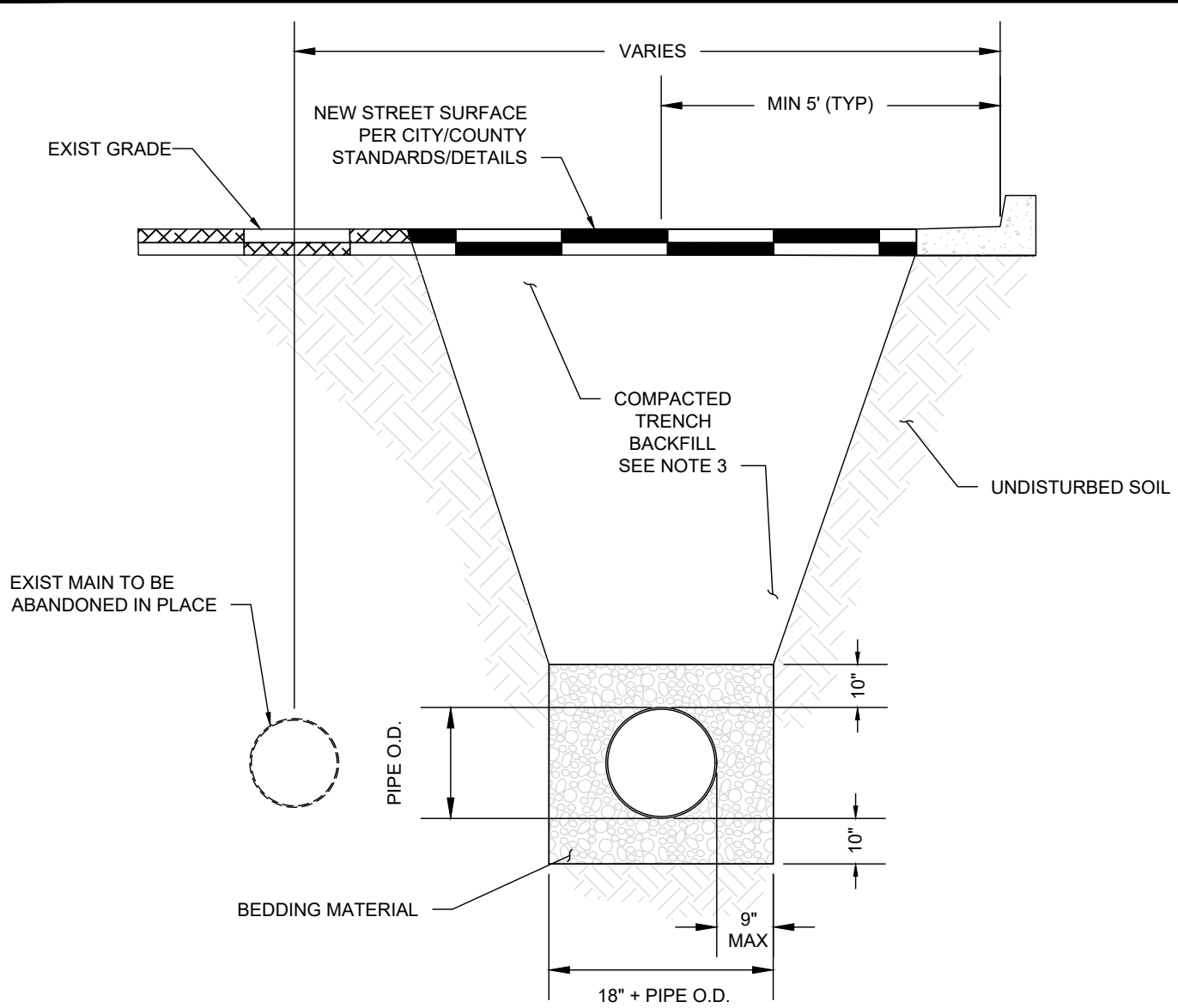


NOTES:

1. MINIMUM COVER SHALL BE 4'-6" BELOW OFFICIAL STREET GRADE.
2. TRENCH SHALL CONFORM TO APPLICABLE OSHA REQUIREMENTS.
3. COMPACTION SHALL BE IN ACCORDANCE WITH DENVER WATER ENGINEERING STANDARDS CHAPTER 7.

REVISED			SCALE
BY	DATE		NOT TO SCALE
		TYPICAL TRENCH DETAIL WITHOUT CURB	ISSUE DATE
			JULY 2021
			APPROVED

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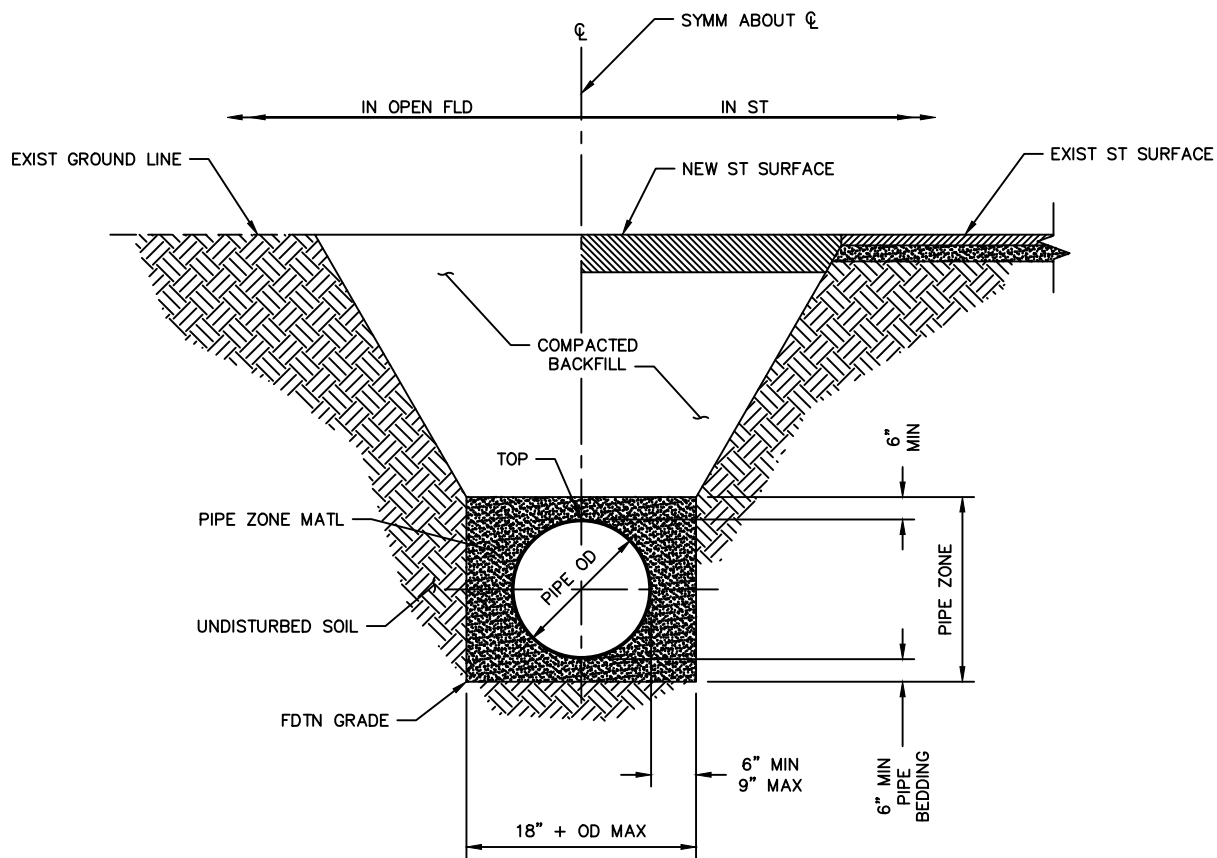


NOTES:

1. MINIMUM COVER SHALL BE 4'-6" BELOW OFFICIAL STREET GRADE.
2. TRENCH SHALL CONFORM TO APPLICABLE OSHA REQUIREMENTS.
3. COMPACTION SHALL BE IN ACCORDANCE WITH DENVER WATER ENGINEERING STANDARDS CHAPTER 7.

