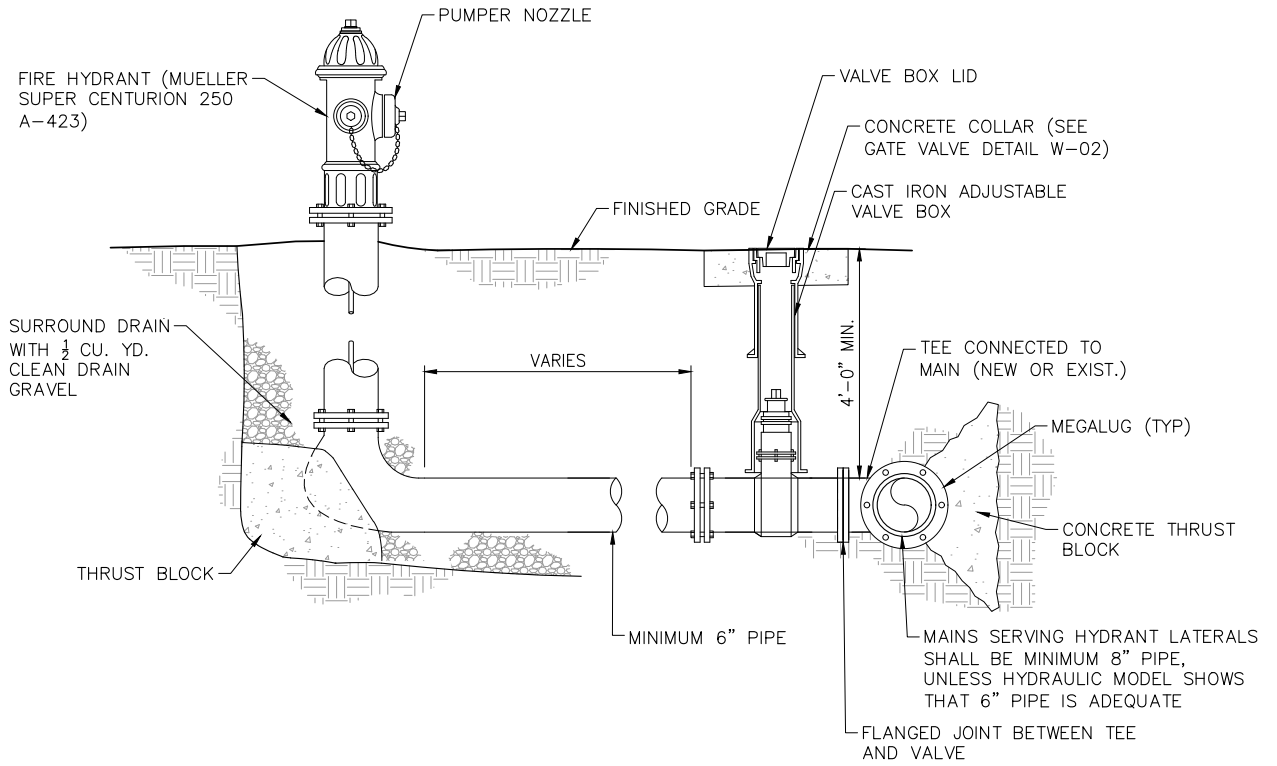


Grand Water & Sewer Service Agency



Construction Standards

C:\Users\afloke\appdata\local\temp\AcPublish_15872\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm afloke



NOTES:

1. FIRE HYDRANT BREAKAWAY FLANGE SHALL BE NO GREATER THAN 5in. ABOVE FINISHED GRADE OR 1in. BELOW FINISHED GRADE
2. PIPE, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO ANSI/NSF STANDARD 61 AND APPLICABLE SECTIONS OF AWWA STANDARDS C104-AZ14-08 THROUGH C550-05 AND C900-07 THROUGH C950-07. BLOCKING AND MECHANICAL RESTRAINT SHALL BE PROVIDED PER DETAILS W-06 AND W-07.
3. HYDRANT DRAINS SHALL NOT BE LOCATED WITHIN 10 FEET OF SANITARY SEWERS.
4. ALL NEW MAINS SHALL BE PVC C900 OR C905 DR-18 PIPE UNLESS OTHERWISE APPROVED.

DETAIL - FIRE HYDRANT

N.T.S.

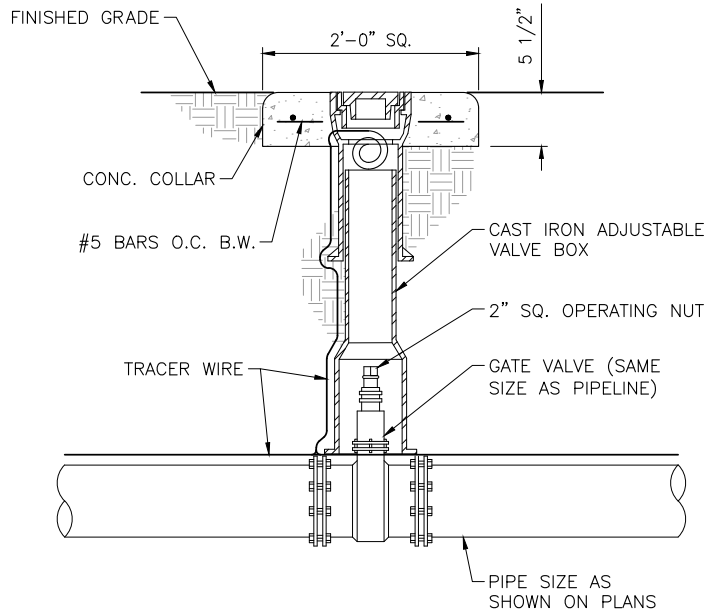
REV NO.	COMMENT	DATE

SUNRISE ENGINEERING

25 EAST 500 NORTH
 FILLMORE, UTAH 84631
 TEL 435.743.6151 • FAX 435.743.7900
 www.sunrise-eng.com

Grand Water & Sewer Service Agency					
STANDARD DETAILS					
WATER - FIRE HYDRANT					
DATE 6-9-2020	DESIGNED DJS	DRAWN TRB	CHECKED RWW	SHEET NO. .	W-01

C:\Users\afleke\appdata\local\temp\AcPublish_15872\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm afleke



NOTES:

1. ALL VALVES SHALL BE RESTRAINED ACCORDING TO DETAILS W-06 AND W-07 AND SHALL BE TREATED AS A DEAD END IN BOTH DIRECTIONS.
2. PIPE, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO ANSI/NSF STANDARD 61 AND APPLICABLE SECTIONS OF AWWA STANDARDS C104-AZ14-08 THROUGH C550-05 AND C900-07 THROUGH C950-07. BLOCKING OR MECHANICAL RESTRAINT SHALL BE PROVIDED PER DETAILS W-06 AND W-07.
3. FOR VALVES OVER 48" DEEP ADD VALVE STEM AND VALVE BOX EXTENSIONS AS NECESSARY FOR NORMAL OPERATION OF VALVE KEY.
4. TRACER WIRE SHALL BE BROUGHT INTO THE VALVE BOX THROUGH HOLE AT BELL. COIL 12" OF TRACER WIRE INSIDE VALVE BOX BELL SECTION.
5. VALVES SMALLER THAN 16" SHALL BE GATE VALVES. MAINLINE VALVES 16" AND LARGER SHALL BE SHORT-BODY BUTTERFLY VALVES.
6. ALL NEW MAINS SHALL BE PVC C900 OR C905 DR-18 PIPE UNLESS OTHERWISE APPROVED.

DETAIL - TYPICAL GATE VALVE

N.T.S.

REV. NO.	COMMENT	DATE



25 EAST 500 NORTH
 FILLMORE, UTAH 84631
 TEL 435.743.6151 • FAX 435.743.7900
 www.sunrise-eng.com

Grand Water & Sewer Service Agency

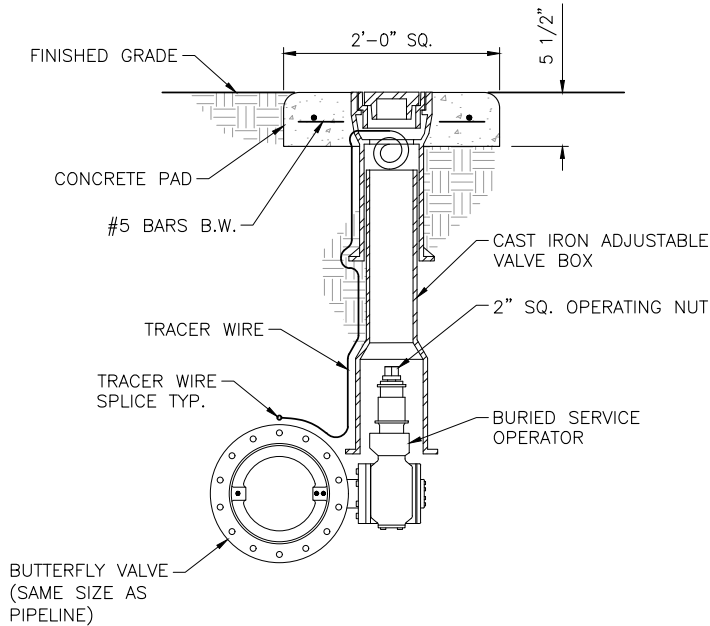
STANDARD DETAILS

WATER - GATE VALVE

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
6-9-2020	DJS	TRB	RWW	.

W-02

C:\Users\afloke\AppData\Local\Temp\AcPublish_15872\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm afloke



NOTES:

1. ALL VALVES SHALL BE RESTRAINED ACCORDING TO DETAILS W-06 AND W-07 AND SHALL BE TREATED AS A DEAD END IN BOTH DIRECTIONS.
2. PIPE, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO ANSI/NSF STANDARD 61 AND APPLICABLE SECTIONS OF AWWA STANDARDS C104-AZ14-08 THROUGH C550-05 AND C900-07 THROUGH C950-07. BLOCKING OR MECHANICAL RESTRAINT SHALL BE PROVIDED PER DETAILS W-06 AND W-07.
3. FOR VALVES OVER 48" DEEP ADD VALVE STEM AND VALVE BOX EXTENSIONS AS NECESSARY FOR NORMAL OPERATION OF VALVE KEY.
4. TRACER WIRE SHALL BE BROUGHT INTO THE VALVE BOX THROUGH HOLE AT BELL. COIL 12" OF TRACER WIRE INSIDE VALVE BOX BELL SECTION.
5. VALVES SMALLER THAN 16" SHALL BE GATE VALVES. MAINLINE VALVES 16" AND LARGER SHALL BE SHORT-BODY BUTTERFLY VALVES.
6. ALL NEW MAINS SHALL BE PVC C900 OR C905 DR-18 PIPE UNLESS OTHERWISE APPROVED.

DETAIL - BURIED BUTTERFLY VALVE

N.T.S.

