



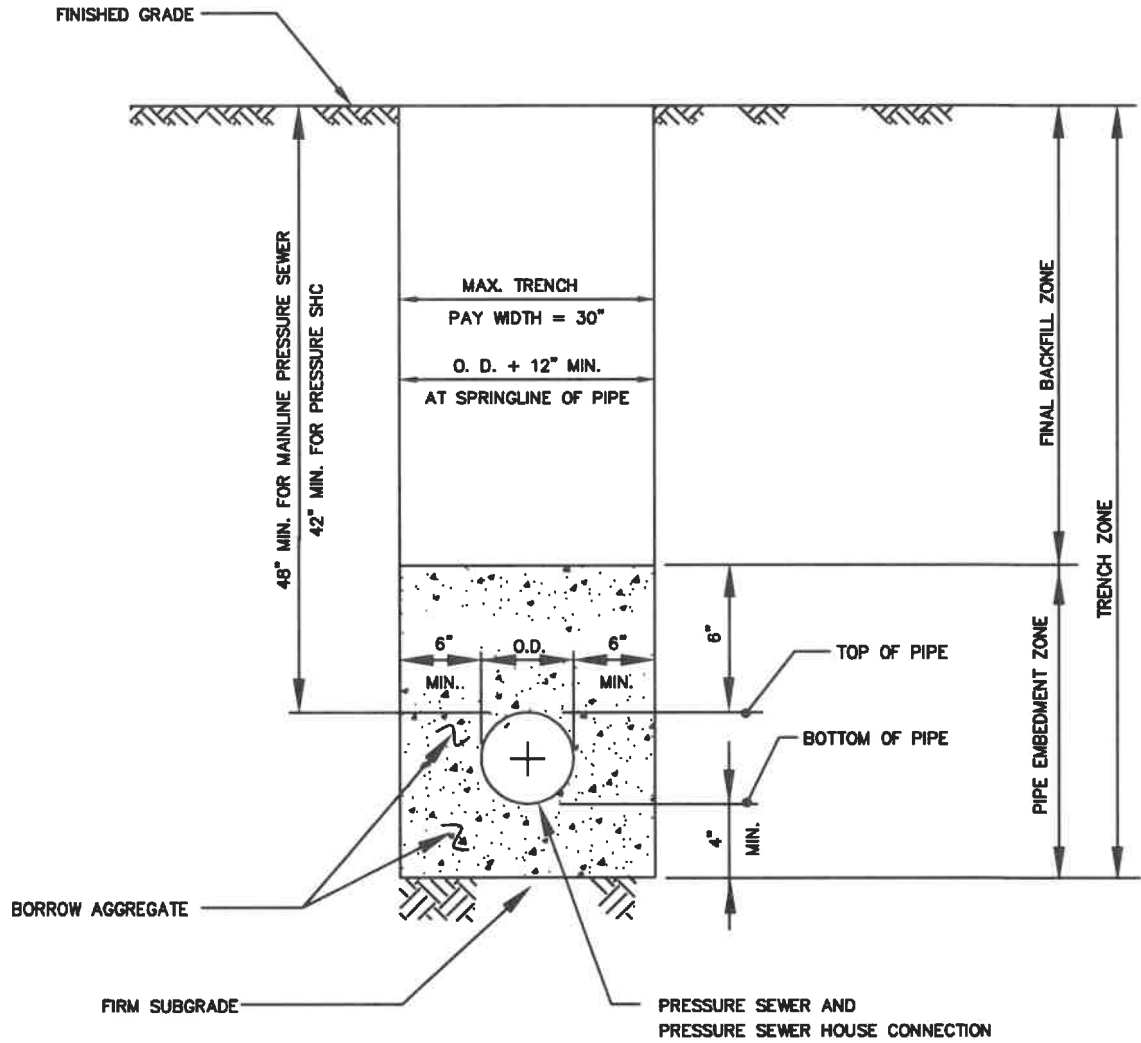
## **SECTION VII**

### **PRESSURE SEWER DETAILS**

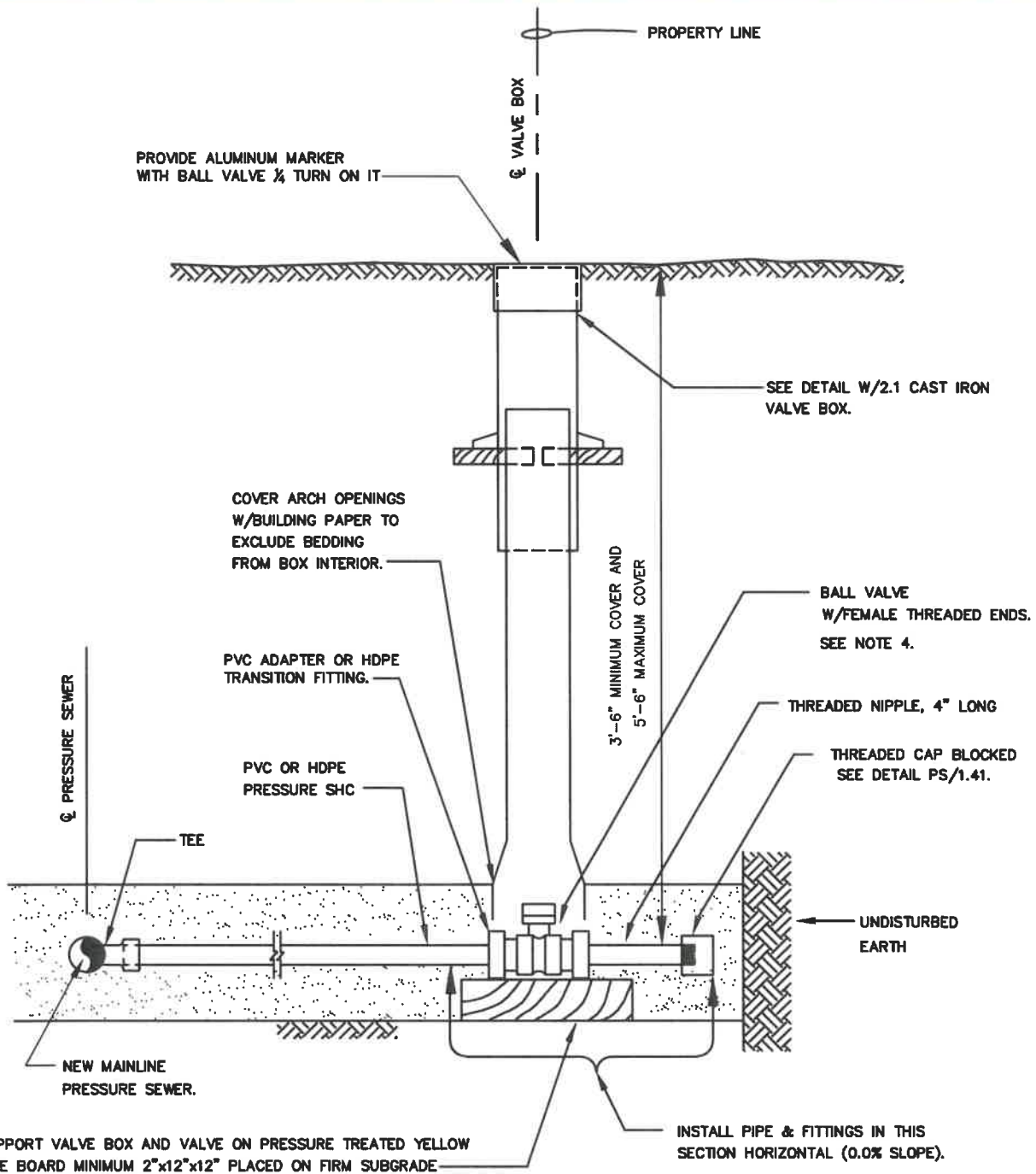
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WASHINGTON SUBURBAN SANITARY COMMISSION	APPROVED: <u>7-26-21</u>  Chief Engineer	STANDARD DETAIL <b>TRENCH DETAIL - FLEXIBLE PIPE          PVC AND HDPE          PRESSURE SEWER</b>	PS <hr/> 1.0
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**NOTES:**

1. SERVICE VALVE TO BE LEFT IN THE OPEN POSITION.
2. UNLESS OTHERWISE NOTED ALL 1 1/4" DIAMETER PVC PIPE SHALL HAVE SOLVENT CEMENT JOINTS AND HDPE WILL HAVE BUTT FUSED JOINTS.
3. FITTINGS SHALL BE BLOCKED OR ANCHORED IN ACCORDANCE WITH DETAILS PS/1.4, 1.41 & 1.42.
4. BALL VALVE SHALL HAVE A 2" BY .5" OPERATING NUT FOR USE WITH A CURB KEY.

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APPROVED: 7-26-21

*Milo Hamner*  
Chief Engineer

STANDARD DETAIL

PRESSURE SHC WITH  
SERVICE VALVE  
ASSEMBLY

PS  
1.1

BALL VALVE WITH FEMALE THREADED ENDS.

TYP. PVC UNION ON EACH SIDE OF EACH VALVE.

PRESSURE SEWER (PVC OR HDPE)

BRONZE TEE LINE SIZE x 1 1/2" W/THREADED PLUG AND THREADED ENDS W/PVC ADAPTERS SxMPT.

MANHOLE

48" PRECAST CONCRETE MANHOLE, SEE DETAIL S/1.0.

HANDLE (TYP.)

EQ.

EQ.

FLEXIBLE GASKET CONNECTOR (TYP.)

