SILVERTHORNE
COLORADO

WATER AND SEWER STANDARD DETAILS

THESE STANDARDS DETAILS ARE PROVIDED AS GENERAL GUIDELINES AND DO NOT RELIEVE DESIGN ENGINEERS FROM THEIR RESPONSIBILITIES TO PROVIDE SAFE, FUNCTIONAL, SYSTEM DESIGNS THAT MEET THE STANDARD OF CARE EXPECTED OF A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF COLORADO. THESE DETAILS PROVIDE EXAMPLES OF THE MINIMUM ALLOWED BY THE TOWN OF SILVERTHORNE WATER DEPARTMENT.

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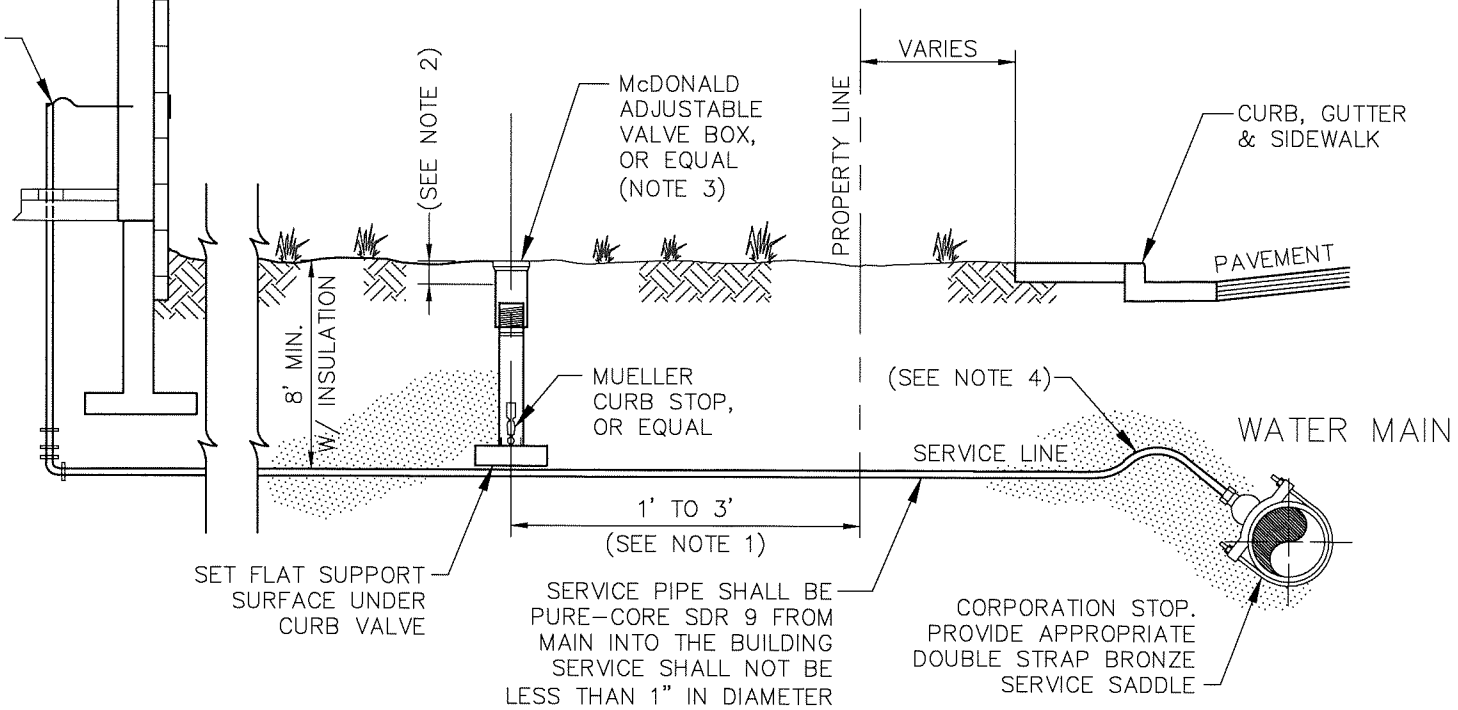
NOTES:

1. PLACEMENT OF STOP BOX BOX SHALL BE 1 TO 3 FEET INSIDE THE PROPERTY LINE.
2. PROVIDE SURVEYED LOCATION OF VALVE BOX PER AS-BUILT REQUIREMENTS. SET AT OR ABOVE FINISHED GRADE.
3. IF THE DEPTH OF THE CURB STOP IS GREATER THAN 8'-6", PROVIDE AN APPROPRIATE EXTENSION WITH WELDED COUPLING. CURB BOX CAP SHALL BE PLACED 1/4" TO 1/2" BELOW FINISHED GRADE IN PAVED SURFACES. BLUEBOARD INSULATION SHALL BE REQUIRED WHERE DEPTH REQUIREMENTS CAN'T BE ACHIEVED (IF APPROVED BY TOWN).
4. REFER TO TYPICAL WATER TRENCH SECTION FOR PIPE INSTALLATION AND INSULATION DETAIL.
5. ALL BURIED METAL TO BE POLYETHYLENE WRAPPED.
6. ALL PLASTIC SERVICES SHALL BE INSTALLED WITH TRACER WIRE OR OTHER METHOD OF DESIGNATION IN ACCORDANCE WITH ASCE C-I 38-02 "STANDARD GUIDELINES FOR THE COLLECTION AND DECEPTION OF EXISTING SUBSURFACE UTILITY DATA".

SHOULD ANY SITUATION ARISE OTHER THAN SHOWN CONCERNING THE DEPTH OF CONSTRUCTION OF SERVICE LINE OR THE PLACEMENT OF STOP BOX CALL 970-389-5158

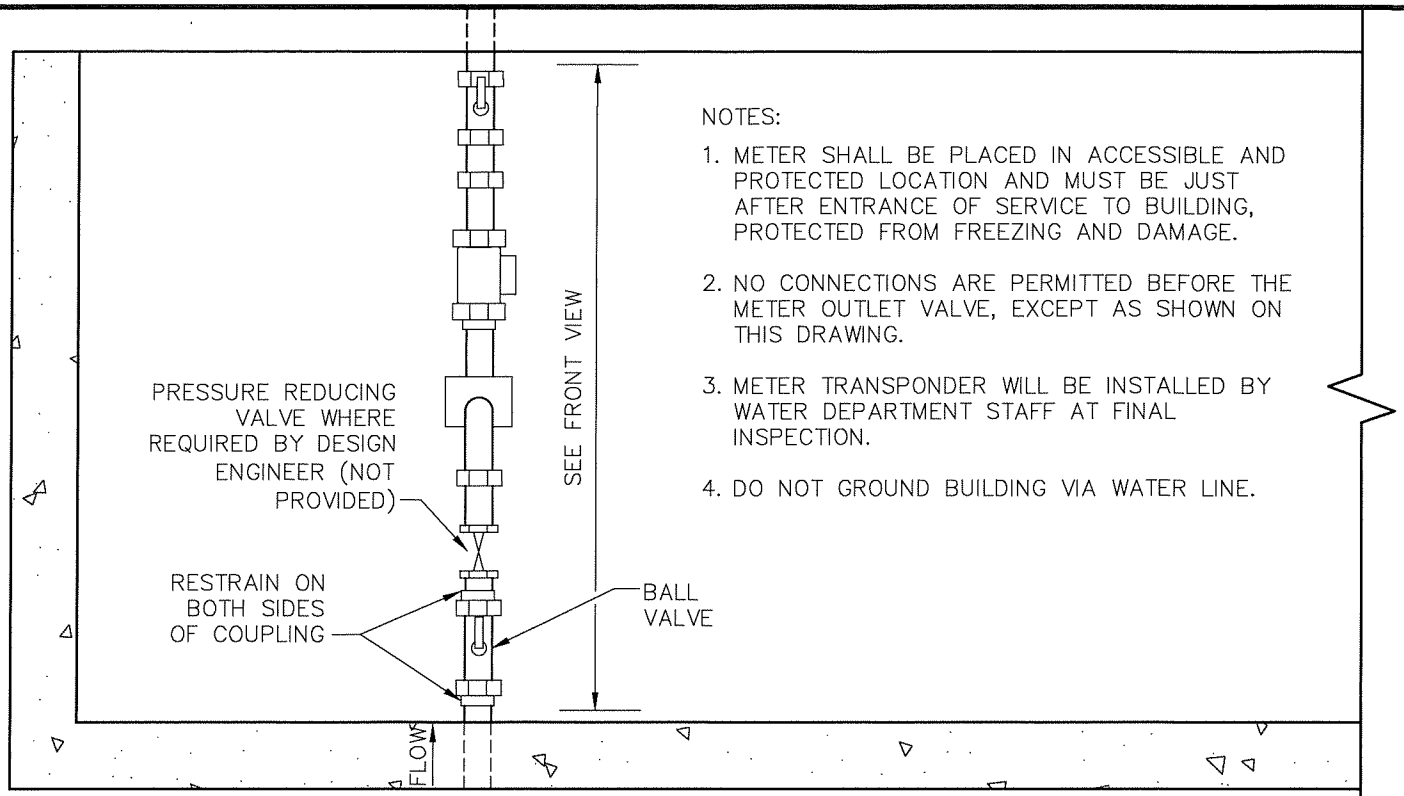
SEE METER LOCATION SCHEMATIC DETAIL FOR CONTINUATION SEE DETAILS:
2A-RESIDENTIAL
2B-COMMERCIAL

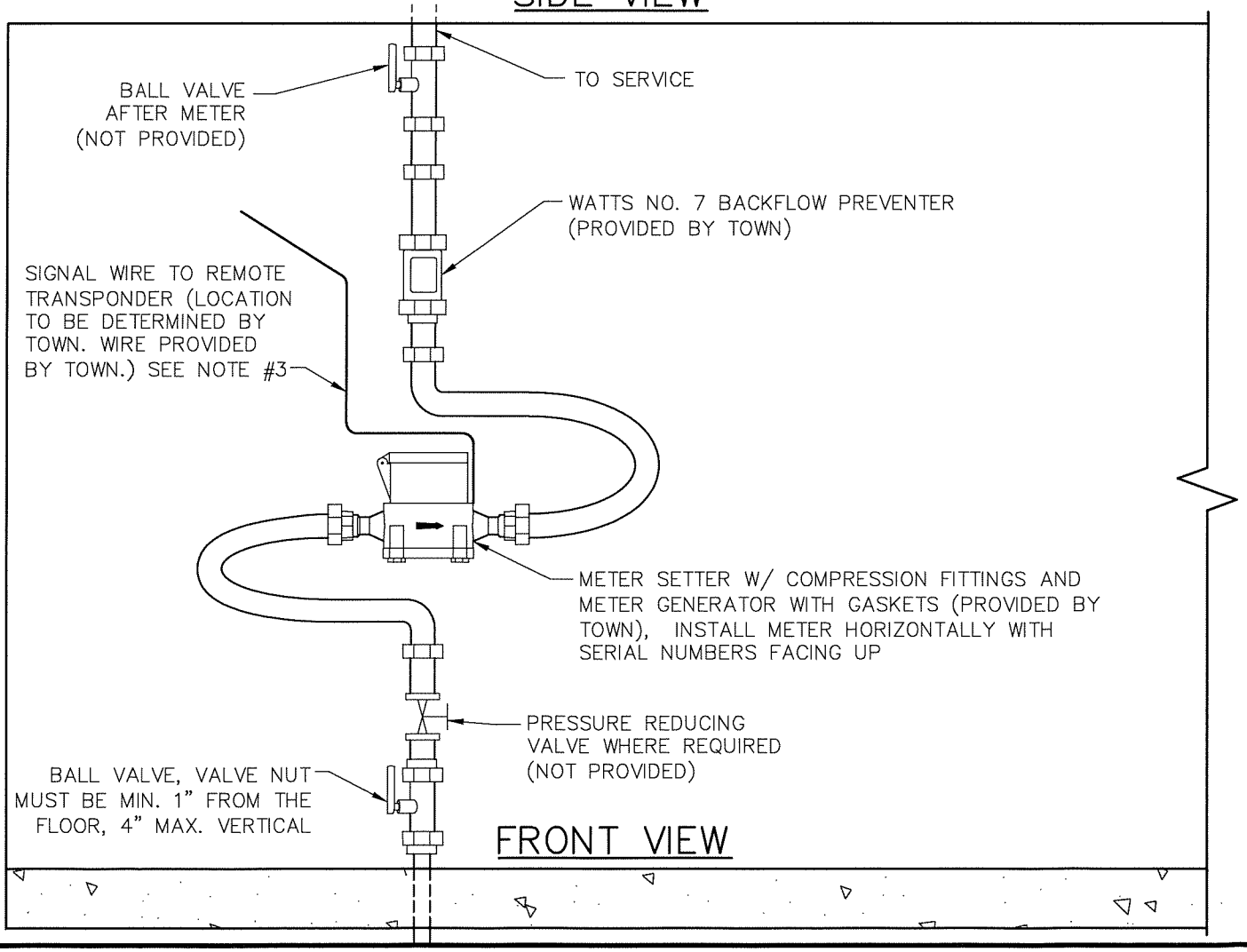


NOTE:
THIS DETAIL PROVIDES AN EXAMPLE OF THE MINIMUM STANDARD ALLOWED BY THE TOWN OF SILVERTHORNE WATER DEPARTMENT. ANY PROPOSED DEVIATIONS FROM OR CHANGES TO THESE STANDARDS MUST OTHERWISE BE APPROVED BY THE TOWN OF SILVERTHORNE WATER DEPARTMENT.

WATER SERVICE LINE AND STOP BOX CONNECTION & INSTALLATION

TOWN OF SILVERTHORNE	DATE: 2022		Detail W1



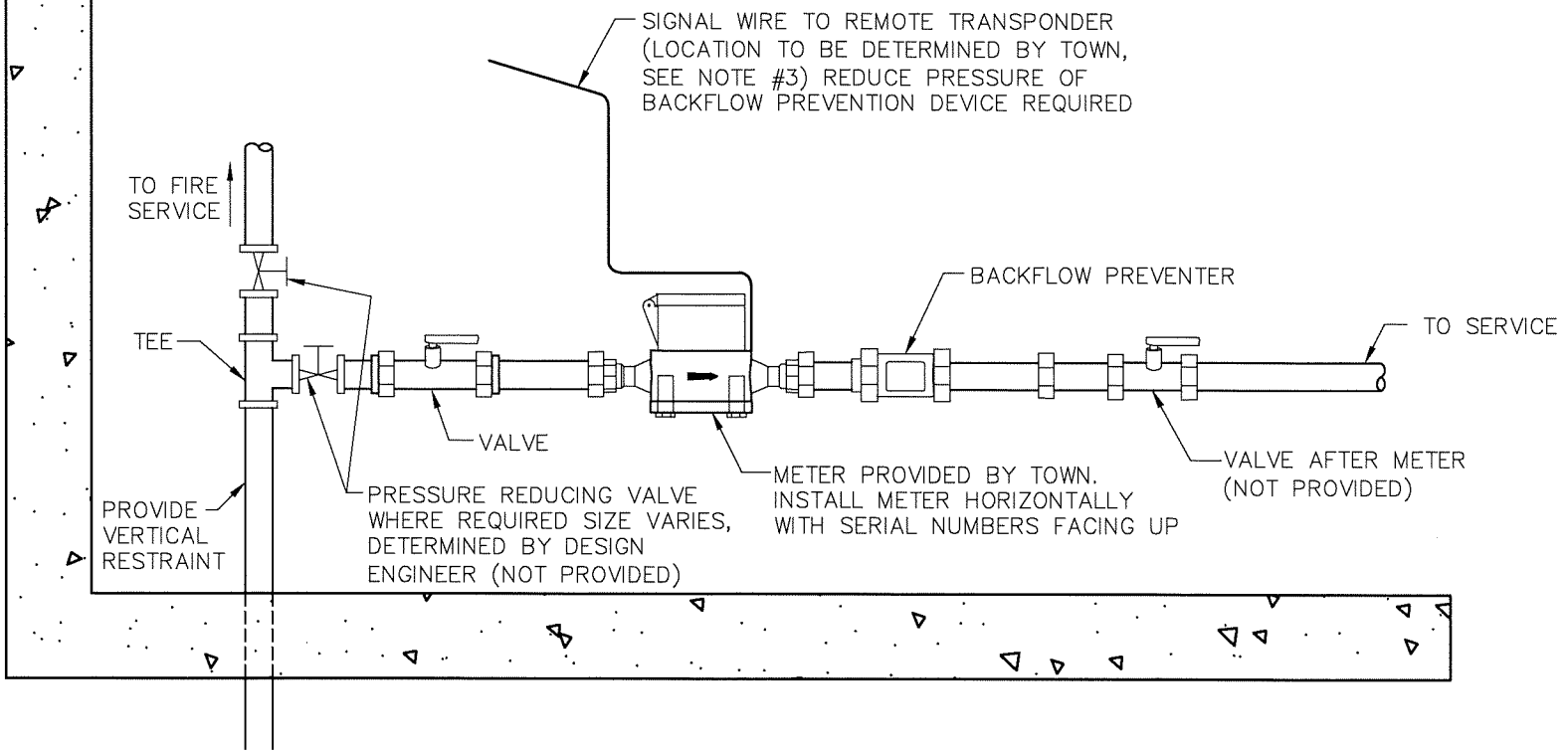


RESIDENTIAL WATER METER INSTALLATION

TOWN OF SILVERTHORNE	DATE: 2022		Detail W2A

NOTES:

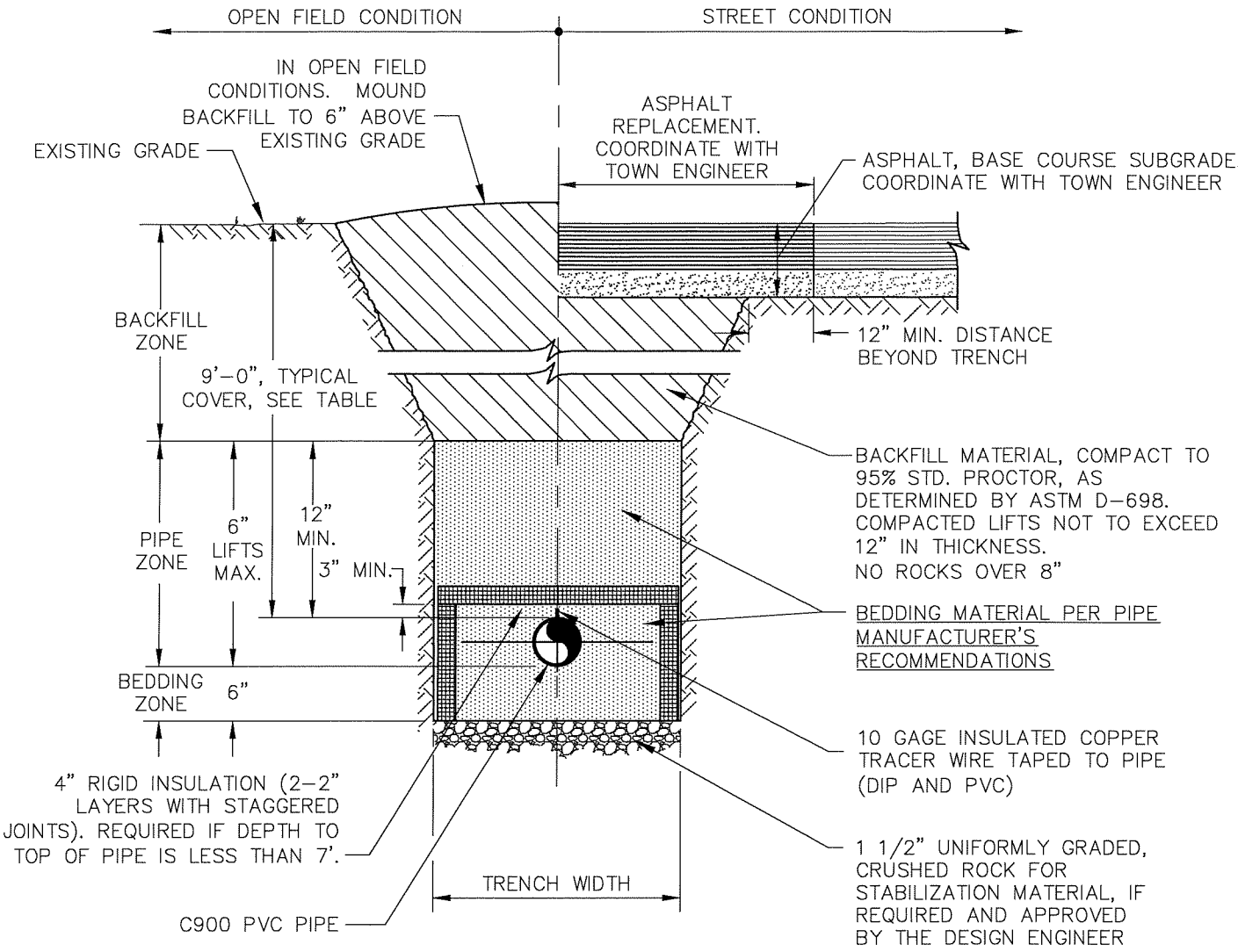
1. METER SHALL BE PLACED IN ACCESSIBLE AND PROTECTED LOCATION AND MUST BE JUST AFTER ENTRANCE OF SERVICE TO BUILDING, PROTECTED FROM FREEZING AND DAMAGE.
2. NO CONNECTIONS ARE PERMITTED BEFORE THE METER OUTLET VALVE, EXCEPT AS SHOWN ON THIS DRAWING.
3. METER TRANSPONDER WILL BE INSTALLED BY WATER DEPARTMENT STAFF AT FINAL INSPECTION.
4. DO NOT GROUND BUILDING VIA WATER LINE.
5. ALL FITTINGS BEFORE BACKFLOW PREVENTERS SHALL BE NSF APPROVED AND NON-CORROSIVE.



FRONT VIEW

COMMERCIAL WATER METER INSTALLATION

TOWN OF SILVERTHORNE	DATE: 2022		Detail W2B



WATERLINE

TRENCH WIDTH SHALL CONFIRM TO THE FOLLOWING:

PIPE I.D.	MIN. WD.	MAX. WD.
4" & SMALLER	1'-4"	2'-4"
6"	1'-6"	2'-6"
8"	1'-8"	2'-8"
12"	2'-0"	3'-0"
16"	2'-4"	3'-4"
20"	2'-8"	3'-8"
24"	3'-0"	4'-0"

INSULATION REQUIRMENTS:

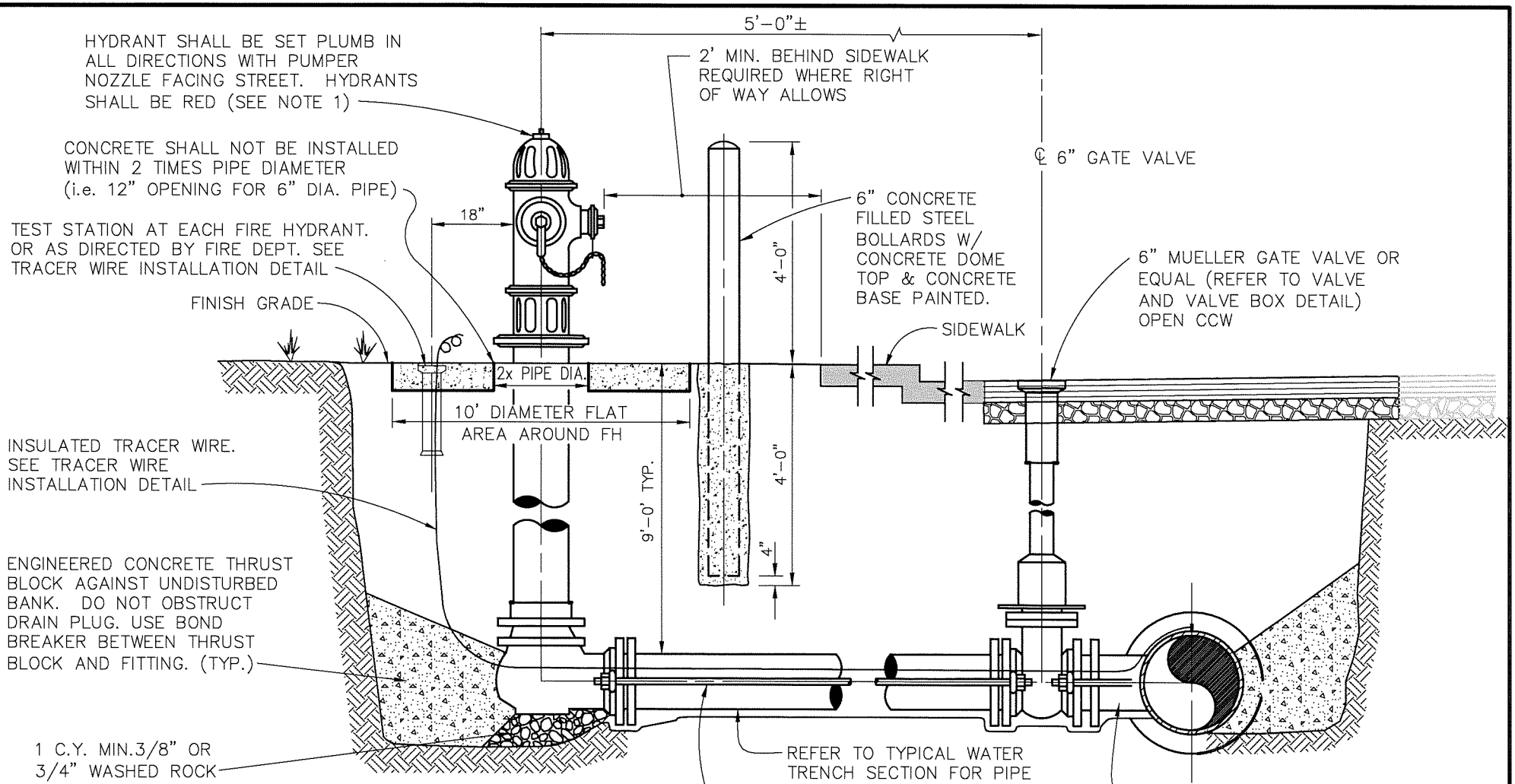
PIPE COVER	REQUIRED
>8'-0"	NO INSULATION
>7'-0" TO 8'-0"	TOP INSULATION
5'-0" TO 7'-0"	TOP AND SIDES
<5'-0" COVER	NOT PERMITED

NOTES:

1. INSULATION SHALL BE HIGHLOAD EXTRUDED POLYSTYRENE INSULATION BY DOW CHEMICAL OR EQUAL. TYPE HI-100, AT PIPE CROSSINGS, UNDER FOUNDATIONS AND UNDER EXISTING OR FUTURE ROADS. TYPE HI-60 IN UNPLOWED/UNDRIVEN FIELDS OR OPEN AREAS.
2. BEDDING MATERIAL SHALL BE INSTALLED TO NOT PROVIDE HYDRAULIC PERMEABILITY IN EXCESS OF THE NATURAL SOILS. DESIGNING THE PREVENTION OF THE TRANSPORT OF WATER WITHIN THE TRENCH IS THE RESPONSIBILITY OF THE DESIGN ENGINEER.

TYPICAL WATER TRENCH SECTION

TOWN OF SILVERTHORNE	DATE: 2022		Detail W3

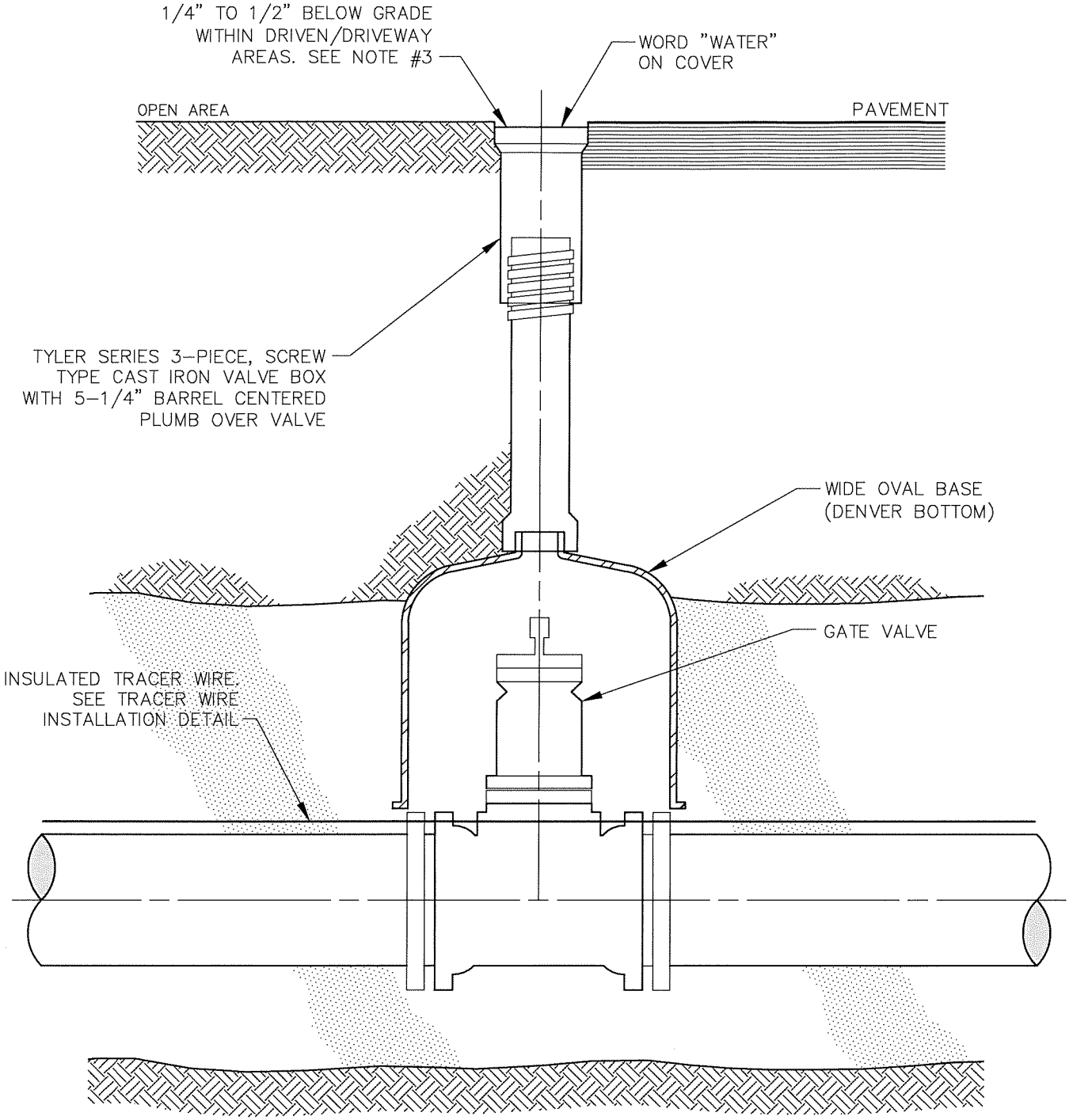


NOTES:

1. USE WATEROUS PACER WB-67, MUELLER A-403 CENTURION, OR EQUAL WITH CCW (LEFT) OPENING.
2. HYDRANT SHALL BE PAINTED RED. BLUE CAPS MUST BE PROVIDED IF STATIC PRESSURE EXCEEDS 135 psi.
3. 8 MIL POLYETHYLENE WRAP REQUIRED ON ALL BURIED METAL.
4. BOLLARDS REQUIRED ON ALL HYDRANTS (MIN. 2).
5. ALL PIPE MUST BE RESTRAINED WITH RODS AND/OR MEGALUGS AS DETERMINED BY THE TOWN OF SILVERTHORNE WATER DEPARTMENT.

