

PART 3
THE METROPOLITAN DISTRICT
WATER SERVICE AND MAIN INSTALLATION DETAILS
INDEX

The Water Service and Main Installation Details included in this manual are intended to exhibit District approved installation for the various sized water services and their appurtenances. If deviations from the prescribed installation are necessary, approval must be obtained from the District prior to the installation. The attached details are intended to supplement and amplify the District's Material Standards.

THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS



FIGURE INDEX

FIGURE-1	WATER RECORDS SYMBOLS
FIGURE-2	GATE OPERATION
FIGURE-3	TYPICAL ROAD CROSS SECTION
FIGURE-4	TYPICAL WATER MAIN TRENCH
FIGURE-5	TYPICAL COPPER WATER SERVICE
FIGURE-6	TYPICAL DETAIL COPPER SERVICE OFFSET
FIGURE-7	TRENCH REQUIREMENTS FOR 1 INCH TO 2-INCH SERVICE TAPS
FIGURE-8	TRENCH REQUIREMENTS FOR MAKING 4 INCH TO 12 INCH TAP ON WATER MAIN
FIGURE-9	1" SERVICE TAP ON HORIZONTAL CENTER LINE
FIGURE-10	1" SERVICE TAP OFF HORIZ. CENTER LINE & ALL 1 1/2" & 2" TAPS
FIGURE-11	SERVICES 4" THROUGH 8"
FIGURE-12	STANDARD SERVICE CURB BOX
FIGURE-13	TYPICAL GATE VALVE INSTALLATION 12" & SMALLER
FIGURE-14	STANDARD GATE BOX DWYER TYPE
FIGURE-15	CAST IRON GATE BOX TOP SECTION (DWYER TYPE)
FIGURE-16	CAST IRON GATE BOX BOTTOM SECTION SIZE 8" (DWYER TYPE)
FIGURE-17	CAST IRON GATE BOX BOTTOM SECTION SIZE 10" (DWYER TYPE)
FIGURE-18	CAST IRON GATE BOX COVER (DWYER TYPE)
FIGURE-19	TYPICAL GATE BOX EXTENSION INSTALLATION
FIGURE-20	GATE BOX EXTENSION
FIGURE-21	GATE BOX EXTENSION SPACER RINGS
FIGURE-22	GATE NUT EXTENSION STEM FOR GATE BOX INSTALLATION
FIGURE-23	EXTENSION STEM & BRACKET IN MANHOLE
FIGURE-24	FIRE HYDRANT ASSEMBLY TYPICAL RODDING INSTALLATION
FIGURE-25	FIRE HYDRANT ASSEMBLY TYPICAL RETAINING GLAND INSTALLATION
FIGURE-26	FIRE HYDRANT ASSEMBLY TYPICAL HYDRANT TEE INSTALLATION WITH LACING RODS
FIGURE-27	SPECIAL SWIVEL M.J. HYDRANT TEE
FIGURE-28	TYPICAL RESTRAINED JOINTS
FIGURE-29	MECHANICAL JOINT LACING DETAIL
FIGURE-30	TYPICAL OFFSET
FIGURE-31	CONCRETE THRUST BLOCKS
FIGURE-32	PERMANENT WATER PIPE SUPPORT FOR MAINS 12" AND SMALLER
FIGURE-32A	PERMANENT WATER PIPE SUPPORT FOR MAINS 16" AND LARGER
FIGURE-33	STANDARD MANHOLE
FIGURE-34	STANDARD MANHOLE FRAME & COVER
FIGURE-35	PRECAST METER PIT (1 1/2" TO 2" SERVICE)
FIGURE-36	4'x4' PRECAST METER PIT 1 1/2" TO 2" SERVICE
FIGURE-37	PRECAST METER PIT 6'x4'x6' FOR 2" THROUGH 4" METERS
FIGURE-38	PRECAST METER PIT 5'x10'x6' FOR 4" & LARGER METERS & COMBINED SERVICES
FIGURE-39	5'x10'x6' COMBINED METER PIT
FIGURE-40	ALUMINUM HATCHWAY FOR PRECAST PITS
FIGURE-41	LIGHT DUTY MANHOLE FRAME & COVER FOR METER PIT
FIGURE-42	PRECAST FLAT SLAB METER PIT TOP
FIGURE-43	OUTSIDE METER BOX FOR 1" SERVICE 5/8"x3/4" TO 1" METER
FIGURE-44	TYPICAL METER INSTALLATION WITH BY-PASS REQUIRED ON 1 1/2" SERVICES & LARGER WITHIN BUILDINGS

THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS

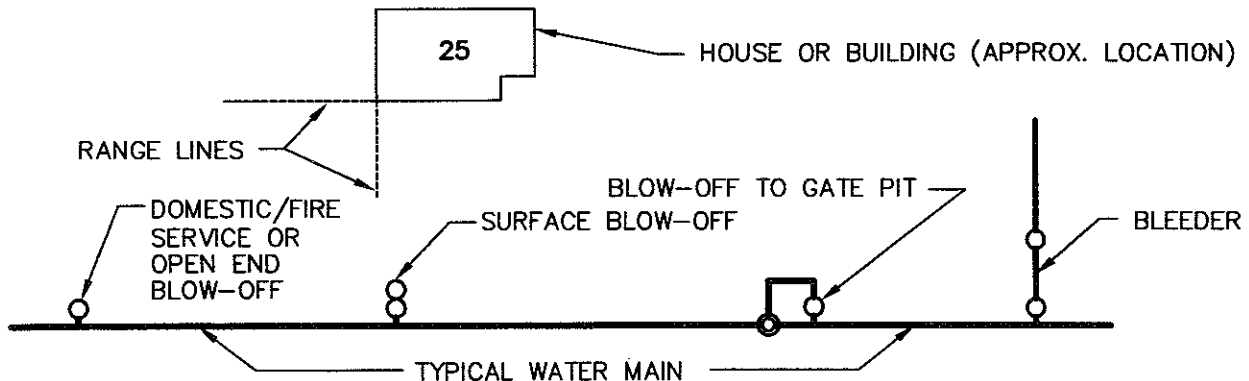
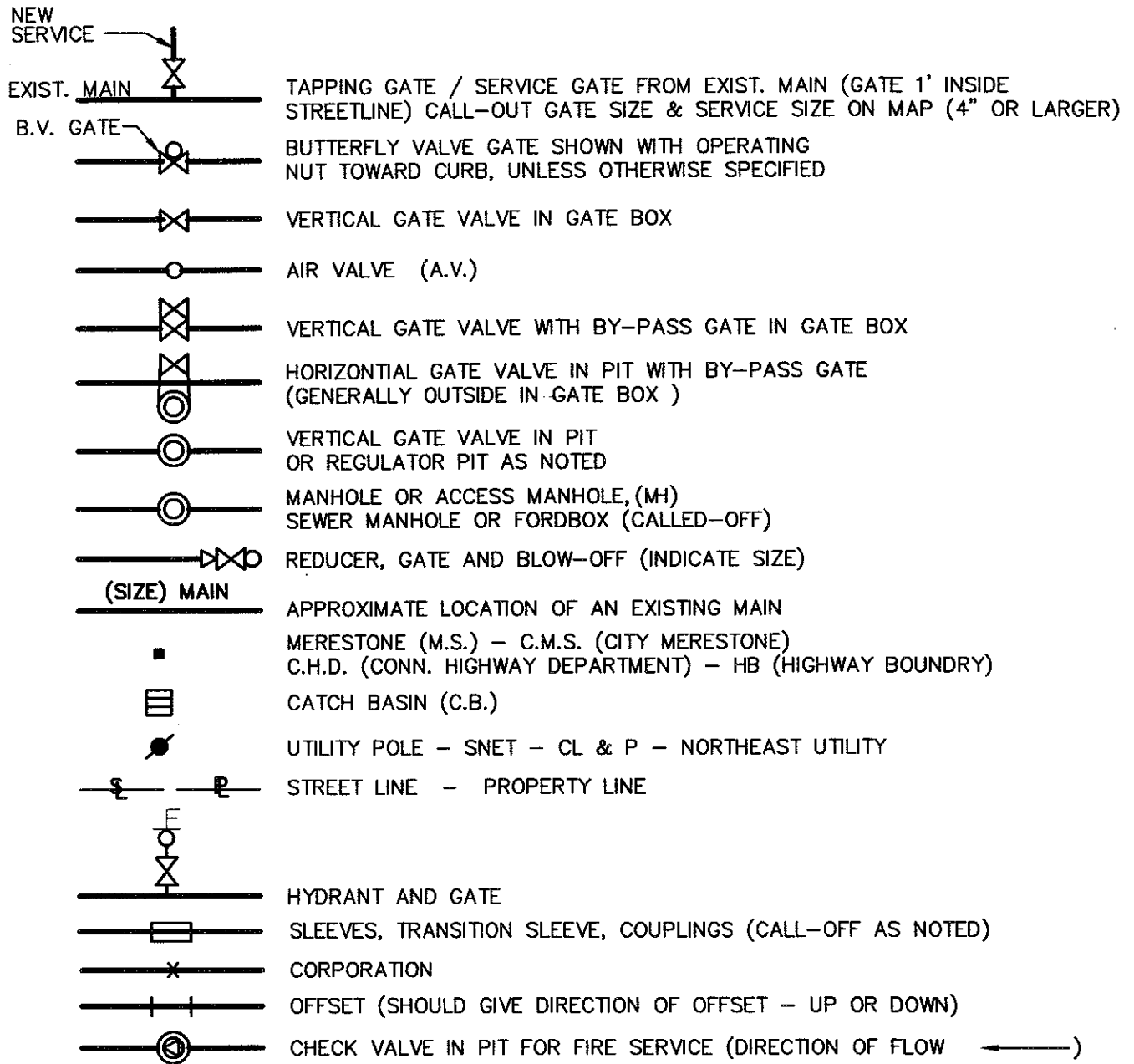


FIGURE INDEX

- FIGURE-45 TYPICAL METER INSTALLATION WITH BY-PASS FOR 1 1/2" & 2"
METERS WITHIN PIT
- FIGURE-46 TYPICAL METER INSTALLATION WITH BY-PASS FOR 3" & 4" METERS WITHIN PIT
- FIGURE-47 STERILIZATION SAMPLING FITTING
- FIGURE-48 2" CHLORINATION BLOW-OFF
- FIGURE-49 2" CHLORINATION VALVE - INLET
- FIGURE-50 AIR VALVE
- FIGURE-51 4" BLOW-OFF ASSEMBLY (END OF MAIN)
- FIGURE-52 4" BLOW-OFF ASSEMBLY (BRANCH TYPE)
- FIGURE-53 4" BLOW-OFF ASSEMBLY (WITH FULL MAIN SIZE GATE VALVE)
- FIGURE-54 1" BLEEDER (OUT OF ROADWAY)
- FIGURE-55 1" BLEEDER (IN ROADWAY)
- FIGURE-56 TYPICAL BUTTERFLY VALVE INSTALLATION