EQ.

EQ.

6" (MIN.)

BRICK OR CONCRETE PIER (TYP.)

SCH 80 PVC ADAPTER S x MPT (TYP.)

**IN-LINE FLUSHING CONNECTION**

(LESS THAN 2 1/2" Ø LINE)

BRONZE TEE LINE SIZE x 1 1/2" WITH THREADED PLUG AND THREADED ENDS W/PVC ADAPTERS S x MPT.

MANHOLE

BALL VALVE W/FEMALE THREADED ENDS

THREADED CAP. (PVC).

2 LAYERS ROOFING FELT.

TYP. PVC UNION ON EACH SIDE OF EACH VALVE.

HANDLE

FLEXIBLE GASKET CONNECTOR (TYP.)

BLOCK TO MANHOLE WALL WITH MORTARED BRICK

PRESSURE SEWER (PVC OR HDPE)

48" PRECAST CONCRETE MANHOLE, SEE DETAIL S/1.0.

6" (MIN.)

2 LAYERS ROOFING FELT.

BRICK OR CONCRETE PIER (TYP.)

SCH 80 PVC ADAPTER S x MPT (TYP.)

**TERMINAL FLUSHING CONNECTION**

**NOTES:**

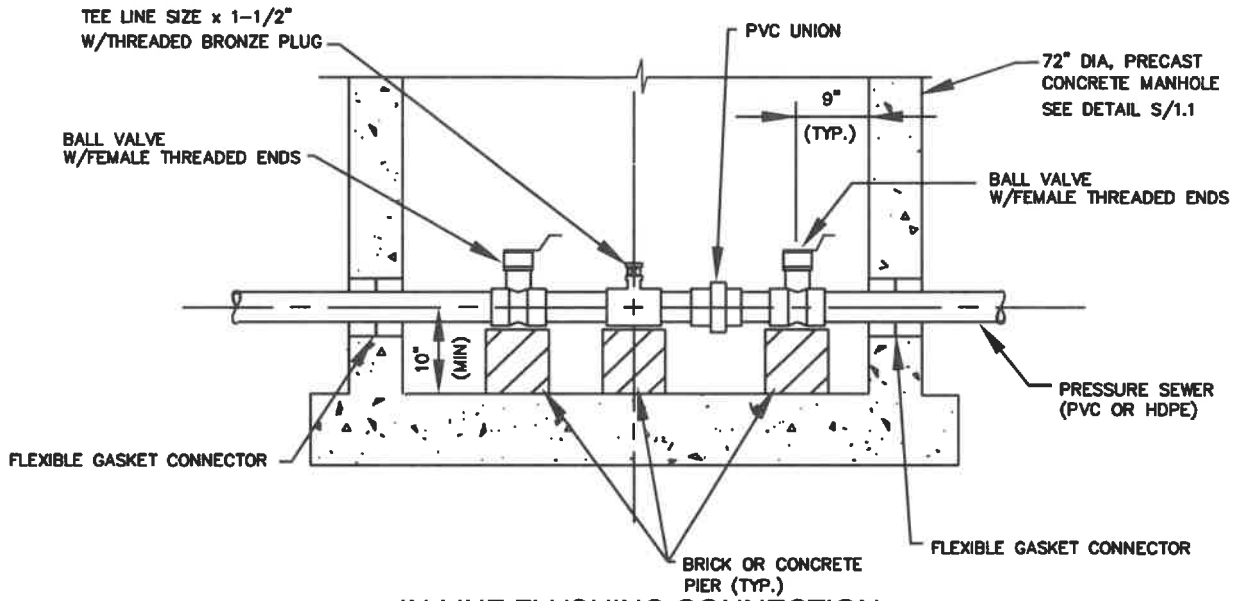
1. ALL JOINTS SHOWN SHALL BE SOLVENT CEMENT UNLESS OTHERWISE NOTED.
2. FOR OTHER MANHOLE DETAILS, SEE DETAIL S/1.0.
3. FOR 1 1/4" Ø LINE, BUSH UP AS NECESSARY TO ACCOMMODATE 1 1/2"x1 1/2" TEE
4. ALLOW SUFFICIENT SPACE FOR UNSCREWING UNIONS.
5. FOR HDPE PIPE, PROVIDE TRANSITION FITTING AT CONNECTION TO PVC UNION.

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*Mike Hamm*  
Chief Engineer

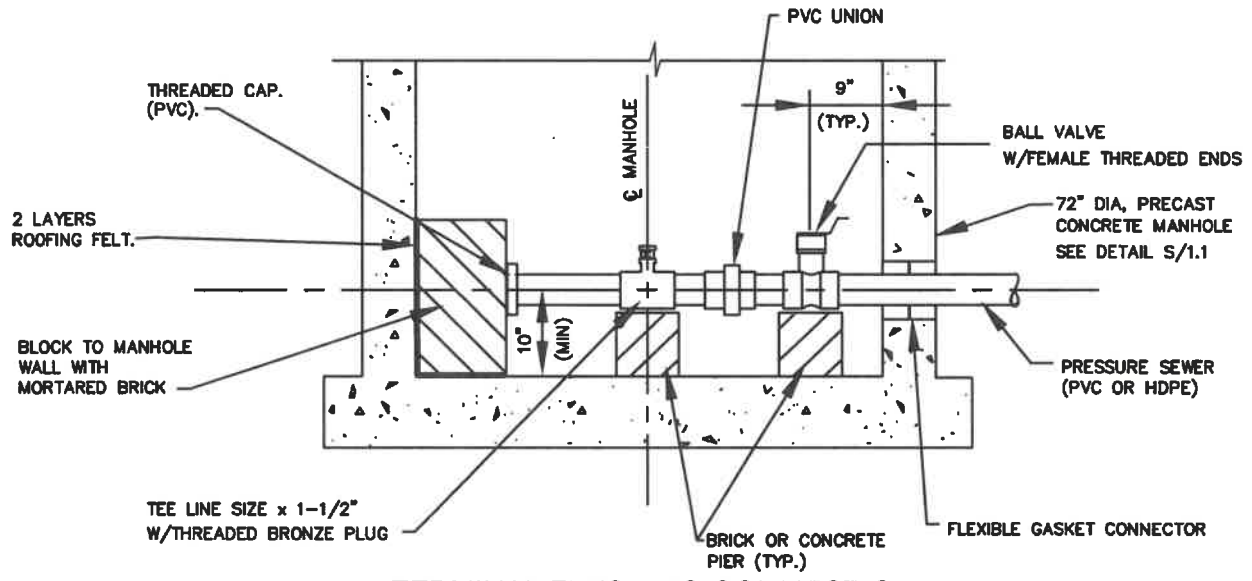
STANDARD DETAIL  
**FLUSHING CONNECTION  
LESS THAN 2-1/2"**

PS  
1.2



**IN-LINE FLUSHING CONNECTION**

(2 1/2" THROUGH 4")



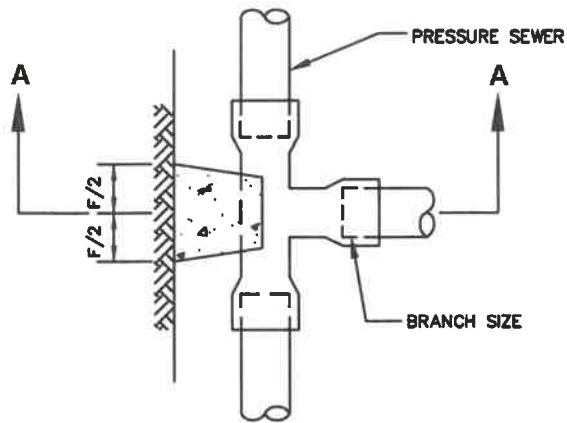
**TERMINAL FLUSHING CONNECTION**

(2 1/2" THROUGH 4")

**NOTES:**

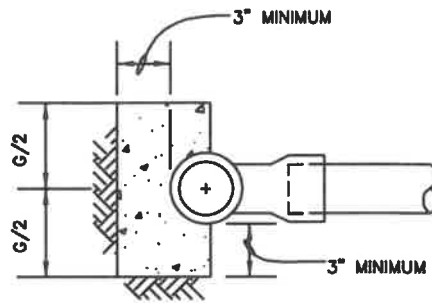
1. ALL JOINTS SHOWN SHALL BE SOLVENT CEMENT UNLESS OTHERWISE NOTED.
2. FOR OTHER MANHOLE DETAILS, SEE DETAIL S/1.2.
3. ALLOW SUFFICIENT SPACE FOR UNSCREWING UNION.
4. FOR HDPE PIPE, PROVIDE TRANSITION FITTING AT CONNECTION TO BALL VALVE.

