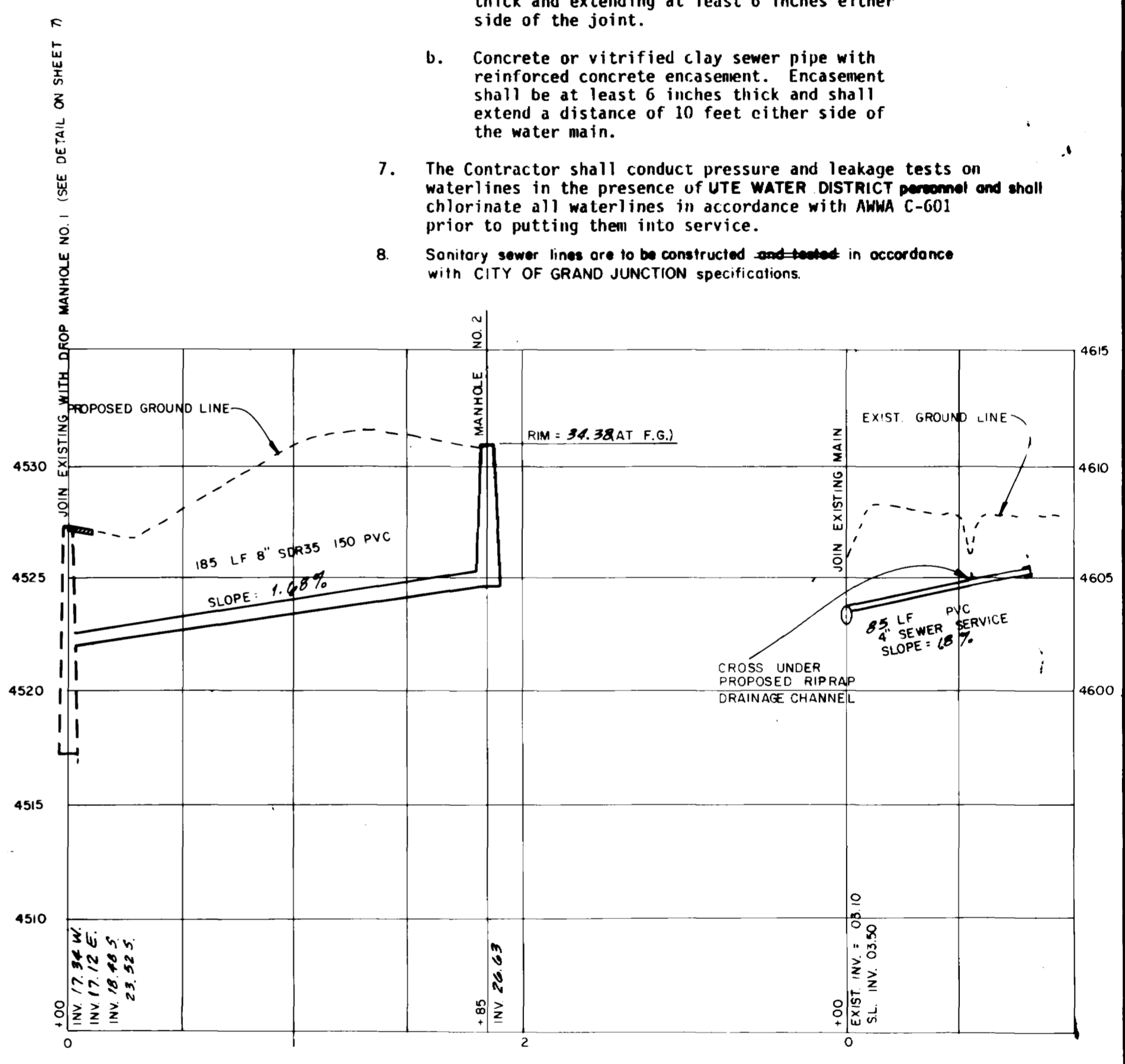


CONSTRUCTION NOTES

- SEE SHEET 7 FOR DETAILS.
- All Portland Cement Concrete shall be Colorado Division of Highways Class "B" (Section 601.02)
- All cement used in mortar, concrete bases, vaults, grade rings, riser sections, cones and flat tops shall be Type V or Modified Type II Portland Cement with less than 5% tricalcium aluminate.
- A minimum of 42 inches of cover shall be maintained over all water mains. Thrust blocks are required at all bends, ends, and valves.
- Indicated distances for waterlines and appurtenances are horizontal distances between centerline of fittings. Therefore, distances shown are approximate only and may vary due to vertical alignment and fitting dimensions.
- In all cases a minimum of 10 feet horizontal separation shall be maintained between waterlines and sanitary sewers. Where sewer lines and water mains cross, the sewer pipe shall be a minimum of eighteen (18) inches clear distance vertically below the water main. If this clear distance is not feasible, the crossing must be designated and constructed so as to protect the water main. Minimum protection shall consist of the installation of an impervious and structural sewer, for example:
 - One length of pipe at least 18 feet long centered over the water main. Joints between the sewer pipe and the special pipe shall be encased in a concrete collar at least 6 inches thick and extending at least 6 inches either side of the joint.
 - Concrete or vitrified clay sewer pipe with reinforced concrete encasement. Encasement shall be at least 6 inches thick and shall extend a distance of 10 feet either side of the water main.
- The Contractor shall conduct pressure and leakage tests on waterlines in the presence of UTE WATER DISTRICT personnel and shall chlorinate all waterlines in accordance with AWWA C-601 prior to putting them into service.
- Sanitary sewer lines are to be constructed and tested in accordance with CITY OF GRAND JUNCTION specifications.

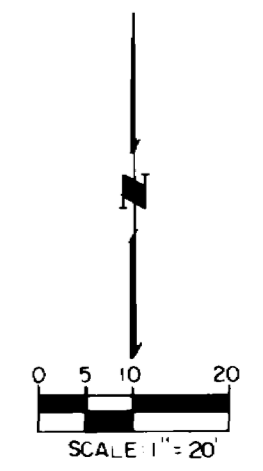


SEWER MAIN PROFILE SEWER SERVICE LINE PROFILE

SCALE 1" = 50' HORIZ.
1" = 5' VERT.

