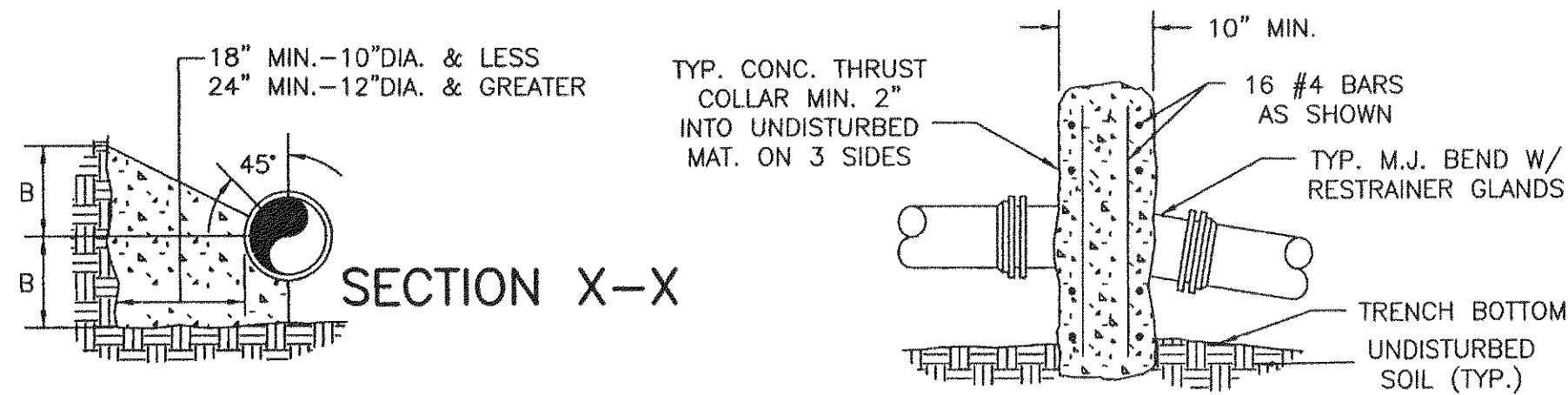
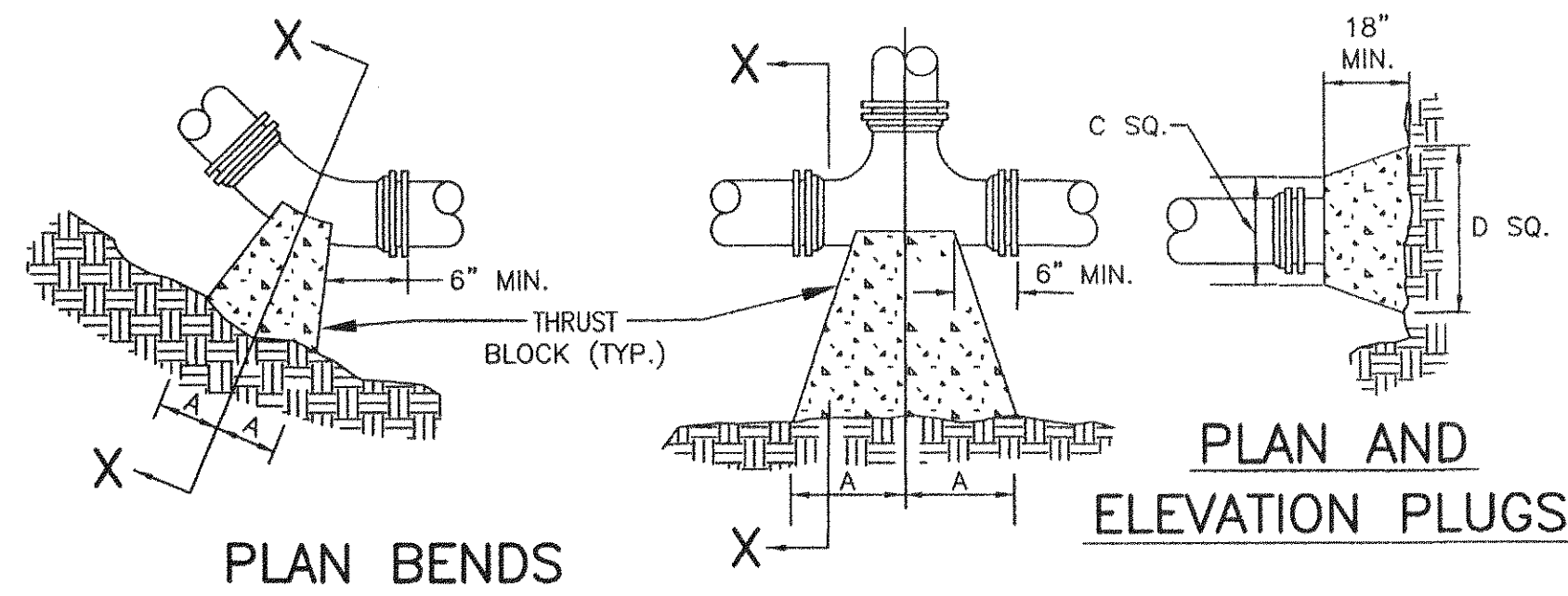