TYPICAL FIRE HYDRANT ASSEMBLY

TOWN OF SILVERTHORNE	DATE: 2022		Detail W4

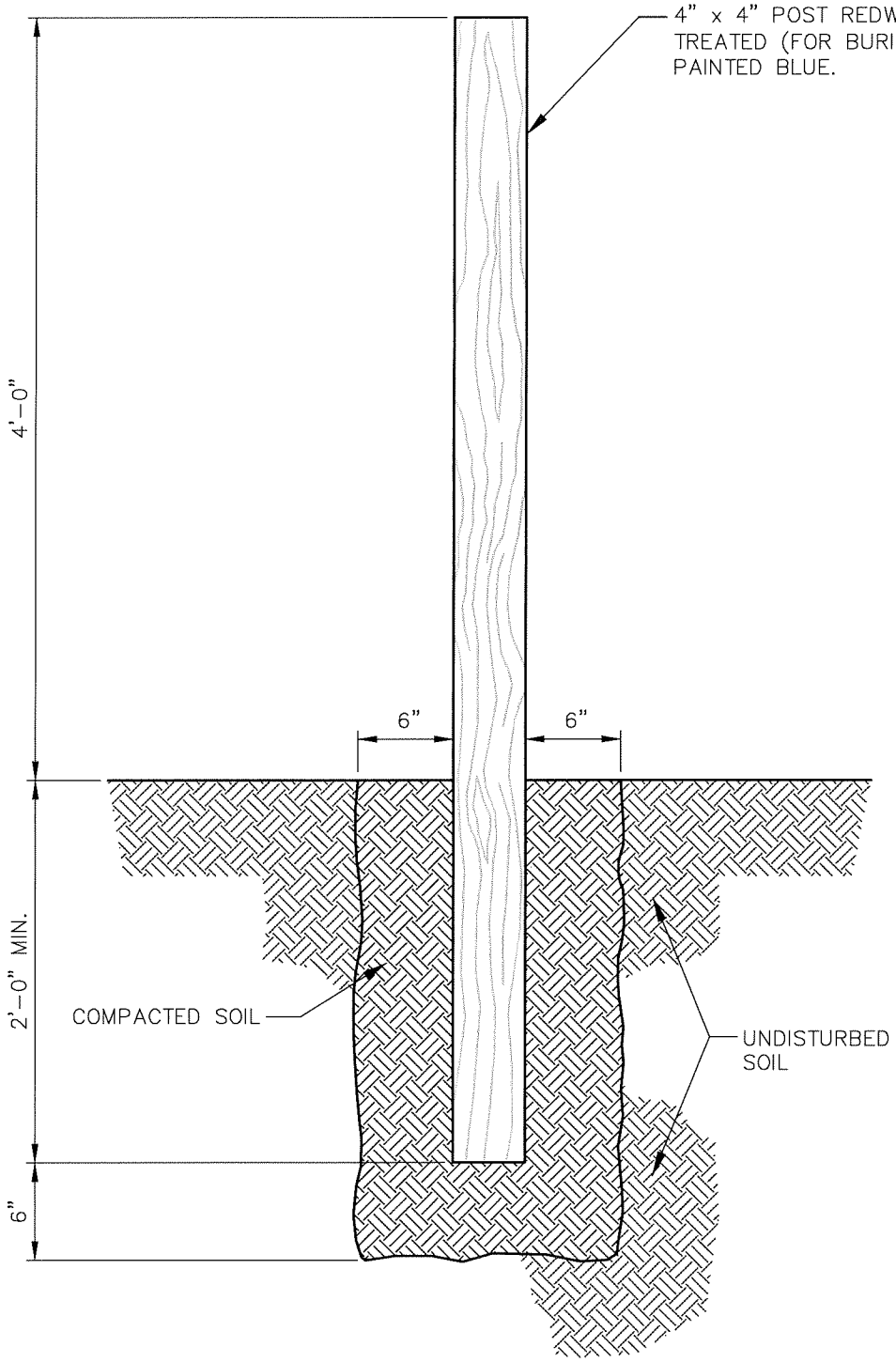


NOTES:

1. GATE VALVES SHALL OPEN CCW AND SHALL BE RESILIENT SEAT.
2. FITTINGS SHALL BE WRAPPED WITH 8 MIL MINIMUM THICKNESS POLYETHYLENE AND ALL VALVES AND FITTINGS SHALL BE EPOXY COATED.
3. VALVE BOX SHALL BE SET 1/4" TO 1/2" BELOW FINAL ASPHALT PAVEMENT GRADE IN DRIVEN AREAS. INSTALL AT GRADE IN NON-PAVED AREAS IF NOT IN R.O.W..
4. PROVIDE MARKER POSTS WHERE NECESSARY, AS DETERMINED BY SILVERTHORNE WATER DEPARTMENT OUTSIDE R.O.W. OR DRIVE.
5. SEE TYPICAL WATER TRENCH SECTION FOR PIPE INSTALLATION.
6. VALVE BOX AND ROD SHALL BE INSTALLED PLUMB AND STRAIGHT.
7. VALVE AND BOX SHALL BE MADE IN USA UNLESS OTHERWISE APPROVED BY THE TOWN OF SILVERTHORNE WATER DEPARTMENT.
8. ALL BURIED METAL TO BE WRAPPED.

VALVE AND VALVE BOX DETAIL

TOWN OF SILVERTHORNE	DATE: 2022		Detail W5

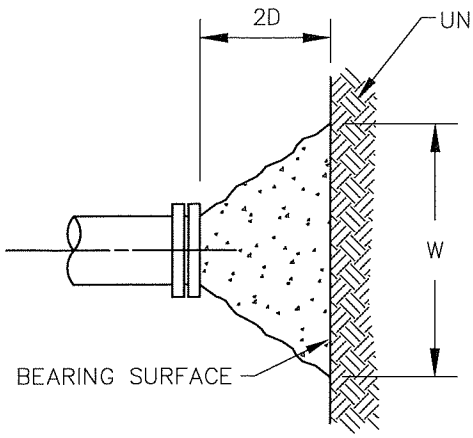


NOTE:

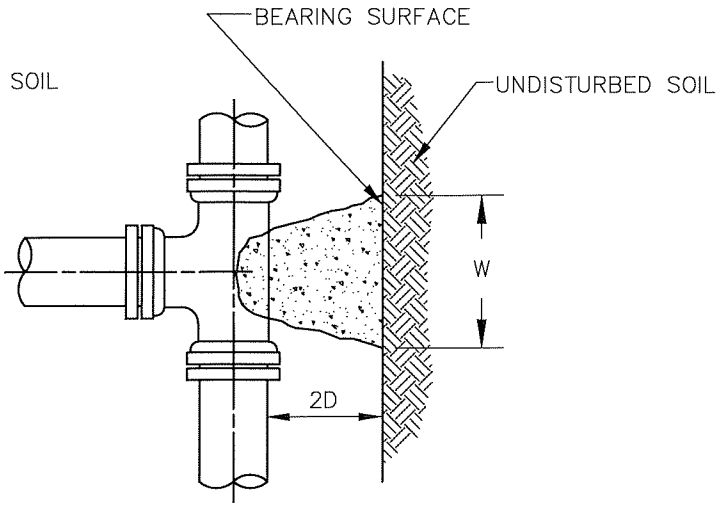
1. PROVIDE IF MAINLINE OR SERVICE VALVE NOT IN TRAVELED WAY.

VALVE MARKER POST

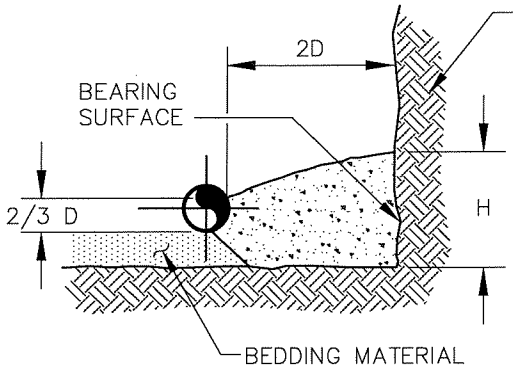
TOWN OF SILVERTHORNE	DATE: 2022		Detail W6



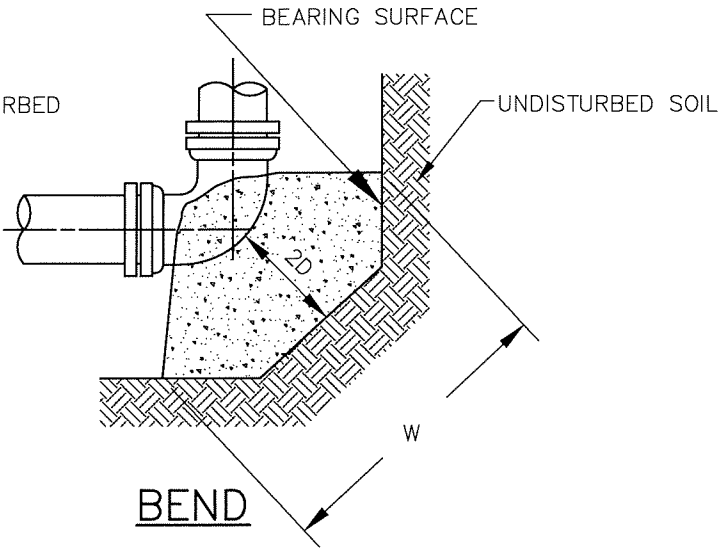
CAP (OR PLUG)



TEE



SECTION



BEND

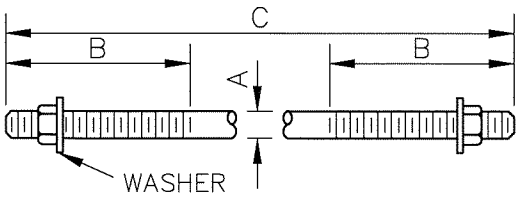
MINIMUM THRUST AREA AGAINST UNDISTURBED SOIL REQUIRED – SQUARE FEET					
SIZE	11–1/4° BEND	22–1/2° BEND	45° BEND	90° BEND	TEE (BRANCH SIZE OR CAP)
4"	0.5	1.0	1.5	2.5	2.0
6"	1.0	1.5	3.0	5.5	4.0
8"	1.5	2.5	5.0	9.0	6.5
12"	3.0	5.5	10.5	19.5	14.0
16"	5.0	9.5	18.5	34.0	24.0

NOTES:

1. D = PIPE DIAMETER
2. AREA AGAINST UNDISTURBED SOIL = H x W
3. DO NOT COVER FITTING BOLTS WITH CONCRETE.
4. PLACE MIXED CONCRETE AGAINST UNDISTURBED SOIL. USE FORMS.
5. ALL FITTINGS ARE TO BE WRAPPED IN 8 MIL POLYETHYLENE SHEETING.
6. USE BOND BREAKER BETWEEN THRUST BLOCK AND FITTING. (TYP.)
7. PROVIDE MINIMUM 3,000 PSI CONCRETE.
8. SIZES SHOWN FOR 1,500 PSF SOIL BEARING PRESSURE AND AN INTERNAL TEST PRESSURE OF 150 PSI. DESIGN ENGINEER MUST VERIFY DESIGN FOR ACTUAL SOIL CONDITIONS AND INTERNAL PRESSURE.
9. DO NOT COVER THRUST BLOCK FOR MINIMUM OF 24 HOURS
10. ALL BURIED METAL TO BE POLYETHYLENE WRAPPED.

THRUST BLOCK

TOWN OF SILVERTHORNE	DATE: 2022		Detail W7



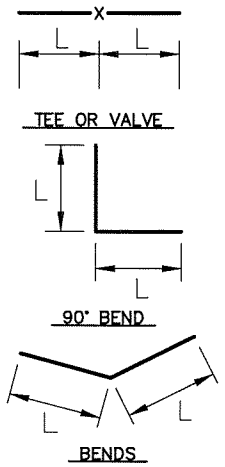
TIE ROD DETAILS

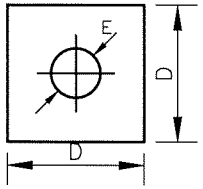
NOT TO SCALE

TIE RODS		
A	B	C
ROD DIAMETER	THREAD LENGTH	ROD LENGTH
3/4" – 1"	6"	1' – 11' & 20'
3/4" – 1-1/2"	ALL THREAD	1' – 11' & 20'

WASHERS		
D	E	G
WIDTH	HOLE DIAMETER	THICKNESS
5"	1/8" LARGER THAN ROD ø	1/2"
6"	1/8" LARGER THAN ROD ø	5/8"

RESTRAINT JOINT						
PIPE SIZE	8"			12"		
FITTING	D	L	G	D	L	G
90° BEND, TEE, PLUG OR VALVE	3/4"	60'	S.S.	3/4"	86'	S.S.
45° BEND	3/4"	18'	S.S.	3/4"	25'	S.S.
22-1/2° BEND	3/4"	5'	S.S.	3/4"	7'	S.S.
11-1/4° BEND	3/4"	1.0'	S.S.	3/4"	2'	S.S.

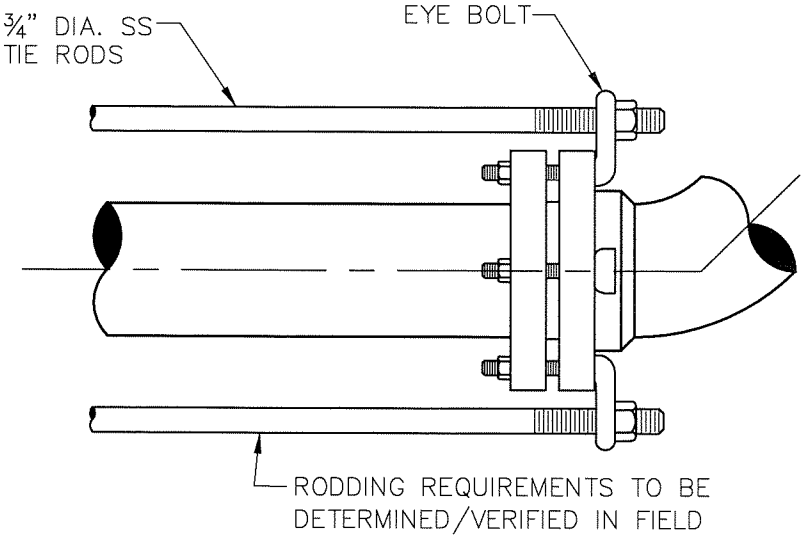




1. SEE TIED JOINTS ROD DIMENSIONS THIS SHEET.
2. SEE CLAMP DETAILS AND DIMENSION (SHEET 24, DENVER WATER DEPARTMENT STANDARDS) FOR PROPER PLACEMENT OF WASHERS.
3. RODS, NUTS, COUPLING NUTS & WASHERS ARE 304 OR 316 STAINLESS STEEL.

WASHER DETAIL

NOT TO SCALE



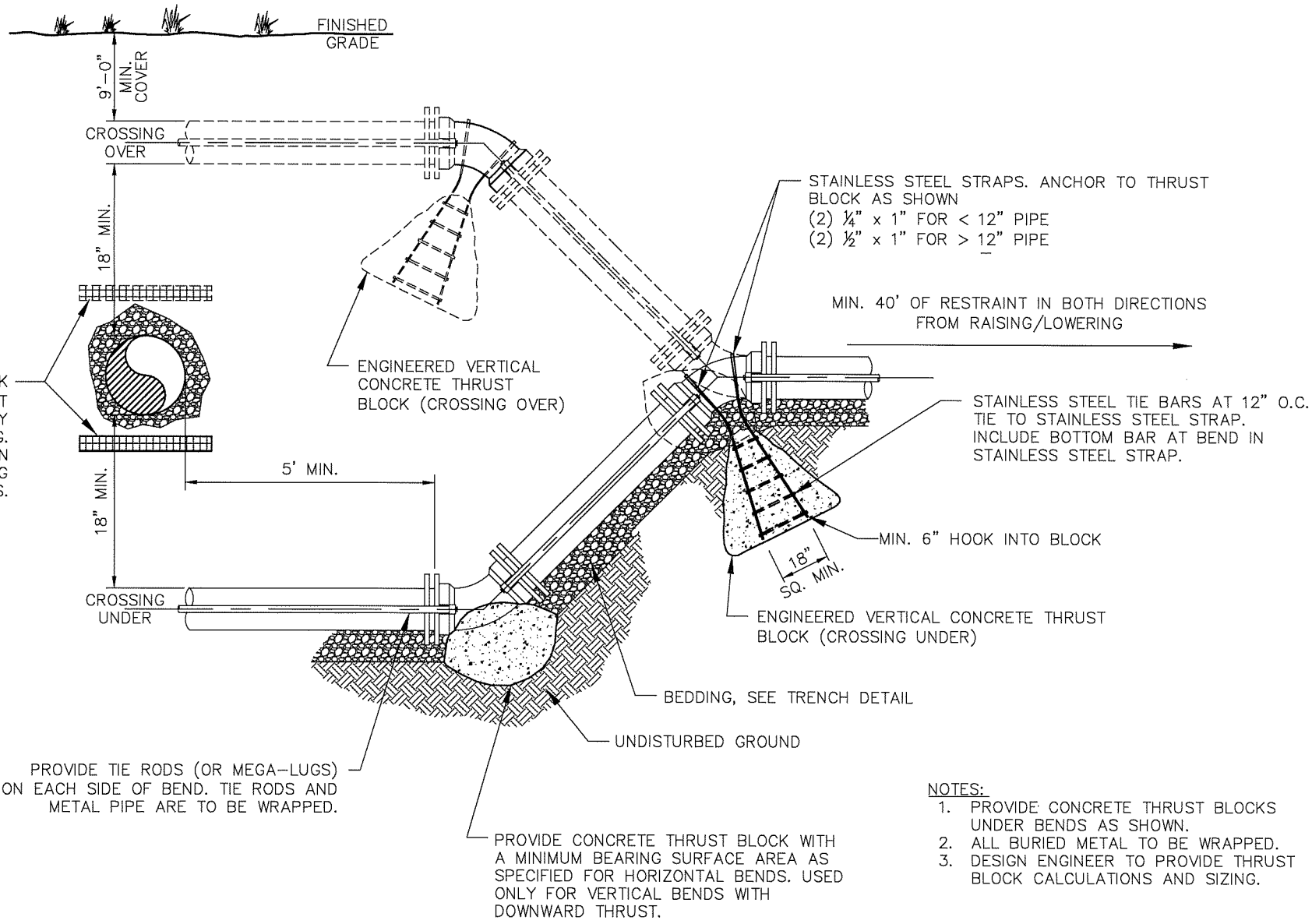
TYPICAL RESTRAINED JOINT

NOT TO SCALE

1. LENGTH OF TIED PIPE MEASURED EACH WAY FROM VALVES AND BENDS.
2. D=DIAMETER, L=LENGTH, G=GRADE, S.S.=STAINLESS STEEL
3. BASED ON 150 PSI INTERNAL PRESSURE, FOR L AND PRESSURES LISTED SEE TIE ROD & WASHER DETAIL.
4. S.S. MEANS STAINLESS STEEL ROD A.S.T.M. STANDARD DESIGNATION A304 MIN.
5. NUTS SHALL BE A.S.T.M. STANDARD DESIGNATION A-304 GRADE A OR B HEXAGON HEAVY SERIES.
6. SEE TIE ROD DETAIL DRAWING ALSO TIE ROD COUPLING DETAILS, CLAMP DETAILS AND SET CLAMP DETAILS.
7. LENGTH REFERS TO THE AMOUNT OF PIPE WHICH MUST BE TIED TOGETHER AND IS NOT NECESSARILY THE LENGTH OF THE RODS.
8. LENGTH OF TIED PIPE CHART IS ALSO FOR THE LENGTH OF JOINT RESTRAINT FOR MEGALUGS.
9. CROSSES MUST BE RESTRAINED IN ALL DIRECTIONS.
10. 12" AND SMALLER IN LINE VALVES AND TEES SHALL HAVE A MECHANICAL JOINT RESTRAINT DEVICE ON EACH SIDE OF THE FITTING OR VALVE WHERE SPECIFICALLY REQUESTED BY THE TOWN OF SILVERTHORNE OR DESIGN ENGINEER, MECHANICAL JOINT RESTRAINT DEVICE SHALL BE MEGALUG 1100 SERIES MANUFACTURED BY EBBA IRON, INC
11. ALL FITTINGS MUST BE RESTRAINED WITH TWO (2) OF THE FOLLOWING METHODS: MEGALUGS (OR EQUAL), TIE RODS, THRUST BLOCKS.
12. A SECOND VALVE WILL BE REQUIRED TO BE CLOSED WHEN EXCAVATING NEXT TO A EXISTING VALVE.
13. TR FLEX OR EQUAL ACCEPTABLE ALSO.
14. ~~ALL BURIED METAL TO BE WRAPPED.~~

TIE ROD AND WASHER DETAIL WITH LENGTH OF RESTRAINED PIPE

TOWN OF SILVERTHORNE	DATE: 2022		Detail W8

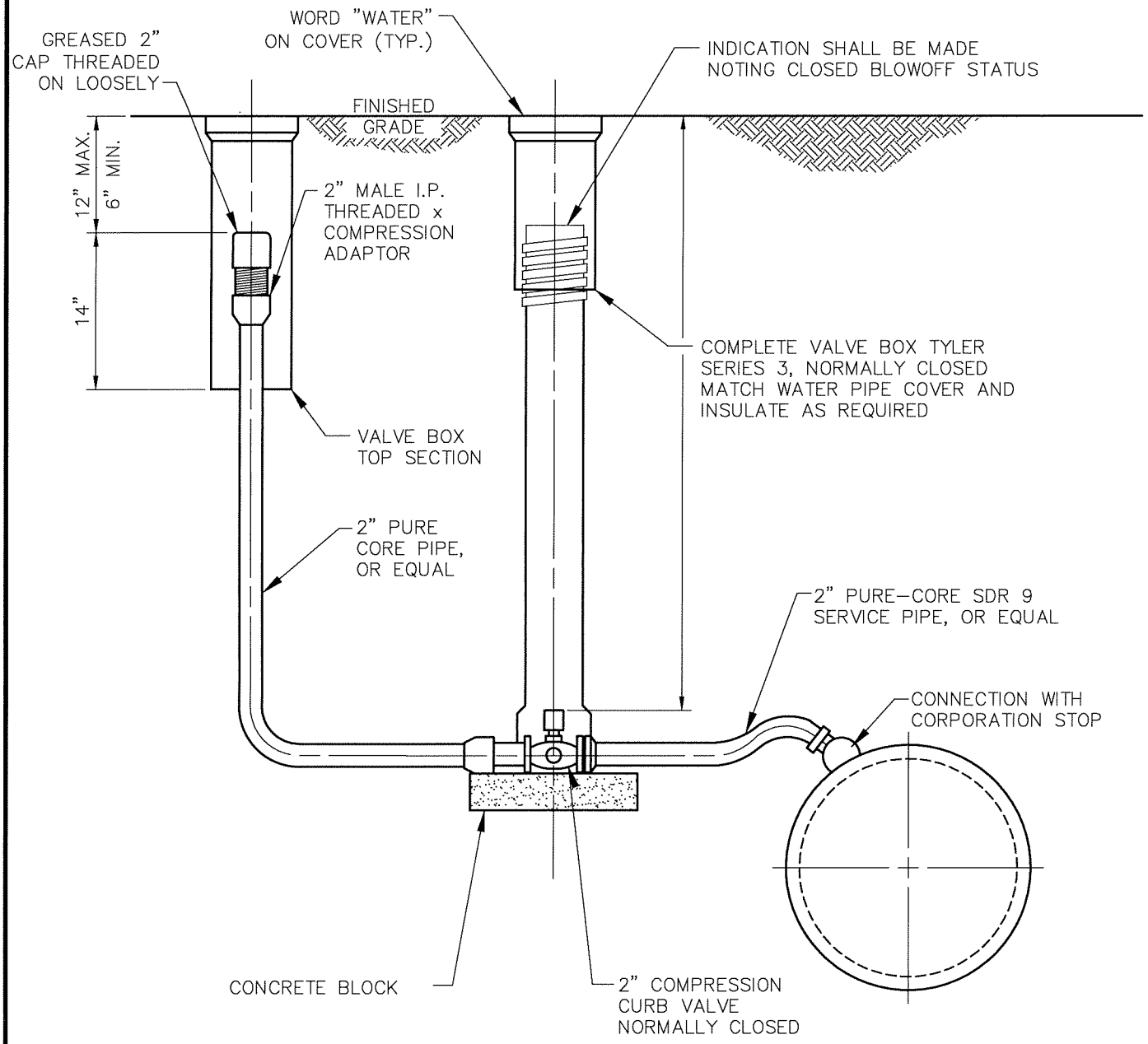


NOTES:

1. PROVIDE CONCRETE THRUST BLOCKS UNDER BENDS AS SHOWN.
2. ALL BURIED METAL TO BE WRAPPED.
3. DESIGN ENGINEER TO PROVIDE THRUST BLOCK CALCULATIONS AND SIZING.

RESTRAINED JOINTS AND THRUST BLOCKS AT VERTICAL BENDS

TOWN OF SILVERTHORNE	DATE: 2022		Detail W9

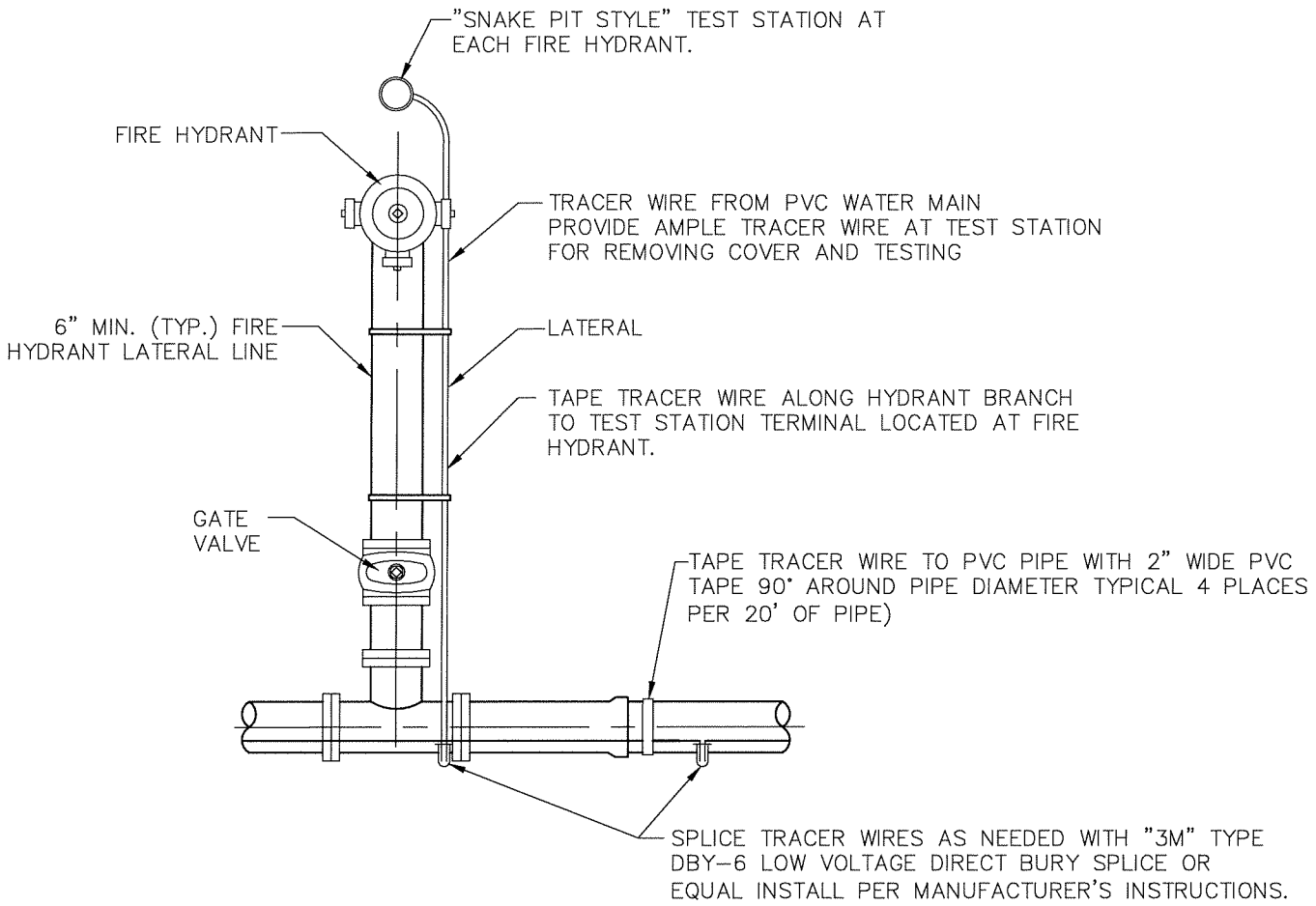


SECTION

NOTES:
1. ALL BURIED METAL TO BE WRAPPED PER SPEC.

BLOW-OFF INSTALLATION 12" AND SMALLER PIPE

TOWN OF SILVERTHORNE	DATE: 2022		Detail W10



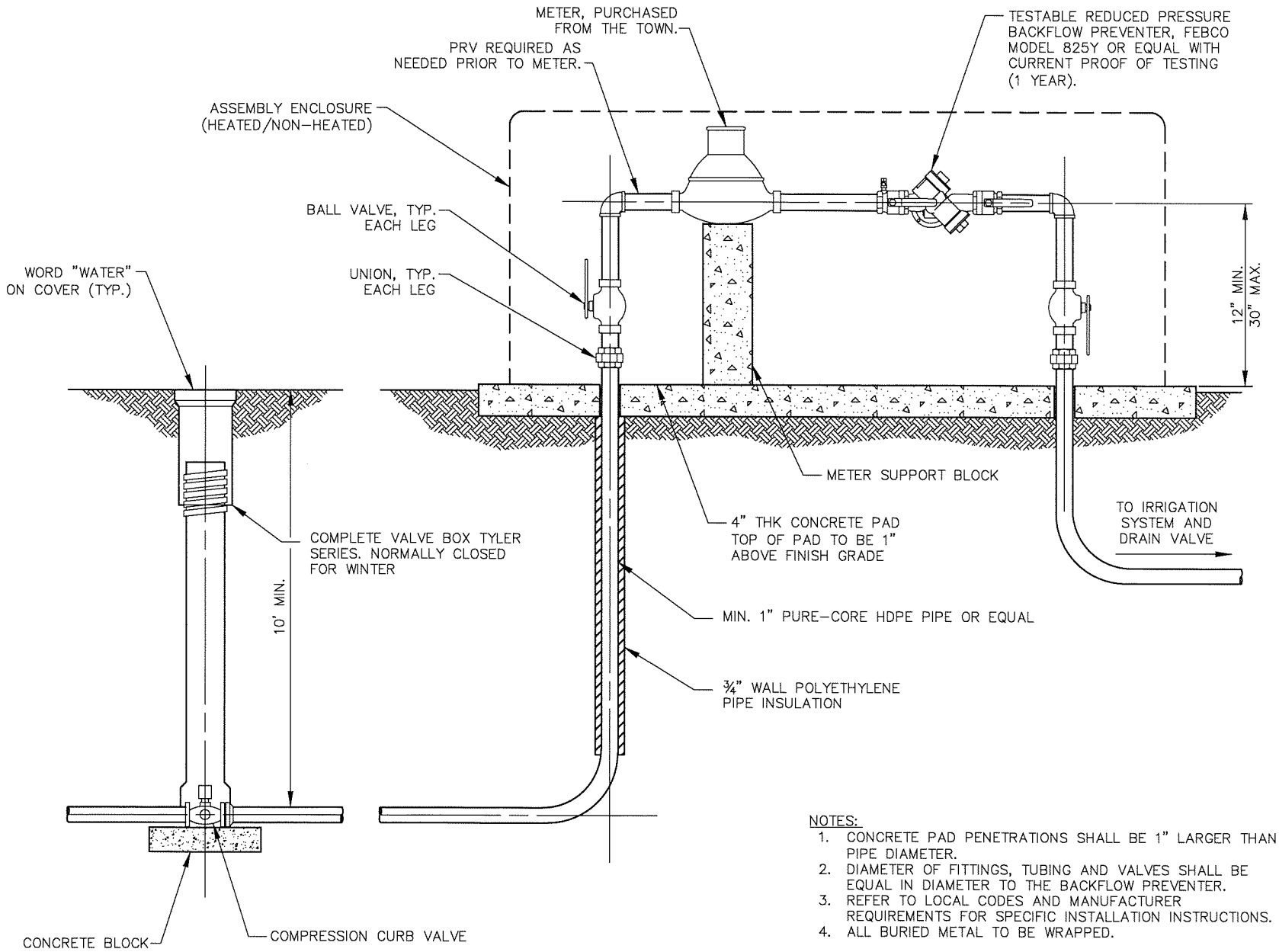
PLAN

NOTE:

1. ALL BURIED METAL TO BE POLYETHELYNE WRAPPED.

TRACER WIRE INSTALLATION

TOWN OF SILVERTHORNE	DATE: 2022		Detail W11

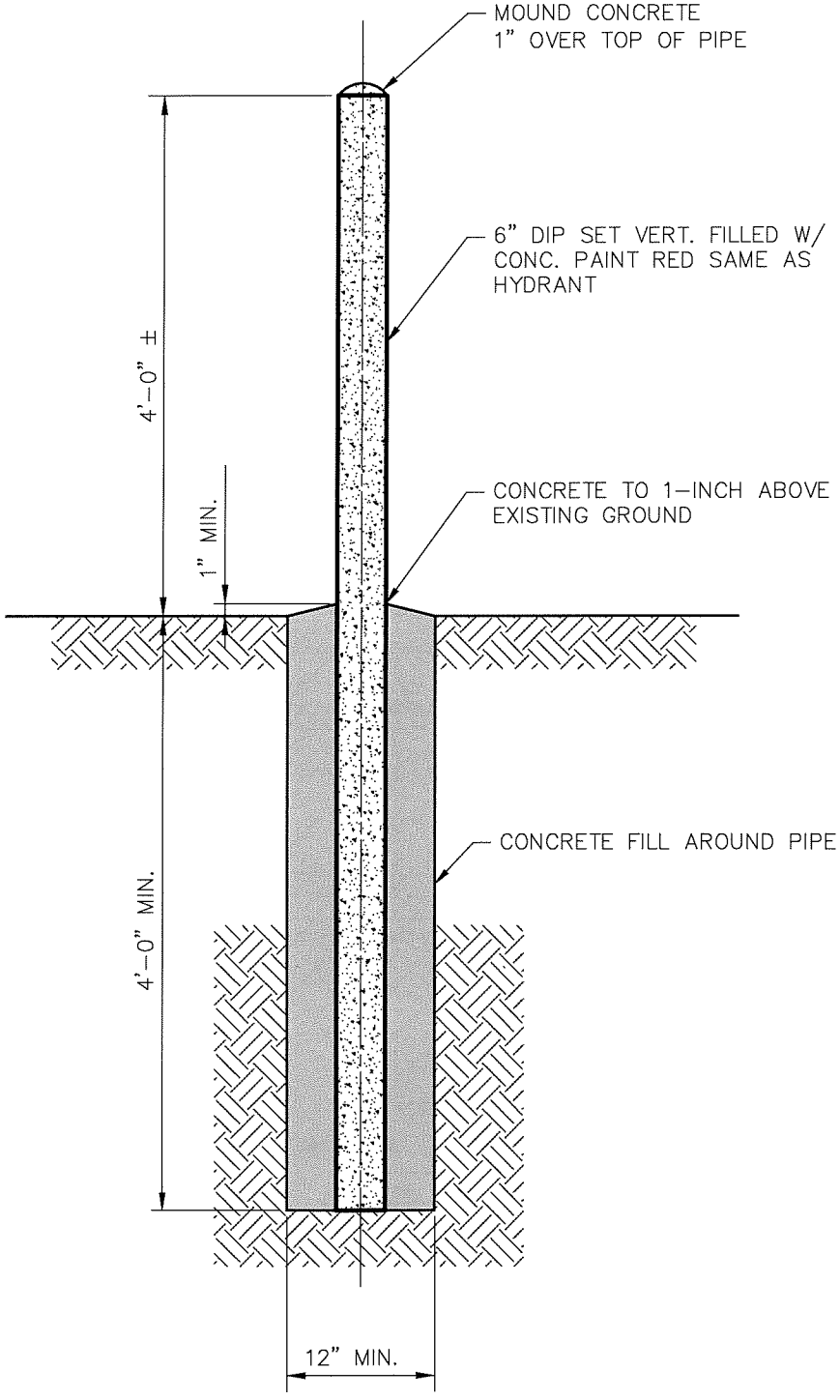


NOTES:

1. CONCRETE PAD PENETRATIONS SHALL BE 1" LARGER THAN PIPE DIAMETER.
2. DIAMETER OF FITTINGS, TUBING AND VALVES SHALL BE EQUAL IN DIAMETER TO THE BACKFLOW PREVENTER.
3. REFER TO LOCAL CODES AND MANUFACTURER REQUIREMENTS FOR SPECIFIC INSTALLATION INSTRUCTIONS.
4. ALL BURIED METAL TO BE WRAPPED.

