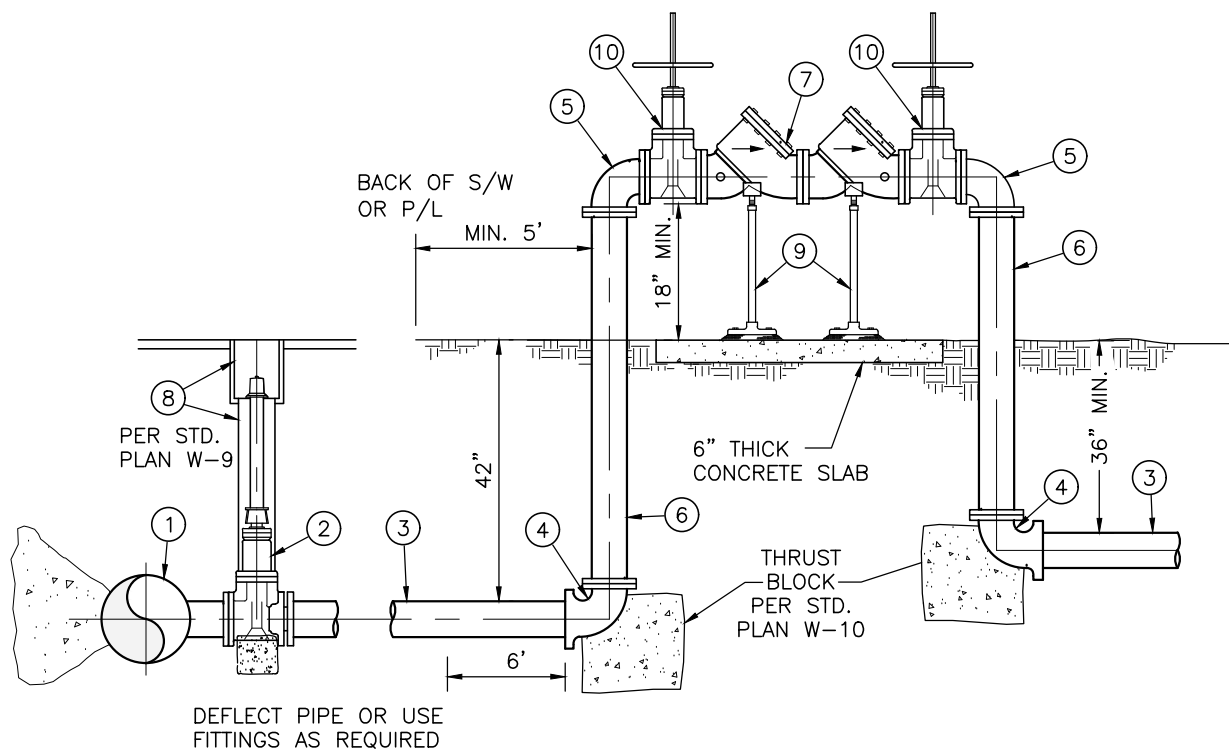
W-13
SHEET 1 OF 1



SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

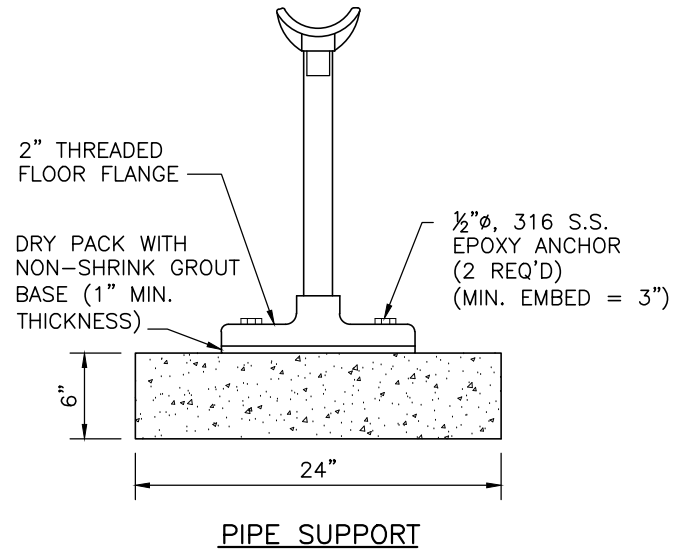
FIRE HYDRANT DEMOLITION

DRAWN BY: M. URIBE CHECKED BY: J. LEE DATE: OCT 2021 SCALE: NO SCALE	APPROVED BY:  _____ DIRECTOR OF PUBLIC WORKS	10/7/2021 _____ DATE		W-14 SHEET 1 OF 1
---	--	----------------------------	---	---------------------------------



DEFLECT PIPE OR USE FITTINGS AS REQUIRED

- ① TAPPING SLEEVE OR TEE
- ② TAPPING VALVE (RW GATE VALVE FLG X MJ) PER STD. PLAN W-8
- ③ PVC WATER PIPE, DR 14
- ④ 90° ELBOW (FLG X MJ) PIPE CONNECTION (2 REQ'D)
- ⑤ 90° ELBOW (FLG X FLG)
- ⑥ FLG'D D.I. SPOOL - LENGTH VARIES
- ⑦ DOUBLE CHECK DETECTOR ASSEMBLY
- ⑧ EISEL 4TT VALVE BOX, COVER AND 8" NON-FERROUS VALVE STACK (8" PVC)
- ⑨ PIPE SUPPORT (2 REQ'D) PER STD. PLAN W-19
- ⑩ OS&Y RW GATE VALVE (FLG X FLG)