REV. NO.	COMMENT	DATE



25 EAST 500 NORTH
 FILLMORE, UTAH 84631
 TEL 435.743.6151 • FAX 435.743.7900
 www.sunrise-eng.com

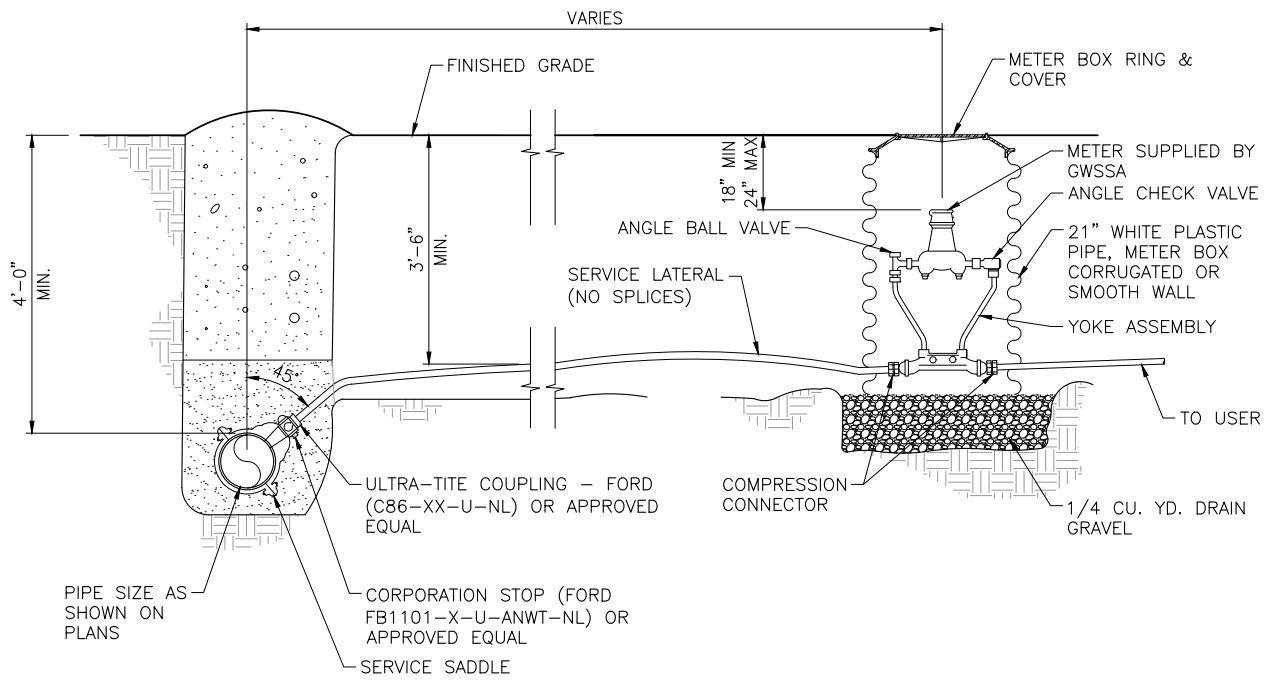
Grand Water & Sewer Service Agency

STANDARD DETAILS

WATER - BUTTERFLY VALVE


DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
6-9-2020	DJS	TRB	RWW	W-03

\\seifirm2\Projects\GWSSA Standard Details\CAD\Standard Drawings April 2020.dwg May 01, 2024 3:15pm brod.deskins



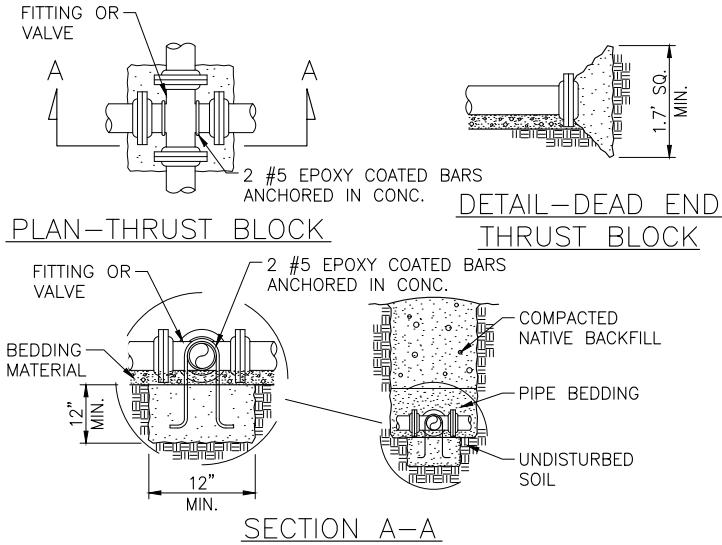
- NOTES:**
1. LOCATION OF WATER SERVICE SHALL GENERALLY BE ON THE HIGH SIDE OF THE PROPERTY 5 FEET FROM THE LOT CENTERLINE AND SHALL NOT BE INSTALLED IN DRIVE APPROACH.
 2. ALL NEW SERVICE CONNECTIONS SHALL INCLUDE DUAL CHECK VALVE SETTER ASSEMBLIES.
 3. SERVICE LATERALS $\frac{3}{4}$ " AND 1" SHALL BE 250 PSI SDR 9 AWWA C901 (IPS) CENTENNIAL PLASTICS CENCORE HDPE OR EQUIVALENT. SERVICE LATERALS 1- $\frac{1}{2}$ " AND 2" SHALL BE 250 PSI SDR 9 AWWA C901 (CTS) CENTENNIAL PLASTICS CENCORE HDPE OR EQUIVALENT. FUSION PIPE SHALL NOT BE ACCEPTED. SERVICE LINES LARGER THAN 2 INCH SHALL BE ASTM D2241 PVC (IPS), SERVICE LINES 4" AND LARGER SHALL BE AWWA C-900.
 4. PIPE, JOINTS, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL CONFORM TO ANSI/NSF STANDARD 61 AND APPLICABLE SECTIONS OF AWWA STANDARDS C104-AZ14-08 THROUGH C550-05 AND C900-07 THROUGH C950-07.
 5. SERVICE LINES SHALL BE CAPPED UNTIL CONNECTED FOR SERVICE.
 6. NEW WATER SERVICE CONNECTIONS SHALL BE $\frac{3}{4}$ " UNLESS OTHERWISE NOTED
 7. SERVICE LATERAL FITTINGS SHALL HAVE NO COMPRESSION CONNECTIONS OUTSIDE OF THE METER BOX.

DETAIL - NEW WATER SERVICE CONNECTION
N.T.S.

REV. NO.	COMMENT	DATE	 SUNRISE ENGINEERING 25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 • FAX 435.743.7900 www.sunrise-eng.com					Grand Water & Sewer Service Agency				
								STANDARD DETAILS				
			WATER - NEW WATER SERVICE CONNECTION									
			DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.	W-05				
			5/01/2024	DJS	TRB	RWW	.					

CONCRETE THRUST BLOCK RESTRAINING SYSTEM DETAILS

NOTE:
CONTRACTOR SHALL USE EITHER MECHANICAL
RESTRAINTS OR CONCRETE THRUST RESTRAINING
SYSTEM FOR WATERLINE INSTALLATION.



THRUST BLOCK BEARING AREA IN SQ. FT.									
PIPE SIZE	CROSS	TEE	WYE	DEAD END	VALVE	90° BEND	45° BEND	22.5° BEND	11.25° BEND
4	2.4	1.7	1.7	1.7	—	2.4	1.3	1.0	1.0
6	5.4	3.8	3.8	3.8	—	5.4	2.9	1.5	1.0
8	9.6	6.8	6.8	6.8	—	9.6	5.2	2.7	1.4
10	15.0	10.6	10.6	10.6	—	15.0	8.1	4.2	2.1
12	21.5	15.2	15.2	15.2	15.2	21.5	11.7	6.0	3.0
14	29.3	20.7	20.7	20.7	20.7	29.3	15.9	8.1	4.1
16	38.2	27.0	27.0	27.0	27.0	38.2	20.7	10.6	5.3
18	48.4	34.2	34.2	34.2	34.2	48.4	26.2	13.4	6.7
20	59.7	42.2	42.2	42.2	42.2	59.7	32.3	16.5	8.3
24	85.9	60.8	60.8	60.8	60.8	85.9	46.5	23.7	11.9
REDUCER									
D2 \ D1	6	8	10	12	14	16	18	20	24
4	2.1	5.1	8.8	13.4	—	—	—	—	—
6	—	3.0	6.7	11.3	16.8	23.1	—	—	—
8	—	—	3.8	8.4	13.8	20.1	27.2	—	—
10	—	—	—	4.6	10.1	16.3	23.5	31.4	—
12	—	—	—	—	5.5	11.7	18.8	26.8	45.2
14	—	—	—	—	—	6.3	13.4	21.3	39.8
16	—	—	—	—	—	—	7.1	15.1	33.5
18	—	—	—	—	—	—	—	8.0	26.3
20	—	—	—	—	—	—	—	—	18.4

NOTES:

1. ALL THRUST BLOCK BEARING FACES SHALL BE PLACED AGAINST UNDIS-
TURBED SOIL OR APPROVED COMPACTED BACKFILL.
2. SQUARE ALL EDGES TO RECEIVE CONCRETE.
3. CONCRETE SHALL BE CLASS C.
4. CALCULATED ON 200 PSI TEST PRESSURE AND ALLOWABLE BEARING
PRESSURE OF 1500 LBS. PER SQ. FT.
5. IN POORER SOILS SPECIAL DESIGN IS REQUIRED.
6. ALL FITTINGS AND VALVES SHALL BE ANCHORED WITH TWO EPOXY COATED
#5 REBAR. ONLY ONE REQ'D FOR REDUCER
7. CENTER ALL FITTINGS OVER THRUST BLOCKS.

C:\Users\aflika\AppData\Local\Temp\AcPublish_15872\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm aflika

REV. NO.	COMMENT	DATE		SUNRISE ENGINEERING <small>25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 • FAX 435.743.7900 www.sunrise-eng.com</small>	Grand Water & Sewer Service Agency					
					STANDARD DETAILS					
					WATER - CONCRETE THRUST BLOCKS					
					<small>DATE</small>	<small>DESIGNED</small>	<small>DRAWN</small>	<small>CHECKED</small>	<small>SHEET NO.</small>	W-06
					6-9-2020	DJS	TRB	RWW	.	

MECHANICAL THRUST RESTRAINING SYSTEM DETAILS

* CALCULATIONS DERIVED FROM EBAA IRON SALES

PVC VERTICLE BEND RESTRAINED LENGTHS IN FT.
(L₁ - BEFORE CONNECTION / L₂, AFTER CONNECTION)

BEND ANGLE	PIPE SIZE									
	4	6	8	10	12	14	16	18	20	24
11.25	4/1	5/2	7/2	9/3	10/3	12/4	13/4	15/5	16/5	19/6
22.5	8/3	11/4	15/5	17/6	21/7	24/8	27/9	30/9	33/10	38/12
45	16/5	23/8	30/10	36/12	43/14	49/16	56/18	62/20	68/21	79/25

CALCULATIONS BASED ON THE ELEVATION OF THE PIPE REMAINING CONSTANT WITH THE CONTOUR OF THE GROUND.
FOR TWO WAY FLOW, SUCH AS FOUND IN DISTRIBUTION SYSTEMS, USE L' ON BOTH SIDES OF FITTING.

PVC HORIZONTAL BEND RESTRAINED LENGTHS L, IN FT.

BEND ANGLE	PIPE SIZE									
	4	6	8	10	12	14	16	18	20	24
11.25	1	2	2	3	3	4	4	5	5	6
22.5	3	4	5	6	7	8	9	9	10	12
45	5	8	10	12	14	16	18	20	21	25
90	13	18	24	29	34	38	43	47	52	60

1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

PVC TEE RESTRAINED LENGTHS L, IN FT.