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION DETAILS



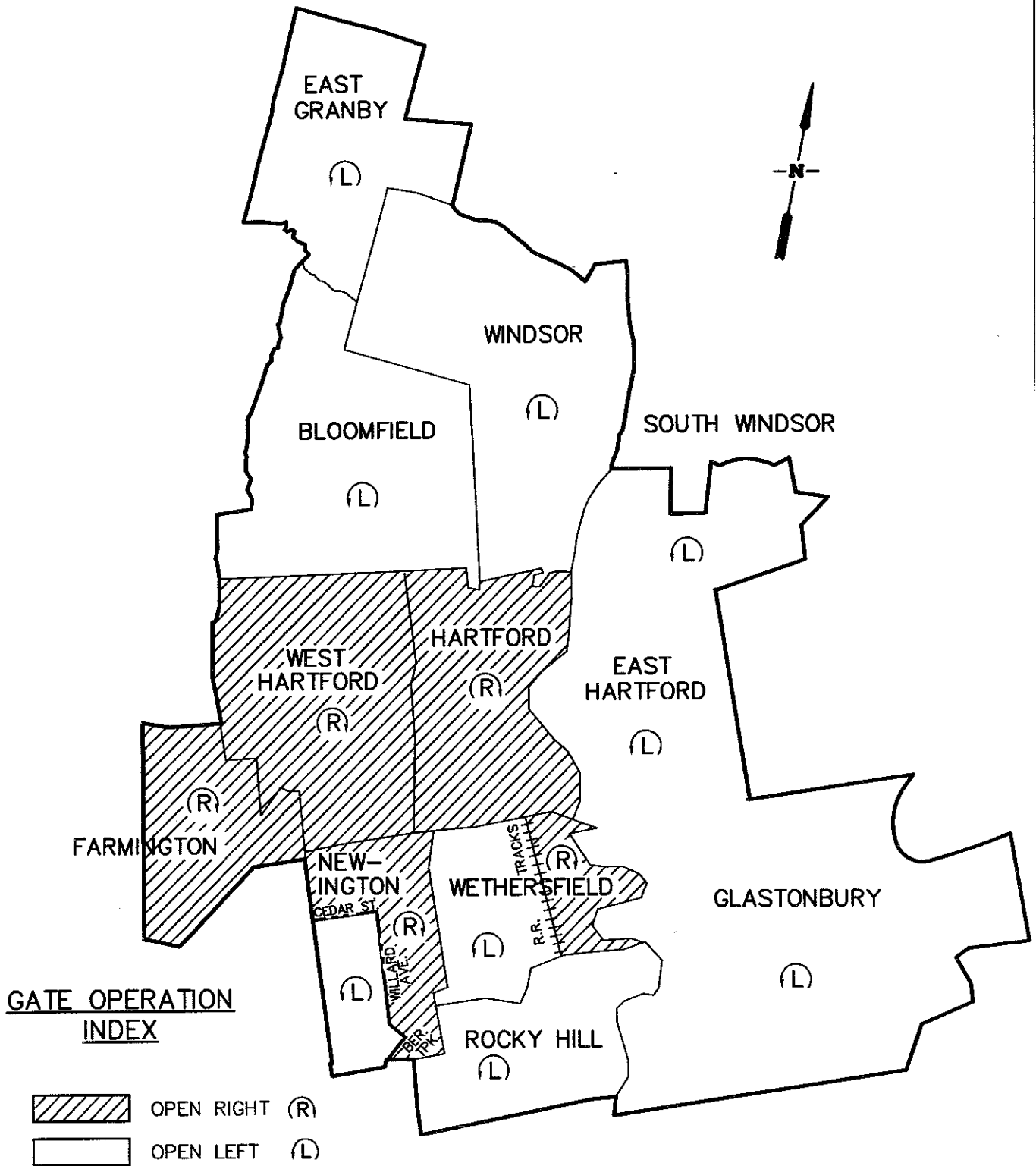
WATER RECORDS SYMBOLS

FIGURE - 1

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION

DETAILS

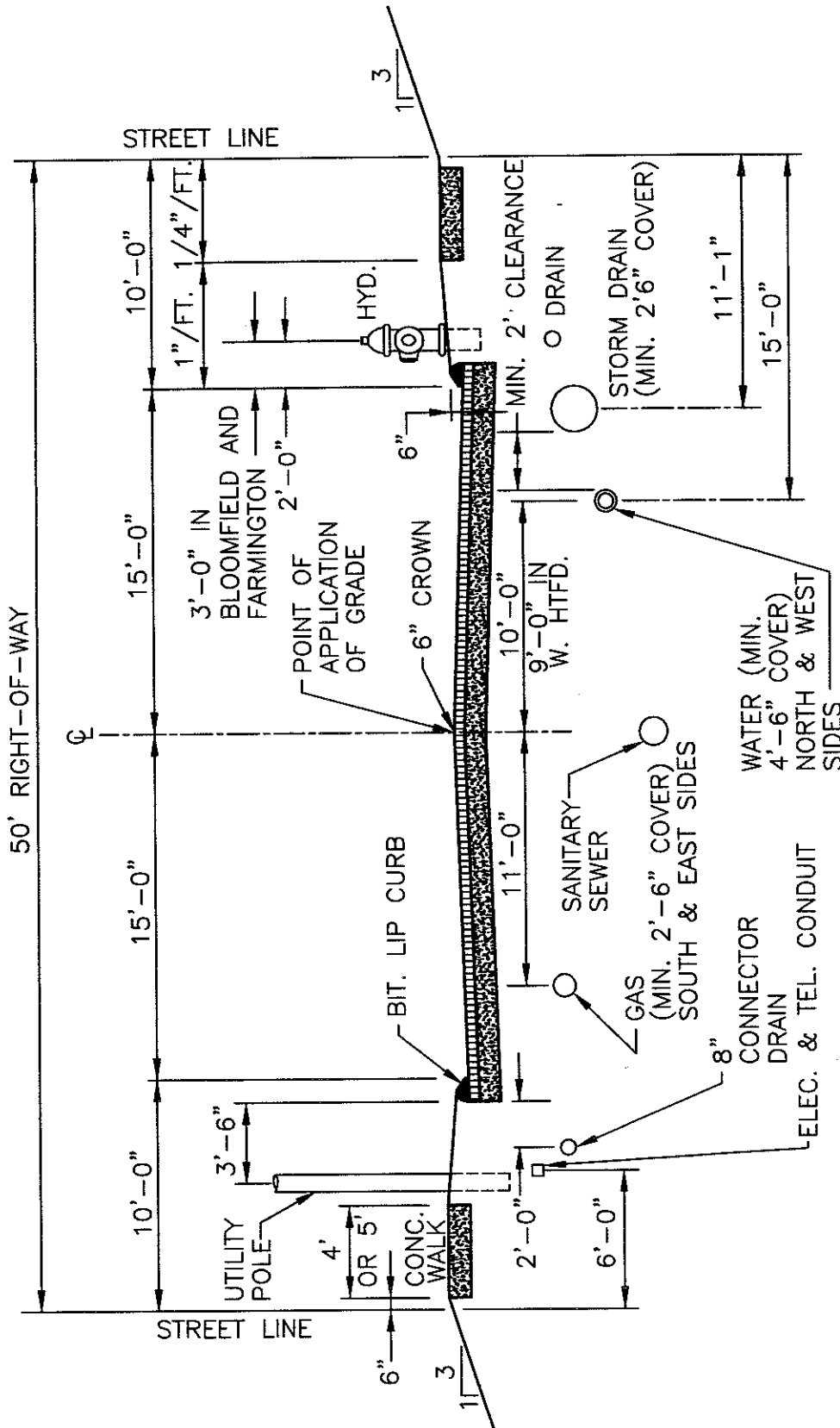


GATE OPERATION

FIGURE - 2

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION DETAILS



TYPICAL ROAD CROSS SECTION

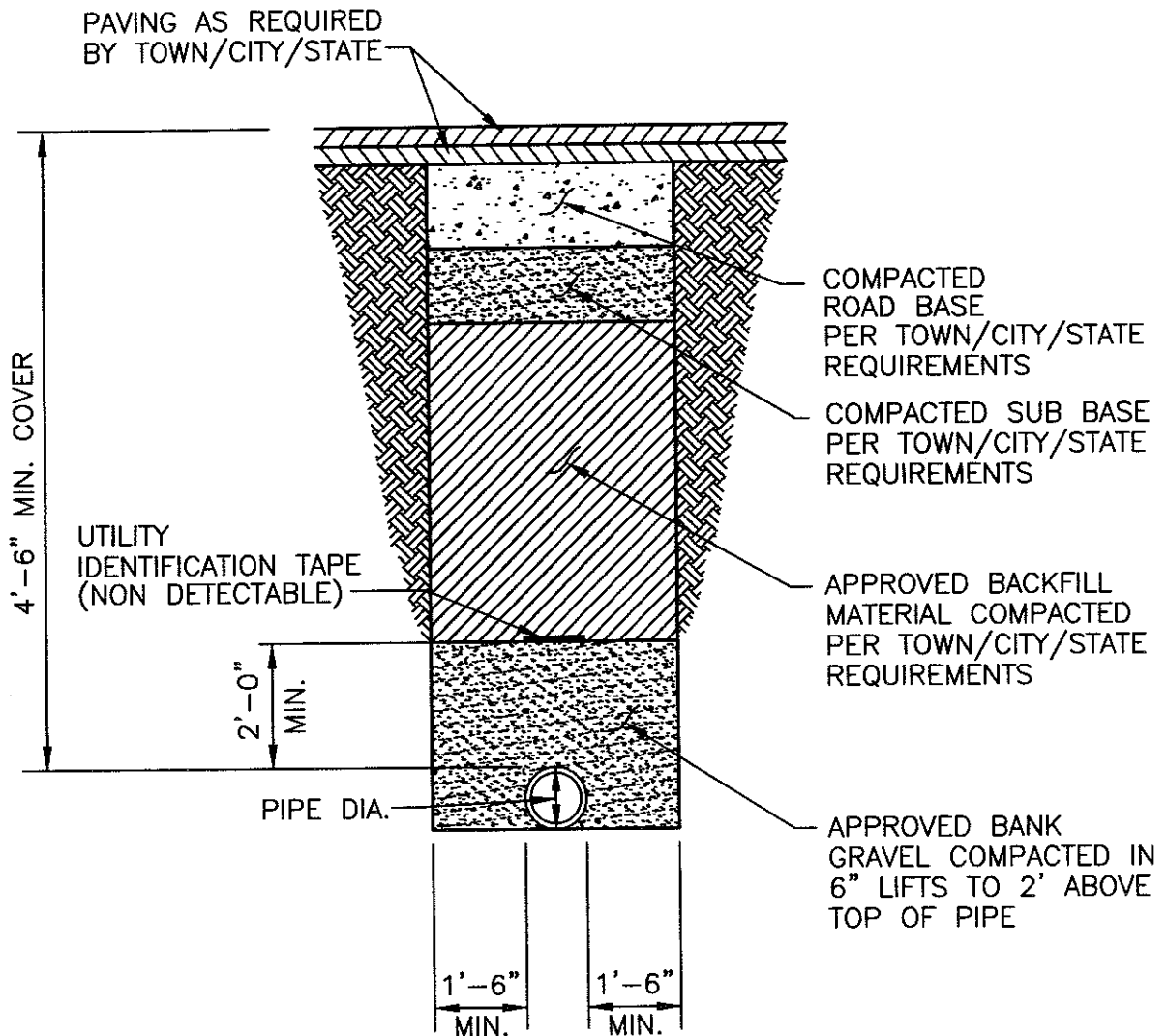
30' PAVEMENT

FIGURE - 3

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION

DETAILS

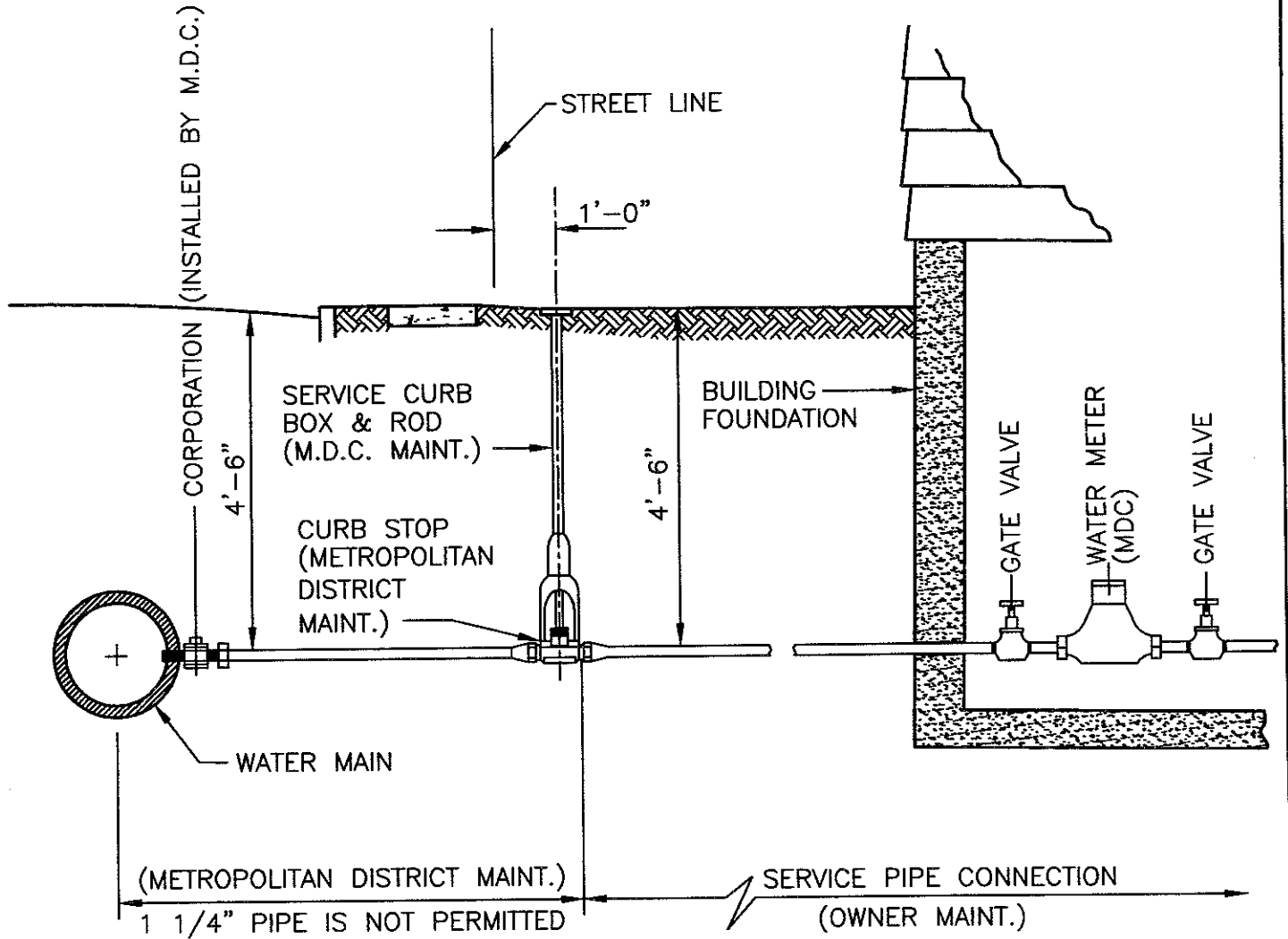


TYPICAL WATER MAIN TRENCH

CROSS SECTION

FIGURE - 4

THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS



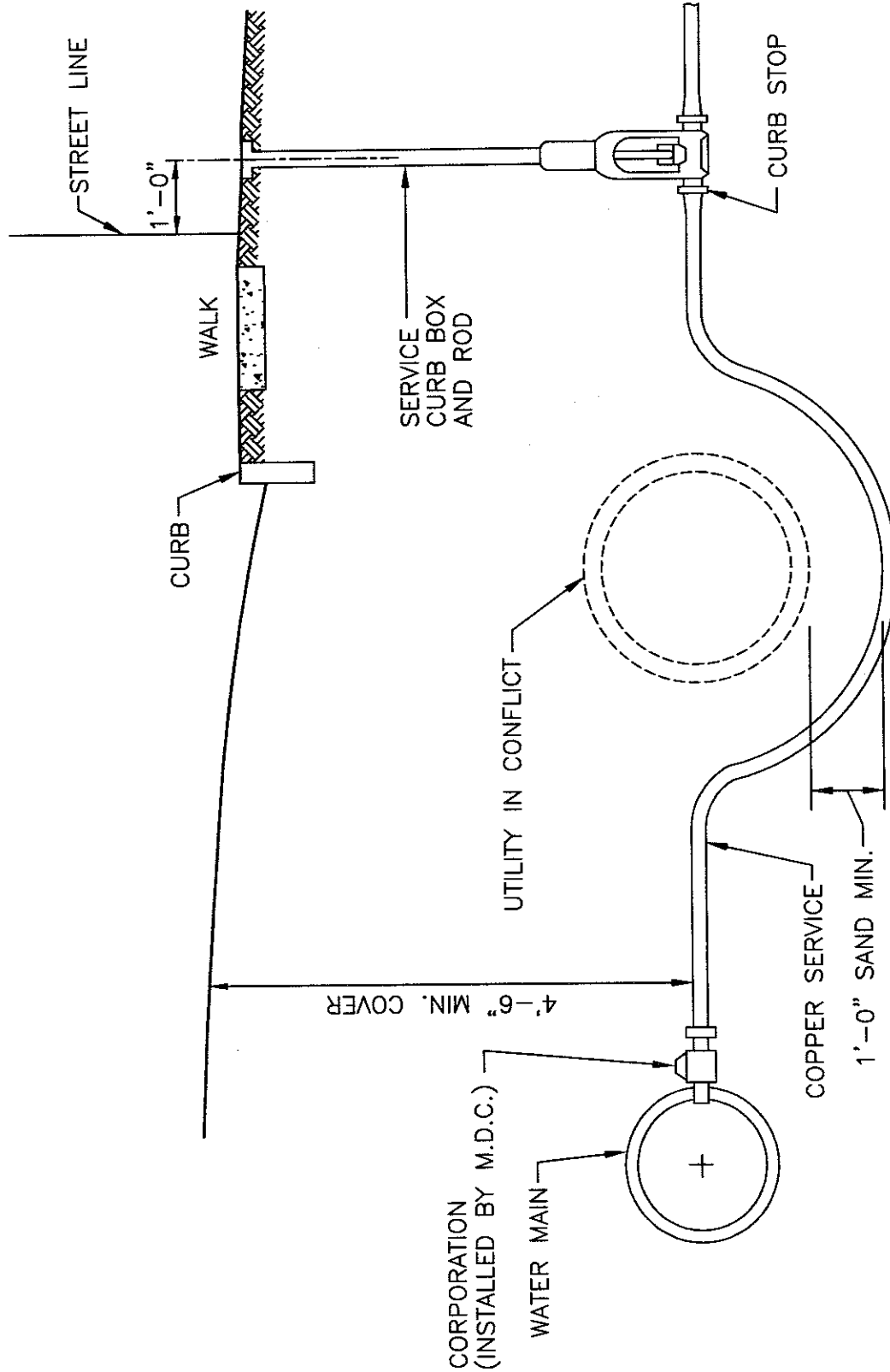
TYPICAL COPPER
WATER SERVICE

FIGURE - 5

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION

DETAILS



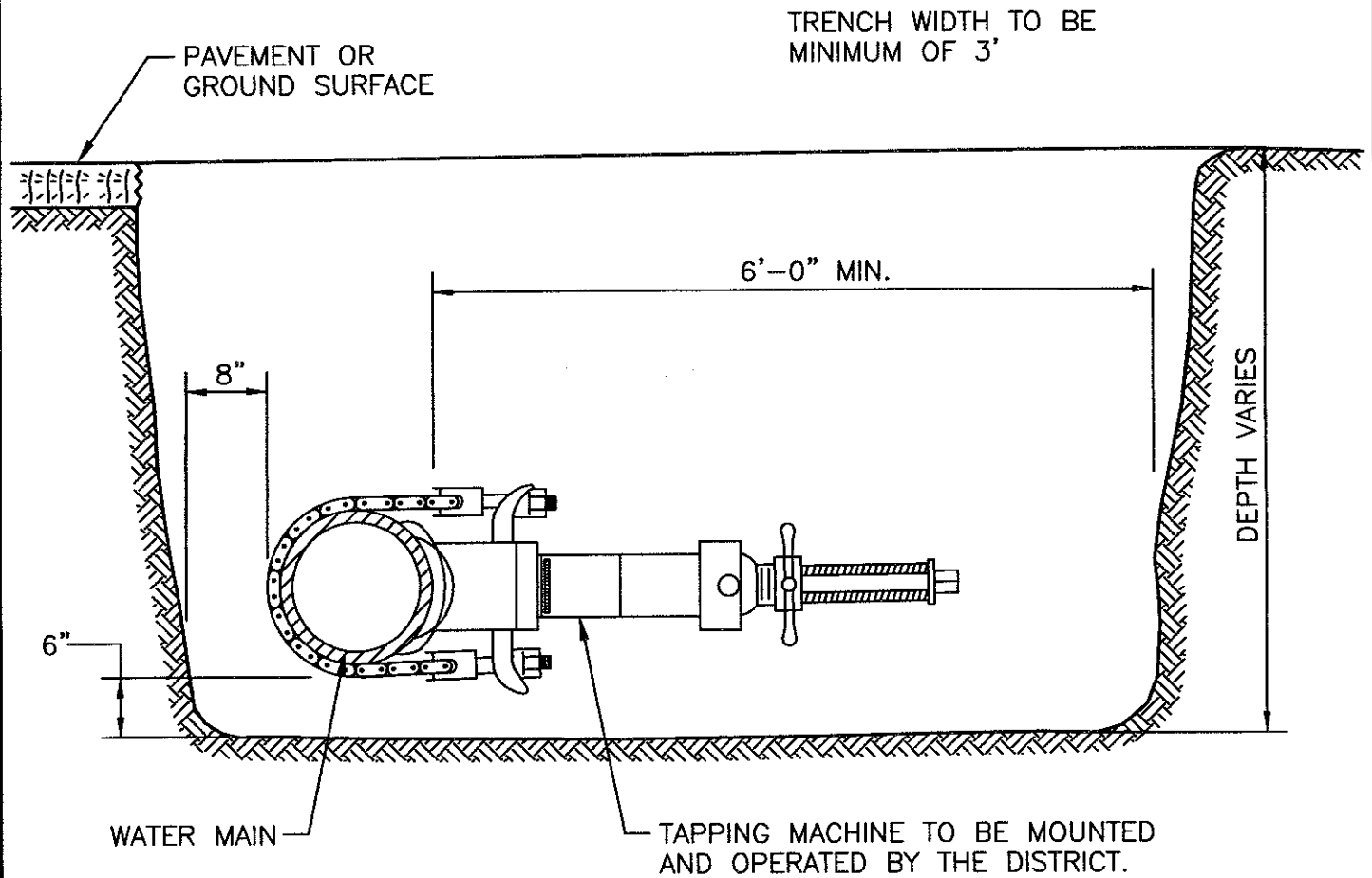
18" MINIMUM CLEARANCE WITH SANITARY

TYPICAL DETAIL

COPPER SERVICE OFFSET

FIGURE - 6

THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS

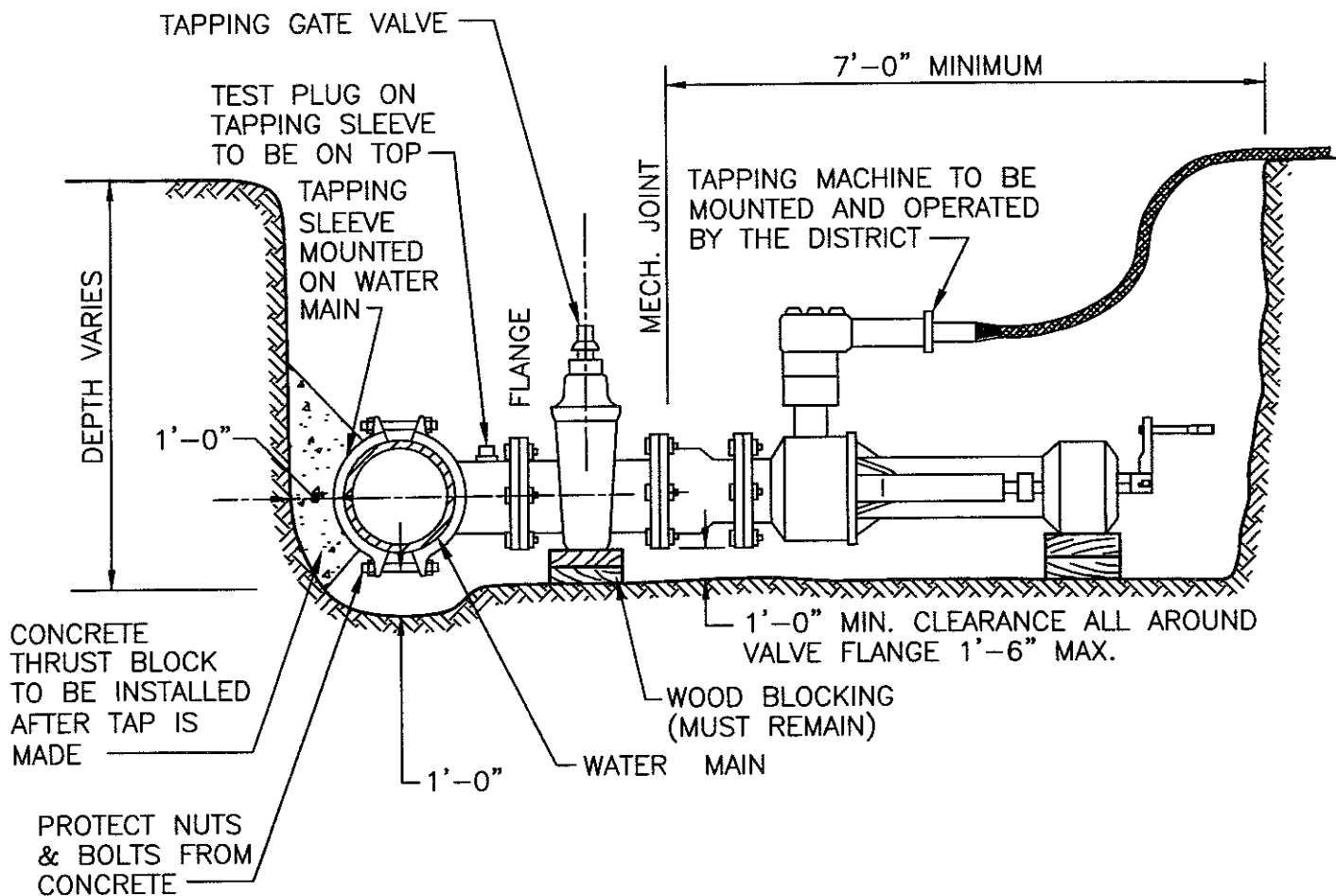


THE TRENCH IS TO BE PROPERLY
DEWATERED AND COMPLY WITH
OSHA REQUIREMENTS FOR
TRENCH EXCAVATION.

TRENCH REQUIREMENTS FOR
1-INCH TO 2-INCH SERVICE TAPS

FIGURE - 7

THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS

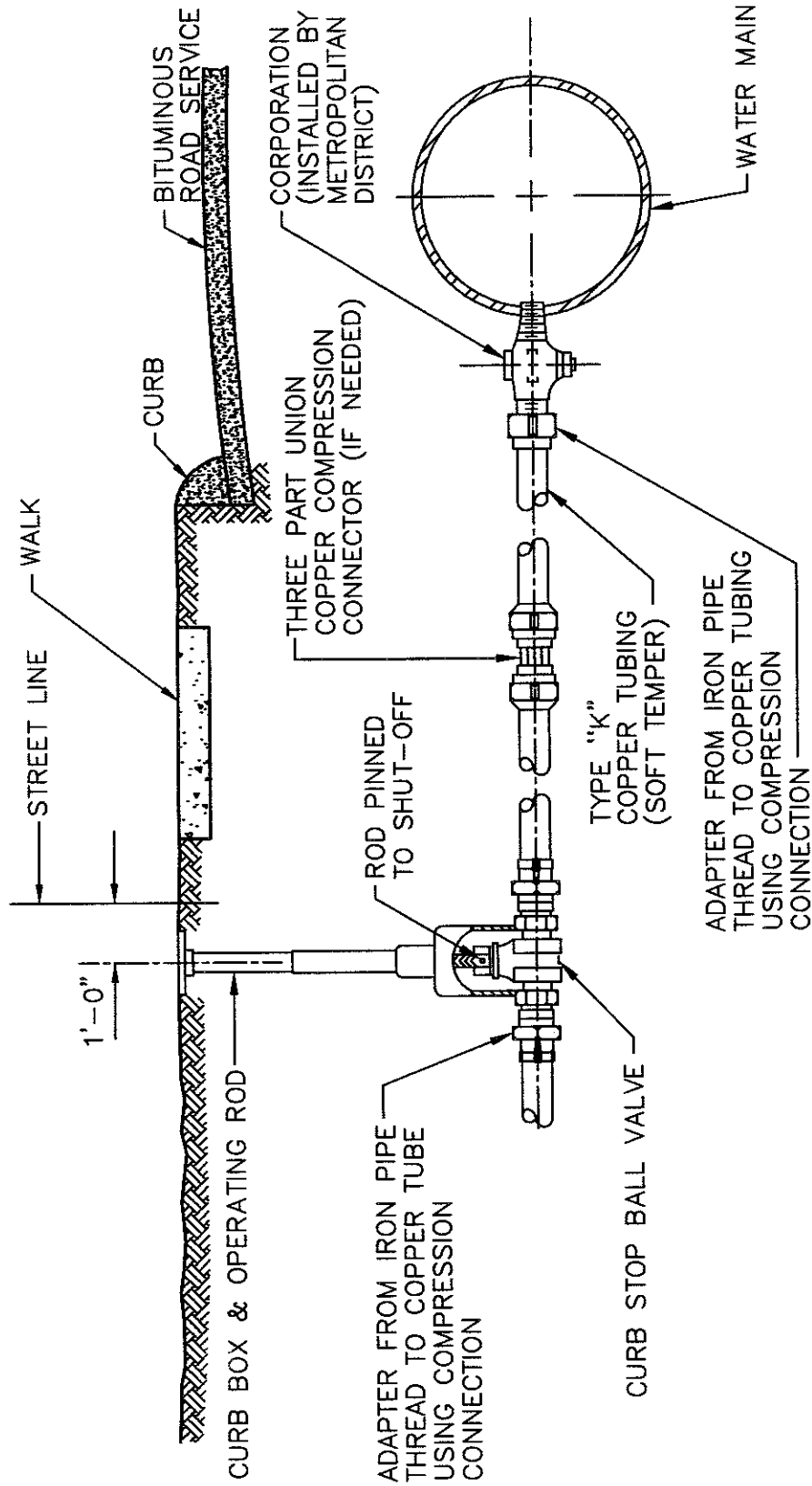


TRENCH REQUIREMENTS
FOR MAKING 4-INCH TO 12-INCH TAP
ON WATER MAIN

NOTES:

1. TAPPING SLEEVE & TAPPING GATE VALVE TO BE INSTALLED ON WATER MAIN BY THE CONTRACTOR. THE DISTRICT WILL TEST INSTALLATION PRIOR TO MAKING TAP. NO TAP WILL BE MADE IF THERE IS NO TEST PLUG.
2. TAPPING GATE VALVE TO HAVE HAND OF OPERATION AS DIRECTED BY THE DISTRICT. IF VALVE HAND OF OPERATION IS NOT CORRECT, NO TAP WILL BE MADE.
3. TRENCH TO BE DEWATERED AND IN COMPLIANCE WITH OSHA REQUIREMENTS FOR TRENCH EXCAVATION.

THE METROPOLITAN DISTRICT
 WATER SERVICES INSTALLATION
 DETAILS

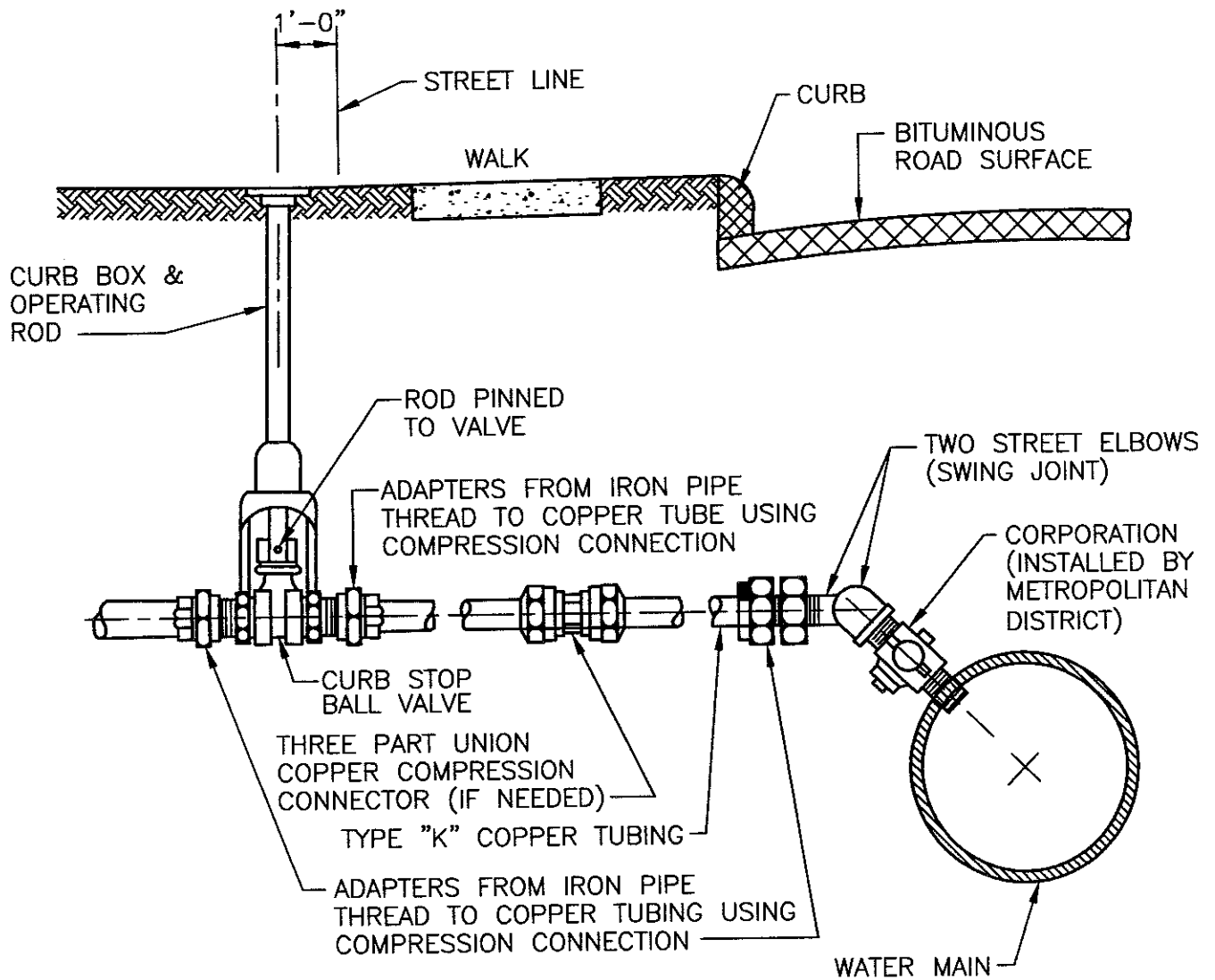


**1" SERVICE TAP ON HORIZONTAL
 CENTER LINE**

FIGURE -- 9

THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS

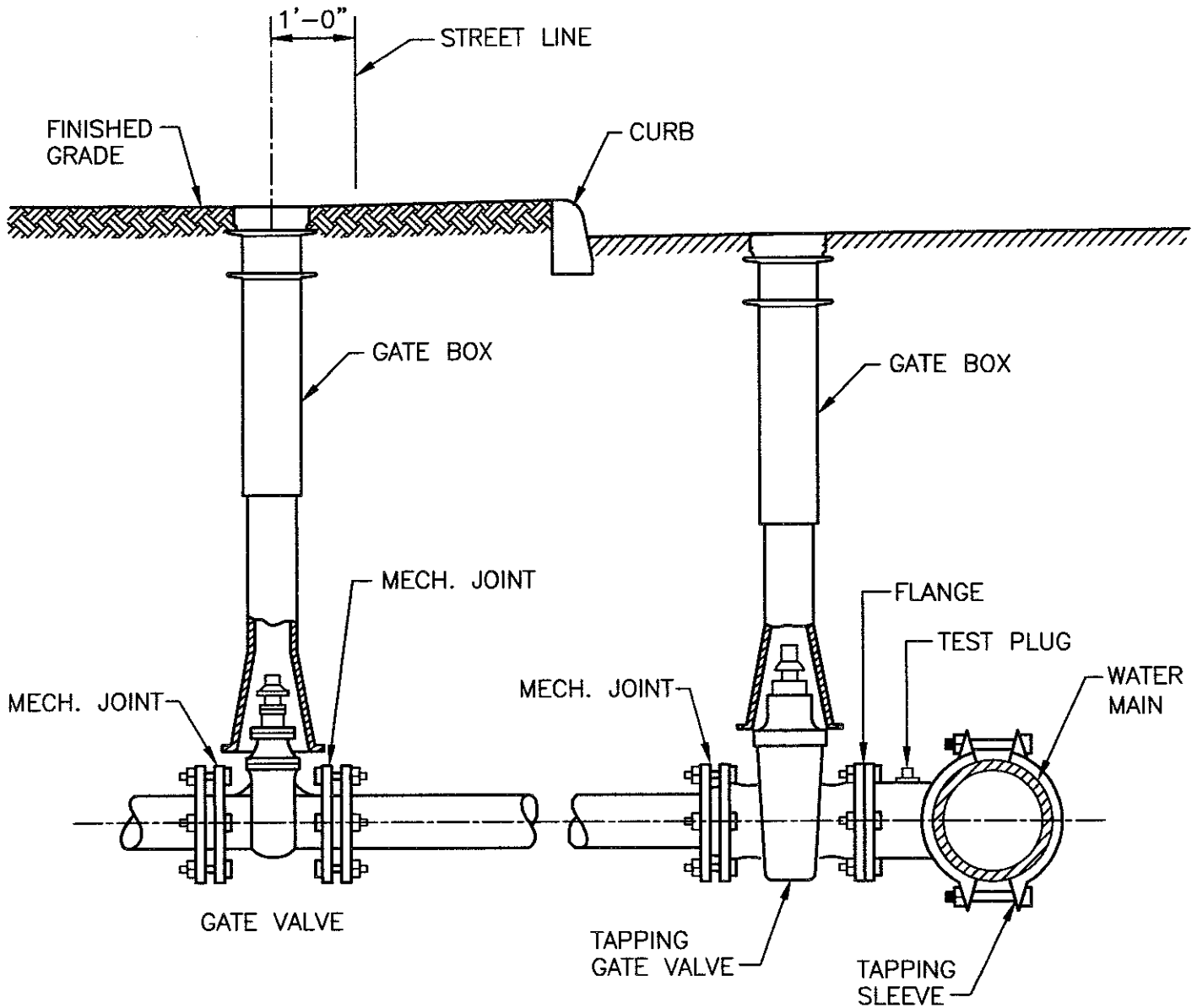
MDC



1" SERVICE TAP OFF HORIZ. CENTER LINE &
ALL 1 1/2" & 2" TAPS

FIGURE - 10

THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS



PIPING TO BE RESTRAINED WITH RODDING OR RETAINING GLANDS

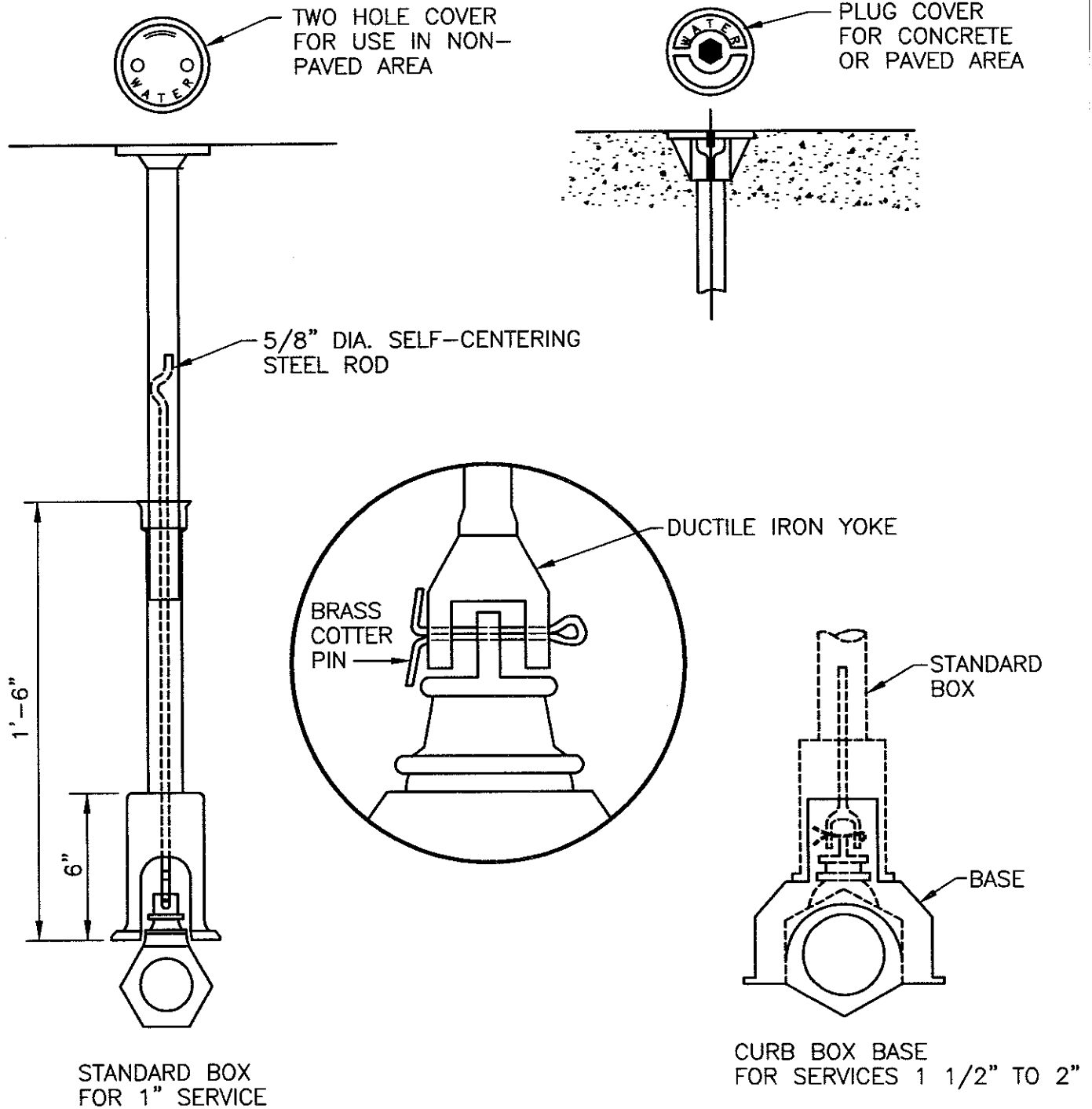
SERVICES 4" THROUGH 8"

