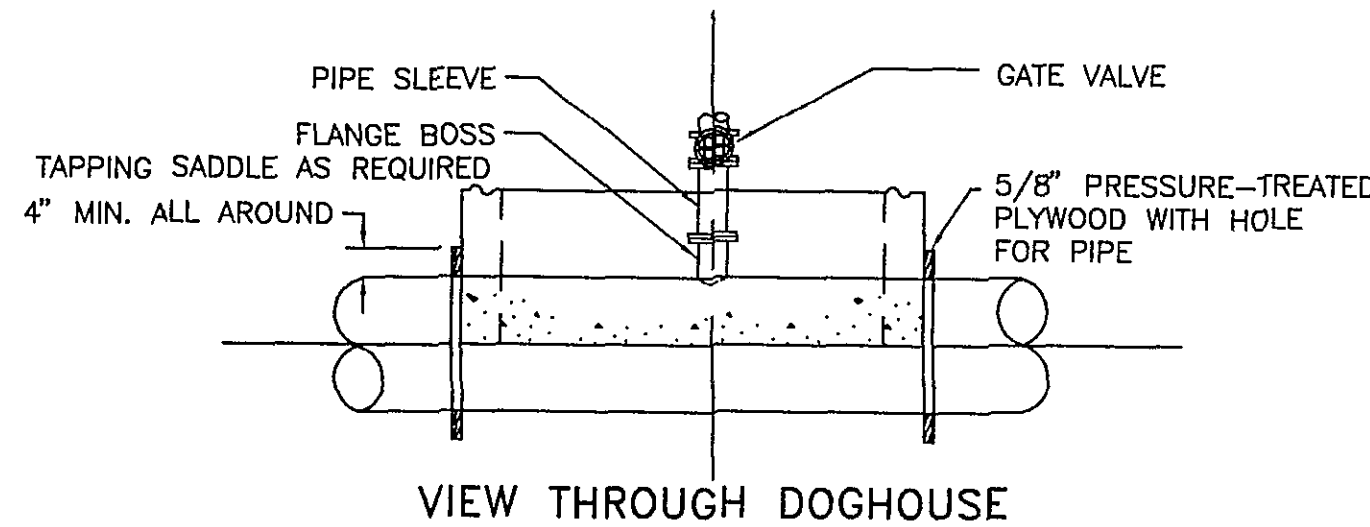
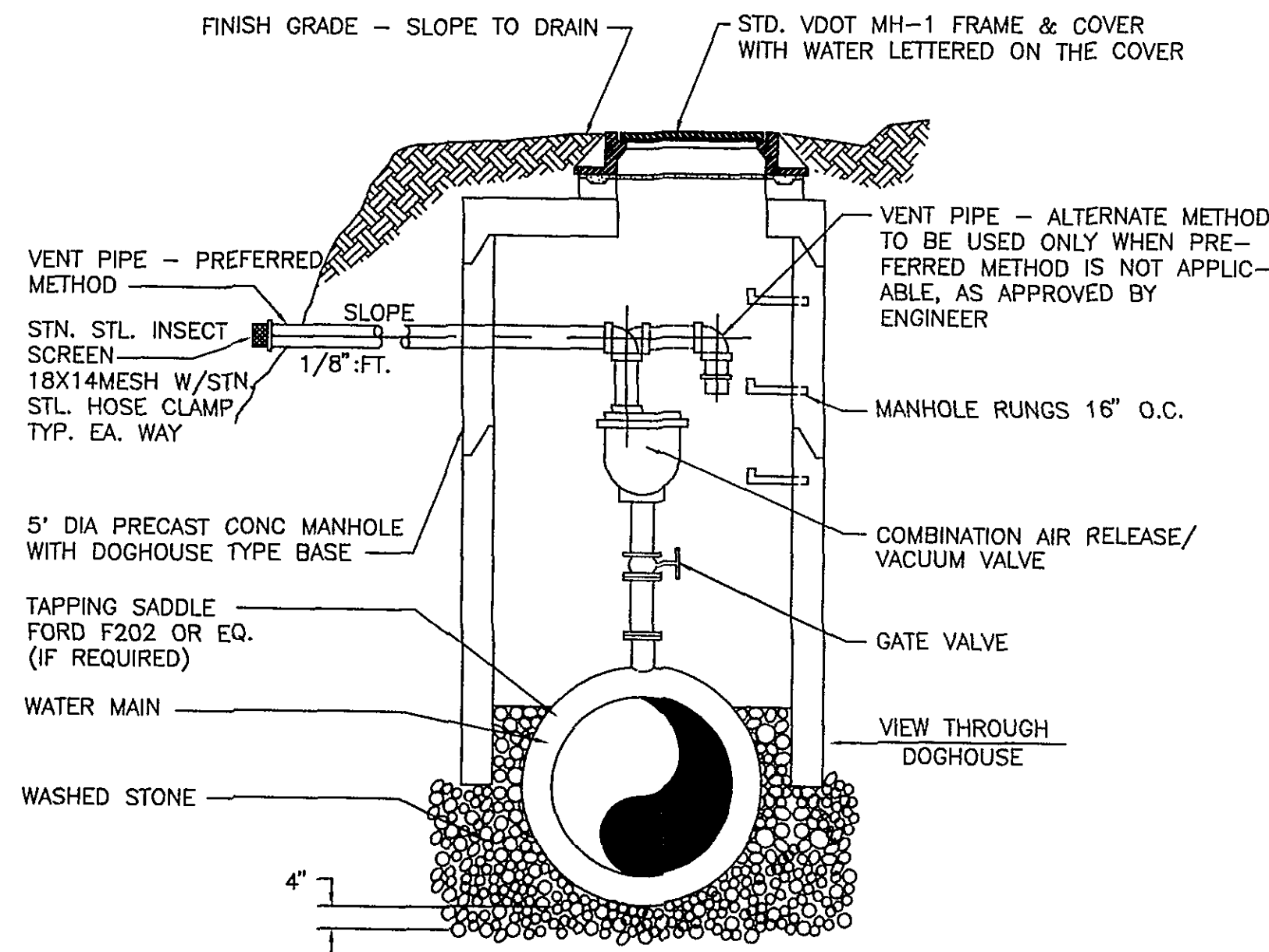


