

INDEX TO  
DEVELOPER SPECIFICATIONS  
DRAWINGS

(Acrobat Reader 5.0 or newer required to view drawings)

[W-2 Fire Hydrant Assembly](#)

[W-3 Fire Hydrant Assembly with Grade-Lok Adapter](#)

[W-4 Fire Hydrant Locations / Clearance](#)

[W-5 Blow - Off Detail](#)

[W-6 Temporary Blow Off](#)

[W-7 Butterfly Valve Installation](#)

[W-8 Bacteria Sample Valve](#)

[W-9 Water Main Flushing Detail](#)

[W-11 3" or Larger Compound Meter and Backflow Preventer](#)

[W-12 Fire Line / Backflow Prevention](#)

[W-13 Valve Installation](#)

[W-14 Tapping Valve and Sleeve](#)

[W-15 Water Service Connection Detail](#)

[W-16 Meter Box Assembly](#)

[D-2 Water Details Sheet 2](#)

[C-2 Thrust Blocking Details](#)

[C-3 Thrust Restraining](#)

[C-4 Pipe Bedding](#)

C-5 Trench Cross Section

C-6 Ductile Iron Transition Coupling

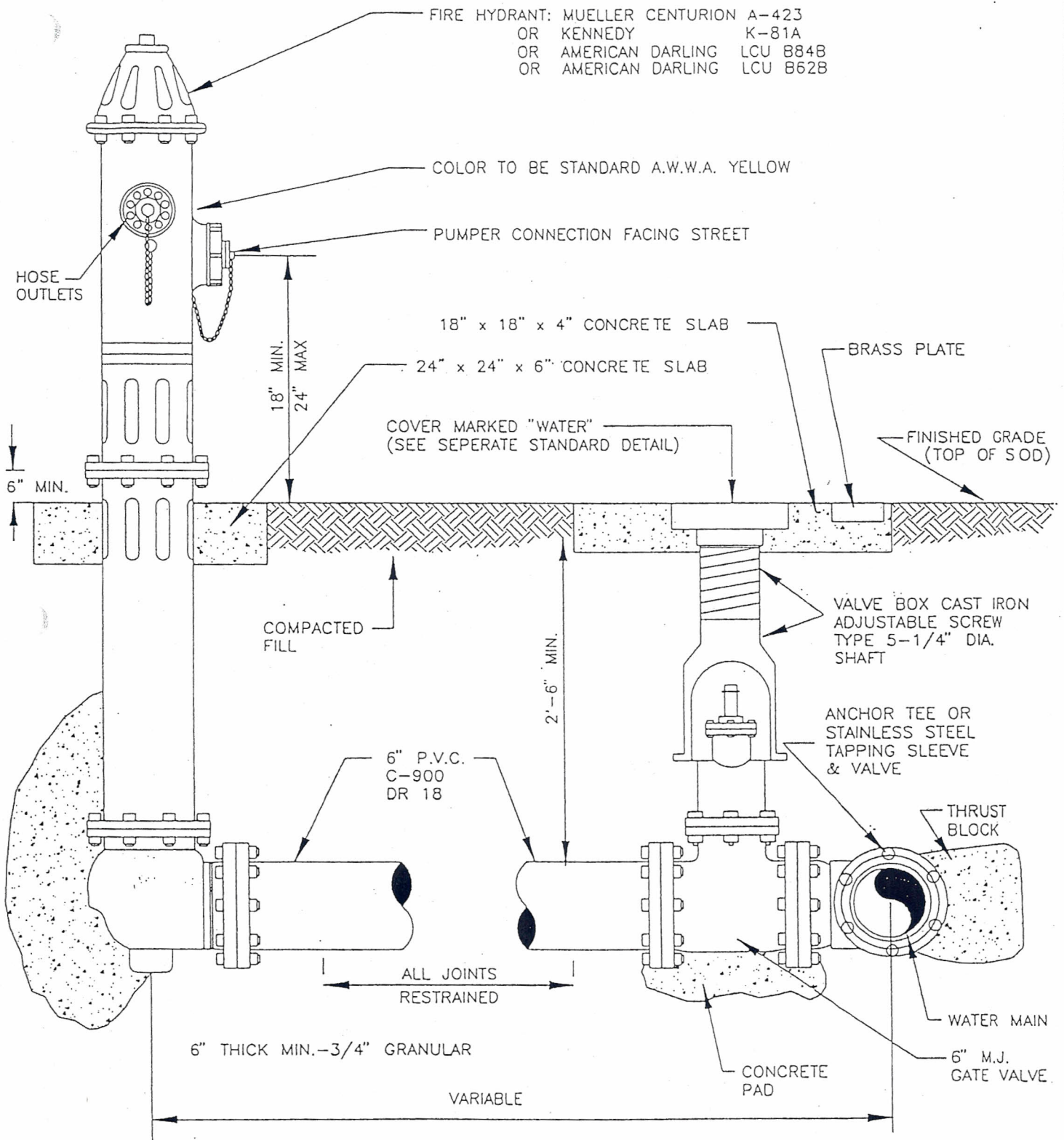
C-7 PVC Pressure Line Conflict Adjustment (Fittings)

C-8 Cross - Over Detail

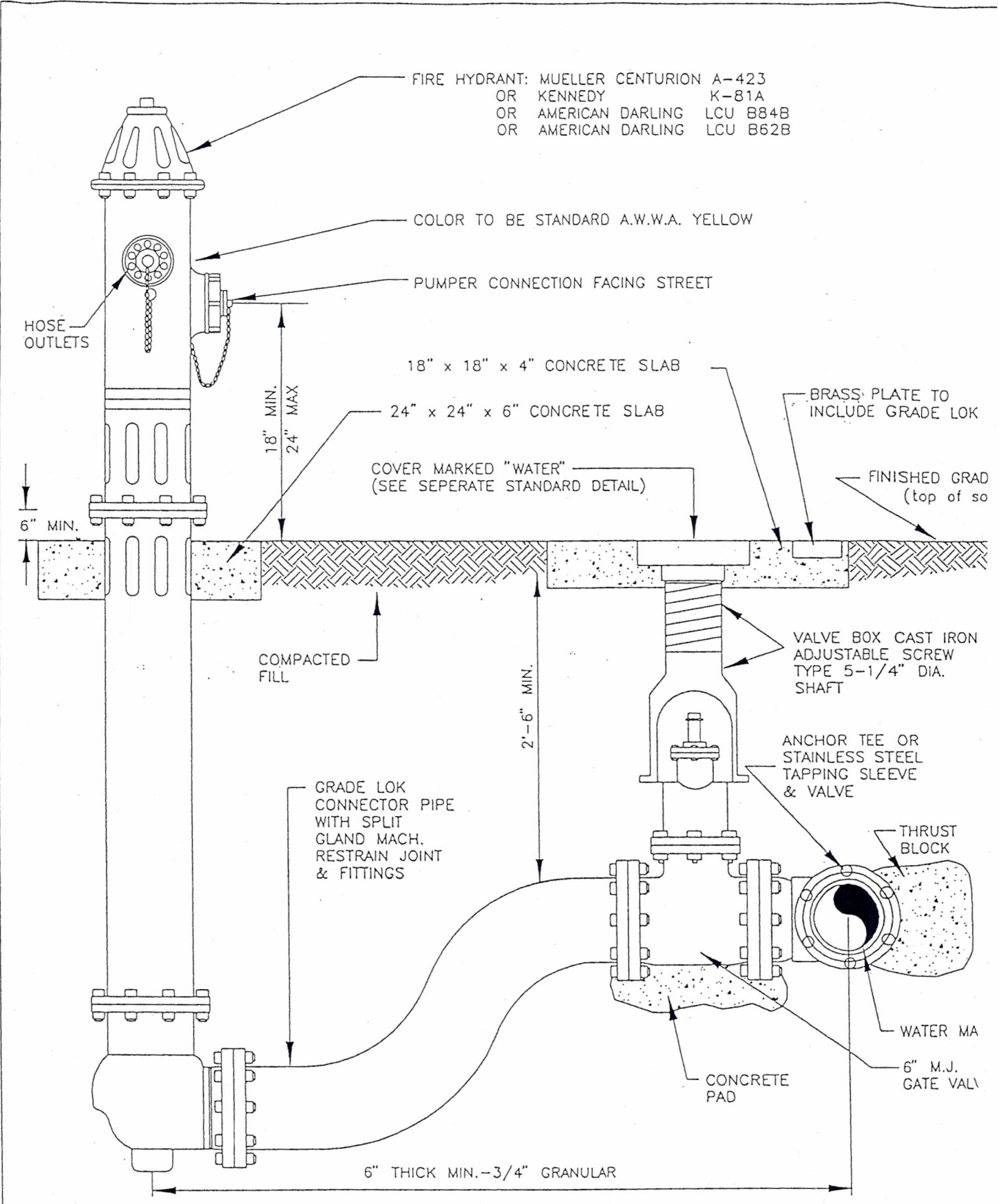
C-9 Dip Pressure Line Conflict Adjustment MJ

C-10 Air Release Valve Automatic

C-11 Jack & Bore



FIRE HYDRANT ASSEMBLY	SCALE: N.T.S.
	DATE:
	CHK:
	DWG #: W-2



FIRE HYDRANT: MUELLER CENTURION A-423  
 OR KENNEDY K-81A  
 OR AMERICAN DARLING LCU B84B  
 OR AMERICAN DARLING LCU B62B

COLOR TO BE STANDARD A.W.W.A. YELLOW

PUMPER CONNECTION FACING STREET

HOSE  
 OUTLETS

18" x 18" x 4" CONCRETE SLAB

24" x 24" x 6" CONCRETE SLAB

BRASS PLATE TO  
 INCLUDE GRADE LOK

COVER MARKED "WATER"  
 (SEE SEPERATE STANDARD DETAIL)

FINISHED GRAD  
 (top of so

6" MIN.

18" MIN.  
 24" MAX

COMPACTED  
 FILL

VALVE BOX CAST IRON  
 ADJUSTABLE SCREW  
 TYPE 5-1/4" DIA.  
 SHAFT

ANCHOR TEE OR  
 STAINLESS STEEL  
 TAPPING SLEEVE  
 & VALVE

GRADE LOK  
 CONNECTOR PIPE  
 WITH SPLIT  
 GLAND MACH.  
 RESTRAIN JOINT  
 & FITTINGS

THRUST  
 BLOCK

WATER MA

6" M.J.  
 GATE VALV

CONCRETE  
 PAD

6" THICK MIN.-3/4" GRANULAR

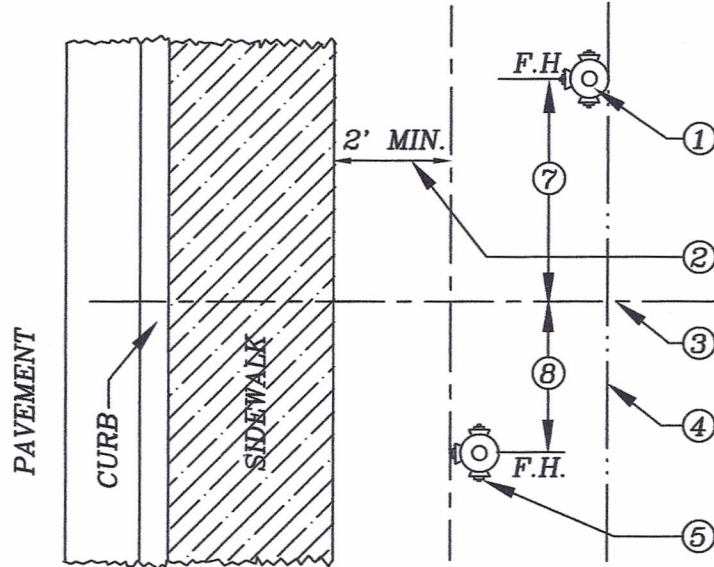
FIRE HYDRANT ASSEMBLY WITH GRADE-LOK ADAPTOR	SCALE: N.T.S.
	DATE: .....
	CHK:
	DWG #: W-3

# STANDARD DETAIL NO. 6.19

## LEE COUNTY UTILITIES

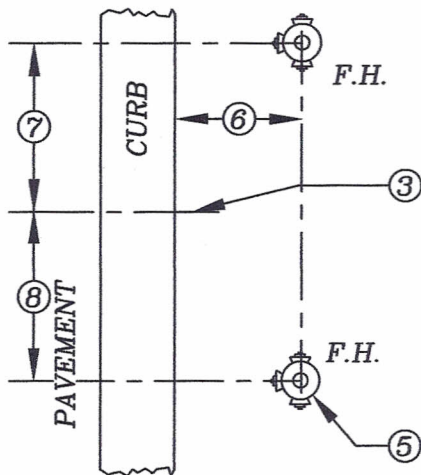
### FIRE HYDRANT LOCATIONS/CLEARANCE

N.T.S.