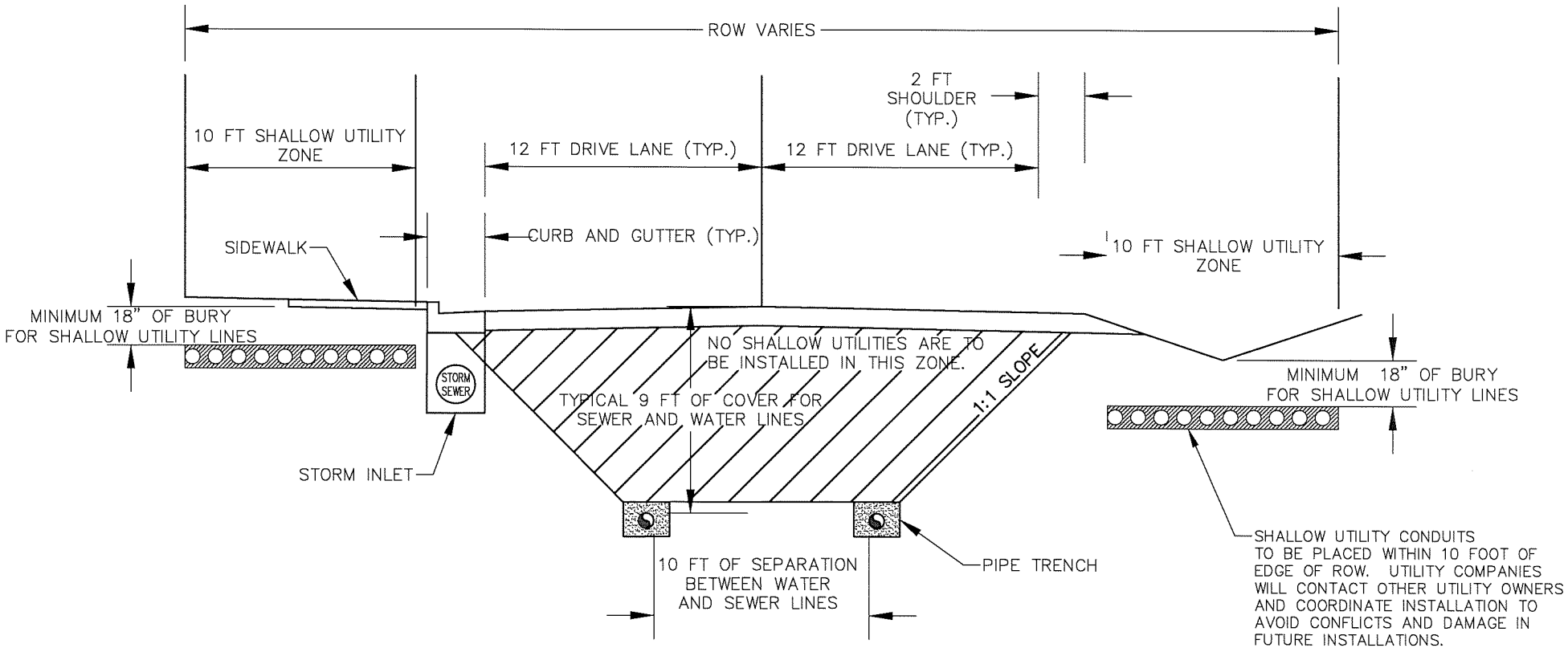
OUTSIDE SETTING FOR IRRIGATION SERVICE

TOWN OF SILVERTHORNE	DATE: 2022		Detail W12



BOLLARD

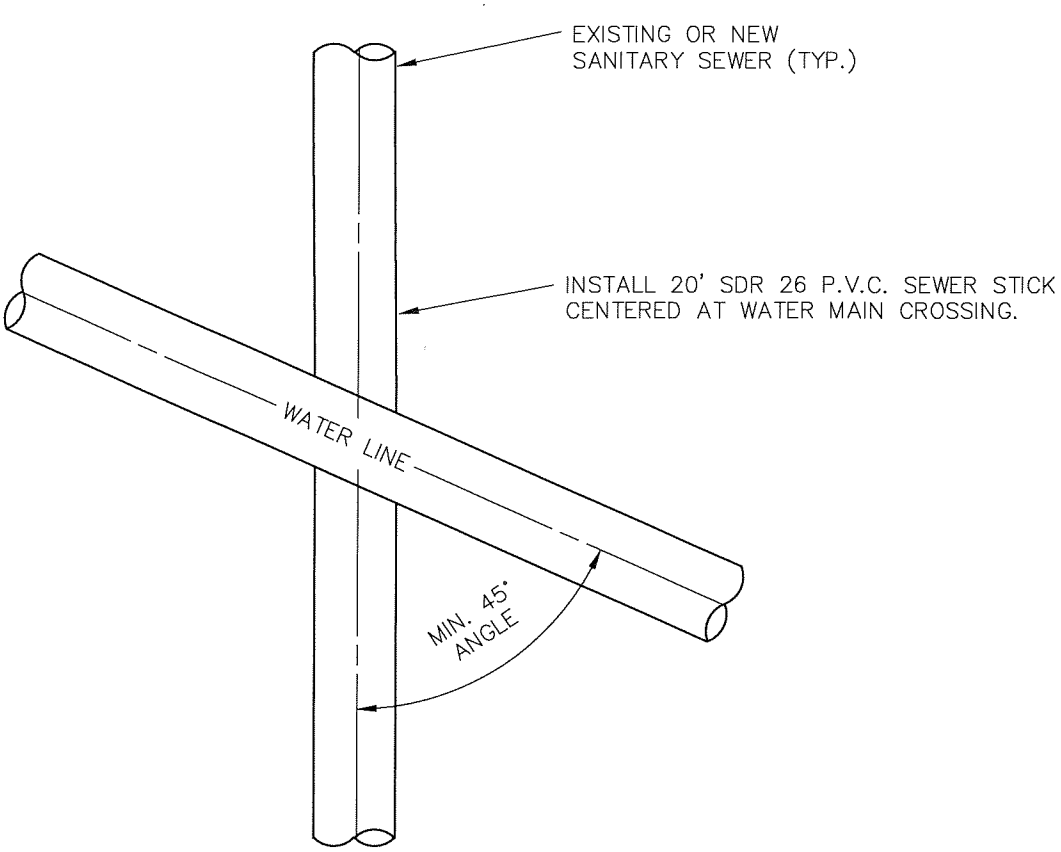
TOWN OF SILVERTHORNE	DATE: 2022		Detail W13



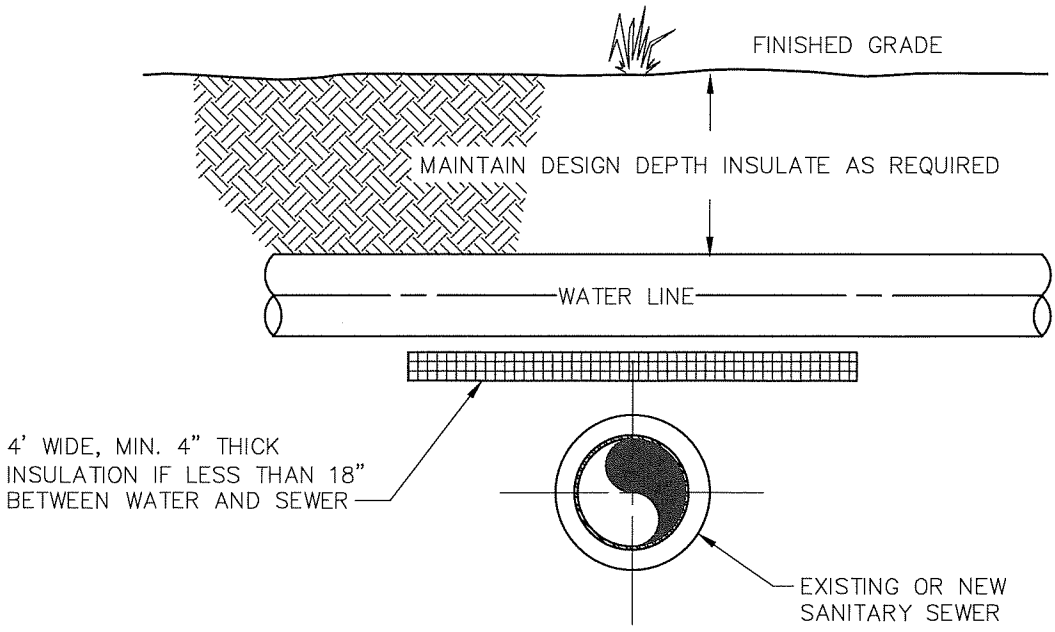
TOWN OF SILVERTHORNE
TYPICAL RIGHT OF WAY UTILITY PLACEMENT
(NOT TO SCALE)

TYPICAL RIGHT OF WAY UTILITY PLACEMENT

TOWN OF SILVERTHORNE	DATE: 2022		Detail W14



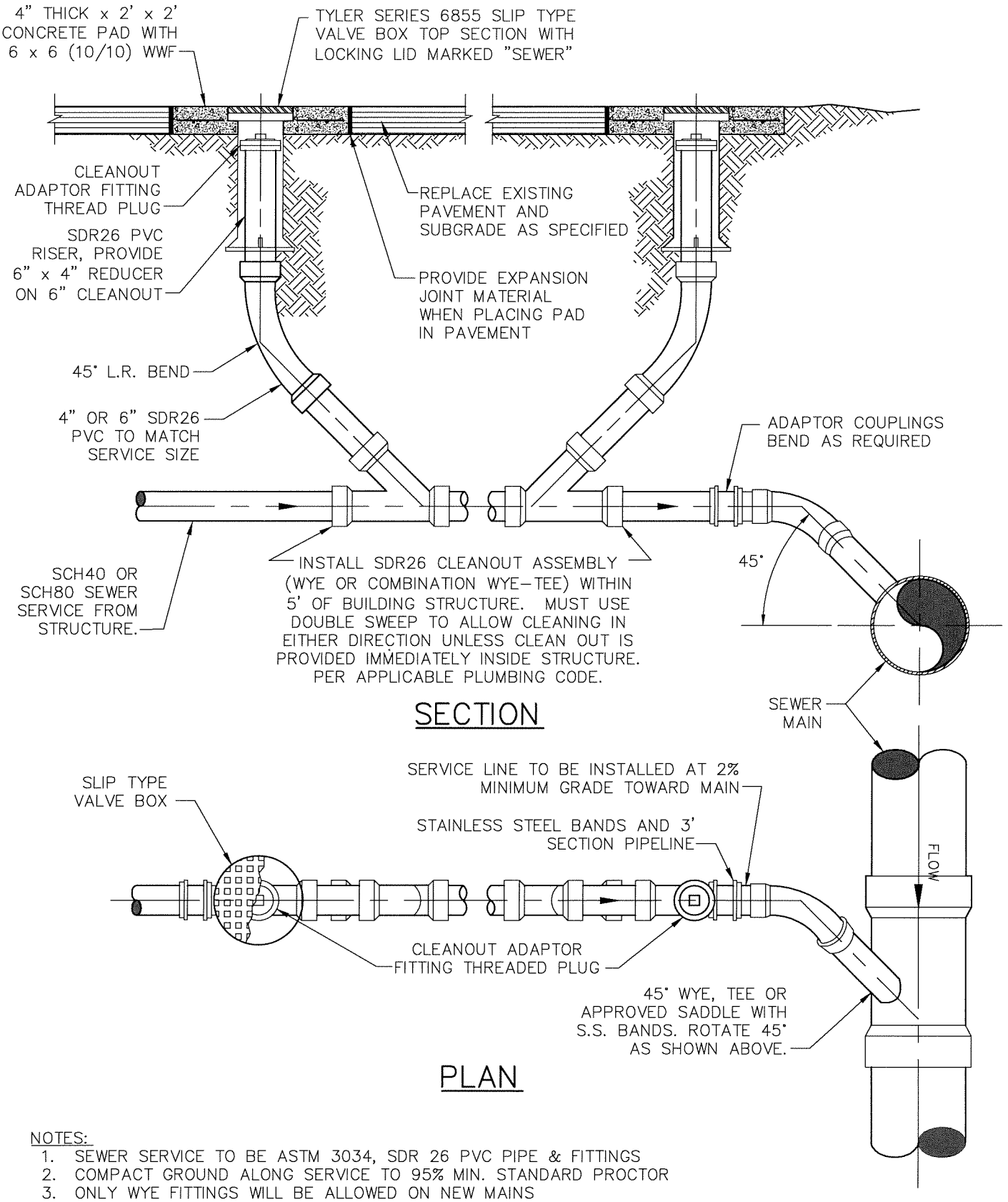
PLAN



SECTION

SEWER/WATER CROSSING

TOWN OF SILVERTHORNE	DATE: 2022		Detail W15

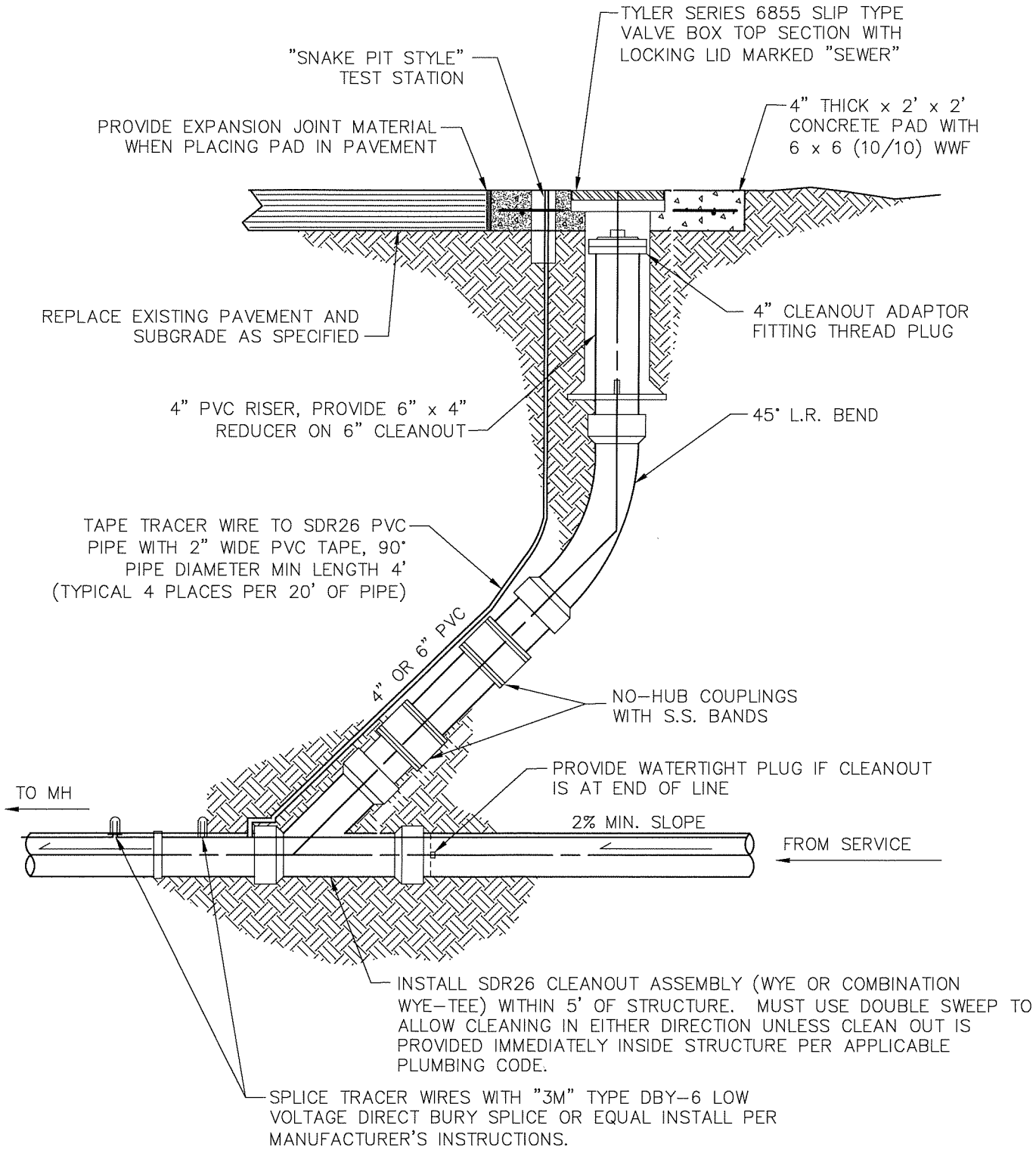


NOTES:

1. SEWER SERVICE TO BE ASTM 3034, SDR 26 PVC PIPE & FITTINGS
2. COMPACT GROUND ALONG SERVICE TO 95% MIN. STANDARD PROCTOR
3. ONLY WYE FITTINGS WILL BE ALLOWED ON NEW MAINS
4. ALL SERVICE LINES SHALL BE INSPECTED BY THE TOWN OF SILVERTHORNE DURING INSTALLATION AND MUST BE APPROVED BY THE TOWN OF SILVERTHORNE BEFORE BACKFILLED.

SEWER SERVICE LINE CONNECTION

TOWN OF SILVERTHORNE	DATE: 2022		Detail S1

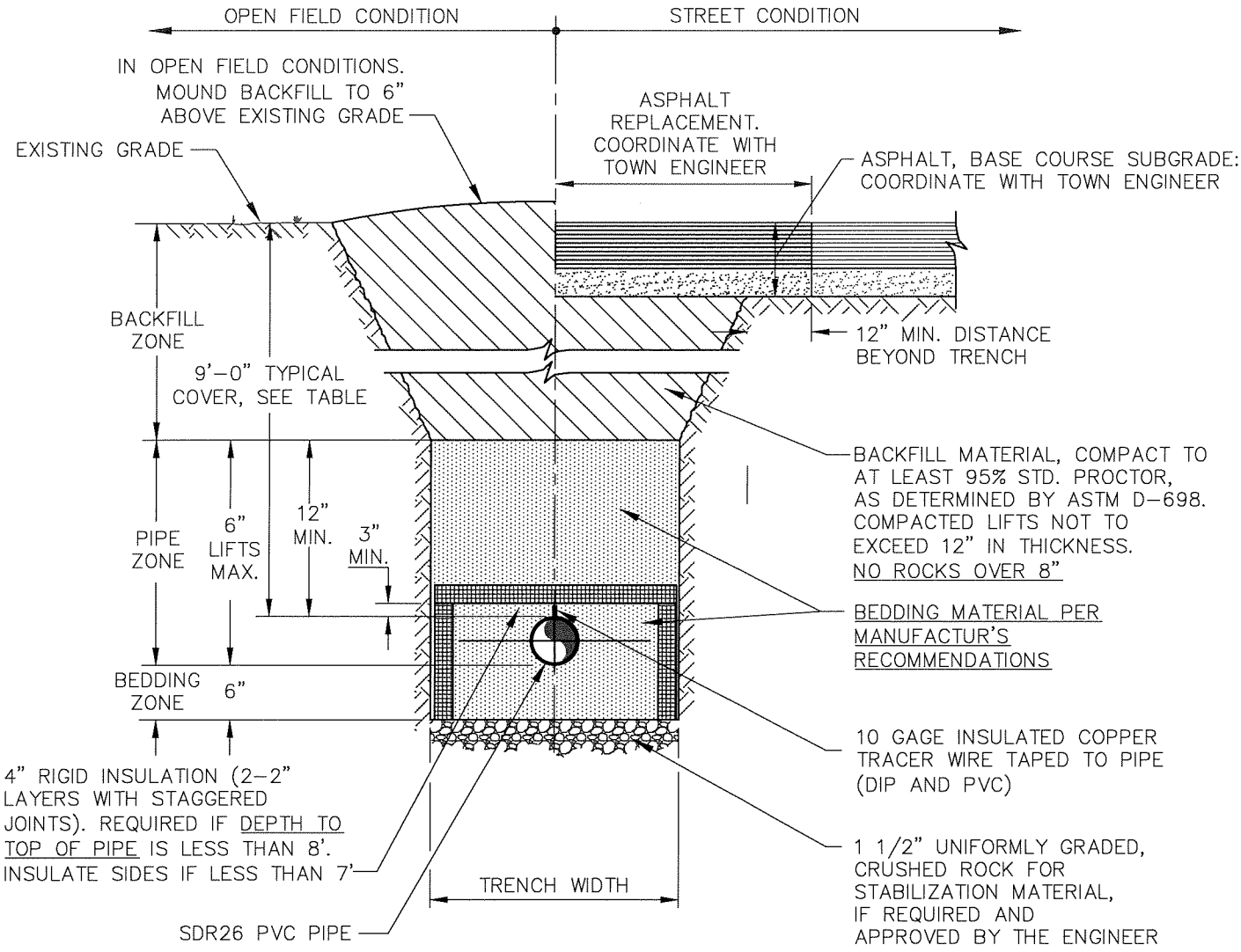


NOTES:

1. CLEANOUT FITTINGS AND PIPING TO BE SDR26 AND SAME SIZE AS SEWER SERVICE.
2. CLEANOUT REQUIRED WITHIN 5' OF BUILDING/STRUCTURE.
3. CLEANOUT REQUIRED AT EVERY 100' SPACING IN SERVICE LINE BEFORE MAIN.

SANITARY SEWER SERVICE IN-LINE CLEANOUT

TOWN OF SILVERTHORNE	DATE: 2022		Detail S2



SEWER MAIN

TRENCH WIDTH SHALL CONFIRM TO THE FOLLOWING:

PIPE I.D.	MIN. WD.	MAX. WD.
4" & SMALLER	1'-4"	2'-4"
6"	1'-6"	2'-6"
8"	1'-8"	2'-8"
12"	2'-0"	3'-0"
16"	2'-4"	3'-4"
20"	2'-8"	3'-8"
24"	3'-0"	4'-0"

INSULATION REQUIRMENTS:

PIPE COVER	REQUIRED
>8'-0"	NO INSULATION
>7'-0" TO 8'-0"	TOP INSULATION
5'-0" TO 7'-0"	TOP AND SIDES
<5'-0" COVER	NOT PERMITED

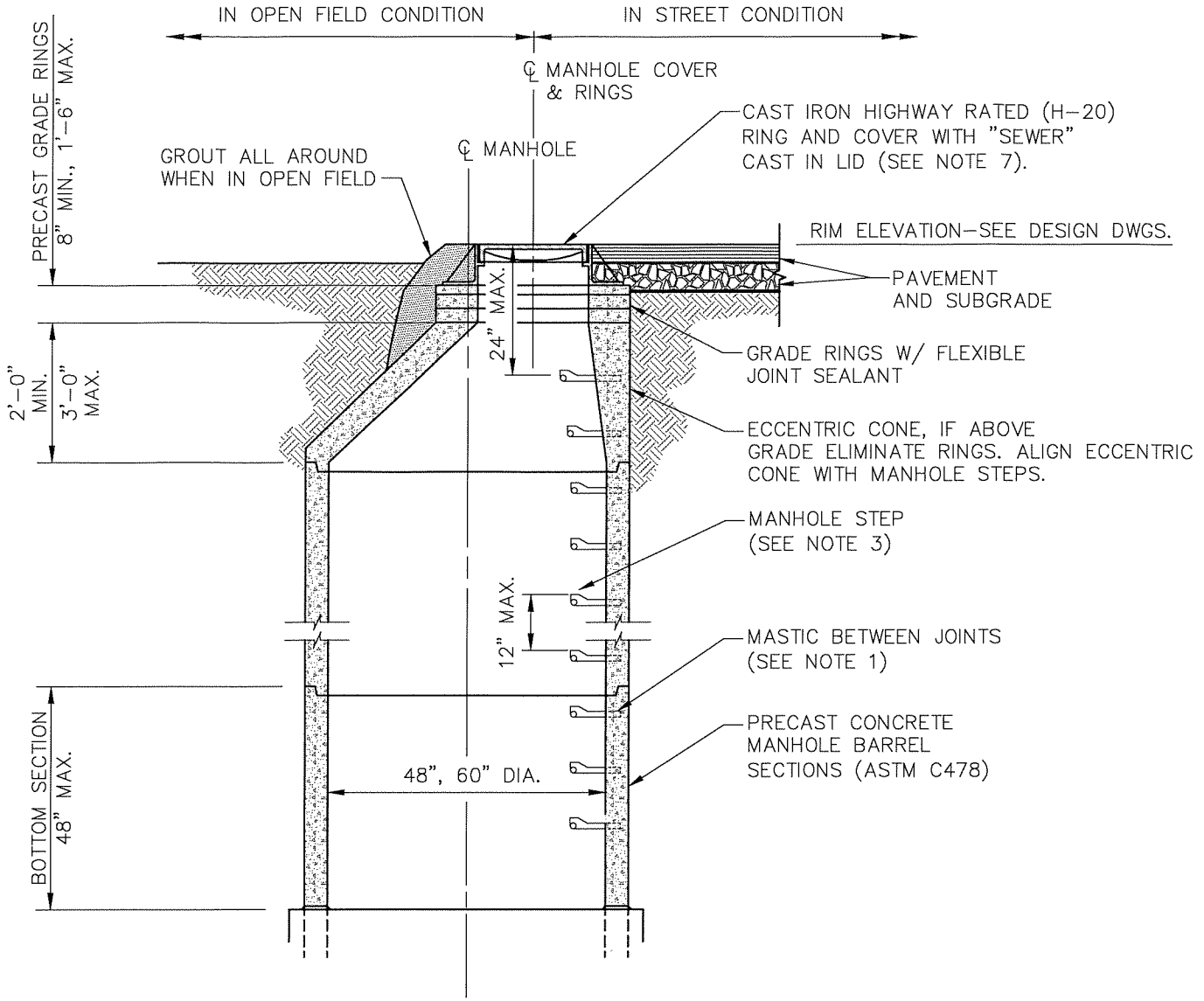
NOTE:

1. INSULATION SHALL BE HIGHLOAD EXTRUDED POLYSTYRENE INSULATION BY DOW CHEMICAL OR EQUAL. TYPE HI-100, AT PIPE CROSSINGS, UNDER FOUNDATIONS AND UNDER EXISTING OR FUTURE ROADS PLOWED AND/OR DRIVEN SURFACES. TYPE HI-60 IN UNPLOWED/UNDRIVEN FIELDS OR OPEN AREAS.

2. BEDDING MATERIAL SHALL BE INSTALLED TO NOT PROVIDE HYDRAULIC PERMEABILITY IN EXCESS OF THE NATURAL SOILS. DESIGNING THE PREVENTION OF THE TRANSPORT OF WATER WITHIN THE TRENCH IS THE RESPONSIBILITY OF THE DESIGN ENGINEER.

TYPICAL SANITARY SEWER MAIN TRENCH SECTION

TOWN OF SILVERTHORNE	DATE: 2022		Detail S3



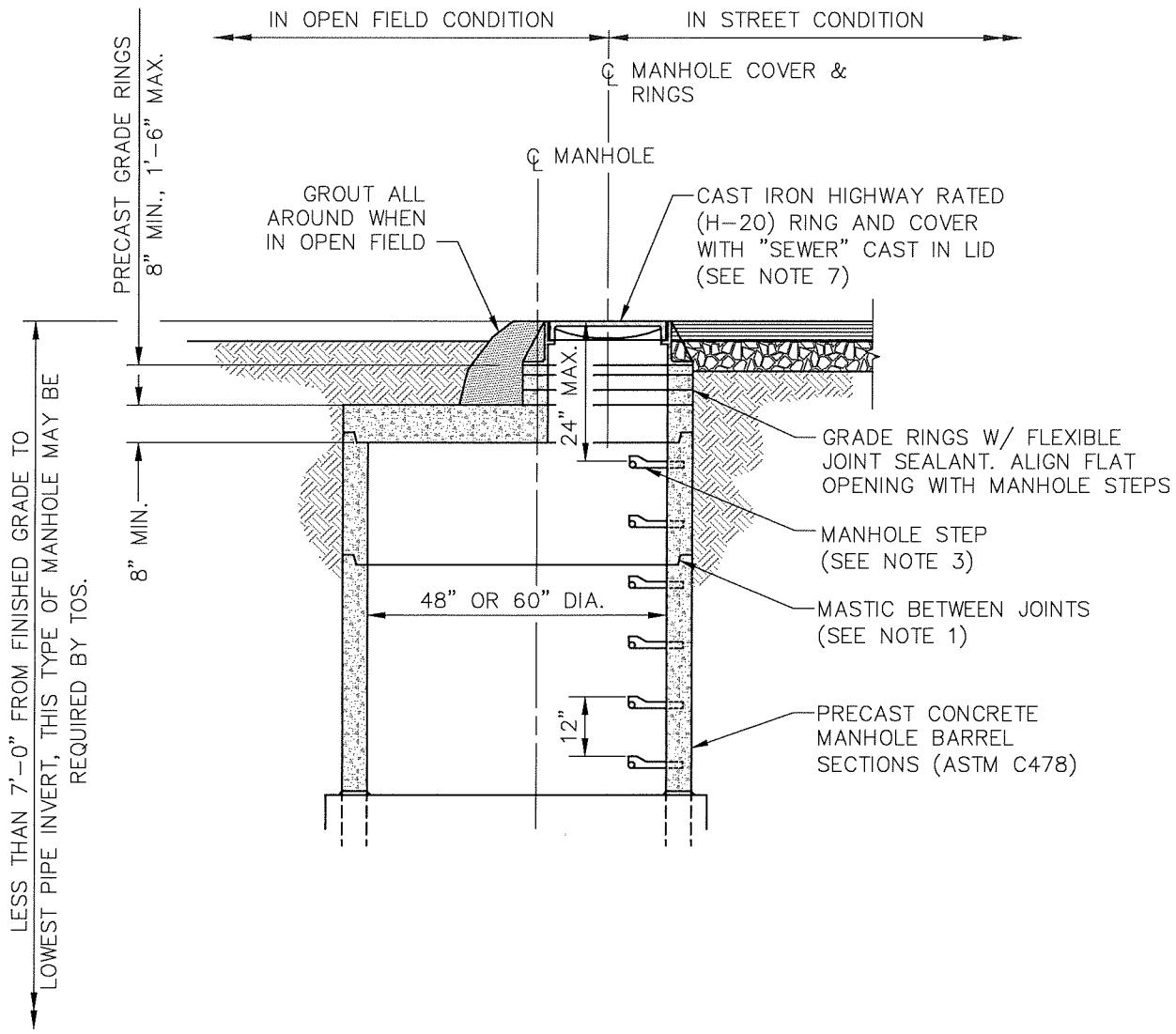
MANHOLE SECTION WITH ECCENTRIC CONE

NOTES:

1. ALL JOINTS TO BE DOUBLE BAND RUB-R-NEK OR APPROVED EQUAL. ANY MATERIAL EXTRUDED INTO MANHOLE MUST BE TRIMMED OFF AT FACE OF CONCRETE BELOW WATER TABLE DEFINE DISTANCE (AT END OF WARRANTY).
2. ALL MANHOLES PLACED IN "OPEN SPACE" OR FIELDS SHALL BE INSTALLED WITH A RING AND COVER THAT IS 6" ABOVE FINAL GRADE WITH A COLLAR OF CONCRETE. A MARKER POST SHALL BE INSTALLED NEAR BY. SEE MARKER POST DETAIL.
3. STEPS INSTALLED OVER DOWNSTREAM INVERT OF MANHOLE AND SHALL BE COPOLYMER COATED PLASTIC 1/2" GRADE 60 STEEL REINFORCED, SIMILAR TO PS2-PF MANUFACTURED BY MA INDUSTRIES.
4. SEE EITHER CAST IN PLACE OR PRECAST MANHOLE BASE DETAIL.
5. WRAP ALL BARREL SECTIONS AND CONE WITH BITUTHANE WRAP – 6" OVERLAP IS REQUIRED.
6. AVOID 12" HIGH BARREL SECTIONS IF POSSIBLE.
7. 60" OR LARGER DIAMETER MANHOLES REQUIRE A 30" OPENING.