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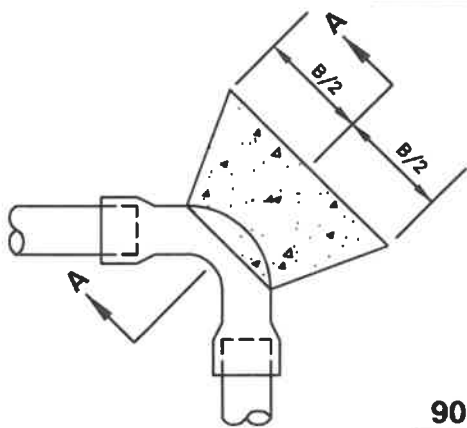


**PLAN**

**TEES, INCLUDING PRESSURE SHC'S**

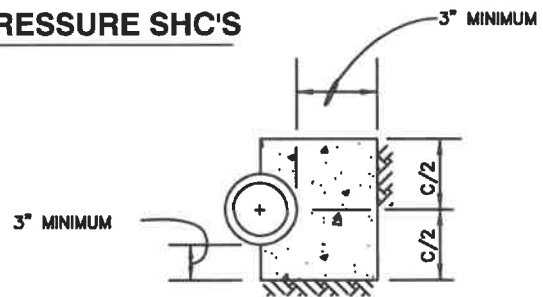


**SECTION A-A**

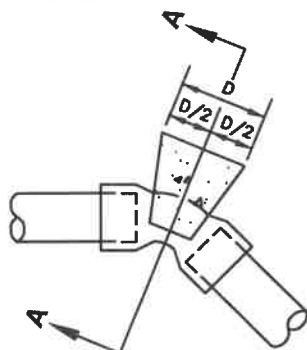


**PLAN**

**90 ° HORIZONTAL BENDS**

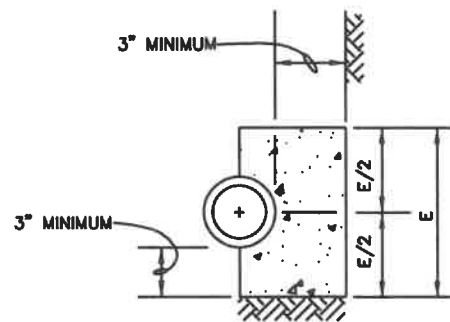


**SECTION A-A**



**PLAN**

**11-1/4°, 22-1/2°, 45° HORIZONTAL AND LOWER VERTICAL BENDS**



**SECTION A-A**

PIPE SIZE	B	C	D	E	F	G
1-1/4" AND 1-1/2"	8"	8"	5"	5"	6"	6"
2"	10"	10"	7"	7"	10"	10"
2-1/2"	10"	10"	7"	7"	10"	10"
3"	12"	12"	9"	9"	12"	12"
4"	26"	12"	12"	12"	16"	12"

**NOTES:**

1.  $f_c=3000$  psi @ 28 DAYS.
2. CARRY ALL BEARING SURFACES TO UNDISTURBED GROUND OR FIRM SUBGRADE.
3. BUTTRESS SIZED FOR 150 psi.
4. SEE DETAIL PS/1.42 FOR UPPER VERTICAL BENDS.
5. DO NOT ENCASE JOINTS.

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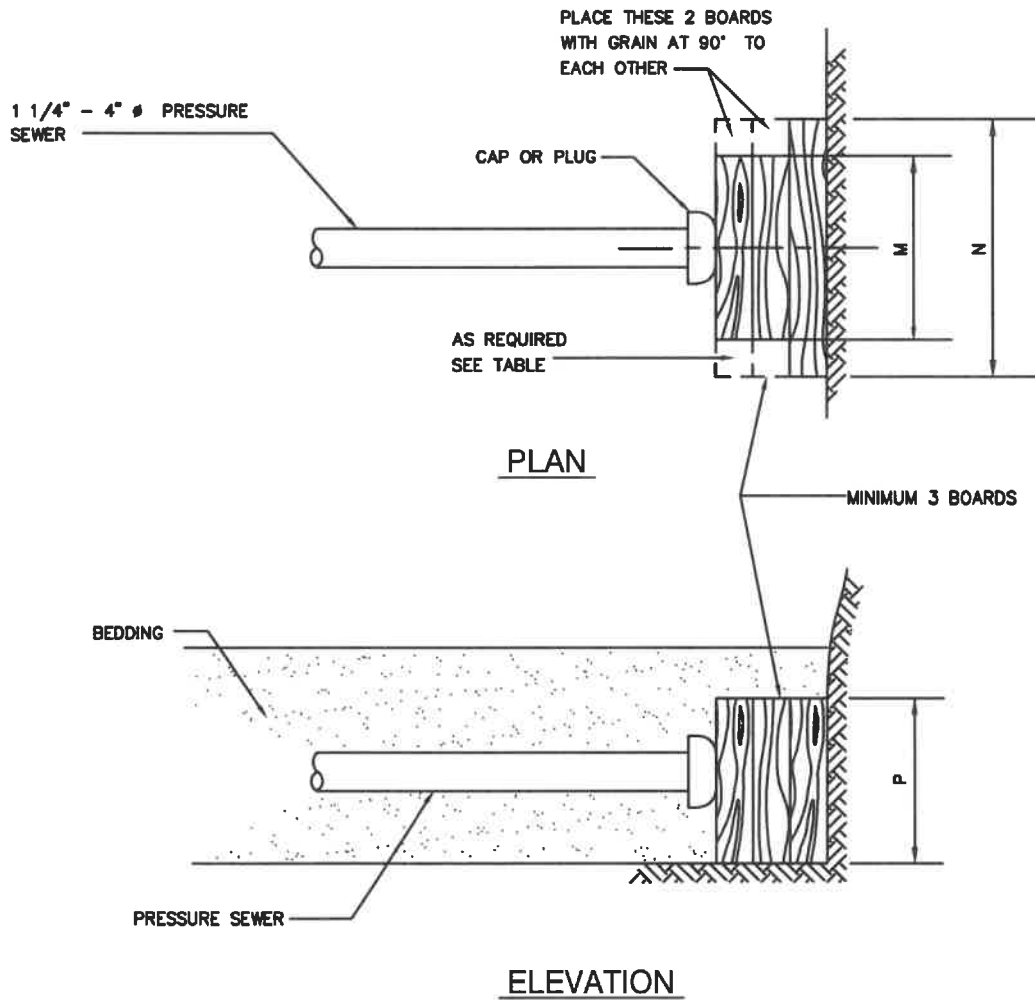
*Mitch Harmon*  
Chief Engineer

STANDARD DETAIL

PRESSURE SEWER  
BLOCKING DETAILS

PS  
1.4





PIPE SIZE	M	N	P
1 1/4"	6"	6"	8"
1 1/2"	6"	6"	8"
2"	6"	8"	8"
2 1/2"	8"	8"	10"
3"	12"	18"	12"
4"	12"	18"	12"

**NOTES:**

1. CARRY ALL BEARING SURFACES TO UNDISTURBED EARTH OR FIRM SUBGRADE.
2. BUTTRESS SIZED FOR 150 psi.
3. NOMINAL THICKNESS OF ALL BOARDS IS 2".
4. ALL BOARDS TO BE PRESSURE TREATED YELLOW PINE.

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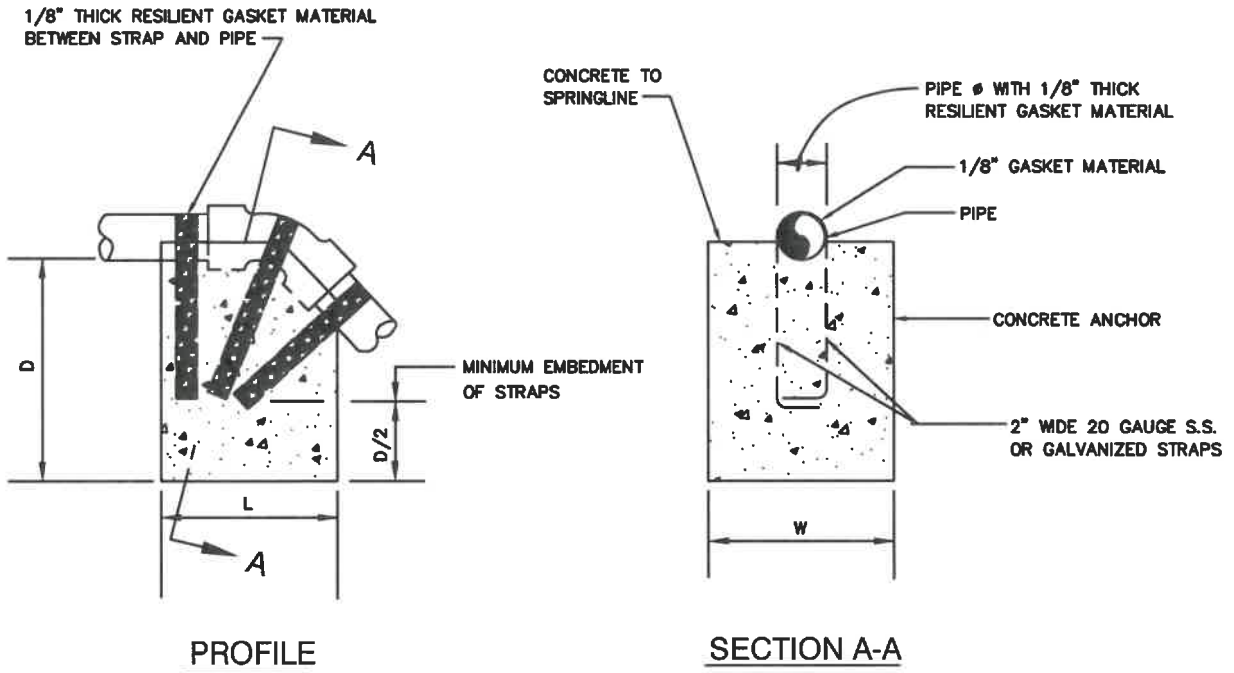
APPROVED: 7-26-21

*M. H. Hansen*  
Chief Engineer

STANDARD DETAIL  
PRESSURE SEWER AND  
HOUSE CONNECTION  
BLOCKING DETAILS  
FOR CAPS AND PLUGS

PS  
1.41





BEND		SIZE IN INCHES			
		1-1/4, 1-1/2	2, 2-1/2	3	4
11 1/4 °	L	12	15	18	18
	W	10	12	15	18
	D	10	15	15	18
22 1/2 °	L	15	20	20	24
	W	15	20	20	24
	D	12	12	18	20
45 °	L	20	24	24	30
	W	20	20	24	30
	D	12	20	24	26

**NOTES:**

1. COAT EXPOSED GALVANIZED STRAPS WITH FIELD APPLIED COATING, SEE SPECIFICATIONS.
2.  $f'_c=3000$  psi @ 28 DAYS.
3. CARRY ALL BEARING SURFACE TO UNDISTURBED EARTH OR FIRM SUBGRADE.
4. CONCRETE ANCHORAGE DIMENSIONS ARE BASED ON TOTAL PRESSURE OF 150 psi.

