

ALLOWABLE SAFE LATERAL BEARING OF SOILS IN P.S.F.

| | |
|---------------------------------|-------|
| CLAY & PEAT | 0* |
| CLAY | 500 |
| SAND | 1,000 |
| SAND & GRAVEL | 1,500 |
| SAND & GRAVEL (EMBEDDED W/CLAY) | 2,000 |
| SHALE | 3,000 |

*USE TIE-ROD ANCHORS, WELDED JOINT FITTINGS, FLANGED FITTINGS OR TREATED TIMBER PILES W/CONC. THRUST BLOCKS

THRUSTS FOR VARIOUS FITTINGS AND TEST PRESSURES (THRUST IN POUNDS)

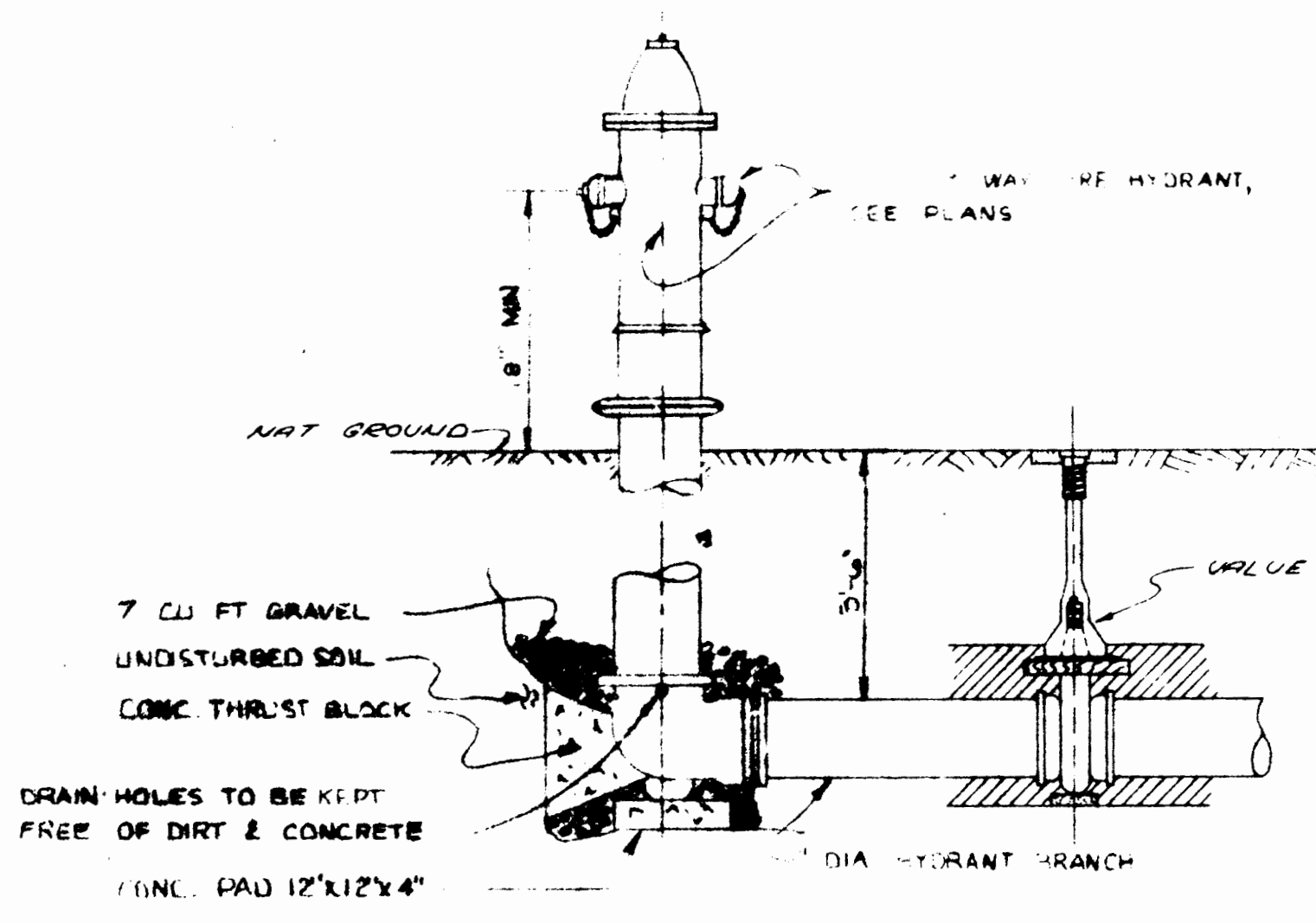
| PIPE SIZE | 90° HEADS | | | TEES & DEAD ENDS | | | 45° BENDS | | | 22 1/2° BENDS | | | 11 1/4° BENDS | | |
|-----------|-----------|--------|--------|------------------|--------|------|-----------|--------|------|---------------|--------|------|---------------|--------|--------|
| | 225# | 150# | 100# | 225# | 150# | 100# | 225# | 150# | 100# | 225# | 150# | 100# | 225# | 150# | 100# |
| 2" | 1,000 | 700 | 500 | 800 | 500 | - | 600 | 400 | - | 300 | - | - | 600 | 400 | - |
| 3" | 3,000 | 2,000 | 1,000 | 2,000 | 1,000 | - | 1,500 | 1,000 | - | 1,000 | 500 | - | 1,500 | 1,000 | 600 |
