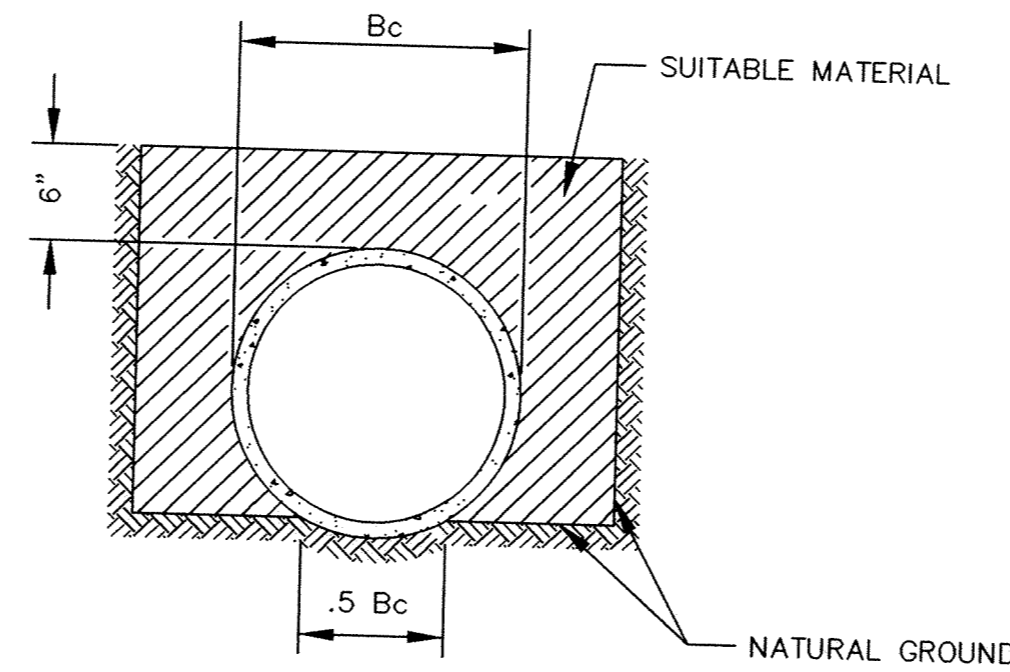


NOTE: ALL COSTS OF EXCAVATION BELOW GRADE AND PLACEMENT OF GRANULAR BEDDING SHALL BE INCLUDED IN THE BID PRICES FOR PIPE ITEMS.

