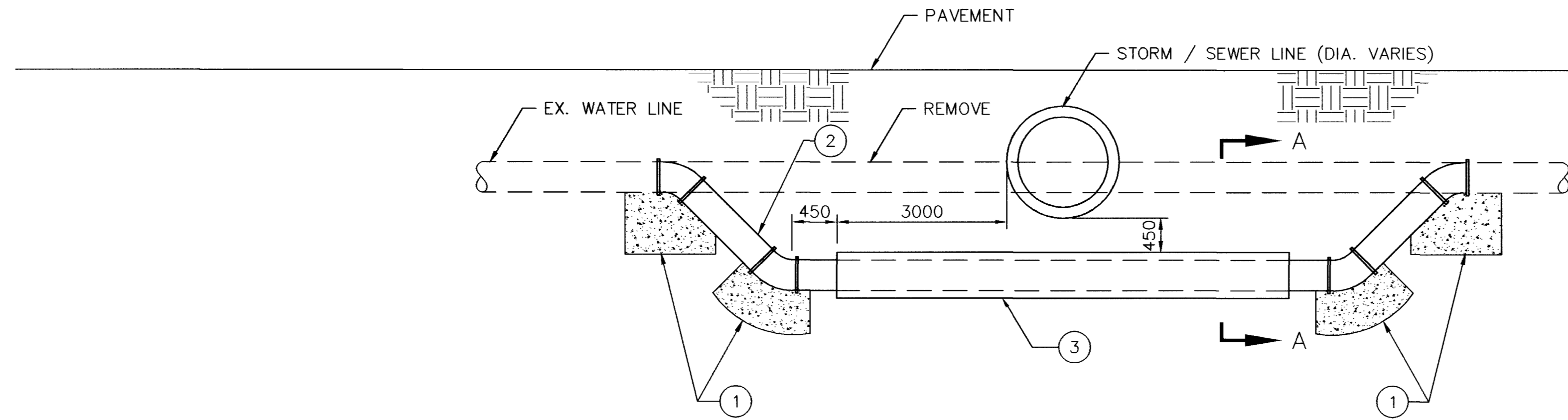


ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

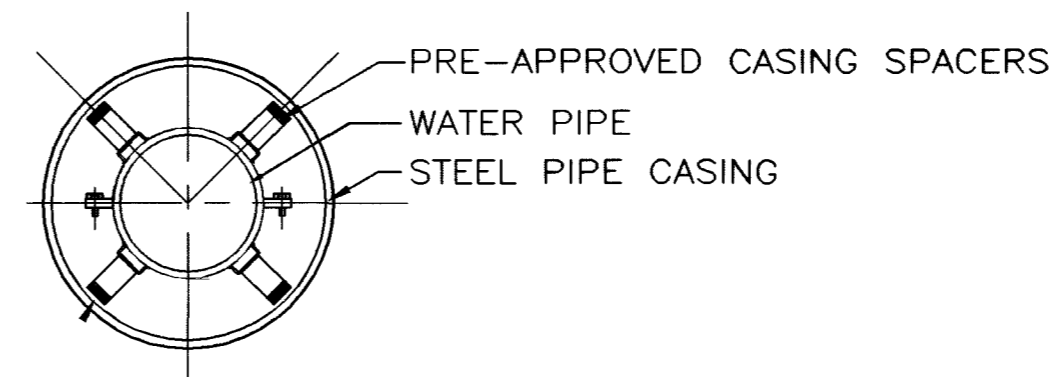
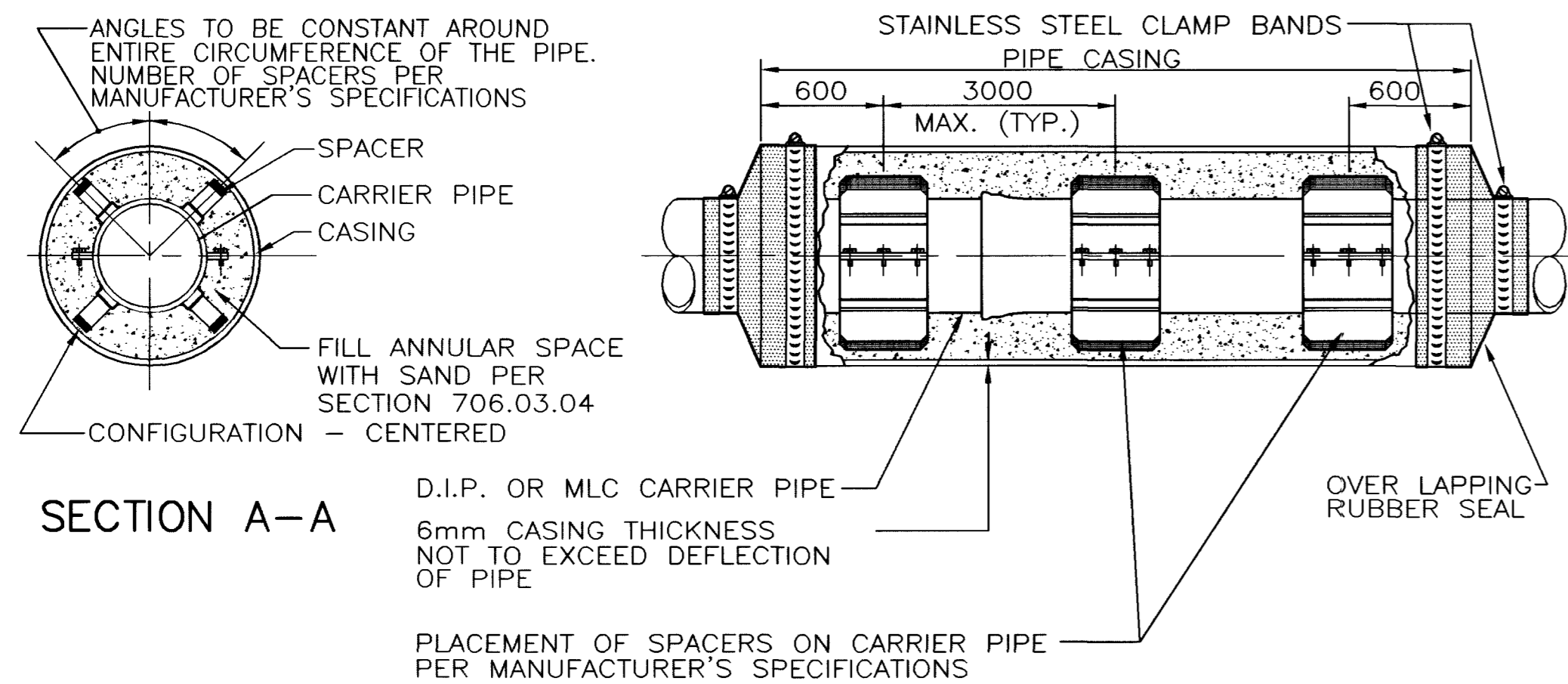


- ① 45 DEGREE BEND, BOTH ENDS MECHANICAL JOINTS, OR ONE END MECHANICAL JOINT AND ONE END PLAIN END, DEPENDING ON EXISTING PIPE ORIENTATION. CONCRETE THRUST BLOCK PER UDS PLATE No. 5.
- ② WATER MAIN. (DIAMETER VARIES)
- ③ STEEL CASING (SEE CASING ASSEMBLY DETAIL THIS DRAWING)

WHERE THE WATER LINE IS LESS THAN 450mm OVER THE STORM/SEWER LINE, WHERE THE WATER LINE IS UNDER THE STORM/SEWER LINE, AND WHERE THE HORIZONTAL SEPARATION, AS REQUIRED BY THE WATER SUPPLY REGULATIONS, CANNOT BE MAINTAINED BECAUSE OF PHYSICAL OBSTRUCTIONS, THE WATER LINE SHALL BE PROTECTED BY CONSTRUCTION OF THE STORM/SEWER LINE AS FOLLOWS:

1. EXTRA HEAVY CAST IRON PIPE;
2. WATER SUPPLY QUALITY MATERIALS; OR
3. ENCASEMENT WITH FOUR INCHES, MINIMUM, OF CONCRETE OR SLEEVING WITH WATER SUPPLY QUALITY PIPE.

