

METER INSTALLATION STANDARDS

In general met pits are to be in an off-street location within 35 feet of the property line and where only occasional H-20 loading is encountered. Metering Plans for all meter installations 1½" and above regardless of location must be submitted to the Meter shop for approval before work begins.

Send plans to:

**PHILADELPHIA WATER DEPARTMENT
METER DIVISION
29TH & CAMBRIA STREETS
PHILADELPHIA, PA 19132**

(MACHANICAL)

BACKFLOW PREVENTERS as required by the PWD Cross Connection Control Manual, shall be located downstream of the meter within the building. Where existing conditions prohibit such, a DCV can be put in a meter pit; however an RPZ must be above grade. Refer to the Manual for backflow installation details. Questions regarding backflow protection should be directed to:

**PHILADELPHIA WATER DEPARTMENT
CROSS CONNECTION CONTROL UNIT
1500 E. HUNTING PARK AVENUE
PHILADELPHIA, PA 19124-4941
(215) 685-1419/1420**

WATER METERS are furnished and installed by the Water Dept. The cost is covered in the fee charged for a water permit.

WATER METERS SHALL BE CONNECTED TO THE SERVICE PIPE WITH:

- coppersetters (for meters 5/8" - 1")
- flanges (oval) (for meters 1-1/2" - 2")
- flanges (for meters 3" - 10")

SERVICE PIPE

- ¾"-2" diameter service pipe shall be copper, type K, meeting ASTM B 88
- 3"-10" diameter service pipe shall be ductile iron flanged pipe in accordance with ANSI/AWWA C115/A21.15

FLANGES (OVAL) shall be used as companion flanges for 1-1/2" - 2" meters. Flanges shall be produced of bronze and shall be faced, drilled and tapped in conformance with ANSI B 2.1. Flange dimensions shall conform to AWWA C700.

FLANGED FITTINGS shall be produced of ductile iron and conform to the applicable requirements for ductile iron fittings specified in ANSI/AWWA C110/A21.10

FLANGES of both ductile iron flanged pipe and fittings shall be adequate for water service of 250 PSI working pressure. The bolt circle and bolt holes of the flanges shall match those of the class 125 flanges shown in ANSI B 16.1.

NUTS AND BOLTS shall be in accordance with ASTM standard A 193-B7 and A 194, grade 4.

GASKETS shall be 1/8" thick and made of either SBR or neoprene rubber meeting the material requirements of ANSI/AWWA C111/A21.11 mechanical joint gaskets.

GATE VALVES shall be suitable for water service of 150 PSI working pressure and shall be in accordance with AWWA C500.

APPROVED

Stephen J. Zelik
CHIEF DESIGN BRANCH
Ernest M. Koehler
MANAGER METER SHOP

**PHILADELPHIA WATER
DEPARTMENT
METER INSTALLATION
NOTES**

SCALE:
N. T. S.

DATE:

DWG. NO.

1

(STRUCTURAL)

Meter pits and accessories shall be tested and registered with the quality certification staff in accordance with the quality certification standard QC-1 for precast concrete products. The meter pits shall be designed for H-20 loading. All precast segments shall be keyed and their joints watertight.

Precast manufacturers shall be certified in accordance with QC-1 by the Departments Quality Certification Staff. Direct requests for Q.C. certification to:

PHILADELPHIA WATER DEPARTMENT
MATERIALS ENGINEERING LABORATORY
1500 E. HUNTING PARK AVENUE
PHILADELPHIA, PA 19124-4941
Attn: William Roscioli (215) 685-1447

CONCRETE shall consist of Portland cement which conforms to ASTM C150 and aggregates which conform to ASTM C33. The minimum compressive strength shall be 4000 P.S.I.

REINFORCING STEEL shall conform to ASTM A615 grade 60 for bars or ASTM A185 for welded wire fabric.

For additional information, contact the Meter Shop at 215-685-9642/9782.

The Water Dept. will consider deviations from the meter pit standards upon request. Direct requests to:

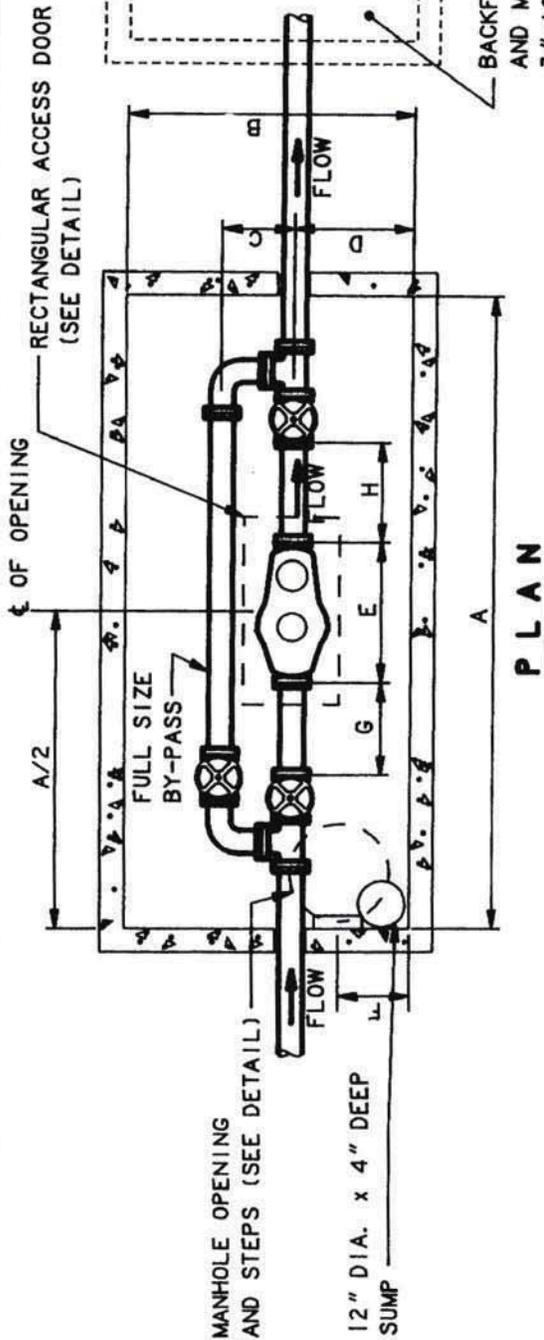
PHILADELPHIA WATER DEPARTMENT
1101 MARKET STREET
ARA TOWER, SUITE 200, DESIGN BRANCH
PHILADELPHIA, PA 19107
215-685-6280

