

FIRE HYDRANT

NO SCALE

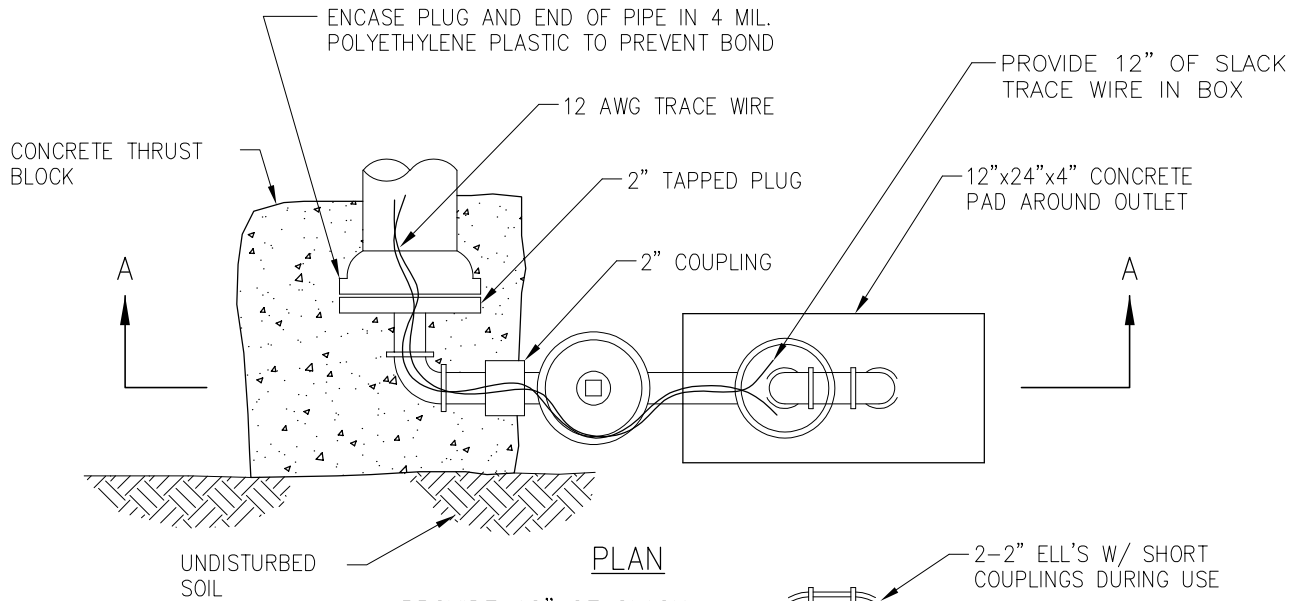


**Roxborough**  
Water & Sanitation District

FIRE HYDRANTS

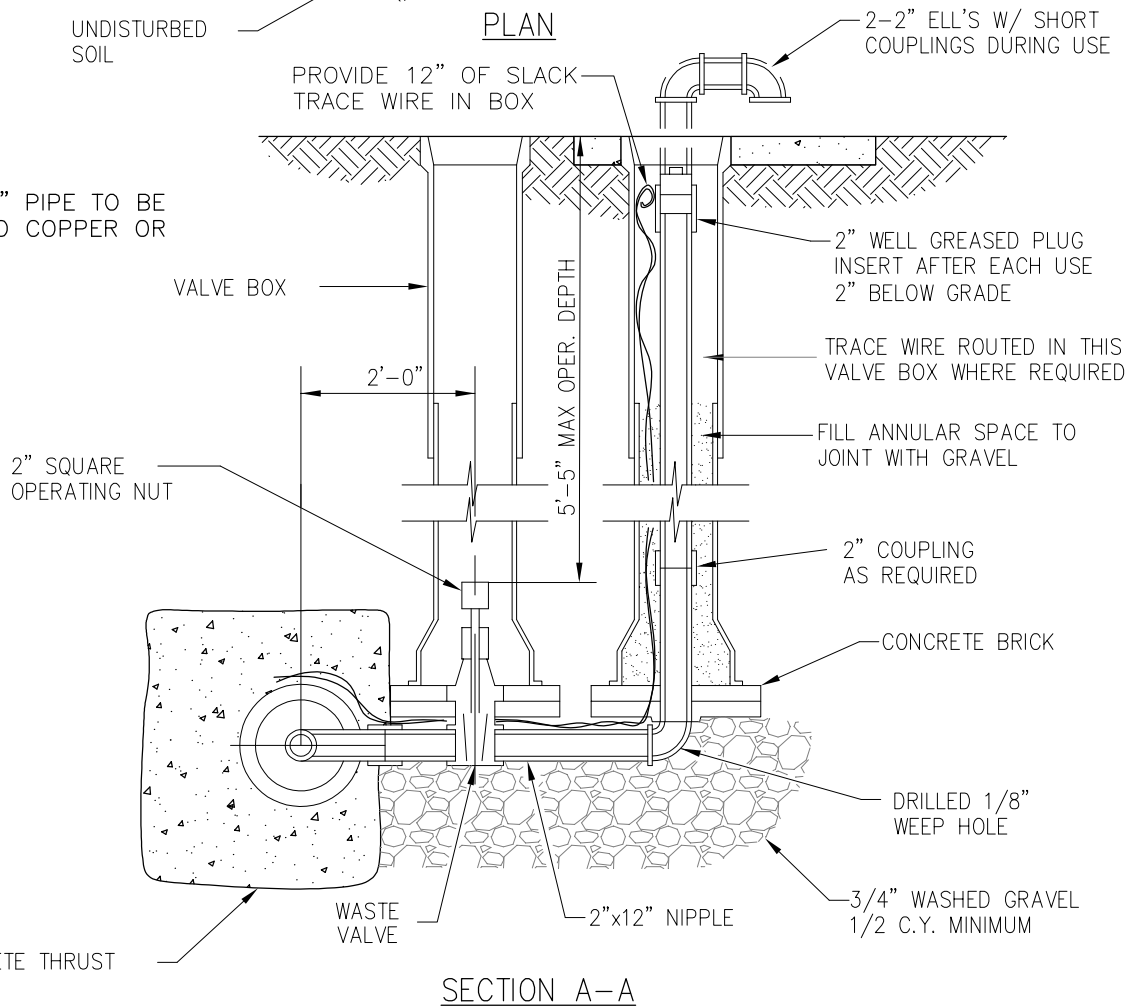
DATE:  
JUNE 21, 2023

DRAWING NO.  
2-1



**NOTE:**

ALL 2" PIPE TO BE RIDGED COPPER OR BRASS



**SECTION A-A**

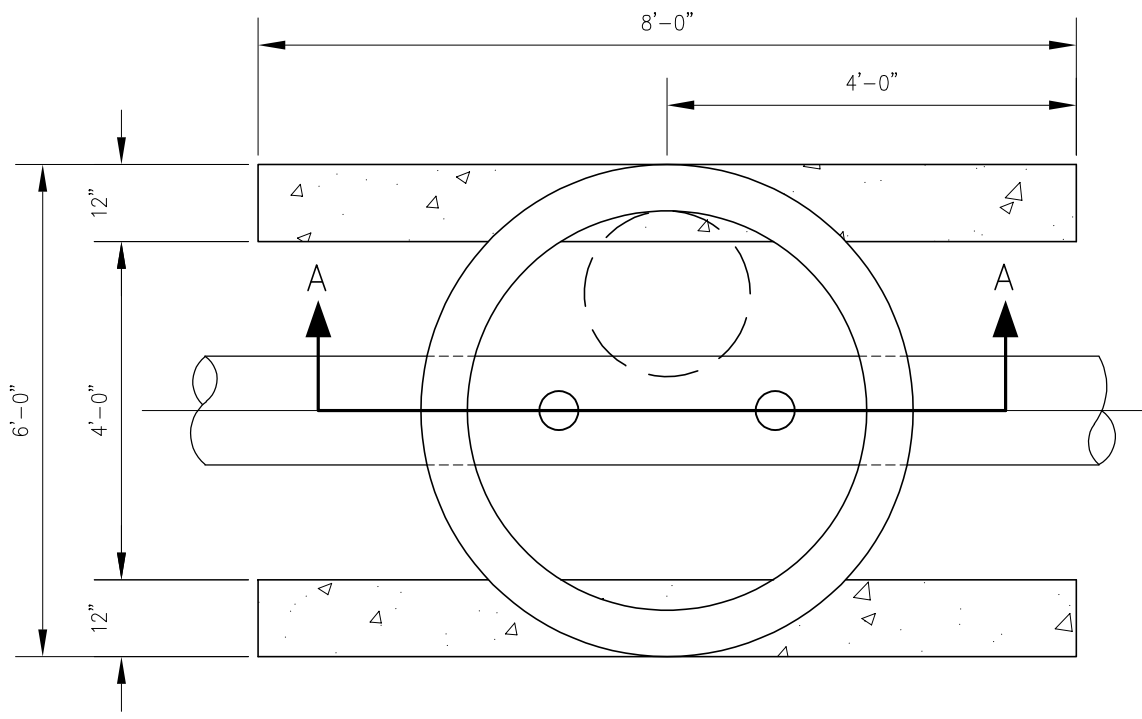


**Roxborough**  
Water & Sanitation District

**BLOWOFF DETAIL**

DATE:  
JUNE 21, 2023

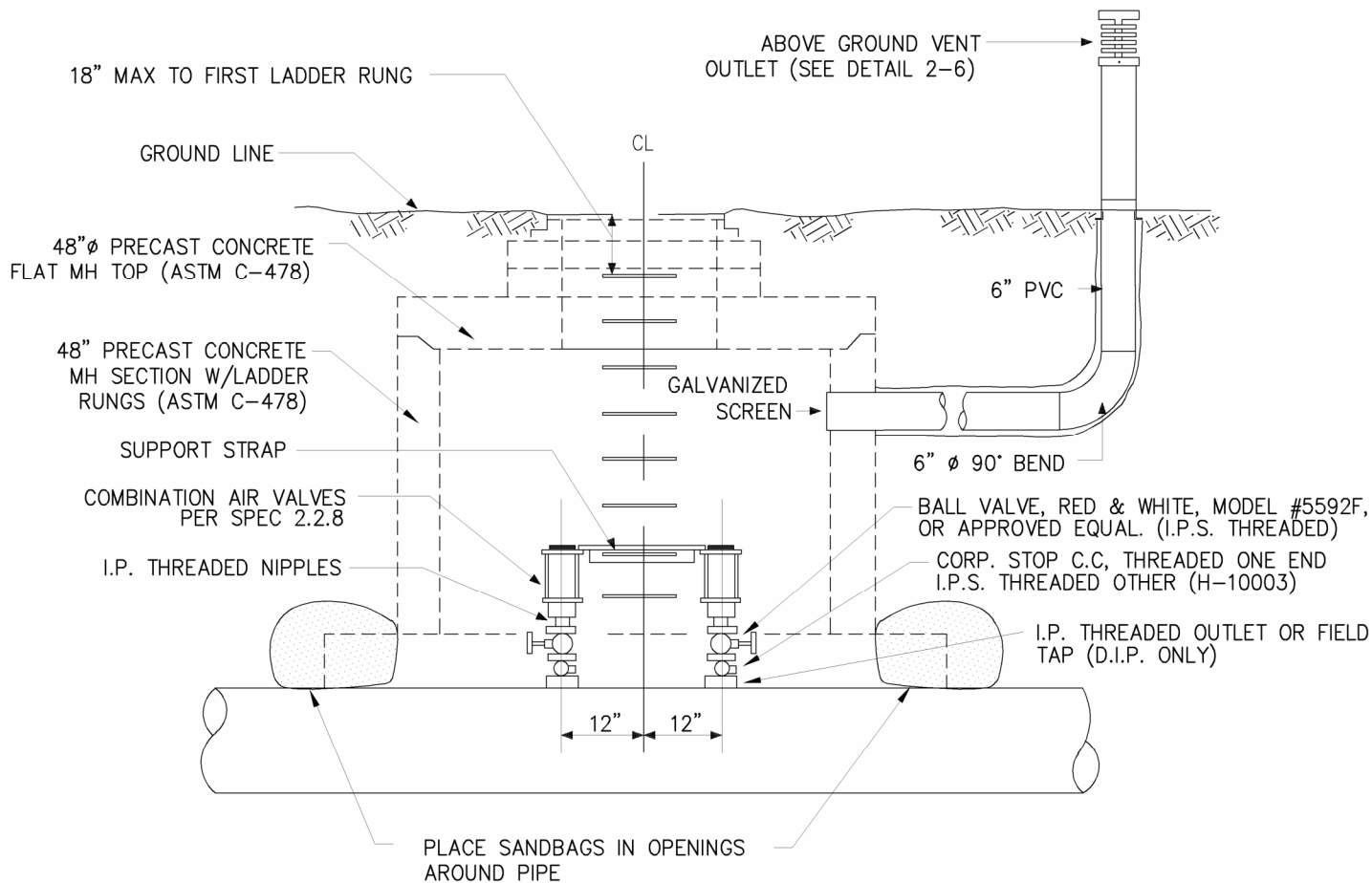
DRAWING NO.  
2-2



NOTE:  
SEE SHEET 2-3B FOR SECTION

PLAN

 <b>Roxborough</b> Water & Sanitation District	
<b>AIR RELEASE VALVE VAULT</b>	
DATE: <b>JUNE 21, 2023</b>	DRAWING NO. <b>2-3A</b>



SECTION A-A

NOTES:

1. 1-1/2" ROCK SHALL BE PLACED IN BOTTOM OF MANHOLE TO CROWN OF PIPE ONLY.
2. ALL PIPE AND FITTINGS SHALL BE BRASS.
3. 6" THRU 10" LINES SHALL HAVE, 2 EA., 1" COMBINATION AIR VALVE.
4. 12" LINES AND LARGER SHALL HAVE, 2 EA., 2" COMBINATION AIR VALVE.
5. SUPPORT BAR SHALL BE CONSTRUCTED OF 1/4" STEEL STRAPPING DRILLED TO MATCH AIR POT HOLES.



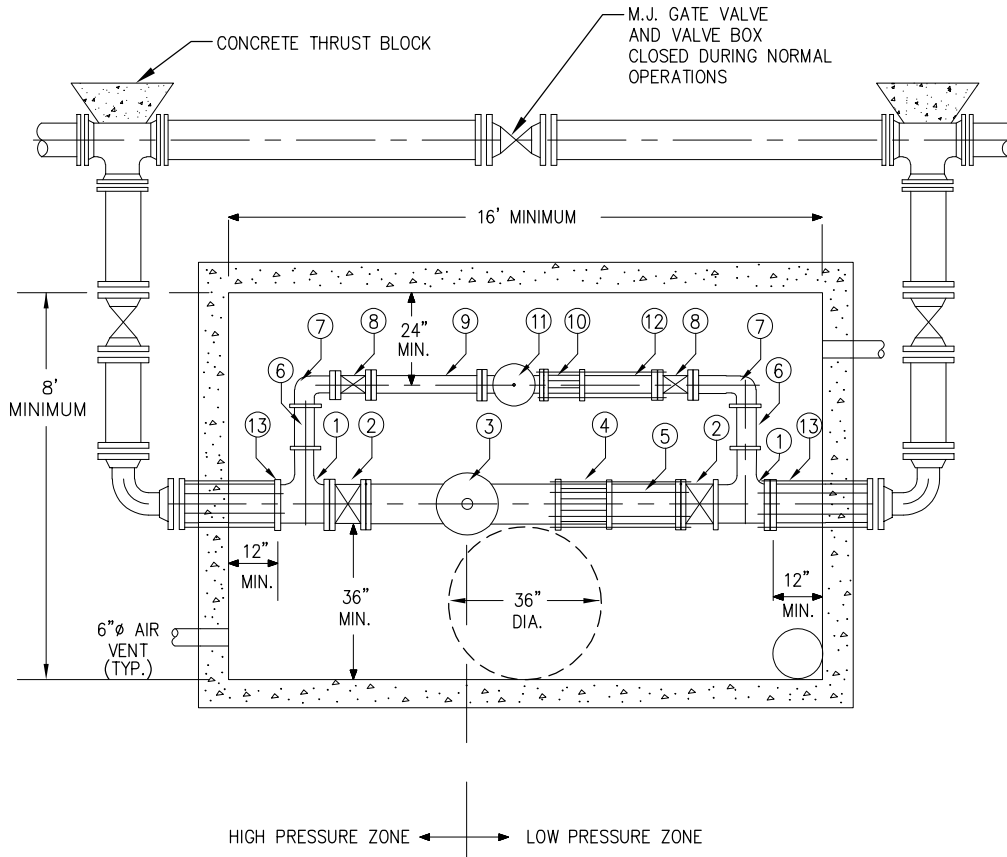
**Roxborough**  
Water & Sanitation District

AIR RELEASE VALVE VAULT

DATE:  
JUNE 21, 2023

DRAWING NO.  
2-3B





- ① \*\" X 8\" TEE (FL X FL X FL)
- ② \*\" GATE VALVE (FL X FL)
- ③ \*\" PRESSURE REDUCING / SUSTAINING VALVE CLA-VAL SERIES 92G-01
- ④ \*\" DRESSER COUPLING
- ⑤ \*\" SPOOL PIECE
- ⑥ \*\" SPOOL PIECE
- ⑦ 4\" 90° BEND (FL X FL)
- ⑧ 4\" GATE VALVE (FL X FL)
- ⑨ 4\" SPOOL (FL X FL)
- ⑩ 4\" DRESSER COUPLING
- ⑪ 4\" PRESSURE REDUCING / SUSTAINING VALVE CLA-VAL SERIES 92G-01
- ⑫ 4\" SPOOL (FL X PE)
- ⑬ ADAPTOR (FL X MJ)
- ⑭ ALL FITTINGS AND PIPING WILL BE PAINTED \"PRECAUTION BLUE\" ENAMEL

\*\" = SIZE TO BE DETERMINED BY MAIN PIPELINE

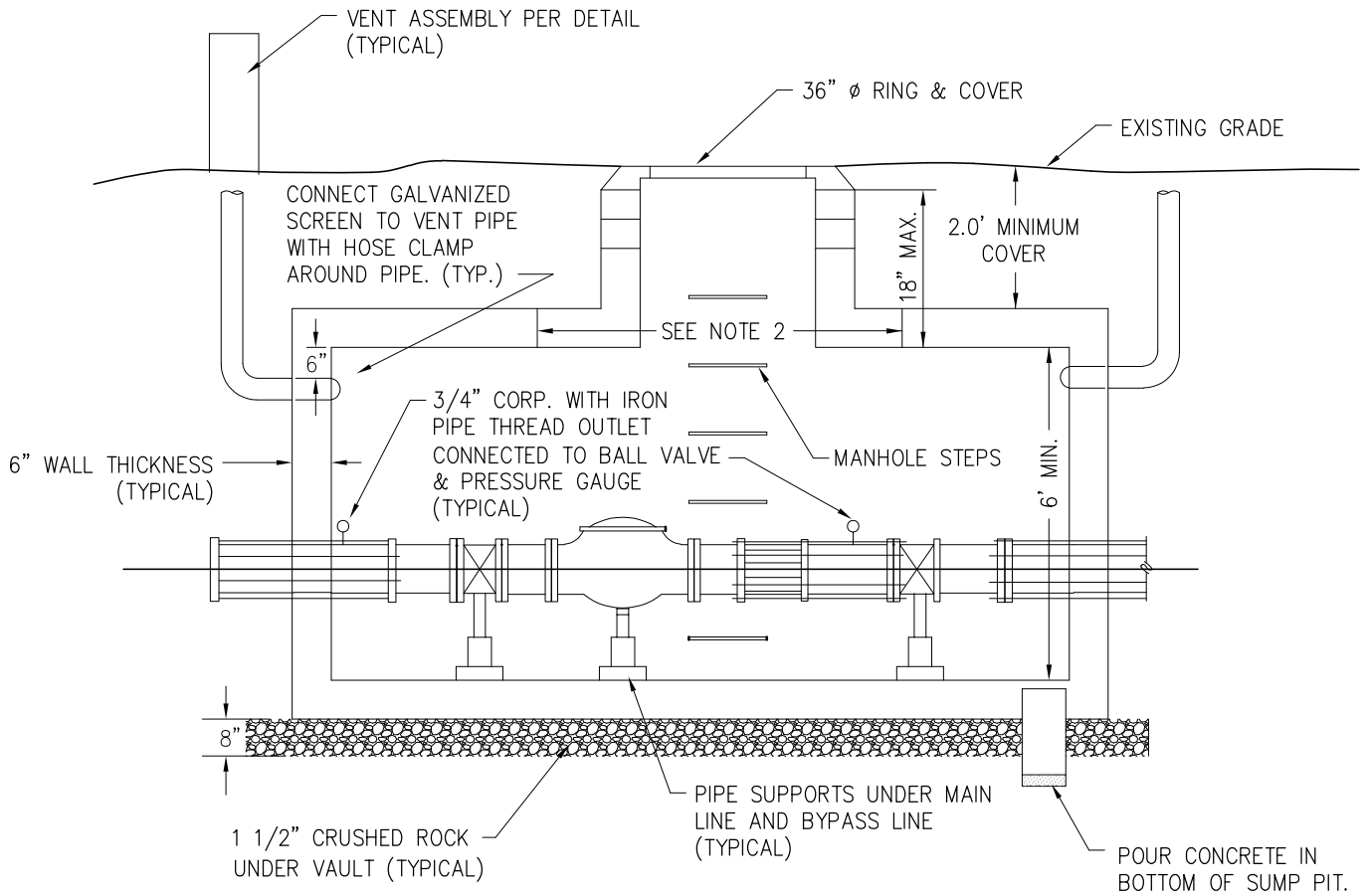


**Roxborough**  
Water & Sanitation District

PRESSURE REDUCING VALVE - PLAN

DATE:  
JUNE 21, 2023

DRAWING NO.  
2-4



NOTES

1. EXTERIOR CONCRETE SURFACES SHALL BE DAMP-PROOFED IN ACCORDANCE WITH THE SPECIFICATIONS.
2. VAULT LID SHALL HAVE A REMOVABLE SECTION (MINIMUM 6' WIDE) WITH LIFTING RING.

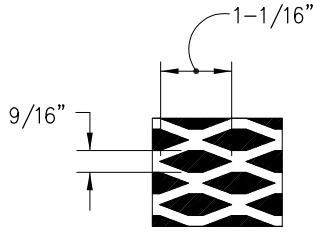


**Roxborough**  
Water & Sanitation District

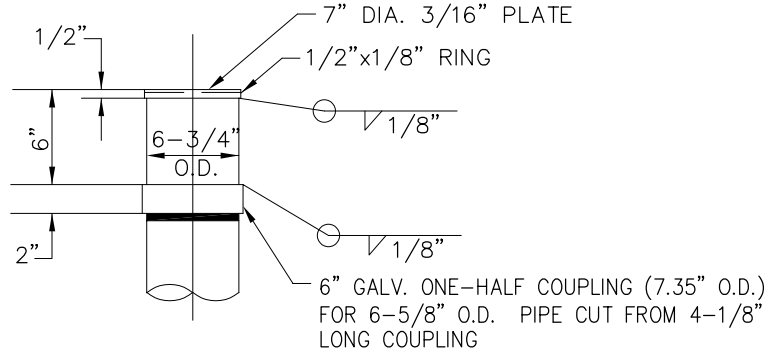
PRESSURE REDUCING VALVE - SECTION

DATE:  
JUNE 21, 2023

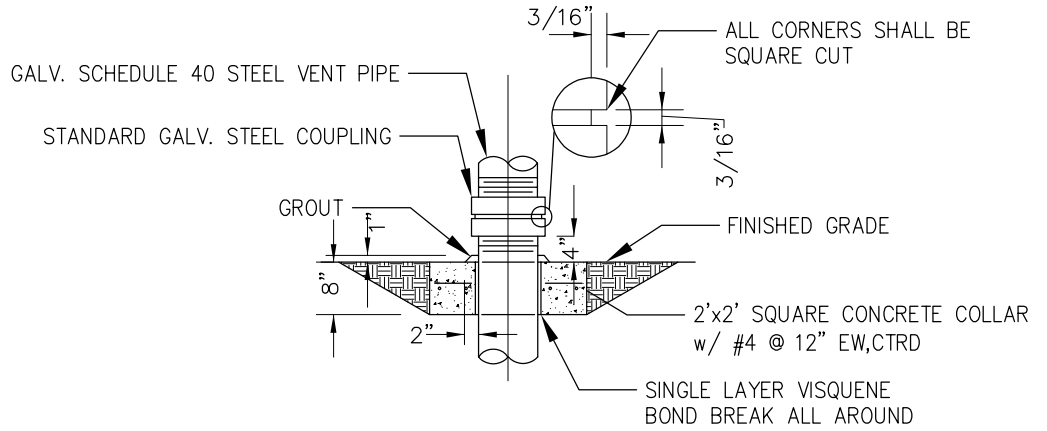
DRAWING NO.  
2-5



METAL SCREEN  
6"x1'-9 1/4"  
3/4" NO. 9-11 FLATTENED  
EXPANDED METAL SCREEN.



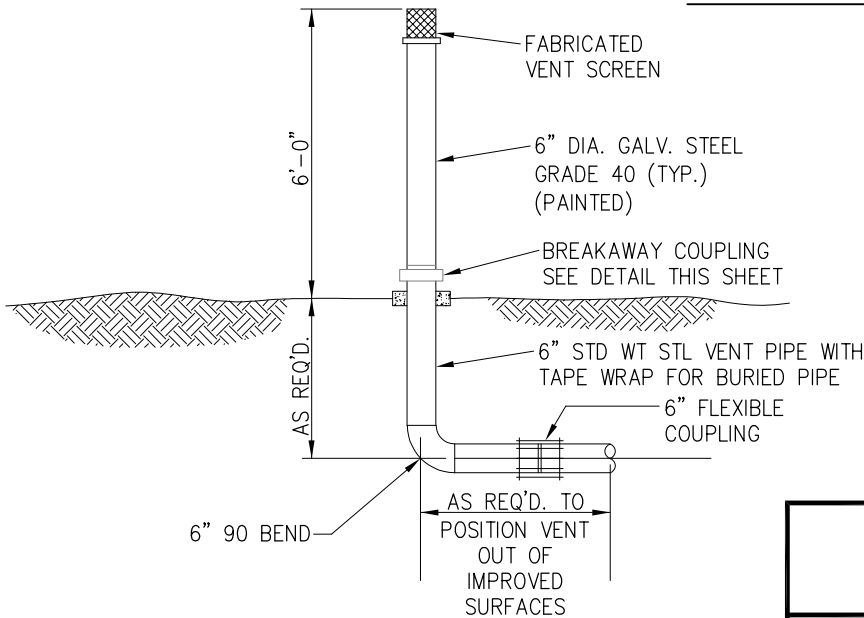
VENT SCREEN DETAIL



NOTES:

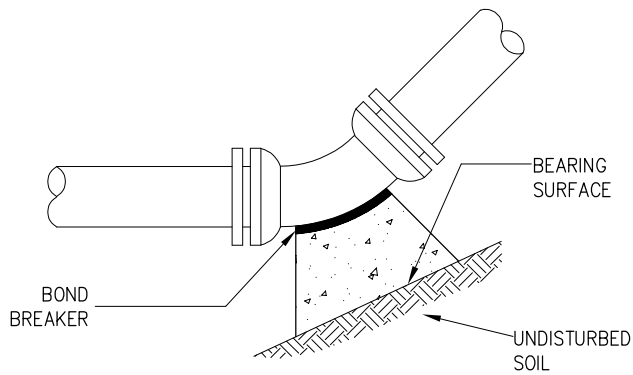
1. MOUND GROUT AROUND PIPE, TO PROVIDE DRAINAGE.
2. TROWEL FINISH ALL EXPOSED CONCRETE SURFACES.
3. BREAK-AWAY COUPLING REQUIRED IN ROAD ROW.
4. PAINT COUPLING AFTER CUTTING.
5. PROVIDE VALVE MARKER @ EACH STRUCTURE.

BREAKAWAY COUPLING DETAIL

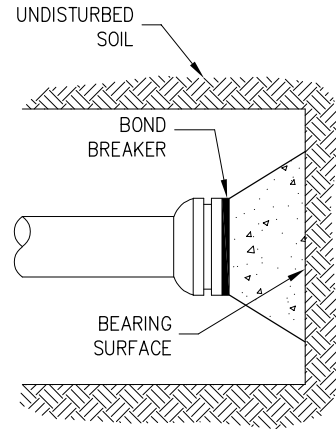


VENT DETAIL

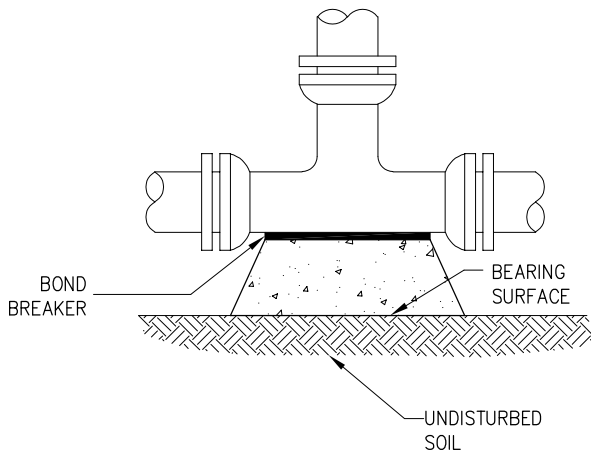
 <b>Roxborough</b> Water & Sanitation District	
<b>AIR VENT DETAIL</b>	
DATE: JUNE 21, 2023	DRAWING NO. 2-6



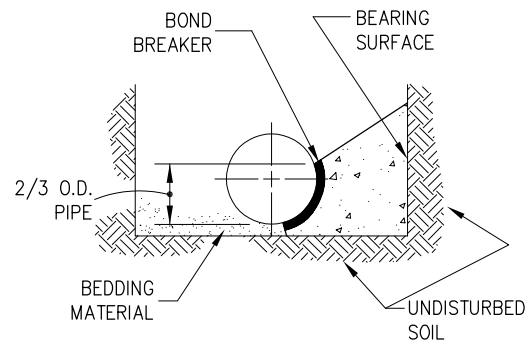
11 1/4°, 22 1/2°, 45°, AND 90° BENDS



DEAD END



TEE




TYPICAL CROSS SECTION

NOTES:

1. BEARING SURFACES SHOWN IN CHART ARE MINIMUM.
2. BASED ON 150 PSI INTERNAL PIPE PRESSURE PLUS WATER HAMMER.  
 4", 6", 8" AND 12" WATER HAMMER = 110 PSI  
 16", 20" AND 24" WATER HAMMER = 70 PSI
3. BASED ON 1,500 PSF SOIL BEARING CAPACITY.