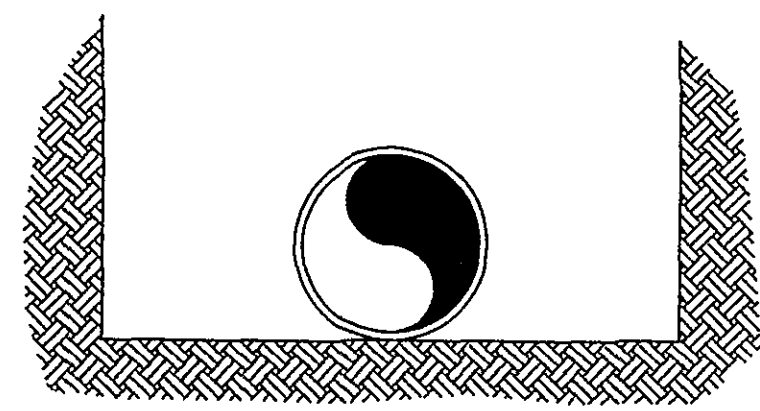
AIR VACUUM VALVE CHART

PIPE SIZE	VALVE SIZE	CONNECTOR	VALVE
30" - 36"	6"	6" FLANGE	6" BALL VALVE
24"	4"	4" FLANGE	4" BALL VALVE
18"	3"	TAPPING SADDLE	BALL VALVE
10" - 16"	2"	TAPPING SADDLE	BALL VALVE
6" - 8"	1"	TAPPING SADDLE	BALL VALVE



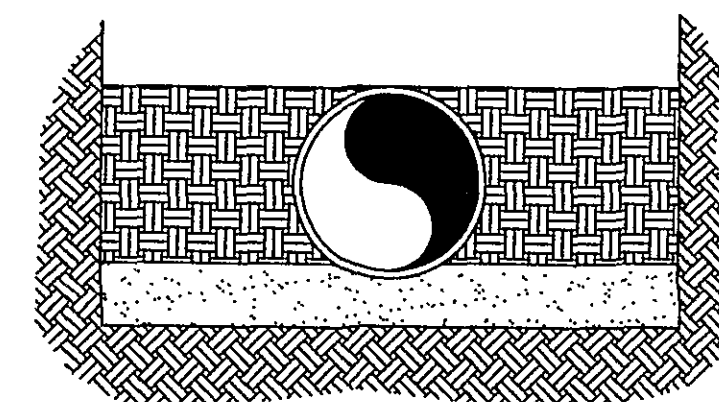
COMBINATION AIR RELEASE/VACUUM VALVE DETAIL

NTS



TYPE 1

FLAT BOTTOM TRENCH. LOOSE BACKFILL.

