

- [illegible]

PERMANENT END
OF LINE BLOW-OFF ASSEMBLY

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- Technical drawing illustrating the connection of a water main to a vault, showing various components and dimensions:
- CENTERLINE OF VAULT
 - PAVEMENT
 - ADJUSTMENT RING (WHEN REQUIRED)
 - 2" THREADED NIPPLE WITH FINGER TIGHT CAP
 - DRILL 1/4" Ø HOLE IN CAP
 - 2" CLEARANCE FROM TOP OF PIPE TO BOTTOM OF VAULT CUT-OUT
 - 2" BLOW OFF
 - "STREET EL"
 - 36" MIN. EXTENSION
 - MAIN LINE VALVE (SEE WATER LINE VALVE & VAULT DETAIL)
 - WATER MAIN
 - CAPITOL FOUNDRY MH 2001 NON-WATERTIGHT FRAME & COVER LABELED "WATER"
 - FINISHED GRADE
 - 12" MAX. VERTICAL
 - GROUND BAR SEE GENERAL DETAIL
 - PRECAST WATER VALVE VAULT OR PRECAST MANHOLE SECTION(S) WHEN DEPTH EXCEEDS 5'
 - TRACER & GROUND WIRES SEE GENERAL DETAIL
 - 6" MINIMUM VDOT 57
 - GROUND ROD SEE GENERAL DETAIL
 - RESTRAINED M.J. CAP

TEMPORARY END OF LINE BLOW-OFF ASSEMBLY

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- PAVEMENT
 ADJUSTMENT RING (WHEN REQUIRED)
 2" TAPPED SADDLE
 2" TAPPING SADDLE
 2" THREADED NIPPLE WITH FINGER TIGHT CAP
 DRILL 1/4" Ø HOLE IN CAP
 2" GATE VALVE WITH 2" SQUARE HEAD
 CORPORATION STOP MUELLER B-3500R FORD 1000-4-G-NL OR EQUIVALENT
 6" MIN.
 WATER MAIN
 6" MINIMUM VDOT 57
 TRACER & GROUND WIRES SEE GENERAL DETAIL
 PRECAST WATER VALVE VAULT OR PRECAST MANHOLE SECTION(S) WHEN DEPTH EXCEEDS 5'
 GROUND BAR SEE GENERAL DETAIL
 12" MAX. VERTICAL
 FINISHED GRADE
 CAPITOL FOUNDRY MH 2001 NON-WATERTIGHT FRAME & COVER LABELED "WATER"
 12"-18"

IN-LINE BLOW-OFF ASSEMBLY

03/10

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- PAVEMENT
- NON-WATER TIGHT FRAME AND COVER LABELED "WATER"
- FINISHED GRADE
- 12" MAX. VERTICAL
- ADJUSTMENT RING (WHEN REQUIRED)
- COMBINATION AIR VALVE
APCO 143C,
A.R.I. D-040,
VAL-MATIC 201C-2,
OR EQUIVALENT
- GROUND BAR
SEE GENERAL DETAIL
PROVIDE
SS SCREEN
(CHRISTY'S VC1 OR
APPROVED EQUAL)
- COPPER PIPING
- 12" MIN.
- 1" CORPORATION STOP-MUELLER
B-2500B, FORD
FB1000-4-G-NL OR
EQUIVALENT
- 6" MIN.
- PRECAST WATER VALVE
VAULT OR PRECAST
MANHOLE SECTION(S)
WHEN DEPTH EXCEEDS 5'
- TRACER & GROUND
WIRES SEE GENERAL
DETAIL
- 6" MINIMUM
VDOT 57
- WATER MAIN
- SEE NOTE #1
- GROUND ROD
SEE GENERAL DETAIL
- 1" BALL VALVE
- 1" THREADED LEAD FREE BRASS PIPE
LENGTH AS REQUIRED TO COMPLETE
FULL ASSEMBLY AS SHOWN ABOVE
- 1" CORPORATION
STOP-MUELLER
B-2500B, FORD FB1000-4-G-NL OR
EQUIVALENT
- COMPACTED VDOT 57
TO BOTTOM OF VAULT
AS SHOWN ABOVE
- FOR DEEP WATERLINES
- SEE NOTE #1