MINIMUM BEARING SURFACE AREA  
( IN SQUARE FEET )

SIZE OF PIPE	BENDS				TEE OR DEAD END
	11 1/4°	22 1/2°	45°	90°	
4"	1.00	1.00	1.75	3.25	2.25
6"	1.00	2.00	4.00	7.00	5.00
8"	1.75	3.50	6.75	12.50	8.75
12"	4.00	7.75	15.25	28.00	19.75
16"	6.00	11.75	22.75	41.75	29.50
20"	9.25	18.00	35.50	65.25	46.25
24"	13.25	26.00	51.00	94.00	66.50



Roxborough

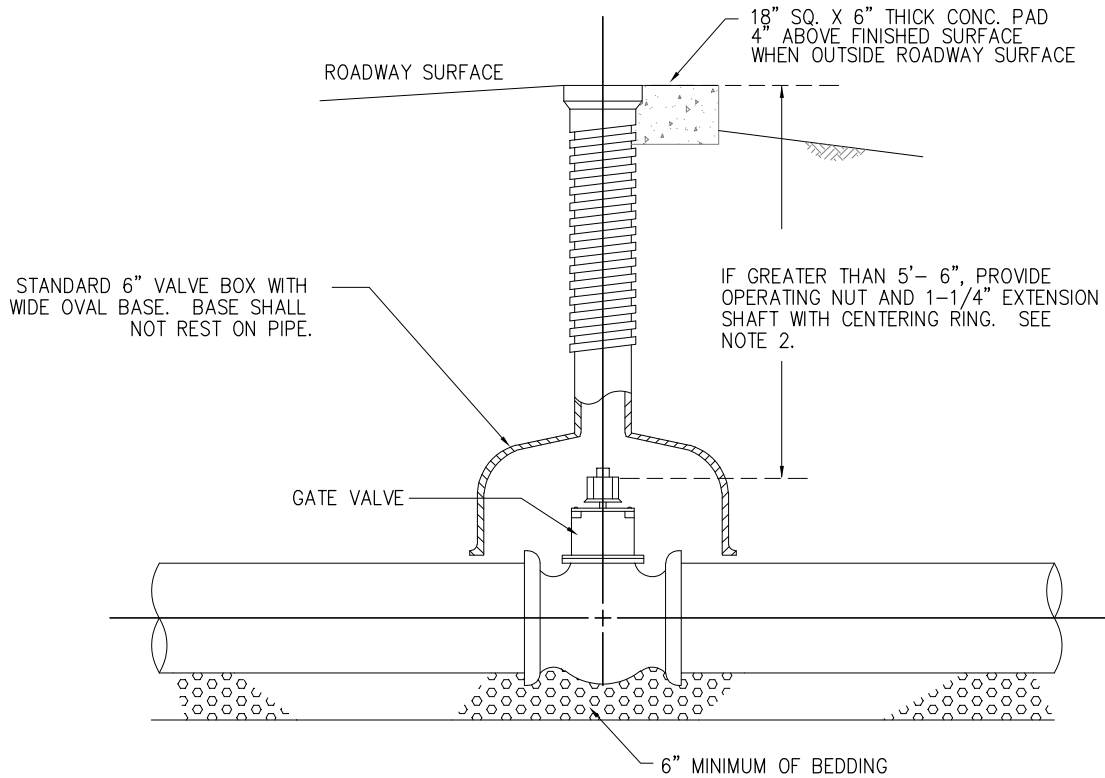
Water & Sanitation District

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THRUST BLOCKS - HORIZONTAL BENDS DETAIL

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DATE: JUNE 21, 2023	DRAWING NO. 2-7
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NOTES:

1. VALVES SHALL NOT BE PLACED IN CONCRETE CROSS PANS.
2. OPERATING NUT DEPTH SHALL NOT EXCEED 5 1/2 FEET. IF THE DEPTH OF THE OPERATING NUT IS TO BE DEEPER THAN 5 1/2 FEET, THEN AN EXTENSION SHALL BE ATTACHED TO THE OPERATING NUT. THE EXTENSION SHALL EXTEND TO BE A MINIMUM OF 8" FROM FINISHED GRADE
3. GATE VALVE SHALL BE POLYETHYLENE WRAPPED.
4. GATE VALVE SHALL BE RESTRAINED.

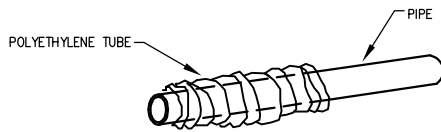


**Roxborough**  
Water & Sanitation District

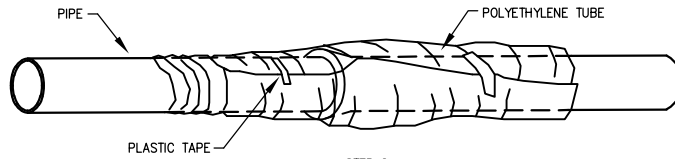
GATE VALVE DETAIL

DATE:  
JUNE 21, 2023

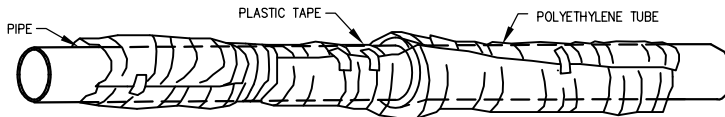
DRAWING NO.  
2-8



STEP 1



STEP 2



STEP 3

STEPS:

1. PLACE TUBE OF POLYETHYLENE MATERIAL ON PIPE PRIOR TO LOWERING IT INTO TRENCH.
2. PULL THE TUBE OVER THE LENGTH OF THE PIPE. TAPE TUBE TO PIPE AT JOINT, FOLD MATERIAL AROUND THE ADJACENT SPIGOT END AND WRAP WITH TAPE TO HOLD THE PLASTIC TUBE IN PLACE.
3. OVERLAP FIRST TUBE WITH ADJACENT TUBE AND SECURE WITH PLASTIC ADHESIVE TAPE. THE POLYETHYLENE TUBE MATERIAL COVERING THE PIPE SHALL BE LOOSE. EXCESS MATERIAL SHALL BE NEATLY DRAWN UP AROUND THE PIPE BARREL, FOLDED ON TOP OF PIPE AND TAPED IN PLACE.
4. POLYETHYLENE ENCASEMENT OF PIPELINE AND SERVICE LINES SHALL BE AWWA C-105.

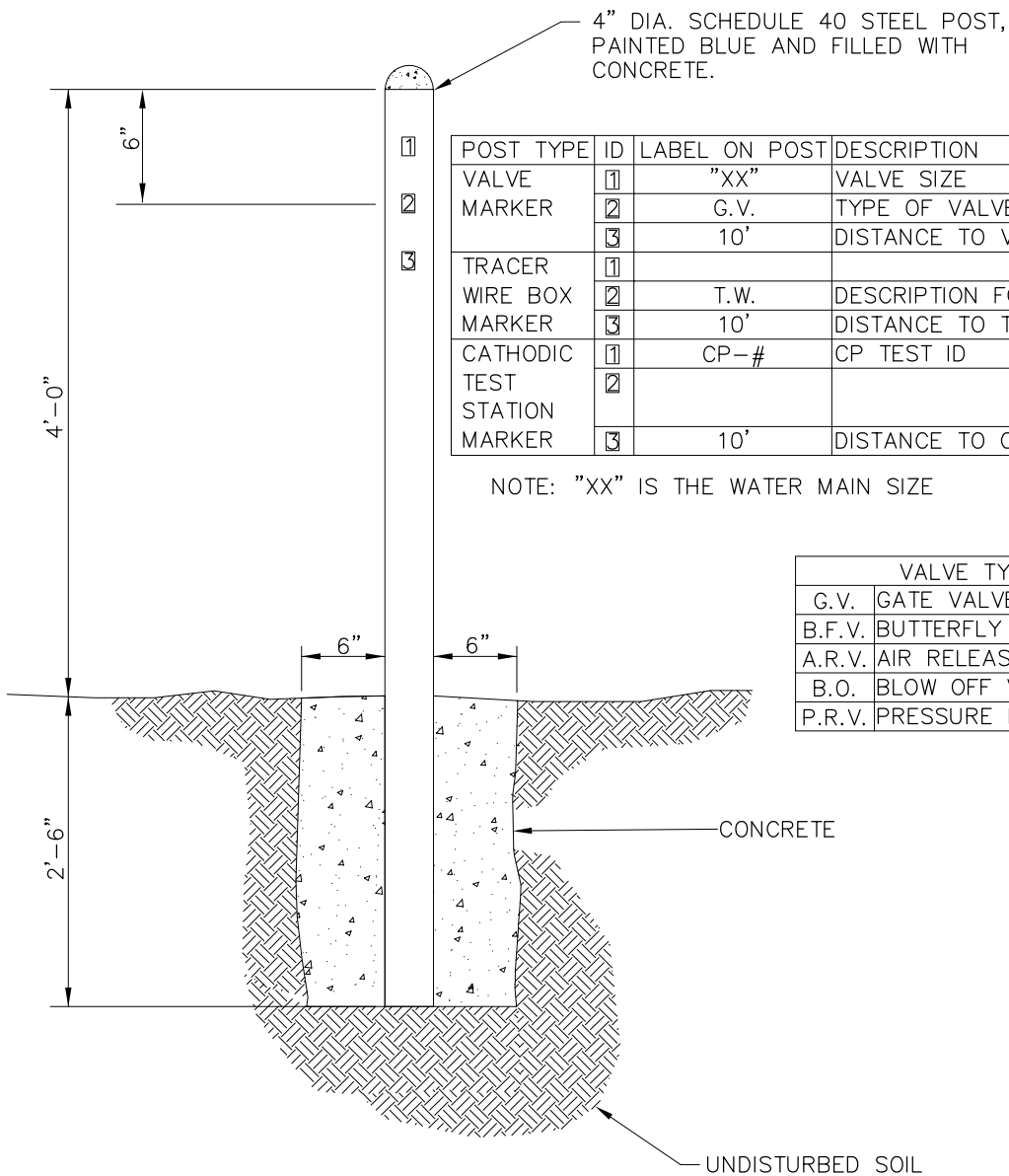


**Roxborough**  
Water & Sanitation District

POLYETHYLENE WRAP FOR D.I. PIPE DETAIL

DATE:  
JUNE 21, 2023

DRAWING NO.  
2-9




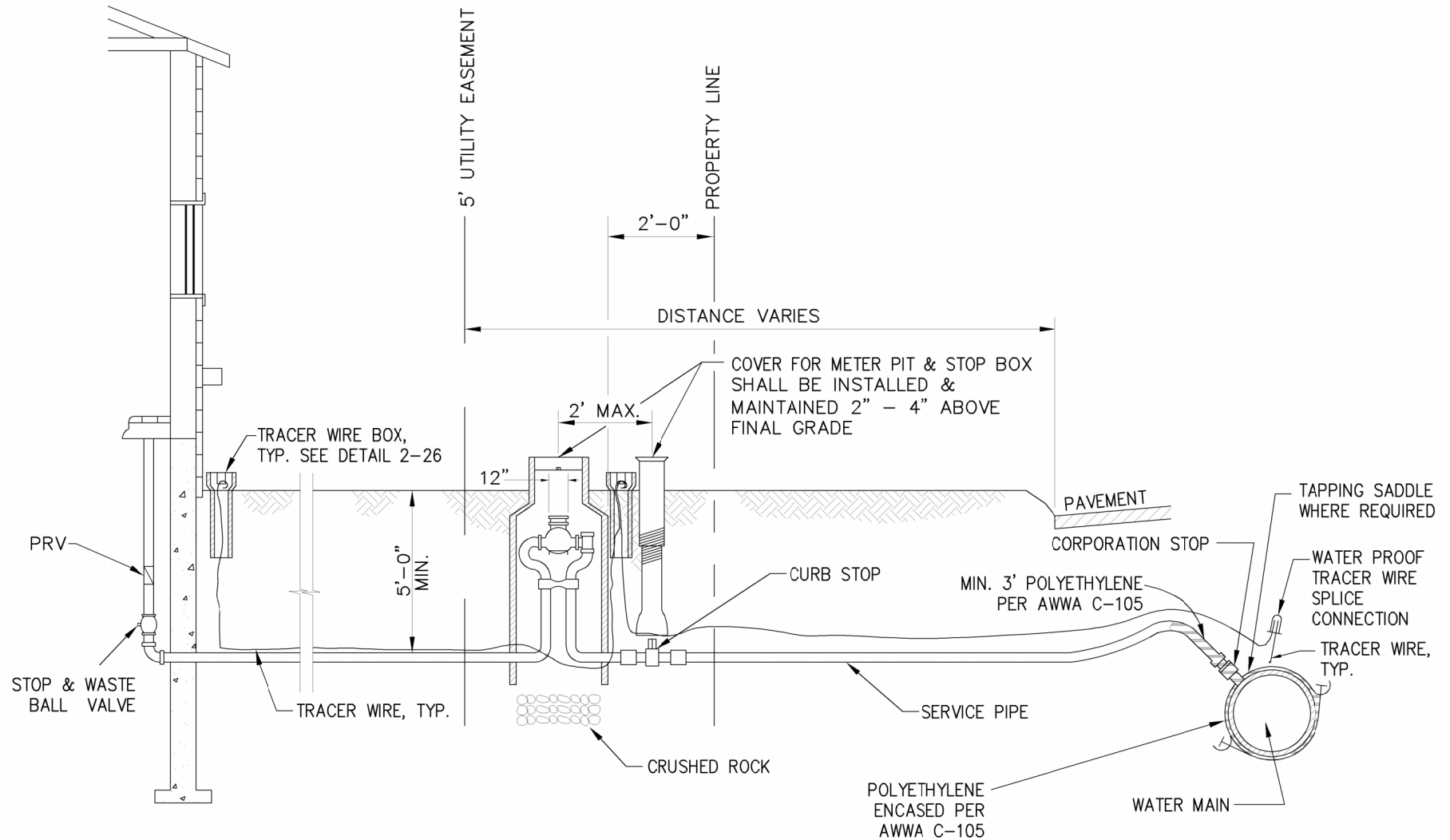
POST TYPE	ID	LABEL ON POST	DESCRIPTION
VALVE	1	"XX"	VALVE SIZE
MARKER	2	G.V.	TYPE OF VALVE, SEE TABLE
	3	10'	DISTANCE TO VALVE
TRACER	1		
WIRE BOX	2	T.W.	DESCRIPTION FOR MARKER
MARKER	3	10'	DISTANCE TO TEST STATION
CATHODIC TEST STATION	1	CP-#	CP TEST ID
	2		
MARKER	3	10'	DISTANCE TO CP TEST STATION

NOTE: "XX" IS THE WATER MAIN SIZE

VALVE TYPES	
G.V.	GATE VALVE
B.F.V.	BUTTERFLY VALVE
A.R.V.	AIR RELEASE VALVE
B.O.	BLOW OFF VALVE
P.R.V.	PRESSURE REDUCING VALVE

NOTE:  
2" CAPITAL LETTERS FACING VALVE, TRACER WIRE BOX, OR CATHODIC TEST STATION.

 <b>Roxborough</b> Water & Sanitation District	
<b>MARKER POST</b>	
DATE: <b>JUNE 21, 2023</b>	DRAWING NO. <b>2-10</b>



**NOTES:**

1. THIS METER SET CONFIGURATION REQUIRES PRIOR DISTRICT APPROVAL
2. METER AND READER TO BE INSTALLED BY DISTRICT



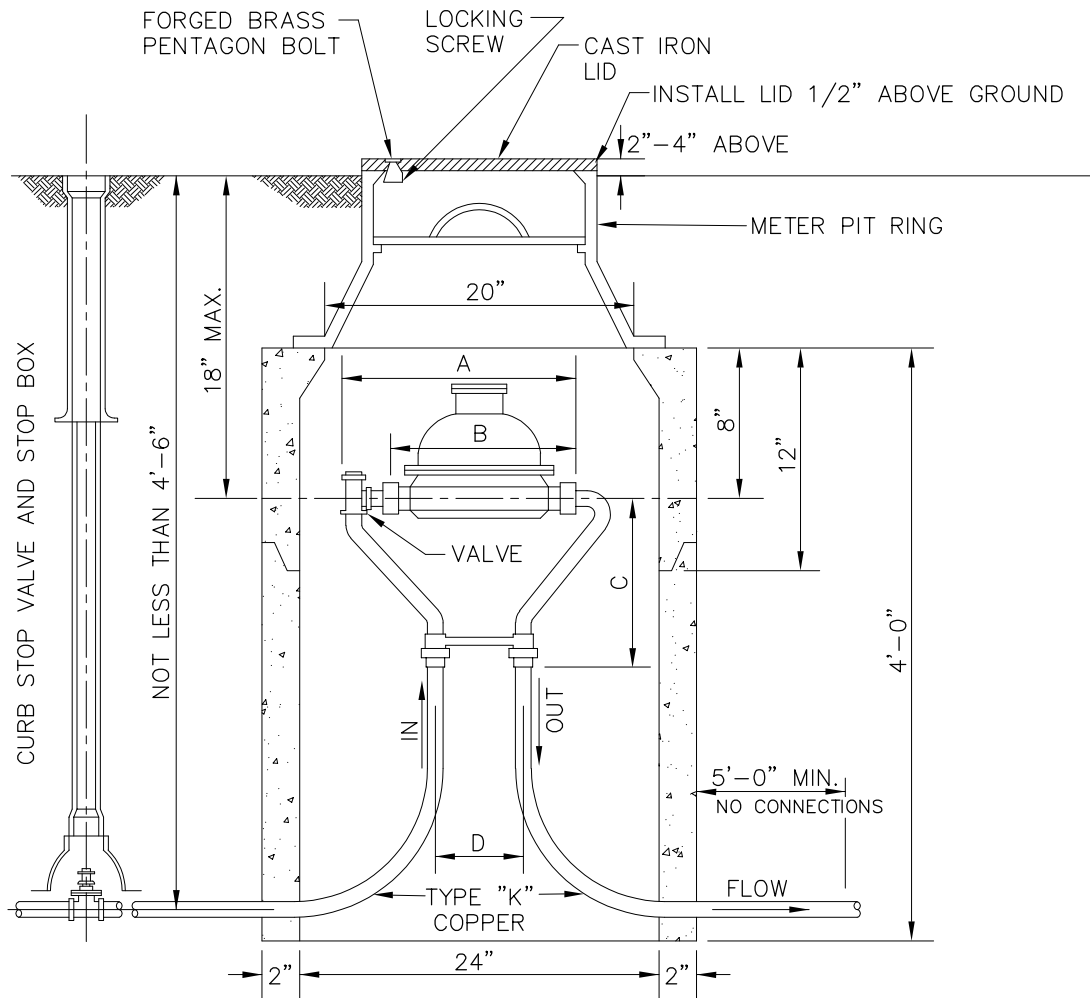
**Roxborough**  
Water & Sanitation District

**SERVICE LINE OUTSIDE METER DETAIL**

DATE:  
JUNE 21, 2023

DRAWING NO.  
2-11





**NOTES:**

1. METER PIT SHALL BE CONSTRUCTED OF ANY COMBINATION OF CONCRETE RINGS TOTAL - 48" IN LENGTH
2. ADJUSTMENT RINGS SHALL BE 2", 3", 4" OR 6" IN HEIGHT AND SHALL BE INSERTED BETWEEN THE TWO TOP RINGS.
3. NO CONNECTIONS OR CHANGES IN PIPE DIAMETER SHALL BE MADE IN THE METER PIT OR IN THE DISTANCE OF FIVE FEET BEYOND THE METER PIT WALL ON THE OUTLET SIDE.
4. LAWN SPRINKLER CONNECTIONS SHALL BE A MINIMUM OF FIVE FEET FROM THE METER PIT WALL ON THE OUTLET SIDE.
5. METER PIT SHALL REMAIN VISIBLE AND ACCESSIBLE AT ALL TIMES.
6. REFER TO DWG. 2-16 FOR REMOTE READOUT INSTALLATION.

METER SIZE	A	B	C	D
3/4"	14-1/4"	9-5/16"	8-15/16"	5"
1"	17-1/4"	11-1/16"	11-1/4"	6"

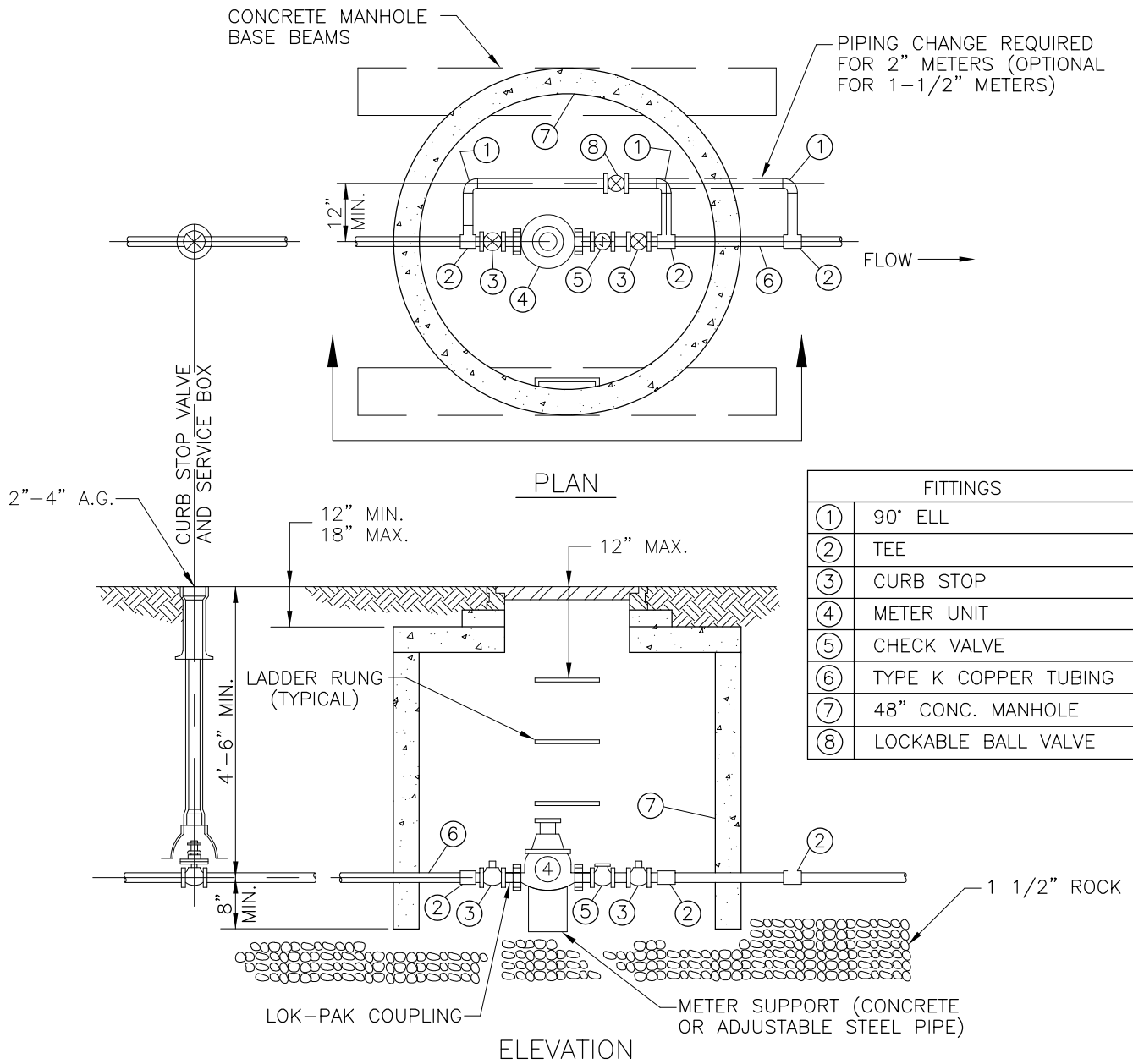


**Roxborough**  
Water & Sanitation District

**OUTSIDE SETTING FOR 3/4" AND 1" METERS**

DATE:  
JUNE 21, 2023

DRAWING NO.  
2-12



**NOTES**

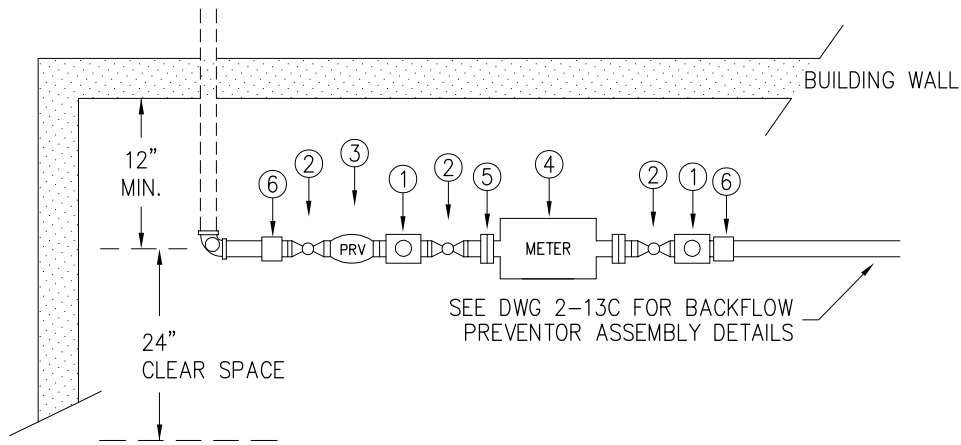
1. JOINTS INSIDE METER VAULT SHALL BE EITHER THREADED OR SOLDERED WITH 95-5 TINANTIMONY SOLDER.
2. METER SHALL BE FLANGED WITH BRASS COMPANION FLANGES.
3. NO CONNECTIONS OR CHANGES IN PIPE DIAMETER SHALL BE MADE IN THE METER PIT OR IN THE DISTANCE OF FIVE FEET BEYOND THE METER PIT ON THE OUTLET SIDE.
4. LADDER RUNGS SHALL BE ON OPPOSITE SIDE FROM BYPASS. SEE DETAIL 3-12 FOR RUNG TYPE.
5. REFER TO DWG. 2-16 FOR REMOTE READOUT INSTALLATION.