REVISED			SCALE
BY	DATE		NOT TO SCALE
			ISSUE DATE
		TYPICAL TRENCH DETAIL WITH CURB	JULY 2021
			APPROVED
			W-02

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NOTES:

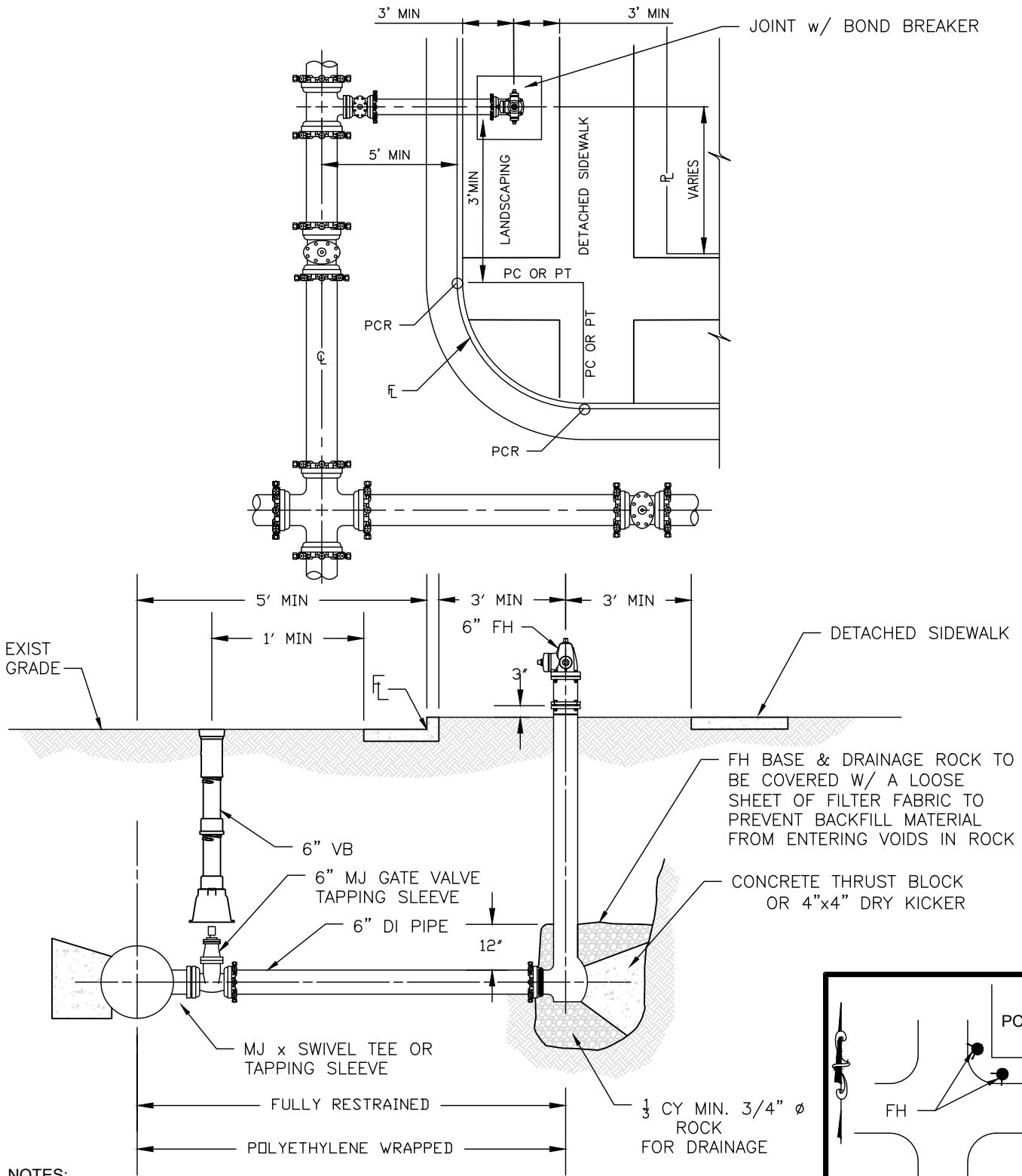
1. MINIMUM COVER SHALL BE 4 FEET 6 INCHES BELOW THE GROUND LINE.
2. TRENCH SHALL CONFORM TO APPLICABLE OSHA REQUIREMENTS.

REVISED	
BY	DATE



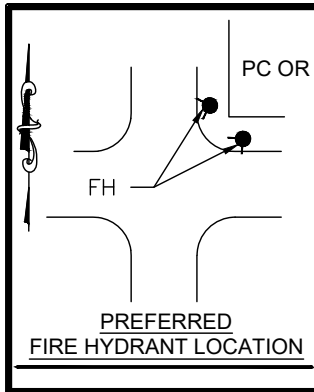
TYPICAL TRENCH SECTION

SCALE	NOT TO SCALE
ISSUE DATE	SEPTEMBER 2023
APPROVED	DRAWING NO.
	W-03



NOTES:

1. NO HORIZONTAL OR VERTICAL BENDS ARE ALLOWED ON THE FIRE HYDRANT BRANCH..
2. DO NOT COVER OR PLUG DRAIN HOLES WITH CONCRETE..

