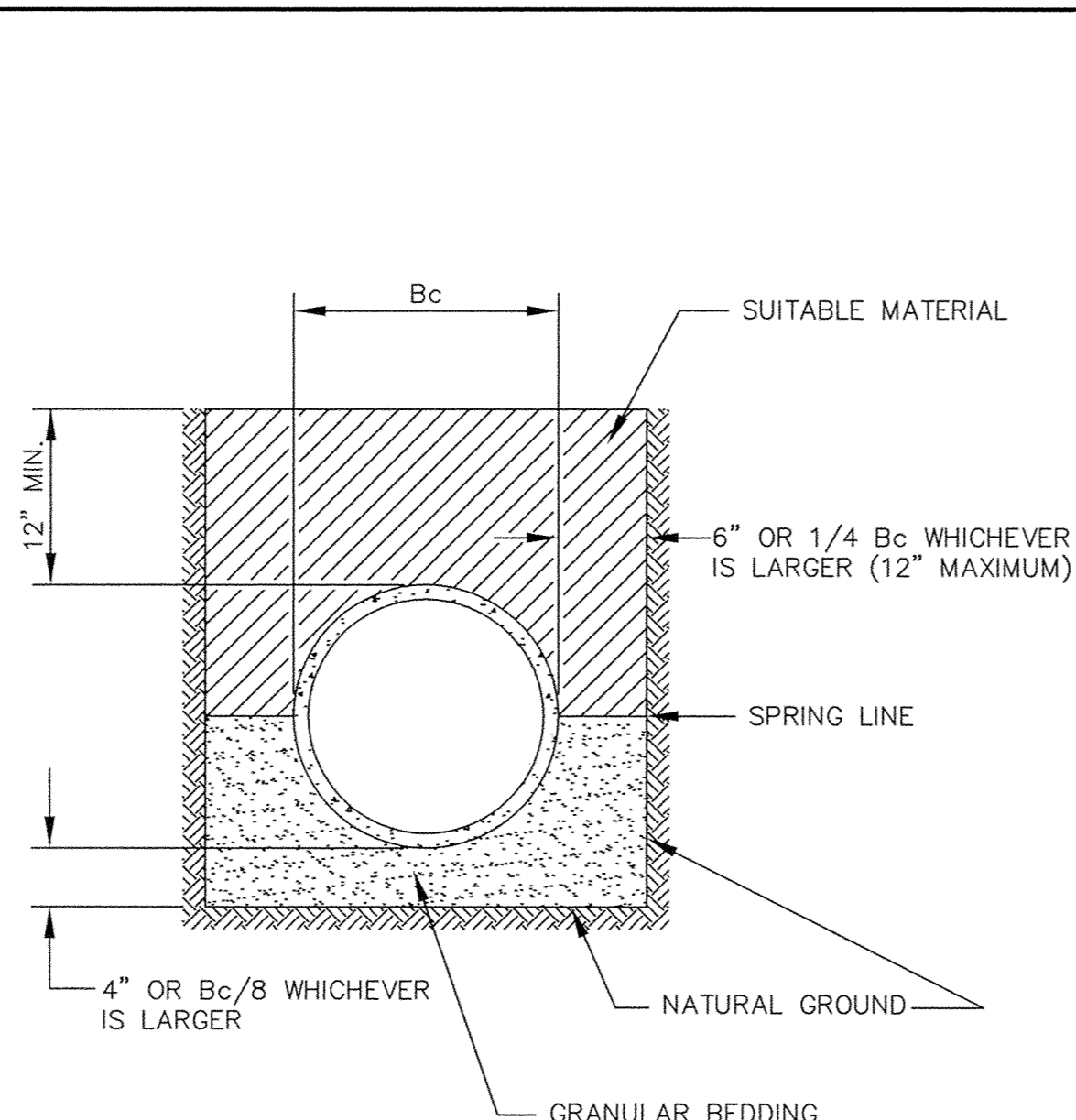


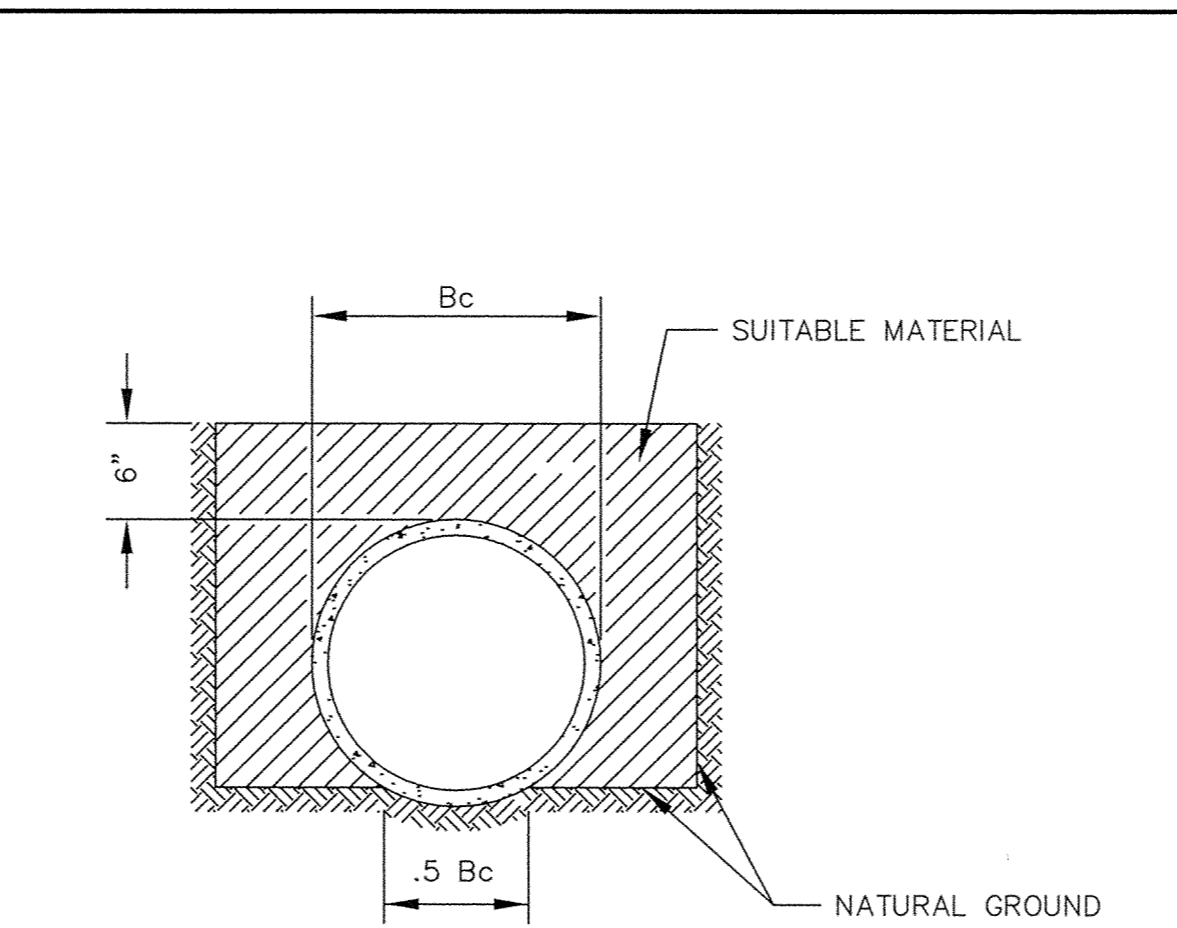
NOMINAL FITTING SIZE (INCHES)	TEE, WYE, PLUG OR CAP		90° BEND, PLUGGED CROSS		TEE PLUGGED ON RUN		45° BEND	22 1/2° BEND	11 1/4° BEND
	A1	A2	A1	A2	A1	A2			
4	1.0	1.4	1.9	1.4	1.0	---	---	---	---
6	2.1	3.0	4.3	3.0	1.6	1.0	---	---	---
8	3.8	5.3	7.6	5.4	2.9	1.5	1.0	---	---
10	5.9	8.4	11.8	8.4	4.6	2.6	1.2	---	---
12	8.5	12.0	17.0	12.0	6.6	3.4	1.7	---	---
14	11.5	16.3	23.0	16.3	8.9	4.6	2.3	---	---
16	15.0	21.3	30.0	21.3	11.6	6.0	3.0	---	---
18	19.0	27.0	38.0	27.0	14.6	7.6	3.8	---	---
20	23.5	33.3	47.0	33.3	18.1	9.4	4.7	---	---
24	34.0	48.0	68.0	48.0	26.2	13.6	6.8	---	---