**Roxborough**  
Water & Sanitation District

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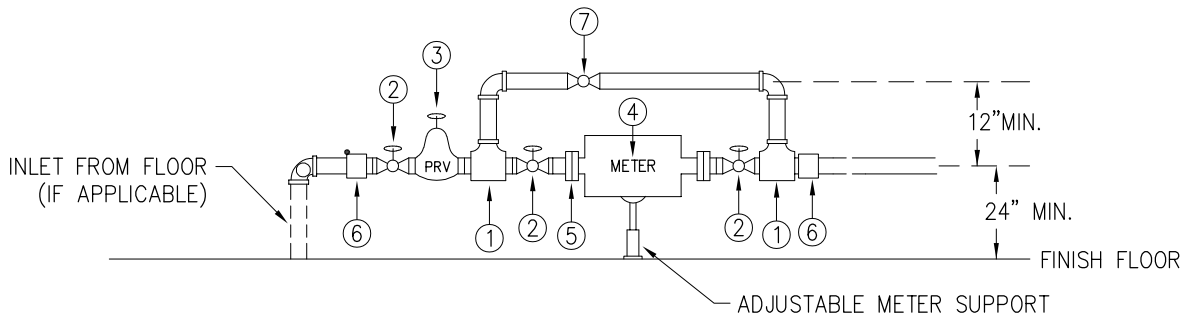
**OUTSIDE SETTING FOR 1-1/2" & 2" METERS  
WITH CHECK VALVE & BYPASS IN MANHOLE**

DATE: JUNE 21, 2023	DRAWING NO. 2-13A
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PLAN VIEW

- ① TEE
- ② BALL VALVE
- ③ PRESSURE REDUCING VALVE
- ④ METER
- ⑤ LOCK-PAK COUPLING
- ⑥ COMPRESSION OR FLARED FITTING
- ⑦ LOCKING WING BALL VALVE

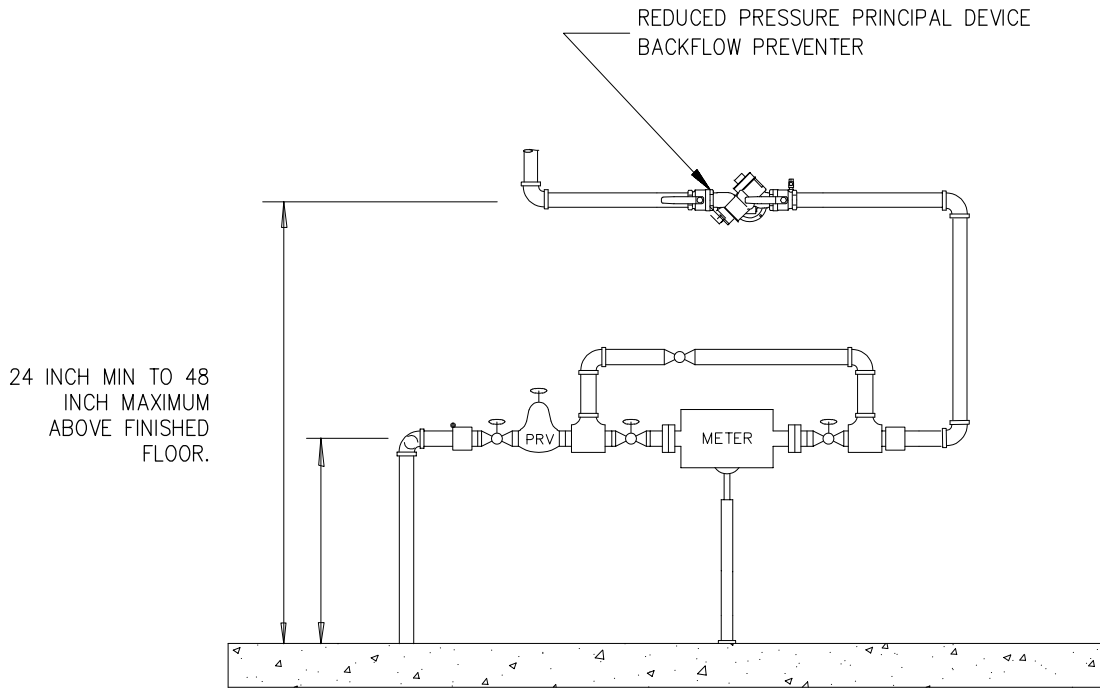


ELEVATION

NOTES:


1. BACKFLOW PREVENTER MAY BE REQUIRED UPON RECOMMENDATION OF THE DISTRICT ENGINEER.
2. TEST PORTS PROVIDED ON METER

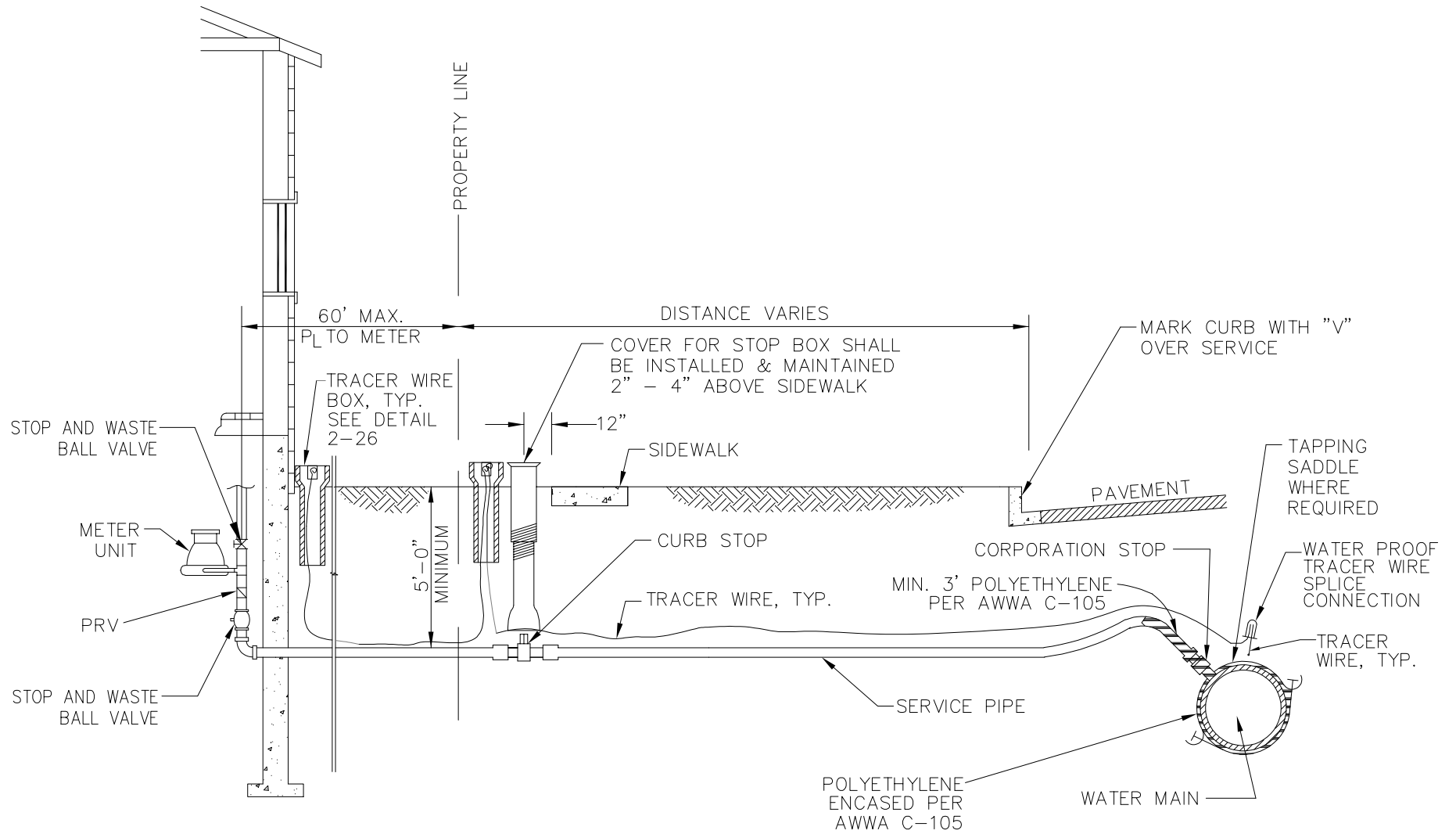
	<h2 style="margin: 0;">Roxborough</h2> <p style="margin: 0;">Water &amp; Sanitation District</p>
<p><b>COMMERCIAL METER</b>  <b>METER SETTING FOR INSIDE INSTALLATION 1-1/2" OR 2"</b></p>	
<p>DATE:  <b>JUNE 21, 2023</b></p>	<p>DRAWING NO.  <b>2-13B</b></p>



**NOTE:**

THE DEVICE SHALL BE INSTALLED AT AN ELEVATIONS THAT IS NOT LESS THAN 24 INCHES NOR MORE THAN 48 INCHES ABOVE THE FINISHED FLOOR. THE DEVICE SHALL BE PLACED 12 INCHES AWAY FROM THE ADJACENT WALL TO THE CENTER OF THE DEVICE WITH A MINIMUM OF 24 INCHES OF CLEAR SPACE IN FRONT OF THE DEVICE FROM FLOOR TO CEILING. IF WATER METER AND BACKFLOW PREVENTION DEVICE ARE TO BE INSTALLED IN SERIES, THERE SHALL BE A MINIMUM OF 24 INCHES CLEARANCE BETWEEN THE DEVICES. AN ADEQUATE DRAIN IS REQUIRED FOR THE BACKFLOW PREVENTER. (UNDER THE DEVICE WHENEVER POSSIBLE)

 <b>Roxborough</b> Water & Sanitation District	
<b>COMMERCIAL METER          TYPICAL ELEVATION FOR METER AND          BACKFLOW PREVENTER ASSEMBLY</b>	
DATE: <b>JUNE 21, 2023</b>	DRAWING NO. <b>2-13 C</b>



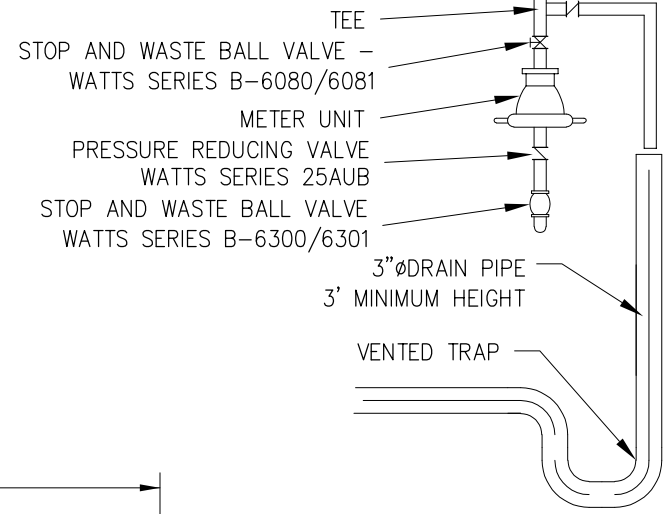
**Roxborough**  
Water & Sanitation District

SERVICE LINE INSIDE METER

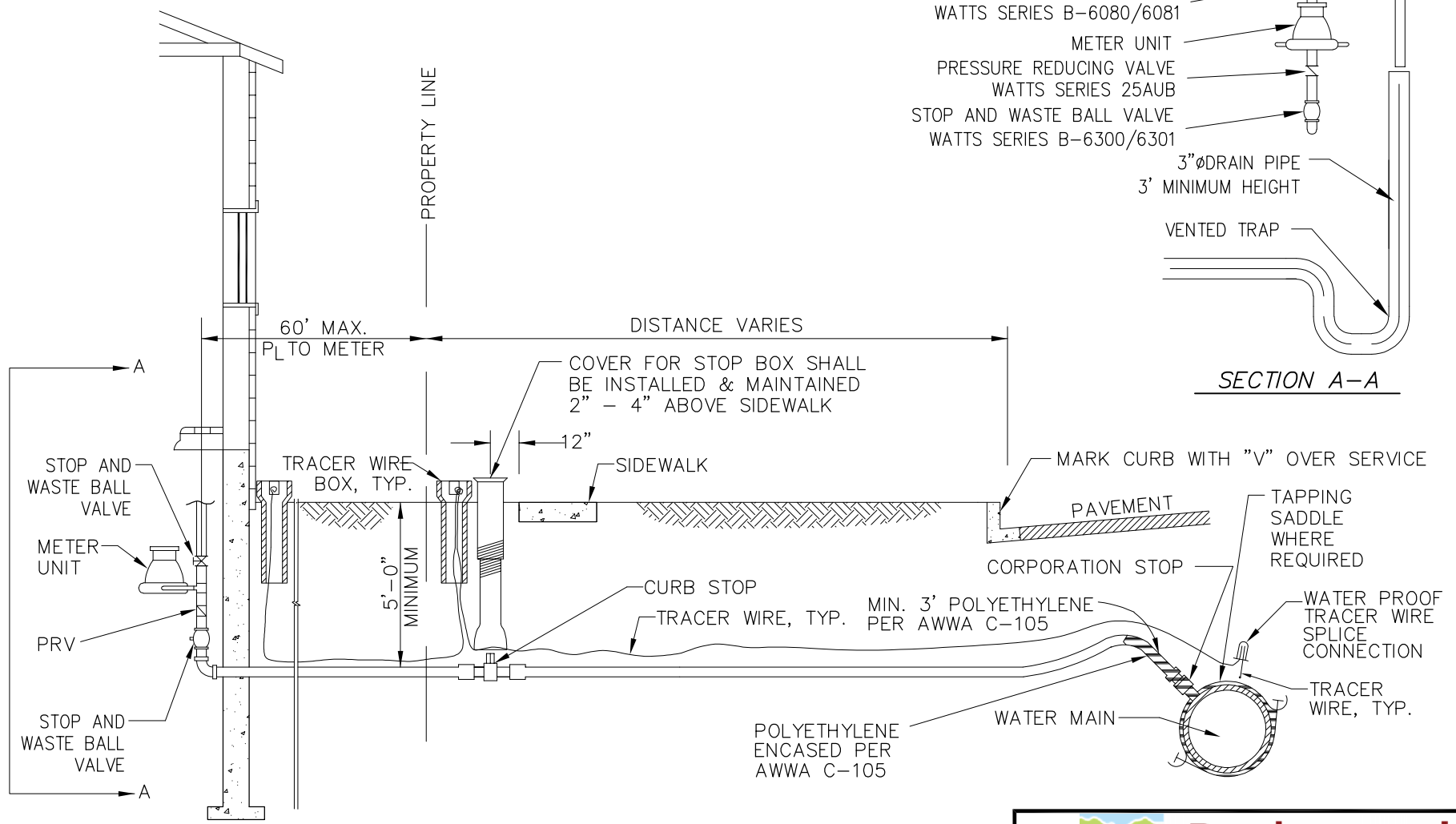
DATE:  
JUNE 21, 2023

DRAWING NO.  
2-14A

PRESSURE RELIEF VALVE WATTS  
NO. 53 SET AT 125 PSI



**SECTION A-A**

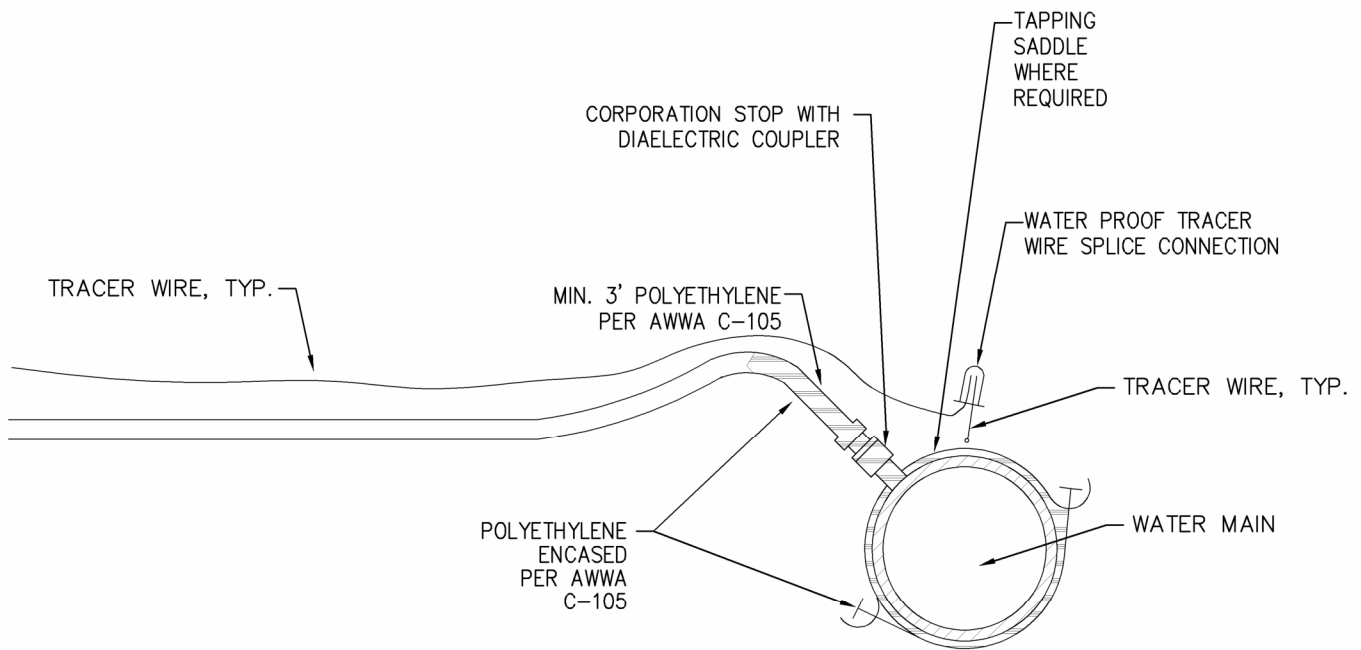
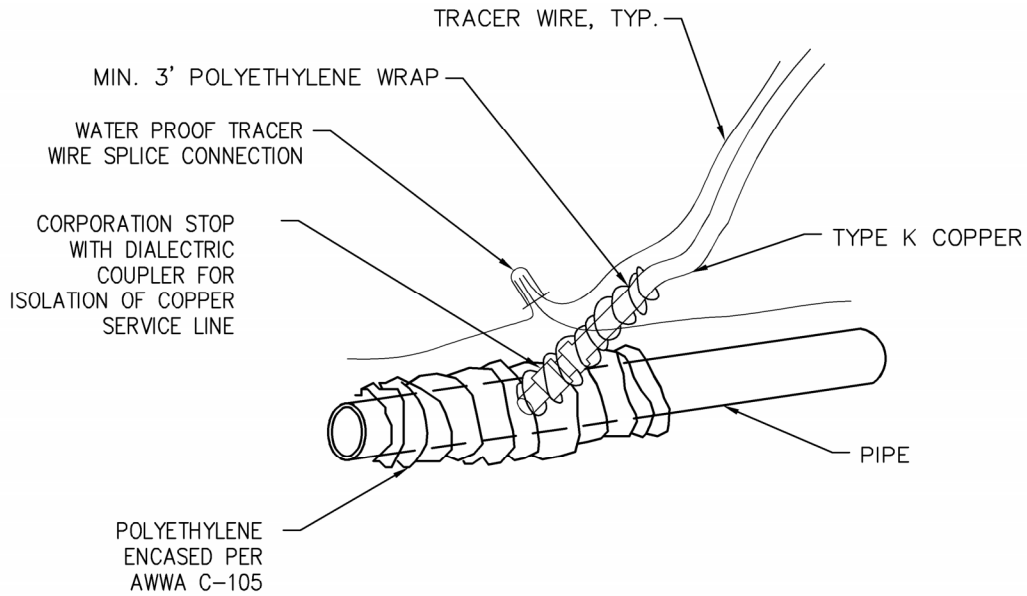


**Roxborough**  
Water & Sanitation District

**HIGH PRESSURE SERVICE LINE INSIDE METER**

DATE:  
**JUNE 21, 2023**

DRAWING NO.  
**2-14B**



NOTES:

1. REFER TO THE MOST CURRENT AWWA C-105 FOR INSTALLATION.

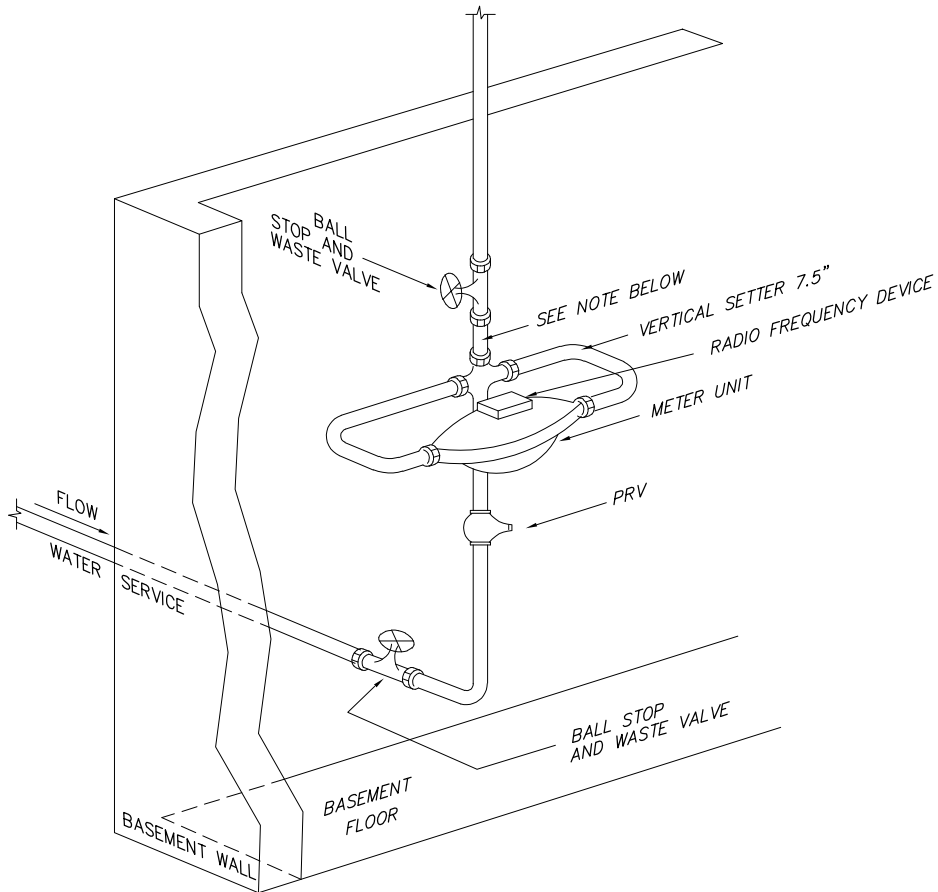


**Roxborough**  
Water & Sanitation District

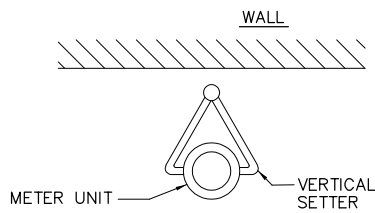
POLYETHYLENE WRAP FOR SERVICE TAP

DATE:  
JUNE 21, 2023

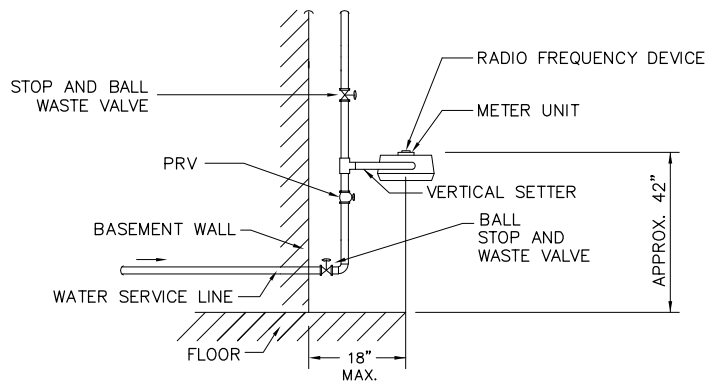
DRAWING NO.  
2-15



ISOMETRIC VIEW



PLAN



ELEVATION

NOTES:

1. ALL METER LOCATIONS TO BE IN BASEMENTS AND NOT CRAWL SPACES.
2. INSTALL METER AT 42" ABOVE FLOOR UNLESS PROHIBITED BY SERVICE LINE CONFIGURATION.  
MIN HT.=18"; MAX HT.=48"



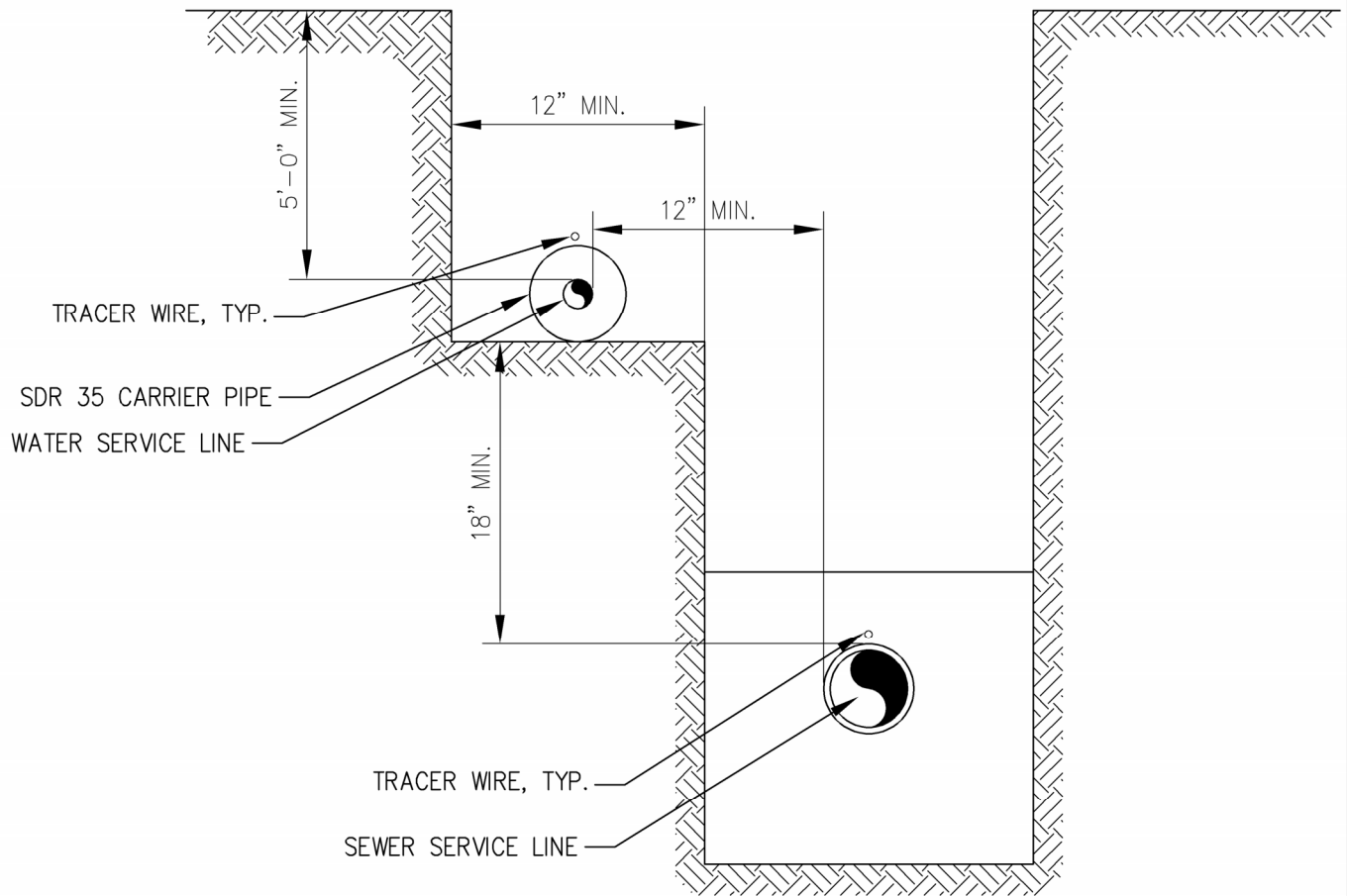
**Roxborough**  
Water & Sanitation District

REMOTE READING 3/4" & 1" METER  
TYPICAL INSIDE SETTING

DATE:  
JUNE 21, 2023

DRAWING NO.  
2-16





**NOTES:**

1. FOR LOTS WITH JOINT TRENCH ALONG FRONT OF LOT, WATER SERVICE LINE SHALL BE PLACED WITH 5'-0" MIN. COVER.
2. ALL WATER SERVICES SHALL BE PLACED AT THE CENTER OF THE LOT.
3. A "V" SHALL BE CUT IN THE FACE OF THE CURB AND GUTTER BY THE BUILDER TO PERMANENTLY MARK THE LOCATION OF THE CURB STOP BOX.
4. WATER LINES SHALL BE SLEEVED IN SDR-35 PIPE AND CONCRETE ENCASED ON ENDS