LEGEND

EXISTING	PROPOSED
—	— W —
—	— SS —
—	— I —
○	○
○	●
○	○
○	○
○	○
○	○



SANITARY SEWER AS BUILT DRAWING

ARMSTRONG CONSULTANTS, INC.
861 Road Avenue
Grand Junction, Colorado 81501
(303) 242-0101

Engineers
Planners
Surveyors
Soil Testing
Material Testing
Geotechnical Engineers

EL RIO VILLAS
MESA COUNTY, COLORADO

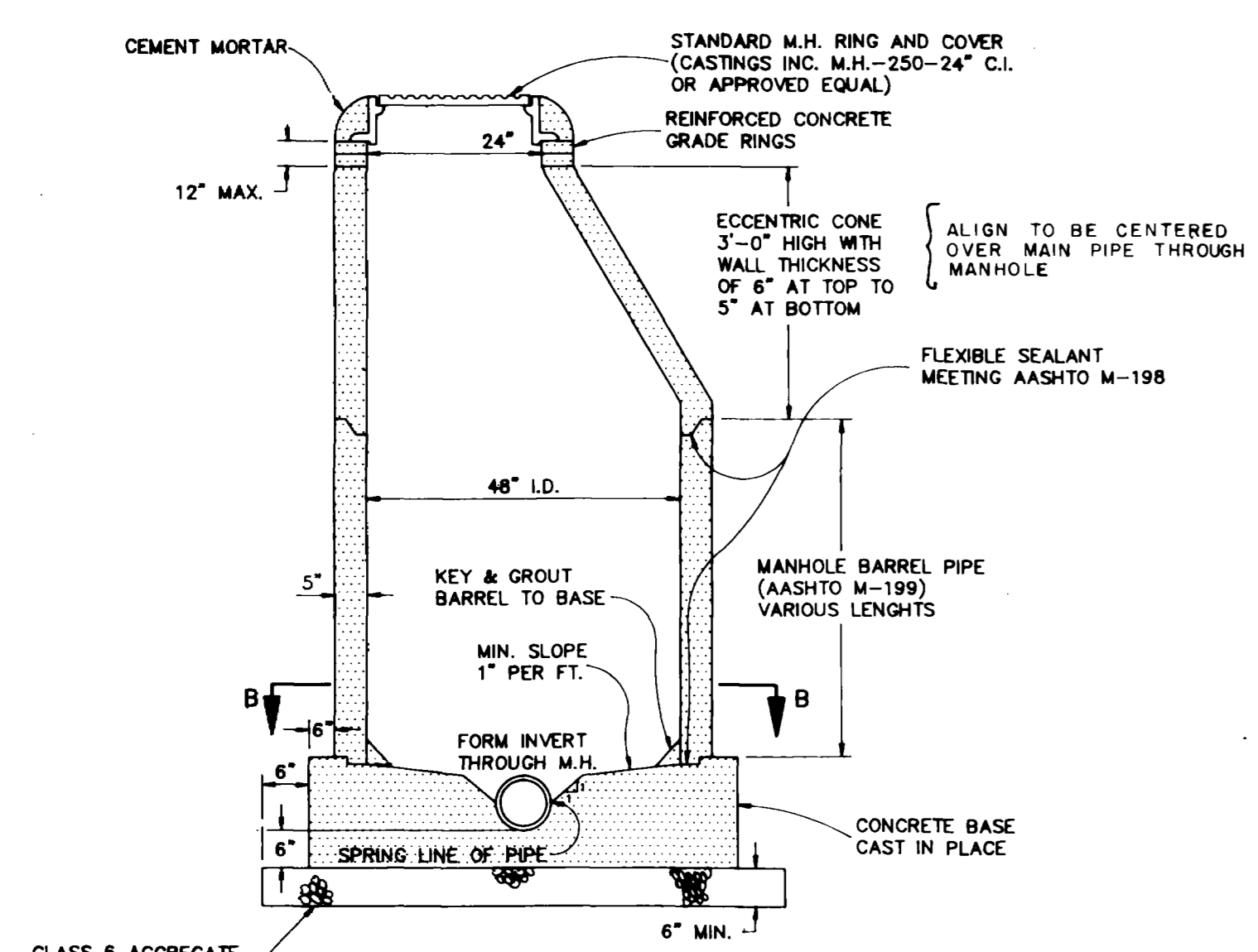
Project No: 905304
Date: JUNE, 1990
Revisions: AUG., 1990

