

APPENDIX S
Excerpts from City Streets and Utilities Development
Regulations

WATER SYSTEM NOTES:

1. ALL WORK IN CITY RIGHT-OF-WAY REQUIRES A PERMIT FROM THE CITY OF SEQUIM. PRIOR TO ANY WORK COMMENCING, THE CONTRACTOR SHALL ARRANGE FOR A PRECONSTRUCTION MEETING AT THE SITE TO BE ATTENDED BY ALL MAJOR CONTRACTORS, REPRESENTATIVES OF INVOLVED UTILITIES AND THE CITY OF SEQUIM. CONTACT THE PUBLIC WORKS DEPARTMENT AT THE CITY OF SEQUIM TO SCHEDULE THE MEETING 683 - 4908. THE CONTRACTOR IS RESPONSIBLE TO HAVE HIS SET OF APPROVED PLANS AT THE MEETING.
2. THE WATER MAIN MAY BE POLYVINYL CHLORIDE (PVC) OR DUCTILE IRON (DI) PIPE. MINIMUM COVER OVER THE WATER MAIN SHALL BE 36 INCHES. CLEARANCE WITH ALL UTILITIES SHALL BE VERIFIED PRIOR TO INSTALLATION.
3. PVC PIPE SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN WATER WORKS ASSOCIATION (AWWA) C900 C.I.O.D. PVC PIPE SHALL BE PRESSURE CLASS 150 AND SHALL HAVE RUBBER RING AND THICKENED BELL JOINTS. SOLVENT WELD PIPE JOINTS WILL NOT BE PERMITTED.
4. DUCTILE IRON PIPE SHALL CONFORM TO AWWA C151, THICKNESS CLASS 50 AND SHALL BE CEMENT MORTAR-LINED IN CONFORMANCE WITH AWWA C104.
5. TEES SHALL BE DUCTILE IRON CLASS 250 GREY IRON IN CONFORMANCE WITH AWWA C110, C111, OR C153 AND SHALL BE CEMENT MORTAR-LINED IN CONFORMANCE WITH AWWA C104.
6. FIRE HYDRANTS SHALL CONFORM TO AWWA C502 FOR DRY BARREL HYDRANTS; THEY SHALL BE SUPPLIED WITH A 5¼-INCH MAIN VALVE OPENING, TWO 2½-INCH HOSE NOZZLES (NST), AND ONE 4-INCH PUMPER NOZZLE (NST); AND SHALL BE LEFT OPEN, WITH A STANDARD PENTAGON NUT. ALL HYDRANTS SHALL HAVE RESTRAINED MECHANICAL JOINT FITTINGS. ACCEPTABLE HYDRANT MANUFACTURER AND MODEL SHALL CONFORM TO THE LIST AT THE HYDRANT DETAIL.

THE HYDRANT VALVE SHALL BE COMPRESSION TYPE WHERE WATER PRESSURE HOLDS THE MAIN VALVE CLOSED, PERMITTING MAINTENANCE OR REPAIR OF THE BARREL

ASSEMBLY FROM ABOVE GROUND UNDER PRESSURE. THE MAIN VALVE SEAL SHALL BE AN ETHER GLYCOL URETHRAE COMPOUND (OR APPROVED EQUAL) THAT IS ABRASION AND GRAVEL RESISTANT.

THE FIRE HYDRANT SHALL BE A BREAKAWAY TRAFFIC FLANGE TYPE THAT ALLOWS BOTH BARREL AND STEM TO BREAK CLEAN UPON IMPACT FROM ANY ANGLE. TRAFFIC FLANGE DESIGN MUST BE SUCH THAT REPAIR AND REPLACEMENT CAN BE ACCOMPLISHED ABOVE GROUND.

ALL WORKING PARTS SHALL BE BRONZE OR NON-CORROSIVE METAL IN ACCORDANCE WITH THE REQUIREMENTS OF AWWA C502.

FIRE HYDRANTS SHALL BE PROVIDED WITH TWO 3/8-INCH DRAIN OUTLETS AND BRONZE PLUGS LOCATED AT THE BASE OF THE BARREL.

PAINTING AND COATING SHALL BE IN ACCORDANCE WITH APPLICABLE AWWA STANDARDS AND CITY OF SEQUIM REQUIREMENTS.

7. GATE VALVES SHALL CONFORM TO AWWA C509 RESILIENT SEATED VALVES AND SHALL BE IRON BODY, WITH NON-RISING STEMS, OPENING COUNTER CLOCKWISE, EQUIPPED WITH A TWO-INCH SQUARE OPERATING NUT AND HAVE DOUBLE "O" RING STEM SEALS. GATE VALVES SHALL HAVE MECHANICAL JOINT ENDS, OR MECHANICAL JOINT BY FLANGE ENDS AS SHOWN ON THE PLANS.
8. VALVE BOXES SHALL BE CAST IRON, APWA TWO-PIECE SLIP TYPE. THE COVER SHALL HAVE THE WORD "WATER" CAST IN IT . SEE THE DETAIL TITLED "STANDARD VALVE BOX."
9. RESTRAINED MECHANICAL JOINT GLANDS, WHERE REQUIRED, SHALL BE THE FULLY RESTRAINED TYPE WITH TWIST-OFF NUTS TO ENSURE PROPER ACTUATING TORQUE OF THE RESTRAINING DEVICE. RESTRAINING JOINT GLANDS SHALL BE MEGALUG SERIES 1100 MANUFACTURED BY EBAA IRON SALES, INC., OR EQUAL.
10. TRENCHING, BEDDING, AND BACKFILL SHALL BE IN ACCORDANCE WITH CITY STANDARD DETAIL.

