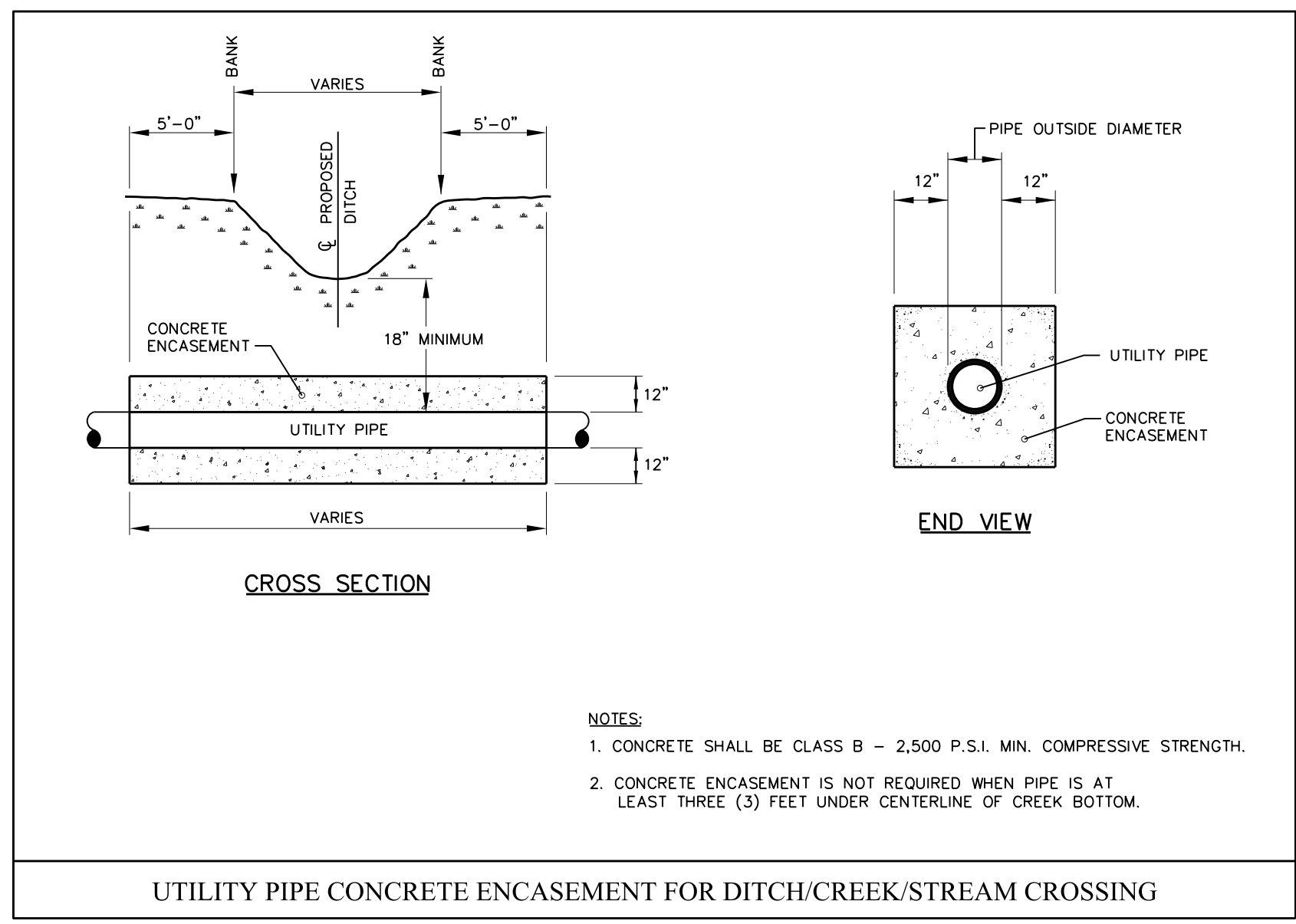
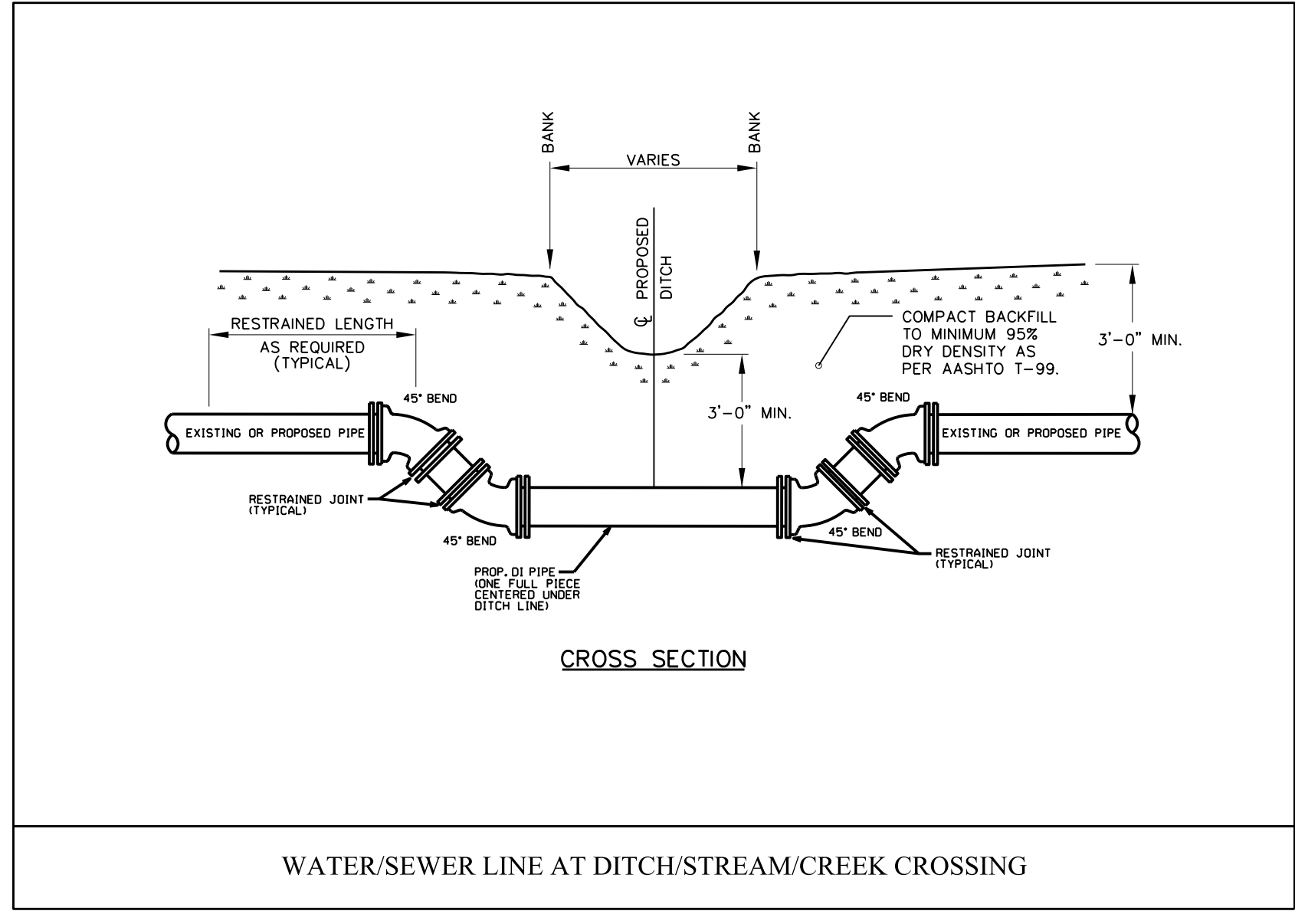


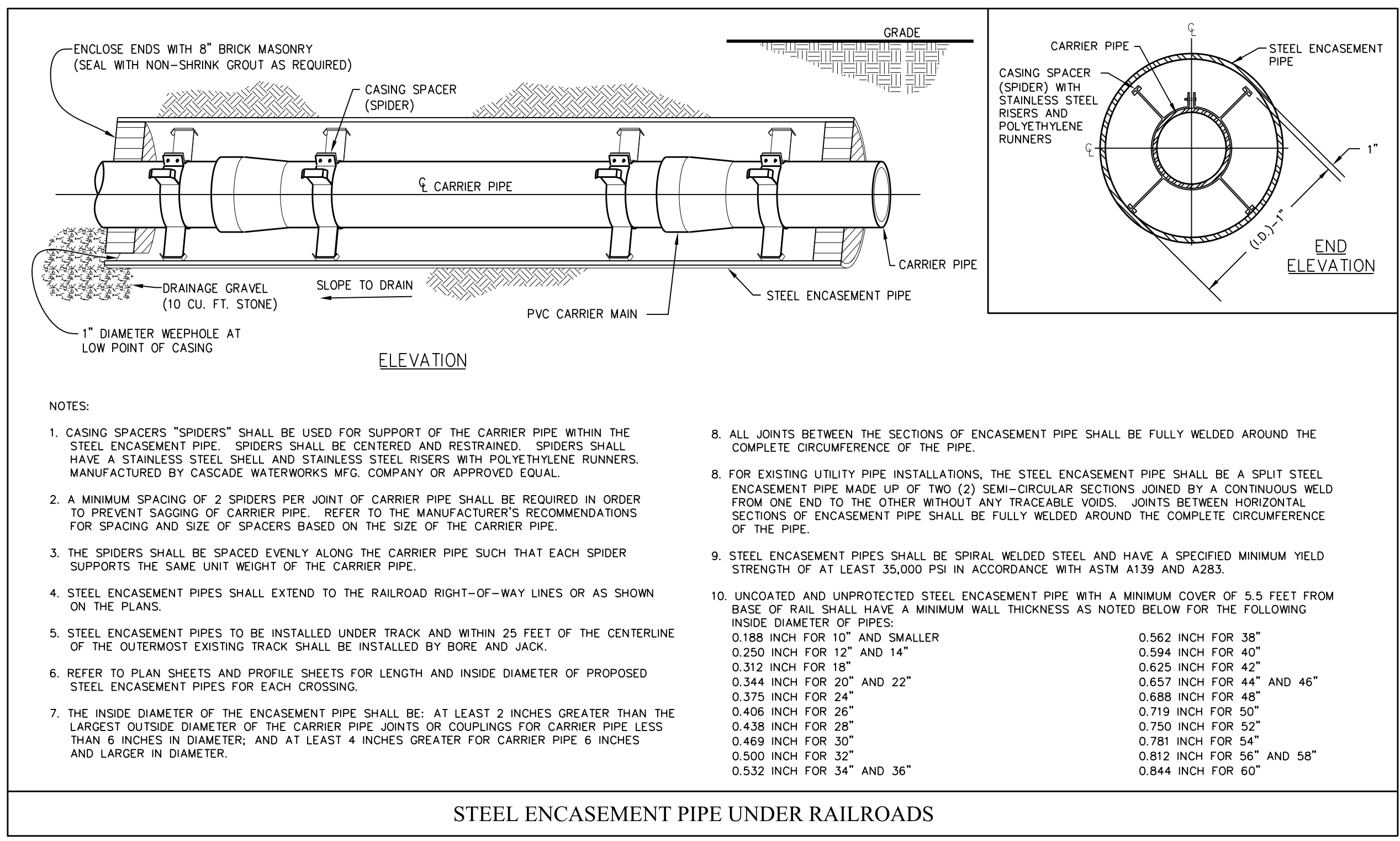
WATER/SEWER MAIN CROSSING UNDER STORM DRAINAGE PIPE