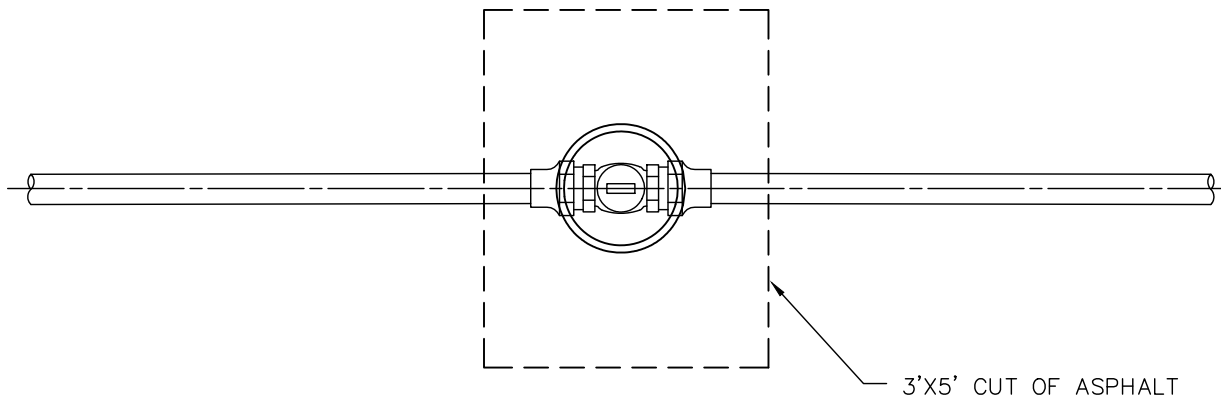


REVISED	
BY	DATE

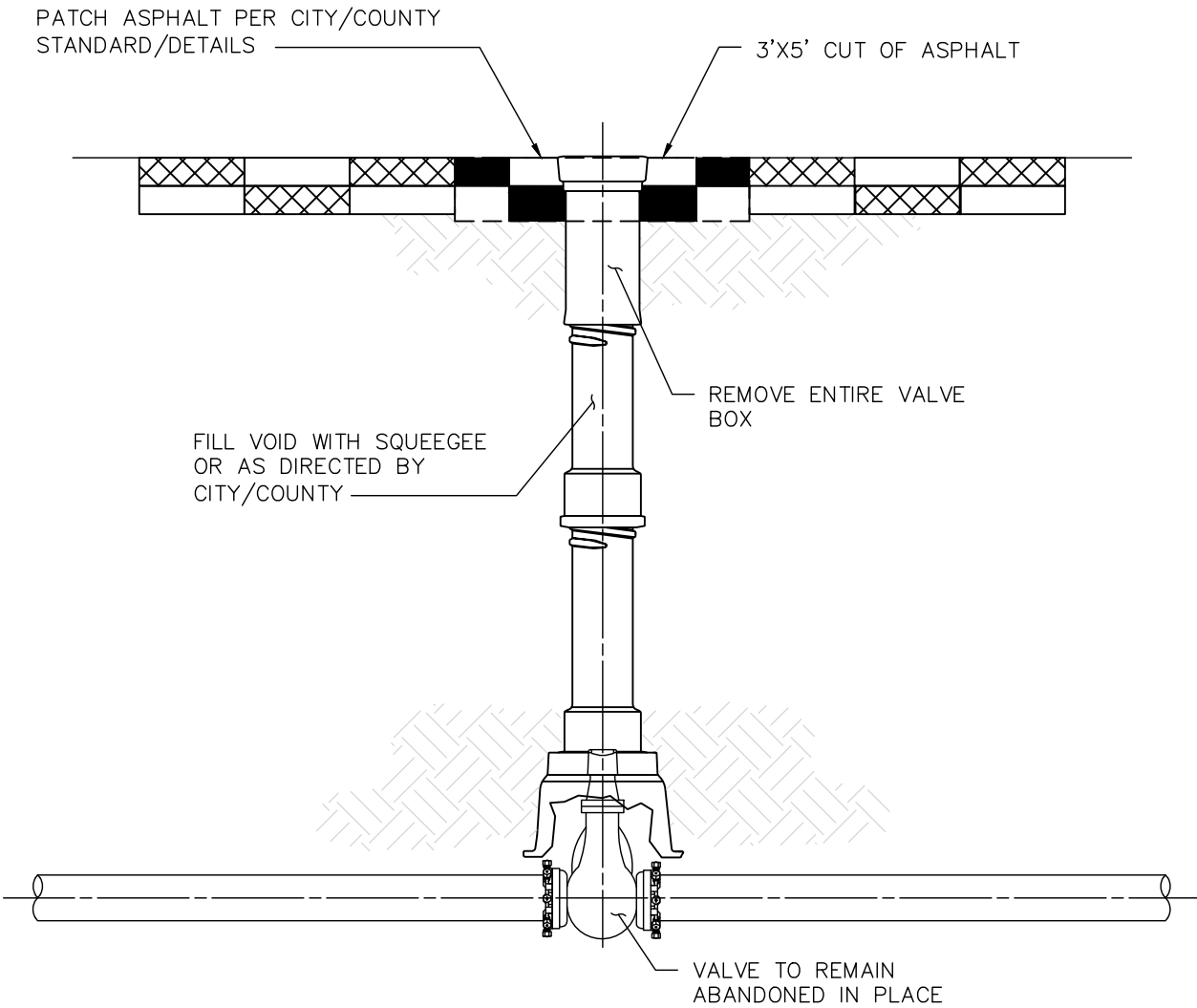


**PLAN, PROFILE & LOCATION FOR
FIRE HYDRANTS, MAINS, & VALVES**

SCALE	NOT TO SCALE
ISSUE DATE	JULY 2021
APPROVED	DRAWING NO. W-04



PLAN



ELEVATION

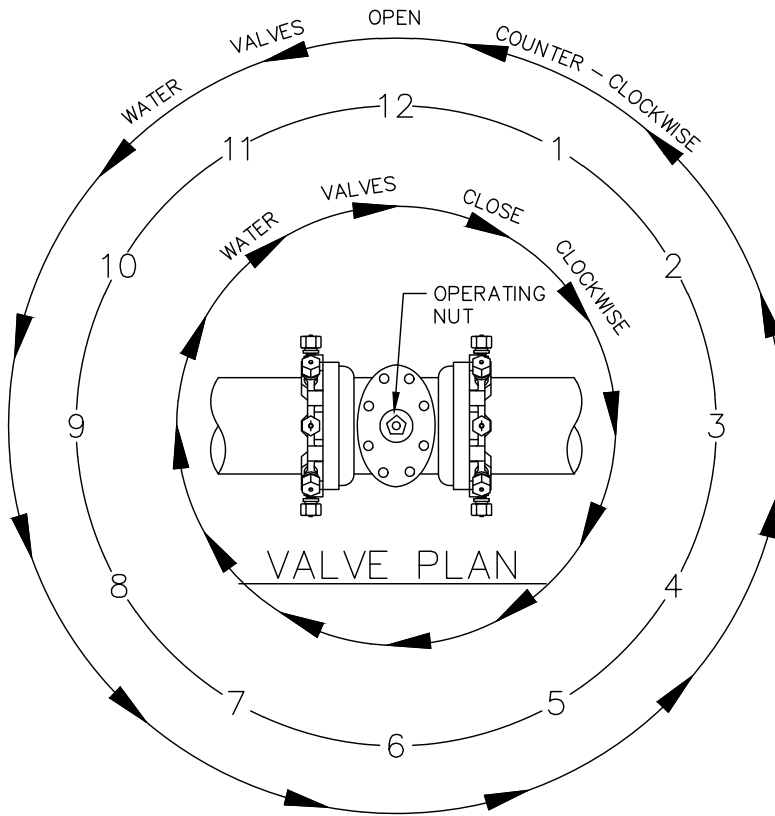
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REVISED	
BY	DATE



VALVE ABANDONMENT

SCALE	NOT TO SCALE
ISSUE DATE	JULY 2021
APPROVED	DRAWING NO.
	W-05



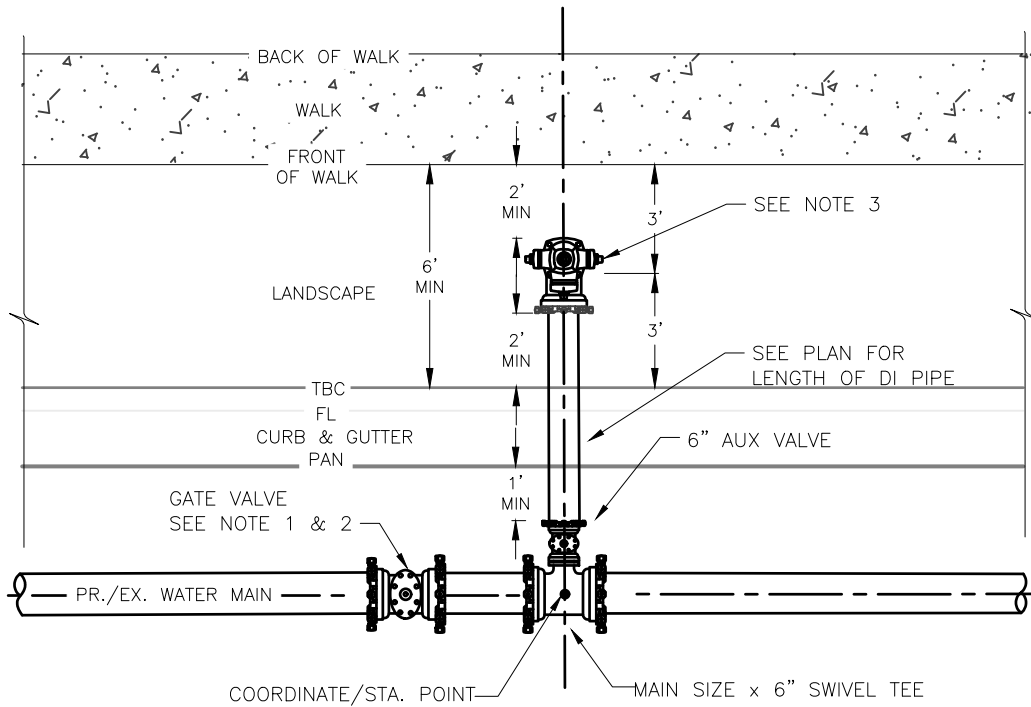
TREATED/POTABLE
VALVE OPENING & CLOSING DIRECTION

NOTES:

1. CONSOLIDATED MUTUAL WATER VALVES ARE OPEN LEFT.

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REVISED			SCALE
BY	DATE		NOT TO SCALE
		VALVE OPERATION	ISSUE DATE
			JULY 2021
			APPROVED
			DRAWING NO. W-06