11. ALL PVC PIPE AND SERVICES SHALL BE INSTALLED WITH CONTINUOUS TRACER TAPE INSTALLED 12 INCHES TO 18 INCHES UNDER THE FINAL GROUND SURFACE. THE MARKER SHALL BE PLASTIC NON-BIODEGRADABLE, METAL CORE OR BACKING MARKED "WATER" THAT CAN BE DETECTED BY A STANDARD METAL DETECTOR. TAPE SHALL BE TERRA TAPE "D" OR APPROVED EQUAL.
12. ADHERE A BLUE PRISMATIC REFLECTIVE FACE MARKER TO THE PAVEMENT AT ALL HYDRANT LOCATIONS. REFLECTOR SHALL BE OFFSET SIX INCHES FROM THE PAVEMENT CENTERLINE TOWARD THE HYDRANT.
13. WATER MAINS SHALL BE FLUSHED, DISINFECTED, AND TESTED CONFORMING TO REQUIREMENTS OF WSDOT STANDARD SPECIFICATION SECTION 7-11. TEST PRESSURE SHALL BE 200 PSI. A REPRESENTATIVE OF THE CITY MUST BE PRESENT FOR PRESSURE TESTING.
14. THE CITY WILL DRAW A SAMPLE FOR COLIFORM TESTING BY AN INDEPENDENT AGENCY. IF THE TEST FAILS, THE CONTRACTOR SHALL RE-DISINFECT THE SYSTEM UNTIL A PASSING RESULT IS OBTAINED.

WATER SYSTEM DETAILS



SEQUIM

REINFORCED PLASTIC METER BOX AND EXTENSION WITH 12"x17" READER TYPE LID, EQUAL TO CARSON INDUSTRIES #1419 (NON TRAFFIC LOCATION) PROVIDE H20 RATED BOX AND COVER AT TRAFFIC LOCATIONS

SHUT OFF WITH LOCK WING GROUND KEY ANGLE METER STOP

3/4"x1" REDUCER

SERVICE PIPE EQUAL TO ASTM D-2239-SIDR7 (PE 3408) 200 PSI, COLD FLARE TYPE, 1" IPS

1" CORP STOP INLET IRON PIPE THREAD OUTLET FOR FLARED CONNECTION, EQUAL TO MUELLER #H-15025

SERVICE SADDLE 1" IPS TAP SIZE AS REQUIRED, EQUAL TO ROMAC #101N

3/4" PLUG, IPT FINGER TIGHT

3/4" GATE VALVE, IPT

PROPERTY LINE

6" MIN
2' MAX

12"

3/4"x12" BRASS NIPPLE

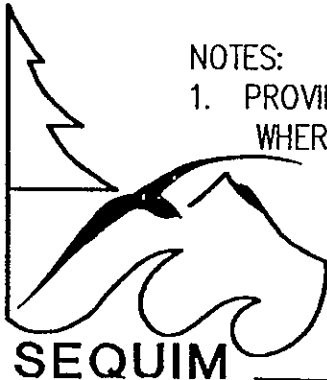
SEE NOTE #1

5/8"x3/4" METER ROCKWELL SR11 AND MEASURING IN CUBIC FEET (BY CITY)

COPPERSETTER WITH CHECK VALVE FOR 5/8"x3/4" METER, MUELLER #H-1404-2-9

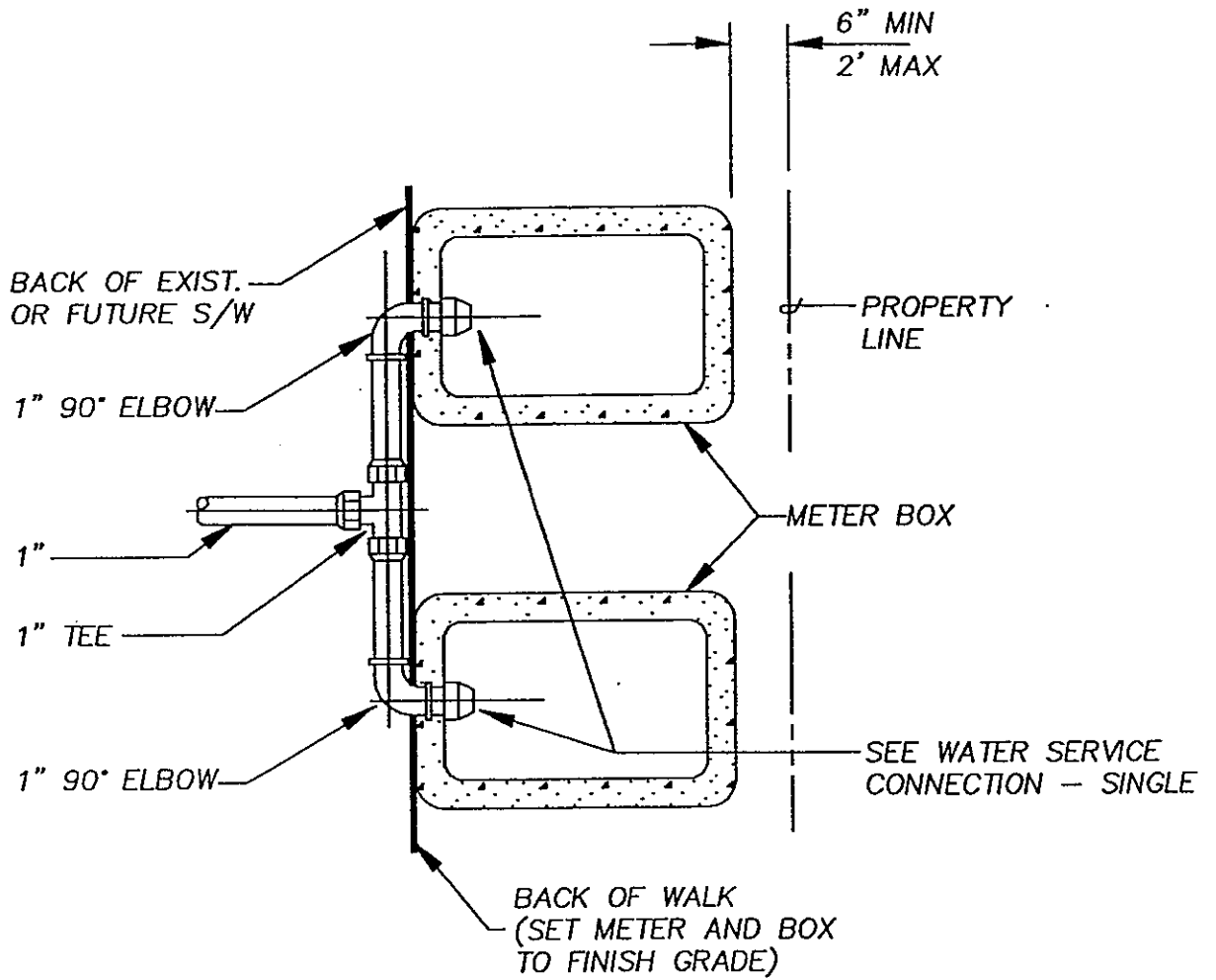
NOTES:

1. PROVIDE A PRESSURE REDUCING VALVE INSIDE A METER BOX WHERE STATIC PRESSURE IS GREATER THAN 80 PSI.



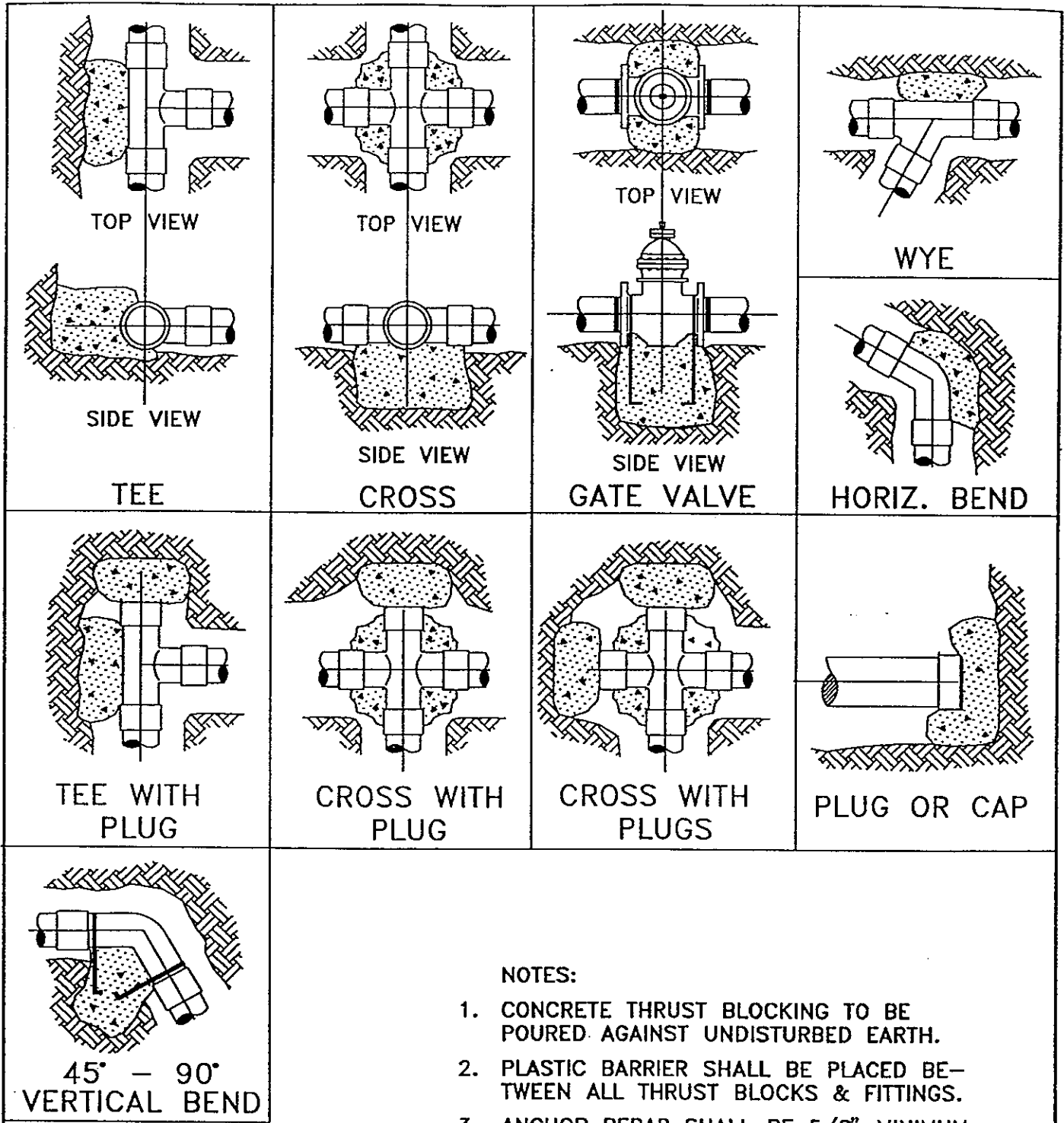
WATER SERVICE CONNECTION - SINGLE

| | | | | | |
|------|----------|-------|-----|--------|--------|
| DATE | 9 FEB 94 | DRAWN | VIV | DETAIL | SQM-W1 |
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WATER SERVICE CONNECTION - DOUBLE

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| THRUST BLOCK | | | |
| DATE | 9 FEB 93 | DRAWN | VIV |
| | | DETAIL | SQM-W3A |

THRUST LOADS

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

| PIPE DIAMETER | 90° BEND | 45° BEND | 22-1/2° BEND | 11-1/4° BEND | DEAD END OR TEE |
|---------------|----------|----------|--------------|--------------|-----------------|
| 4" | 3,600 | 2,000 | 1,000 | 500 | 2,600 |
| 6" | 8,000 | 4,400 | 2,300 | 1,200 | 5,700 |
| 8" | 14,300 | 7,700 | 4,000 | 2,000 | 10,100 |
| 10" | 22,300 | 12,100 | 6,200 | 3,100 | 15,800 |
| 12" | 32,000 | 17,400 | 8,900 | 4,500 | 22,700 |
| 14" | 43,600 | 23,600 | 12,100 | 6,100 | 30,800 |
| 16" | 57,000 | 30,800 | 15,700 | 7,900 | 40,300 |

NOTES:

1. BLOCKING SHALL BE CLASS 3000 CEMENT 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 (S.F.):
 EXAMPLE : 12" - 90° BEND IN SAND AND GRAVEL
 $32,000 \text{ LBS} \div 3000 \text{ LB/S.F.} = 10.7 \text{ S.F. OF AREA}$
3. AREAS MUST BE ADJUSTED FOR OTHER PIPE SIZE, PRESSURES & 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