Drawn: J. SMITH
Checked: K. KOLER
Approved: K. KOLER

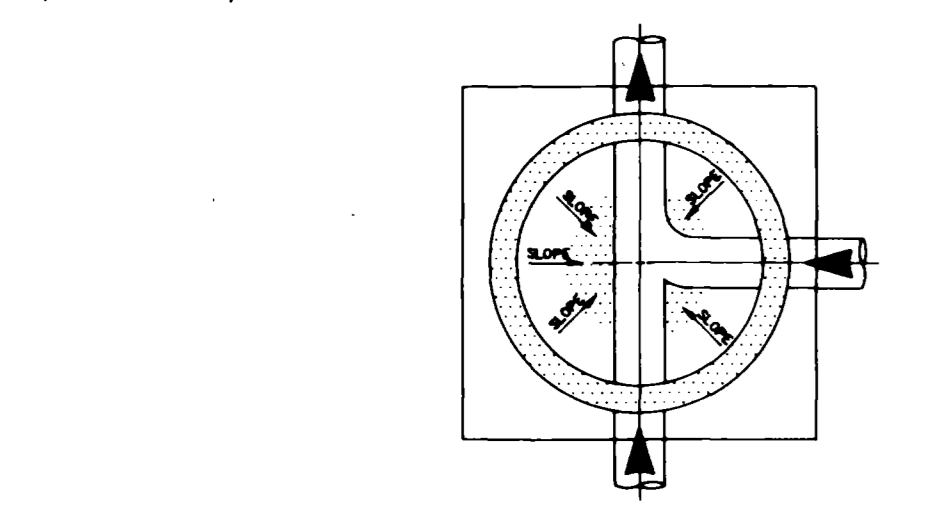
UTILITY PLAN

Sheet: 6 of 7

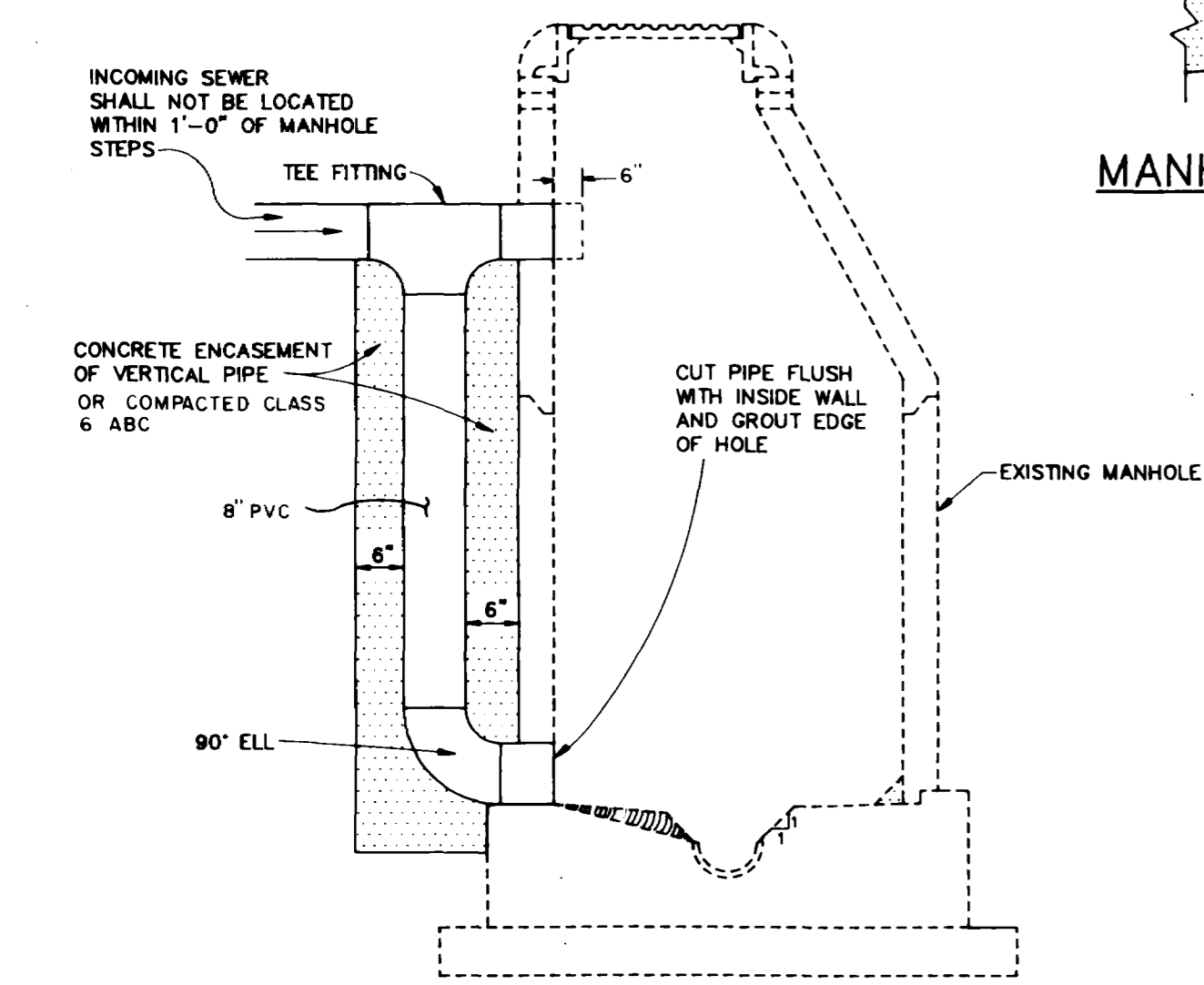
Rec. 2-24-92 02077101.tif



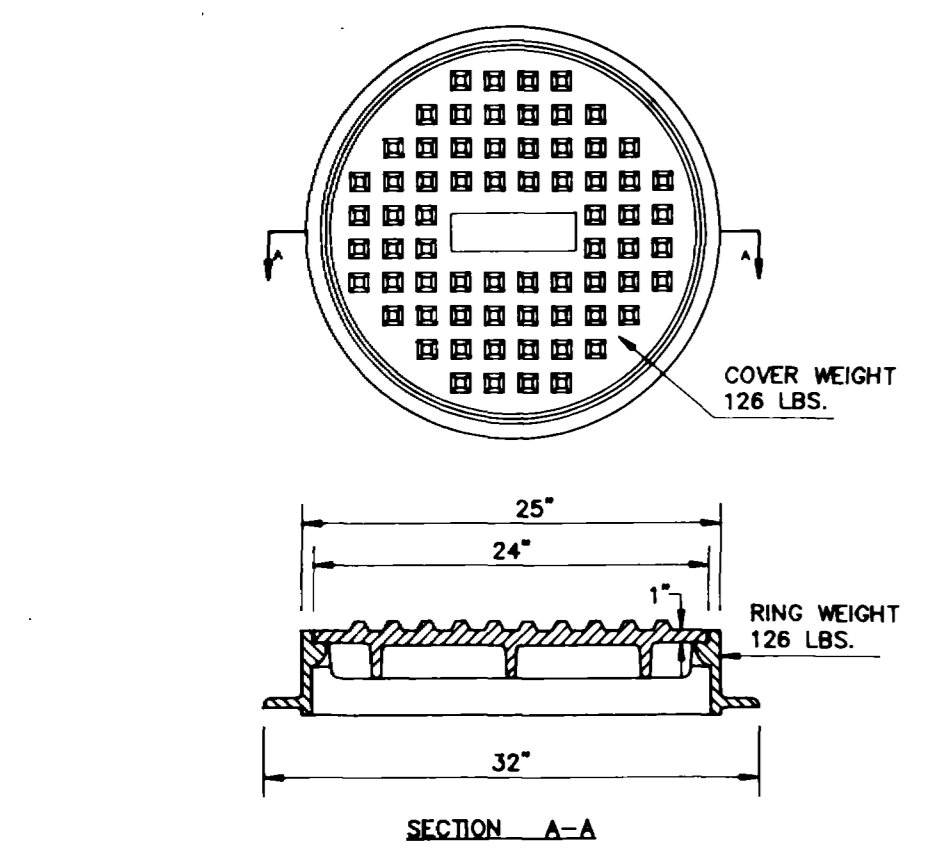
STANDARD MANHOLE



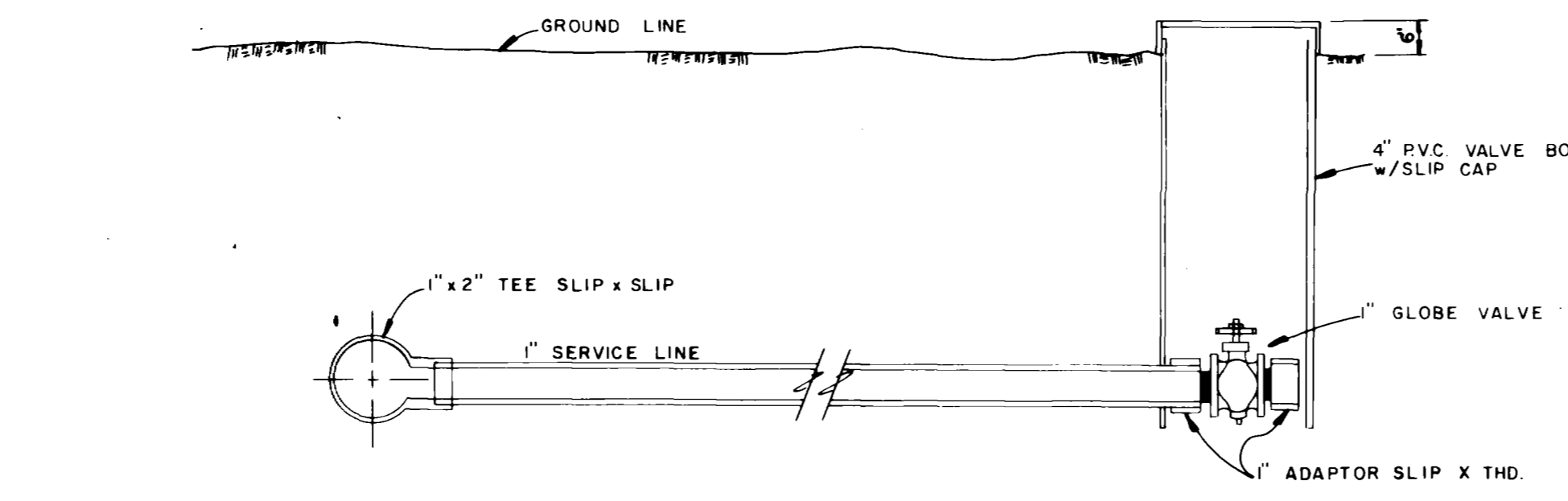
SECTION B-B
"Y" JUNCTION



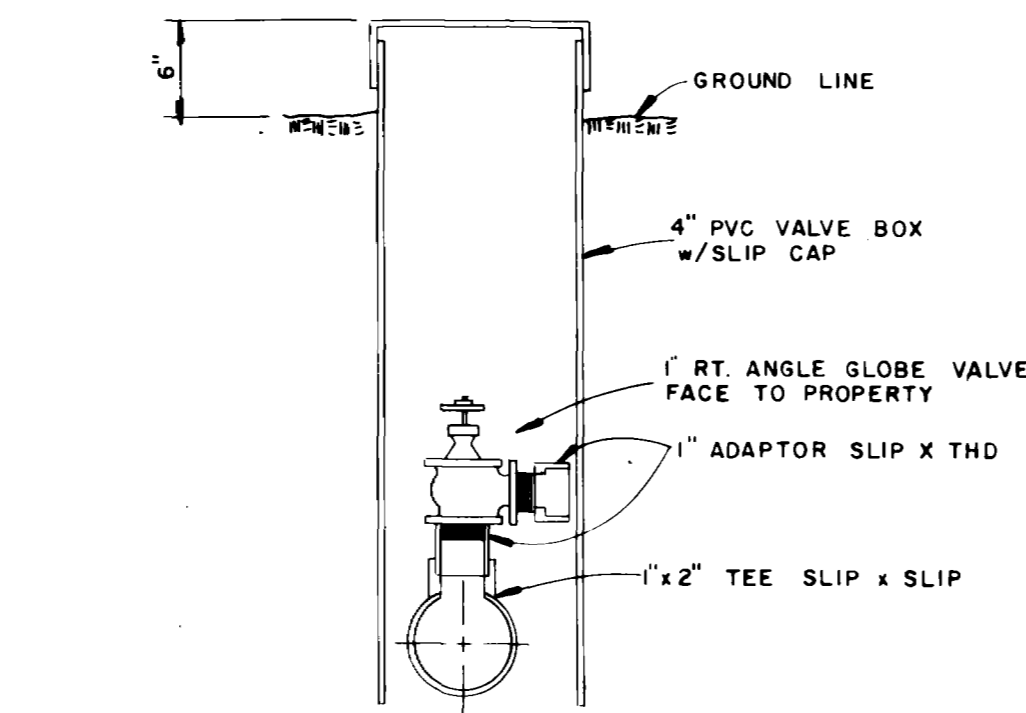
DROP MANHOLE



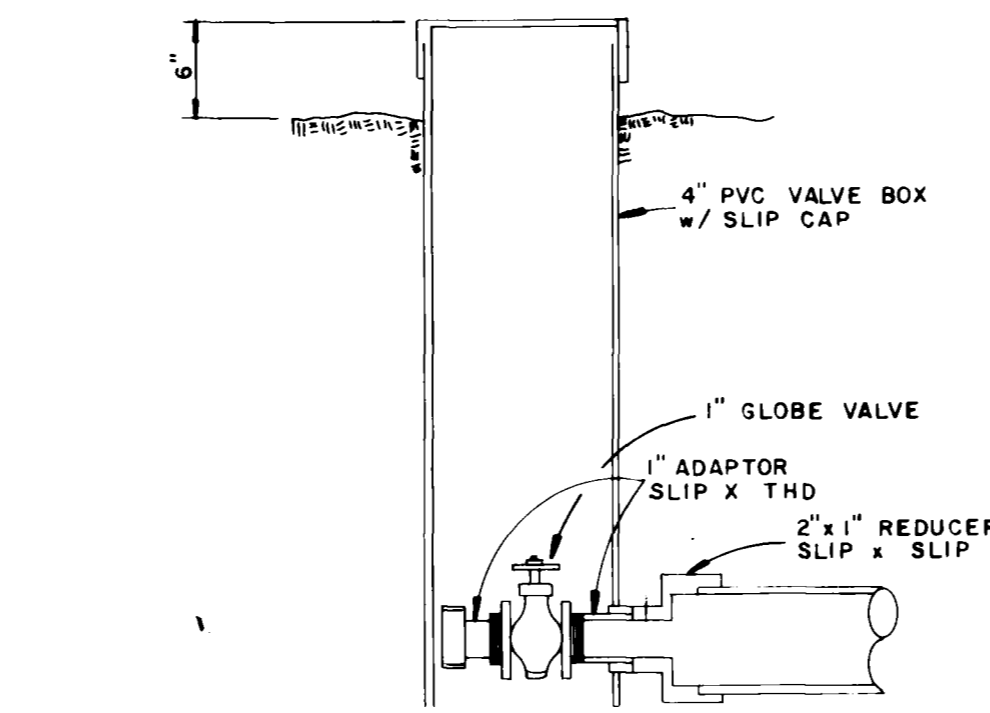
STANDARD CAST IRON MANHOLE RING AND COVER
NOT TO SCALE



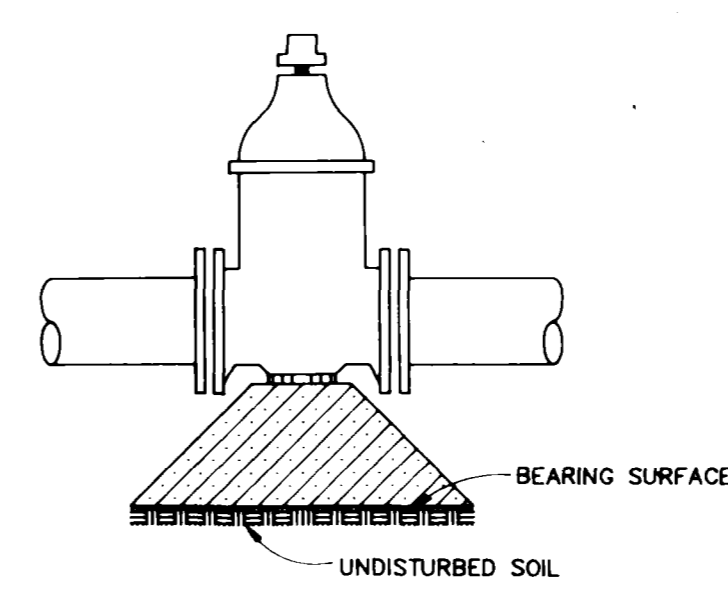
TYPE "A" IRRIGATION SERVICE DETAIL