REV. #	REV. DATE	APP. BY	REVISION DESCRIPTION
1	3/6/97	M. Lavery	Dwg. 1, Revised note to add additional personnel to inform for pipes 3" and above, Backflow Preventer "Note" to indicate device should be downstream of meter, updated address and title block.
2	3/6/97	M. Lavery	Dwg. 2, enlarged meter pit dimensions, increased laying lengths of pipe upstream and downstream of meter, title block, notes.
3	3/6/97	M. Lavery	Dwg. 3, added drawing of meter installation inside a building.
4 & 5	3/6/97	M. Lavery	Dwg. 4 & 5, indicated dimensions for centerline of opening, changed title block, notes.
6, 7 & 8	3/6/97	M. Lavery	Dwg. 6,7 & 8, changed title block.

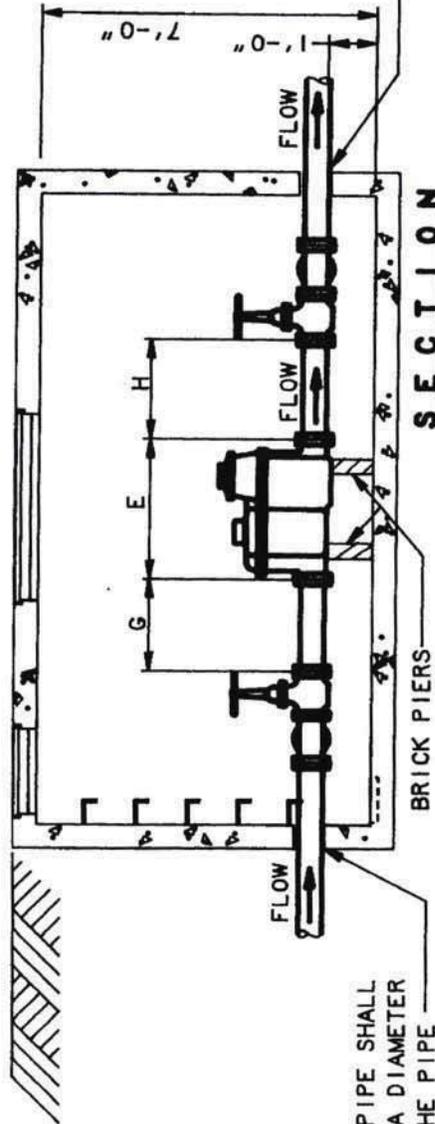
APPROVED
Stephen J. Frick
CHIEF DESIGN BRANCH
Ernest M. Krach
MANAGER METER SHOP

PHILADELPHIA WATER DEPARTMENT
METER INSTALLATION NOTES

SCALE: N. T. S. DATE:
DWG. NO. **1a**



PLAN



SECTION

BACKFLOW PREVENTERS AND METERS FOR 3"-10" WATER SERVICES SHALL BE LOCATED INDIVIDUALLY IN SEPARATE PITS, UNLESS OTHERWISE PERMITTED BY THE WATER DEPT. BACKFLOW PREVENTERS MUST ALWAYS BE LOCATED DOWN STREAM OF METER ASSEMBLY

WRAP PIPE WHERE IT PASSES THRU WALL WITH 3 LAYERS OF 1" THICK FELT

DIMENSION	PIPE SIZE			
	3"	4"	6"	8"
A	9'-6"	11'-6"	13'-6"	17'-0"
B	6'-0"	6'-0"	6'-0"	8'-0"
C	1'-1 $\frac{1}{4}$ "	1'-3 $\frac{1}{2}$ "	1'-5 $\frac{1}{2}$ "	1'-11"
D	3'-0"	2'-8"	2'-6"	4'-0"
E	2'-1 $\frac{1}{2}$ "	2'-5 $\frac{1}{2}$ "	3'-1"	4'-5 $\frac{1}{2}$ "
F	1'-8"	1'-8"	1'-8"	2'-6"
G	1'-6"	2'-0"	2'-6"	3'-6"
H	1'-0"	1'-6"	1'-6"	2'-0"
				10"
				18'-6"
				8'-0"
				2'-3 $\frac{1}{2}$ "
				3'-8"
				5'-8 $\frac{3}{4}$ "
				2'-6"
				2'-6"
				2'-6"

APPROVED

Stephen J. Fofek
 CHIEF DESIGN BRANCH
Ernest M. Lischke
 MANAGER METER SHOP

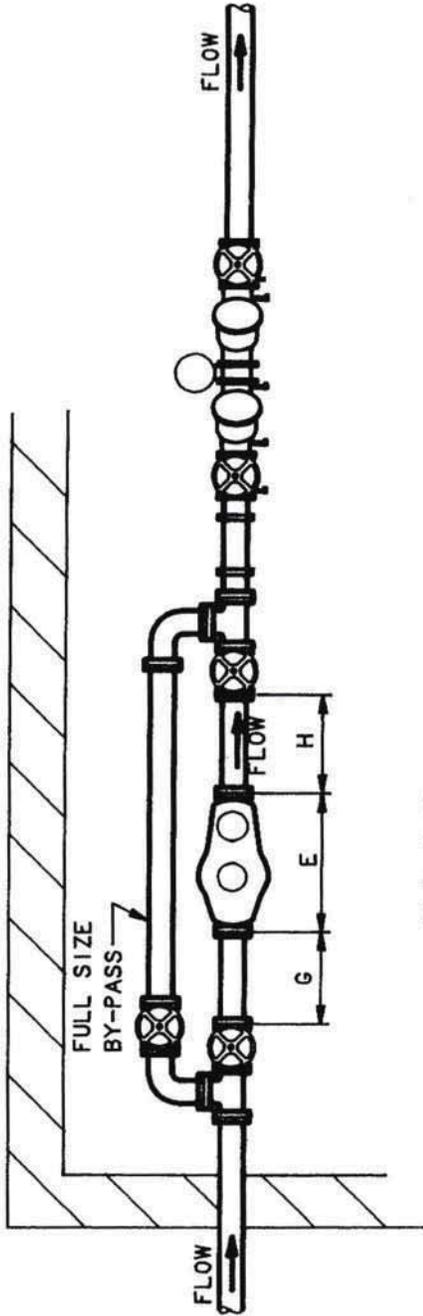
PHILADELPHIA WATER DEPARTMENT
 METER PIT INSTALLATION
 3" TO 10"

SCALE:
 N. T. S.

