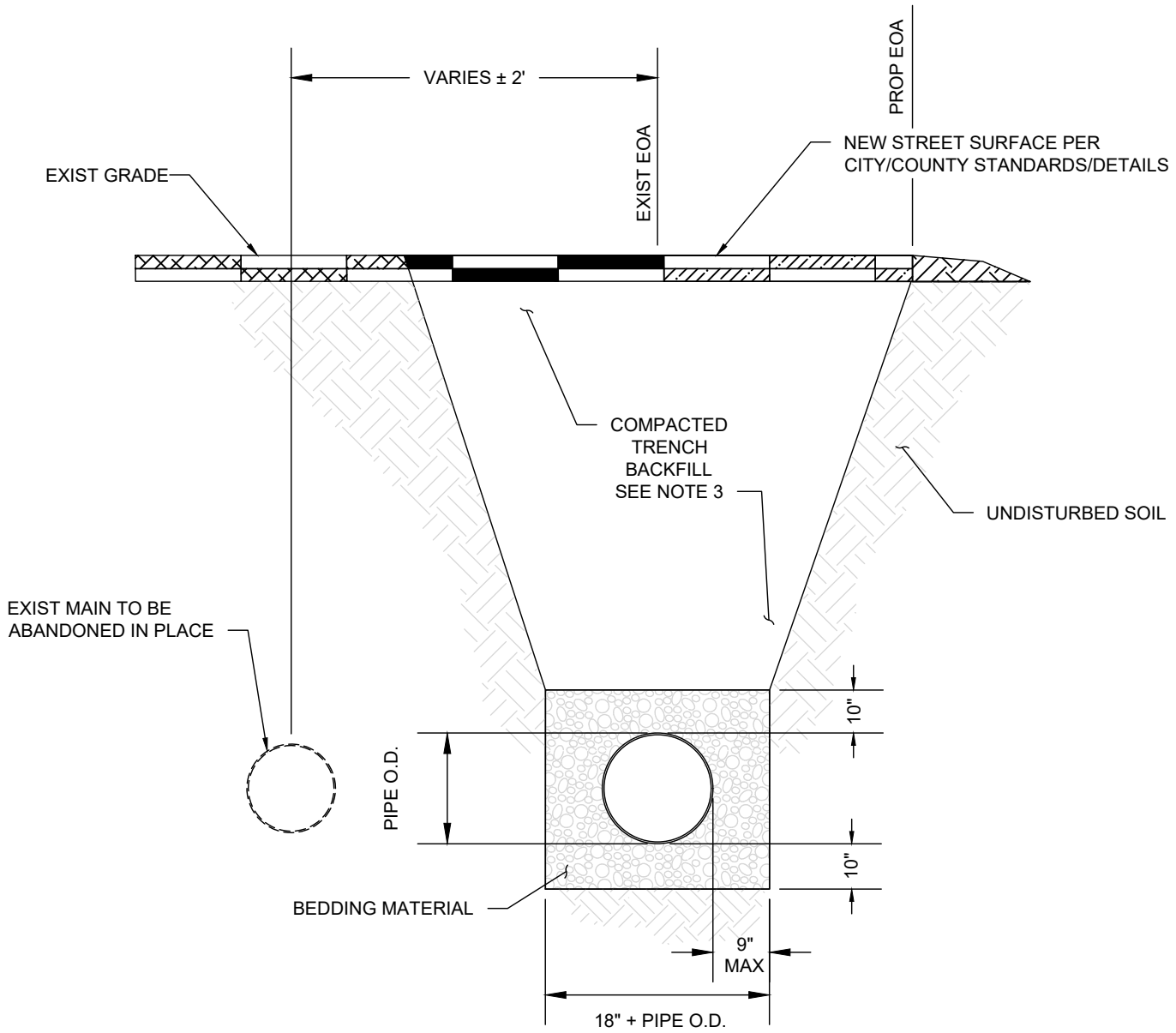


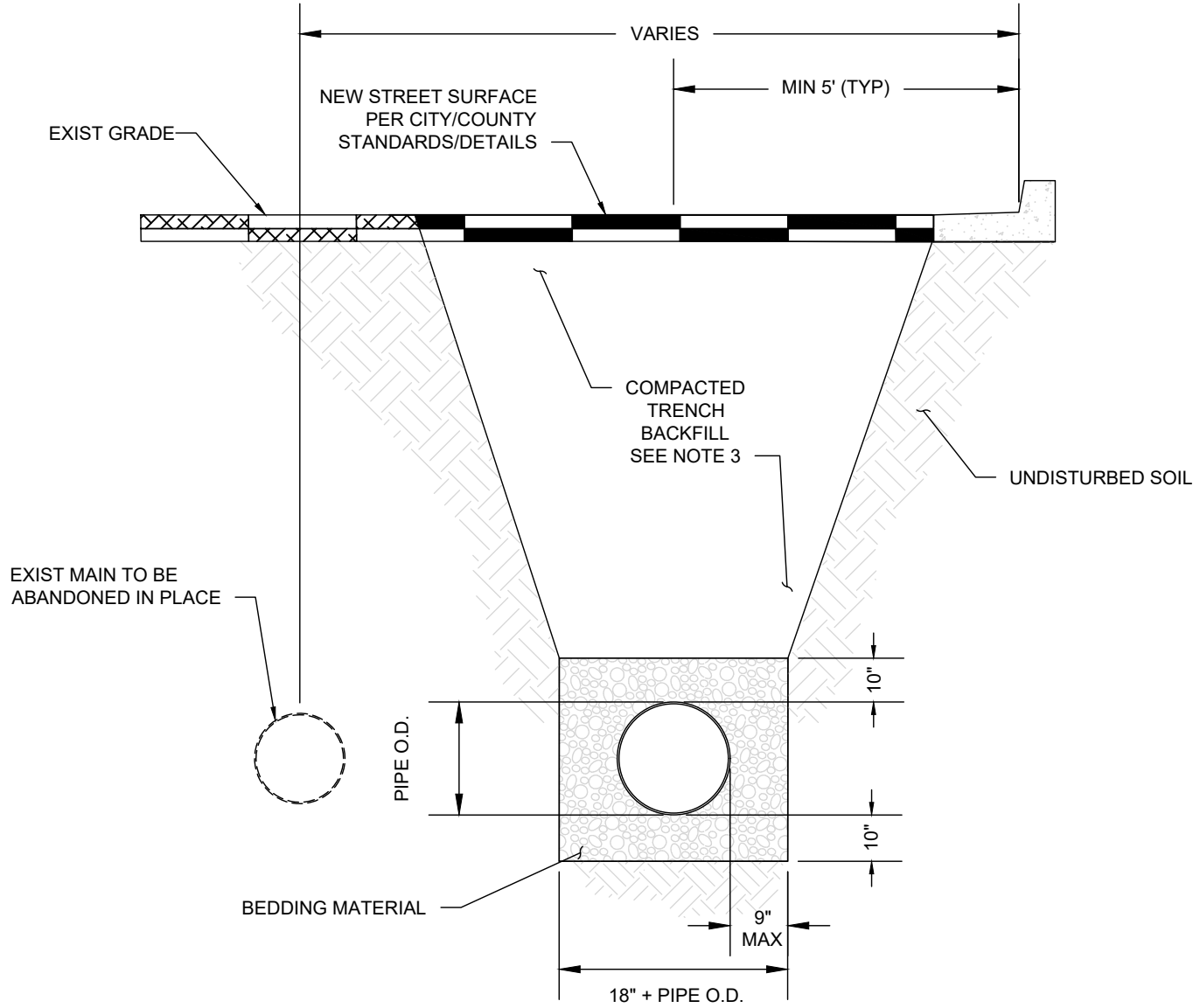
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- NOTES:
- 1. MINIMUM COVER SHALL BE 4'-6" BELOW OFFICIAL STREET GRADE.
 - 2. TRENCH SHALL CONFORM TO APPLICABLE OSHA REQUIREMENTS.
 - 3. COMPACTION SHALL BE IN ACCORDANCE WITH DENVER WATER ENGINEERING STANDARDS CHAPTER 7.