STANDARD MANHOLE RISER AND COVER

TOWN OF SILVERTHORNE	DATE: 2022		Detail S4



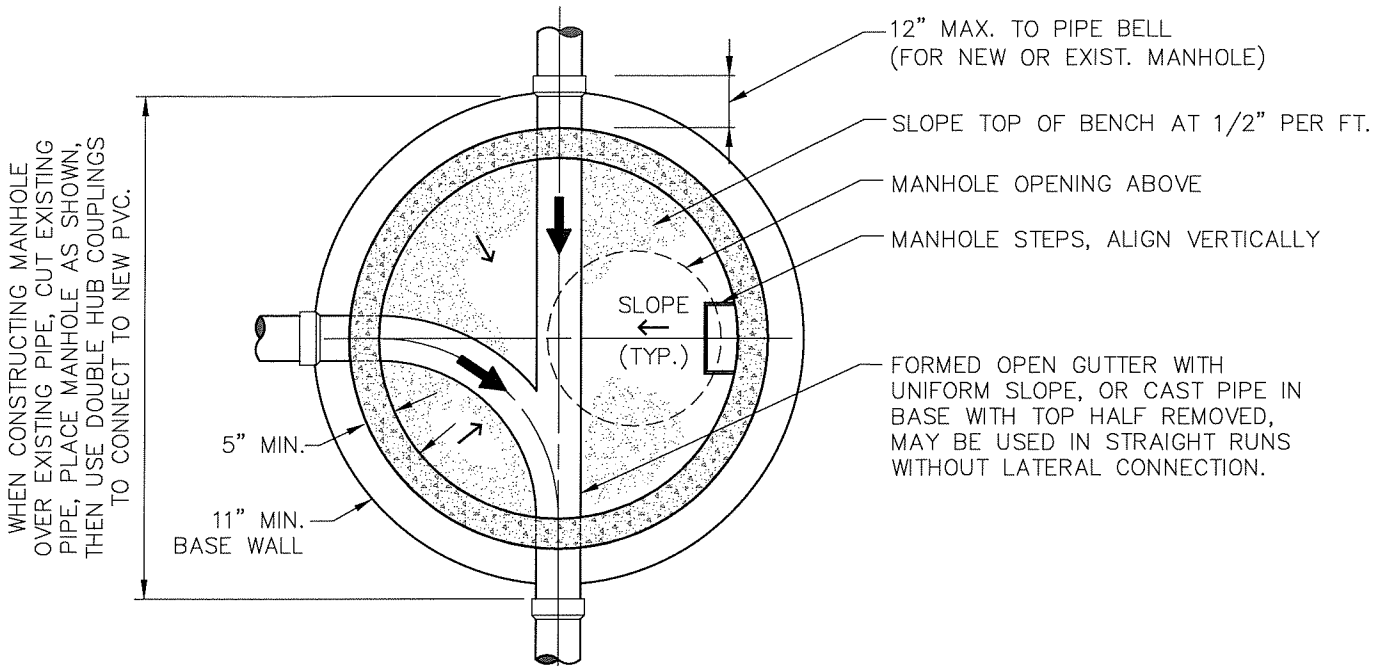
MANHOLE SECTION WITH FLAT TOP

NOTES:

1. ALL JOINTS TO BE DOUBLE BAND RUB-R-NEK OR APPROVED EQUAL. ANY MATERIAL EXTRUDED INTO MANHOLE MUST BE TRIMMED OFF AT FACE OF CONCRETE BELOW WATER TABLE.
2. ALL MANHOLES PLACED IN "OPEN SPACE" OR FIELDS SHALL BE INSTALLED WITH A RING AND COVER THAT IS 6" ABOVE FINAL GRADE WITH A COLLAR OF CONCRETE. A MARKER POST SHALL BE INSTALLED NEAR BY. SEE MARKER POST DETAIL.
3. STEPS INSTALLED OVER DOWNSTREAM INVERT OF MANHOLE AND SHALL BE COPOLYMER COATED PLASTIC 1/2" GRADE 60 STEEL REINFORCED, SIMILAR TO PS2-PF MANUFACTURED BY MA INDUSTRIES.
4. SEE EITHER CAST IN PLACE OR PRECAST MANHOLE BASE DETAIL.
5. WRAP ALL BARREL SECTIONS AND CONE WITH BITUTHANE WRAP – 6" OVERLAP IS REQUIRED.
6. AVOID 12" HIGH BARREL SECTIONS IF POSSIBLE.
7. 60" OR LARGER DIAMETER MANHOLES REQUIRE A 30" OPENING.

SHALLOW MANHOLE RISER AND COVER

TOWN OF SILVERTHORNE	DATE: 2022		Detail S5

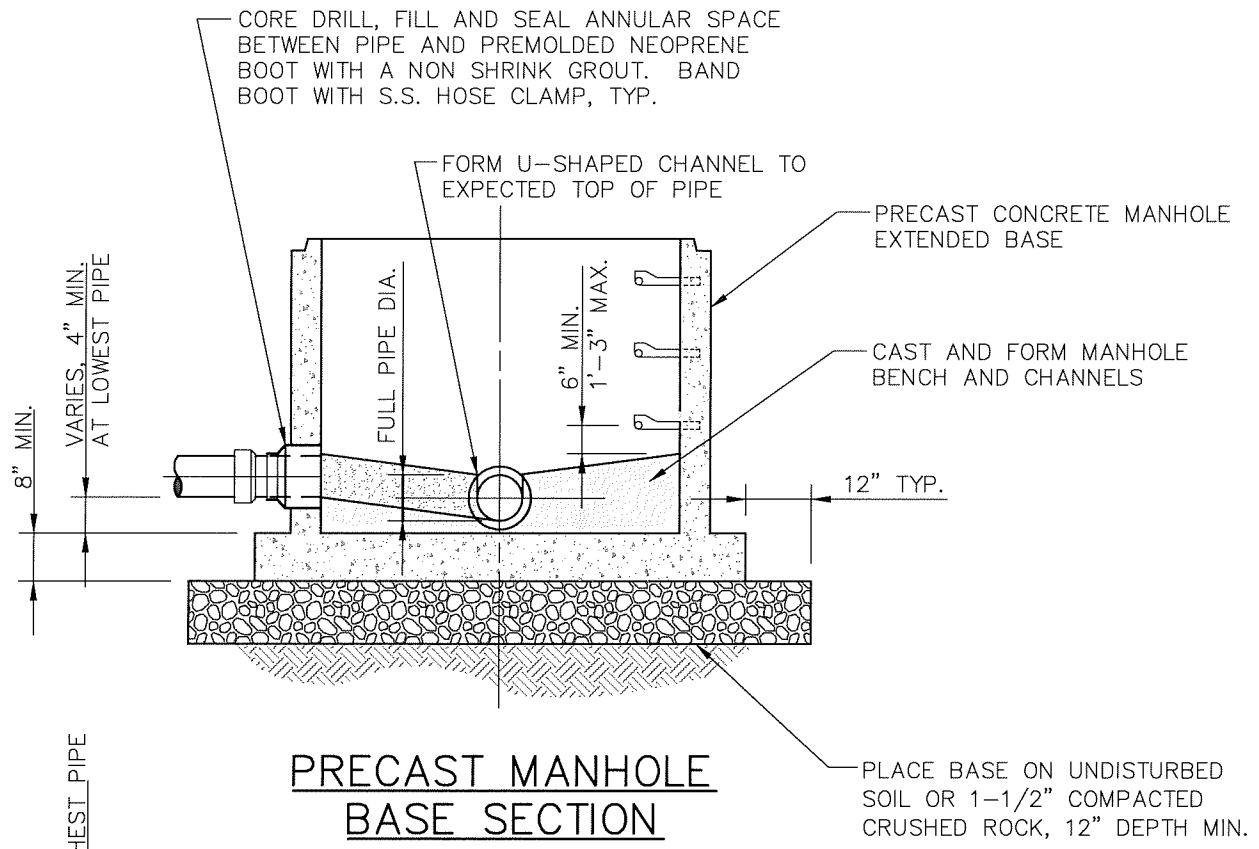


MANHOLE BASE
PLAN VIEW

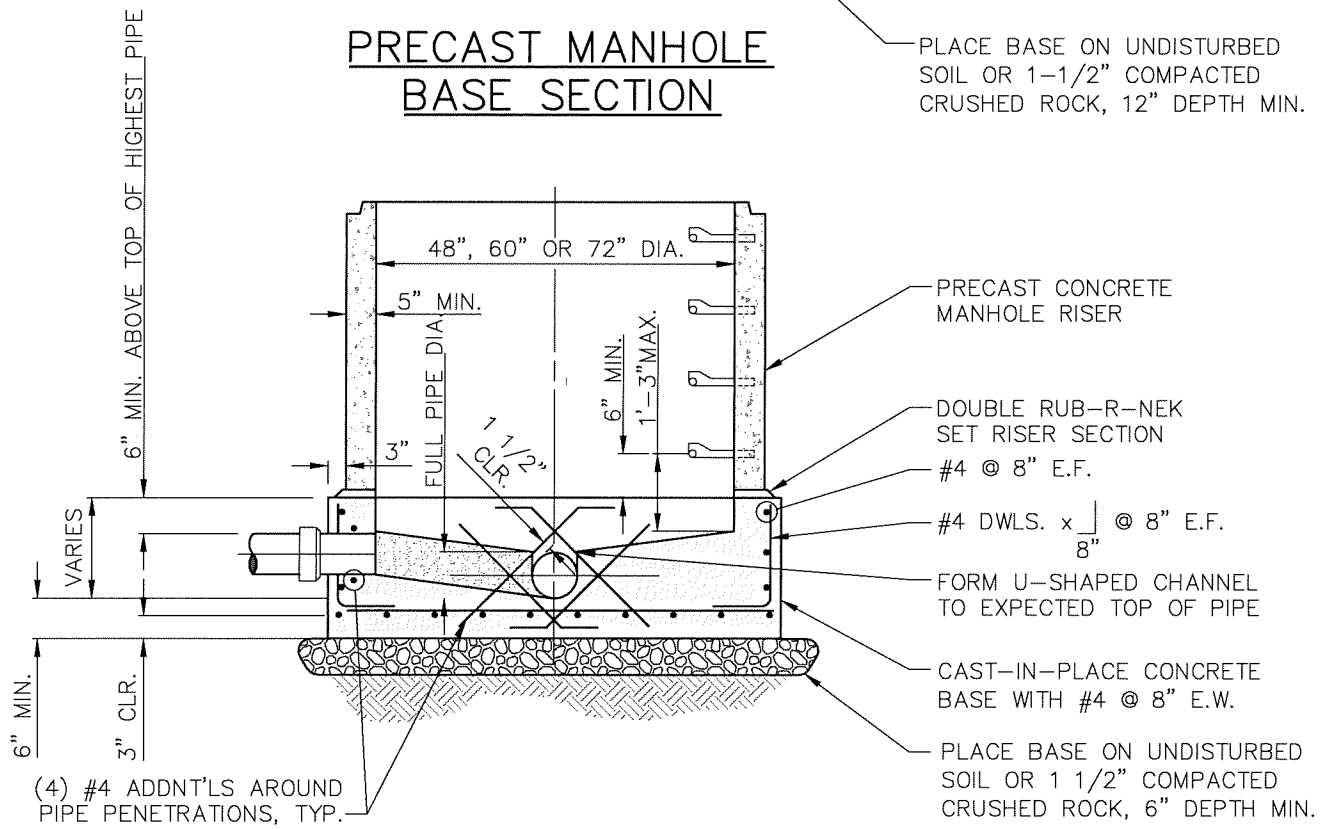
NOTES:
1. CONCRETE BASE AND/OR INTERIOR CONCRETE FILL SHALL BE MINIMUM 3,000 PSI CONCRETE.
2. SEE CAST-IN-PLACE OR PRECAST MANHOLE BASE FOR SECTION.

MANHOLE BASE INTERIOR

TOWN OF SILVERTHORNE	DATE: 2022		Detail S6



PRECAST MANHOLE BASE SECTION



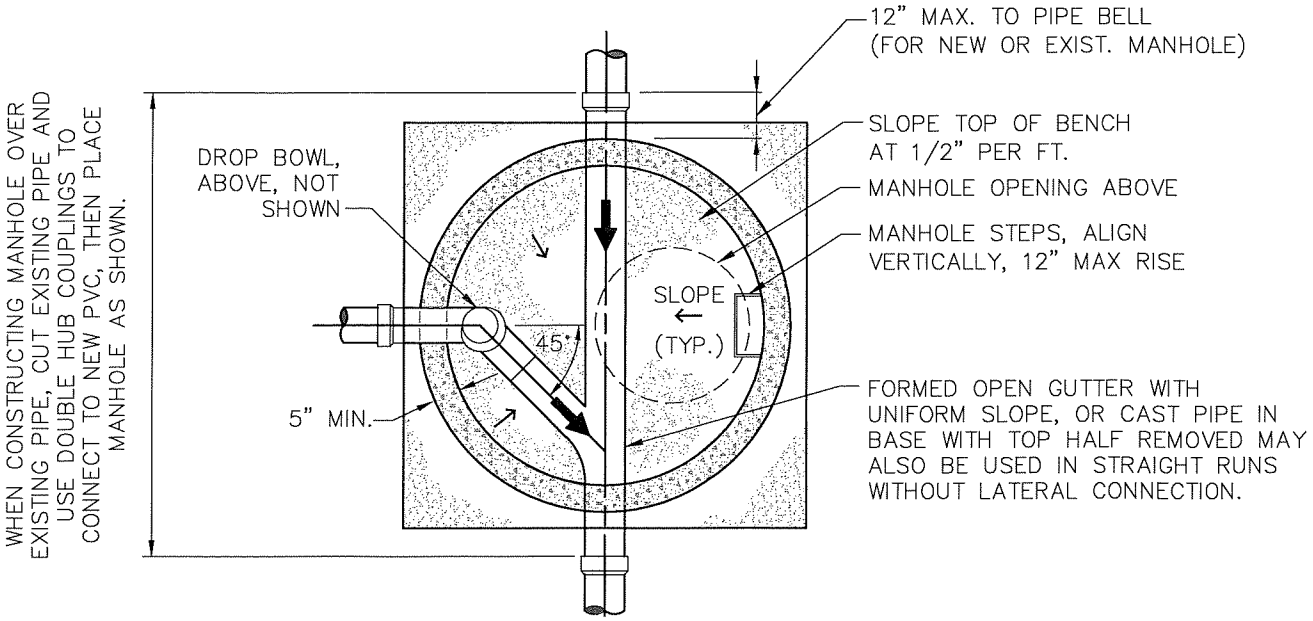
CAST-IN-PLACE MANHOLE BASE SECTION

NOTES:

1. PRECAST CONCRETE SHALL MEET OR EXCEED STRENGTH OF 3,000 PSI.
2. APPLY BONDING AGENT TO PRECAST BASE SECTION BEFORE PLACING CONCRETE FILL AND INVERTS.

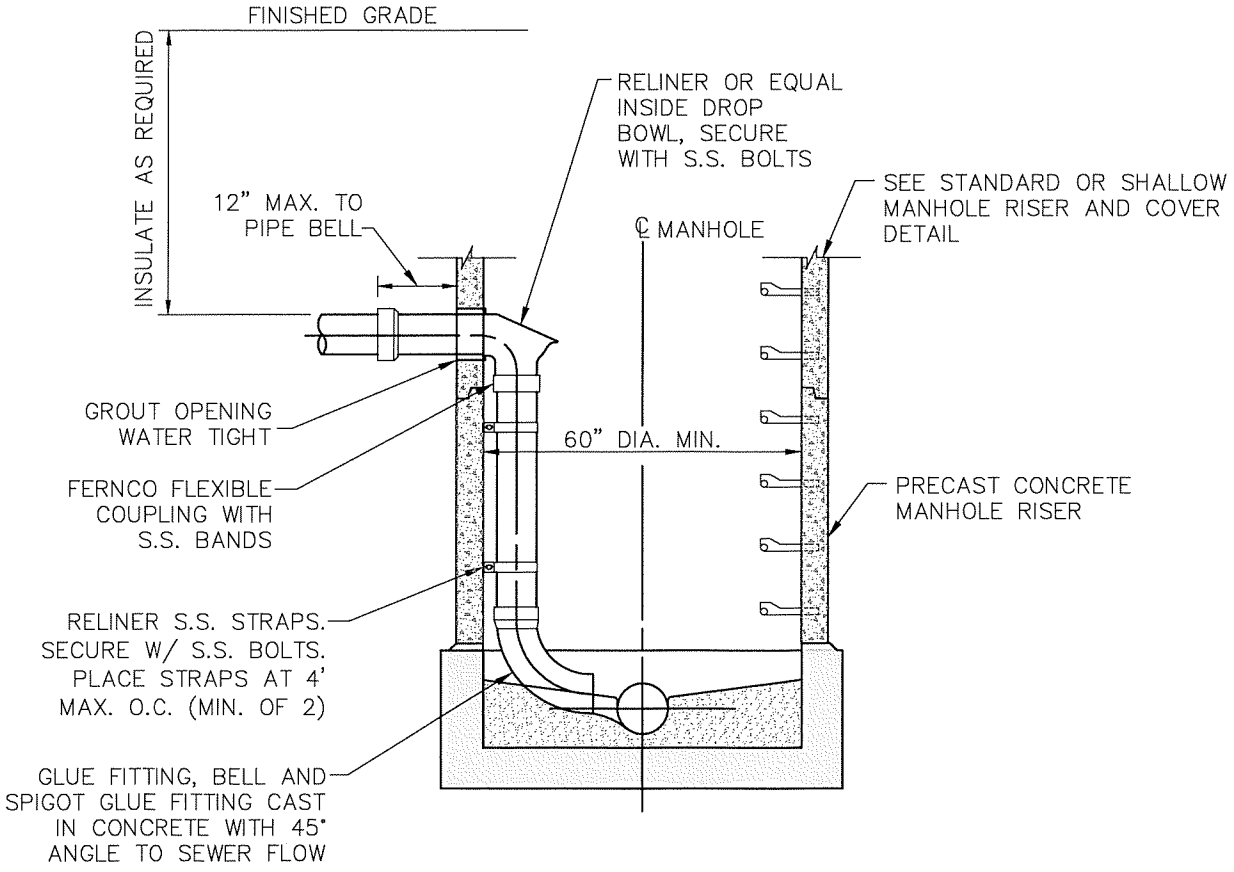
MANHOLE BASE SECTIONS

TOWN OF SILVERTHORNE	DATE: 2022		Detail S7



PLAN VIEW

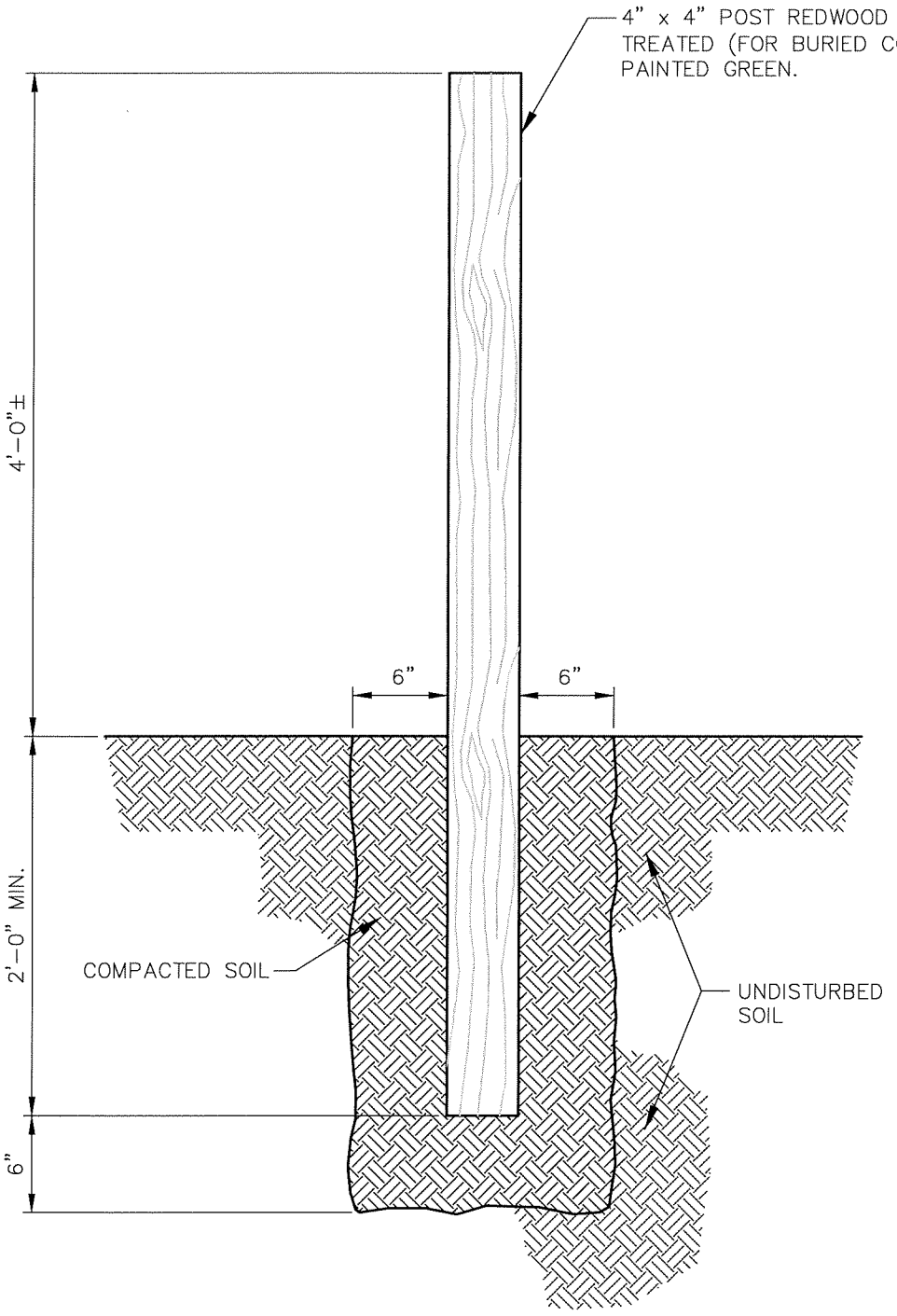
NOTE:
ANY DROP OF GREATER THAN
18" REQUIRES DROP MANHOLE.



SECTION VIEW

INSIDE DROP MANHOLE

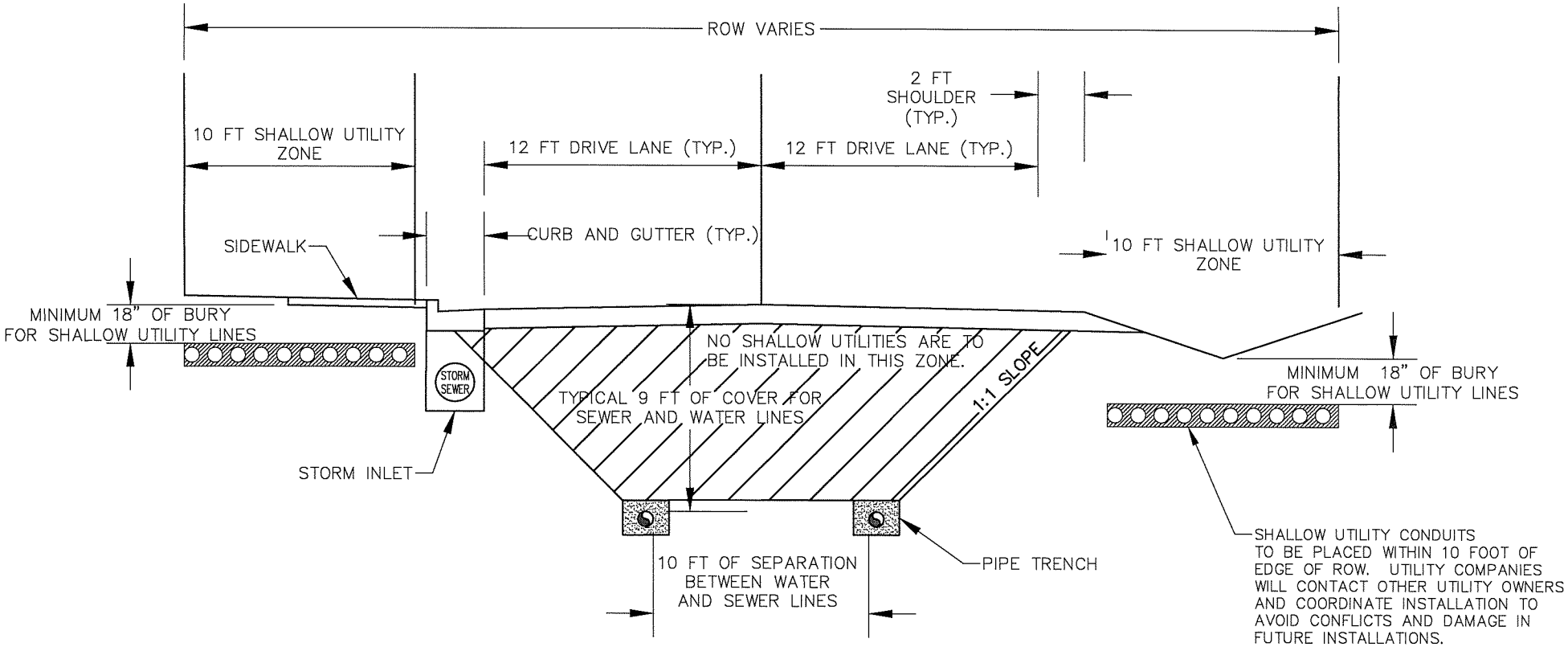
TOWN OF SILVERTHORNE	DATE: 2022		Detail S8



NOTES:
1. PROVIDE ONLY IF MANHOLE NOT IN TRAVELED WAY.

SANITARY SEWER MANHOLE MARKER POST

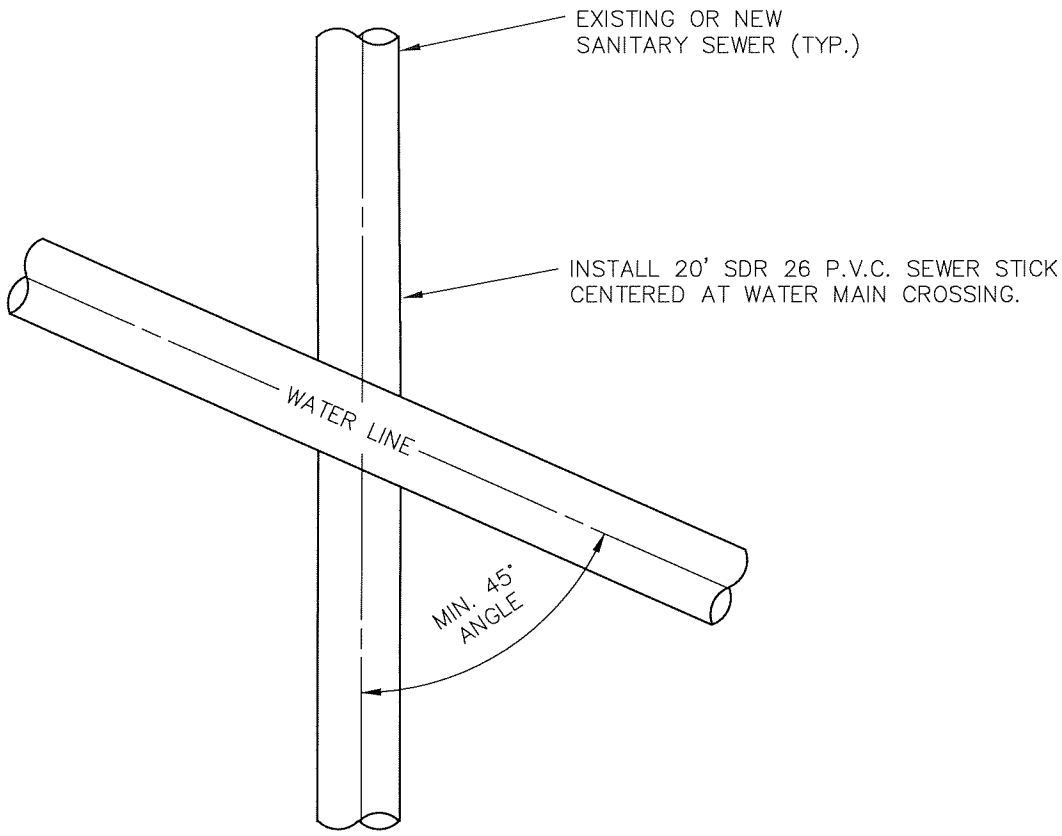
TOWN OF SILVERTHORNE	DATE: 2022		Detail S9



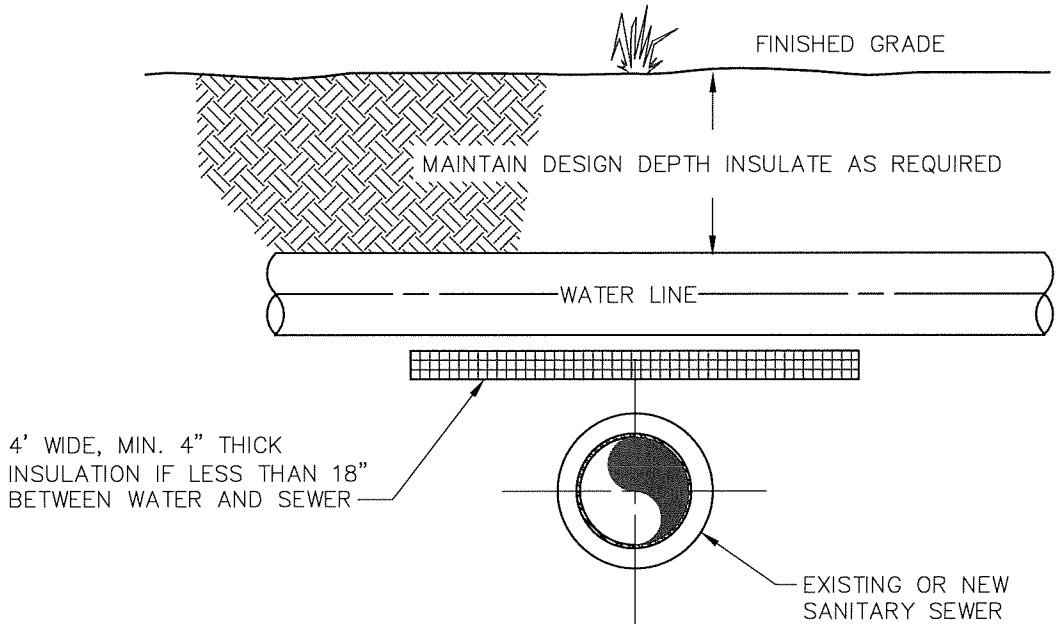
TOWN OF SILVERTHORNE
TYPICAL RIGHT OF WAY UTILITY PLACEMENT
(NOT TO SCALE)

TYPICAL RIGHT OF WAY UTILITY PLACEMENT

TOWN OF SILVERTHORNE	DATE: 2022		Detail S10



PLAN



SECTION

SEWER/WATER CROSSING

TOWN OF SILVERTHORNE	DATE: 2022		Detail S11

SILVERTHORNE
COLORADO

WATER AND SEWER STANDARD DETAILS

THESE STANDARDS DETAILS ARE PROVIDED AS GENERAL GUIDELINES AND DO NOT RELIEVE DESIGN ENGINEERS FROM THEIR RESPONSIBILITIES TO PROVIDE SAFE, FUNCTIONAL, SYSTEM DESIGNS THAT MEET THE STANDARD OF CARE EXPECTED OF A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF COLORADO. THESE DETAILS PROVIDE EXAMPLES OF THE MINIMUM ALLOWED BY THE TOWN OF SILVERTHORNE WATER DEPARTMENT.

