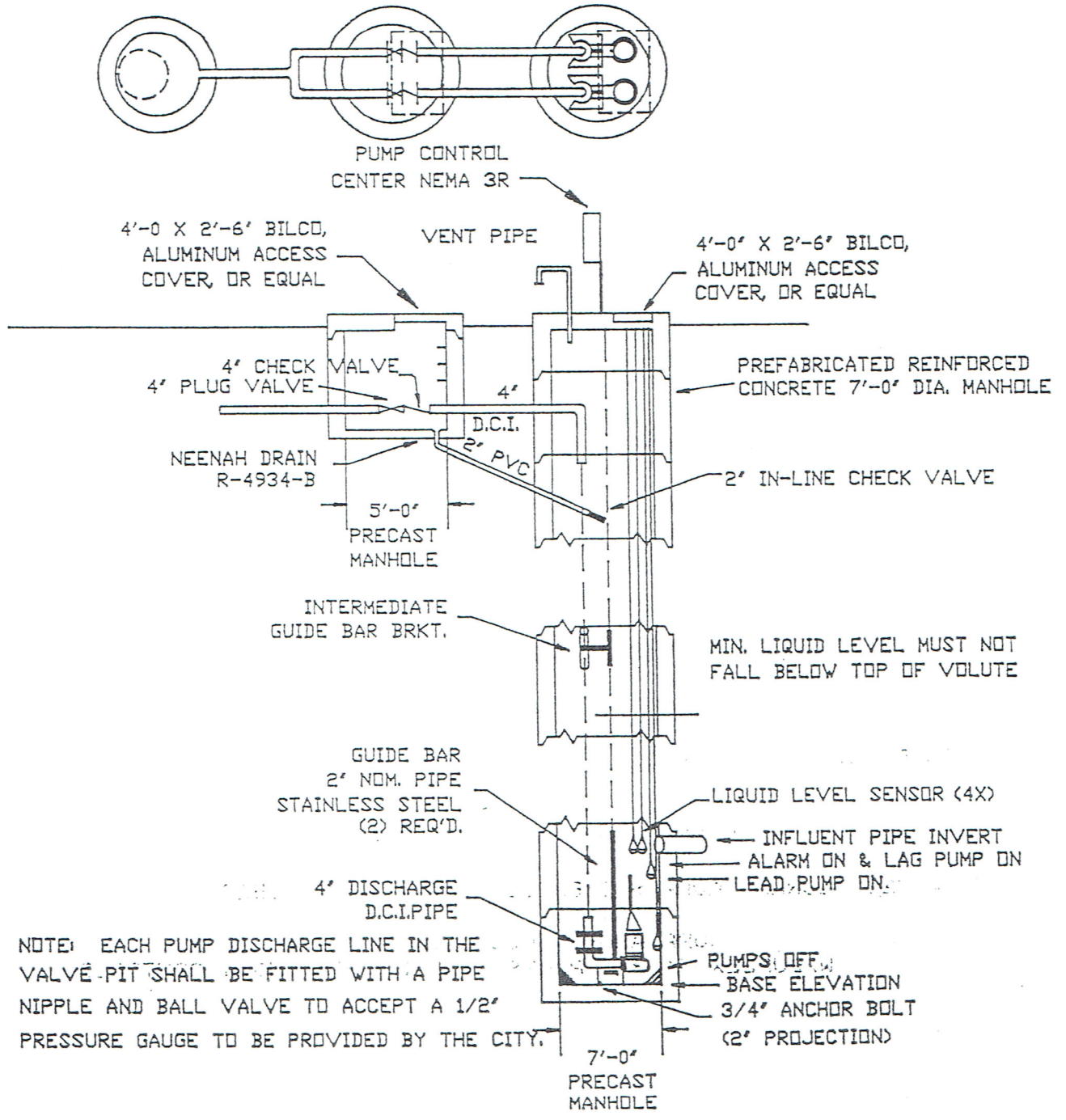


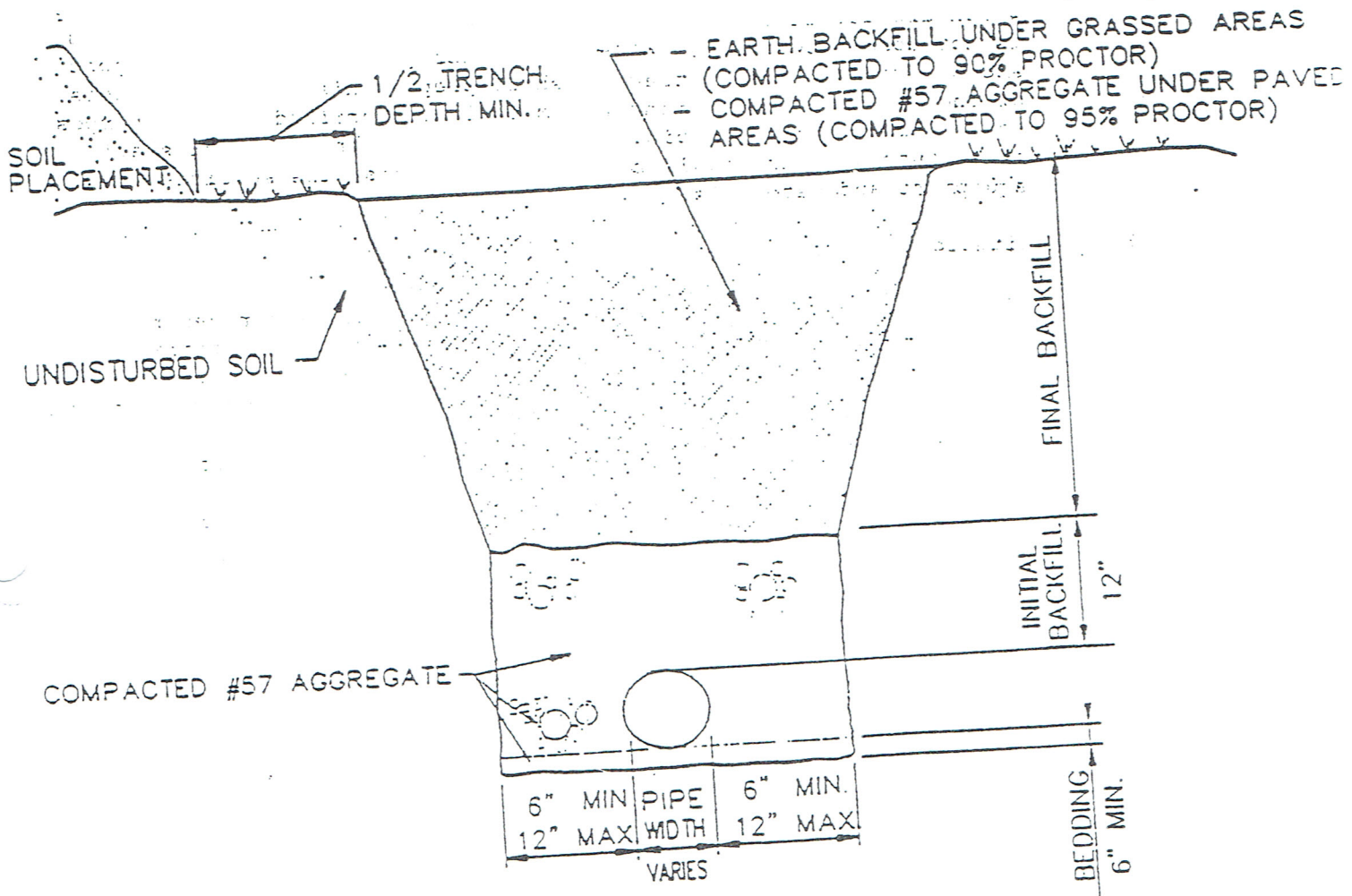
SPECIFICATIONS FOR SEWAGE LIFT STATION CITY OF WILMINGTON



DUPLEX PUMP STATION

SANITARY LINE TRENCH & BEDDING DETAIL

NO SCALE



TRENCH AND BEDDING NOTES:

- BELL HOLES SHALL BE PROVIDED AND THE TRENCH PREPARED SO THAT THE BARREL SEGMENT IS PROPERLY SUPPORTED THROUGHOUT ITS LENGTH.
- SLOPE TRENCH WALLS IN ACCORDANCE WITH OSHA STANDARDS 29 CFR PART 1926.
- COMPACTED GRANULAR MATERIAL SHALL BE #57 AGGREGATE IN ACCORDANCE WITH THE LATEST REVISION OF THE ODOT CONSTRUCTION & MATERIAL SPECIFICATIONS.
- THE TOP OF GRANULAR MATERIAL BACKFILL SHALL EXTEND 3 FEET BEYOND THE PAVEMENT EDGE WHERE THE TRENCH CROSSES PAVEMENT.
- COMPACTION OF HAUNCHING & INITIAL BACKFILL SHALL BE ACCOMPLISHED BY CAREFULLY PLACING THE GRAVEL AROUND THE PIPE AND HAND TAMPING FOR COMPACT

MONITORING MANHOLE SPECIFICATIONS

MANHOLE MUST BE WATERTIGHT

5 FEET INSIDE DIAMETER DURACRETE OR EQUAL

ALL MANHOLE SECTIONS IN ACCORDANCE WITH ASTM C-478-72

ALL MANHOLE JOINTS IN ACCORDANCE WITH ASTM C-443

TOP OF MANHOLE MUST EXTEND A MINIMUM OF 3 INCHES ABOVE
CURRENT GRADE

DOOR MUST BE BILCO J-4AL OR EQUAL

DIAMOND PATTERN LEAVES AND FRAMES OF ¼ INCH THICK
ALUMINUM. HINGES OF FORGED BRASS FITTED WITH STAINLESS
STEEL PINS. COMPRESSION SPRING OPENING WITH POSITIVE HOLD-
OPEN ARM THAT ENGAGES AUTOMATICALLY WHEN DOOR
REACHES FULL OPEN.

DOOR MUST PRECAST INTO CONCRETE TOP

STEPS MUST CONFORM WITH CITY OF WILMINGTON SPECIFICATIONS 900-6

ALUMINUM OR POLYPROPYLENE WITH DEFORMED STEEL
REINFORCEMENT

STEPS MUST BE SET 12 INCHES APART

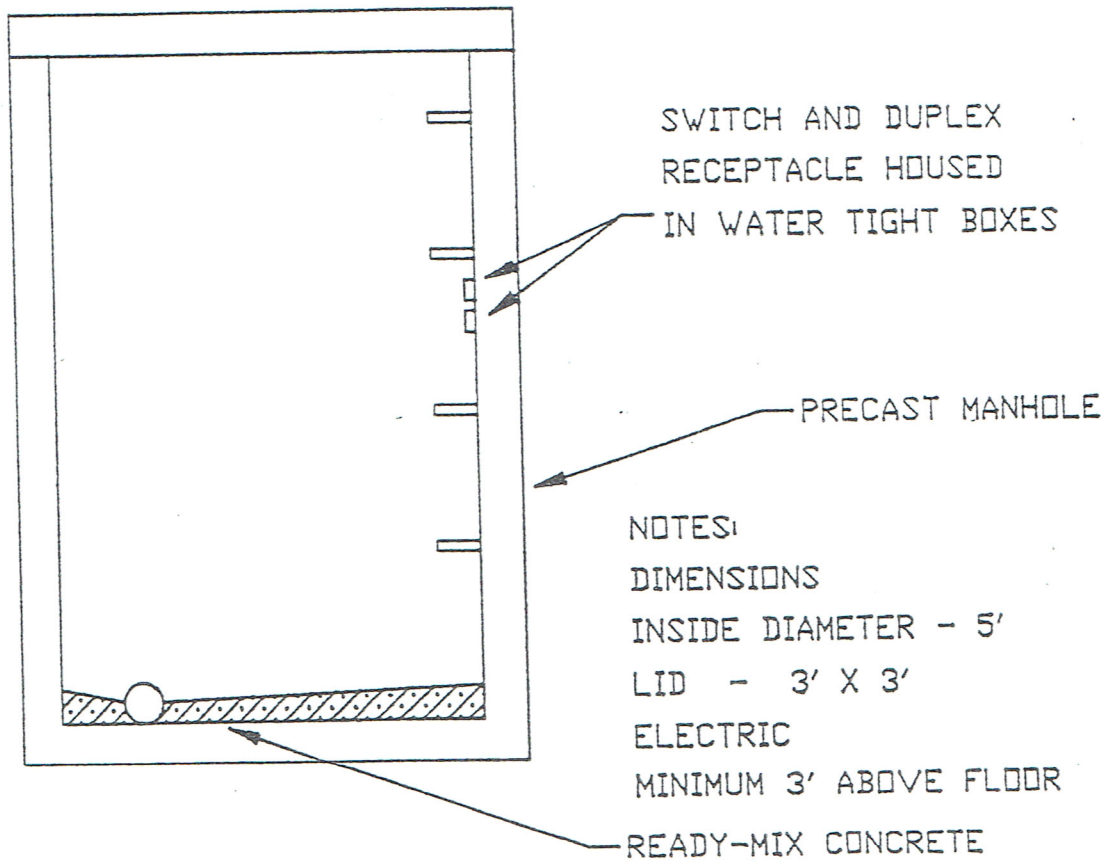
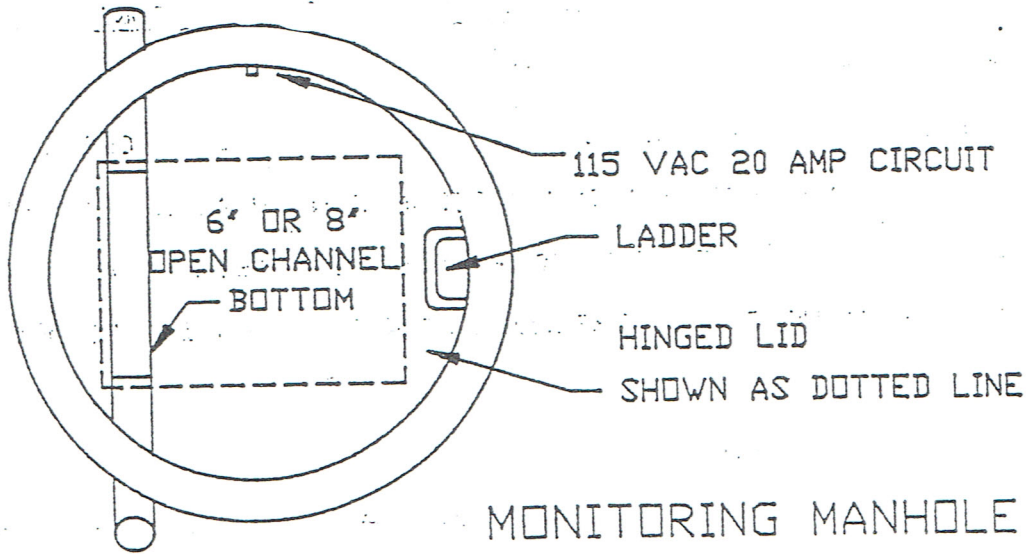
PIPING MUST BE OF PVC SDR 35