PARKWAY AREA WITH SIDEWALK

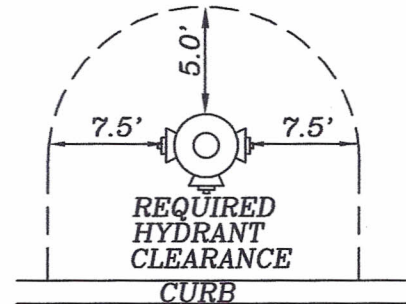
(PLAN VIEW)



PARKWAY AREA OR NO SIDEWALK

(PLAN VIEW)

- ① PREFERRED LOCATION
- ② F.H. TO BE LOCATED 2' MINIMUM FROM EDGE OF SIDEWALK
- ③ P.T. OR P.C. OF CURB RETURN
- ④ PROPERTY LINE RIGHT-OF-WAY OR LIMIT OF EASEMENT
- ⑤ ACCEPTABLE LOCATION OF CURB RADIUS OF 20' OR MORE
- ⑥ BETWEEN 2'-0" MIN. AND 6'-0" MAX.
- ⑦ 6'-0"
- ⑧ 4'-0"

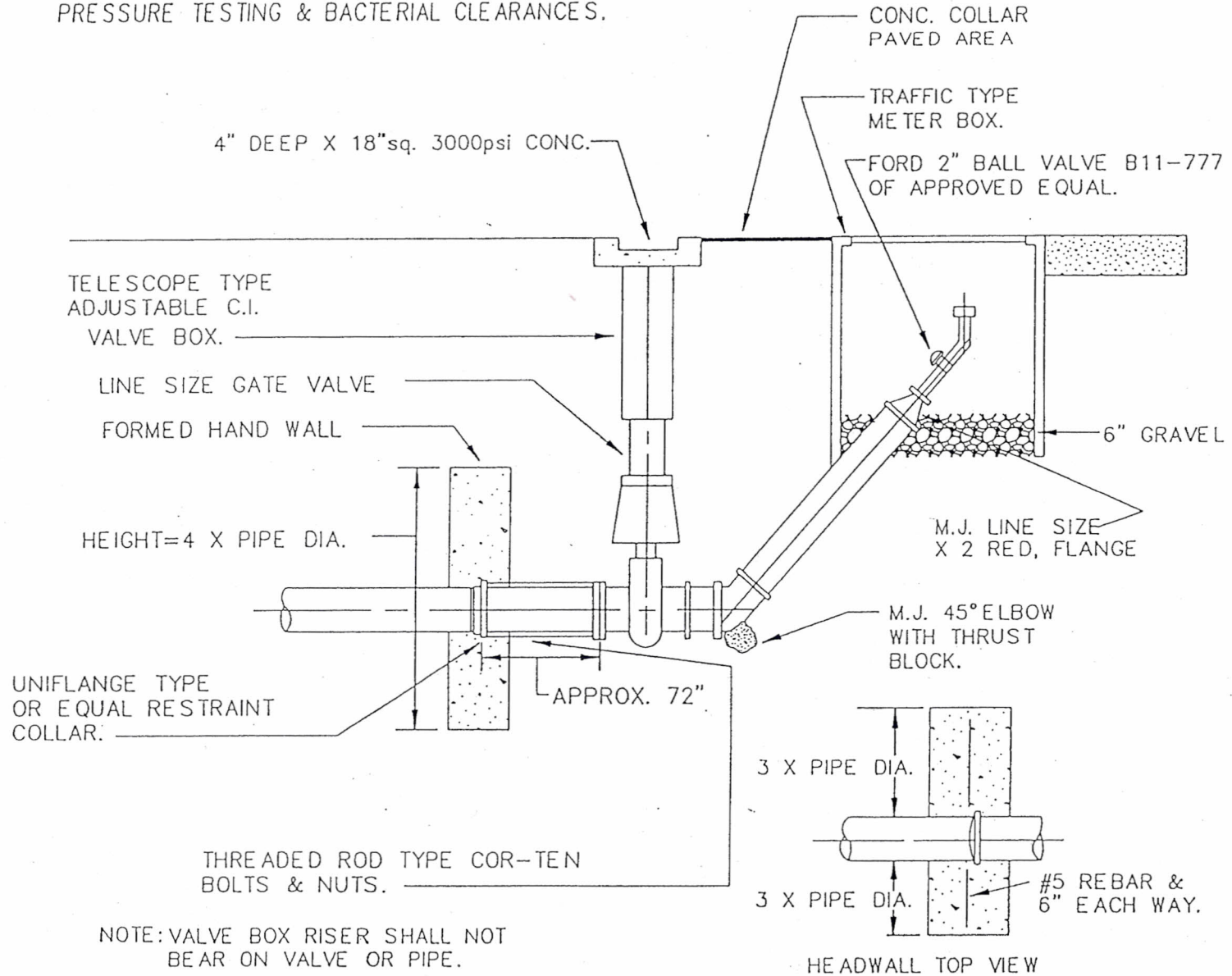


REQUIRED  
HYDRANT  
CLEARANCE  
CURB  
PAVEMENT  
(PLAN VIEW)

NOTES

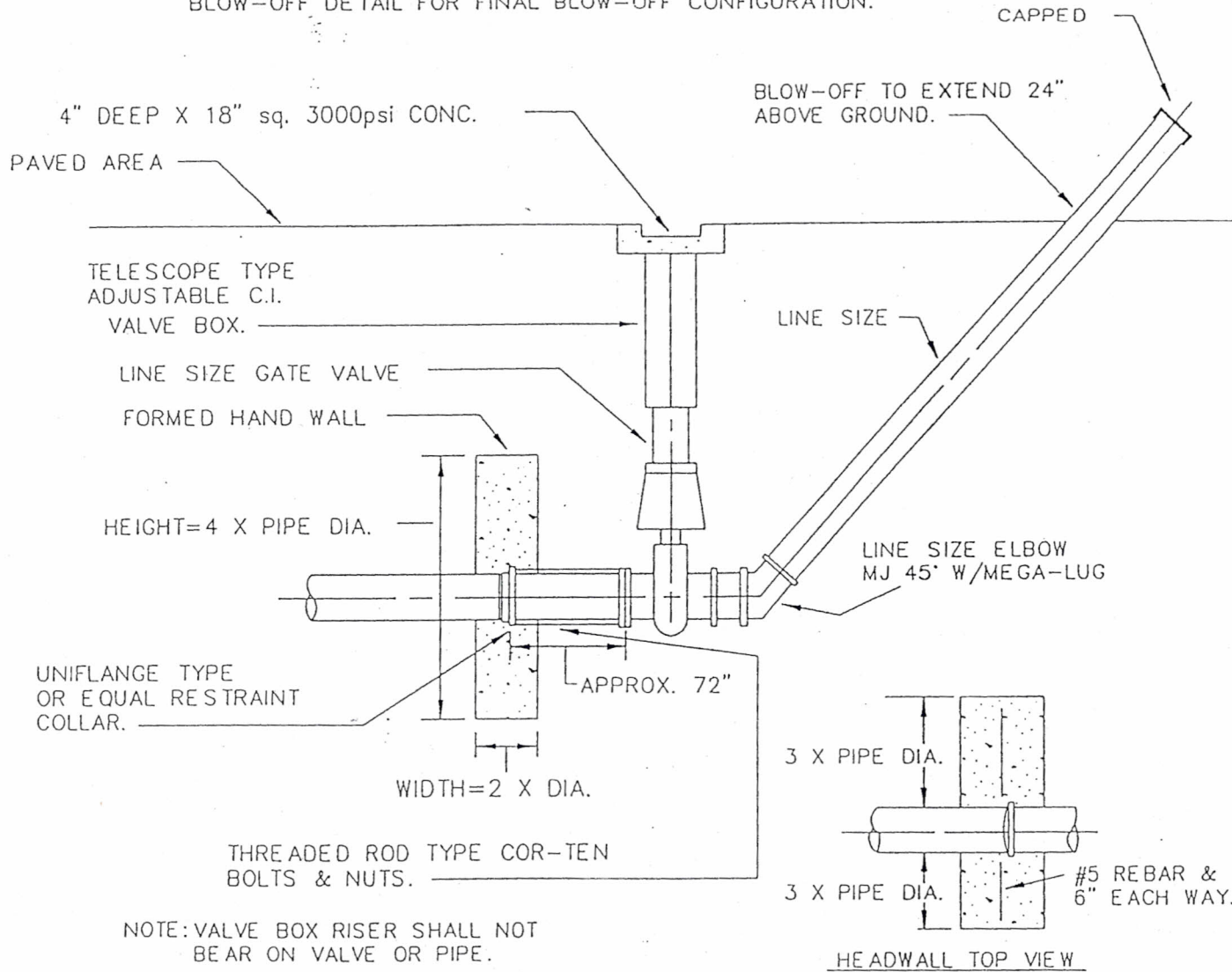
1. OBSTRUCTIONS SUCH AS UTILITY POLES, STREET SIGNS, IRRIGATION BOXES, FENCES, ETC. SHALL NOT BE PLACED BETWEEN CURB AND HYDRANT.
2. SOME LOCATIONS APPLY AT EITHER END OF CURB RETURNS.
3. DIMENSION SHOWN ON CONSTRUCTION DRAWINGS SUPERCEDE LOCATIONS SHOWN HERE. DRAWING # W-4

NOTE: CONFIGURATION SHOWN TO BE IN PLACE FOR  
PRESSURE TESTING & BACTERIAL CLEARANCES.



BLOW-OFF DETAIL	SCALE: N.T.S.
	DATE: 11/02/93
	CHK:
	DWG #: W-5

NOTE: TEMPORARY BLOW-OFF TO REMAIN IN PLACE UNTIL DISTRIBUTION SYSTEM HAS BEEN FLUSHED. AFTER CLEARANCE IS OBTAINED REFER TO PERMANENT BLOW-OFF DETAIL FOR FINAL BLOW-OFF CONFIGURATION.

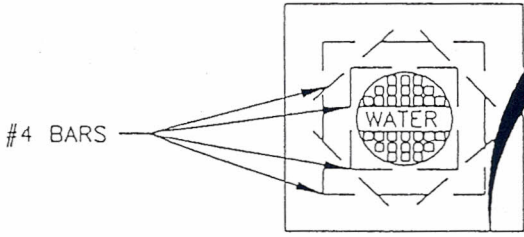


TEMPORARY BLOW OFF	SCALE: N.T.S.
	DATE:
	CHK:
	DWG #: W-6

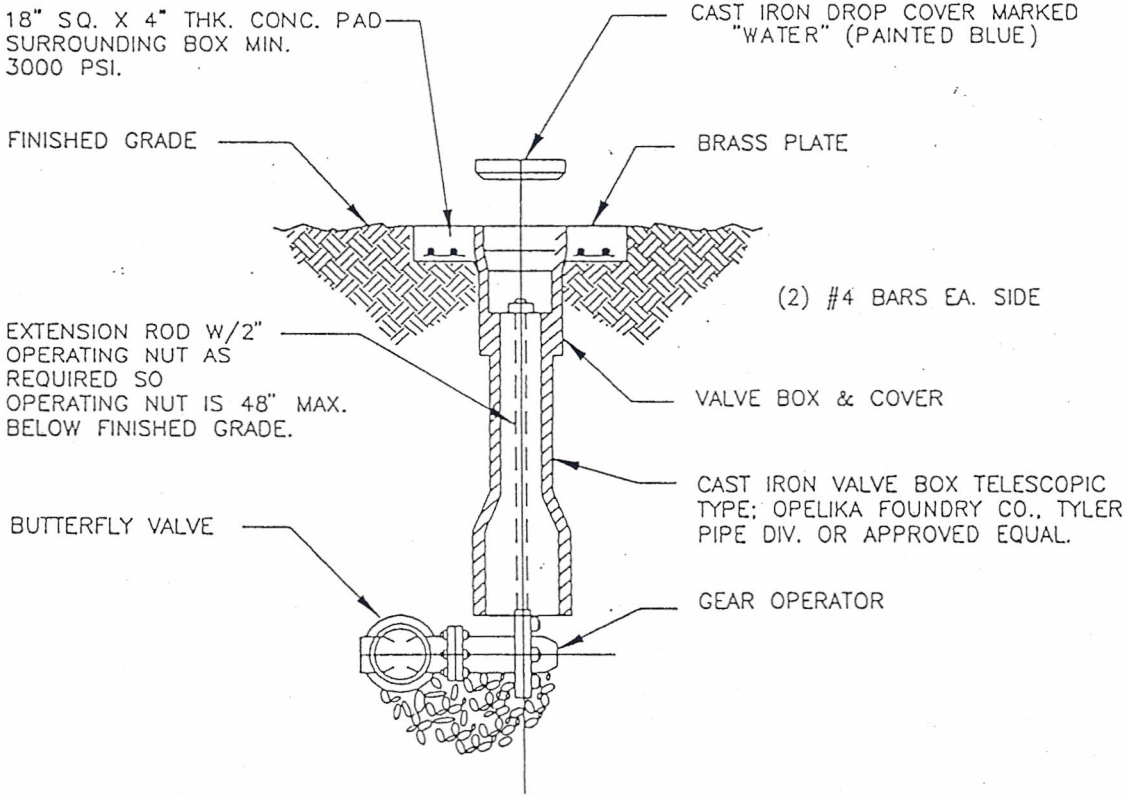
COVER  
 WATER-BLUE  
 FIRE-RED  
 SEWER-BROWN  
 REUSE-ORANGE

SIZE OF VALVE  
 TYPE OF VALVE  
 NO. OF TURNS & DIRECTION  
 TO OPEN  
 VALVE MFG & YEAR INST.  
 SYSTEM "WATER" "SEWER"  
 OR "REUSE"

