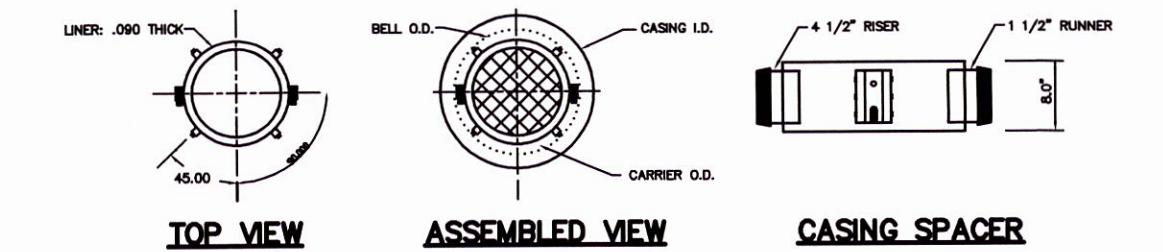


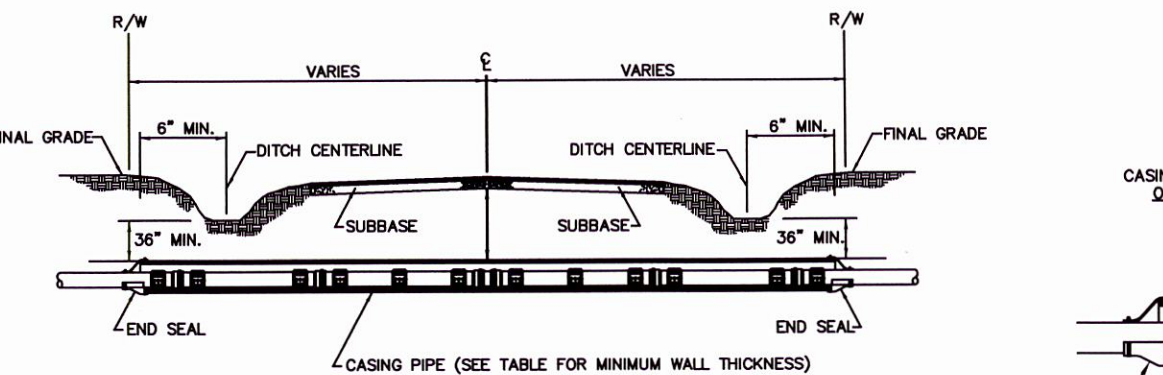
| ENCASEMENT/ CARRIER PIPE SIZING DETAIL |        |             |     |        |             |                  |        |             |     |        |             |
|----------------------------------------|--------|-------------|-----|--------|-------------|------------------|--------|-------------|-----|--------|-------------|
| SDR 21 (CLASS 200)                     |        |             |     |        |             | STEEL ENCASEMENT |        |             |     |        |             |
| NO.                                    | O.D.   | WALL THICK. | NO. | O.D.   | WALL THICK. | NO.              | O.D.   | WALL THICK. | NO. | O.D.   | WALL THICK. |
| 2                                      | 3.375  | 3.324       | 6   | 6.348  | 6.635       | 4"               | 4.800  | 7.000       | 10  | 10.374 | 10.750      |
| 3                                      | 3.500  | 4.455       | 8   | 8.250  | 8.635       | 6                | 6.800  | 9.130       | 12  | 12.250 | 12.750      |
| 4                                      | 4.000  | 5.820       | 8   | 8.250  | 8.635       | 8                | 8.000  | 11.500      | 16  | 16.400 | 16.900      |
| 6                                      | 6.000  | 8.185       | 12  | 12.250 | 12.750      | 10               | 11.000 | 13.630      | 18  | 17.750 | 18.300      |
| 8                                      | 8.000  | 10.335      | 14  | 13.438 | 14.000      | 12               | 13.200 | 15.750      | 20  | 19.312 | 20.000      |
| 10                                     | 10.750 | 12.782      | 16  | 16.438 | 16.900      | 14               | 15.300 | 18.630      | 24  | 23.188 | 24.000      |
| 12                                     | 12.750 | 15.014      | 20  | 19.312 | 20.000      | 16               | 17.400 | 20.750      | 28  | 26.104 | 26.900      |
|                                        |        |             |     |        |             | 18               | 18.500 | 23.000      | 30  | 27.062 | 28.000      |
|                                        |        |             |     |        |             | 20               | 21.000 | 25.350      | 30  | 28.062 | 30.000      |
|                                        |        |             |     |        |             | 24               | 25.800 | 29.630      | 34  | 33.875 | 34.000      |