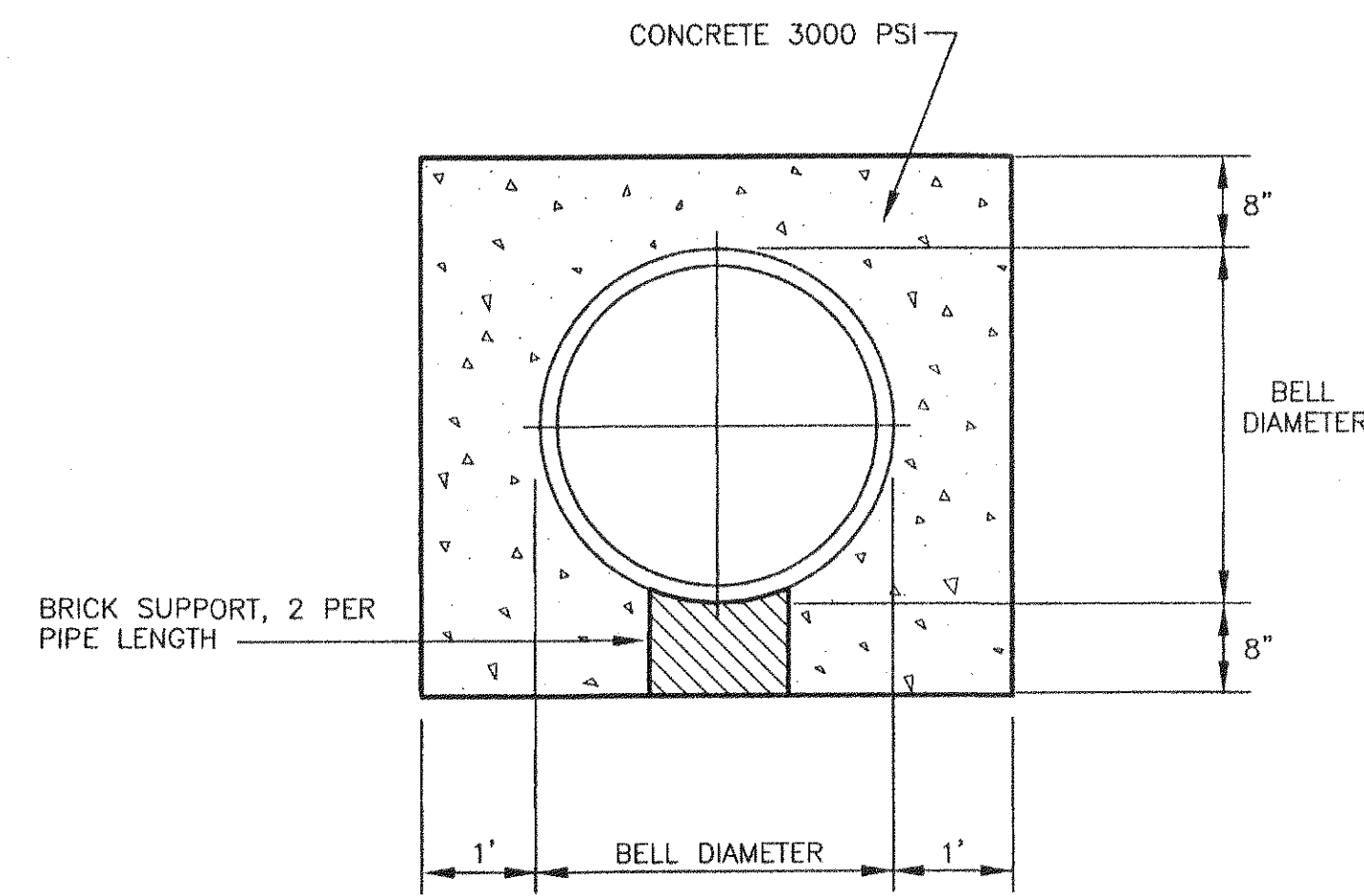