REVISED		 TYPICAL TRENCH DETAIL WITHOUT CURB	SCALE	
BY	DATE		NOT TO SCALE	
			ISSUE DATE	
			JULY 2021	
			APPROVED	DRAWING NO.
			CB	W-01

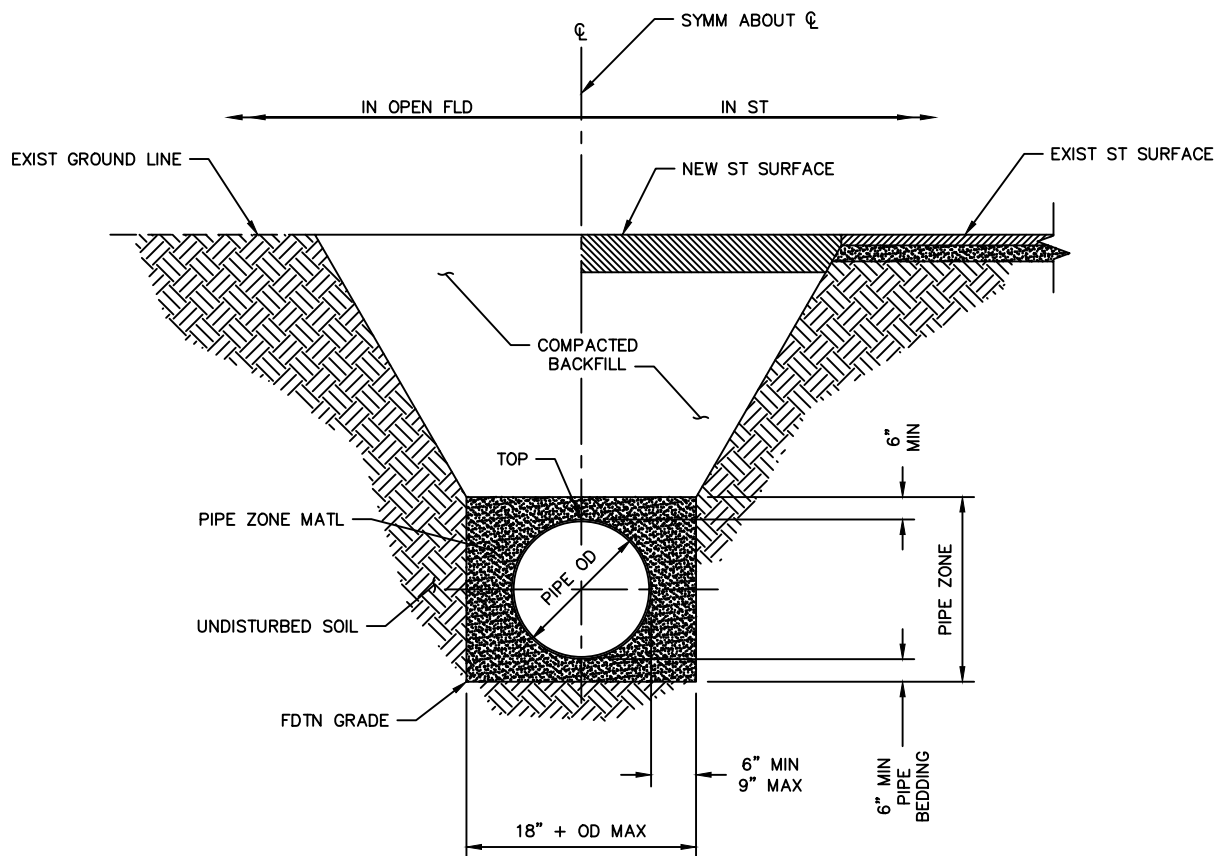
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NOTES:

- 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.

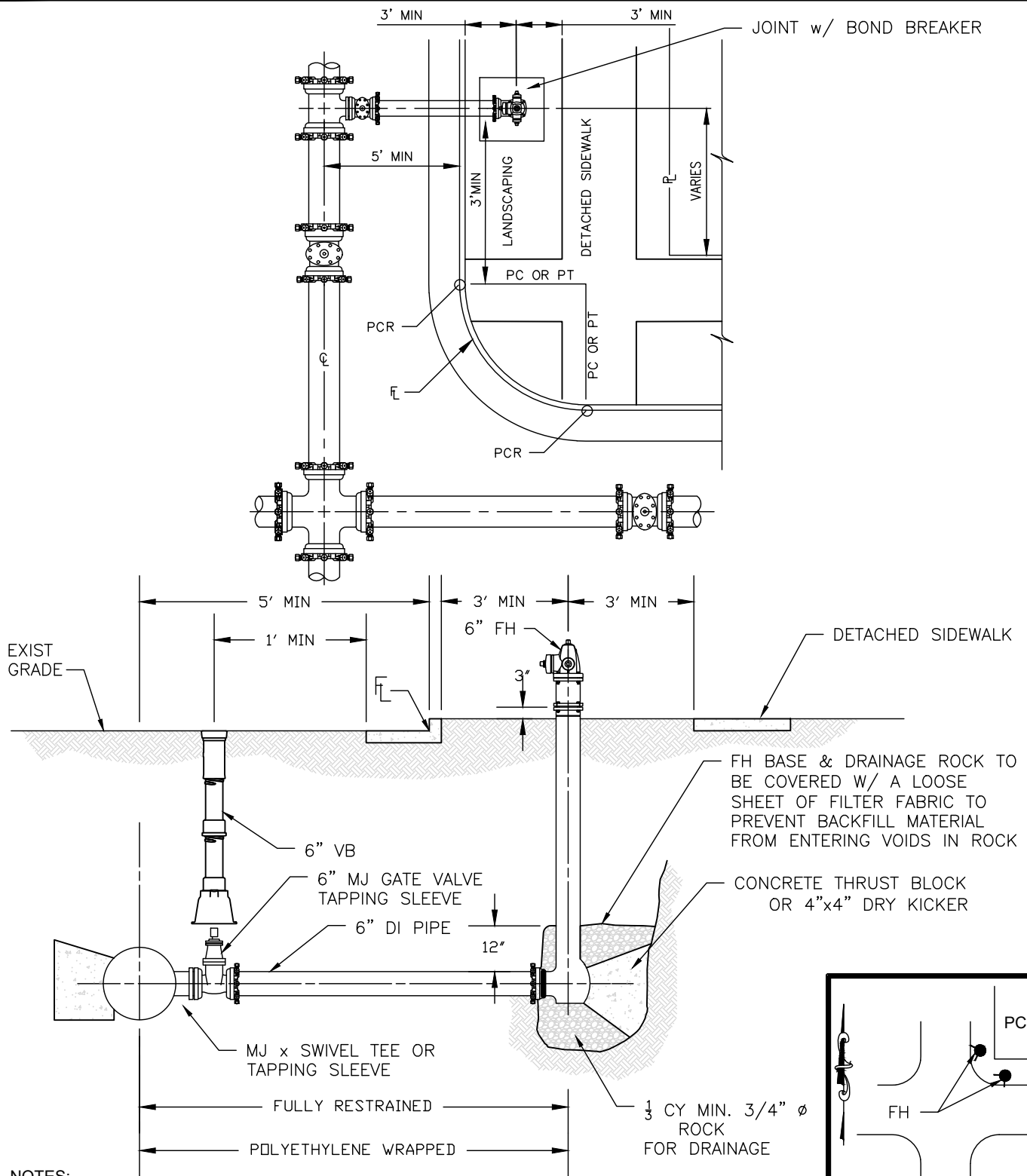
REVISED		 TYPICAL TRENCH DETAIL WITH CURB	SCALE	
BY	DATE		NOT TO SCALE	
			ISSUE DATE	
			JULY 2021	
			APPROVED	DRAWING NO.
			CB	W-02



NOTES:

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

REVISED			SCALE
BY	DATE		NOT TO SCALE
		TYPICAL TRENCH SECTION	ISSUE DATE
			SEPTEMBER 2023
			APPROVED DRAWING NO.
			CB 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