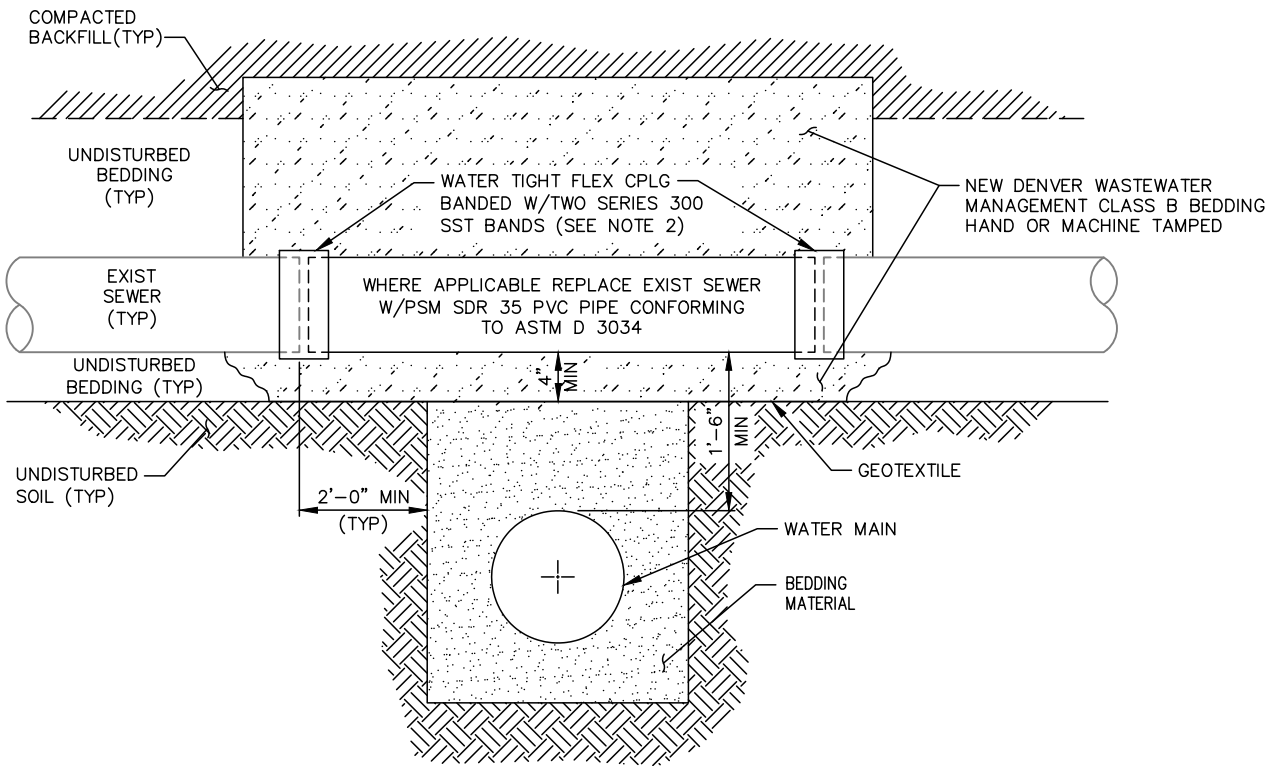


NOTES:

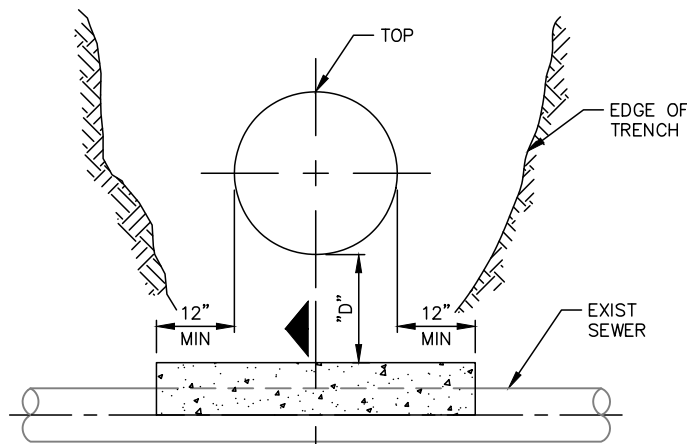
1. MAIN LINE ISOLATION VALVE'S LOCATION RELATIVE TO FH TEE VARIES, SEE PLAN SHEET FOR LOCATION.
2. ANCHOR COUPLING OR SHORT SECTION (3' MIN) OF MAIN TO BE USED TO TIE ISOLATION VALVE TO FH TEE.
3. FIRE HYDRANT TO BE WATEROUS PACER WB-67-250 (DENVER STD 5'6") DANA KEPNER COMPANY MODEL #56LWP25056DENMR.
4. NO VERTICAL OR HORIZONTAL BENDS ARE ALLOWED ON FIRE HYDRANT LATERALS.

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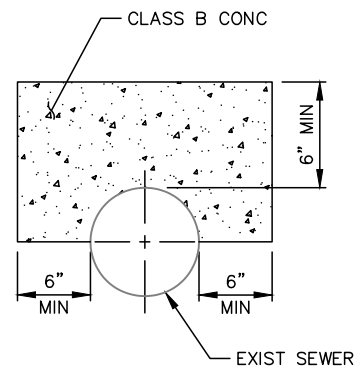
REVISED			SCALE
BY	DATE		NOT TO SCALE
HEY	SEPT-2023	TYPICAL FIRE HYDRANT	ISSUE DATE
			JUNE 2021
			APPROVED
			W-07



SEWER CROSSING OVER



SEWER CROSSING UNDER
WITH "D" LESS THAN 2'



SECTION A
THIS SHT

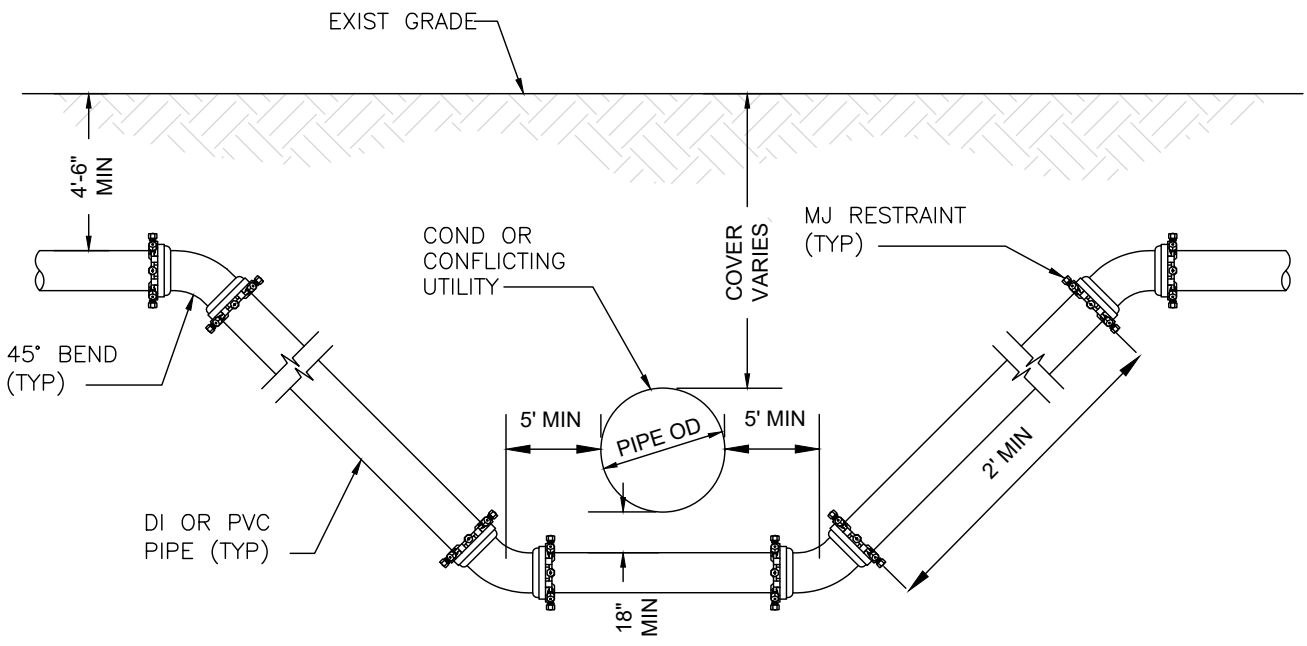
NOTES:

1. ANY EXISTING SEWER DAMAGED DURING INSTALLATION MUST BE REPLACED WITH PVC PIPE.
2. IN THE CITY AND COUNTY OF DENVER, WASTEWATER MANAGEMENT APPROVED FLEX COUPLING SHALL BE USED: FERNCO 5000 SERIES REPAIR COUPLING, MISSION FLEX-SEAL ADJUSTABLE REPAIR COUPLING, ONSET SHEAR GUARD.
3. ANY SUBDRAIN UNDER THE SEWER SHALL BE REPLACED SUCH THAT NO FLOW SHALL ENTER THE WATER LINE TRENCH.

