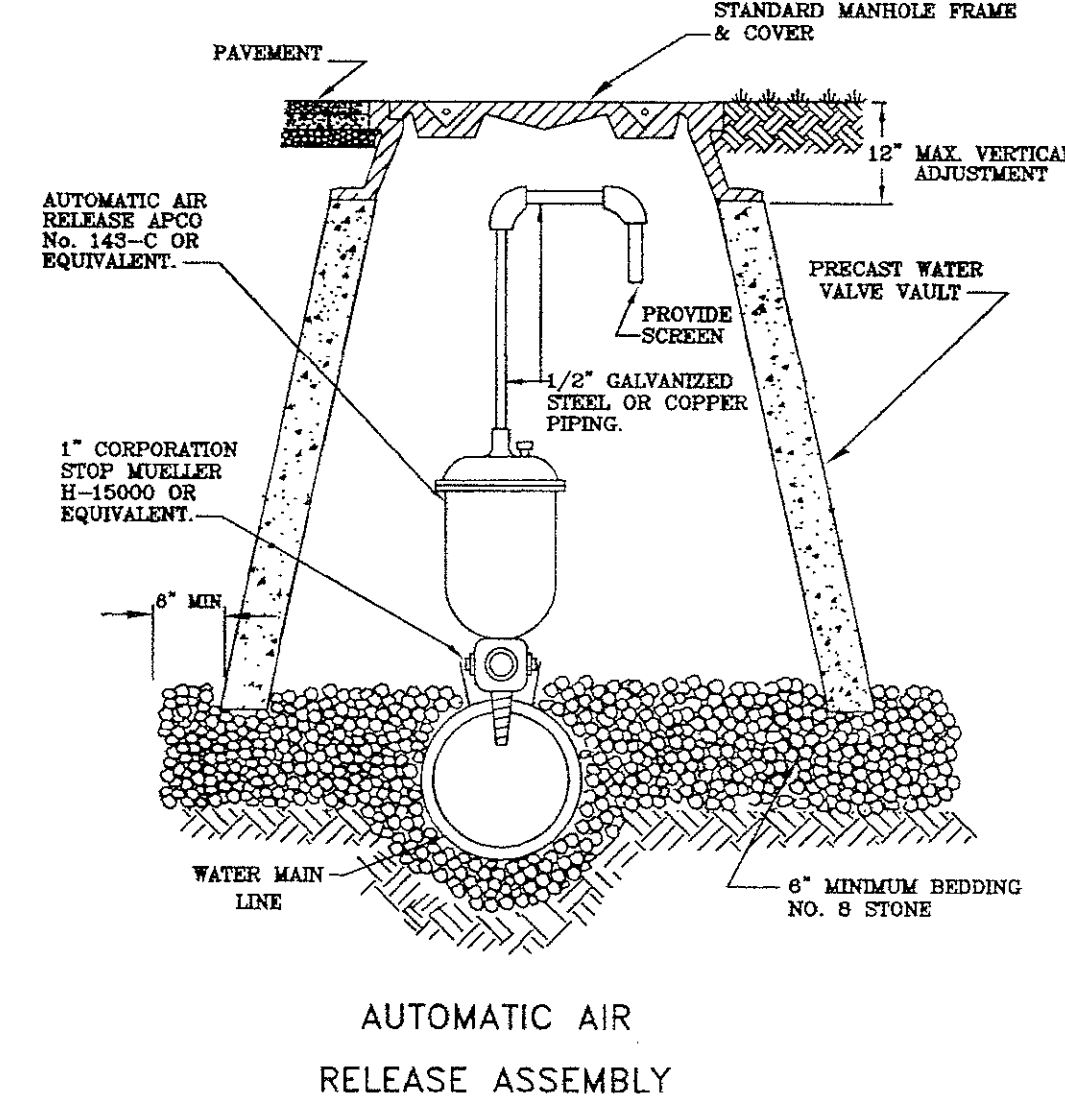
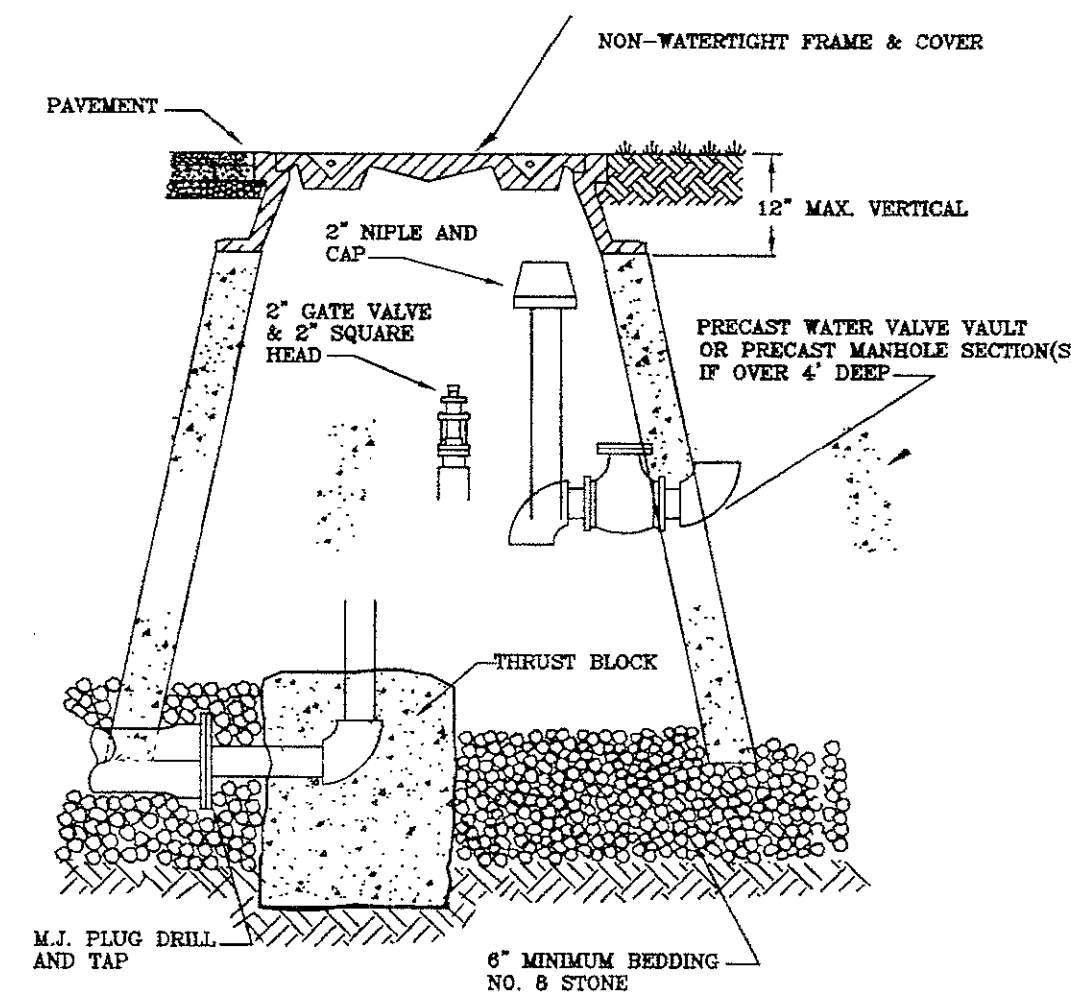