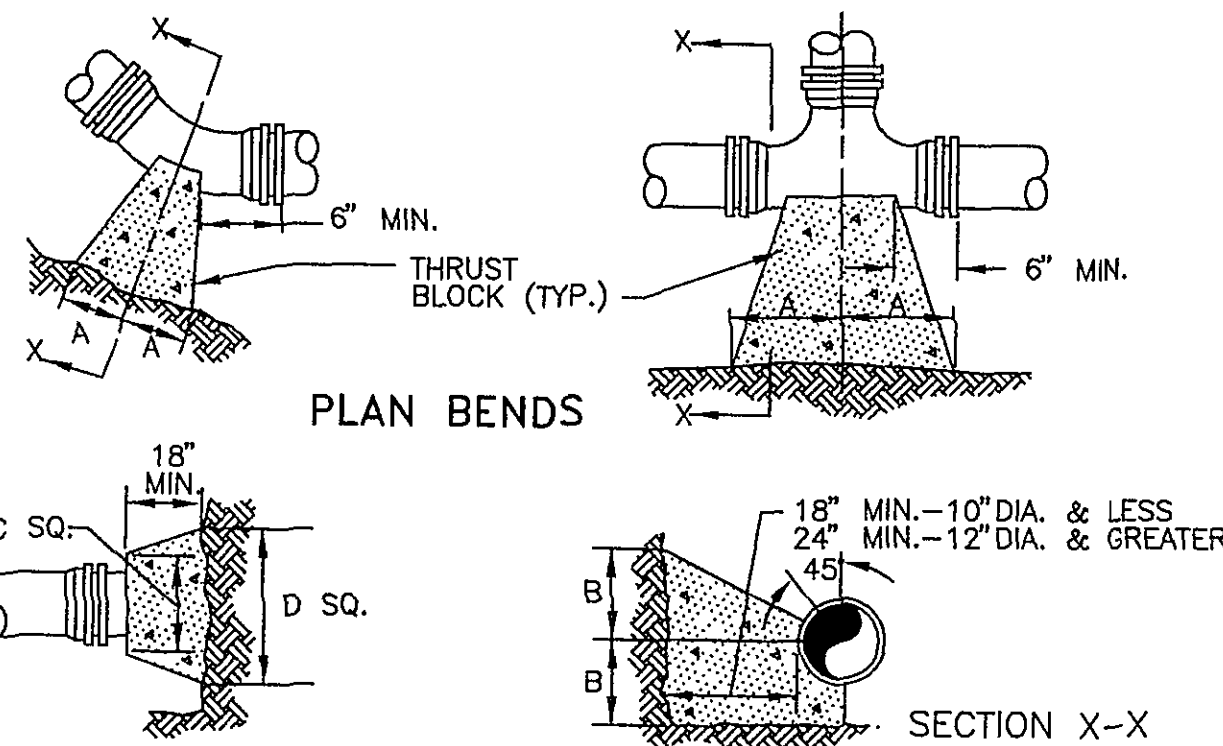


TYPE 3

PIPE BEDDED IN 4 in. MINIMUM OF LOOSE SOIL. BACKFILL LIGHTLY CONSOLIDATED TO TOP OF PIPE.

BEDDING DETAIL

NTS



- NOTES:
1. FOR VERT. BEND DOWN IN EXCESS OF 1.25', ANCHORAGE SHALL BE RECOMMENDED BY ENGINEER.
 2. FOR VERT. BEND UPWARD, BLOCKING TO BE SIMILAR TO THAT FOR HORIZ. BEND
 3. GLANDS & BOLTS SHALL BE PROTECTED FROM CONC. WHEN POURING THRUST BLOCKS
 4. ALL THRUST BLOCK & SUPPORT CONC. SHALL BE CLASS B.
 5. THRUST BLOCKS WITH 'B' DIMENSION GREATER THAN 30" SHALL HAVE THE RESTRAINED PIPE INSTALLED WITH A MINIMUM OF 4' OF COVER.

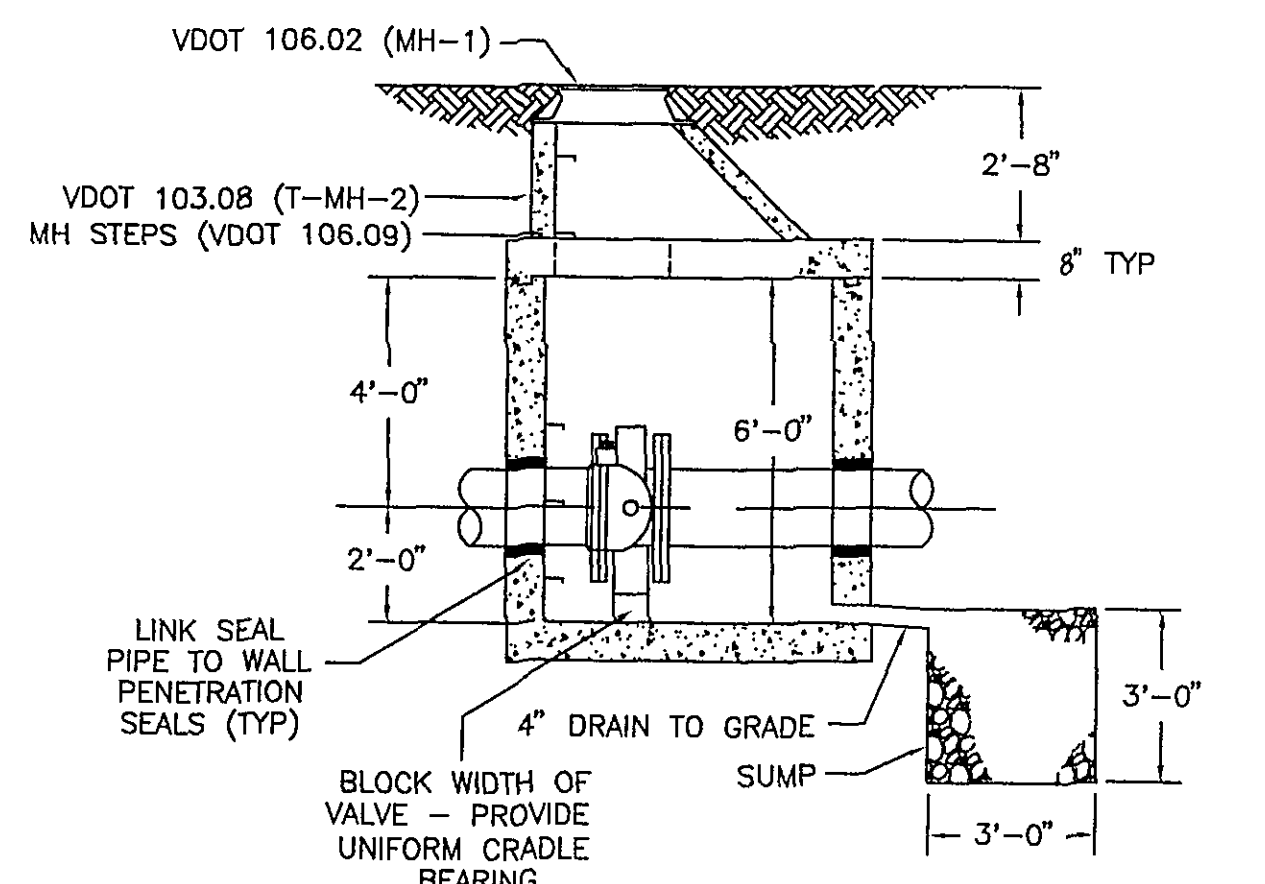
PRESSURE = 200psi
BEARING = 2,000psf
FACTOR OF SAFETY = 1.5