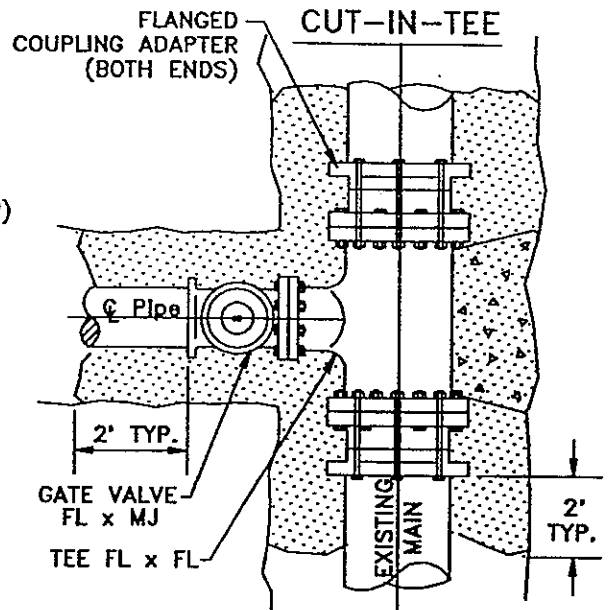
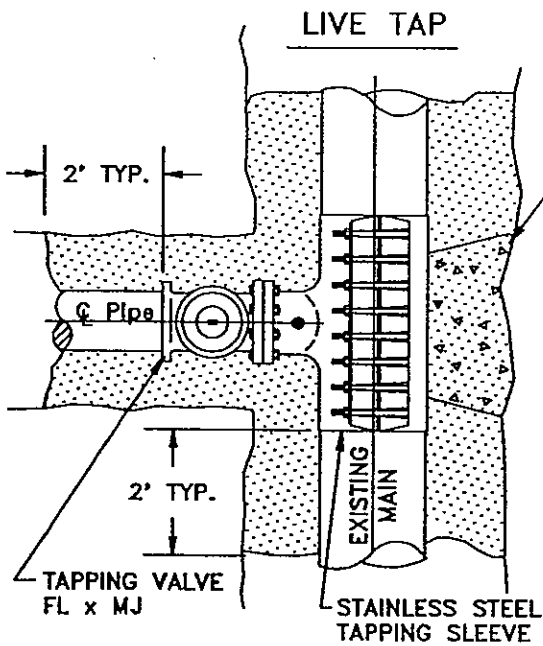
| SOIL | POUNDS PER SQUARE FOOT |
|----------------------------------|------------------------|
| MUCK, PEAT | 0 |
| SOFT CLAY | 1,000 |
| SAND | 2,000 |
| SAND & GRAVEL | 3,000 |
| SAND & GRAVEL CEMENTED WITH CLAY | 4,000 |
| HARD SHALE | 10,000 |

2 OF 2

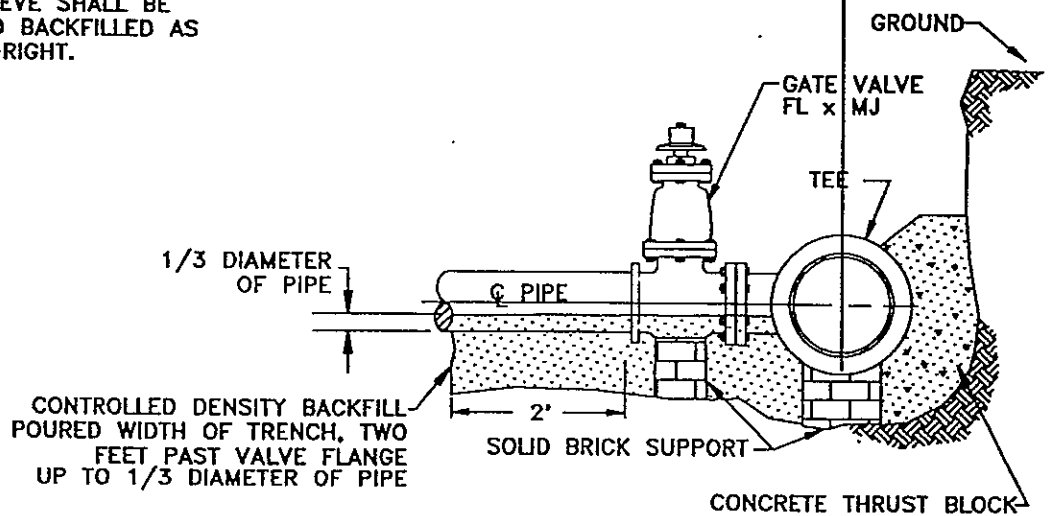


THRUST BLOCK

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|------|----------|--------|---------|
| DATE | 9 FEB 94 | DRAWN | VIV |
| | | DETAIL | SQM-W3B |

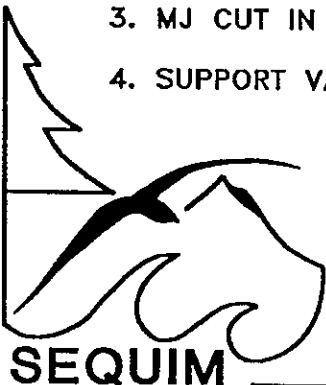


VALVE AND SLEEVE SHALL BE SUPPORTED AND BACKFILLED AS SHOWN BELOW-RIGHT.