BRASS PLATE



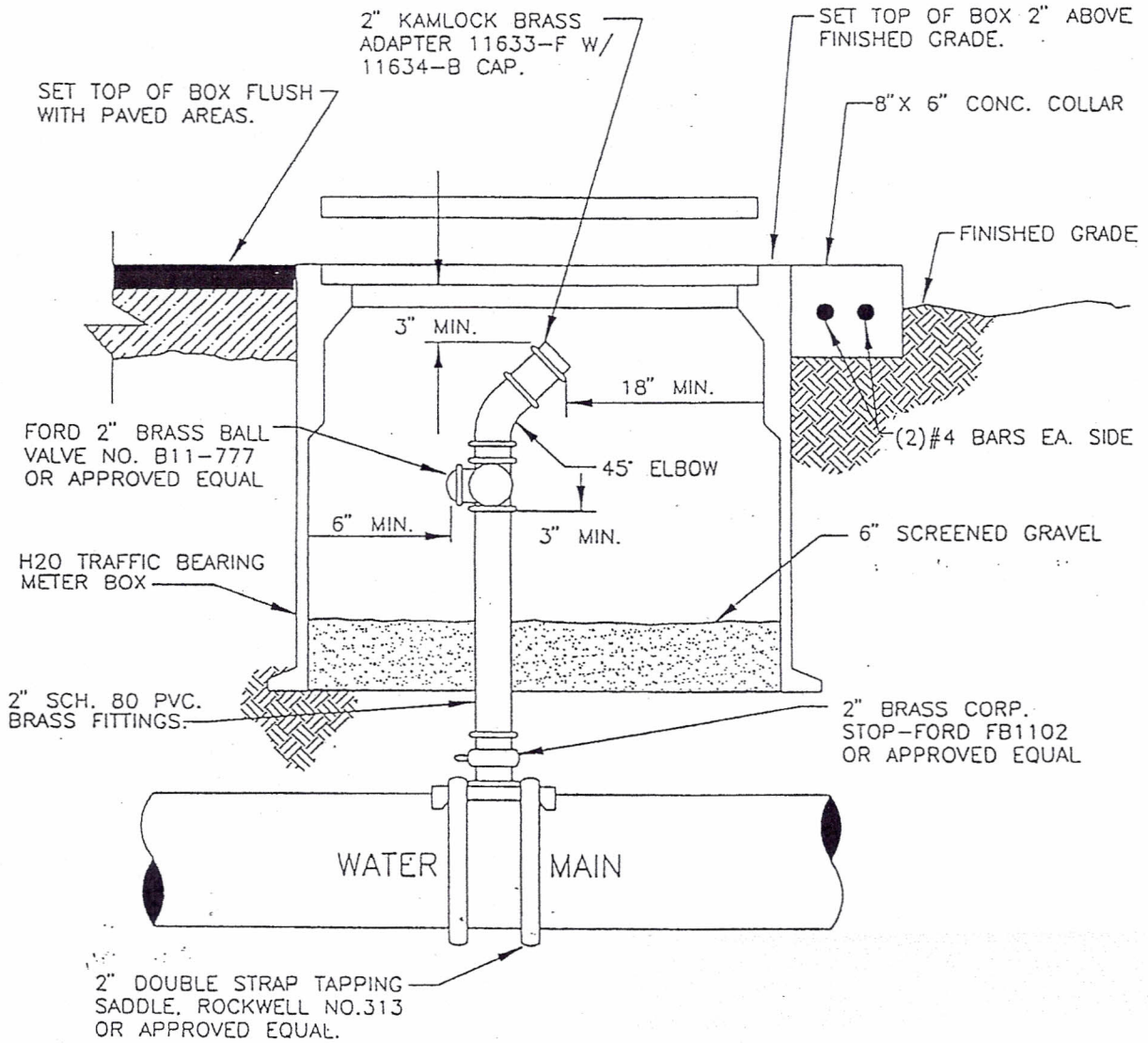
PLAN VIEW  
 (VALVE PAD)



BUTTERFLY VALVE

BUTTERFLY VALVE INSTALLATION	SCALE: N.T.S.
	DATE: 10/2/03
	CHK:
	DWG #: W-7

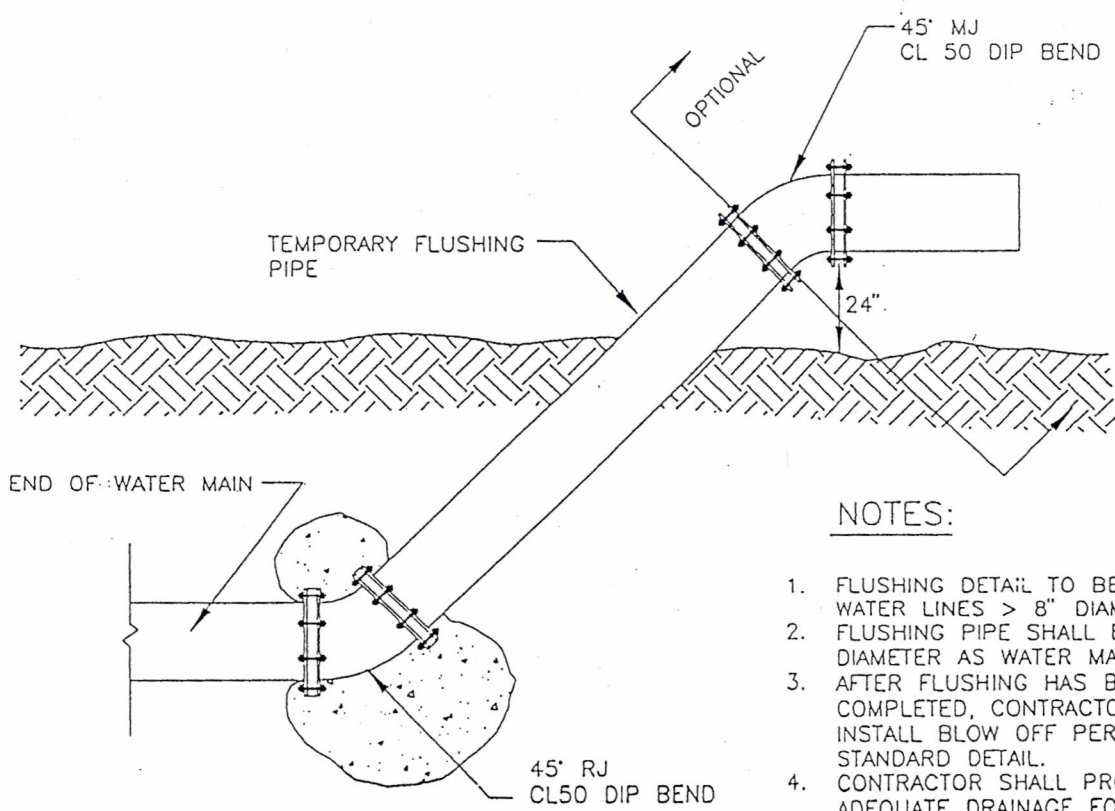




*Full clamp small*

ROMAC STYLE 306  
STAINLESS  
TAPPING SADDLE

BACTERIA SAMPLE VALVE	SCALE: N.T.S.
	DATE:
	CHK:
	DWG #: W-8



NOTES:

1. FLUSHING DETAIL TO BE USED ON WATER LINES > 8" DIAMETER.
2. FLUSHING PIPE SHALL BE THE SAME DIAMETER AS WATER MAIN.
3. AFTER FLUSHING HAS BEEN COMPLETED, CONTRACTOR SHALL INSTALL BLOW OFF PER STANDARD DETAIL.
4. CONTRACTOR SHALL PROVIDE ADEQUATE DRAINAGE FOR FLUSHED WATER.
5. SEPERATE CONCRETE FROM BOLTS WITH 1 LAYER POLY-FILM.