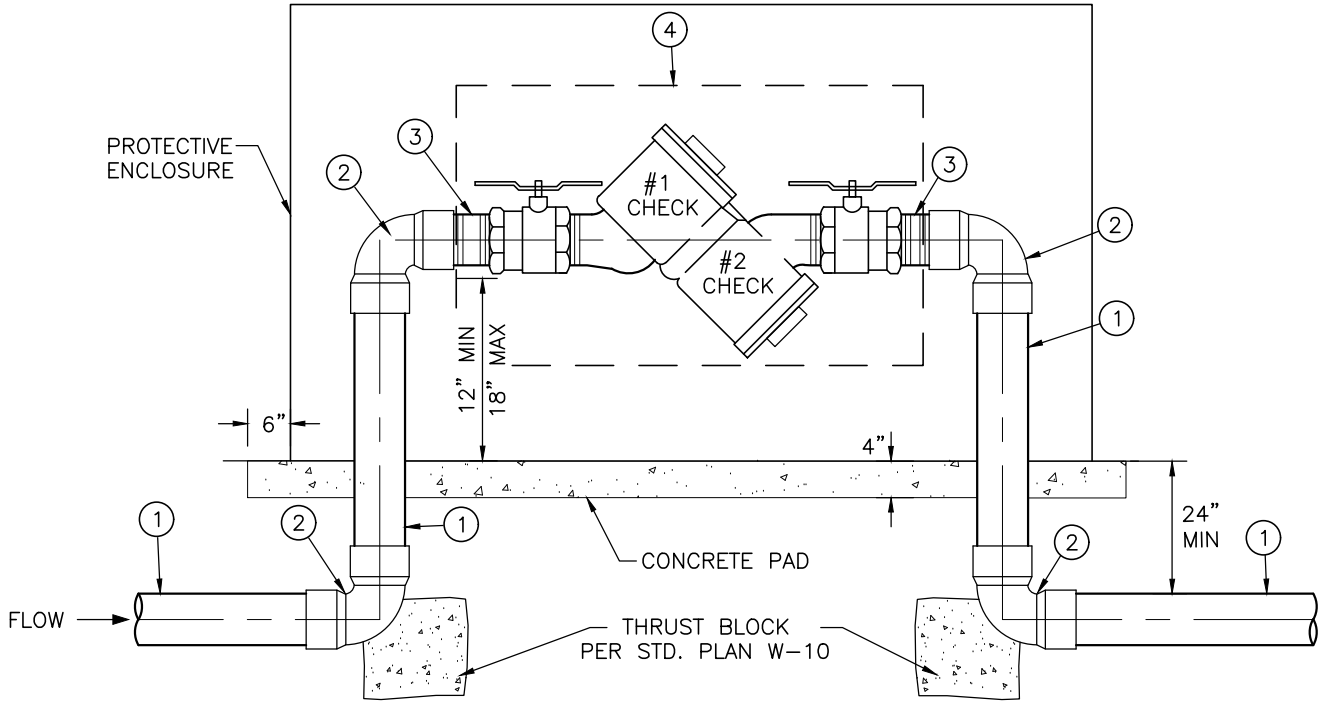
NOTES:

- 1. INSTALL TRACER WIRE AND DETECTABLE TAPE OVER PIPE.
- 2. BACKFLOW ASSEMBLY SHALL BE ON APPROVED USC-FCCHR LIST.

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

FIRE DOUBLE CHECK DETECTOR BACKFLOW PREVENTION ASSEMBLY (DCDA)

DRAWN BY: M. URIBE	APPROVED BY:		<h1 style="font-size: 2em;">W-15</h1>	
CHECKED BY: J. LEE				
DATE: OCT 2021	10/7/2021			
SCALE: NO SCALE	DATE			
		DIRECTOR OF PUBLIC WORKS	DATE	SHEET 1 OF 1



3/4" TO 2" REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTION ASSEMBLY

- ① TYPE K COPPER PIPE
- ② 90° BRASS ELBOW (FNPT X FNPT)
- ③ THREADED BRASS NIPPLE
- ④ BACKFLOW PREVENTER (FEBCO MASTERSERIES LF860 OR EQUAL)

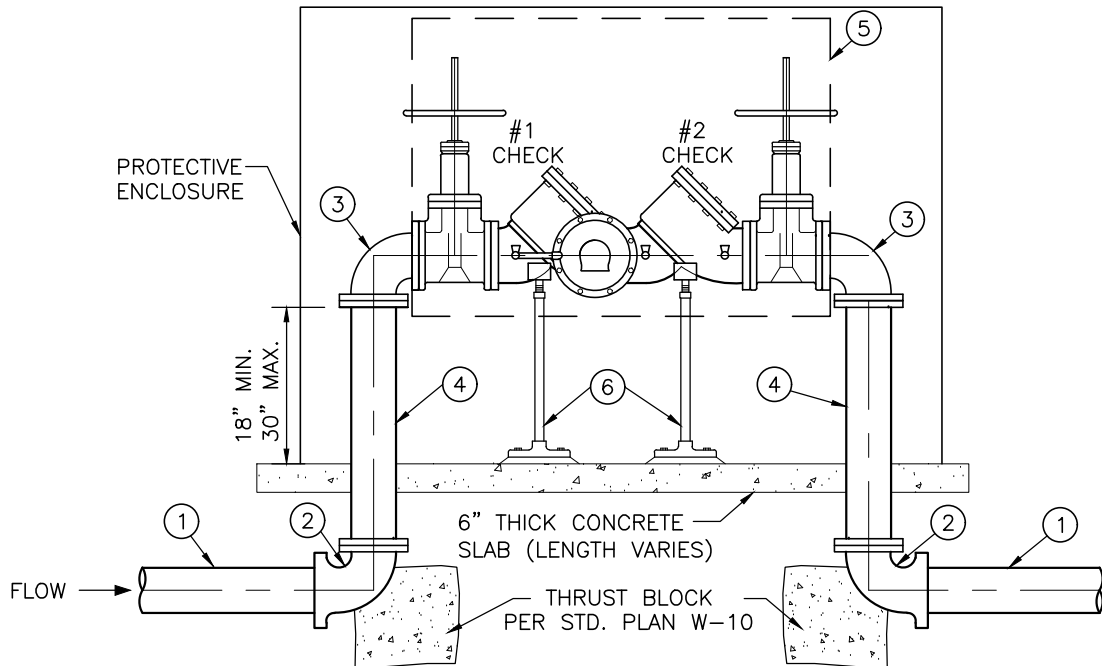
NOTES:

1. PROVIDE STAINLESS STEEL BACKFLOW ENCLOSURE (GUARDSHACK OR EQUAL) WITH CONCRETE BASE FOR ALL BACKFLOW PREVENTERS.
2. INSTALL TRACER WIRE AND DETECTABLE TAPE OVER PIPE.
3. BACKFLOW ASSEMBLY SHALL BE ON APPROVED USC-FCCHR LIST.

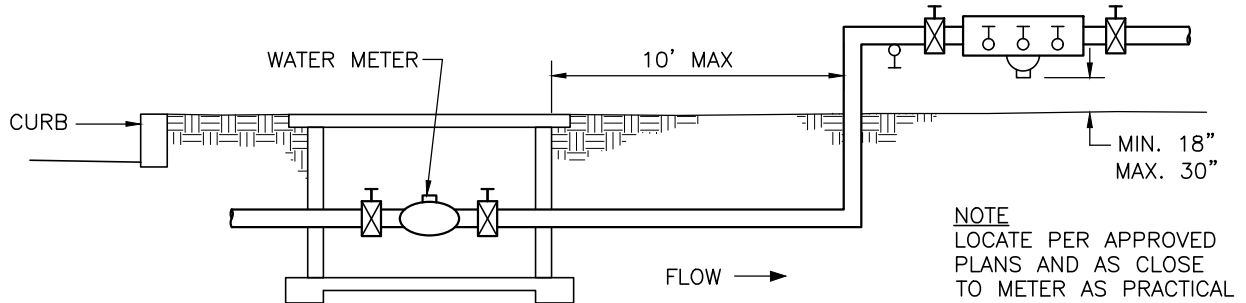
SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