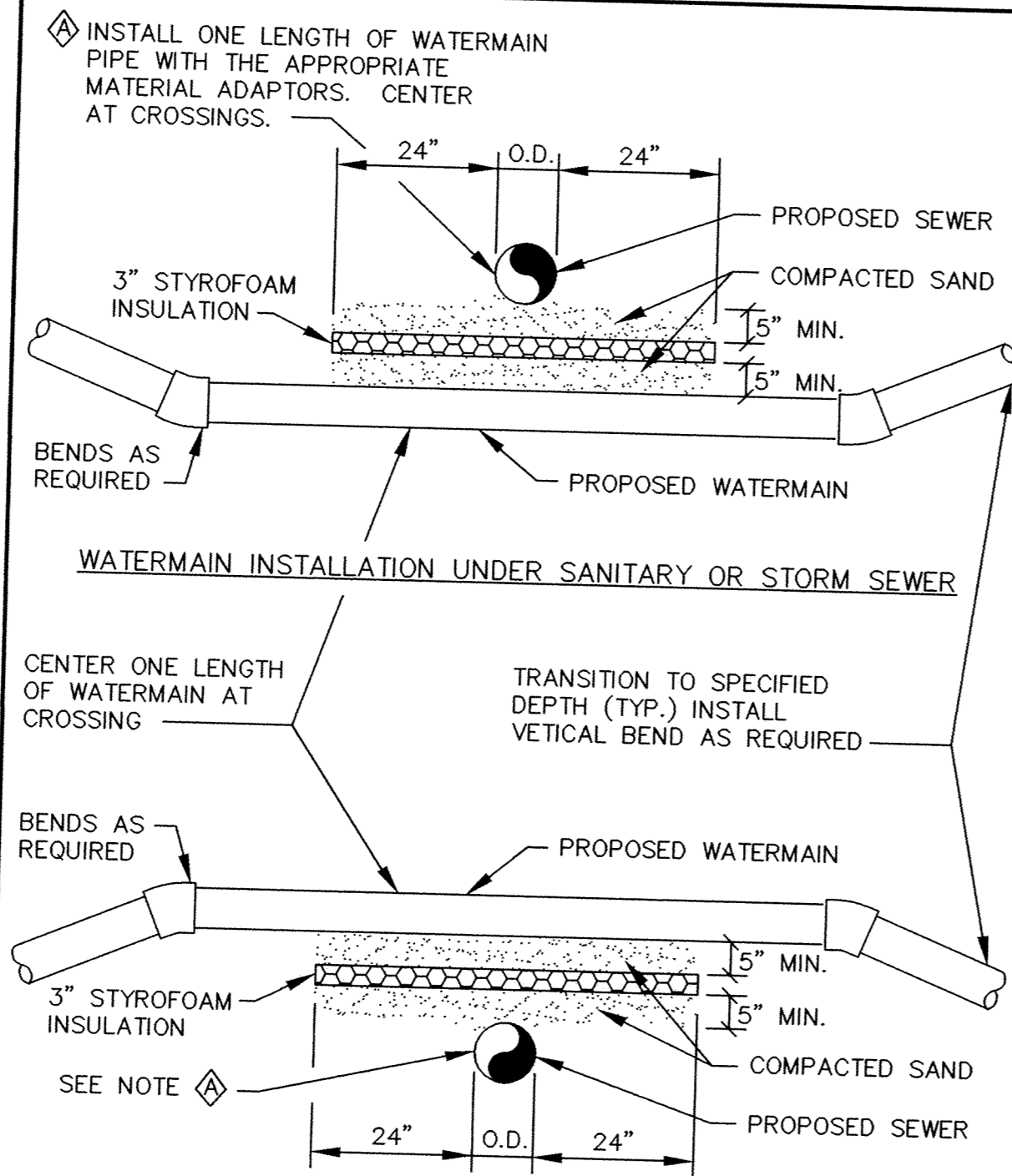
CLASS B PIPE BEDDING



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.