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*Mike Harms*  
Chief Engineer

STANDARD DETAIL  
ANCHORING  
PRESSURE SEWERS  
(UPPER VERTICAL BENDS)

PS  
1.42

2-6 COURSES BRICK OR PRECAST  
CONCRETE GRADE RINGS IN  
PAVED AREAS.

30" STANDARD WSSC MANHOLE FRAME  
& COVER (TRAFFIC LOADING)  
DRILL A 1/2" # HOLE IN COVER.

OPERATING HAND WHEEL.  
5/8" STEEL ROD TO FORM  
EYELET.

CONCRETE TOP SLAB, SEE DETAIL S/1.3

60" # MANHOLE  
WITH STEPS SEE DETAIL S/1.1.

5/8" STEEL ROD.

SEWAGE AIR RELEASE VALVE.  
PIPE TO AIR/VAC VALVE PER  
MFRS. DRAWINGS

2" SEWAGE AIR & VACUUM VALVE  
& FITTINGS. ORIENT TO PROVIDE  
ACCESS TO ALL VALVES

2" VALVE

STRAP

2" THREADED BRASS  
PIPE

4" x 8" BRICK PIER (TYPICAL 2)  
TO SUPPORT AIR RELEASE VALVE  
AND AIR/VACUUM VALVE.

LINED MANHOLE.  
SEE SPECIFICATIONS.

SEE DETAIL BELOW.

BEDDING, SEE DETAIL, S/1.1

CONCRETE CRADLE TO  
SPRING LINE.

5/8" STEEL ROD

2" BRASS NIPPLE MPT x MPT

2" GATE VALVE SUPPLIED WITH/SEWAGE  
AIR & VACUUM VALVE. RELOCATE TO  
THIS POSITION.

2" BRASS 90° STREET ELBOW  
MPT x MPT.

STRAP TEE TO CRADLE W/ 20  
GA. x 1" GALV. OR SS. STRAP,  
TWO 1/2" GALV. OR SS. ANCHORS,  
WASHERS AND NUTS.

2" BRASS NIPPLE MPT x MPT

2" BRASS 90° ELBOW FPT. x FPT. ANCHOR TO  
PIER WITH/20 GA. x 1" WIDE GALVANIZED OR  
STAINLESS STEEL STRAP. (TYP.).

LINE SIZE BRONZE TEE W/FPT ENDS.

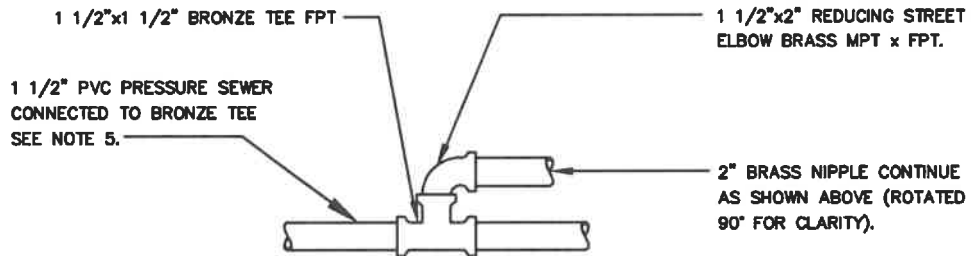
PRESSURE SEWER CONNECTED TO BRONZE  
TEE W/PVC ADAPTER (MPT x SOLVENT  
CEMENT JOINT).

DETAIL OF CONNECTION OF AIR/VAC. VALVE  
TO MAINLINE PRESSURE SEWER

NOTE:

1. SEE DETAIL PS/1.5a FOR ADDITIONAL INFORMATION AND NOTES.

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CONNECTIONS FOR 1 1/2"  
PRESSURE SEWER

NOTES:

1. COAT EXPOSED GALVANIZED STRAPS WITH FIELD APPLIED COATING, SEE SPECIFICATIONS.
2. INSTALL COMPLETE SET OF MANUFACTURER-FURNISHED BACKWASH ACCESSORIES ON EACH VALVE, SEE SPECIFICATIONS.
3. FOR DETAILS OF PIPE PENETRATION THROUGH MANHOLE WALL, SEE DETAILS PS/1.2 AND PS/1.3.
4. FOR 1 1/2" PRESSURE SEWER, SEE CONNECTION DETAIL THIS SHEET.
5. FOR PVC PRESSURE SEWER CONNECT TO BRONZE TEE WITH PVC ADAPTER x SOLVENT CEMENT JOINT. FOR 1 1/2" USE SCHED 80 PVC ADAPTER. FOR HDPE PRESSURE SEWER CONNECT TO BRASS TEE WITH TRANSITION FITTING.

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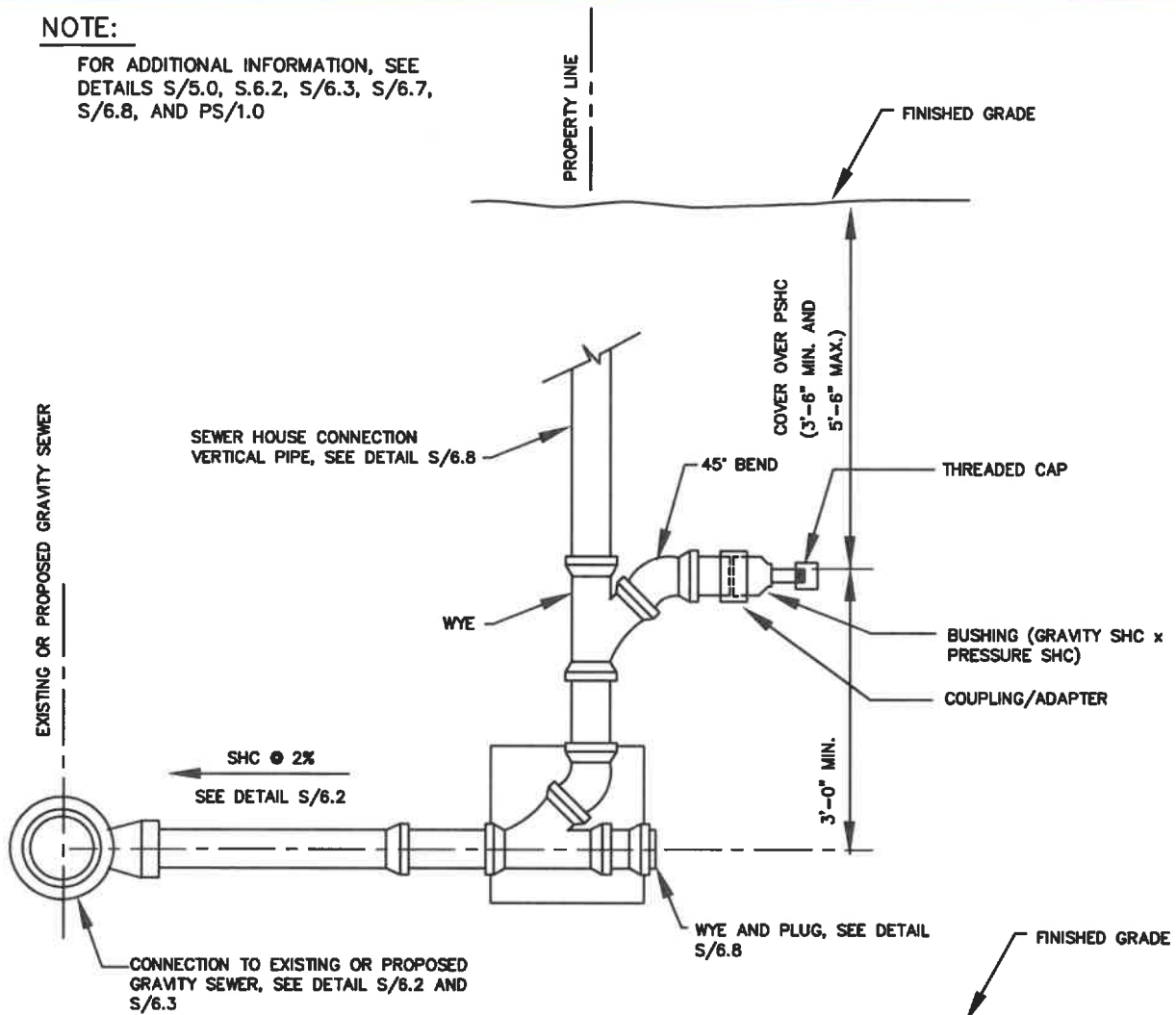
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*Mike Harman*  
Chief Engineer