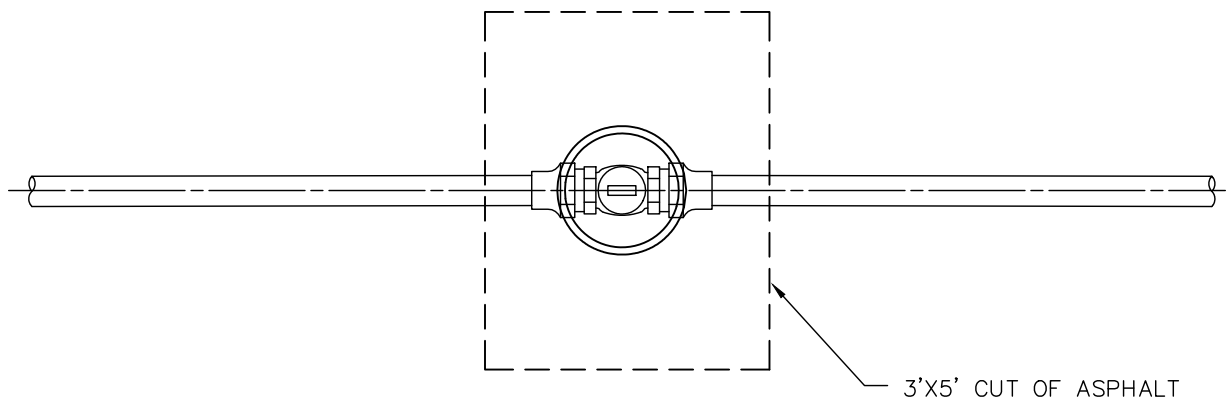
JULY 2021

APPROVED

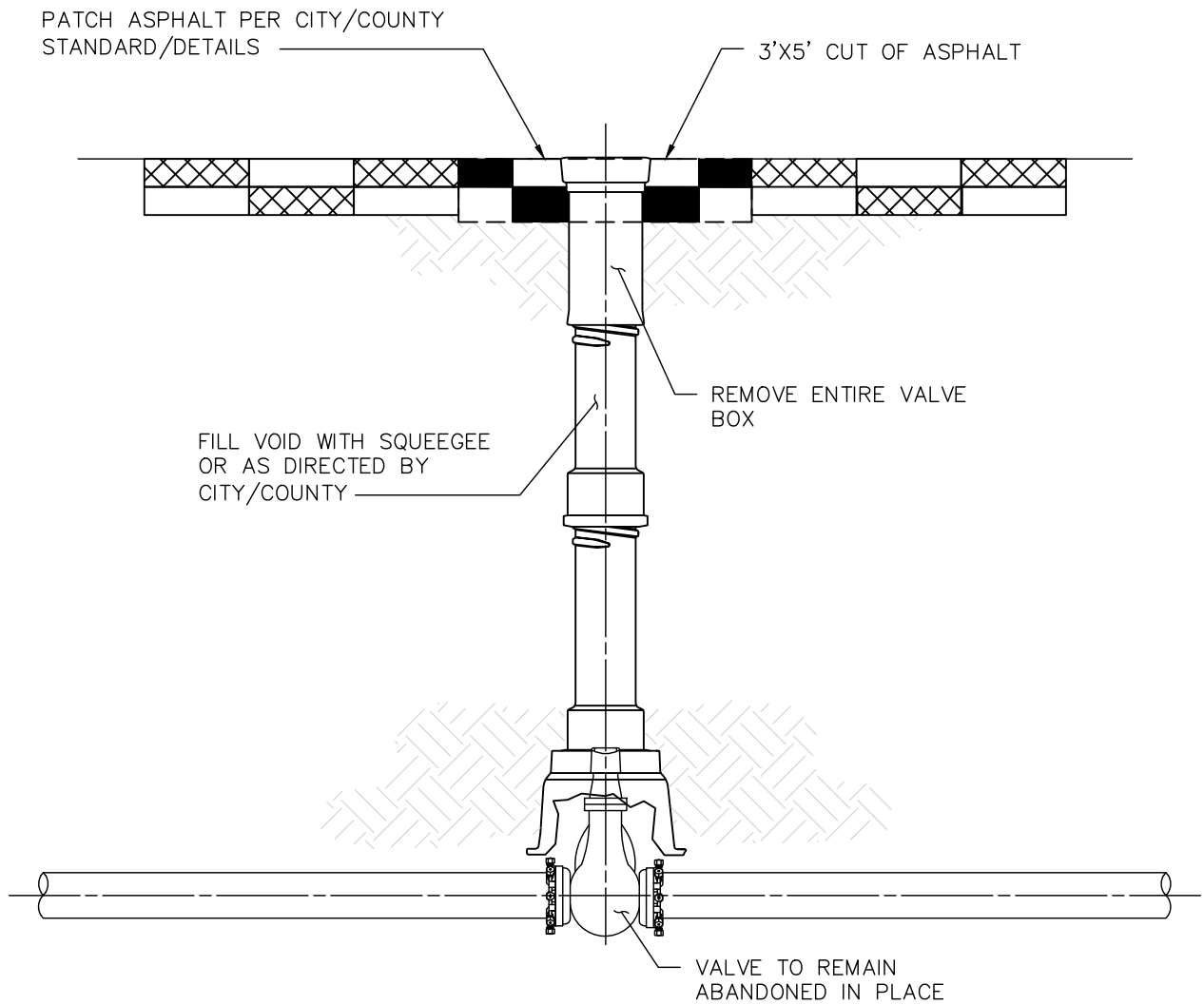
CB

DRAWING NO.

W-04



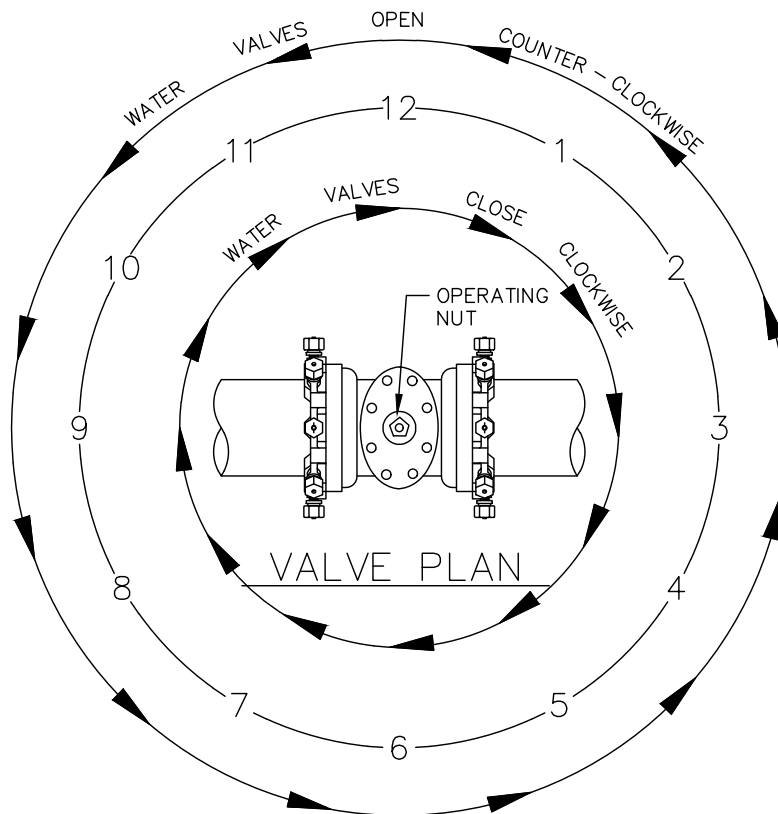
PLAN



ELEVATION

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REVISED		 VALVE ABANDONMENT	SCALE	
BY	DATE		NOT TO SCALE	
			ISSUE DATE	
			JULY 2021	
			APPROVED	DRAWING NO.
			CB	W-05

