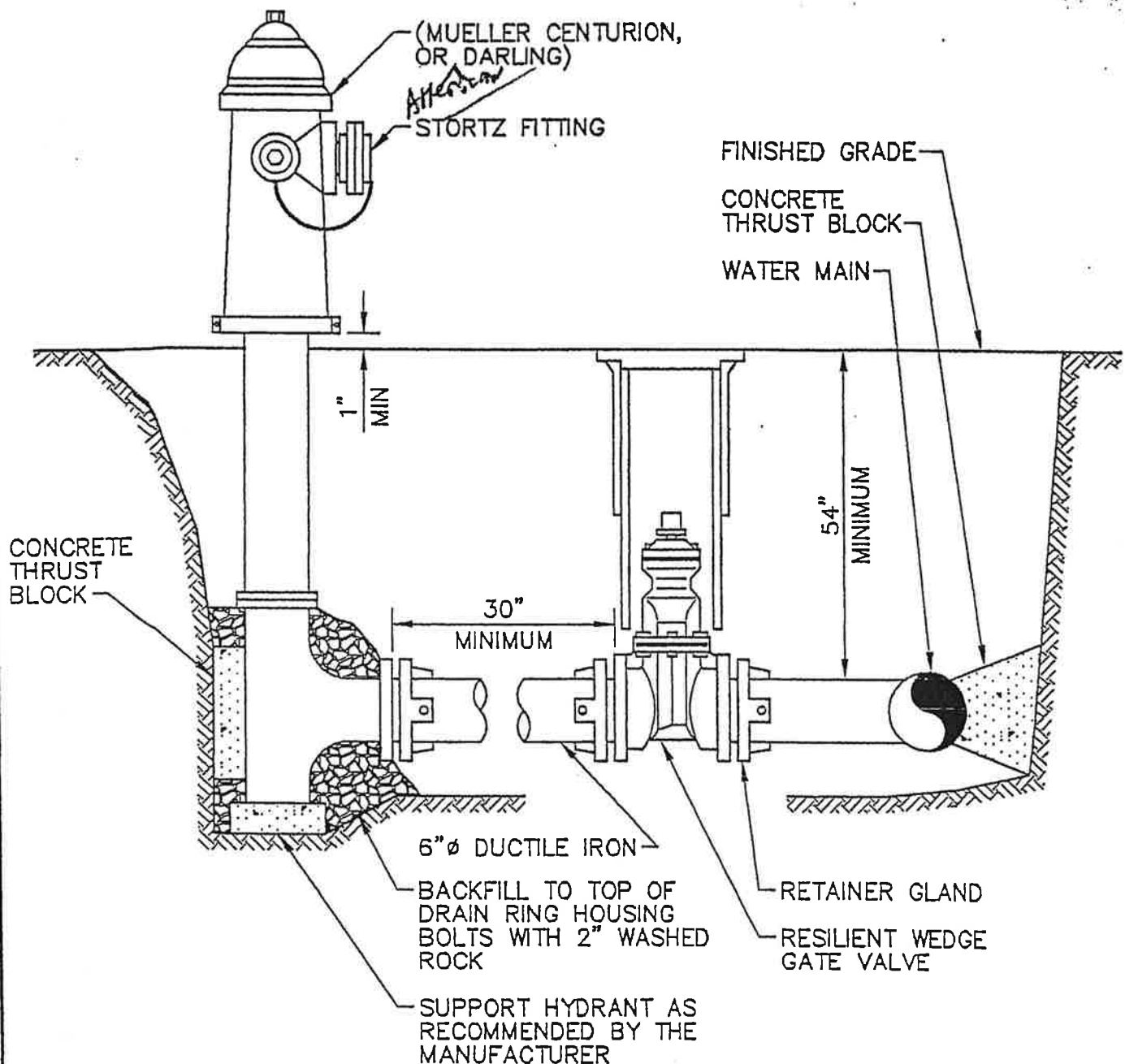


LIST OF DRAWINGS

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TYPICAL FIRE HYDRANT DETAIL

NO SCALE

* (OR APPROVED EQUAL)

NOTES:

1. DEAD END MAIN EXTENSIONS OVER 50' SHALL BE 8" MINIMUM.
2. USE PORT 5" STORTZ, MVO 5-1/4", WITH ALL OPERATING NUTS THE SAME SIZE.
3. AN UNOBSTRUCTED THREE FOOT MINIMUM WORKING AREA RADIUS SHALL BE PROVIDED AROUND ALL HYDRANTS.

CITY OF AIRWAY HEIGHTS
DEPARTMENT OF PUBLIC WORKS

TYPICAL FIRE HYDRANT

APPROVED BY
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DATE

DWN

DGE

CKD

DATE

6-22-94

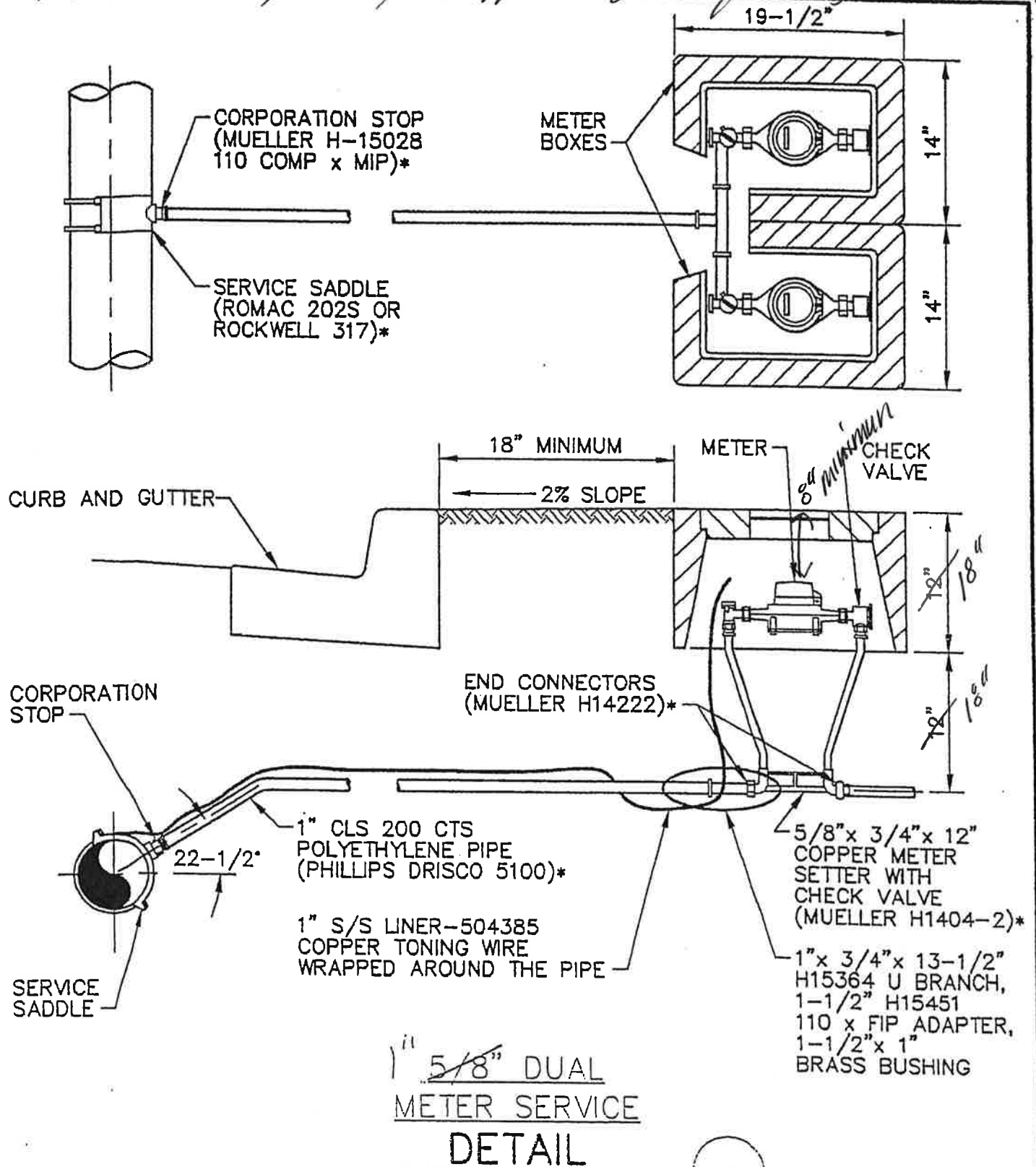
FILE

4-01

REF

NAME

Master 35 Radio Head Meters are required



* (OR APPROVED EQUAL)

NOTES:

1. STAINLESS STEEL INSERTS REQUIRED FOR ALL FOR ALL COMPRESSION FITTINGS.
2. ALL SERVICE SADDLES SHALL HAVE RUBBER GASKETS AND I.P. THREADS.