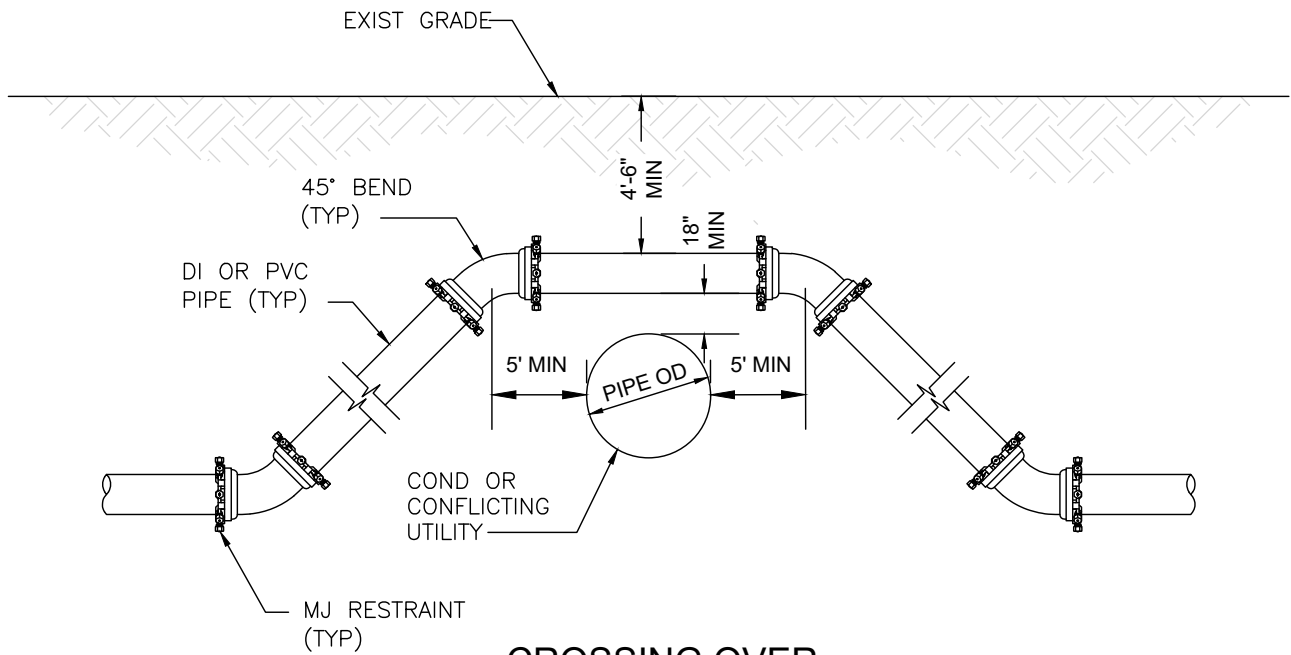
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REVISED			SCALE
BY	DATE		NOT TO SCALE
			ISSUE DATE
			JULY 2021
		STORM AND SANITARY SEWER CROSSING	APPROVED
			DRAWING NO. W-08

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CROSSING UNDER.

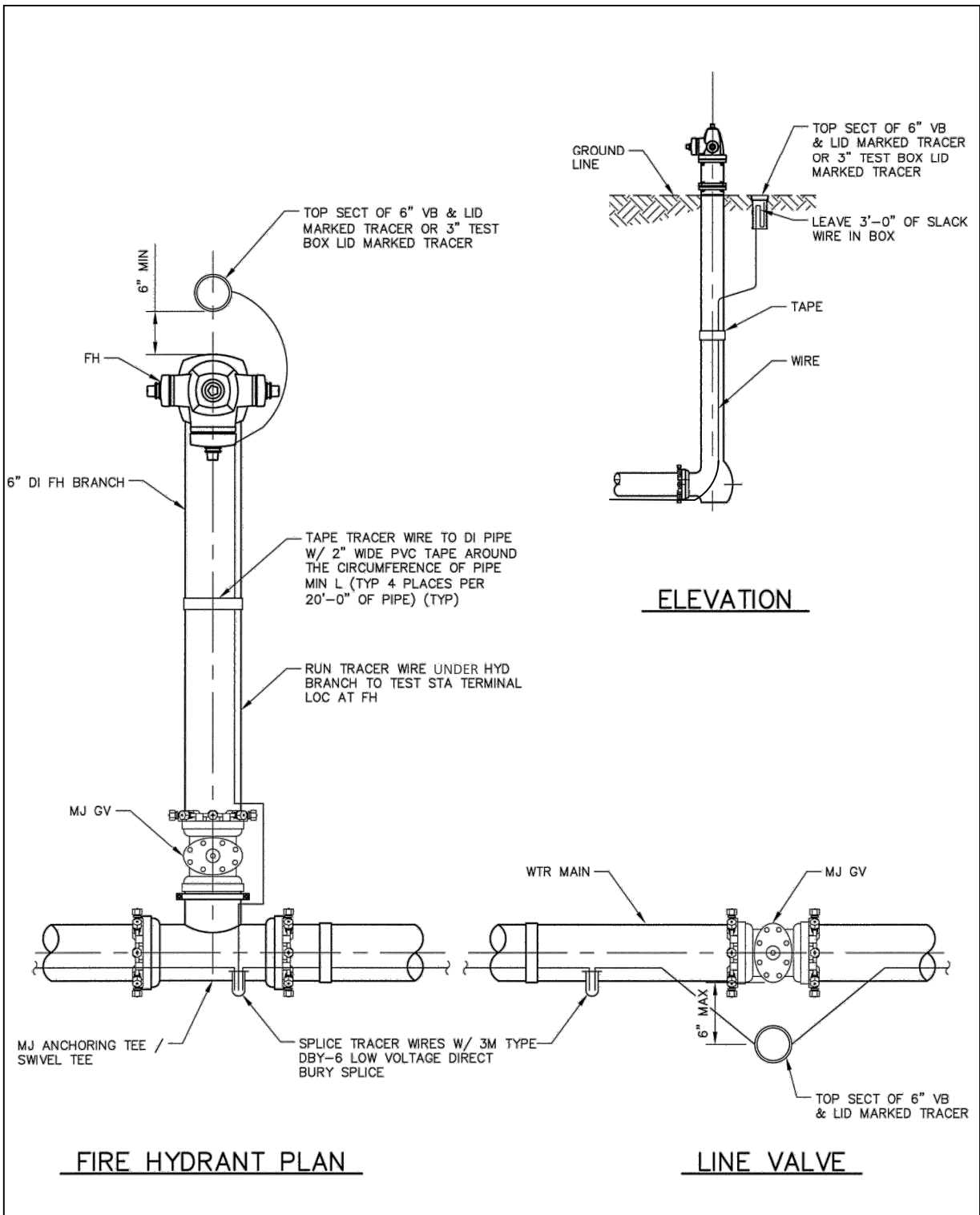


CROSSING OVER

NOTES:

- 1. THRUST BLOCK & RESTRAINT PER DENVER WATER SPECIFICATION (THRUST BLOCKS & RESTRAINTS NOT SHOWN FOR DETAIL CLARITY)

REVISED			SCALE	
BY	DATE		NOT TO SCALE	
		OPEN CUT CROSSING OVER OR UNDER CONDUIT OR CONFLICTING UTILITY	ISSUE DATE	
			JULY 2021	
			APPROVED	DRAWING NO.
			W-09	