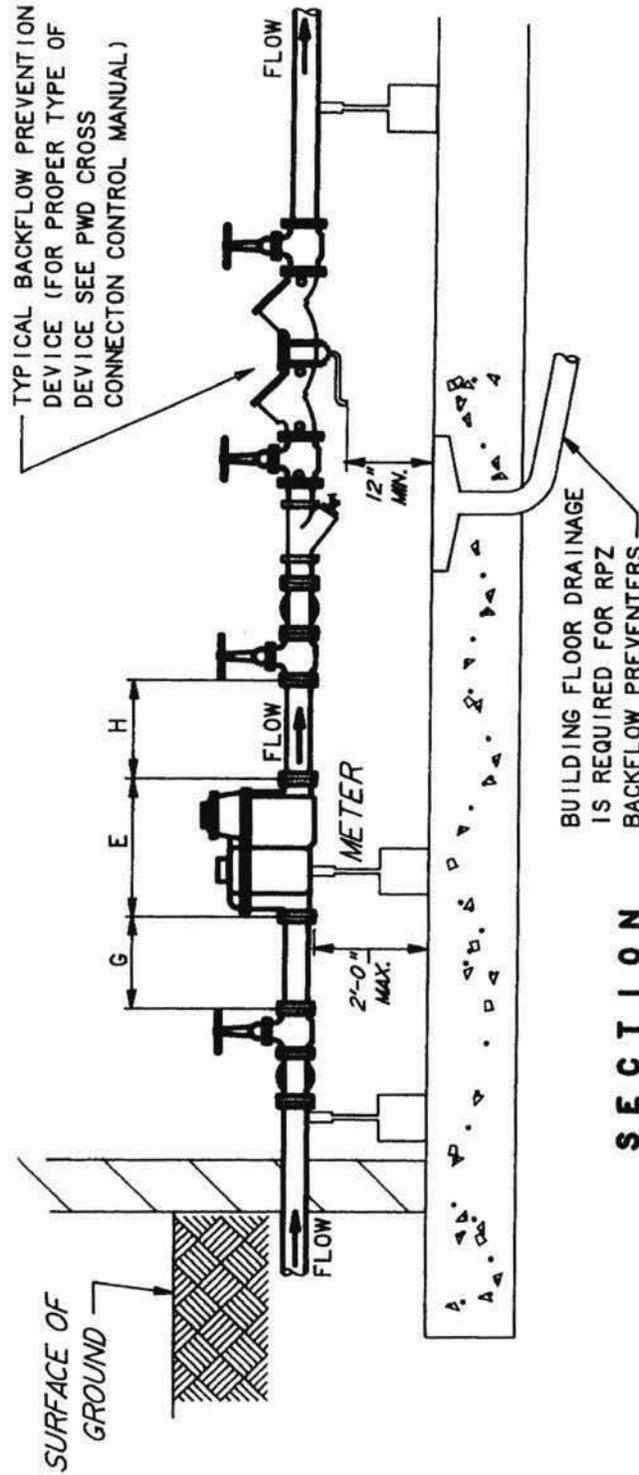
DATE:

DWG. NO.

2



PLAN



SECTION

DIMENSION	PIPE SIZE			
	3"	4"	6"	8"
E	2'-1/2"	2'-5 1/2"	3'-1"	4'-5 1/2"
G	1'-6"	2'-0"	2'-6"	3'-6"
H	1'-0"	1'-6"	1'-6"	2'-0"

APPROVED

Stephen J. Fulek
CHIEF DESIGN BRANCH
Ernest M. Kracher
MANAGER METER SHOP

PHILADELPHIA WATER DEPARTMENT
BUILDING INSTALLATION
3" TO 10"