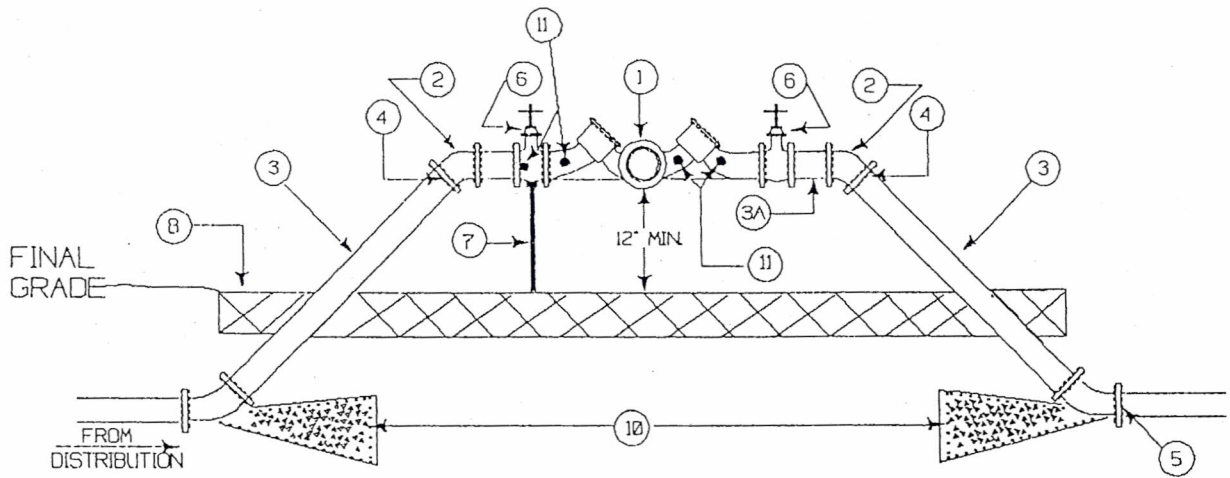
WATER MAIN FLUSHING DETAIL	SCALE: N.T.S.
	DATE: _____
	CHK: _____
	DWG #: W-9

# GREATER PINE ISLAND WATER ASSN.

REDUCED PRESSURE

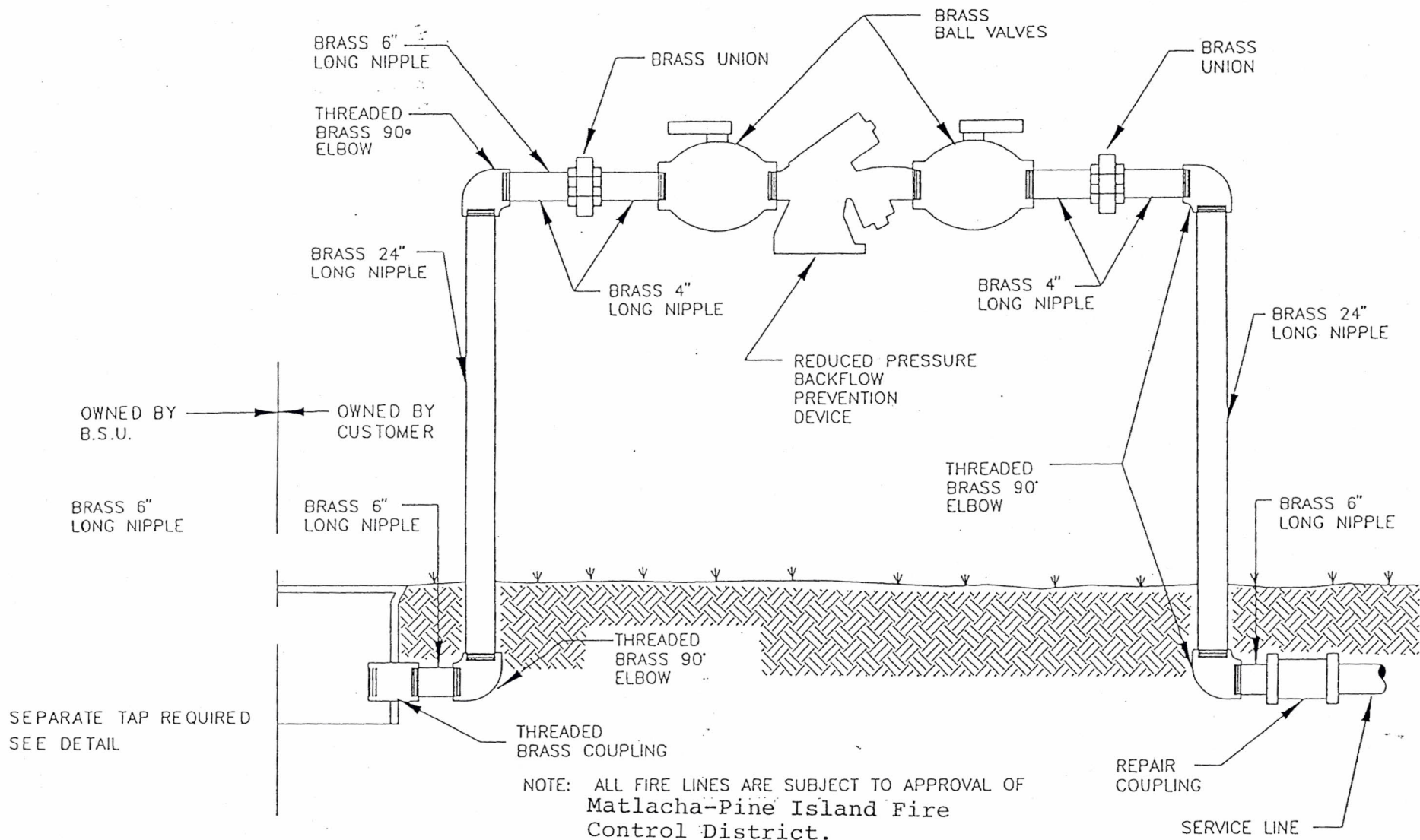
BACKFLOW PREVENTER

SINGLE SERVICE 3", 4", 6", 8", 10"



- ① REDUCED PRESSURE VALVE ASSEMBLY
- ② 45 DEGREE BEND
- ③ ADAPTER RISER
- ③A ADAPTER SPOOL
- ④ ADAPTER FLANGE D.J.P.
- ⑤ ADAPTER FLANGE D.J.P. OR P.V.C.
- ⑥ RESILIENT SEAT GATE VALVE
- ⑦ GATE VALVE SUPPORTS
- ⑧ CONCRETE SLAB TO GRADE 4" THICK
- ⑩ THRUST BLOCK
- ⑪ TEST COCKS

3" OR LARGER COMPOUND METER AND BACKFLOW PREVENTOR	SCALE: N.T.S.
	DATE: _____
	CHK: <b>W-11</b>

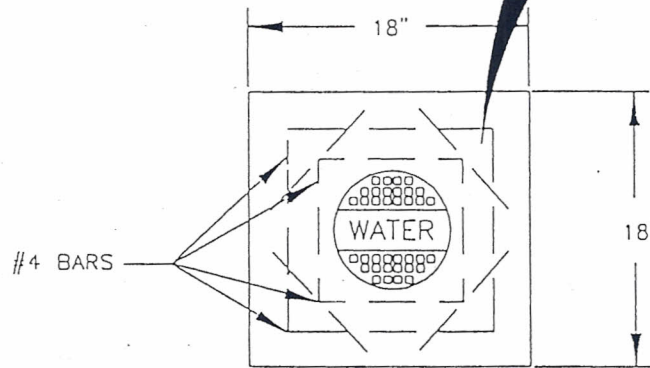


If line size is over 2" concrete foundations will be needed.

FIRELINE / BACKFLOW PREVENTION	SCALE: N.T.S.
	DATE:
	CHK:
	DWG #: W-12

SIZE OF VALVE  
 VALVE TYPE  
 NO. OF TURNS & DIRECTION  
 TO OPEN.  
 VALVE M.F.G. & YEAR INST.  
 SYSTEM "WATER" "SEWER"  
 OR REUSE.

BRASS PLATE



PLAN VIEW  
 (VALVE PAD)

18" SQ. X 4" THK. CONC. PAD  
 SURROUNDING BOX, MIN.  
 3,000 P.S.I.

SET TOP OF BOX FLUSH  
 WITH FINISHED GRADE

CAST IRON DROP COVER  
 MARKES "WATER" "SEWER"  
 OR "REUSE"

BRASS PLATE FINISHED GRADE

HEAVY DUTY TRAFFIC BEARING  
 CAST IRON VALVE BOX, OPELIKA  
 FOUNDRY COMPANY, TYLER PIPE  
 DIVISION OR APPRVD EQUAL

EXTENSION ROD W/2"  
 OPERATING NUT AS REQUIRED  
 DUAL DISK ON EXTENSION ROD

RISER NOT TO BEAR  
 ON VALVE OR PIPE

MAIN  
 (SEE PLAN FOR SIZE)

\*EXISTING  
 MAIN

\*MJ REPAIR  
 SLEEVE WITH RESTRAINTS.

AWWA C509 VALVE

3/4" GRANULAR  
 MATERIAL

MJ VALVE WITH RESTRAINTS  
 IN ALL NEW CONSTRUCTION.

30" MAX.

30" MIN.

(2) #4 BARS EA. SIDE

COMPACTED SUITABLE  
 EARTH BACKFILL

ONE CUBIC FOOT HAND  
 COMPACTED GRAVEL  
 FOR DRAIN

\*MJ REPAIR SLEEVE  
 WITH RESTRAINTS

\*EXISTING MAIN

\*NOTE - WHEN INSTALLING A VALVE  
 IN AN EXISTING MAIN, USE TWO  
 REPAIR SLEEVES (MJ FOR DIP, OR  
 PVC FOR PVC MAINS) ONE AT  
 EACH END OF THE CUT.

VALVE

PRECAST CONCRETE PAD  
 2" x 8" x 16"

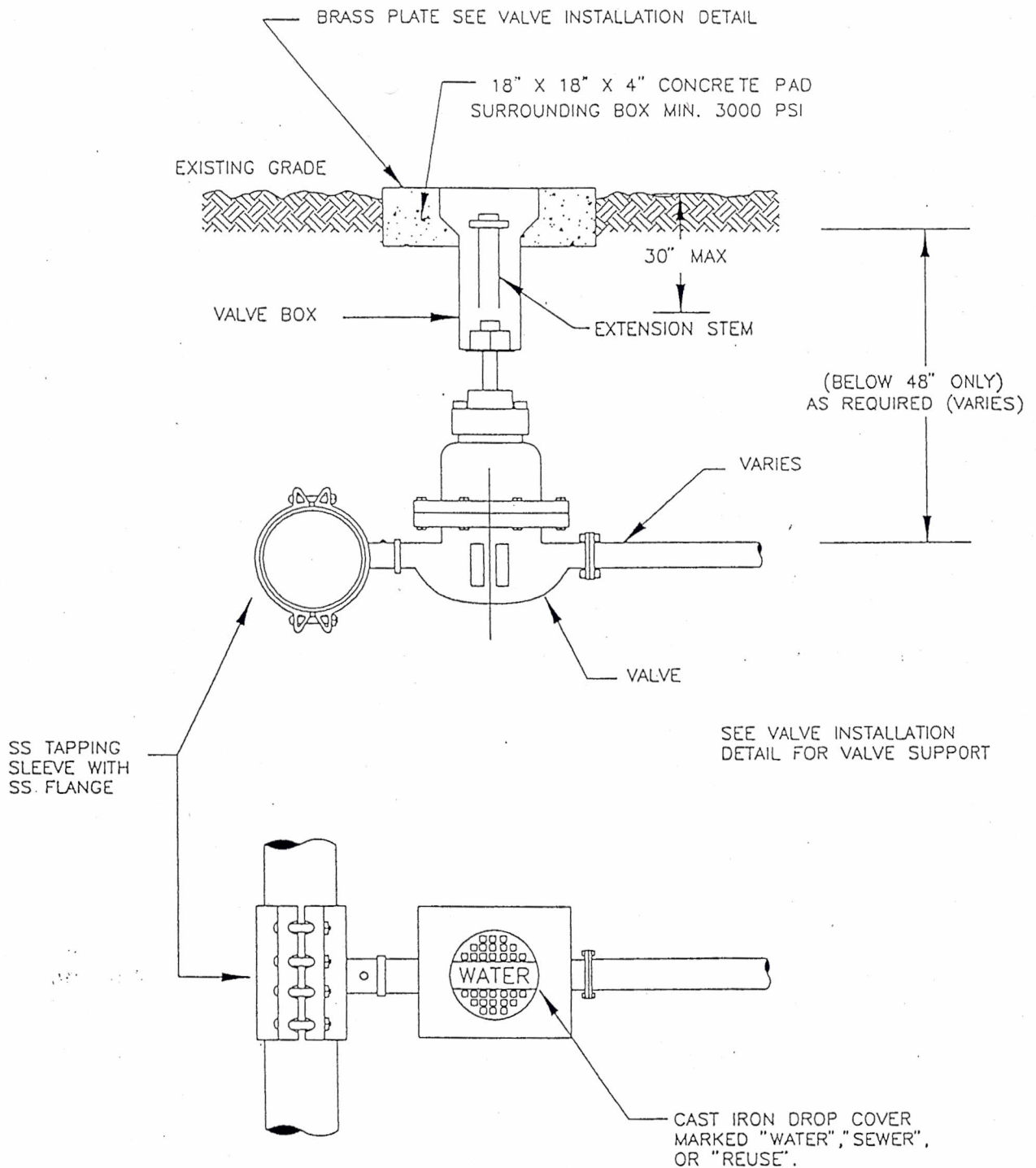
VALVE  
 INSTALLATION

SCALE: N.T.S.

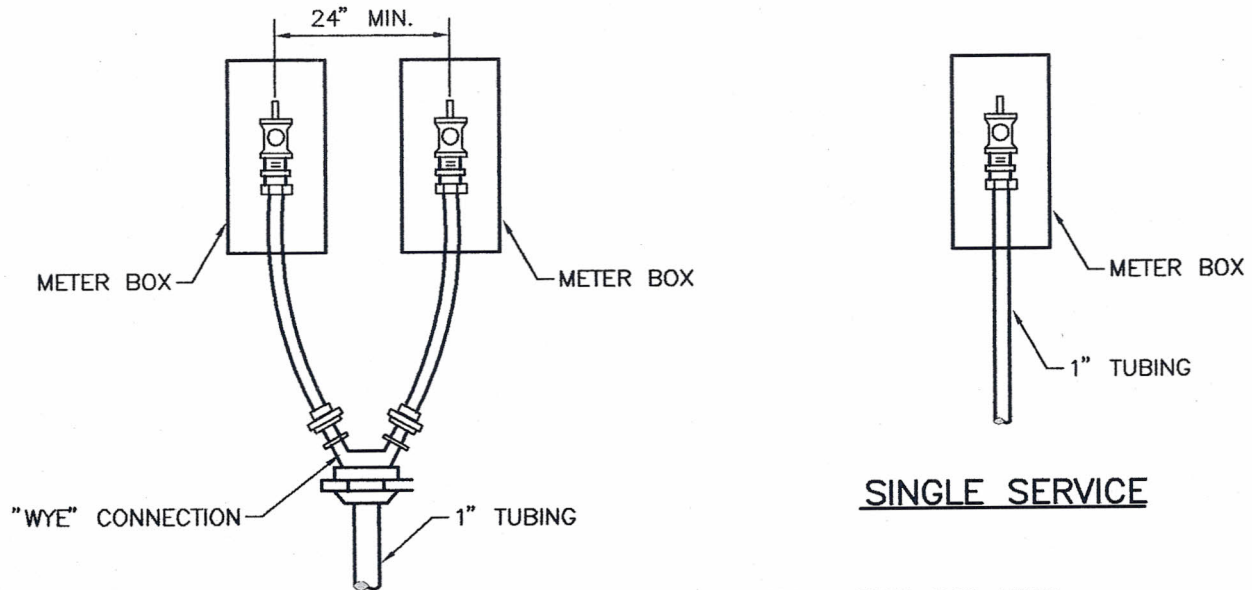
DATE:

CHK:

DWG #: W-13



TAPPING SLEEVE AND VALVE	SCALE: N.T.S.
	DATE:
	CHK: W-14



**DOUBLE SERVICE**

**SINGLE SERVICE**

CURB STOP - FORD B43-332W,  
AY McDONALD 6102MW-22  
OR APPROVED EQUAL

THREADED CORPORATION STOP  
FORD FB500-4 OR  
APPROVED EQUAL

STAINLESS STEEL  
TAPPING SADDLE  
FORD-FS 303 OR  
APPROVED EQUAL

WATER MAIN

1" WATER SERVICE TUBING  
DRISCOPIPE 5100 OR ENDOT/YARDLEY  
BLUE JET, SDR 9, 3408 POLYETHYLENE

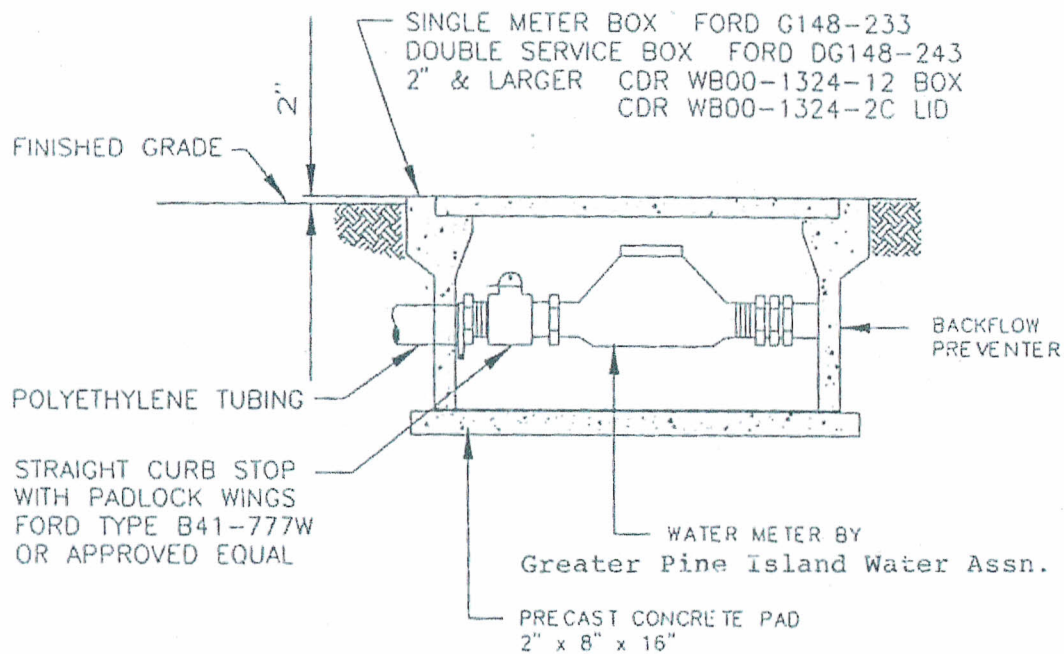
2" SLEEVE FOR LONG SERVICE  
CONNECTIONS (SEE NOTE 3 & 4)

**NOTES:**

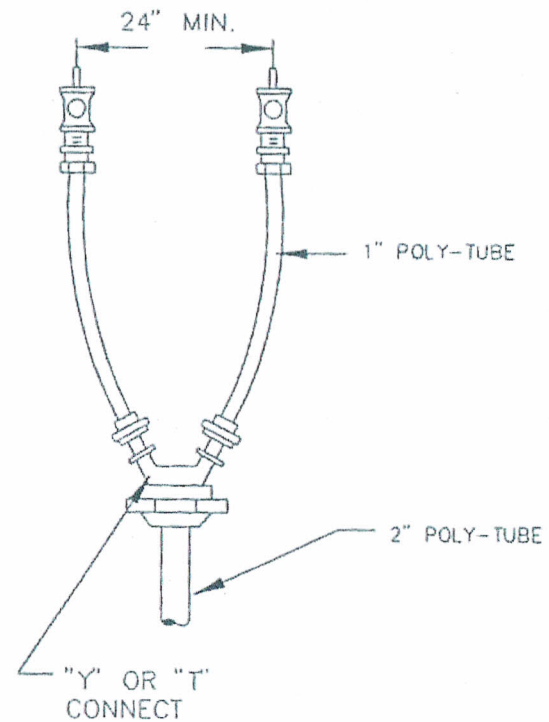
1. MINIMUM DISTANCE BETWEEN SERVICE TAPS TO BE NOT LESS THAN 36".
2. TEN FT SEPARATION REQUIRED BETWEEN PARALLEL WATER AND SEWER LINES.
3. SERVICE LINES UNDER THE ROADWAY SHALL BE ENCASED IN PVC CLASS 160 OR HDPE MEETING LEE COUNTY STANDARDS. CASING TO EXTEND A MINIMUM OF 5 FT BEYOND THE EDGES OF THE PAVEMENT OR BACK OF CURB.
4. LONG SERVICE CONNECTIONS - SERVICE CONNECTIONS THAT MUST CROSS UNDER THE ROADWAY. SHORT SERVICE CONNECTIONS - SERVICE CONNECTIONS THAT ARE LOCATED ON THE SAME SIDE OF THE ROADWAY AS THE DISTRIBUTION MAIN.
5. DOW MODEL 1200 METER BOX WITH CAST IRON LID TO BE SUPPLIED BY DEVELOPER AND LOCATED INSIDE R.O. AT PROPERTY LINE AND CLEAR OF DRIVEWAY.

**WATER SERVICE CONNECTION DETAIL**

NTS



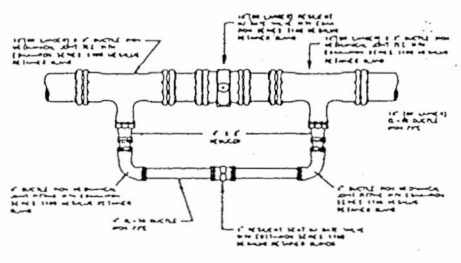
METER BOX ASSEMBLY



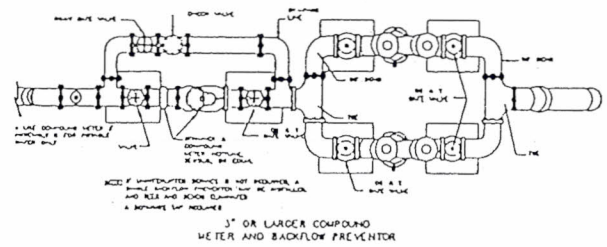
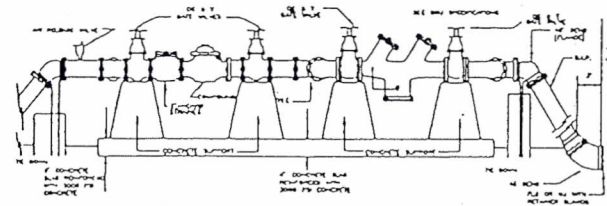
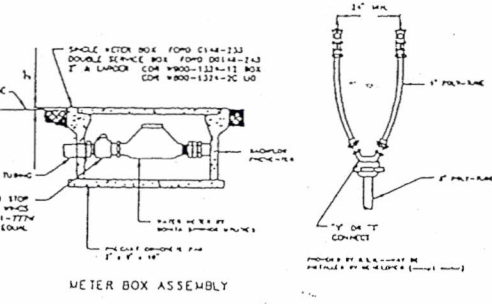
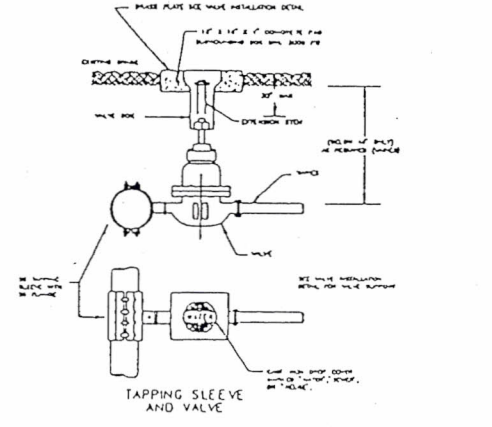
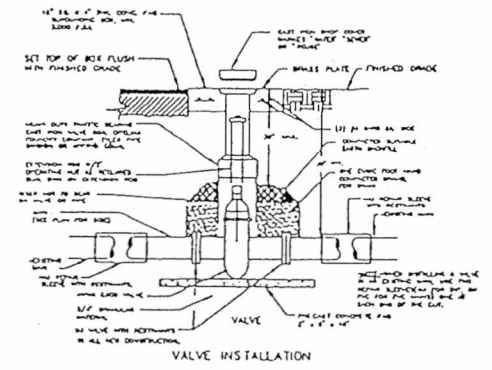
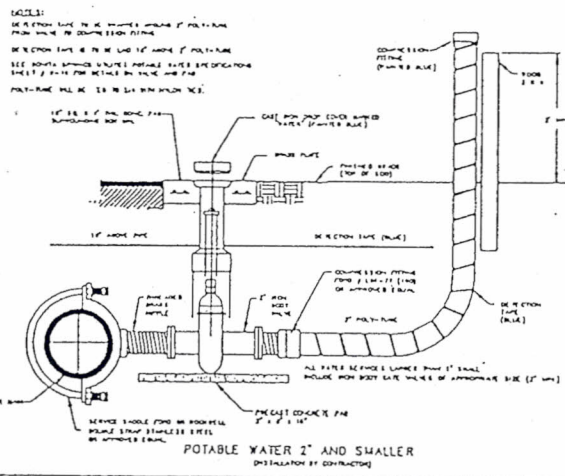
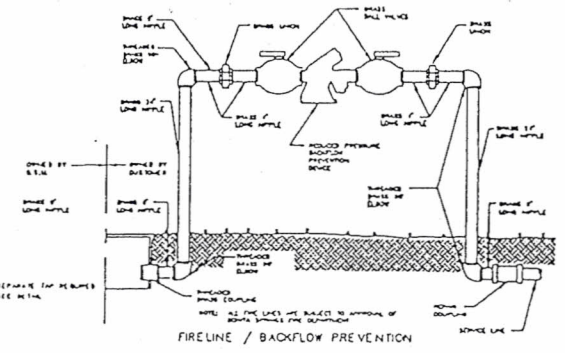
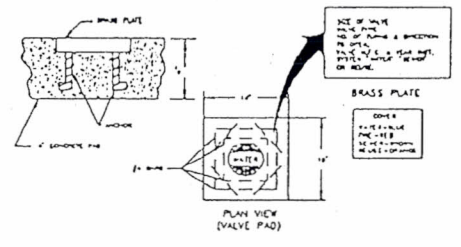
PROVIDED BY R.S.D. -- MAY BE  
 INSTALLED BY DEVELOPER (except meter)

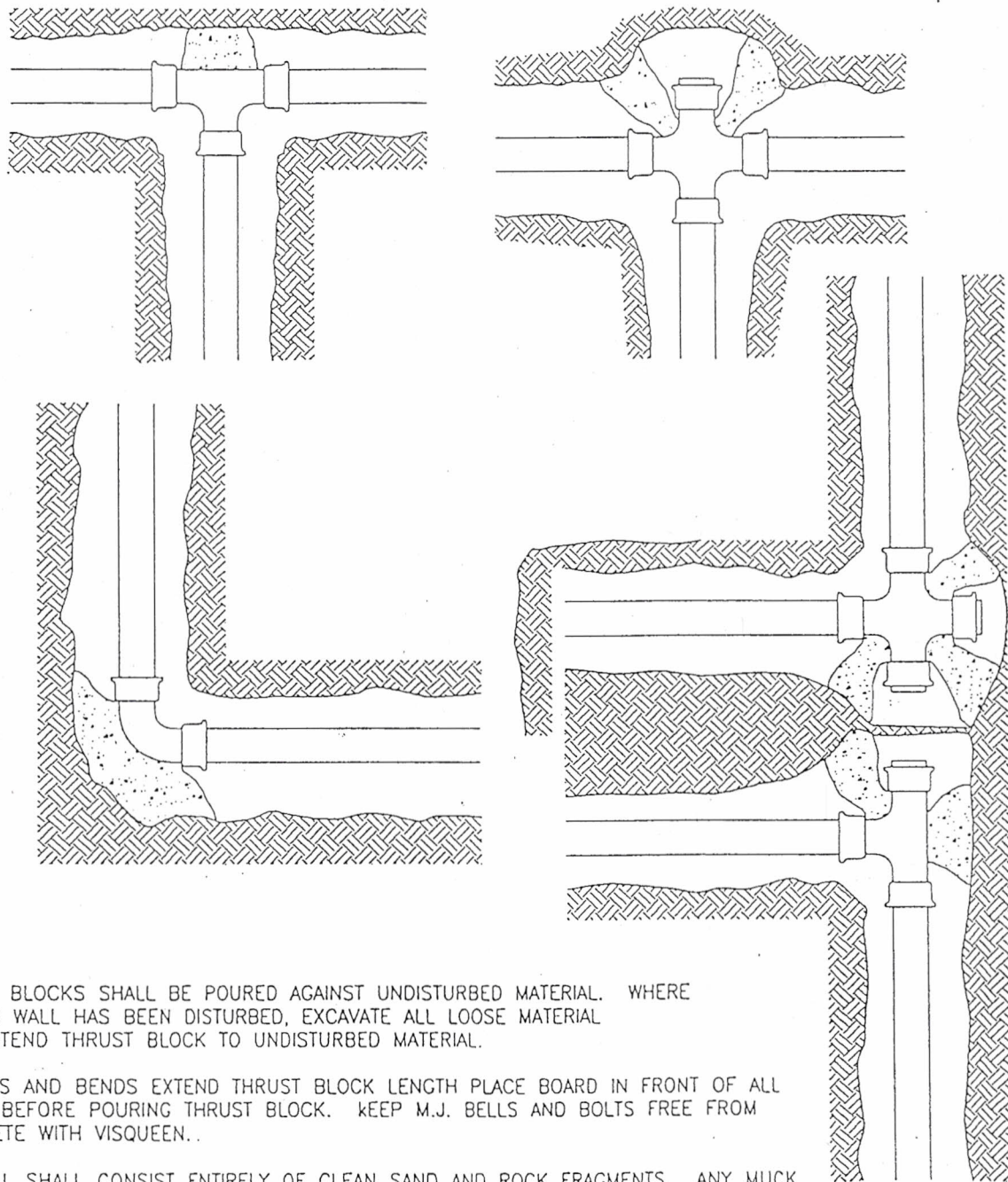
METER BOX ASSEMBLY	SCALE: N.T.S.
	DATE:
	CHK:
	DWG #: W-16