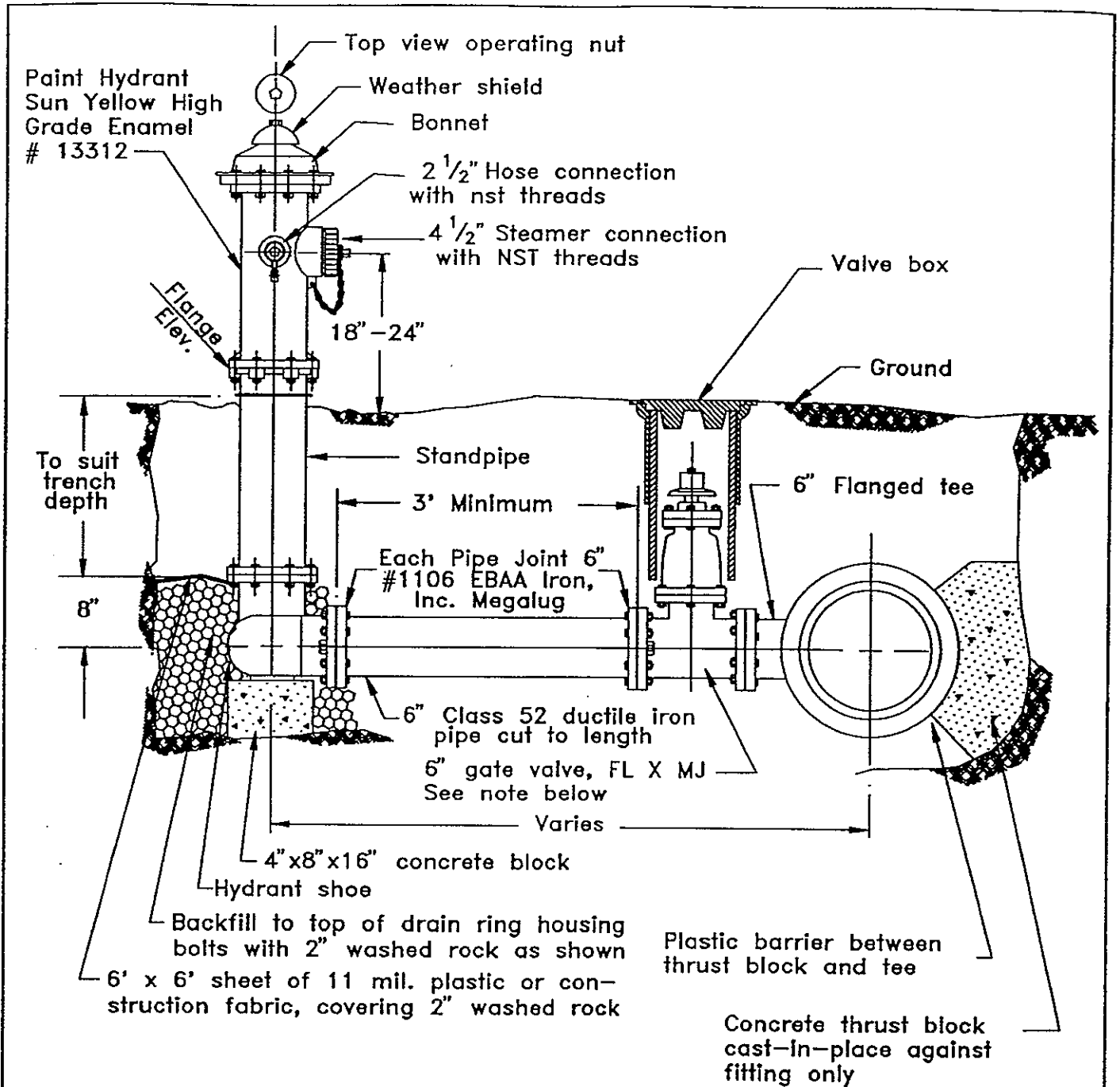
NOTES:

1. 11 MIL PLASTIC OR CONSTRUCTION FABRIC SHALL BE WRAPPED AROUND PIPE AND FITTINGS BEFORE THRUST BLOCK AND BACKFILL ARE POURED.
2. CONTROLLED DENSITY BACKFILL IS A PLANT MIX CONSISTING OF: 3100# SAND, 450# WATER, AND ONE SACK (94#) OF CEMENT.
3. MJ CUT IN TEES SHALL NOT BE PERMITTED.
4. SUPPORT VALVE AND SLEEVE CONTINUOUSLY THROUGH INSTALLATION.



CONNECTION TO EXISTING MAIN

| | | | |
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| DATE | 9 FEB 94 | DRAWN | VIV |
| | | DETAIL | SQM-W4 |

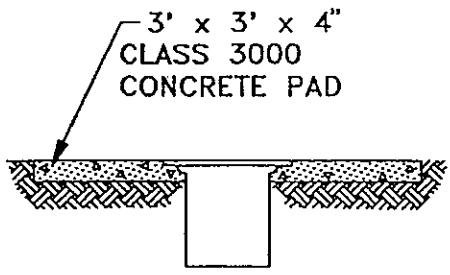


Notes

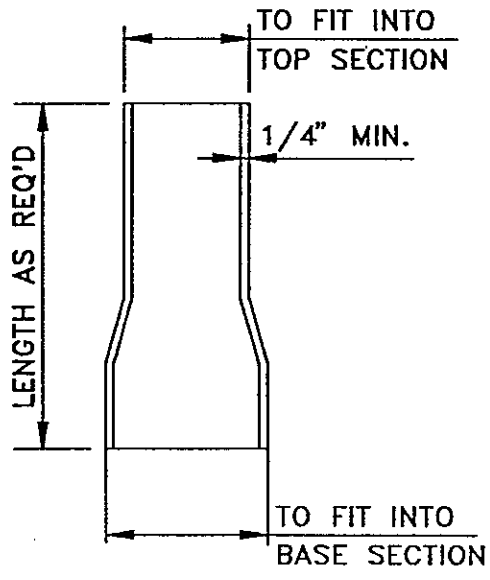
1. A minimum three foot radius unobstructed working area shall be provided around all hydrants.
2. Hydrant shall be Mueller Centurion or Clow F-2500.
3. Gate valves shall be resilient wedge NRS with O-ring seals. Valve ends shall be Mechanical joint by ANSI flanges. Valves shall conform to AWWA 509-80. Valves shall be Mueller M&H or Clow R/W.