**NOTE**

- CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
- KEEP CONCRETE CLEAR OF JOINT AND ACCESSORIES.
- IF NOT SHOWN ON PLANS, REQUIRED BEARING AREAS AT FITTING SHALL BE AS INDICATED ABOVE, ADJUSTED IF NECESSARY, TO CONFORM TO THE TEST PRESSURE(S) AND ALLOWABLE SOIL BEARING STRESS(ES).
- BEARING AREAS AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER BEARING AREAS AND BLOCKING DETAILS SHOWN IN THIS STANDARD DETAIL.
- ABOVE BEARING AREAS BASED ON TEST PRESSURE OF 150 P.S.I. AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 POUNDS PER SQUARE FOOT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION: BEARING AREA = (TEST PRESSURE/150) X (2000/SOIL BEARING STRESS) X (TABLE VALUE).

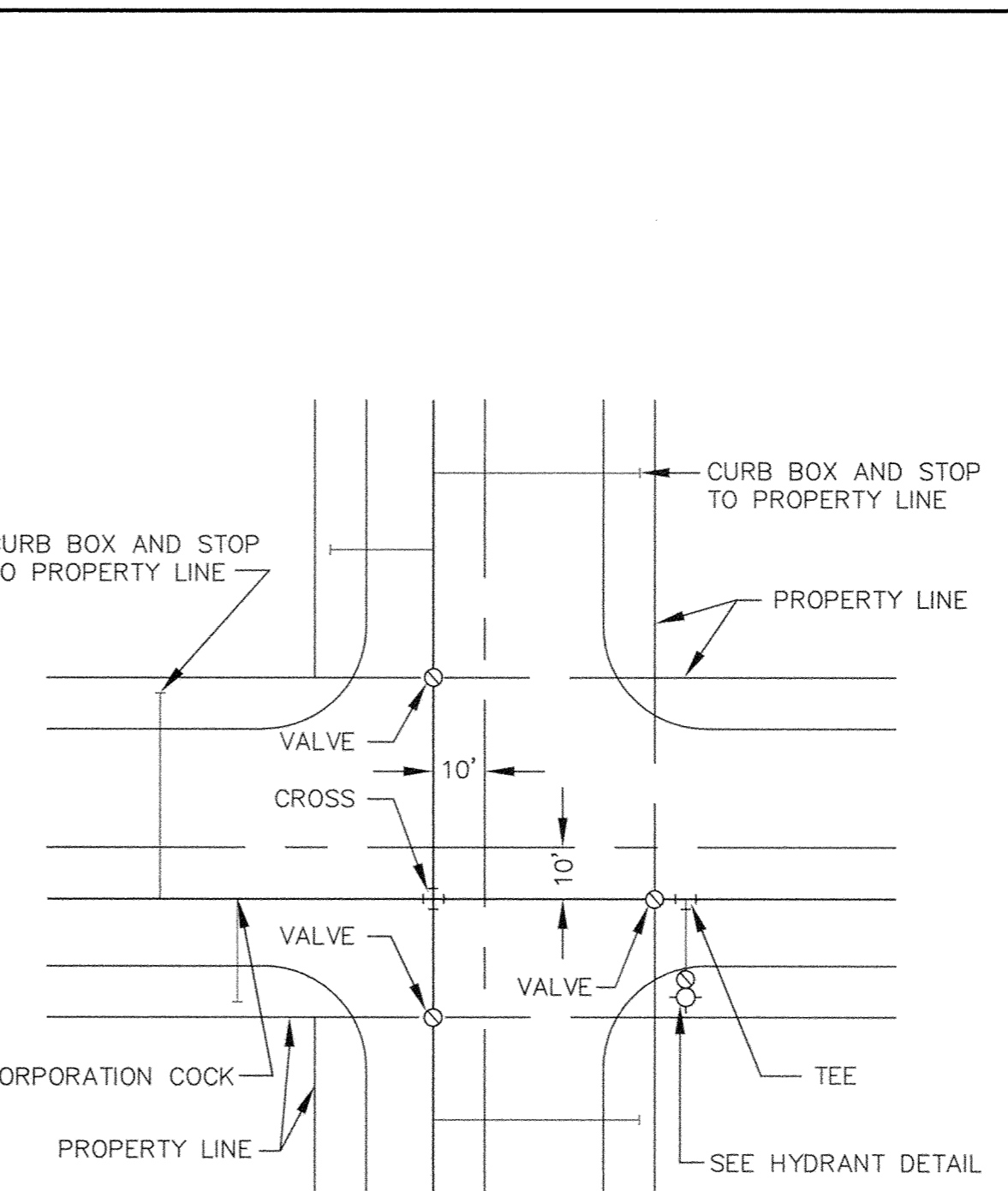


**NOTE:** ALL COSTS OF EXCAVATION BELOW GRADE AND PLACEMENT OF GRANULAR BEDDING SHALL BE INCLUDED IN THE BID PRICES FOR PIPE ITEMS.