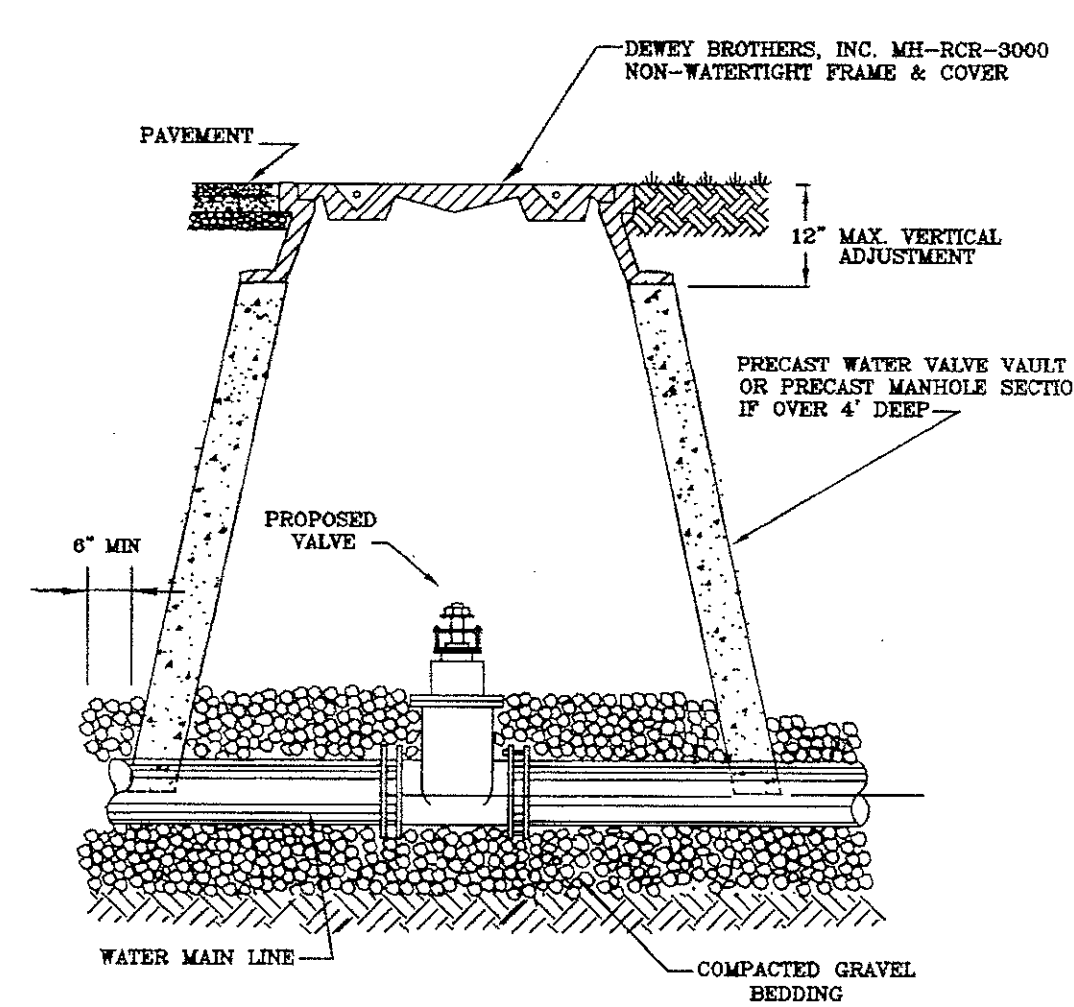
**MANHOLE FRAME AND COVER**  
UNPAVED (ARROYO)