BRANCH SIZE DIA.	RUN SIZE DIAMETER									
	4	6	8	10	12	14	16	18	20	24
4	*	*	*	*	*	*	*	*	*	*
6	-	*	*	*	*	*	*	*	*	*
8	-	-	*	*	*	*	*	*	*	*
10	-	-	-	*	*	*	*	*	*	*
12	-	-	-	-	*	*	*	*	*	*
14	-	-	-	-	-	*	*	*	*	*
16	-	-	-	-	-	-	7	*	*	*
18	-	-	-	-	-	-	-	20	4	*
20	-	-	-	-	-	-	-	-	34	3
24	-	-	-	-	-	-	-	-	-	60

* = FOR THIS CONDITION NEED ONLY RESTRAIN THE OUTLETS OF TEE
NOTES:

- RESTRAIN THE THREE MECHANICAL JOINTS ON THE TEE.
- ALL JOINTS WITHIN THE "L" DISTANCE ON THE BRANCH SIDE OF TEE SHALL BE RESTRAINED AND ALL JOINTS WITHIN 18' ON THE RUN SIDE OF THE TEE SHALL BE RESTRAINED.

PVC REDUCER RESTRAINED LENGTHS L, IN FT.
(SMALL SIDE/LARGE SIDE)

D1 \ D2	6	8	10	12	14	16	18	20	24
4	42/29	100/52	171/71	258/90	-	-	-	-	-
6	-	40/31	88/54	147/75	217/95	297/113	-	-	-
8	-	-	37/29	82/55	135/77	197/98	266/117	-	-
10	-	-	-	36/30	79/56	128/80	183/100	244/120	-
12	-	-	-	-	36/30	77/57	123/80	174/102	293/142
14	-	-	-	-	-	35/30	74/57	118/81	219/124
16	-	-	-	-	-	-	34/30	73/57	161/104
18	-	-	-	-	-	-	-	34/30	111/82
20	-	-	-	-	-	-	-	-	70/57

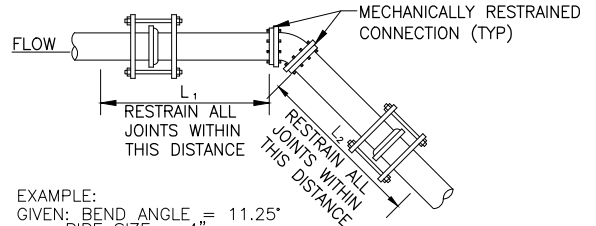
1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

PVC DEAD END RESTRAINED LENGTHS L, IN FT.

PIPE SIZE										
4	6	8	10	12	14	16	18	20	24	
39	55	73	88	104	119	134	149	163	192	

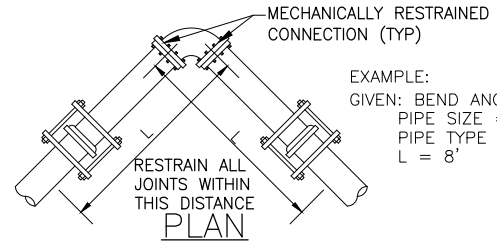
1. ALL JOINTS WITHIN THE "L" DISTANCE SHALL BE RESTRAINED

BASED ON:
TEST PRESSURE 200 PSI
SOIL TYPE: GM - SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURE
BURIAL DEPTH: 4 FT.
TRENCH TYPE: 5 - PIPE BEDDED IN COMPACTED GRANULAR MATERIAL TO THE CENTER LINE OF PIPE, 4" MIN. UNDER PIPE.
COMPACTED GRANULAR OR SELECT MATERIAL TO TOP OF PIPE.
(APPROX. 90% STANDARD PROCTOR, AASHTO T-99)
SAFETY FACTOR: 1.5

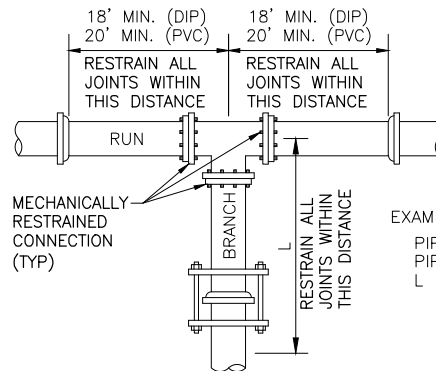


EXAMPLE:
GIVEN: BEND ANGLE = 11.25°
PIPE SIZE = 4"
PIPE TYPE = PVC
L₁ = 4'
L₂ = 1'

ELEVATION

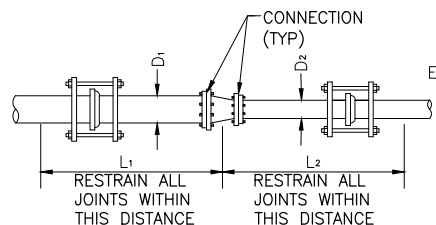


EXAMPLE:
GIVEN: BEND ANGLE = 45°
PIPE SIZE = 6"
PIPE TYPE = PVC
L = 8'



EXAMPLE:
PIPE TYPE = DIP
PIPE SIZE = 16"
L = 12'

PLAN



EXAMPLE:
PIPE TYPE = PVC
D₁ = 8"
D₂ = 6"
L₁ = 31'
L₂ = 40'

P:\GWSSA\GWSSA - Standard Details\CAD\Standard Drawings April 2020.dwg Aug 27, 2020 11:46am dshields

REV NO.	COMMENT	DATE



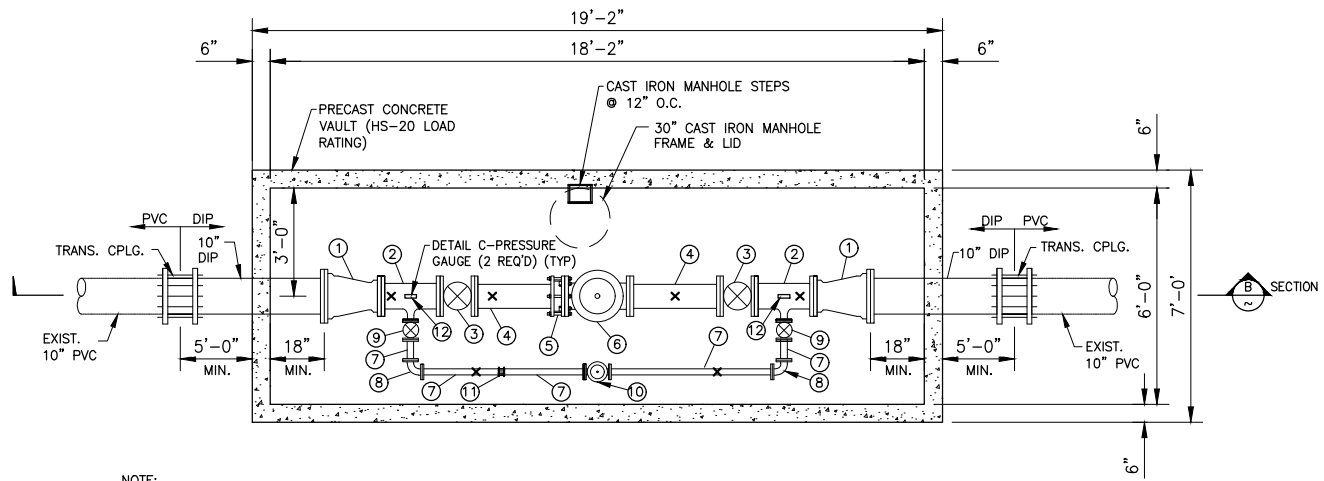
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 - FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency

STANDARD DETAILS

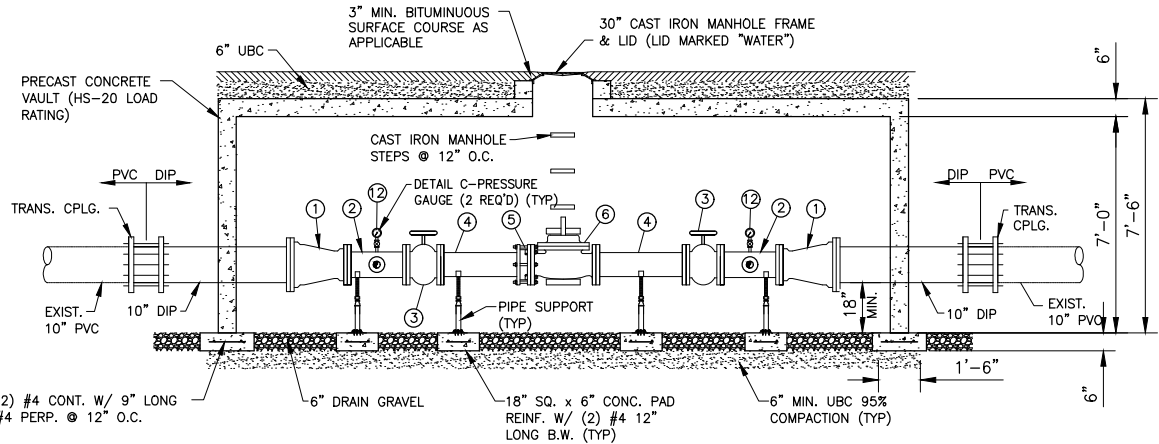
WATER - MECHANICAL RESTRAINING SYSTEM (PVC PIPE)

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
8-27-2020	DJS	TRB	RWW	W-07



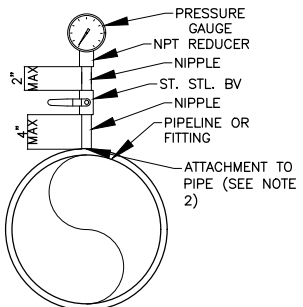
NOTE:
ALL PIPING PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.

(A) PLAN - 10" PRV STATION
1/4" = 1'-0"



NOTE:
ALL PIPING PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.

(B) SECTION - 10" PRV STATION
1/4" = 1'-0"



NOTES:
1. GAUGE FACE ORIENTATION SHALL BE AS DIRECTED BY THE OWNER.
2. PIPING ATTACHMENT TO DUCTILE IRON PIPE SHALL BE BY PIPE SADDLE OR BY DIRECT THREADING INTO THE PIPE.
3. FITTINGS AND NIPPLES ARE BRASS.

(C) DETAIL - PRESSURE GAUGE
TYP N.T.S.