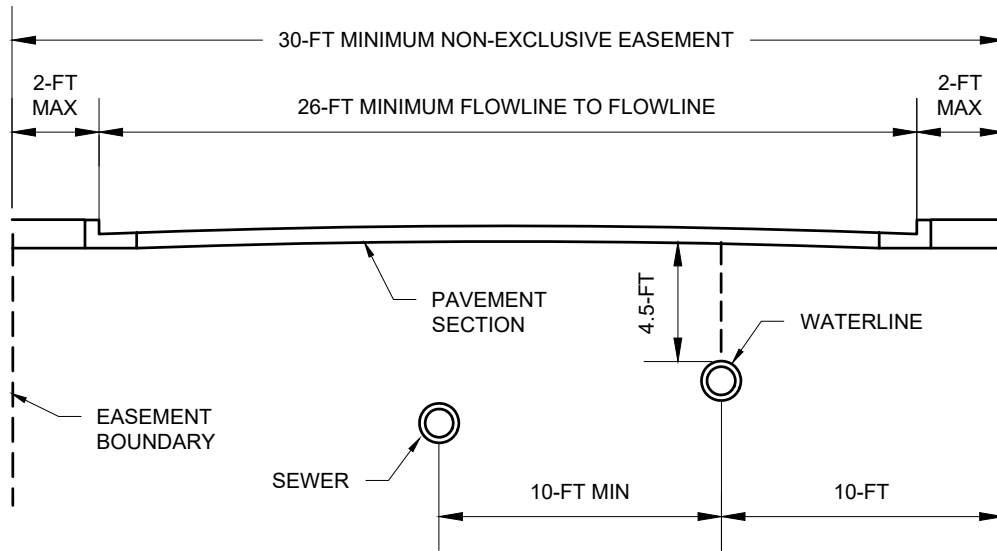
NOTES:

1. TRACER WIRE TO BE INSTALLED ON BOTTOM SIDE OF WATER MAIN

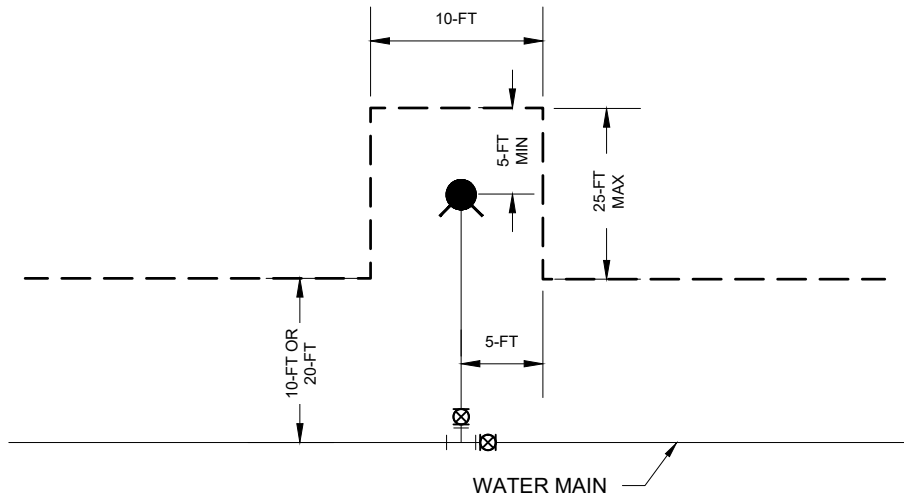
REVISED	
BY	DATE


**TRACER WIRE INSTALLATION
FOR PVC WATER MAIN**

SCALE	
NOT TO SCALE	
ISSUE DATE	
JULY 2021	
APPROVED	DRAWING NO.
	W-10



TYPICAL CROSS SECTION WATER MAIN IN EASEMENT




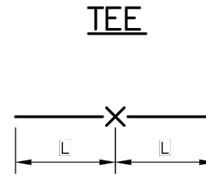
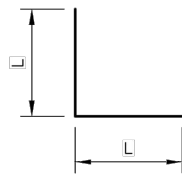
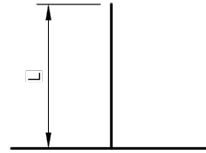
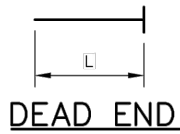
FIRE HYDRANT EASEMENT PLAN

NOTES:

1. WATER MAIN TO BE AT 10' FROM EDGE OF EASEMENT. ANY MODIFICATIONS MUST BE PRE-APPROVED BY CMWC.
2. WATER TO BE AT 4.5' BELOW GRADE. ANY MODIFICATIONS MUST BE PRE-APPROVED BY CMWC.

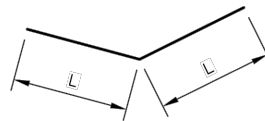
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REVISED			SCALE
BY	DATE		NOT TO SCALE
HEY	SEPT-2023	TYPICAL CROSS SECTION IN EASEMENT AND FIRE HYDRANT EASEMENT	ISSUE DATE
			JULY 2021
			APPROVED
			W-11



90° BEND

VALVE



BENDS

LENGTH OF RESTRAINED PIPE

NOMINAL PIPE ∅	FITTING			
	90° BEND, TEE, DEAD END, VALVE	45° BEND	22 1/2° BEND	11 1/4° BEND
4"	30'	9'	2'	1'
6"	46'	13'	3'	1'
8"	61'	18'	5'	1'
12"	90'	26'	7'	2'
16"	116'	34'	9'	2'
20"	141'	41'	11'	3'

NOTES:

1. LENGTH OF RESTRAINED PIPE IS MEASURED DISTANCE EACH WAY FROM VALVES AND BENDS.
2. MINIMUM 4 FEET 6 INCH BURY DEPTH REQUIRED.
3. BASED ON 150 POUNDS PER SQUARE INCH WORKING PRESSURE.
4. RESTRAIN CROSSES IN ALL DIRECTIONS.
5. WHEN REDUCERS ARE USED ON A VALVE INSTALLATION THE LENGTH OF RESTRAINT SHALL BE BASED ON THE SIZE OF THE PIPE NOT THE SIZE OF THE VALVE.

REVISED

BY

DATE



LENGTH OF RESTRAINED PIPE

SCALE

NOT TO SCALE

ISSUE DATE

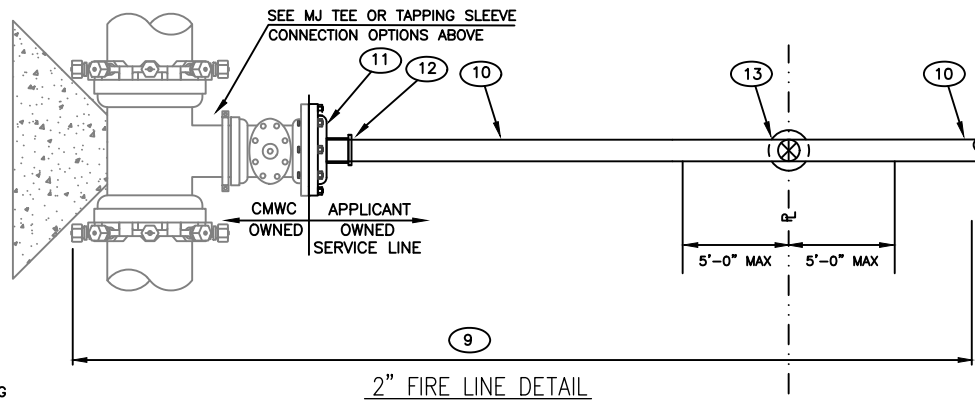
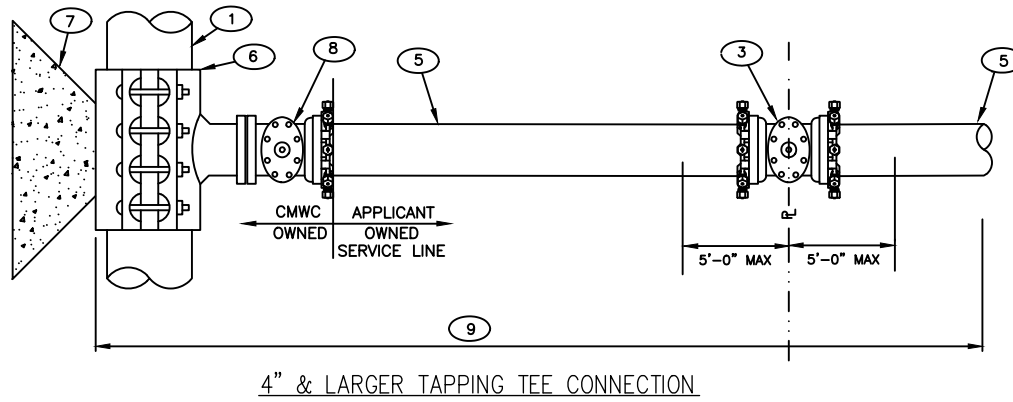
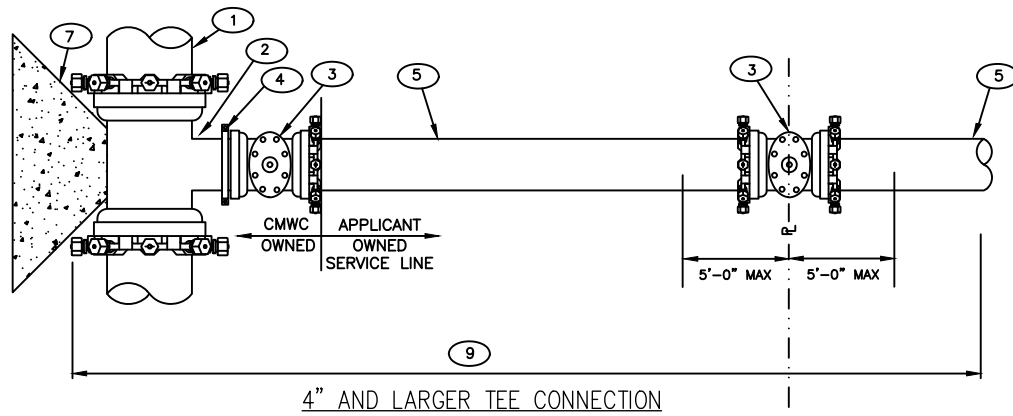
SEPTEMBER 2023