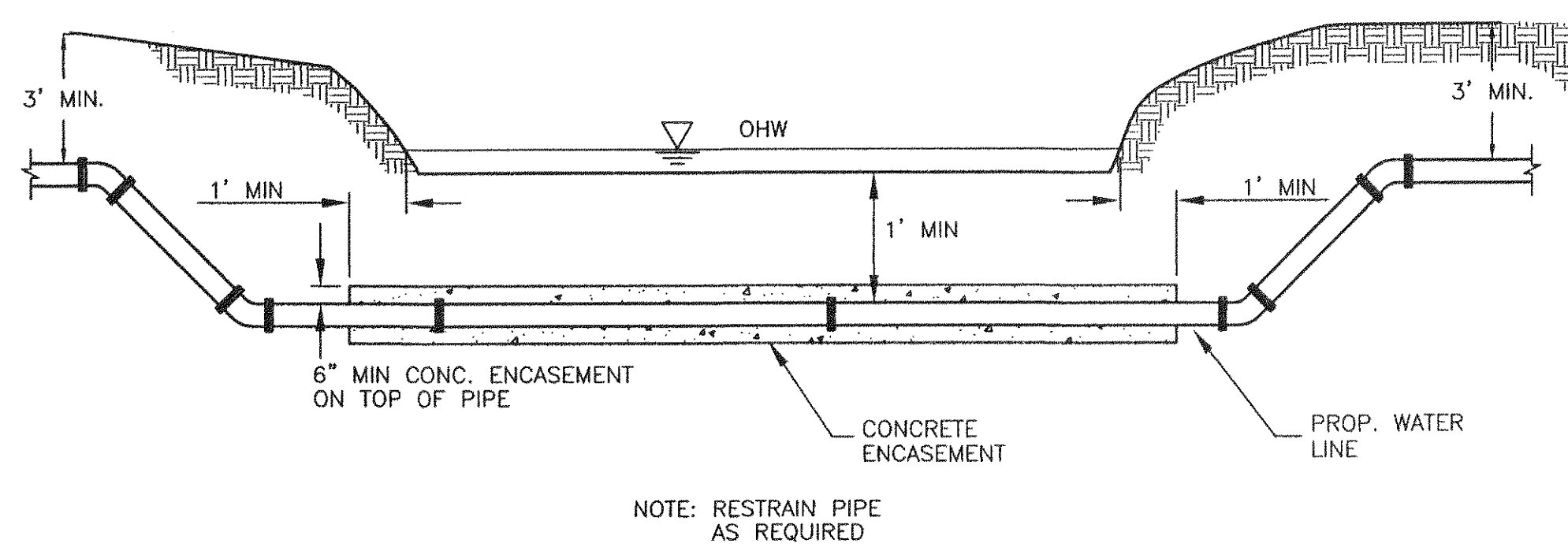
BENDS AND TEES