WATER STANDARDS

W1	WATER SERVICE LINE AND STOP BOX CONNECTION AND INSTALLATION
W2A	RESIDENTIAL WATER INSTALLATION
W2B	COMMERCIAL WATER METER INSTALLATION
W3	TYPICAL WATER TRENCH SECTION
W4	TYPICAL FIRE HYDRANT ASSEMBLY
W5	VALVE AND VALVE BOX DETAIL
W6	VALVE MARKER POST
W7	THRUST BLOCK
W8	TIE ROD AND WASHER DETAIL WITH LENGTH OF RESTRAINED PIPE
W9	RESTRAINED JOINTS AND THRUST BLOCKS AT VERTICAL BENDS
W10	BLOW-OFF INSTALLATION 12" AND SMALLER PIPE
W11	TRACER WIRE INSTALLATION
W12	OUTSIDE SETTING FOR IRRIGATION SERVICE
W13	BOLLARD
W14	TYPICAL RIGHT OF WAY UTILITY PLACEMENT
W15	SEWER WATER CROSSING

SEWER STANDARDS

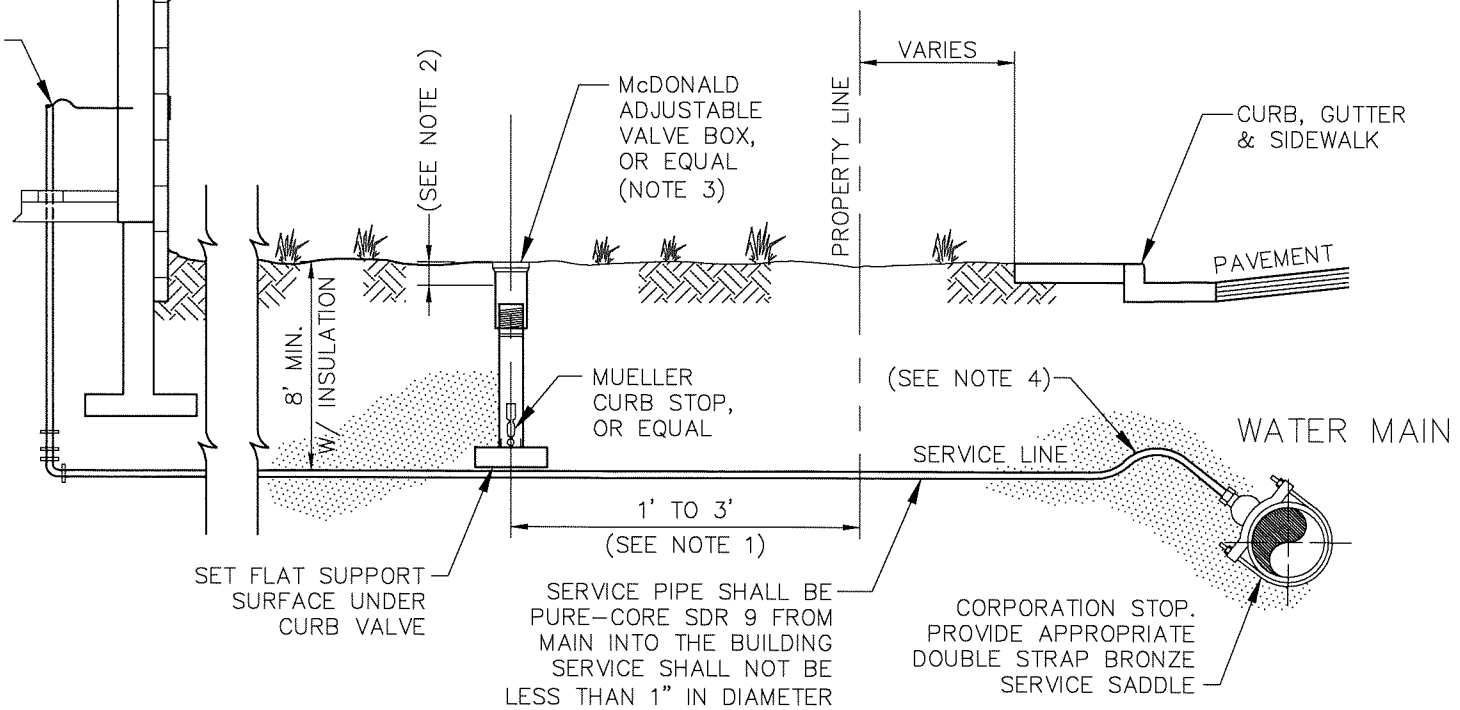
S1	SEWER SERVICE LINE CONNECTION
S2	SANITARY SEWER SERVICE IN-LINE CLEANOUT
S3	TYPICAL SANITARY SEWER MAIN TRENCH SECTION
S4	STANDARD MANHOLE RISER AND COVER
S5	SHALLOW MANHOLE RISER AND COVER
S6	MANHOLE BASE INTERIOR
S7	MANHOLE BASE SECTIONS
S8	INSIDE DROP MANHOLE
S9	SANITARY SEWER MANHOLE MARKER POST
S10	TYPICAL RIGHT OF WAY UTILITY PLACEMENT
S11	SEWER WATER CROSSING

NOTES:

1. PLACEMENT OF STOP BOX BOX SHALL BE 1 TO 3 FEET INSIDE THE PROPERTY LINE.
2. PROVIDE SURVEYED LOCATION OF VALVE BOX PER AS-BUILT REQUIREMENTS. SET AT OR ABOVE FINISHED GRADE.
3. IF THE DEPTH OF THE CURB STOP IS GREATER THAN 8'-6", PROVIDE AN APPROPRIATE EXTENSION WITH WELDED COUPLING. CURB BOX CAP SHALL BE PLACED 1/4" TO 1/2" BELOW FINISHED GRADE IN PAVED SURFACES. BLUEBOARD INSULATION SHALL BE REQUIRED WHERE DEPTH REQUIREMENTS CAN'T BE ACHIEVED (IF APPROVED BY TOWN).
4. REFER TO TYPICAL WATER TRENCH SECTION FOR PIPE INSTALLATION AND INSULATION DETAIL.
5. ALL BURIED METAL TO BE POLYETHYLENE WRAPPED.
6. ALL PLASTIC SERVICES SHALL BE INSTALLED WITH TRACER WIRE OR OTHER METHOD OF DESIGNATION IN ACCORDANCE WITH ASCE C-I 38-02 "STANDARD GUIDELINES FOR THE COLLECTION AND DECEPTION OF EXISTING SUBSURFACE UTILITY DATA".

SHOULD ANY SITUATION ARISE OTHER THAN SHOWN CONCERNING THE DEPTH OF CONSTRUCTION OF SERVICE LINE OR THE PLACEMENT OF STOP BOX CALL 970-389-5158

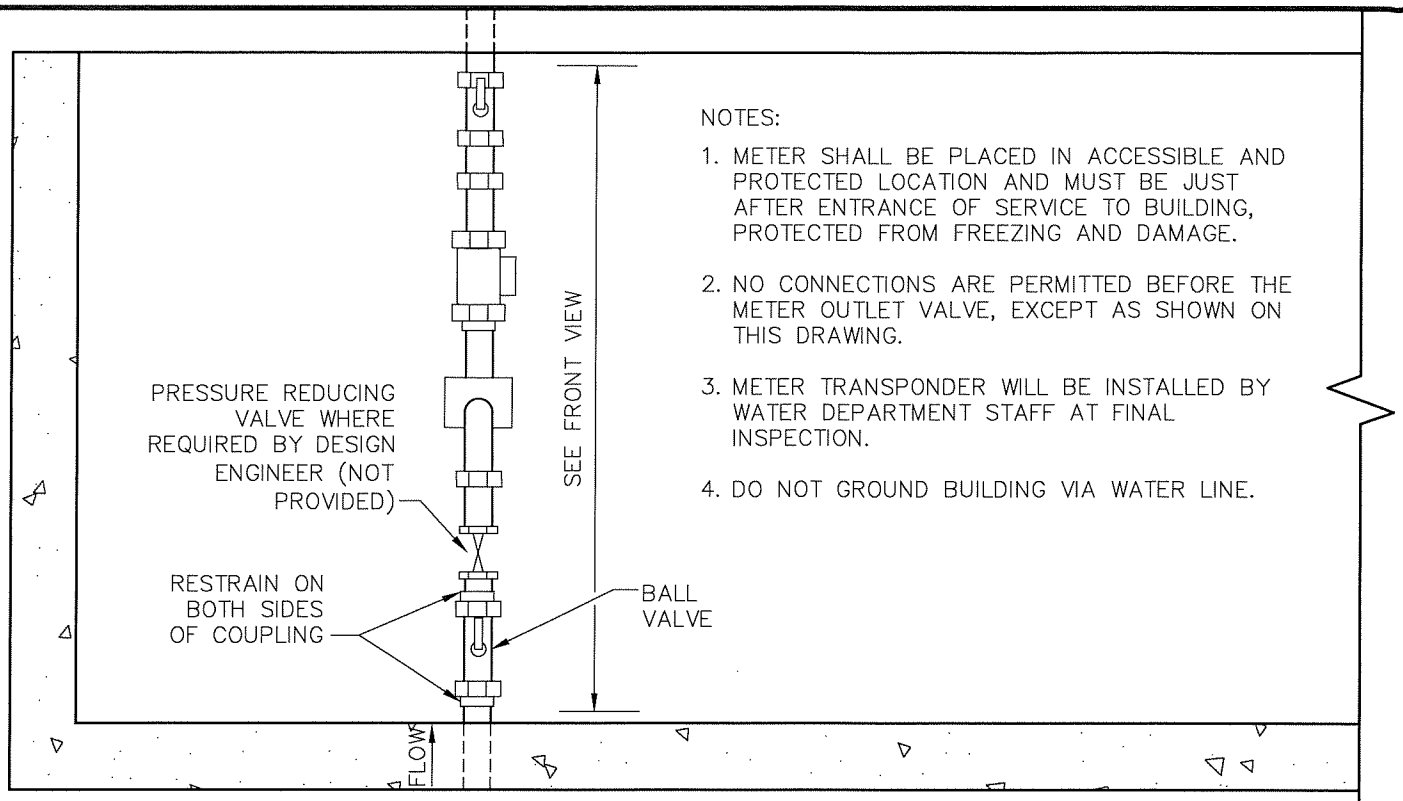
SEE METER LOCATION SCHEMATIC DETAIL FOR CONTINUATION SEE DETAILS: 2A-RESIDENTIAL 2B-COMMERCIAL

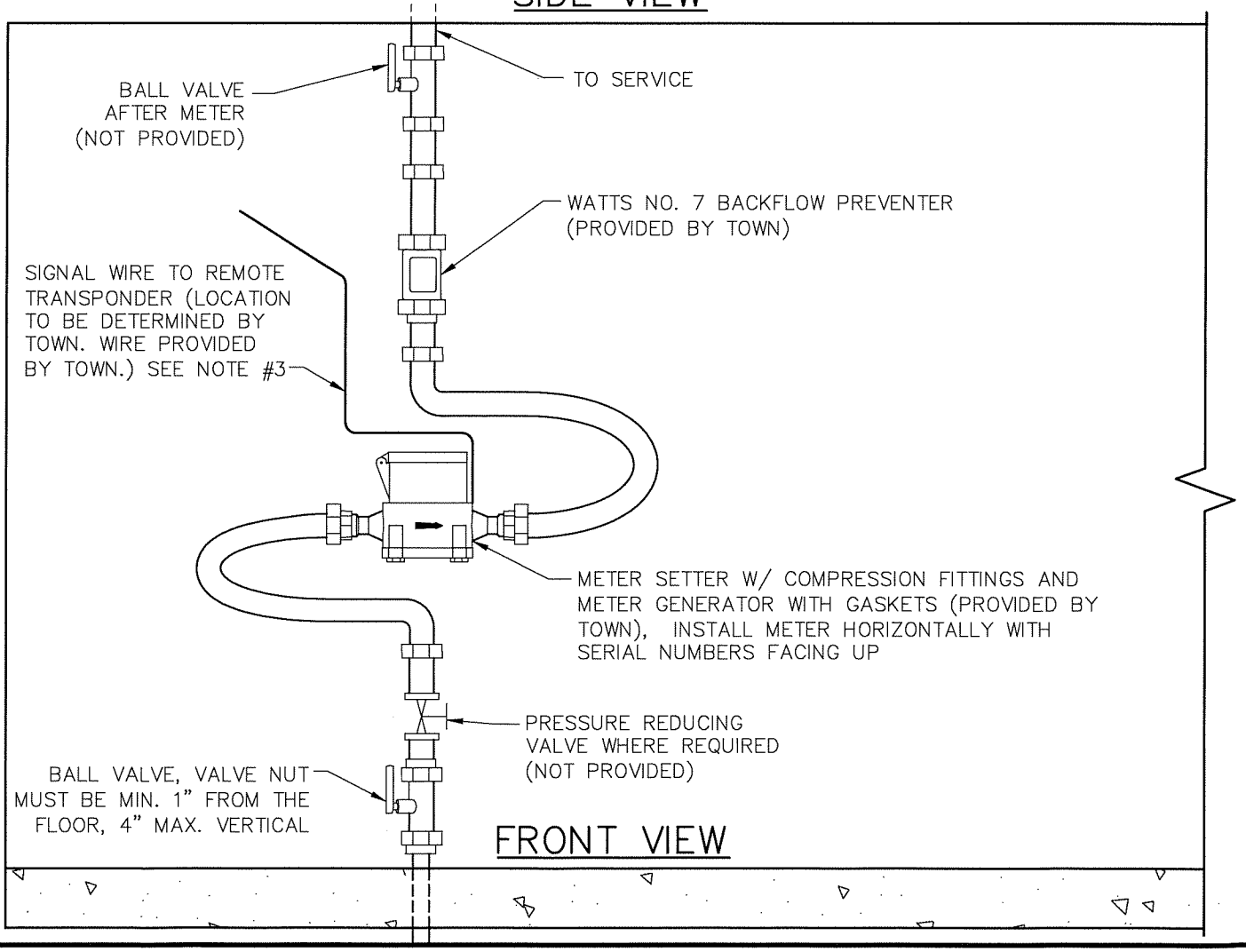


NOTE:
THIS DETAIL PROVIDES AN EXAMPLE OF THE MINIMUM STANDARD ALLOWED BY THE TOWN OF SILVERTHORNE WATER DEPARTMENT. ANY PROPOSED DEVIATIONS FROM OR CHANGES TO THESE STANDARDS MUST OTHERWISE BE APPROVED BY THE TOWN OF SILVERTHORNE WATER DEPARTMENT.

WATER SERVICE LINE AND STOP BOX CONNECTION & INSTALLATION

TOWN OF SILVERTHORNE	DATE: 2022		Detail W1



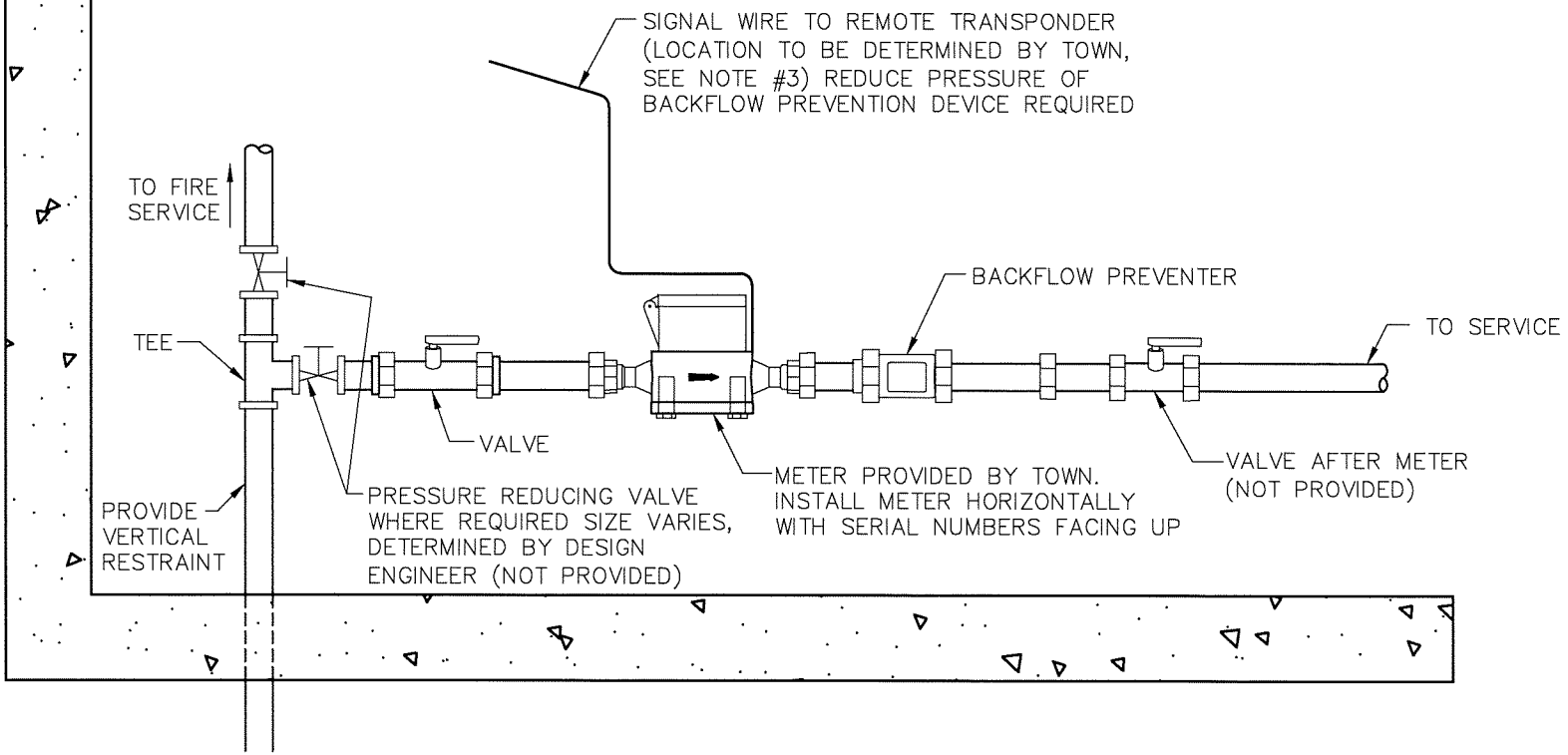


RESIDENTIAL WATER METER INSTALLATION

TOWN OF SILVERTHORNE	DATE: 2022		Detail W2A

NOTES:

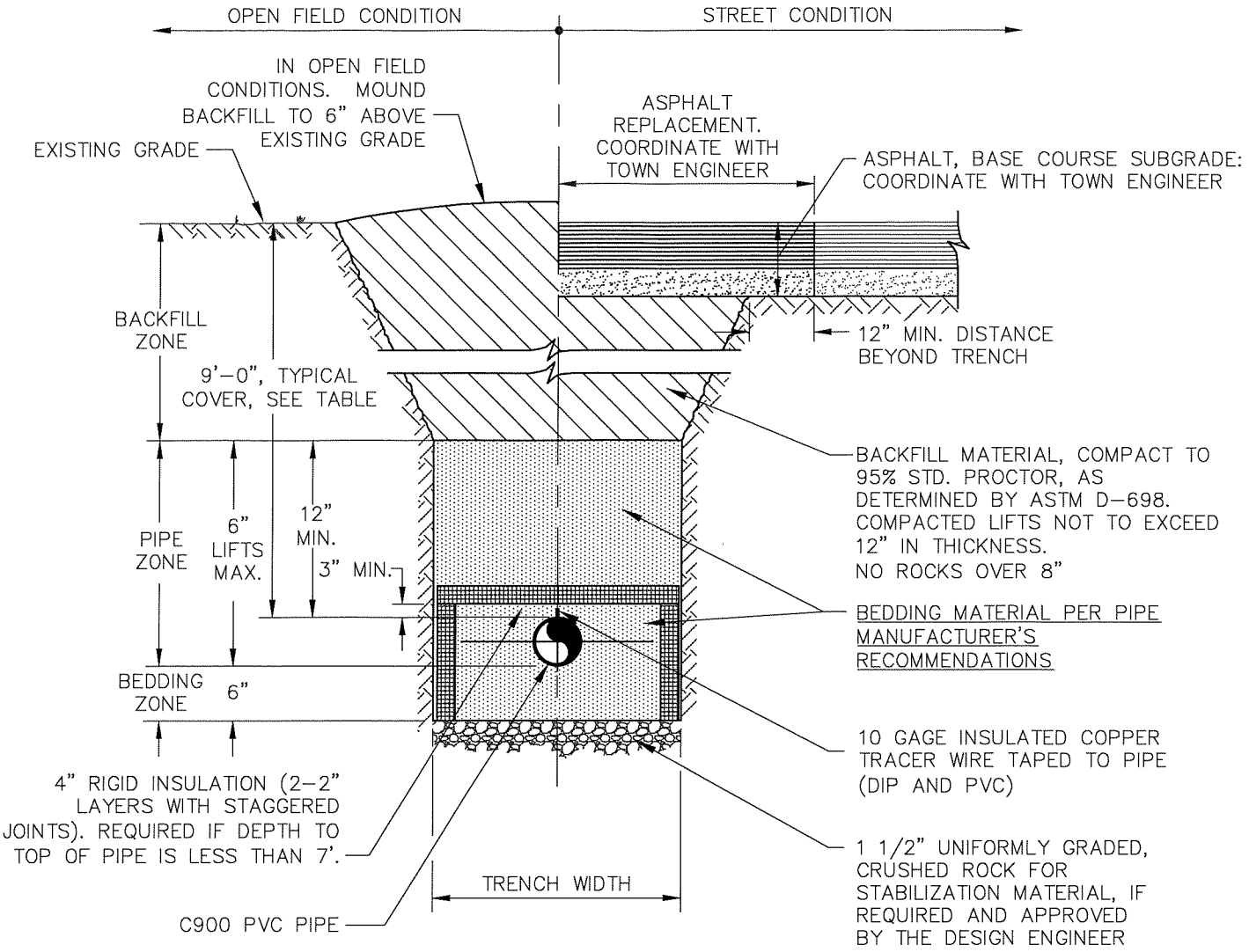
1. METER SHALL BE PLACED IN ACCESSIBLE AND PROTECTED LOCATION AND MUST BE JUST AFTER ENTRANCE OF SERVICE TO BUILDING, PROTECTED FROM FREEZING AND DAMAGE.
2. NO CONNECTIONS ARE PERMITTED BEFORE THE METER OUTLET VALVE, EXCEPT AS SHOWN ON THIS DRAWING.
3. METER TRANSPONDER WILL BE INSTALLED BY WATER DEPARTMENT STAFF AT FINAL INSPECTION.
4. DO NOT GROUND BUILDING VIA WATER LINE.
5. ALL FITTINGS BEFORE BACKFLOW PREVENTERS SHALL BE NSF APPROVED AND NON-CORROSIVE.



FRONT VIEW

COMMERCIAL WATER METER INSTALLATION

TOWN OF SILVERTHORNE	DATE: 2022		Detail W2B



WATERLINE

TRENCH WIDTH SHALL CONFIRM TO THE FOLLOWING:

PIPE I.D.	MIN. WD.	MAX. WD.
4" & SMALLER	1'-4"	2'-4"
6"	1'-6"	2'-6"
8"	1'-8"	2'-8"
12"	2'-0"	3'-0"
16"	2'-4"	3'-4"
20"	2'-8"	3'-8"
24"	3'-0"	4'-0"

INSULATION REQUIRMENTS:

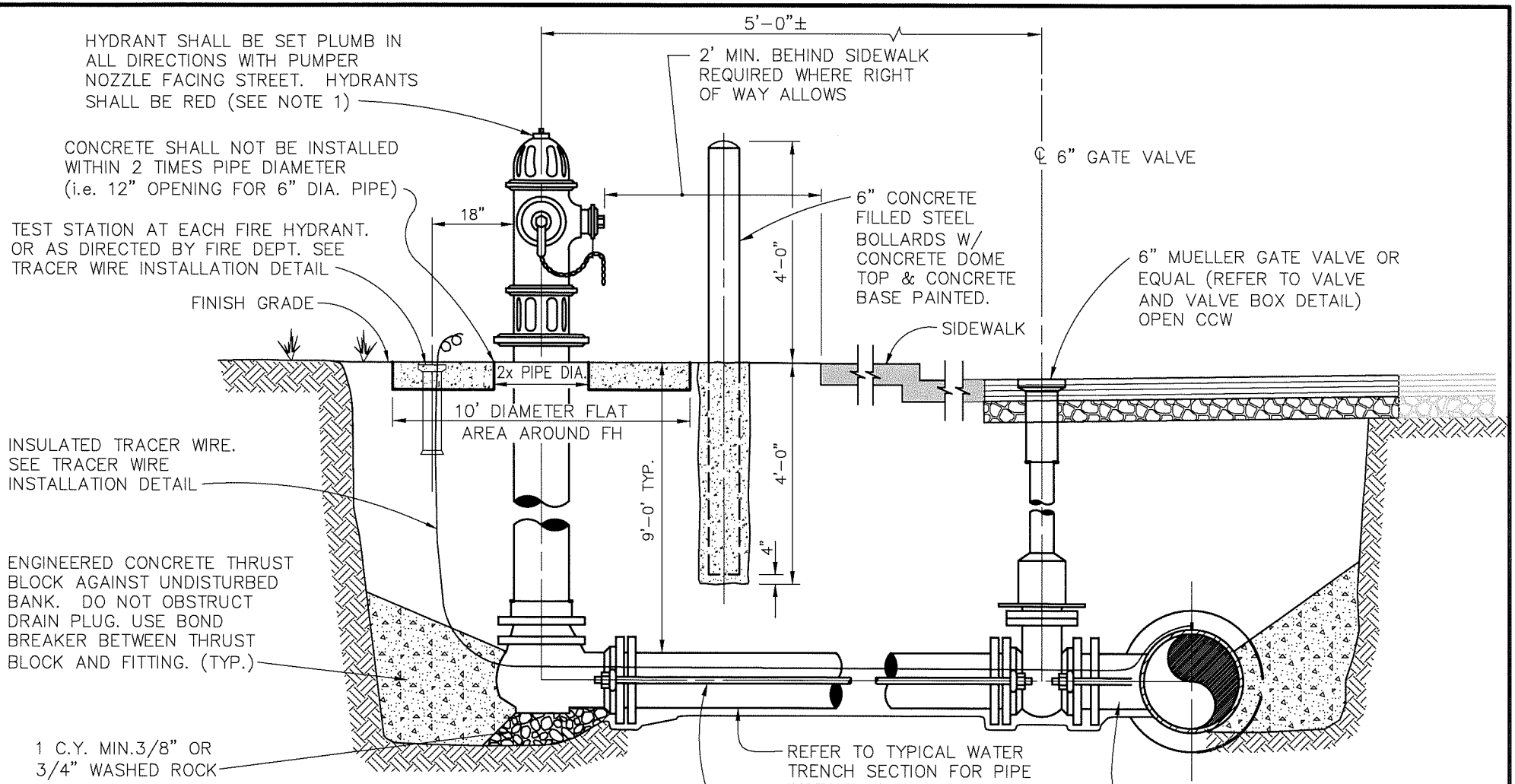
PIPE COVER	REQUIRED
>8'-0"	NO INSULATION
>7'-0" TO 8'-0"	TOP INSULATION
5'-0" TO 7'-0"	TOP AND SIDES
<5'-0" COVER	NOT PERMITED

NOTES:

1. INSULATION SHALL BE HIGHLOAD EXTRUDED POLYSTYRENE INSULATION BY DOW CHEMICAL OR EQUAL. TYPE HI-100, AT PIPE CROSSINGS, UNDER FOUNDATIONS AND UNDER EXISTING OR FUTURE ROADS. TYPE HI-60 IN UNPLOWED/UNDRIVEN FIELDS OR OPEN AREAS.
2. BEDDING MATERIAL SHALL BE INSTALLED TO NOT PROVIDE HYDRAULIC PERMEABILITY IN EXCESS OF THE NATURAL SOILS. DESIGNING THE PREVENTION OF THE TRANSPORT OF WATER WITHIN THE TRENCH IS THE RESPONSIBILITY OF THE DESIGN ENGINEER.

TYPICAL WATER TRENCH SECTION

TOWN OF SILVERTHORNE	DATE: 2022		Detail W3

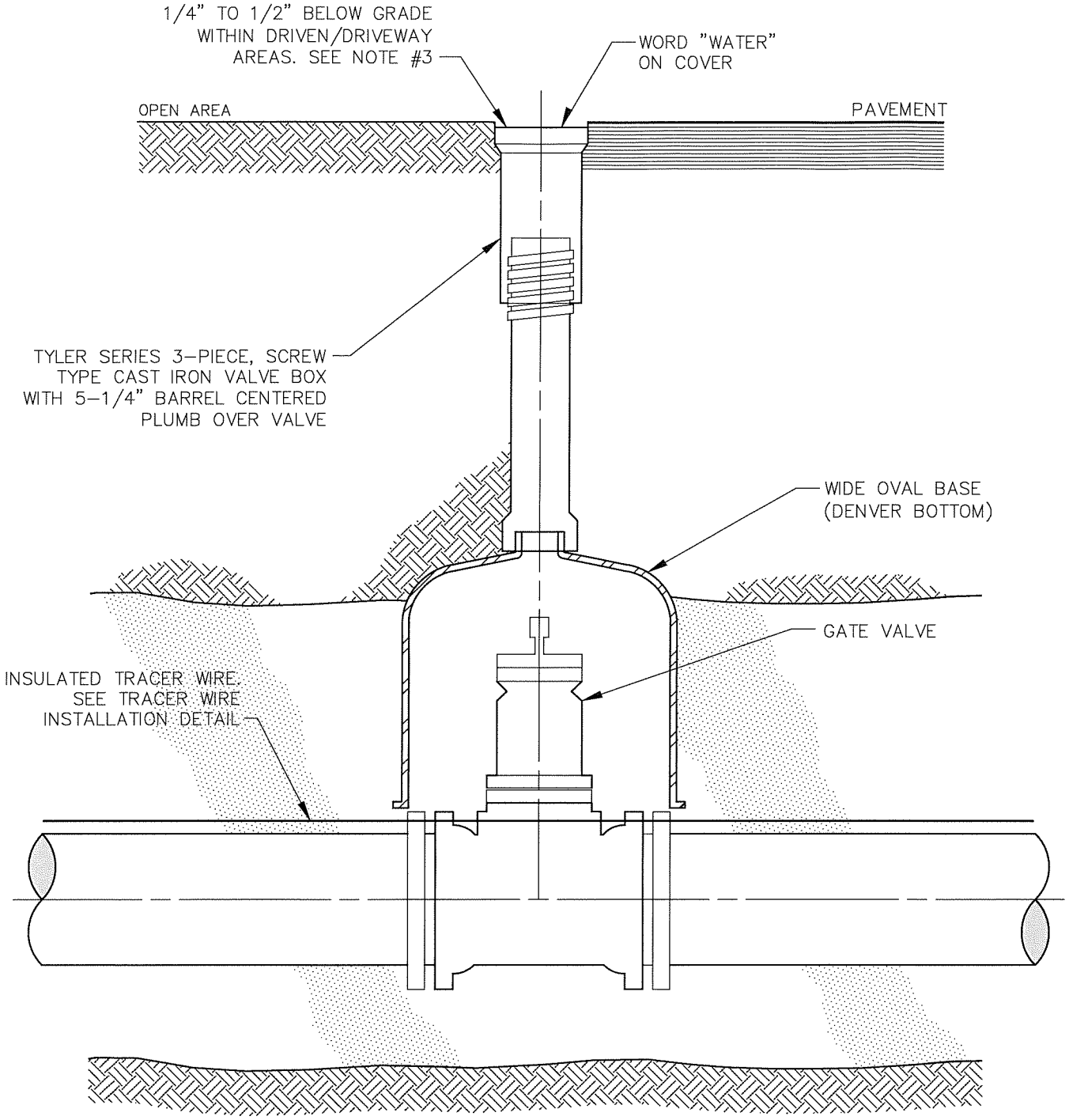


NOTES:

1. USE WATEROUS PACER WB-67, MUELLER A-403 CENTURION, OR EQUAL WITH CCW (LEFT) OPENING.
2. HYDRANT SHALL BE PAINTED RED. BLUE CAPS MUST BE PROVIDED IF STATIC PRESSURE EXCEEDS 135 psi.
3. 8 MIL POLYETHYLENE WRAP REQUIRED ON ALL BURIED METAL.
4. BOLLARDS REQUIRED ON ALL HYDRANTS (MIN. 2).
5. ALL PIPE MUST BE RESTRAINED WITH RODS AND/OR MEGALUGS AS DETERMINED BY THE TOWN OF SILVERTHORNE WATER DEPARTMENT.