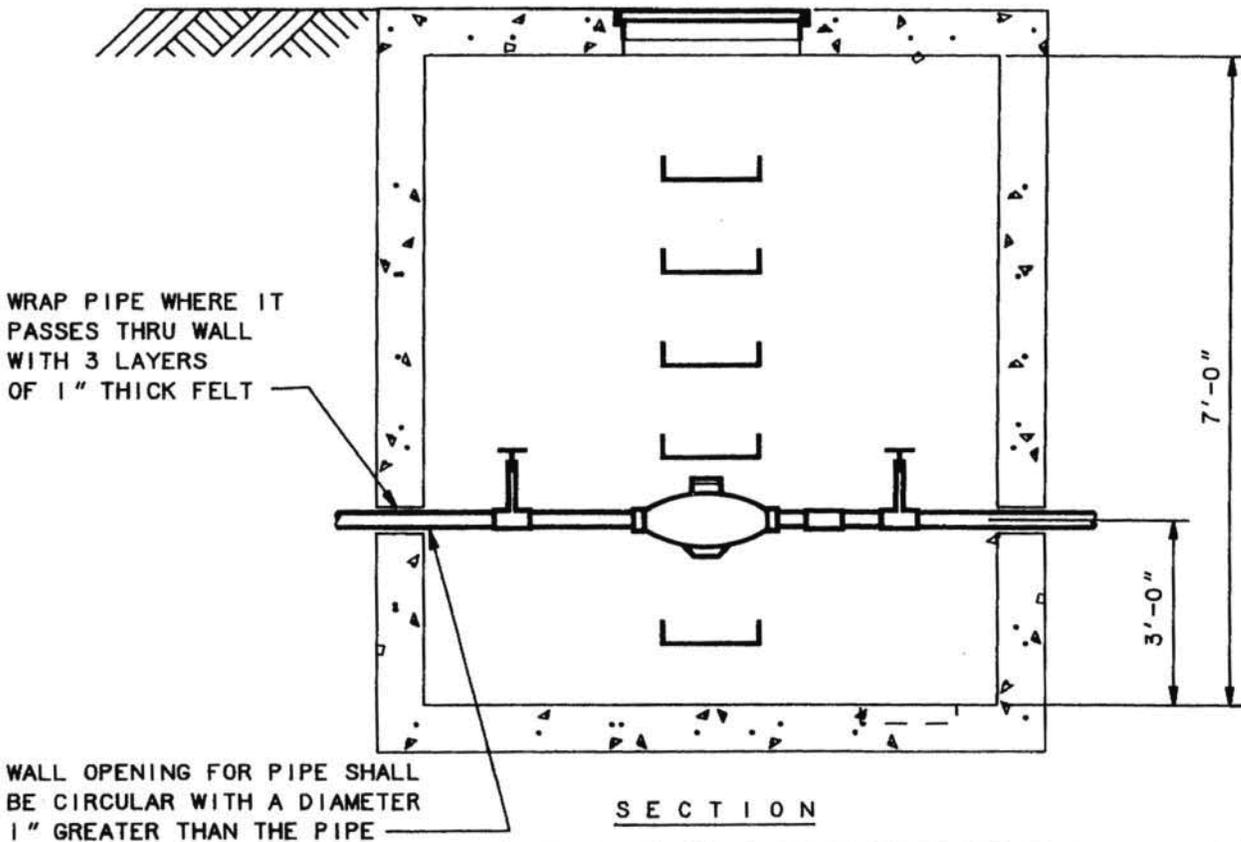
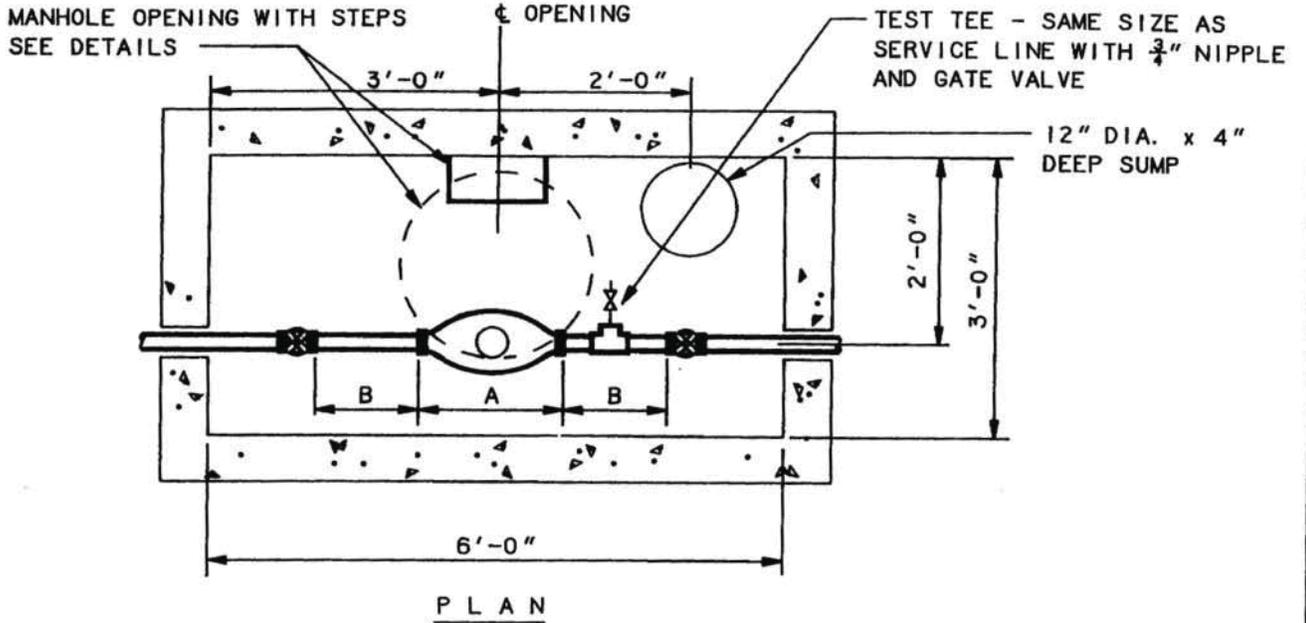
SCALE:
N. T. S.

DATE:

DWG. NO.

3

DIMENSION	PIPE SIZE	
	1-1/2"	2"
A	1'-1-1/2"	1'-5"
B	1'-0"	1'-4"



APPROVED

Stephen J. Frick
CHIEF DESIGN BRANCH
Ernest M. Krachur
MANAGER METER SHOP

**PHILADELPHIA WATER
DEPARTMENT**
METER PIT INSTALLATION
1 1/2" AND 2"

SCALE:
N. T. S.

DATE:

DWG. NO.

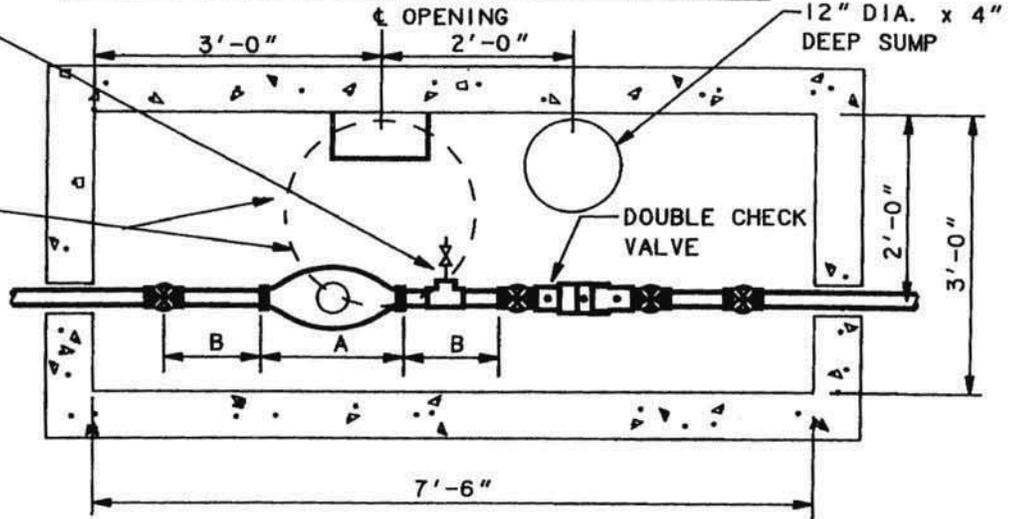
4

DIMENSION	PIPE SIZE	
	1-1/2"	2"
A	1'-1-1/2"	1'-5"
B	1'-0"	1'-0"