- NOTES:
- FOR VERT. BEND DOWN IN EXCESS OF 11 1/4" BEND, ANCHORAGE SHALL BE DESIGNED BY ENGINEER.
 - FOR VERT. BEND UPWARD, BLOCKING TO BE SIMILAR TO THAT FOR HORIZ. BEND.
 - GLANDS & BOLTS SHALL BE PROTECTED FROM CONC. BY PLASTIC SHEETING WHEN POURING THRUST BLOCKS.
 - ALL THRUST BLOCK & SUPPORT CONC. SHALL BE 3000 PSI READY MIX CONC.
 - THRUST BLOCKS WITH "B" DIMENSION GREATER THAN 30" SHALL HAVE THE RESTRAINED PIPE INSTALLED WITH A MINIMUM OF 4' OF COVER.

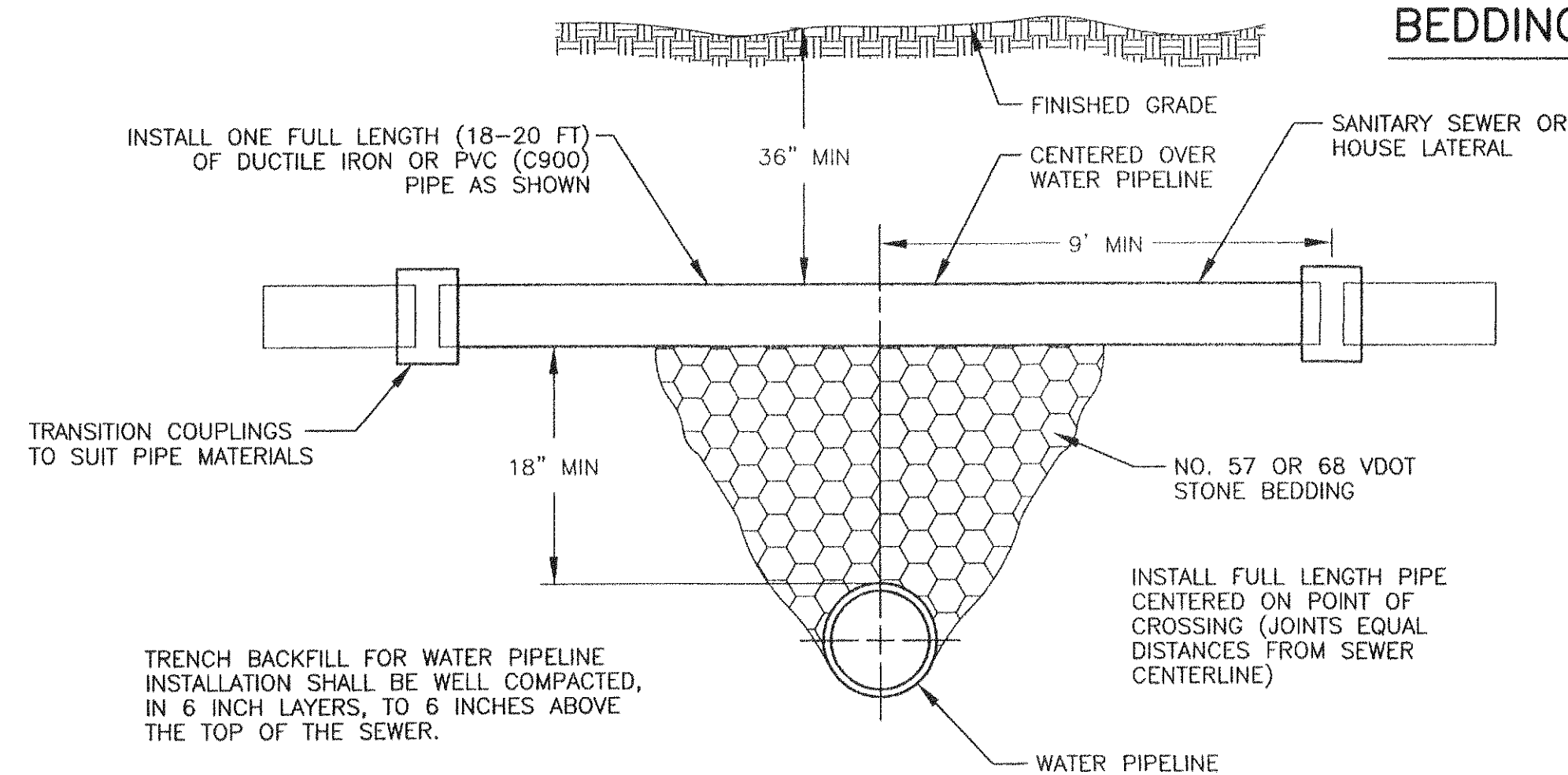
PRESSURE = 200 psi
BEARING = 2000 psf
FACTOR OF SAFETY = 1.5