REDUCED PRESSURE BACKFLOW ASSEMBLY (RP)

DRAWN BY: M. URIBE	APPROVED BY:		W-16
CHECKED BY: J. LEE			
DATE: OCT 2021	10/7/2021 DATE		
SCALE: NO SCALE	DIRECTOR OF PUBLIC WORKS		
SHEET 1 OF 2			



2 1/2" & LARGER REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTION ASSEMBLY

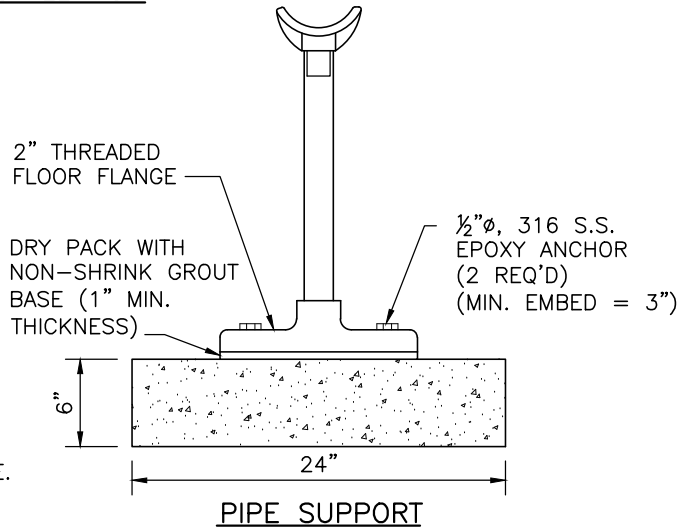


RP INSTALLATION

- ① PVC WATER PIPE, DR 14
- ② 90° ELBOW (FLG X MJ) PIPE CONNECTION (2 REQ'D)
- ③ 90° ELBOW (FLG X FLG)
- ④ FLG'D D.I. SPOOL - LENGTH VARIES
- ⑤ BACKFLOW PREVENTER (FEBCO MASTERSERIES LF860 OR EQUAL)
- ⑥ PIPE SUPPORT (2 REQ'D) PER STD. PLAN W-19

NOTES

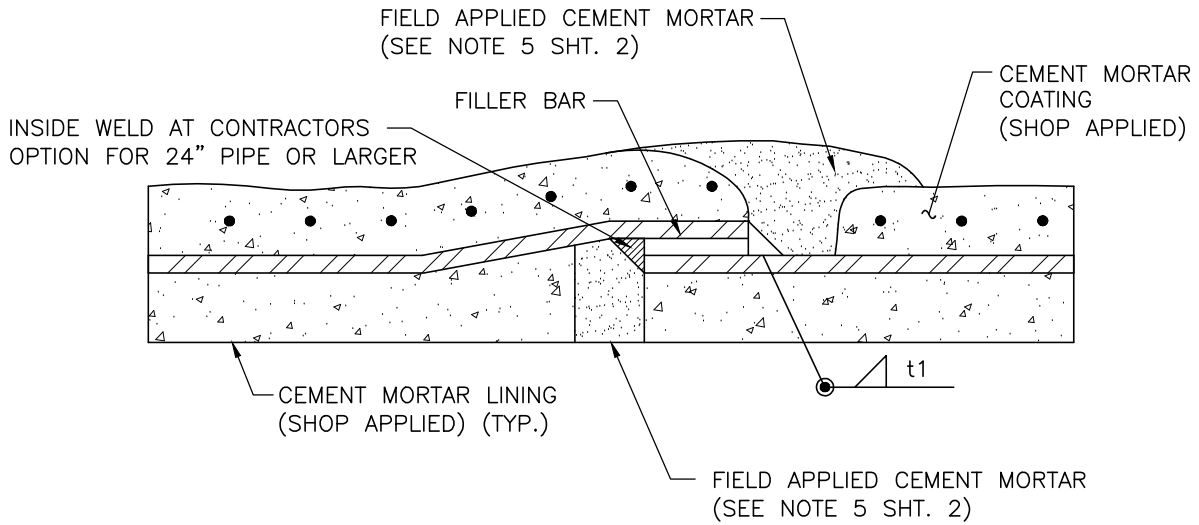
1. PROVIDE STAINLESS STEEL BACKFLOW ENCLOSURE (GUARDSHACK OR EQUAL) WITH CONCRETE BASE FOR ALL BACKFLOW PREVENTERS.
2. INSTALL TRACER WIRE AND DETECTABLE TAPE OVER PIPE.
3. BACKFLOW ASSEMBLY SHALL BE ON APPROVED USC-FCCHR LIST.



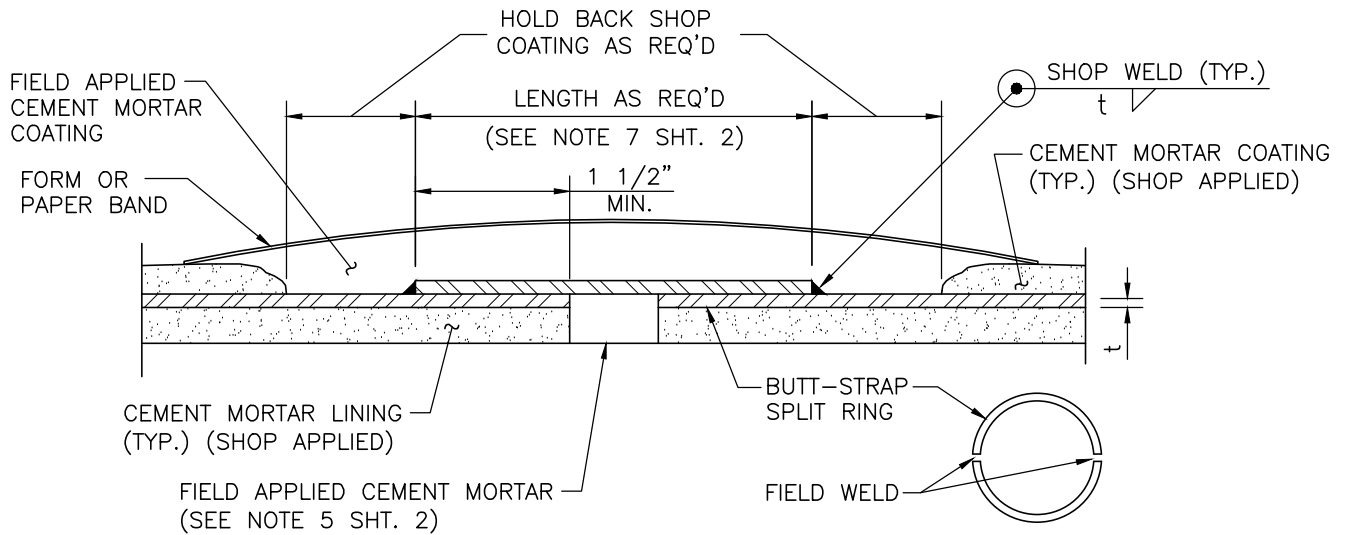
SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