STANDARD DETAIL  
SEWAGE AIR/VACUUM  
AND RELEASE VALVE  
INSTALLATION

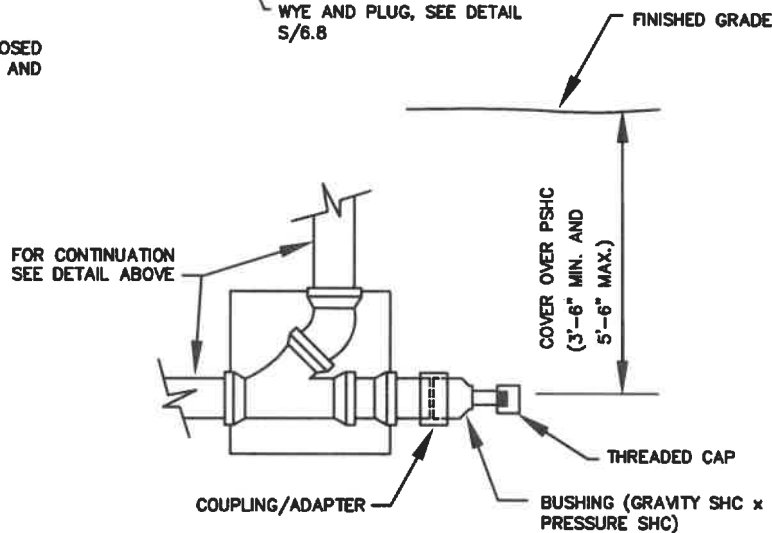
PS  
1.5a

**NOTE:**

FOR ADDITIONAL INFORMATION, SEE  
 DETAILS S/5.0, S.6.2, S/6.3, S/6.7,  
 S/6.8, AND PS/1.0



ELEVATION



ALTERNATE METHOD FOR SHALLOW GRAVITY SHC

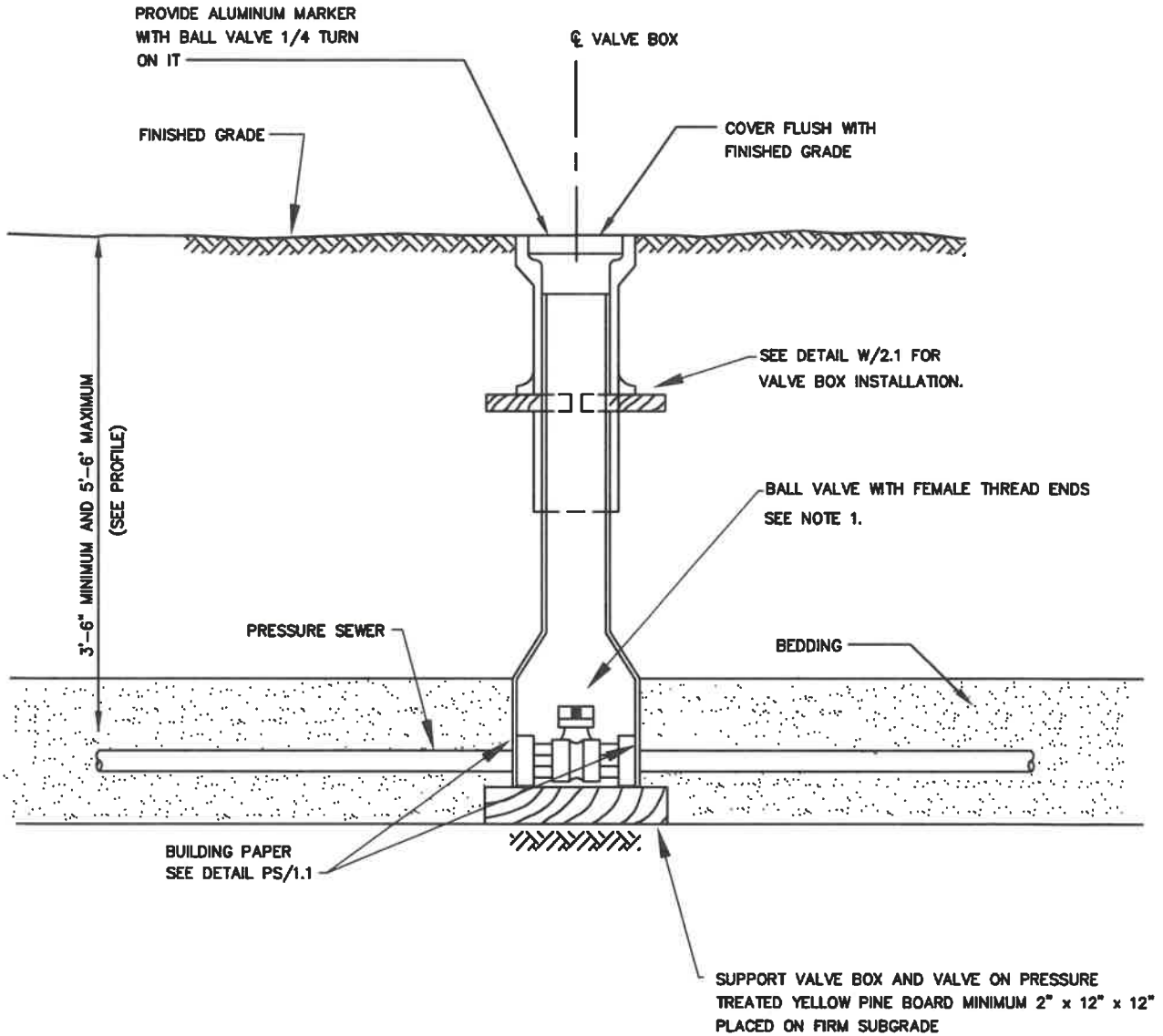
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*Mike Harmon*  
 Chief Engineer

STANDARD DETAIL  
 PRESSURE SEWER  
 HOUSE CONNECTION TO  
 NEW OR EXISTING  
 GRAVITY SEWER

PS  
 1.6



**NOTES:**

1. BALL VALVE SHALL HAVE A 2" BY .5" OPERATING NUT FOR USE WITH A CURB KEY.

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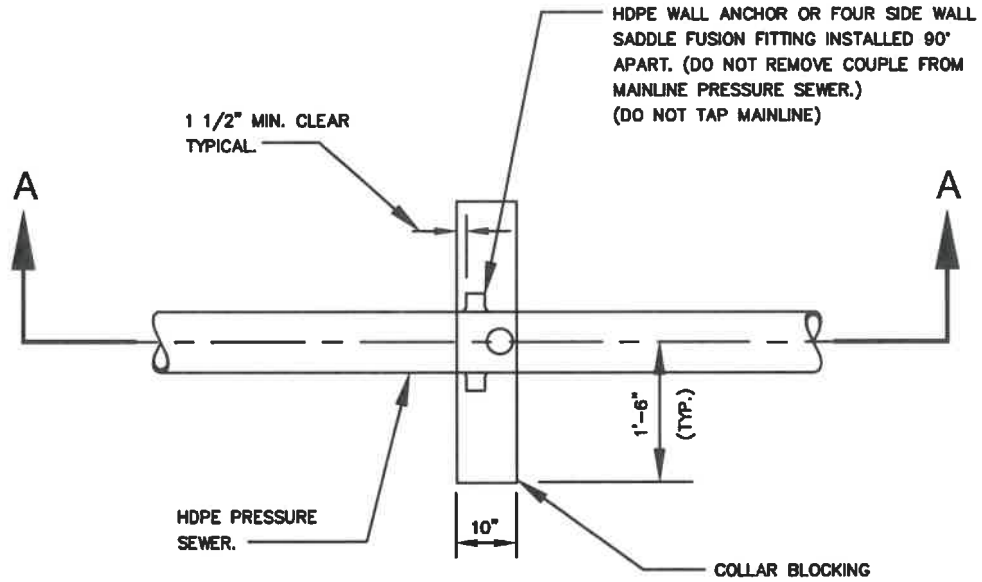
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Chief Engineer

STANDARD DETAIL

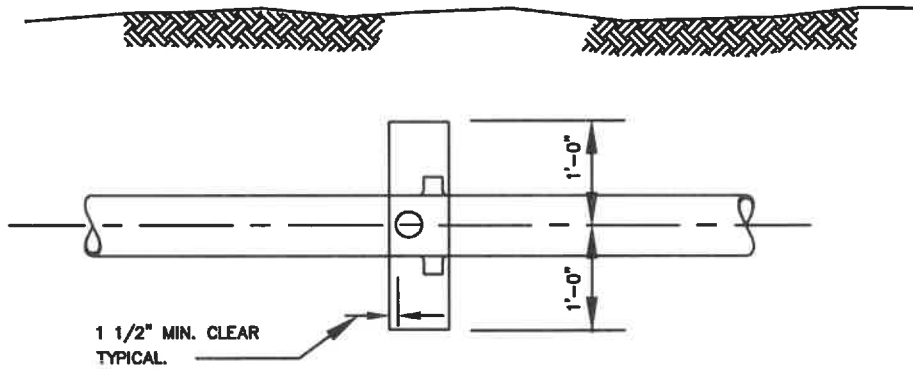
IN-LINE VALVE  
INSTALLATION

PS  
1.8



PLAN

NOTE: SIZE OF SIDE WALL SADDLE SHALL HAVE MIN. 1 1/2" I.P.S. OUTLET.