COMBINATION AIR VALVE ASSEMBLY

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- STAINLESS STEEL SCREEN WAGER MODEL 1600FAA (NO COLOR COATING) OR APPROVED EQUAL
-INSTALL APPROVED EROSION PROTECTION AT DISCHARGE
- SCH 80 PVC
- MEGALUGGED TRANSITION GASKET
- DUCTILE IRON MJ 90° BEND
- EPOXY COATED STEEL PIPE SUPPORTS WITH STAINLESS STEEL ANCHORS (TYP.) OF 2
- 4" BLOCKOUT FOR DRAIN (TYP. OF 4)
- SCH 80 PVC 90° BENDS
- 2'-0" MIN. ABOVE GROUND
- 8" MIN. 6" MIN.
- 4'-11"
- PRV (SEE NOTE 6)
- 6'-0"
- 6" MIN.
- OUTLET
- SMOOTH HOLE WITH LINK SEAL (TYP.) OF 3
- 6" MIN.
- FL X FL REDUCING TEE PRV (SEE NOTE 6)
- 12" Min.
- FL X FL GATE VALVE WITH HANDWHEEL (SEE NOTE 6)
- 12" Min.
- 2" LOW FLOW BYPASS
- TYPE K COPPER
- NPT GATE VALVE
- PRV NOTE 3
- 12" Min.
- TURBO METER
- NPT GATE VALVE
- 4" BLOCKOUT FOR DRAIN (TYP. OF 4)
- 12" Min.
- 16" Min.
- 18" Min.
- FL X FL GATE VALVE WITH HANDWHEEL
- TURBO METER (SENSUS OMNI T) OR APPROVED EQUAL
- 72" x 48" DOUBLE DOOR GUTTER FRAME
- H20 RATED ACCESS HATCH
- FL X FL GATE VALVE WITH HANDWHEEL
- 16" Min.
- INI FT

MAIN LINE - PRESSURE REDUCING VALVE ASSEMBLY

1/26/1

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- Technical drawing of a vertical manhole assembly, showing various components and dimensions. The drawing includes a cross-section of the manhole structure, with labels for different parts and their dimensions.
- Labels and Dimensions:**
- THREADED RODS (TYP.)**: Located at the top of the assembly.
 - BUTYL MASTIC (NO MORTAR) BETWEEN F&O AND M.H. TOP AND BETWEEN GRADE RINGS**: Sealing material at the top.
 - GROUND BAR SEE GENERAL DETAIL**: A horizontal bar near the top.
 - FIRST STEP TO BE 1'5" MAX. FROM TOP OF M.H.**: Dimension for the first step.
 - BUTYL MASTIC OR GASKETS MEETING ASTM C443 & ASTM C1244 TESTING STANDARD (NO MORTAR)**: Sealing material between steps.
 - STEPS (TYP.)**: Horizontal steps within the manhole.
 - MANUFACTURED OPENING AS REQUIRED BY PIPE SIZE**: A detail view of the opening at the bottom.
 - 2" MINIMUM SEPARATION AT CUT OUT**: Dimension for the separation at the cut out.
 - C OF VALVE FRAME AND COVER**: Center of the valve frame and cover.
 - 6" MINIMUM VDOT 57**: Dimension for the base material.
 - TRACER WIRE SEE GENERAL DETAIL**: A wire for tracing the manhole.
 - GROUND ROD SEE GENERAL DETAIL**: A rod for grounding.
- Dimensions and Notes:**
- 2'-0" 8" TYP.**: Horizontal dimensions at the top.
 - 1'-0" VARIABLE ADJUSTMENT TO BE INCLUDED IN 10' MAXIMUM HEIGHT**: Note for the top section.
 - 1'-0" Max.**: Maximum height for the top section.
 - 4" Min.**: Minimum height for the top section.
 - VARIES**: Indicated for several sections.
 - 10' MAXIMUM**: Maximum height for the main section.
 - 1'-4" Max.**: Maximum height for the bottom section.
 - VARIES**: Indicated for the bottom section.

DEEP VALVE
VAULT (MANHOLE)

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- 1" DIA. PICK HOLE
- 1" DIA. PICK HOLE
- PLAN
- 25 1/4"
- 23 3/4"
- 23 1/2"
- 3/4"
- 1 1/2"
- 1 1/2"
- 4 3/4"
- 1/2"
- 2 1/2"
- 1/2"
- 3 3/4"
- 3"
- 22 1/4"
- 24 1/2"
- 33 1/4"
- 3/4" THREADED ROD
STAINLESS STEEL
- 12" MAX.
- 4" MINIMUM (TYP)
- CONE
SECTION
- SEE NOTE 1
- CAPITOL FOUNDRY MH-2001
TRAFFIC BEARING NON-WATERTIGHT
FRAME & COVER OR APPROVED EQUAL