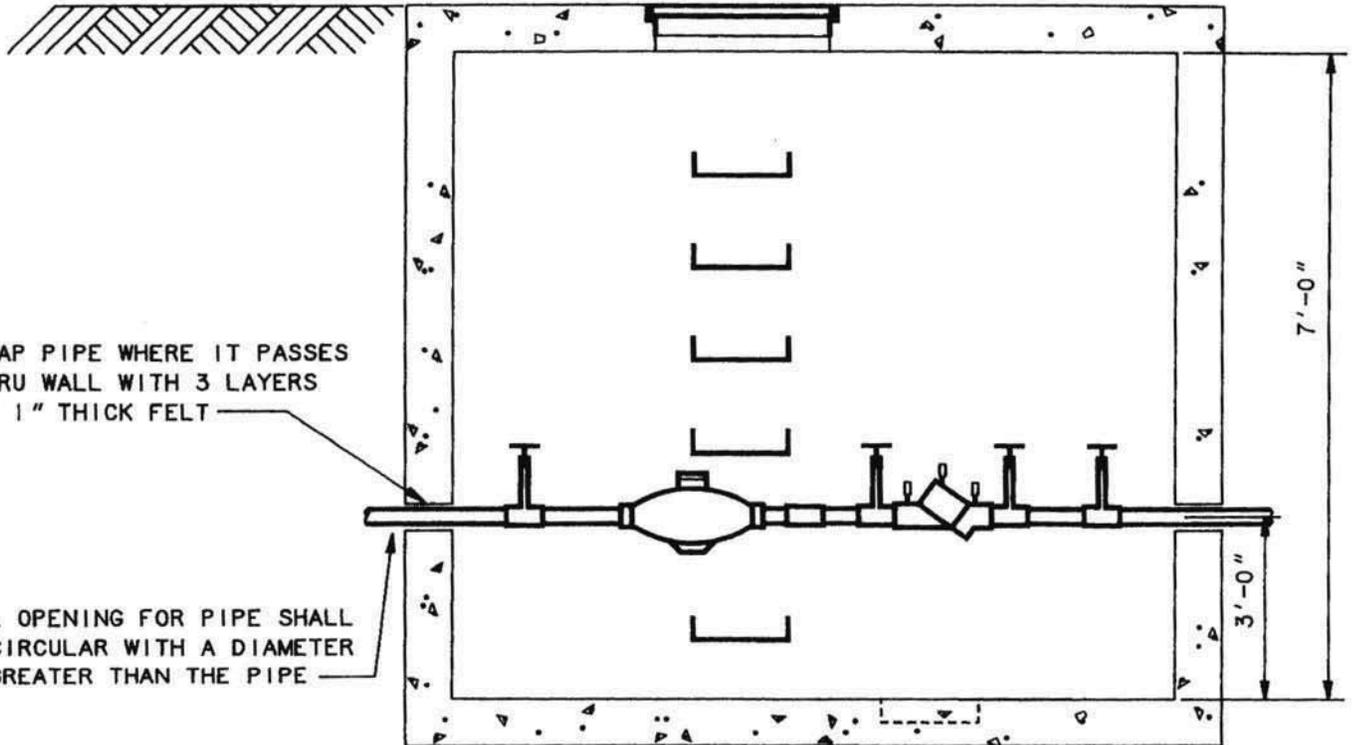
TEST TEE - SAME SIZE AS SERVICE LINE WITH 3/4" NIPPLE AND GATE VALVE

MANHOLE OPENING WITH STEPS SEE DETAILS

NOTE:
INSTALLATION OF BACKFLOW PREVENTERS (DOUBLE CHECK VALVE) IN METER PITS SHALL BE SUBMITTED TO THE WATER DEPT. FOR APPROVAL



PLAN W/DOUBLE CHECK VALVE



WRAP PIPE WHERE IT PASSES THRU WALL WITH 3 LAYERS OF 1" THICK FELT

WALL OPENING FOR PIPE SHALL BE CIRCULAR WITH A DIAMETER 1" GREATER THAN THE PIPE

SECTION W/DOUBLE CHECK VALVE

APPROVED

Stephen J. Fitch
CHIEF DESIGN BRANCH
Ernest M. Koachs
MANAGER METER SHOP

PHILADELPHIA WATER DEPARTMENT

METER PIT INSTALLATION & 2" W/BACKFLOW PREVENTER

SCALE:
N. T. S.

DATE:

DWG. NO.