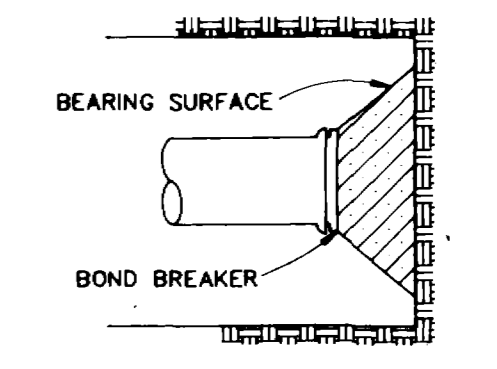
TYPE "B" IRRIGATION SERVICE DETAIL



TYPE "C" IRRIGATION SERVICE DETAIL



TEE DETAIL
NOT TO SCALE



DEAD END DETAIL
NOT TO SCALE



VALVES
NOT TO SCALE

TABLE FOR CONCRETE THRUST BLOCKING BEARING AREAS (IN SQ. FT.)

SIZE	BENDS				TEES, DEAD ENDS, AND CROSS w/ DEAD END BRANCHES
	90°	45°	22 1/2°	11 1/4°	
3	1.0	0.6	0.3	0	0.7
4	1.8	1.0	0.5	0	1.3
6	4.0	2.2	1.1	0	2.8
8	7.1	3.8	2.0	1.0	5.0
10	11.1	6.0	3.0	1.5	7.8
12	16.0	8.6	4.4	2.2	11.3
14	21.7	11.8	6.0	3.0	15.4
15	25.0	13.5	7.0	3.5	17.6
16	28.4	15.3	8.0	4.0	20.0