SECTION of VERTICAL BEND

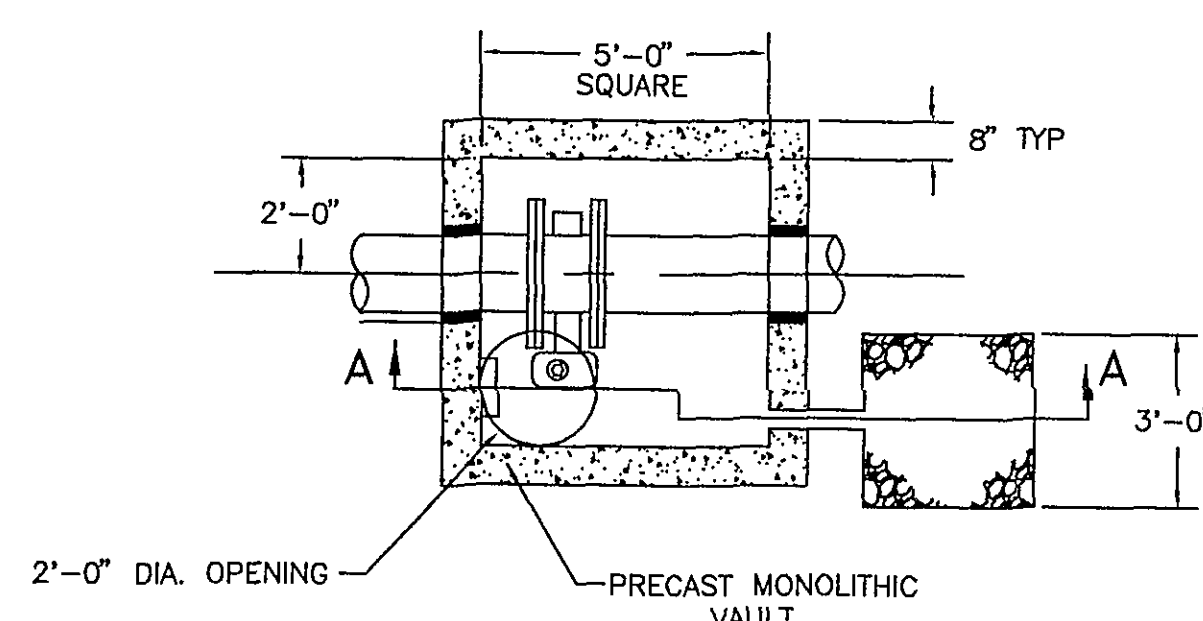
PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND		TEE		PLUG	
	A	B	A	B	A	B	A	B	A	B	C	D
4"	8"	12"	8"	8"	6"	6"	6"	6"	11"	9"	10"	6"
6"	18"	12"	8"	10"	8"	8"	8"	8"	10"	10"	12"	18"
8"	15"	13"	10"	10"	8"	8"	8"	8"	10"	12"	12"	24"
10"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
12"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
16"	26"	20"	16"	18"	11"	13"	11"	13"	18"	20"	20"	36"
24"	82"	42"	62"	30"	44"	22"	22"	16"	82"	42"	82"	42"
36"	185"	42"	100"	42"	52"	42"	40"	30"	185"	42"	185"	42"