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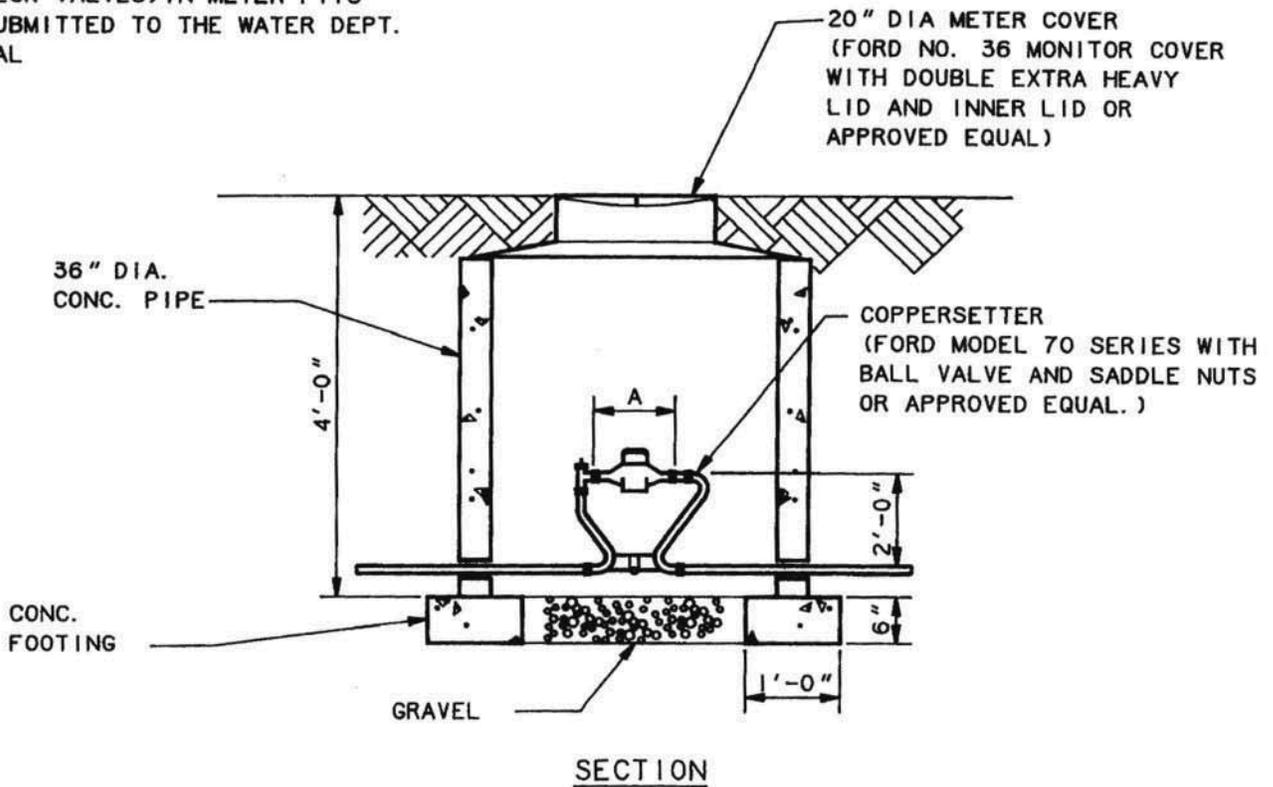
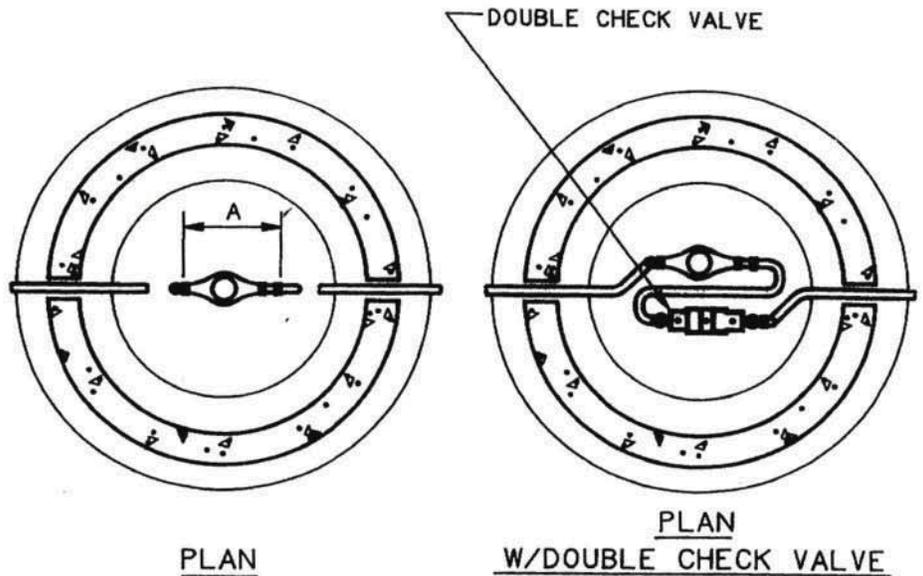
1 1/2"

NOTES:
 LOCATE METER PIT OUTSIDE
 TRAFFIC LANES.

PLUMBER SHALL SPECIFY THE TYPE OF
 SERVICE LINE CONNECTION THE
 COPPERSETTER SHALL BE EQUIPPED WITH.
 ALSO HE IS TO SPECIFY THE EXACT
 LAYING LENGTH NEEDED IN THE
 COPPERSETTER FOR BACKFLOW PREVENTER.

WALL OPENING FOR PIPE SHALL
 BE CIRCULAR WITH A DIAMETER
 1" GREATER THAN THE PIPE

INSTALLATION OF BACKFLOW PREVENTERS
 (DOUBLE CHECK VALVES) IN METER PITS
 SHALL BE SUBMITTED TO THE WATER DEPT.
 FOR APPROVAL