REDUCED PRESSURE BACKFLOW ASSEMBLY (RP)

DRAWN BY: M. URIBE	APPROVED BY:		W-16
CHECKED BY: J. LEE			
DATE: OCT 2021	10/7/2021		
SCALE: NO SCALE	DATE		
		DIRECTOR OF PUBLIC WORKS	DATE
			SHEET 2 OF 2



DETAIL A – LAP WELDED JOINT



DETAIL B – FIELD WELDED BUTT-STRAP JOINT

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

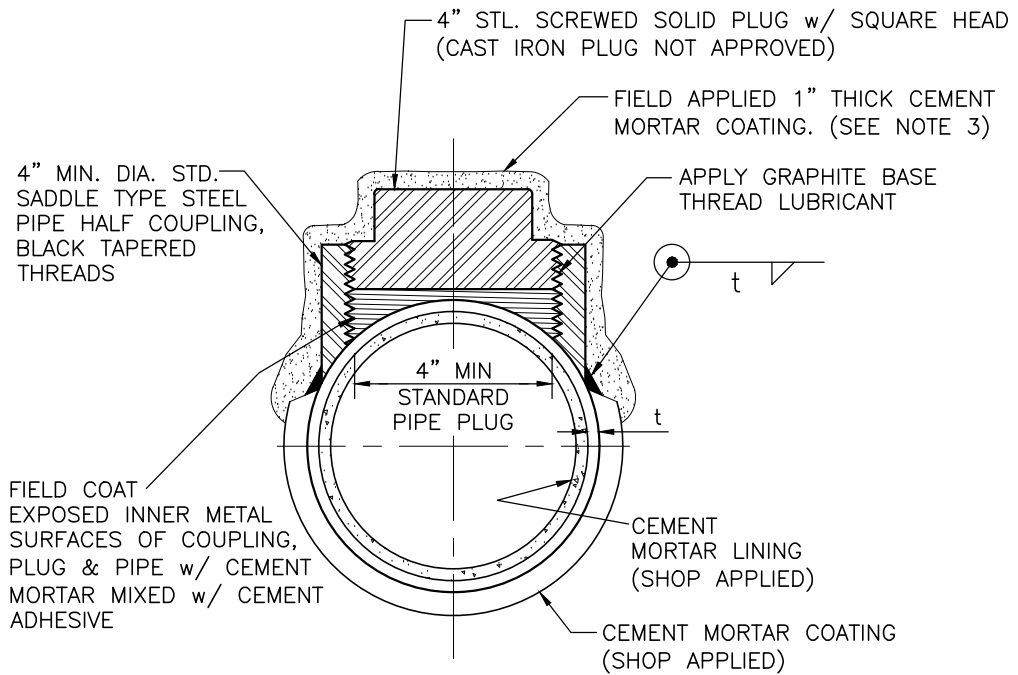
STEEL PIPE JOINT DETAILS

DRAWN BY:	M. URIBE
CHECKED BY:	J. LEE
DATE:	OCT 2021
SCALE:	NO SCALE

APPROVED BY:	
DIRECTOR OF PUBLIC WORKS	
	10/7/2021
	DATE



W-17
SHEET 1 OF 2



DETAIL C – POINTING HANDHOLE

NOTES:

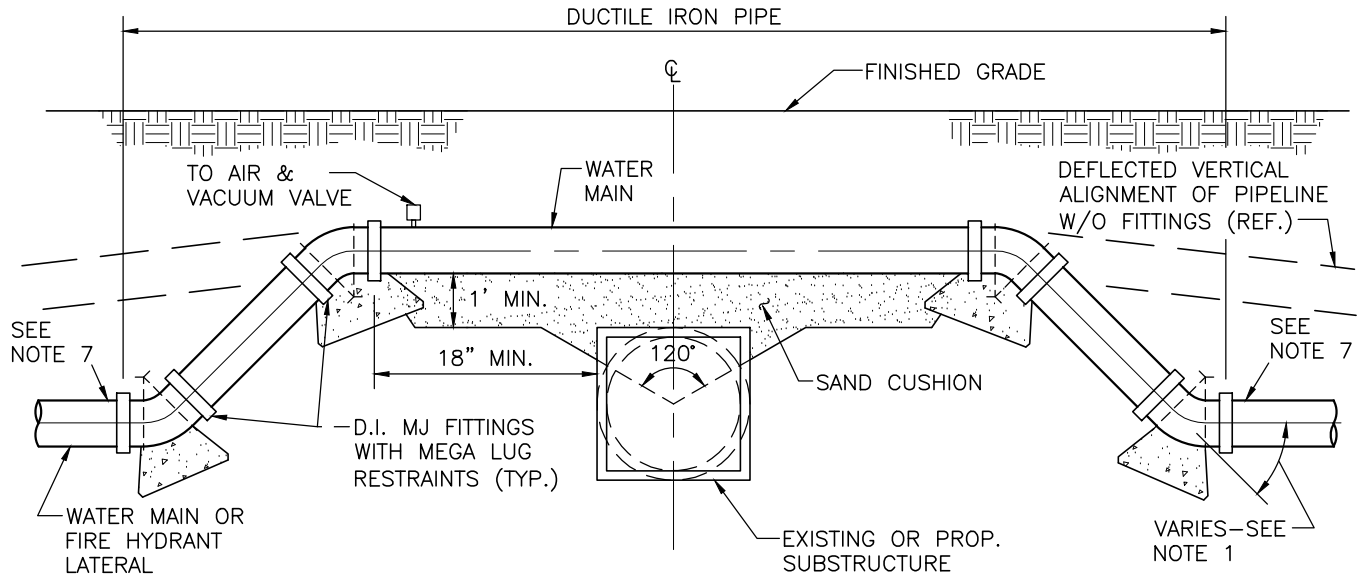
1. CEMENT MORTAR SHALL BE APPLIED TO WELDED JOINTS ONLY AFTER THE HEAT OF THE WELDING HAS DISSIPATED. JOINT WELDS SHALL NOT BE COOLED BY QUENCHING.
2. THE INTERIOR SURFACE OF JOINTS TO BE LINED w/ CEMENT MORTAR SHALL BE CLEANED AND BRUSHED w/ APPROVED CEMENT ADHESIVE IMMEDIATELY BEFORE THE MORTAR IS APPLIED.
3. CEMENT MORTAR FOR THE INTERIOR OF JOINTS CONSIST OF ONE PART CEMENT, ONE PART SAND, WATER AND AN APPROVED CEMENT ADHESIVE ADDED ACCORDING TO MFR. RECOMMENDATIONS.
4. CEMENT MORTAR FOR THE EXTERIOR OF JOINTS SHALL CONSISTS OF ONE PART CEMENT, ONE PART SAND AND WATER AND SHALL BE Poured INTO ONE SIDE OF FORM ONLY.
5. THE INTERIOR OF ALL JOINTS SHALL BE SWABBED BY MEANS OF BALL AND ROD.
6. THE POINTING HANDHOLE SHALL BE INSTALLED CENTERED OVER A BUTT-STRAP JOINT AND SHALL BE USED AS NOTED ON PLANS OR WHERE A BALL AND ROD SWAB CANNOT BE USED.
7. FOR POINTING HANDHOLE, THE MINIMUM LENGTH OF THE BUTT STRAP SHALL BE 9-INCHES FOR ALL PIPE SIZES LISTED IN TABLE BELOW. WITHOUT HANDHOLE, THE MINIMUM LENGTH OF STRAP SHALL BE AS SHOWN IN THE FOLLOWING TABLE:

PIPE SIZES IN INCHES	MINIMUM LENGTH OF BUTT STRAP REQUIRED, IN INCHES
6 THRU 24	4
26 THRU 36	5
8. A BOLTED FLANGED JOINT MAY BE USED AS AN ACCEPTABLE ALTERNATIVE TO THE LAP WELDED JOINT OR THE BUTT-STRAP JOINT.

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

STEEL PIPE JOINT DETAILS

DRAWN BY: M. URIBE	APPROVED BY: _____ DIRECTOR OF PUBLIC WORKS	10/7/2021 _____ DATE	
CHECKED BY: J. LEE	W-17		
DATE: OCT 2021	SHEET 2 OF 2		
SCALE: NO SCALE			



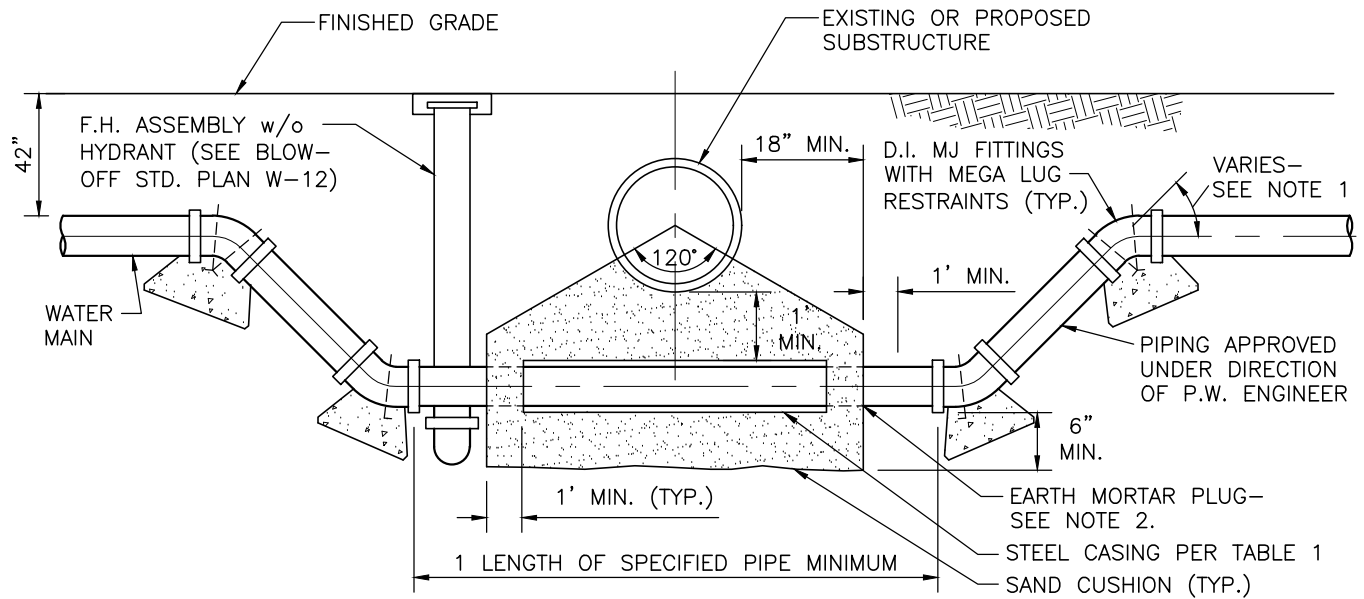
NOTES:

1. MAXIMUM ALLOWABLE ANGLE OF FITTING = 45°
2. MAXIMUM ALLOWABLE PIPE JOINT DEFLECTION SHALL BE MFR. RECOMMENDATION LESS 1°, ±1/2°
3. IF RETURN TO DESIGNED PIPE DEPTH BY DEFLECTION CANNOT ACCOMPLISHED WITHIN 2 STANDARD PIPE LENGTHS (36'), PIPE FITTINGS AND APPURTENANCES WILL BE REQUIRED UNLESS OTHERWISE NOTED OR DIRECTED IN THE FIELD.
4. AIR VACUUM RELEASE ASSEMBLY INSTALLATION MAY BE REQUIRED WHEN VERTICAL DISTANCE IS ONE PIPE DIAMETER OR MORE, OR DICTATED BY ENGINEERING DESIGN.
5. USE DUCTILE IRON PIPE UNLESS OTHERWISE SPECIFIED.
6. NO VALVES IN DEFLECTED AREA.
7. IF LOW POINT IN SYSTEM, INSTALL 2" BLOW-OFF PER STD. PLAN W-12.
8. INSTALL THRUST BLOCKS AT ALL FITTINGS.
9. FINAL DESIGN TO BE APPROVED BY DIRECTOR OF PUBLIC WORKS.