APPROVED

DRAWING NO.

W-12

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KEY NOTES:

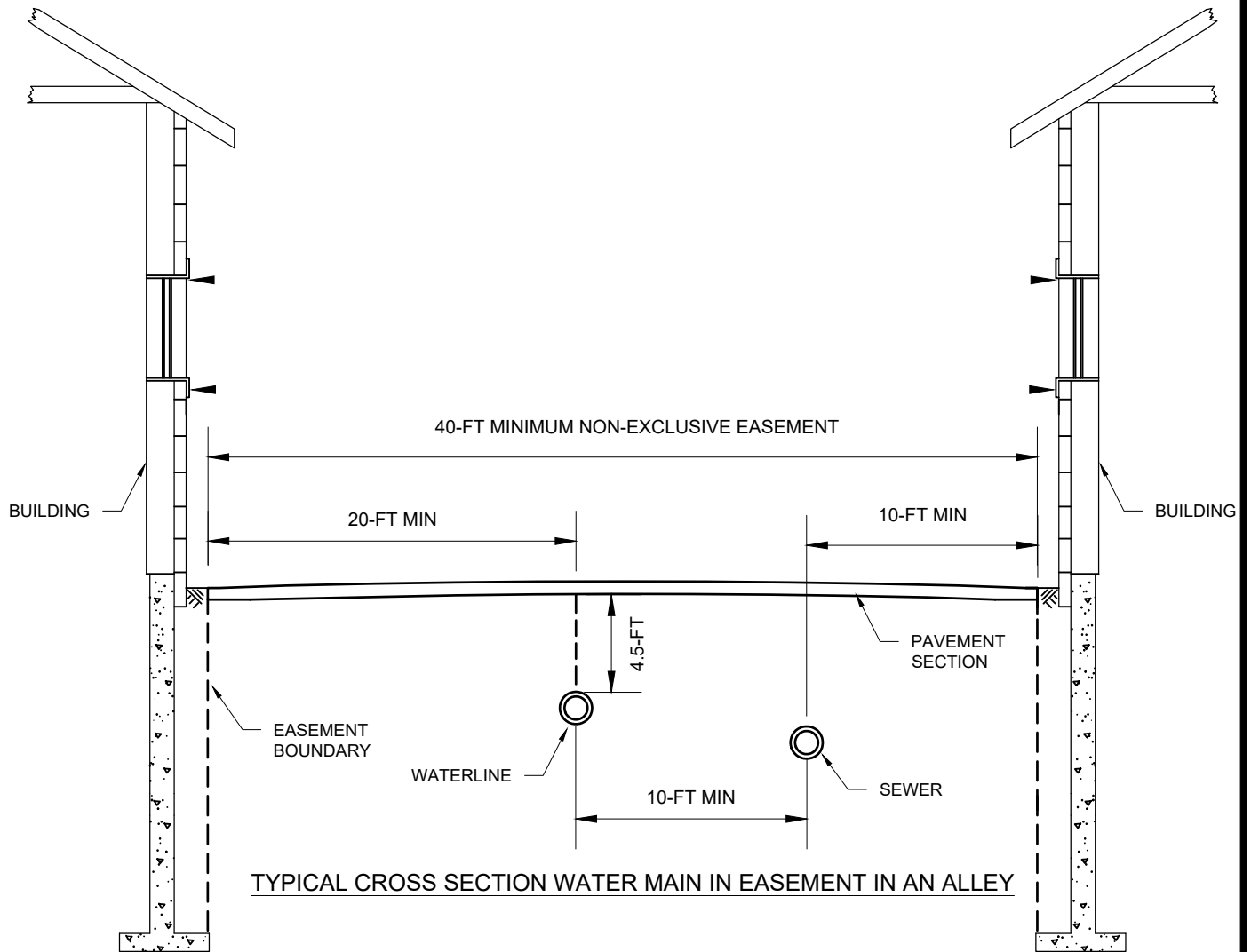
- ① WTR MAIN
- ② MJ TEE
- ③ MJ GV
- ④ ANCHOR COUPLING
- ⑤ DI PIPE FULLY RESTRAINED
- ⑥ TAPPING SLV
- ⑦ CONC KB PER DENVER WATER DETAIL
- ⑧ TAPPING VALVE FLG X MJ
- ⑨ POLYETHYLENE WRAPPED
- ⑩ 2" TYPE K COPPER
- ⑪ 4" x 2" MJ TAPPED PLUG
- ⑫ 2" MIP x COMPRESSION
- ⑬ 2" CURB STOP

REVISED	
BY	DATE
HEY	1/9/2024



CMWC FIRE LINE CONNECTION

SCALE	
NOT TO SCALE	
ISSUE DATE	
SEPTEMBER 2023	
APPROVED	DRAWING NO.
	W-13



TYPICAL CROSS SECTION WATER MAIN IN EASEMENT IN AN ALLEY

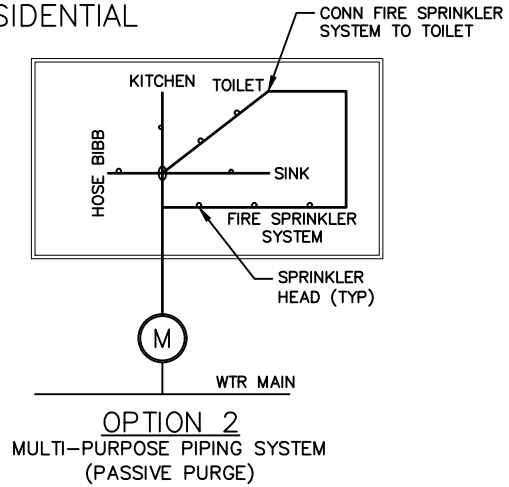
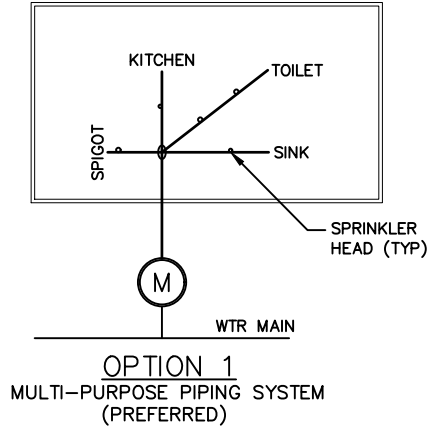
NOTES:

1. WATER MAIN TO BE AT 20' FROM EDGE OF EASEMENT. ANY MODIFICATIONS MUST BE PRE-APPROVED BY CMWC.
2. WATER TO BE AT 4.5' BELOW GRADE. ANY MODIFICATIONS MUST BE PRE-APPROVED BY CMWC.