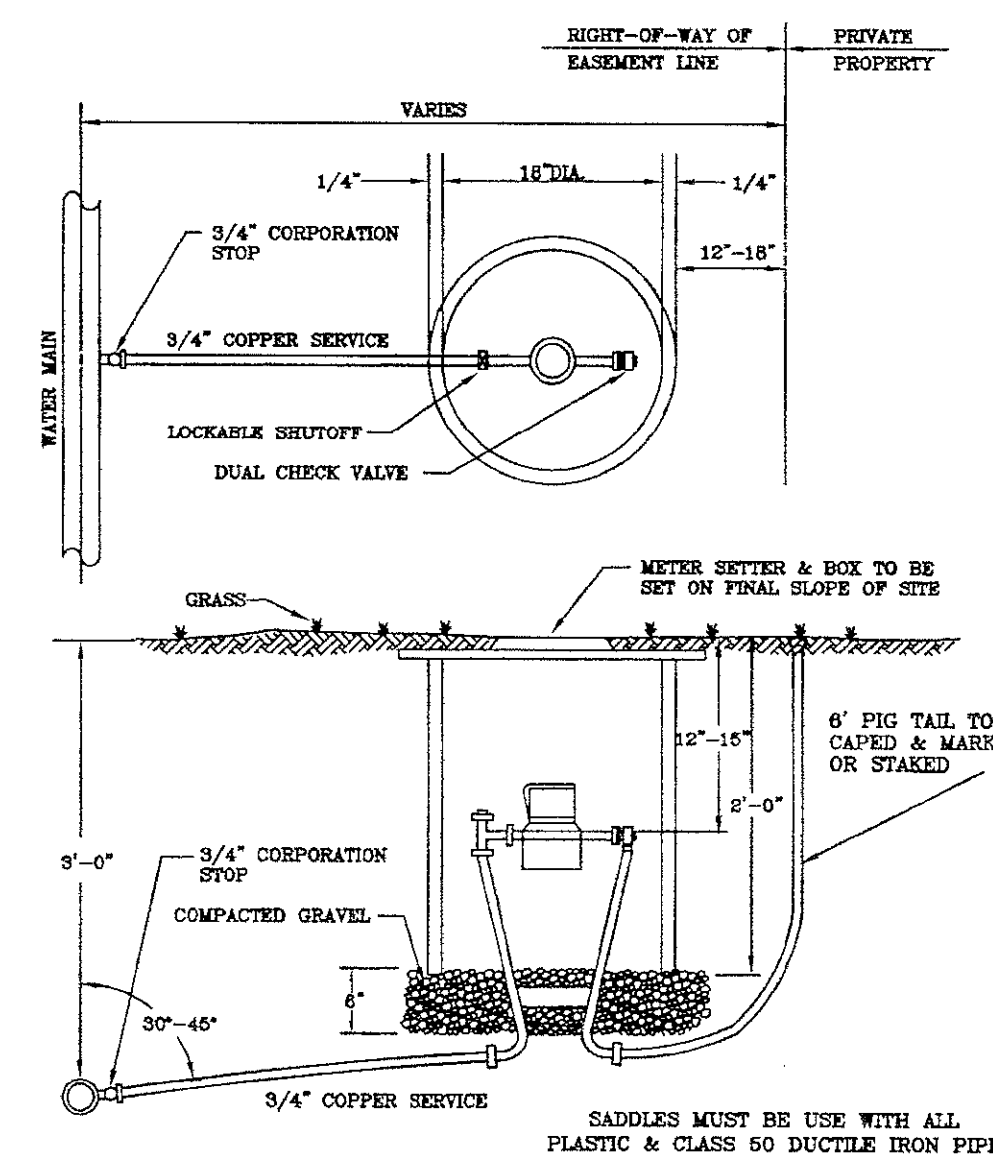
**AUTOMATIC AIR RELEASE ASSEMBLY**



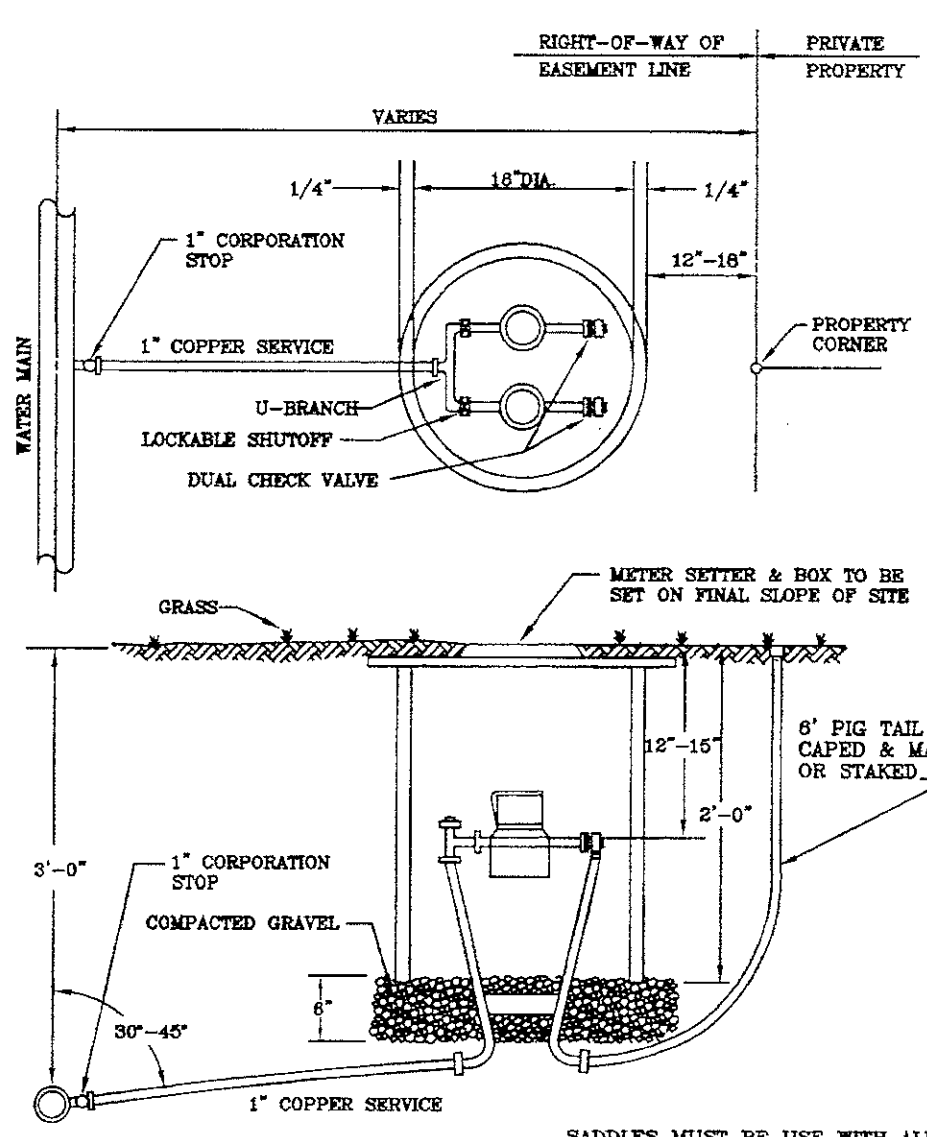
**PERMANENT END OF LINE**



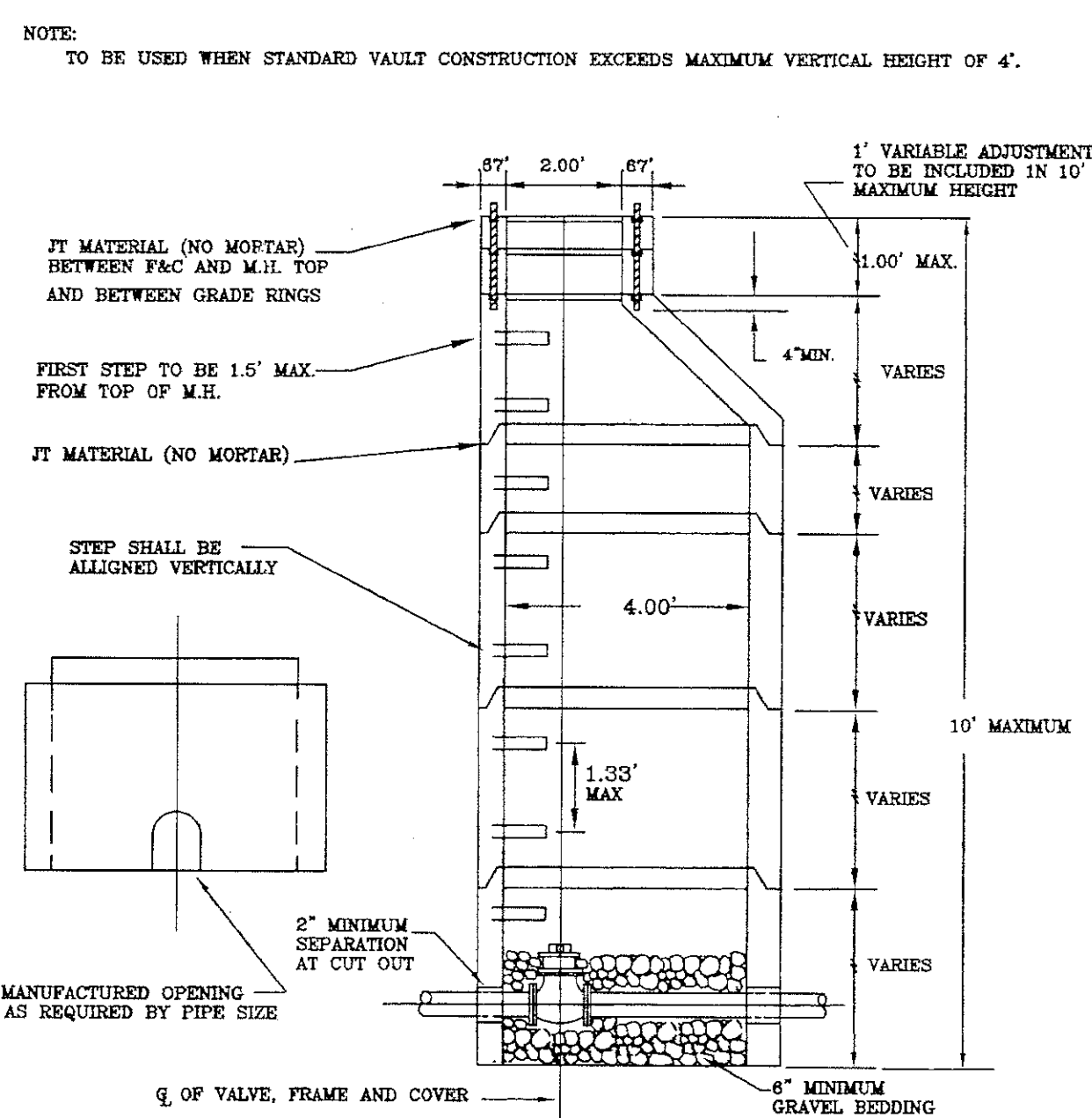
**WATER LINE VALVE INSTALLATION**



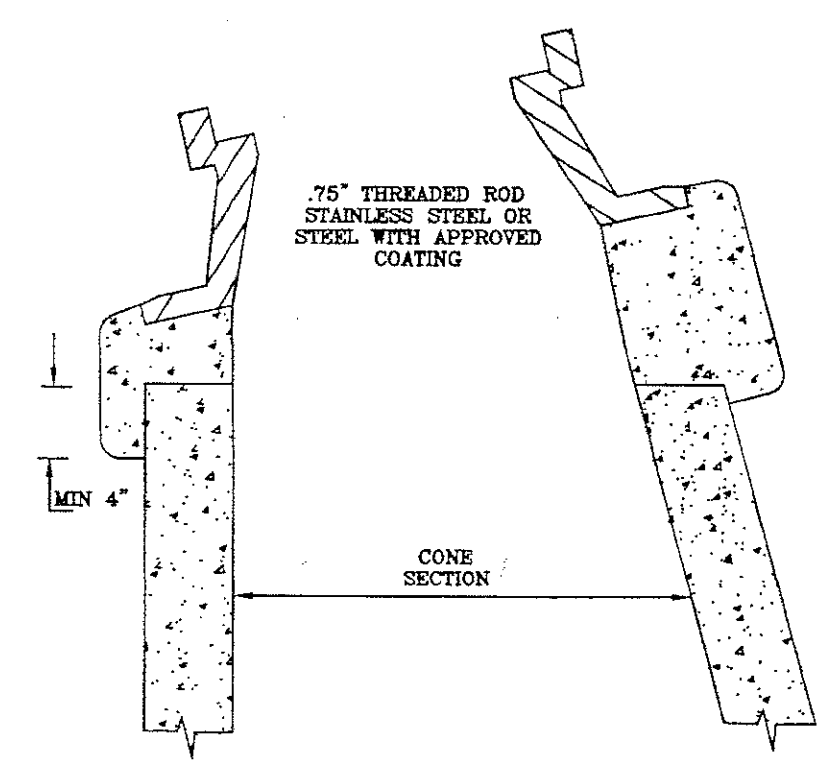
**SINGLE RESIDENTIAL WATER SERVICE**



**DOUBLE RESIDENTIAL WATER SERVICE**



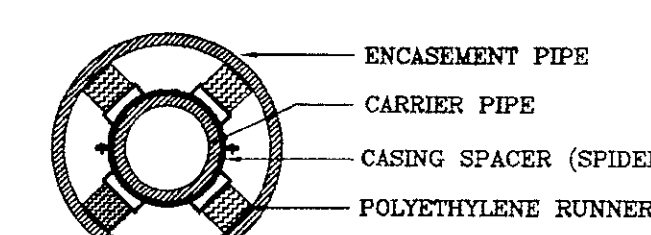