SECTION A-A

NOTES:

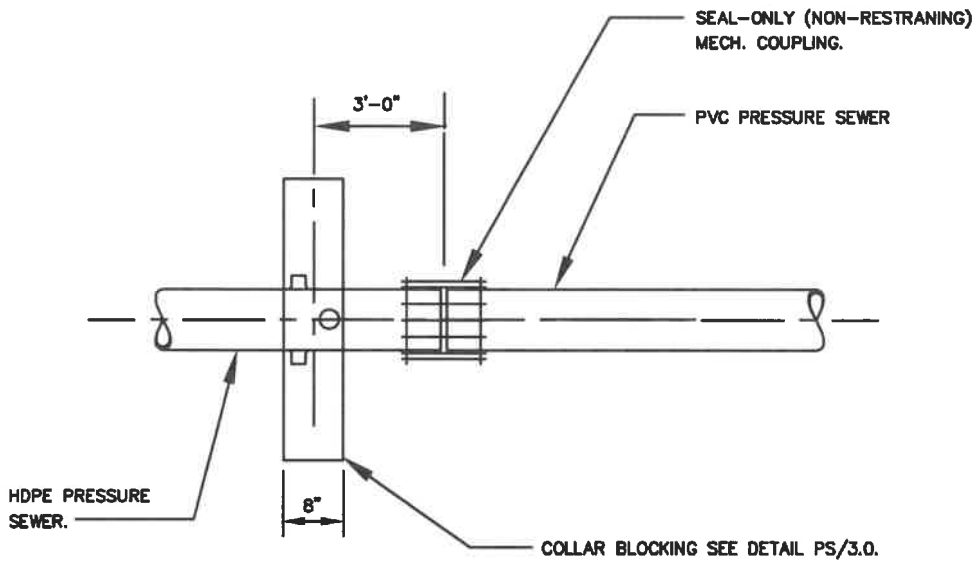
1.  $f'c = 3000 \text{ PSI} @ 28 \text{ DAYS.}$
2. CARRY ALL BEARING SURFACE TO UNDISTURBED GROUND OR FIRM SUBGRADE.

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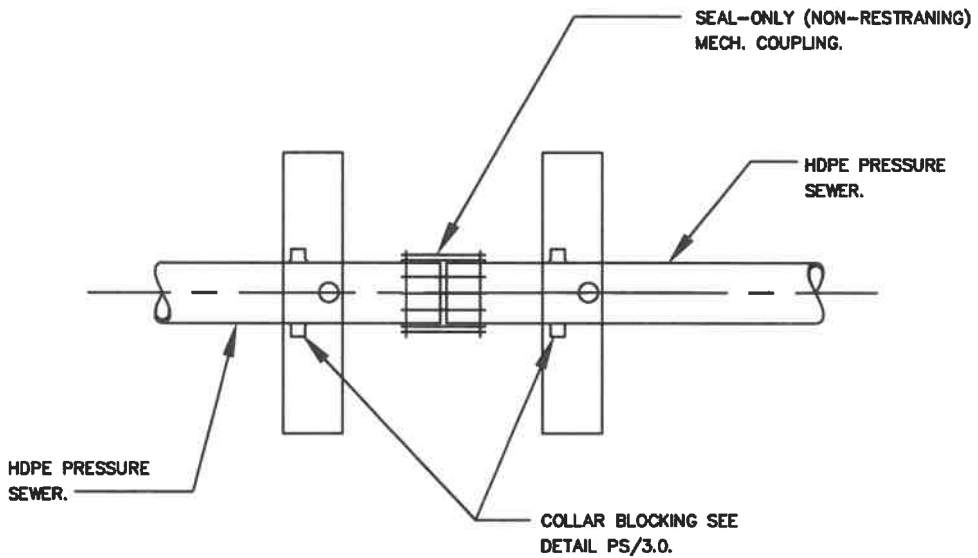
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*Mike Hammer*  
Chief Engineer

STANDARD DETAIL  
PRESSURE SEWER  
BLOCKING DETAIL FOR  
H.D.P.E. PIPE.

PS  
3.0



PLAN  
HDPE x PVC CONNECTION



PLAN  
HDPE x HDPE CONNECTION

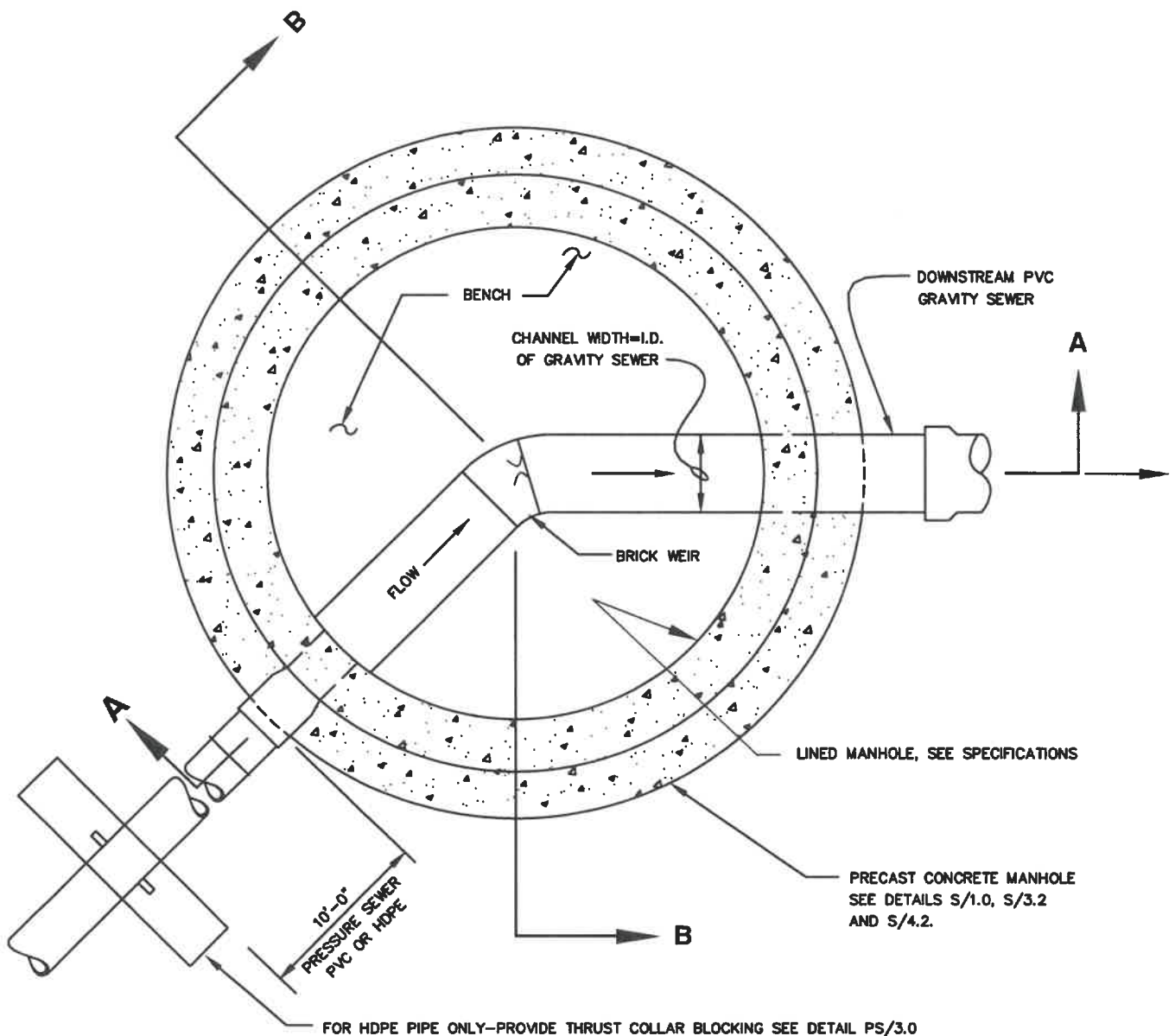
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Chief Engineer