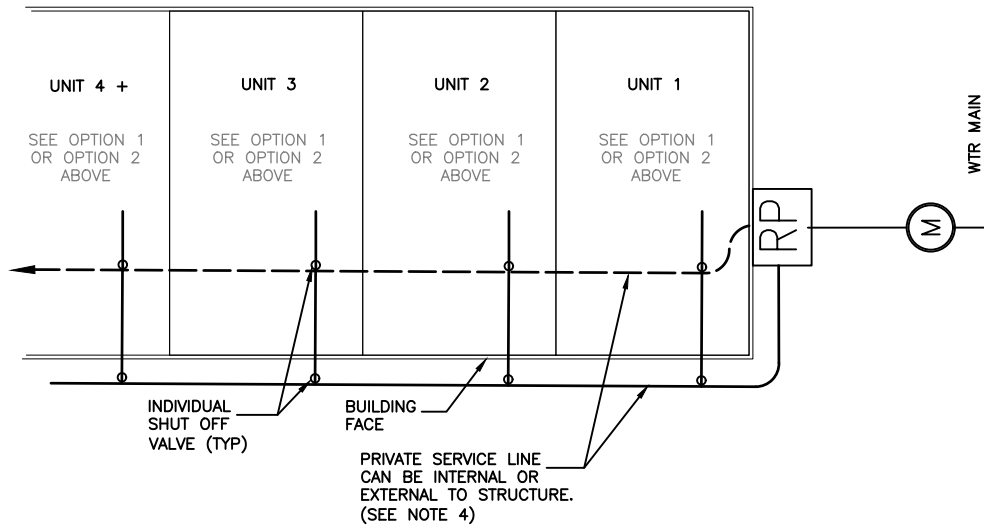
REVISED			SCALE	
BY	DATE		NOT TO SCALE	
		ISSUE DATE		
		JAN 2024		
		APPROVED		
		DRAWING NO.		
TYPICAL CROSS SECTION IN EASEMENT IN ALLEYWAY		W-14		

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SINGLE FAMILY RESIDENTIAL



MULTI-FAMILY RESIDENTIAL



NOTES:

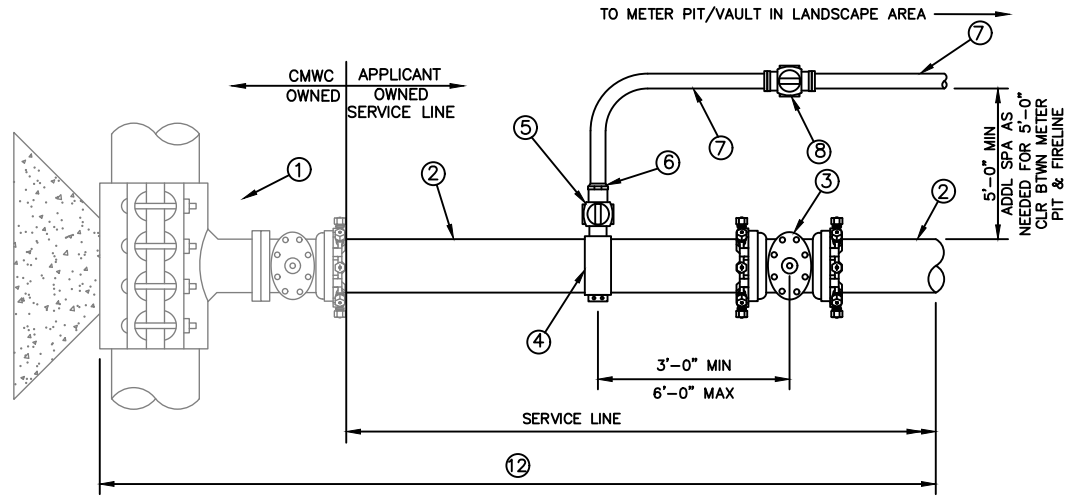
1. CMWC ONLY ALLOWS TWO OPTIONS FOR THE NATIONAL FIRE PROTECTION ASSOCIATION'S 13D OR P2904 SPRINKLER SYSTEMS.
 - a. OPTION 1 SYSTEM SHALL HAVE ALL BRANCH LINES TERMINATE AT A FIXTURE.
 - b. OPTION 2 SYSTEM SHALL HAVE NO DEAD-END LINES, SYSTEM PIPING SHALL BE CONSTRUCTED TO MOVE WATER THROUGH THE ENTIRE SYSTEM TO THE FIXTURE END POINT.
2. FOR ALL RESIDENTIAL FIRE PROTECTION SYSTEMS CMWC WILL REQUIRE A LETTER FROM THE JURISDICTION'S BUILDING DEPARTMENT THAT STATES THE SPRINKLER SYSTEM HAS BEEN APPROVED.
4. INTERNAL OR EXTERNAL PRIVATE DOMESTIC MAIN AS REQUIRED BY JURISDICTION'S BUILDING REQUIREMENT.

LEGEND:

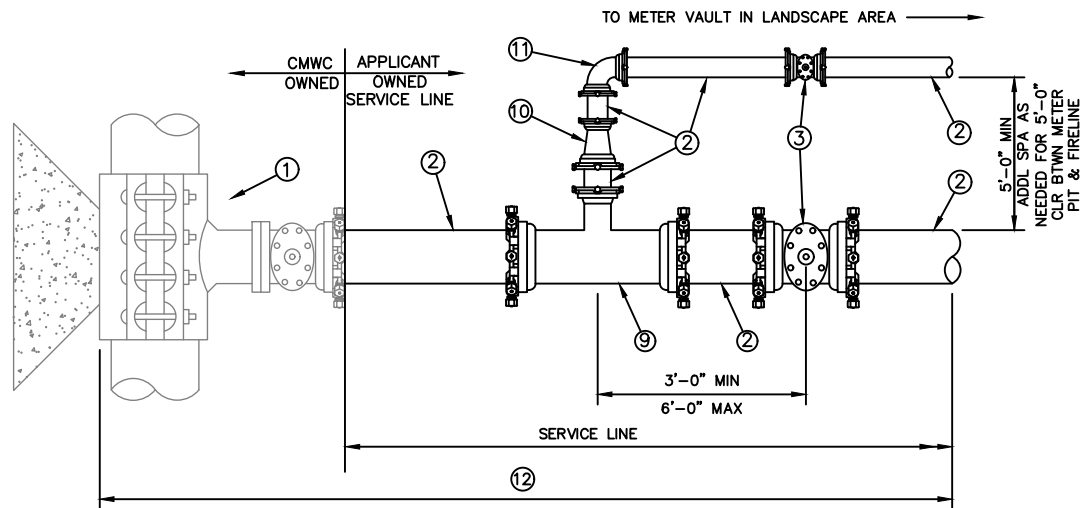
- WATER METER PER CMWC METER SPECIFICATIONS AND DETAILS
- APPROVED REDUCED PRESSURE (RP) BACKFLOW PREVENTION ASSEMBLY PER CMWC'S BACKFLOW STANDARDS

REVISED			SCALE NOT TO SCALE	
BY	DATE		ISSUE DATE JAN 2024	
		RESIDENTIAL FIRE PROTECTION SERVICE LINE DETAIL	APPROVED SM	
			DRAWING NO. M-10	

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2" & SMALLER DOMESTIC



KEYED NOIES:

- ① SEE CMWC FIRE LINE CONNECTION DETAIL W-13 FOR MAIN LINE CONNECTION REQUIREMENTS.
- ② DIP FULLY RESTRAINED
- ③ MJ GV
SEE CMWC FIRE LINE CONNECTION DETAIL FOR VALVE LOCATION REQUIREMENTS
- ④ TAPPING SADDLE
- ⑤ CORP STOP
- ⑥ SERVICE INSULATOR
- ⑦ TYPE "K" Cu PIPE

3" DOMESTIC

- ⑧ CURB STOP
SEE CMWC METER DETAIL FOR CURB STOP LOCATION REQUIREMENTS
- ⑨ MJ TEE
- ⑩ 4"x 3" MJ RDCR
- ⑪ 90° MJ ELB
- ⑫ PE WRAPPED

NOTE:

THE MINIMUM LINE SIZE RATIO FOR THE FIRE SERVICE LINE TO DOMESTIC SERVICE LINE IS 4:1, RESPECTIVELY.

REVISED			SCALE
BY	DATE		NOT TO SCALE
			ISSUE DATE
			JAN 2024
			APPROVED
			SM
			DRAWING NO.
			M-11

FIRELINE CONNECTION WITH DOMESTIC SERVICE TAP