CITY OF AIRWAY HEIGHTS
DEPARTMENT OF PUBLIC WORKS

5/8" DUAL METER SERVICE

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FILE

4-03

2/11/08

Diagram illustrating the installation of a meter on a water main. The diagram shows a cross-section of a water main with a corporation stop (Mueller H-15028 110 Comp x MIP) and a 1" service saddle (Romac 101S, 202S or Rockwell 317 or 315) installed. A meter box is shown with dimensions: 19-1/2" width and 14" height. The meter is connected to the main via a 18" minimum length of pipe. The meter is labeled "METER" and "CHECK".

CORPORATION STOP
(MUELLER H-15028
110 COMP x MIP)*

1" SERVICE SADDLE
(ROMAC 101S, 202S OR
ROCKWELL 317 OR 315)*

METER BOX

19-1/2"

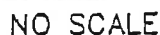
14"

18" MINIMUM

METER

CHECK

Minimum 8"



1. STAINLESS STEEL INSERTS REQUIRED FOR ALL COMPRESSION FITTINGS.
2. ALL SERVICE SADDLES SHALL HAVE RUBBER GASKET AND I.P. THREADS.

CITY OF AIRWAY HEIGHTS DEPARTMENT OF PUBLIC WORKS			
1" SINGLE METER SERVICE			
APPROVED BY CITY ENGINEER		DATE	
DWN	CKD	DATE 2/11/08	FILE 4-04

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NAME

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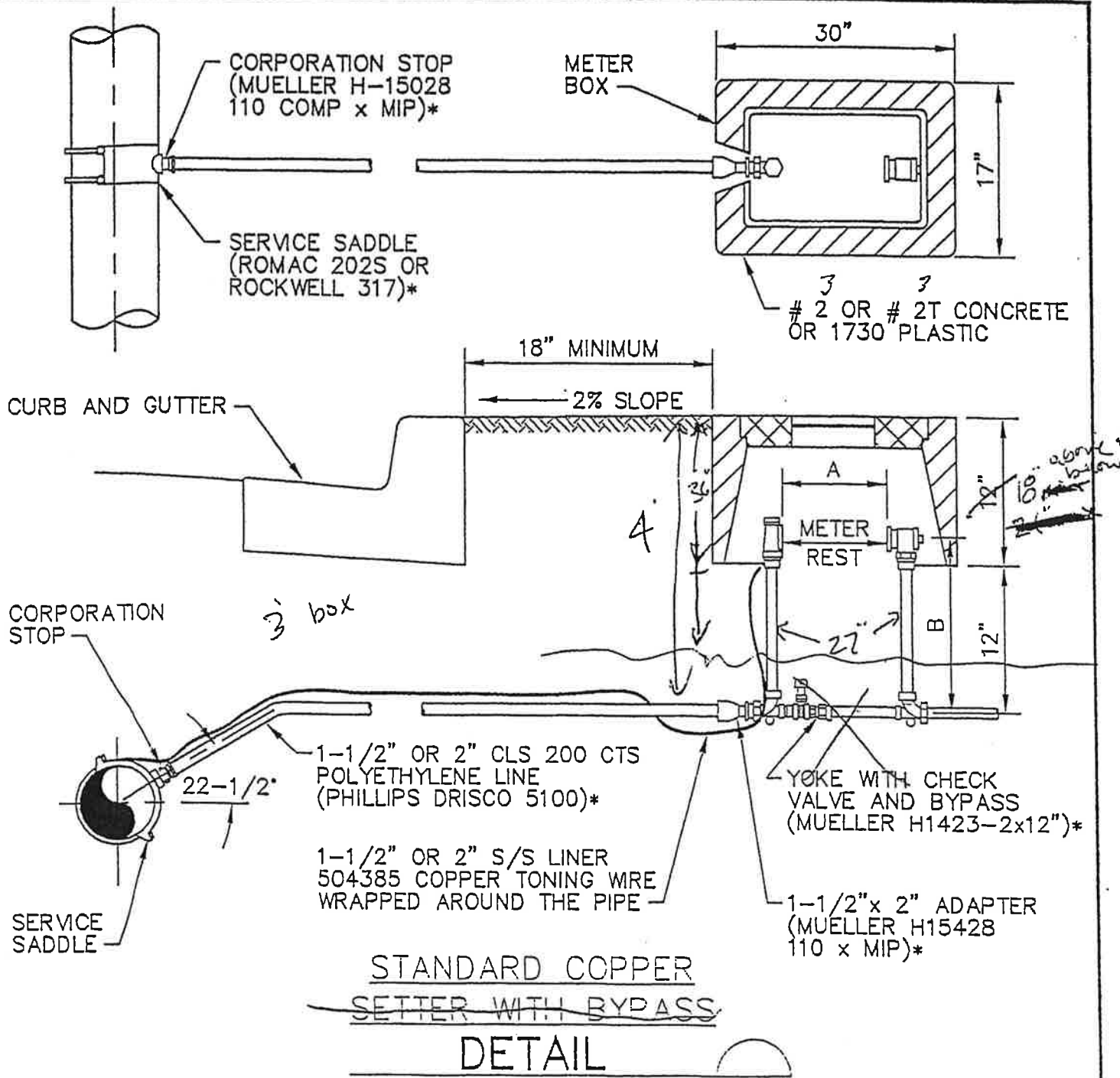
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DATE _____

FILE

4-04



NOTES:

1. STAINLESS STEEL INSERTS REQUIRED FOR ALL COMPRESSION FITTINGS.
2. ALL SERVICE SADDLES SHALL HAVE RUBBER GASKET AND I.P. THREADS.
- * (OR APPROVED EQUAL)

SIZE	A	B
1-1/2"	13-1/4"	12"
2"	17-1/4"	12"

3. USE 2" IBBM A2380-8 SCRD GATE VALVE 18"x 24" CLI VALVE BOX, 2"x CLS BRASS NIPPLE, 2" H15428 110 x MIP ADAPTER.

CITY OF AIRWAY HEIGHTS
DEPARTMENT OF PUBLIC WORKS

STANDARD COPPER SETTER WITH BYPASS

APPROVED BY
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DATE

FILE

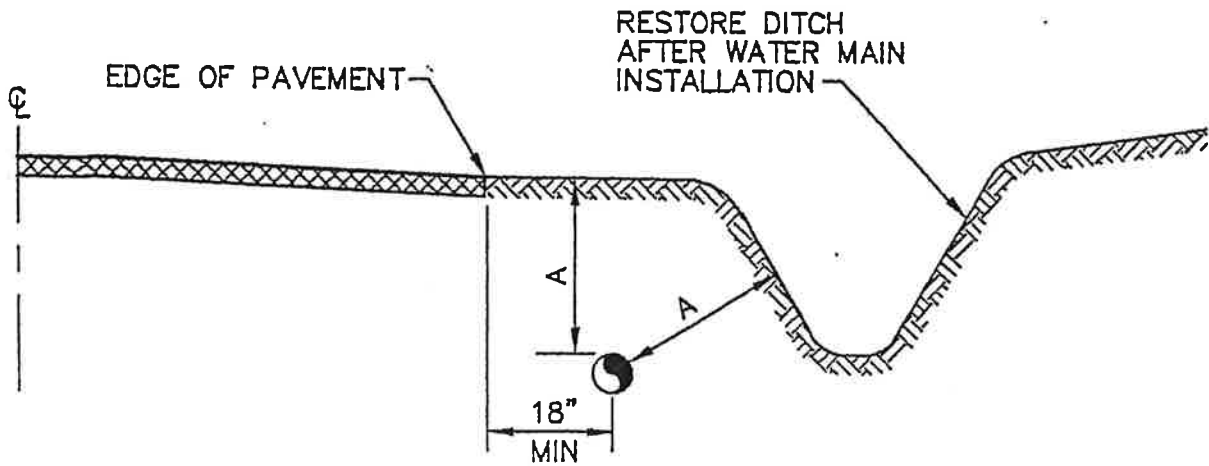
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6-23-94