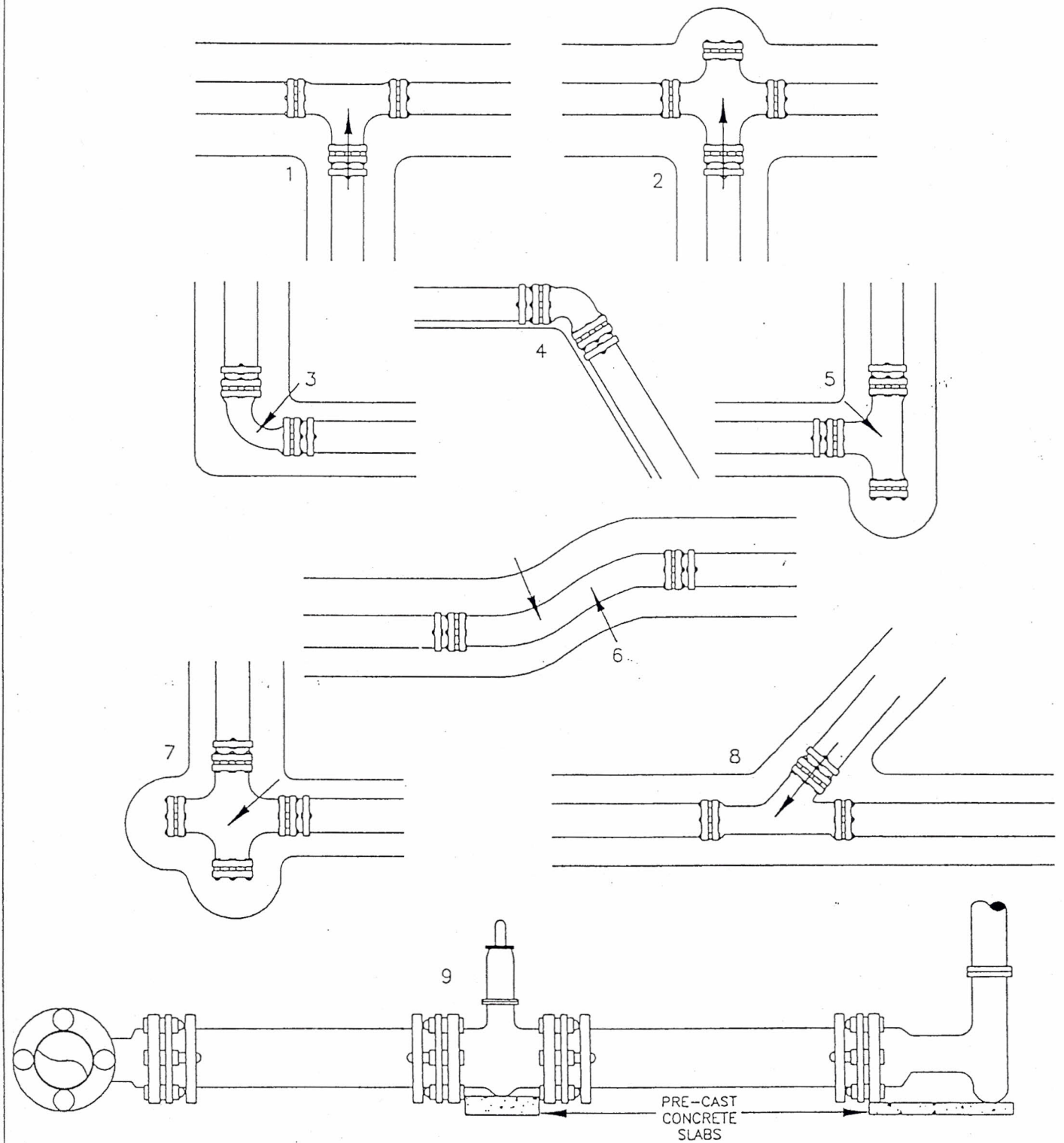
16" AND LARGER VALVE INSTALLATION





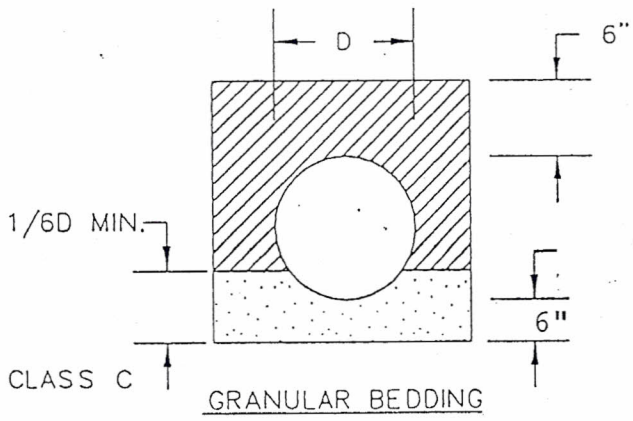
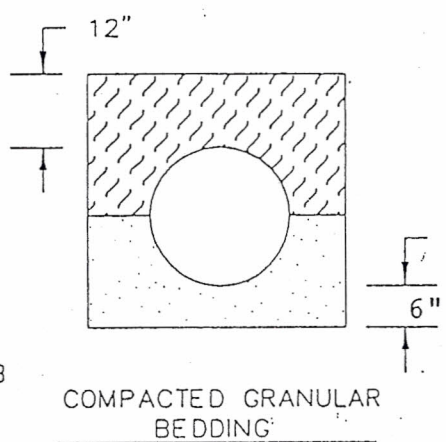
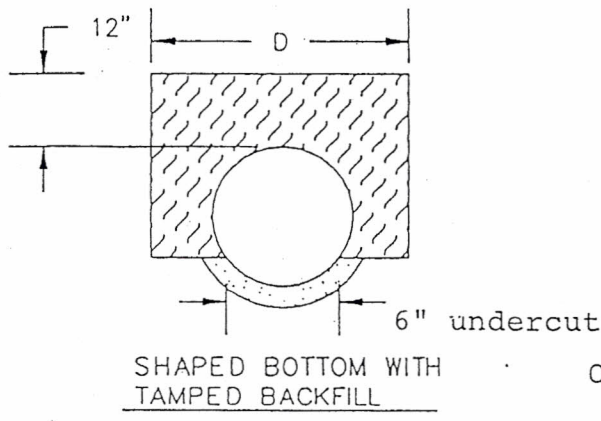
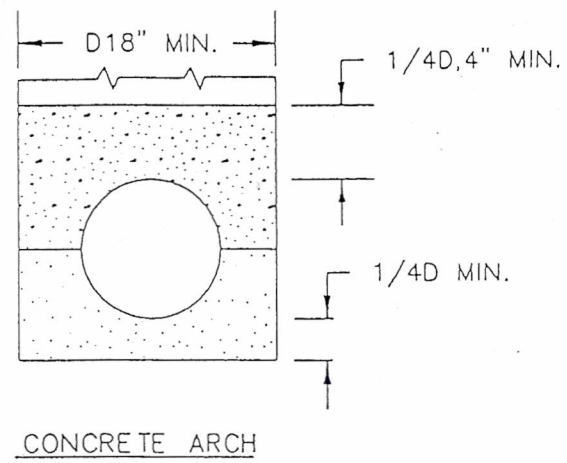
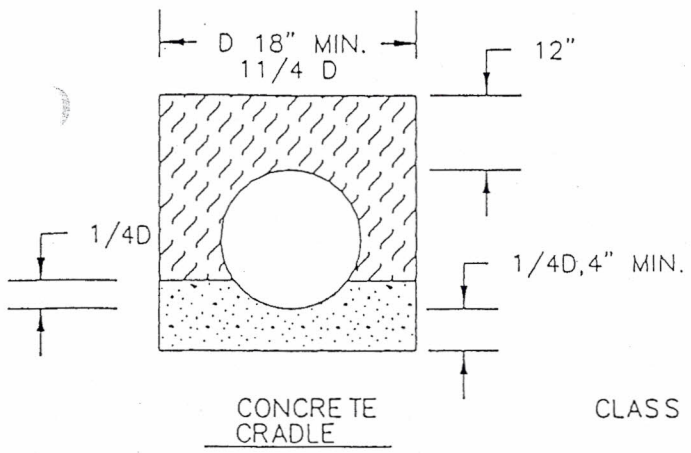
1. THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED MATERIAL. WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE ALL LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL.
2. ON TEES AND BENDS EXTEND THRUST BLOCK LENGTH PLACE BOARD IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCK. KEEP M.J. BELLS AND BOLTS FREE FROM CONCRETE WITH VISQUEEN.
3. BACKFILL SHALL CONSIST ENTIRELY OF CLEAN SAND AND ROCK FRAGMENTS. ANY MUCK ENCOUNTERED SHALL BE REMOVED AND REPLACED WITH ACCEPTABLE MATERIAL.
4. CONCRETE FOR THRUST BLOCKS SHALL HAVE A MINIMUM STRENGTH OF 2500 P.S.I AFTER 28 DAYS.
5. THRUST BLOCK SIZES COMPUTED AT 150 P.S.I. PRESSURE AND 2000 P.S.F. SOIL BEARING CAPACITY.

THRUST BLOCKING DETAILS	SCALE: N.T.S.
	DATE:
	CHK:
	DWG #: C-2



- |  |  |
|--|--|
| 1. THRU LINE CONNECTION,               | 5. DIRECTION CHANGE, TEE USED ELBOW      |
| 2. THRU LINE CONNECTION, CROSS USED AS | 6. DIRECTION CHANGE                      |
| 3. DIRECTION CHANGE, ELBOW             | 7. DIRECTION CHANGE, CROSS USED AS ELBOW |
| 4. DIRECTION CHANGE, VERTICAL, BEND    | 8. THRU LINE CONNECTION,                 |
|  | 9. HYDRANT RUNOUT                        |