| 4" | 6,000 | 4,000 | 2,000 | 4,000 | 2,000 | - | 3,000 | 2,000 | - | 2,000 | 1,000 | - | 3,000 | 2,000 | 1,000 |
| 6" | 11,000 | 7,000 | 3,000 | 7,000 | 4,000 | - | 5,000 | 3,000 | - | 3,000 | 2,000 | - | 5,000 | 3,000 | 2,000 |
| 8" | 17,000 | 11,000 | 5,000 | 11,000 | 6,000 | - | 8,000 | 5,000 | - | 5,000 | 3,000 | - | 8,000 | 5,000 | 3,000 |
| 10" | 24,000 | 16,000 | 7,000 | 16,000 | 10,000 | - | 12,000 | 8,000 | - | 7,000 | 5,000 | - | 12,000 | 8,000 | 5,000 |
| 12" | 32,000 | 21,000 | 10,000 | 21,000 | 14,000 | - | 16,000 | 11,000 | - | 10,000 | 7,000 | - | 16,000 | 11,000 | 7,000 |
| 14" | 41,000 | 27,000 | 13,000 | 27,000 | 18,000 | - | 21,000 | 14,000 | - | 13,000 | 9,000 | - | 21,000 | 14,000 | 9,000 |
| 16" | 51,000 | 34,000 | 17,000 | 34,000 | 23,000 | - | 27,000 | 18,000 | - | 16,000 | 12,000 | - | 27,000 | 18,000 | 12,000 |
| 18" | 62,000 | 41,000 | 21,000 | 41,000 | 28,000 | - | 33,000 | 23,000 | - | 19,000 | 15,000 | - | 33,000 | 23,000 | 15,000 |