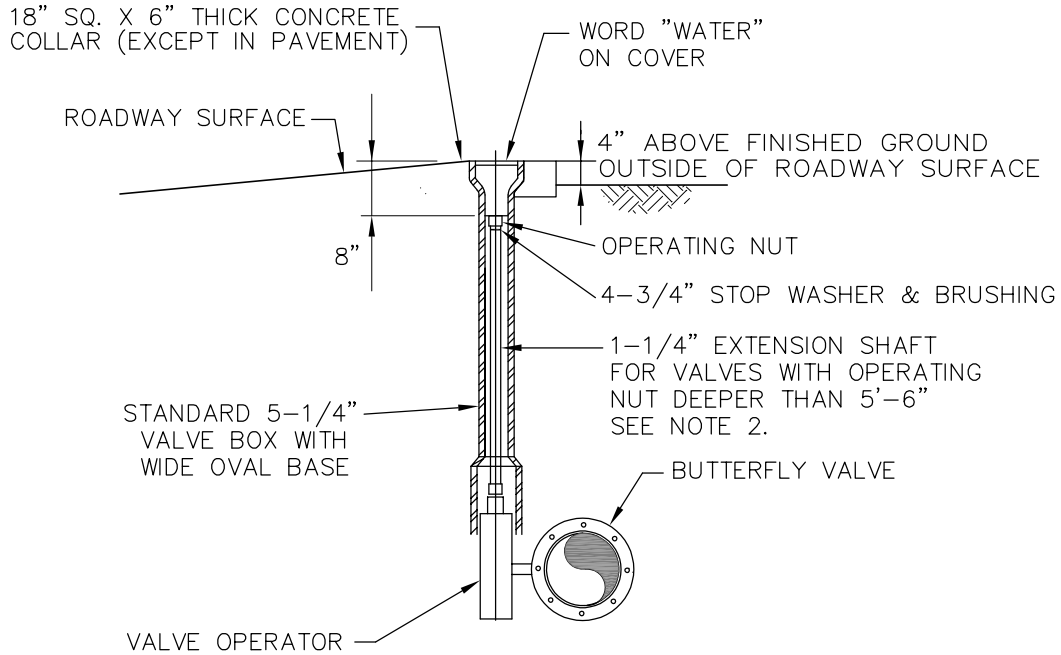


**Roxborough**  
Water & Sanitation District

**WATER & SEWER SERVICE JOINT TRENCH DETAIL**

DATE:  
JUNE 21, 2023


DRAWING NO.  
2-17

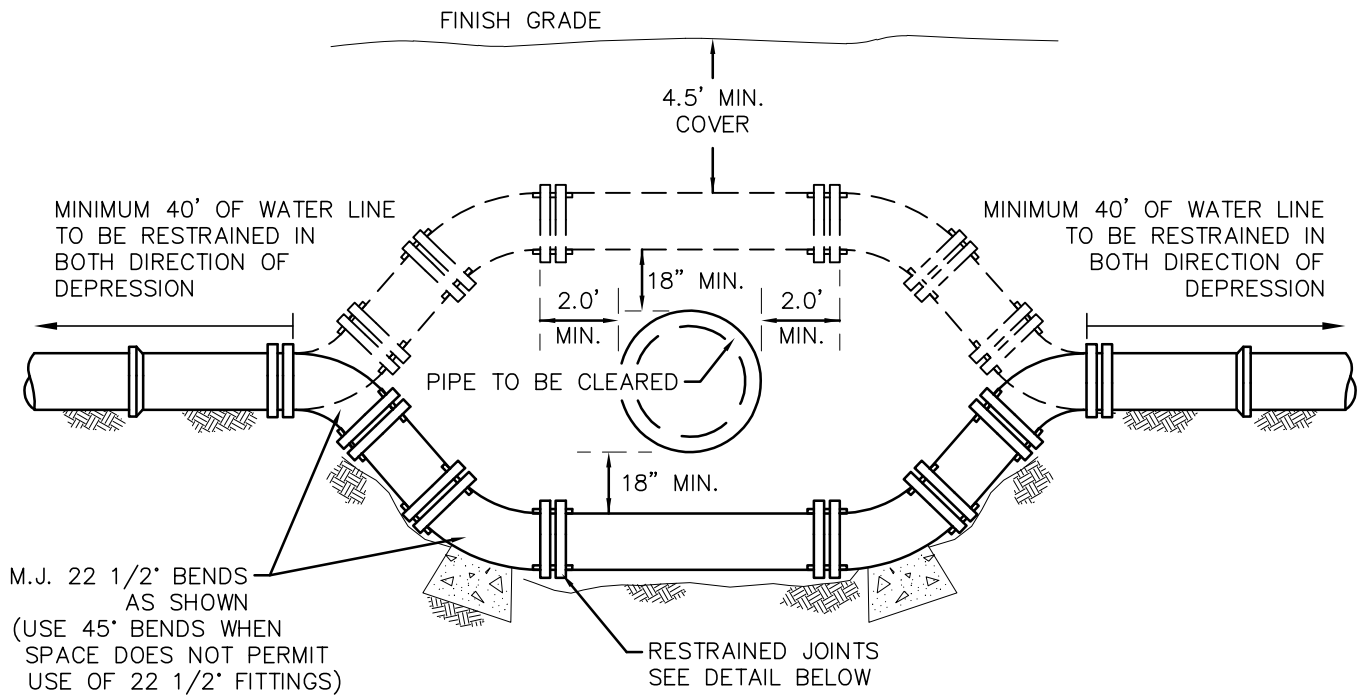


NOTES:


1. VALVES SHALL NOT BE PLACED IN CONCRETE CROSS PANS
2. OPERATING NUT DEPTH SHALL NOT EXCEED 5 1/2 FEET. IF THE DEPTH OF THE OPERATING NUT IS TO BE DEEPER THAN 5 1/2 FEET, THEN AN EXTENSION SHALL BE ATTACHED TO THE OPERATING NUT. THE EXTENSION SHALL EXTEND TO BE A MINIMUM OF 8" FROM FINISHED GRADE
3. BUTTERFLY VALVE SHALL BE POLYETHYLENE
4. BUTTERFLY VALVE SHALL BE RESTRAINED

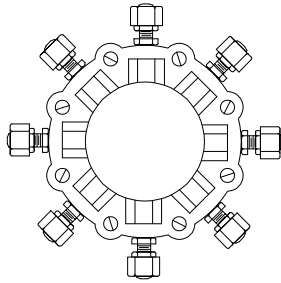
BUTTERFLY VALVE INSTALLATION DETAIL  
NO SCALE

	<p><b>Roxborough</b> Water &amp; Sanitation District</p>
BUTTERFLY VALVE DETAIL	
DATE: JUNE 21, 2023	DRAWING NO. 2-18



TYPICAL DETAIL FOR WATER LINE DEPRESSION  
 4", 6", 8", 10" & 12" DIAMETERS

 <b>Roxborough</b> Water & Sanitation District	
<b>CONDUIT CROSSING DETAIL</b>	
DATE: <b>JUNE 21, 2023</b>	DRAWING NO. <b>2-19</b>



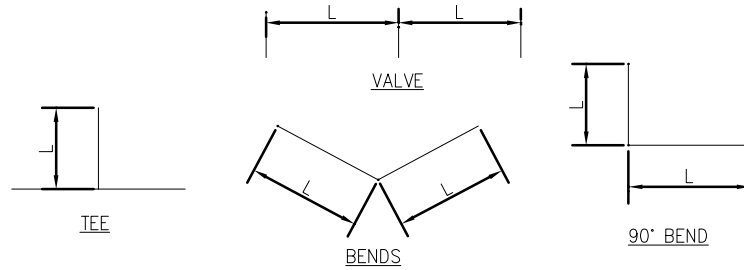
MECHANICAL JOINT RESTRAINING GLANDS FOR P.V.C. OR D.I. PIPE.

GLANDS SHALL BE COLOR CODED: P.V.C. – C 900 RED  
 DUCTILE IRON BLACK

P.V.C. GLANDS 2000PV MEGALUG OR 1500 UNI-FLANGE OR APPROVED EQUAL

D.I. GLANDS 1100 MEGALUG OR 1400 UNI-FLANGE OR APPROVED EQUAL

FOR INSTALLATION ON C-900 PVC  
 OR DUCTILE IRON PIPE USE AS  
 RECEIVED AND INSTALL PER  
 INSTRUCTIONS.



LENGTH OF RESTRAINED PIPE

PIPE SIZE	4"	6"	8"	10"	12"	16"	20"	24"	30"
FITTING	L	L	L	L	L	L	L	L	L
TEE (BRANCH ONLY)	0	0	0	0	40'	60'	80'	155'	218'
PLUG OR 90° BEND	40'	40'	40'	40'	40'	60'	80'	155'	218'
45° BEND	0	0	0	0	11'	18'	24'	45'	64'
22-1/2° BEND	0	0	0	0	3'	5'	6'	12'	17'
11-1/4° BEND	0	0	0	0	1'	1'	2'	3'	5'
ALL VERTICAL BENDS	TOTALLY RESTRAINED, L = 40'								

1. LENGTH OF RESTRAINED PIPE MEASURED EACH WAY FROM BENDS.
2. MINIMUM 4.5' OF GROUND COVER IS REQUIRED.
3. BASED ON 150 P.S.I., INTERNAL PRESSURE.
4. NUTS SHALL BE A.S.T.M., STANDARD DESIGNATION A-307, GRADE A OR B, HEXAGON HEAVY SERIES.
5. LENGTH REFERS TO THE AMOUNT OF PIPE WHICH MUST BE RESTRAINED.
6. SEE PLAN AND PROFILE SHEETS FOR ACTUAL MINIMUM LENGTH OF RESTRAINED PIPE.
7. RESTRAINTS REQUIRED ON ALL HORIZONTAL FITTINGS, VERTICAL FITTINGS, AND VALVES.

MECHANICAL JOINT RESTRAINING  
 N.T.S.

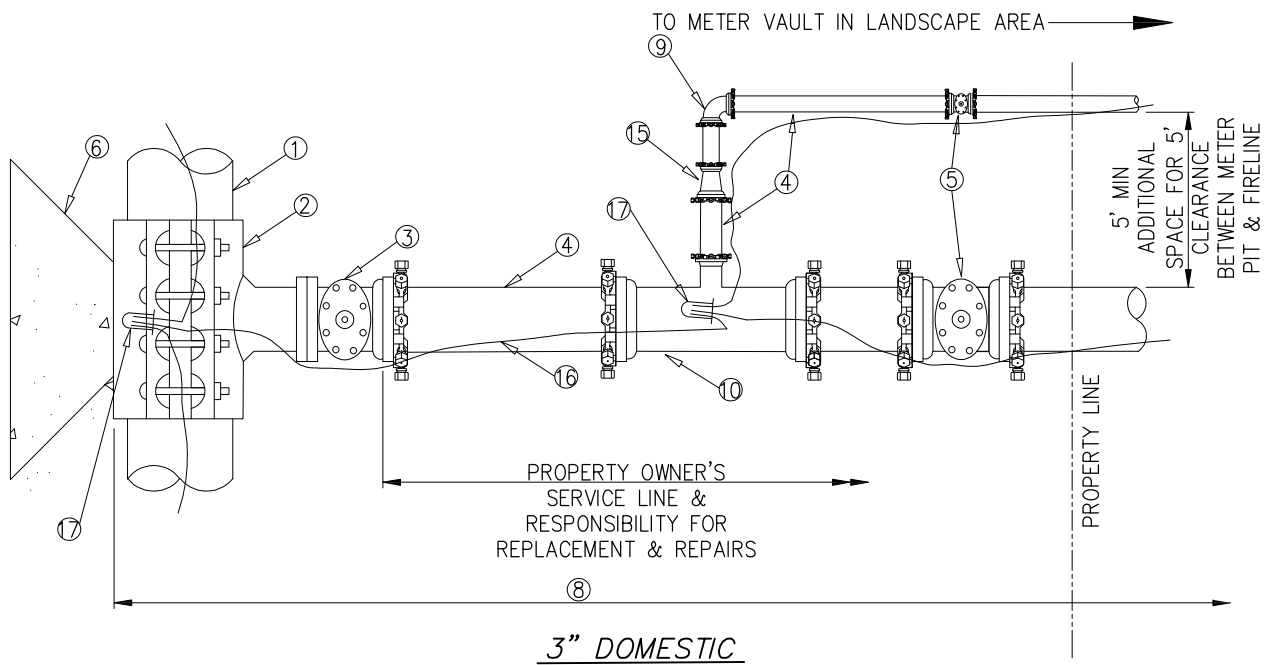
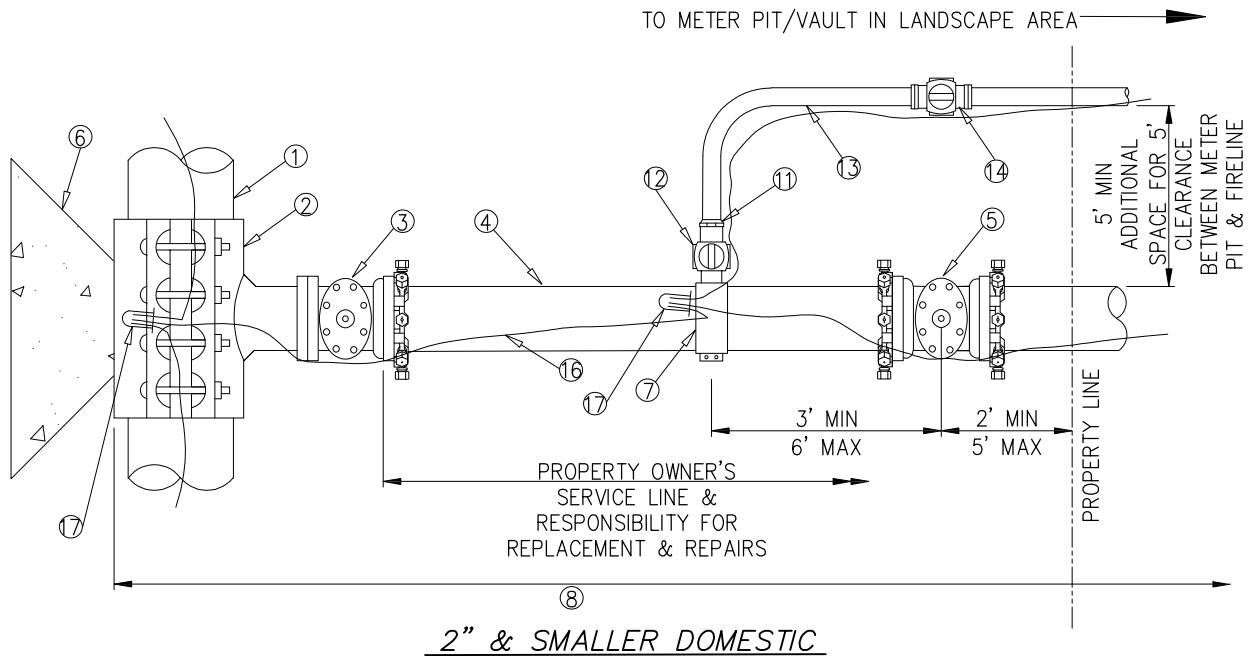


**Roxborough**  
 Water & Sanitation District

MEGALUG & RESTRAINT TABLE

DATE:  
 JUNE 21, 2023

DRAWING NO.  
 2-20




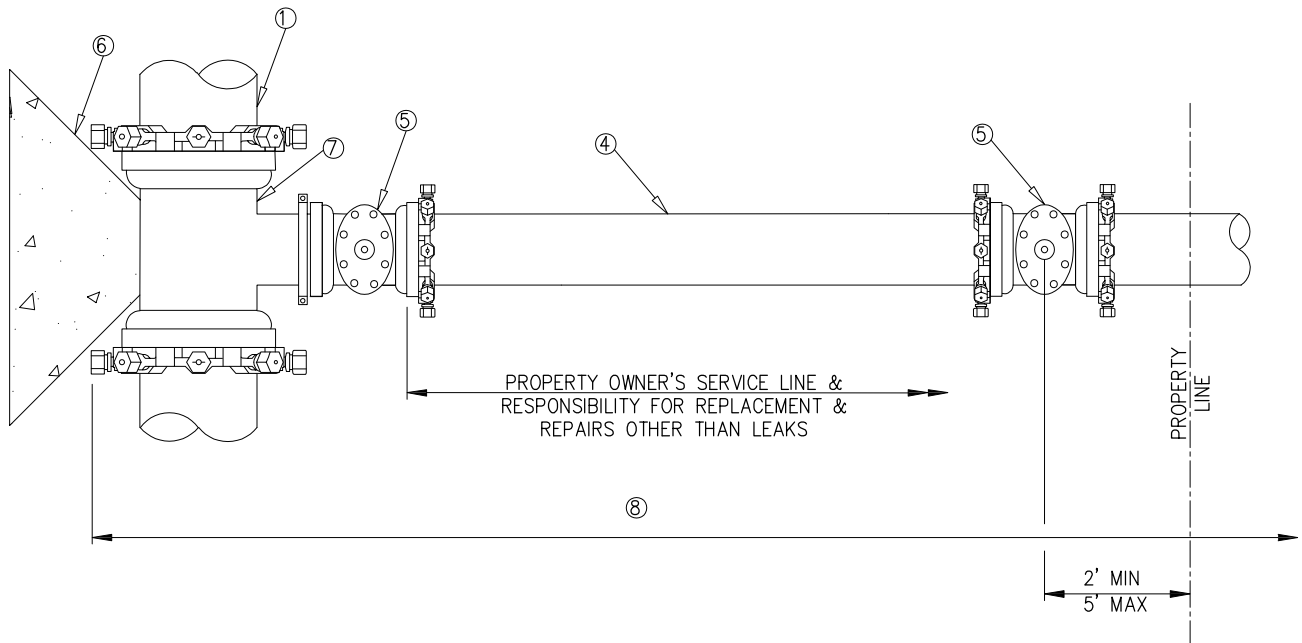
**NOTE:**

COMBINATION SERVICE CANNOT BE USED WHERE THE SPACING BETWEEN SERVICES EXCEEDS THE DISTANCE FROM THE MAIN TO THE DOMESTIC TAP OR TEE

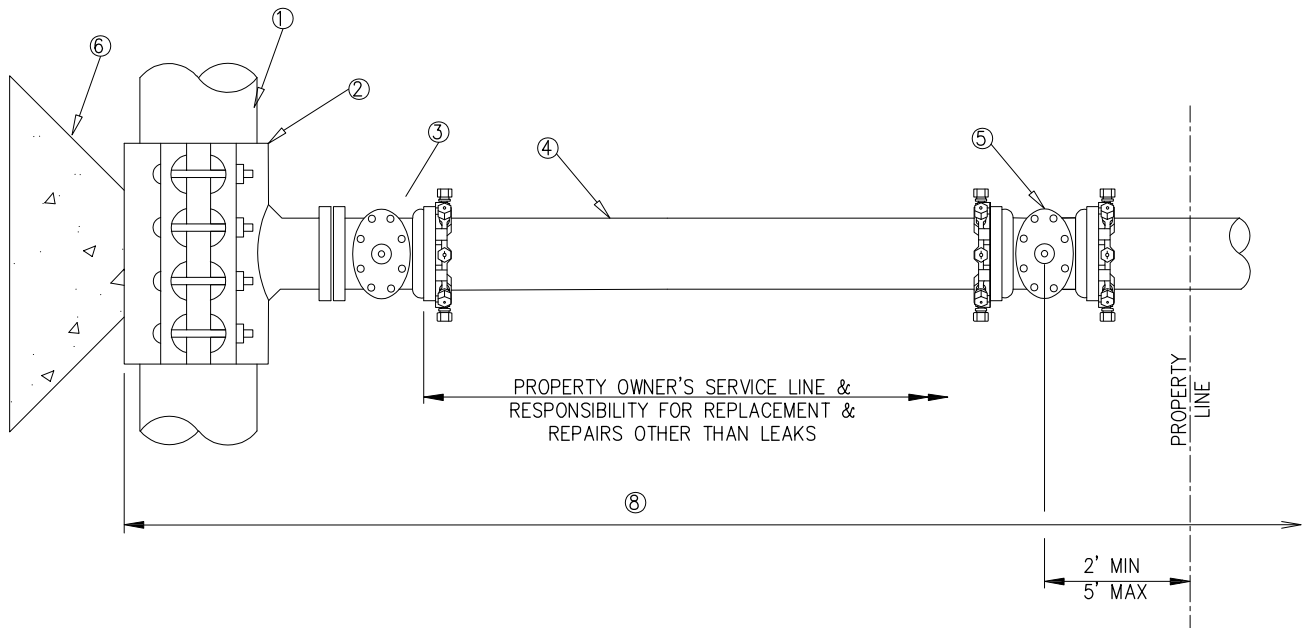
**KEY NOTES:**

- |                                                |                                             |
|------------------------------------------------|---------------------------------------------|
| ① EXISTING MAIN                                | ⑨ 90° MECHANICAL JOINT ELBOW                |
| ② TAPPING SLEEVE                               | ⑩ MECHANICAL JOINT TEE                      |
| ③ TAPPING VALVE OR MECHANICAL JOINT GATE VALVE | ⑪ SERVICE INSULATOR                         |
| ④ DUCTILE IRON PIPE FULLY RESTRAINED           | ⑫ CORP STOP                                 |
| ⑤ MECHANICAL JOINT GATE VALVE                  | ⑬ COPPER PIPE                               |
| ⑥ CONCRETE THRUST BLOCK                        | ⑭ CURB STOP                                 |
| ⑦ TAPPING SADDLE                               | ⑮ 4" X 3" MECHANICAL JOINT REDUCER          |
| ⑧ POLYETHYLENE WRAPPED                         | ⑯ WATER PROOF TRACER WIRE SPLICE CONNECTION |
|                                                | ⑰ TRACER WIRE, TYP.                         |

 <p style="margin: 0;"><b>Roxborough</b> Water &amp; Sanitation District</p>	
FIRELINE CONNECTION WITH DOMESTIC SERVICE TAP	
DATE: <b>JUNE 21, 2023</b>	DRAWING NO. <b>2-21</b>



### MAIN EXTENSION



### EXISTING MAIN

KEY NOTES:

- ① EXISTING MAIN
- ② TAPPING SLEEVE
- ③ TAPPING VALVE FLANGE  
X MECHANICAL JOINT
- ④ DUCTILE IRON PIPE FULLY  
RESTRAINED
- ⑤ MECHANICAL JOINT GATE  
VALVE
- ⑥ CONCRETE THRUST BLOCK
- ⑦ MECHANICAL JOINT  
TEE
- ⑧ POLYETHYLENE WRAPPED

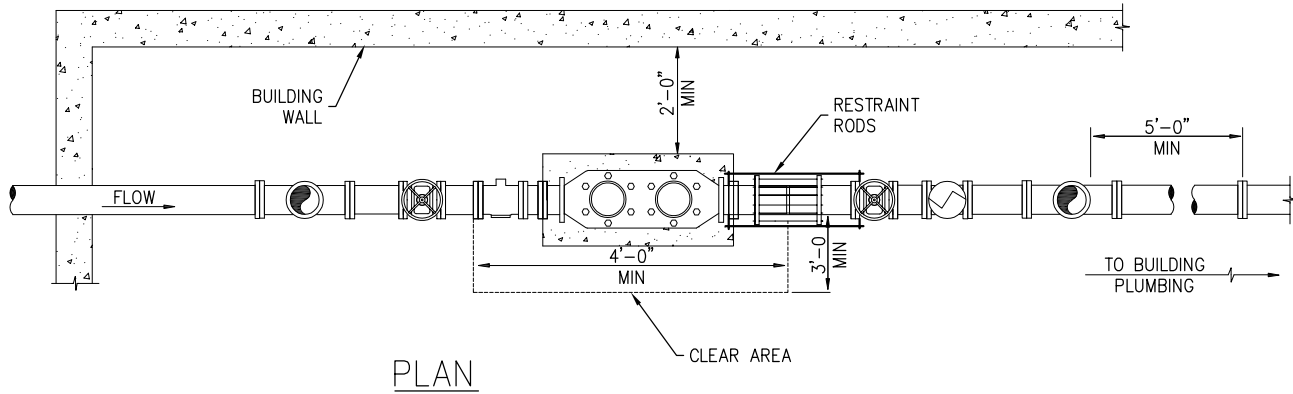


**Roxborough**  
Water & Sanitation District

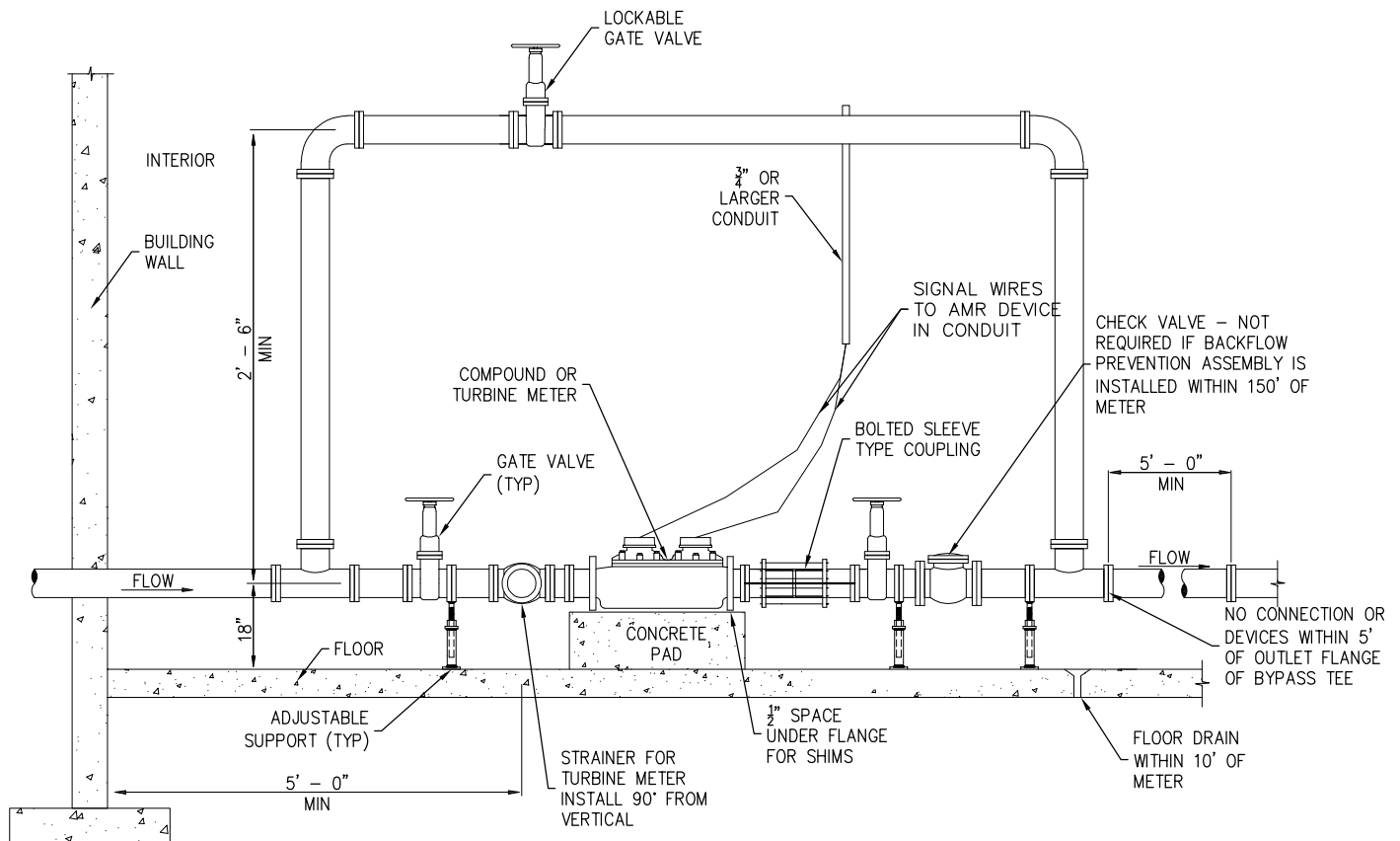
3" & LARGER DOMESTIC & FIRELINE CONNECTIONS

DATE:  
JUNE 21, 2023

DRAWING NO.  
2-22




PLAN

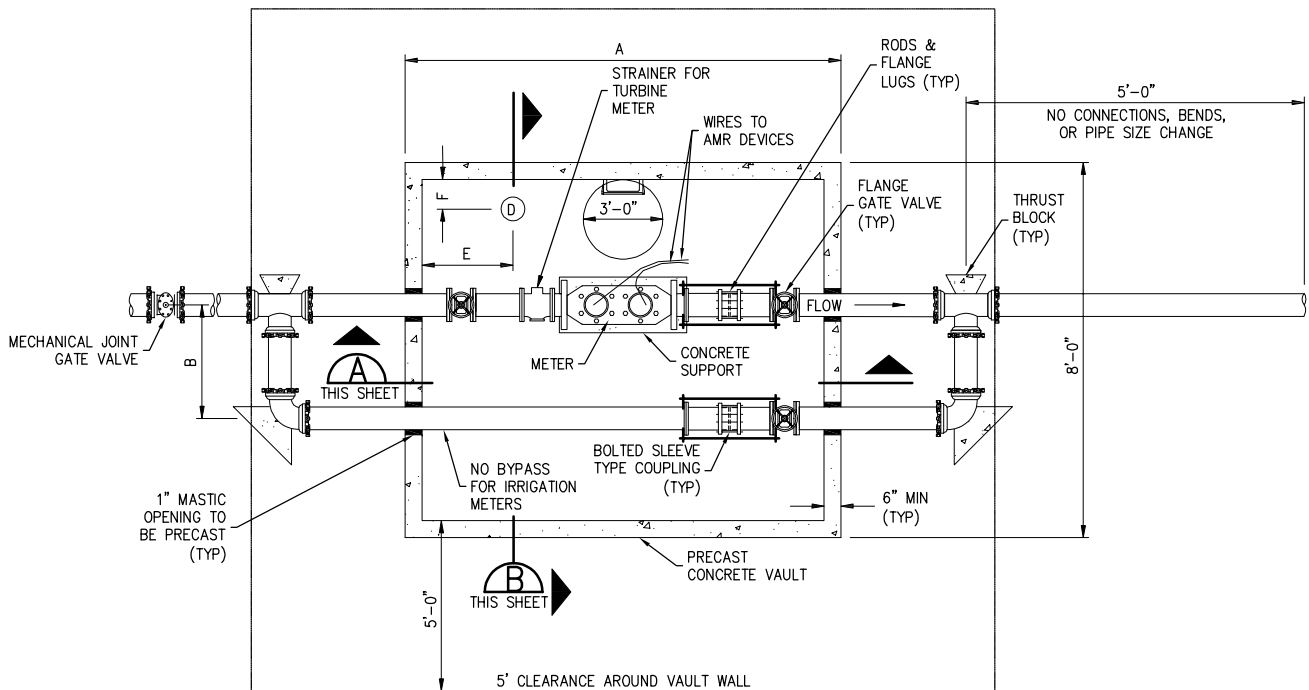


ELEVATION

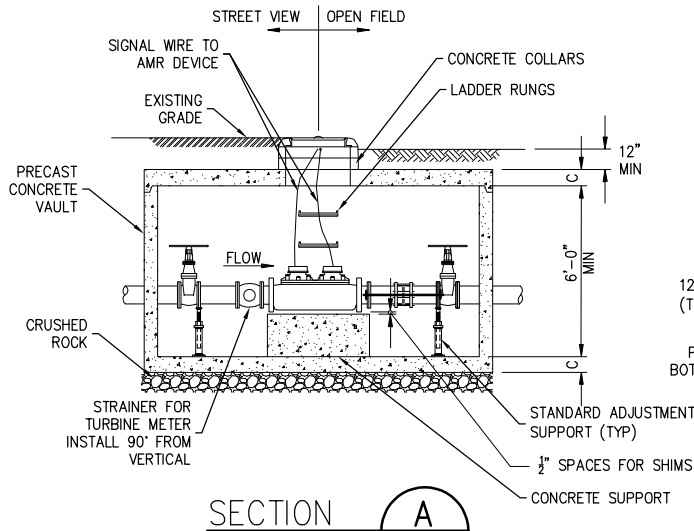
NOTES:

1. NEW INSIDE METER INSTALLATIONS ARE PERMITTED ONLY BY WRITTEN APPROVAL. EXISTING INSIDE METER INSTALLATIONS MUST COMPLY WITH THIS DRAWING.
2. PIPING FOR 3" & LARGER METERS SHALL BE FLANGED DUCTILE IRON.
3. INSTALLATION MUST ALLOW FOR FULL ACCESS TO THE METER & VALVES & PROVIDE PROTECTION FROM FREEZING WITH A MINIMUM 2' CLEARANCE TO WALL.
4. GATE VALVES SHALL BE NON-RISING STEM, OPEN COUNTER CLOCK-WISE, WITH HAND WHEEL OPERATORS.
5. FOR INSIDE SETTINGS, THE PROPERTY OWNER SHALL PROVIDE A DETAILED DRAWING SHOWING DIMENSIONS OF THE METER ROOM INCLUDING PIPING & EQUIPMENT WITH APPROPRIATE DIMENSIONS FOR RWSD APPROVAL BEFORE CONSTRUCTION.
6. THE TURBINE METER REQUIRES A STRAINER BEFORE THE METER.
7. WALL PENETRATIONS SHALL BE GROUTED WITH CONCRETE.