18	36.0	19.4	10.0	5.0	25.4
20	44.2	24.0	12.2	6.1	31.4
21	49.0	26.5	13.5	6.8	34.6
22	54.0	29.0	14.8	7.4	38.0
24	64.0	34.5	17.7	8.8	45.0
30	100.0	54.0	27.6	13.8	71.0
36	144.0	78.0	40.0	20.0	102.0

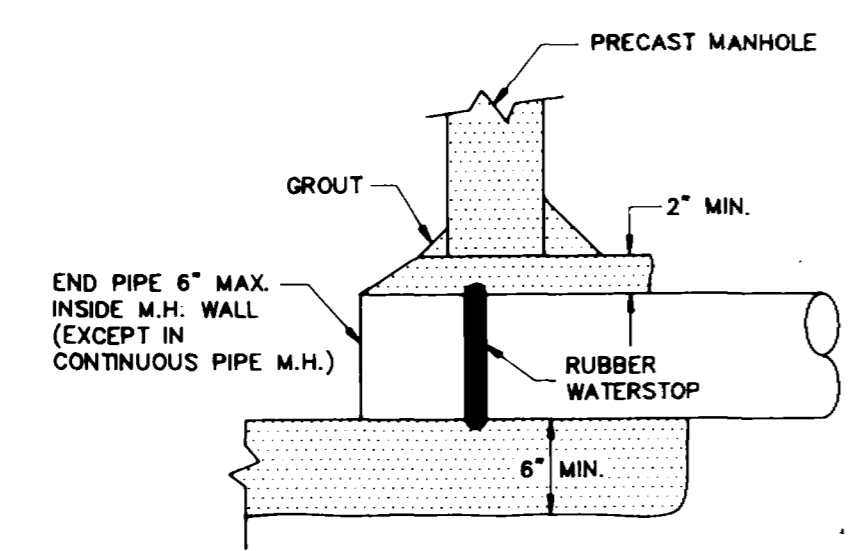
NOTE: TEE SIZE IS BRANCH SIZE.

AREAS GIVEN IN TABLE ARE BASED UPON INTERNAL STATIC PRESSURE OF 100 P.S.I. AND A SOIL BEARING CAPACITY OF 1,000 LB. PER SQ. FT.

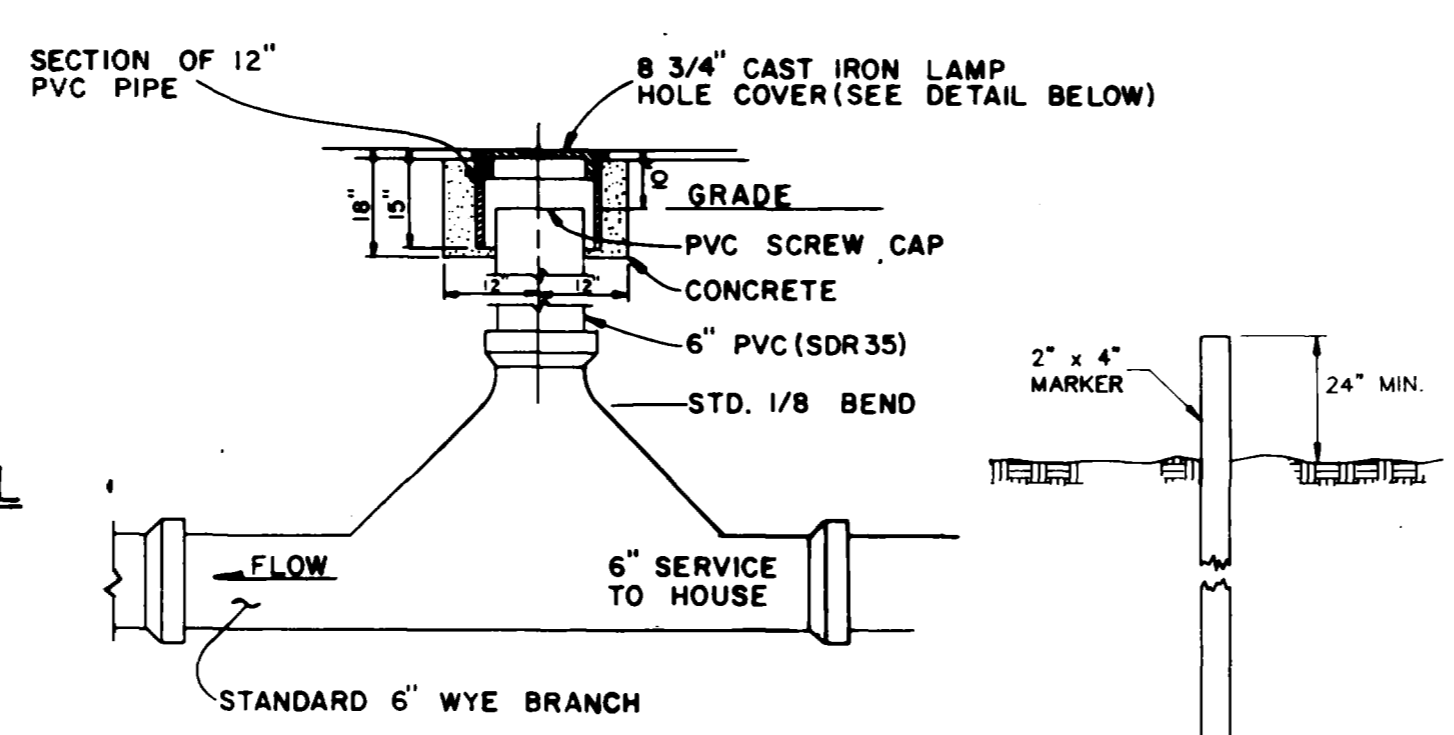
BEARING AREAS FOR ANY PRESSURE AND SOIL BEARING CAPACITY MAY BE OBTAINED BY MULTIPLYING TABULATED VALUES BY A CORRECTION FACTOR "F".