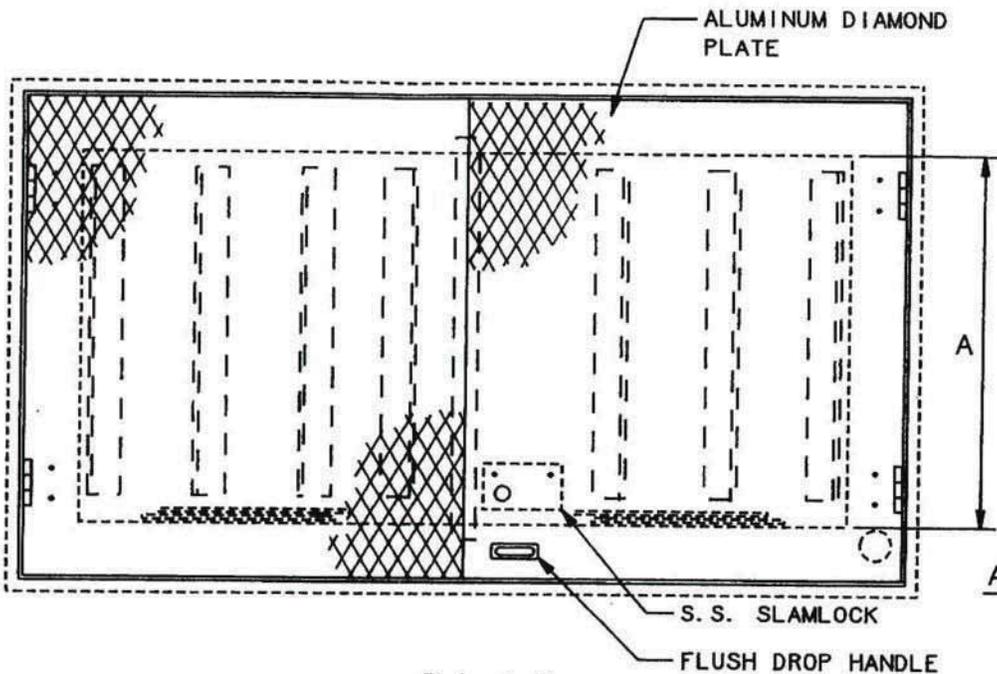


DIMENSION	PIPE SIZE	
		5/8"
A	7-1/2"	10-3/4"

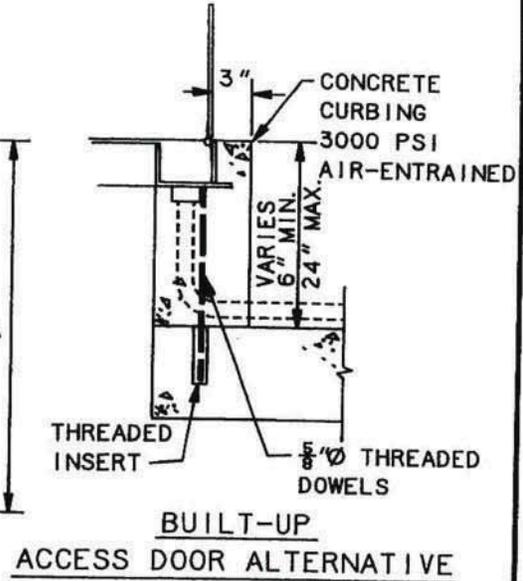
APPROVED
Stephen J. Fritsch
 CHIEF DESIGN BRANCH
Ernest M. Lechner
 MANAGER METER SHOP

**PHILADELPHIA WATER
 DEPARTMENT**
 METER PIT INSTALLATION
 5/8" AND 1"

SCALE:
 N. T. S.
 DATE:
 DWG. NO.
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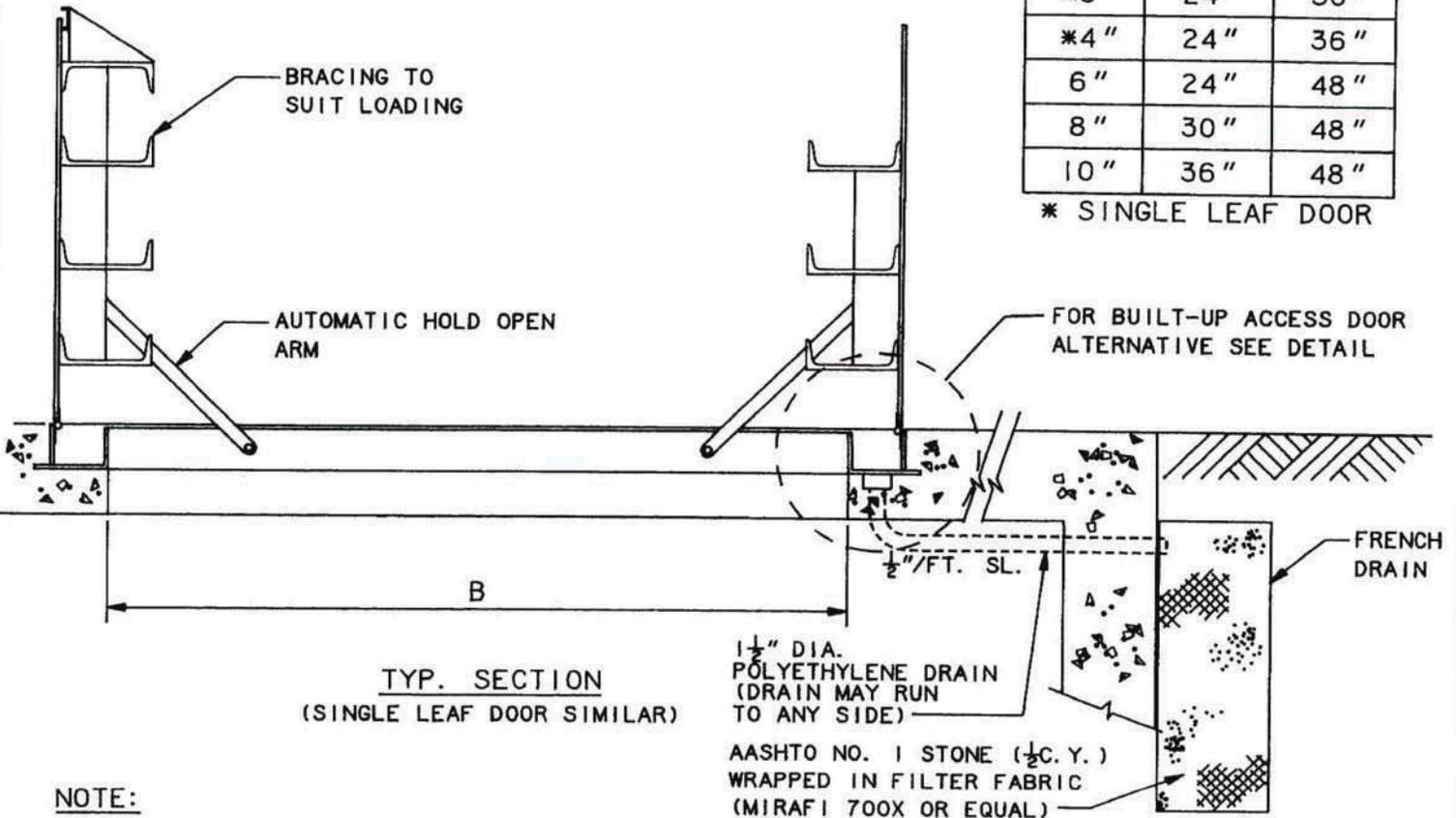