TYPICAL FIRE HYDRANT ASSEMBLY

TOWN OF SILVERTHORNE	DATE: 2022		Detail W4

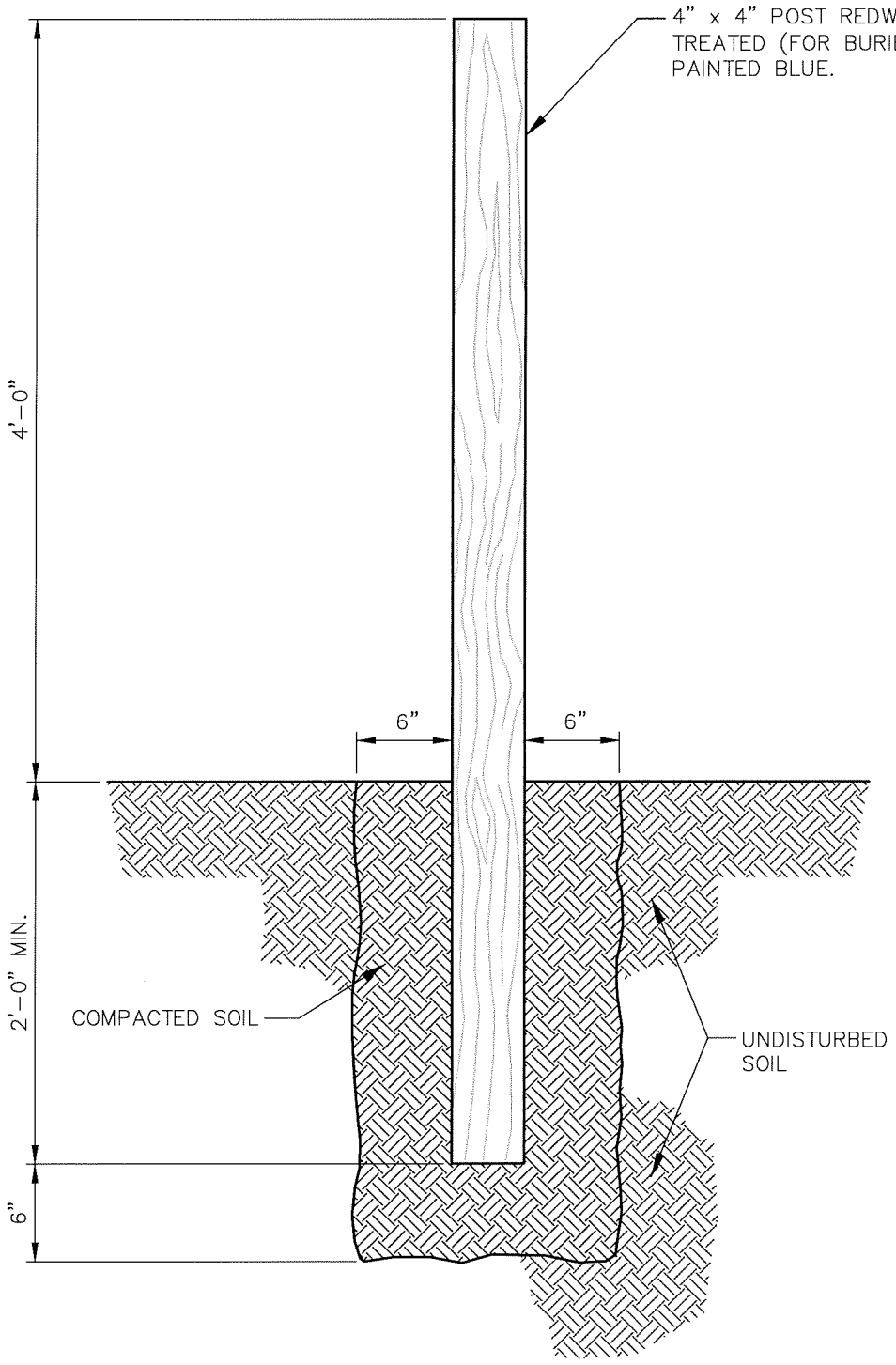


NOTES:

1. GATE VALVES SHALL OPEN CCW AND SHALL BE RESILIENT SEAT.
2. FITTINGS SHALL BE WRAPPED WITH 8 MIL MINIMUM THICKNESS POLYETHYLENE AND ALL VALVES AND FITTINGS SHALL BE EPOXY COATED.
3. VALVE BOX SHALL BE SET 1/4" TO 1/2" BELOW FINAL ASPHALT PAVEMENT GRADE IN DRIVEN AREAS. INSTALL AT GRADE IN NON-PAVED AREAS IF NOT IN R.O.W..
4. PROVIDE MARKER POSTS WHERE NECESSARY, AS DETERMINED BY SILVERTHORNE WATER DEPARTMENT OUTSIDE R.O.W. OR DRIVE.
5. SEE TYPICAL WATER TRENCH SECTION FOR PIPE INSTALLATION.
6. VALVE BOX AND ROD SHALL BE INSTALLED PLUMB AND STRAIGHT.
7. VALVE AND BOX SHALL BE MADE IN USA UNLESS OTHERWISE APPROVED BY THE TOWN OF SILVERTHORNE WATER DEPARTMENT.
8. ALL BURIED METAL TO BE WRAPPED.

VALVE AND VALVE BOX DETAIL

TOWN OF SILVERTHORNE	DATE: 2022		Detail W5

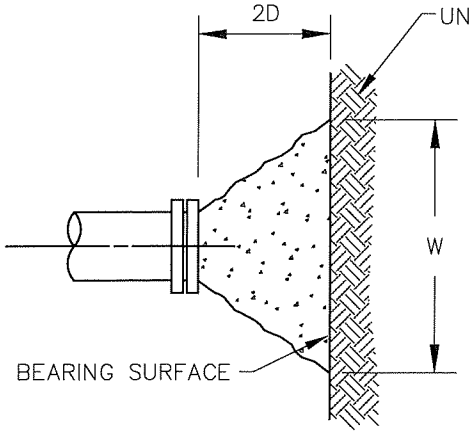


NOTE:

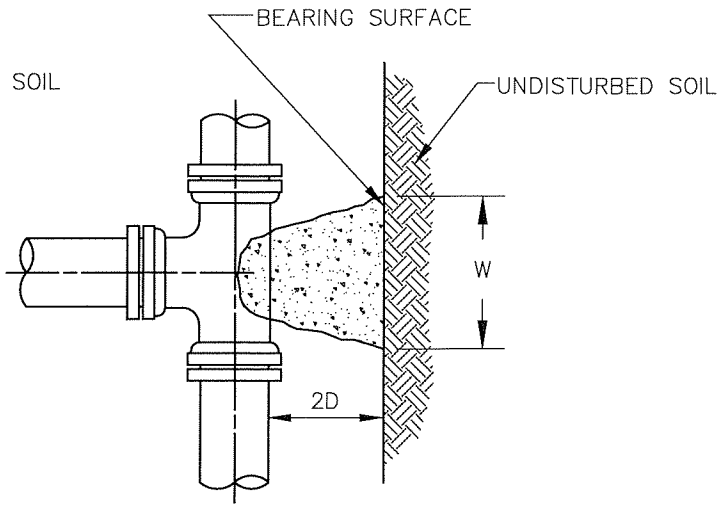
1. PROVIDE IF MAINLINE OR SERVICE VALVE NOT IN TRAVELED WAY.

VALVE MARKER POST

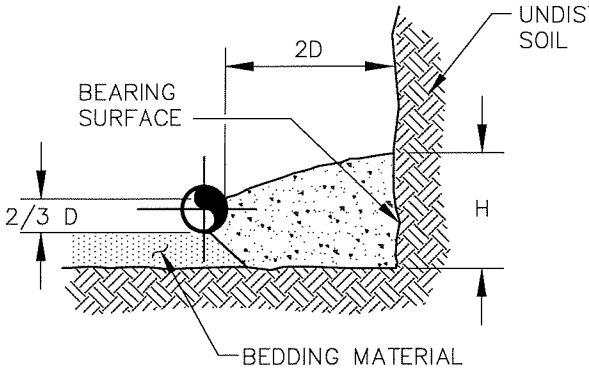
TOWN OF SILVERTHORNE	DATE: 2022		Detail W6



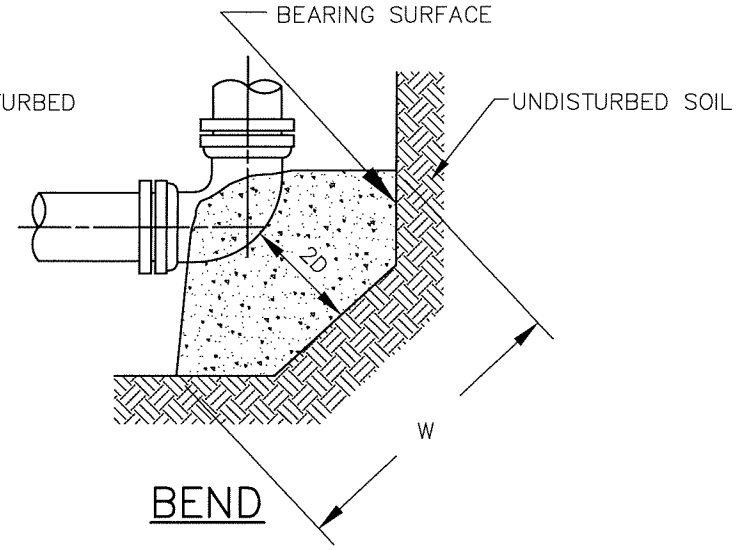
CAP (OR PLUG)



TEE



SECTION



BEND

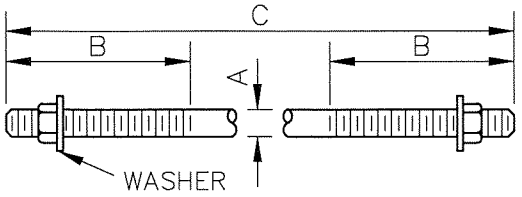
MINIMUM THRUST AREA AGAINST UNDISTURBED SOIL REQUIRED – SQUARE FEET					
SIZE	11–1/4° BEND	22–1/2° BEND	45° BEND	90° BEND	TEE (BRANCH SIZE OR CAP)
4"	0.5	1.0	1.5	2.5	2.0
6"	1.0	1.5	3.0	5.5	4.0
8"	1.5	2.5	5.0	9.0	6.5
12"	3.0	5.5	10.5	19.5	14.0
16"	5.0	9.5	18.5	34.0	24.0

NOTES:

1. D = PIPE DIAMETER
2. AREA AGAINST UNDISTURBED SOIL = H x W
3. DO NOT COVER FITTING BOLTS WITH CONCRETE.
4. PLACE MIXED CONCRETE AGAINST UNDISTURBED SOIL. USE FORMS.
5. ALL FITTINGS ARE TO BE WRAPPED IN 8 MIL POLYETHYLENE SHEETING.
6. USE BOND BREAKER BETWEEN THRUST BLOCK AND FITTING. (TYP.)
7. PROVIDE MINIMUM 3,000 PSI CONCRETE.
8. SIZES SHOWN FOR 1,500 PSF SOIL BEARING PRESSURE AND AN INTERNAL TEST PRESSURE OF 150 PSI. DESIGN ENGINEER MUST VERIFY DESIGN FOR ACTUAL SOIL CONDITIONS AND INTERNAL PRESSURE.
9. DO NOT COVER THRUST BLOCK FOR MINIMUM OF 24 HOURS
10. ALL BURIED METAL TO BE POLYETHYLENE WRAPPED.

THRUST BLOCK

TOWN OF SILVERTHORNE	DATE: 2022		Detail W7



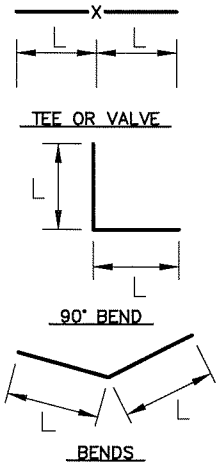
TIE ROD DETAILS

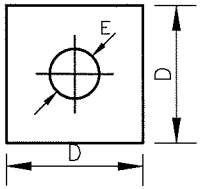
NOT TO SCALE

TIE RODS		
A	B	C
ROD DIAMETER	THREAD LENGTH	ROD LENGTH
3/4" – 1"	6"	1' – 11' & 20'
3/4" – 1-1/2"	ALL THREAD	1' – 11' & 20'

WASHERS		
D	E	G
WIDTH	HOLE DIAMETER	THICKNESS
5"	1/8" LARGER THAN ROD ø	1/2"
6"	1/8" LARGER THAN ROD ø	5/8"

RESTRAINT JOINT						
PIPE SIZE	8"			12"		
FITTING	D	L	G	D	L	G
90° BEND, TEE, PLUG OR VALVE	3/4"	60'	S.S.	3/4"	86'	S.S.
45° BEND	3/4"	18'	S.S.	3/4"	25'	S.S.
22-1/2° BEND	3/4"	5'	S.S.	3/4"	7'	S.S.
11-1/4° BEND	3/4"	1.0'	S.S.	3/4"	2'	S.S.

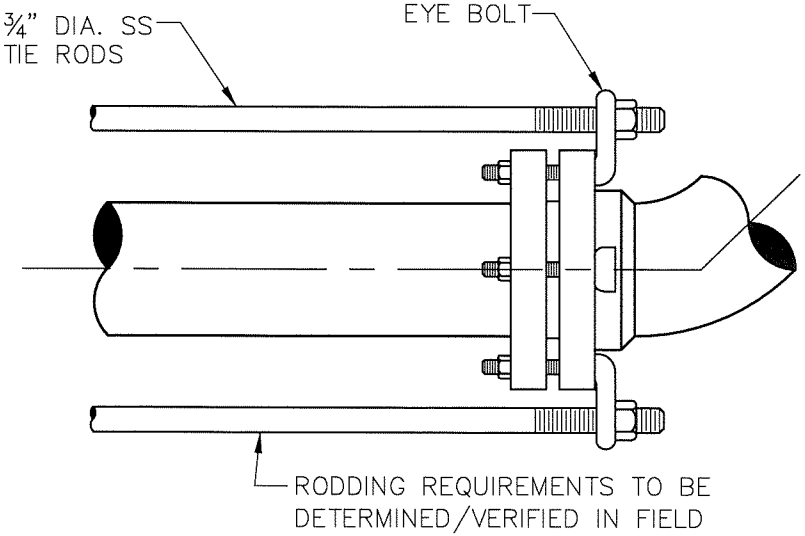




1. SEE TIED JOINTS ROD DIMENSIONS THIS SHEET.
2. SEE CLAMP DETAILS AND DIMENSION (SHEET 24, DENVER WATER DEPARTMENT STANDARDS) FOR PROPER PLACEMENT OF WASHERS.
3. RODS, NUTS, COUPLING NUTS & WASHERS ARE 304 OR 316 STAINLESS STEEL.

WASHER DETAIL

NOT TO SCALE



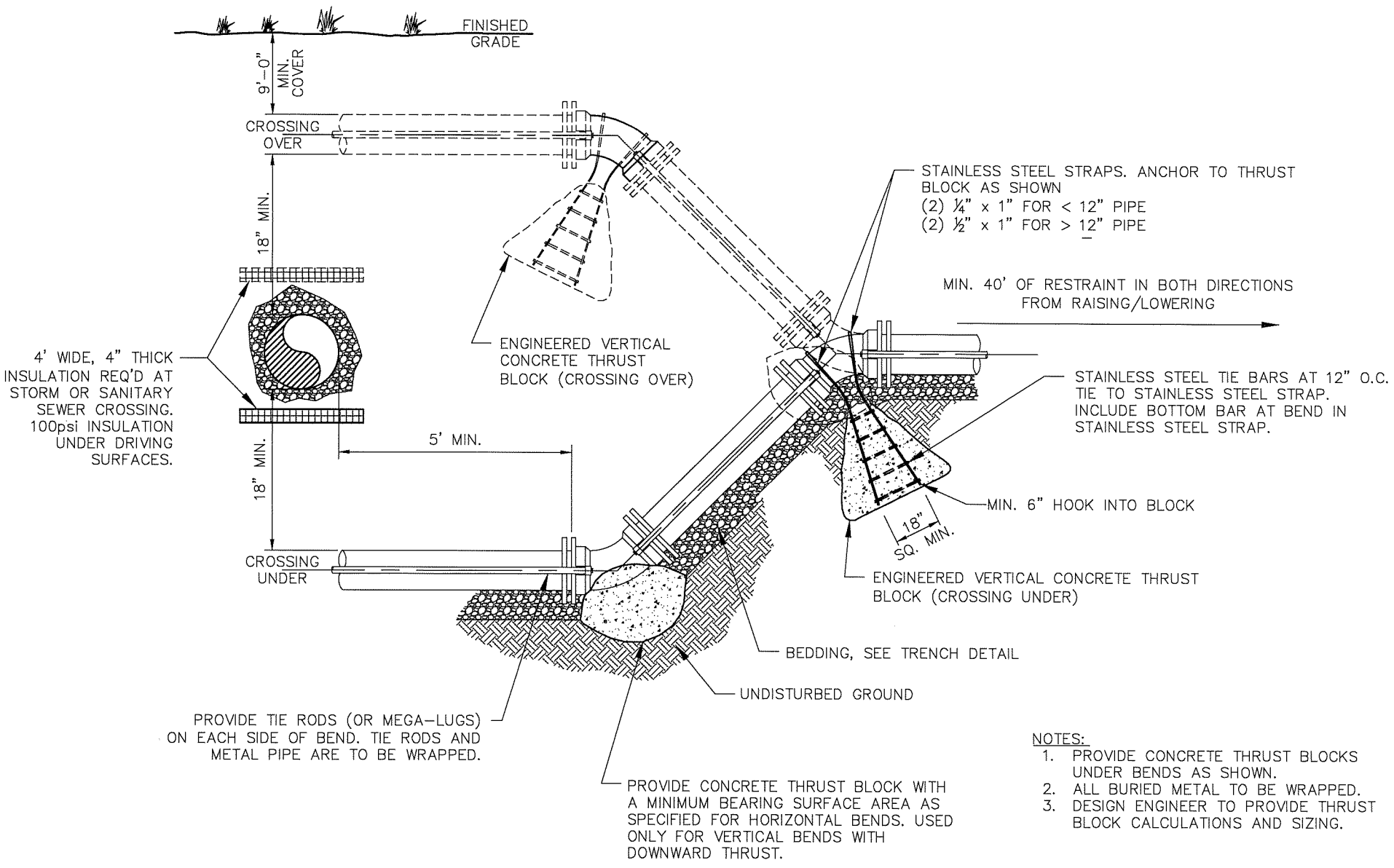
TYPICAL RESTRAINED JOINT

NOT TO SCALE

1. LENGTH OF TIED PIPE MEASURED EACH WAY FROM VALVES AND BENDS.
2. D=DIAMETER, L=LENGTH, G=GRADE, S.S.=STAINLESS STEEL
3. BASED ON 150 PSI INTERNAL PRESSURE, FOR L AND PRESSURES LISTED SEE TIE ROD & WASHER DETAIL.
4. S.S. MEANS STAINLESS STEEL ROD A.S.T.M. STANDARD DESIGNATION A304 MIN.
5. NUTS SHALL BE A.S.T.M. STANDARD DESIGNATION A-304 GRADE A OR B HEXAGON HEAVY SERIES.
6. SEE TIE ROD DETAIL DRAWING ALSO TIE ROD COUPLING DETAILS, CLAMP DETAILS AND SET CLAMP DETAILS.
7. LENGTH REFERS TO THE AMOUNT OF PIPE WHICH MUST BE TIED TOGETHER AND IS NOT NECESSARILY THE LENGTH OF THE RODS.
8. LENGTH OF TIED PIPE CHART IS ALSO FOR THE LENGTH OF JOINT RESTRAINT FOR MEGALUGS.
9. CROSSES MUST BE RESTRAINED IN ALL DIRECTIONS.
10. 12" AND SMALLER IN LINE VALVES AND TEES SHALL HAVE A MECHANICAL JOINT RESTRAINT DEVICE ON EACH SIDE OF THE FITTING OR VALVE WHERE SPECIFICALLY REQUESTED BY THE TOWN OF SILVERTHORNE OR DESIGN ENGINEER, MECHANICAL JOINT RESTRAINT DEVICE SHALL BE MEGALUG 1100 SERIES MANUFACTURED BY EBBA IRON, INC
11. ALL FITTINGS MUST BE RESTRAINED WITH TWO (2) OF THE FOLLOWING METHODS: MEGALUGS (OR EQUAL), TIE RODS, THRUST BLOCKS.
12. A SECOND VALVE WILL BE REQUIRED TO BE CLOSED WHEN EXCAVATING NEXT TO A EXISTING VALVE.
13. TR FLEX OR EQUAL ACCEPTABLE ALSO.
14. ~~ALL BURIED METAL TO BE WRAPPED.~~

TIE ROD AND WASHER DETAIL WITH LENGTH OF RESTRAINED PIPE

TOWN OF SILVERTHORNE | DATE: 2022 | | Detail W8

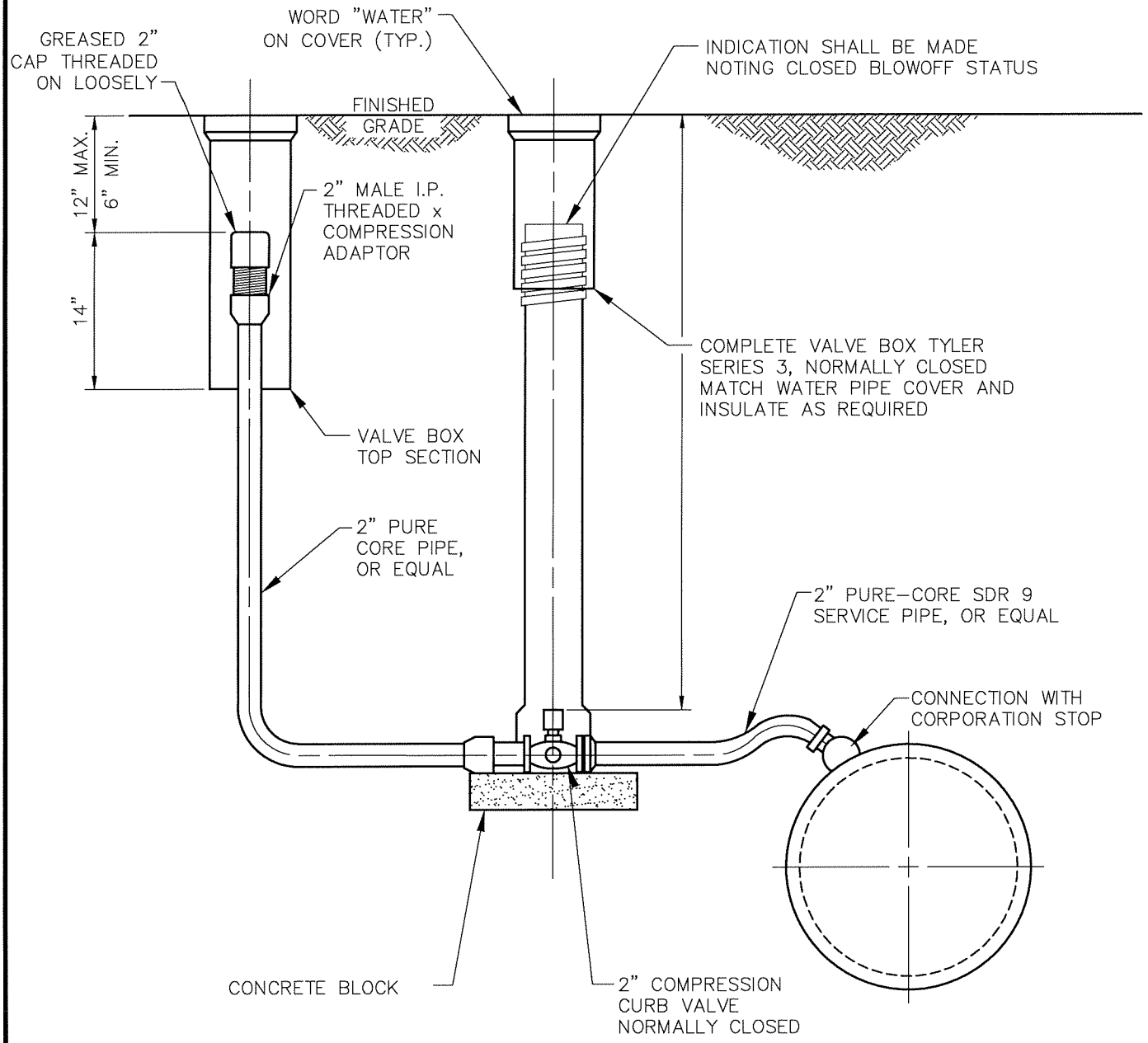


NOTES:

1. PROVIDE CONCRETE THRUST BLOCKS UNDER BENDS AS SHOWN.
2. ALL BURIED METAL TO BE WRAPPED.
3. DESIGN ENGINEER TO PROVIDE THRUST BLOCK CALCULATIONS AND SIZING.

RESTRAINED JOINTS AND THRUST BLOCKS AT VERTICAL BENDS

TOWN OF SILVERTHORNE	DATE: 2022		Detail W9

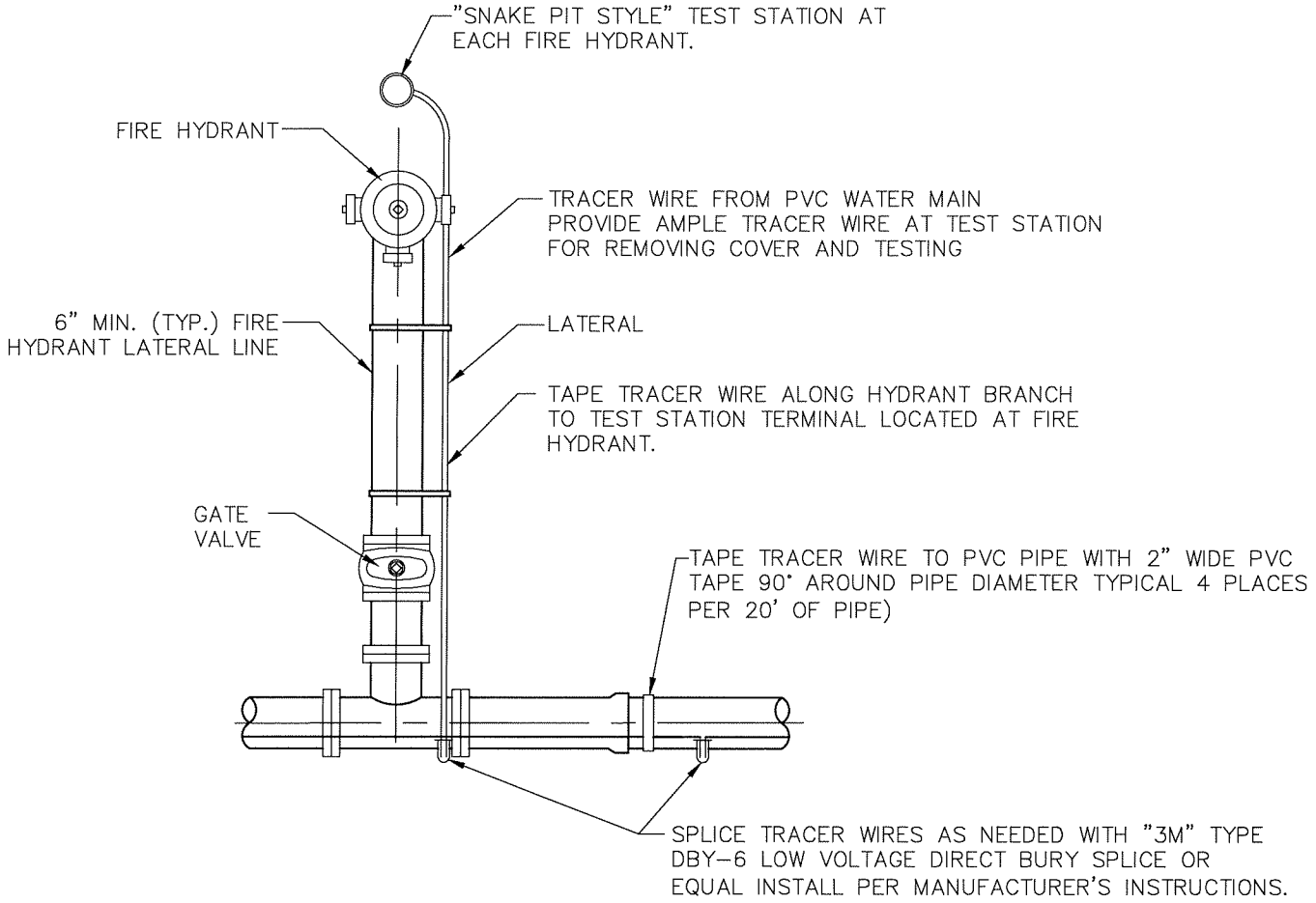


SECTION

NOTES:
1. ALL BURIED METAL TO BE WRAPPED PER SPEC.

BLOW-OFF INSTALLATION 12" AND SMALLER PIPE

TOWN OF SILVERTHORNE	DATE: 2022		Detail W10



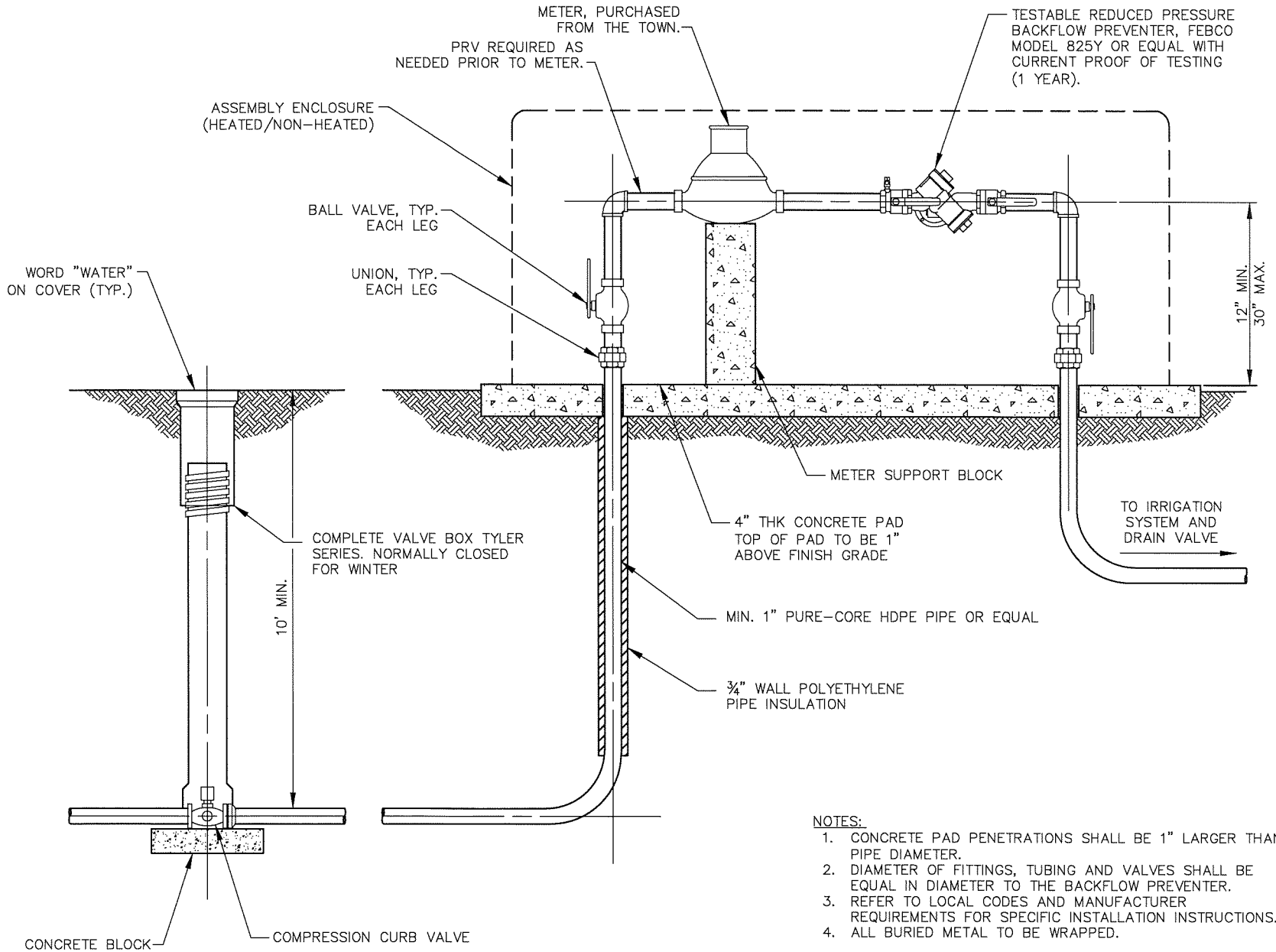
PLAN

NOTE:

1. ALL BURIED METAL TO BE POLYETHELYNE WRAPPED.

TRACER WIRE INSTALLATION

TOWN OF SILVERTHORNE	DATE: 2022		Detail W11

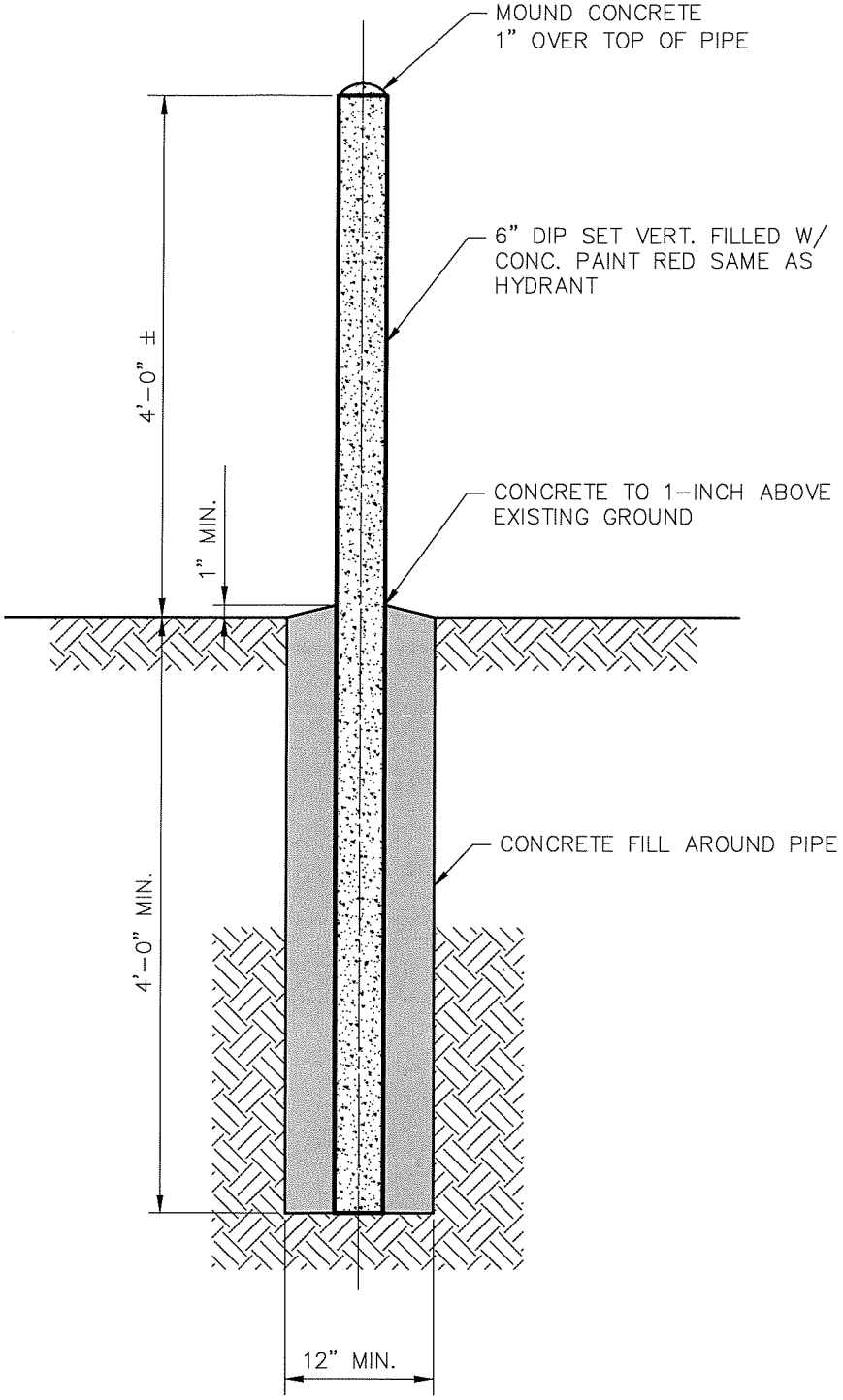


NOTES:

1. CONCRETE PAD PENETRATIONS SHALL BE 1" LARGER THAN PIPE DIAMETER.
2. DIAMETER OF FITTINGS, TUBING AND VALVES SHALL BE EQUAL IN DIAMETER TO THE BACKFLOW PREVENTER.
3. REFER TO LOCAL CODES AND MANUFACTURER REQUIREMENTS FOR SPECIFIC INSTALLATION INSTRUCTIONS.
4. ALL BURIED METAL TO BE WRAPPED.