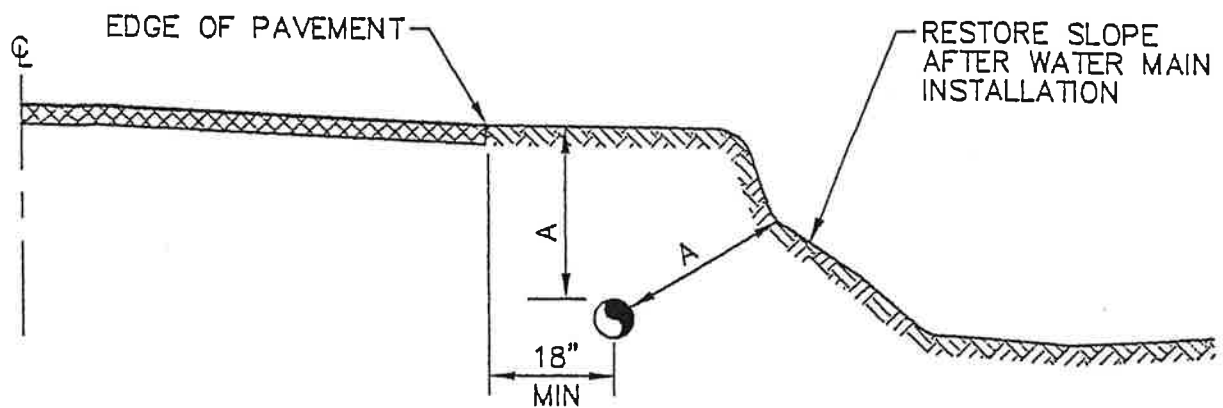
4-05

REF

NAME



DITCH



SLOPE

WATER MAIN
DEPTH REQUIREMENTS
DETAIL

NO SCALE



PIPE SIZE	A
6"-10"	54"
12"-18"	54"
20"& OVER	54"

CITY OF AIRWAY HEIGHTS
DEPARTMENT OF PUBLIC WORKS

**WATER MAIN
DEPTH REQUIREMENTS**

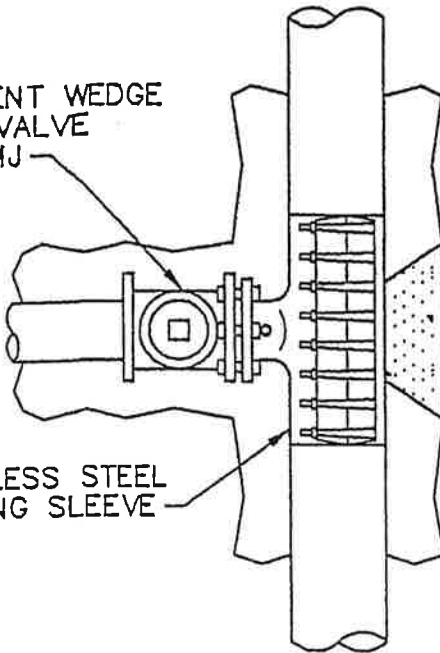
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CITY ENGINEER

REF _____ NAME _____

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RESILIENT WEDGE
GATE VALVE
FL x MJ

STAINLESS STEEL
TAPPING SLEEVE



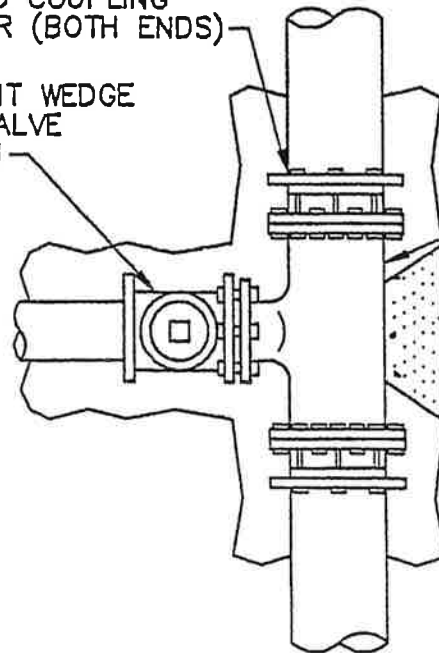
LIVE TAP

FLANGED COUPLING
ADAPTER (BOTH ENDS)

RESILIENT WEDGE
GATE VALVE
FL x MJ

TEE
FL x MJ

CONCRETE
THRUST
BLOCK

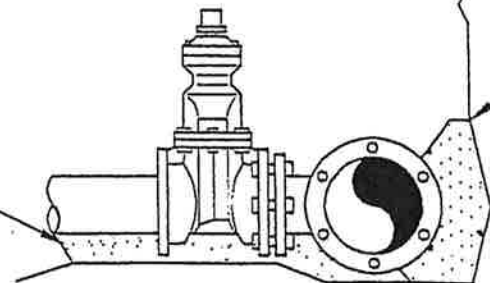


CUT-IN-TEE
TOP VIEW

SAND OR NATIVE MATERIAL
BACKFILL AS DIRECTED

EXISTING
GROUND

CONCRETE
THRUST
BLOCK



CUT-IN-TEE
SIDE VIEW

CONNECTION TO
EXISTING MAIN
DETAIL

NO SCALE

NOTES:

1. SUPPORT VALVE AND SLEEVE CONTINUOUSLY THROUGH INSTALLATION.
2. 11 MIL PLASTIC OR CONSTRUCTION FABRIC SHALL BE WRAPPED AROUND PIPE AND FITTINGS BEFORE THRUST BLOCK AND BACKFILL ARE POURED.

CITY OF AIRWAY HEIGHTS
DEPARTMENT OF PUBLIC WORKS

**CONNECTION TO
EXISTING MAIN**

APPROVED BY
CITY ENGINEER

DATE

REF

NAME

DWN

DGE

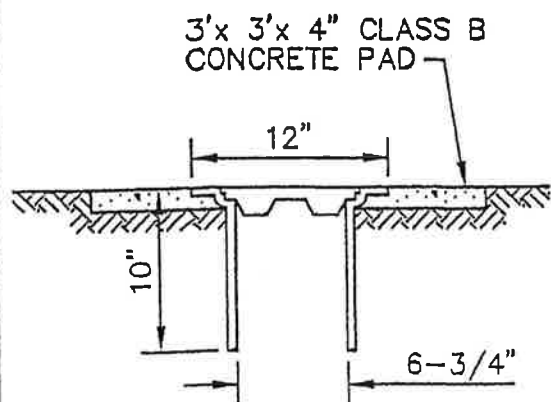
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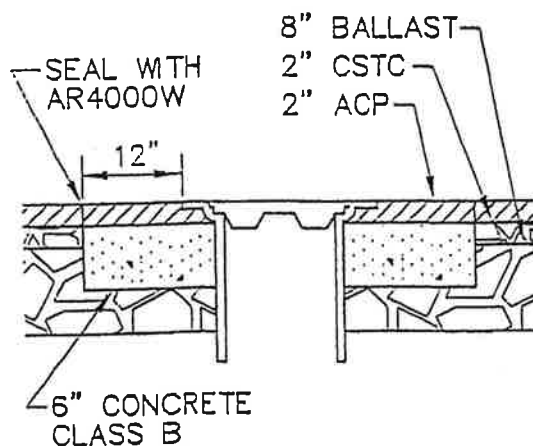
6-24-94