THRUST BLOCK DETAILS

NTS

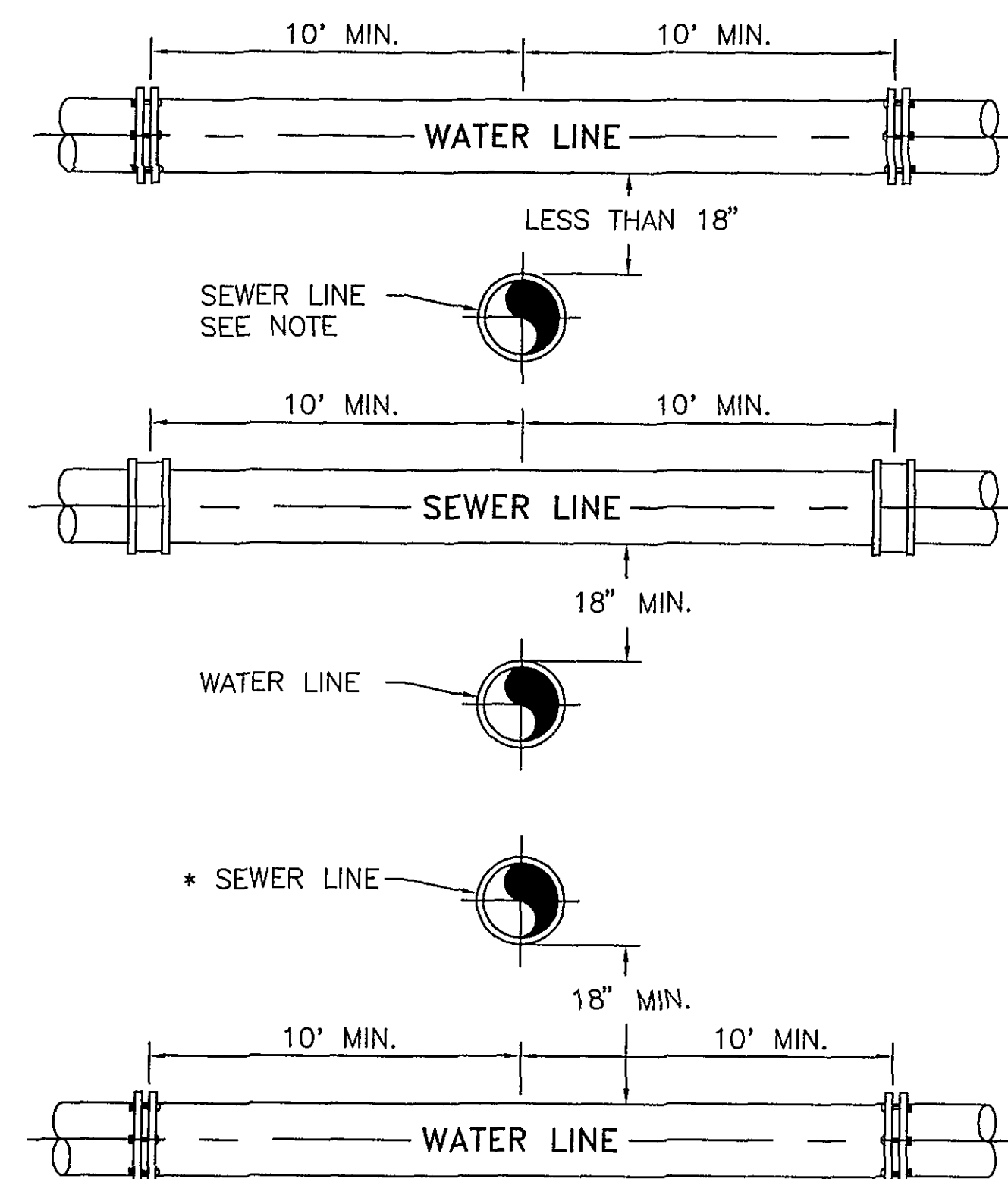


SECTION A-A



16" BUTTERFLY VALVE VAULT

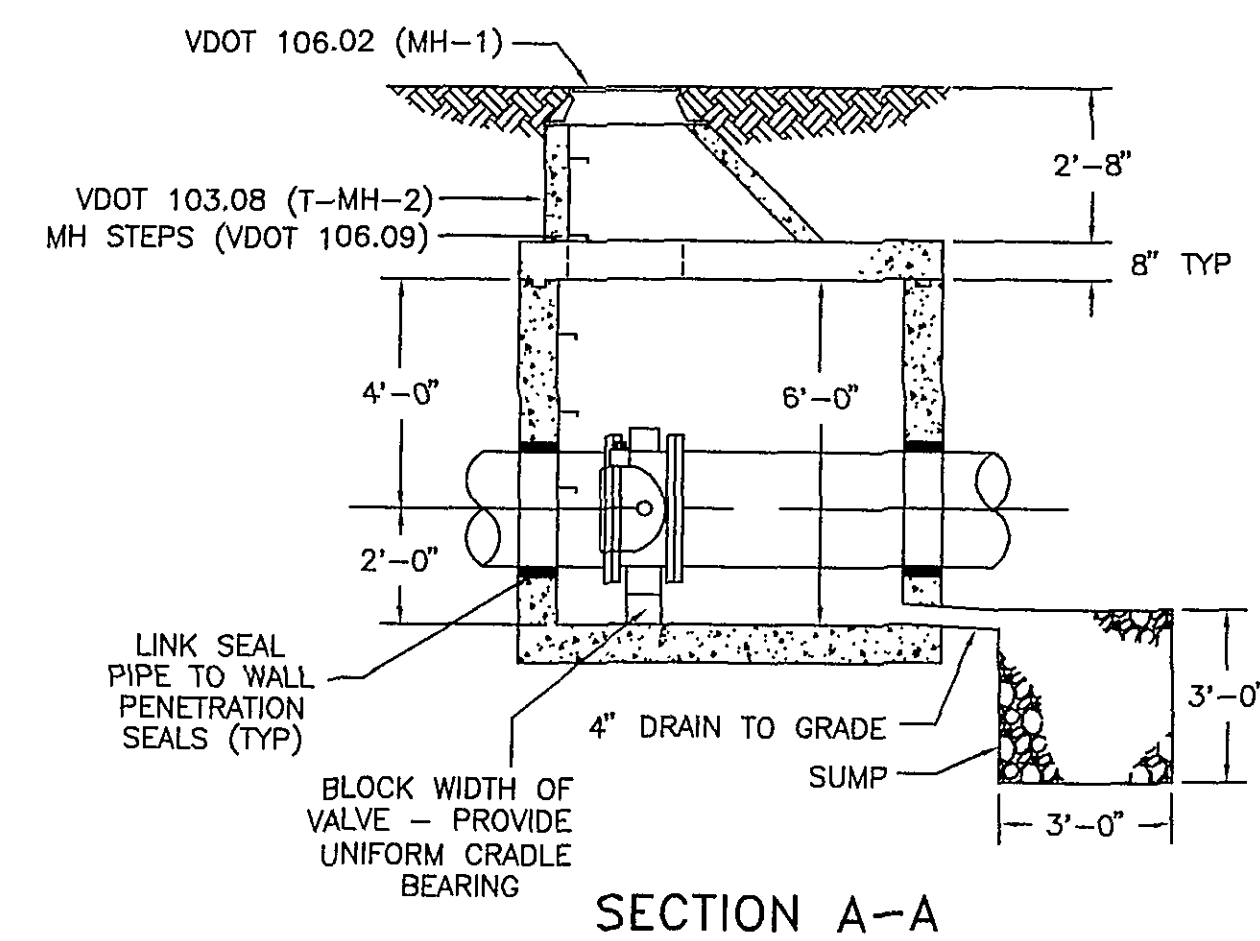
NTS



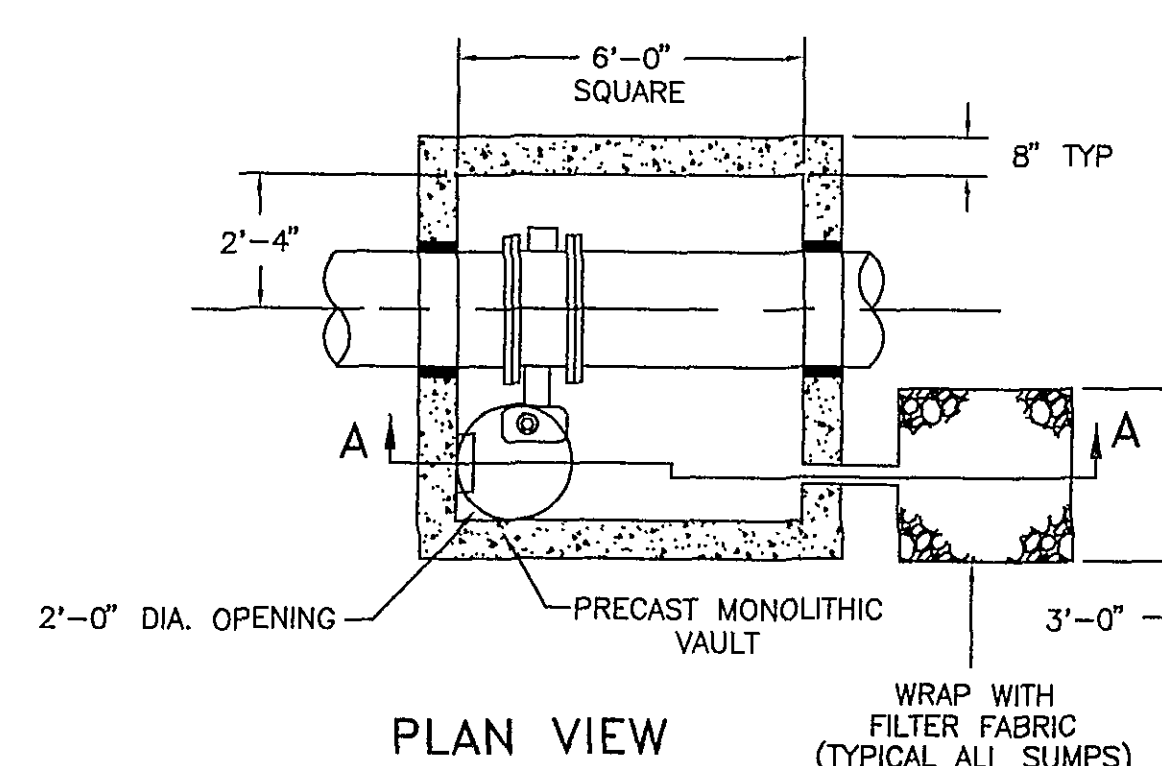
- NOTE:
- * SEWER LINE ABOVE WATERLINE TO BE CONSTRUCTED OF AWWA WATER LINE MATERIAL & PRESSURE TESTED (SEE SPEC.) AT NO ADDITIONAL COST (SEE SEWER LINE COUPLING DETAIL).