AREA OF THRUST BLOCK IN SQ FT DIVIDE APPROPRIATE THRUST BY ALLOWABLE SOIL BEARING. TEST PRESSURES SHALL BE AS INDICATED IN THE SPECIFICATIONS OR SPECIAL CONDITIONS. UNDER PRESSURE TESTING OF PIPE THE CONTRACTOR SHALL BE RESPONSIBLE FOR SELECTING THRUST BLOCKS OR ANCHORAGE FOR VARIOUS PIPE SIZE AND FITTINGS ACCORDING TO APPROPRIATE SOIL BEARING AND TEST PRESSURE. COST OF THRUST ANCHORAGE SHALL BE INCLUDED IN PRICE BID FOR FITTINGS OR PIPE.

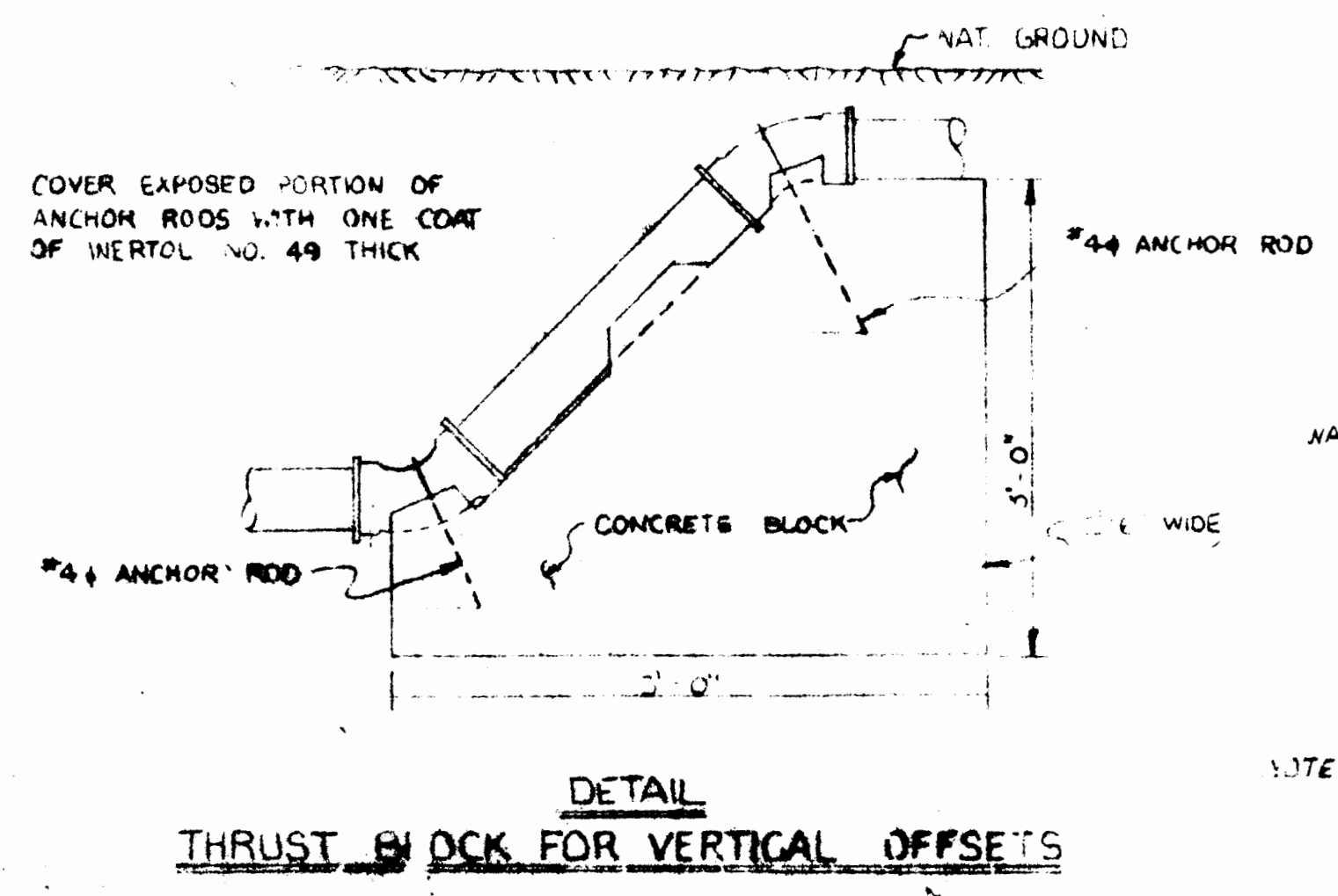
THRUST ANCHORAGE DATA

| MAXIMUM SIZE SERVICE STRAP CLAMP PERMITTED | | | | MAXIMUM SIZE TAP PERMITTED IN CAST IRON PIPE | |
|--|----------------|----------------------|-----------------|--|----------|
| PIPE SIZE (INCHES) | CAST IRON SIZE | ASBESTOS CEMENT SIZE | GALVANIZED SIZE | PIPE SIZE | TAP SIZE |
| 2" | - | - | 3/4" | 2" | 1/2" |
| 3" | 1/4" | - | 1" | 3" | 1/2" |
| 4" | 1/2" | - | 1 1/2" | 4" | 3/4" |
| 6" | 3/4" | 1" | - | 6" | 1" |
| 8" | 1" | 1 1/2" | - | 8" | 1 1/4" |
| 10" | 1 1/4" | 2" | - | 10" | 1 1/2" |
| 12" | 1 1/2" | 2 1/2" | - | 12" | 2" |