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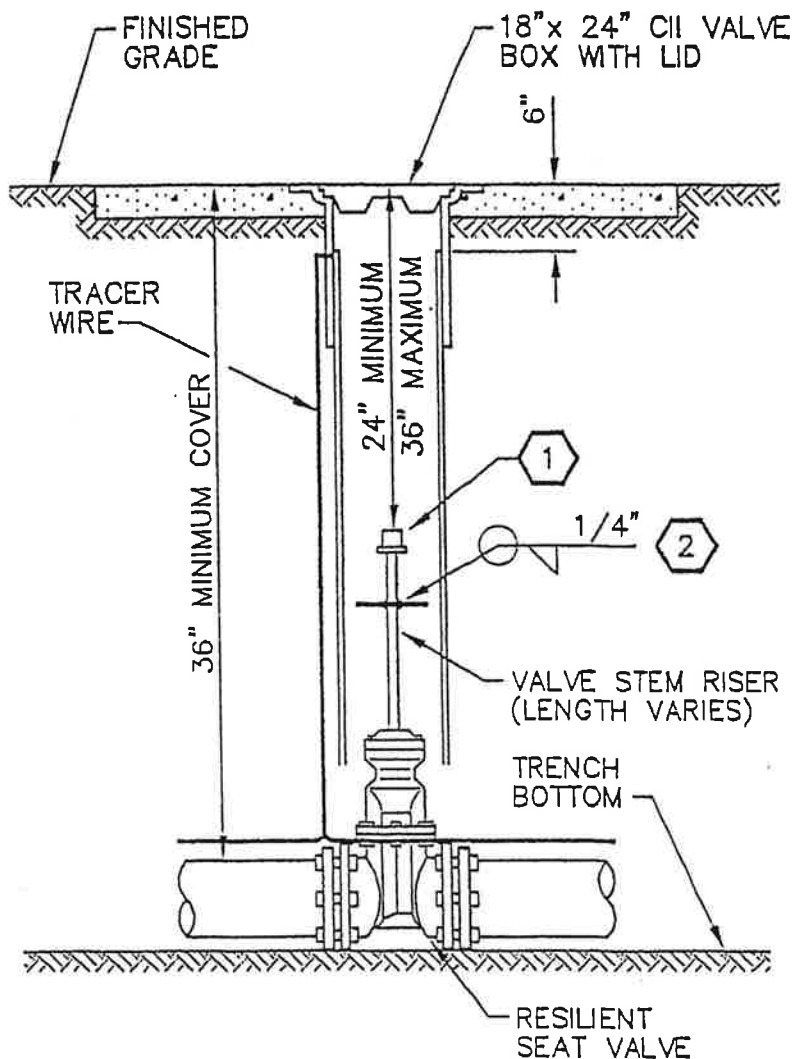
4-08



OUTSIDE PAVED AREA



INSIDE PAVED AREA



STANDARD VALVE BOX DETAIL

NO SCALE

NOTE:

1. 2" x 2" x 3/16" SQUARE STRUCTURAL STEEL TUBING USED TO FIT OPERATING NUT. LENGTH AS REQUIRED.

CONSTRUCTION NOTES:

1. VALVE OPERATING NUT OR 1 7/8" x 1 7/8" x 2" HIGH GRADE STEEL WELDED TO GUIDE PLATE.
2. 3/16" THICK x 5 1/5" DIAMETER STEEL GUIDE PLATE WELDED TO RISER SHAFT.

CITY OF AIRWAY HEIGHTS
DEPARTMENT OF PUBLIC WORKS

STANDARD VALVE BOX

APPROVED BY
CITY ENGINEER

DATE

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DATE

8-24-94

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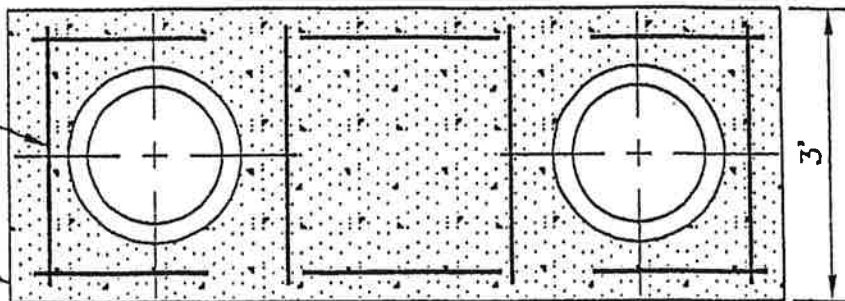
4-09

REF

NAME

#4 REBAR TO MEET
ASTM A615 GRADE
60 FY=6000 PSI

8'x 3'x 4" CONCRETE
PAD (IF OUTSIDE
PAVED ROAD)



PAVEMENT

2" THREADED HUB
CAP FINGERTIGHT

(2) VALVE BOXES
WITH COVERS

36" MINIMUM COVER

12"

30" MINIMUM

1/2" DRAIN HOLE

2" DIA. GALV.
STEEL PIPE

CAP WITH 2" I.P.
THREADED TAP

SAND OR GRAVEL BEDDING

2" RESILIENT WEDGE
GATE VALVE (MH 4067-02
OR APPROVED EQUAL)

2" THREADED
FLANGE

CONCRETE
THRUST
BLOCK

2" BLOW OFF ASSEMBLY DETAIL

NO SCALE

NOTE:

1. ON WATERMAINS WHICH WILL BE EXTENDED
IN THE FUTURE, THE VALVE WHICH OPERATES
THE BLOWOFF ASSEMBLY SHALL BE THE SAME
SIZE AND PROVIDED WITH A CONCRETE
THRUST BLOCK.