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

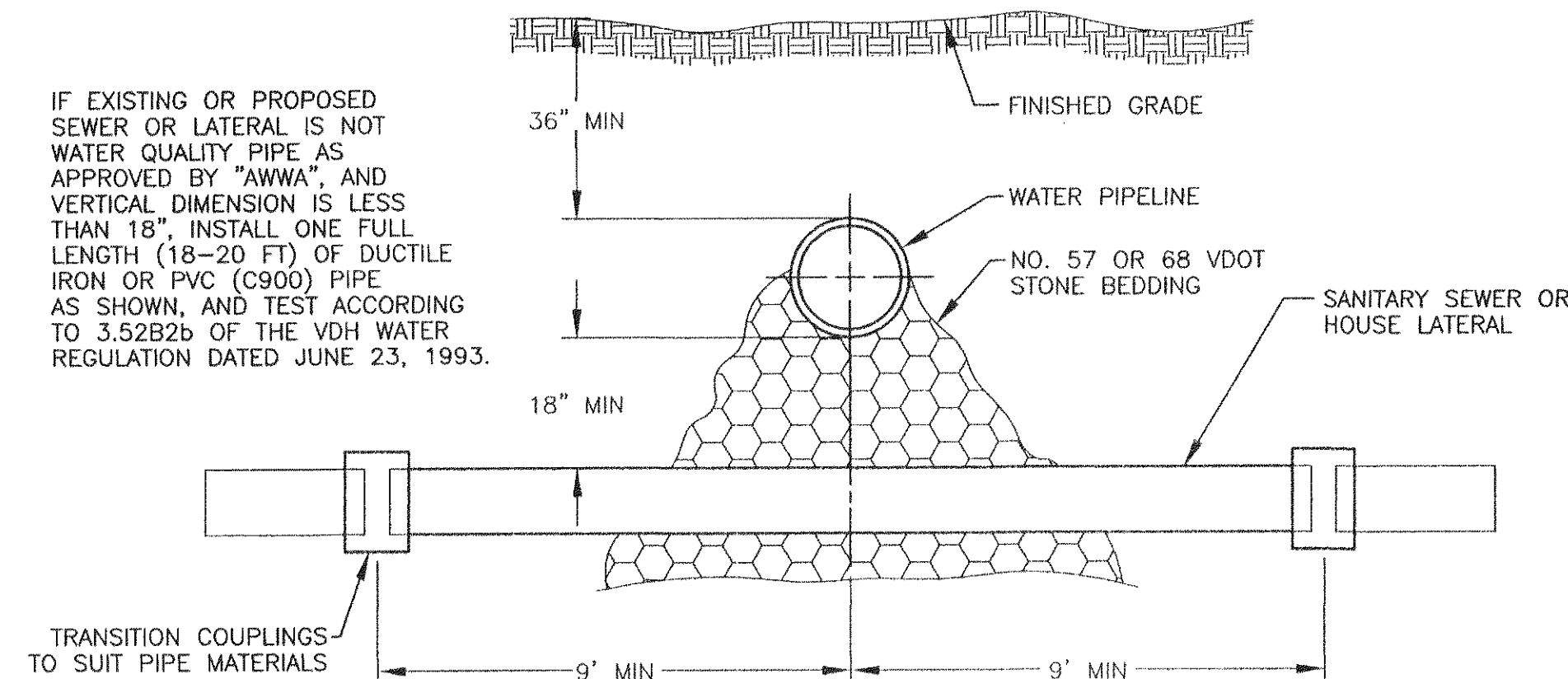
THRUST BLOCK CONSTRUCTION



CONCRETE ENCASED PIPE