CONNECTORS MUST BE FERNCO FLEXIBLE COUPLER OR EQUAL
(#1002-66 PROVIDED EXISTING LINE IS 6 INCH CLAY PIPE)

CONSTRUCTION PRACTICES MUST CONFORM WITH CITY OF WILMINGTON
ENGINEER SPECIFICATIONS

6 TO 8 INCHES OF #57 STONE UNDER MANHOLE BASE.
#57 STONE FROM 6 INCHES UNDER TO 12 INCHES ABOVE PIPING

NOTE: SEE ATTACHED DRAWING FOR PLACEMENT OF LID, STEPS, &
CHANNEL.



TYPE "A" SANITARY MANHOLE

PIPE SIZE	T	D
18" & UNDER	5'	48"
21" & 24"	6'	60"

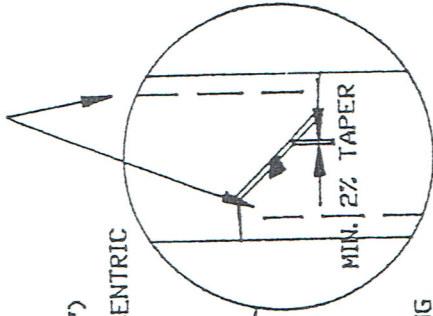
SEE STD. DRAWING FOR TYPICAL CONSTRUCTION AROUND MANHOLE

PAVEMENT

PRECAST ADJUSTING RING (MAX. ADJUSTMENT 12")

CONE SHALL BE CONCENTRIC OR ECCENTRIC AS DIRECTED BY THE ENGINEER

REINFORCING STEEL



"D" RING JOINT DETAIL

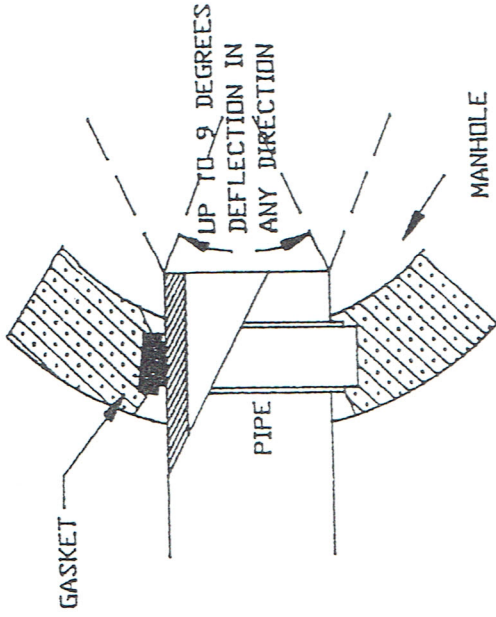
SEE STD. DRAWING FOR MANHOLE STEP DETAILS

NOTE: THE FLEXIBLE JOINTS SHOWN FOR PIPES 24" AND UNDER SHALL BE THE EQUAL OF "PRESS WEDGE II" AS MANUFACTURED BY PRESS SEAL GASKET CORPORATION OR "LINK SEAL" AS MANUFACTURED BY THE THUNDERLINE CORPORATION.