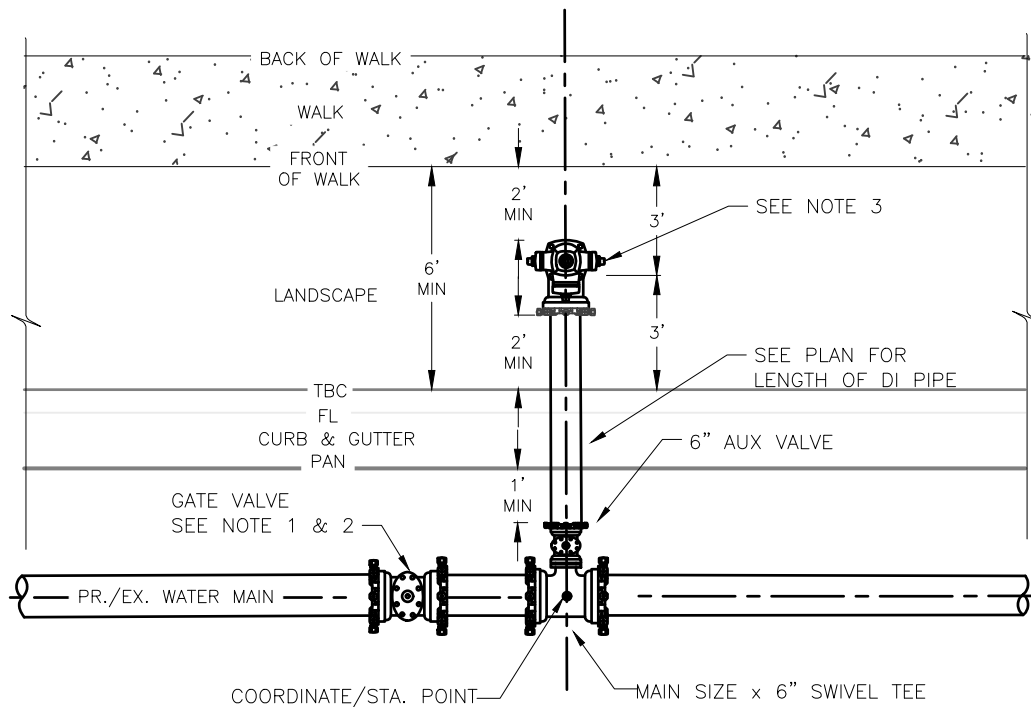


TREATED/POTABLE
VALVE OPENING & CLOSING DIRECTION

NOTES:

1. CONSOLIDATED MUTUAL WATER VALVES ARE OPEN LEFT.

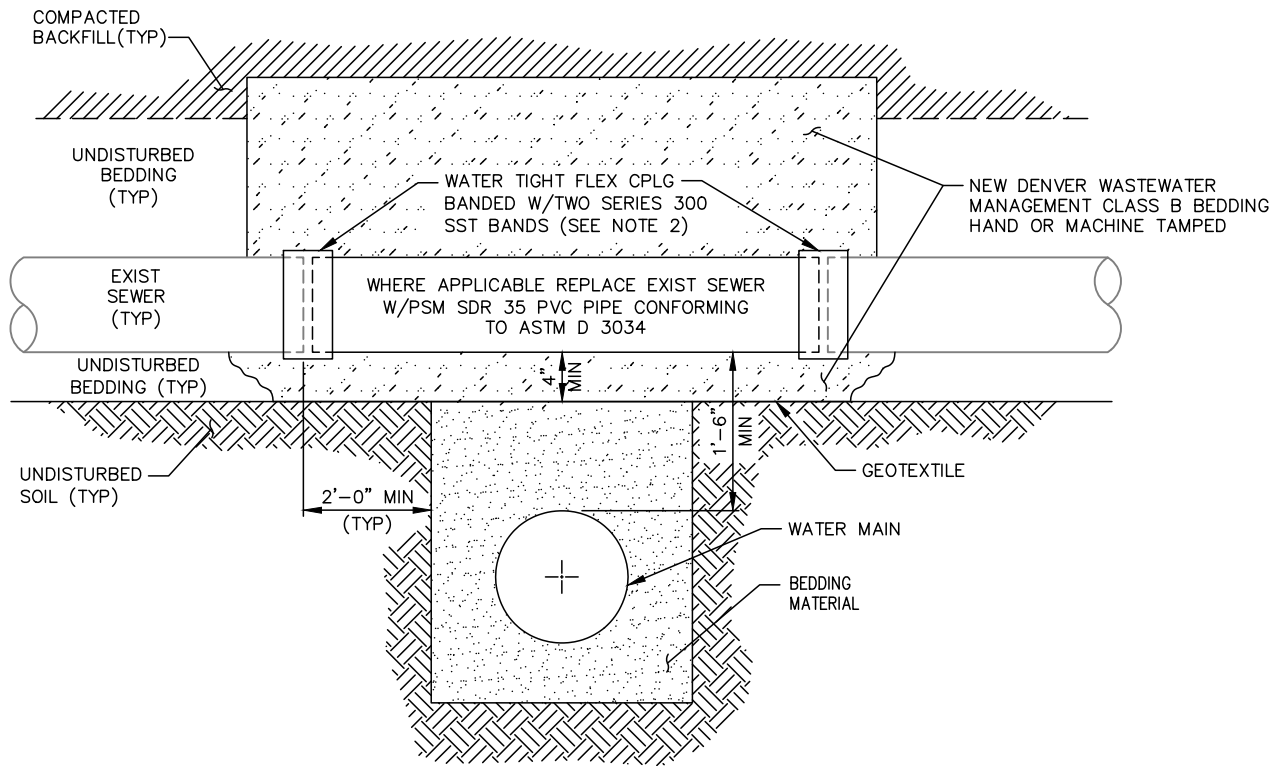
REVISED			SCALE
BY	DATE		NOT TO SCALE
		VALVE OPERATION	ISSUE DATE
			JULY 2021
			APPROVED
			DRAWING NO.
			CB W-06



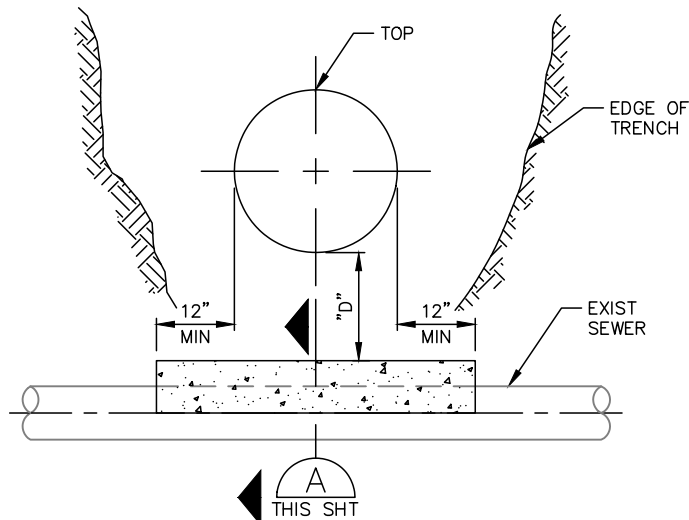
NOTES:

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") CORE & MAIN PRODUCT CODE #605666M3WB67YLDEN.
4. NO VERTICAL OR HORIZONTAL BENDS ARE ALLOWED ON FIRE HYDRANT LATERALS.

REVISED			SCALE
BY	DATE		NOT TO SCALE
HEY	SEPT-2023	TYPICAL FIRE HYDRANT	ISSUE DATE
HEY	JULY-2026		JUNE 2021
			APPROVED
			DRAWING NO. W-07

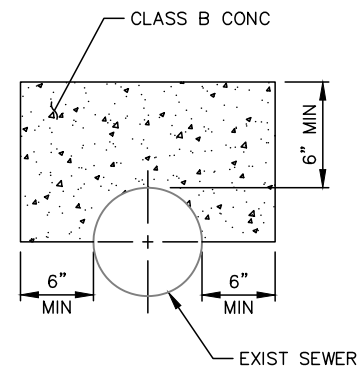


SEWER CROSSING OVER



SEWER CROSSING UNDER

WITH "D" LESS THAN 2'