CITY OF AIRWAY HEIGHTS
DEPARTMENT OF PUBLIC WORKS

2" BLOW-OFF ASSEMBLY

APPROVED BY
CITY ENGINEER

DATE

DWN

DGE

CXD

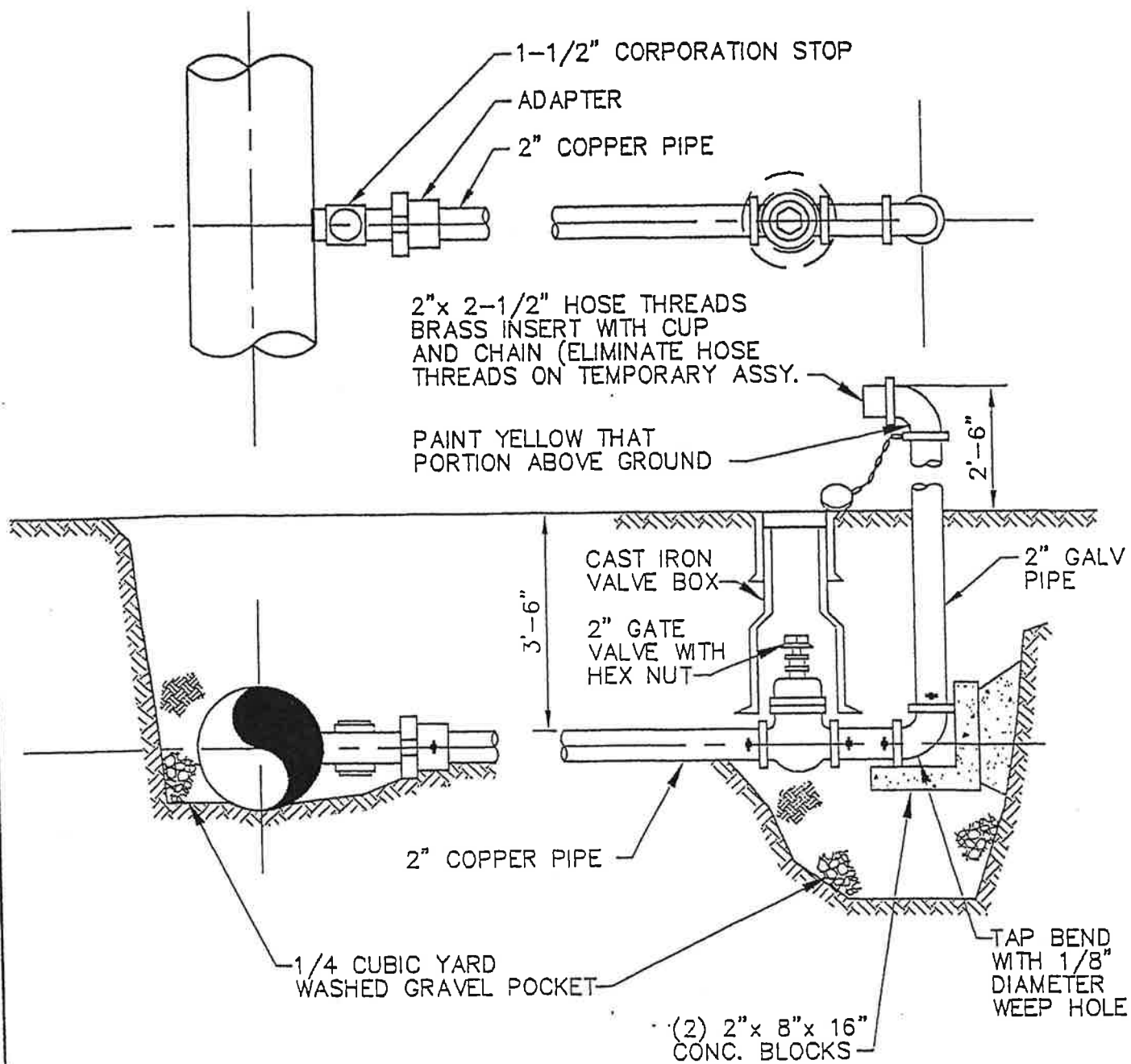
DATE

6-24-34

FILE

4-10

NAME



IN-LINE BLOW-OFF
ASSEMBLY
DETAIL

NO SCALE

CITY OF AIRWAY HEIGHTS
DEPARTMENT OF PUBLIC WORKS

IN-LINE BLOW-OFF
ASSEMBLY

APPROVED BY
CITY ENGINEER

DATE

DWN

CKD

DATE

FILE

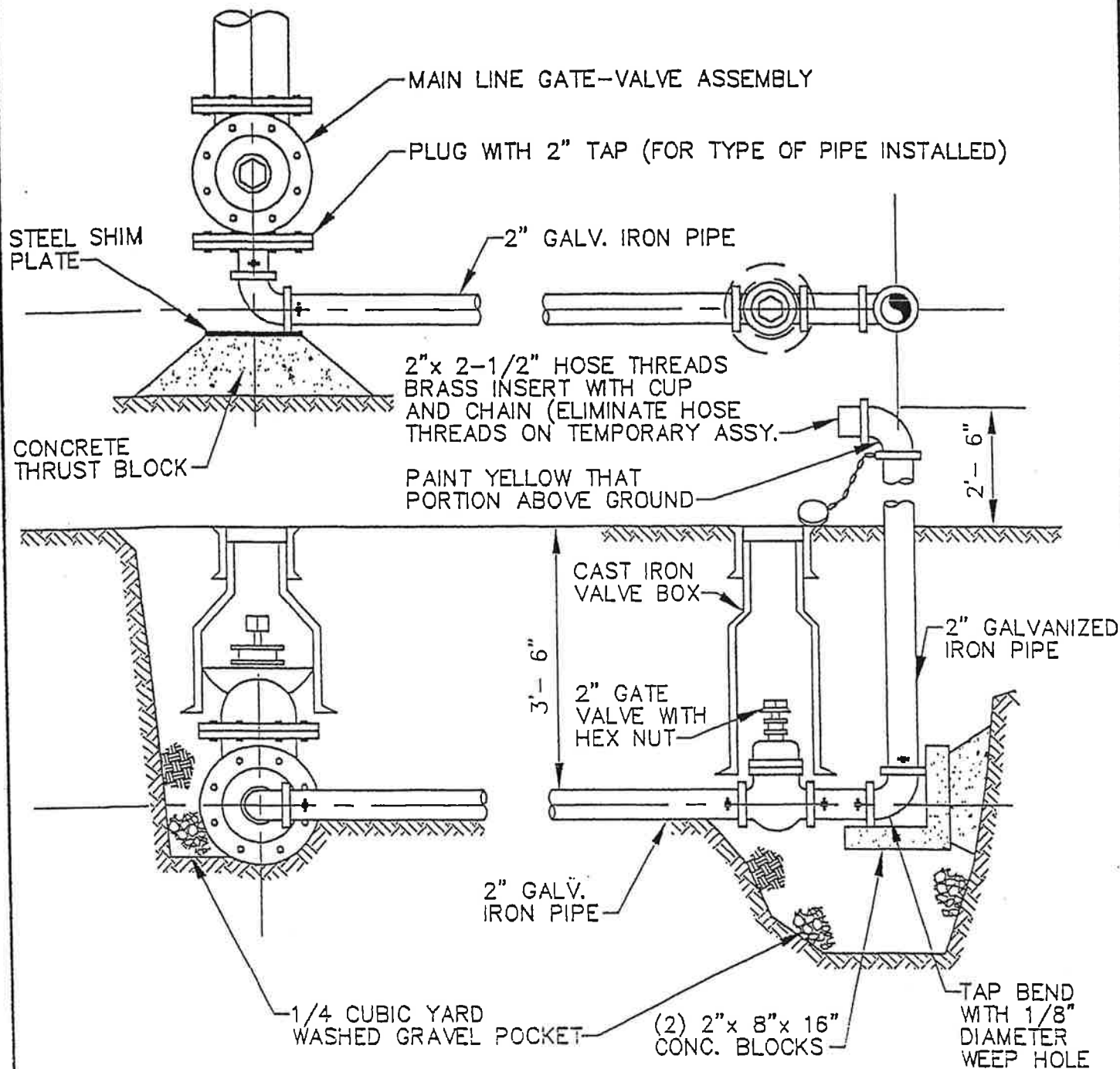
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8-24-94

4011

REF

NAME



END-LINE BLOW-OFF
ASSEMBLY
DETAIL

NO SCALE

CITY OF AIRWAY HEIGHTS
DEPARTMENT OF PUBLIC WORKS

**END-LINE BLOW-OFF
ASSEMBLY**

APPROVED BY
CITY ENGINEER

DATE

DWN

CXD

DATE

FILE

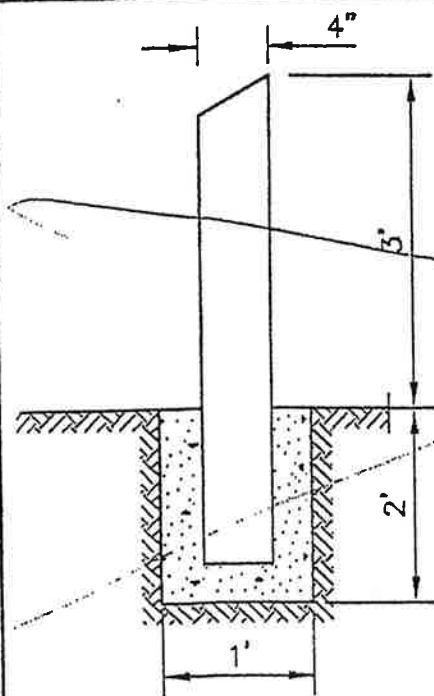
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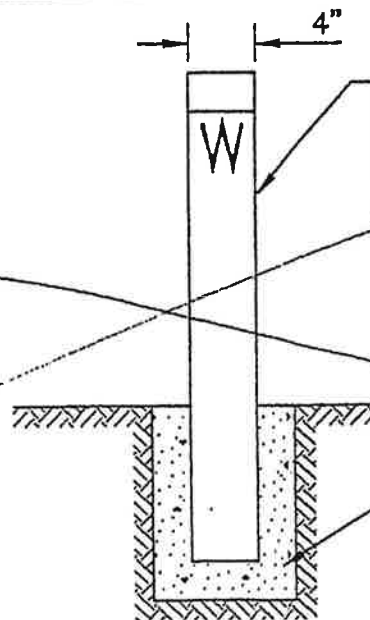
4-12

REF

NAME



SIDE

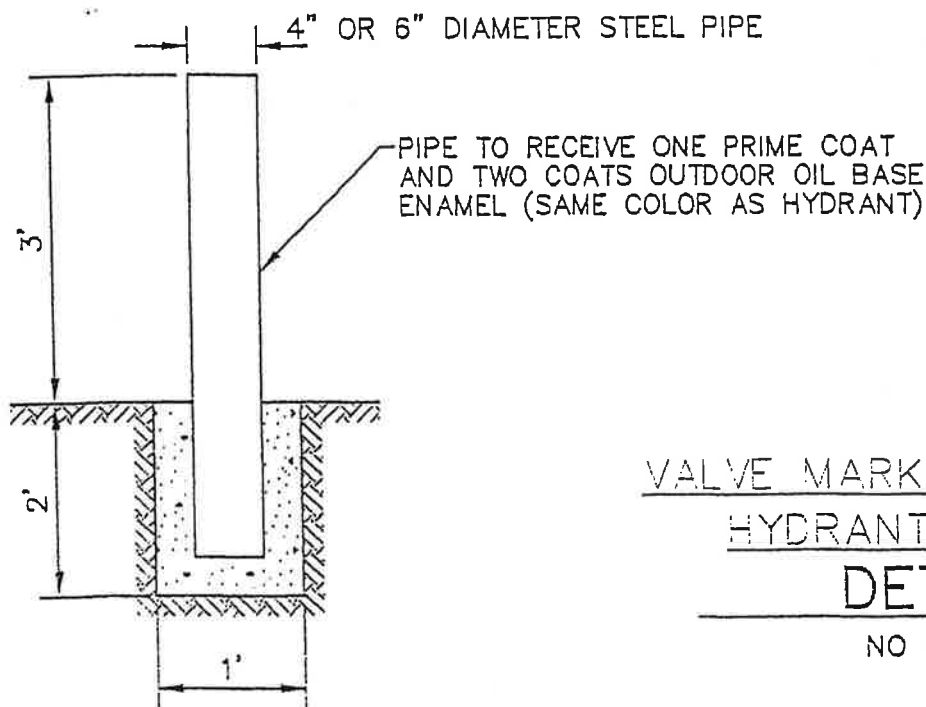


FRONT

4" SCHEDULE 40 STEEL OR REINFORCED CONCRETE MARKER POST STAMPED WITH "W" AND DISTANCE TO VALVE. POST TO RECEIVE ONE PRIME COAT AND TWO COATS OUTDOOR OIL BASE ENAMEL (WHITE).