F = ACTUAL SPECIFIED TEST PRESSURE IN HUNDREDS OF LB. / ACTUAL SOIL BEARING CAPACITY IN THOUSANDS OF LB.

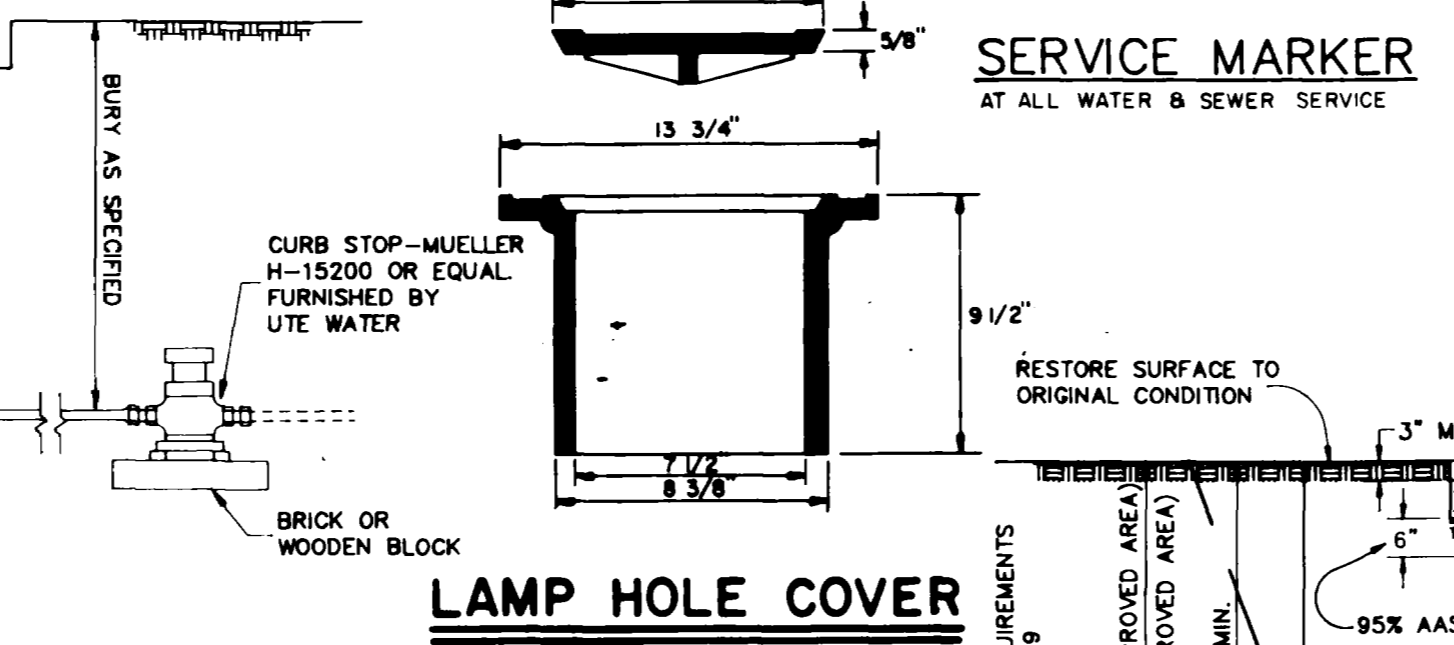
SOIL BEARING CAPACITIES SHALL BE DETERMINED BY THE ENGINEER.