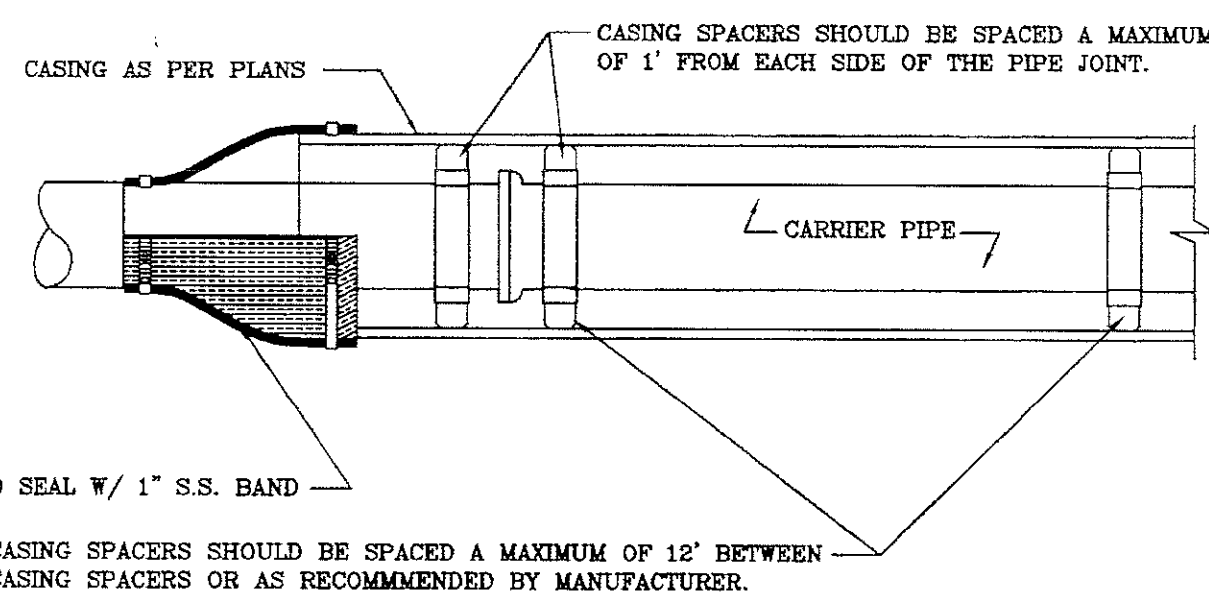
**ALTERNATE VALVE VAULT (MANHOLE)**



**SECTION**

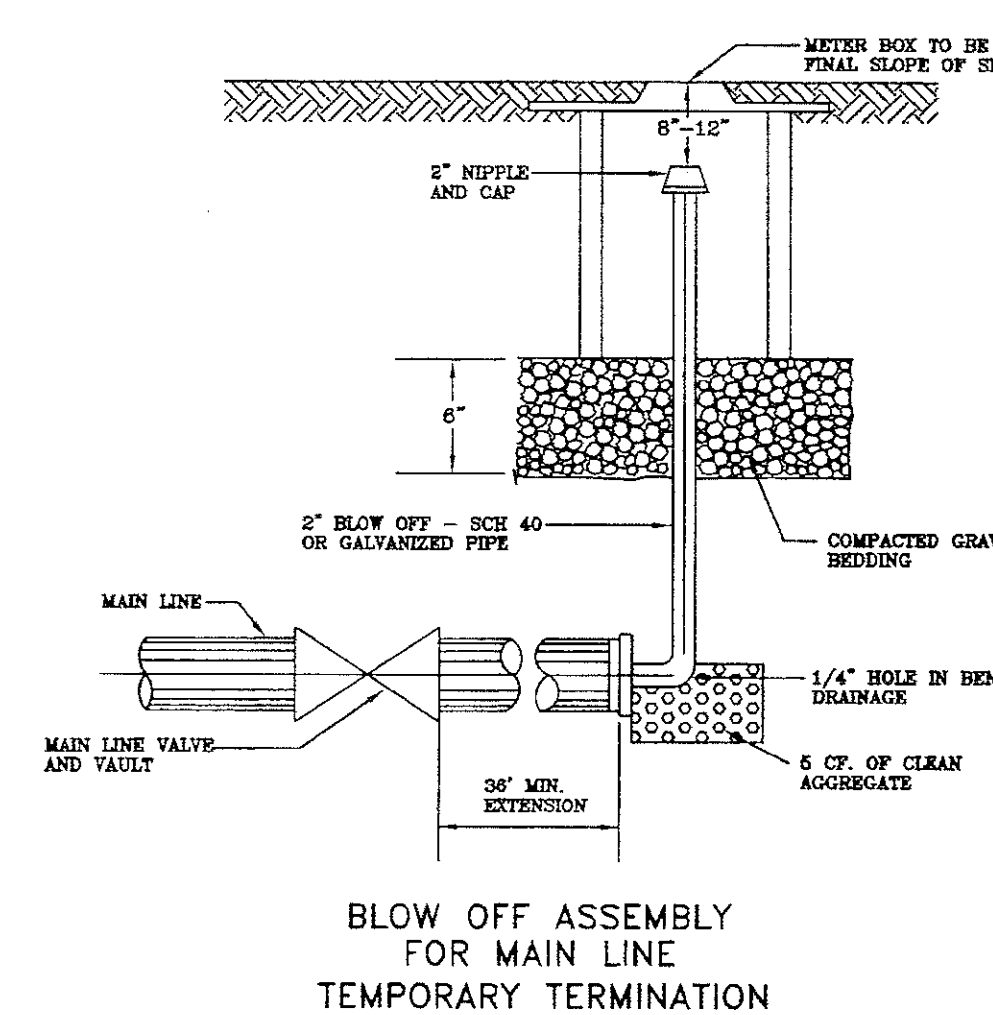
- NOTE: 1. USE MODERATELY SETTY MIX OF NON-SHEDDING CEMENT, SAND AND 1/2" AND LESS DIAMETER GRAVEL WITH 30 DAYS STRENGTH AT 28 DAYS F.T.L.
2. MIX IS TO BE FORCED INTO ALL JOINTS AND UNDER PLANS OF FRAME AND LEFT AT OR ABOVE TOP OF PLANS.
3. MAX. OF 4 BRICK OR CONCRETE BLOCKS TO BE USED FOR GRADE CONTROL.
4. DO NOT BACKFILL AROUND FRAME AND COVER FOR 48 HOURS AFTER CON. IS PLACED. THE USE OF HIGHLY STRENGTH CONCRETE WOULD REDUCE TIME TO (SAFETY).
5. RESTRICT TRAFFIC LOAD FOR MK. 24 HOURS.