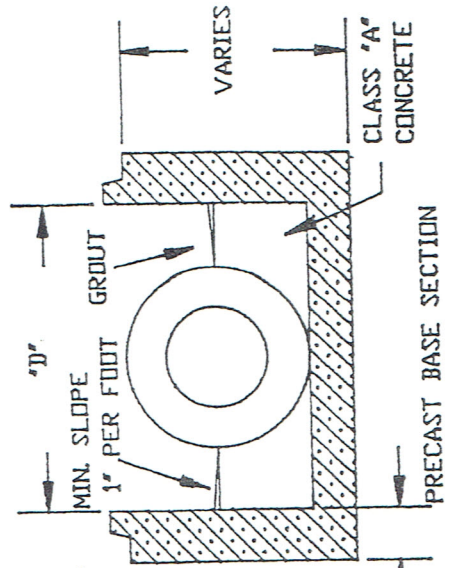
PRECAST RISER SECTION

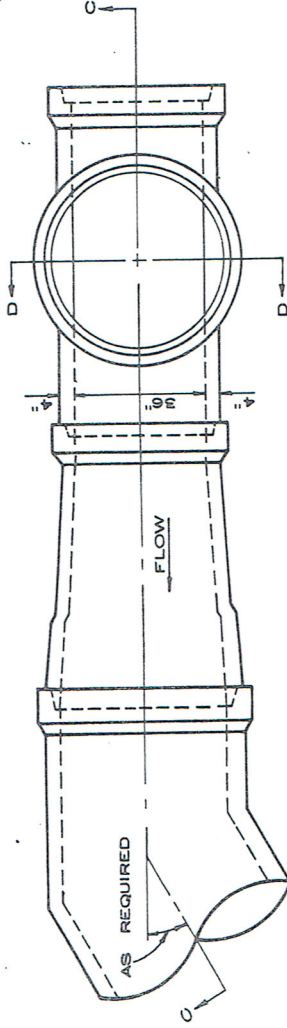
PRECAST BASE SECTION

CLASS "A" CONCRETE



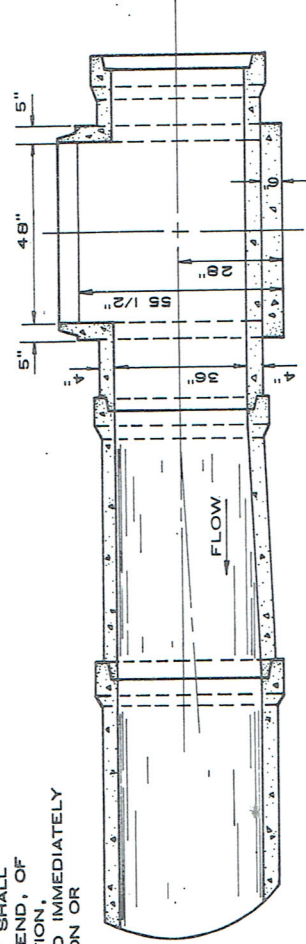
PRESS WEDGE OR MANUFACTURER'S EQUAL



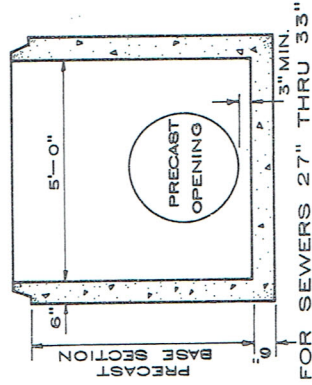
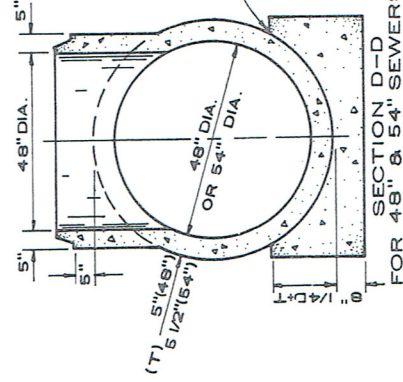
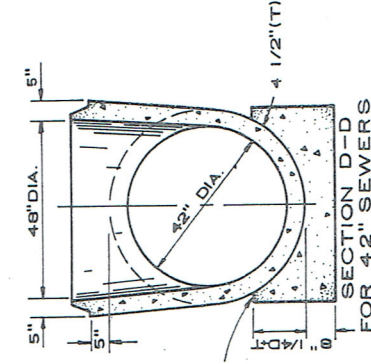


NOTE: CHANGES IN PIPE SIZES SHALL BE MADE BY INSTALLATION OF AN ECCENTRIC REDUCER. CHANGES IN ALIGNMENT SHALL BE MADE BY INSTALLATION OF A BEND, OF SUITABLE DIAMETER AND DEFLECTION, INSTALLED ON THE LOW SIDE AND IMMEDIATELY ADJACENT TO MANHOLE T-SECTION OR ECCENTRIC REDUCER.

PLAN



SECTION C-C

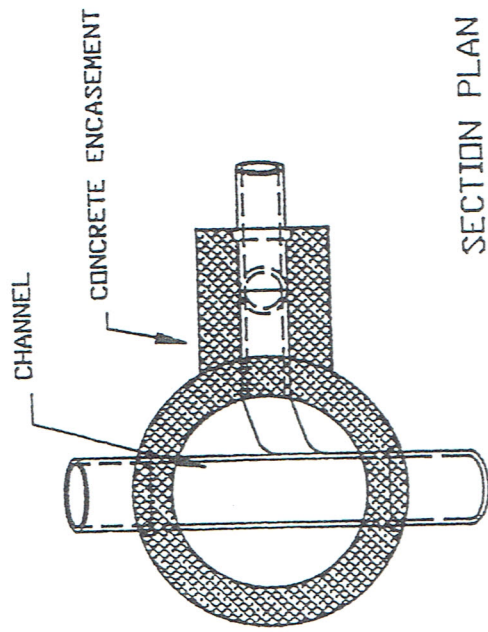


CONCRETE BEDDING

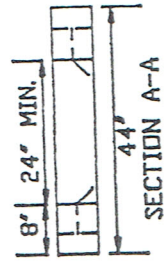
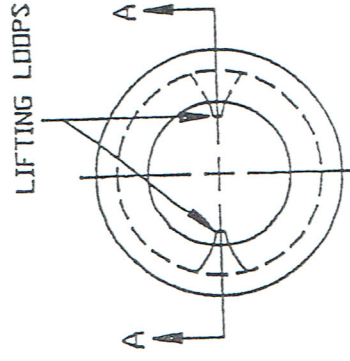
REINFORCING FOR CONCRETE BEDDING SHALL BE NO. 5 BARS @ 8" CENTERS, BOTH WAYS, 5" BELOW LOWERMOST DIMENSION OF THE "T" SECTION.

TYPE "B" SANITARY MANHOLE

TYPE "D" SANITARY MANHOLE AND PRECAST ADJUSTING RING



SECTION PLAN

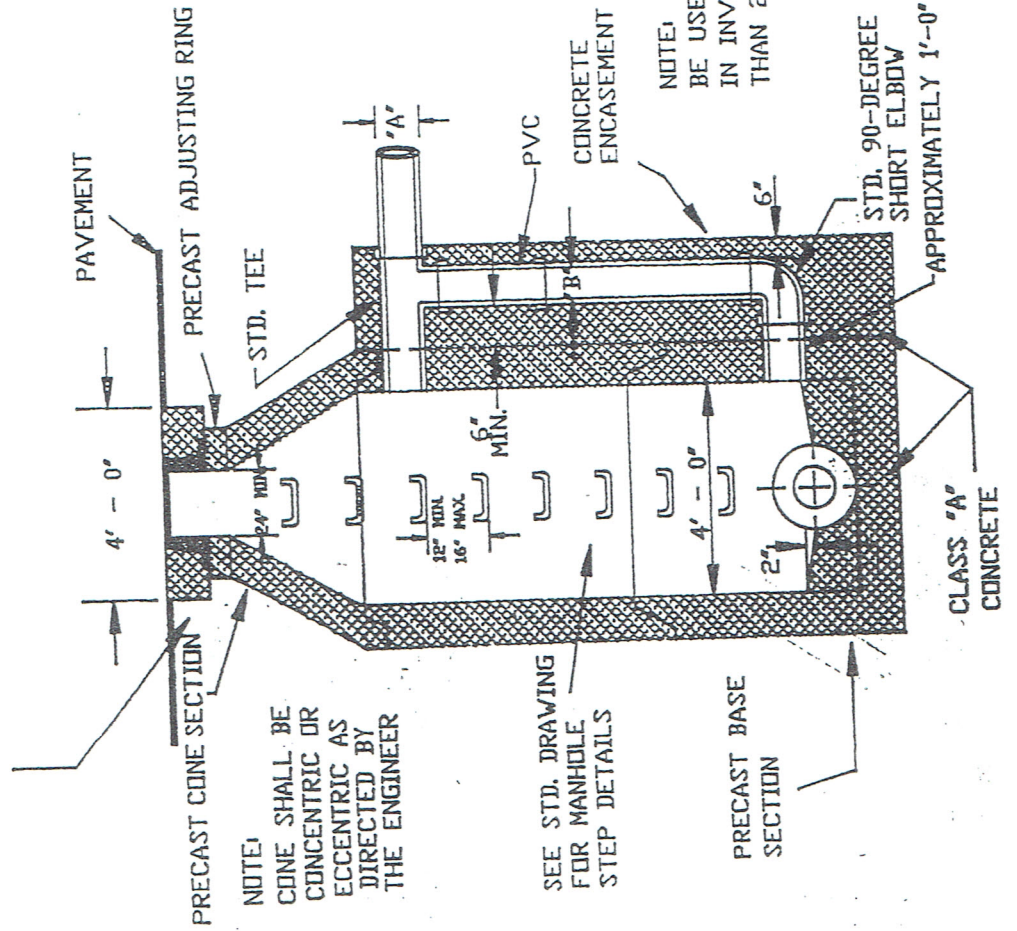


'A'	'B'
8', 10' & 12'	8"
15' & 18'	10"
21' & 24'	12"

DROP CONNECTION SCHEDULE

NOTE: TYPE "D" MANHOLE SHALL BE USED WHERE THE DIFFERENCE IN INVERT ELEVATIONS IS GREATER THAN 2' - 0".