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

WATER SIPHON

DRAWN BY: M. URIBE	APPROVED BY: DIRECTOR OF PUBLIC WORKS	10/7/2021 DATE	 W-18 SHEET 1 OF 2
CHECKED BY: J. LEE			
DATE: OCT 2021			
SCALE: NO SCALE			



WATER MAIN	CASING-INSIDE DIAMETER	WALL THICKNESS
6 INCHES	12 INCHES	1/4 INCH
8 INCHES	16 INCHES	1/4 INCH
10 INCHES	18 INCHES	3/8 INCH
12 INCHES	20 INCHES	3/8 INCH
16 INCHES	24 INCHES	3/8 INCH
LARGER THAN 16"	REQUIRES ENGINEERING APPROVAL	

NOTES:

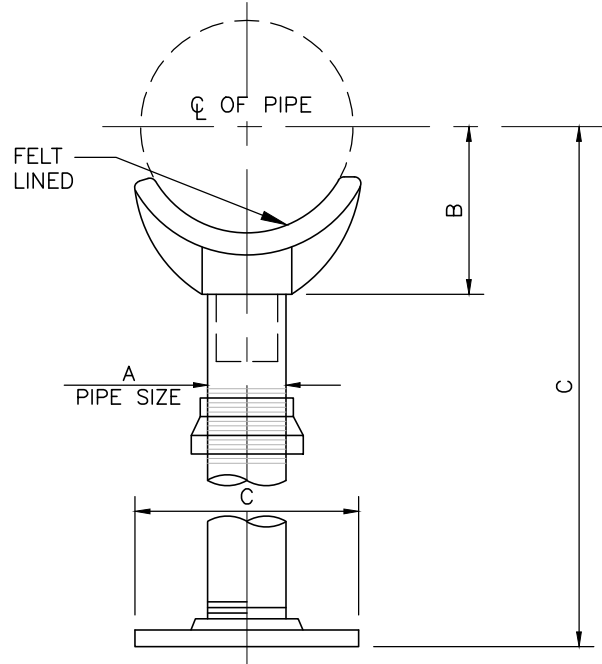
1. MAXIMUM ALLOWABLE ANGLE OF FITTINGS = 45°
2. EARTH MORTAR PLUG SHALL BE MADE OF 1 PART CEMENT AND 3 PARTS EARTH AND SHALL PENETRATE THE ENDS OF THE CASING SURROUNDING THE WATER MAIN TO MINIMUM DEPTH OF 1 FOOT.
3. WATERMAIN SHALL BE PVC C900 DR 14.
4. INSTALL THRUST BLOCKS AT ALL FITTINGS.
5. FINAL DESIGN TO BE APPROVED BY DIRECTOR OF PUBLIC WORKS.

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

WATER SIPHON

DRAWN BY: M. URIBE	APPROVED BY:		W-18
CHECKED BY: J. LEE			
DATE: OCT 2021	10/7/2021		
SCALE: NO SCALE	DIRECTOR OF PUBLIC WORKS		
			SHEET 2 OF 2

ADJUSTABLE PIPE SADDLE SUPPORT
FIGURE 264 OR EQUAL



DIMENSIONS			
PIPE SIZE IN.	A IN.	B IN.	C IN.
4	3	4 3/16	9
5	3	4 13/16	9
6	3	5 7/16	9
8	3	6 15/16	9
10	3	8 7/16	9
12	3	9 15/16	9
14 O.D.	4	10 15/16	11
16 O.D.	4	12 3/8	11
18 O.D.	4	13 7/8	11
20 O.D.	6	15 3/8	13 1/2
22 O.D.	6	16 5/8	13 1/2
24 O.D.	6	17 15/16	13 1/2
26 O.D.	6	19 1/8	13 1/2
30 O.D.	6	21 5/16	13 1/2
32 O.D.	6	22 1/2	13 1/2
36 O.D.	8	24 1/2	16

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

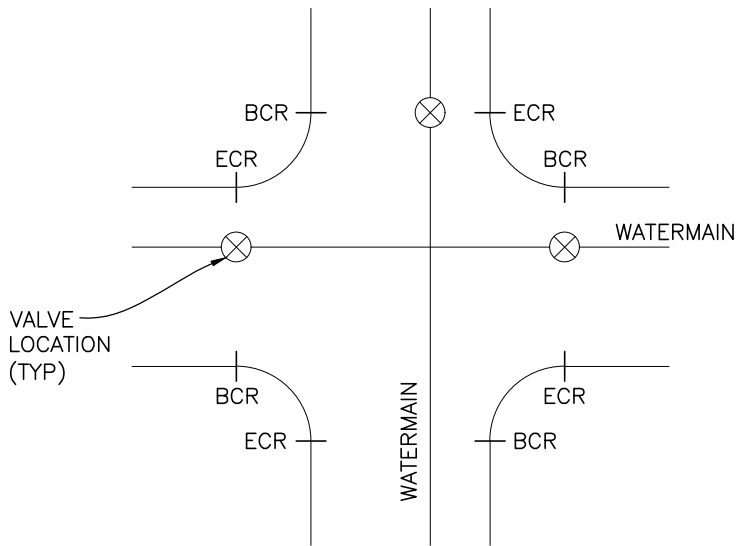
PIPE SUPPORT ASSEMBLY

DRAWN BY:	M. URIBE
CHECKED BY:	J. LEE
DATE:	OCT 2021
SCALE:	NO SCALE

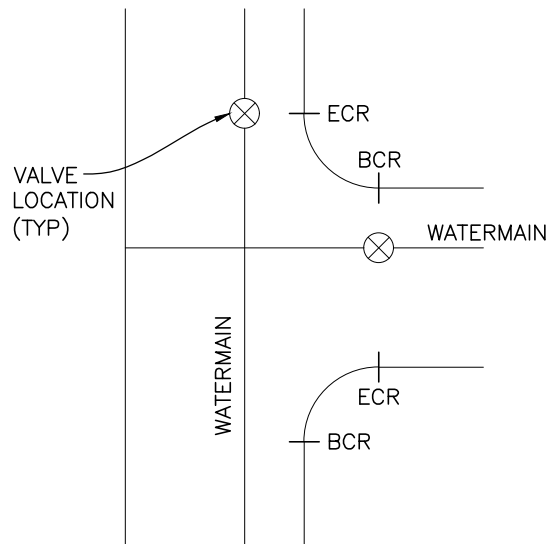
APPROVED BY:	
DIRECTOR OF PUBLIC WORKS	
DATE	10/7/2021



W-19
SHEET 1 OF 1



CROSS STREET INTERSECTION



TEE STREET INTERSECTION

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

MAIN LINE VALVE LOCATION

DRAWN BY: M. URIBE	APPROVED BY:		W-20
CHECKED BY: J. LEE			
DATE: OCT 2021	10/7/2021		
SCALE: NO SCALE	DIRECTOR OF PUBLIC WORKS		

PAINTING AND COATING

- A. EPOXY
 - 1. TNE MEC SERIES L69
 - 2. CARBOLINE CARBOGUARD 890 VOC
 - 3. SHERWIN WILLIAMS MACROPOXY 646-100

- B. EPOXY (FOR IMMERSION IN POTABLE OR RECYCLED WATER)
 - 1. TNE MEC SERIES L140
 - 2. CARBOLINE CARBOGUARD 890 VOC
 - 3. SHERWIN WILLIAMS MACROPOXY 646-100PW

- C. URETHANE
 - 1. TNE MEC SERIES 1095
 - 2. CARBOLINE CARBOTHANE 134 MC
 - 3. SHERWIN WILLIAMS HI-SOLIDS POLYURETHANE 100