**INSTALLATION DETAIL FOR ALL FRAMES AND COVERS**

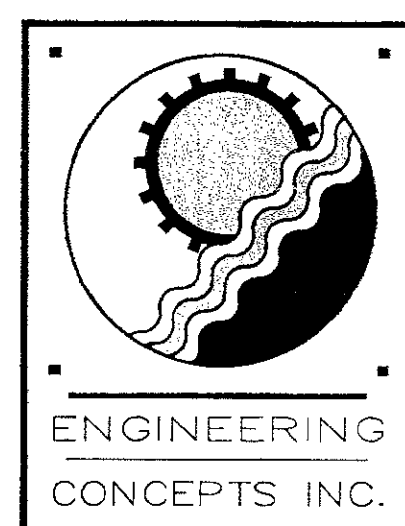
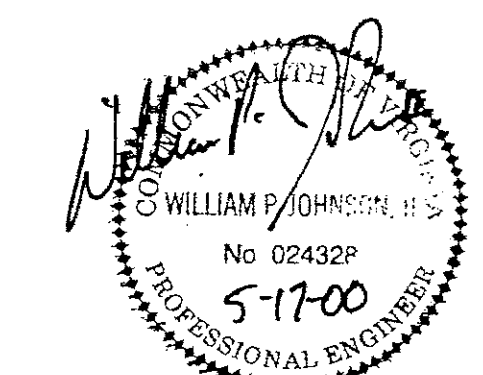


**PIPE SUPPORT IN CASING PIPE**

- ALTERNATE PIPE SUPPORT IN CASING PIPE.  
18" LONG TREATED TIMBER SKIDS OF APPROPRIATE WIDTH SO THAT BELLS OR FLANGES DO NOT REST ON CASING WITH MORE THAN 3/4" FREE PLAY. SKIDS TO BE PLACED AT 4'-0" O.C. AND SECURED WITH 2" x 1/4" GALV. STEEL STRAPS OR 1" S.S. BANDS. SOAP-BASED LUBRICANT MAY BE USED FOR SLIDING OF SKID WITH DUCTILE IRON PIPE AND FLASK-BASED LUBRICANT MAY BE USED FOR SLIDING OF SKID WITH PVC PIPE.
- NOTE: A 1" DRAIN WILL BE REQUIRED ON THE LOWER END OF THE CASING IF THE CASING ENDS ARE SEALED WITH MORTAR AND BRICK.



**BLOW OFF ASSEMBLY FOR MAIN LINE TEMPORARY TERMINATION**



20 South Roanoke St.  
Roanoke, Virginia 24090  
540.473.1253 540.473.1254 (Fax)  
email@engineeringconcepts.com

EARLY SITE PACKAGE  
MAY 17, 2000

**SOUTH COUNTY HIGH SCHOOL**



ROANOKE COUNTY, VIRGINIA

Architecture  
Engineering  
Planning  
Interiors

**SFCS**

Sherertz Franklin Crawford Shaffner Inc.  
305 S. Jefferson St., Roanoke, VA 24011  
Phone 540.344-6664  
FAX 540.343-6925  
email sfcs.com

PROJECT DESIGNER : SFCS  
PROJECT ARCHITECT : SFCS  
PROJECT ENGINEER : ECI  
DRAWN BY : ECI  
CHECKED BY : ECI  
APPROVED BY : ECI