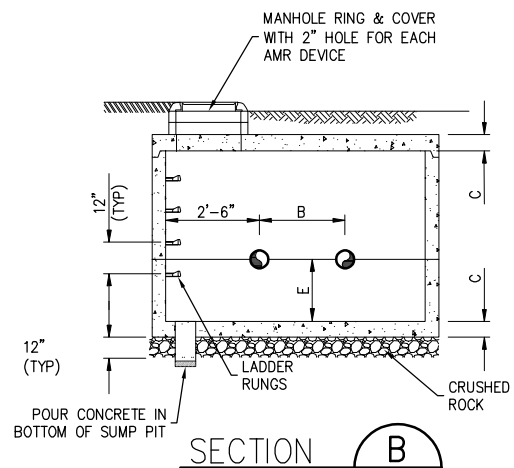
 <b>Roxborough</b> Water & Sanitation District	
<b>INSIDE SETTING FOR 3" &amp; LARGER METER</b>	
DATE: JUNE 21, 2023	DRAWING NO. 2-23



PLAN



SECTION A



SECTION B

NOTES:

1. THE DISTANCE BETWEEN RUNGS, CLEATS, & STEPS SHALL NOT EXCEED 12" & SHALL BE UNIFORM THROUGHOUT THE LENGTH OF THE LADDER
2. ALL VALVES INSIDE VAULT MUST BE NON RISING STEM, OPEN CCW, WITH HAND WHEEL OPERATORS
3. STRAINER TO BE USED ONLY ON TURBINE METERS
4. CHECK VALVE REQUIRED BETWEEN COUPLING & GATE VALVE IF BACKFLOW PREVENTION ASSEMBLY IS MORE THAN 150' FROM VAULT
5. EXTERIOR CONCRETE SURFACES SHALL BE DAMP-PROOFED IN ACCORDANCE WITH THE SPECIFICATIONS

METER SIZE & NOMINAL PIPE DIA.	PRECAST VAULT DIMENSIONS			SUMP		
	A	B	C (MIN)	D	E	F
3"	9'-0"	2'-0"	6"	12"	2'-2"	1'-6"
4"	9'-0"	2'-6"	6"	12"	2'-2"	1'-6"
6"	9'-0"	2'-6"	6"	12"	2'-2"	1'-6"
8"	13'-6"	2'-6"	7 1/4"	18"	2'-6"	1'-9"
10"	13'-6"	2'-6"	7 1/4"	18"	2'-6"	1'-9"



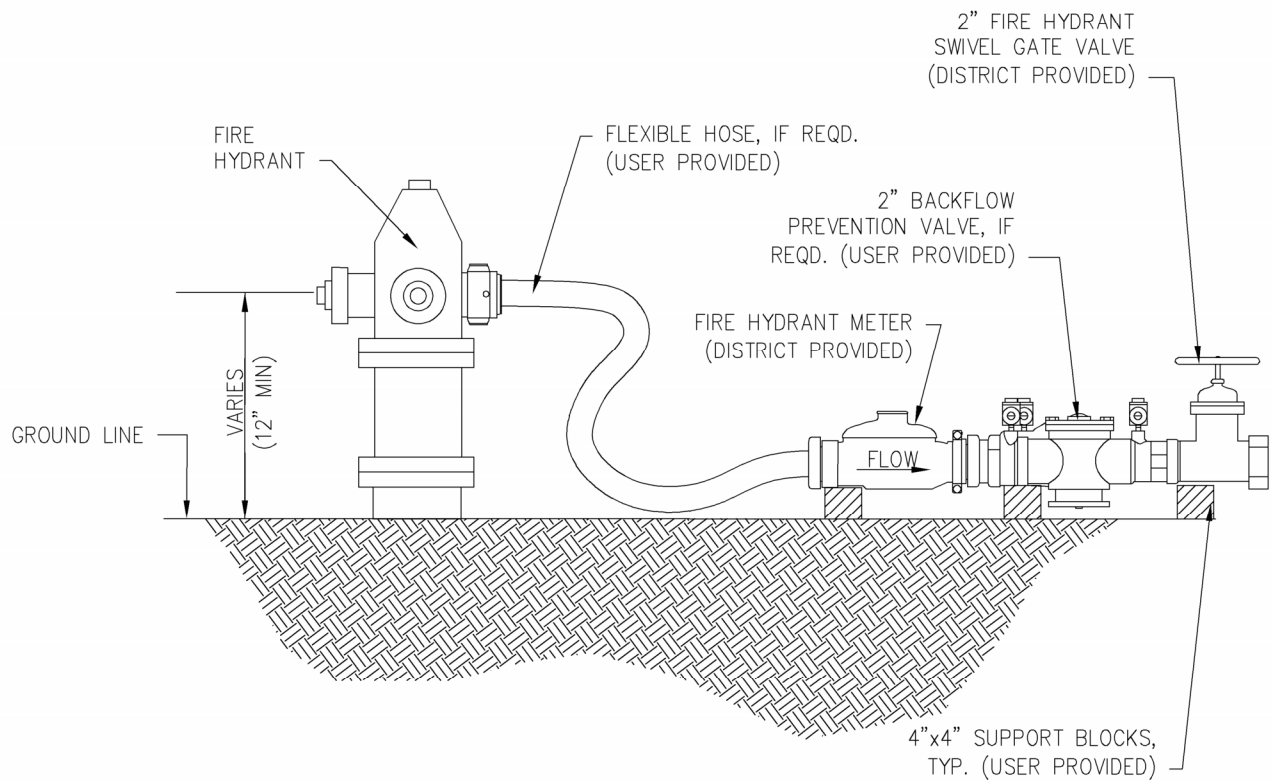
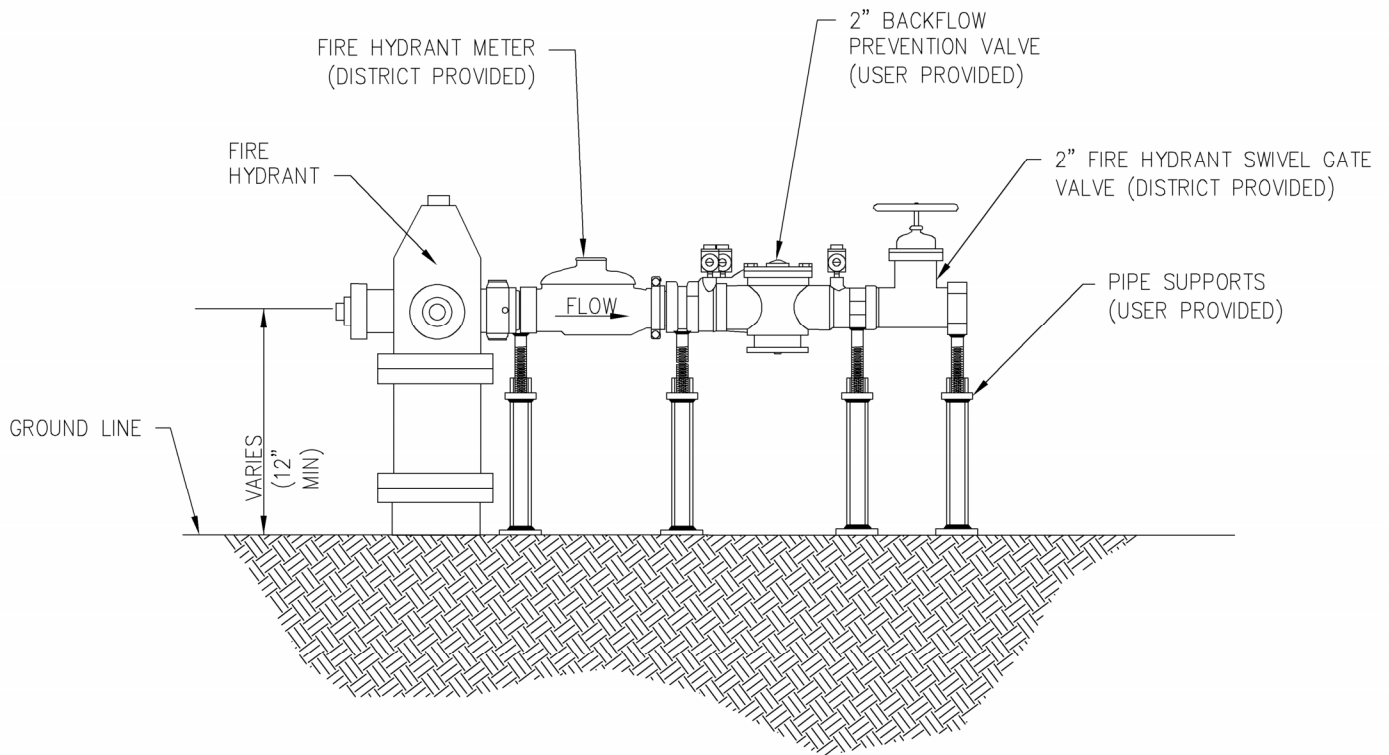
**Roxborough**  
Water & Sanitation District

LARGE METER IN VAULT

DATE:  
JUNE 21, 2023

DRAWING NO.  
2-24



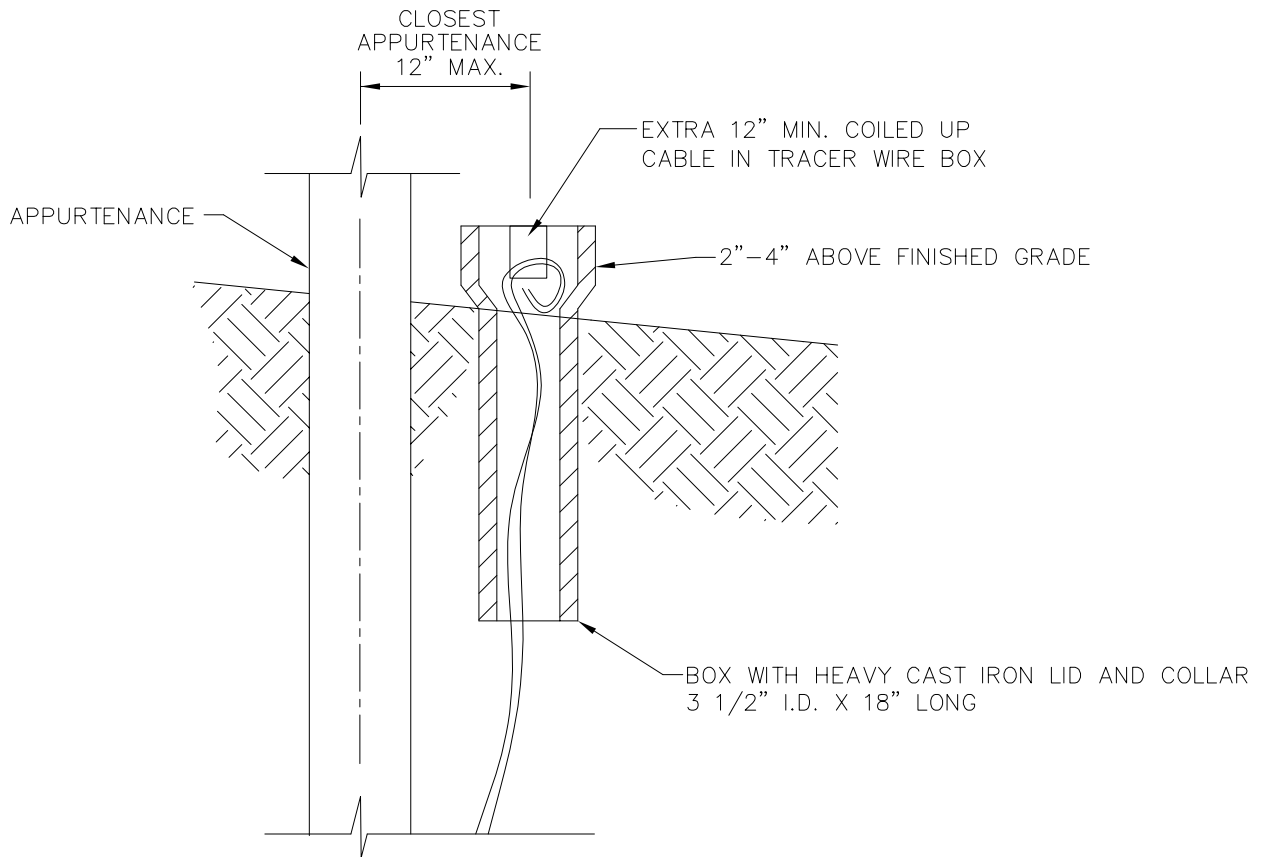


**Roxborough**  
Water & Sanitation District

FIRE HYDRANT METER PERMIT

DATE:  
JUNE 21, 2023

DRAWING NO.  
2-25



TRACER WIRE BOX

NO SCALE

NOTE:

TRACER WIRE SHALL BE TAPED  
TO PIPE IN MAX 10' INCREMENTS

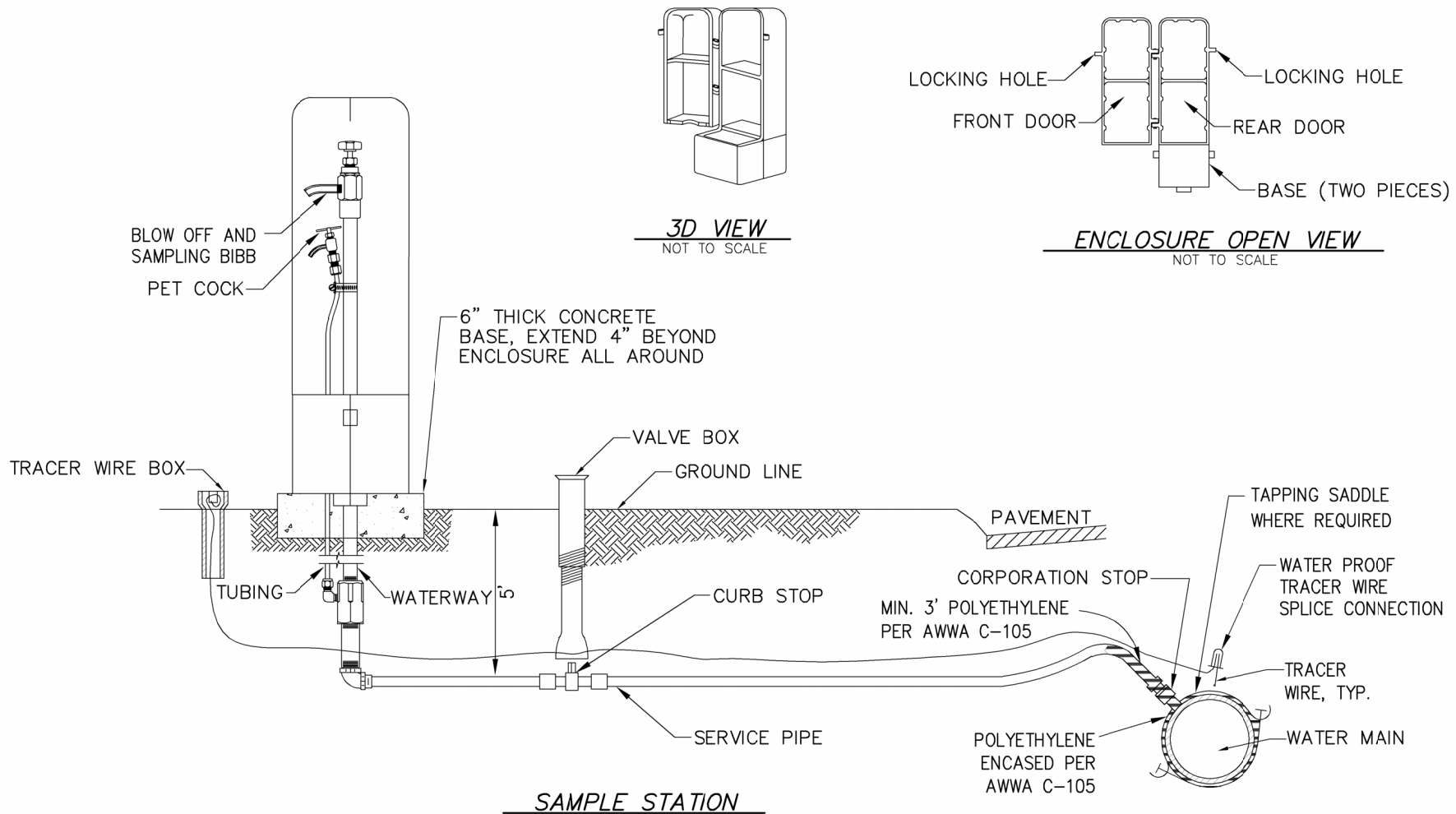


**Roxborough**  
Water & Sanitation District

TRACER WIRE BOX DETAIL


DATE:  
JUNE 21, 2023

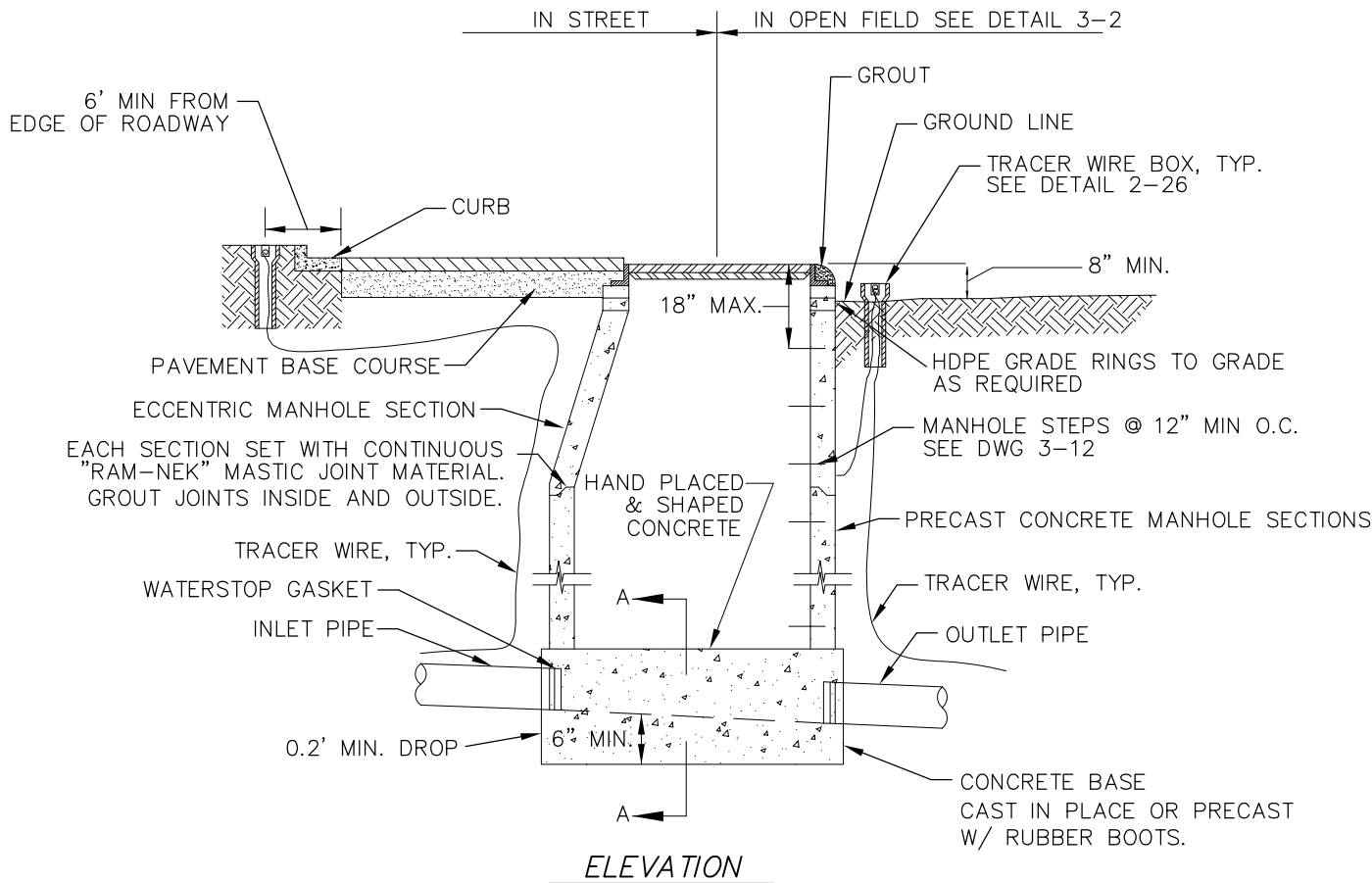
DRAWING NO.  
2-26



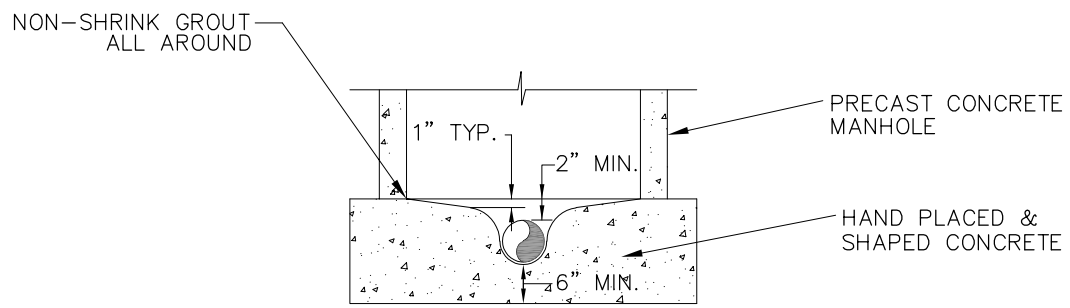
**NOTES:**

1. SAMPLING STATION SHALL BE 5' BURY, WITH A 3/4" FIP INLET, AND 7/16" UNTHREADED BLOW OFF AND SAMPLING BIBB.
2. STATION SHALL BE ENCLOSED IN A LOCKABLE, NON-REMOVABLE ALUMINUM BOX WITH HINGED OPENINGS.
3. WHEN OPEN, THE STATION SHALL REQUIRE NO KEY FOR OPERATION, AND ALL WATER FLOW SHALL PASS THRU AN ALL STAINLESS STEEL WATERWAY.
4. ALL WORKING PARTS SHALL BE OF STAINLESS STEEL AND SERVICEABLE FROM ABOVE GROUND WITH NO DIGGING OR REPLACEMENT NEEDED.
5. A STAINLESS STEEL PET COCK WILL BE LOCATED BELOW THE SAMPLING BIBB TO ALLOW PUMPING OF ANY WATER REMAINING INSIDE THE STATION TO INSURE NON-FREEZING.
6. THE STATION SHALL BE MODEL #88-SS AS MANUFACTURED BY THE KUPFERLE FOUNDRY, ST. LOUIS MO. 63102 OR APPROVED ALTERNATE.

 <b>Roxborough</b> Water & Sanitation District	
<b>SAMPLE STATION</b>	
DATE: <b>JUNE 21, 2023</b>	DRAWING NO. <b>2-27</b>



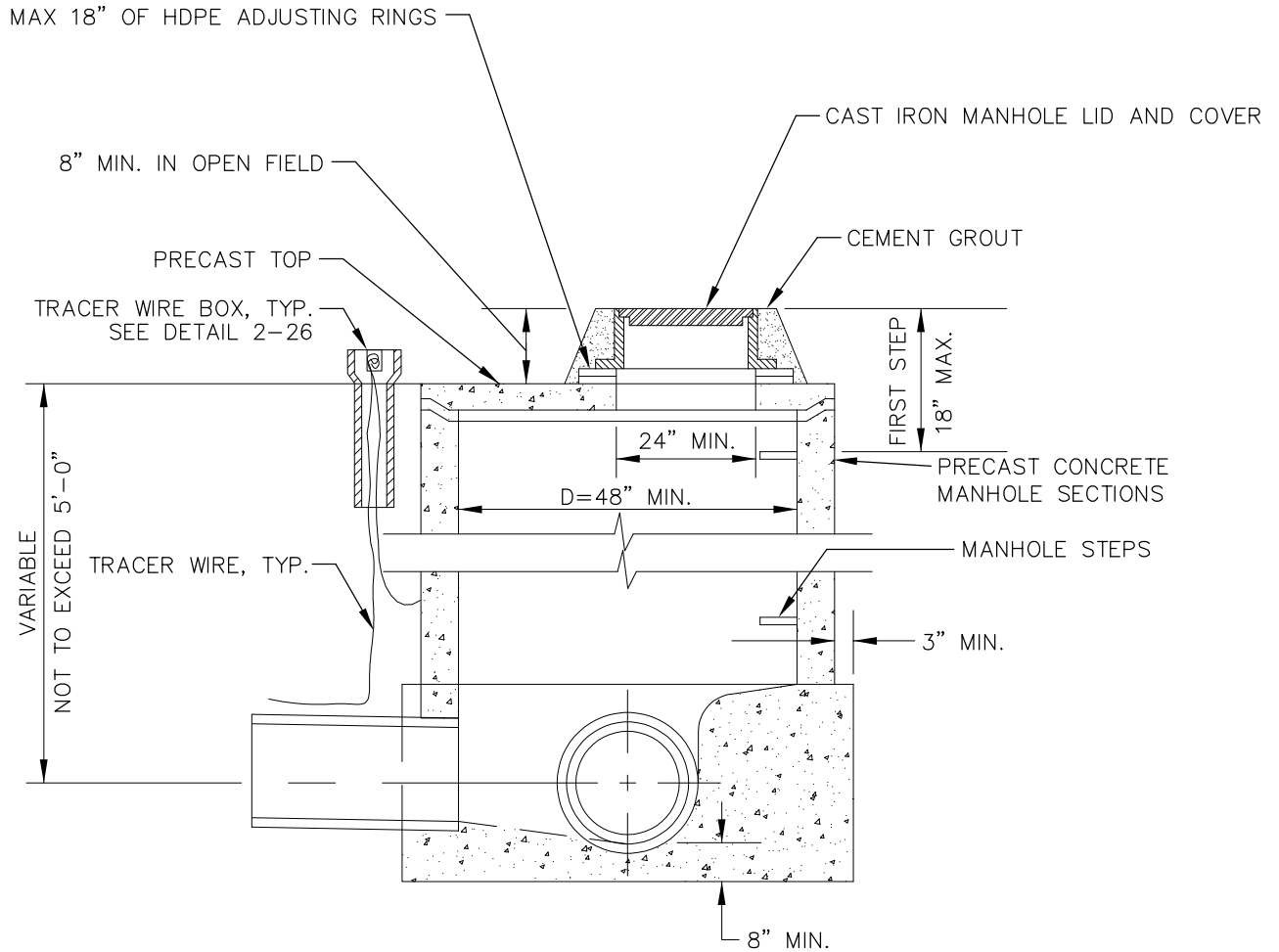
NOTE:  
FOR SHALLOW MANHOLES, REFER TO DRAWING NO. 3-2