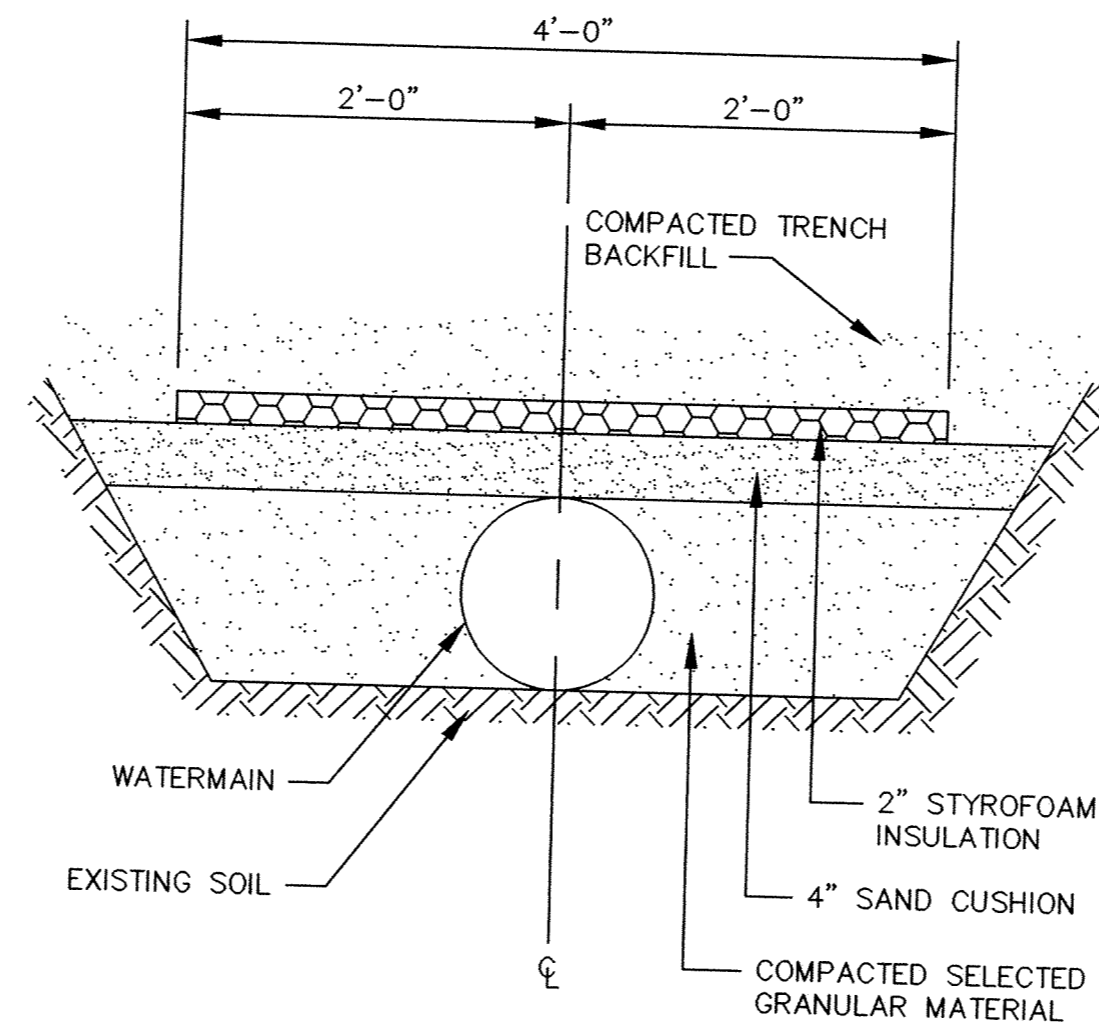
NOTE: ALL COSTS OF EXCAVATION BELOW GRADE AND PLACEMENT OF GRANULAR BEDDING SHALL BE INCLUDED IN THE BID PRICES FOR PIPE ITEMS.