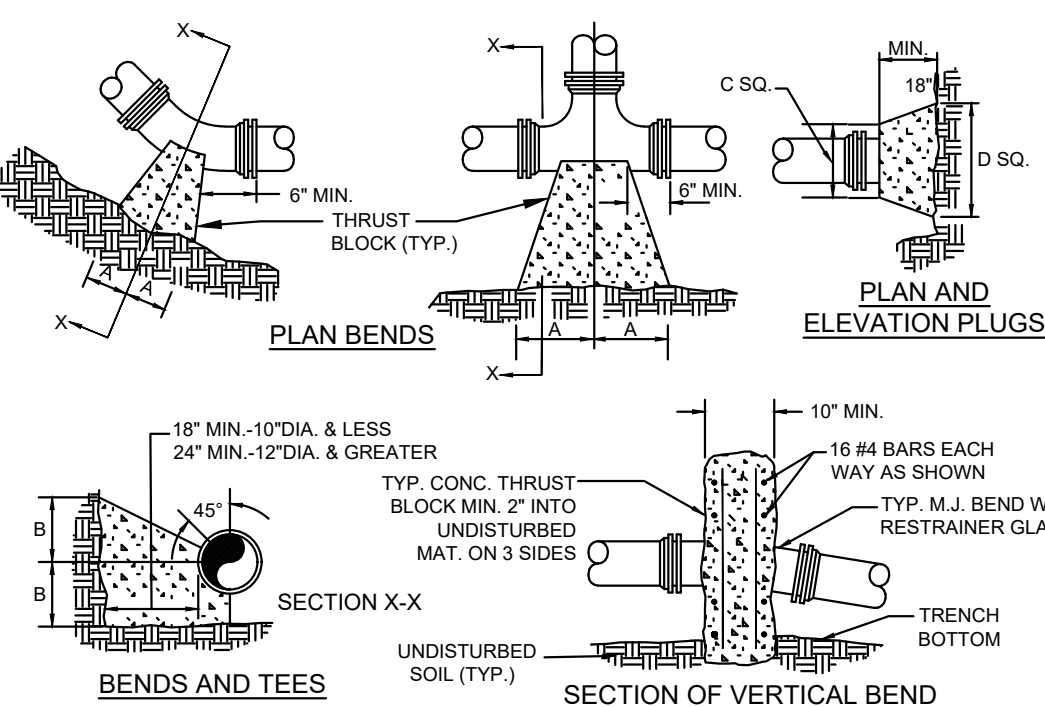
VAULT FRAM
AND COVER

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- VARIES
(NO OBSTRUCTIONS)
- 2 - 2 1/2" NOZZLES
- 1 - 4 1/2" PUMPER NOZZLE (FACING THE ROAD)
- AVK MODEL 2780, AFC MODEL B-84-B-5, MUELLER CENTURION 1422, KENNEDY K810, M8H 295 OR EQUIVALENT.
- 1' - 3" TO 2' ABOVE CURB OR EDGE OF PAVEMENT
- 2'X2'X4" CONCRETE PAD AS REQUESTED BY OWNER
- VALVE BOX (W/ ADAPTOR) IF OUTSIDE PAVEMENT OR VALVE VAULT UNDER PAVEMENT
- STANDARD INSTALLATION INCLUDES FOSTER ADAPTER OR APPROVED EQUAL
- FINISHED GRADE
- 3" MIN. COVER
- CONTINUOUS SECTION OF PIPE
- CONTINUOUS SECTION OF PIPE
- WATER MAIN
- 0.5 CY CLEAN STONE VDOT #57 FOR DRAINAGE
- 34" DIA. "CORTEN" (NON-CORROSIVE) THREADED ROD AND NUTS
- TRACER WIRE SEE GENERAL DETAIL
- APPROVED M.J. GLAND RESTRAINT (I.e. MEGALUGS, GRIP RINGS OR UNIFLANGE) SHALL BE USED AT ALL M.J. FITTINGS
- CONCRETE THRUST BLOCK (IF REQUIRED)
- TEE - MAIN LINE SIZE x FT TO VALVE AND HYDRANT
- CONCRETE BASE AND THRUST BLOCK (IF REQUIRED) AGAINST UNDISTURBED SOIL. CONCRETE SHALL NOT COVER HYDRANT DRAIN