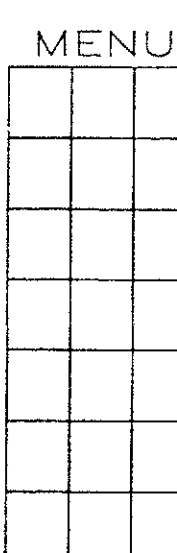
NO. REVISION DESCRIPTION DATE

DRAWING TITLE  
**ROANOKE COUNTY STANDARD WATER DETAILS**

COMM. NO. 99001 DATE MAY 17, 2000

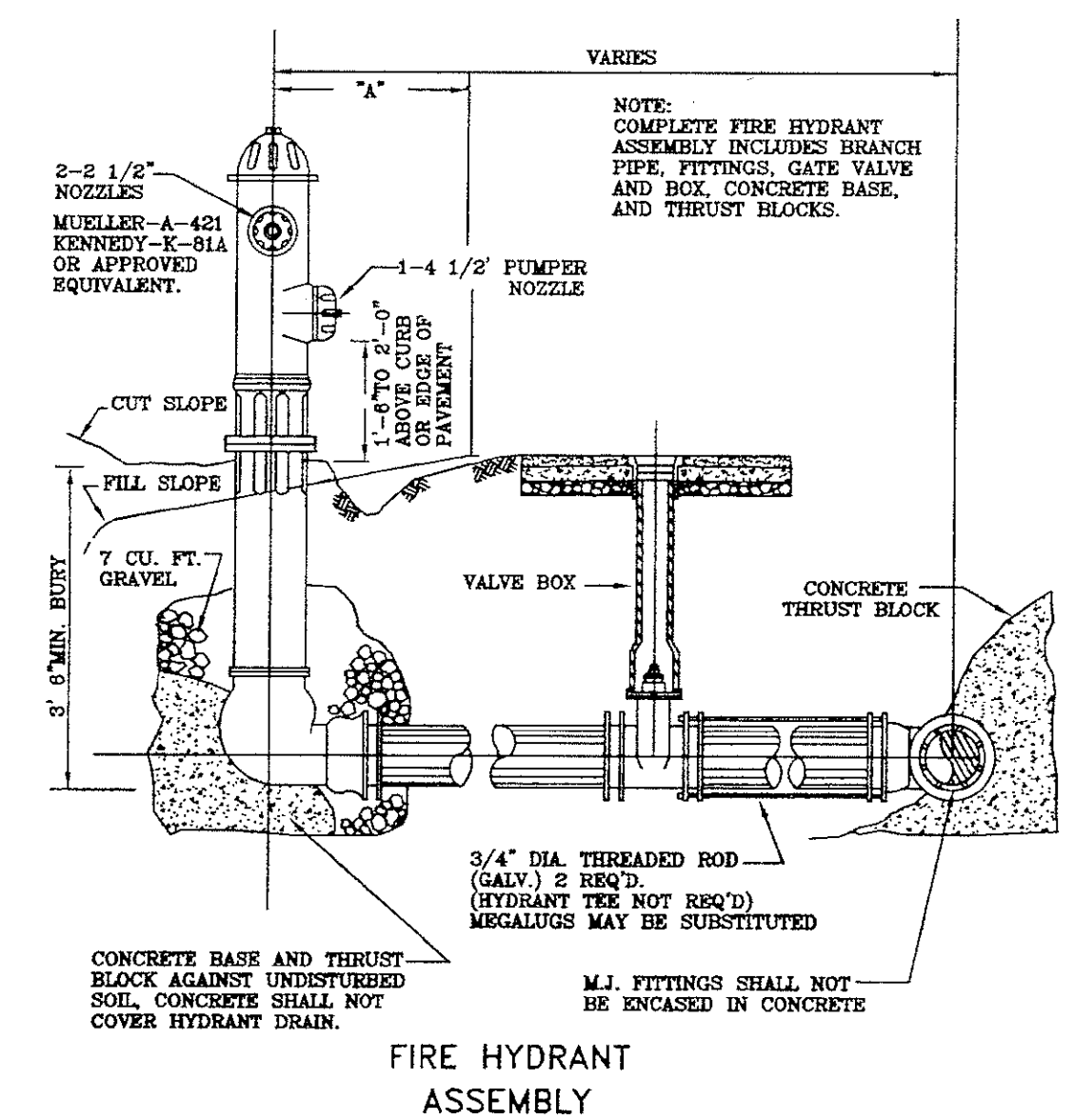
DRAWING SHEET

C25 25 OF 30

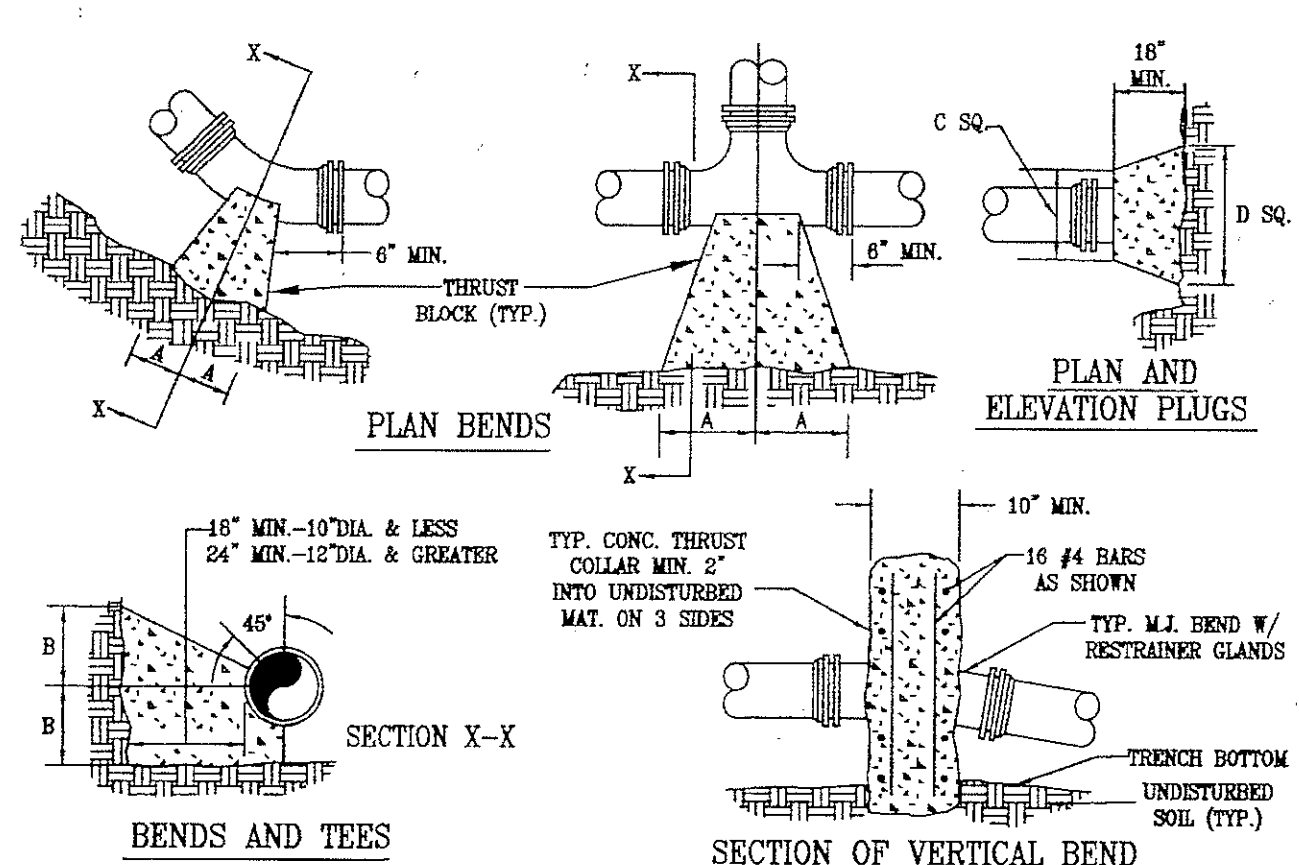


0000 VERSION  
ACADR-H  
PLOT SCALE  
1:1  
PLOT DATE  
COWM NO.  
DRAWING NO.

- NOTE: (1) MAIN BODY OF HYDRANT MUST BE PAINTED SILVER WITH RED CAPS AND BONNET.
- (2) DISTANCE "A" WITH CURB AND CUTTER.
- (3) DISTANCE "A" WITHOUT CURB AND CUTTER.
- (4) AREA AROUND HYDRANT AT A RADIUS OF 4' TO BE APPROXIMATELY LEVEL AND UNOBSTRUCTED FOR ROAD CONSTRUCTION.

