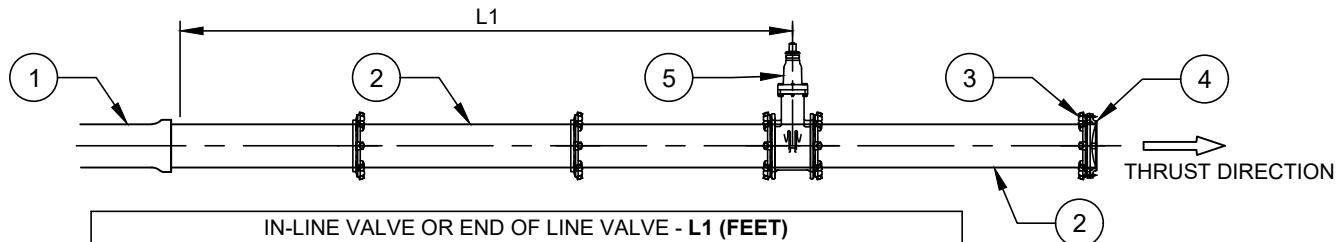


| DEAD END, PLUG, OR CAP - L1 (FEET) |     |     |     |     |     |     |     |
|------------------------------------|-----|-----|-----|-----|-----|-----|-----|
| DIAMETER (INCHES)                  | 6"  | 8"  | 10" | 12" | 16" | 20" | 24" |
| DIP                                | 169 | 219 | 264 | 239 | 308 | 373 | 361 |
| POLYWRAPPED DIP OR PVC             | 242 | 312 | 377 | 342 | 440 | 532 | 516 |



| IN-LINE VALVE OR END OF LINE VALVE - L1 (FEET) |     |     |     |     |     |     |     |
|--|-----|-----|-----|-----|-----|-----|-----|
| DIAMETER (INCHES)                              | 6"  | 8"  | 10" | 12" | 16" | 20" | 24" |
| DIP  | 169 | 219 | 264 | 239 | 308 | 373 | 361 |
| POLYWRAPPED DIP OR PVC                         | 242 | 312 | 377 | 342 | 440 | 532 | 516 |

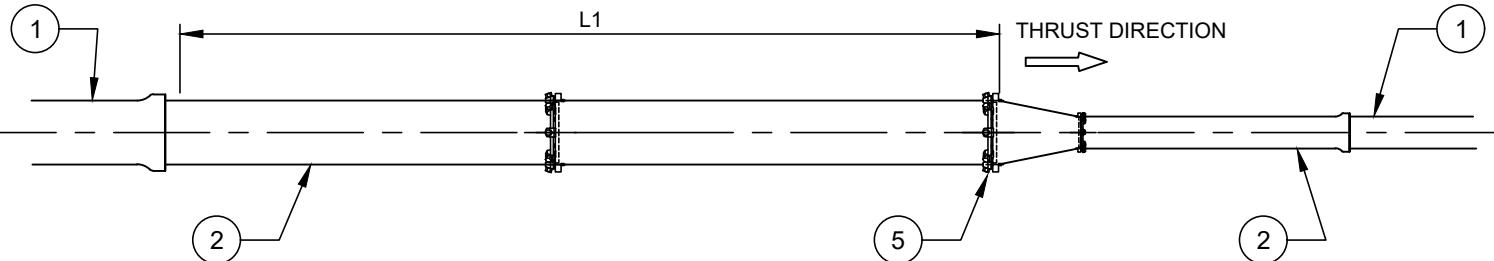
FOR IN-LINE VALVE, PROVIDE RJ FOR A DISTANCE OF L1 ON EACH SIDE OF VALVE.

#### REDUCER - L1 (FEET)

| DIP | LARGE END DIAMETER | SMALL END DIAMETER |     |     |     |     |     |     |
|-----|--------------------|--------------------|-----|-----|-----|-----|-----|-----|
|     |                    | 6"                 | 8"  | 10" | 12" | 16" | 20" | 24" |
| 6"  |                    |                    |     |     |     |     |     |     |
| 8"  | 92                 |                    |     |     |     |     |     |     |
| 10" | 162                | 88                 |     |     |     |     |     |     |
| 12" | 174                | 127                | 70  |     |     |     |     |     |
| 16" | 259                | 225                | 183 | 131 |     |     |     |     |
| 20" | 335                | 307                | 274 | 234 | 131 |     |     |     |
| 24" |                    | 317                | 294 | 266 | 197 | 108 |     |     |

| POLYWRAPPED DIP OR PVC | LARGE END DIAMETER | SMALL END DIAMETER |     |     |     |     |     |     |
|------------------------|--------------------|--------------------|-----|-----|-----|-----|-----|-----|
|                        |                    | 6"                 | 8"  | 10" | 12" | 16" | 20" | 24" |
| 6"                     |                    |                    |     |     |     |     |     |     |
| 8"                     | 131                |                    |     |     |     |     |     |     |
| 10"                    | 231                | 126                |     |     |     |     |     |     |
| 12"                    | 249                | 181                | 100 |     |     |     |     |     |
| 16"                    | 371                | 321                | 261 | 187 |     |     |     |     |
| 20"                    | 478                | 439                | 392 | 334 | 187 |     |     |     |
| 24"                    |                    | 452                | 420 | 381 | 281 | 154 |     |     |



| NO. | DESCRIPTION:                     |
|-----|----------------------------------|
| 1.  | SLIP JOINT PIPE.                 |
| 2.  | RESTRAINED JOINT PIPE.           |
| 3.  | RESTRAINED JOINT.                |
| 4.  | RESTRAINED MJ CAP WITH BLOW-OFF. |
| 5.  | GATE VALVE (MJ X MJ) RESTRAINED. |

DESIGN BASIS:  
DIPRA "THRUST RESTRAINT DESIGN FOR DIP"  
LAYING CONDITION: TYPE 2  
SOIL DESIGNATION: SILT 1  
DEPTH OF COVER: 3' MINIMUM (SEE NOTE c)  
DESIGN PRESSURE: 200 PSI  
SAFETY FACTOR: 2.0

#### NOTES:

- 12" AND SMALLER DIP MAY BE SLIP JOINT PIPE WITH GRIP RESTRAINT GASKETS.
- 16" AND LARGER DIP SHALL BE FACTORY RESTRAINT JOINT PIPE AND FITTINGS.
- DEPTH OF COVER FOR 12", 16" AND 20" PIPE IS 4' AND FOR 24" PIPE IS 5'.
- DESIGN ENGINEER CAN SUBMIT ALTERNATIVE DESIGN BASIS FOR RESTRAINED JOINT LENGTH CALCULATIONS FOR OWNER REVIEW.

RESTRAINT LENGTH - DEAD END, PLUG, CAP, IN-LINE VALVE, END OF LINE VALVE AND REDUCER

NO SCALE  
VERSION 2.0  
DATE 01/2026  
DETAIL 10.14.2