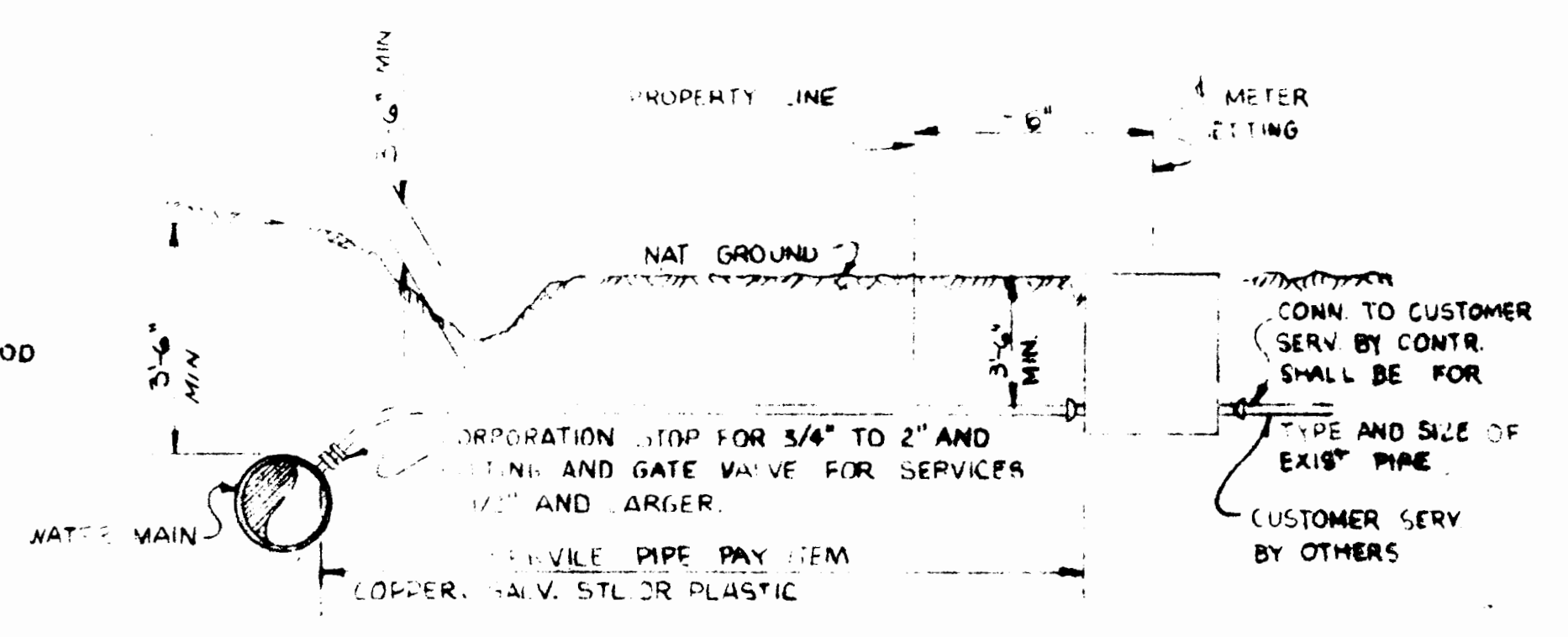
MAXIMUM TAP AND SERVICE CLAMP SIZES



TYPICAL DETAIL FOR FIRE HYDRANT INSTALLATION

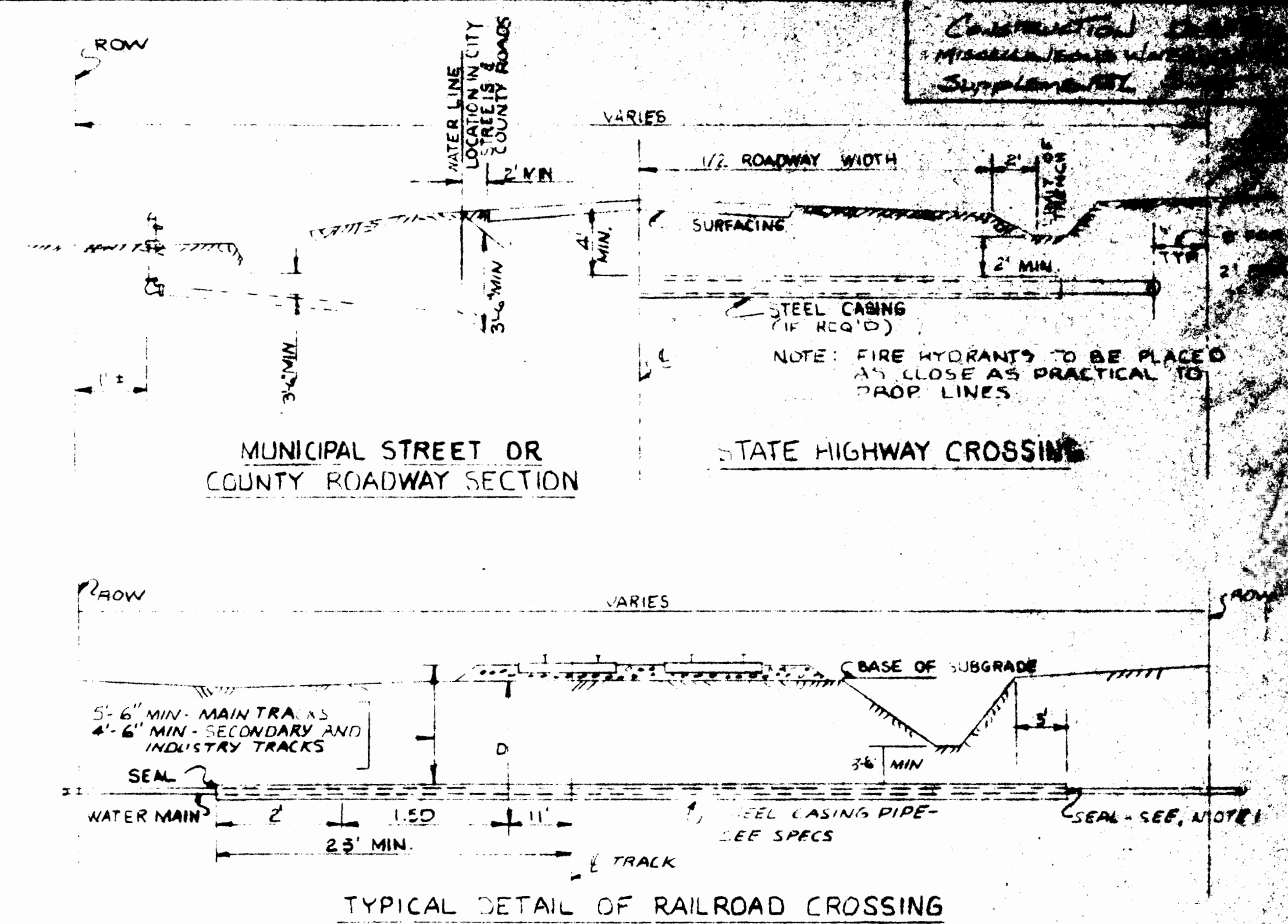


DETAIL THRUST BLOCK FOR VERTICAL OFFSETS



TYPICAL SERVICE ASSEMBLY