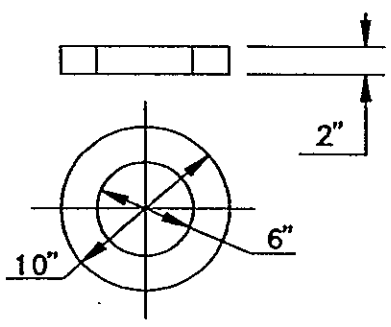
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| FIRE HYDRANT | | | |
| DATE | 9 FEB 94 | DRAWN | VIV |
| | | DETAIL | SQM-W5 |



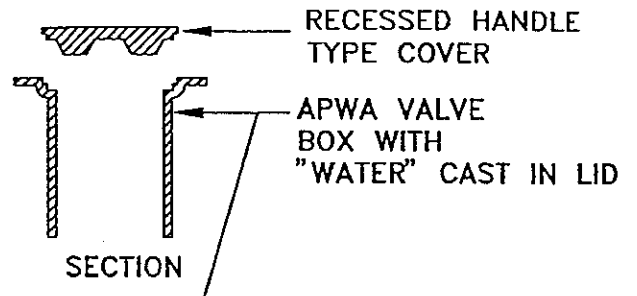
OUTSIDE PAVED AREA



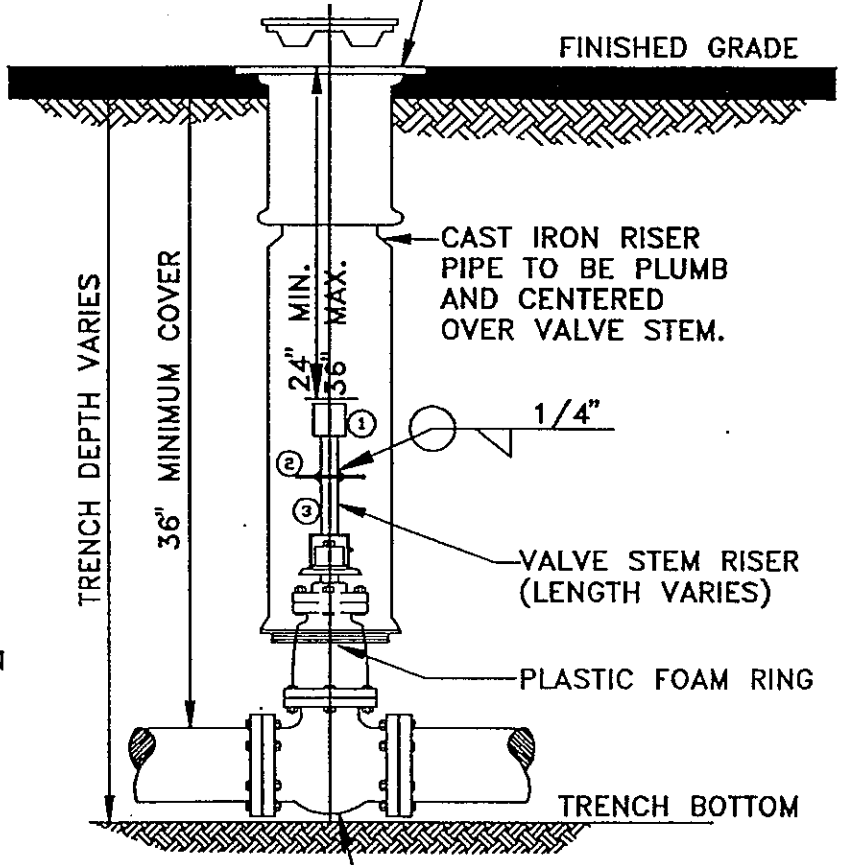
EXTENSION PIECE



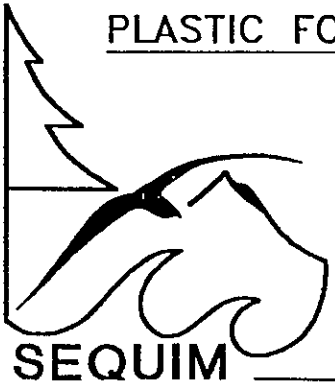
PLASTIC FOAM RING



SECTION



PAVED LOCATION



| | | | |
|---------------------------|----------|--------|---------|
| STANDARD VALVE BOX | | | |
| DATE | 9 FEB 94 | DRAWN | VIV |
| | | DETAIL | SQM-W6A |

VALVE STEM EXTENSION LEGEND

- 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" DIA STEEL GUIDE PLATE WELDED TO RISER SHAFT.
- ③ 2" X 2" X 3/16" SQUARE STRUCTURAL STEEL TUBING TO FIT OPERATING NUT. LENGTH AS REQUIRED.

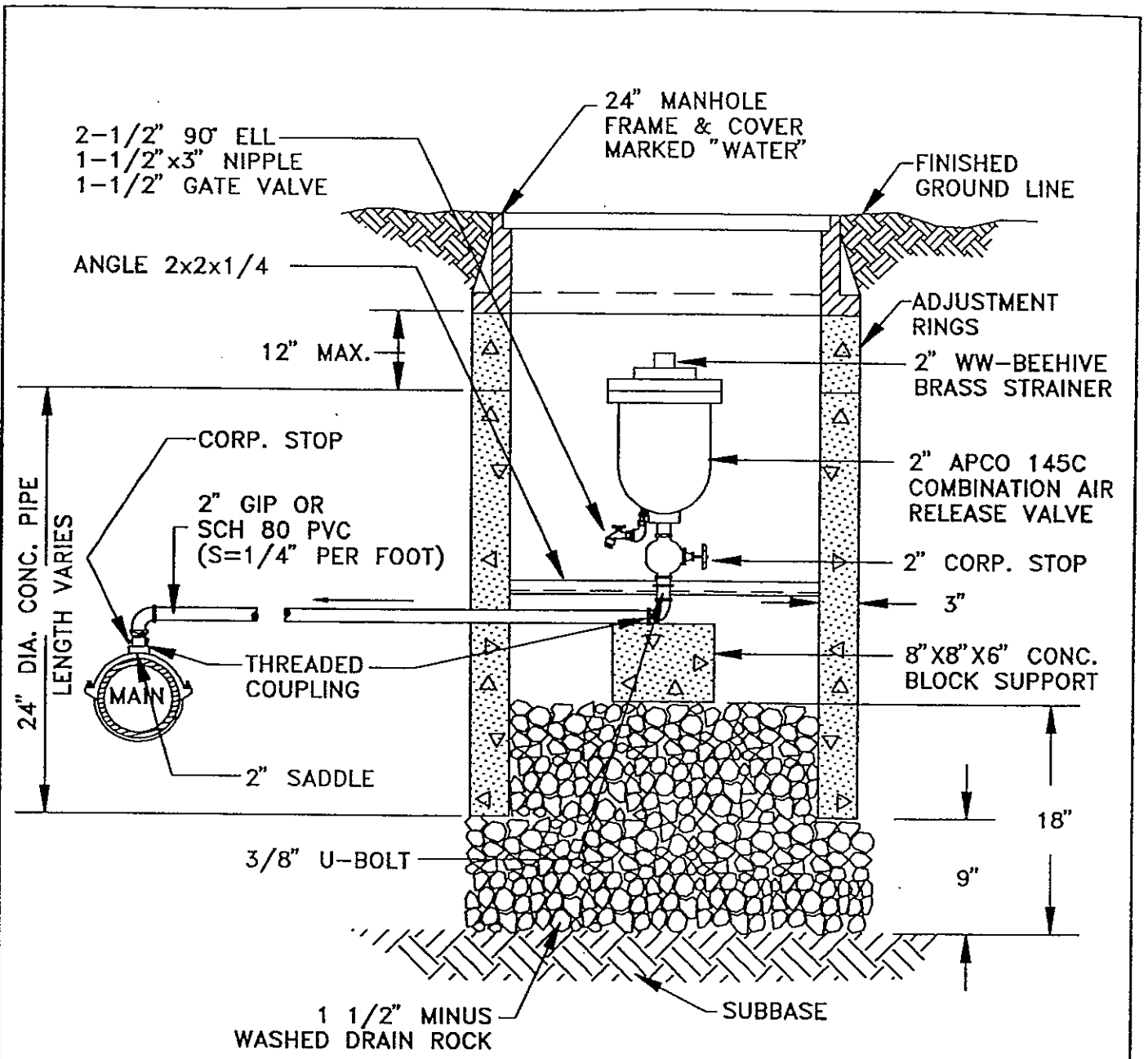
NOTES:

1. ALL WELDS TO SHAFT SHALL BE FILLET WELD ALL AROUND, AS SPECIFIED ABOVE.
2. FRAME AND COVER SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS FOR DELIVERY.
3. CASTINGS AND EXTENSIONS SHALL BE HOT-DIPPED IN ASPHALTIC VARNISH, ROYSTON RESKOTE #612XM OR APPROVED EQUAL.
4. VALVE BOXES SHALL BE APWA TYPE, TWO PIECE, WITH RECESSED HANDLE, RICH, #045 OLYMPIC FOUNDRY VB1, OR APPROVED EQUAL.
5. ALL CASTINGS SHALL BE DUCTILE OR GREY CAST IRON.



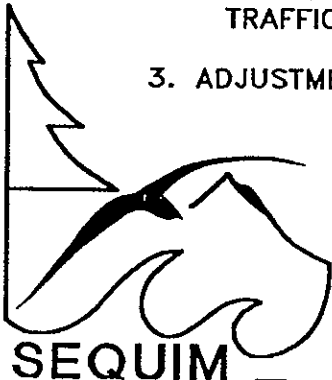
STANDARD VALVE BOX

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| DATE | 9 FEB 94 | DRAWN | VIV | DETAIL | SQM-W6B |
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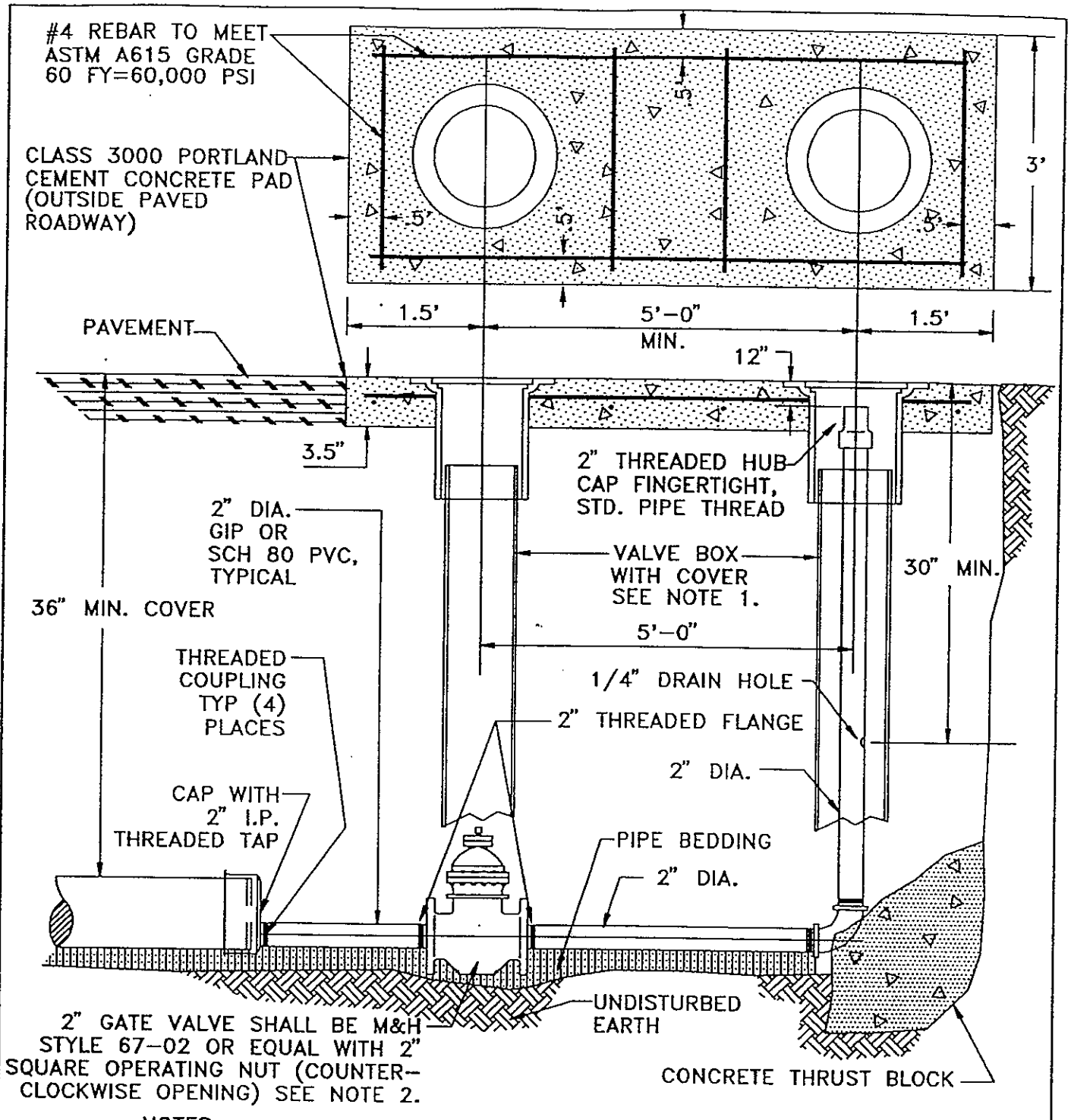
NOTES:

1. VALVE ASSEMBLY SHALL BE SET AT THE HIGH POINT OF THE LINE.
2. A MINIMUM OF ONE 4" ADJUSTMENT RING MUST BE PROVIDED IN TRAFFIC AREA SETTINGS.
3. ADJUSTMENT RINGS AND MANHOLE RING TO BE GROUTED, WATER TIGHT.