WATER PIPELINE CROSSING BELOW SEWER OR LATERAL

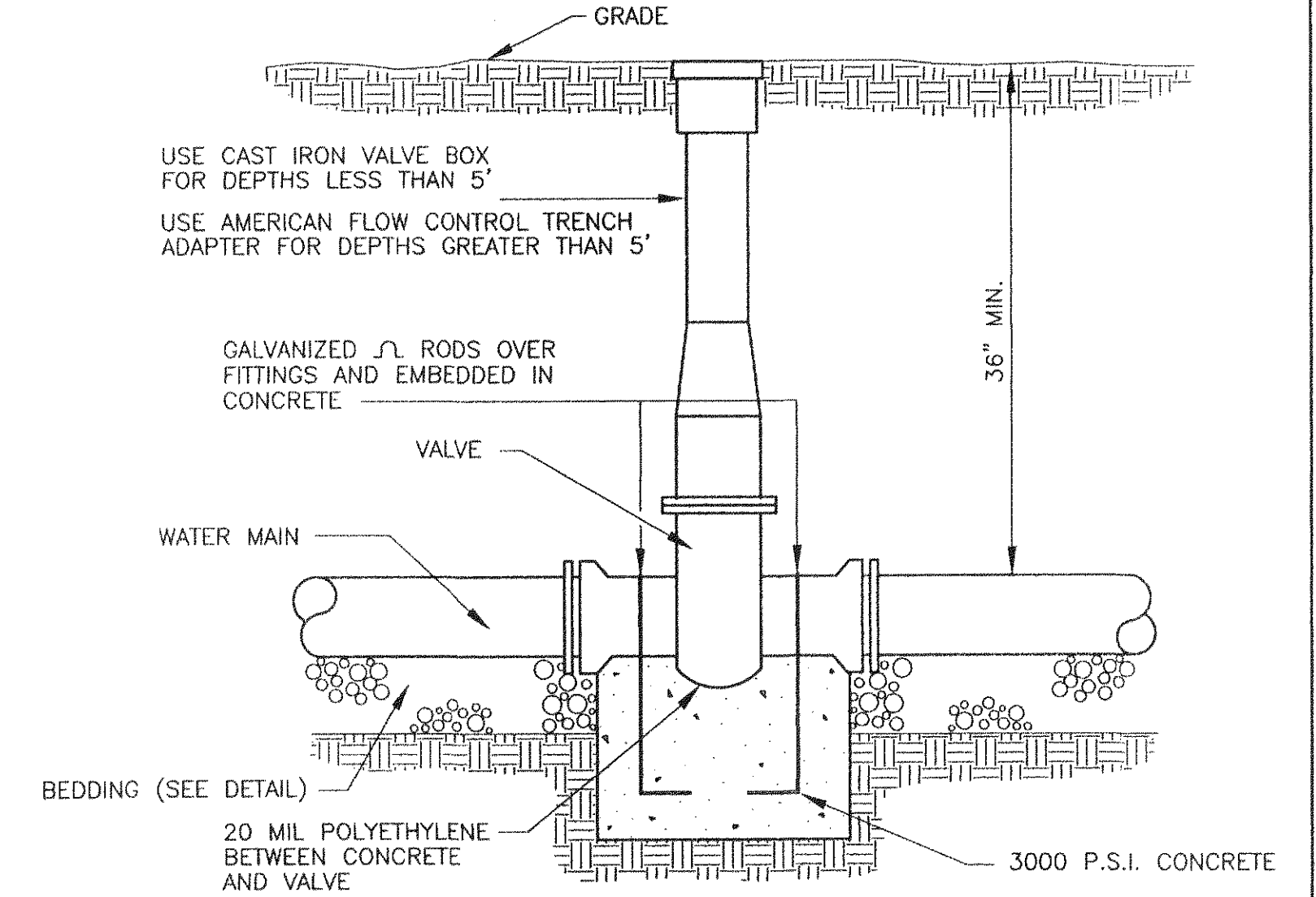
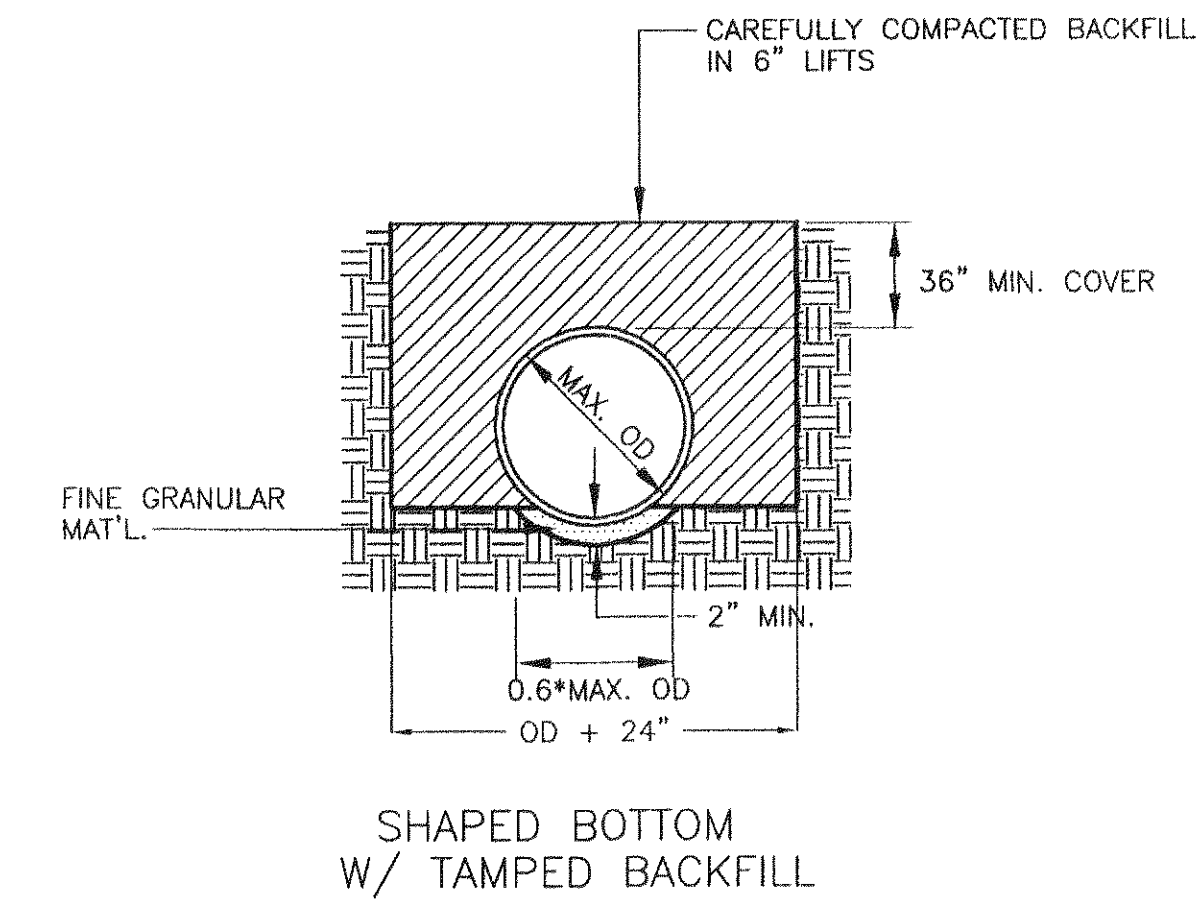