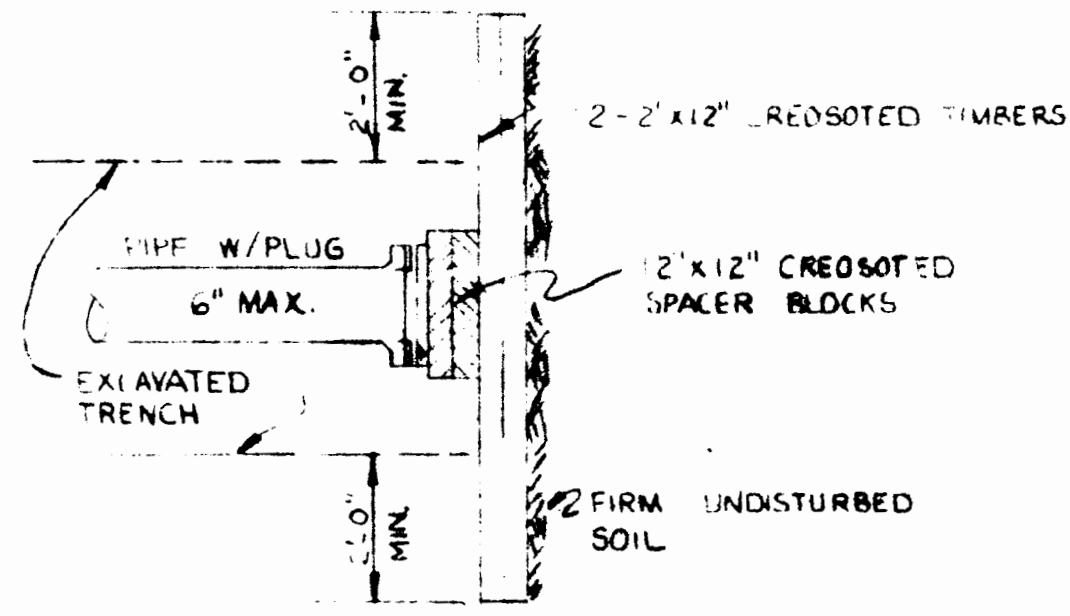
NOTE: 1. AVAILABLE ALTERNATE TO PLASTIC SERVICE TUBING (PVC) COMPRESSION COUPLINGS W/ INSERT, SHALL BE PROVIDED FOR 5/8" x 3/4" METEE 1 1/2" RIGID PVC SCHEDULE 40 W/ INCREASED COUPLINGS SHALL BE PROVIDED FOR 1" AND 1 1/4" METERS.