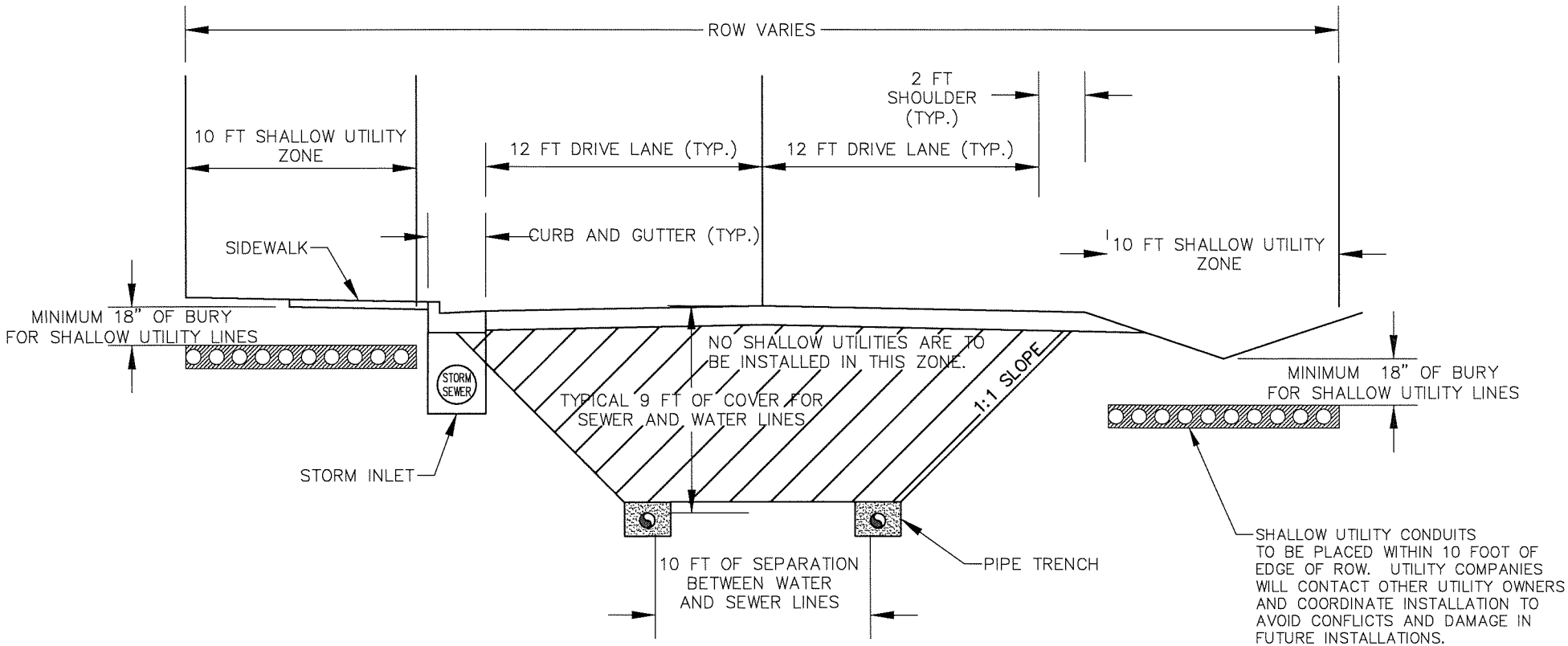
OUTSIDE SETTING FOR IRRIGATION SERVICE

TOWN OF SILVERTHORNE	DATE: 2022		Detail W12



BOLLARD

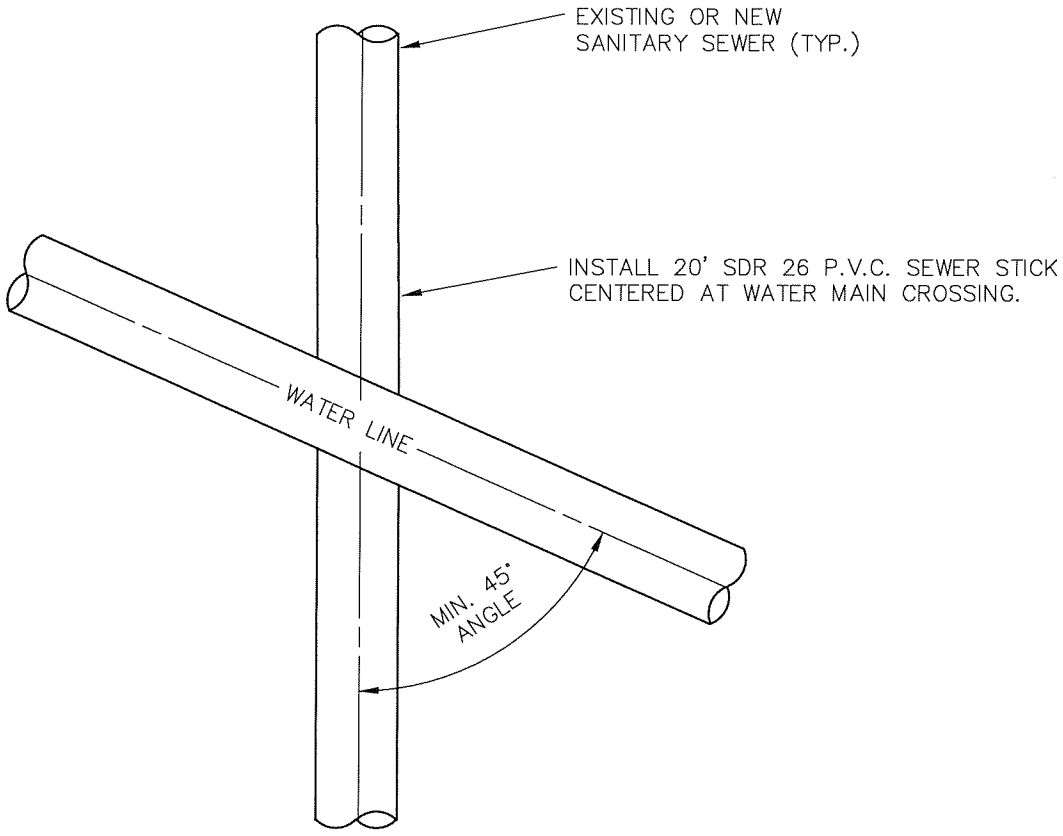
TOWN OF SILVERTHORNE	DATE: 2022		Detail W13



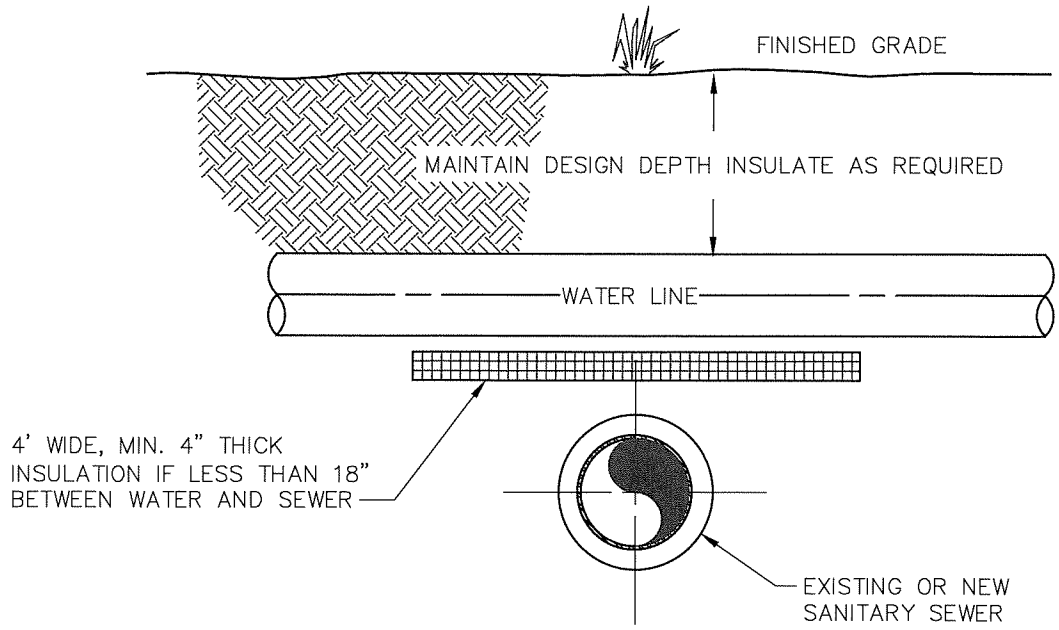
TOWN OF SILVERTHORNE
TYPICAL RIGHT OF WAY UTILITY PLACEMENT
(NOT TO SCALE)

TYPICAL RIGHT OF WAY UTILITY PLACEMENT

TOWN OF SILVERTHORNE	DATE: 2022		Detail W14



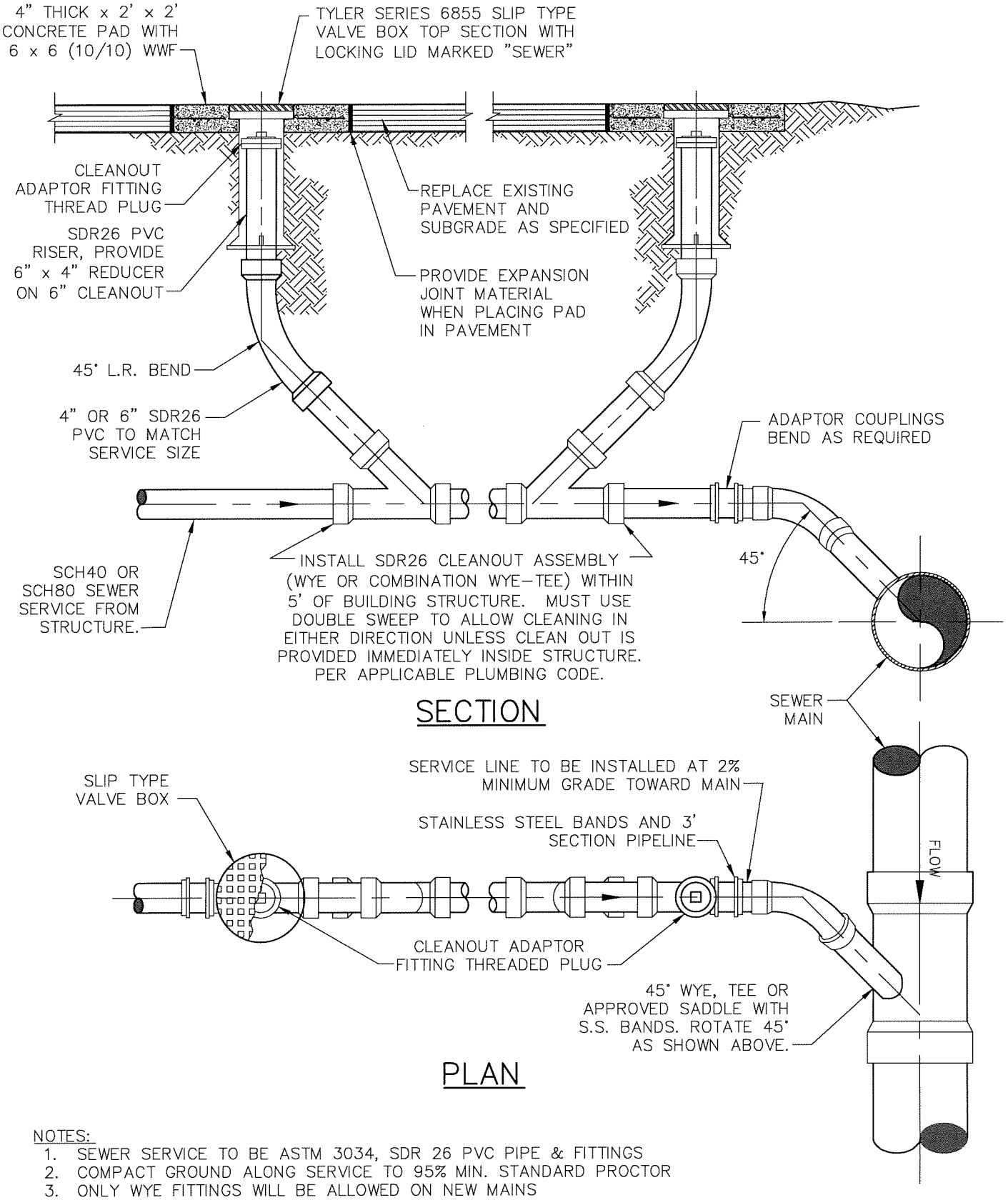
PLAN



SECTION

SEWER/WATER CROSSING

TOWN OF SILVERTHORNE	DATE: 2022		Detail W15

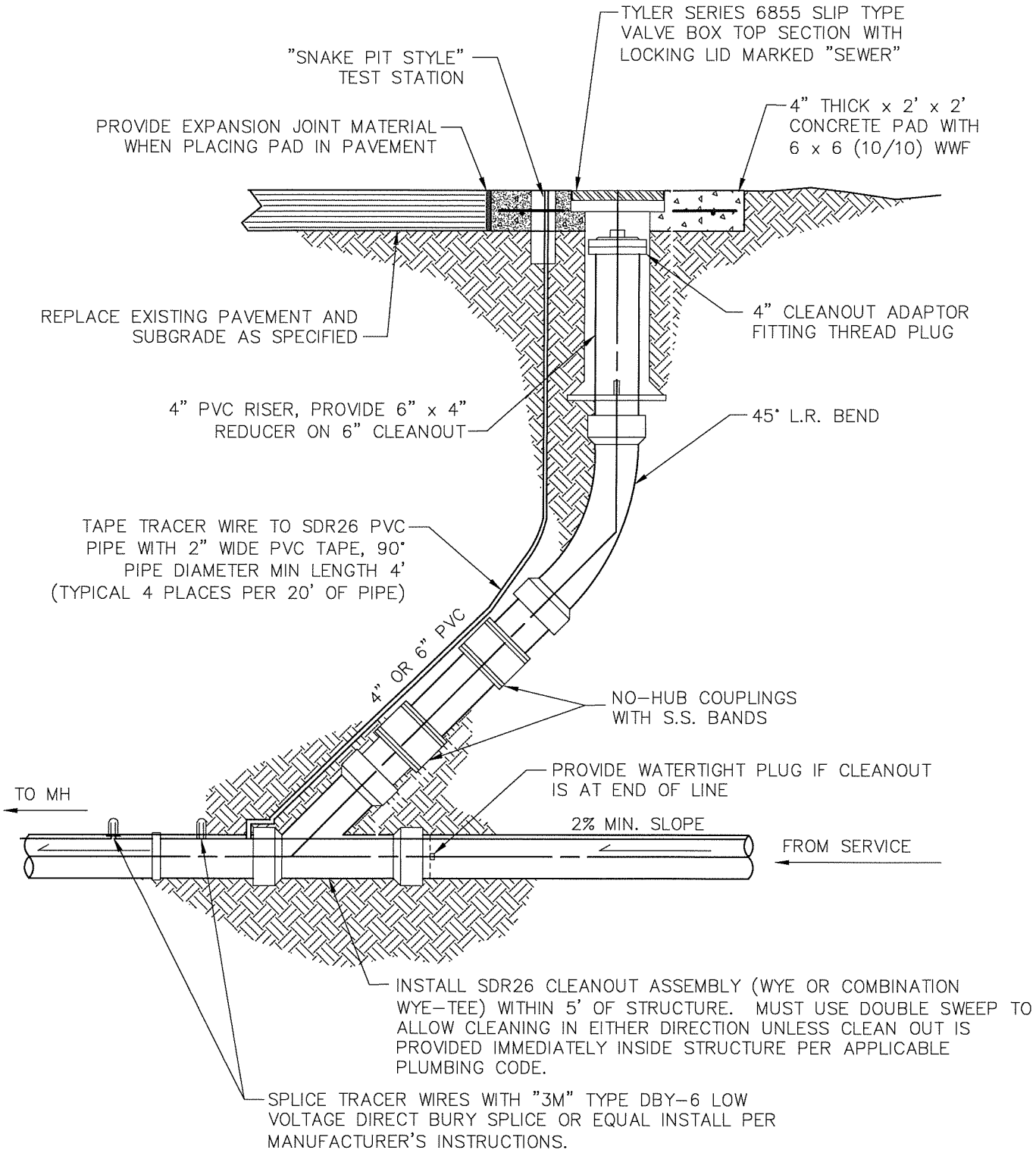


NOTES:

1. SEWER SERVICE TO BE ASTM 3034, SDR 26 PVC PIPE & FITTINGS
2. COMPACT GROUND ALONG SERVICE TO 95% MIN. STANDARD PROCTOR
3. ONLY WYE FITTINGS WILL BE ALLOWED ON NEW MAINS
4. ALL SERVICE LINES SHALL BE INSPECTED BY THE TOWN OF SILVERTHORNE DURING INSTALLATION AND MUST BE APPROVED BY THE TOWN OF SILVERTHORNE BEFORE BACKFILLED.

SEWER SERVICE LINE CONNECTION

TOWN OF SILVERTHORNE	DATE: 2022		Detail S1

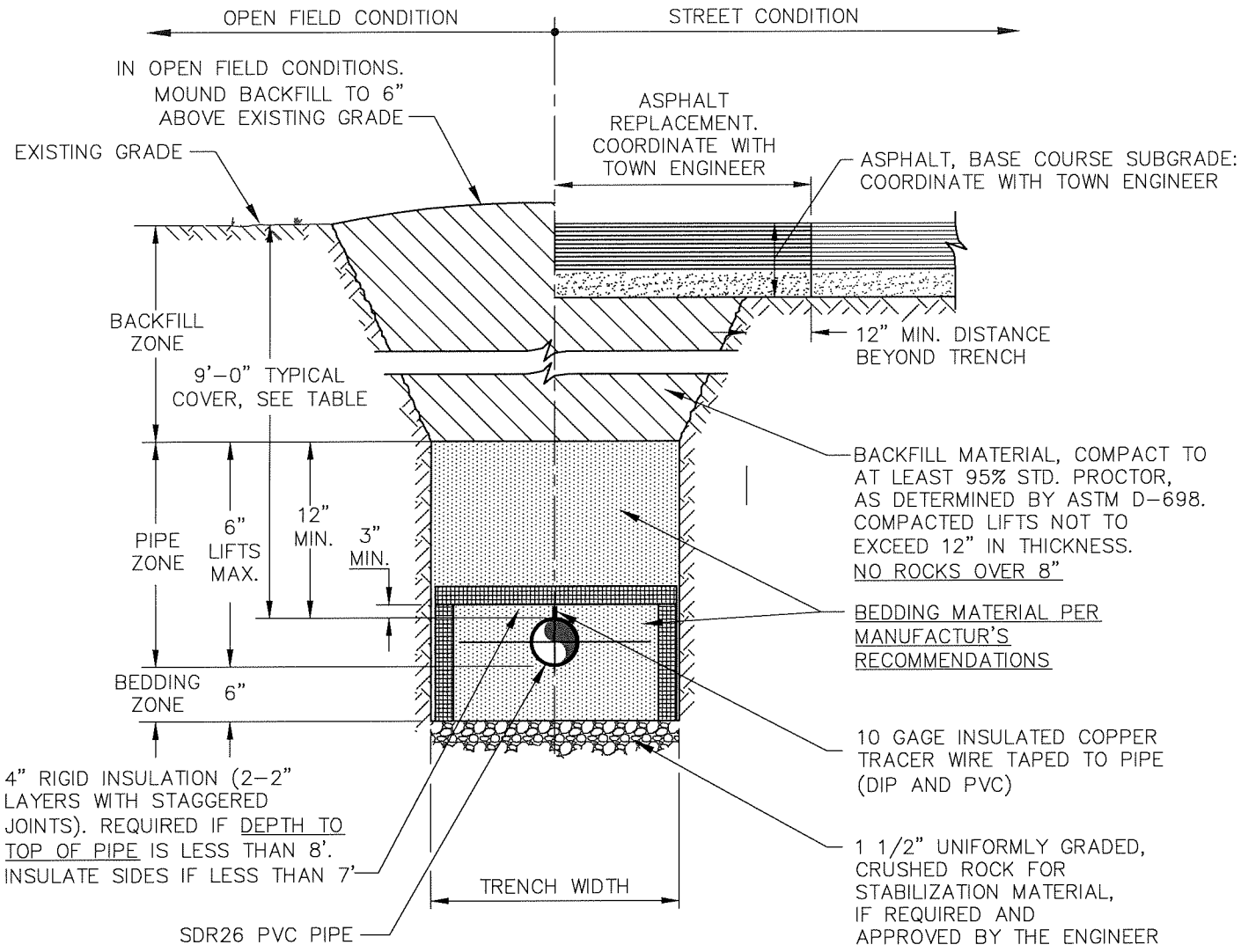


NOTES:

1. CLEANOUT FITTINGS AND PIPING TO BE SDR26 AND SAME SIZE AS SEWER SERVICE.
2. CLEANOUT REQUIRED WITHIN 5' OF BUILDING/STRUCTURE.
3. CLEANOUT REQUIRED AT EVERY 100' SPACING IN SERVICE LINE BEFORE MAIN.

SANITARY SEWER SERVICE IN-LINE CLEANOUT

TOWN OF SILVERTHORNE	DATE: 2022		Detail S2



SEWER MAIN

TRENCH WIDTH SHALL CONFIRM TO THE FOLLOWING:

PIPE I.D.	MIN. WD.	MAX. WD.
4" & SMALLER	1'-4"	2'-4"
6"	1'-6"	2'-6"
8"	1'-8"	2'-8"
12"	2'-0"	3'-0"
16"	2'-4"	3'-4"
20"	2'-8"	3'-8"
24"	3'-0"	4'-0"

INSULATION REQUIRMENTS:

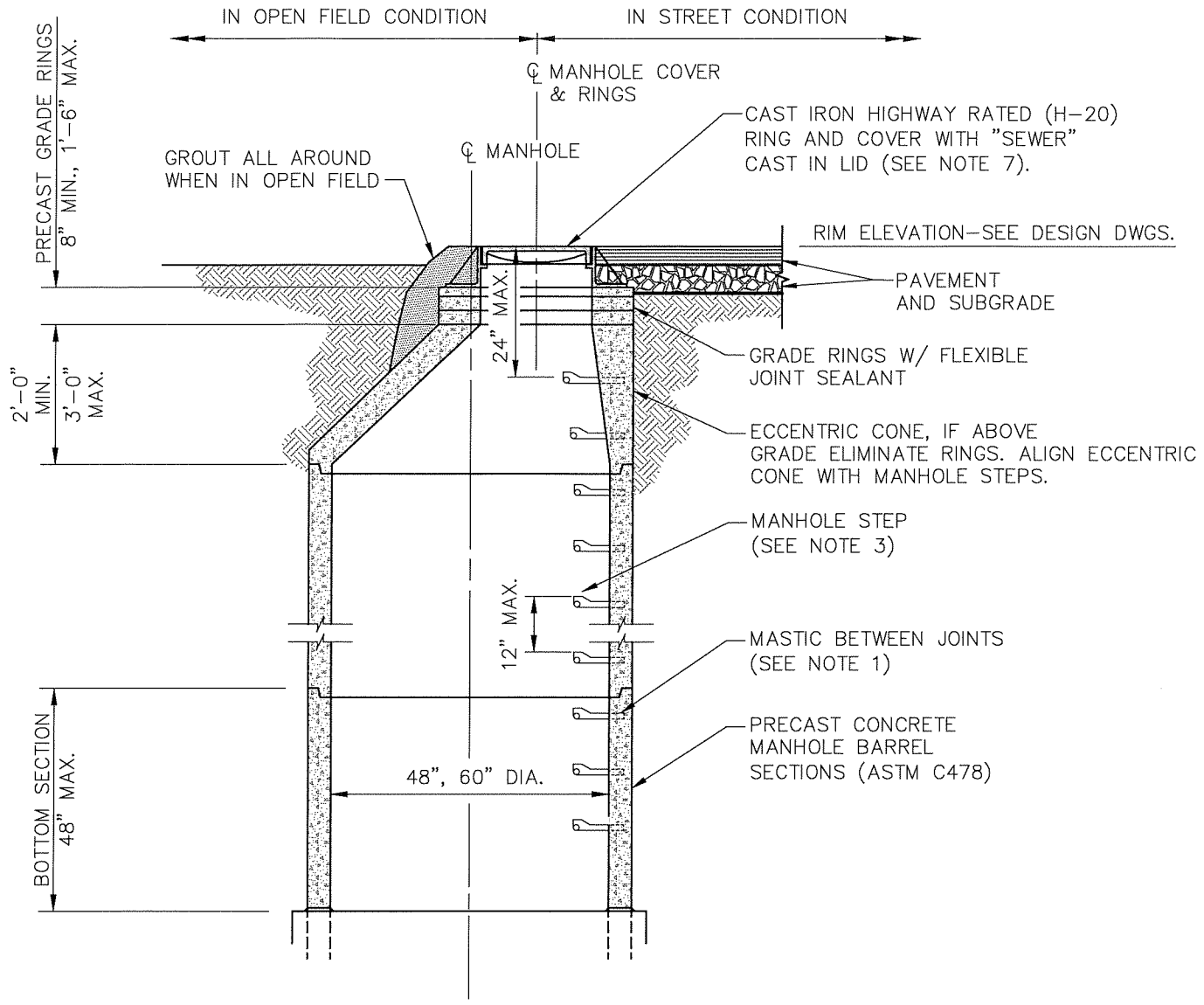
PIPE COVER	REQUIRED
>8'-0"	NO INSULATION
>7'-0" TO 8'-0"	TOP INSULATION
5'-0" TO 7'-0"	TOP AND SIDES
<5'-0" COVER	NOT PERMITED

NOTE:

1. INSULATION SHALL BE HIGHLOAD EXTRUDED POLYSTYRENE INSULATION BY DOW CHEMICAL OR EQUAL. TYPE HI-100, AT PIPE CROSSINGS, UNDER FOUNDATIONS AND UNDER EXISTING OR FUTURE ROADS PLOWED AND/OR DRIVEN SURFACES. TYPE HI-60 IN UNPLOWED/UNDRIVEN FIELDS OR OPEN AREAS.
2. BEDDING MATERIAL SHALL BE INSTALLED TO NOT PROVIDE HYDRAULIC PERMEABILITY IN EXCESS OF THE NATURAL SOILS. DESIGNING THE PREVENTION OF THE TRANSPORT OF WATER WITHIN THE TRENCH IS THE RESPONSIBILITY OF THE DESIGN ENGINEER.

TYPICAL SANITARY SEWER MAIN TRENCH SECTION

TOWN OF SILVERTHORNE	DATE: 2022		Detail S3



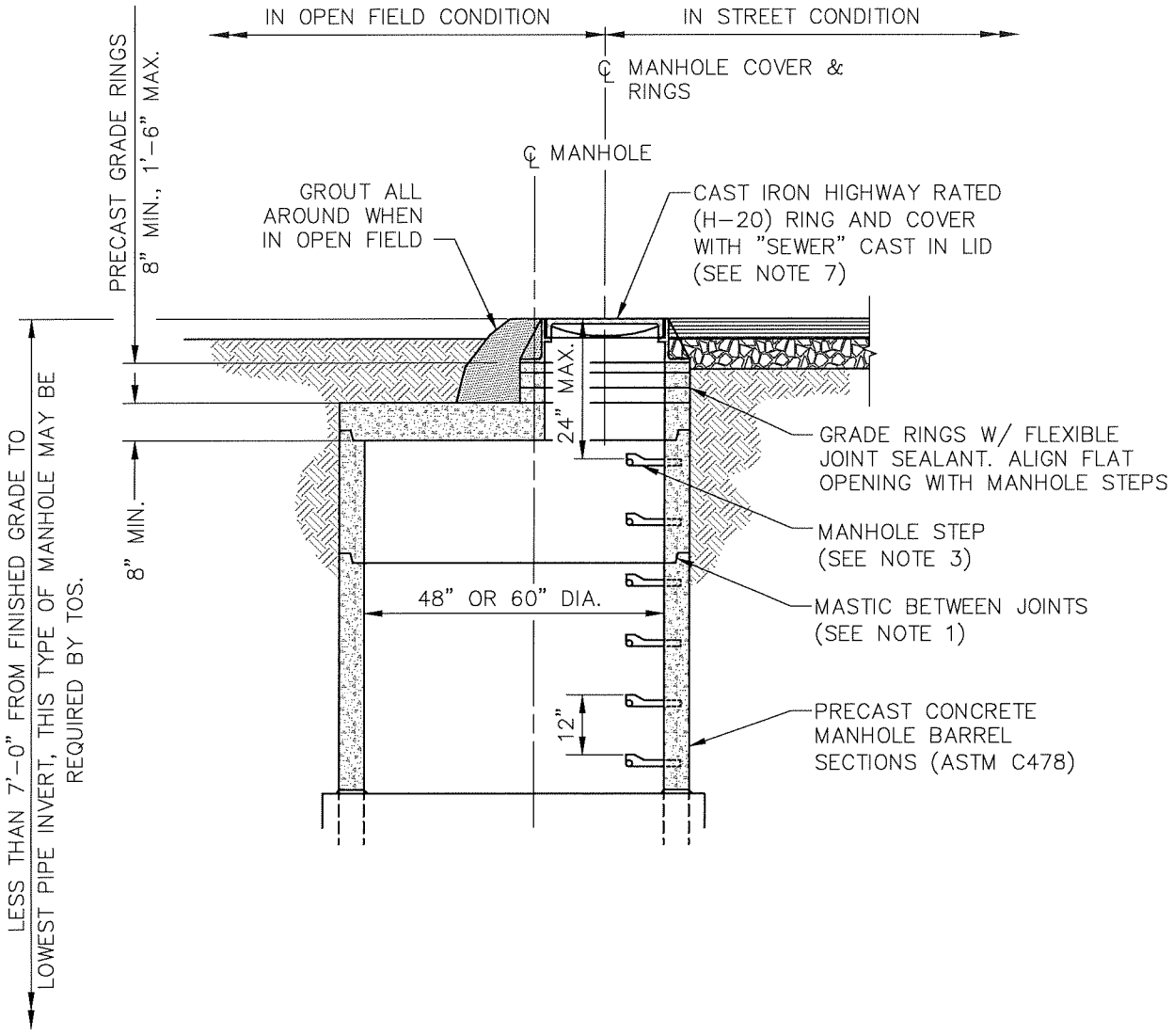
MANHOLE SECTION WITH ECCENTRIC CONE

NOTES:

1. ALL JOINTS TO BE DOUBLE BAND RUB-R-NEK OR APPROVED EQUAL. ANY MATERIAL EXTRUDED INTO MANHOLE MUST BE TRIMMED OFF AT FACE OF CONCRETE BELOW WATER TABLE DEFINE DISTANCE (AT END OF WARRANTY).
2. ALL MANHOLES PLACED IN "OPEN SPACE" OR FIELDS SHALL BE INSTALLED WITH A RING AND COVER THAT IS 6" ABOVE FINAL GRADE WITH A COLLAR OF CONCRETE. A MARKER POST SHALL BE INSTALLED NEAR BY. SEE MARKER POST DETAIL.
3. STEPS INSTALLED OVER DOWNSTREAM INVERT OF MANHOLE AND SHALL BE COPOLYMER COATED PLASTIC 1/2" GRADE 60 STEEL REINFORCED, SIMILAR TO PS2-PF MANUFACTURED BY MA INDUSTRIES.
4. SEE EITHER CAST IN PLACE OR PRECAST MANHOLE BASE DETAIL.
5. WRAP ALL BARREL SECTIONS AND CONE WITH BITUTHANE WRAP - 6" OVERLAP IS REQUIRED.
6. AVOID 12" HIGH BARREL SECTIONS IF POSSIBLE.
7. 60" OR LARGER DIAMETER MANHOLES REQUIRE A 30" OPENING.