NOTE:  
IF MANHOLE US IN FIELD, RIM SHOULD BE 8" ABOVE FINISHED GRADE, WITH CONCRETE COLLAR

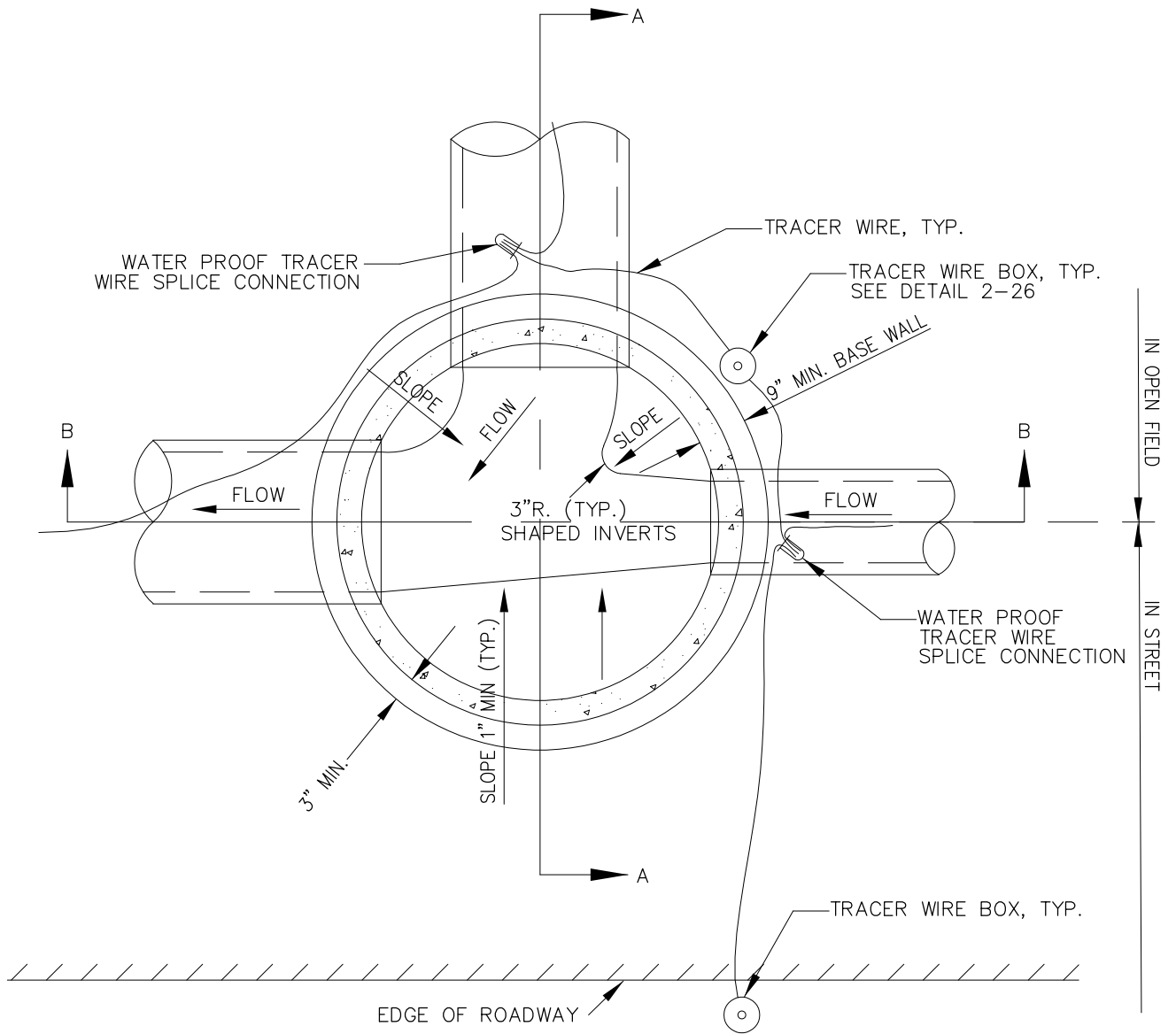
SECTION A-A

	<h2 style="margin: 0;">Roxborough</h2> <p style="margin: 0;">Water &amp; Sanitation District</p>
STANDARD MANHOLE	
DATE: JUNE 21, 2023	DRAWING NO. 3-1



NOTE:  
REFER TO DRAWING NO. 3-1 FOR ADDITIONAL DETAILS

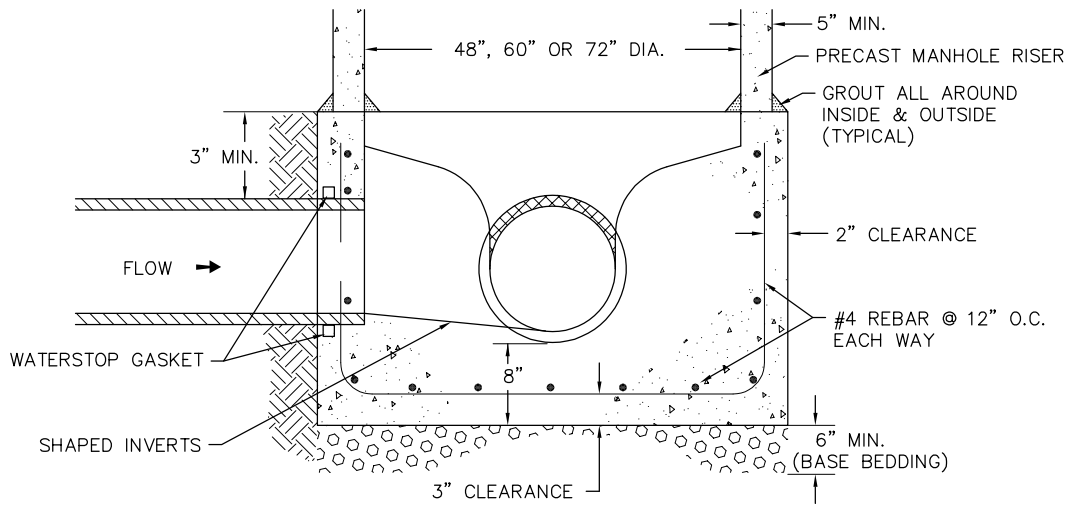
 <b>Roxborough</b> Water & Sanitation District	
SHALLOW MANHOLE	
DATE: JUNE 21, 2023	DRAWING NO. 3-2



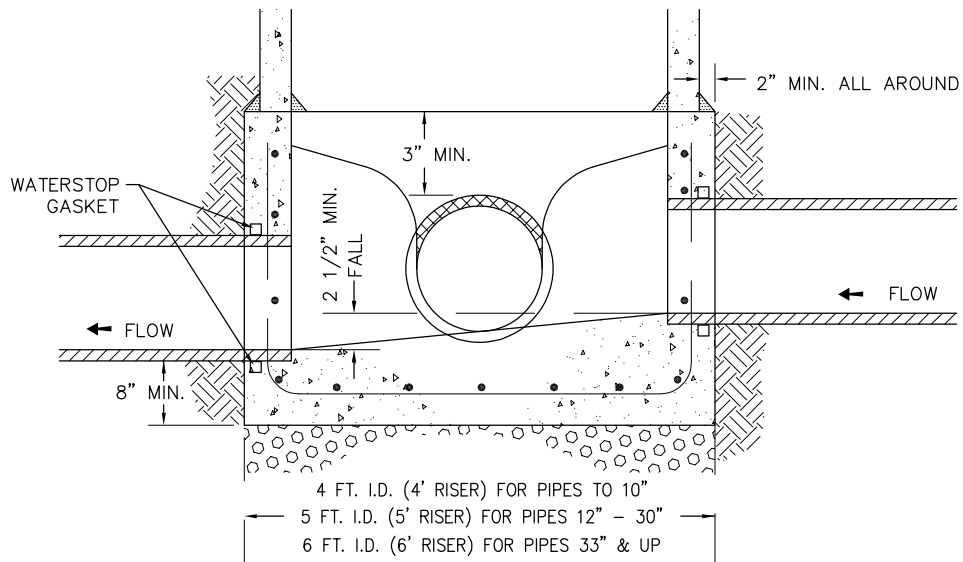
**NOTE:**

1. SEE DRAWING 3-3B FOR SECTIONS A-A AND B-B

 <b>Roxborough</b> Water & Sanitation District	
<b>MANHOLE INVERT DETAIL</b>	
DATE: <b>JUNE 21, 2023</b>	DRAWING NO. <b>3-3A</b>



SECTION A-A



SECTION B-B

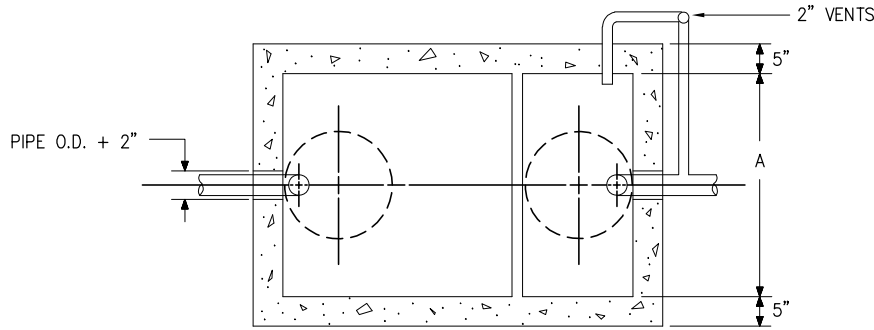


**Roxborough**  
Water & Sanitation District

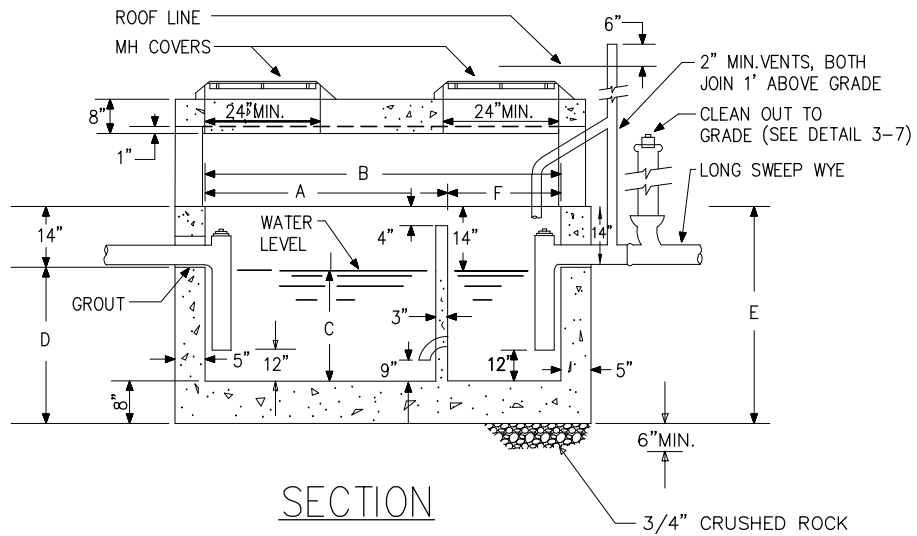
MANHOLE INVERT SECTIONS

DATE:  
JUNE 21, 2023

DRAWING NO.  
3-3B



PLAN VIEW



SECTION

NOTES:

1. SECONDARY COMPARTMENT HAS VOLUME EQUAL TO 1/3 OF TOTAL CAPACITY.
2. ALL PIPE AND FITTINGS SHALL BE SOLVENT WELDED SCHEDULE 40 P.V.C. MIN. 3" DIA. WITHIN TRAP.
3. WALLS AND BOTTOM REINFORCED THROUGHOUT WITH 2x16 6/10 REMESH.
4. COVERS TO BE REINFORCED LONGITUDINALLY WITH NO. 6 REBAR ON 6" CENTERS, NO. 4 REBAR ON 6" CENTERS WIDTHWISE, AND NO. 8 REBAR DIAGONALLY AROUND ACCESS HOLES.
5. CLEAN OUT SHALL BE PVC SCREW PLUG.
6. VENT PIPE MAY BE CAST IRON OR PVC SCHEDULE 40, TO A POINT 6" ABOVE GROUND.
7. MANHOLE RING AND COVER SHALL BE 24".
8. NO BOLT DOWN COVERS ALLOWED WITHOUT PERMISSION FROM RWSD.
9. STRENGTH DESIGN: H-20 LOADING

WATER CAPACITY APPROX. GALLONS	DIMENSIONS					
	TWO COMPARTMENT TANK					
	INCHES					
	A	B	C	D	E	F
320	48	72	22	30	44	24
500	48	72	36	46	44	24
780	48	96	40	48	62	32
1060	72	102	34	42	56	34



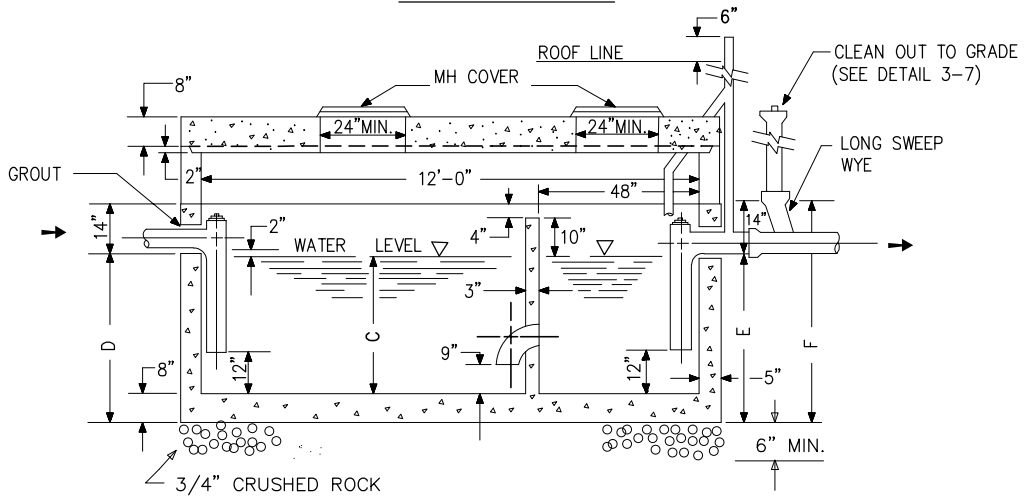
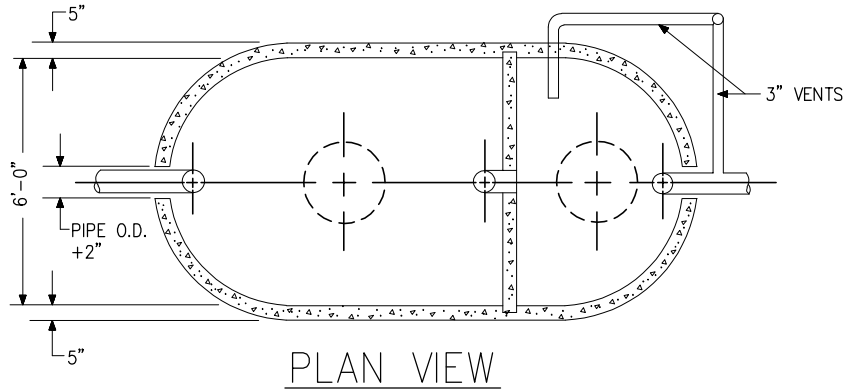
**Roxborough**  
Water & Sanitation District

GREASE INTERCEPTOR - RECTANGULAR

DATE:  
JUNE 21, 2023

DRAWING NO.  
3-4A





**NOTES:**

1. SECONDARY COMPARTMENT HAS VOLUME EQUAL TO 1/3 OF TOTAL CAPACITY.
2. STRENGTH DESIGN: H-20 LOADING
3. ALL PIPE AND FITTINGS SHALL BE SOLVENT WELDED SCHEDULE 40 P.V.C. MIN. 3" DIA. WITHIN TRAP.
4. WALLS AND BOTTOM REINFORCED THROUGHOUT WITH 2x16 6/10 REMESH.
5. COVERS TO BE REINFORCED LONGITUDINALLY WITH NO. 6 REBAR ON 6" CENTERS, NO. 4 REBAR ON 6" CENTERS WIDTHWISE, AND NO. 8 REBAR DIAGONALLY AROUND ACCESS HOLES.
6. CLEAN OUT SHALL BE A PVC SCREW PLUG.
7. VENT PIPE MAY BE CAST IRON OR PVC, SCHEDULE 40, TO A POINT 6" ABOVE GROUND.
8. NO BOLT DOWN COVERS ALLOWED WITHOUT PERMISSION FROM RWS.
9. GREASE CAPACITY RATED FOR LARGE COMPARTMENT ONLY.

Water Capacity (Approx. Gallons)	DIMENSIONS INCHES			
	C	D	E	F
1565	40	50	48	62
1800	46	56	54	68
2035	52	62	60	74
2505	64	74	72	86
2975	76	86	84	98
3210	82	92	90	104
3445	88	98	96	110

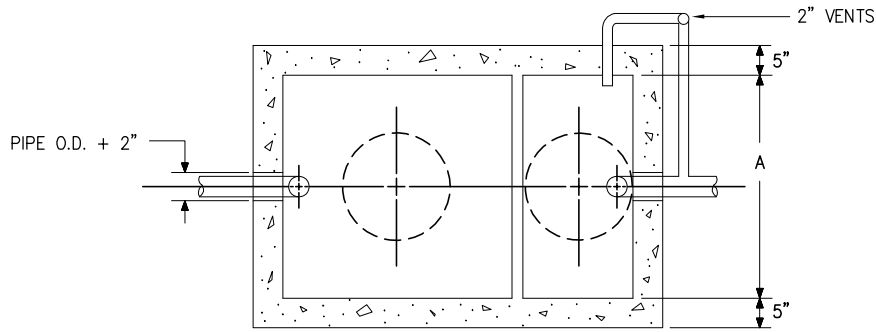


**Roxborough**  
Water & Sanitation District

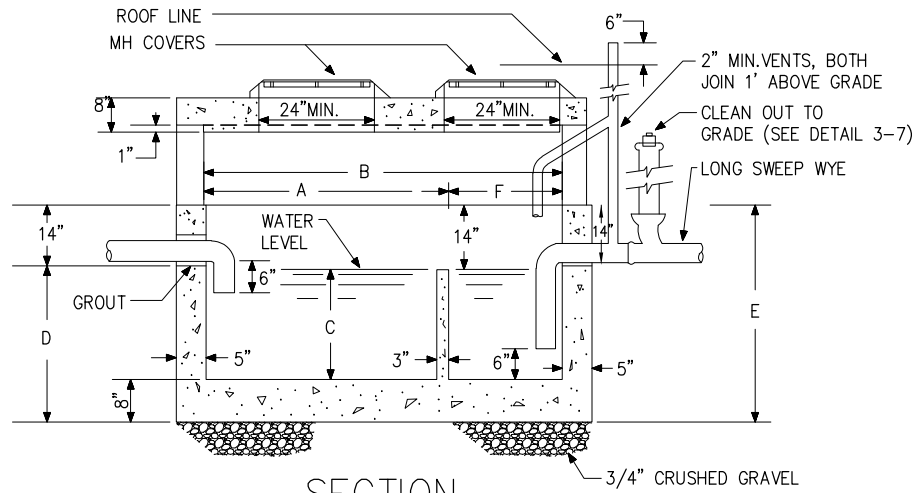
**GREASE INTERCEPTOR - OVAL**

DATE:  
JUNE 21, 2023

DRAWING NO.  
3-4B



PLAN VIEW



SECTION

NOTES:

1. SECONDARY COMPARTMENT HAS VOLUME EQUAL TO 1/3 OF TOTAL CAPACITY.
2. ALL PIPE AND FITTINGS SHALL BE SOLVENT WELDED SCHEDULE 40 P.V.C. MIN. 3" DIA. WITHIN TRAP.
3. WALLS AND BOTTOM REINFORCED THROUGHOUT WITH 2x16 6/10 REMESH.
4. COVERS TO BE REINFORCED LONGITUDINALLY WITH NO. 6 REBAR ON 6" CENTERS, NO. 4 REBAR ON 6" CENTERS WIDTHWISE, AND NO. 8 REBAR DIAGONALLY AROUND ACCESS HOLES.
5. CLEAN OUT SHALL BE PVC SCREW PLUG.
6. VENT PIPE MAY BE CAST IRON OR PVC SCHEDULE 40, TO A POINT 6" ABOVE GROUND.
7. MANHOLE RING AND COVER SHALL BE 24" DENVER HEAVY, OR EQUAL.
8. CHECK WITH SUPPLIER FOR EXACT DIMENSIONS.
9. NO BOLT DOWN COVERS ALLOWED WITHOUT PERMISSION FROM RWSD.

WATER CAPACITY APPROX. GALLONS	DIMENSIONS					
	TWO COMPARTMENT TANK					
	INCHES					
	A	B	C	D	E	F
320	48	72	22	30	44	24
500	48	72	36	46	44	24
780	48	96	40	48	62	32
1060	72	102	34	42	56	34

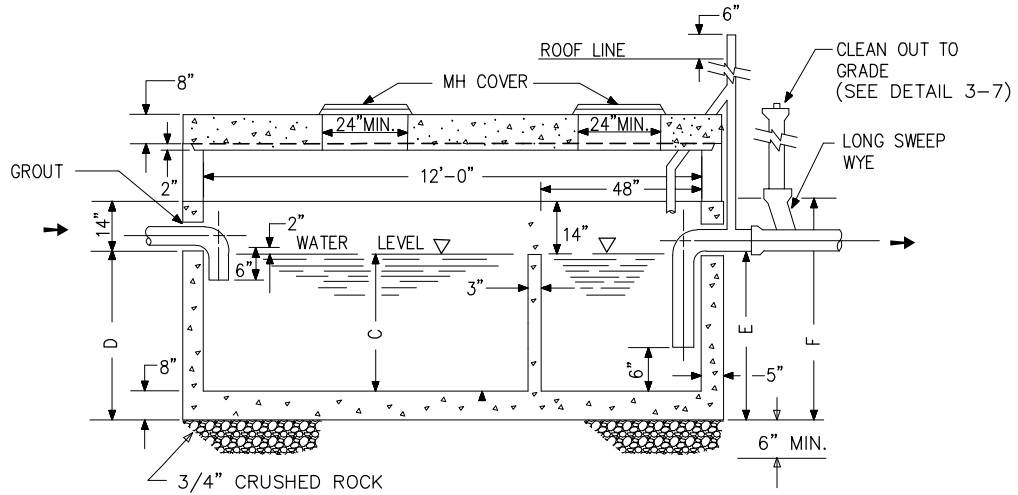
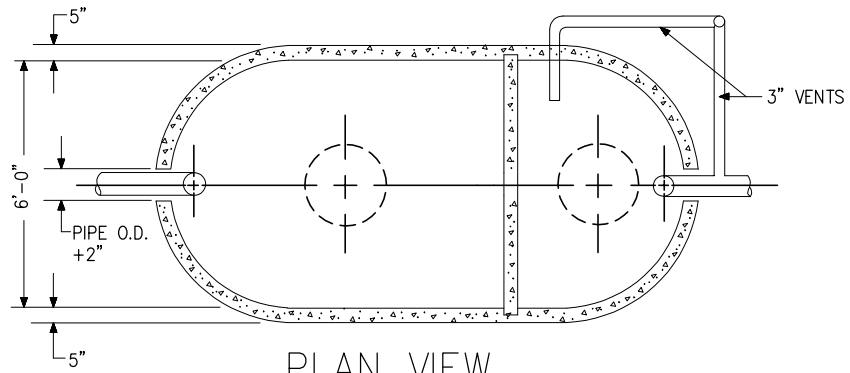


**Roxborough**  
Water & Sanitation District

SAND AND OIL TRAP - RECTANGULAR

DATE:  
JUNE 21, 2023

DRAWING NO.  
3-5A



SECTION

NOTES:

1. SECONDARY COMPARTMENT HAS VOLUME EQUAL TO 1/3 OF TOTAL CAPACITY.
2. ALL PIPE AND FITTINGS SHALL BE SOLVENT WELDED SCHEDULE 40 P.V.C. MIN. 3" DIA. WITHIN TRAP.
3. WALLS AND BOTTOM REINFORCED THROUGHOUT WITH 2x16 6/10 REMESH.
4. COVERS TO BE REINFORCED LONGITUDINALLY WITH NO. 6 REBAR ON 6" CENTERS, NO. 4 REBAR ON 6" CENTERS WIDTHWISE, AND NO. 8 REBAR DIAGONALLY AROUND ACCESS HOLES.
5. CLEAN OUT SHALL BE A PVC SCREW PLUG.
6. VENT PIPE MAY BE CAST IRON OR PVC, SCHEDULE 40, TO A POINT 6" ABOVE GROUND.
7. GREASE CAPACITY RATED FOR LARGE COMPARTMENT ONLY.

Water Capacity (Approx. Gallons)	DIMENSIONS INCHES			
	C	D	E	F
1565	40	50	48	62
1800	46	56	54	68
2035	52	62	60	74
2505	64	74	72	86
2975	76	86	84	98
3210	82	92	90	104
3445	88	98	96	110



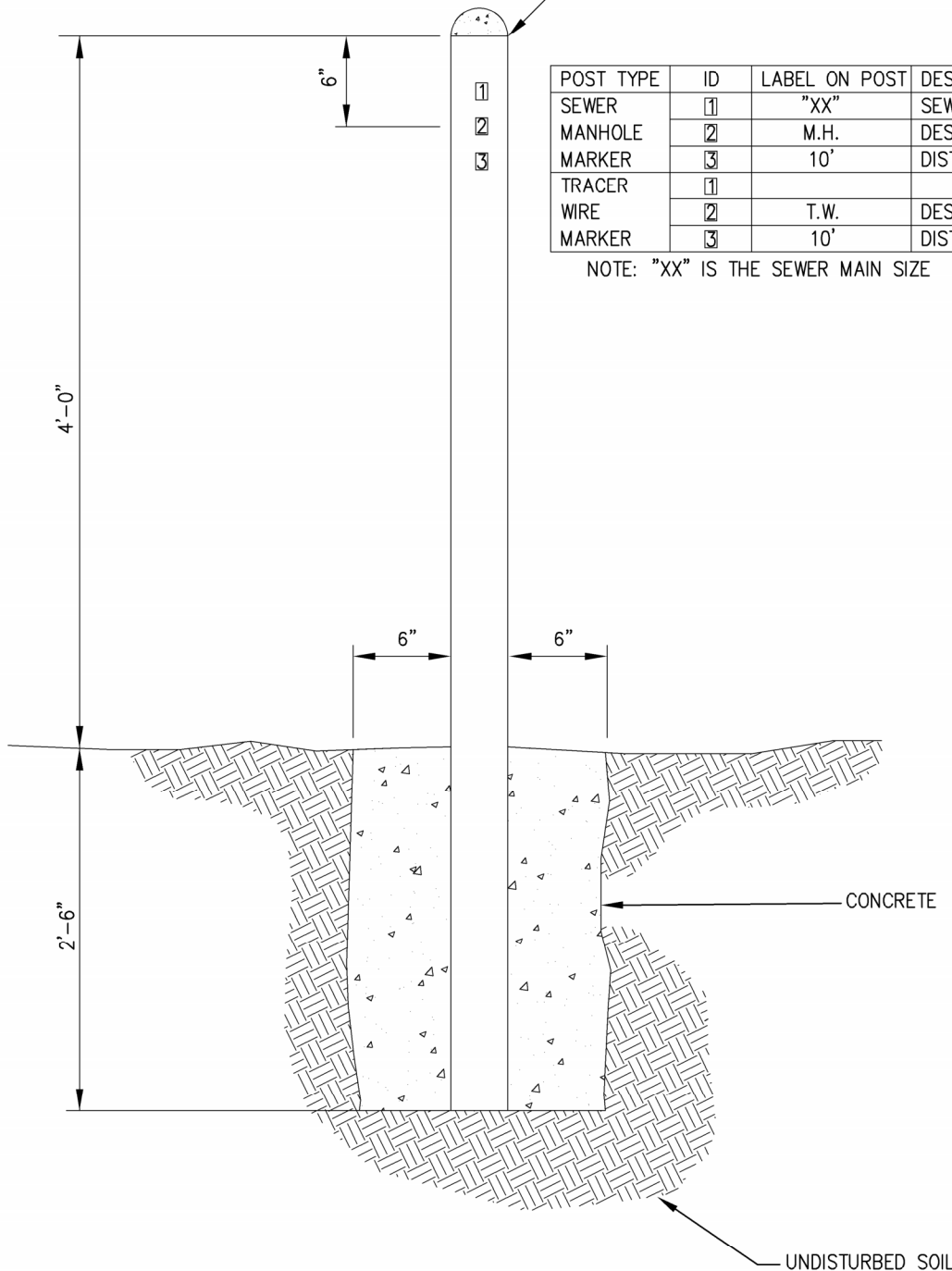
**Roxborough**  
Water & Sanitation District

SAND AND OIL TRAP - OVAL

DATE:  
JUNE 21, 2023

DRAWING NO.  
3-5B

4" DIA. SCHEDULE 40 STEEL POST,  
PAINTED GREEN AND FILLED WITH CONCRETE.