FIGURE - 11

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION

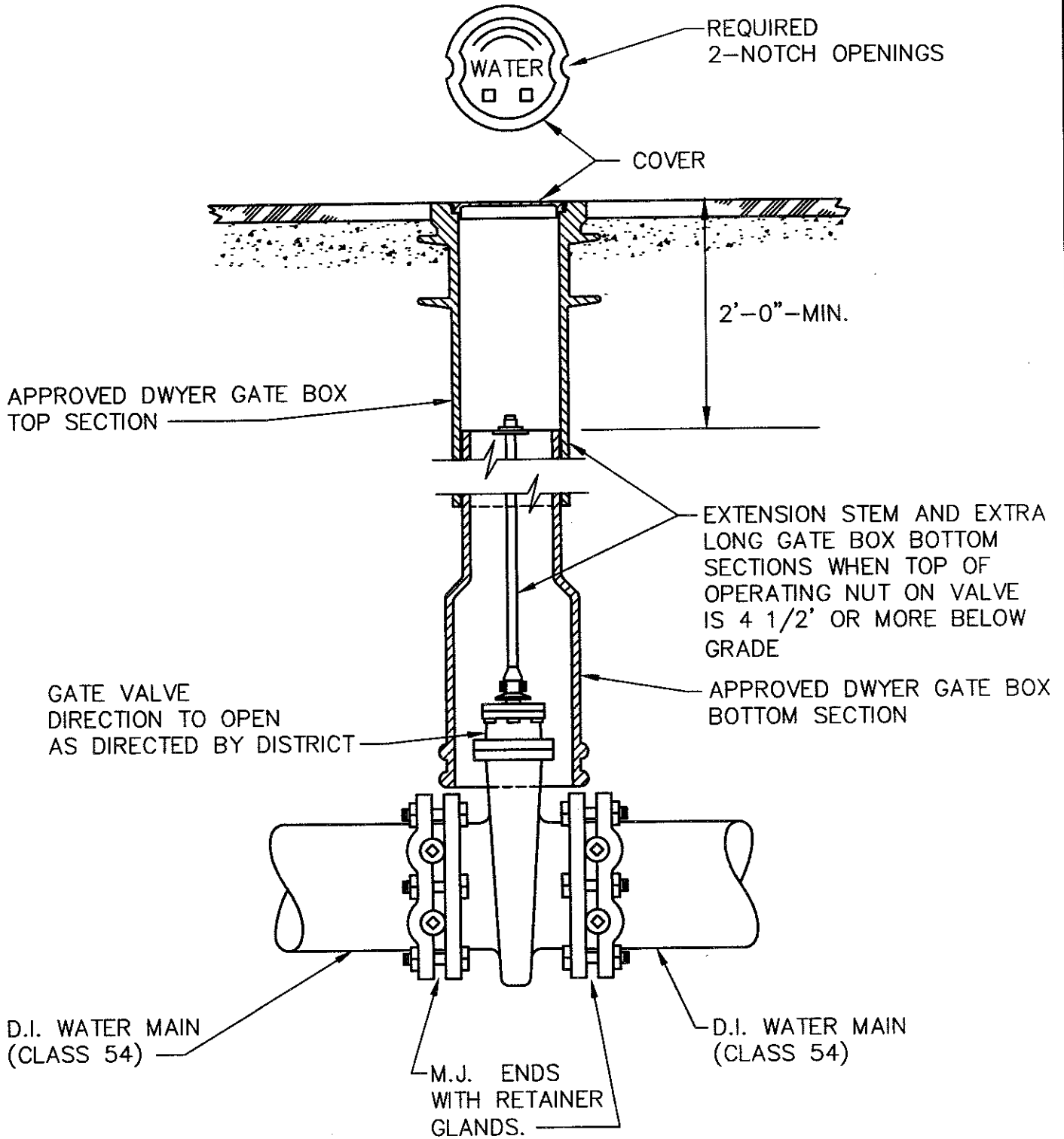
DETAILS



STANDARD SERVICE CURB BOX

FIGURE - 12

THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS

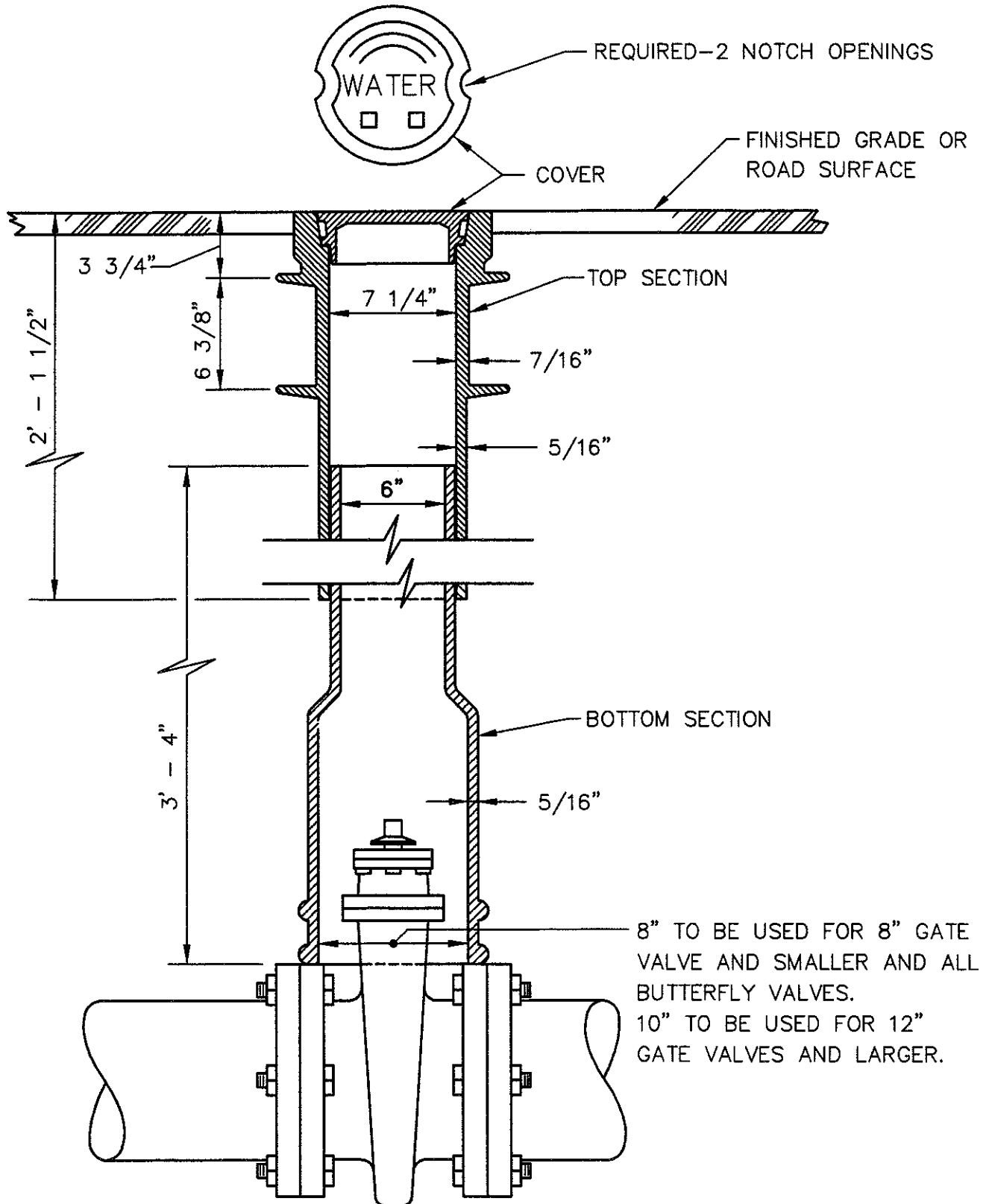


TYPICAL GATE VALVE INSTALLATION
12" & SMALLER

FIGURE - 13

THE METROPOLITAN DISTRICT

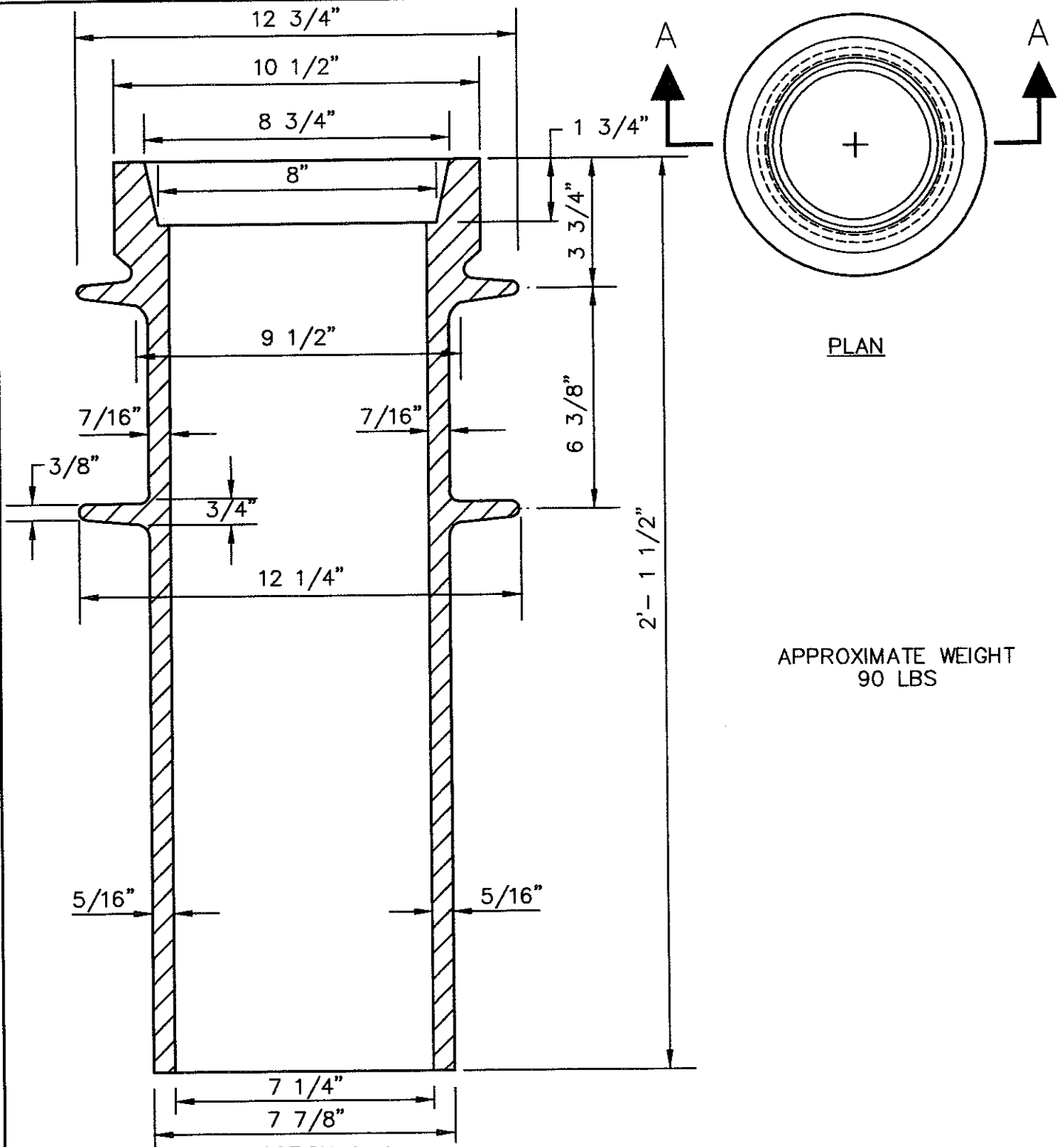
WATER SERVICES INSTALLATION DETAILS



STANDARD GATE BOX DWYER TYPE

FIGURE - 14

THE METROPOLITAN DISTRICT
 WATER SERVICES INSTALLATION
 DETAILS



PLAN

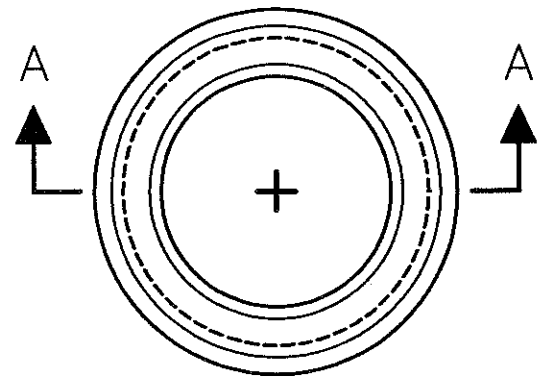
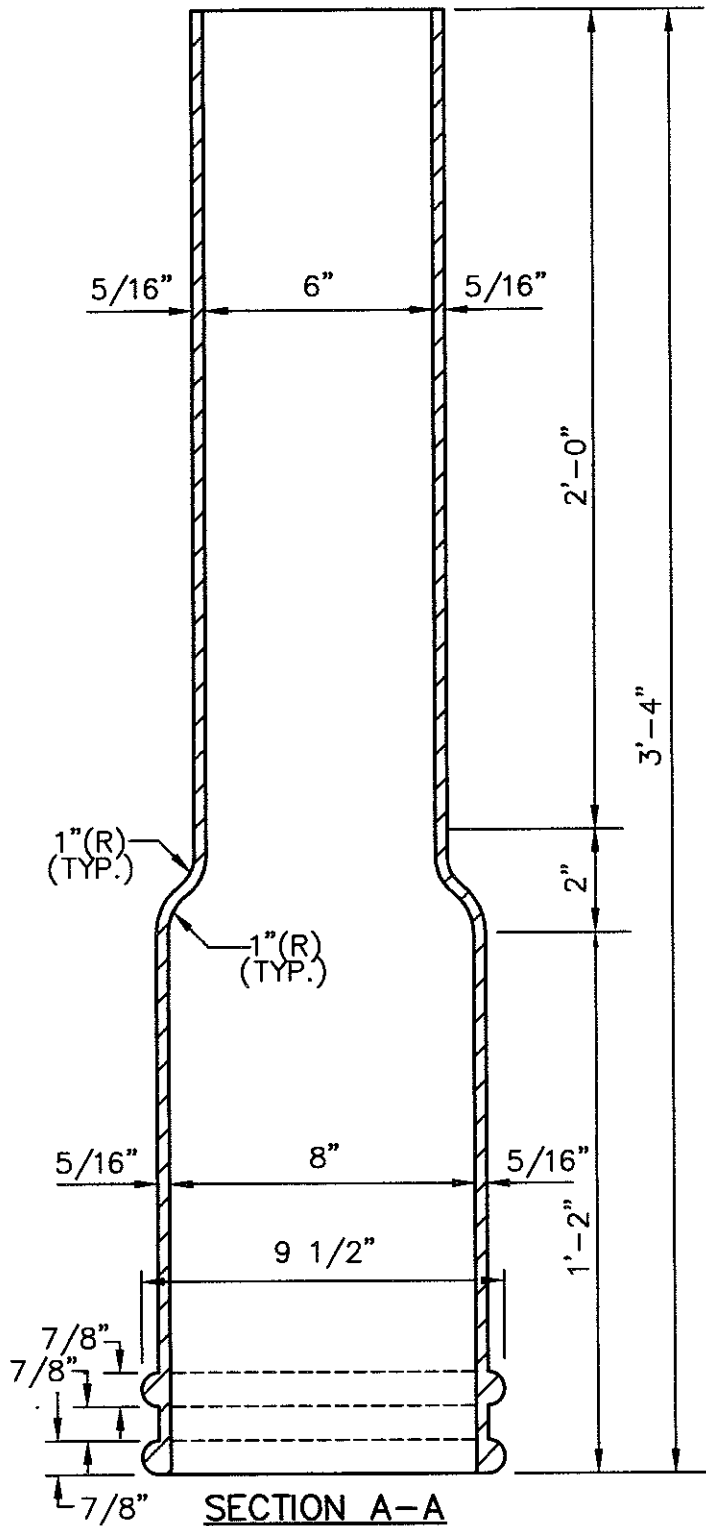
APPROXIMATE WEIGHT
 90 LBS

SECTION A-A

**CAST IRON GATE BOX
 TOP SECTION
 (DWYER TYPE)**

FIGURE - 15

THE METROPOLITAN DISTRICT
 WATER SERVICES INSTALLATION
 DETAILS



PLAN

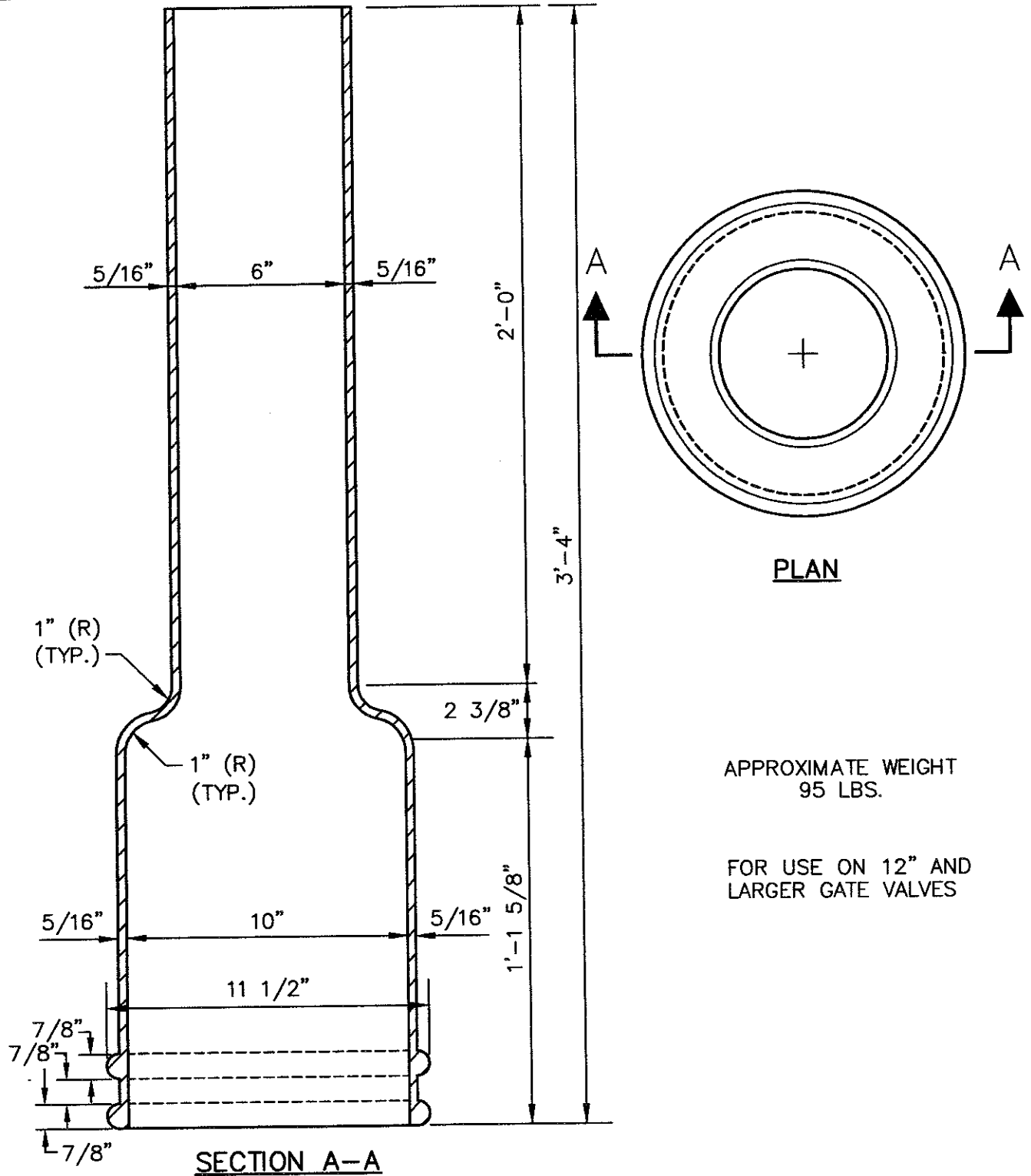
APPROXIMATE WEIGHT
 85 LBS.

FOR USE ON 8" AND SMALLER
 GATE VALVES AND ALL
 BUTTERFLY VALVES.

CAST IRON GATE BOX
BOTTOM SECTION SIZE 8"
(DWYER TYPE)

FIGURE - 16

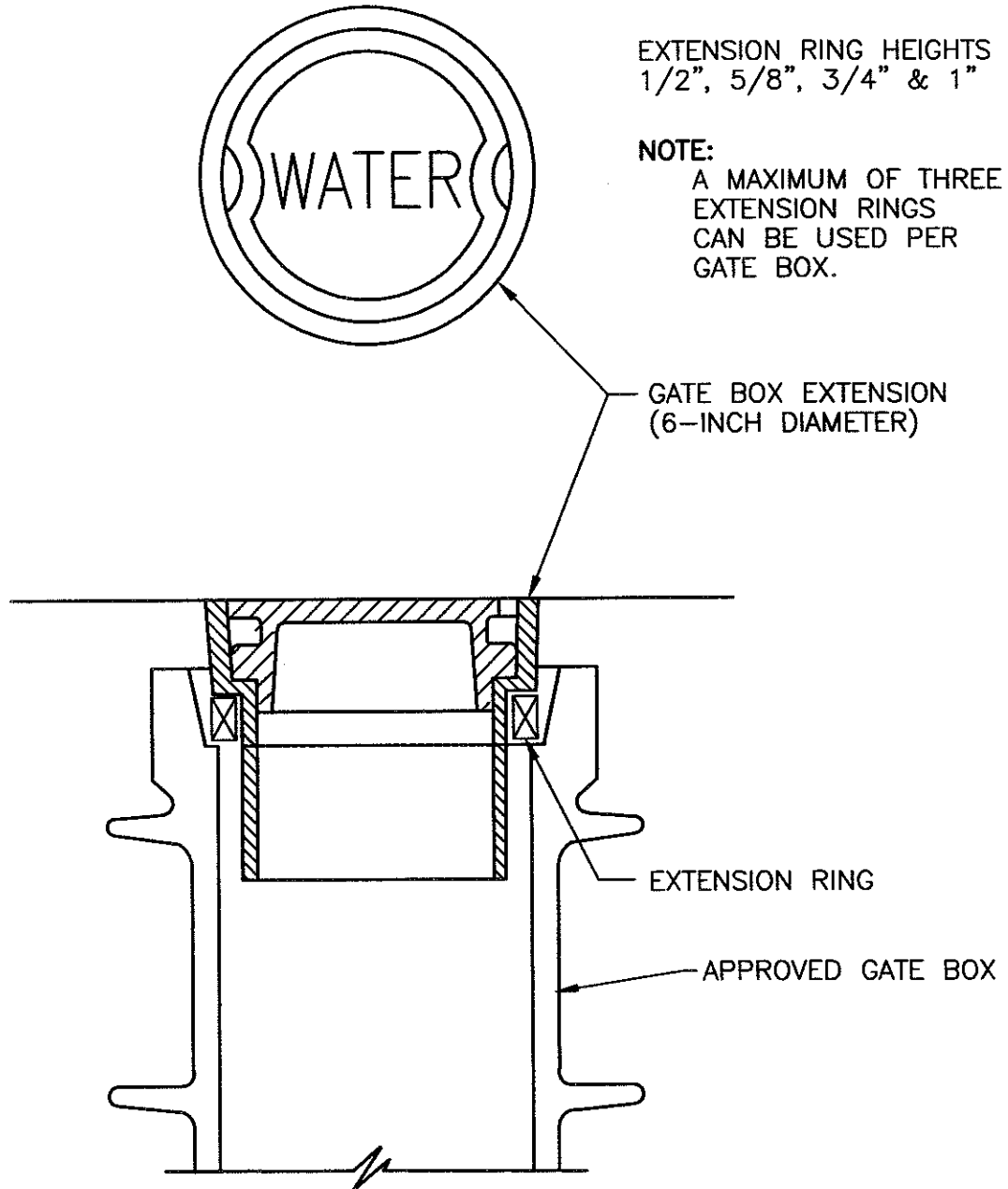
THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS



CAST IRON GATE BOX
BOTTOM SECTION SIZE 10"
(DWYER TYPE)

FIGURE - 17

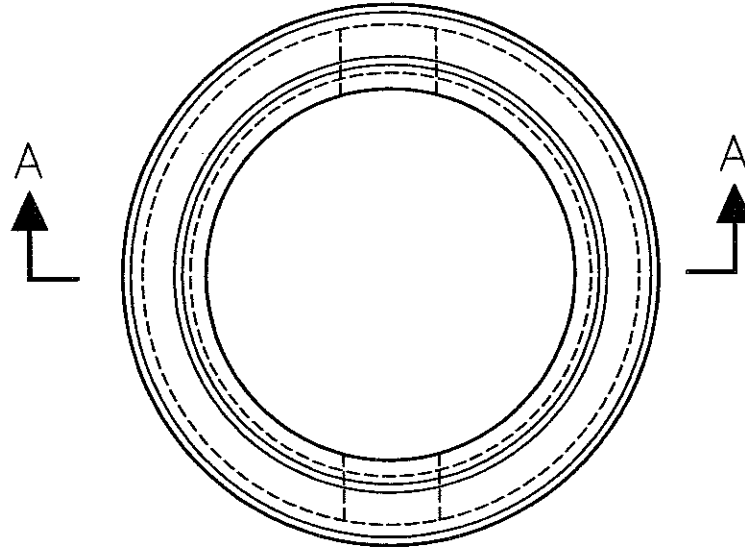
THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS



TYPICAL GATE BOX EXTENSION INSTALLATION

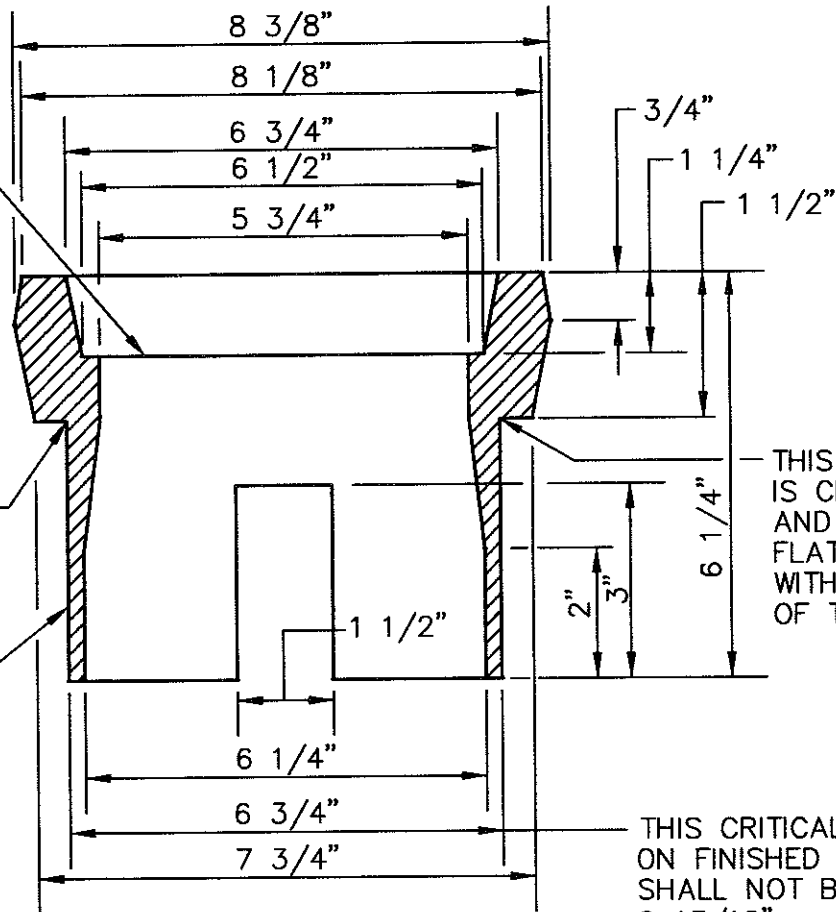
THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION DETAILS



APPROXIMATE
WEIGHT 20 LBS.

THIS SURFACE IS
CRITICAL AND MUST
BE FLAT AND TRUE
WITH THE AXIS OF
THE CASTING



1/16" (R)
(MAXIMUM)

THIS SURFACE TO BE
SMOOTH WITH MINIMUM
TAPER TO BOTTOM OF
SKIRT

THIS SURFACE
IS CRITICAL
AND MUST BE
FLAT AND TRUE
WITH THE AXIS
OF THE CASTING

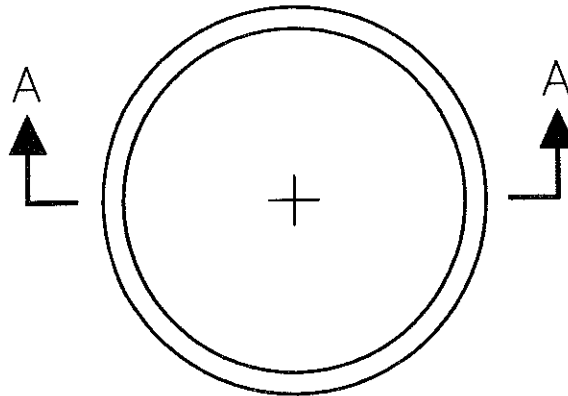
THIS CRITICAL DIAMETER
ON FINISHED CASTINGS
SHALL NOT BE OVER
6 13/16"

NOTE: ALL DIMENSIONS ARE
TO BE $\pm 1/16$ OF AN INCH
UNLESS INDICATED OTHERWISE.

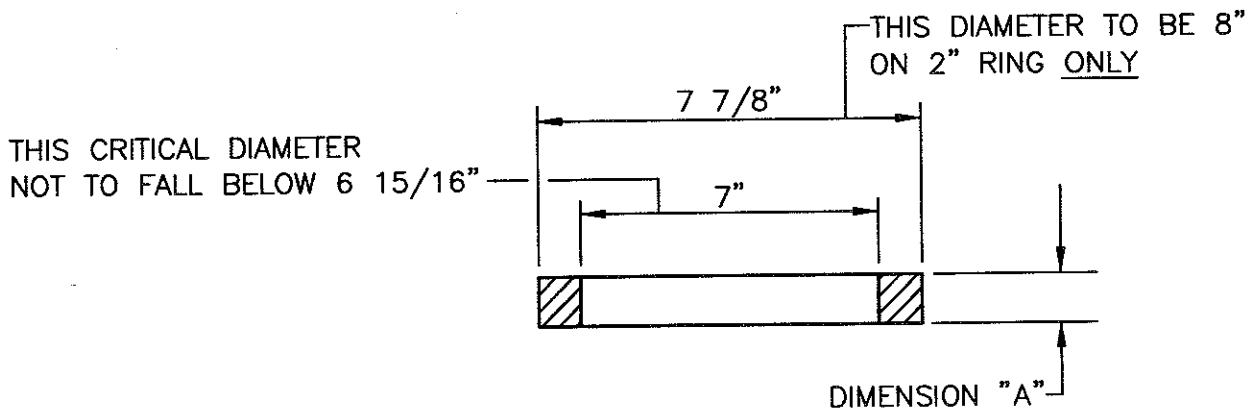
GATE BOX EXTENSION

FIGURE - 20

THE METROPOLITAN DISTRICT
 WATER SERVICES INSTALLATION
 DETAILS



PLAN



SECTION A-A

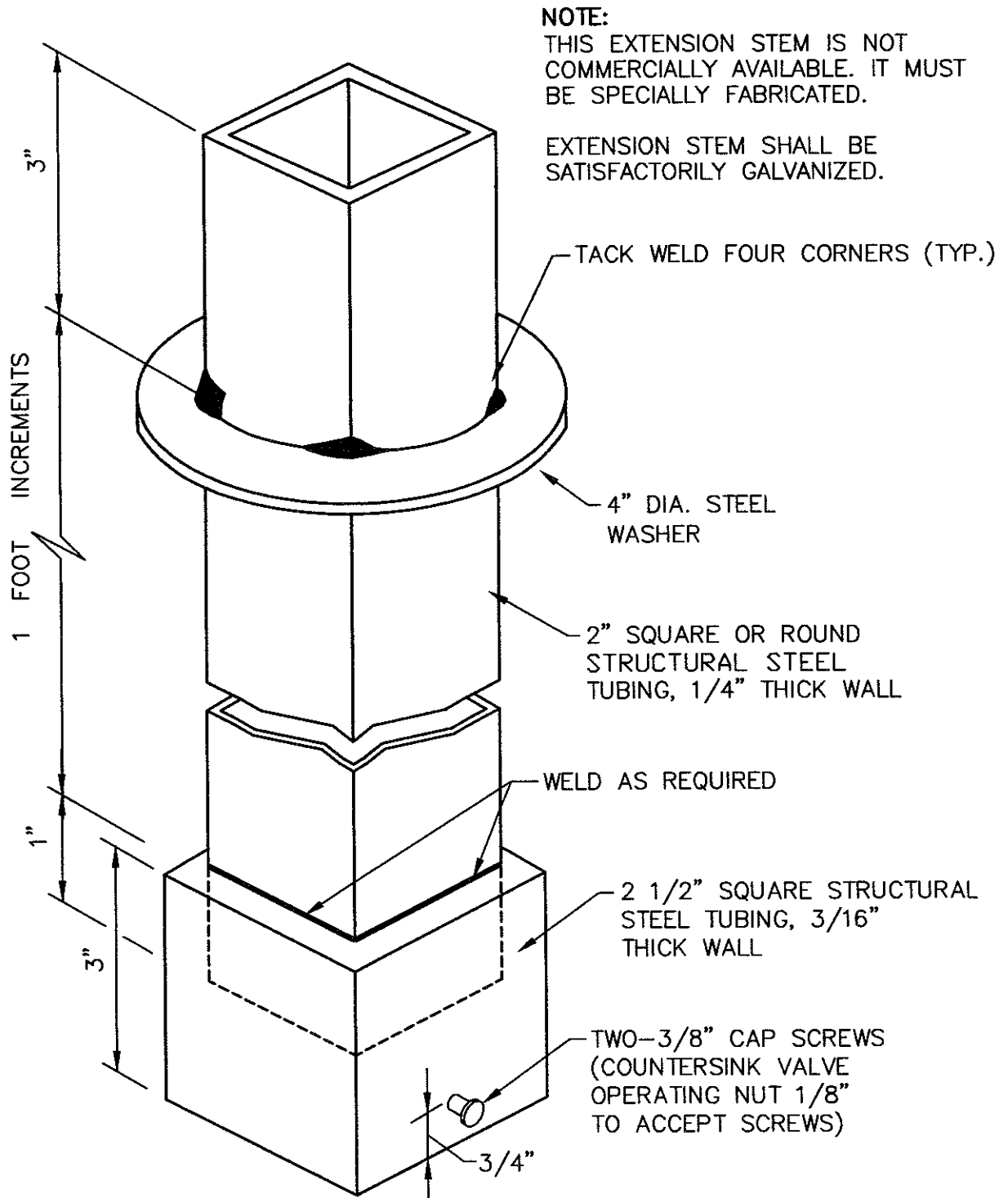
SPACER	DIMENSION "A"	APPROXIMATE WEIGHT
1/2 INCH SPACER	1/2 INCH	1 1/2 LBS.
1 INCH SPACER	1 INCH	2 3/4 LBS.
1 1/2 INCH SPACER	1 1/2 INCH	3 3/4 LBS.
2 INCH SPACER	2 INCH	6 LBS.