EACH OF THESE PROVISIONS SHALL ALSO BE EXTENDED FOR OTHER THAN 90 DEGREE CROSSINGS TO THE POINT AT WHICH THE 3 METER SEPARATION BETWEEN THE WATER AND STORM/SEWER LINES IS ACHIEVED (10/SINE OF CROSSING ANGLE).



TYPICAL CASING SECTION FOR DISTRIBUTION PIPE LINES

1. STEEL PIPE CASING SYMMETRICAL ABOUT WATER MAIN CENTERLINE.
2. PRE-APPROVED CASING SPACER AND PRE-APPROVED END SEALS INSTALLED PER MANUFACTURER'S SPECIFICATIONS (REDWOOD SKIDS NOT ALLOWED. UDACS SECTION 3.26 NOT APPLICABLE). USE A CENTERED CONFIGURATION AND PROVIDE THE MANUFACTURER WITH THE FOLLOWING:

PIPE O.D.
CASING I.D.
CASING LENGTH

| D.I.P. CARRIER PIPE | |
|---------------------|-----------|
| 200 SPACER WIDTH | |
| PIPE SIZE | CASING ID |
| 300 | 600 |
| 400 | 750 |
| 450 | 750 |
| 500 | 900 |
| 600 | 1050 |
| 750 | 1200 |
| 900 | 1350 |

| MLC CARRIER PIPE | | | |
|------------------|-----------|------------------|-----------|
| 200 SPACER WIDTH | | 300 SPACER WIDTH | |
| PIPE SIZE | CASING ID | PIPE SIZE | CASING ID |
| 600 | 1050 | 1050 | 1500 |
| 750 | 1200 | 1200 | 1650 |
| 900 | 1350 | 1350 | 1800 |
| | | 1500 | 1950 |
| | | 1650 | 2100 |
| | | 1800 | 2250 |

CASING ASSEMBLY DETAIL FOR LARGE DIAMETER PIPE

1. STEEL PIPE CASING SHALL BE FABRICATED FROM A MINIMUM OF 6mm THICK STEEL PLATES, CONFORMING REQUIREMENTS OF ASTM A283, GRADE B, C, OR D. ALL JOINTS SHALL BE WELDED. INTERIOR JOINTS SHALL BE GROUNDED TO A SMOOTH FINISH. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C201, "AWWA STANDARD FOR FABRICATED ELECTRICALLY WELDED STEEL WATER PIPE". COATINGS FOR STEEL CASING ARE NOT REQUIRED.
2. PIPE CASING SHALL BE LAID TRUE TO LINE AND GRADE WITH NO BENDS OR CHANGES IN GRADE FOR THE FULL LENGTH OF THE CASING.
3. THE PIPE SHALL BE SUPPORTED AT EACH END OF EACH JOINT WITH SPACERS. AFTER INSTALLATION OF THE PIPE, THE CASING SHALL BE SEALED AT BOTH ENDS WITH CASING END SEALS. MLC PIPE JOINTS INSIDE PIPE CASING TO BE WELDED. DUCTILE IRON PIPE JOINTS INSIDE PIPE CASING TO BE RESTRAINED.

STORM LATERAL/WATER MAIN CROSSING

APPROVED FOR CONSTRUCTION
LAS VEGAS VALLEY WATER DISTRICT DATE

REVISIONS
DATE 4/30/03
RECORD DRAWING

PROJECT # 31604
DESIGN BY LYWD

SCALE (V) N/A
DATE DEC 17, 1999
SCALE (H) N/A
FLD. BK. # N/A

PARSONS BRINCKERHOFF
Las Vegas, Nevada

DEPARTMENT OF PUBLIC WORKS
I-15 FREEWAY CHANNEL DRAINAGE DETAILS

APPROVED FOR CONSTRUCTION
JOHN CLARK
CHIEF ENGINEER
PROFESSIONAL ENGINEER
STATE OF NEVADA
199

DRAWING No. U-40
241

RECORD DRAWING METRIC