POST TYPE	ID	LABEL ON POST	DESCRIPTION
SEWER	1	"XX"	SEWER MAIN SIZE
MANHOLE	2	M.H.	DESCRIPTION FOR MANHOLE
MARKER	3	10'	DISTANCE TO MANHOLE
TRACER	1		
WIRE	2	T.W.	DESCRIPTION FOR MARKER
MARKER	3	10'	DISTANCE TO TEST STATION

NOTE: "XX" IS THE SEWER MAIN SIZE

NOTE:  
2" CAPITAL LETTERS FACING MANHOLE OR  
TRACER WIRE TEST STATION

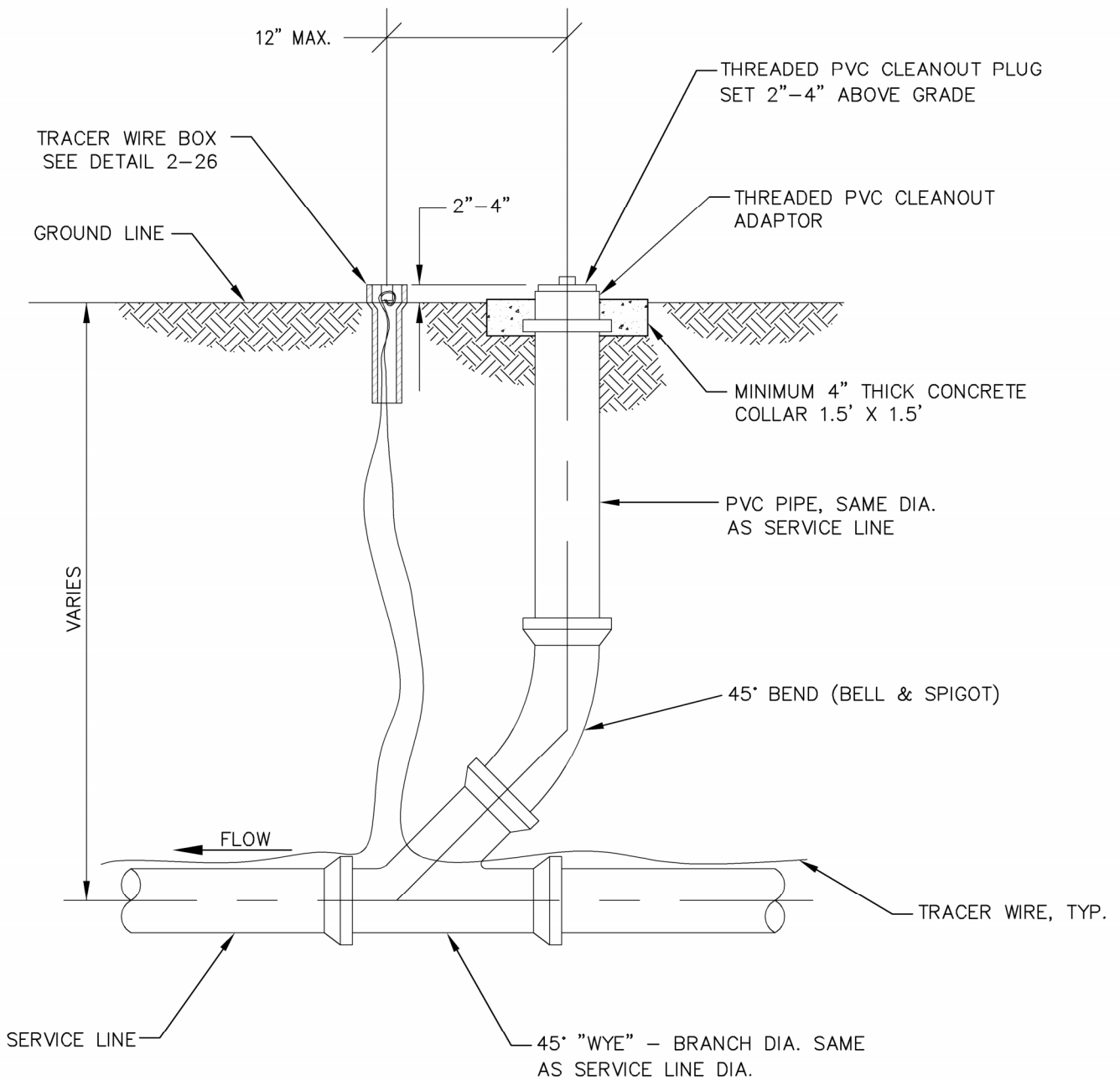


**Roxborough**  
Water & Sanitation District

MANHOLE MARKER POST

DATE:  
JUNE 21, 2023

DRAWING NO.  
3-6

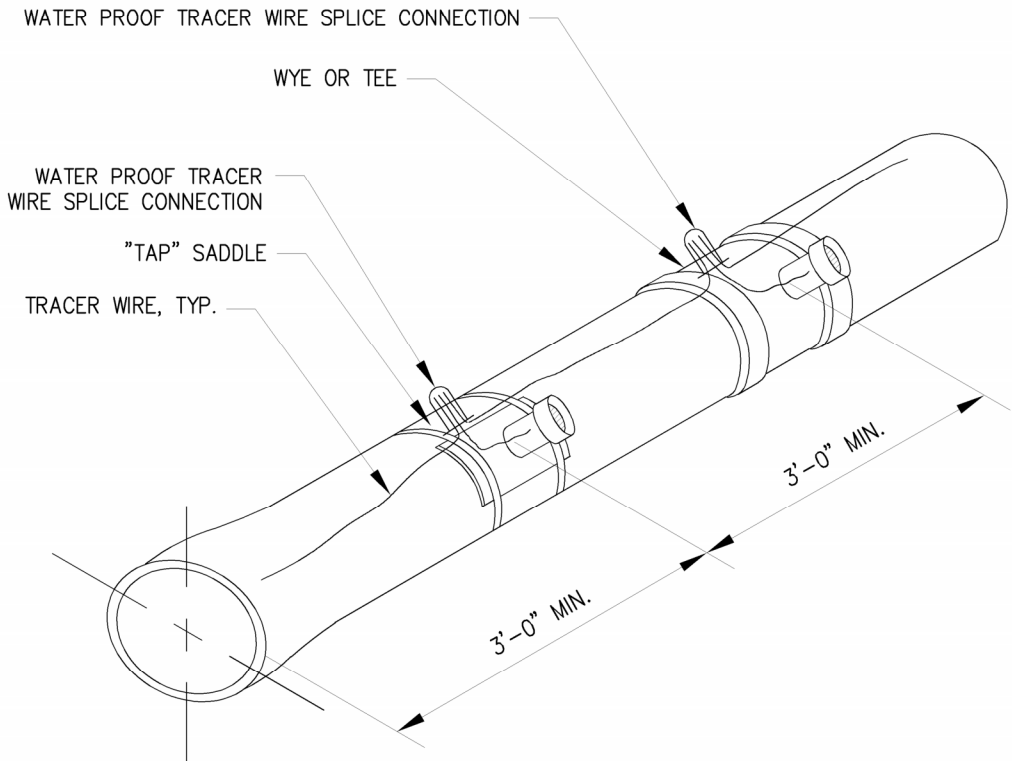


**Roxborough**  
Water & Sanitation District

SANITARY SEWER CLEANOUT

DATE:  
JUNE 21, 2023

DRAWING NO.  
3-7

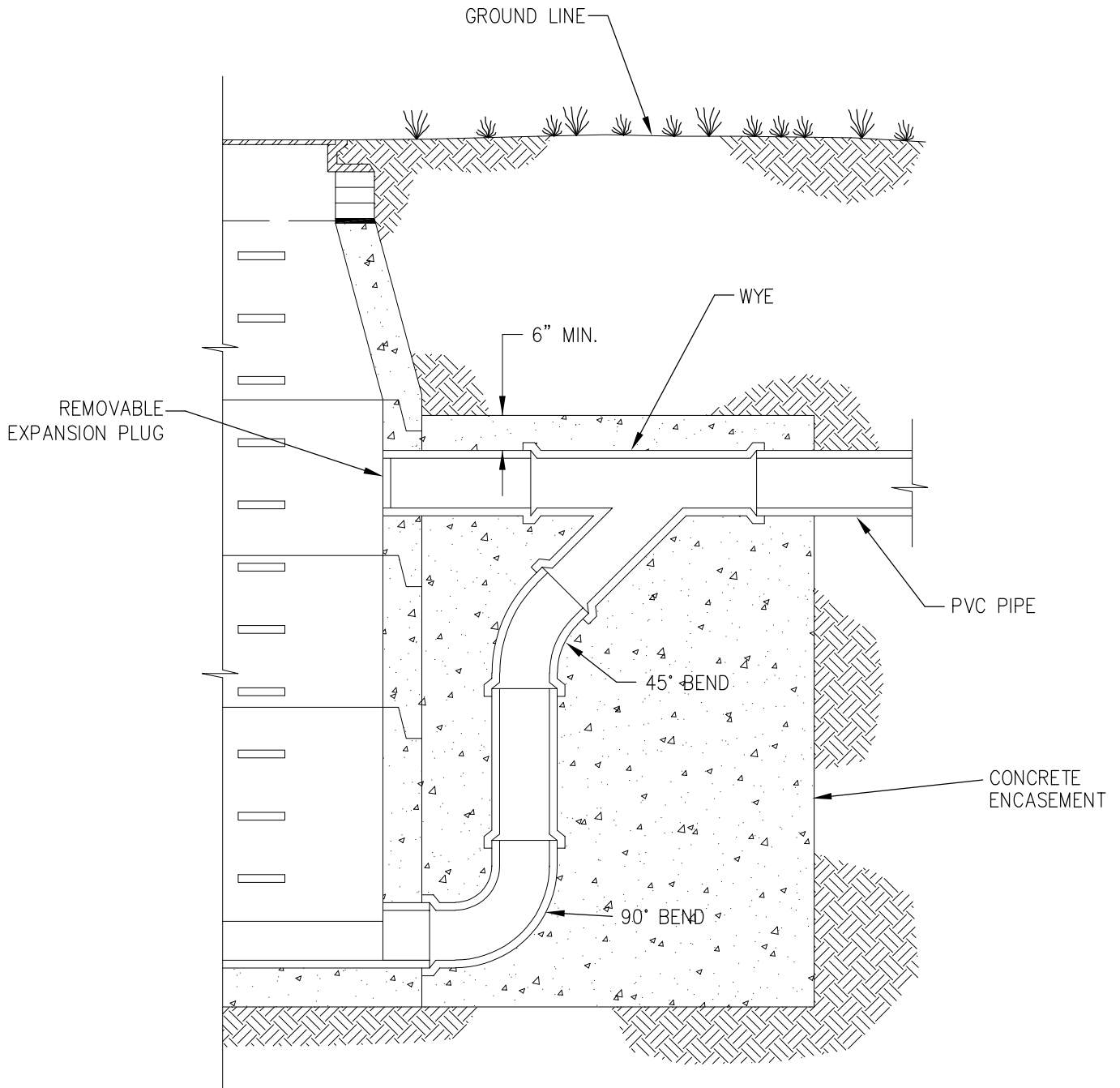


**Roxborough**  
Water & Sanitation District

DOMESTIC SEWER TAPPING DETAIL

DATE:  
JUNE 21, 2023

DRAWING NO.  
3-8

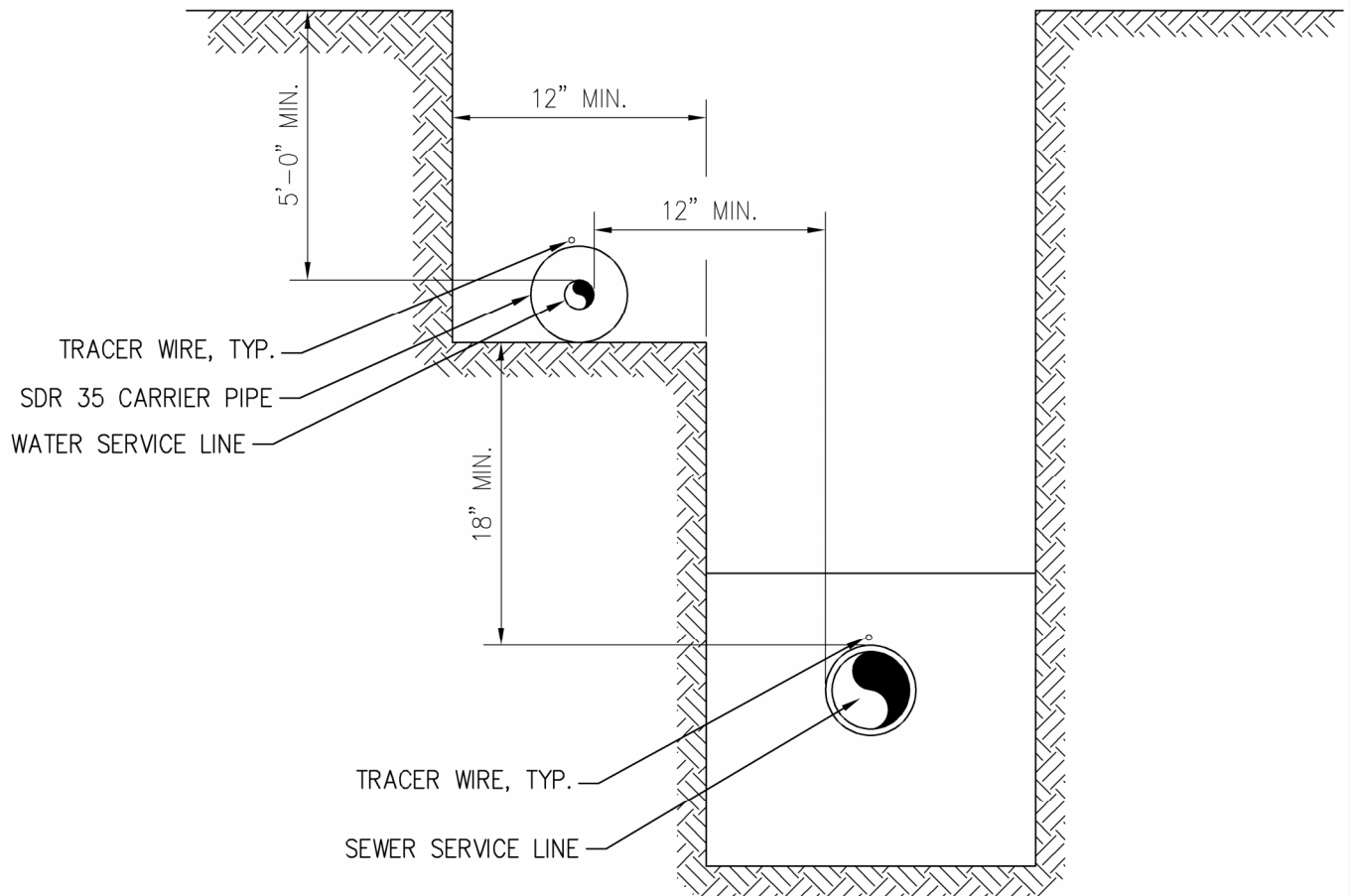


**Roxborough**  
Water & Sanitation District

DROP MANHOLE

DATE:  
JUNE 21, 2023

DRAWING NO.  
3-9



NOTES:

1. FOR LOTS WITH JOINT TRENCH ALONG FRONT OF LOT, WATER SERVICE LINE SHALL BE PLACED WITH 5'-0" MIN. COVER.
2. ALL WATER SERVICES SHALL BE PLACED AT THE CENTER OF THE LOT.
3. A "V" SHALL BE CUT IN THE FACE OF THE CURB AND GUTTER BY THE BUILDER TO PERMANENTLY MARK THE LOCATION OF THE CURB STOP BOX.
4. WATER LINES SHALL BE SLEEVED IN SDR-35 PIPE AND CONCRETE ENCASED ON ENDS
5. AN "X" SHALL BE CUT IN THE FACE OF THE CURB AND GUTTER BY BUILDER TO PERMANENTLY MARK THE LOCATION OF SEWER SERVICE LINE.



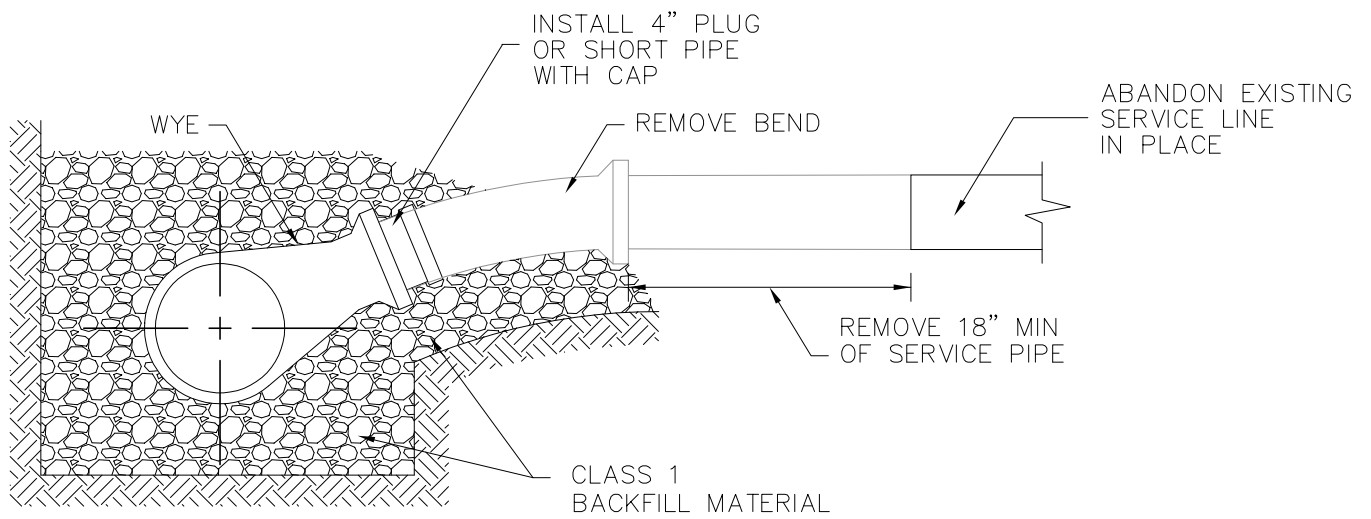
**Roxborough**  
Water & Sanitation District

WATER & SEWER SERVICE JOINT TRENCH DETAIL

DATE:  
JUNE 21, 2023

DRAWING NO.  
3-10



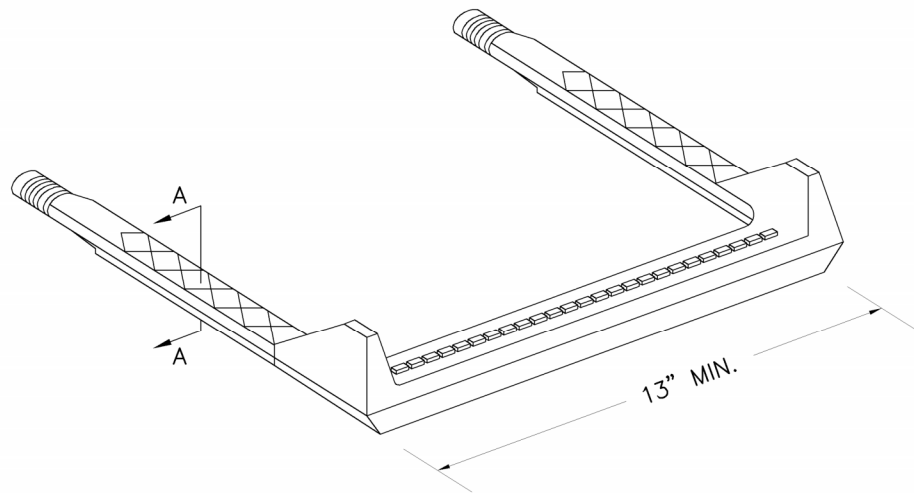


**Roxborough**  
Water & Sanitation District

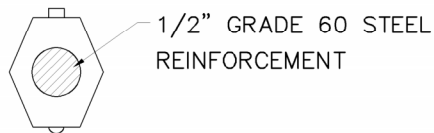
ABANDONMENT OF EXISITING SANITARY SEWER SERVICE CONNECTION

DATE:  
JUNE 21, 2023

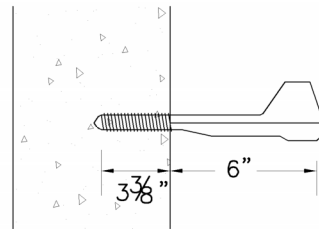
DRAWING NO.  
3-11



DETAIL FOR M.A. INDUSTRIES STEP, OR APPROVED EQUAL




SECTION A-A

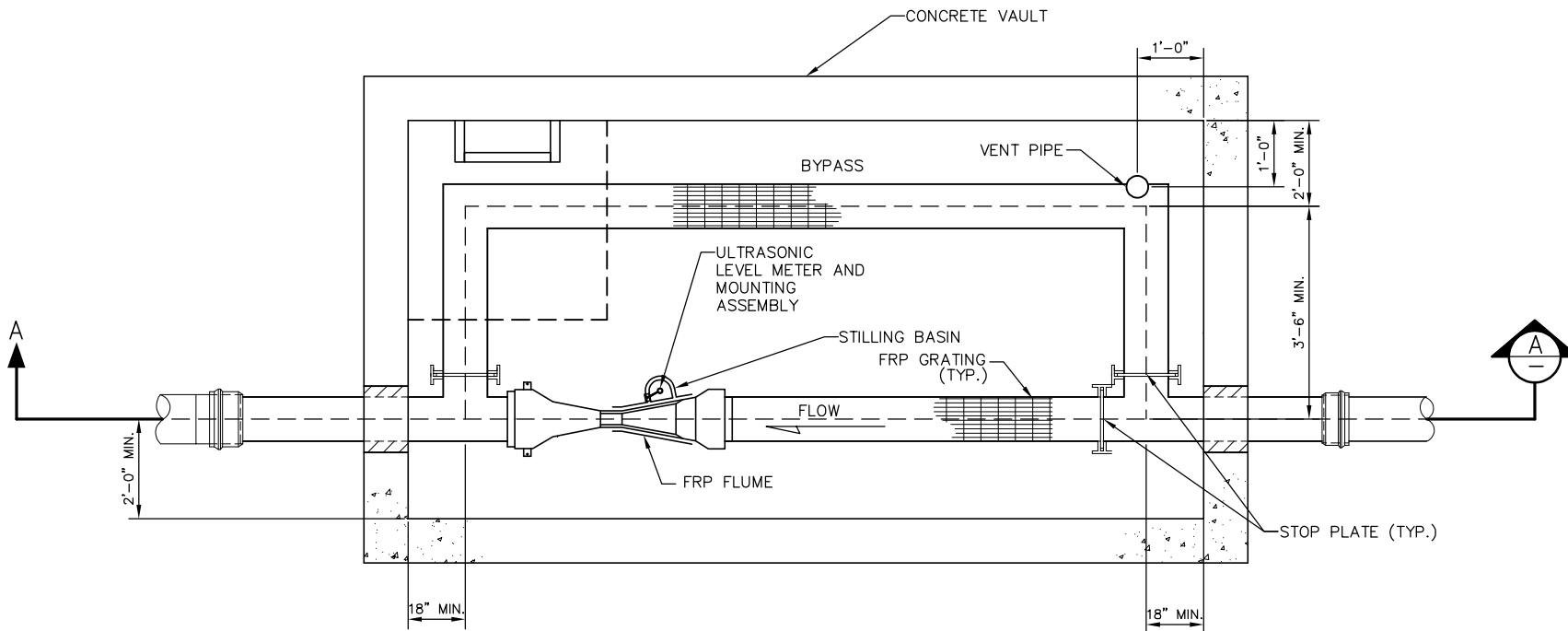


TYPICAL STEP INSTALLATION


NOTES:

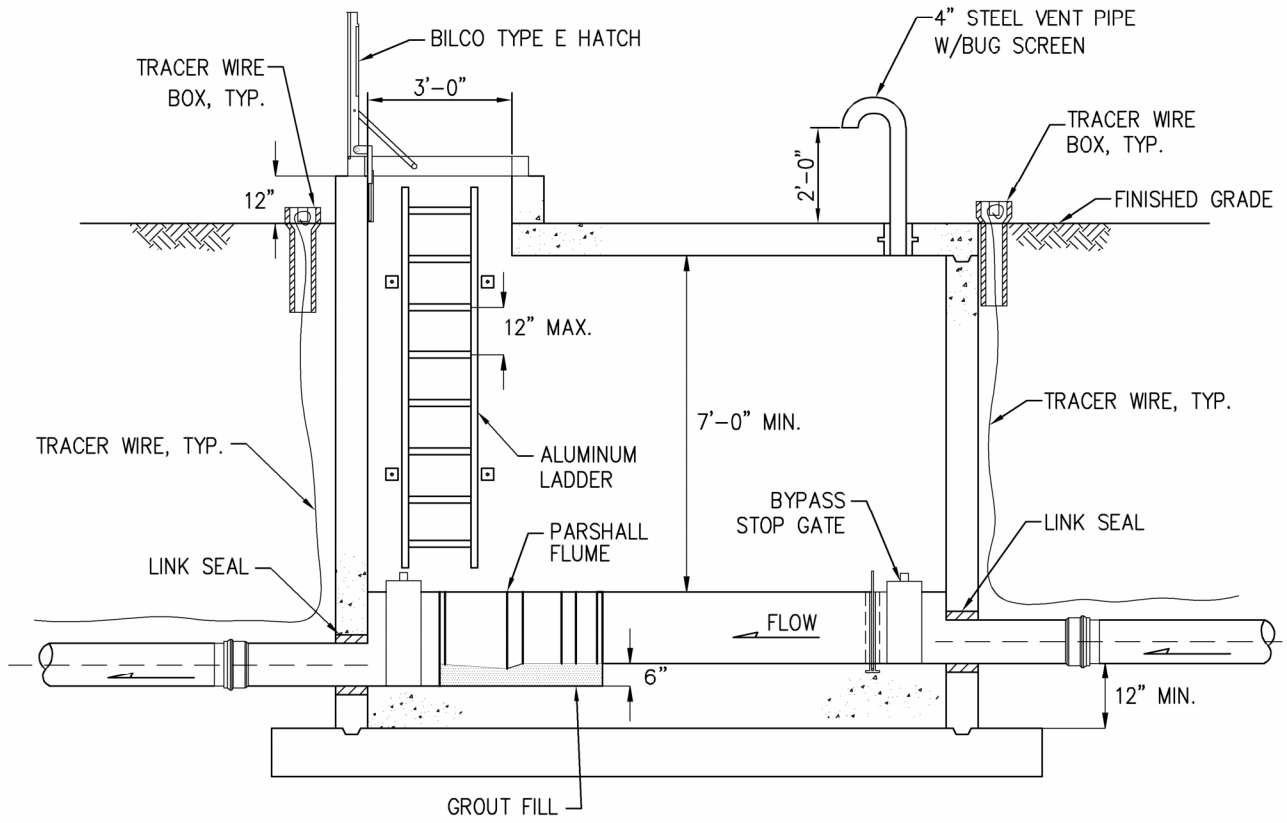
1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS APPLICABLE TO THE PROJECT.
2. CAST IRON STEPS WILL NOT BE PERMITTED.