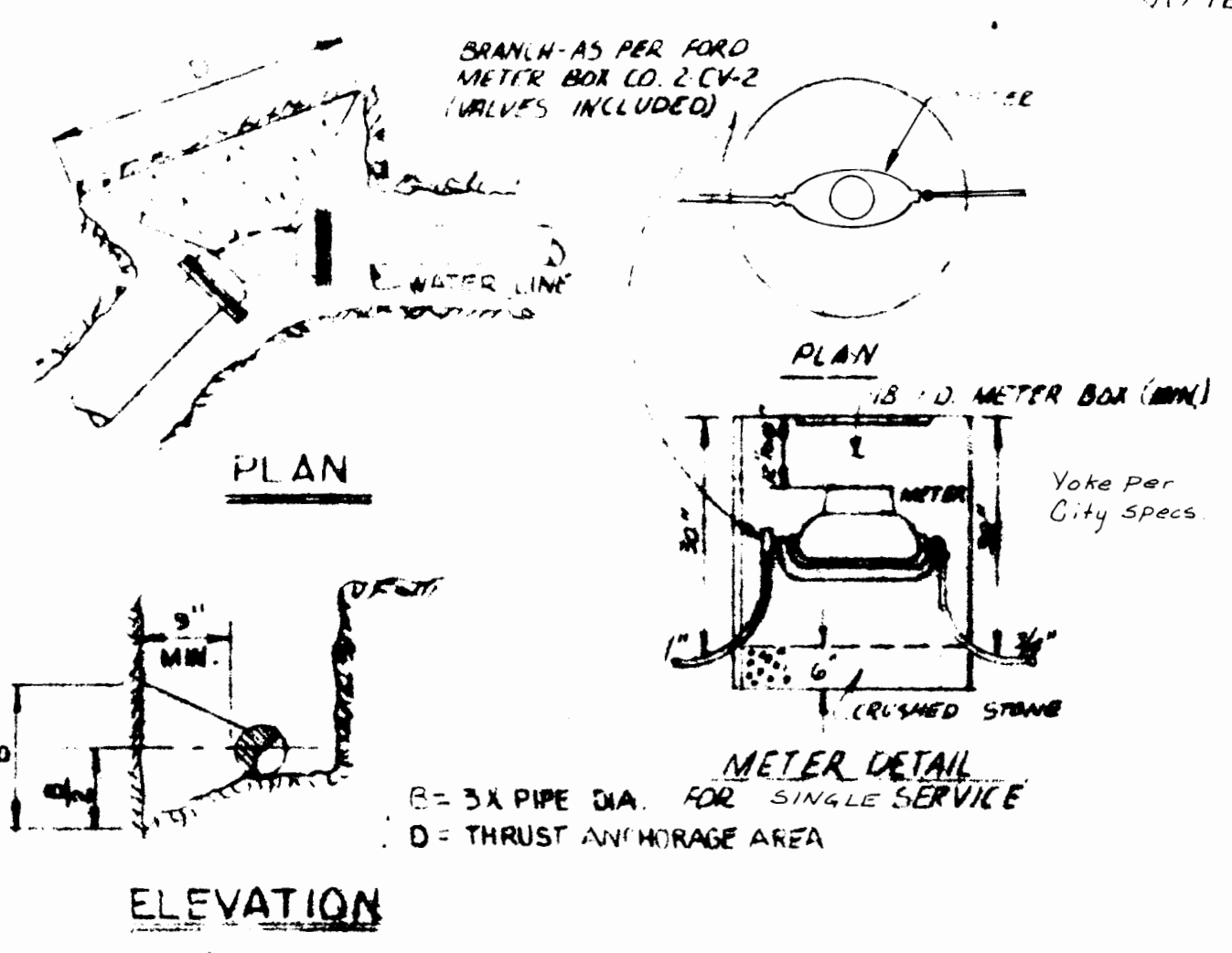
TYPICAL DETAIL OF RAILROAD CROSSING

- NOTES:
- SEAL NOT REQUIRED IF CASING ENDS ABOVE GROUND WHERE DRAINAGE IS AVAILABLE.
 - CASING TO BE JACKED AND BORED.
 - INSIDE DIAM. OF CASING TO BE A MIN. OF 2" GREATER THAN OUTSIDE DIA. OF CASING PIPE FOR 6" AND LESS DIA. CASING PIPES AND 4" GREATER FOR OVER 6" DIA. CASING PIPES.
 - CASING TO BE COATED IF AND AS REQ'D BY APPROVING RAILROAD. ALL CROSSINGS TO BE AT 90° TO TRACKS WHERE POSSIBLE.

NOTE: USE TIMBER THRUST BLOCK FOR TEMPORARY PILES ON 6" AND LESS PIPE DIA. FOR LARGER PIPE DIA. USE OTHER TYPE OF ANCHORAGE.



PLAN PLUG DETAIL



ELEVATION

DETAILS

THRUST BLOCK FOR HORIZONTAL OFFSETS

- NOTES:
- SPECIAL REQUIREMENTS FOR PLASTIC PIPE:
 - FOR 6" AND 8" P.V.C. PIPE TEES & CROSSES SHALL BE MECHANICAL JOINT CAST IRON FITTINGS.
 - FOR ALL SIZES OF P.V.C. PIPE ALL BENDS SHALL BE LONG RADIUS PLASTIC BENDS OR MECHANICAL JOINT CAST IRON.
 - FOR ALL SIZES OF P.V.C. PIPE, SCHEDULE 40 PLASTIC ADAPTERS SHALL BE PROVIDED FOR ALL VALVES, TEES, CROSSES & HYDRANTS.