WATER PIPELINE CROSSING SANITARY SEWER OR "HOUSE" LATERAL

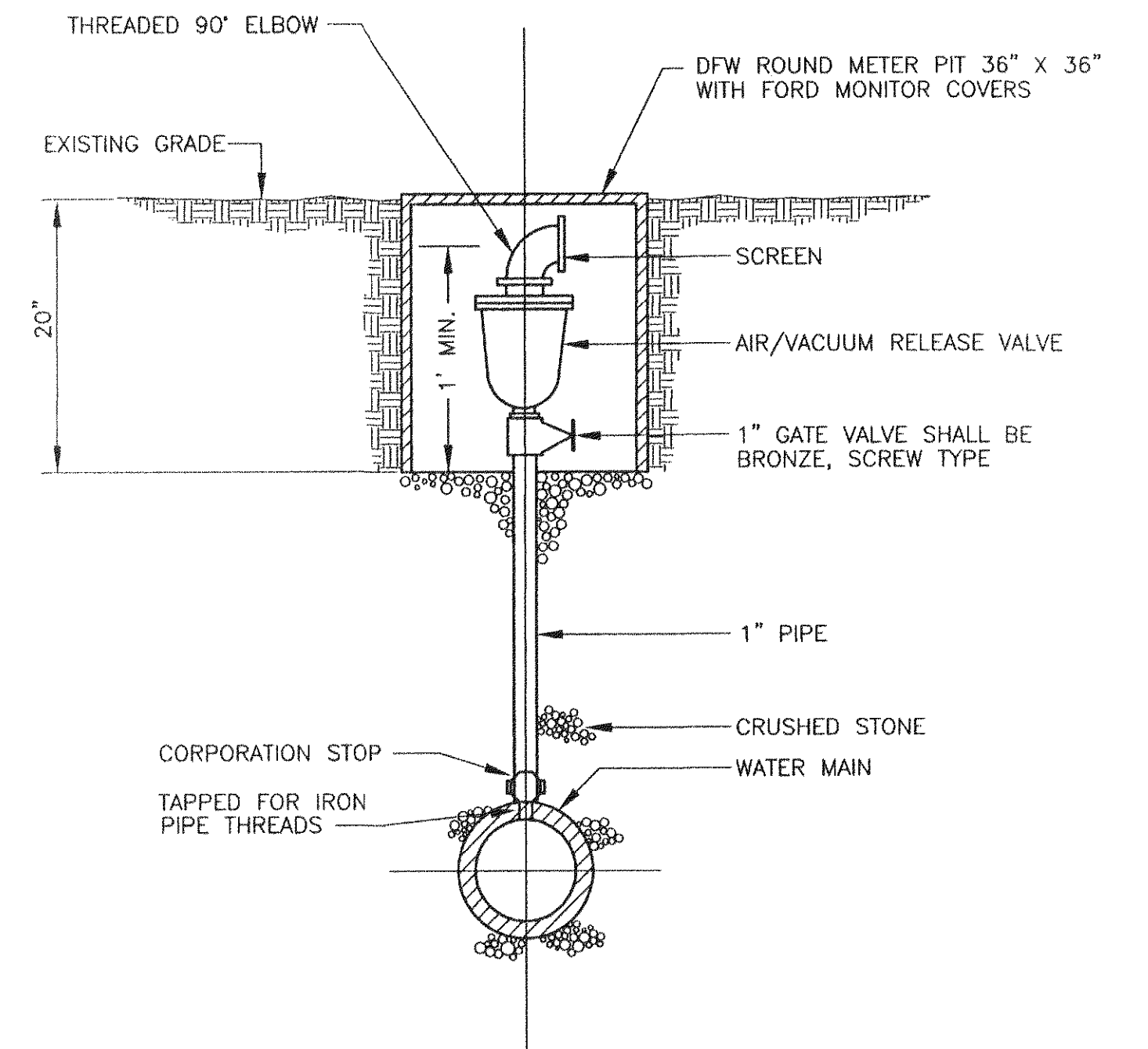
NOT TO SCALE

- NOTES:
- WHERE THE TRENCH BOTTOM IS IN ROCK, IT SHALL BE EXCAVATED TO A MINIMUM OF 8" BELOW THE BOTTOM OF THE PIPE AND BACKFILLED WITH SUITABLE BEDDING MATERIAL.
 - WHERE PIPE FOUNDATIONS ARE YIELDING, PIPE SHALL BE BEDDED ON A MINIMUM OF 8" SUITABLE BEDDING MATERIAL.
 - SHAPE TRENCH BOTTOM FOR PIPE BARREL, JOINTS, AND FITTINGS TO PROVIDE CONTINUOUS SUPPORT AND NO POINT LOADING OF PIPE, JOINTS, AND FITTINGS.
 - FOR PIPE LESS THAN 12" DIA., TRENCH WIDTH MAY BE 36"
 - ALL WATER LINE SHALL HAVE DETECTION TAPE APPROXIMATELY 18" ABOVE PIPE.