EQUIPMENT SCHEDULE				
NUMBER	DESCRIPTION	SIZE	REMARKS	
1	10"x 8" REDUCER	-		
2	8"x 8"x 3" TEE	-		
3	GATE VALVE	8"		
4	SPOOL	8"	LENGTH AS REQ'D (2 REQ'D)	
5	FLNG. CPLG. ADAPTER	8"		
6	PRESSURE REDUCING VALVE	8"	SINGER S106-PR-AIS OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D	
7	SPOOL	3"	(GSP) LENGTH AS REQ'D	
8	90° ELL.	3"		
9	GATE VALVE	3"		
10	PRESSURE REDUCING VALVE	3"	SINGER S106-PR-AIS OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D	
11	COUPLING	3"		
12	PRESSURE GAUGE	-	2 REQ'D. LIQUID FILLED (1 UPSTREAM RANGE 0-150 PSI) (1 DOWNSTREAM RANGE 0-60 PSI)	
X	LOCATION OF PIPE SUPPORT	-		

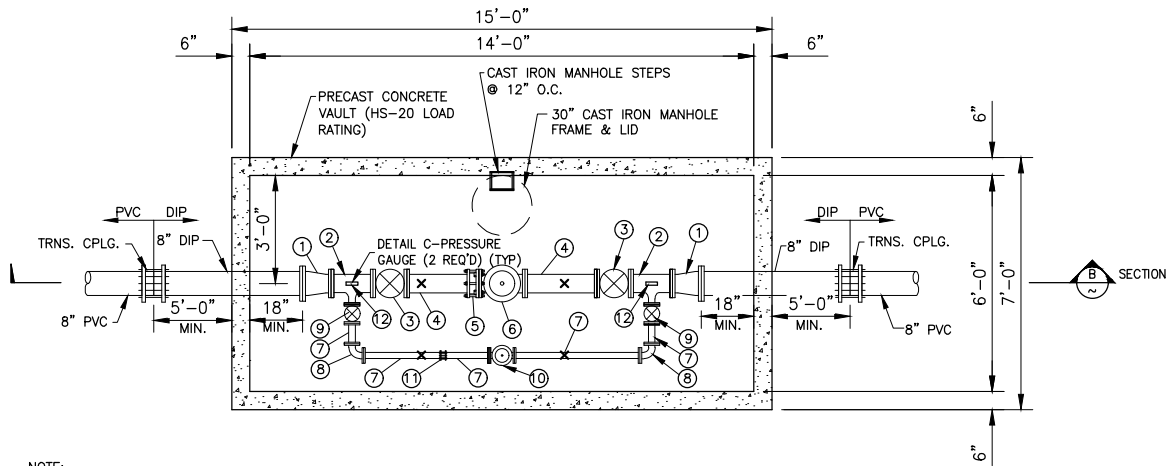
P:\GWSA\GWSA Standard Details\CAD\Standard Drawings April 2020.dwg Jun 26, 2020 1:35pm aflake

REV NO.	COMMENT	DATE

SUNRISE ENGINEERING
 25 EAST 500 NORTH
 FILLMORE, UTAH 84631
 TEL 435.743.6151 · FAX 435.743.7900
 www.sunrise-eng.com

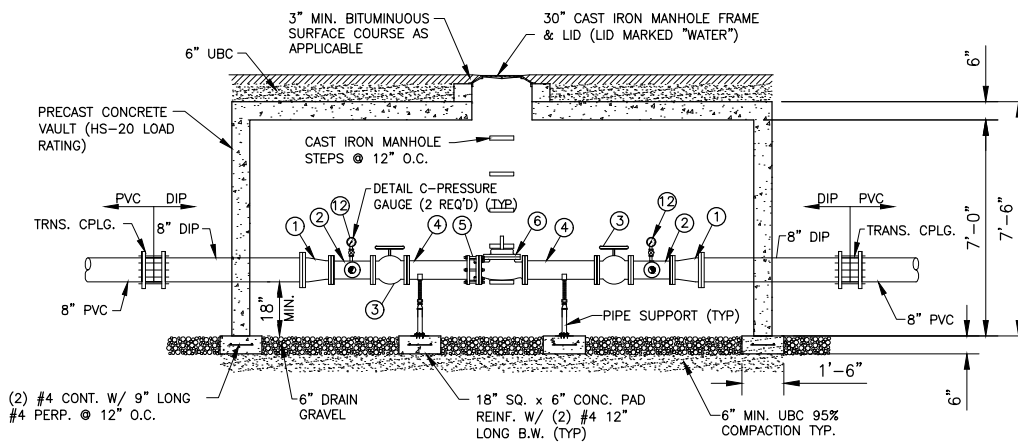
Grand Water & Sewer Service Agency
 STANDARD DETAILS
 WATER- 10" PRV STATION

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
6-9-2020	DJS	TRB	RWW	W-08



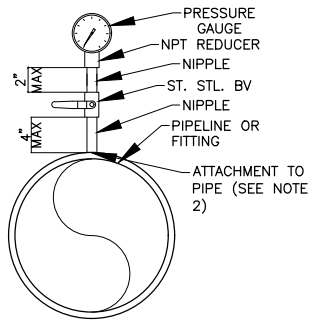
NOTE:
ALL PIPING PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.

(A) PLAN - 8" PRV STATION
1/4" = 1'-0"



NOTE:
ALL PIPING PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.

(B) SECTION - 8" PRV STATION
1/4" = 1'-0"



NOTES:
1. GAUGE FACE ORIENTATION SHALL BE AS DIRECTED BY THE OWNER.
2. PIPING ATTACHMENT TO DUCTILE IRON PIPE SHALL BE BY PIPE SADDLE OR BY DIRECT THREADING INTO THE PIPE.
3. FITTINGS AND NIPPLES ARE BRASS.

(C) DETAIL - PRESSURE GAUGE
TYP. N.T.S.

EQUIPMENT SCHEDULE

NUMBER	DESCRIPTION	SIZE	REMARKS
1	8"x6" REDUCER		
2	6"x6"x2" TEE		
3	GATE VALVE	6"	
4	SPOOL	6"	LENGTH AS REQ'D (2 REQ'D)
5	FLNG. CPLG. ADAPTER	6"	
6	PRESSURE REDUCING VALVE	6"	SINGER S106-PR-AIS OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D
7	SPOOL	2"	
8	90° ELL.	2"	
9	GATE VALVE	2"	
10	PRESSURE REDUCING VALVE	2"	SINGER S106-PR-AIS OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D
11	COUPLING	2"	
12	PRESSURE GAUGE		2 REQ'D. LIQUID FILLED (1 UPSTREAM RANGE 0-150 PSI) (1 DOWNSTREAM RANGE 0-60 PSI)
X	LOCATION OF PIPE SUPPORT		

REV. NO.	COMMENT	DATE



25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 · FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency

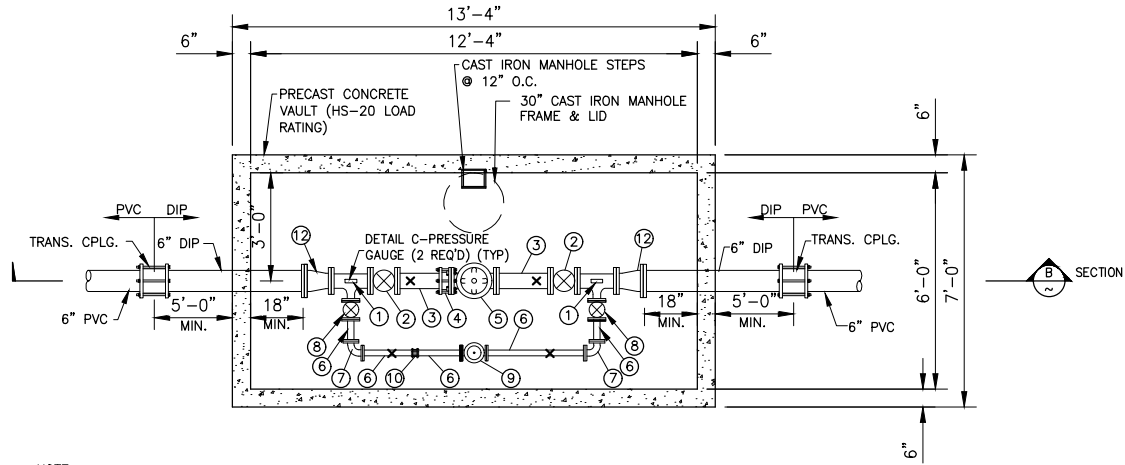
STANDARD DETAILS

WATER- 8" PRV STATION

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
6-9-2020	DJS	TRB	RWW	W-09

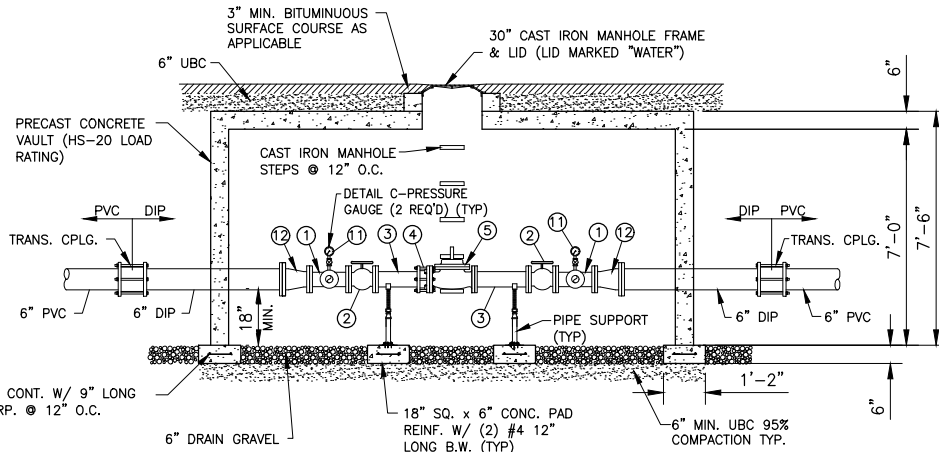
W-09

P:\GIS\SSA Standard Details\CAD\Standard Drawings April 2020.dwg Jun 26, 2020 1:35pm aflake



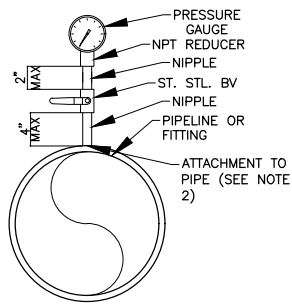
NOTE:
ALL PIPING PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.

(A) PLAN - 6" PRV STATION
1/4" = 1'-0"



NOTE:
ALL PIPING PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.

(B) SECTION - 6" PRV STATION
1/4" = 1'-0"



NOTES:
1. GAUGE FACE ORIENTATION SHALL BE AS DIRECTED BY THE OWNER.
2. PIPING ATTACHMENT TO DUCTILE IRON PIPE SHALL BE BY PIPE SADDLE OR BY DIRECT THREADING INTO THE PIPE.
3. FITTINGS AND NIPPLES ARE BRASS.

(C) DETAIL - PRESSURE GAUGE
TYP. N.T.S.