COMMERCIAL CONCRETE

VALVE MARKER POST



VALVE MARKER POST AND HYDRANT BOLLARD DETAIL

NO SCALE

HYDRANT BOLLARD

NOTE:

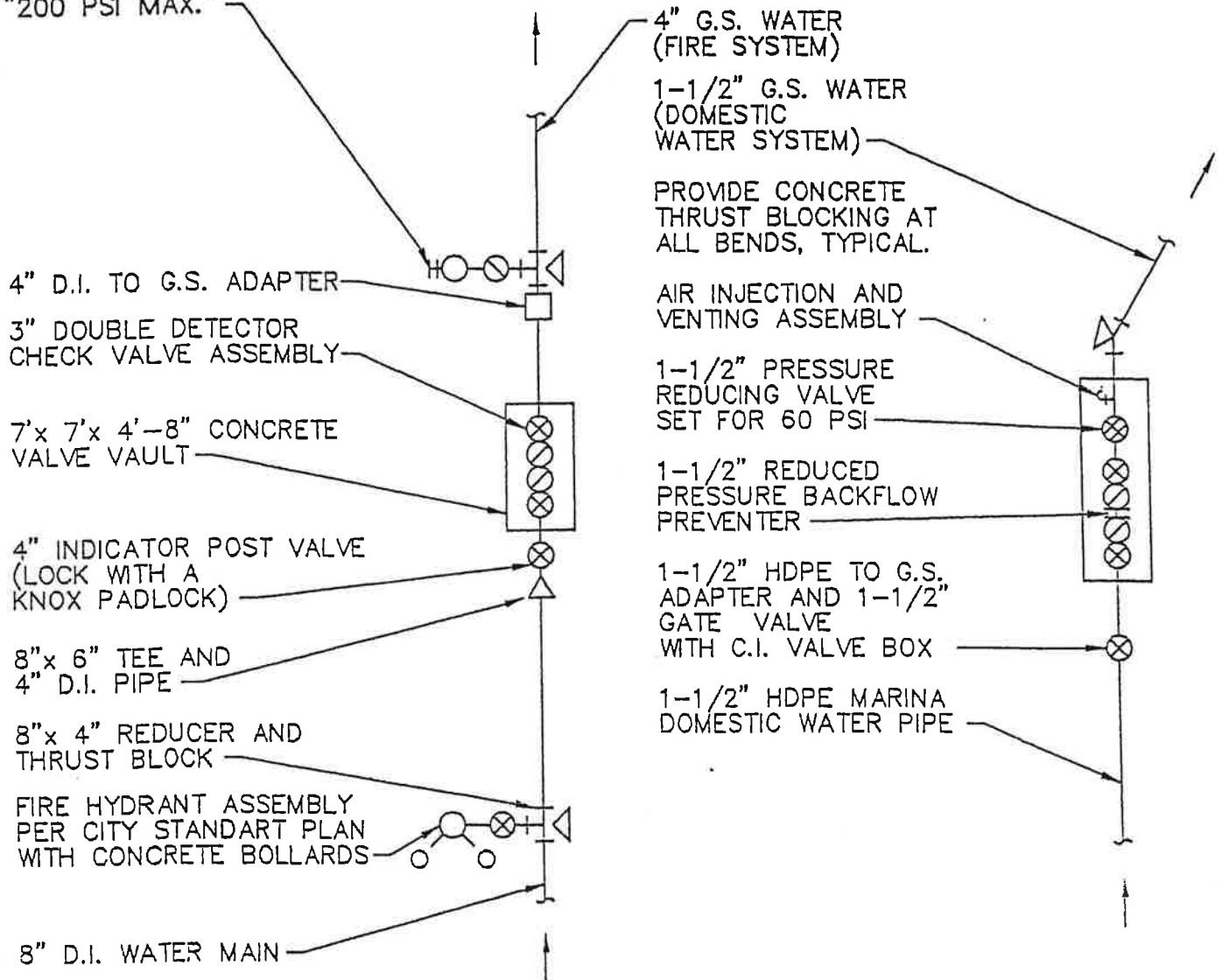
1. LOCATE BOLLARDS 3' FROM HYDRANT DO NOT BLOCK HYDRANT PORTS.

CITY OF AIRWAY HEIGHTS DEPARTMENT OF PUBLIC WORKS			
VALVE MARKER POST AND HYDRANT BOLLARD			
APPROVED BY CITY ENGINEER		DATE	
DWN	CKD	DATE 6-24-94	FILE 4-13

REF

NAME

2-1/2" x 2-1/2" x 4" FIRE DEPT INJECTION
STANDPIPE WITH 4" CHECK VALVE FOR
PUMPING INTO THE FIRE SYSTEM. PROVIDE
A PERMANENT, WEATHER RESISTANT 4" x 6"
SIGN ON THE STANDPIPE THAT READS
"200 PSI MAX."



MARINA WATER CONTROL VAULTS

DETAIL

NO SCALE

CITY OF AIRWAY HEIGHTS
DEPARTMENT OF PUBLIC WORKS

MARINA WATER CONTROL VAULTS

APPROVED BY
CITY ENGINEER

DATE

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DATE

FILE

DGE

8-24-91

1-1-1

REF

NAME

DOUBLE, SPRING ASSISTED DIAMOND
PLATES WITH LOCKING LATCH AND
REMOVABLE CENTER TUBE. UTILITY
VAULT COVER NO.57-TL-2-332P
OR APPROVED EQUAL.

3" DOUBLE DETECTOR CHECK
VALVE ASSEMBLY FEBCO NO 806,
OR APPROVED EQUAL.

7'x 4'-8"x 7' CONCRETE
VAULT. UTILITY VAULT
ASSEMBLY NO. 577-LA
OR APPROVED EQUAL.

EXISTING GRADE.

3"x4" FLANGED REDUCER.

WELDED FLANGE
RESTRAINT.

4" PIPE.

4" FLEXIBLE
COUPLING
ROMAC 501
OR EQUAL.

15" MIN.

VALVE SUPPORT STAND.
2 PLACES.

1-1/2" PVC
DRAIN TO
DAYLIGHT.
SLOPE=2% MIN.

DOUBLE DETECTOR CHECK VALVE DETAIL

NO SCALE

CITY OF AIRWAY HEIGHTS
DEPARTMENT OF PUBLIC WORKS

DOUBLE DETECTOR CHECK VALVE

APPROVED BY
CITY ENGINEER

DATE

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NAME

DWN

DGE

CKD

DATE

6-24-94

FILE

4-15

1-1/2" BRONZE PRESSURE REDUCING VALVE
BAILEY MODEL 30A, GLOBE STYLE, WITH 50-100 PSI
SPRING PRESSURE RATING, SET FOR 60 PSI