SECTION A

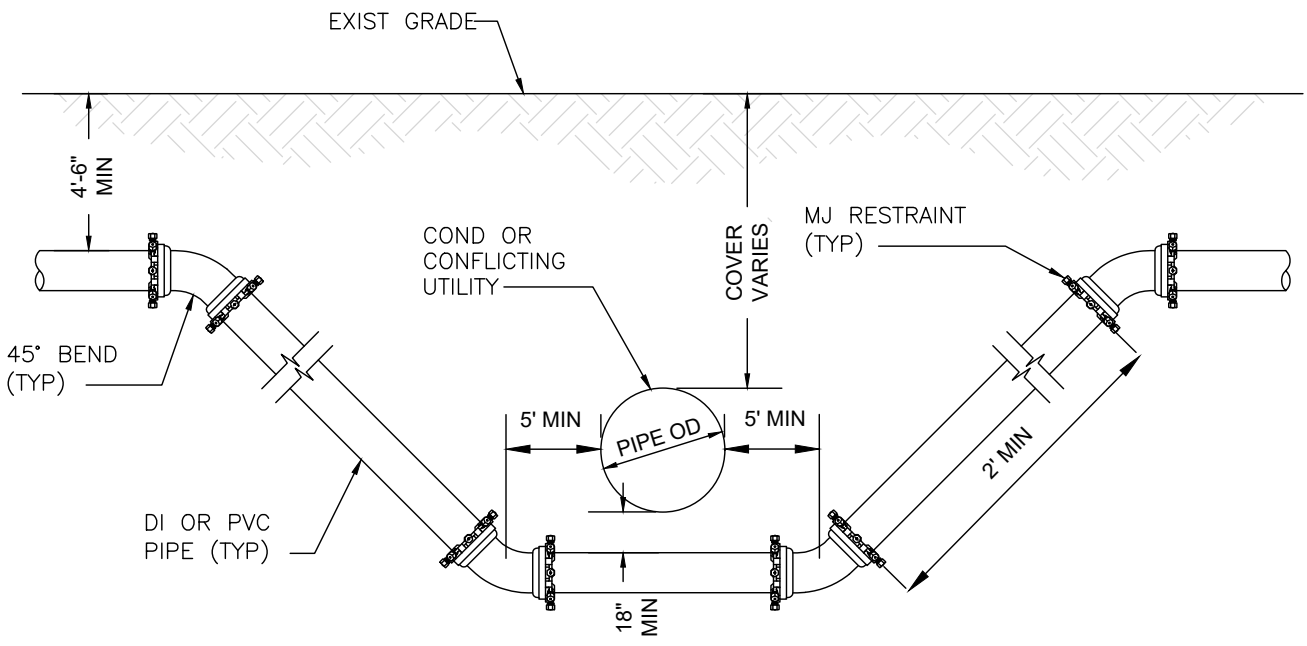
NOTES:

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.

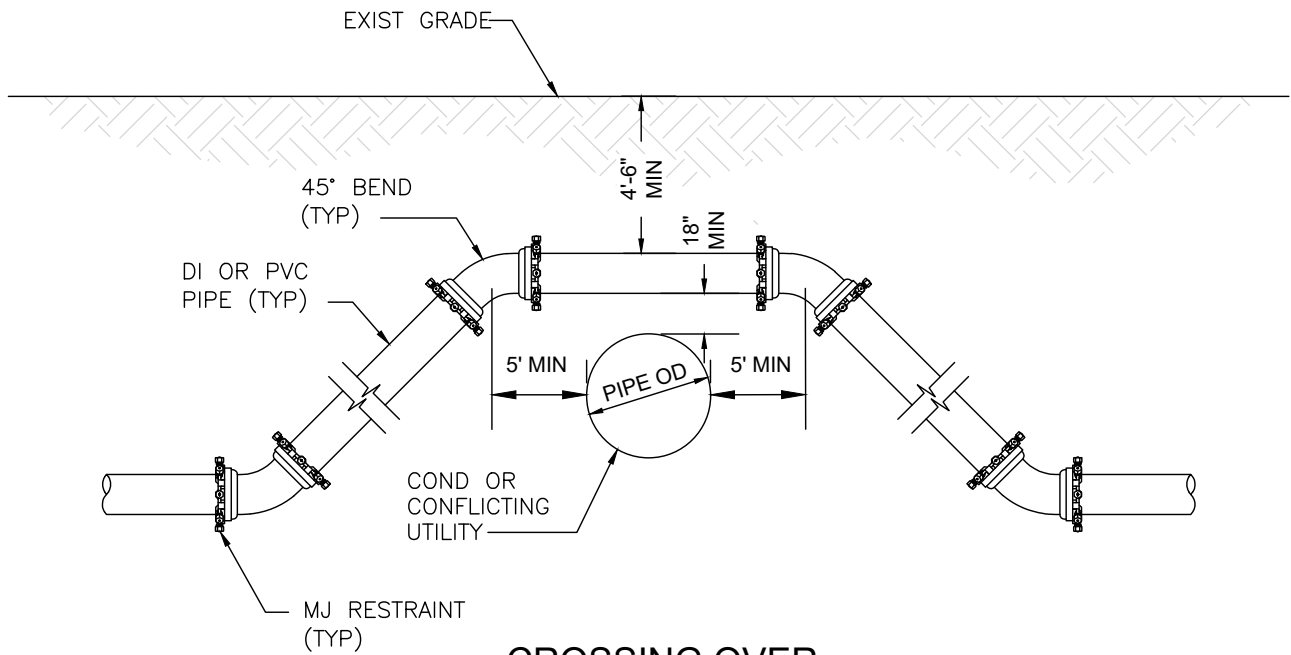
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REVISED			SCALE	
BY	DATE		NOT TO SCALE	
			ISSUE DATE	
			JULY 2021	
		STORM AND SANITARY SEWER CROSSING	APPROVED	
			DRAWING NO.	
			CB W-08	

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CROSSING UNDER.

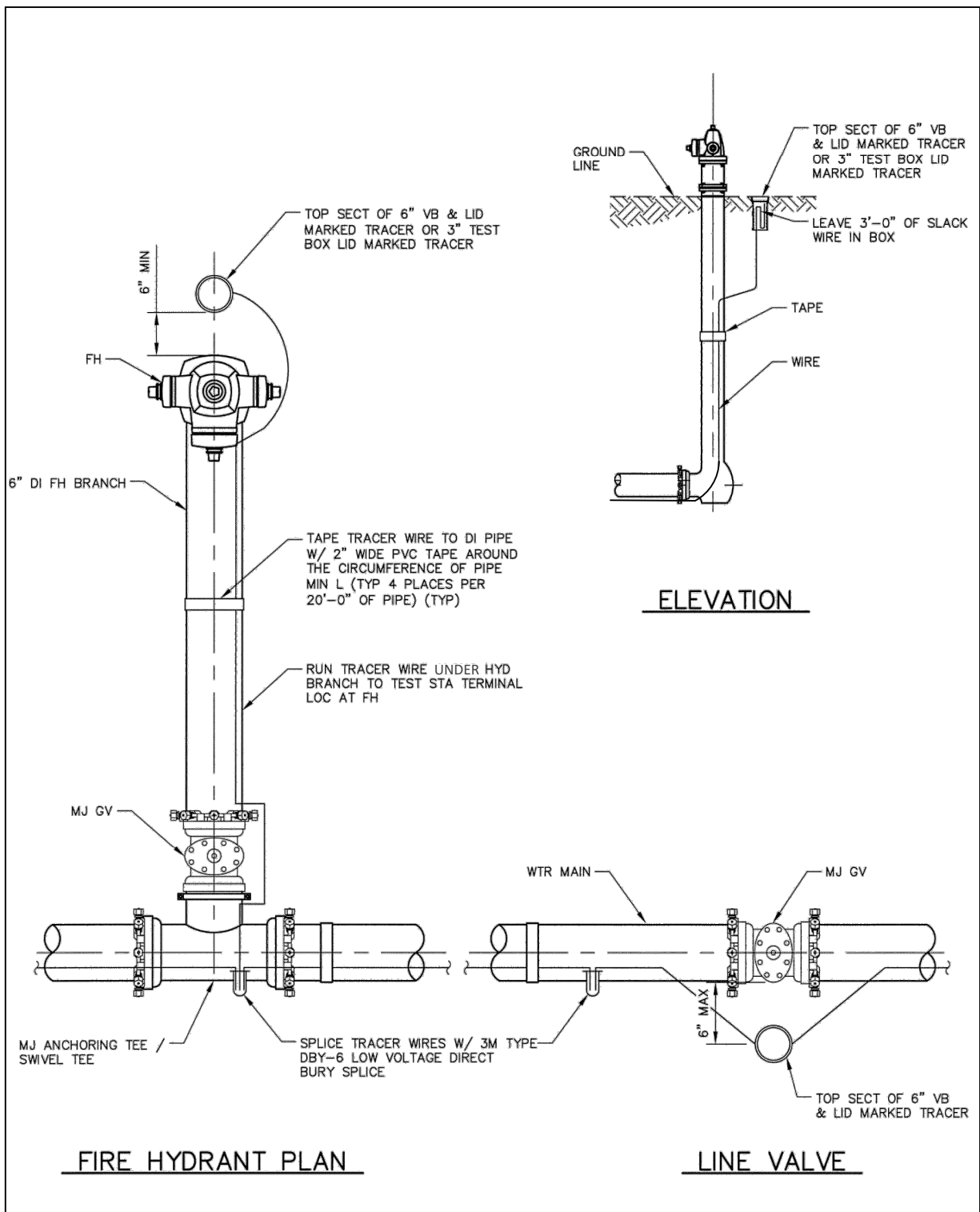


CROSSING OVER

NOTES:

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

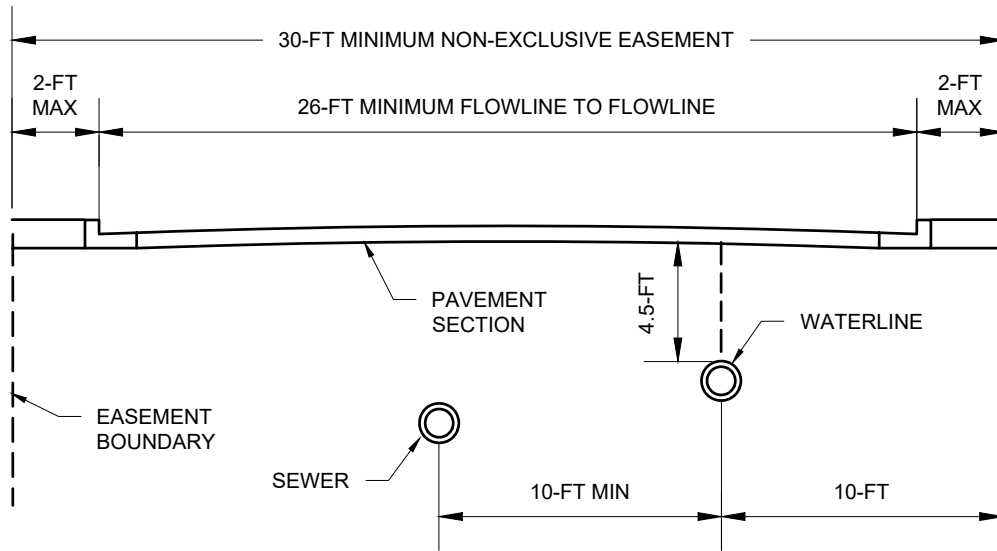
REVISED		 OPEN CUT CROSSING OVER OR UNDER CONDUIT OR CONFLICTING UTILITY	SCALE NOT TO SCALE	
BY	DATE		ISSUE DATE JULY 2021	
			APPROVED CB	
			DRAWING NO. W-09	



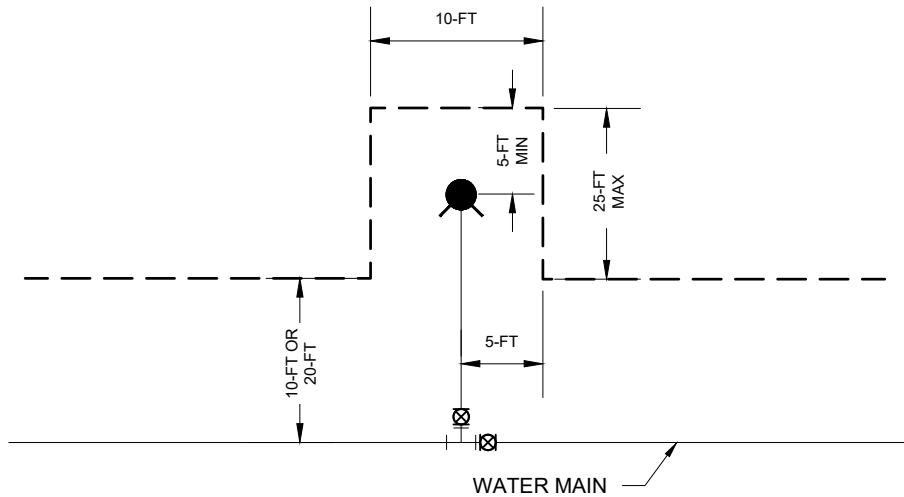
NOTES:

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

REVISED		 TRACER WIRE INSTALLATION FOR PVC WATER MAIN	SCALE	
BY	DATE		NOT TO SCALE	
			ISSUE DATE	
			JULY 2021	
			APPROVED	DRAWING NO.
			CB	W-10



TYPICAL CROSS SECTION WATER MAIN IN EASEMENT

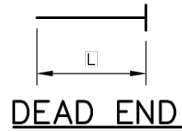


FIRE HYDRANT EASEMENT PLAN

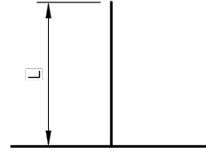
NOTES:

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.

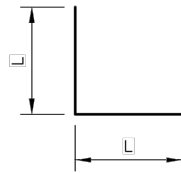
REVISED			SCALE	
BY	DATE		NOT TO SCALE	
HEY	SEPT-2023		ISSUE DATE	
			JULY 2021	
			APPROVED	DRAWING NO.
		TYPICAL CROSS SECTION IN EASEMENT AND FIRE HYDRANT EASEMENT		
			CB	W-11



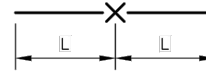
DEAD END



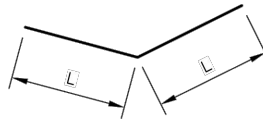
TEE



90° BEND



VALVE



BENDS

LENGTH OF RESTRAINED PIPE

NOMINAL PIPE Ø	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

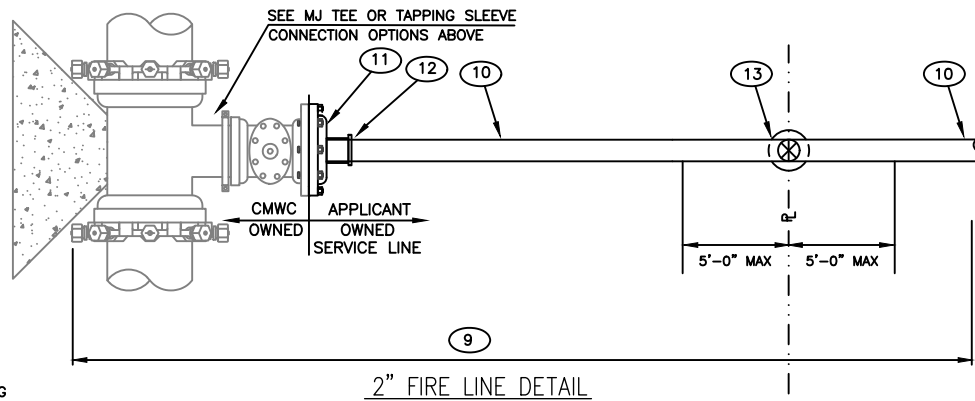
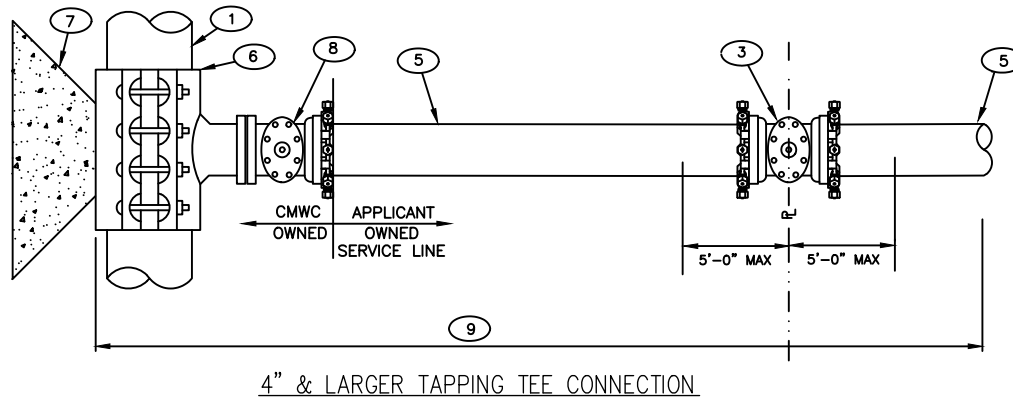
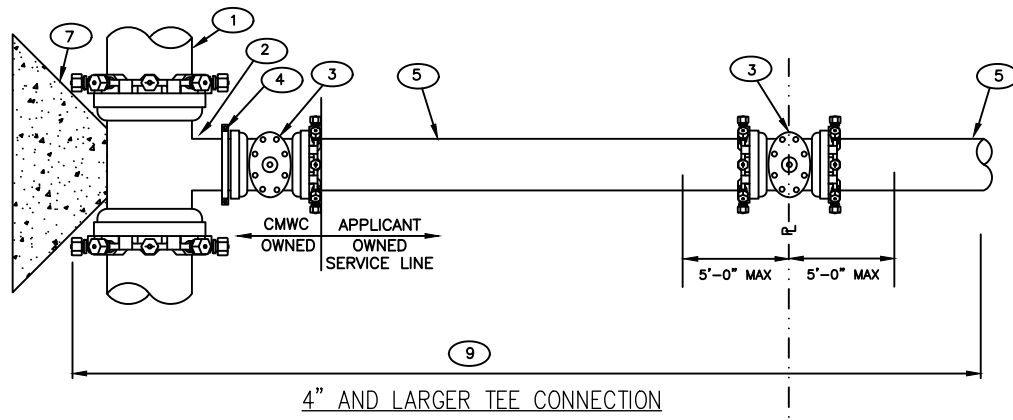
SEPTEMBER 2023