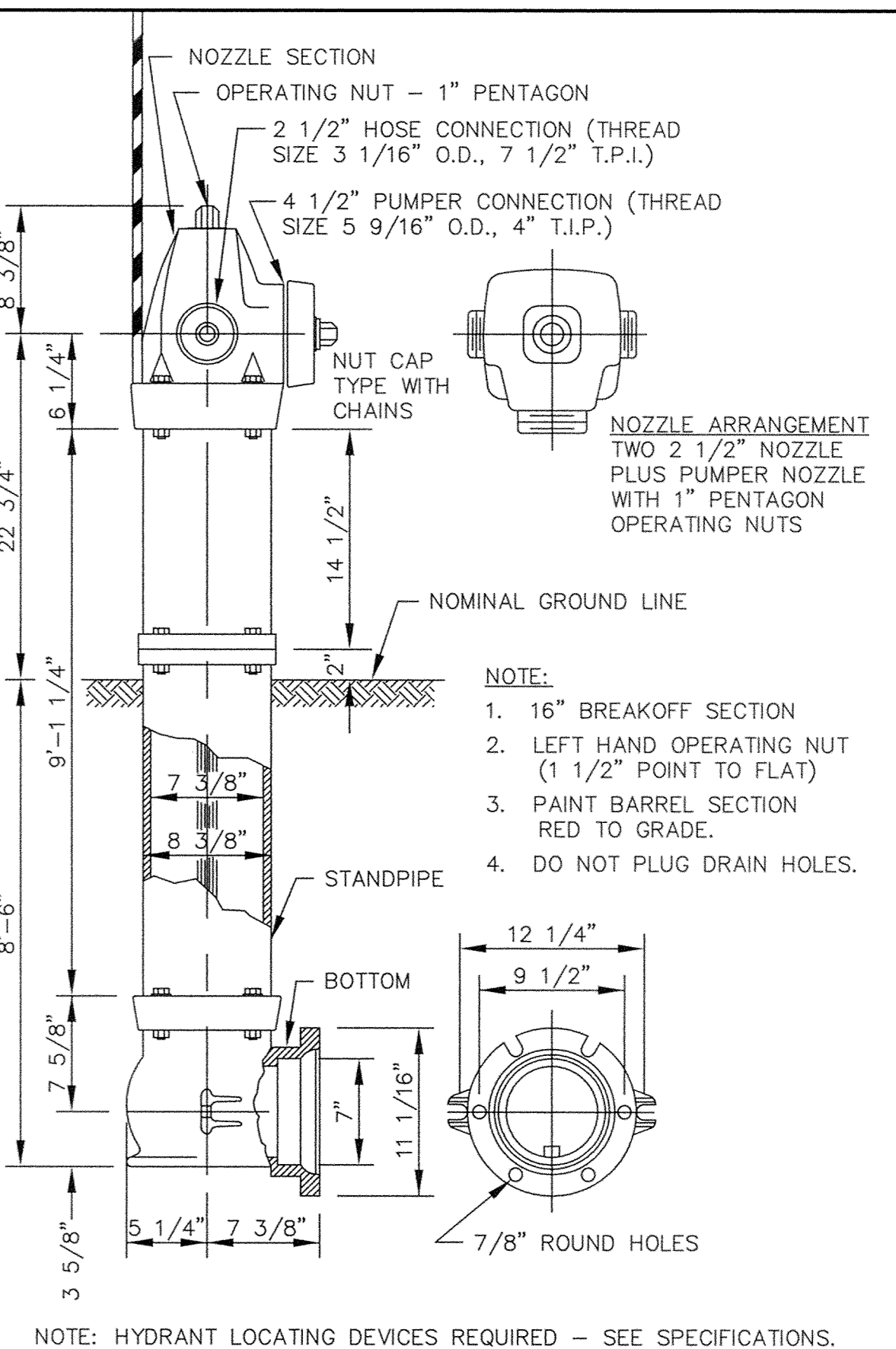


THE BOTTOM OF THE TRENCH SHALL BE SHAPED TO FIT THE PIPE BARREL FOR AT LEAST 50% OF THE OUTSIDE DIAMETER. THE REMAINDER OF THE PIPE IS SURROUNDED TO A HEIGHT OF AT LEAST 6" ABOVE ITS TOP BY SELECT FILL MATERIALS, PLACED BY HAND TOOLS AND COMPACTED TO COMPLETELY FILL ALL SPACES UNDER AND ADJACENT TO THE PIPE.