NOTE: ALL DIMENSIONS ARE TO BE $\pm 1/16$ "
 UNLESS INDICATED OTHERWISE.

GATE BOX EXTENSION
SPACER RINGS

FIGURE - 21

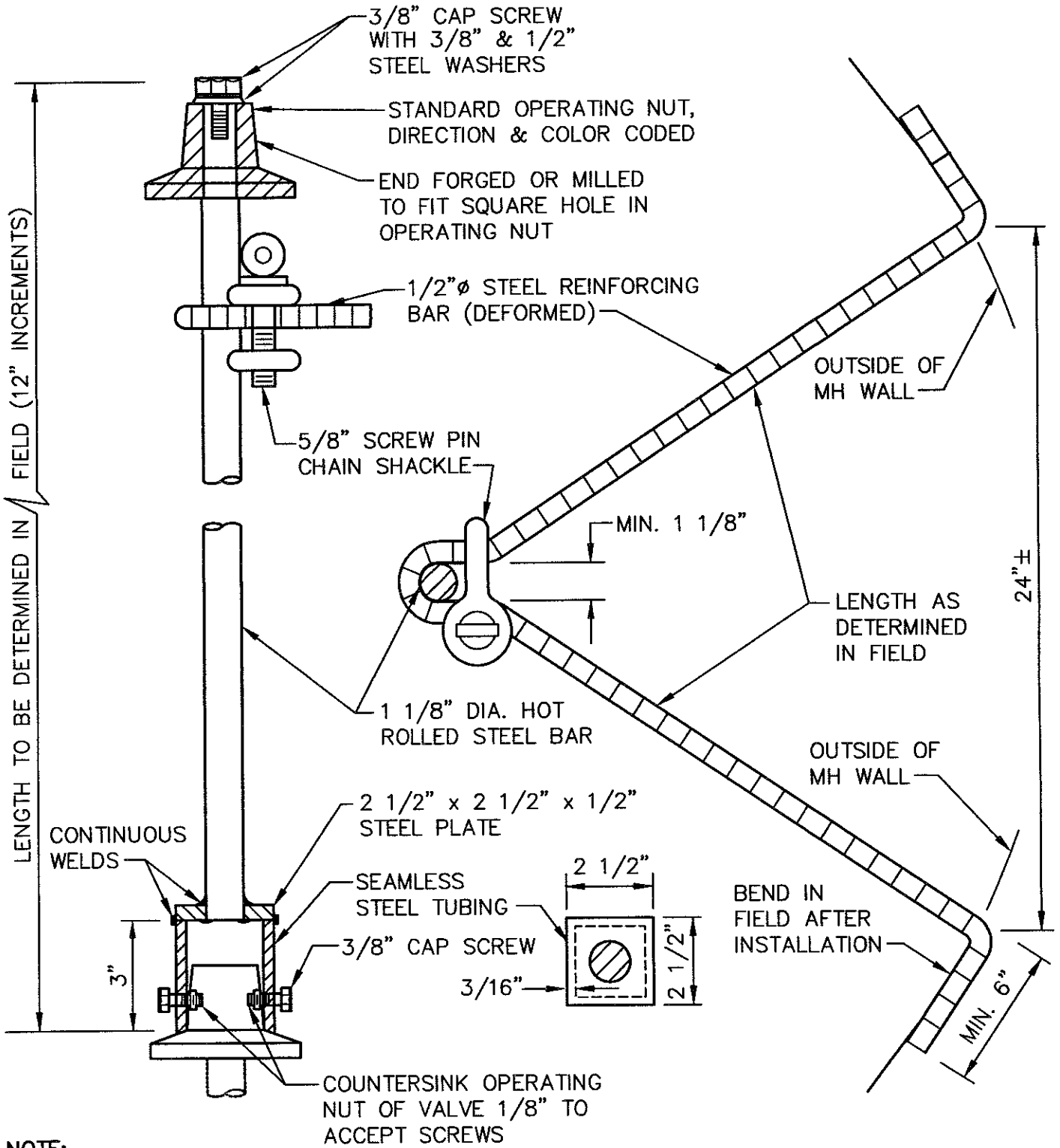
THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS



GATE NUT EXTENSION STEM
FOR GATE BOX INSTALLATION

FIGURE - 22

THE METROPOLITAN DISTRICT
 WATER SERVICES INSTALLATION
 DETAILS



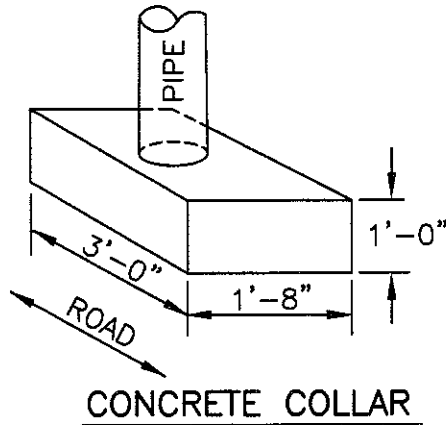
NOTE:
 EXTENSION STEM & BRACKET
 SHALL BE SATISFACTORILY
 GALVANIZED.

**EXTENSION STEM & BRACKET
 IN MANHOLE**

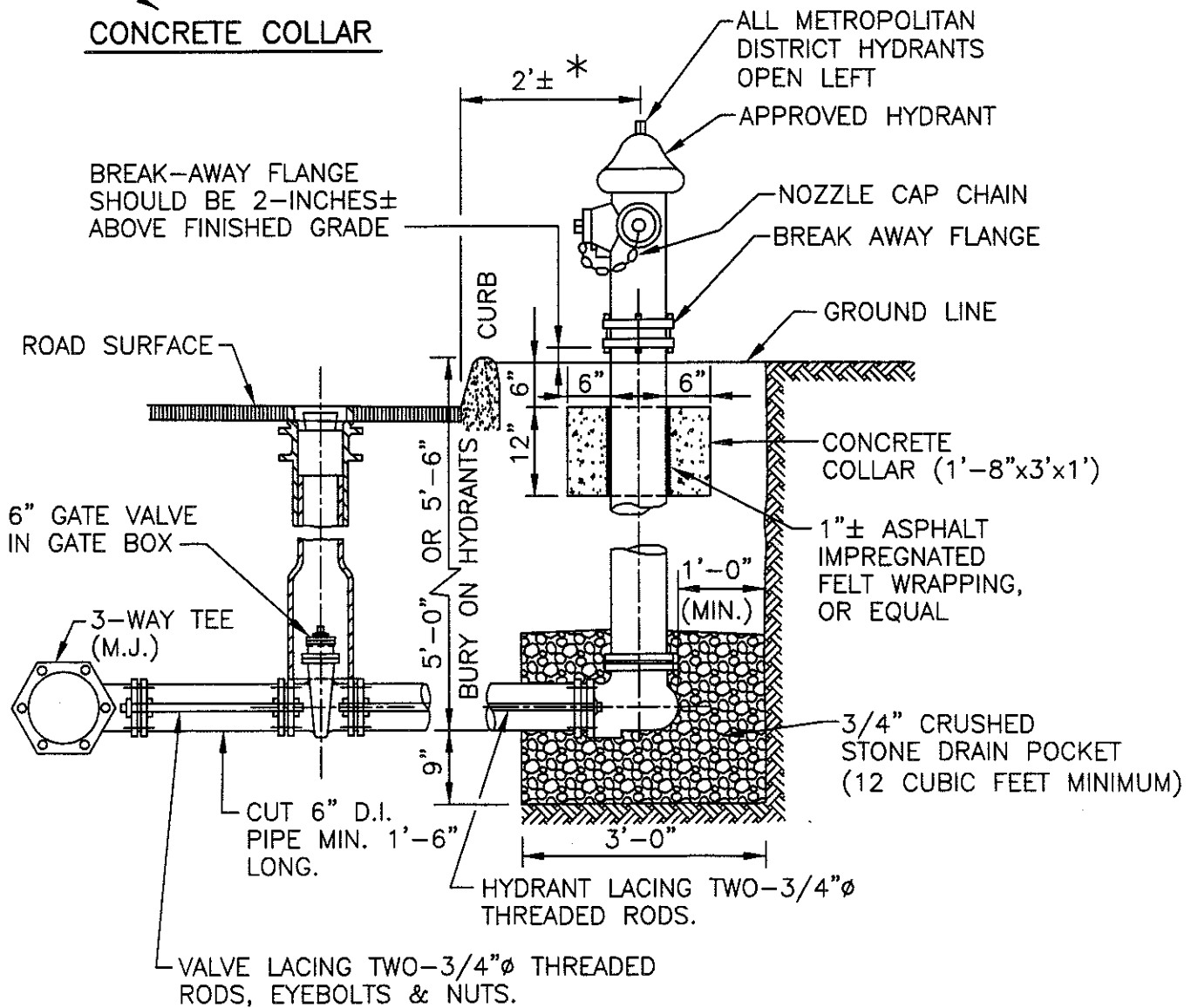
FIGURE - 23

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION DETAILS



* 3'± IN
BLOOMFIELD, FARMINGTON
AND GLASTONBURY

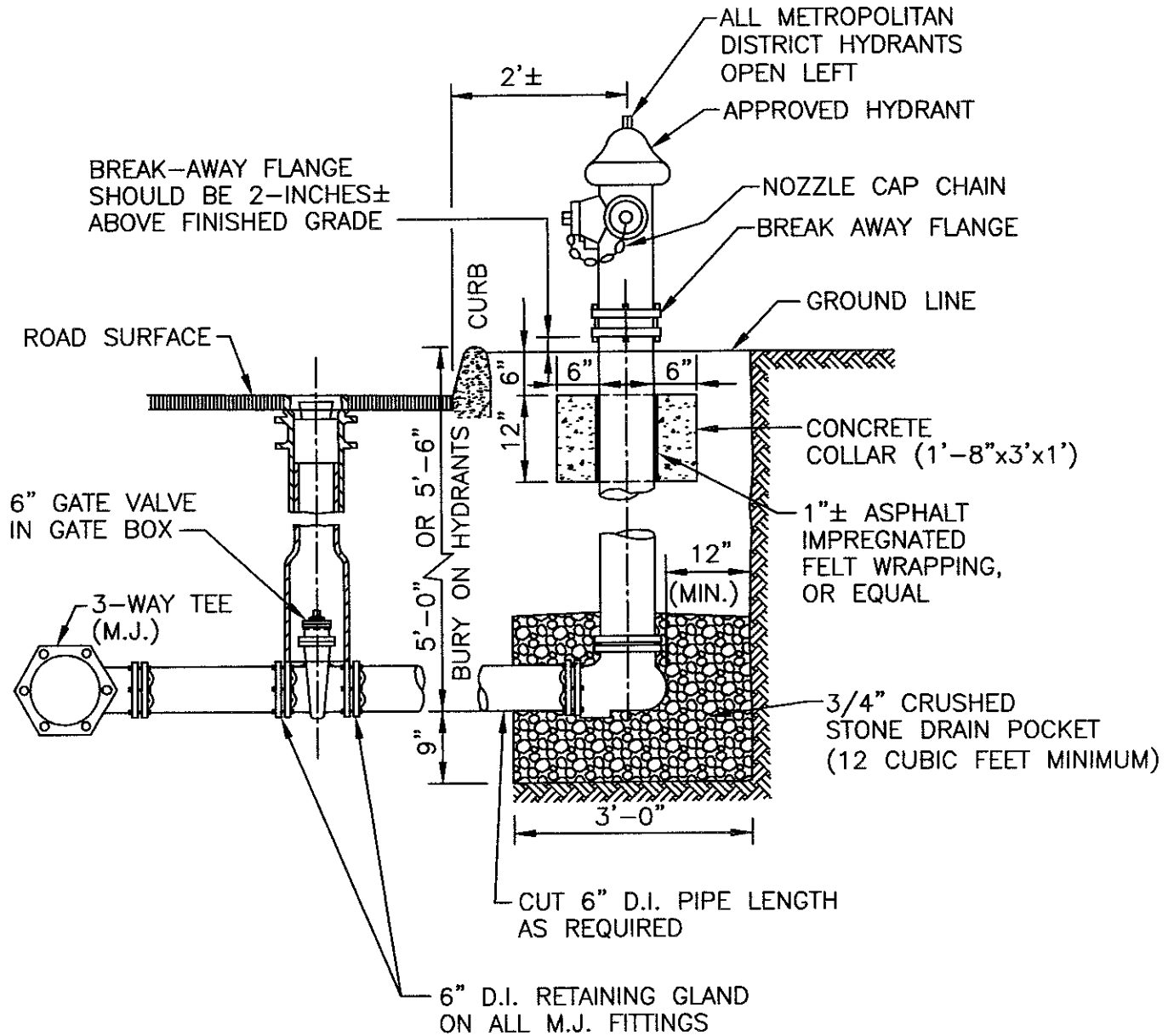


FIRE HYDRANT ASSEMBLY TYPICAL RODDING INSTALLATION

FIGURE - 24

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION DETAILS

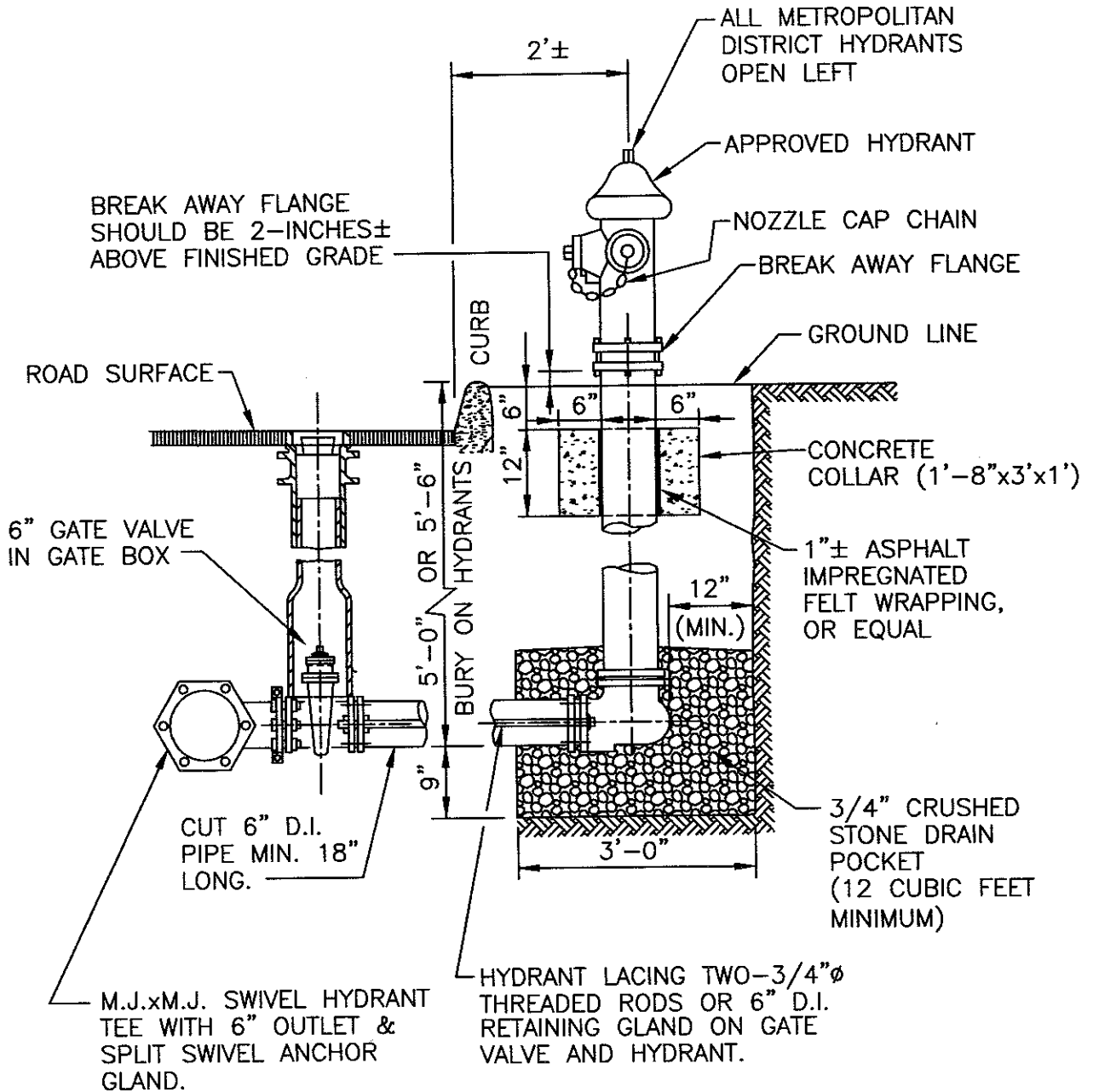


FIRE HYDRANT ASSEMBLY TYPICAL RETAINING GLAND INSTALLATION

FIGURE - 25

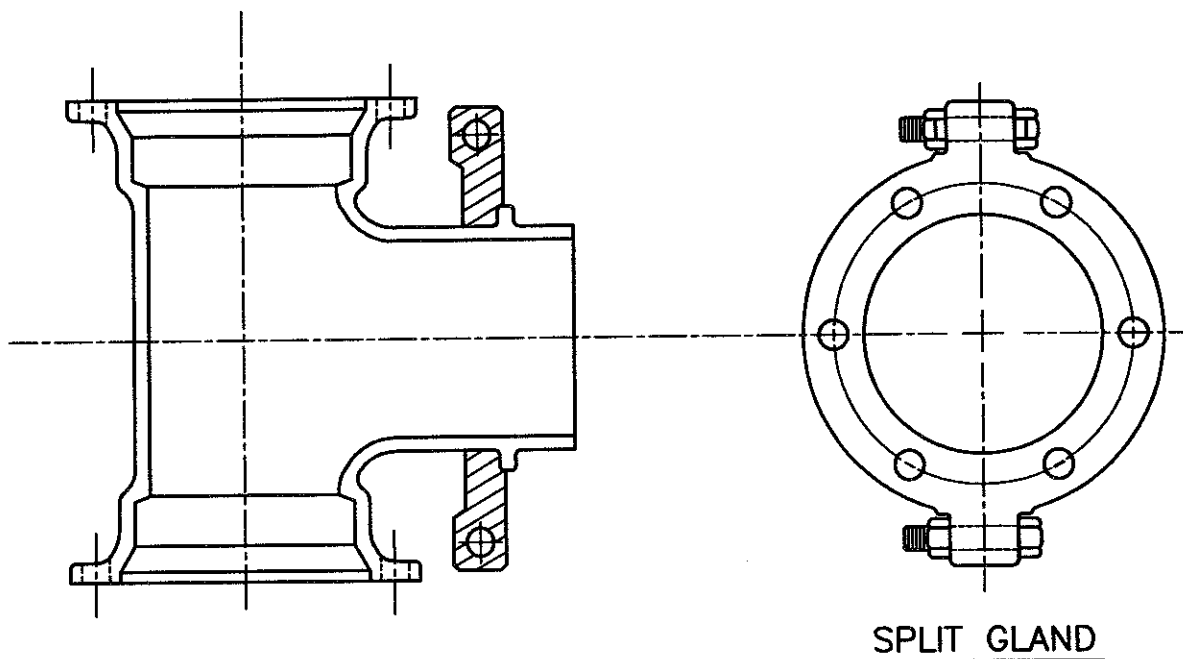
THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION DETAILS



FIRE HYDRANT ASSEMBLY
TYPICAL HYDRANT TEE INSTALLATION
WITH LACING RODS

THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS



NOTE:

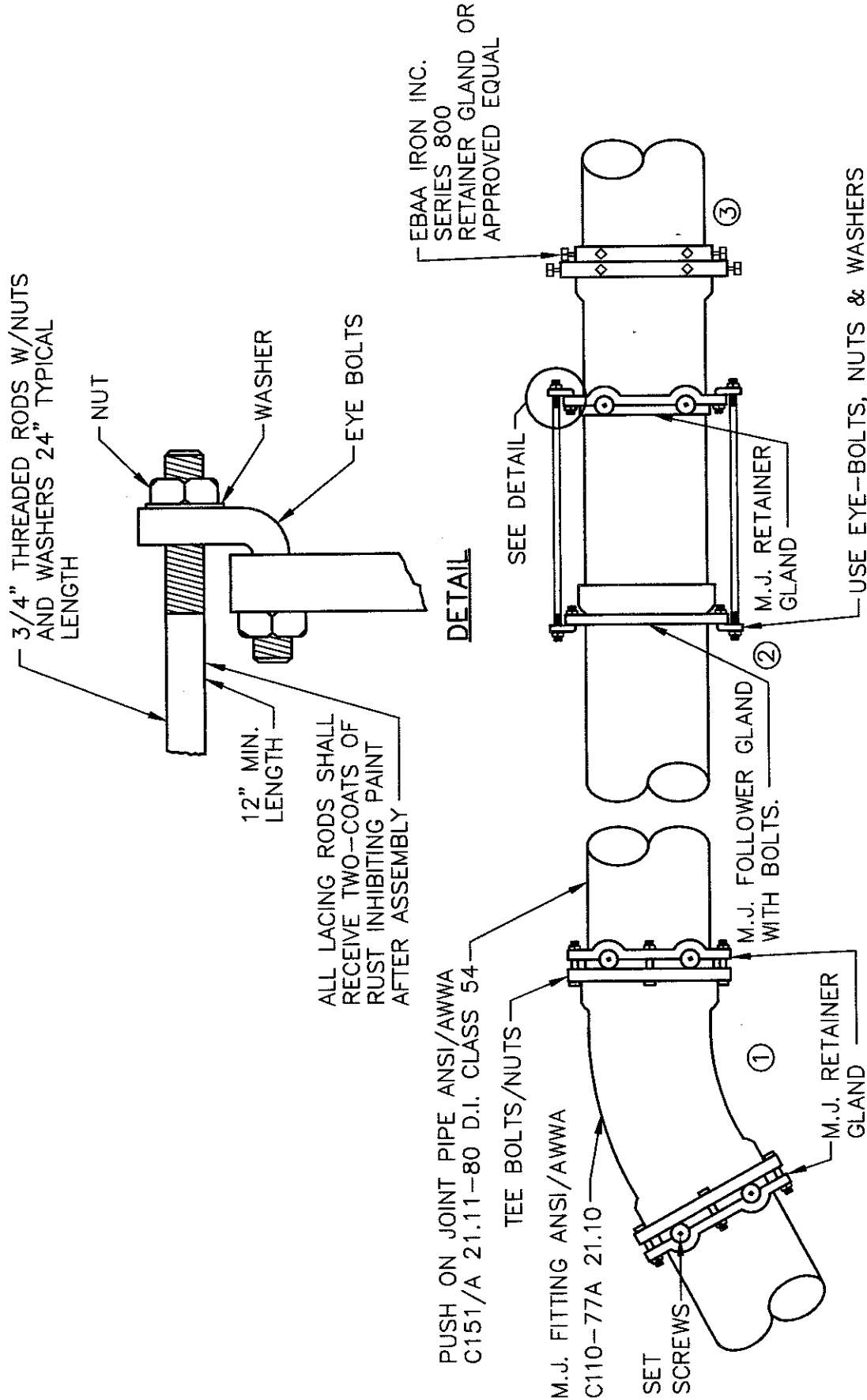
THE SWIVEL HYDRANT TEE IS A COMPACT M.J. TEE EXCEPT THE BRANCH IS PLAIN END WITH AN INTEGRAL GLAND AND A ROTATABLE SPLIT GLAND. THE SPLIT GLAND ANCHORS THE PLAIN END TO ANY MECHANICAL JOINT BELL AND ELIMINATES THE NEED FOR THE RODS AND BLOCKING. THIS TEE CAN BE USED FOR HYDRANT LEADS AND FOR ANCHORING A VALVE TO THE TEE SHOULD A FUTURE BRANCH LINE BE ANTICIPATED.

SPECIAL SWIVEL M.J. HYDRANT TEE

FIGURE - 27

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION DETAILS



- THRUST RESTRAINT-RESTRAINED JOINT METHODS**
- ① MECHANICAL JOINT RETAINER GLANDS
 - ② PUSH-ON JOINT RESTRAINT USING MECHANICAL JOINT RETAINER GLANDS AND LACING
 - ③ PUSH-ON JOINT RETAINER GLANDS

TYPICAL RESTRAINED JOINTS

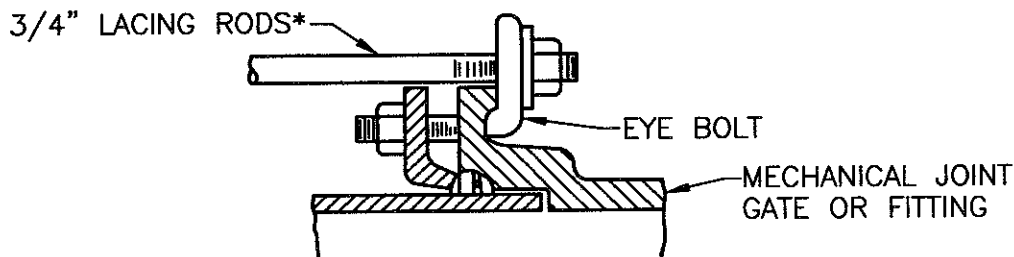
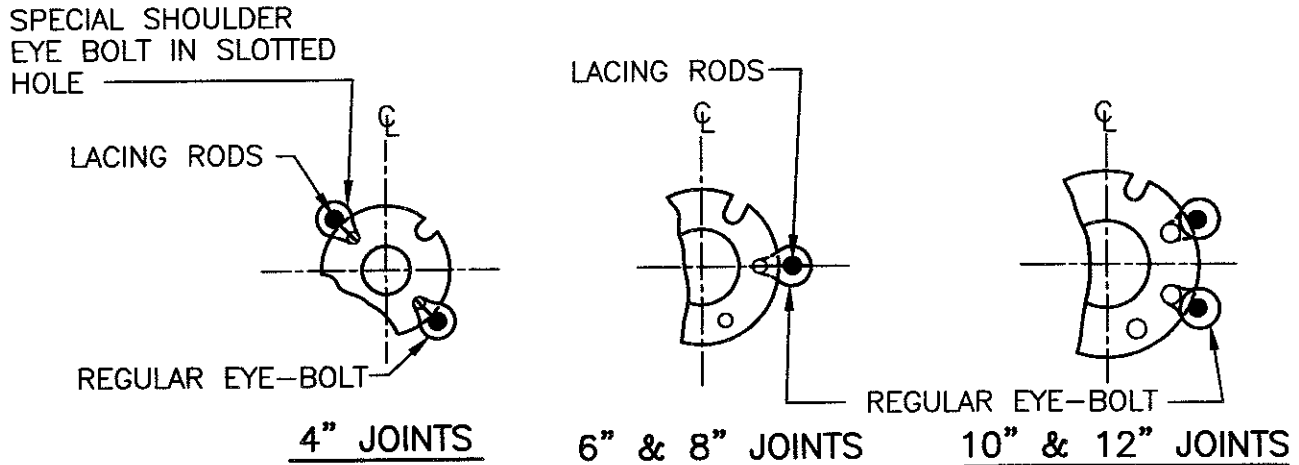
FIGURE - 28

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION DETAILS



THRUST RESTRAINT – LACING METHOD



PIPE SIZE	No. LACING RODS
4", 6" & 8"	2 - 3/4"φ
10" & 12"	4 - 3/4"φ

* STANDARD LENGTHS ARE 6' & 10'. COUPLINGS MAY BE USED FOR LONGER LENGTHS.