CLASS C PIPE BEDDING

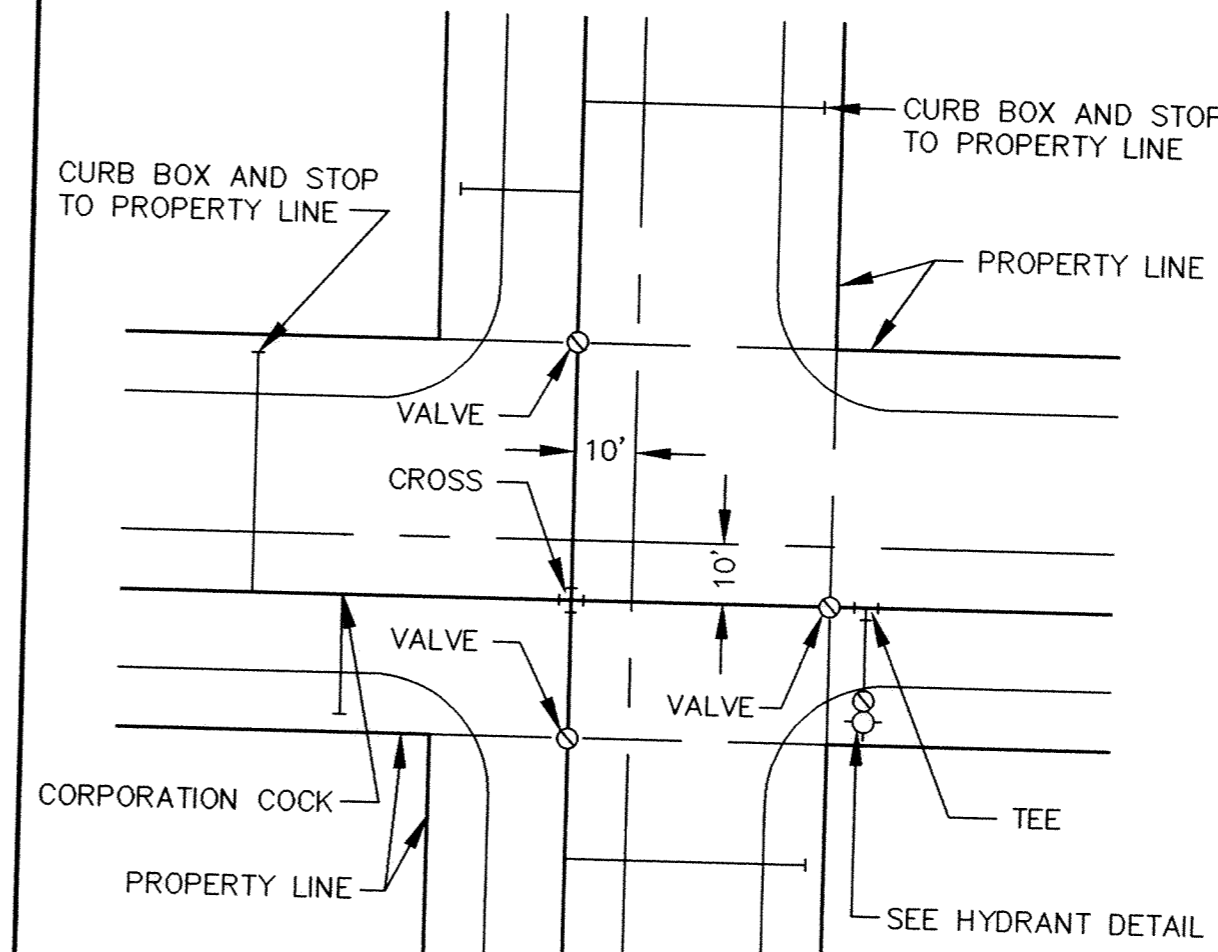


NOTES:
 1. WHEN WATERMAIN AND SANITARY SEWER CROSSINGS HAVE LESS THAN 18" VERTICAL SEPARATION, INSTALL CROSSING AS SHOWN.
 2. WHEN WATERMAIN COVER IS LESS THAN 7.5 FEET, INSTALL WATERMAIN UNDER SANITARY SEWER.