SEE STD. DRAWING FOR TYPICAL CONSTRUCTION AROUND MANHOLE



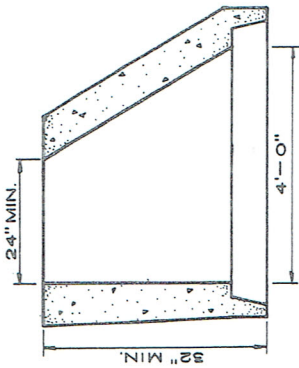
NOTE: CONE SHALL BE CONCENTRIC OR ECCENTRIC AS DIRECTED BY THE ENGINEER

SEE STD. DRAWING FOR MANHOLE STEP DETAILS

PRECAST BASE SECTION

CLASS "A" CONCRETE

PRECAST ADJUSTING RING



NOTE: ECCENTRIC CONE MAY BE USED IN PLACE OF CONCENTRIC CONE AT DIRECTION OF THE ENGINEER.

ECCENTRIC CONE

SEE STD. DRAWINGS FOR TYPICAL CONST. AROUND MANHOLE

PAVEMENT

PRECAST FLAT SLAB TOP

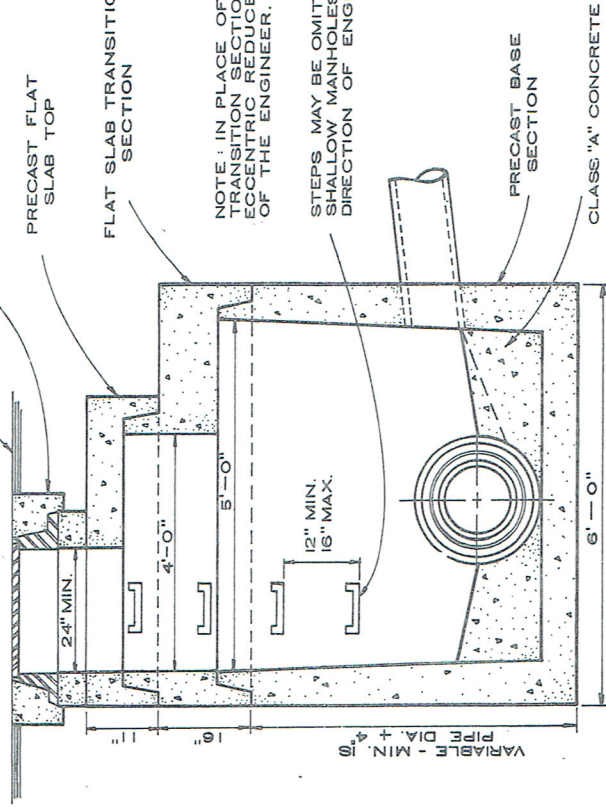
FLAT SLAB TRANSITION SECTION



PLAN

NOTE: IN PLACE OF FLAT SLAB TRANSITION SECTION, MAY USE ECCENTRIC REDUCER AT DIRECTION OF THE ENGINEER.

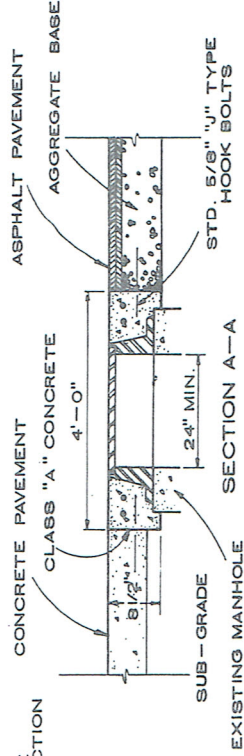
STEPS MAY BE OMITTED IN SHALLOW MANHOLES AT DIRECTION OF ENGINEER.



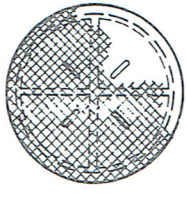
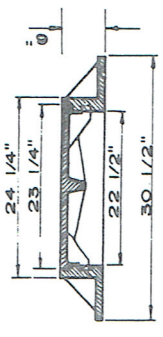
TYPE "E" MANHOLE

FOR SEWERS 21" DIA. AND LARGER
FOR SEWERS 18" AND SMALLER USE A STANDARD TYPE "A" MANHOLE BASE WITH A PRECAST FLAT SLAB TOP.

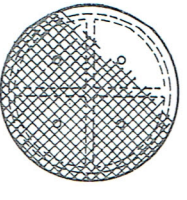
TYPICAL CONSTRUCTION AROUND MANHOLE



TYPE "E" SANITARY MANHOLE AND CONST. AROUND MANHOLE



NOTE: SANITARY MANHOLE FRAMES AND COVERS SHALL BE EQUAL OF NEENAH CATALOG NO. R-1767 OR EAST JORDAN IRON WORKS NO. 1600. WATERTIGHT MANHOLES SHALL BE THE EQUAL OF NEENAH CATALOG NO. R-1916 - D OR EAST JORDAN IRON WORKS NO. 1600 PT.

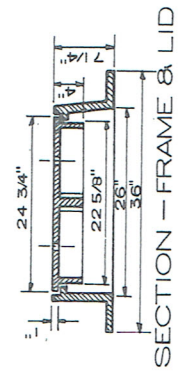


STANDARD LID

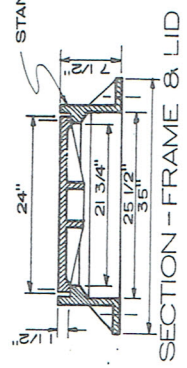
STANDARD BOLTED LID

ABS MANHOLE FRAME & LID

NOTE: ABS MANHOLE FRAME & LID SHALL BE EQUAL OF DEXOL CATALOG NO. DX-23-25. MAY BE USED INSTEAD OF STD. MANHOLE FRAME & LID FOR NON-TRAFFIC INSTALLATIONS.