EQUIPMENT SCHEDULE

NUMBER	DESCRIPTION	SIZE	REMARKS
1	TEE	4" x 2"	
2	GATE VALVE	4"	
3	SPOOL	4"	2 REQ'D. 2' LONG (1 CUT INTO TWO PIECES)
4	FLNG. CPLG. ADAPTER	4"	
5	PRESSURE REDUCING VALVE	4"	SINGER S106-PR-AIS OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D
6	SPOOL	2"	2 REQ'D. LENGTH AS REQ'D. (1 CUT INTO TWO PIECES)
7	90° ELL.	2"	
8	GATE VALVE	2"	
9	PRESSURE REDUCING VALVE	2"	SINGER S106-PR-AIS OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D
10	COUPLING	2"	
11	PRESSURE GAUGE		2 REQ'D. LIQUID FILLED (1 UPSTREAM RANGE 0-150 PSI) (1 DOWNSTREAM RANGE 0-60 PSI)
12	REDUCER	6" x 4"	
X	LOCATION OF PIPE SUPPORT		

REV. NO.	COMMENT	DATE



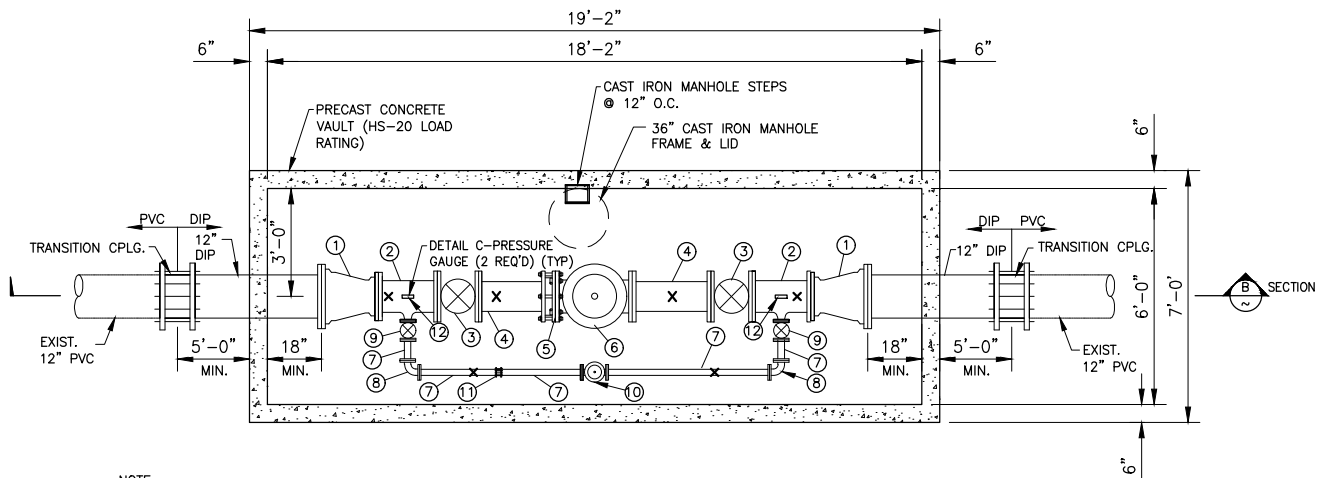
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 • FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency

STANDARD DETAILS

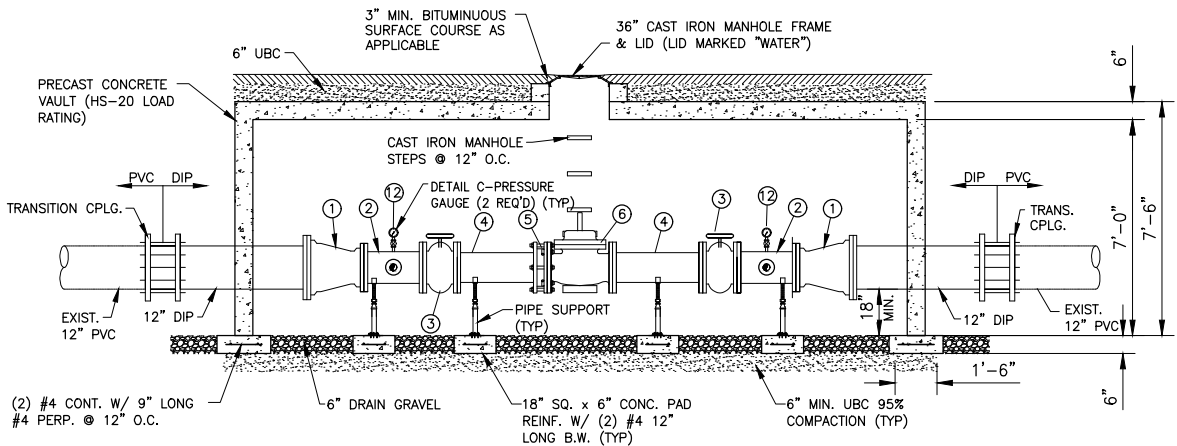
WATER- 6" PRV STATION

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
6-9-2020	DJS	TRB	RWW	W-10



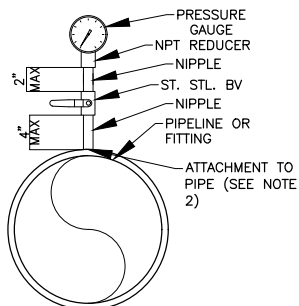
NOTE:
ALL PIPING PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.

(A) PLAN - 12" PRV STATION
1/4" = 1'-0"



NOTE:
ALL PIPING PENETRATIONS SHALL BE SEALED WITH PORTLAND CEMENT GROUT.

(B) SECTION - 12" PRV STATION
1/4" = 1'-0"



NOTES:
1. GAUGE FACE ORIENTATION SHALL BE AS DIRECTED BY THE OWNER.
2. PIPING ATTACHMENT TO DUCTILE IRON PIPE SHALL BE BY PIPE SADDLE OR BY DIRECT THREADING INTO THE PIPE.
3. FITTINGS AND NIPPLES ARE BRASS.

(C) DETAIL - PRESSURE GAUGE
TYP N.T.S.

EQUIPMENT SCHEDULE

NUMBER	DESCRIPTION	SIZE	REMARKS
1	12"x 10" REDUCER	-	
2	10"x 10"x 3" TEE	-	
3	GATE VALVE	10"	
4	SPOOL	10"	LENGTH AS REQ'D (2 REQ'D)
5	RESTRAINED FLNG. CPLG. ADAPTER	10"	
6	PRESSURE REDUCING VALVE	10"	SINGER S106-PR-AIS OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D
7	SPOOL	3"	(GSP) LENGTH AS REQ'D
8	90° ELL.	3"	
9	GATE VALVE	3"	
10	PRESSURE REDUCING VALVE	3"	SINGER S106-PR-AIS OR APPD. EQ., S.S. TUBING, FITTINGS, & TRIM, 15-75 PSI SPRING RANGE REQ'D
11	RESTRAINED COUPLING	3"	
12	PRESSURE GAUGE	-	2 REQ'D. LIQUID FILLED (1 UPSTREAM RANGE 0-150 PSI) (1 DOWNSTREAM RANGE 0-100 PSI)
X	LOCATION OF PIPE SUPPORT	-	

REV NO.	COMMENT	DATE



SUNRISE ENGINEERING
25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 · FAX 435.743.7900
www.sunrise-eng.com

Grand Water & Sewer Service Agency

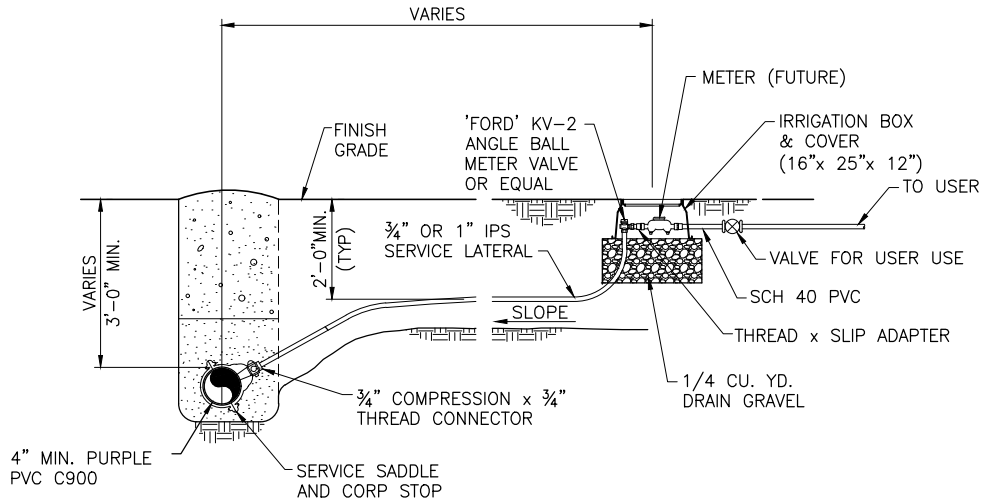
STANDARD DETAILS

WATER - 12" PRV STATION

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
6-9-2020	DJS	TRB	RWW	W-11

W-11

P:\GWSSA\GWSSA Standard Details\CAD\Standard Drawings April 2020.dwg Jun 24, 2020 1:30pm aflake



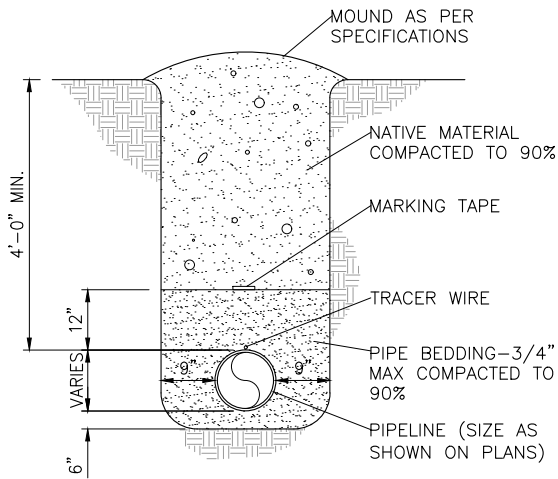
NOTES:

1. INSTALLATION OF PRESSURIZED IRRIGATION MAIN LINE, FITTINGS, VALVES, AND RESTRAINT SHALL CONFORM TO APPLICABLE CULINARY WATER DETAILS.
2. SERVICE LATERALS SHALL BE 3/4" OR 1" POLYETHYLENE PIPE (IPS) WITH COMPRESSION FITTINGS. LATERALS SHALL BE BLUE POLYETHYLENE WRAPPED WITH PURPLE LOCATOR TAPE.
3. PIPE, JOINTS, FITTINGS, AND VALVES SHALL CONFORM TO APPLICABLE SECTIONS OF AWWA STANDARDS C104-AZ14-08 THROUGH C550-05 AND C900-07 THROUGH C950-07.
4. TRENCH AND SURFACE REPAIR SHALL BE DONE PER DETAILS R-01 THROUGH R-03.
5. SERVICE LINES SHALL BE CAPPED UNTIL CONNECTED FOR SERVICE.

DETAIL - NEW IRRIGATION SERVICE CONNECTION

N.T.S.

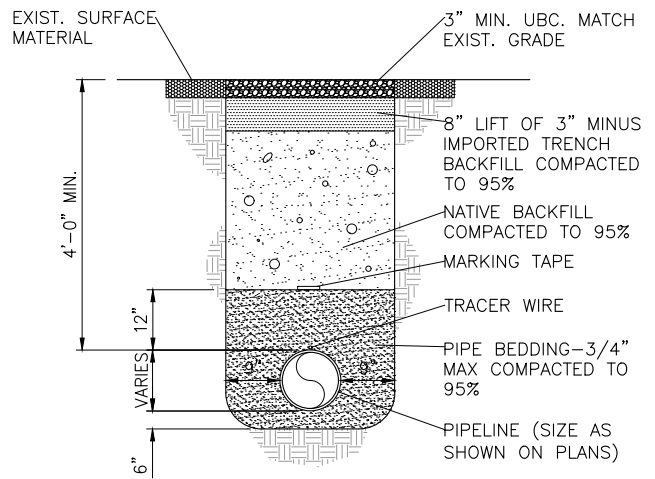
REV. NO.	COMMENT	DATE	 SUNRISE ENGINEERING 25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 · FAX 435.743.7900 www.sunrise-eng.com					Grand Water & Sewer Service Agency				
								STANDARD DETAILS				
			SECONDARY SERVICE CONNECTION									
			DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.					
			6-9-2020	DJS	TRB	RWW	PI-01					



NOTE:
TRENCH DETAIL OUTSIDE OF TRAVELED ROADWAY
OR DESIGNATED ROAD RIGHT-OF-WAY.