WATER and SEWER CROSSING DETAIL

NTS

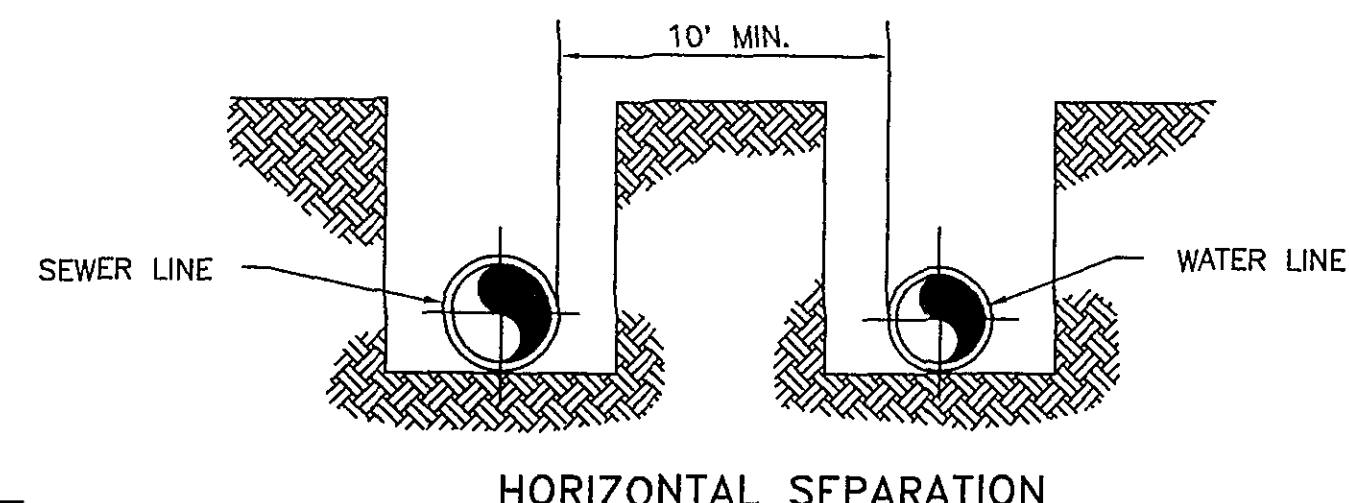
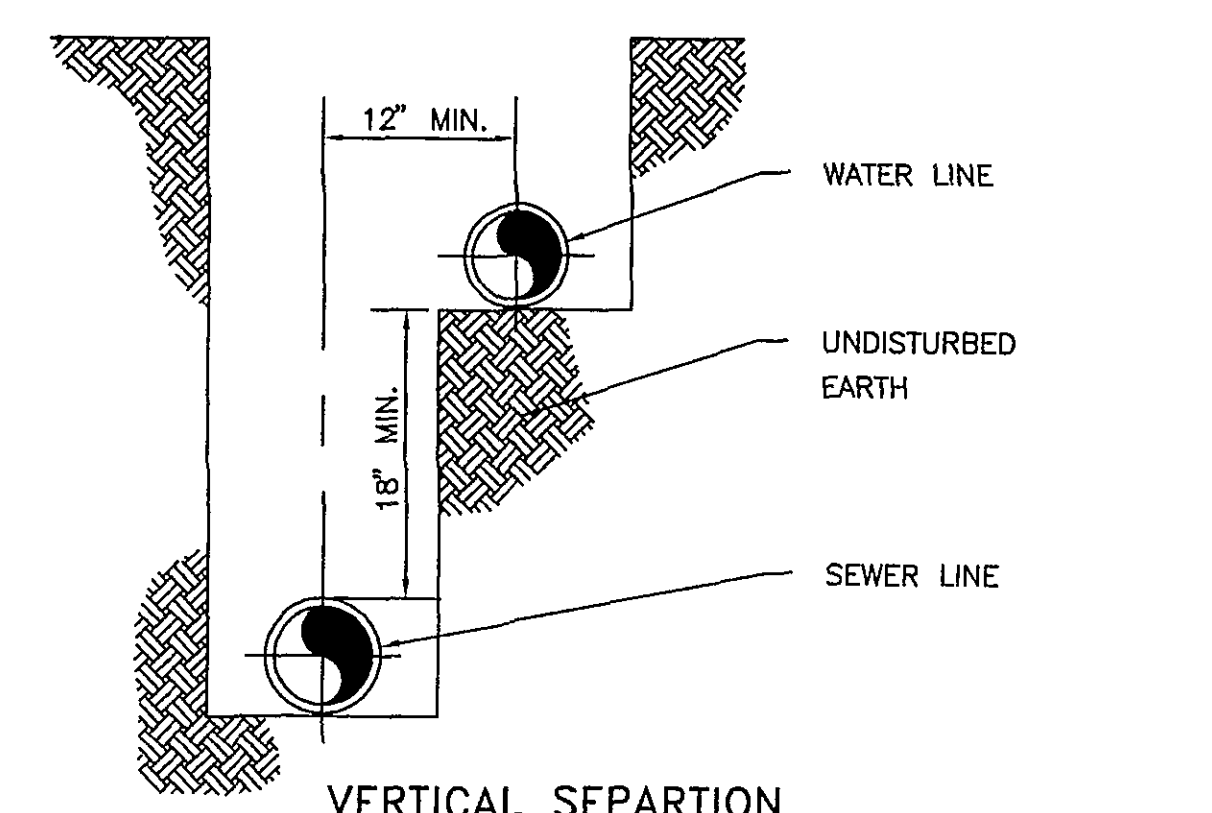