**NOTE:** ALL COSTS OF EXCAVATION BELOW GRADE AND PLACEMENT OF GRANULAR BEDDING SHALL BE INCLUDED IN THE BID PRICES FOR PIPE ITEMS.



SEE HYDRANT DETAIL



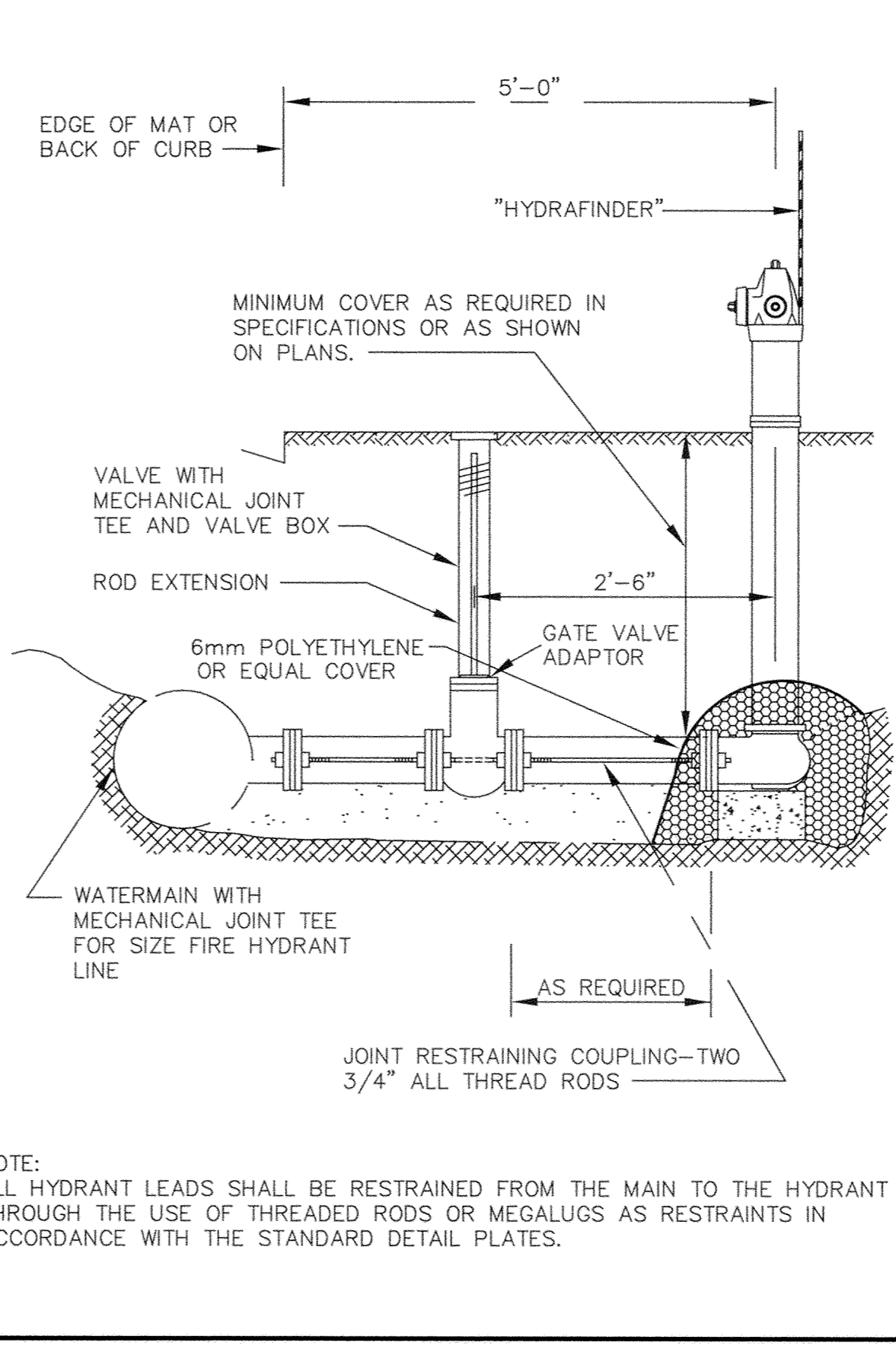
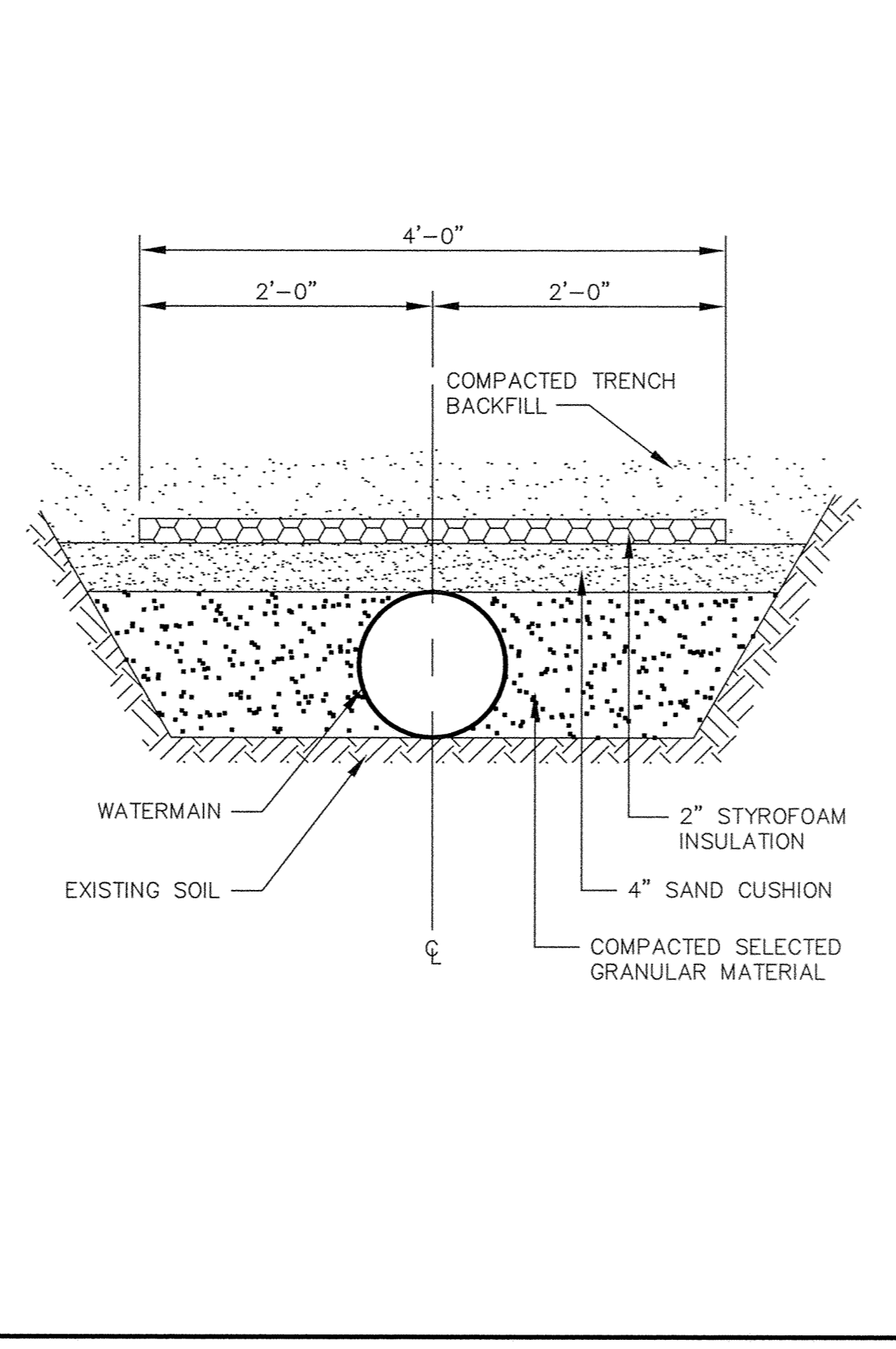
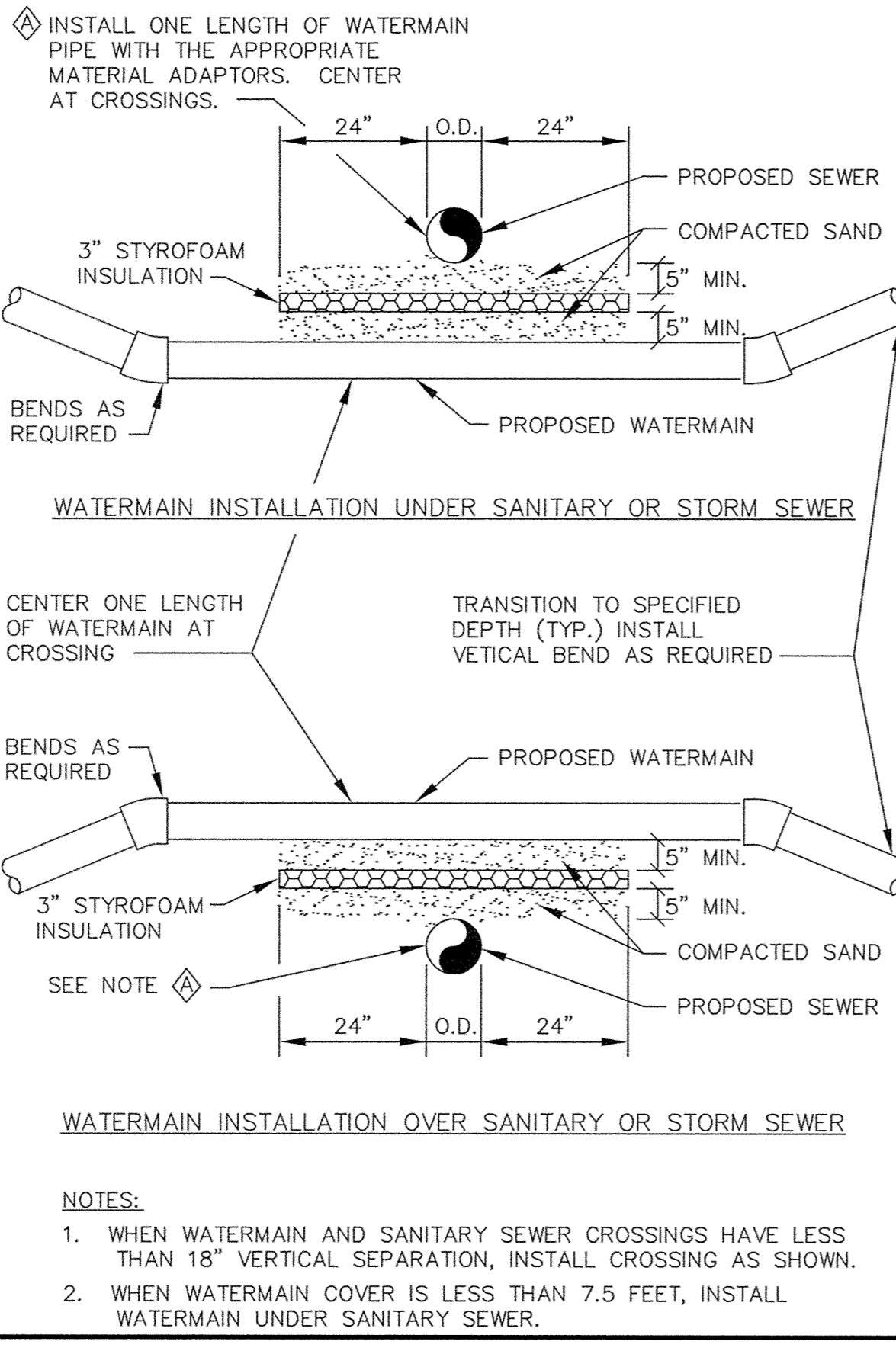