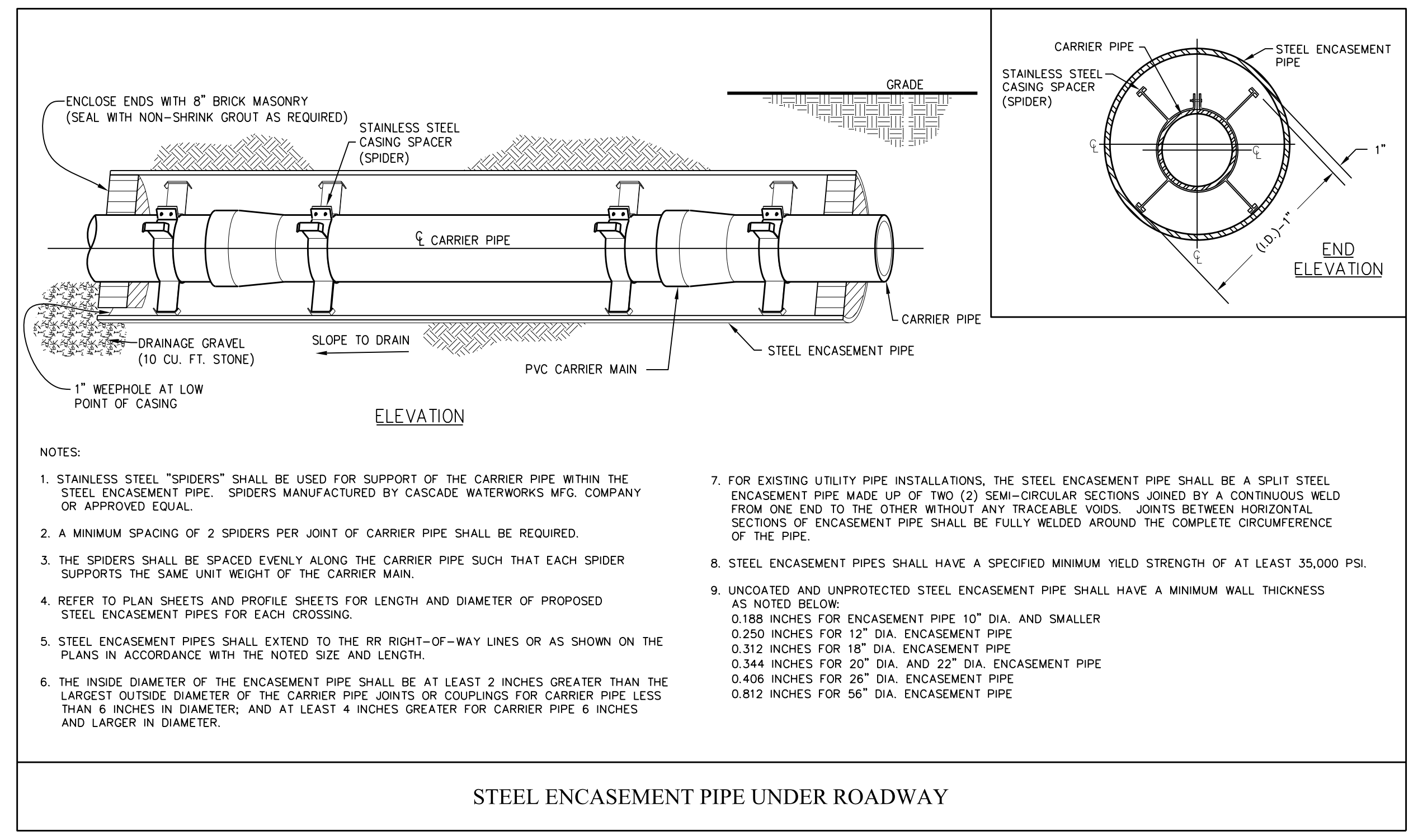
UTILITY PIPE CONCRETE ENCASMENT FOR DITCH/CREEK/STREAM CROSSING



WATER/SEWER LINE AT DITCH/STREAM/CREEK CROSSING



STEEL ENCASMENT PIPE UNDER ROADWAYS



STEEL ENCASMENT PIPE UNDER ROADWAY

- NOTES:
- CASING SPACERS "SPIDERS" SHALL BE USED FOR SUPPORT OF THE CARRIER PIPE WITHIN THE STEEL ENCASMENT PIPE. SPIDERS SHALL BE CENTERED AND RESTRAINED. SPIDERS SHALL HAVE A STAINLESS STEEL SHELL AND STAINLESS STEEL RISERS WITH POLYETHYLENE RUNNERS, MANUFACTURED BY CASCADE WATERWORKS MFG. COMPANY OR APPROVED EQUAL.