APPROVED

CB

DRAWING NO.

W-12



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

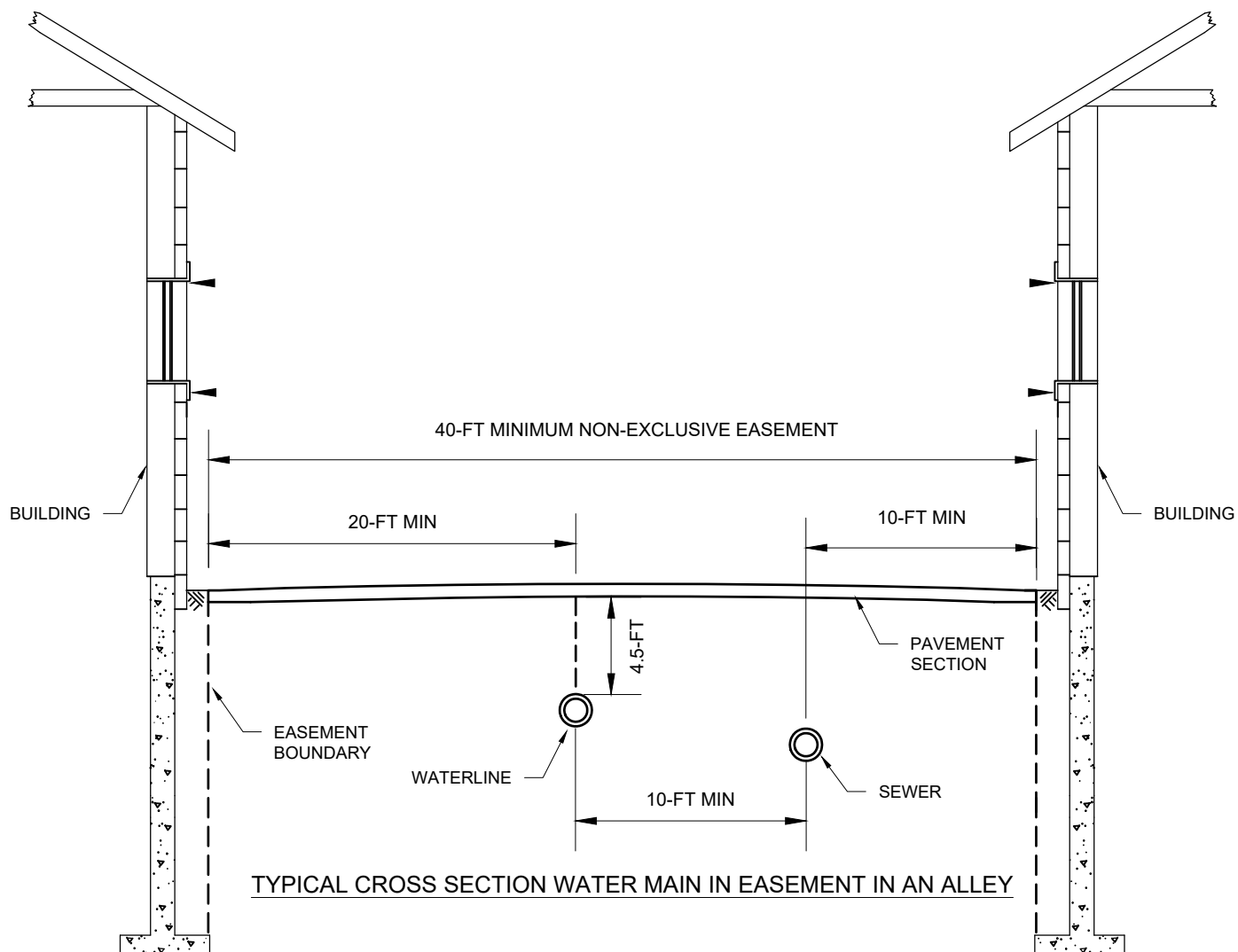
SEPTEMBER 2023

APPROVED

CB

DRAWING NO.

W-13

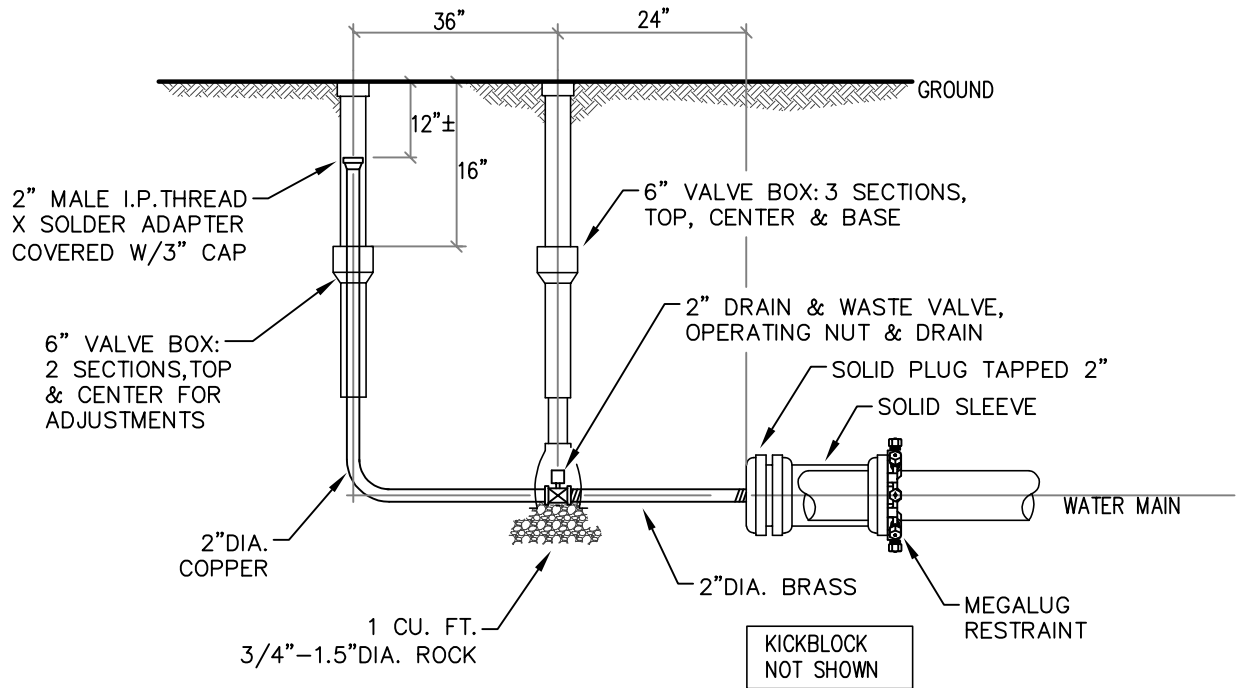


TYPICAL CROSS SECTION WATER MAIN IN EASEMENT IN AN ALLEY

NOTES:

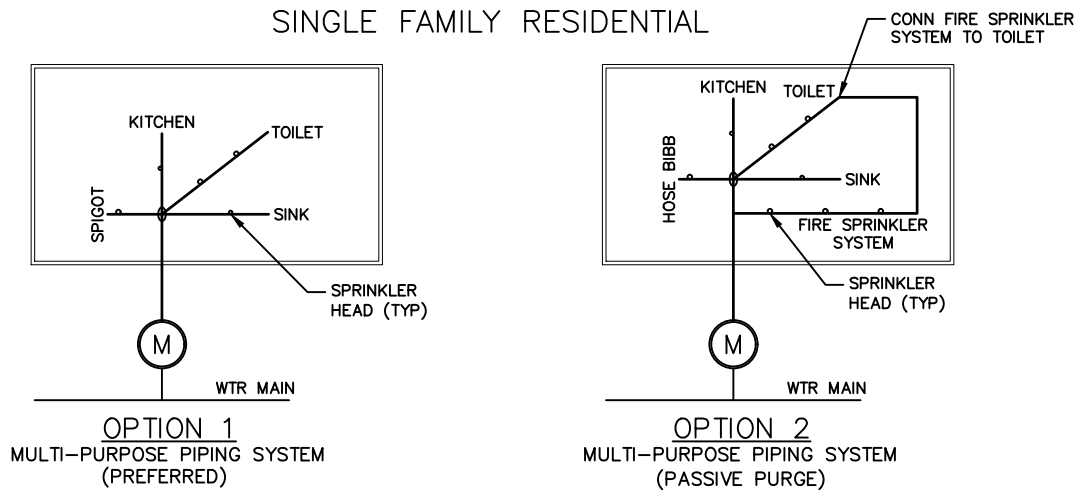
1. WATER MAIN TO BE AT 20' FROM EDGE OF EASEMENT. ANY MODIFICATIONS MUST BE PRE-APPROVED BY CMWC.
2. WATER TO BE AT 4.5' BELOW GRADE. ANY MODIFICATIONS MUST BE PRE-APPROVED BY CMWC.

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

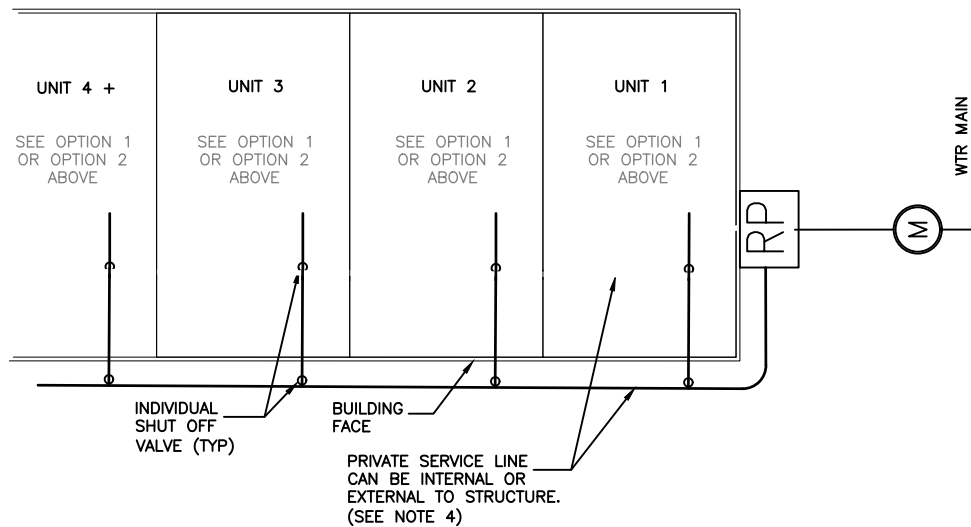


REVISED		 2" BLOW OFF HYDRANT	SCALE	
BY	DATE		NOT TO SCALE	
			ISSUE DATE	
			SEPT 2025	
			APPROVED	DRAWING NO.
			CB	W-15

SINGLE FAMILY RESIDENTIAL



MULTI-FAMILY RESIDENTIAL



NOTES:

- CMWC ONLY ALLOWS TWO OPTIONS FOR THE NATIONAL FIRE PROTECTION ASSOCIATION'S 13D OR P2904 SPRINKLER SYSTEMS.
 - OPTION 1 SYSTEM SHALL HAVE ALL BRANCH LINES TERMINATE AT A FIXTURE.
 - 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.
- 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.
- 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

BY

DATE



RESIDENTIAL FIRE PROTECTION SERVICE LINE DETAIL

SCALE

NOT TO SCALE

ISSUE DATE

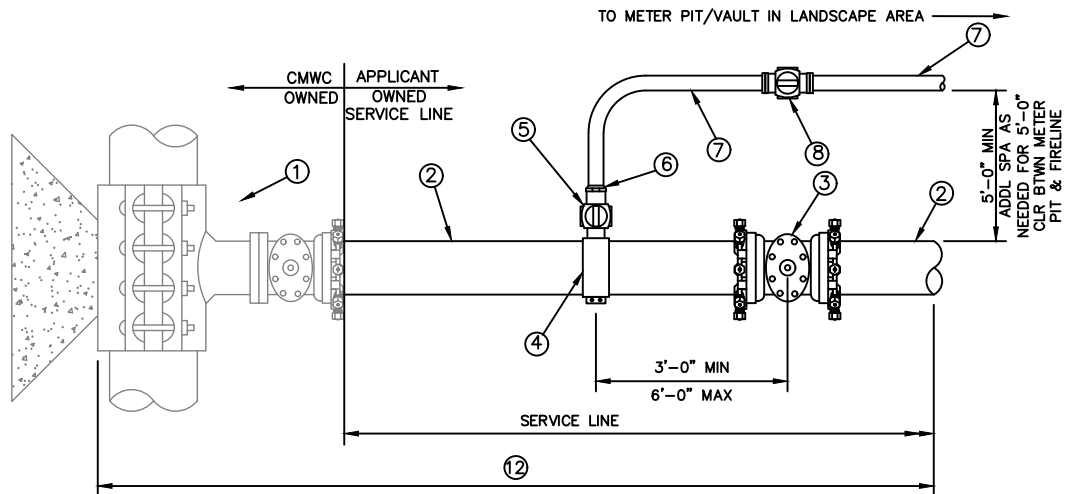
JAN 2024

APPROVED

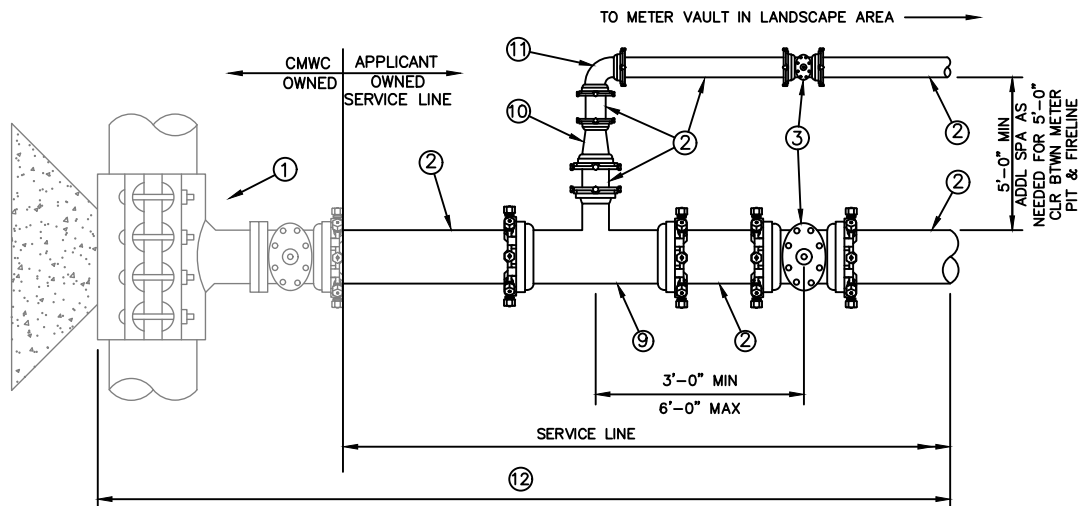
SM

DRAWING NO.

M-10



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	DRAWING NO.
		FIRELINE CONNECTION WITH DOMESTIC SERVICE TAP		
			SM	M-11