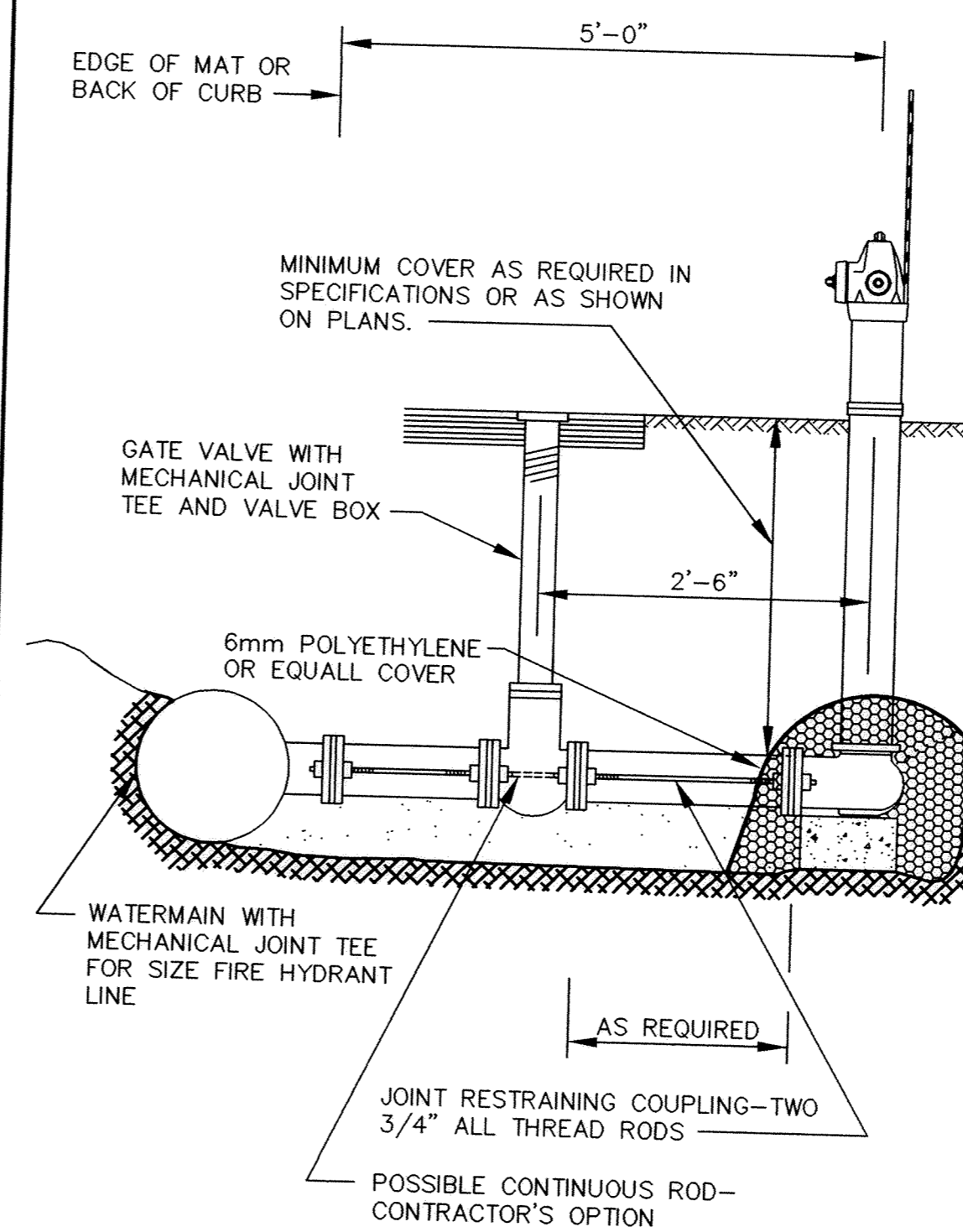
WATERMAIN CROSSING



PIPE INSULATION DETAIL

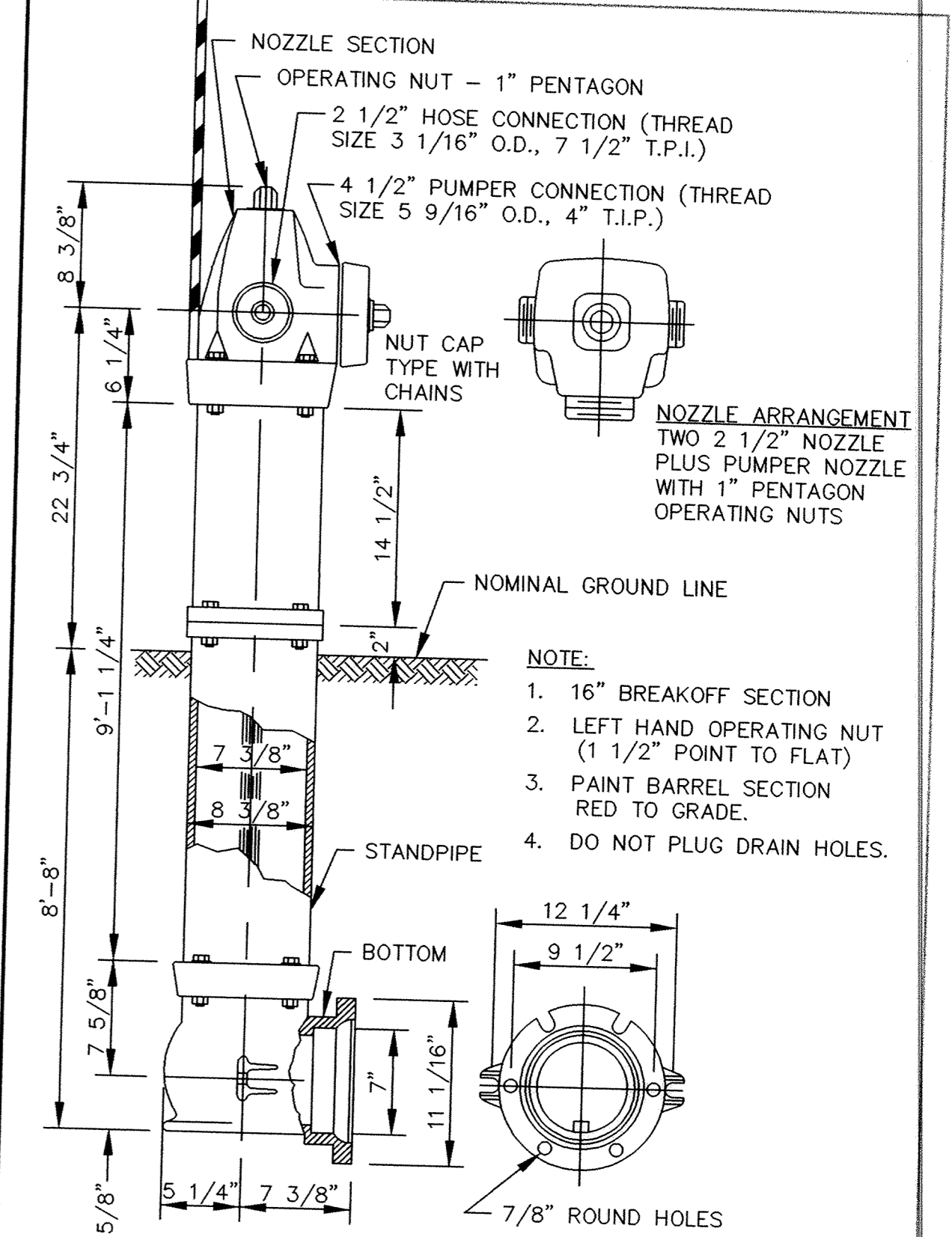


TYPICAL WATER LAYOUT



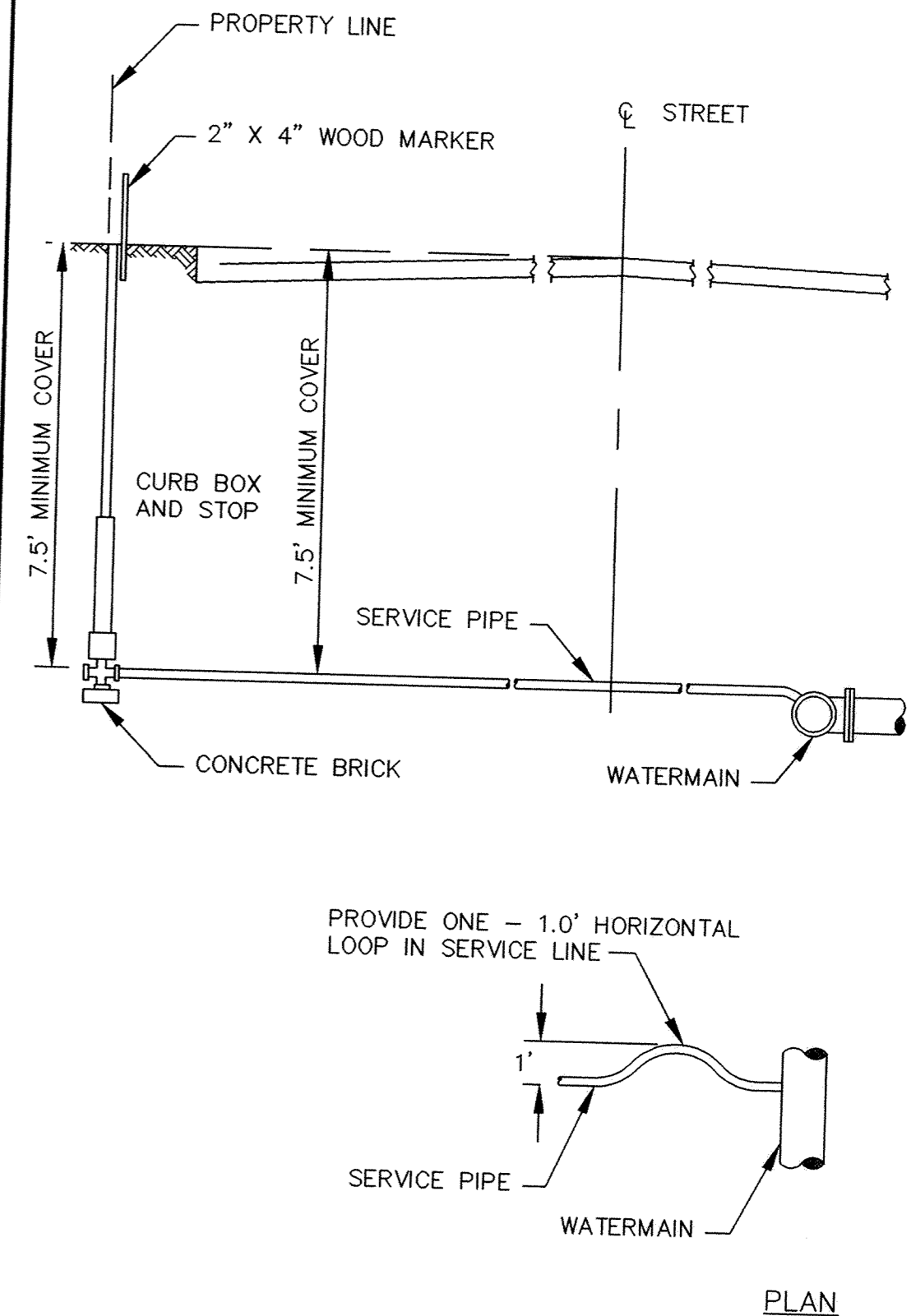
NOTE: HYDRANT LEADS SHALL BE RODDED FROM MAIN LINE TO HYDRANT UNLESS SPECIFIED OTHERWISE.

RODDING DETAIL



NOTE: HYDRANT LOCATING DEVICES REQUIRED - SEE SPECIFICATIONS.

PACER HYDRANT DETAIL



RECORD PLAN
 JULY 1999

TYPICAL SERVICE DETAIL

DRAWN BY: _____ JOB DATE: MAY 1998
 APPROVED: _____ JOB NUMBER 803691J
 CAD DATE: MAY 1998
 CAD FILE: ER691-d4

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 DATE 5-28-98 REG. NO. 18518

NO.	DATE	BY	REVISION DESCRIPTION



Howard R. Green Company
 CONSULTING ENGINEERS

1326 ENERGY PARK DRIVE
 ST. PAUL, MINNESOTA 55108
 (612) 644-4389

CITY OF ELK RIVER
 GUARDIAN ANGELS, BOSTON STREET, RAILROAD DRIVE AND JACKSON/HOLT
 WATERMAIN DETAILS

SHEET NO.
 21
 OF
 21

DRAWING NUMBER

DRAWING NUMBER

DRAWING NUMBER

DRAWING NUMBER
 GUARD 98
 21