1-1/2" DIA. REDUCED PRESSURE
BACKFLOW PREVENTER, BEECO
MODEL FRPII OR APPROVED EQUAL

1-1/2" GALV. UNION

1-1/2"x 90° GALV. BEND

1-1/2" GALV. STEEL PIPE

CONCRETE BASE

C.I. VALVE BOX
WITH LID

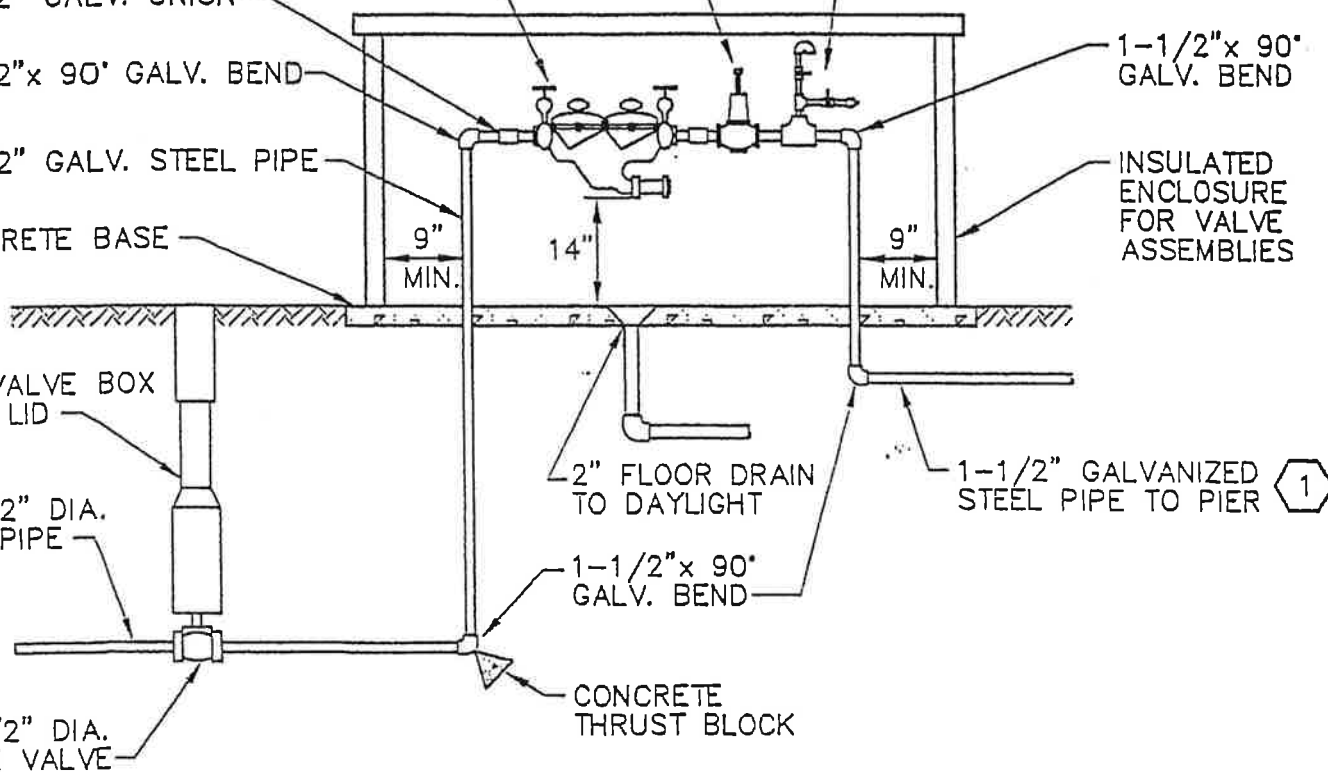
1-1/2" DIA.
G.S. PIPE

1-1/2" DIA.
GATE VALVE

AIR INJECTION AND
VENTING ASSEMBLIES
1" GALV. S.P.I.P.E., SCH 40
1"x 1" GALV. TEE
1" BALL VALVES
POTTER-ROEMER 4410
OR EQUAL (2 PLACES)
COMPRESSED AIR NIPPLE
MAIN LINE TEE WITH
REDUCER BUSHINGS

1-1/2"x 90°
GALV. BEND

INSULATED
ENCLOSURE
FOR VALVE
ASSEMBLIES



REDUCED PRESSURE BACKFLOW PREVENTER DETAIL

NO SCALE

NOTES:

1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL ARRANGEMENT OF THE REQUIRED VALVES AND ACCESSORIES. IT IS NOT INTENDED TO PROVIDE COMPLETE PLUMBING DETAILS

① MAINTAIN LEVEL PIPE TO END OF FIXED PIER OR PROVIDE AIR-VAC VALVE AT ANY HIGH POINTS AND DRAIN VALVE AT ANY LOW POINTS

CITY OF AIRWAY HEIGHTS
DEPARTMENT OF PUBLIC WORKS

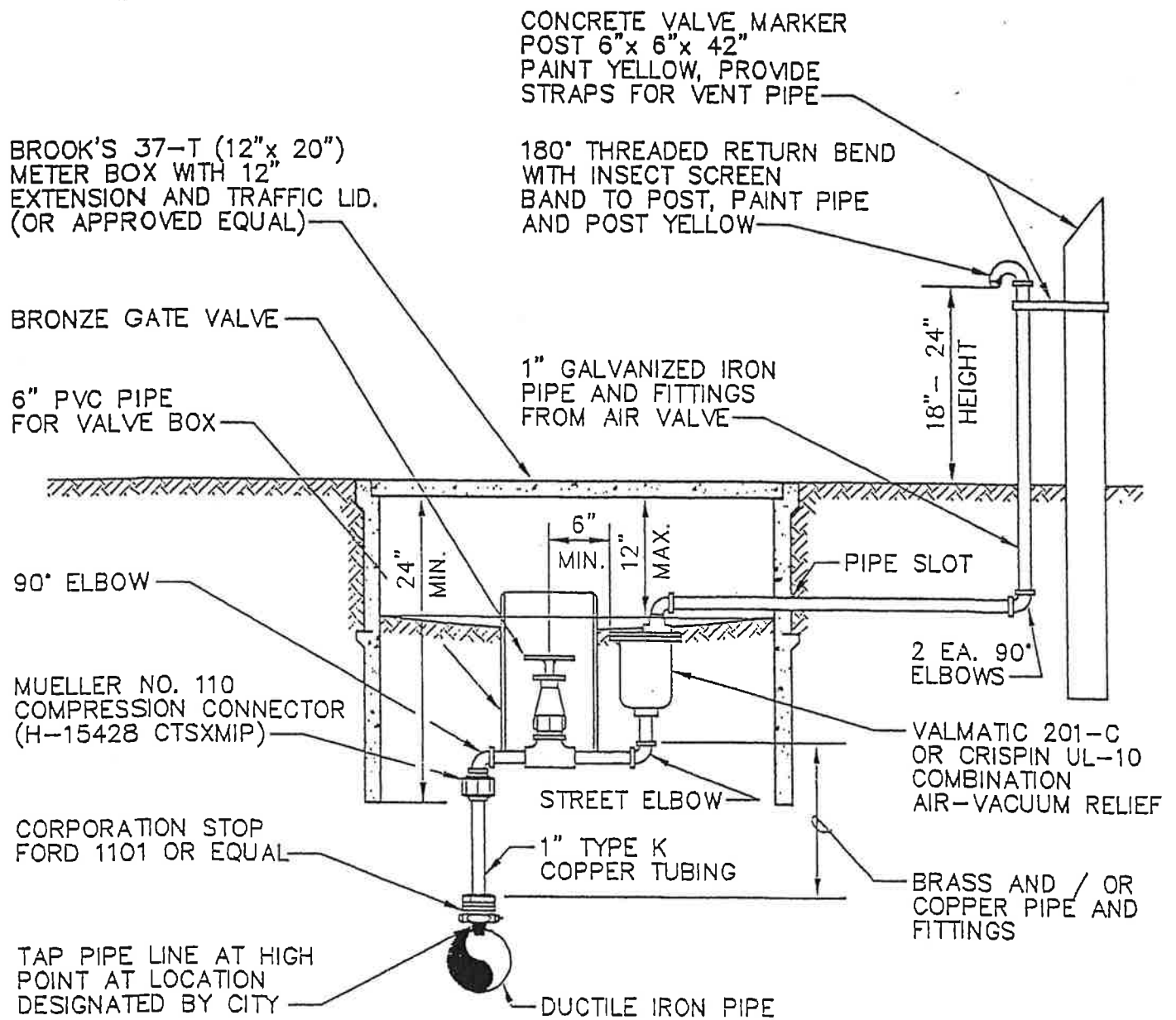
REDUCED PRESSURE BACKFLOW PREVENTER

APPROVED BY _____ DATE _____
CTY ENGINEER

DWN DGE CKD DATE 5-24-94 FILE 4-16

REF

NAME



1" AIR AND VACUUM
RELEASE ASSEMBLY
DETAIL

NO SCALE

CITY OF AIRWAY HEIGHTS
DEPARTMENT OF PUBLIC WORKS

1" AIR AND VACUUM
RELEASE ASSEMBLY

APPROVED BY
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DATE

FILE

DGE

3-24-94

4-17

REF

NAME

4"x 4" CONC. MARKER POST PAINTED
YELLOW WITH BLACK STENCILED
DISTANCE AND DIRECTION TO VALVE

17"x 28" CONC. METER BOX
WITH 3/8" STEEL DIAMOND
PLATE COVER, FOG-TITE
METER SEAL CO. NO.2

2" AIR AND VACUUM RELEASE
VALVE, "APCO" OR "CRISPIN"
MODELS ONLY

FINISHED GRADE

CAST IRON VALVE BOX

2" GATE VALVE AWWA
WITH OPERATING NUT

2" GALV. IRON PIPE

DUCTILE IRON
WATER MAIN

DOUBLE STRAP
SERVICE CLAMP

2" GALV.
IRON NIPPLE

2" GALV.
IRON ELBOW

PAINT YELLOW THAT
PORTION ABOVE GROUND

2" BEEHIVE STRAINER

2" OPEN PATTERN
RETURN BEND

2'-0"