STANDARD MANHOLE RISER AND COVER

TOWN OF SILVERTHORNE	DATE: 2022		Detail S4



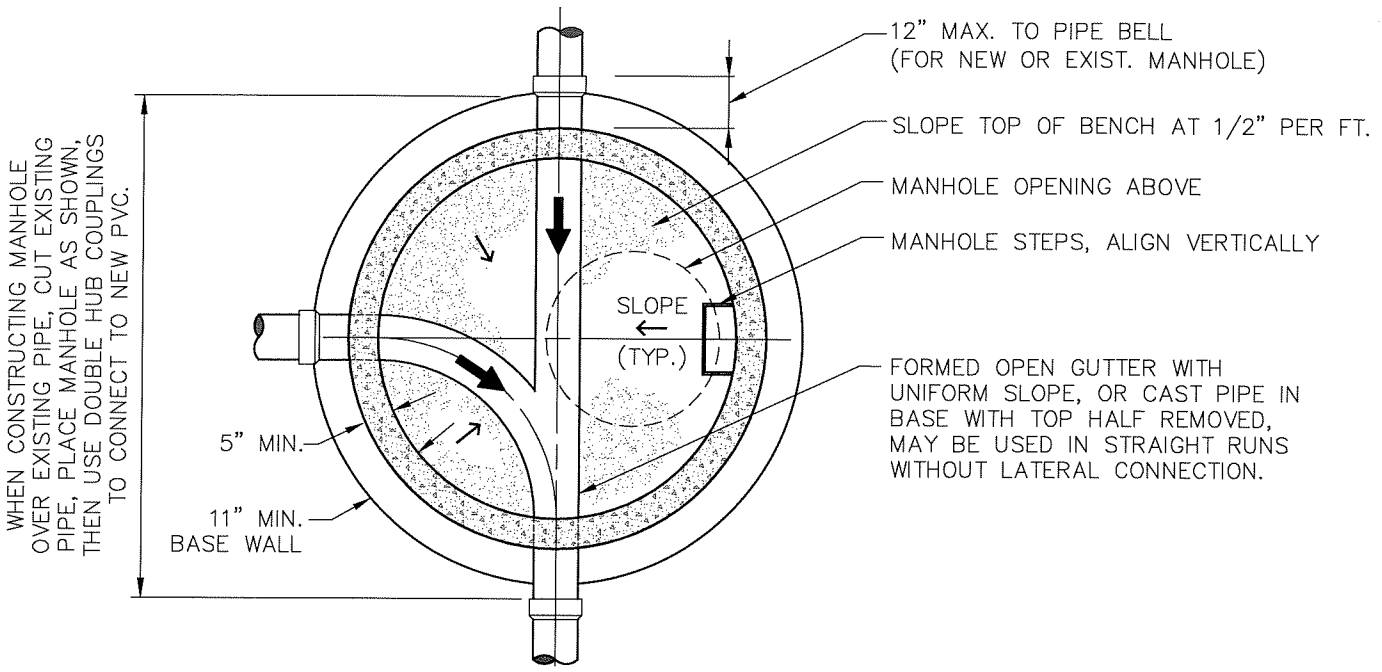
MANHOLE SECTION WITH FLAT TOP

NOTES:

1. ALL JOINTS TO BE DOUBLE BAND RUB-R-NEK OR APPROVED EQUAL. ANY MATERIAL EXTRUDED INTO MANHOLE MUST BE TRIMMED OFF AT FACE OF CONCRETE BELOW WATER TABLE.
2. ALL MANHOLES PLACED IN "OPEN SPACE" OR FIELDS SHALL BE INSTALLED WITH A RING AND COVER THAT IS 6" ABOVE FINAL GRADE WITH A COLLAR OF CONCRETE. A MARKER POST SHALL BE INSTALLED NEAR BY. SEE MARKER POST DETAIL.
3. STEPS INSTALLED OVER DOWNSTREAM INVERT OF MANHOLE AND SHALL BE COPOLYMER COATED PLASTIC 1/2" GRADE 60 STEEL REINFORCED, SIMILAR TO PS2-PF MANUFACTURED BY MA INDUSTRIES.
4. SEE EITHER CAST IN PLACE OR PRECAST MANHOLE BASE DETAIL.
5. WRAP ALL BARREL SECTIONS AND CONE WITH BITUTHANE WRAP – 6" OVERLAP IS REQUIRED.
6. AVOID 12" HIGH BARREL SECTIONS IF POSSIBLE.
7. 60" OR LARGER DIAMETER MANHOLES REQUIRE A 30" OPENING.

SHALLOW MANHOLE RISER AND COVER

TOWN OF SILVERTHORNE	DATE: 2022		Detail S5

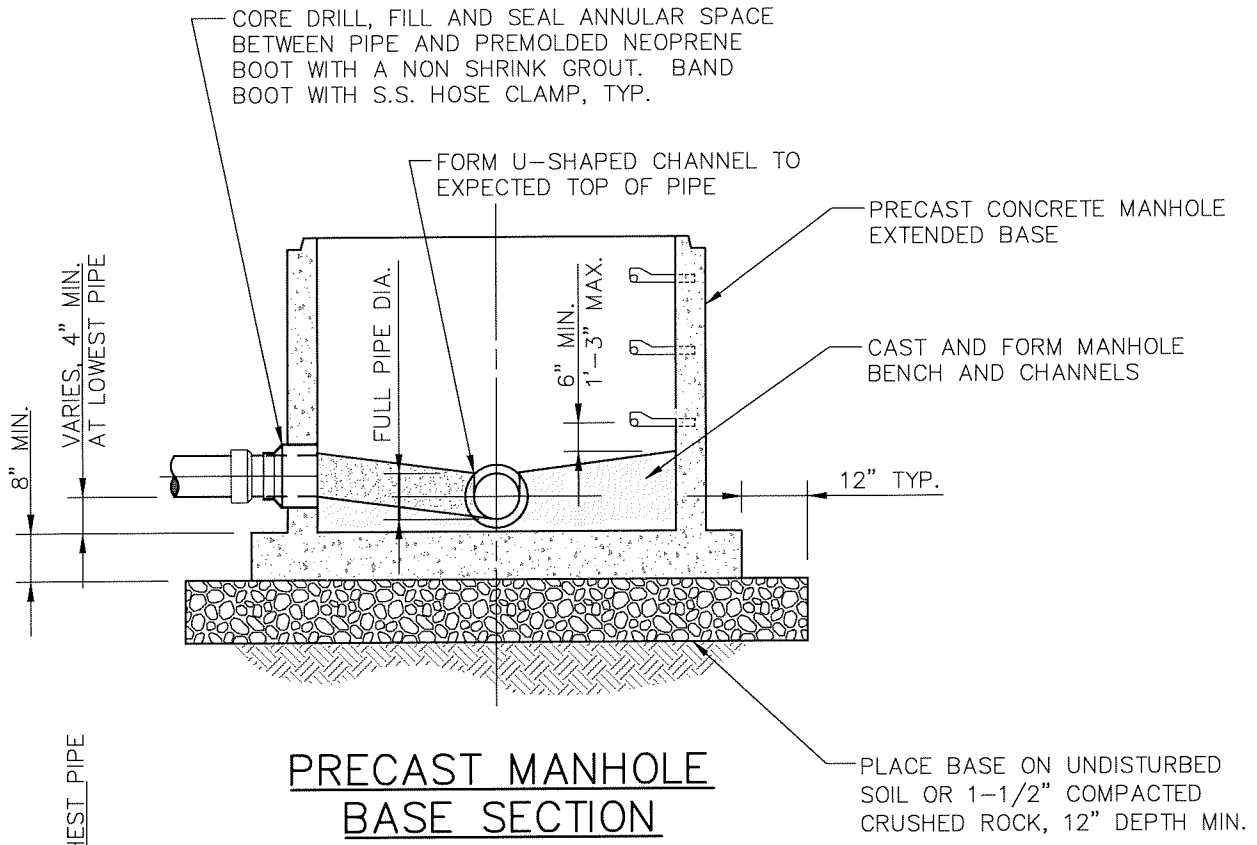


MANHOLE BASE
PLAN VIEW

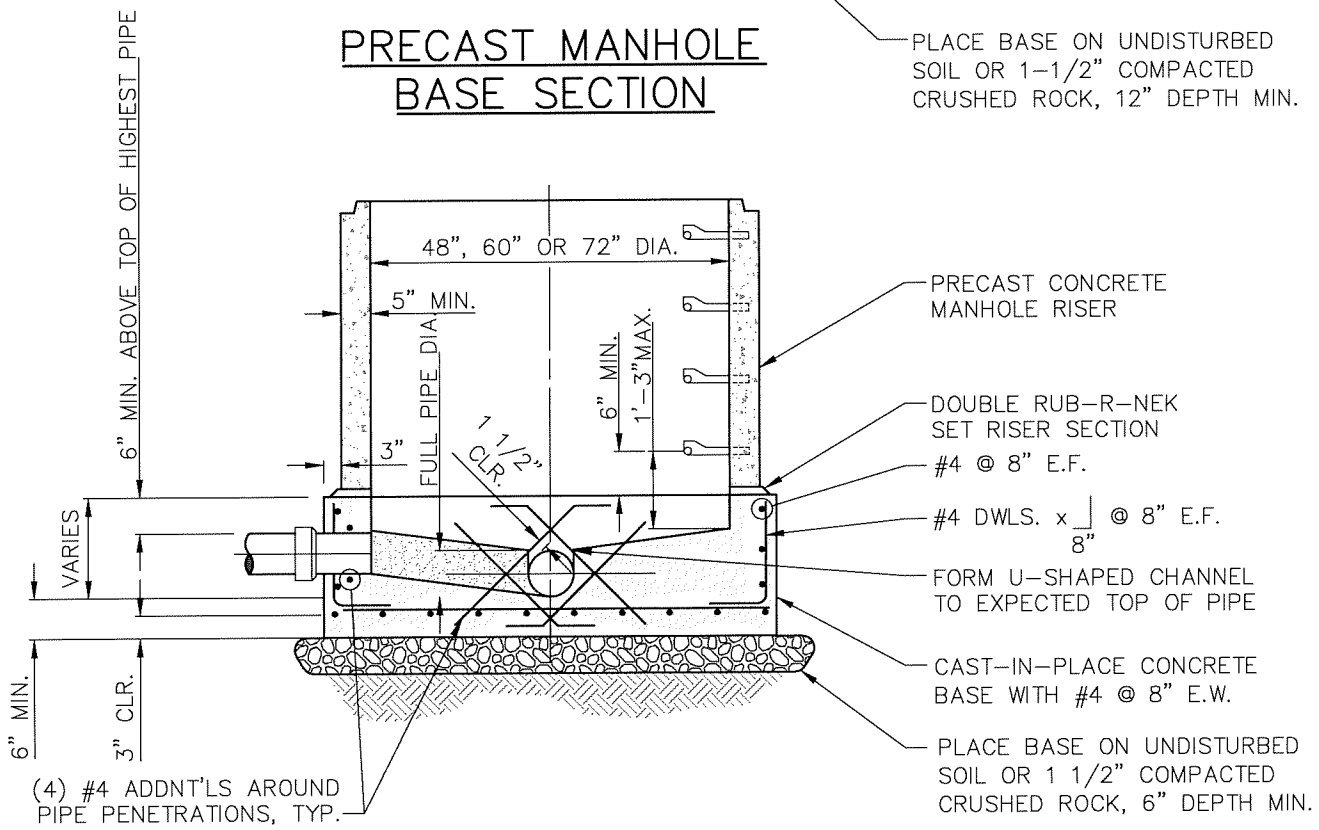
NOTES:
1. CONCRETE BASE AND/OR INTERIOR CONCRETE FILL SHALL BE MINIMUM 3,000 PSI CONCRETE.
2. SEE CAST-IN-PLACE OR PRECAST MANHOLE BASE FOR SECTION.

MANHOLE BASE INTERIOR

TOWN OF SILVERTHORNE	DATE: 2022		Detail S6



PRECAST MANHOLE BASE SECTION



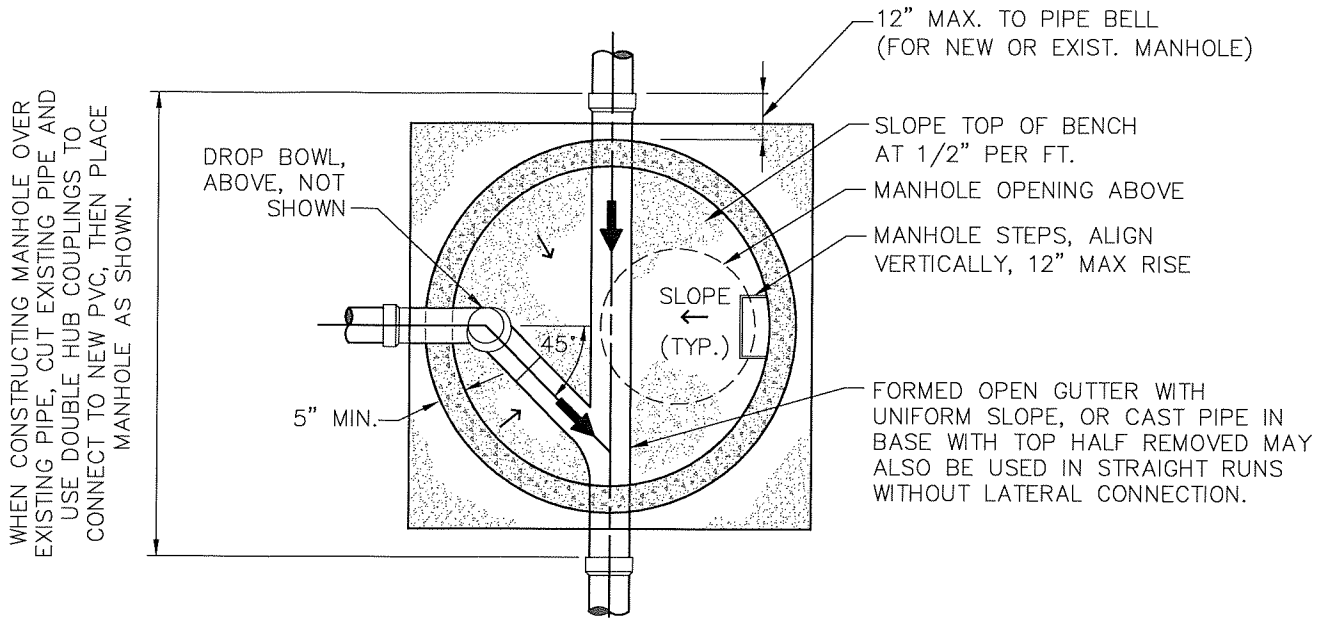
CAST-IN-PLACE MANHOLE BASE SECTION

NOTES:

1. PRECAST CONCRETE SHALL MEET OR EXCEED STRENGTH OF 3,000 PSI.
2. APPLY BONDING AGENT TO PRECAST BASE SECTION BEFORE PLACING CONCRETE FILL AND INVERTS.

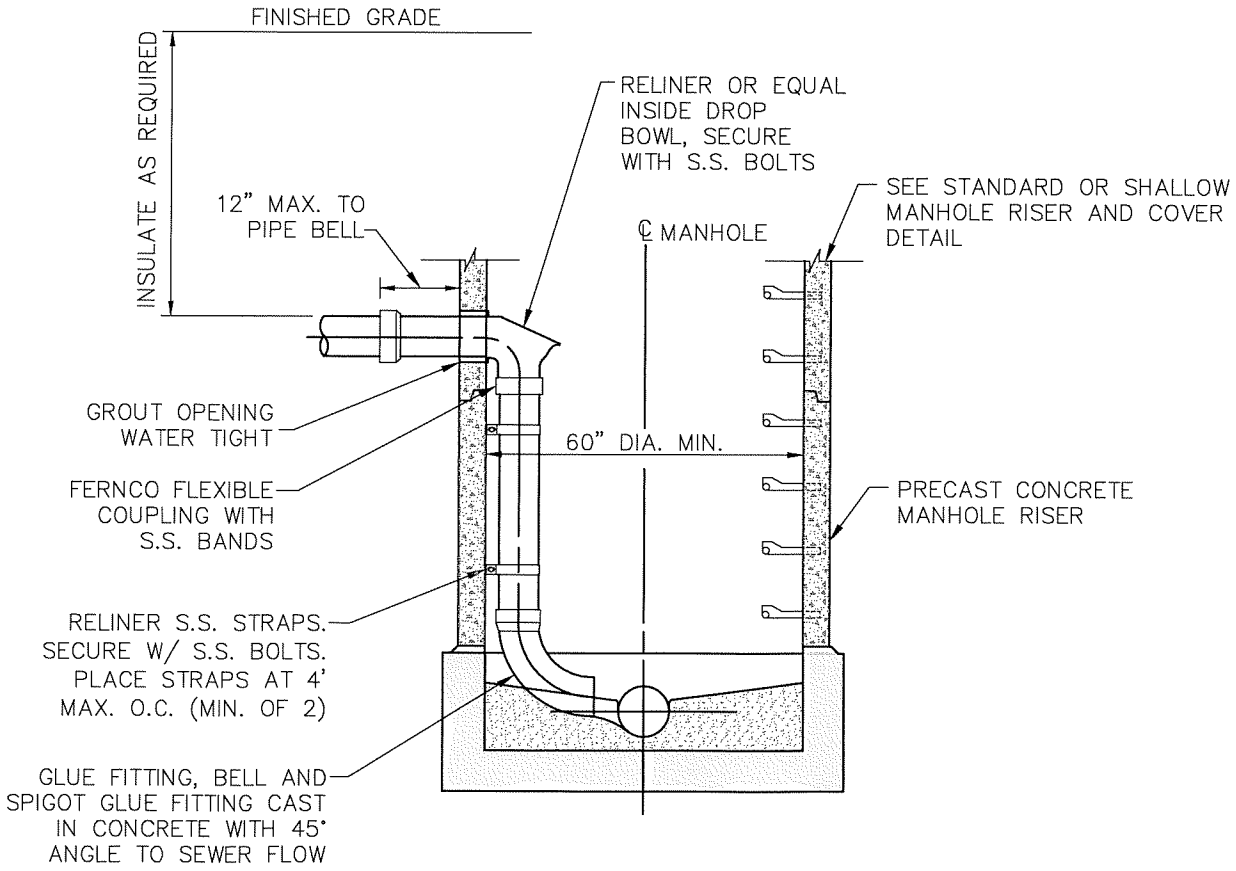
MANHOLE BASE SECTIONS

TOWN OF SILVERTHORNE	DATE: 2022		Detail S7



PLAN VIEW

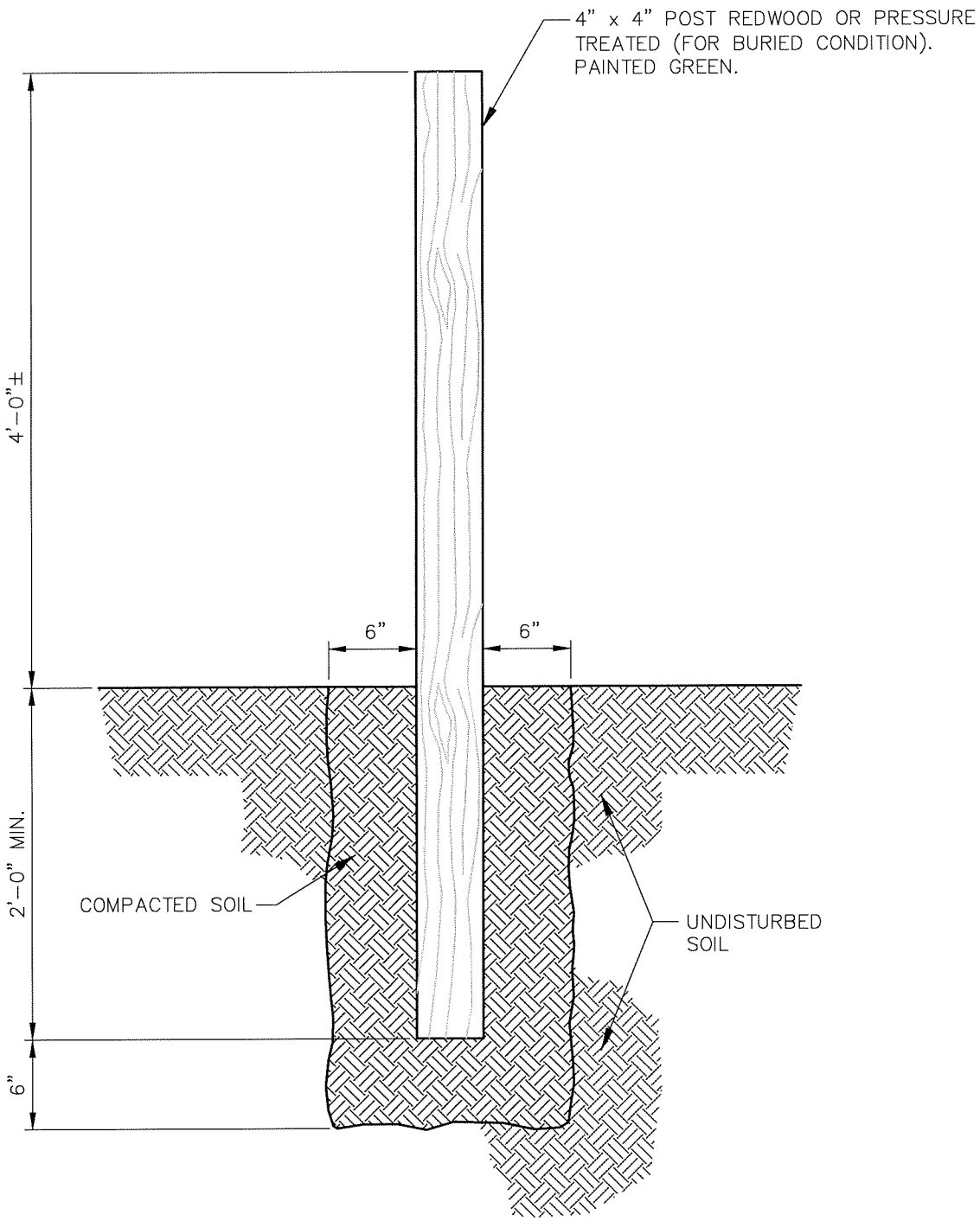
NOTE:
ANY DROP OF GREATER THAN
18" REQUIRES DROP MANHOLE.



SECTION VIEW

INSIDE DROP MANHOLE

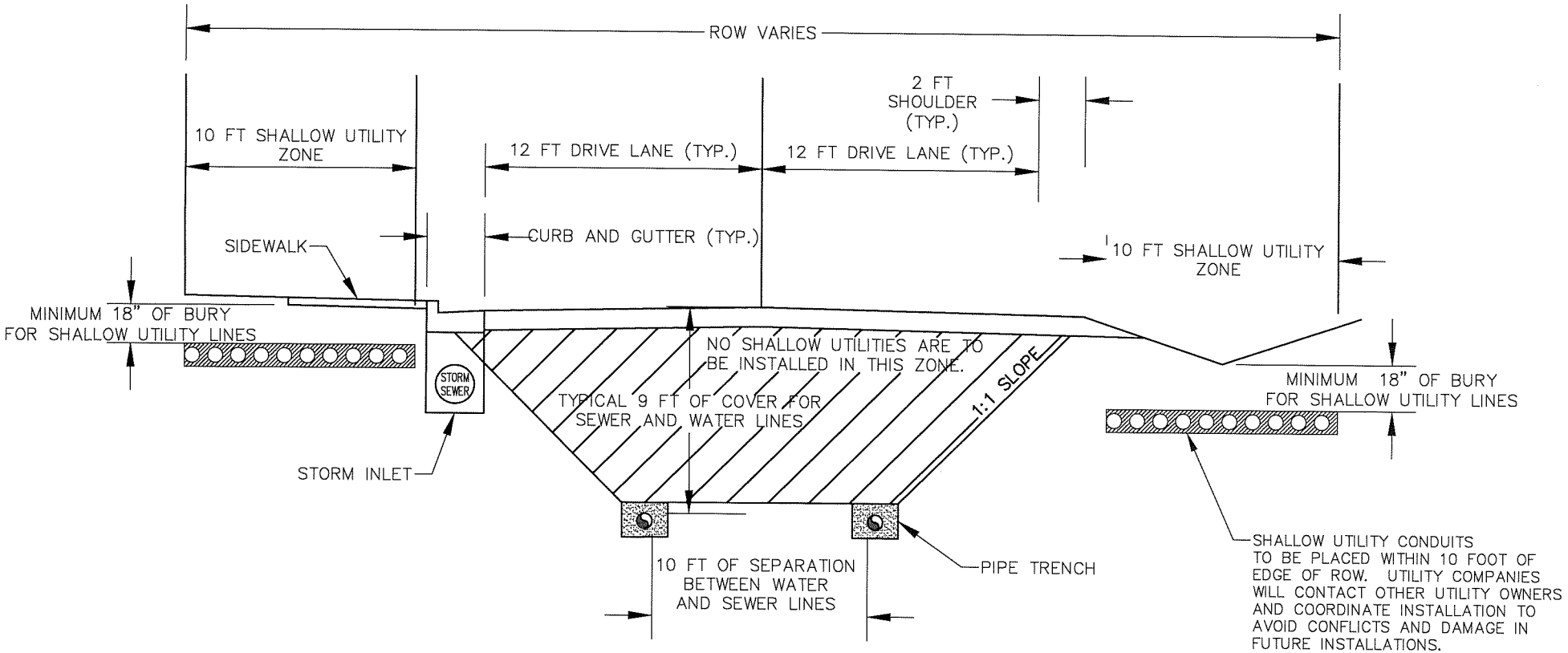
TOWN OF SILVERTHORNE	DATE: 2022		Detail S8



NOTES:
1. PROVIDE ONLY IF MANHOLE NOT IN TRAVELED WAY.

SANITARY SEWER MANHOLE MARKER POST

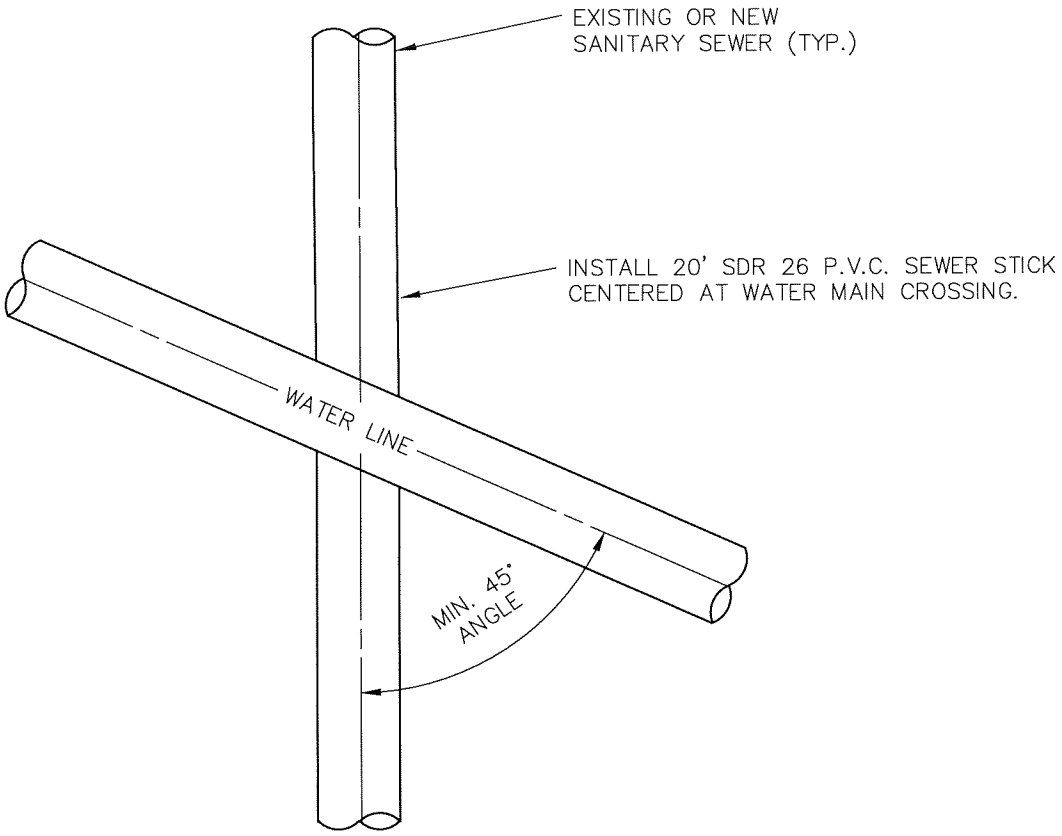
TOWN OF SILVERTHORNE	DATE: 2022		Detail S9



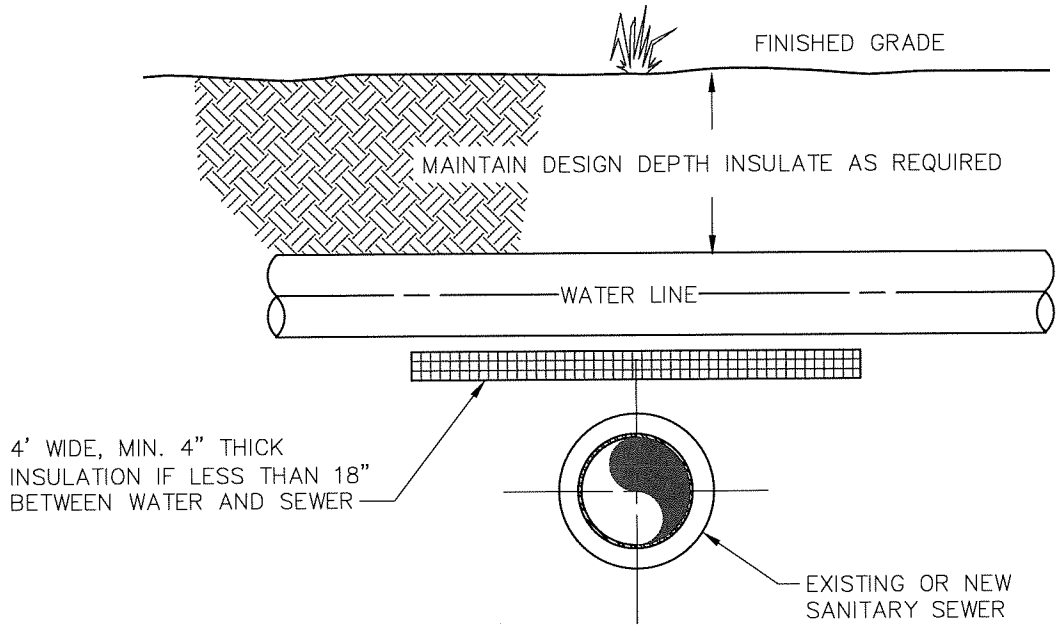
TOWN OF SILVERTHORNE
TYPICAL RIGHT OF WAY UTILITY PLACEMENT
(NOT TO SCALE)

TYPICAL RIGHT OF WAY UTILITY PLACEMENT

TOWN OF SILVERTHORNE	DATE: 2022		Detail S10



PLAN



SECTION

SEWER/WATER CROSSING

TOWN OF SILVERTHORNE	DATE: 2022		Detail S11