SECTION - FRAME & LID

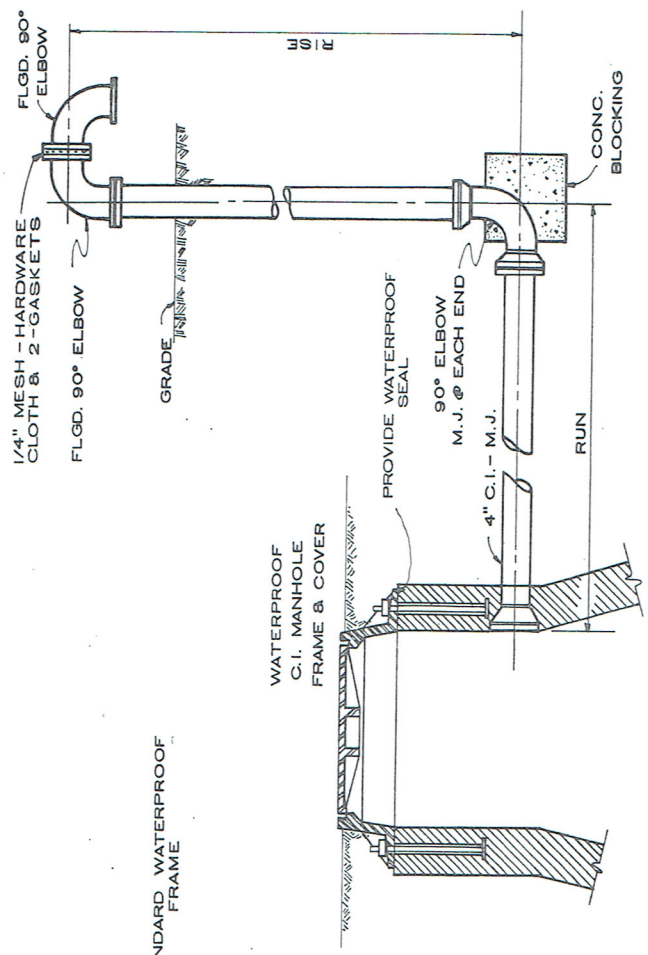


SECTION - FRAME & LID

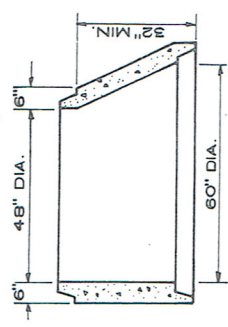
SANITARY MANHOLE FRAMES & LIDS

STANDARD WATERPROOF FRAME

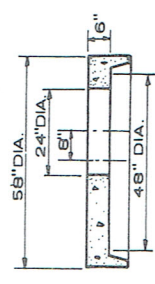
WATERPROOF C.I. MANHOLE FRAME & COVER



NOTE: ECCENTRIC REDUCER SHALL BE USED WHERE THE SECTION OF MANHOLE IS LARGER THAN 48" DIA. AND SHALL BE INSTALLED DIRECTLY ABOVE THE BASE SECTION.



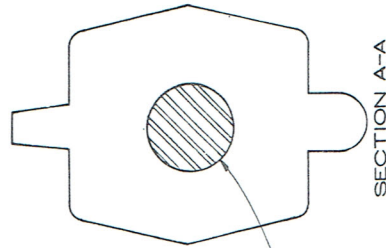
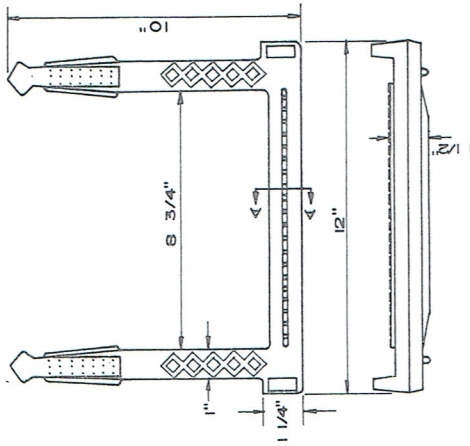
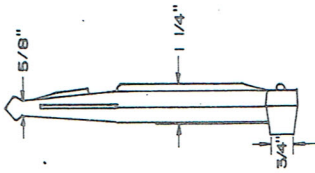
ECCENTRIC REDUCER



FLAT SLAB MANHOLE TOP FOR TYPE "E" MANHOLE

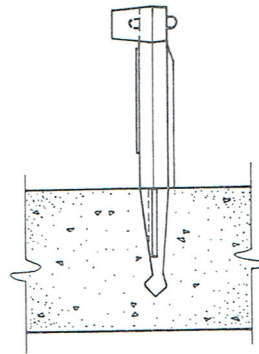
VENTED WATER TIGHT MANHOLE

SANITARY MANHOLE FRAMES AND LIDS
VENTED WATER TIGHT MANHOLE

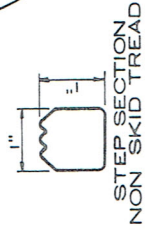
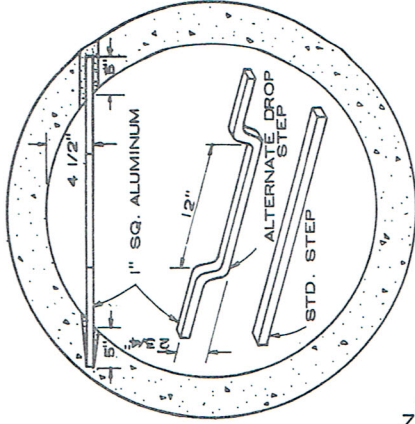


POLYPROPYLENE
PLASTIC STEP

NO. 3 DEFORMED
STEEL ROD

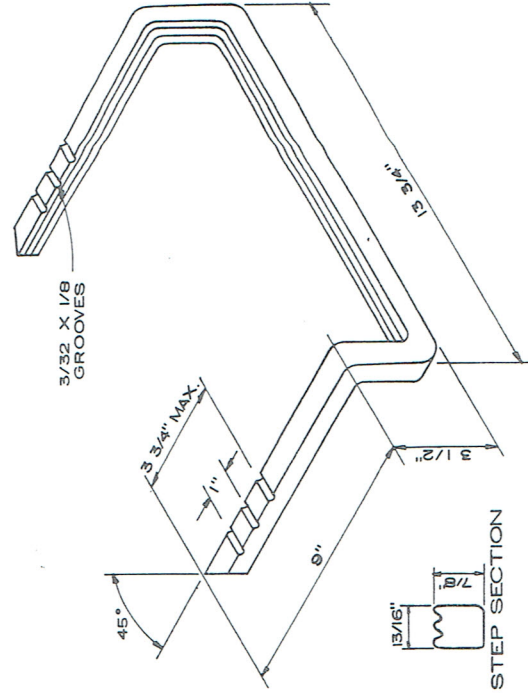


STEPS SHALL BE PLACED INTO
WET CONCRETE WALL DURING
MANUFACTURE OR MORTARED
INTO HOLES AFTER CONCRETE
HAS SET.