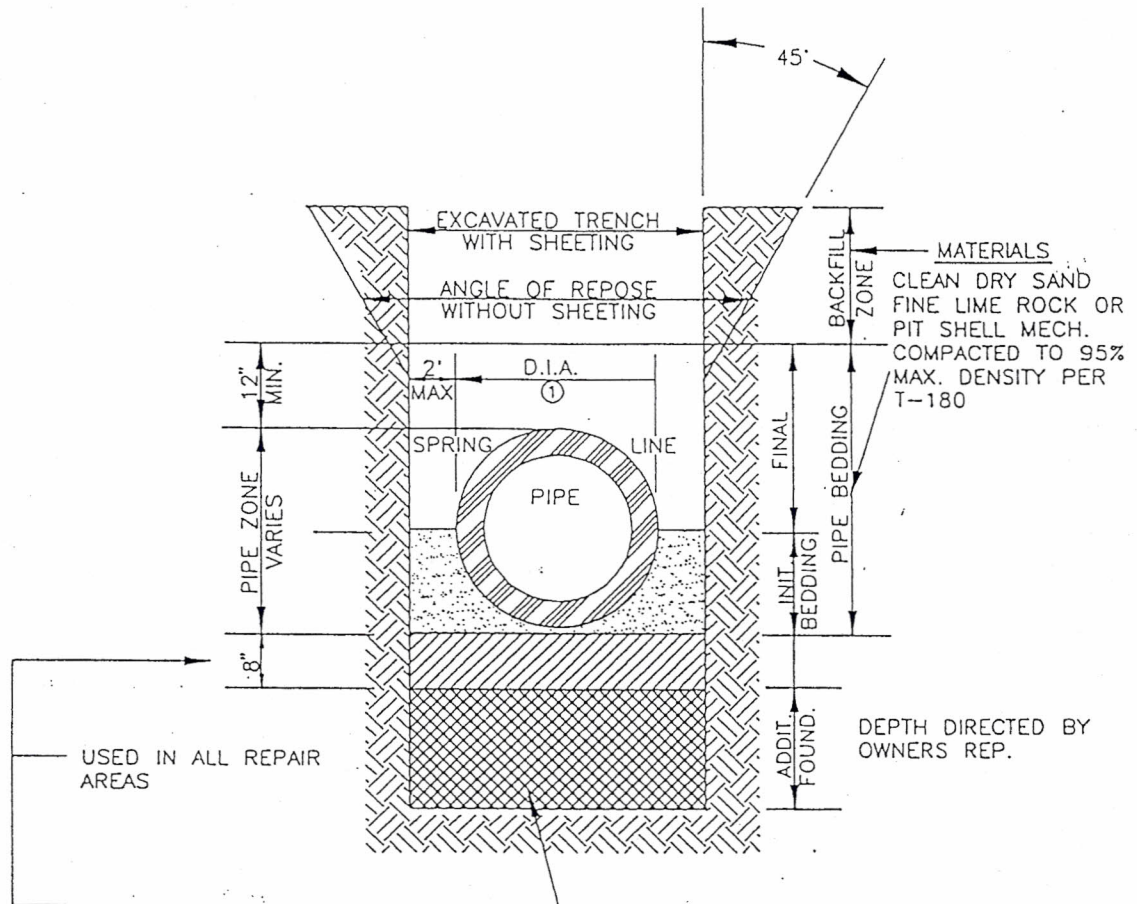
THRUST RESTRAINING	SCALE: N.T.S.
	DATE:
	CHK:
	DWG #: C-3



- LEGEND**
- CAREFULLY TAMPED BACKFILL
  - PLAIN OR REINFORCED CONC.
  - FINE GRANULAR FILL
  - COMPACTED GRANULAR MATERIAL
  - LIGHTLY COMPACTED BACKFILL
  - LOOSE BACKFILL

SOURCE: ASCE MANUAL NO.37  
(WPCF MANUAL OF PRACTICE NO.37)

PIPE BEDDING	SCALE: N.T.S.
	DATE:
	CHK:
	DWG #: C-4



USED IN ALL REPAIR AREAS

Standard 6" min trench undercut and backfill with granular crushed rock or GPIWA approved clean sand. Stabilize with mechanical compaction to 95% max. Density per T-180

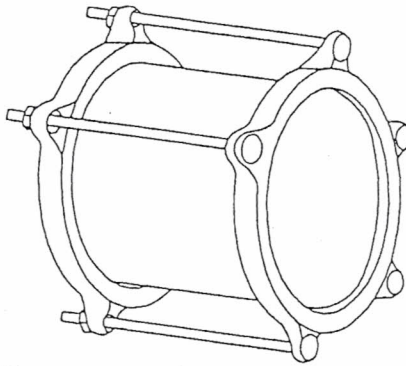
ADDITIONAL UNDERCUT AND CRUSHED ROCK BEDDING FOUNDATION (USED ONLY WHEN DIRECTED BY OWNERS REP. TO REMOVE UNSTABLE MATERIAL FROM TRENCH FOUNDATION.) STABILIZE CRUSHED ROCK BACKFILL IN 6" LIFTS WITH MECHANICAL COMPACTION PER T-180

① LOCATOR TAPE PER GPIWA specifications

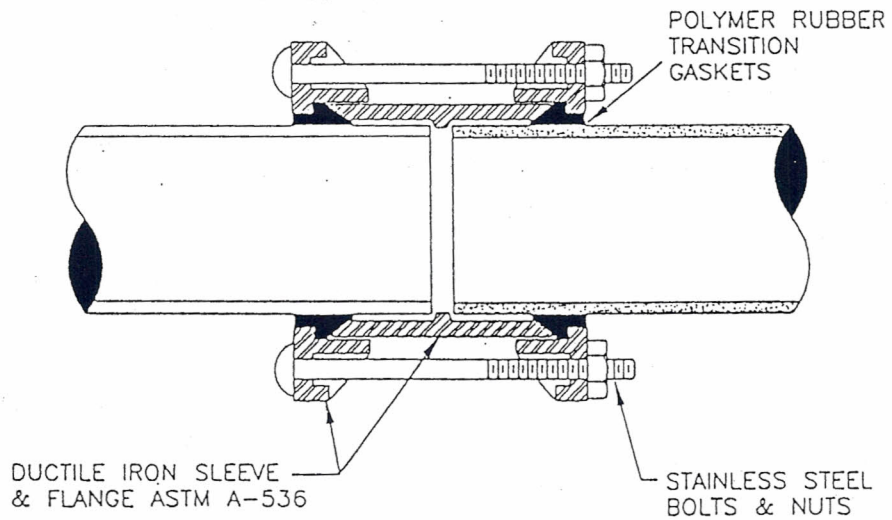
TRENCH CROSS SECTION	SCALE: N.T.S.
	DATE:
	CHK:
	DWG #: C-5

JOINS CAST IRON, DUCTILE IRON, ASBESTOS-CEMENT, C-900  
BY MECHANICAL JOINT COMPRESSION PRINCIPAL

ALL THREADED RODS AND NUTS WILL BE STAINLESS STEEL

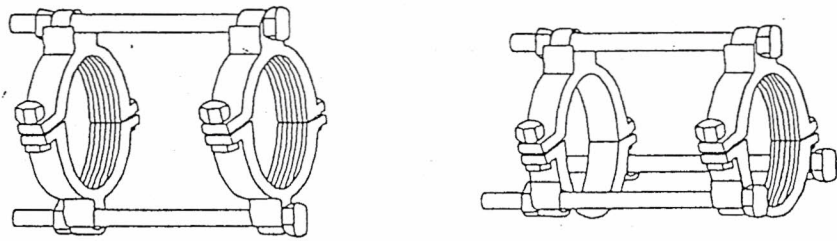
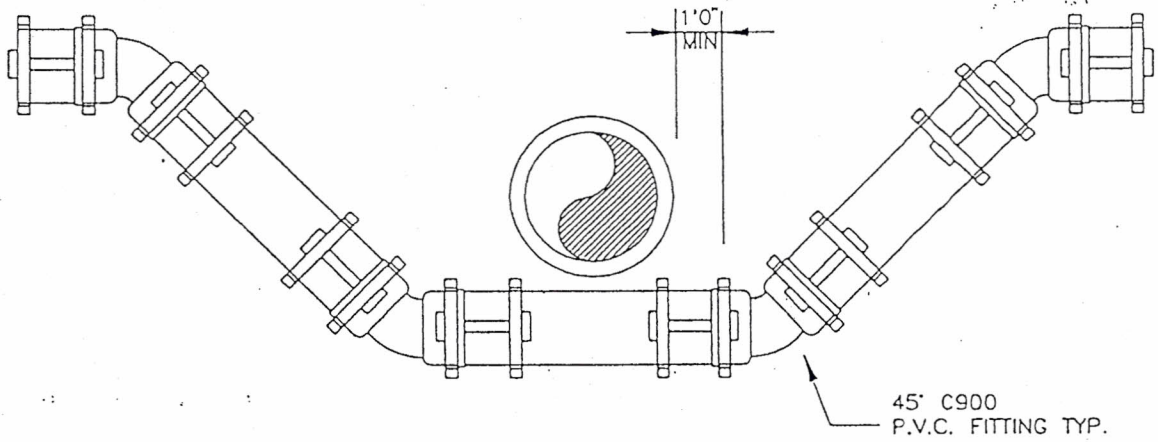


JCM INDUSTRIES, INC.  
212 DUCTILE IRON TRANSITION  
COUPLING OR APPROVED EQUAL



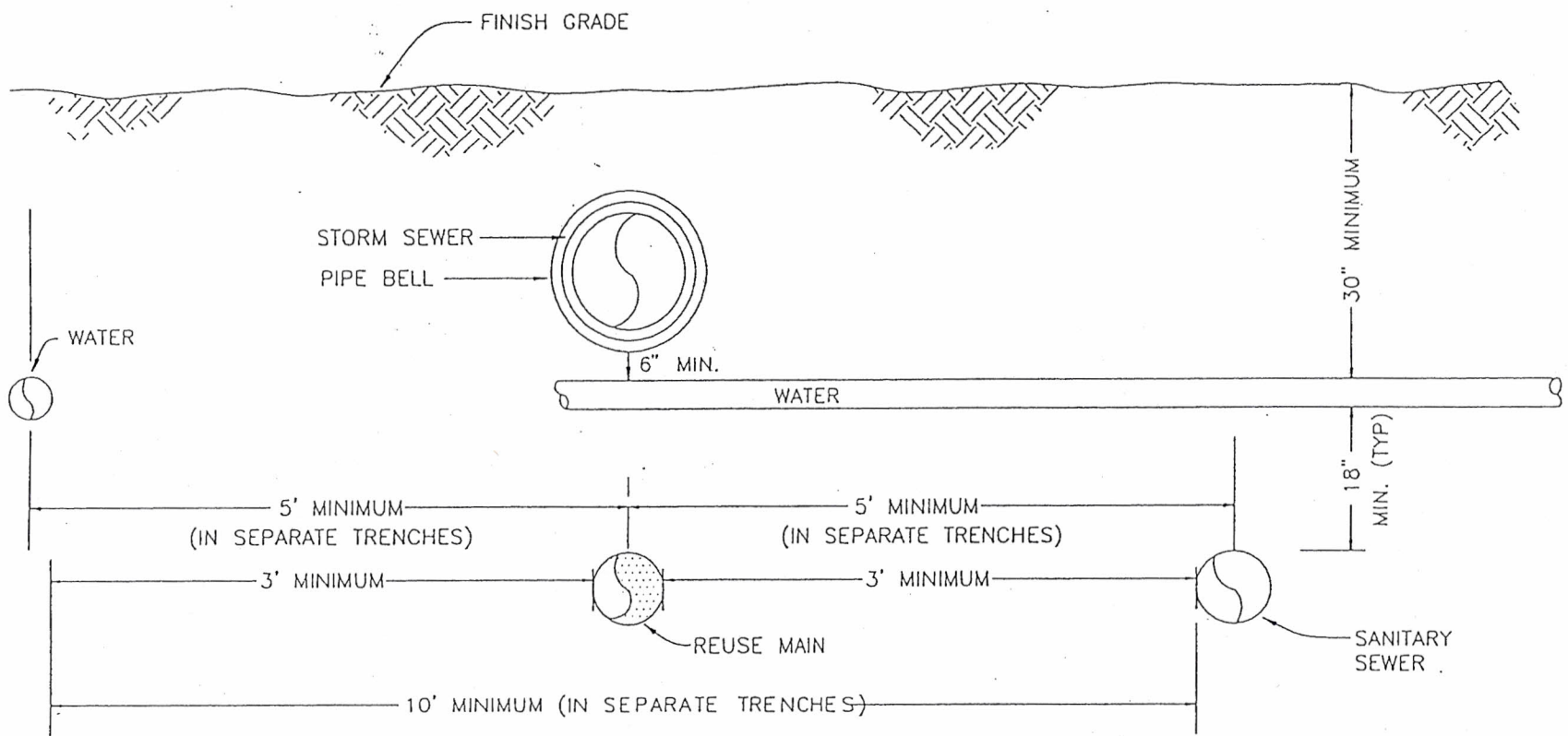
DUCTILE IRON TRANSITION COUPLING	SCALE: N.T.S.
	DATE: C-6
	CHK:

RESTRAINT SYSTEM FOR PUSH ON  
P.V.C. FITTINGS & PIPING  
SIZE AND TYPE AS SPECIFIED ON PLAN  
ALL THREADED RODS AND NUTS WILL BE STAINLESS STEEL