 - FOR ALL SIZES OF P.V.C. PIPE ALL JOINTS SHALL BE RUBBER RING OR COUPLINGS WITH RUBBER RINGS.
 - SOLVENT WELDING IN THE FIELD WILL NOT BE PERMITTED. HOWEVER, JOINTS OR FITTINGS JOINTS OR FITTINGS WHICH ARE SOLVENT WELDED AT THE FACTORY ARE ACCEPTABLE.
 - SPECIAL REQUIREMENTS FOR SERVICE CONNECTIONS:
 - DOUBLE STRAP SERVICE SADDLES, SMITH-BLAIR 502 OR EQUAL, SHALL BE PROVIDED FOR P.V.C. PIPE THAT IS 4" OR SMALLER.
 - SPECIAL PLASTIC SADDLES, SMITH-BLAIR 502 OR EQUAL, SHALL BE PROVIDED FOR P.V.C. PIPE THAT IS 6" OR LARGER.
 - SINGLE STRAP SERVICE SADDLES, SMITH-BLAIR 511 OR EQUAL, SHALL BE PROVIDED FOR 1 1/2" TAPS ON CAST IRON PIPE THAT IS 6" OR LARGER.
 - CONCRETE DRIVEWAYS:
 - WHERE CONCRETE DRIVEWAYS ARE ENCOUNTERED ON STATE MAINTAINED HIGHWAYS, JACKING & BEARING WILL BE REQUIRED.
 - OPTIONS:
 - ASBESTOS-CEMENT COUPLINGS MAY BE UTILIZED FOR SERVICE CONNECTIONS FOR P.V.C. AND A.C. PIPE.
 - PLASTIC TEES W/ RUBBER RINGS MAY BE SUBSTITUTED FOR TAPPED TEES.