2" AIR AND VACUUM RELEASE VALVE

| | | | |
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| DATE | 9 FEB 94 | DRAWN | VIV |
| | | DETAIL | SQM-W7 |

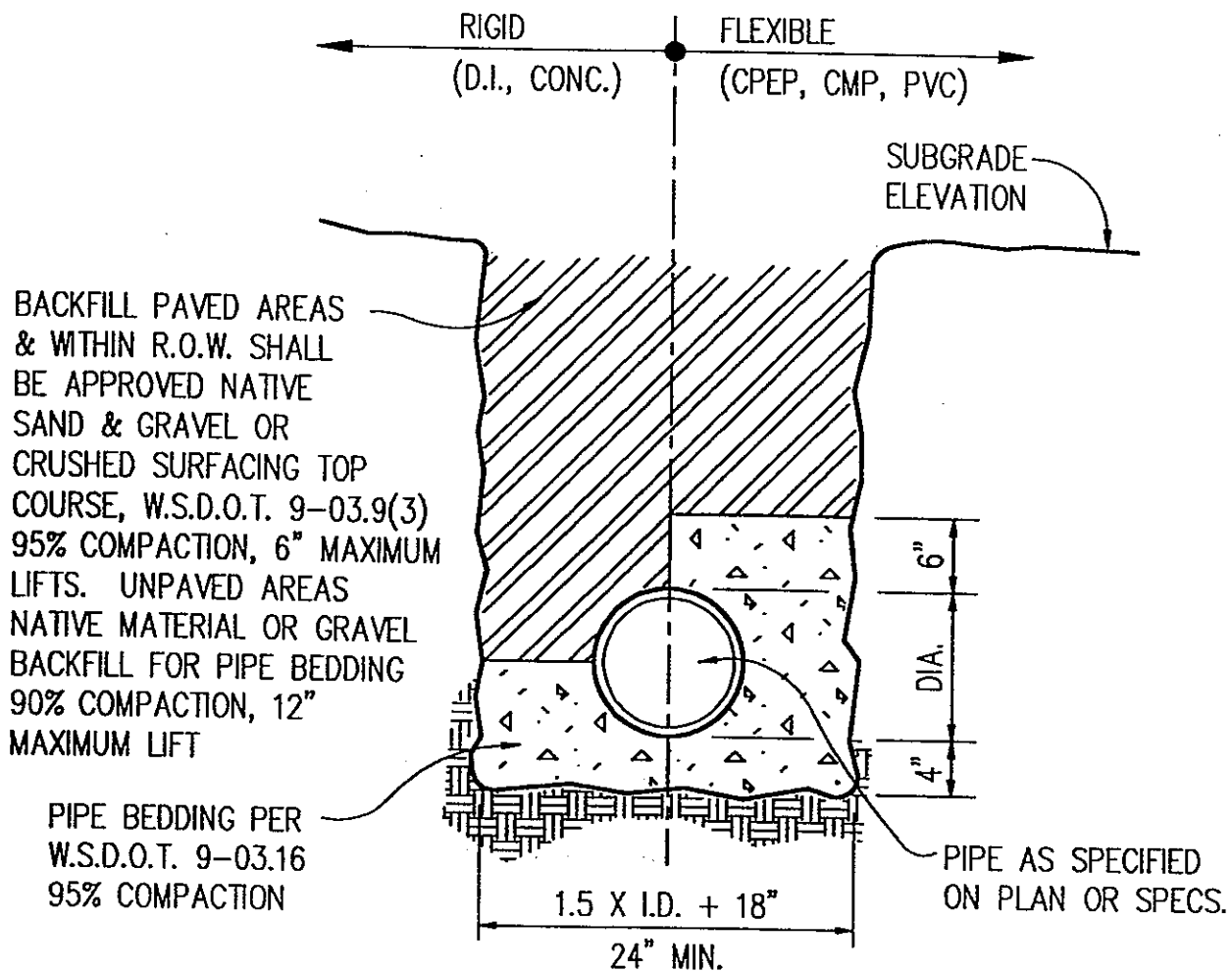


NOTES:

1. VALVE BOX AND COVER SHALL BE PER STANDARD VALVE BOX DETAIL.
2. ON WATERMAINS WHICH WILL BE EXTENDED IN THE FUTURE, THE VALVE WHICH OPERATES THE BLOWOFF ASSEMBLY SHALL BE THE SAME SIZE AND SAME SIZE AND PROVIDED WITH A CONCRETE THRUST BLOCK. CONCRETE PAD MAY, WITH CITY APPROVAL, BE DELETED AT TEMPORARY INSTALLATIONS.



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|---|----------|--------|--------|
| <h2 style="margin: 0;">2" BLOWOFF ASSEMBLY</h2> | | | |
| DATE | 9 FEB 94 | DRAWN | VIV |
| | | DETAIL | SQM-W8 |



NOTES:

1. NATIVE BACKFILL MATERIAL AT UNPAVED AREAS SHALL NOT HAVE PARTICLE SIZE GREATER THAN 1" WITHIN 6" OF THE PIPE OR THE CONTRACTOR HAS THE OPTION TO USE GRAVEL BACKFILL PIPE BEDDING CONFORMING TO 9-03.12 (3).



BEDDING & BACKFILL PIPE IN TRENCHES

| | | | | | |
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| DATE | 9 FEB 94 | DRAWN | VIV | DETAIL | SQM-R14 |
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