DETAIL - TYPICAL TRENCH

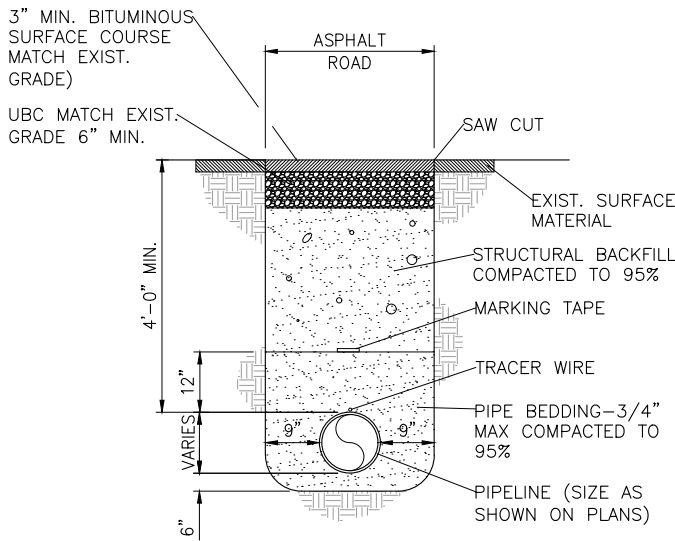
N.T.S.



NOTE:
TRENCH DETAIL INSIDE OF GRAVEL ROADWAYS.

DETAIL - UNPAVED ROADWAY TRENCH

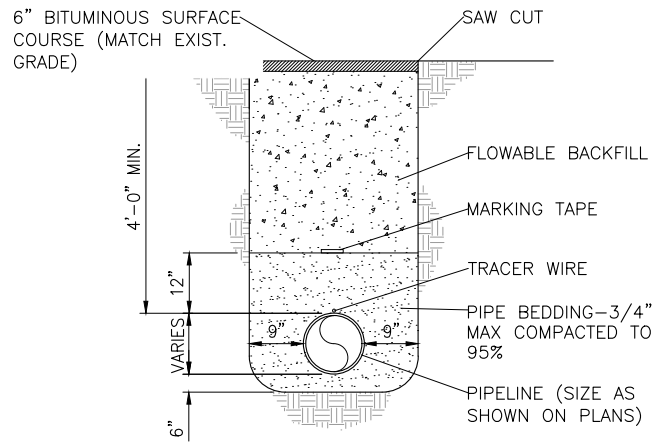
N.T.S.



- NOTES:**
1. TRENCH DETAILS INSIDE OF ROADWAYS ASPHALT/GRAVEL ROADS.
 2. ASPHALT ROADS SHALL BE SAW CUT.
 3. MAX PAY WIDTH SHALL BE 5'-0".

DETAIL - PAVED ROADWAY TRENCH

N.T.S.



NOTE:
THIS SHALL BE USED ON ALL COUNTY AND STATE HIGHWAY CROSSINGS
AND WHERE SPECIFICALLY CALLED FOR. CONTRACTOR SHALL OBTAIN
PERMIT FROM UDOT OR COUNTY PRIOR TO CONSTRUCTION

DETAIL - TRENCH W/ FLOWABLE BACKFILL

N.T.S.

C:\Users\afifike\AppData\Local\Temp\AcPublish_15872\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm afifike

REV NO.	COMMENT	DATE



25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 • FAX 435.743.7900
www.sunrise-eng.com

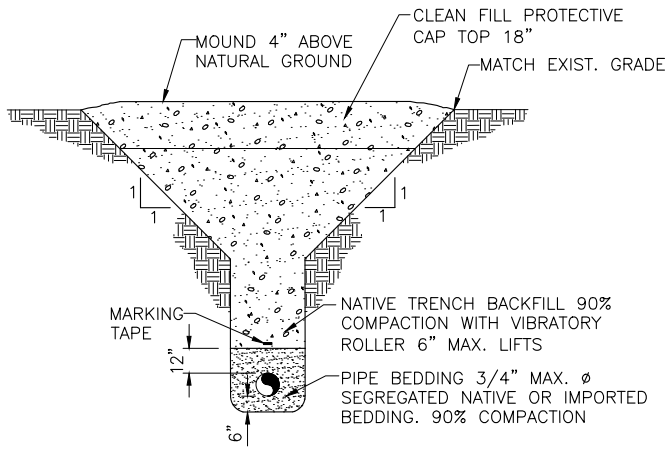
Grand Water & Sewer Service Agency

STANDARD DETAILS

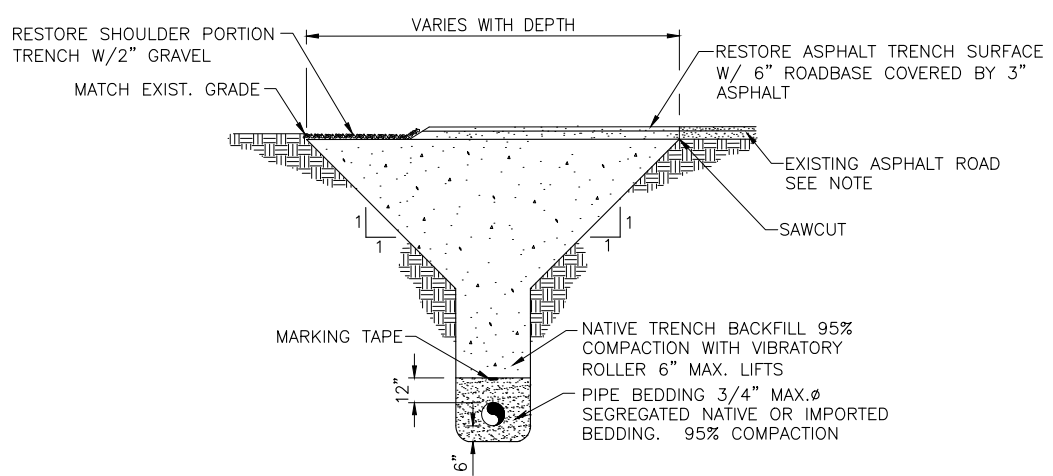
ROADWAY - TRENCH DETAILS

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
6-9-2020	DJS	TRB	RWW	R-01

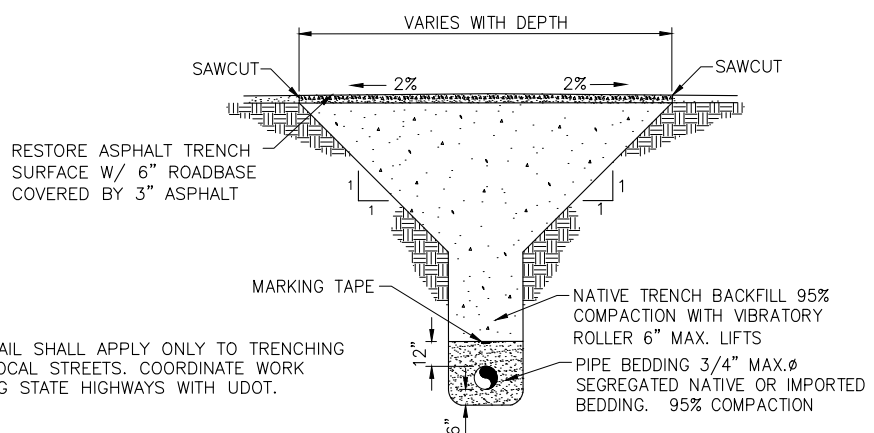
C:\Users\afflake\AppData\Local\Temp\AcPublish_15872\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm afflake



(A) DETAIL - TRENCH CONDITION 'A'
TYP TRENCH OUTSIDE OF ROADWAYS



(B) DETAIL - TRENCH CONDITION 'B'
TYP TRENCH WITHIN SHOULDER

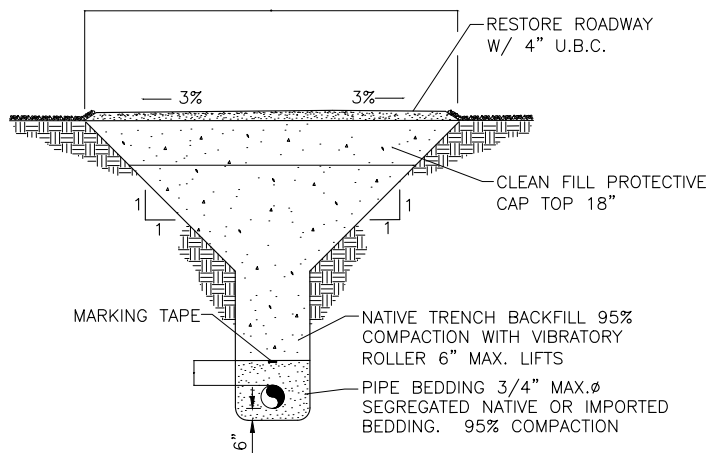


NOTE:
 THIS DETAIL SHALL APPLY ONLY TO TRENCHING WITHIN LOCAL STREETS. COORDINATE WORK AFFECTING STATE HIGHWAYS WITH UDOT.

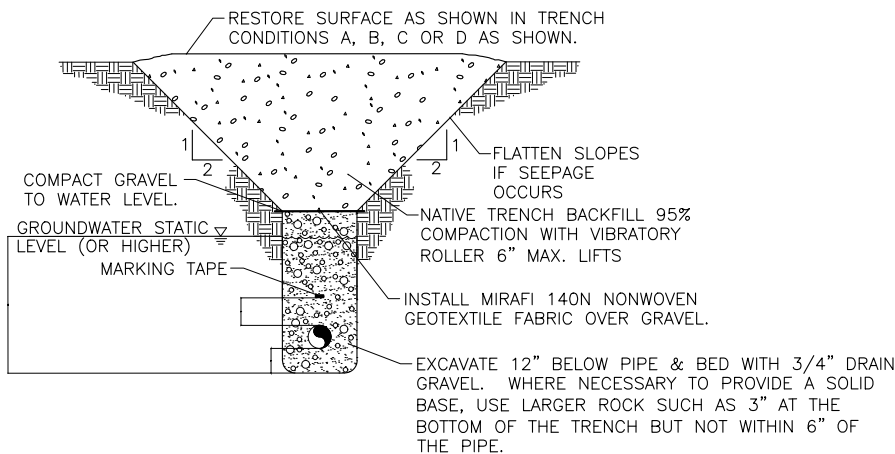
(C) DETAIL - TRENCH CONDITION 'C'
TYP TRENCH WITHIN ASPHALT ROADWAY - LOCAL STREETS

REV. NO.	COMMENT	DATE	SUNRISE ENGINEERING 25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 • FAX 435.743.7900 www.sunrise-eng.com					Grand Water & Sewer Service Agency				
								STANDARD DETAILS				
			ROADWAY - TRENCH DETAILS									
			DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.	R-02				
			6-9-2020	DJS	TRB	RWW	.					