STANDARD SECTION
THRU MANHOLE

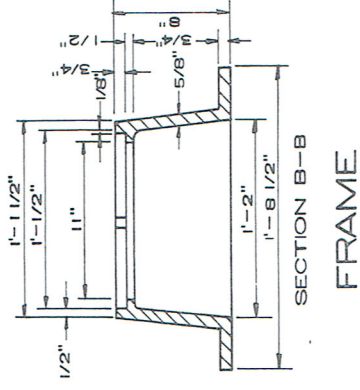
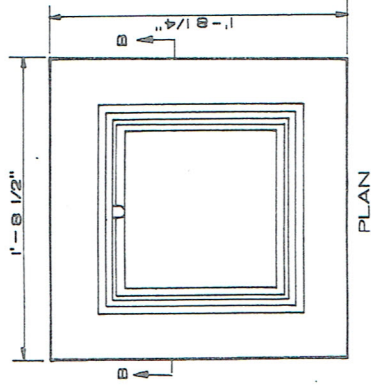
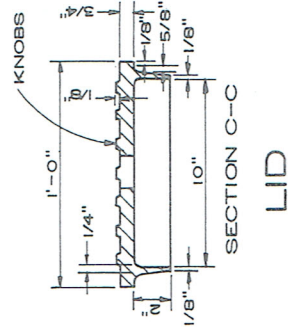
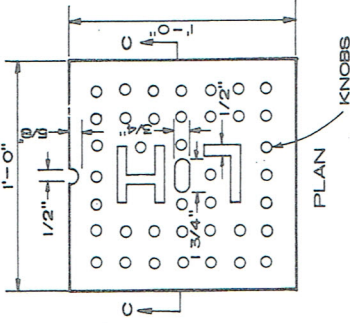
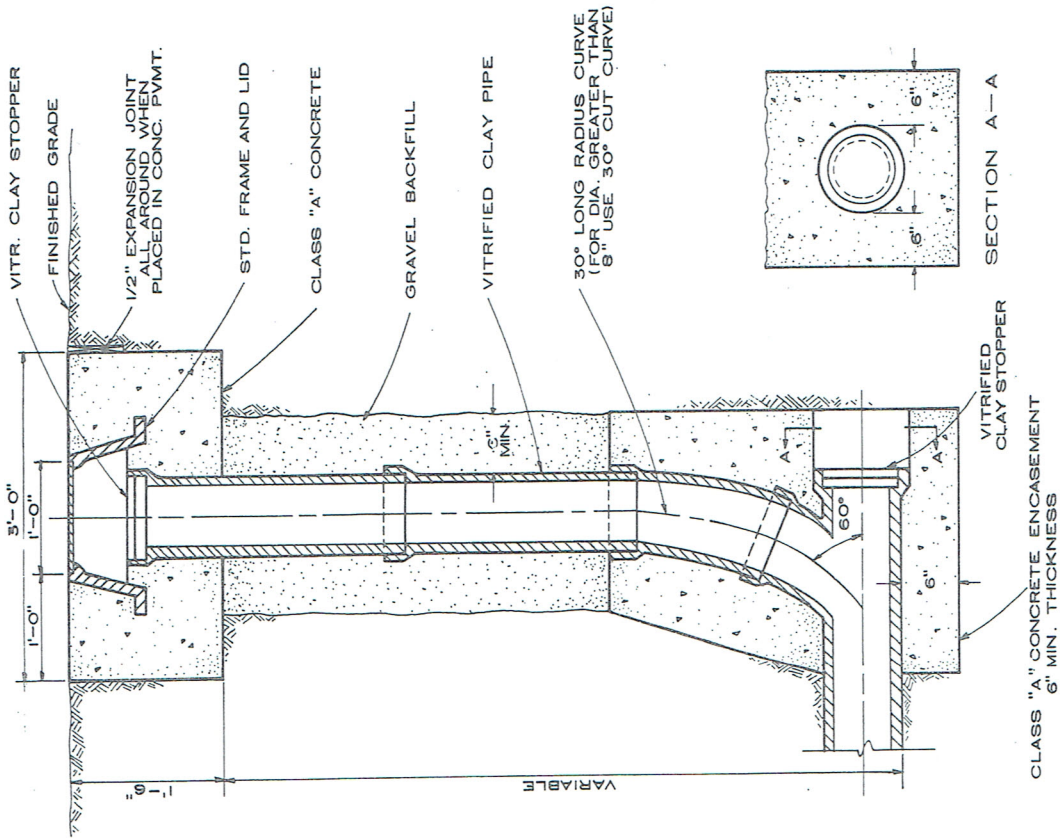
ALUMINUM BAR TYPE STEP



FORGED ALUMINUM STEP

MANHOLE STEPS

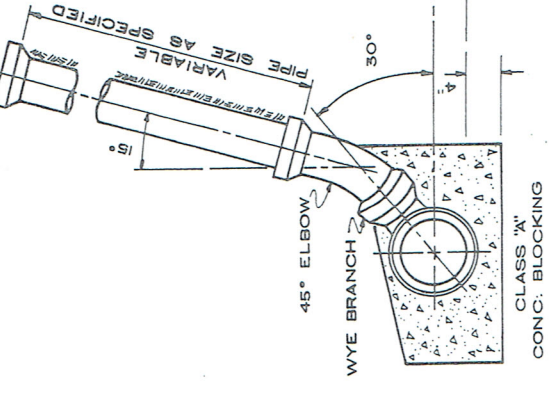
NOTE: LAMPHOLE FRAMES AND LIDS SHALL BE EQUAL OF NEENAH CATALOG NO. R-1675-B OR EAST JORDAN IRON WORKS NO. 3580.



LAMPHOLE AND CLEANOUT

LAMPHOLE AND CLEANOUT AND FRAMES AND LIDS

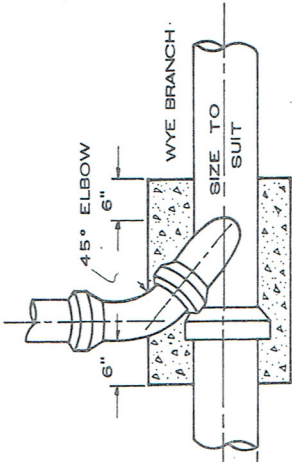
STOPPER IF NOT IMMEDIATELY PLACED IN SERVICE



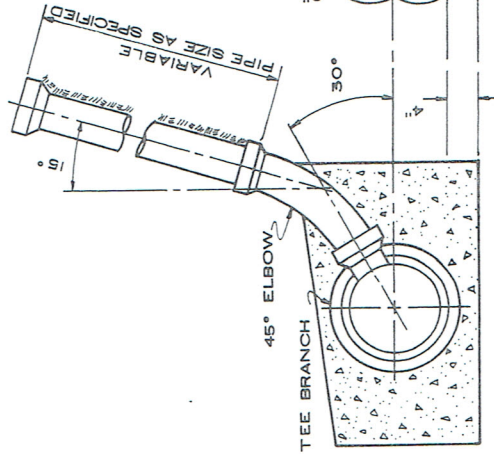
CLASS "A"
CONC. BLOCKING

NOTE: RISER PIPE TO BE BEDDED SOLIDLY AGAINST UNDISTURBED GROUND. ALSO TEE MAY BE SUBSTITUTED FOR WYE BRANCH IF SPECIFIED.

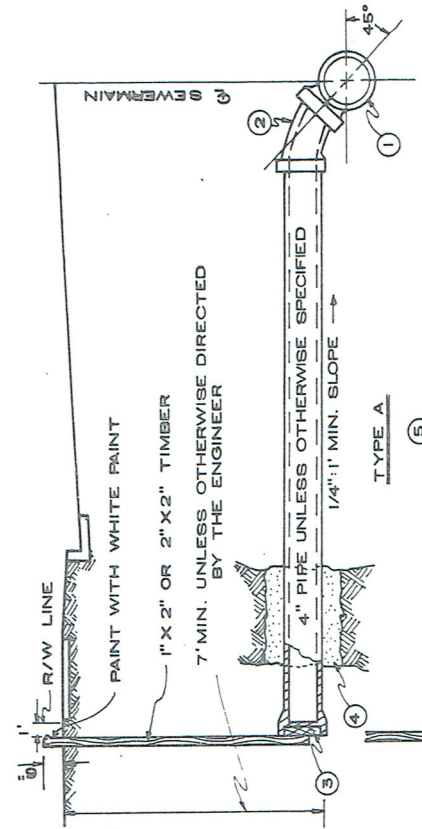
RISER PIPE TO BE INSTALLED SO THAT CONNECTING SERVICE SHALL HAVE A MINIMUM DEPTH OF 7 FEET AT THE PROPERTY LINE UNLESS A GREATER DEPTH IS DIRECTED. IF SANITARY SERVICES ARE SPECIFIED THEY SHALL BE A MINIMUM OF 7 FEET DEEP AT THE PROPERTY LINE UNLESS DIRECTED TO BE AT A GREATER DEPTH.