NOTES:

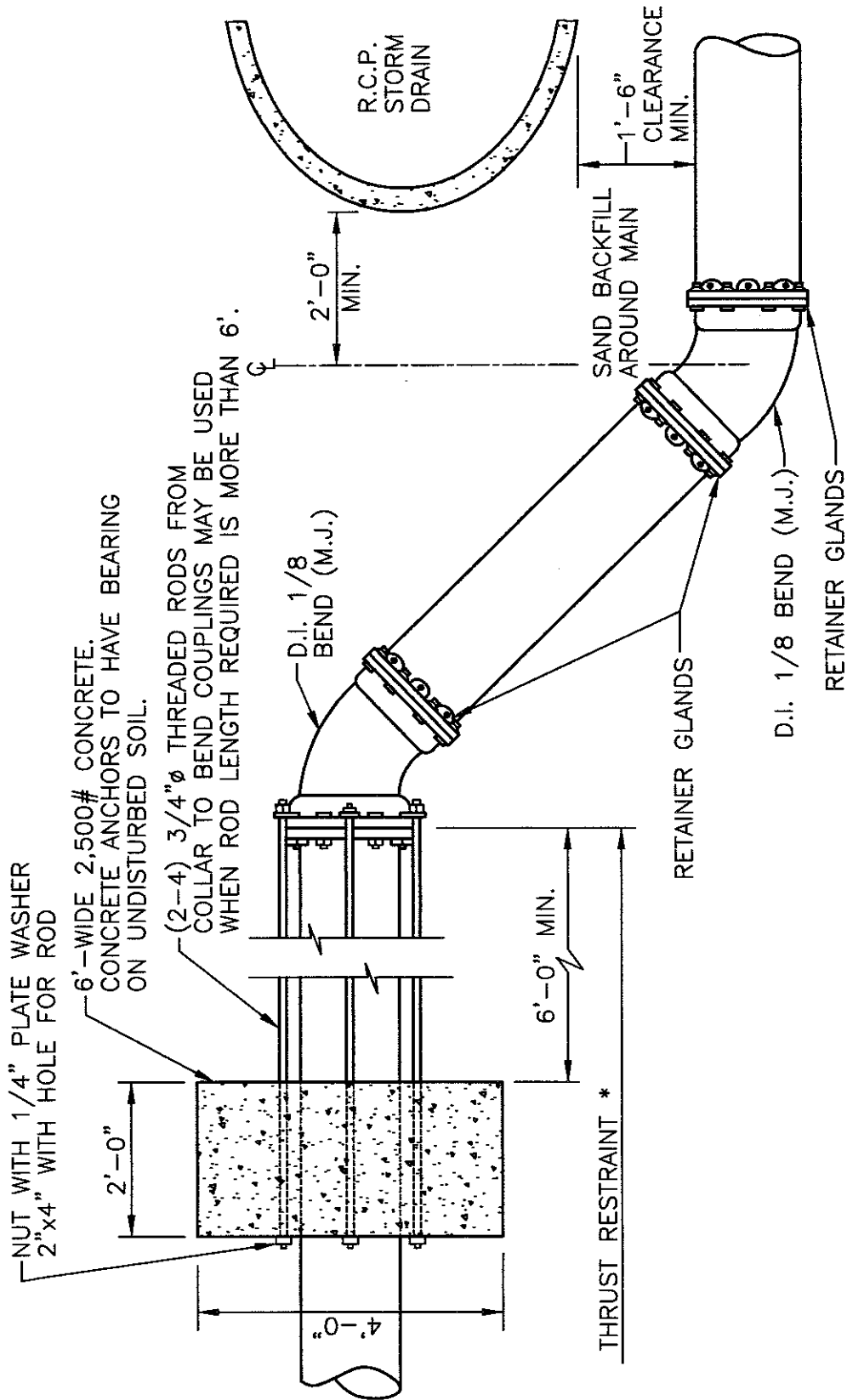
1. NUMBER OF LACING RODS IS BASED ON MAXIMUM PRESSURE OF 150 P.S.I. IN MAIN.
2. EYE-BOLTS AND LACING RODS ARE TO BE FABRICATED FROM A-36 STEEL.
3. STEEL LACING RODS SHALL HAVE A YIELD STRESS OF NOT LESS THAN 36,000 P.S.I.
4. EYE-BOLTS SHALL HAVE A MINIMUM TENSILE STRENGTH OF 7,000 LBS. EACH.
5. 3/4" LACING RODS AND EYEBOLTS ARE UNSUITABLE FOR PIPELINES 16 INCHES IN DIAMETER AND LARGER. RESTRAINT FOR 16 INCHES AND LARGER PIPES MUST BE DESIGNED ON A CASE-BY-CASE BASIS AND APPROVED BY THE METROPOLITAN DISTRICT.

MECHANICAL JOINT LACING DETAIL

FIGURE – 29

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION DETAILS



* THRUST RESTRAINT

METHOD A. — RESTRAIN JOINTS, AS SHOWN ON CONSTRUCTION DRAWINGS, BACK FROM BENDS—OR OFFSETS.

METHOD B. — SHOWN ABOVE—PROVIDE ADEQUATE CONC. ANCHOR & RODS.

TYPICAL OFFSET

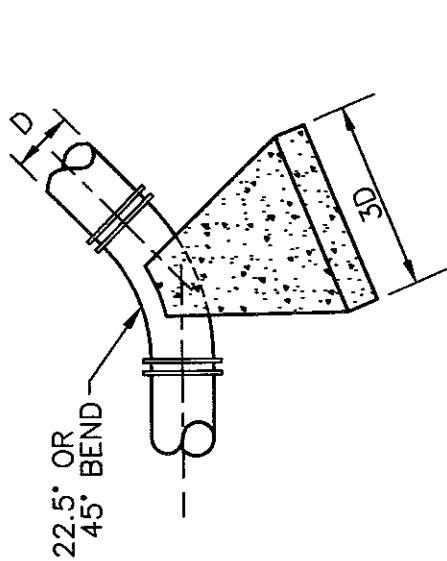
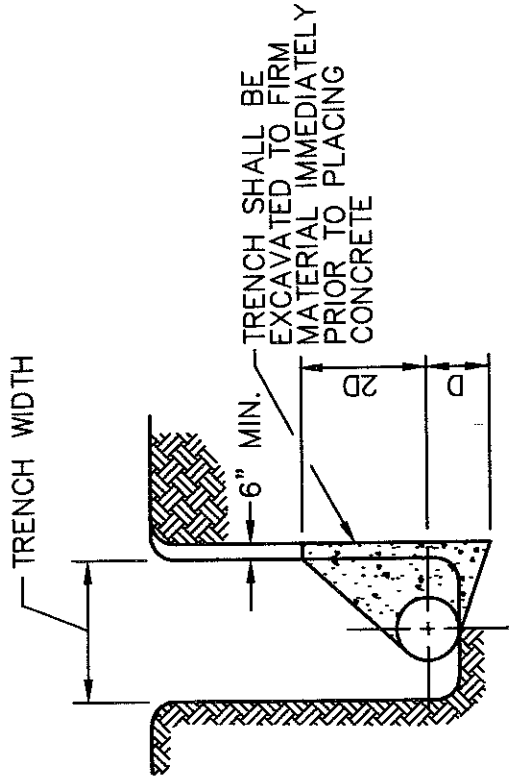
FIGURE — 30

THE METROPOLITAN DISTRICT

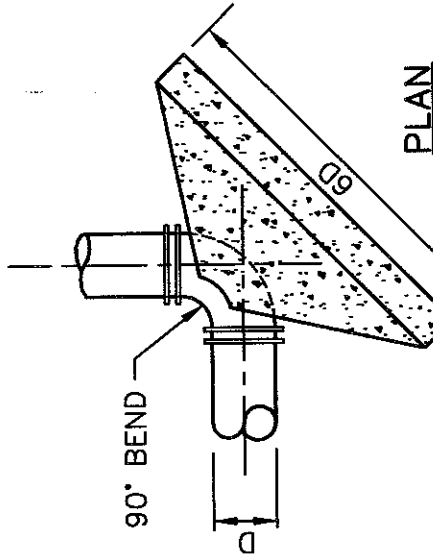
WATER SERVICES INSTALLATION DETAILS



NOTE:
THRUST BLOCKS ARE NOT AN ACCEPTABLE METHOD OF THRUST RESTRAINT IN MOST SITUATIONS, AND WILL ONLY BE PERMITTED IN SPECIAL CASES.

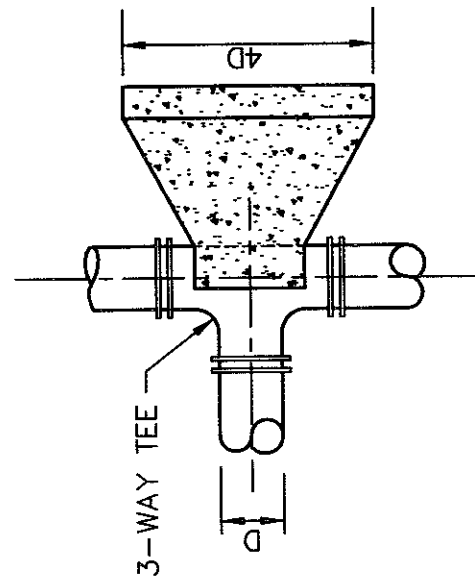


SECTION



SHOULD ONLY BE USED WHEN SOIL
CONDITIONS ARE STABLE.

PLAN

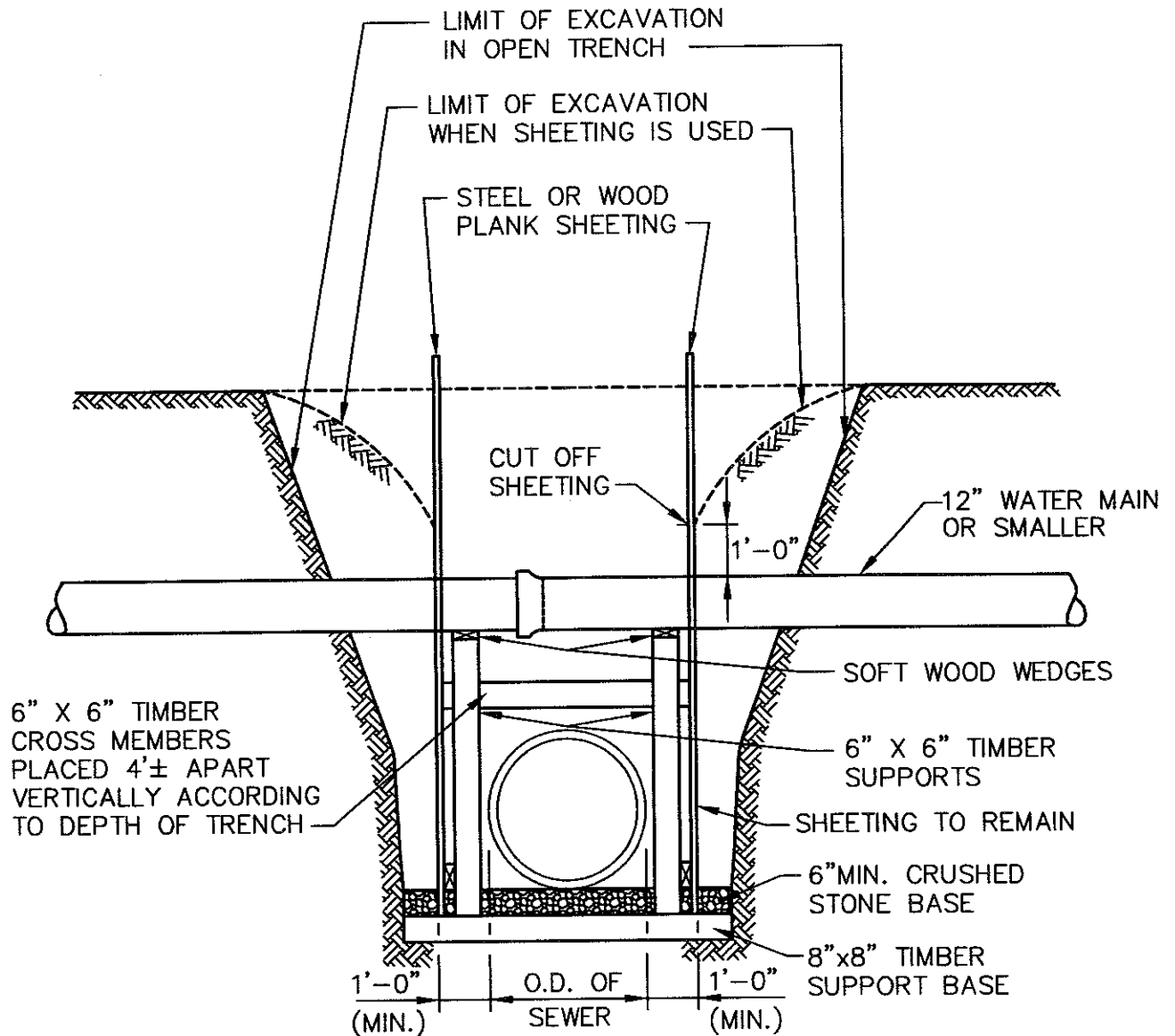


ANCHORS BASED ON MAXIMUM
ALLOWABLE WATER PRESSURE
OF 125 PSI

CONCRETE THRUST BLOCKS
FOR USE WITH 12" INCH & SMALLER WATER MAINS

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION DETAILS



NOTE:

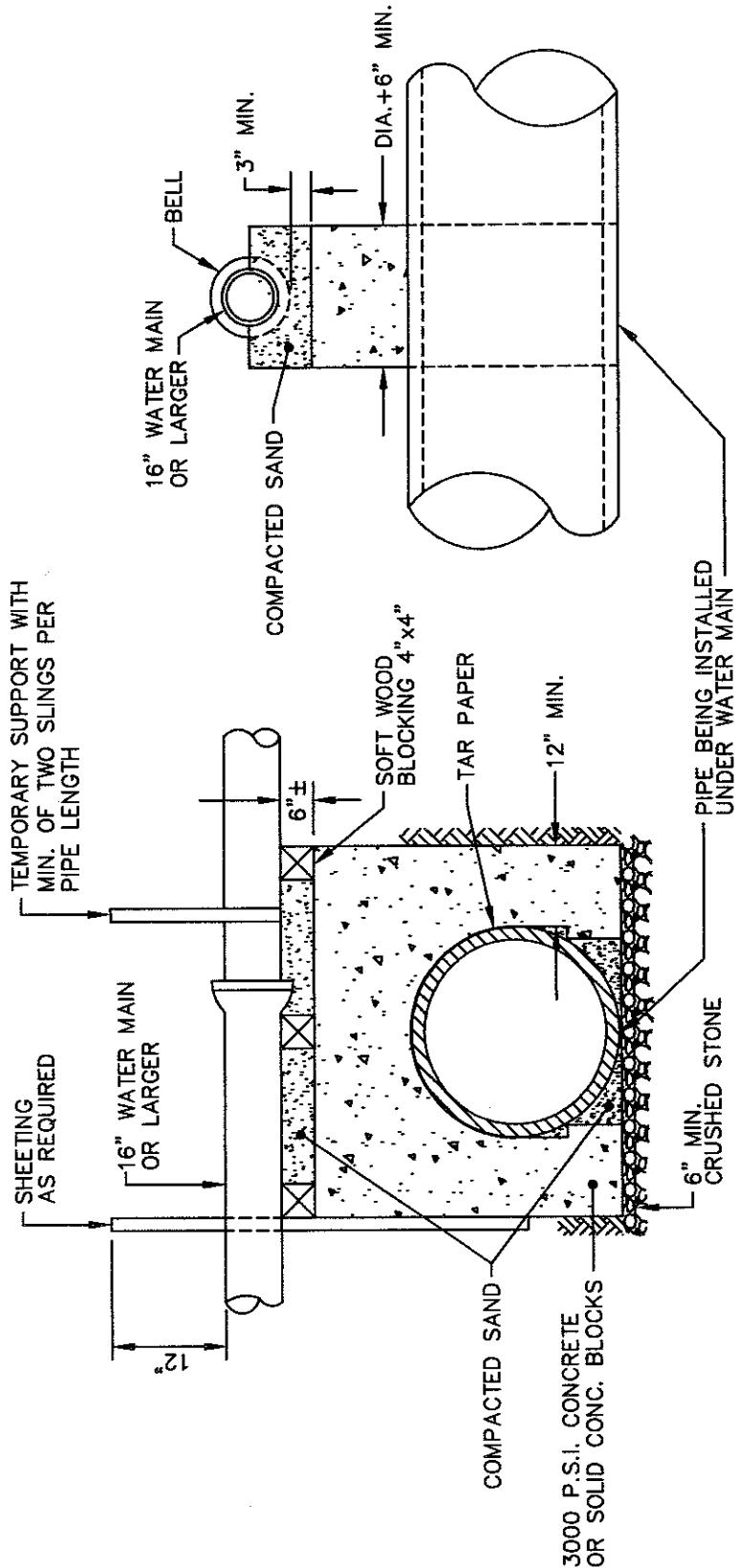
THE BACKFILL AROUND WATER MAIN MUST BE THOROUGHLY COMPACTED WITH SUITABLE MATERIAL.

TEMPORARY SUPPORT INSTALLATION MUST BE APPROVED BY A CONNECTICUT REGISTERED PROFESSIONAL ENGINEER.

PERMANENT WATER PIPE SUPPORT FOR MAINS 12" AND SMALLER

FIGURE - 32

THE METROPOLITAN DISTRICT
 WATER SERVICES INSTALLATION
 DETAILS



NOTE:
 CONTRACTOR TO SUBMIT DETAILS OF TRENCH
 SHEETING AND PIPE SUPPORT FOR APPROVAL
 OF THE ENGINEER

CONTRACTOR TO EXCAVATE TO HORIZONTAL
 CENTER LINE OF PIPE PRIOR TO DRIVING SHEETING

PERMANENT WATER PIPE SUPPORT
FOR MAINS 16" AND LARGER

FIGURE -- 32A

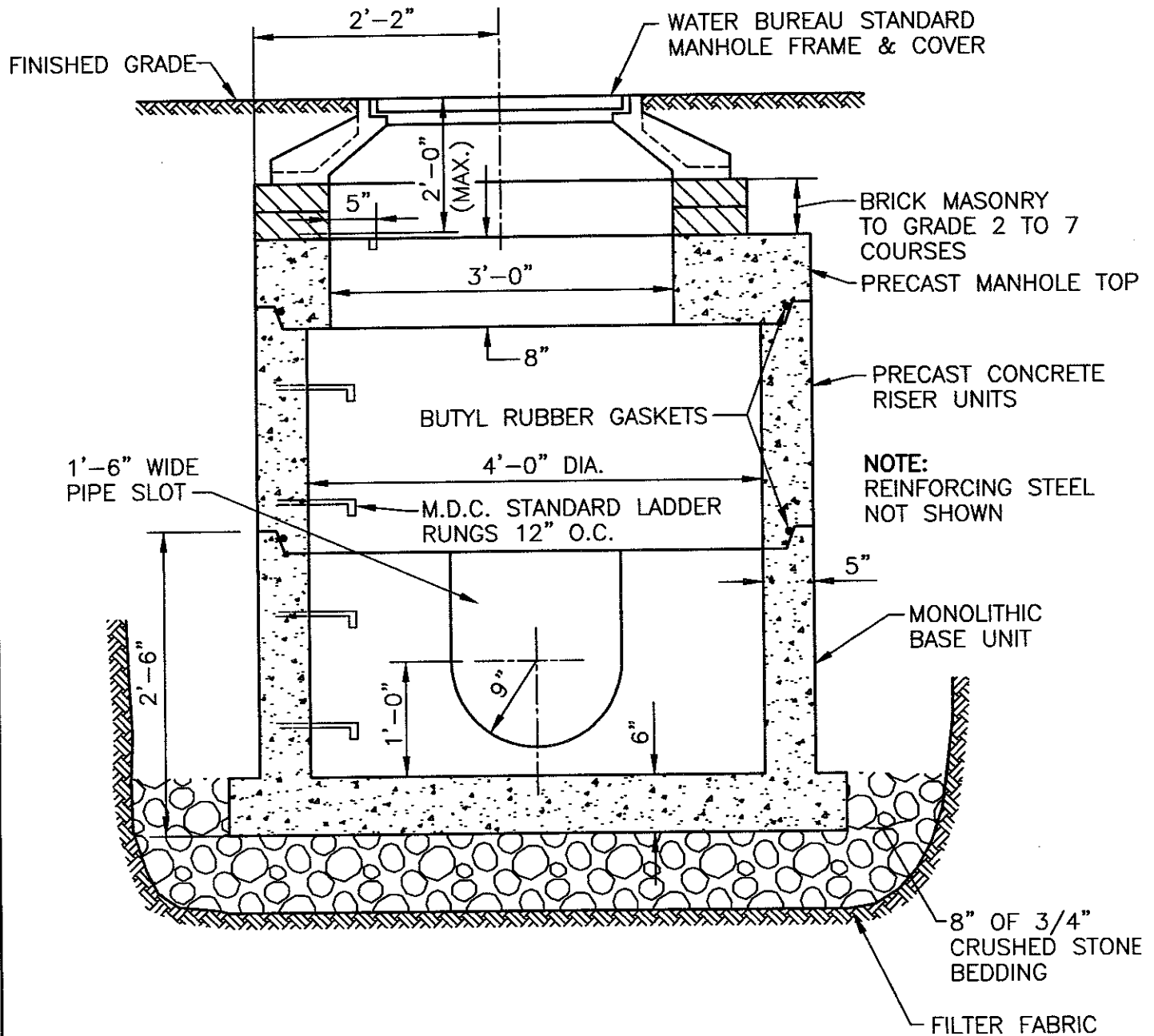
THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION DETAILS



PRECAST CONCRETE SPECIFICATIONS (A.S.T.M. C-478) --

CONCRETE MIN. STRENGTH 4,000 P.S.I. IN 28 DAYS STEEL REINFORCEMENT-A.S.T.M. C-478
CONSTRUCTION JOINT-SEALED WITH AN "O" RING RUBBER GASKET OR DISTRICT APPROVED
BUTYL JOINT SEALANT.



STANDARD MANHOLE

ROUND BASE

FIGURE - 33

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION

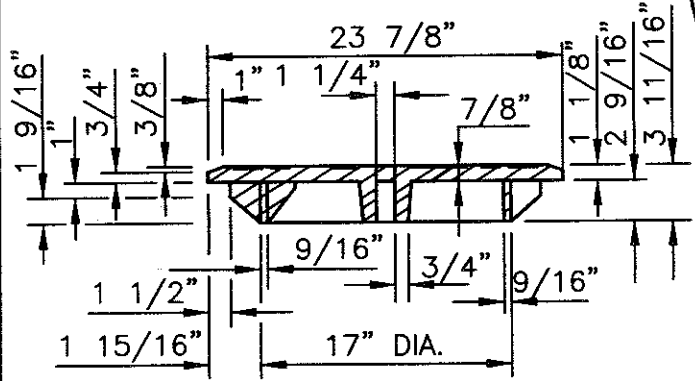
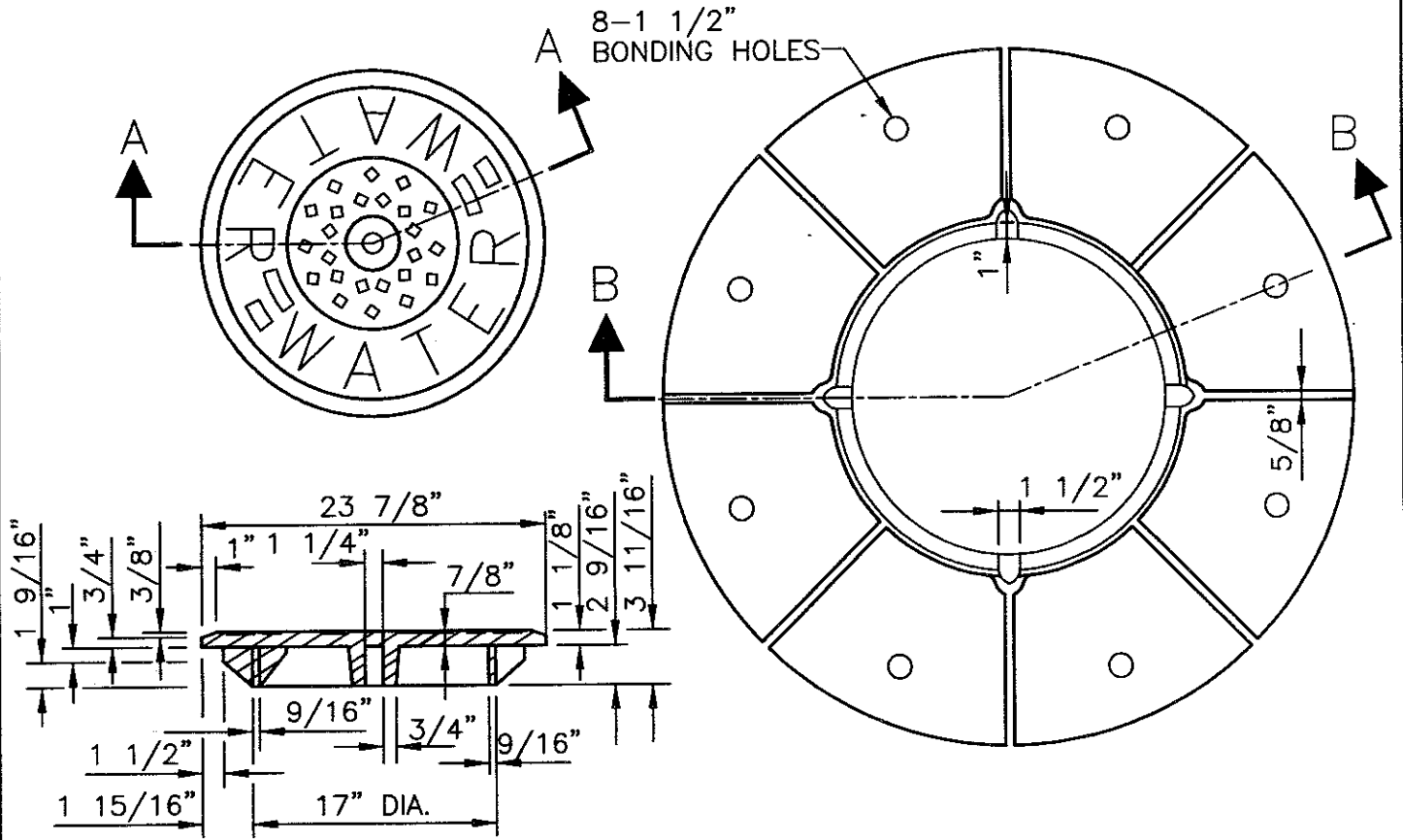
DETAILS

MDC



NOTE:

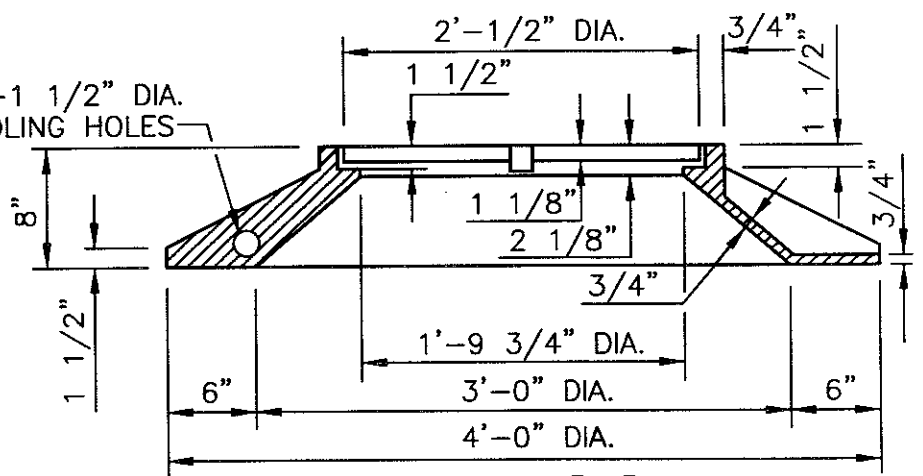
THE LOWER SURFACE OF THE COVER AND THE CORRESPONDING UPPER SURFACE OF THE FRAME SHALL BE MACHINE FINISHED TO PROVIDE A SMOOTH FLAT CONTACT OR FIT WITHOUT ANY TENDENCY FOR THE COVER OR GRATE TO ROCK OR RATTLE.



SECTION A-A
COVER

HEAVY DUTY MANHOLE FRAME & COVER FOR VEHICULAR TRAFFIC AREA.

TWO-1 1/2" DIA. HANDLING HOLES



SECTION B-B
FRAME

STANDARD MANHOLE FRAME & COVER

FIGURE - 34

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION DETAILS

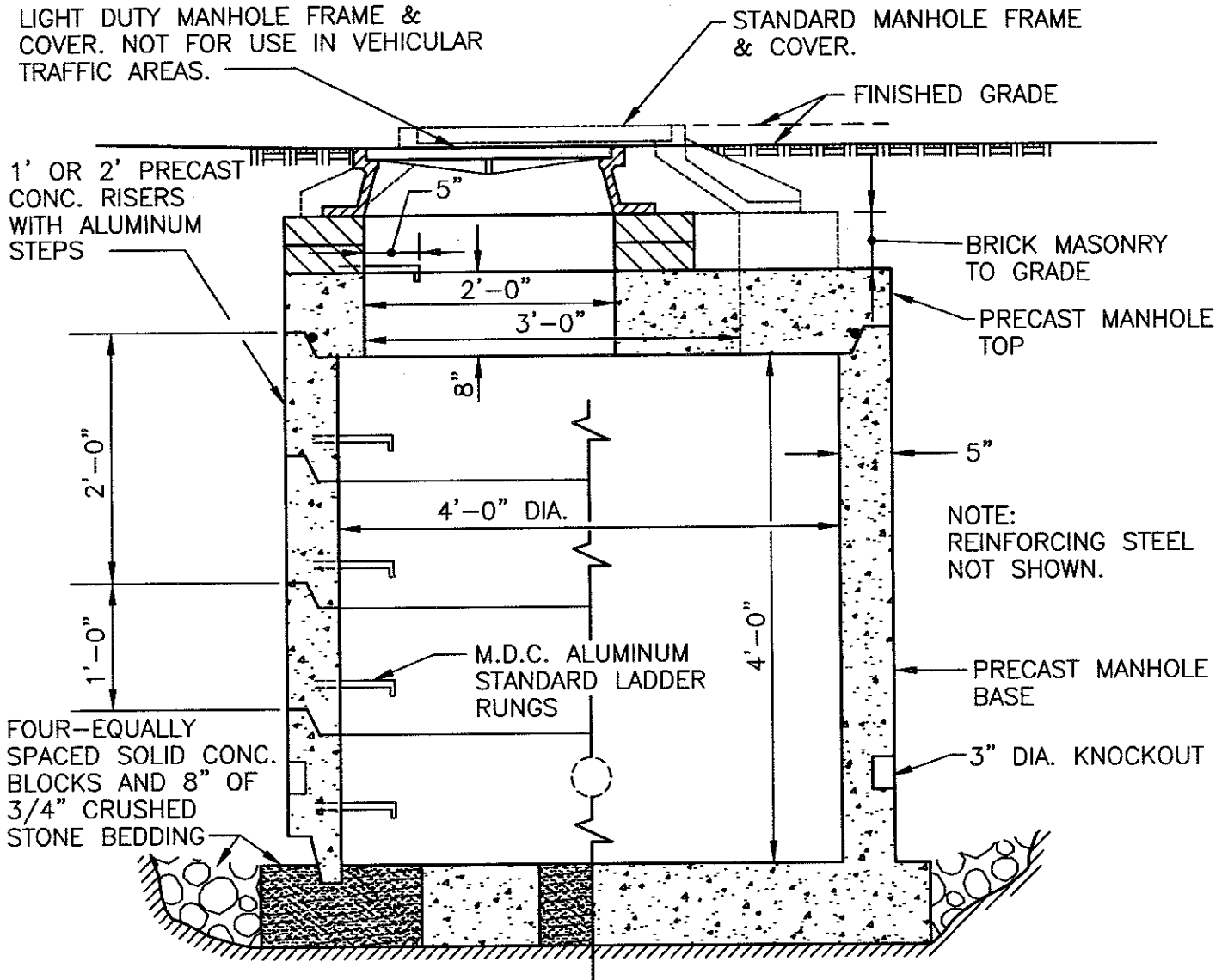


NOTE: PRECAST CONCRETE SPECIFICATIONS

CONCRETE MIN. STRENGTH 4000 P.S.I. IN 28 DAYS

STEEL REINFORCEMENT - A.S.T.M. C-478

CONSTRUCTION JOINT - SEALED WITH BUTYL RUBBER GASKET.