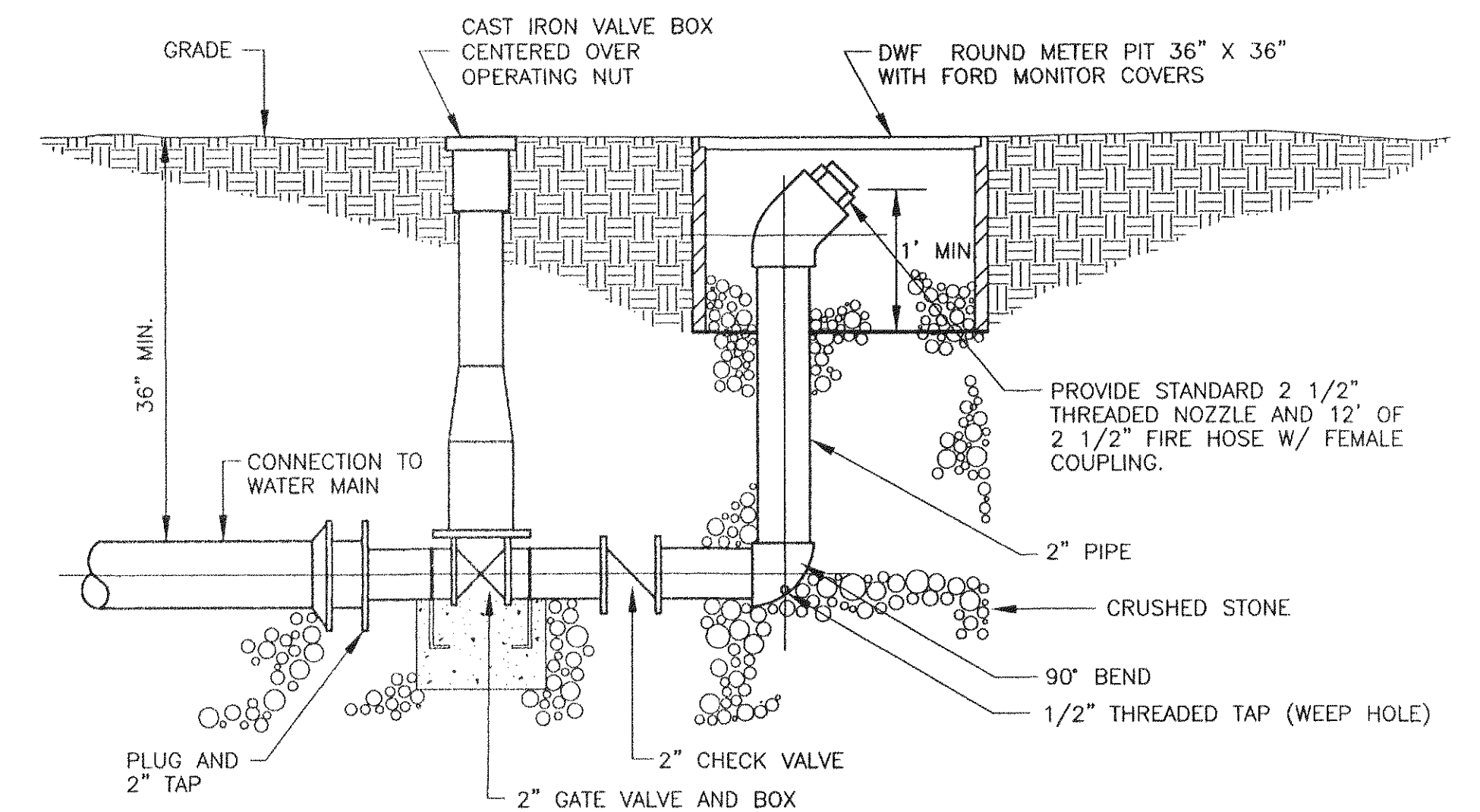
BEDDING DETAIL - WATER



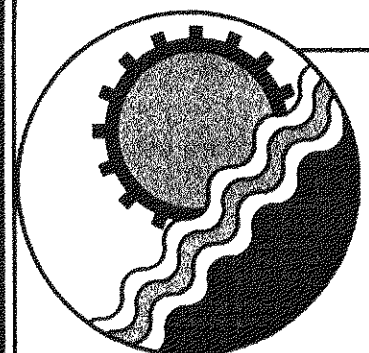
TYPICAL VALVE INSTALLATION



AUTOMATIC AIR/VACUUM RELEASE VALVE

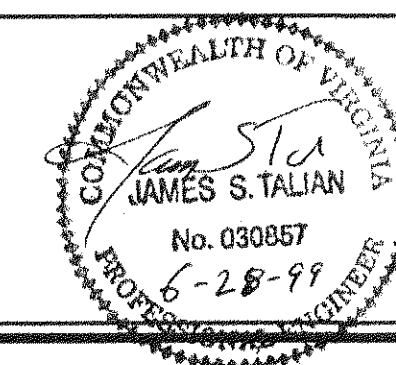


BLOW-OFF ASSEMBLY



ENGINEERING CONCEPTS, INC.

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540.473.1253 FAX: 540.473.1254



Drawn PSN
Designed PSN
Checked JST
Approved JST

**GREENFIELD
CHLORINATION FACILITY**
**WATER SYSTEM
DETAILS**

SCALE: NONE
JUNE 1999
PROJECT: 97075
7 of 19