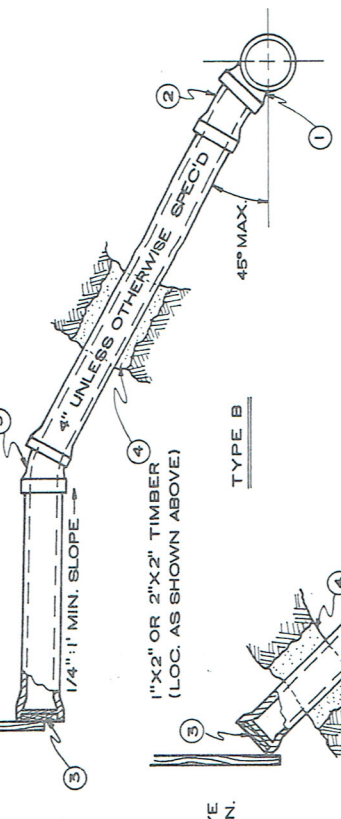
NOTE: SADDLE MAY BE USED WHERE A TEE OR WYE IS NOT PRESENT FOR LATERAL CONNECTION.



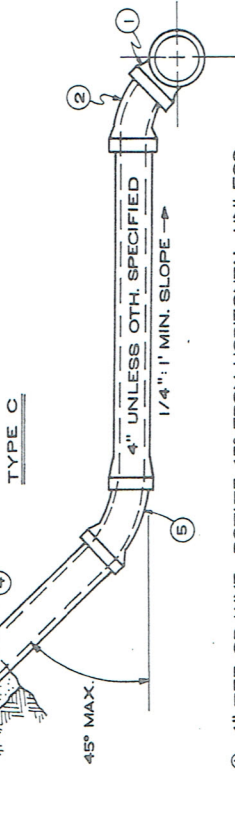
NOTE: CONCRETE BLOCKING REQUIRED IF DEPTH OF CONNECTION IS 12' OR GREATER.



TYPE A



TYPE B



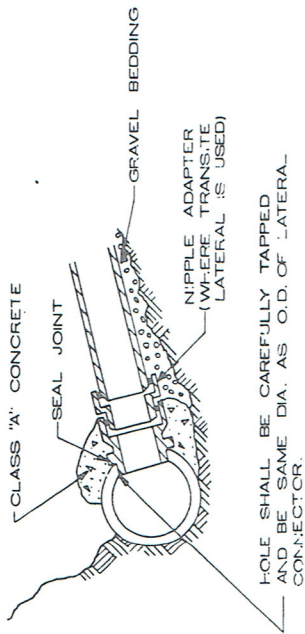
TYPE C

- ① TEE OR WYE - ROTATE 45° FROM HORIZONTAL UNLESS OTHERWISE SPECIFIED.
- ② 4" 1/8 BEND OR 1/16 BEND AS NEEDED.
- ③ CAP UNLESS JOINING EXISTING HOUSE CONNECTION
- ④ BED PIPE WITH 4" GRANULAR MATERIAL AND BACK-FILL WITH GRANULAR MATERIAL TO 4" ABOVE PIPE.
- ⑤ EXACT RECORD OF BEND LOCATIONS MUST BE MADE, AS TO DEPTH FROM SURFACE AND DISTANCE FROM 1/4" OF SEWER, BEFORE BACKFILL IS PLACED.

SERVICE RISER

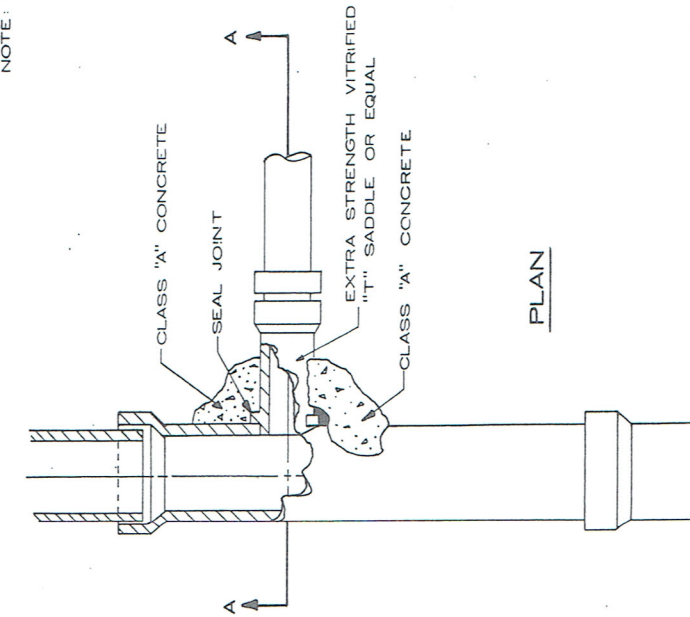
HOUSE CONNECTION

SERVICE RISER AND HOUSE CONNECTION



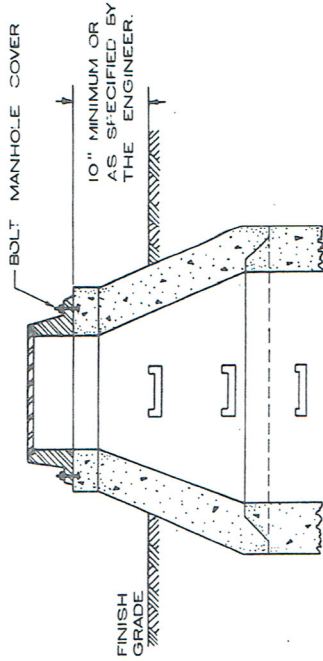
SECTION A-A

NOTE: SADDLE TO BE USED WHERE WYE IS NOT PRESENT FOR LATERAL CONNECTION.



PLAN

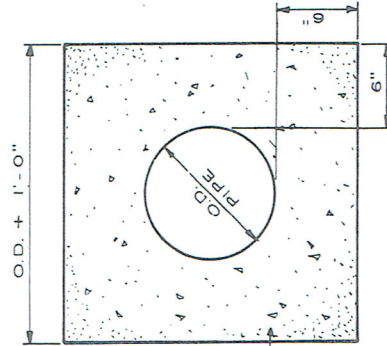
SADDLE DETAIL



OFF-ROAD
MANHOLE CONSTRUCTION

CONCRETE QUANTITIES

(IN.) DIA.	CY / LF
4	0.07
6	0.08
9	0.10
10	0.11
12	0.13
14	0.14
16	0.16
18	0.18
20	0.20
24	0.23



NOTE: O.D. OF PIPE SHOWN IS THAT OF PIPE BARREL ONLY.

CONCRETE ENCASEMENT
DETAIL

MISCELLANEOUS SANITARY DETAILS