C:\Users\afleke\AppData\Local\Temp\AcPublish_15872\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm afleke



D DETAIL - TRENCH CONDITION 'D'
TYP TRENCH WITHIN GRAVEL ROADWAY



E DETAIL - TRENCH CONDITION 'E'
TYP WET TRENCHING

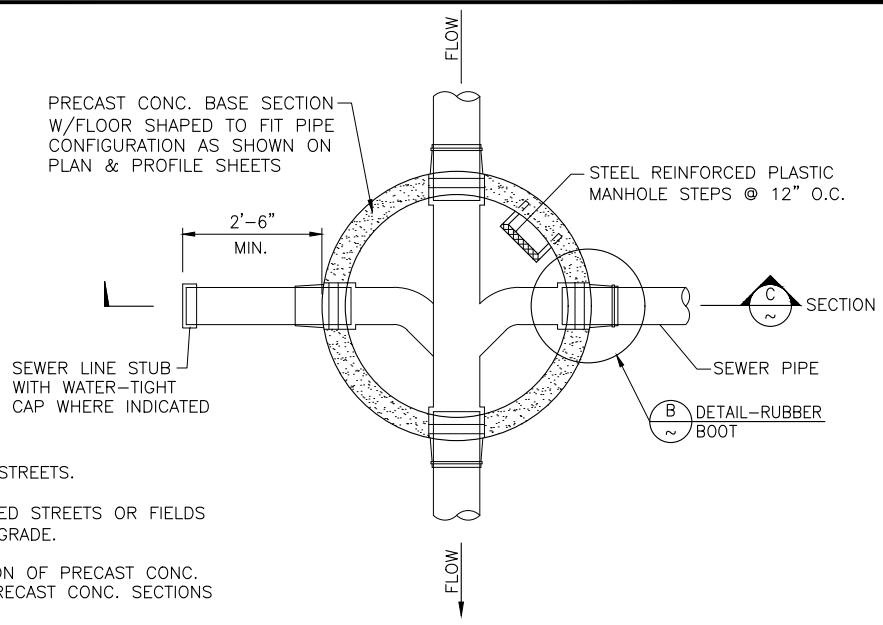
NOTES:

1. CONSTRUCTION AS SHOWN IS REQUIRED WHEN GROUNDWATER STATIC LEVEL IS EQUAL TO OR ABOVE SEWER INVERT ELEVATION OR AS DIRECTED BY THE ENGINEER.
2. CLAY CUT-OFF WALLS REQUIRED IN WET TRENCHING OR AS DIRECTED BY THE ENGINEER.
3. DEWATERING EFFORTS REQUIRED.
4. PLACE BACKFILL UP TO WATER LEVEL DURING CONSTRUCTION BEFORE DISCONTINUING THE DEWATERING.
5. DEWATERING OF EXCAVATIONS SHOULD BE FROM OUTSIDE THE EXCAVATED AREA TO MAINTAIN STABILITY.
6. THE FREE WATER LEVEL SHALL BE MAINTAINED AT LEAST 2ft. BELOW THE BASE OF THE EXCAVATION DURING CONSTRUCTION.

REV. NO.	COMMENT	DATE	Grand Water & Sewer Service Agency				
			STANDARD DETAILS				
			ROADWAY - TRENCH DETAILS				
			DATE 6-9-2020	DESIGNED DJS	DRAWN TRB	CHECKED RWW	SHEET NO. R-03

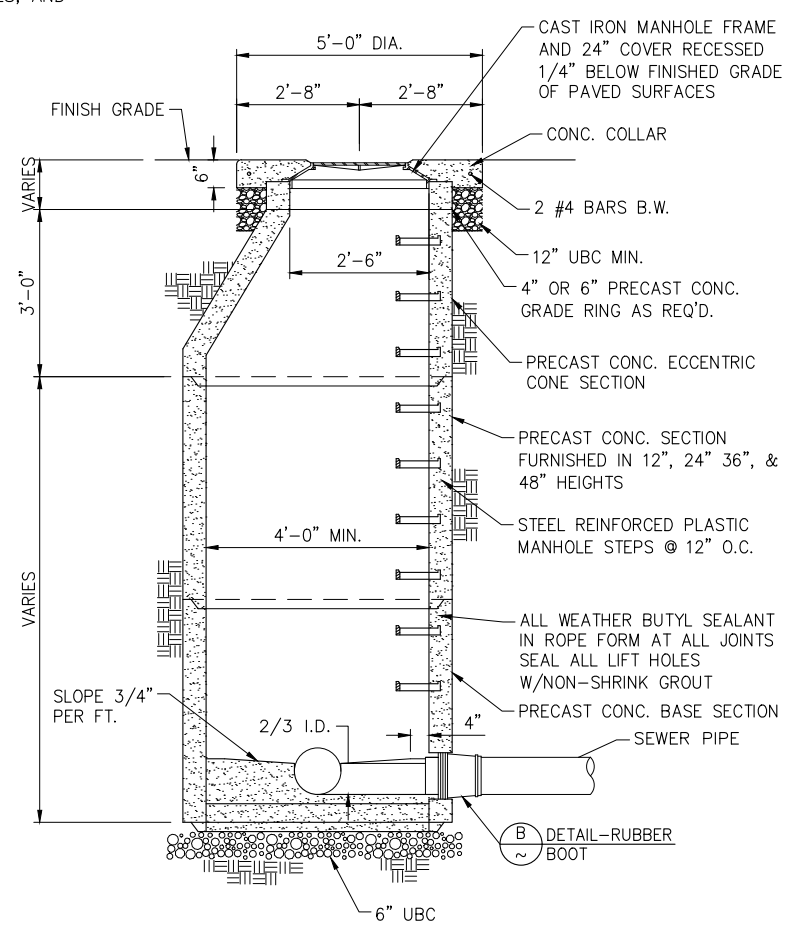


25 EAST 500 NORTH
 FILLMORE, UTAH 84631
 TEL 435.743.6151 • FAX 435.743.7900
 www.sunrise-eng.com

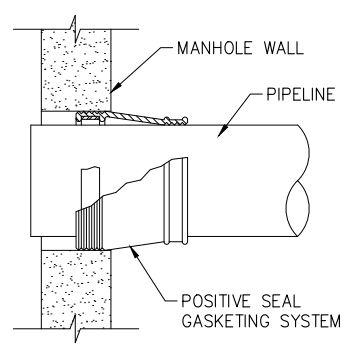


A PLAN - MANHOLE
TYP N.T.S.

- NOTES:**
1. VENTED LIDS SHALL BE REQ'D. IN ALL PAVED STREETS.
 2. NON-VENTED LIDS SHALL BE REQ'D. IN UNPAVED STREETS OR FIELDS WHERE RIM ELEVATION IS 6" OR LESS ABOVE GRADE.
 3. WHERE FIELD CONDITIONS PROHIBIT COMBINATION OF PRECAST CONC. SECTIONS SHOWN, OTHER COMBINATIONS OF PRECAST CONC. SECTIONS MAY BE USED AS PER ENGINEER'S APPROVAL.
 4. CONCRETE COLLAR REQ'D IN ASPHALT FINISH ROADS. THEY ARE NOT REQ'D. ON GRAVEL FINISH ROADS.
 5. PATCH ALL MANHOLE SECTION JOINTS, OPENINGS AROUND PIPES, AND OTHER VOIDS WITH NON-SHRINK GROUT.



C SECTION - MANHOLE
TYP N.T.S.



B PLAN - RUBBER BOOT
TYP N.T.S.

C:\Users\afike\AppData\Local\Temp\AcPublish_15872\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm afike

REV. NO.	COMMENT	DATE

SUNRISE ENGINEERING

25 EAST 500 NORTH
 FILLMORE, UTAH 84631
 TEL 435.743.6151 • FAX 435.743.7900
 www.sunrise-eng.com

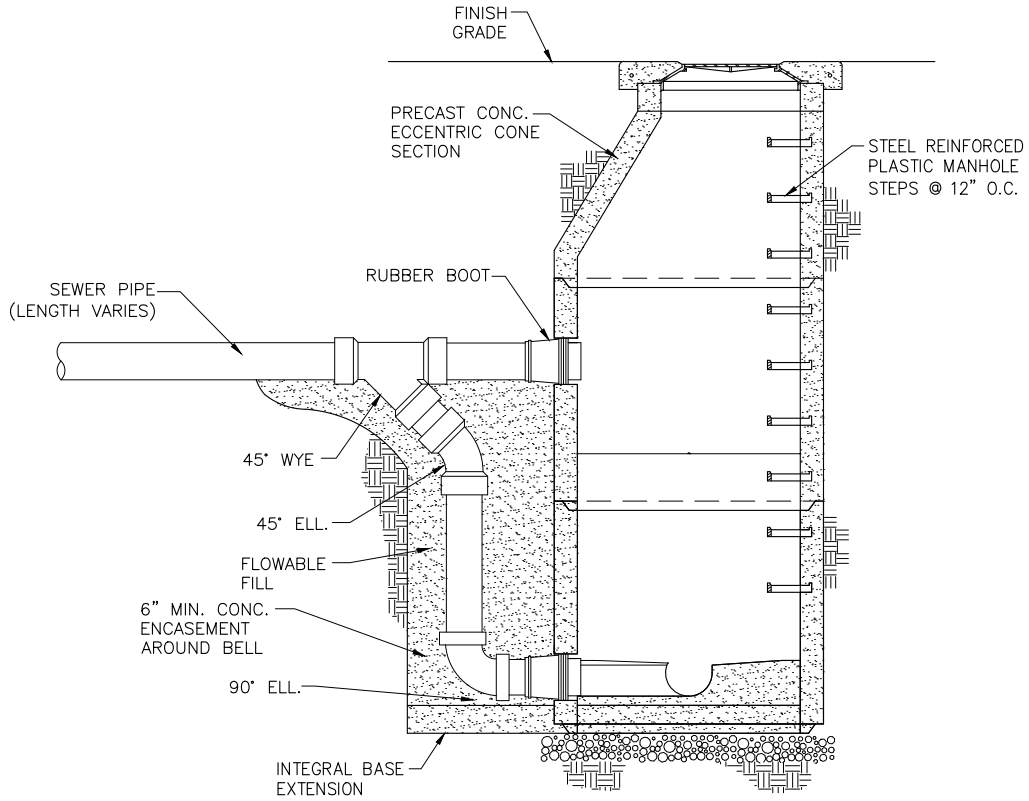
Grand Water & Sewer Service Agency

STANDARD DETAILS

SANITARY SEWER- STANDARD MANHOLE

DATE 6-9-2020	DESIGNED DJS	DRAWN TRB	CHECKED RWW	SHEET NO. S-01
------------------	-----------------	--------------	----------------	-------------------

C:\Users\afleke\appdata\local\temp\AcPublish_15872\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm afleke



SECTION - DROP MANHOLE
N.T.S.

NOTE:
FOR DROP DISTANCES LESS THAN 24" NO DROP MANHOLE SHALL BE USED. THE CONTRACTOR SHALL SLOPE THE TROUGHS IN THE BASE OF THE MANHOLE TO ACCOMMODATE THE DROP DISTANCES.