FIRE HYDRANT ASSEMBLY

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FRIENDS AND TEES

SECTION OF VERTICAL BEND

- NOTES**
1. FOR VERT. BEND DOWN IN EXCESS OF 11" 1/4" BEND, ANCHORAGE SHALL BE DESIGNED BY ENGINEER.
 2. FOR VERT. BEND UPWARD, BLOCKING TO BE SIMILAR TO THAT FOR HORIZ. BEND.
 3. ALL HANDS TO BE PROTECTED FROM CONTACT WITH PLASTIC SHEETING WHEN POURING THIN SET.
 4. ALL BLOCK & REBAR SUPPORT CONCRETE SHALL BE 3000 PSI READY MIX CONCRETE.
 5. THURST BLOCKS WITH "B" DIMENSION GREATER THAN 30" SHALL HAVE THE RESTRAINED PIPE INSTALLED WITH A MINIMUM OF TWO COVERS.
 6. REFER TO "MINIMUM THURST RESTRAINT OF PIPE" THURST DESIGN LENGTHS" DETAIL FOR WHICH THURST BLOCKS ARE REQUIRED TO BE USED.
 7. WHEN THURST BLOCK IS REQUIRED BUT NOT FEASIBLE TO CONSTRUCT, USE OF COVAR DETAIL SHALL BE USED. (SEE THURST COVAR DETAIL).

PRESSURE = 200p
BEARING = 2000
FACTOR OF SAFETY = 1.5

PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND		TEE		PLUG	
	A	B	A	B	A	B	A	B	A	B	C	D
4"	8"	12"	8"	8"	6"	6"	6"	11"	9"	12"	10"	6"
6"	10"	14"	10"	10"	8"	8"	8"	11"	10"	12"	12"	8"
8"	18"	13"	10"	10"	8"	8"	8"	8"	11"	12"	12"	24"
10"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
12"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
16"	25"	16"	12"	14"	10"	12"	8"	12"	16"	20"	20"	36"
24"	32"	42"	62"	30"	44"	22"	22"	16"	32"	42"	42"	42"
30"	185"	42"	100"	42"	52"	42"	40"	30"	195"	42"	195"	42"

THRUST BLOCK REQUIREMENTS

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1. ALL JOINTS SHALL BE RESTRAINED ON BOTH SIDES OF THE FITTING AND DOCUMENTED BY THE INSPECTOR FOR THE LENGTH SHOWN UNLESS OTHERWISE INDICATED.
2. RESTRAINED LENGTH SHOWN REFERS TO ANY DESIGNED OR POTENTIAL LINE STOP, INCLUDING ALL GATE VALVES.
3. RESTRAINED LENGTH SHOWN REFERS TO THE BRANCH LINE ONLY. THE CONTINUOUS PIPE LENGTH OF THE MAIN RUN SHALL BE A MINIMUM OF 10' ON EACH SIDE OF THE TEE.
4. RESTRAINED LENGTH SHOWN IS BASED ON REDUCING PIPE DIAMETER TO ONE SIZE SMALLER THAN PIPE LISTED (ANY OTHER DIAMETER REDUCTION WILL REQUIRE ADDITIONAL CALCULATIONS BEFORE INSTALLATION). RESTRAINED LENGTH SHOWN IS UPSTREAM ON THE LARGE SIDE OF THE REDUCER.
5. 12" AND SMALLER DIAMETER: IF UNDER 150 PSI WORKING PRESSURE, RESTRAINED JOINT(S) ARE TO BE USED. IF EQUAL TO OR OVER 150 PSI WORKING PRESSURE, BOTH THRU BLOCK(S) AND RESTRAINED JOINT(S) SHALL BE USED.
- LARGER THAN 12" DIAMETER: IF UNDER 100 PSI WORKING PRESSURE, RESTRAINED JOINT(S) ARE TO BE USED. IF EQUAL TO OR OVER 100 PSI WORKING PRESSURE, BOTH THRU BLOCK(S) AND RESTRAINED JOINT(S) SHALL BE USED (UNLESS OTHERWISE APPROVED BY THE PARTICIPATING UTILITY).
6. FOR RESTRAINED JOINT PIPING REQUIREMENTS AT FITTING R.J. PIGC AND R.J. DIP MAY BE USED INTERCHANGEABLY WITH APPROVAL FROM PARTICIPATING UTILITY. CONTRACTOR MUST PLAN ACCORDINGLY FOR THE DIFFERENCE IN PVC AND DIP BELL AND SPIGOT DIAMETERS.

MINIMUM THRUST RESTRAINT OF PIPE JOINTS REGION LENGTHS

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