2, 2"x 90°
GALV. ELBOW
WITH WEEP
HOLE IN ONE

2"x 90° ELBOW
GALVANIZED

FOUNDATION
ROCK

12"

2" AIR AND VACUUM RELEASE ASSEMBLY DETAIL

NO SCALE

CITY OF AIRWAY HEIGHTS
DEPARTMENT OF PUBLIC WORKS

2" AIR AND VACUUM RELEASE ASSEMBLY

APPROVED BY
CITY ENGINEER

DATE

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OGE

CKD

DATE

8-24-94

FILE

4-13

REF

NAME

THRUST LOADS

THRUST AT FITTINGS IN POUNDS AT 200 POUNDS PER SQUARE INCH OF WATER PRESSURE

PIPE DIAMETER	90° BEND	45° BEND	22.5° BEND	11.25° BEND	DEAD END OR TEE
4"	3600	2000	1000	500	2600
6"	8000	4400	2300	1200	5700
8"	14300	7700	4000	2000	10100
10"	22300	12100	6200	3100	15800
12"	32000	17400	8900	4500	22700
14"	43600	23600	12100	6100	30800
16"	57000	30800	15700	7900	40300

NOTES:

1. BLOCKING SHALL BE COMMERCIAL CONCRETE POURED IN PLACE AGAINST UNDISTURBED EARTH. FITTING SHALL BE ISOLATED FROM CONCRETE THRUST BLOCK WITH PLASTIC OR SIMILAR MATERIAL.
2. TO DETERMINE THE BEARING AREA OF THE THRUST BLOCK IN SQUARE FEET (SF):
EXAMPLE : 12" - 90° BEND IN SAND AND GRAVEL
 $32000 \text{ LBS} / 3000 \text{ LB/SF} = 10.7 \text{ SF OF AREA}$
3. AREAS MUST BE ADJUSTED FOR OTHER PIPE SIZE, PRESSURES AND SOIL CONDITIONS.
4. BLOCKING SHALL BE ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATING PRESSURE UNDER ALL CONDITIONS OF SERVICE.

SAFE SOIL BEARING LOADS

FOR HORIZONTAL THRUSTS WHEN THE DEPTH OF COVER OVER THE PIPE EXCEEDS 2 FEET

SOIL	POUNDS PER SQUARE FOOT
MUCK, PEAT	0
SOFT CLAY	1000
SAND	2000
SAND AND GRAVEL	3000
SAND AND GRAVEL CEMENTED WITH CLAY	4000
HARD SHALE	10000

CITY OF AIRWAY HEIGHTS
DEPARTMENT OF PUBLIC WORKS

THRUST LOADS

APPROVED BY
CITY ENGINEER

DATE

REF

NAME

DWN

DGE

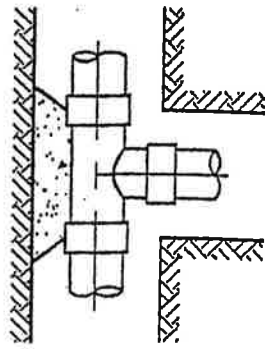
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DATE

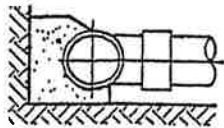
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3-24-34

4-19

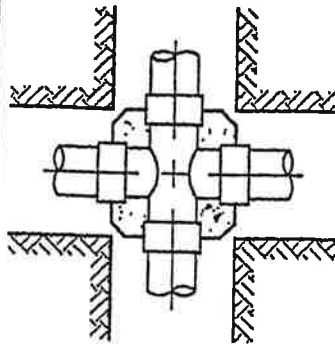


TOP VIEW

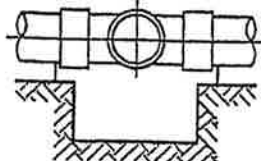


SIDE VIEW

TEE

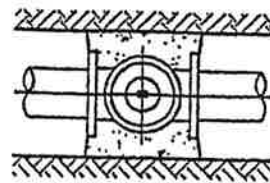


TOP VIEW

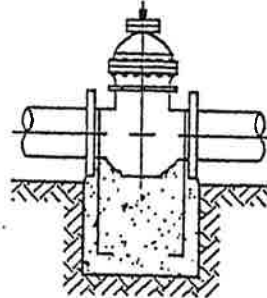


SIDE VIEW

CROSS

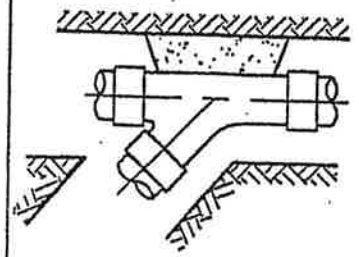


TOP VIEW

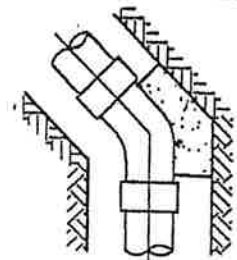


SIDE VIEW

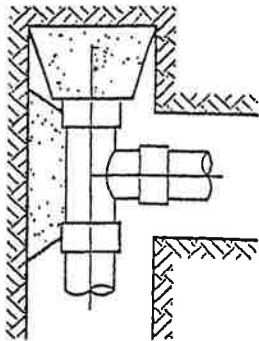
GATE VALVE



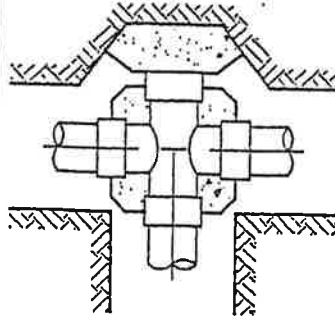
WYE



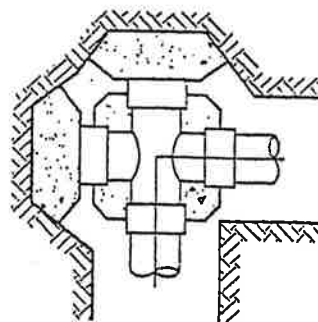
HORIZ. BEND



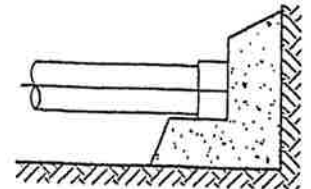
TEE WITH PLUG



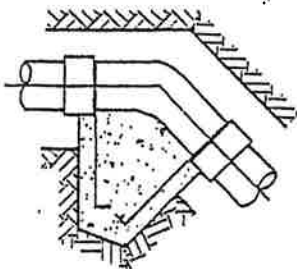
CROSS
WITH PLUG



CROSS
WITH PLUGS



PLUG OR CAP



45° - 90°
VERTICAL BEND

STANDARD BLOCKING DETAIL

NO SCALE

NOTES:

1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
2. PLASTIC BARRIER SHALL BE PLACED BETWEEN ALL THRUST BLOCKS AND FITTINGS.
3. ANCHOR REBAR SHALL BE 5/8" MINIMUM DIAMETER.

CITY OF AIRWAY HEIGHTS
DEPARTMENT OF PUBLIC WORKS

STANDARD BLOCKING DETAILS

APPROVED BY
CITY ENGINEER

DATE

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6-24-94

FILE

4-20

REF

NAME