STANDARD DETAIL  
RESTRANING SEAL  
ONLY MECHANICAL  
COUPLINGS

PS  
3.1





**PLAN VIEW**

**NOTES:**

1. FOR SECTION A-A, SEE DETAIL PS/4.1
2. FOR SECTION B-B, SEE DETAIL PS/4.2

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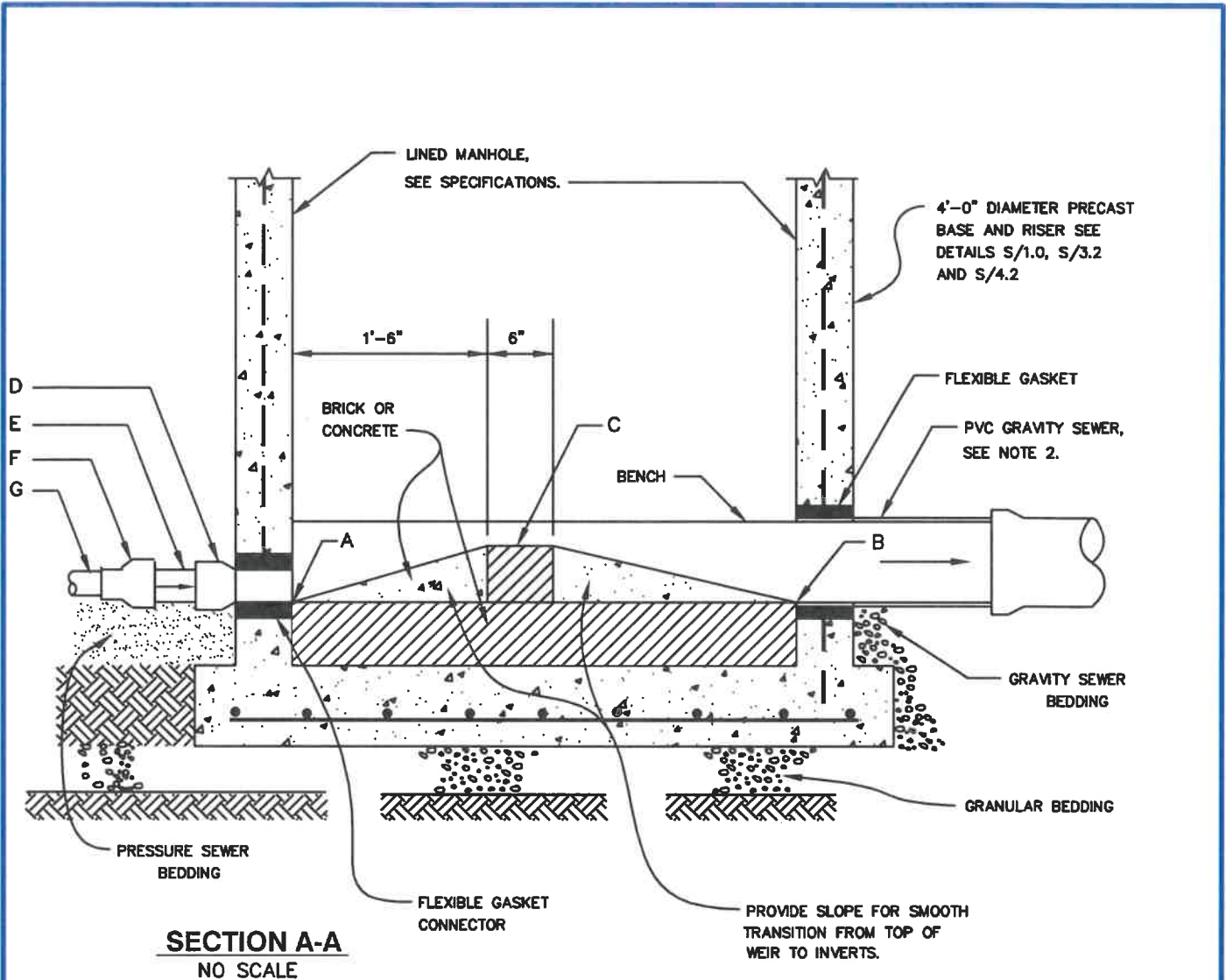
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STANDARD DETAIL

TRANSITION  
MANHOLE

PS  
4.0




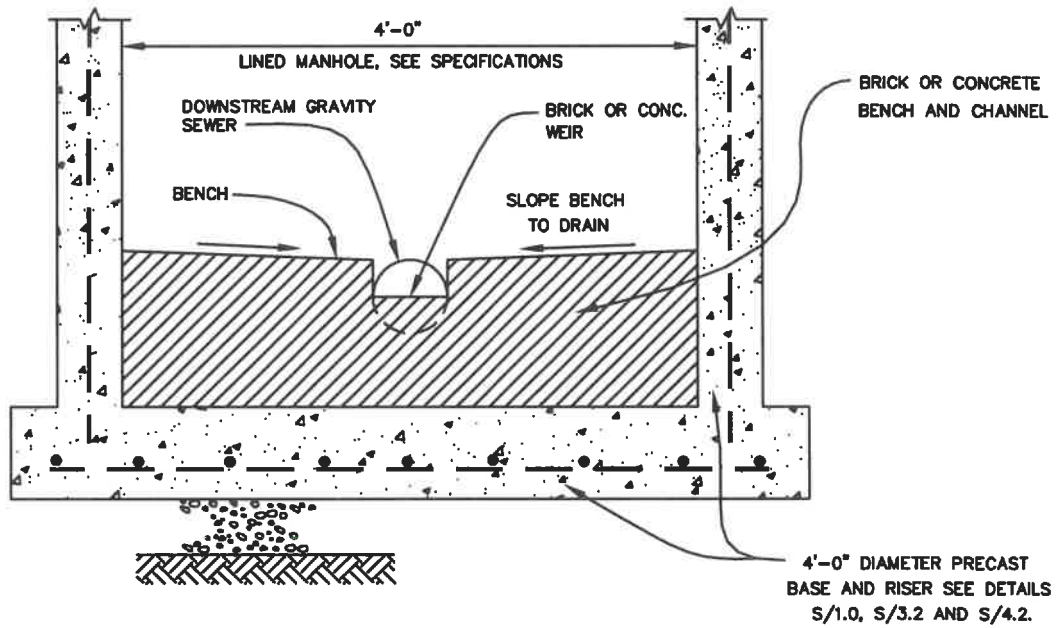
**ELEVATION AND FITTING SCHEDULE**

A	PRESSURE SEWER INFLUENT INVERT ELEVATION
B	GRAVITY SEWER INVERT ELEVATION
C	WEIR TOP ELEVATION 1" HIGHER THAN CROWN OF PRESSURE SEWER
D	P.V.C. BELL-END SECTION-4" MINIMUM SIZE
E	P.V.C. NIPPLE-4"
F	P.V.C. REDUCERS-INCREASE TO 4"
G	P.V.C. PRESSURE SEWER

**NOTE:**

1. SEE DETAIL PS/4.0 FOR PLAN VIEW.
2. FOR D.I.P. SEWER, SEE SPECIFICATIONS FOR SPECIAL INTERIOR LININGS.

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**SECTION B-B**  
NO SCALE

**NOTE:**

1. SEE DETAIL PS/4.0 FOR PLAN VIEW

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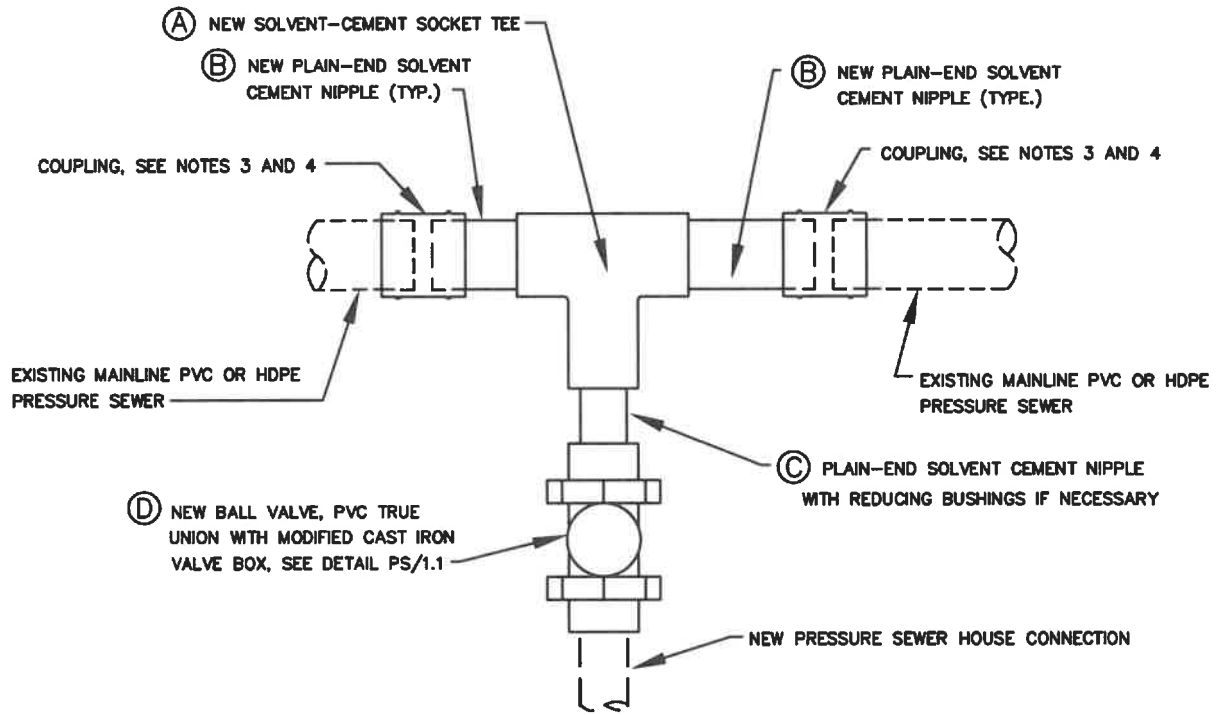
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*M. W. Hammer*  
Chief Engineer

STANDARD DETAIL

TRANSITION MANHOLE  
SECTION B-B

PS  
4.2



**NOTES:**

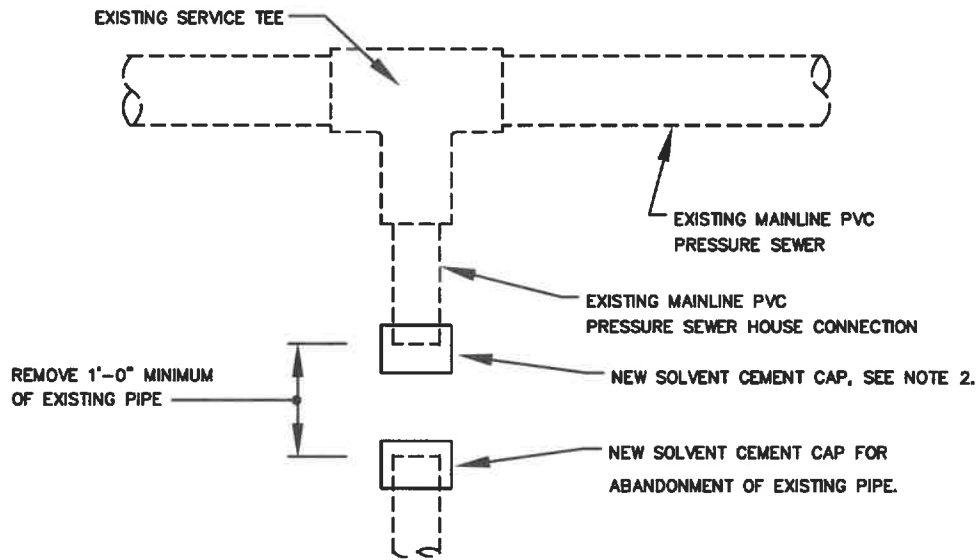
1. FOR PIPE SIZES, SEE DRAWINGS.
2. SOLVENT CEMENT PARTS A, B, C AND D TOGETHER PRIOR TO CUTTING EXISTING MAINLINE PRESSURE SEWER.
3. CONNECTION TO EXISTING PVC, O-RING GASKET DOUBLE BELL PVC COUPLING.
4. CONNECTION TO EXISTING HDPE, SEAL AND RESTRAINT TYPE MECHANICAL COUPLING, SEE SPECIFICATIONS.