SECTION A-A



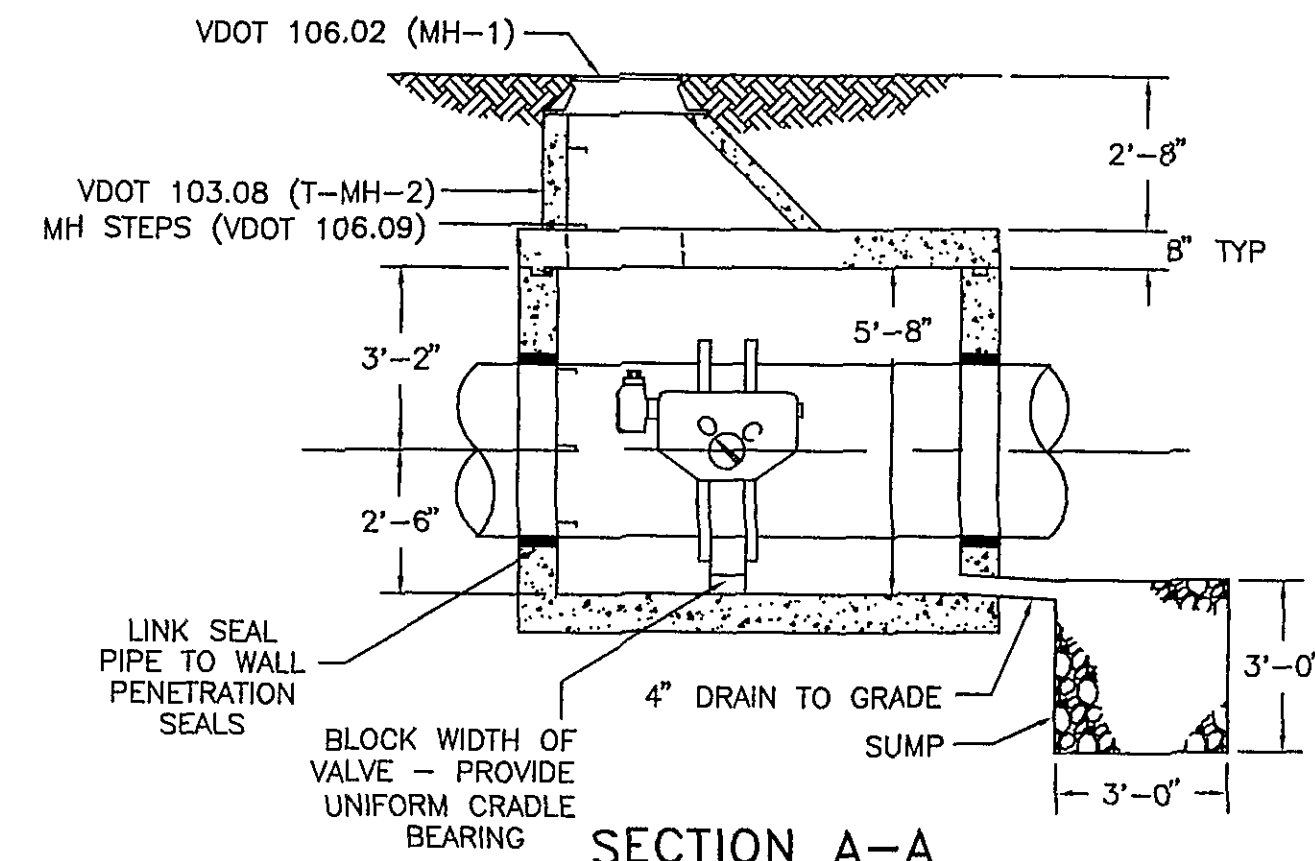
24" BUTTERFLY VALVE VAULT

NTS

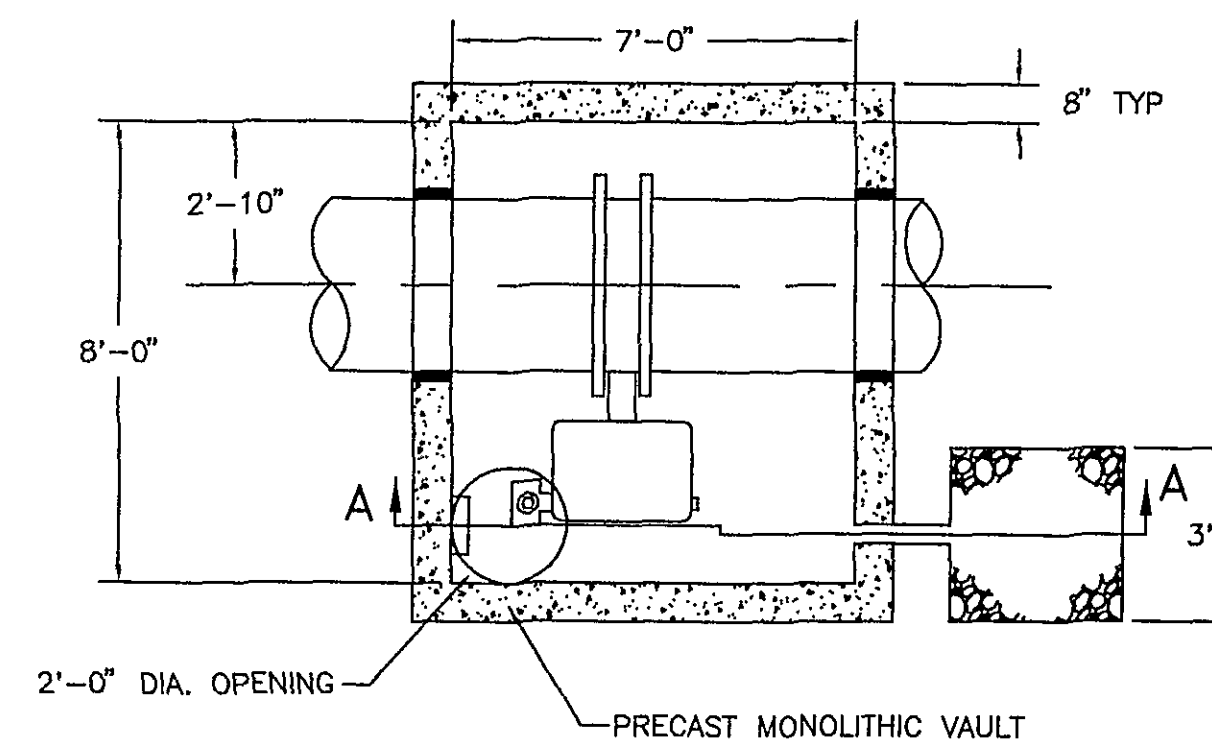


WATER and SEWER SEPARATION DETAIL

NTS



SECTION A-A



36" BUTTERFLY VALVE VAULT

NTS

AS BUILT

Architects
Engineers
Planners
Surveyors

Dewberry & Davis

5238 Valleypointe Parkway, Suite One-B
Roanoke, Virginia 24019
703 362-7725

Carvins Cove, Phase II
City of Roanoke
Roanoke, Virginia

CONTRACT "B1"
DETAILS

Drawn By ACF
Designed By RBS
Checked By SEH
Date MAY 93
Scale AS SHOWN
Plan Number B1DTRWL1
Zoned NONE
Sheet 23 of 25
File Number C1160