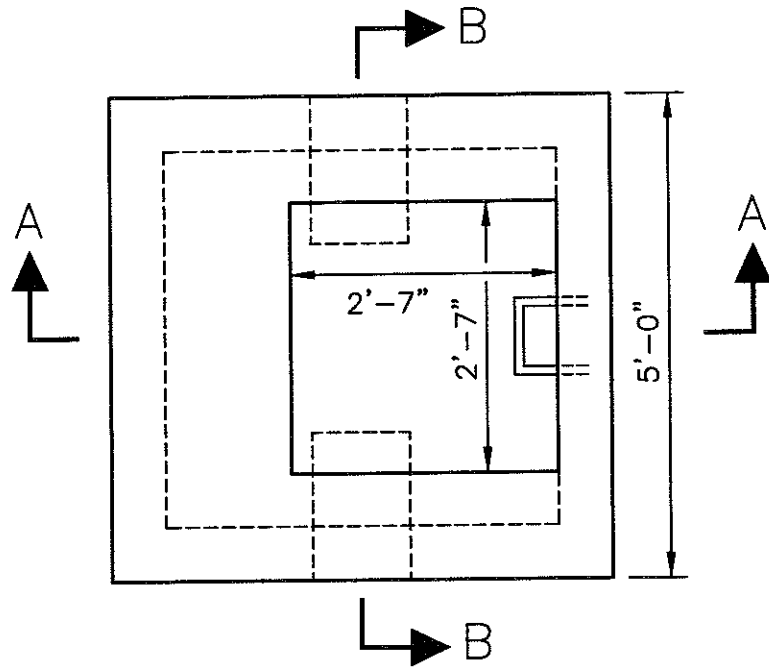


PRECAST METER PIT
(1 1/2" TO 2" SERVICE)

FIGURE - 35

THE METROPOLITAN DISTRICT

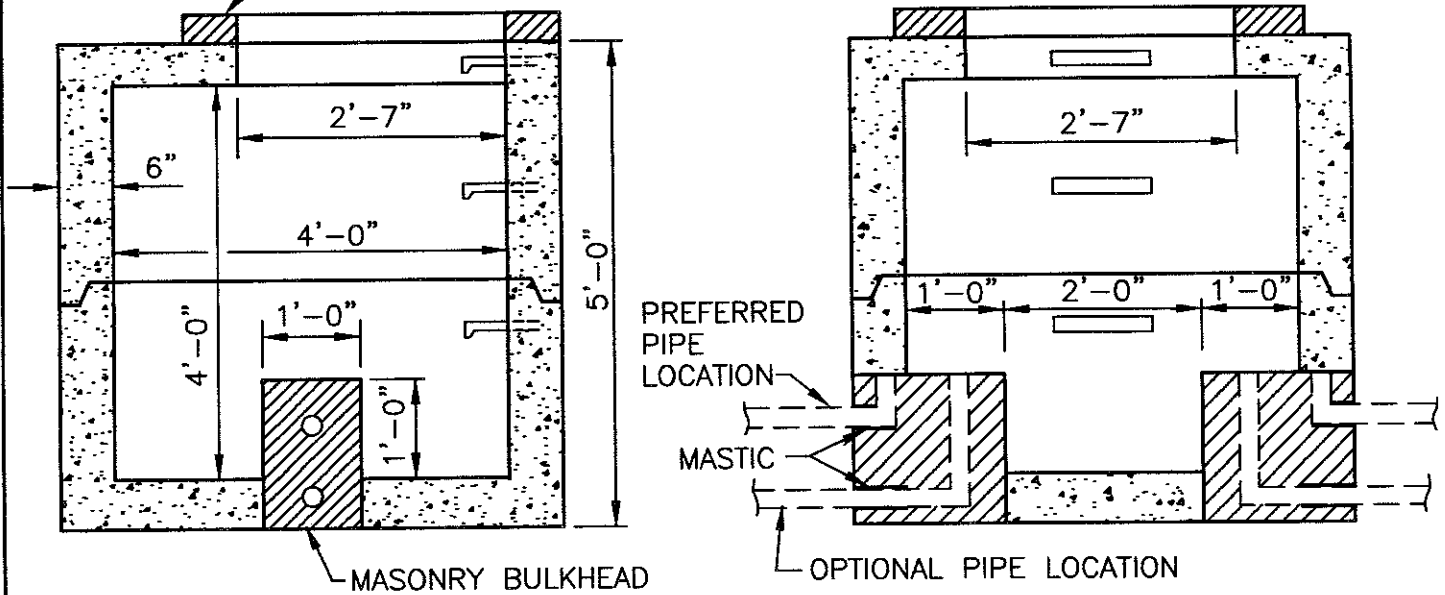
WATER SERVICES INSTALLATION DETAILS



PLAN

SEE DETAIL SHEET FOR ALUMINUM HATCHWAY

BRICKWORK MAY BE USED TO ADJUST HATCHWAY
TO GRADE



SECTION A-A

SECTION B-B

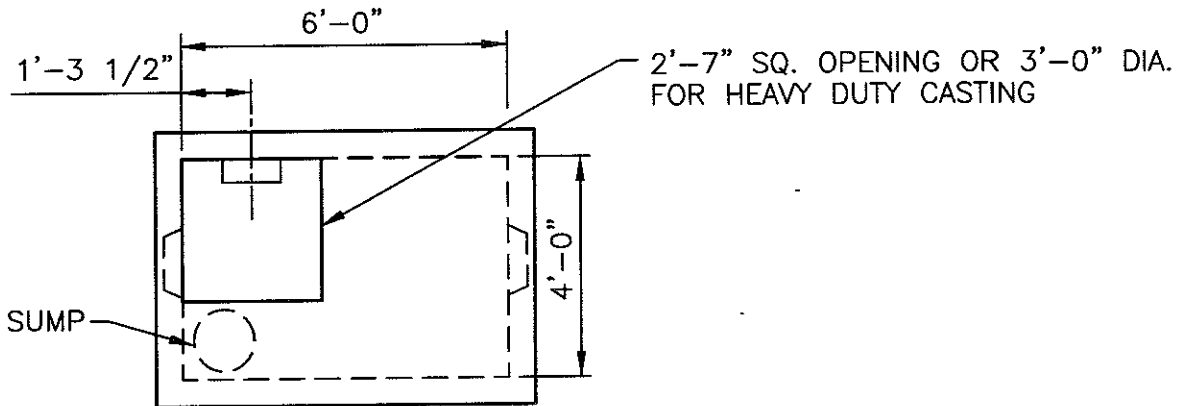
4'x4' PRECAST METER PIT 1 1/2" TO 2" SERVICE

FIGURE - 36

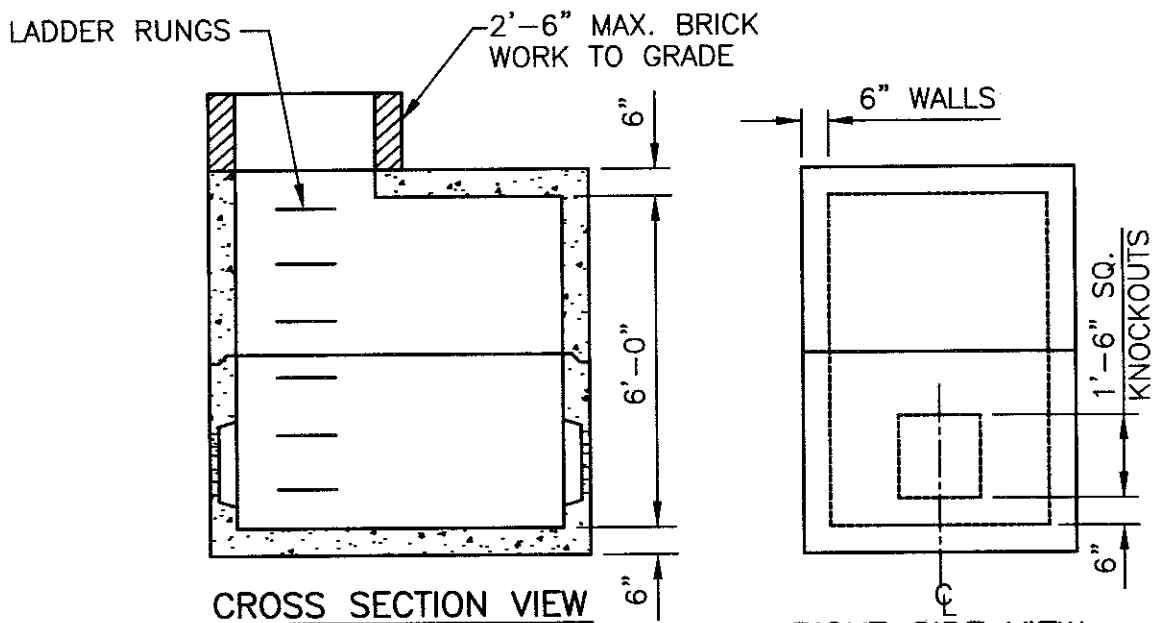
THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS



FOR DUCTILE IRON PIPING



PLAN VIEW



CROSS SECTION VIEW

RIGHT SIDE VIEW

NOTE: SPECIFICATIONS

- CONCRETE MINIMUM STRENGTH - 5,000 P.S.I. @ 28 DAYS
- STEEL REINFORCEMENT - ASTM-A-79, GRADE 60, 1" MIN. COVER
- DESIGN LOADING - AASHTO HS20-44
- EARTH COVER - 0 TO 5 FEET
- WATER TABLE - 3 1/2 FEET BELOW FINISH GRADE
- CONSTRUCTION JOINT - SEALED WITH 1" DIA. BUTYL RUBBER OR EQUIVALENT

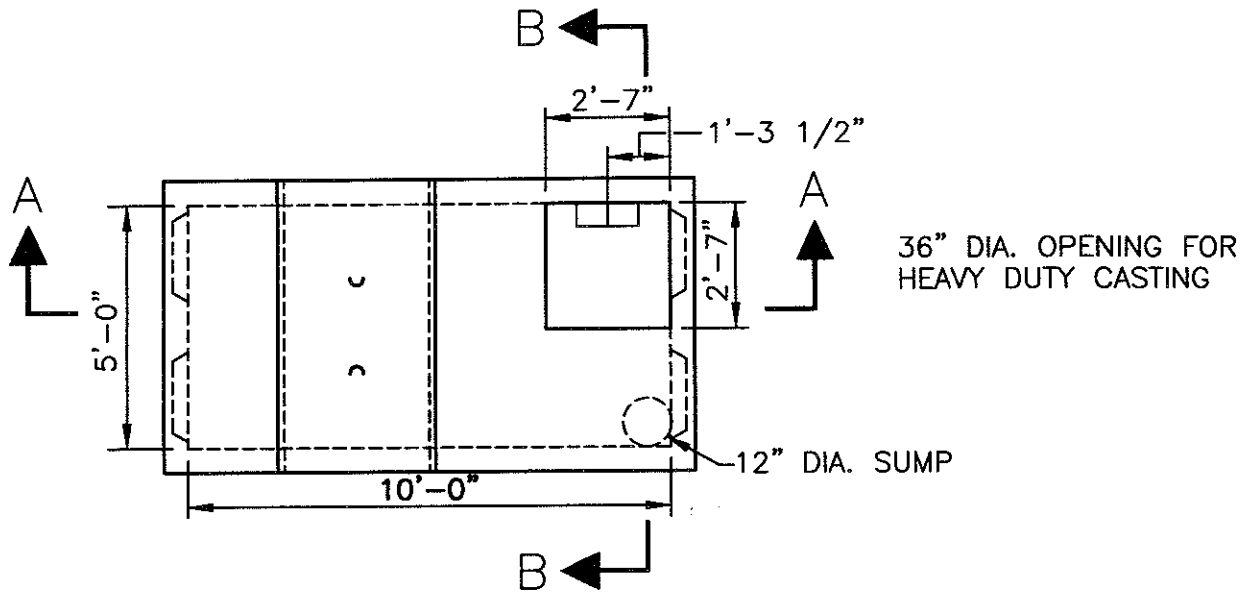
PRECAST METER PIT 6'x4'x6'
FOR 2" THROUGH 4" METERS

FIGURE - 37

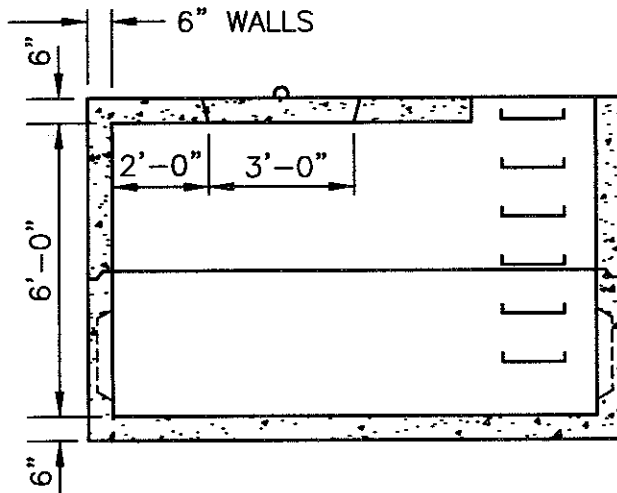
THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS



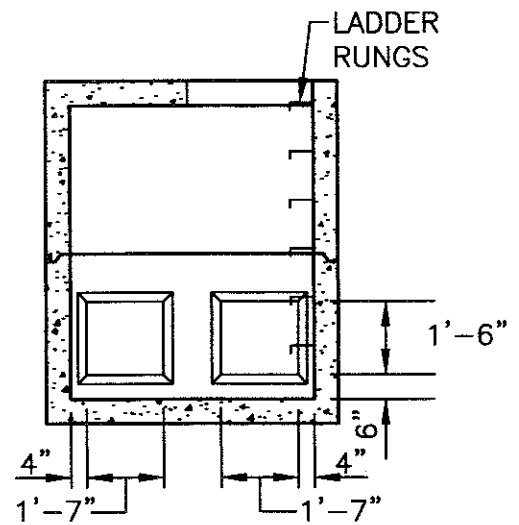
FOR DUCTILE IRON PIPING



PLAN VIEW



SECTION A-A



SECTION B-B

SPECIFICATIONS

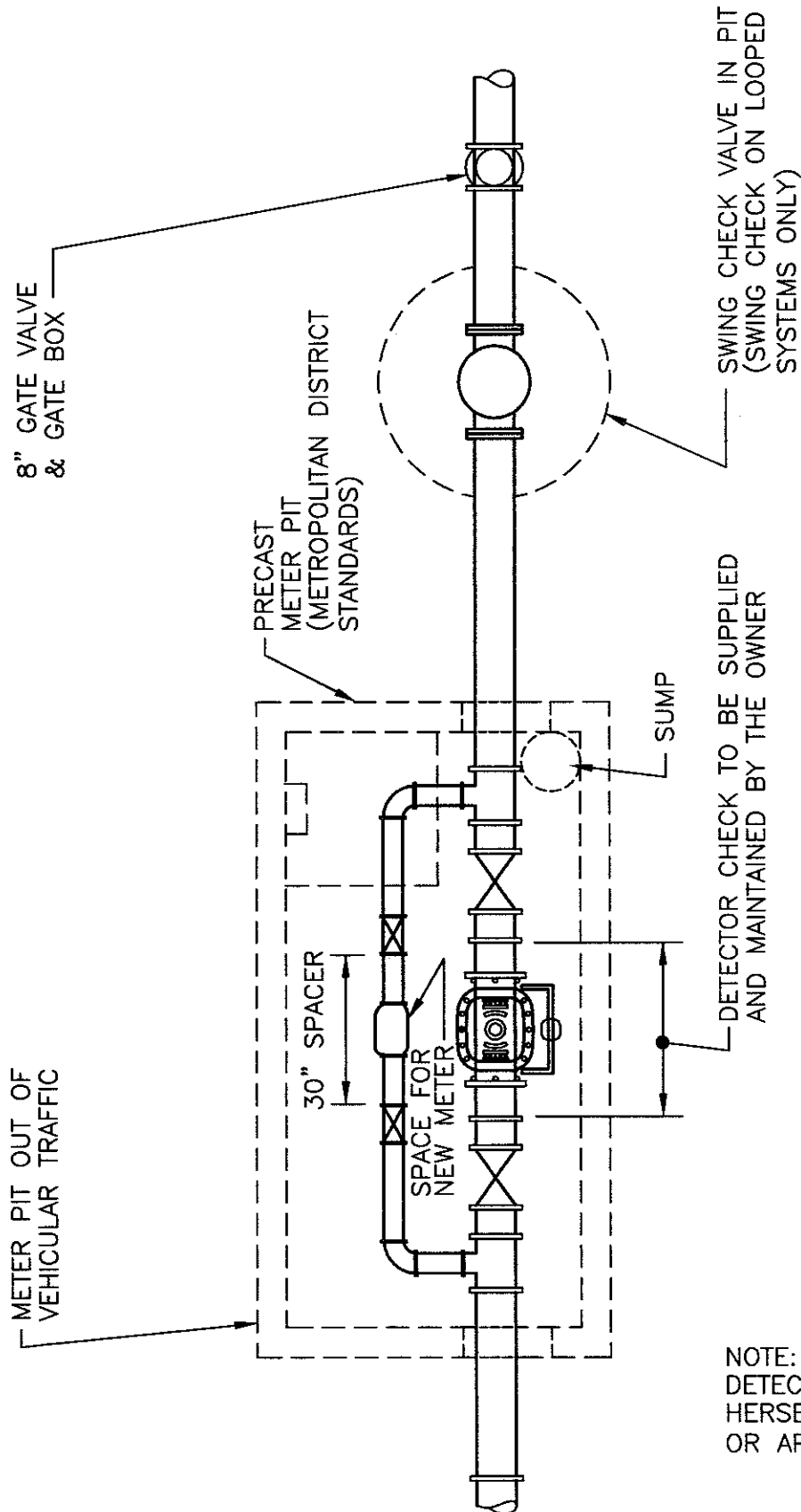
- CONCRETE MINIMUM STRENGTH - 5,000 P.S.I. @ 28 DAYS
- STEEL REINFORCEMENT - ASTM-A-79, GRADE 60, 1" MIN. COVER
- DESIGN LOADING - AASHTO HS20-44
- EARTH COVER - 0 TO 5 FEET
- WATER TABLE - 3 1/2 FEET BELOW FINISH GRADE
- CONSTRUCTION JOINT - SEALED WITH 1: DIA. BUTYL RUBBER OR EQUIVALENT

PRECAST METER PIT 5'x10'x6' FOR 4" & LARGER METERS & COMBINED SERVICES

FIGURE - 38

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION DETAILS

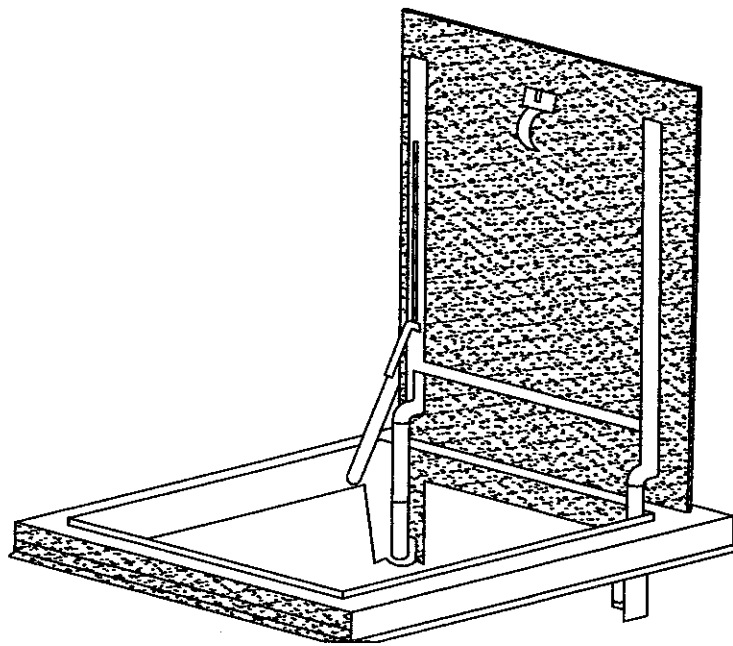


5'x10'x6'
COMBINED METER PIT

NOTE:
DETECTOR CHECK TO BE
HERSEY MODEL EDC III
OR APPROVED EQUAL

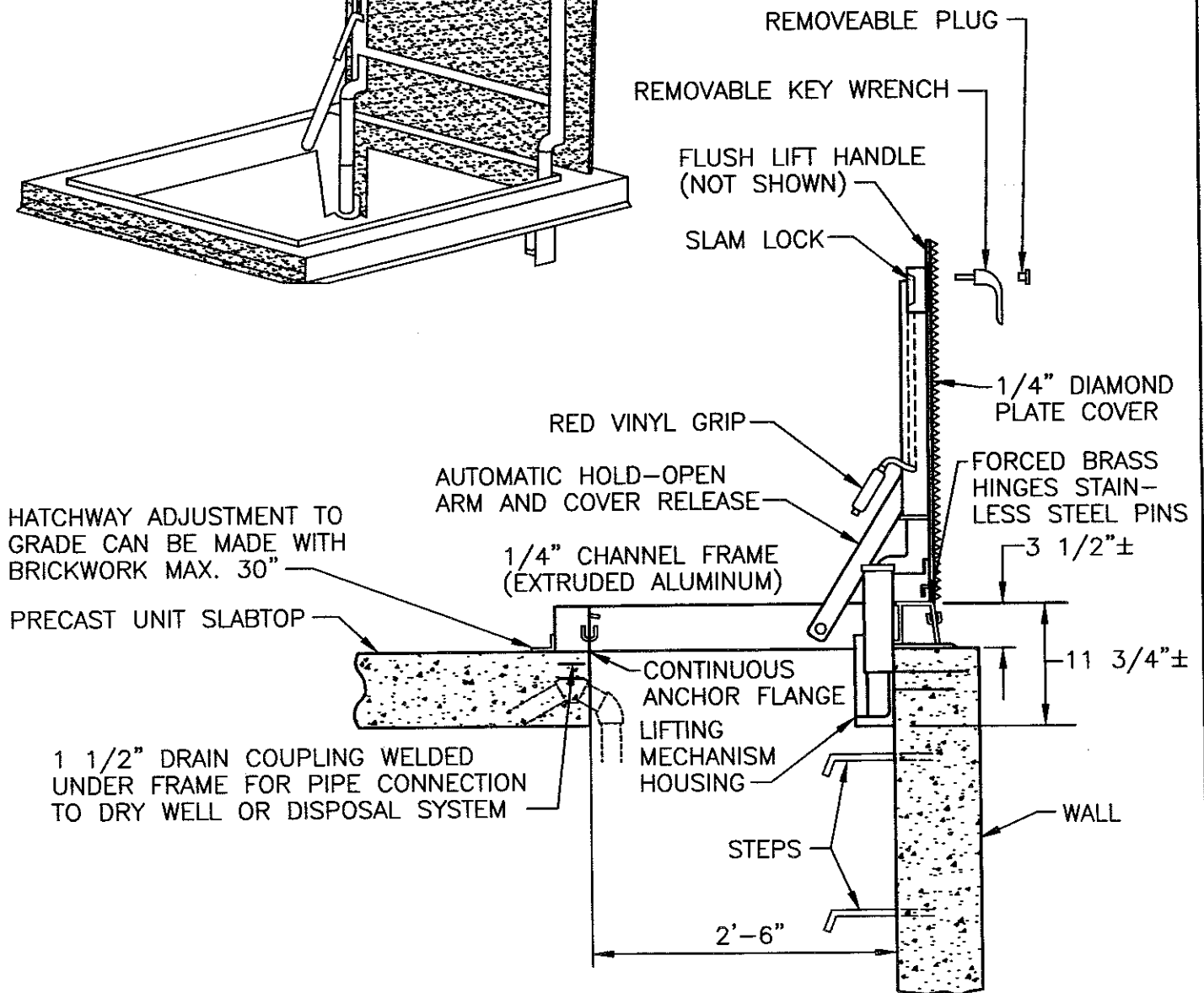
THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION DETAILS



BILCO TYPE "J"
OR EQUAL

J-2 AL 2'-6" x 2'-6"
WEIGHT 75 LBS.