 - A MINIMUM SPACING OF 2 SPIDERS PER JOINT OF CARRIER PIPE SHALL BE REQUIRED IN ORDER TO PREVENT SAGGING OF CARRIER PIPE. REFER TO THE MANUFACTURER'S RECOMMENDATIONS FOR SPACING AND SIZE OF SPACERS BASED ON THE SIZE OF THE CARRIER PIPE.
 - THE SPIDERS SHALL BE SPACED EVENLY ALONG THE CARRIER PIPE SUCH THAT EACH SPIDER SUPPORTS THE SAME UNIT WEIGHT OF THE CARRIER PIPE.
 - STEEL ENCASMENT PIPES SHALL EXTEND TO THE RAILROAD RIGHT-OF-WAY LINES OR AS SHOWN ON THE PLANS.
 - STEEL ENCASMENT PIPES TO BE INSTALLED UNDER TRACK AND WITHIN 25 FEET OF THE CENTERLINE OF THE OUTERMOST EXISTING TRACK SHALL BE INSTALLED BY BORE AND JACK.
 - REFER TO PLAN SHEETS AND PROFILE SHEETS FOR LENGTH AND INSIDE DIAMETER OF PROPOSED STEEL ENCASMENT PIPES FOR EACH CROSSING.
 - THE INSIDE DIAMETER OF THE ENCASMENT PIPE SHALL BE: AT LEAST 2 INCHES GREATER THAN THE LARGEST OUTSIDE DIAMETER OF THE CARRIER PIPE JOINTS OR COUPLINGS FOR CARRIER PIPE LESS THAN 6 INCHES IN DIAMETER; AND AT LEAST 4 INCHES GREATER FOR CARRIER PIPE 6 INCHES AND LARGER IN DIAMETER.
 - ALL JOINTS BETWEEN THE SECTIONS OF ENCASMENT PIPE SHALL BE FULLY WELDED AROUND THE COMPLETE CIRCUMFERENCE OF THE PIPE.
 - FOR EXISTING UTILITY PIPE INSTALLATIONS, THE STEEL ENCASMENT PIPE SHALL BE A SPLIT STEEL ENCASMENT PIPE MADE UP OF TWO (2) SEMI-CIRCULAR SECTIONS JOINED BY A CONTINUOUS WELD FROM ONE END TO THE OTHER WITHOUT ANY TRACEABLE VOIDS. JOINTS BETWEEN HORIZONTAL SECTIONS OF ENCASMENT PIPE SHALL BE FULLY WELDED AROUND THE COMPLETE CIRCUMFERENCE OF THE PIPE.
 - STEEL ENCASMENT PIPES SHALL BE SPIRAL WELDED STEEL AND HAVE A SPECIFIED MINIMUM YIELD STRENGTH OF AT LEAST 35,000 PSI IN ACCORDANCE WITH ASTM A139 AND A283.
 - UNCOATED AND UNPROTECTED STEEL ENCASMENT PIPE WITH A MINIMUM COVER OF 5.5 FEET FROM BASE OF RAIL SHALL HAVE A MINIMUM WALL THICKNESS AS NOTED BELOW FOR THE FOLLOWING INSIDE DIAMETER OF PIPES:

0.188 INCH FOR 10" AND SMALLER	0.562 INCH FOR 38"
0.250 INCH FOR 12" AND 14"	0.594 INCH FOR 40"
0.312 INCH FOR 18"	0.625 INCH FOR 42"
0.344 INCH FOR 20" AND 22"	0.657 INCH FOR 44" AND 46"
0.375 INCH FOR 24"	0.688 INCH FOR 48"
0.406 INCH FOR 26"	0.719 INCH FOR 50"
0.438 INCH FOR 28"	0.750 INCH FOR 52"
0.469 INCH FOR 30"	0.781 INCH FOR 54"
0.500 INCH FOR 32"	0.812 INCH FOR 56" AND 58"
0.532 INCH FOR 34" AND 36"	0.844 INCH FOR 60"

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