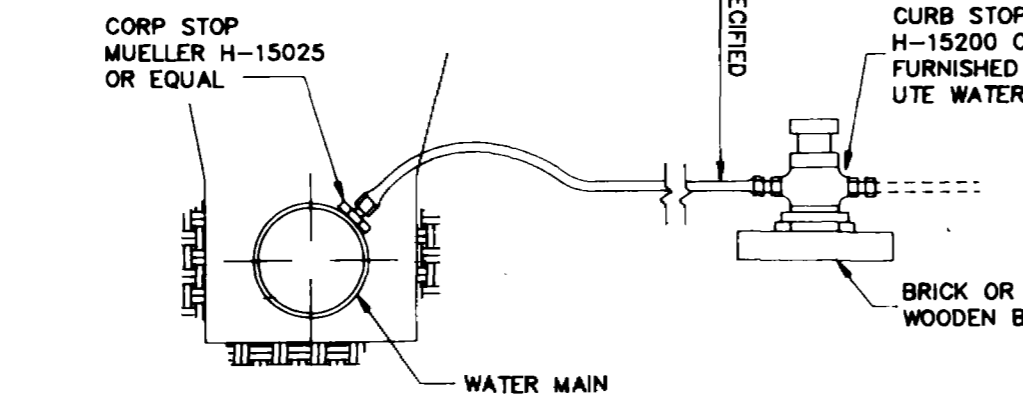
MANHOLE ENTRANCE DETAIL



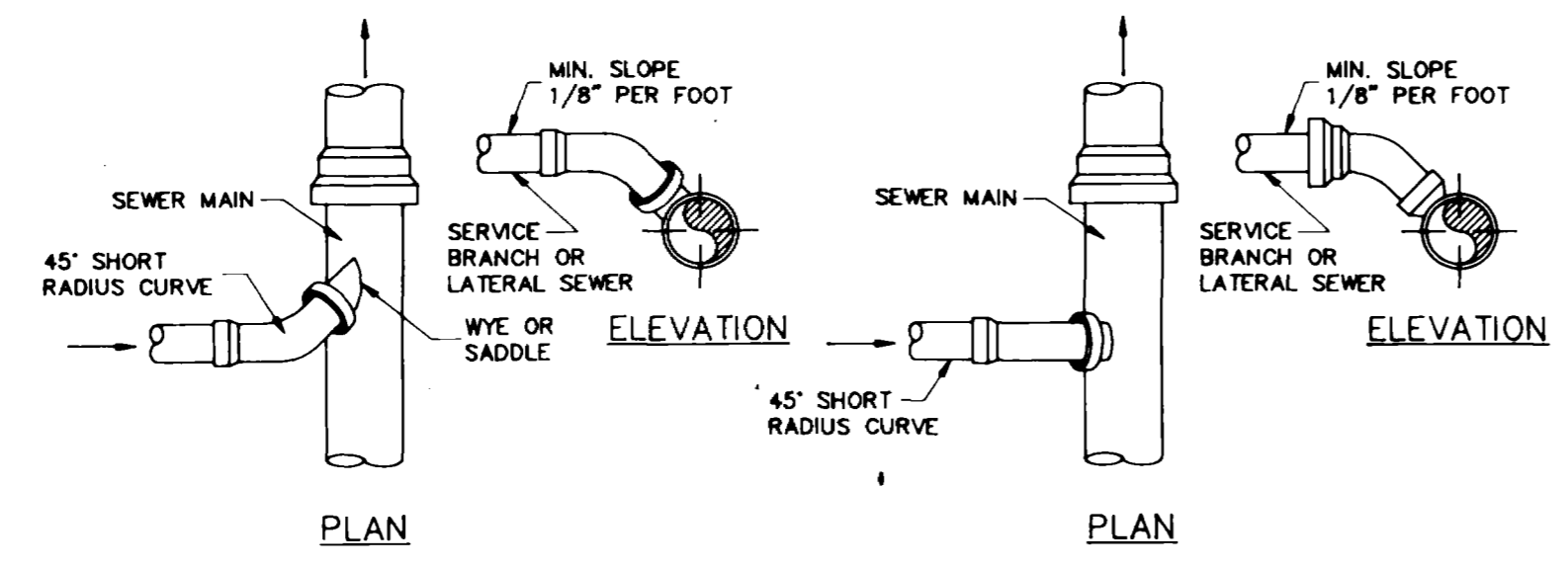
SEWER CLEANOUT



LAMP HOLE COVER
NTS

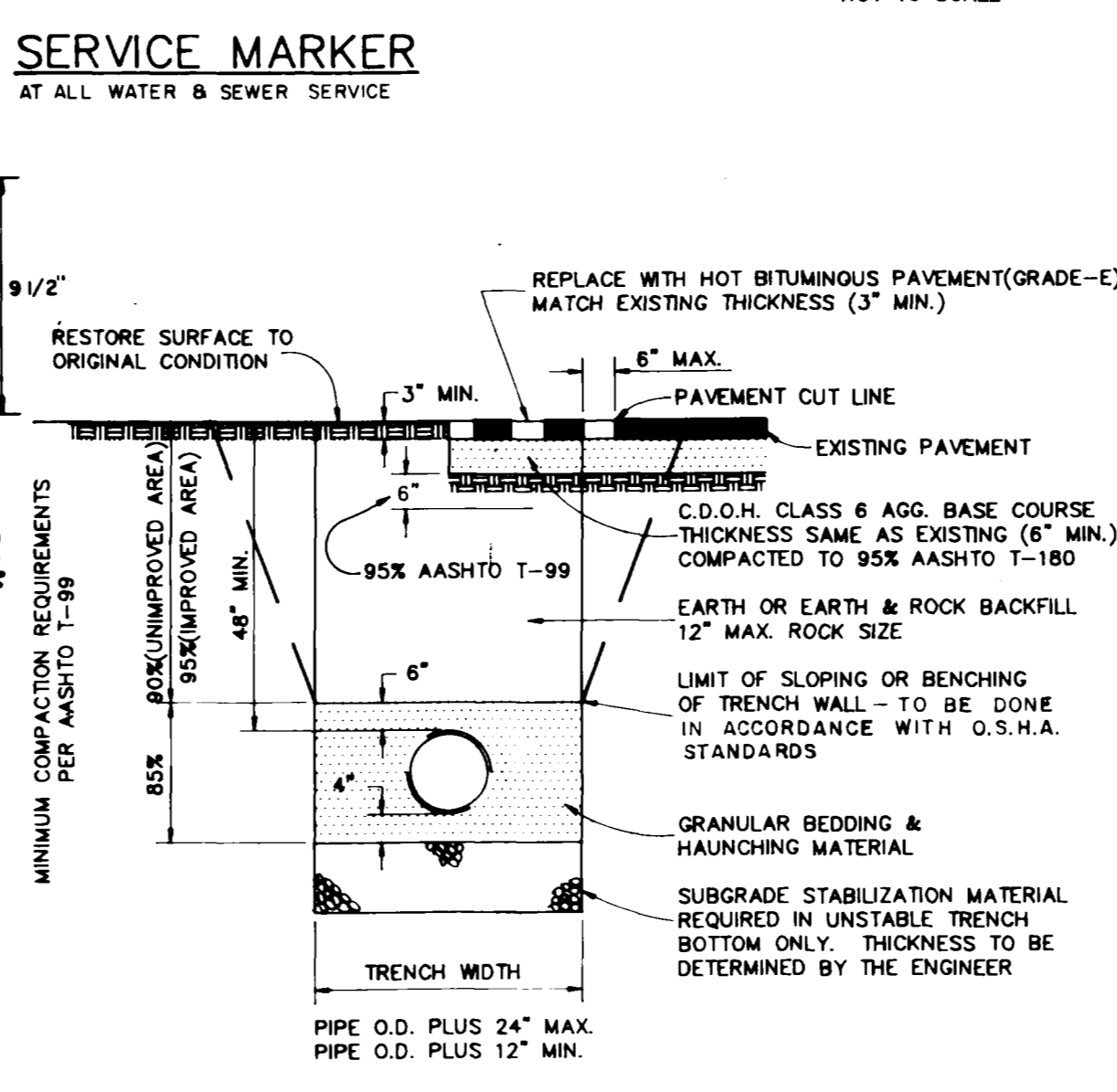


TYPICAL WATER SERVICE CONNECTION



"Y" TYPE
SEWER SERVICE CONNECTIONS

"T" TYPE
SEWER SERVICE CONNECTIONS

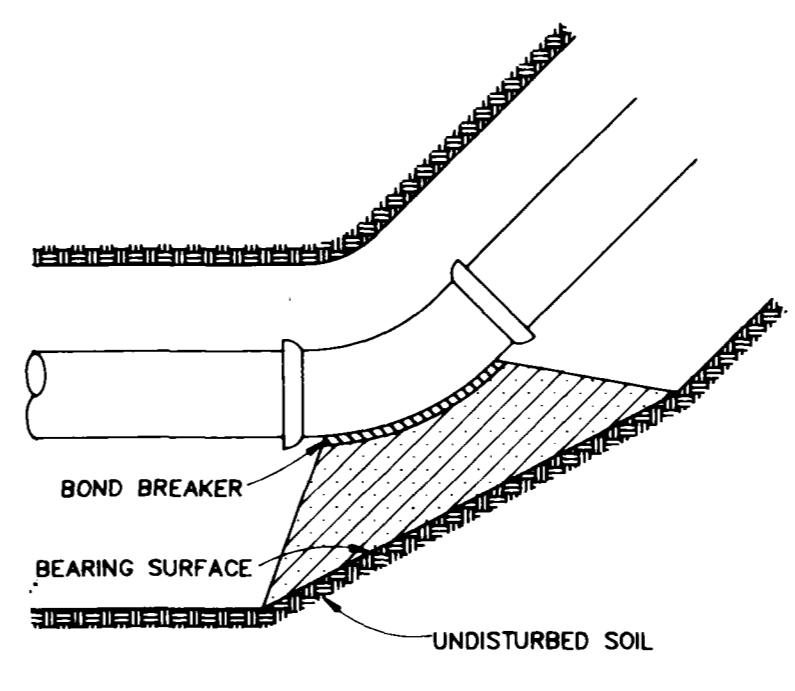


PERCENT BY WEIGHT PASSING SQUARE MESH SIEVES

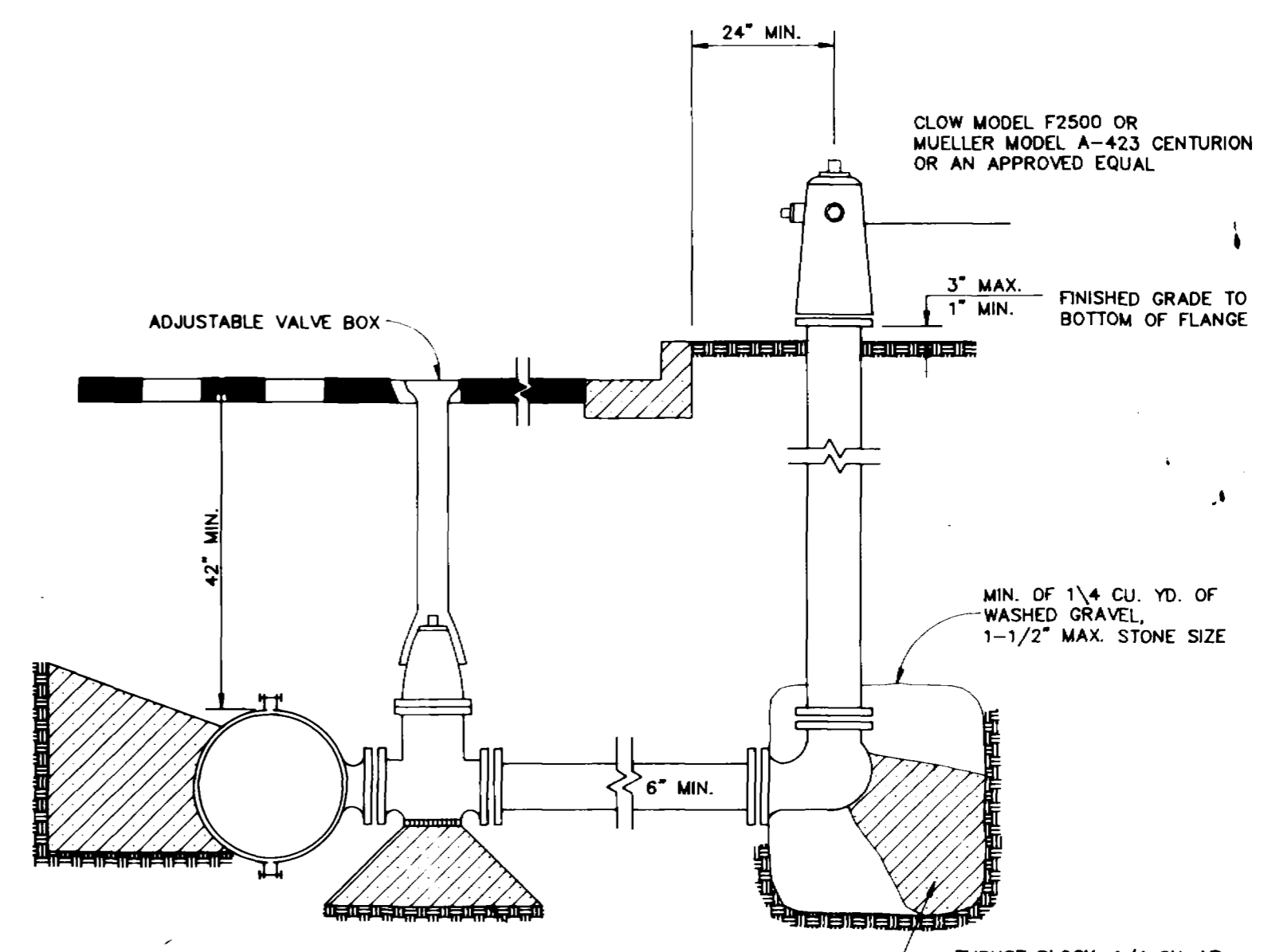
SIEVE SIZE	PIPE BEDDING & HAUNCHING MATERIAL (CRUSHED ROCK)	GRANULAR STABILIZATION MATERIAL (SCREENED OR CRUSHED ROCK)
2 INCH	100	100
1 INCH	100	100
3/4 INCH	90-100	---
3/8 INCH	20-55	---
NO. 4	0-10	---
NO. 8	0-5	---
NO. 200	20 MAX	20 MAX

ALL BACKFILL MATERIAL SHALL BE PLACED FULL WIDTH IN 12" MAX LIFTS AND COMPACTED TO THE MIN. RELATIVE DENSITIES SHOWN

TYPICAL TRENCH DETAIL FOR ALL UNDERGROUND CONDUIT



11 1/4", 22 1/2", 45", 90" BENDS
NOT TO SCALE



TYPICAL FIRE HYDRANT DETAIL
NOT TO SCALE

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Drawn: D. ERTZ
Checked: T. LOGUE
Approved:

UTILITY DETAILS