P L A N



METER SIZE	DIMENSION	
	A	B
*3"	24"	30"
*4"	24"	36"
6"	24"	48"
8"	30"	48"
10"	36"	48"

* SINGLE LEAF DOOR



NOTE:

DESIGN DOOR TO WITHSTAND H-20 LOADS WITHOUT IMPACT.
 USE ALUMINUM MATERIALS FOR THE DOOR AND STAINLESS STEEL NUTS, BOLTS, AND HARDWARE
 COAT DOOR SURFACES WHICH WILL CONTACT CONCRETE WITH BITUMINOUS PAINT.

APPROVED

Stephen Fritz
 CHIEF DESIGN BRANCH
Ernest M. Koehler
 MANAGER METER SHOP

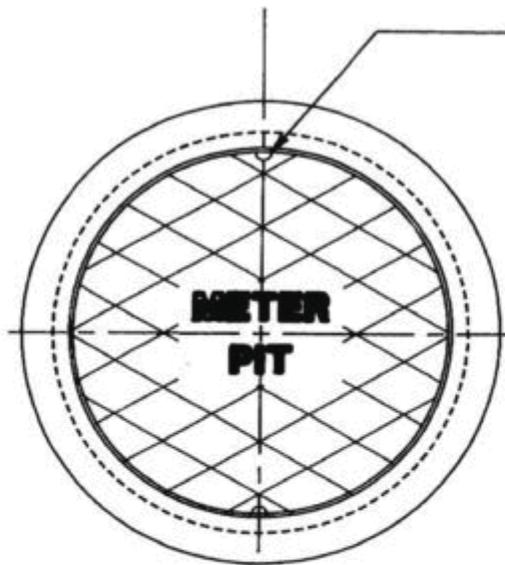
PHILADELPHIA WATER DEPARTMENT
 METER PIT
 DETAILS

SCALE:
 N. T. S.

DATE:

DWG. NO.

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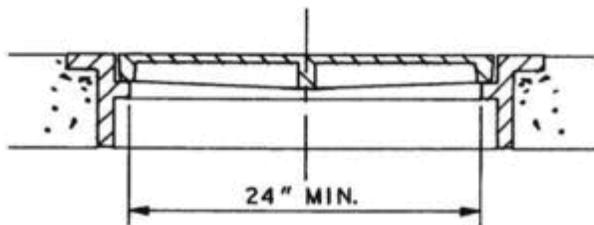
2 PRY HOLES REQUIRED

NOTES:

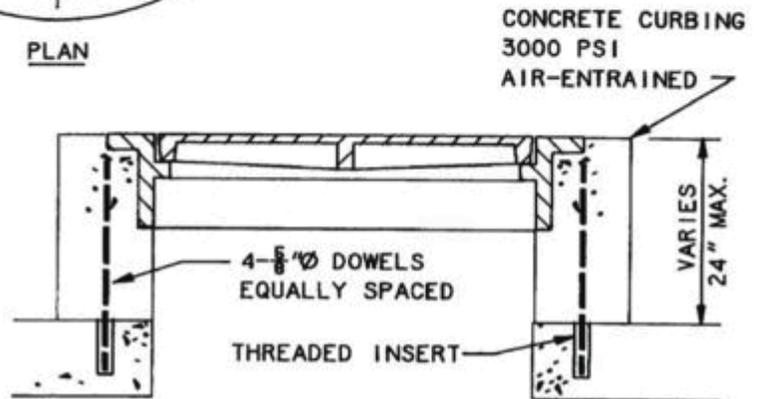
MANHOLE FRAME AND COVER SHALL BE FOR HEAVY DUTY USE, MADE OF CLASS 30B GRAY IRON CONFORMING TO ASTM A48.

MACHINE FINISH FRAME SEAT, COVER SEAT, AND COVER SIDEWALL.

PLAN



SECTION
(SLAB TYPE)

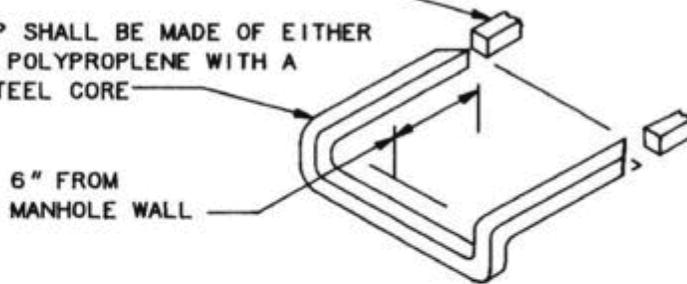


SECTION
(BUILT-UP TYPE ALTERNATIVE)

MANHOLE FRAME AND COVER

PLASTIC INSERTS EMBEDDED IN CONC. WALL TO ACCEPT STEP

MANHOLE STEP SHALL BE MADE OF EITHER ALUMINUM OR POLYPROPYLENE WITH A 5/8" DIA. STEEL CORE



NOTES:

ALUMINUM SHALL CONFORM TO ASTM B-221 ALLOY 6061 T-6

MANHOLE STEPS SHALL SATISFY ALL REQUIREMENTS OF OSHA.

PLASTIC INSERTS SHALL CONFORM TO STEP EMBEDMENT DEPTH AS REQUIRED BY ASTM C-478, C-497.

POLYPROPYLENE SHALL CONFORM TO ASTM 2146 WITH STEEL CORE CONFORMING TO ASTM A-615, GRADE 60.

MANHOLE STEPS

APPROVED

Stephen Fortek
CHIEF DESIGN BRANCH
Ernest M. Leacher
MANAGER METER SHOP

PHILADELPHIA WATER DEPARTMENT

METER PIT
DETAILS

SCALE:
N. T. S.

DATE:

DWG. NO.

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