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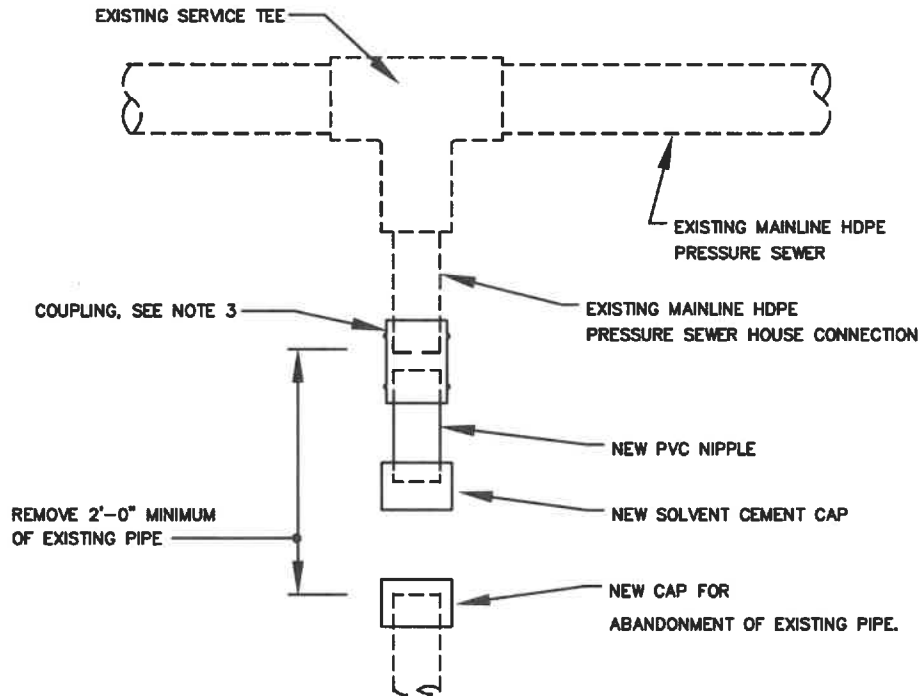
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*Mike Harmon*  
Chief Engineer

STANDARD DETAIL  
CONNECTION OF NEW  
MAINLINE PRESSURE SEWER OR  
PSHC TO EXISTING  
PRESSURE SEWER

PS  
5.0



**PVC PRESSURE SEWER HOUSE CONNECTION**



**HDPE PRESSURE SEWER HOUSE CONNECTION**

**NOTES:**

1. FOR PIPE SIZES, SEE DRAWINGS.
2. IF EXISTING SERVICE TEE HAS GASKET TYPE JOINTS, PROVIDE BLOCKING FOR CAP, SEE DETAIL 1.41.
3. COUPLING FOR EXISTING HDPE, SEAL AND RESTRAINT TYPE MECHANICAL COUPLING, SEE SPECIFICATIONS.

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Chief Engineer

STANDARD DETAIL  
ABANDONMENT OF EXISTING  
PRESSURE SEWER  
HOUSE CONNECTION

PS  
6.0

CONNECTION WITH MANHOLE  
WALL AND PIPE SLEEVE TO  
BE NON-SHRINK GROUT  
1" PIPE SLEEVE WITH MASTIC  
BETWEEN DETECTION WIRE  
AND PIPE.

DETECTION WIRE

HDPE PRESSURE SEWER

FLEXIBLE GASKET CONNECTOR

STANDARD FRAME  
& COVER.

18"

LOCATOR STATION SEE  
MOUNTING DETAIL

PRECAST  
MANHOLE

MANHOLE STEPS

**SECTION**

PRECAST  
MANHOLE

MANHOLE  
STEPS

9"  
CLEAR

LOCATOR  
STATION

**PARTIAL PLAN AT  
LOCATOR STATION**

LOCATOR STATION

PIPE CONDUIT  
CONNECTED  
TO LOCATOR  
STATION

STRAP PIPE CONDUIT  
TO INSIDE MANHOLE  
WALL W/20 ga. x  
1" S.S STRAPS AND  
2-1/4" S.S. ANCHORS  
WASHERS AND NUTS.

12" MIN.

DETECTION WIRE

1" PIPE SLEEVE  
THRU MANHOLE  
WALL

6"  
MIN.

**MOUNTING DETAIL**

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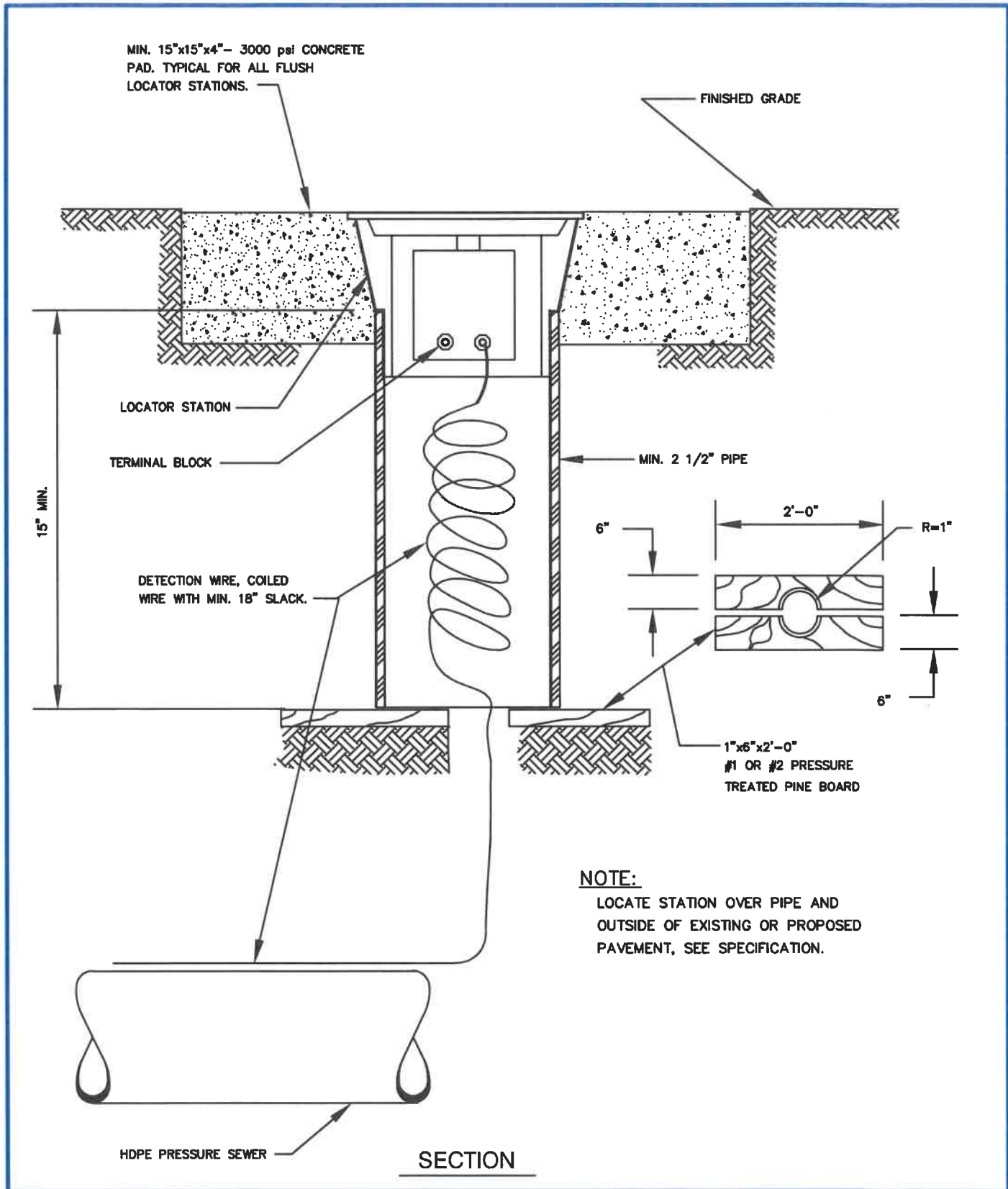
Chief Engineer


STANDARD DETAIL

LOCATOR STATION  
MOUNTED IN  
MANHOLE

PS  
8.0





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