ALUMINUM HATCHWAY FOR PRECAST PITS

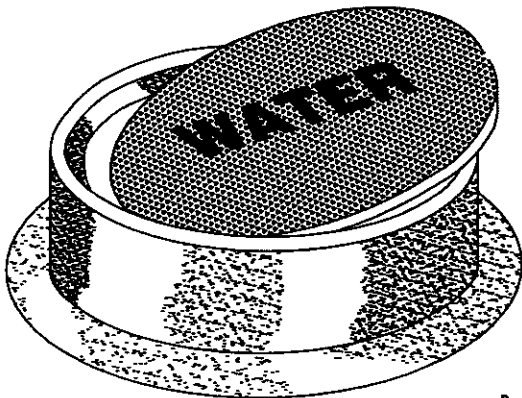
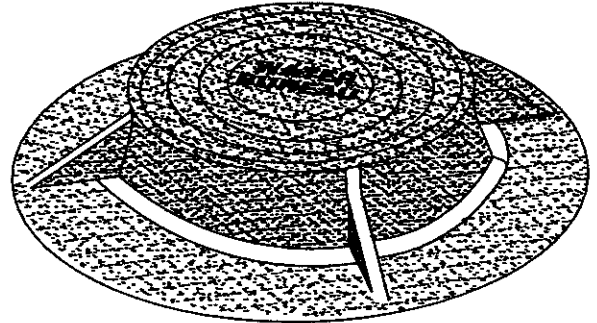
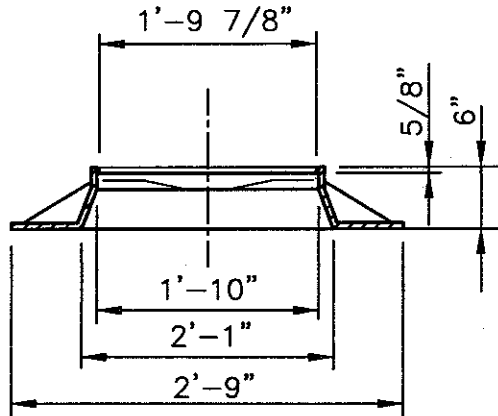
FIGURE - 40

THE METROPOLITAN DISTRICT
 WATER SERVICES INSTALLATION
 DETAILS

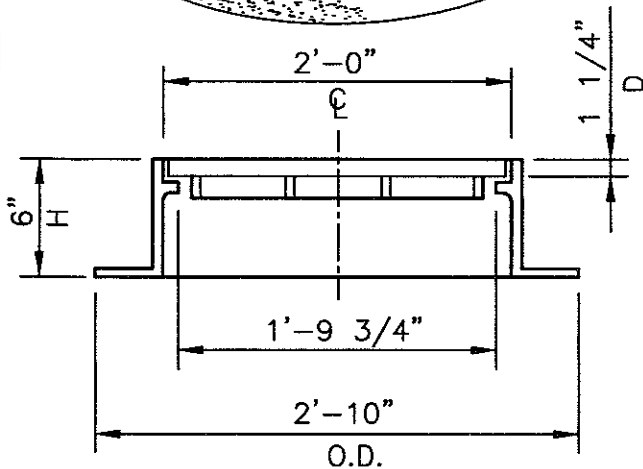


R-1696 MANHOLE FRAME, SOLID LID

LIGHT DUTY
 TOTAL WEIGHT: 270 POUNDS
 FURNISHED WITH MACHINED
 HORIZONTAL BEARING



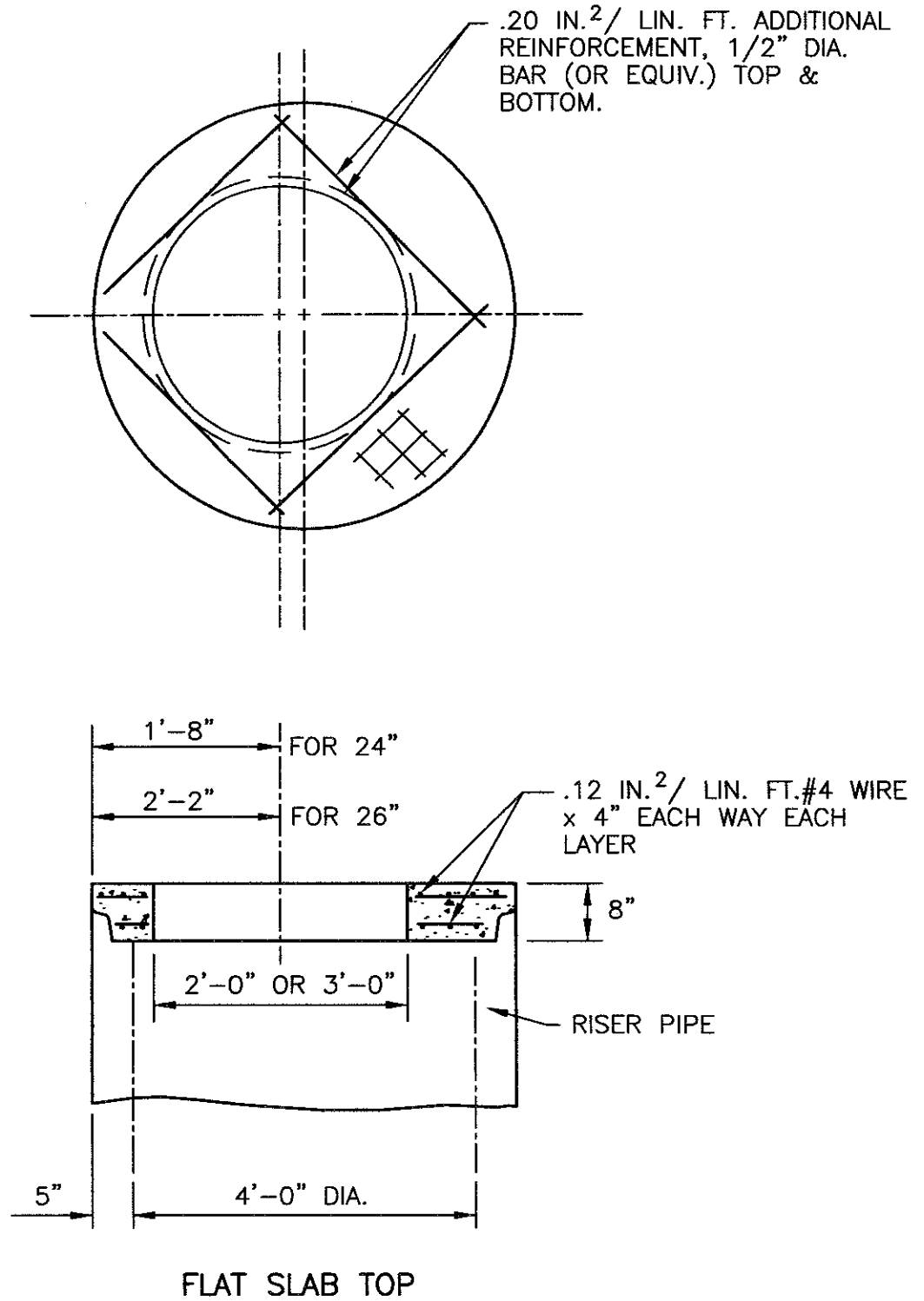
LAH 246
 TOTAL WEIGHT
 258 POUNDS



LIGHT DUTY MANHOLE FRAME & COVER
FOR METER PIT

FIGURE - 41

THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS



PRECAST FLAT SLAB METER PIT TOP

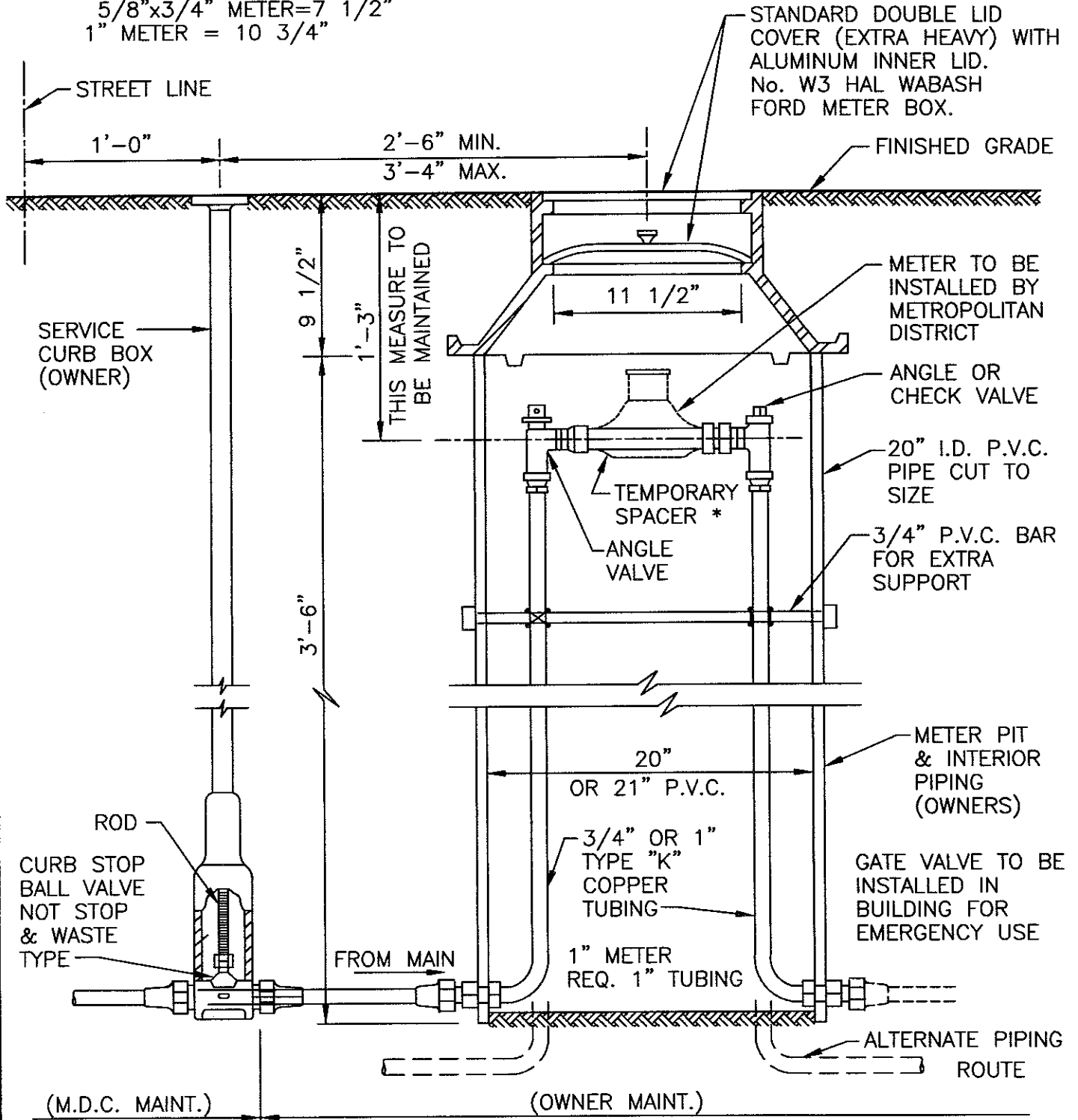
FIGURE - 42

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION DETAILS



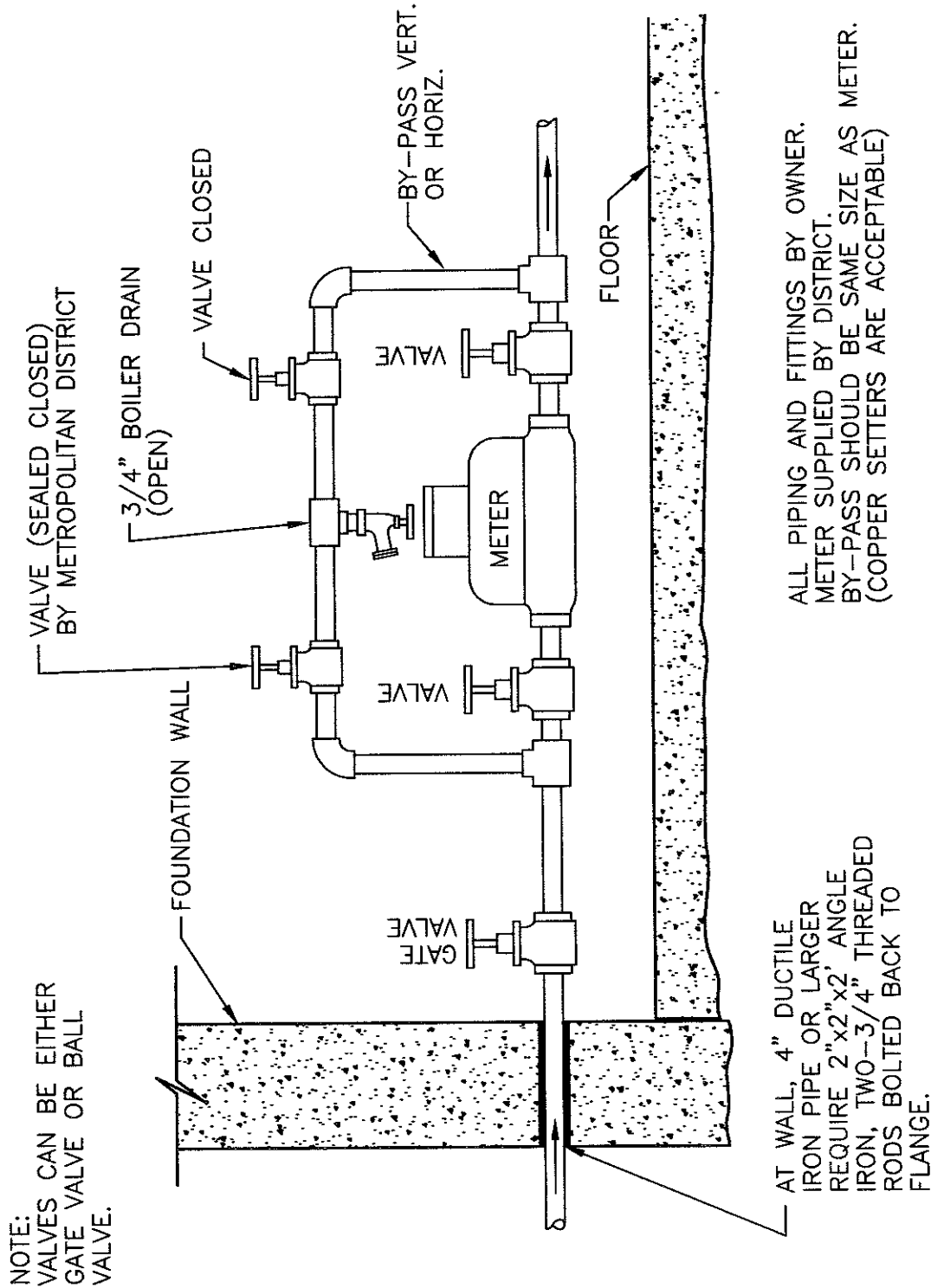
*METER SPACER SIZE
 5/8"x3/4" METER=7 1/2"
 1" METER = 10 3/4"



OUTSIDE METER BOX FOR 1" SERVICE
5/8"x3/4" TO 1" METER

FIGURE - 43

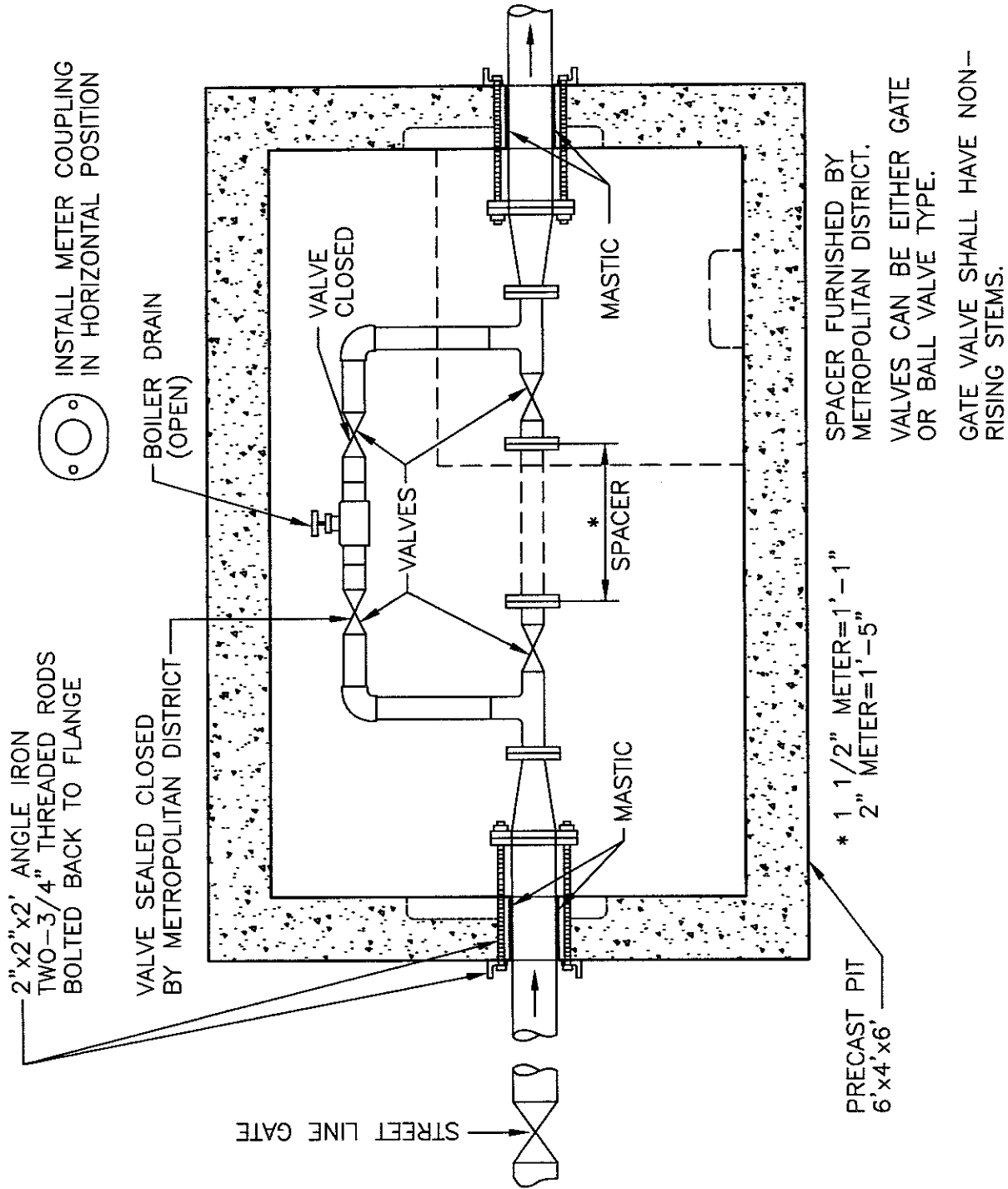
THE METROPOLITAN DISTRICT
 WATER SERVICES INSTALLATION
 DETAILS



**TYPICAL METER INSTALLATION WITH BY-PASS
 REQUIRED ON 1 1/2" SERVICES & LARGER
 WITHIN BUILDINGS**

FIGURE - 44

THE METROPOLITAN DISTRICT
 WATER SERVICES INSTALLATION
 DETAILS



TYPICAL METER INSTALLATION
WITH BY-PASS FOR 1 1/2" & 2" METERS WITHIN PIT

THE METROPOLITAN DISTRICT
 WATER SERVICES INSTALLATION
 DETAILS

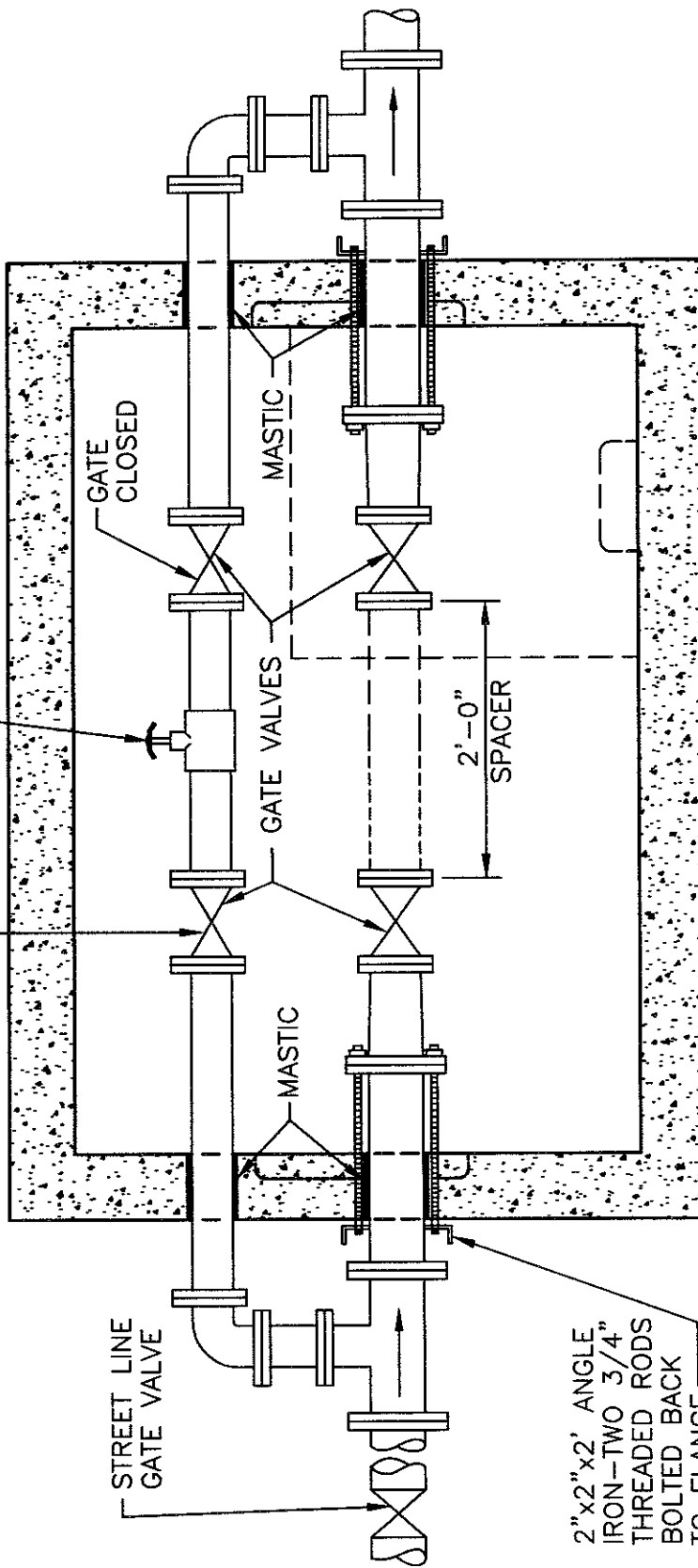


SPACER FURNISHED
 BY METROPOLITAN DISTRICT

GATE VALVES SHALL BE
 NON RISING STEM TYPE

GATE VALVE SEALED CLOSED
 BY METROPOLITAN DISTRICT

BOILER DRAIN
 (OPEN)



PRECAST METER PIT 6'x4'x6'

TYPICAL METER INSTALLATION

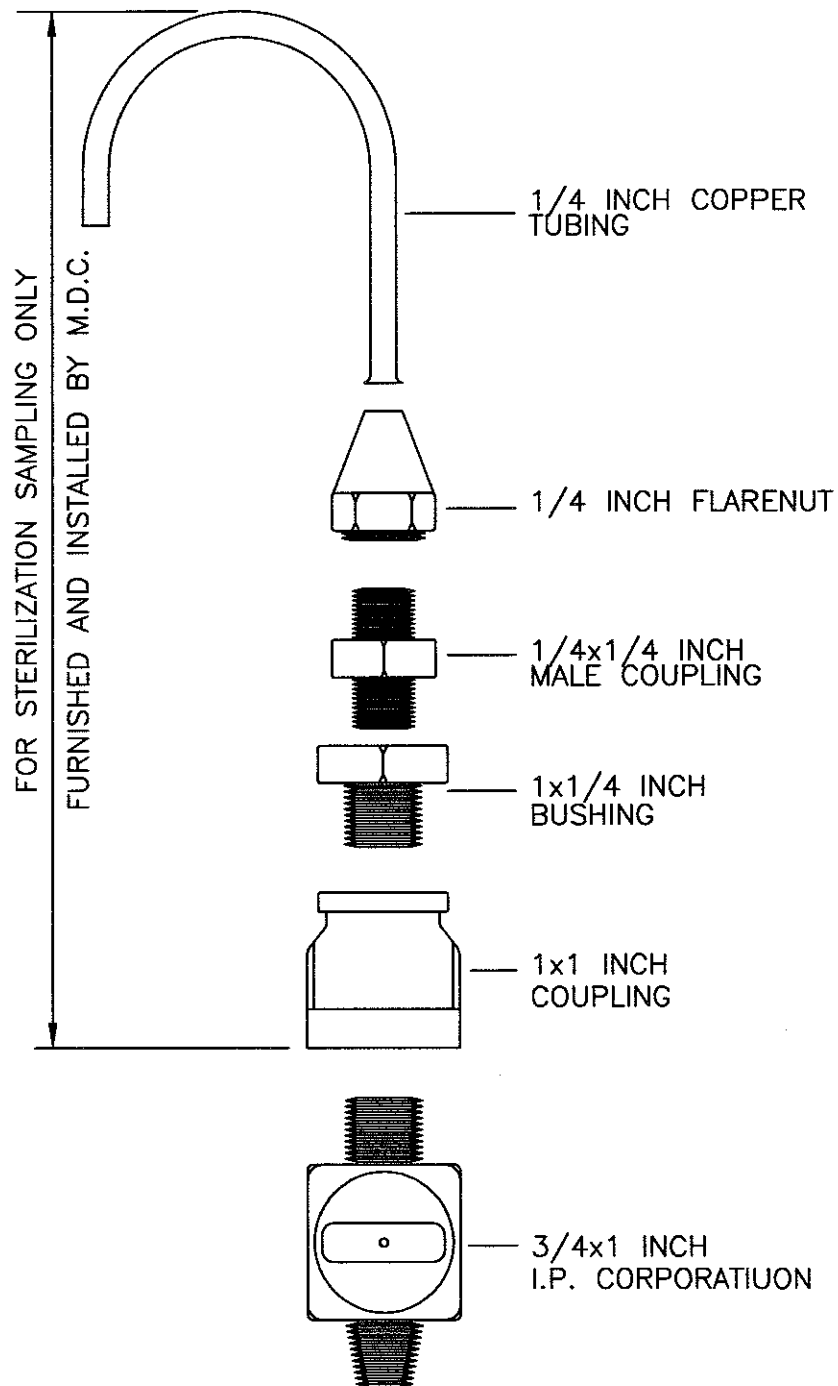
WITH BY-PASS FOR 3" & 4" METERS WITHIN PIT

2" x 2" x 2' ANGLE
 IRON - TWO 3/4"
 THREADED RODS
 BOLTED BACK
 TO FLANGE

TO BE USED ALSO
 AT BUILDING
 FOUNDATION WALL

FIGURE - 46

THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS

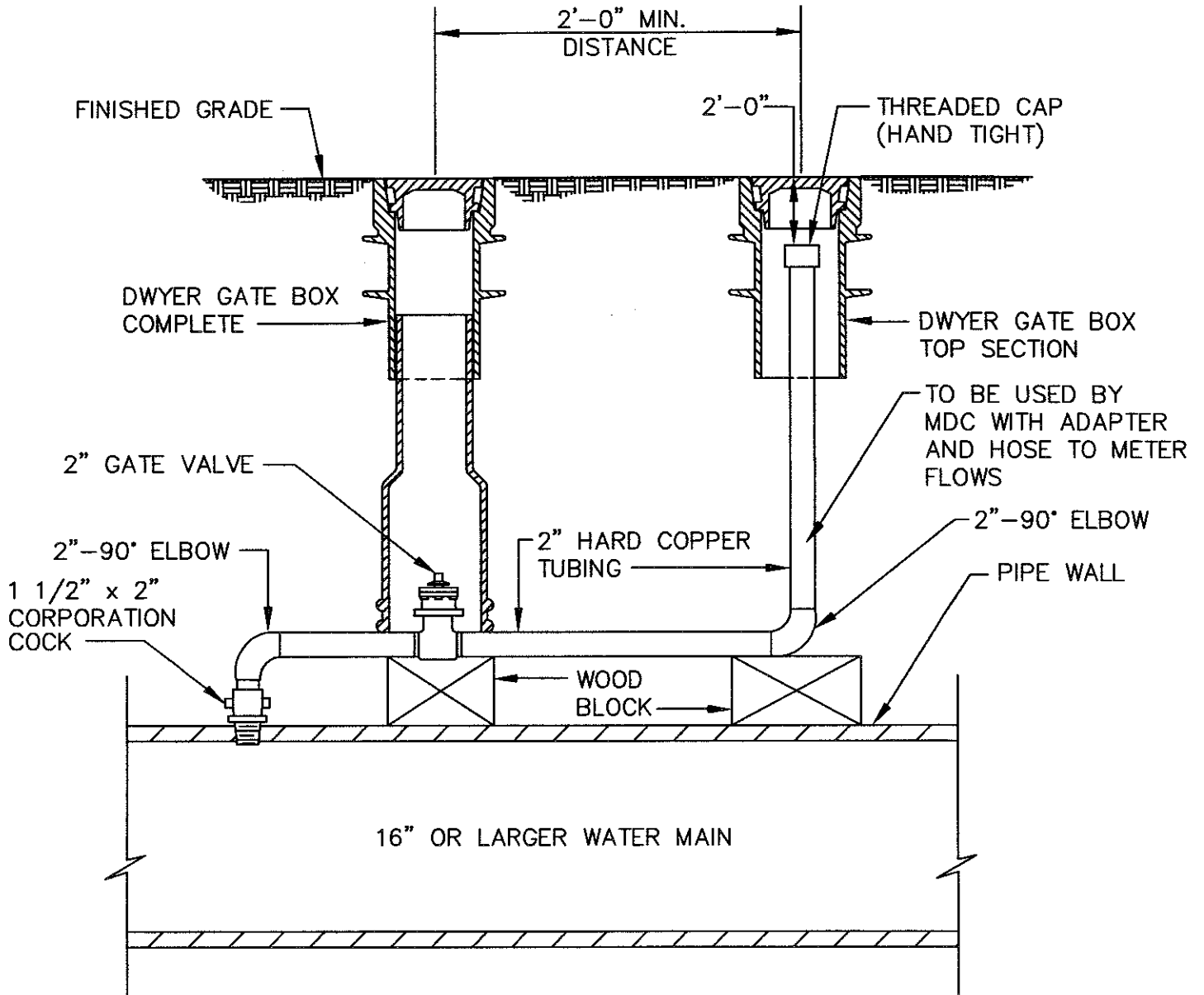


STERILIZATION TEST POINT
NO GATE BOX REQUIRED MAY
BE USED FOR WATER SERVICE

STERILIZATION SAMPLING
FITTING

FIGURE - 47

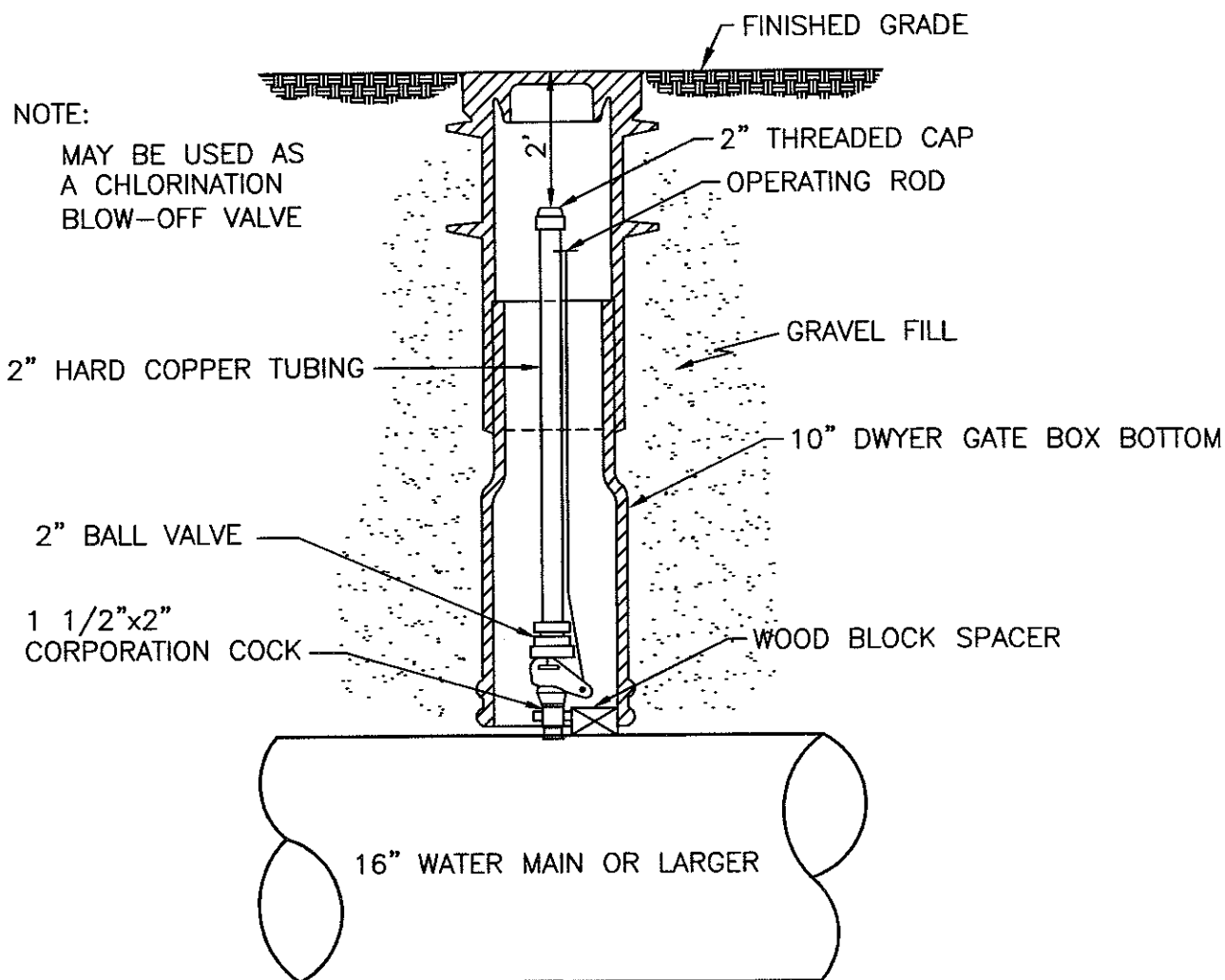
THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS



2" CHLORINATION BLOW-OFF
FOR USE WITH 16 INCH OR LARGER WATER MAINS

FIGURE- 48

THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS



NOTE:
MAY BE REQUIRED FOR
MAINS UNDER 16 INCH
IN SIZE IN SPECIAL SITUATIONS
FOR CHLORINE INJECTION

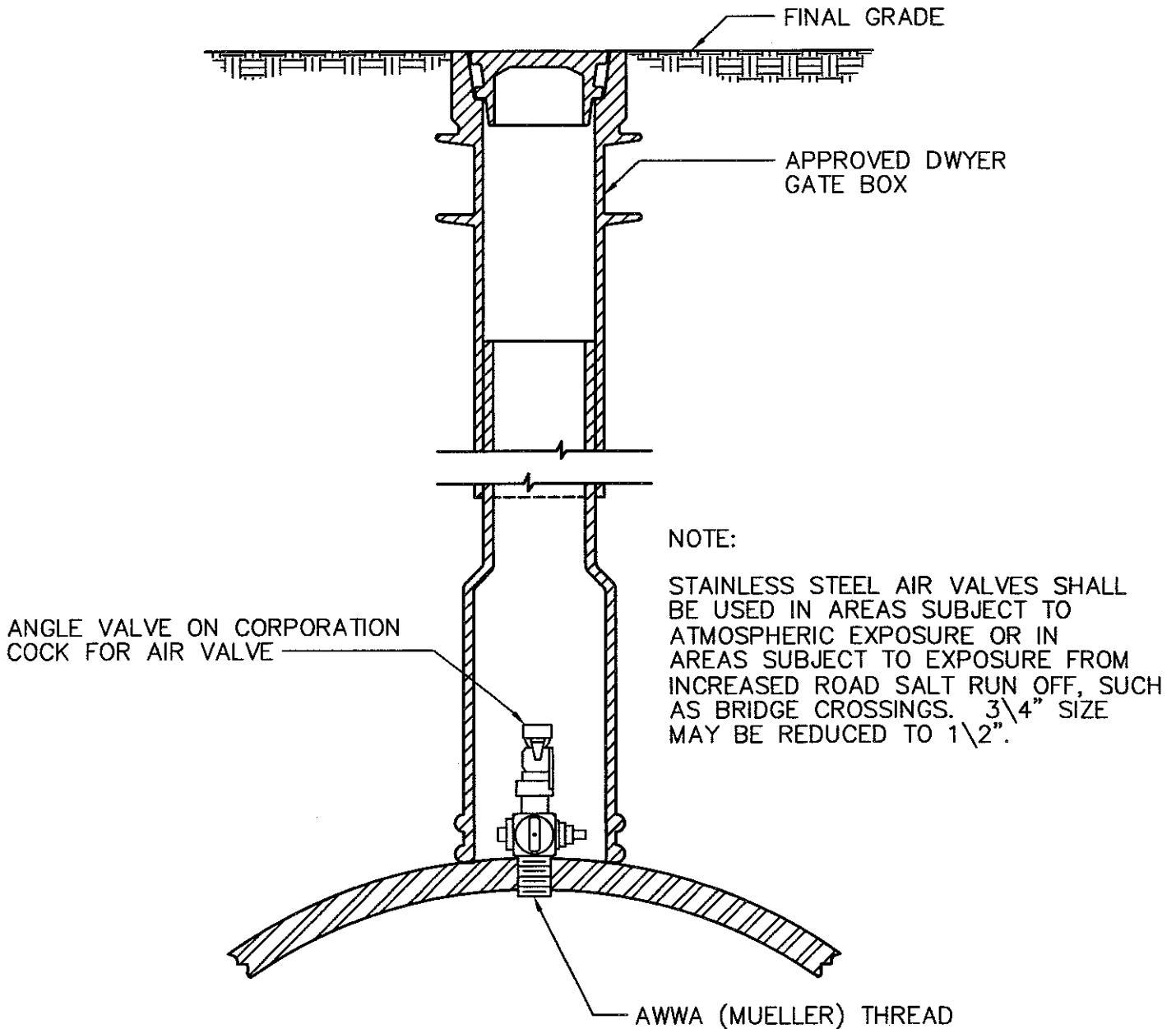
NOTE:
A CHLORINATION VALVE
MAY NOT BE REQUIRED
IF AN AIR VALVE IN A
MANHOLE IS AVAILABLE
AT THE BEGINNING OF A
NEW INSTALLATION

2" CHLORINATION VALVE – INLET
FOR USE WITH 16 INCH & LARGER WATER MAINS
N.T.S.

FIGURE-49

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION DETAILS



DIA. OF MAIN	MIN. SIZE AIR VALVE	CORPORATION COCK	ANGLE VALVE SIZE
TO 12" (INCL.)	3/4"	3/4" x 1"	1"
16" & 20"	1"	1" x 1"	1"
24" & 30"	1 1/4"	1 1/4" x 1 1/2"	1 1/2"
36" & 42"	1 1/2"	1 1/2" x 2"	2"
48" & 54"	2"	2" x 2"	2"

AIR VALVE (STANDARD MINIMUM SIZES)

FIGURE-50

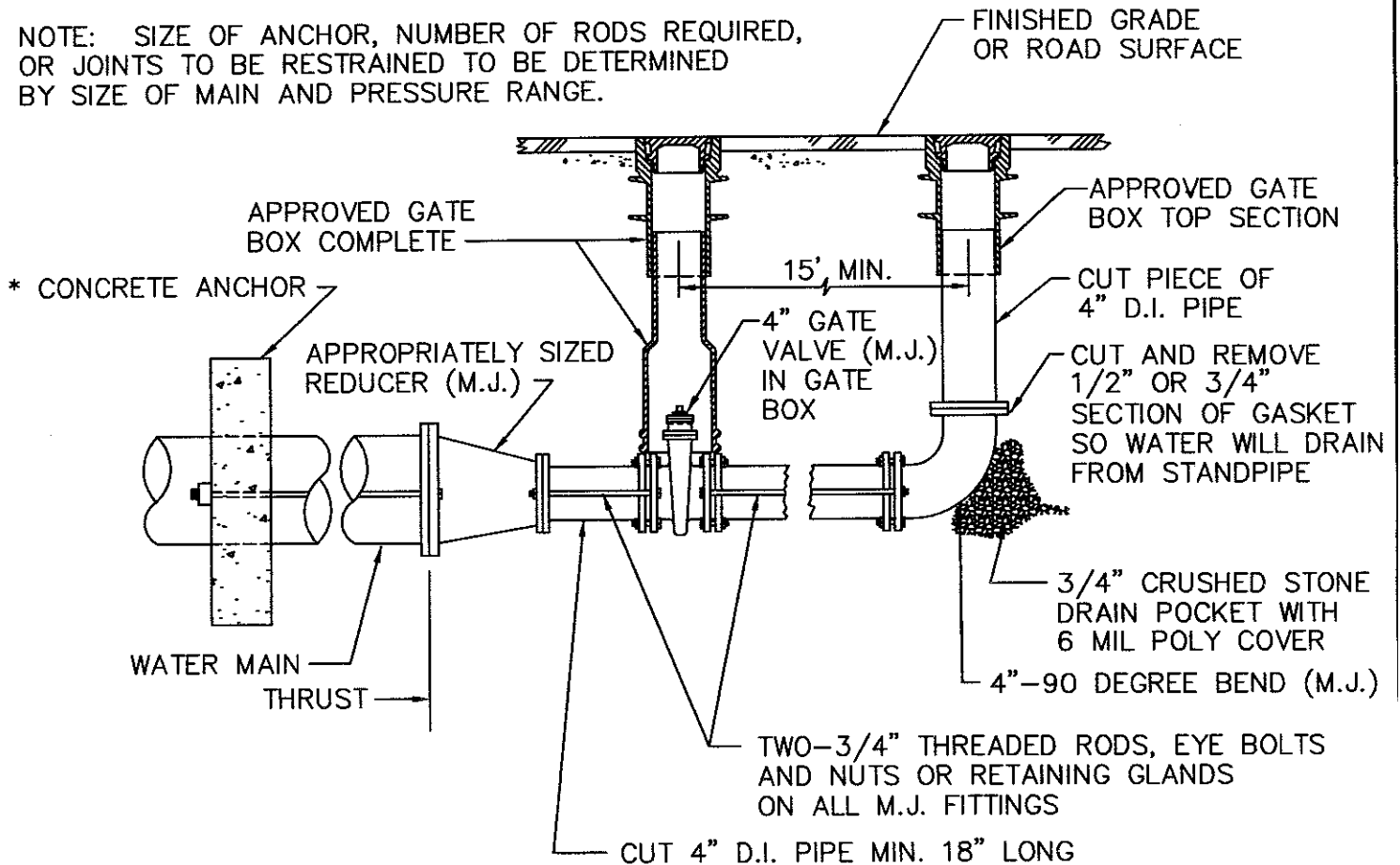
THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION

DETAILS



NOTE: SIZE OF ANCHOR, NUMBER OF RODS REQUIRED, OR JOINTS TO BE RESTRAINED TO BE DETERMINED BY SIZE OF MAIN AND PRESSURE RANGE.



TO BE USED AT END OF MAIN ONLY WHEN THERE IS NO PROBABILITY OF FUTURE MAIN EXTENSION

4" BLOW-OFF ASSEMBLY (END OF MAIN)

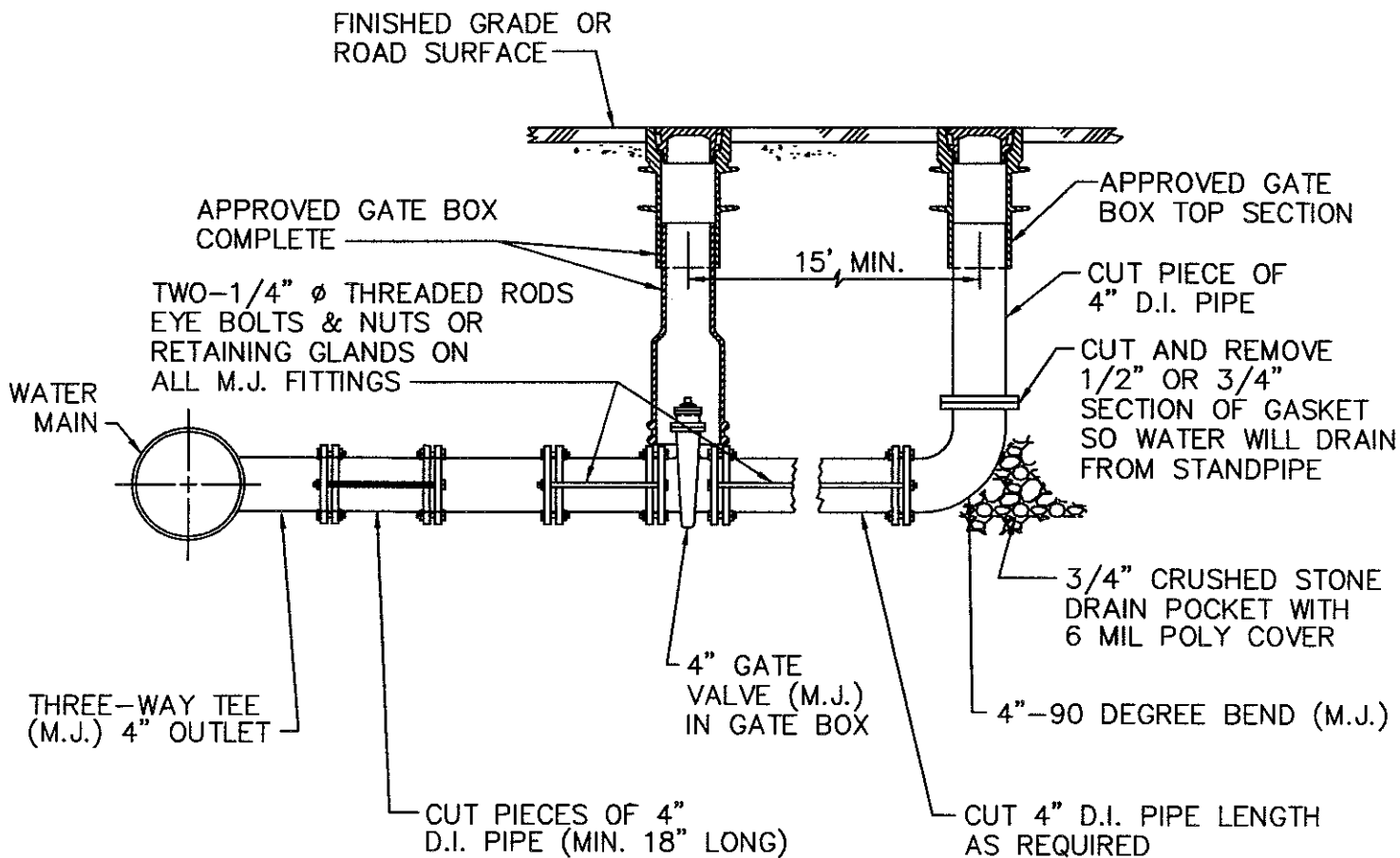
FIGURE-51

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION

DETAILS

MDC



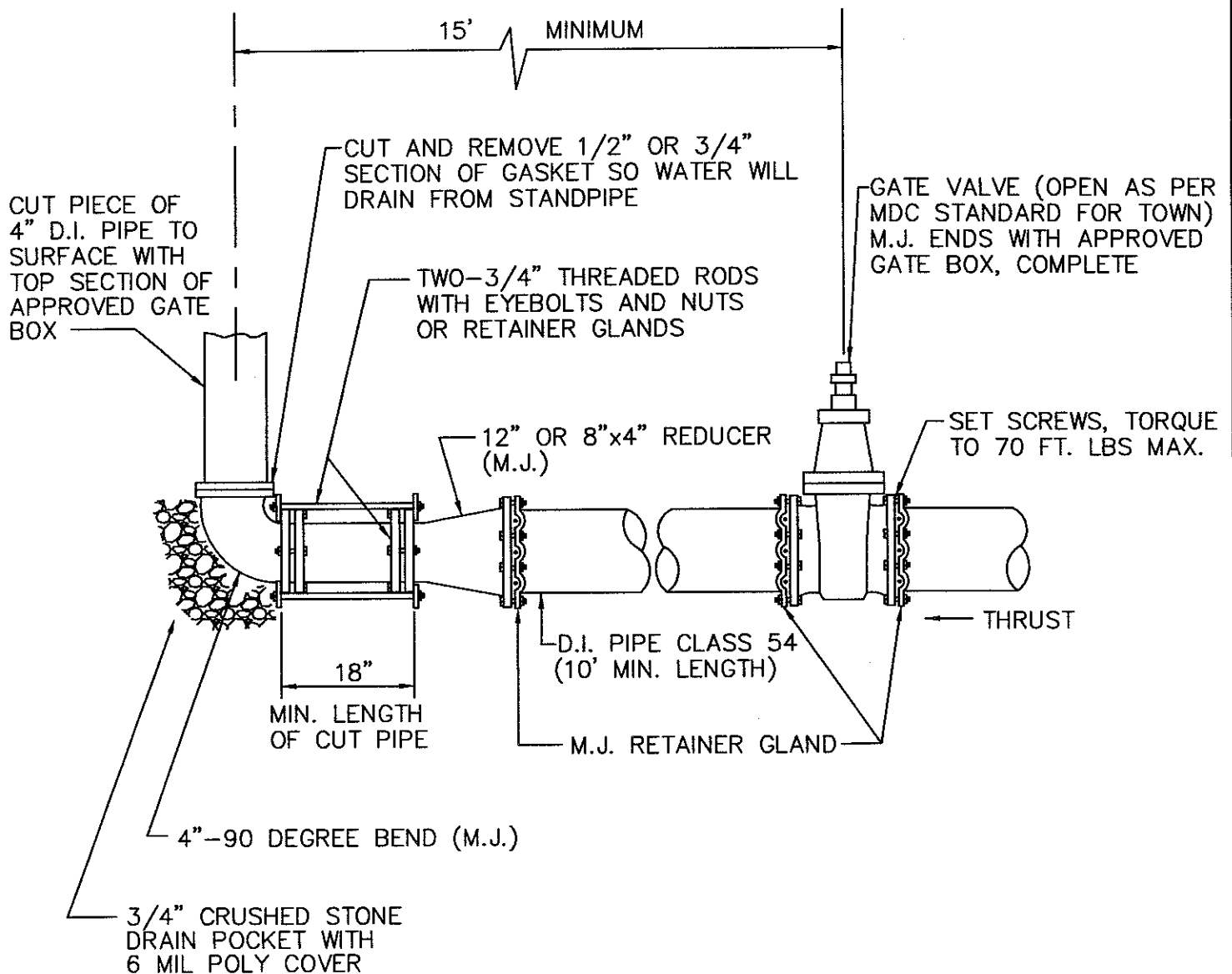
4" BLOW-OFF ASSEMBLY (BRANCH TYPE)

FIGURE-52

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION

DETAILS

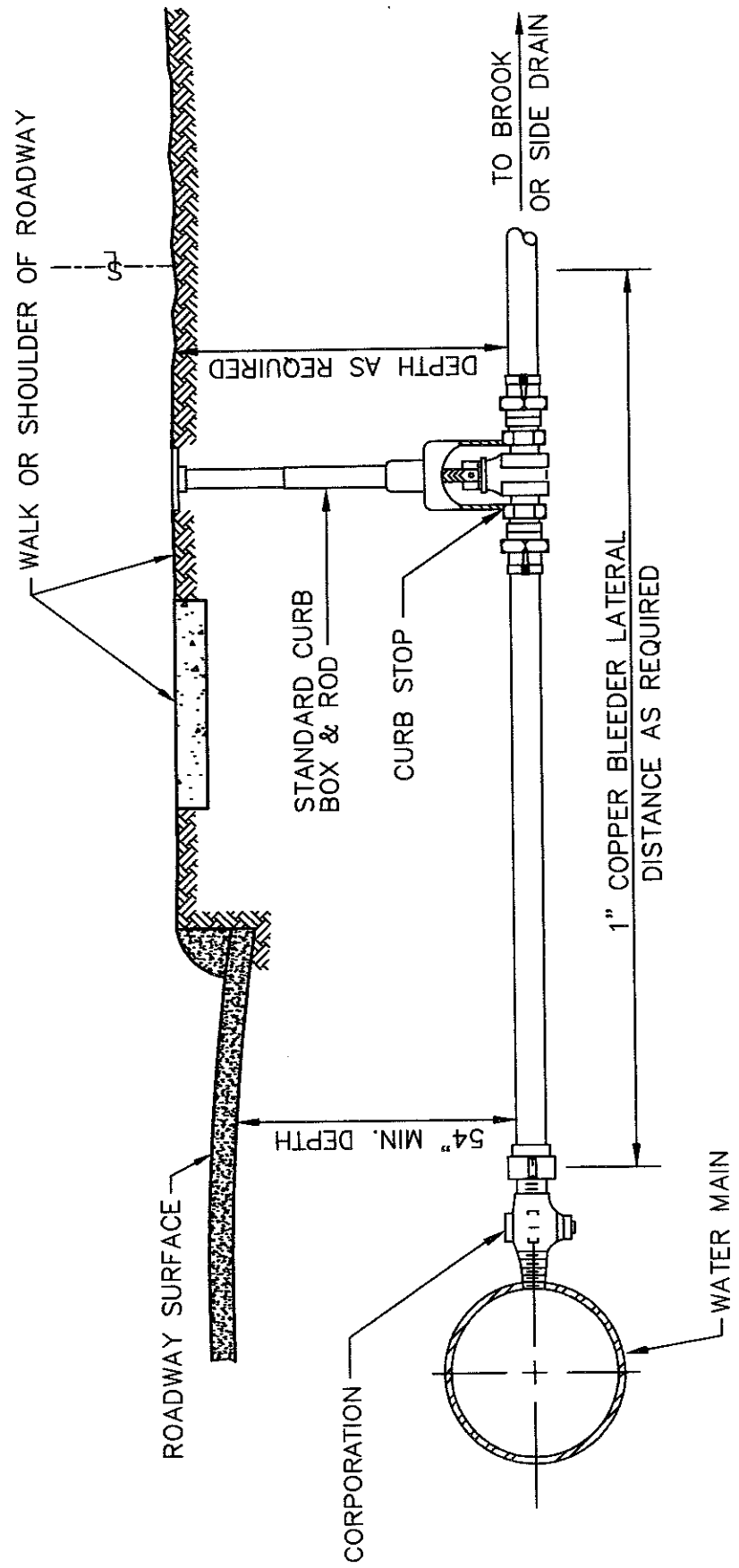


NOTE: THIS BLOW-OFF TO BE USED WHENEVER IT IS POSSIBLE THAT MAIN MAY BE EXTENDED IN THE FUTURE

4" BLOW-OFF ASSEMBLY (WITH FULL MAIN SIZE GATE VALVE)

FIGURE-53

THE METROPOLITAN DISTRICT
WATER SERVICES INSTALLATION
DETAILS



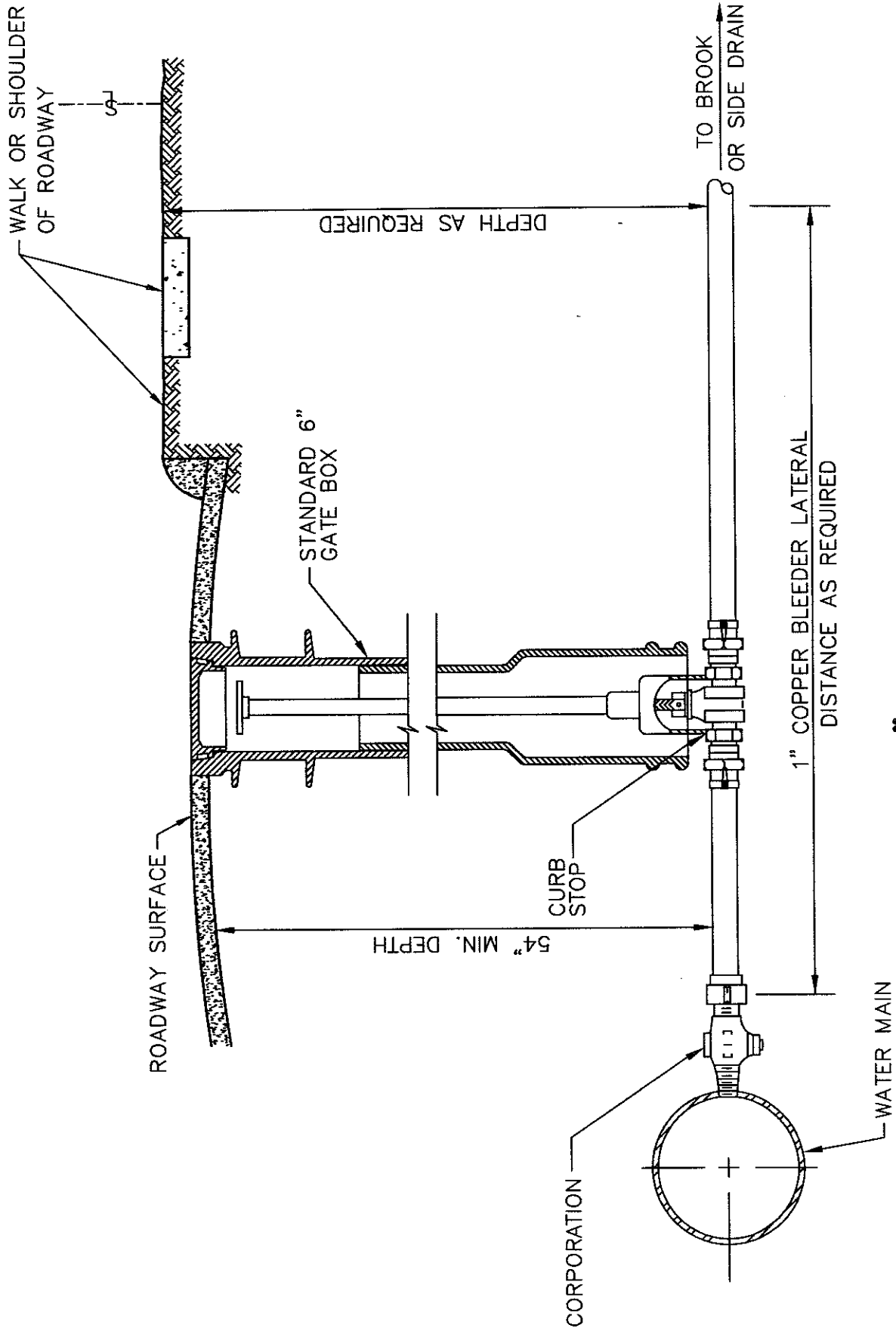
1" BLEEDER
(OUT OF ROADWAY)

FIGURE - 54

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION

DETAILS



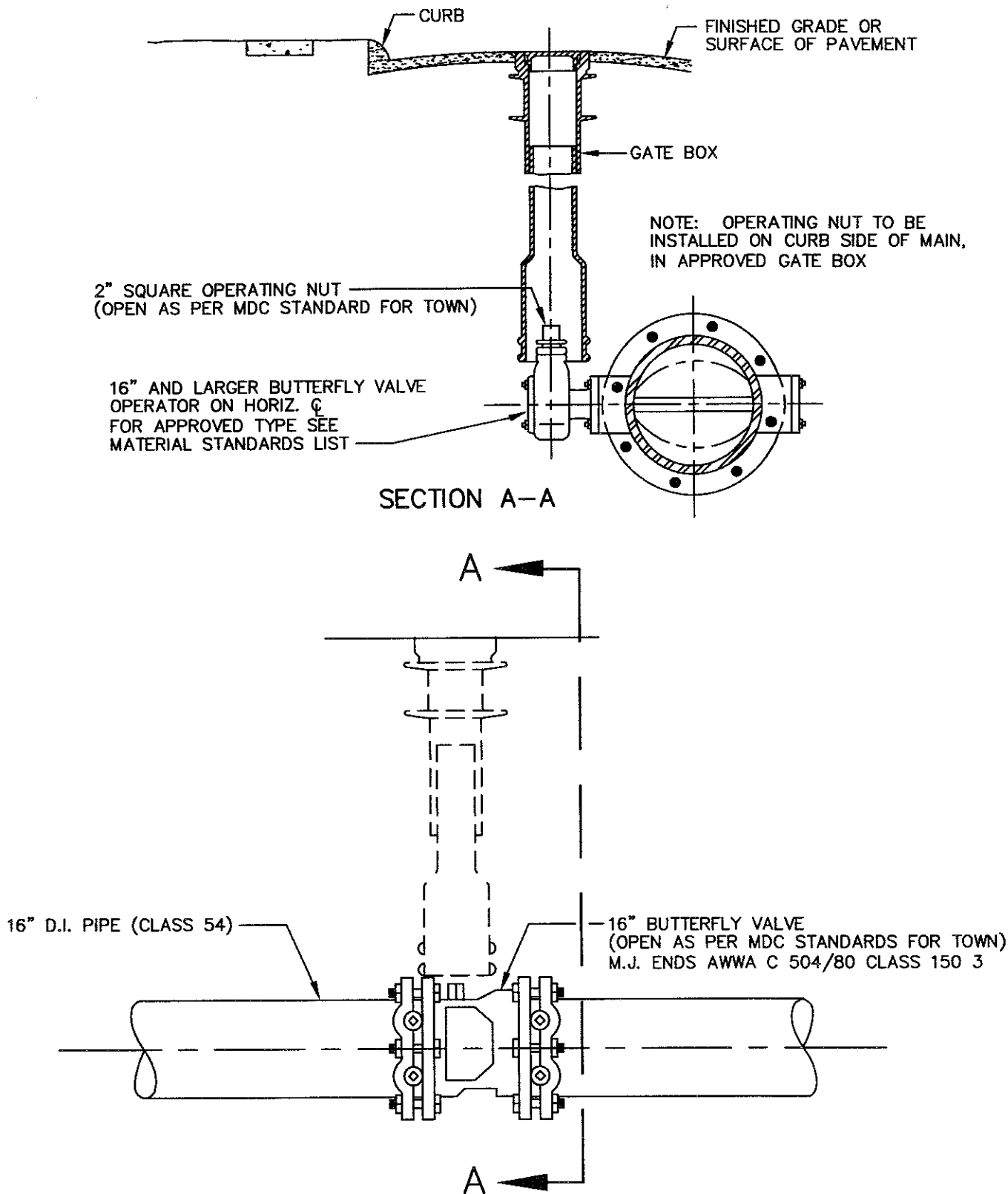
1" BLEEDER
(IN ROADWAY)

FIGURE - 55

THE METROPOLITAN DISTRICT

WATER SERVICES INSTALLATION

DETAILS



TYPICAL BUTTERFLY VALVE INSTALLATION

FIGURE - 56