REV. NO.	COMMENT	DATE



25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 • FAX 435.743.7900
www.sunrise-eng.com

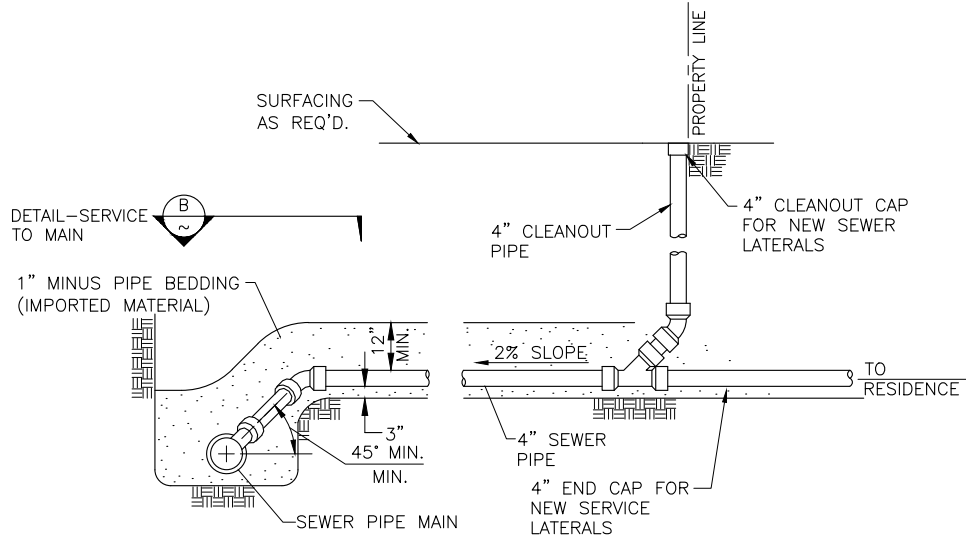
Grand Water & Sewer Service Agency

STANDARD DETAILS

SANITARY SEWER- STANDARD DROP MANHOLE

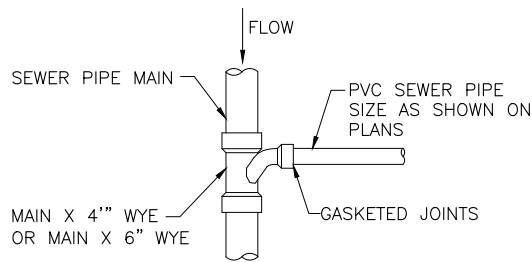
DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
6-9-2020	DJS	TRB	RWW	S-02

C:\Users\aflake\AppData\Local\Temp\AcPublish_15872\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm aflake



NOTE:
SEWER LATERALS ARE GENERALLY LOCATED ON THE LOW SIDE OF THE PROPERTY 5 FEET FROM THE LOT CENTERLINE.

A DETAIL - SEWER SERVICE LATERAL
TYP N.T.S.



B DETAIL - SERVICE TO MAIN
TYP N.T.S.

REV. NO.	COMMENT	DATE



25 EAST 500 NORTH
FILLMORE, UTAH 84631
TEL 435.743.6151 • FAX 435.743.7900
www.sunrise-eng.com

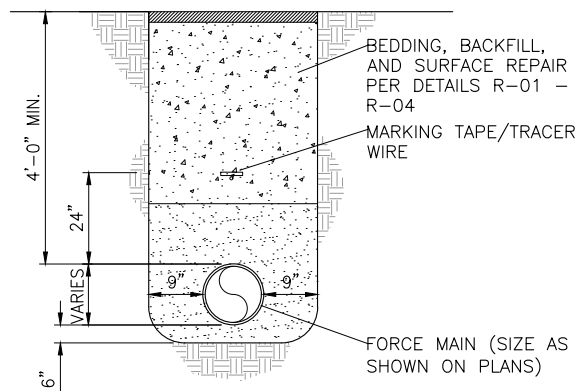
Grand Water & Sewer Service Agency

STANDARD DETAILS

SANITARY SEWER- STANDARD SERVICE CONNECTION

DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.
6-9-2020	DJS	TRB	RWW	S-03

C:\Users\afloke\appdata\local\temp\AcPublish_15872\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm afloke



NOTES:

1. UNLESS GRINDER PUMPS ARE UTILIZED, FORCE MAINS SHALL BE A MINIMUM 4" HDPE.
2. FORCE MAINS SHALL ENTER THE GRAVITY SEWER SYSTEM AT A POINT NOT MORE THAN 24" ABOVE THE FLOWLINE OF THE RECEIVING MANHOLE.
3. AUTOMATIC AIR RELIEF VALVES SHALL BE PLACED AT HIGH POINTS IN THE FORCE MAIN TO PREVENT AIR LOCKING.
4. JOINT RESTRAINT MUST BE PROVIDED PER DETAILS W-06 AND W-07. JOINTS MAY ALSO BE FUSED.

DETAIL - FORCE MAIN CONSTRUCTION

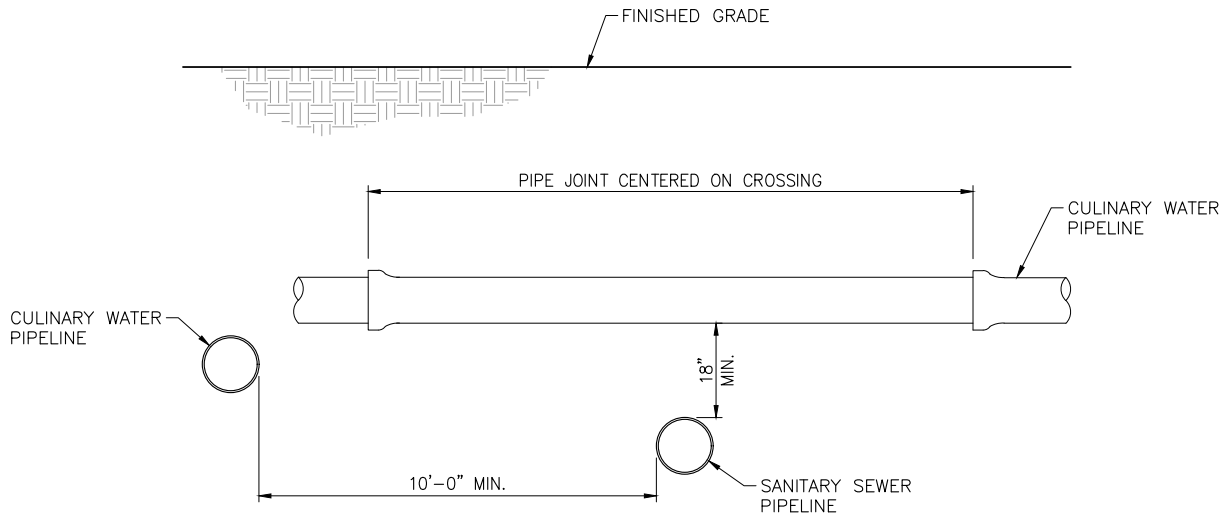
N.T.S.

REV. NO.	COMMENT	DATE	Grand Water & Sewer Service Agency					
			STANDARD DETAILS					
			SANITARY SEWER - FORCE MAIN CONSTRUCTION					
			DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.	S-04
			6-9-2020	DJS	BN	RWW	.	



25 EAST 500 NORTH
 FILLMORE, UTAH 84631
 TEL 435.743.6151 • FAX 435.743.7900
 www.sunrise-eng.com

C:\Users\afleke\appdata\local\temp\AcPublish_15872\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm afleke



NOTES:

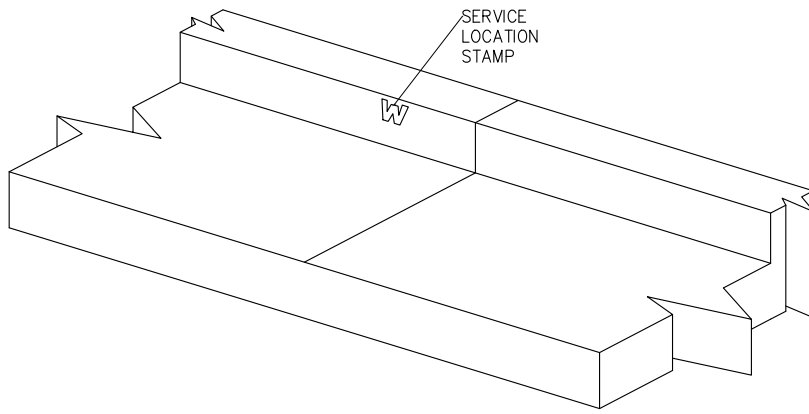
1. IF THE MINIMUM SEPARATION SHOWN HERE CANNOT BE MET, ADDITIONAL COORDINATION WITH GWSSA AND DIVISION OF DRINKING WATER APPROVAL ARE REQUIRED.
2. WATER TRANSMISSION LINES THAT MAY BECOME UNPRESSURIZED SHALL NOT BE INSTALLED WITHIN 20 FEET OF SEWER LINES.
3. WHEN A NEW SEWER FORCE MAIN CROSSES UNDER AN EXISTING WATER MAIN, ALL PORTIONS OF THE SEWER FORCE MAIN WITHIN 10 FEET (HORIZONTALLY) OF THE WATER MAIN SHALL BE ENCLOSED IN A CONTINUOUS SLEEVE.
4. WHEN A NEW WATER MAIN CROSSES OVER AN EXISTING SEWER FORCE MAIN, THE WATER MAIN SHALL BE CONSTRUCTED OF PIPE MATERIALS WITH A MINIMUM RATED WORKING PRESSURE OF 200 PSI OR EQUIVALENT PRESSURE RATING.
5. THE SEPARATION STANDARDS SHOWN ALSO APPLY TO SERVICE LATERALS.

DETAIL - WATER AND SEWER SEPARATION

N.T.S.

REV. NO.	COMMENT	DATE	 SUNRISE ENGINEERING 25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 • FAX 435.743.7900 www.sunrise-eng.com					Grand Water & Sewer Service Agency				
								STANDARD DETAILS				
			WATER - WATER AND SEWER SEPARATION									
DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.								
6-9-2020	DJS	BN	RWW	.	M-01							

C:\Users\afleke\appdata\local\temp\AcPublish_15872\Standard Drawings April 2020.dwg Jun 09, 2020 3:04pm afleke



NOTES:

1. NEW OR REPLACED CONCRETE CURBS SHALL BE STAMPED WITH 2" BLOCK LETTERS IDENTIFYING THE LOCATION WHERE A UTILITY SERVICE LINE CROSSES THE CURB.
2. THE FOLLOWING DESIGNATIONS SHALL BE USED TO IDENTIFY UTILITIES:
 - "W" - CULINARY WATER
 - "PI" - PRESSURIZED IRRIGATION
 - "S" - SEWER
 - "G" - GAS

DETAIL - SERVICE LOCATION STAMP

N.T.S.

REV. NO.	COMMENT	DATE	 SUNRISE ENGINEERING 25 EAST 500 NORTH FILLMORE, UTAH 84631 TEL 435.743.6151 • FAX 435.743.7900 www.sunrise-eng.com				Grand Water & Sewer Service Agency			
							STANDARD DETAILS			
							MISC - SERVICE LOCATION STAMP			
			DATE	DESIGNED	DRAWN	CHECKED	SHEET NO.	M-02		
			6-9-2020	DJS	BN	RWW	.			