- D. HIGH-SOLIDS EPOXY
 - 1. TNE MEC SERIES 22
 - 2. CARBOLINE PHENOLINE 341

- E. SULFIDE-RESISTANT EPOXY
 - 1. TNE MEC SERIES 435
 - 2. CARBOLINE PLASITE 4450

- F. BITUMINOUS MASTIC
 - 1. NORTH TOWN COMPANY 50-HT
 - 2. CHRISTY'S HD50

HOT TAP CONNECTIONS

- A. TAPPING SLEEVES FOR TAPS SMALLER THAN THE PIPELINE
 - 1. JCM
 - a. 432 SS
 - b. 462 SS
 - 2. MUELLER H-304SS
 - 3. ROMAC SST OR SST II

- B. TAPPING SLEEVES FOR SIZE ON SIZE TAPS
 - 1. MUELLER H-616

- C. TAPPING SLEEVES ONTO 14-INCH AND LARGER ACP
 - 1. MUELLER H-304



CORROSION PROTECTION

- A. WELD CAP PRIMER
 - 1. ROYSTON ROYBOND PRIMER 747

- B. WELD CAPS
 - 1. ROYSTON HANDY CAP
 - 2. TRENTON

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

STANDARD MATERIALS LIST

DRAWN BY:	M. URIBE	APPROVED BY:	
CHECKED BY:	J. LEE	 _____ DIRECTOR OF PUBLIC WORKS	10/7/2021 _____ DATE
DATE:	OCT 2021		
SCALE:	NO SCALE		
			W-21 SHEET 1 OF 6

DUCTILE-IRON PIPE AND FITTINGS


- A. PIPE
 - 1. PACIFIC STATES CAST IRON PIPE COMPANY
 - 2. U.S. PIPE
 - 3. AMERICAN PIPE
- B. FITTINGS
 - 1. TYLER
 - 2. TRINITY VALLEY
 - 3. DAYTON
 - 4. SIGMA
 - 5. LONG BEACH IRON
- C. PUSH-ON JOINT RESTRAINT HARNESS FOR DUCTILE IRON PIPE:
 - 1. EBAA IRON MEGALUG SERIES
 - 2. SMITH BLAIR BELL-LOCK
 - 3. ROMAC
- D. MECHANICAL JOINT RESTRAINING SYSTEM FOR DUCTILE IRON PIPE
 - 1. SMITH BLAIR MJ-LOCK
 - 2. ROMAC ROMOGRIP
- E. MECHANICAL JOINT RESTRAINING SYSTEM FOR PVC PIPE
 - 1. SMITH BLAIR MJ-LOCK
 - 2. ROMAC PVC ROMOGRIP
- F. PLASTIC FILM WRAP
 - 1. POLYKEN 900
 - 2. SCOTCH WRAP 50
- G. CERAMIC EPOXY LINING
 - 1. INDURON PROTECTO 401
 - 2. TNEMEC PERMA-SHIELD PL SERIES 431
- H. CORROSION GUARD
 - 1. CHRISTY'S CG-15 CORROSION GUARD
 - 2. TRENTON

BRONZE, BRASS, AND COPPER PIPE FITTINGS AND APPURTENANCES

- A. COPPER TUBING AND FITTINGS
 - 1. MUELLER INDUSTRIES
- B. CUSTOMER SERVICE VALVE
 - 1. JONES
 - 2. MUELLER
- C. CORPORATION STOP
 - 1. JONES
 - 2. MUELLER
 - 3. FORD
- D. ANGLE METER STOP
 - 1. JONES
 - 2. MUELLER
 - 3. FORD
- E. SERVICE SADDLES (FOR DUCTILE-IRON MAIN)
 - 1. JONES
 - 2. MUELLER
 - 3. FORD
- F. SERVICE SADDLES (FOR PVC MAIN)
 - 1. JONES
 - 2. MUELLER
 - 3. FORD
- G. INSULATING PIPE
 - 1. SMITH BLAIR
 - 2. PIPELINE SEAL AND INSULATOR, INC.

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

STANDARD MATERIALS LIST

DRAWN BY:	M. URIBE	APPROVED BY:	
CHECKED BY:	J. LEE		
DATE:	OCT 2021	DIRECTOR OF PUBLIC WORKS	10/7/2021 DATE
SCALE:	NO SCALE		



W-21

PVC PRESSURE DISTRIBUTION PIPE

- A. PVC DISTRIBUTION PIPE
 - 1. NORTH AMERICAN PIPE CORPORATION
 - 2. VINYLTECH
 - 3. CERTAINTEED

- B. PUSH-ON JOINT RESTRAINT HARNESS FOR PVC PIPE:
 - 1. EBAA IRON MEGALUG SERIES 1900
 - 2. SMITH BLAIR BELL-LOCK
 - 3. ROMAC

MANUAL VALVES

- A. METAL SEATED GATE VALVES
 - 1. MUELLER, SERIES A-2380
 - 2. CLOW, DOUBLE DISC GATE VALVE
 - 3. KENNEDY VALVE, DOUBLE DISC GATE VALVE

- B. BUTTERFLY VALVES
 - 1. PRATT
 - 2. DEZURIK

- C. RESILIENT SEATED GATE VALVES
 - 1. CLOW RW 2639 AND 2640
 - 2. MUELLER SERIES A-2360
 - 3. AMERICAN FLOW CONTROL SERIES 2500
 - 4. KENNEDY VALVE, AWWA C-509
 - 5. AMERICAN AVK CO., SERIES 45 AND 65
 - 6. U.S. PIPE A-USP1

- D. VALVE BOXES
 - 1. EISEL 4TT VALVE BOX AND COVER

AIR VALVES



- A. COMBINATION VALVES $\leq 2"$
 - 1. ARI

- B. COMBINATION VALVES $> 2"$
 - 1. APCO
 - 2. VAL-MATIC
 - 3. CRISPIN
 - 4. ARI

- C. AIR VALVE ENCLOSURE
 - 1. ARMORCAST
 - 2. PIPELINE PRODUCTS

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

STANDARD MATERIALS LIST

DRAWN BY: M. URIBE	APPROVED BY:		W-21
CHECKED BY: J. LEE			
DATE: OCT 2021	10/7/2021		
SCALE: NO SCALE	DATE		
		DIRECTOR OF PUBLIC WORKS	SHEET 3 OF 6

METERS

- A. CUSTOMER METERS AND FIRE SERVICE BYPASS METERS (3/4-INCH THROUGH 1-INCH)
 - 1. SENSUS iPERL
- B. CUSTOMER METER (1-1/2 INCH THROUGH 2-INCH)
 - 1. KAMSTRUP FLOW IQ 3101
- C. COMMERCIAL CUSTOMER METERS (3-INCH THROUGH 8-INCH)
 - 1. SENSUS OMNI COMPOUND (C2)
- D. IRRIGATION CUSTOMER METERS (3-INCH THROUGH 8-INCH) AND COMMERCIAL BYPASS METERS (2-INCH)
 - 1. SENSUS OMNI TURBO (T2)
- E. PROPELLER FLOWMETERS
 - 1. McCROMETER
- F. MAGNETIC FLOWMETERS
 - 1. TOSHIBA