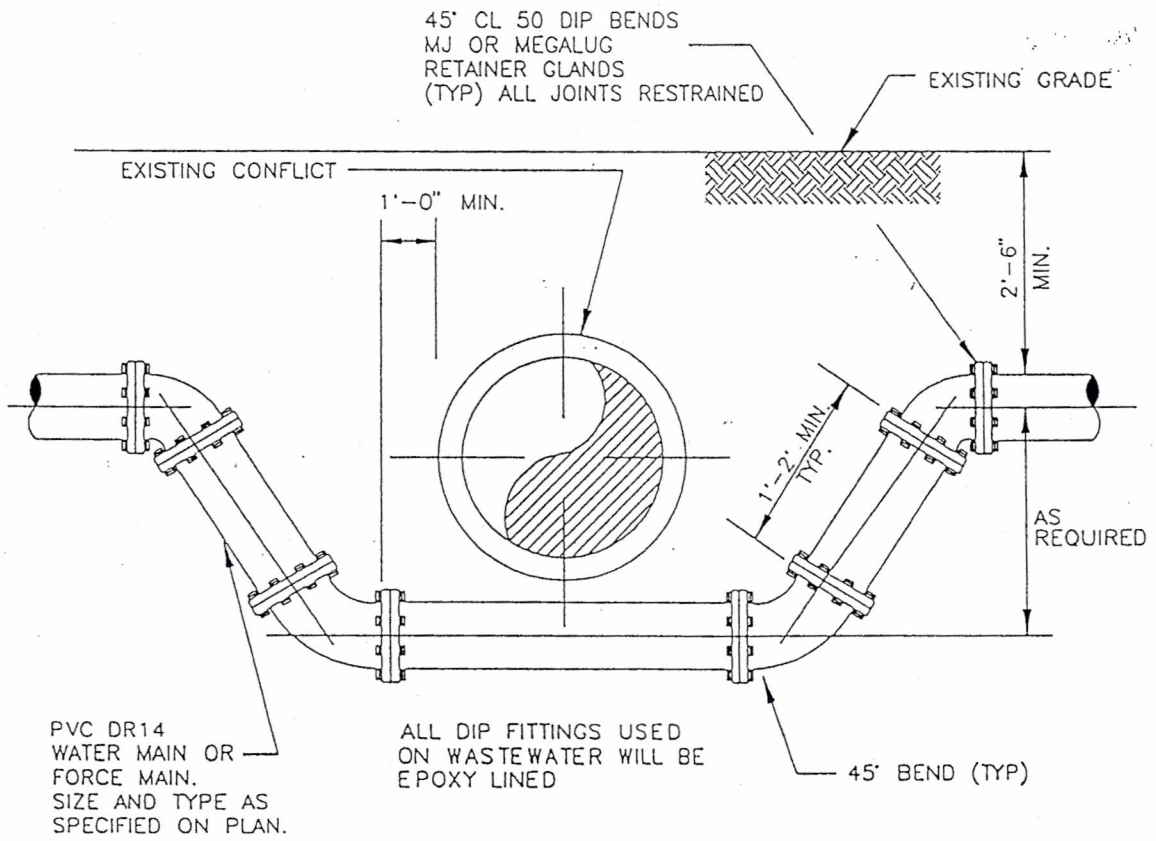
RESTRAINT DETAIL FOR ADJUSTING  
PVC PRESSURE LINE DUE TO CONFLICTS

PVC PRESSURE LINE CONFLICT ADJUSTMENT (FITTINGS)	SCALE: N.T.S.
	DATE:
	CHK:
	DWG #: C-7

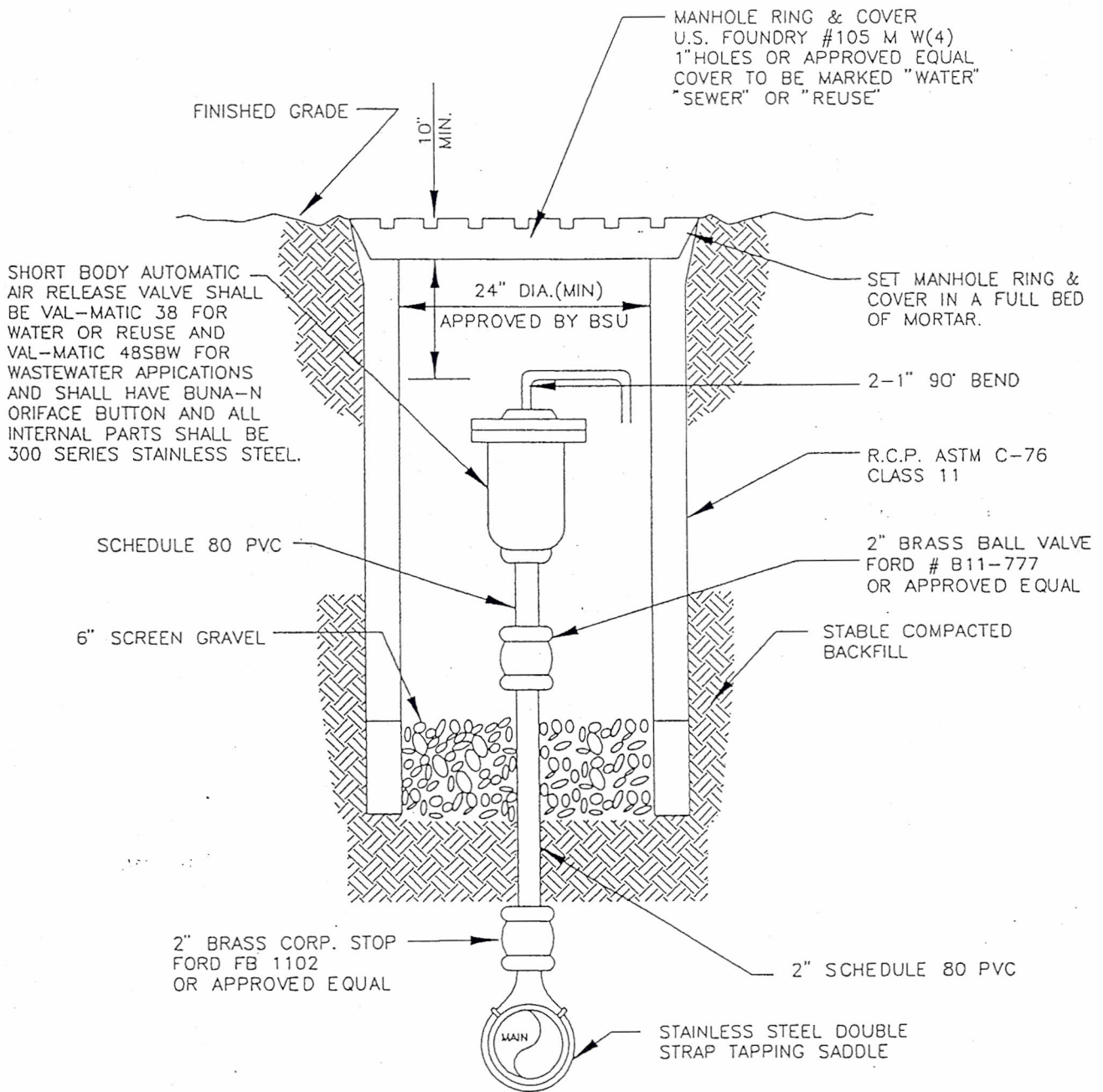


CROSS-OVER DETAIL	SCALE: N.T.S.
	DATE:
	CHK:
	DWG #: C-8



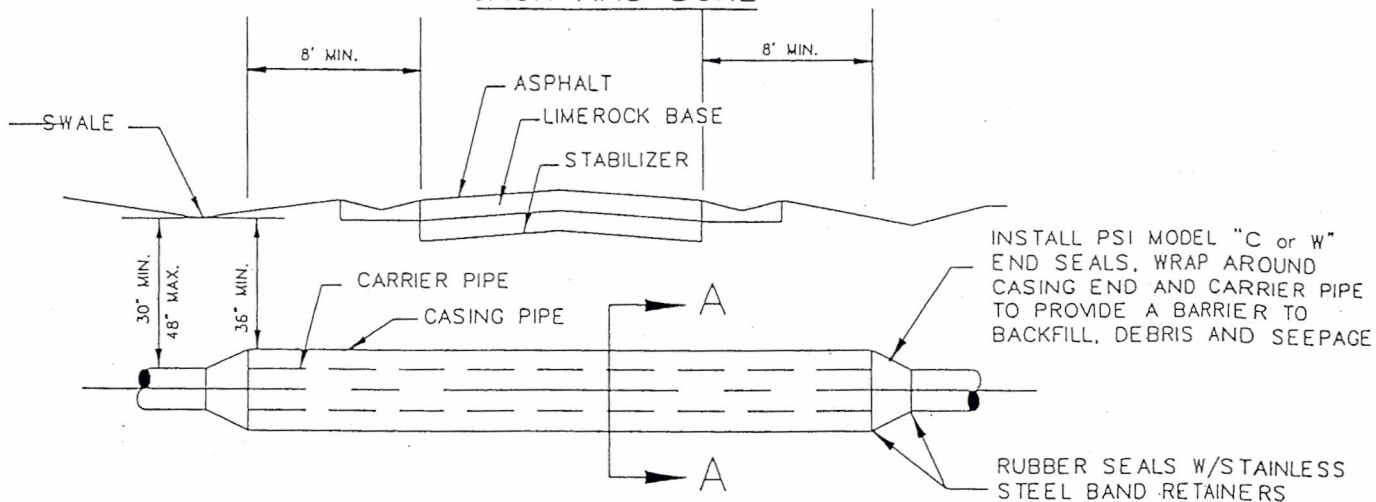


DIP PRESSURE LINE CONFLICT ADJUSTMENT MJ	SCALE: N.T.S.
	DATE: _____
	CHK: _____
	DWG #: C-9



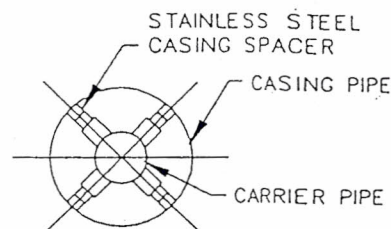
AIR RELEASE VALVE AUTOMATIC	SCALE: N.T.S.
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## JACK AND BORE



INSTALL PSI MODEL "C or W" END SEALS, WRAP AROUND CASING END AND CARRIER PIPE TO PROVIDE A BARRIER TO BACKFILL, DEBRIS AND SEEPAGE

RUBBER SEALS W/STAINLESS STEEL BAND RETAINERS



SECTION "A-A"

**NOTE:**

UNDERGROUND CROSSING REQUIRED A MINIMUM VERTICAL CLEARANCE OF 48" BELOW PAVEMENT SURFACE FOR FREEWAYS, 36" FOR OTHER HIGHWAYS OR 30" BELOW UNPAVED GROUND INCLUDING DITCH GRADE PER F.D.O.T.

**SPACERS**

ALL CASING SPACERS SHALL BE OF THE TYPE MANUFACTURED BY PIPELINE SEAL AND INSULATORS, MODEL C8G-2 16-INCH AND SMALLER, AND MODEL C12G-2 18-INCH THRU 36-INCH, OR APPROVED EQUAL BY ENGINEER. ALL CASING SPACERS LARGER THAN 36-INCH SHALL BE FACTORY DESIGNED, TAKING IN CONSIDERATION THE WEIGHT OF THE CARRIER PIPE FILLED WITH WATER. ALL CALCULATIONS AND DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL. USE 304 STAINLESS STEEL SPACERS FOR LARGER DIAMETER PIPE OR APPROVED BY ENGINEER.

**PLACEMENT OF SPACERS**

- 1) GENERAL - ONE SPACER SHALL NOT BE PLACED MORE THAN TWO FEET FROM EACH END OF CASING. SUBSEQUENT SPACERS SHALL BE PLACED AT 8'-10" INTERVALS WITHIN THE CASING, OR IN ACCORDANCE WITH THE PIPE MANUFACTURING RECOMMENDATIONS.
- 2) PVC CARRIER - ONE SPACER SHALL BE PLACED ON THE SPIGOT END OF EACH SEGMENT AT THE LINE MARKING THE LIMIT OF INSERT INTO THE BELL OF THE JOINT SO THAT THE SPACER PUSHES THE JOINT AND RELIEVES COMPRESSION WITHIN THE JOINT. SUBSEQUENT SPACERS SHALL BE PLACED AT 8'-0" INTERVALS, OR IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS.

**CARRIER PIPE**

CARRIER PIPE SHALL BE CENTERED WITHIN CASING BY USE OF PSI 304 STAINLESS STEEL CASING SPACERS AS MANUFACTURED BY PIPELINE SEAL AND INSULATORS MFG. COMPANY OR APPROVED EQUAL.

**CASING PIPE**

CASING PIPE SHALL BE PRIME STEEL PIPE CONFORMING TO THE REQUIREMENTS OF ASTM DESIGNATION A-139.

	CARRIER PIPE NOMINAL SIZE INCHES	CASING PIPE OUTSIDE DIAMETER INCHES	CASING PIPE WALL THICKNESS INCHES
UP TO 14" CARRIER PIPE - 4 REQ'D. OVER 14" THROUGH 36" CARRIER PIPE - 6 REQ'D. OVER 36" THROUGH 48" CARRIER PIPE - 7 REQ'D.	4"	16"	0.250"
	6"	18"	0.250"
	8"	20"	0.250"
	10"	22"	0.250"
	12"	26"	0.312"
	14"	28"	0.312"
	16"	30"	0.312"
	18"	34"	0.375"
	20"	36"	0.375"
	24"	42"	0.500"

JACK & BORE	SCALE: N.T.S.
	DATE:
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	DWG #: C-11