 <b>Roxborough</b> Water & Sanitation District	
<b>STANDARD STEP FOR MANHOLES</b>	
DATE: <b>JUNE 21, 2023</b>	DRAWING NO. <b>3-12</b>

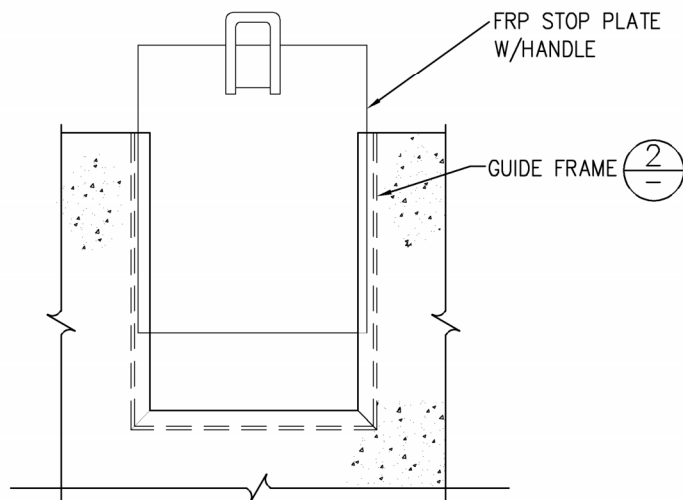


METERING VAULT PLAN

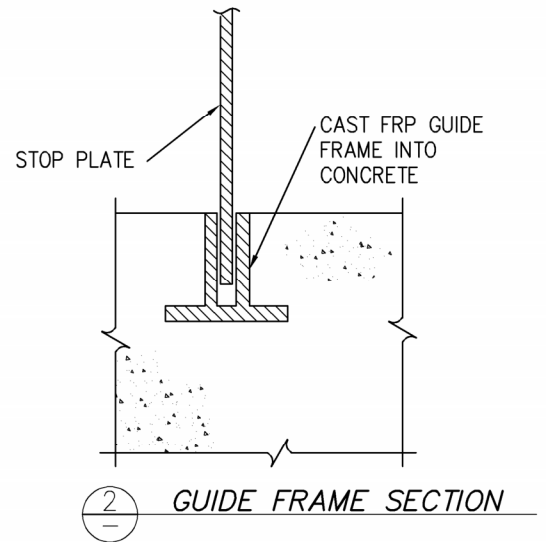
 <b>Roxborough</b> Water & Sanitation District	
<b>WASTEWATER METERING VAULT - PLAN</b>	
DATE: <b>JUNE 21, 2023</b>	DRAWING NO. <b>3-13A</b>




SECTION A-A

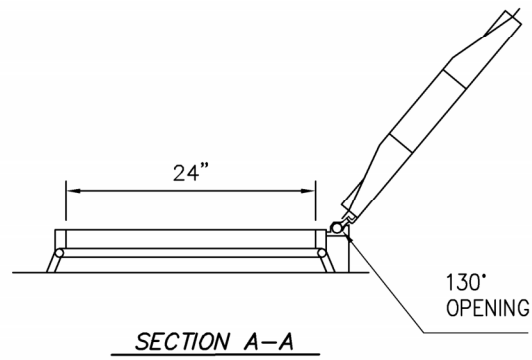
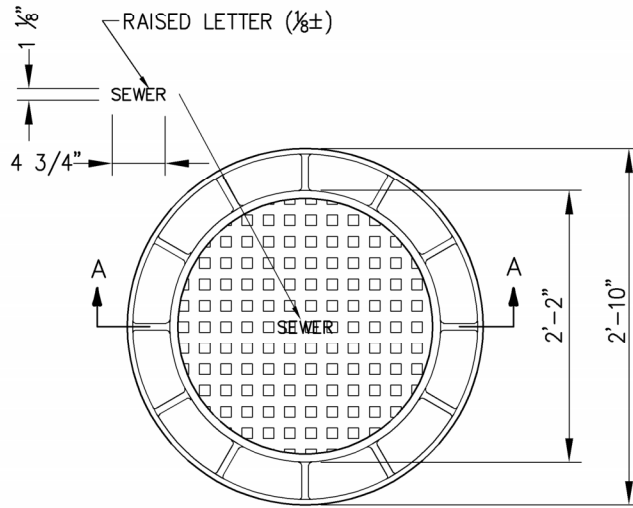


1  
STOP PLATE ELEVATION




2  
GUIDE FRAME SECTION

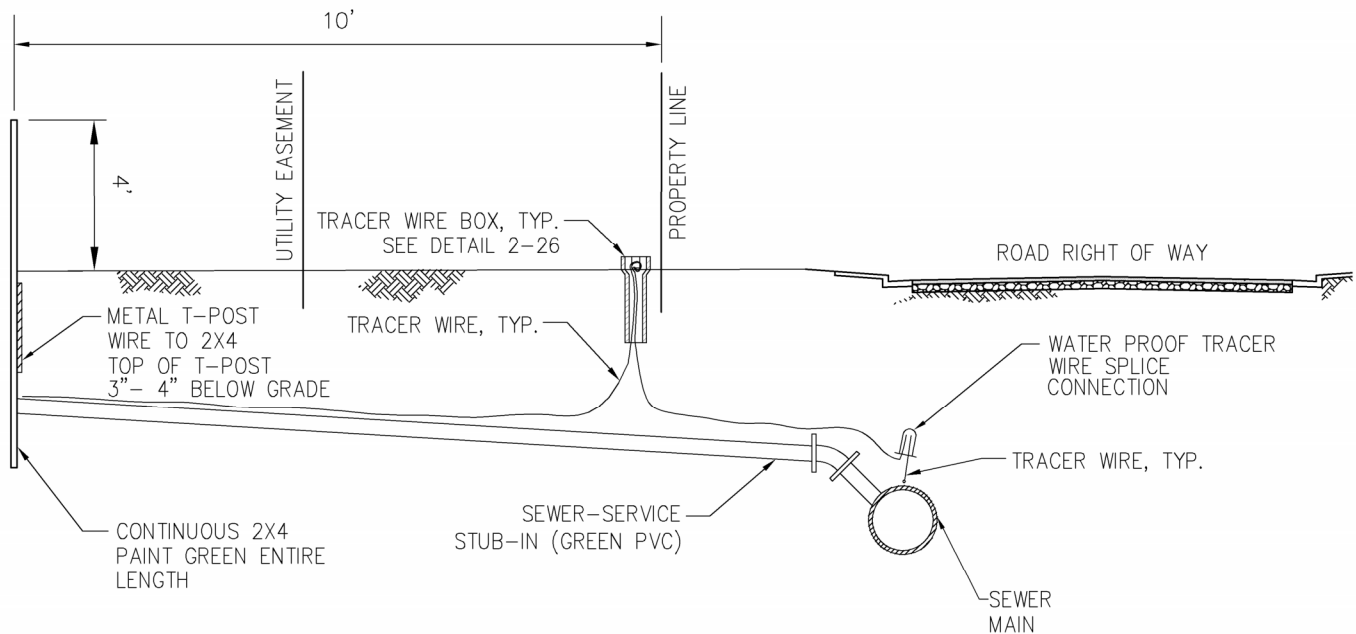
 <b>Roxborough</b> Water & Sanitation District	
<b>WASTEWATER METERING VAULT - SECTION &amp; DETAIL</b>	
DATE: JUNE 21, 2023	DRAWING NO. 3-13B



NOTES:

1. DUCTILE IRON, CLASS 400
2. RECEPTACLE FOR UNLOCKING
3. LID BEARING JOINT IN POLYETHYLENE
4. MANUFACTURER: PAMREX

 <b style="font-size: 1.2em; color: #800000;">Roxborough</b> Water & Sanitation District
HINGED MANHOLE COVER
<div style="text-align: center;"> <p>DATE: JUNE 21, 2023</p> </div> <div style="text-align: center;"> <p>DRAWING NO. 3-14</p> </div>



SERVICE LINE STUBOUT MARKER DETAIL

NO SCALE

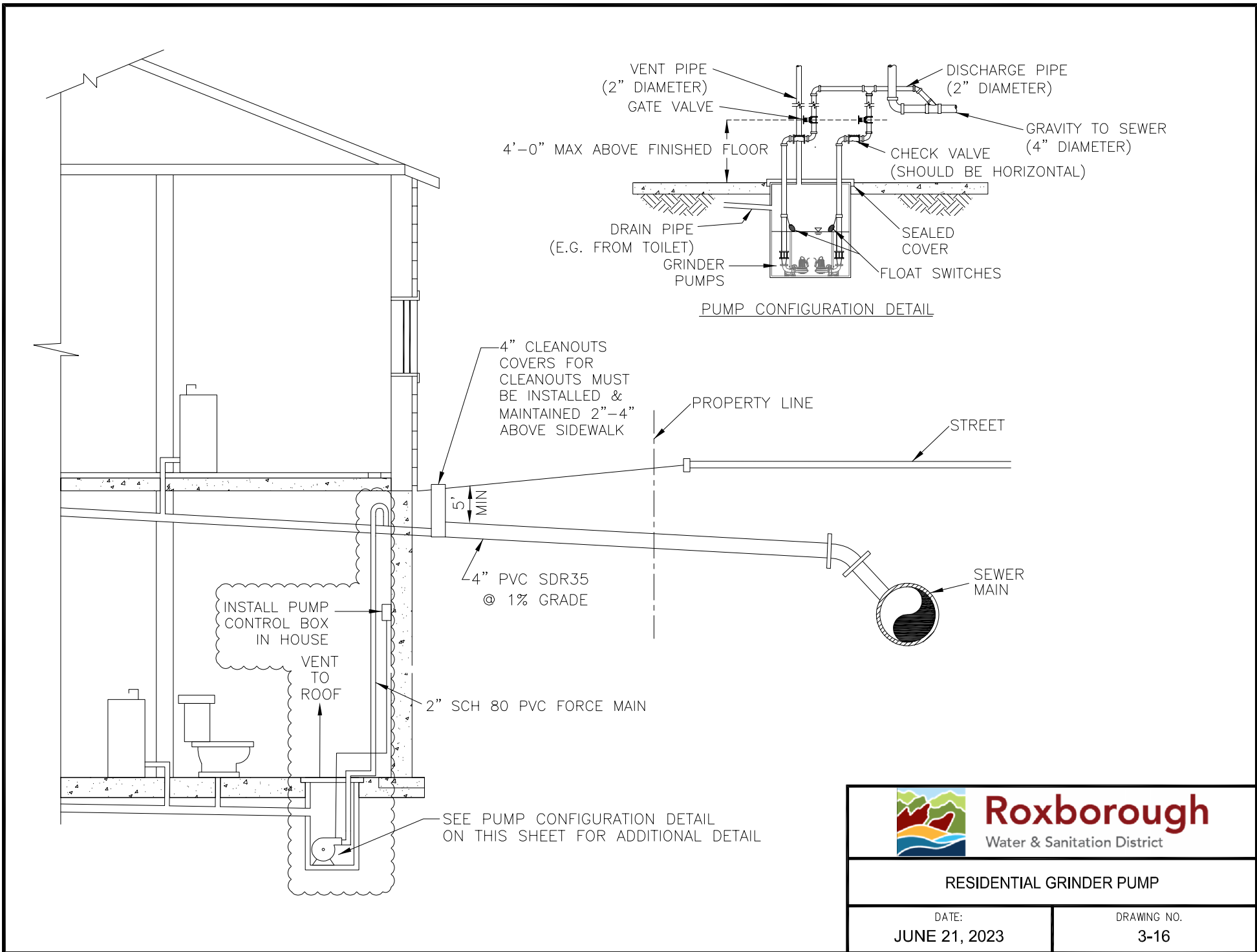


**Roxborough**  
Water & Sanitation District

SERVICE LINE STUBOUT MARKER DETAIL

DATE:  
JUNE 21, 2023

DRAWING NO.  
3-15

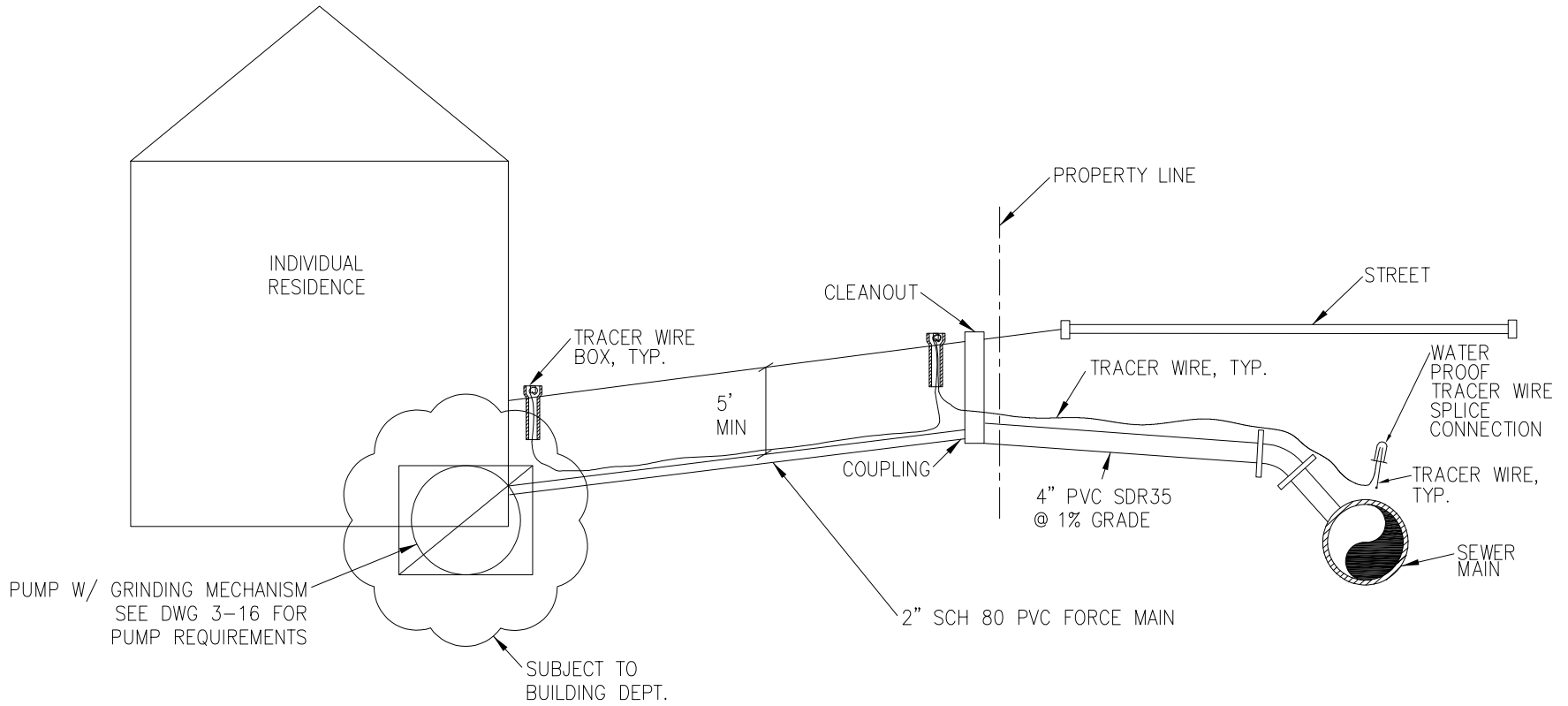


**Roxborough**  
Water & Sanitation District

**RESIDENTIAL GRINDER PUMP**

DATE:  
**JUNE 21, 2023**

DRAWING NO.  
**3-16**



**NOTES:**

1. PROVIDE FORCE MAIN CLEAN OUT WITH TEE AND THREADED CAP INSTALLED AT MINIMUM 75 FOOT INTERVALS TO ALLOW RODDING/CLEANING OF FORCE MAIN.
2. PROVIDE IN LINE UNIONS INSIDE RESIDENCE TO PROVIDE ACCESS FOR RODDING/CLEANING



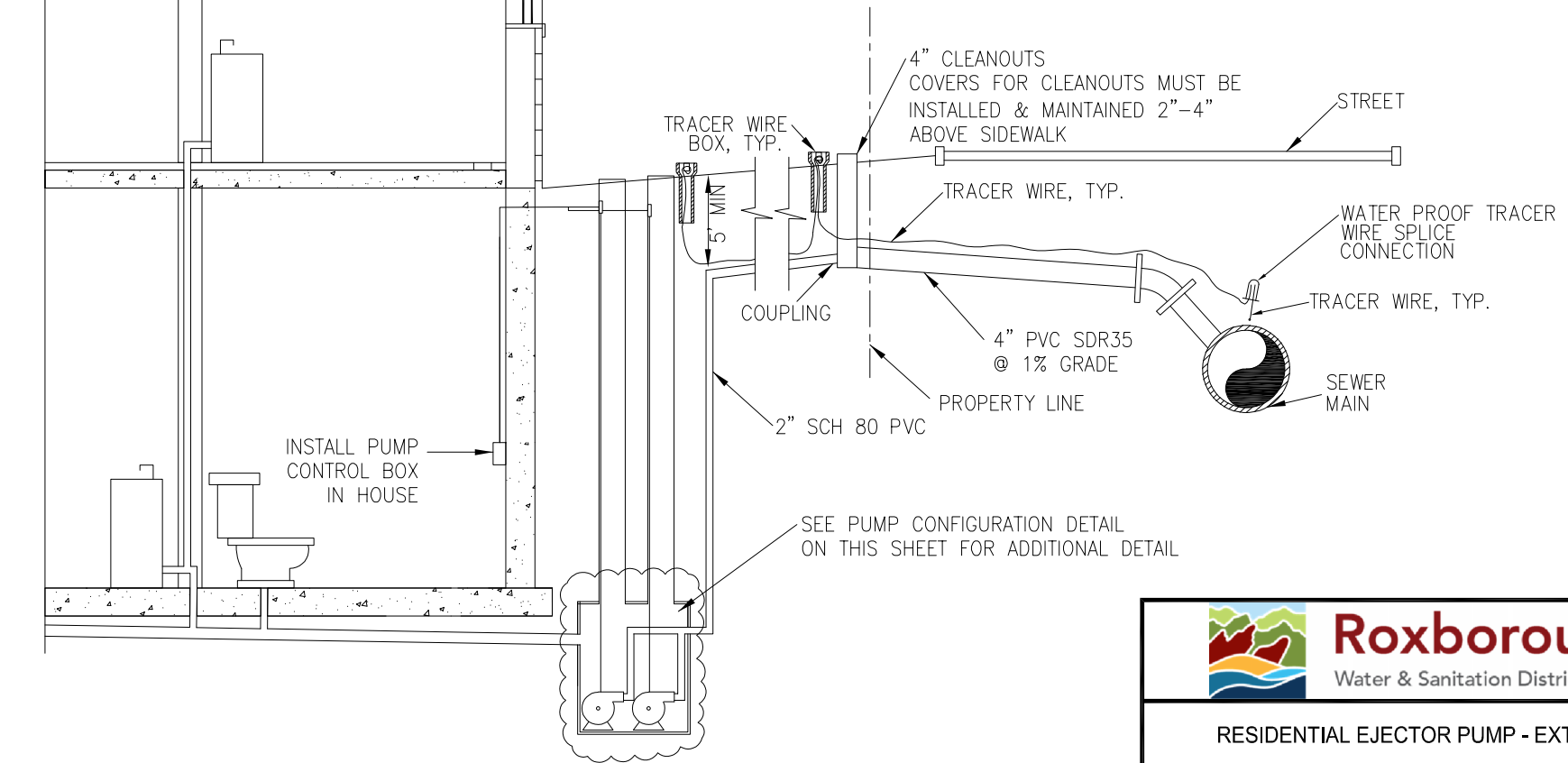
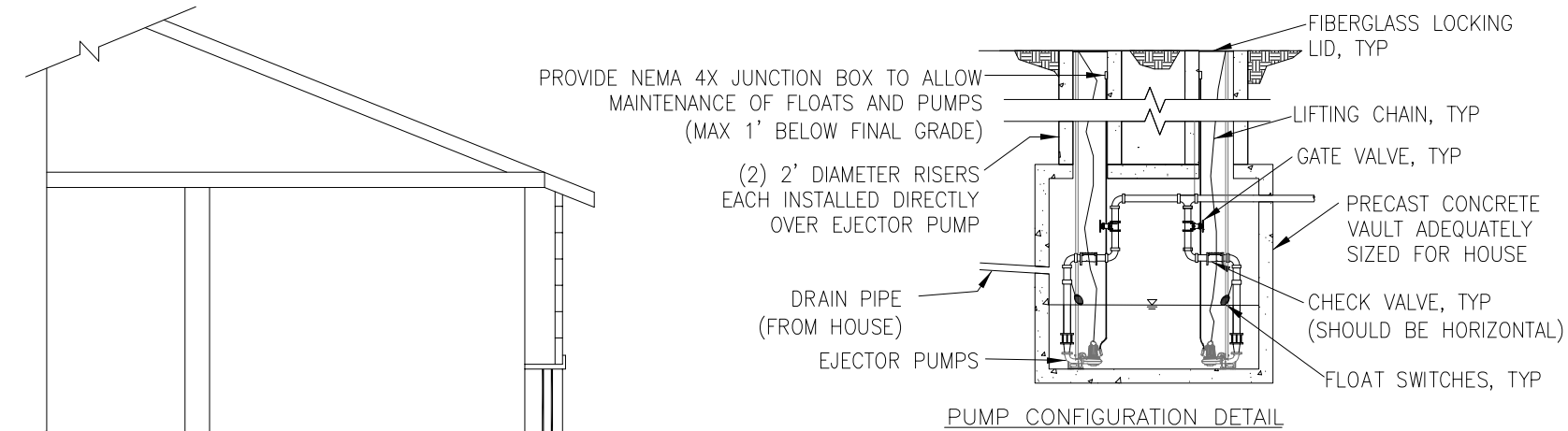
**Roxborough**  
Water & Sanitation District


**WHOLE HOUSE SEWER SERVICE FORCE MAIN**

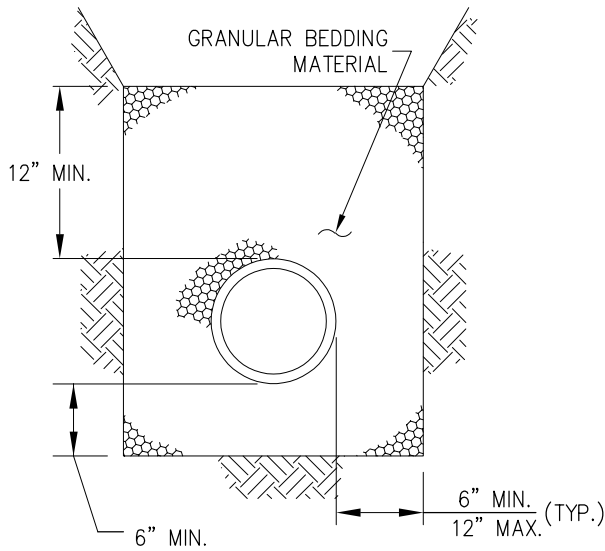
DATE:  
**JUNE 21, 2023**

DRAWING NO.  
**3-17**

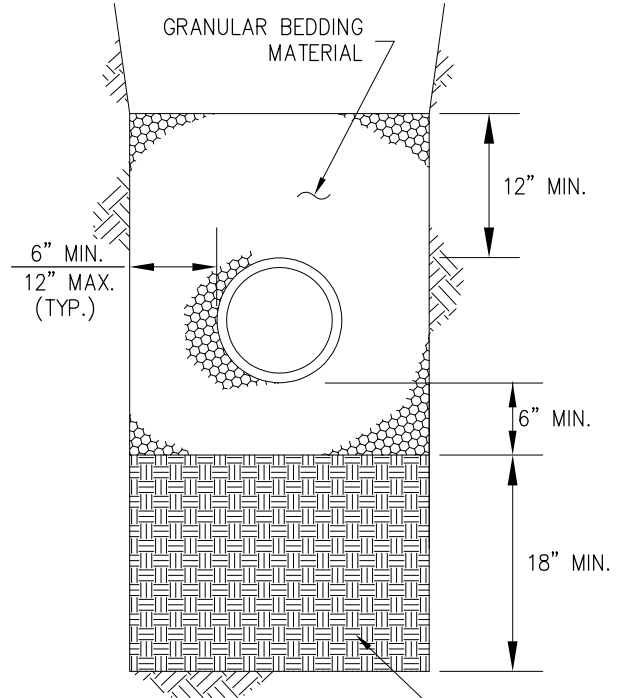




 <b>Roxborough</b> Water & Sanitation District	
<b>RESIDENTIAL EJECTOR PUMP - EXTERIOR</b>	
DATE: <b>JUNE 21, 2023</b>	DRAWING NO. <b>3-18</b>



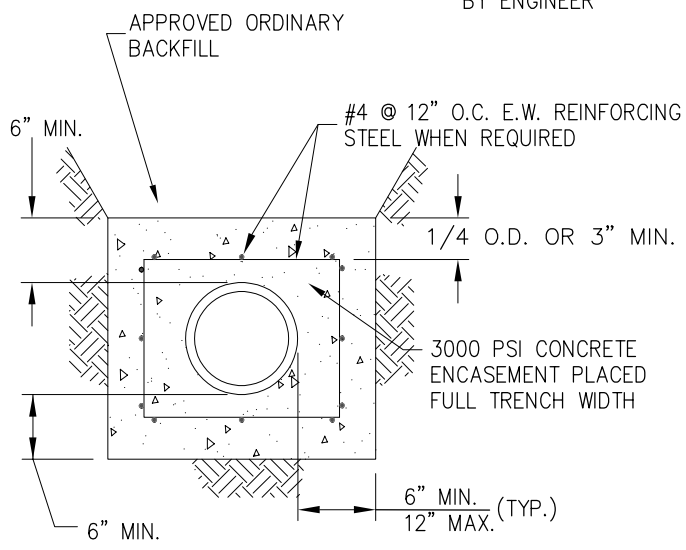
TYPICAL TRENCH SECTION



DIPPING BEDROCK TRENCH SECTION


OVER-EXCAVATE AND RECOMPACT TO 95%

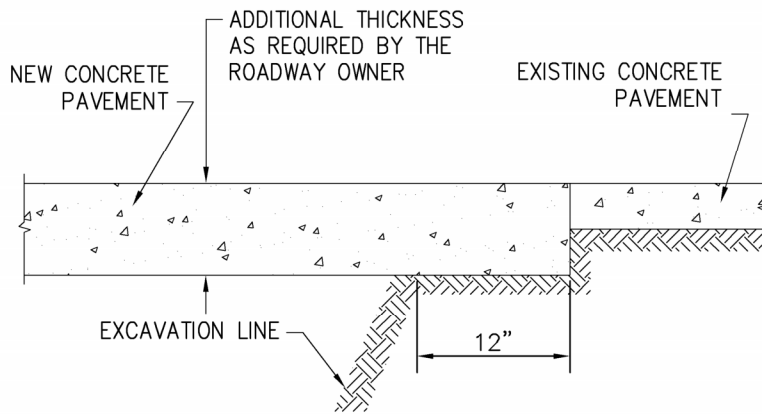
NOTE: OVEREXCAVATION TO OCCUR IN AREAS WHERE CLAYSTONE BEDROCK IS ENCOUNTERED WITHIN THE LIMITS OF TRENCH EXCAVATION OR WHERE DIRECTED BY ENGINEER



CONCRETE ENCASEMENT

NOTE: THERE SHALL BE A MINIMUM OF 18" OF BACKFILL OVER THE PIPE BEFORE HEAVY COMPACTION EQUIPMENT IS USED

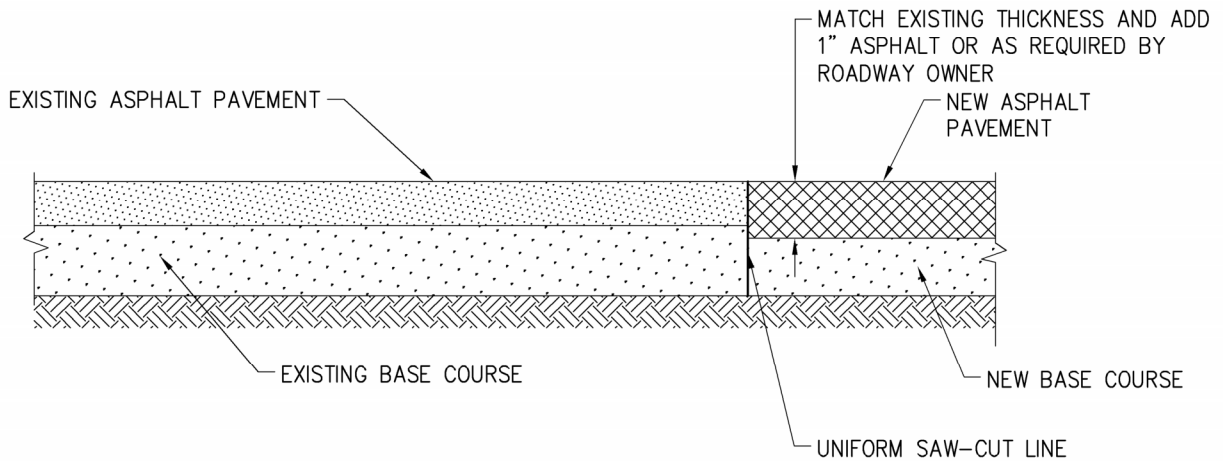
 <b>Roxborough</b> Water & Sanitation District	
ENCASEMENT & BEDDING DETAIL	
DATE: JUNE 21, 2023	DRAWING NO. 4-1




**NOTE:**

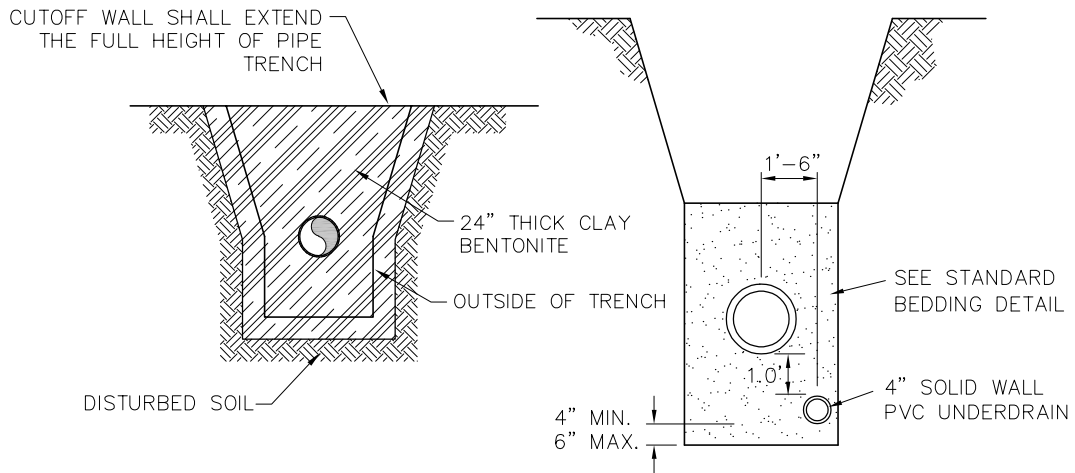
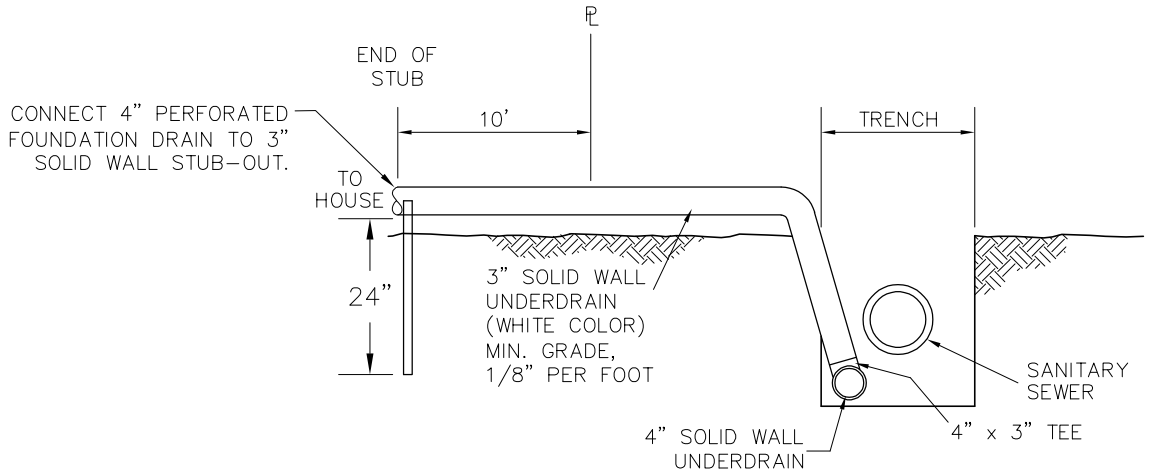
WHERE EXISTING PAVEMENT CONTAINS REINFORCING, THE REPLACEMENT SHALL BE REINFORCED AND DOWELED TO MATCH EXISTING REINFORCEMENT.

PORTLAND CEMENT CONCRETE PAVEMENT



ASPHALTIC CONCRETE PAVEMENT

 <b>Roxborough</b> Water & Sanitation District	
PAVEMENT REPLACEMENT DETAIL	
DATE: JUNE 21, 2023	DRAWING NO. 4-2



UNDERDRAIN DETAIL



**Roxborough**  
Water & Sanitation District

UNDERDRAIN PIPING DETAIL

DATE:  
JUNE 21, 2023

DRAWING NO.  
4-3