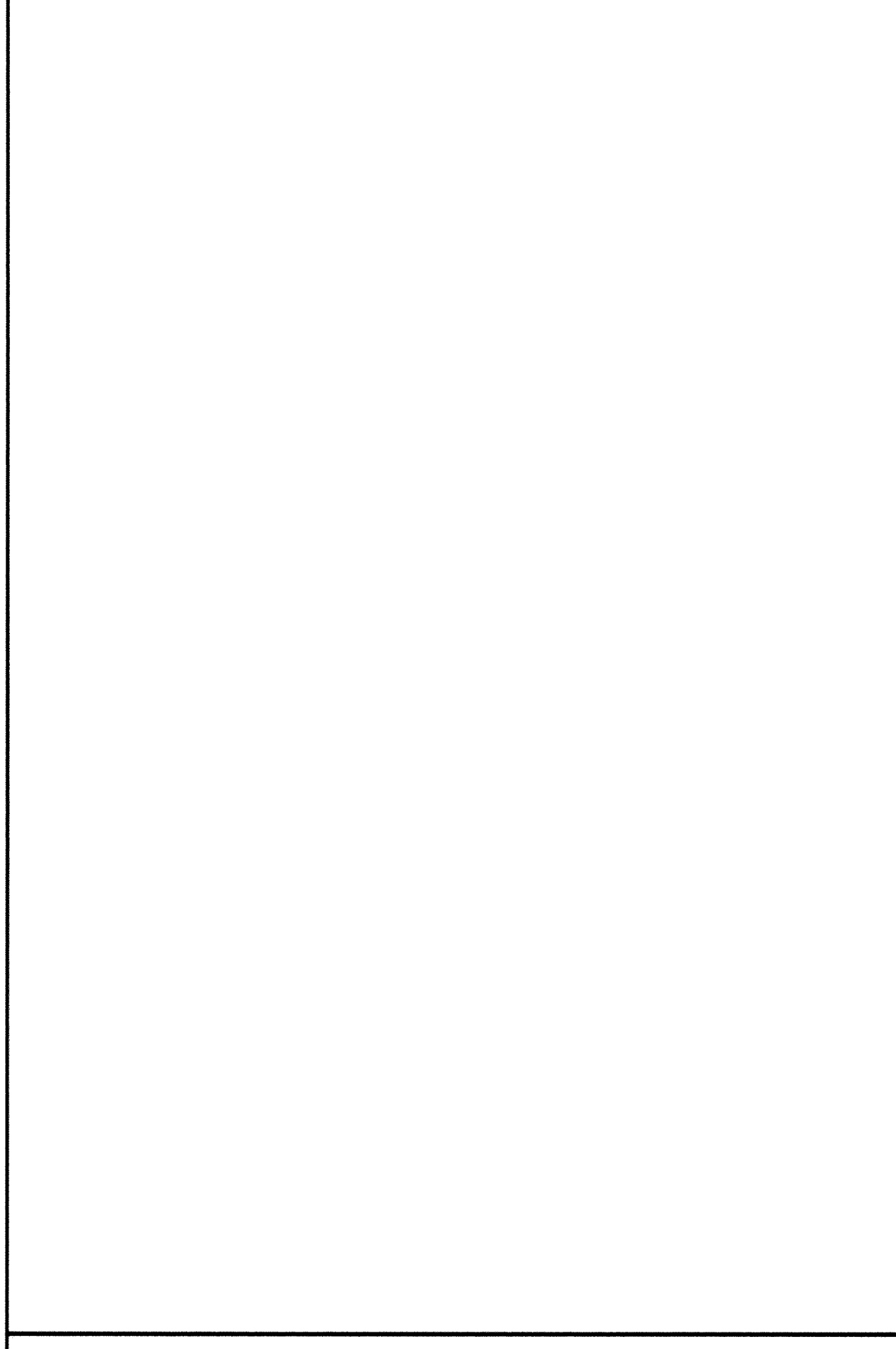
**THRUST BLOCKING DETAIL**

**CLASS B PIPE BEDDING**

**CLASS C PIPE BEDDING**

**TYPICAL WATER LAYOUT**

**PACER HYDRANT DETAIL**



DESIGNED BY: DESIGNED BY DRAWN BY: RKM  
 APPROVED BY: APPROVED BY JOB NUMBER 818980J  
 CAD DATE: March 31, 2004 7:46:21 a.m.  
 CAD FILE: 818980J\As-built\C\818980J-D2.DWG (TELGAR)

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_  
 PRINTED NAME KRISTINA J THOMPSON LIC. NO. 42350

NO.	DATE	BY	REVISION DESCRIPTION

1326 ENERGY PARK DRIVE  
 ST. PAUL, MINNESOTA 55108  
 (651) 644-4389

**Howard R. Green Company**

**2003 STREET IMPROVEMENTS**  
**CITY OF ELK RIVER**

**WATERMAIN DETAILS**

SHEET NO.  
**43**

DRAWING NUMBER  
 03IMPR.04  
 43  
 SARGO PRODUCTS • NEW HOPE, MINNESOTA  
 REORDER BY PART NUMBER 6552  
 PROVISION LOADS OF WEIGHT AND TIGHT LINE