POTABLE WATER, RECYCLED WATER, AND WASTEWATER FACILITIES IDENTIFICATION

- A. WARNING TAPE AND PIPE SLEEVES
 - 1. GRIFFOLYN COMPANY, INC.
 - 2. TERRA TAPE, DIVISION OF REEF INDUSTRIES
 - 3. T. CHRISTY ENTERPRISES, INC.
- B. WITNESS MARKERS
 - 1. CARSONITE WATER LINE MARKERS

WALL AND SLAB PENETRATIONS

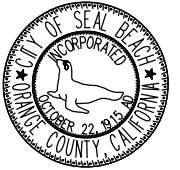

- A. WALL PIPE MODULAR SEAL
 - 1. GPT INDUSTRIES (LINK-SEAL)

PIPE COUPLINGS AND ADAPTERS

- A. SLEEVE-TYPE COUPLINGS
 - 1. BAKER
 - 2. ROMAC
 - 3. SMITH-BLAIR
- B. RESTRAINED SLEEVE-TYPE COUPLINGS
 - 1. EBAA IRON
 - 2. ROMAC
 - 3. SMITH-BLAIR
- C. RESTRAINED ONE-PIECE COUPLING
 - 1. ROMAC

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

STANDARD MATERIALS LIST

DRAWN BY: M. URIBE	APPROVED BY:		W-21		
CHECKED BY: J. LEE					
DATE: OCT 2021	DIRECTOR OF PUBLIC WORKS			10/7/2021	
SCALE: NO SCALE				DATE	SHEET 4 OF 6

AUTOMATIC CONTROL VALVES



- A. CHECK VALVES
 - 1. CLA-VAL MODEL 81G-02KC WITH X101 VALVE POSITION INDICATOR OR APPROVED EQUAL (INSTALLED BY VALVE MANUFACTURER)
- B. SOLENOID CONTROL VALVES
 - 1. CLA-VAL MODEL 136G-03 YBCSFKC WITH LIMIT SWITCH ASSEMBLY MODEL X105LCW OR APPROVED EQUAL (INSTALLED BY VALVE MANUFACTURER)
- C. PRESSURE REDUCING VALVES
 - 1. CLA-VAL MODEL 90G-01YBKC (90G-01YSFC FOR VALVES 3 INCHES AND SMALLER), WITH X101 VALVE POSITION INDICATOR OR APPROVED EQUAL (INSTALLED BY VALVE MANUFACTURER)
- D. PRESSURE RELIEF VALVES
 - 1. CLA-VAL MODEL 50G-01SBKC WITH LIMIT SWITCH ASSEMBLY MODEL X105LOW OR APPROVED EQUAL (INSTALLED BY VALVE MANUFACTURER)
- E. SURGE ANTICIPATOR VALVES
 - 1. CLA-VAL MODEL 52G-01BKC WITH LIMIT SWITCH ASSEMBLY MODEL X105LOW OR APPROVED EQUAL (INSTALLED BY VALVE MANUFACTURER)
- F. PUMP CONTROLLER VALVES
 - 1. CLA-VAL MODEL 60G-11 BKC WITH LIMIT SWITCH ASSEMBLY MODEL X105LCW OR APPROVED EQUAL (INSTALLED BY VALVE MANUFACTURER)
- G. ALTITUDE VALVES
 - 1. CLA-VAL MODEL 201-01 WITH X-101 POSITION INDICATOR OR APPROVED EQUAL (INSTALLED BY VALVE MANUFACTURER)

CONCRETE

- A. FORM TIES
 - 1. BURKE PENTA-TIE SYSTEM
 - 2. DAYTON SUPERIOR SNAP-TIES
- B. ADMIXTURES
 - 1. SIKA CORPORATION
 - 2. BASF
 - 3. GCP
- C. MECHANICAL COUPLERS
 - 1. DAYTON SUPERIOR DOWEL BAR
 - 2. ERICO PRODUCTS LENTON FORM SAVER

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

STANDARD MATERIALS LIST

DRAWN BY: M. URIBE	APPROVED BY:		W-21
CHECKED BY: J. LEE			
DATE: OCT 2021	10/7/2021		
SCALE: NO SCALE	DATE		
		DIRECTOR OF PUBLIC WORKS	SHEET 5 OF 6

PRECAST CONCRETE VAULTS

- A. PRECAST VAULTS AND METER BOXES
 - 1. J&R PRODUCTS
 - 2. JENSEN PRECAST
 - 3. EISEL ENTERPRISES, INC.

- B. LADDERS
 - 1. GALVANIZED WITH LADDERUP – ALHAMBRA A-3400

- C. JOINT SEALING COMPOUND
 - 1. RAM-NEK AS MANUFACTURED BY K.T. SNYDER COMPANY, INC.
 - 2. CONSEAL AS MANUFACTURED BY CONCRETE SEALANTS
 - 3. EZ-STIK AS MANUFACTURED BY PRESS-SEAL GASKET CORPORATION

- D. WATERPROOFING
 - 1. GRACE DEHYDRATINE 4

DISSIMILAR METAL CONNECTIONS

- A. INSULATING FLANGE KITS
 - 1. PSI LINEBACKER

- B. INSULATING BUSHINGS
 - 1. NORTHTOWN COMPANY

- C. CASING SPACERS
 - 1. GPT – C8G-2

- D. CASING SEAL ENDS
 - 1. GPT – TYPE KT

- E. WAX TAPE COATING SYSTEM
 - 1. TRENTON

- F. WAX TAPE PRIMER
 - 1. TRENTON

INSTRUMENTATION

- A. PRESSURE TRANSMITTERS
 - 1. ROSEMOUNT, 2051 SMART

- B. LEVEL TRANSMITTER
 - 1. ROSEMOUNT, 5300

- C. GAS DETECTORS
 - 1. MSA

ELECTRICAL COMPONENTS



- A. MOTORS
 - 1. U.S. MOTORS
 - 2. BALDER-RELIANCE
 - 3. WEG

- B. AUTOMATIC TRANSFER SWITCH
 - 1. ASCO, 940 SERIES

- C. ELECTRIC ACTUATORS
 - 1. ROTORK
 - 2. AUMA

SEAL BEACH STANDARD PLANS FOR WATER FACILITIES

STANDARD MATERIALS LIST

DRAWN BY:	M. URIBE	APPROVED BY:	
CHECKED BY:	J. LEE		
DATE:	OCT 2021	DIRECTOR OF PUBLIC WORKS	10/7/2021 DATE
SCALE:	NO SCALE		W-21
			SHEET 6 OF 6