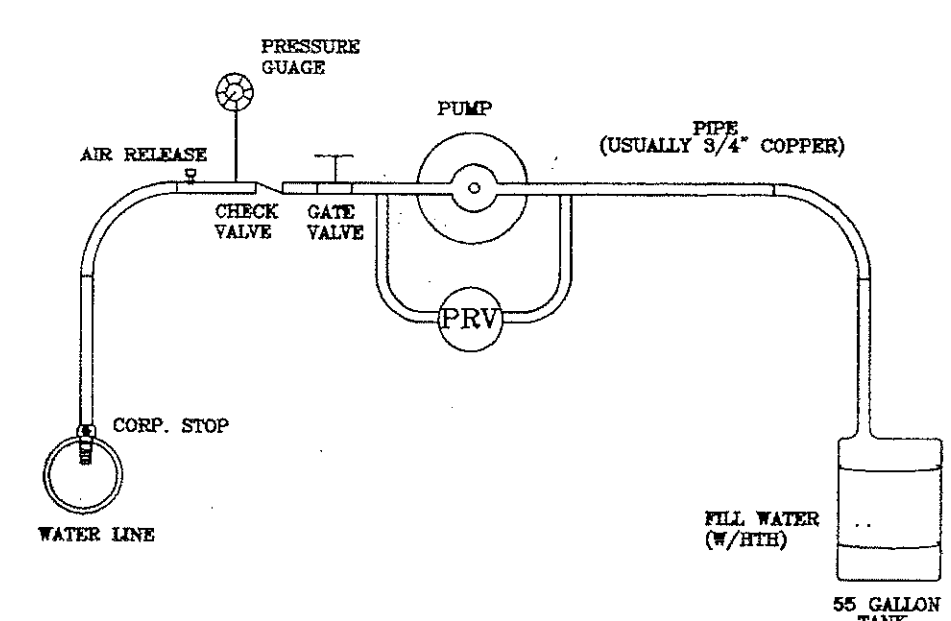


**FIRE HYDRANT ASSEMBLY**

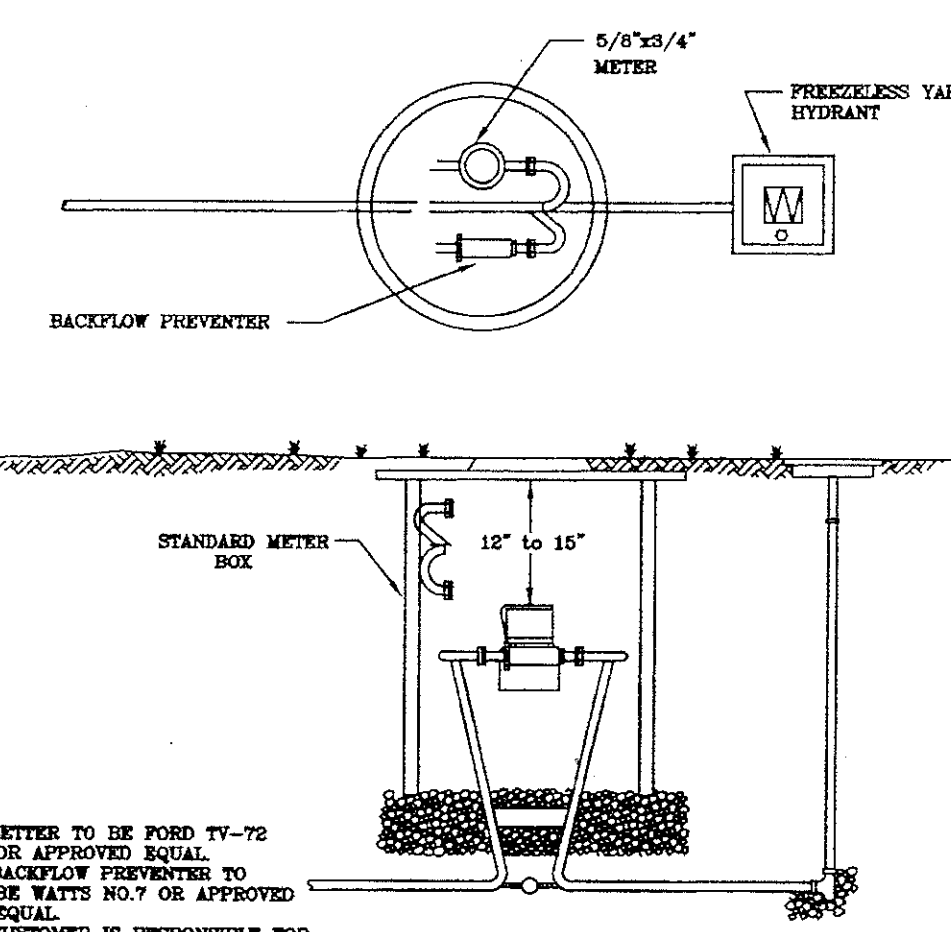


**THRUST BLOCK CONSTRUCTION**

PIPE SIZE	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	TEE	FLANGE
4"	8"	8"	8"	8"	8"	8"
6"	12"	12"	12"	12"	12"	12"
8"	16"	16"	16"	16"	16"	16"
10"	20"	20"	20"	20"	20"	20"
12"	24"	24"	24"	24"	24"	24"
14"	28"	28"	28"	28"	28"	28"
16"	32"	32"	32"	32"	32"	32"
18"	36"	36"	36"	36"	36"	36"
20"	40"	40"	40"	40"	40"	40"
22"	44"	44"	44"	44"	44"	44"
24"	48"	48"	48"	48"	48"	48"
26"	52"	52"	52"	52"	52"	52"
28"	56"	56"	56"	56"	56"	56"
30"	60"	60"	60"	60"	60"	60"



**TYPICAL WATER PRESSURE TEST RIG**



- 1) SETTER TO BE FOUNDED TO BE APPROVED EQUAL.
- 2) BACKFILL PROPERTIES TO BE WATTS NO. 7 OR APPROVED EQUAL.
- 3) CUSTOMER IS RESPONSIBLE FOR OPERATION AND MAINTENANCE OF METER (EXCEPTOR).
- 4) METER BOX MUST BE FOUNDED CONCRETE BOX OR BRUTE-CAST CONCRETE BOX WITH 6" PLASTIC BOX WITH PUMP OR CAPTION BASE & COVER OR APPROVED EQUIVALENT.