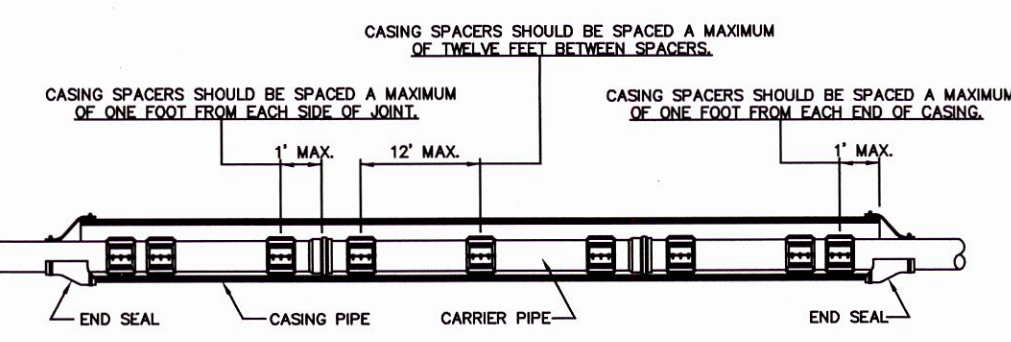
| SDR 17 (CLASS 250) |       |             |     |        |             | STEEL ENCASEMENT |      |             |     |      |             |
|--------------------|-------|-------------|-----|--------|-------------|------------------|------|-------------|-----|------|-------------|
| NO.                | O.D.  | WALL THICK. | NO. | O.D.   | WALL THICK. | NO.              | O.D. | WALL THICK. | NO. | O.D. | WALL THICK. |
| 2                  | 3.375 | 3.378       | 6   | 6.348  | 6.635       |                  |      |             |     |      |             |
| 3                  | 3.500 | 4.753       | 8   | 8.250  | 8.635       |                  |      |             |     |      |             |
| 4                  | 4.000 | 6.662       | 10  | 10.374 | 10.750      |                  |      |             |     |      |             |
| 6                  | 6.000 | 8.581       | 12  | 12.250 | 12.750      |                  |      |             |     |      |             |
| 8                  | 8.000 | 10.479      | 14  | 13.438 | 14.000      |                  |      |             |     |      |             |



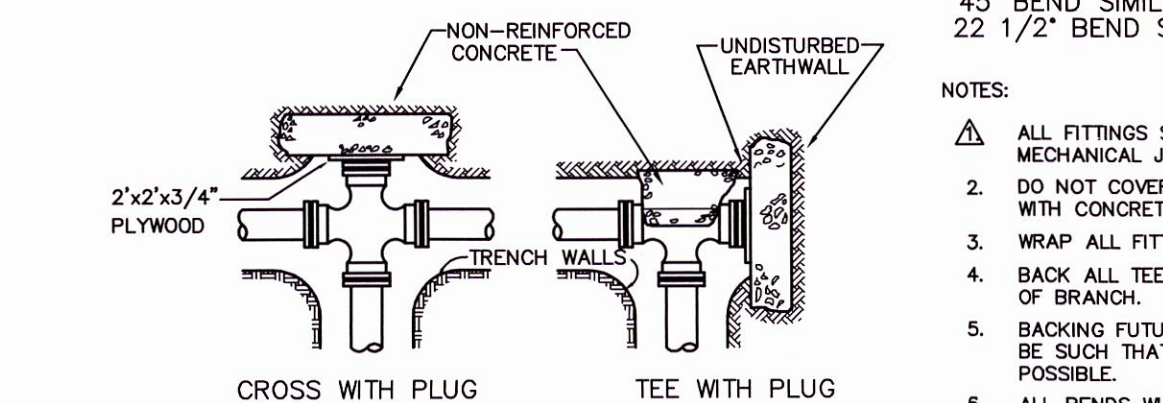
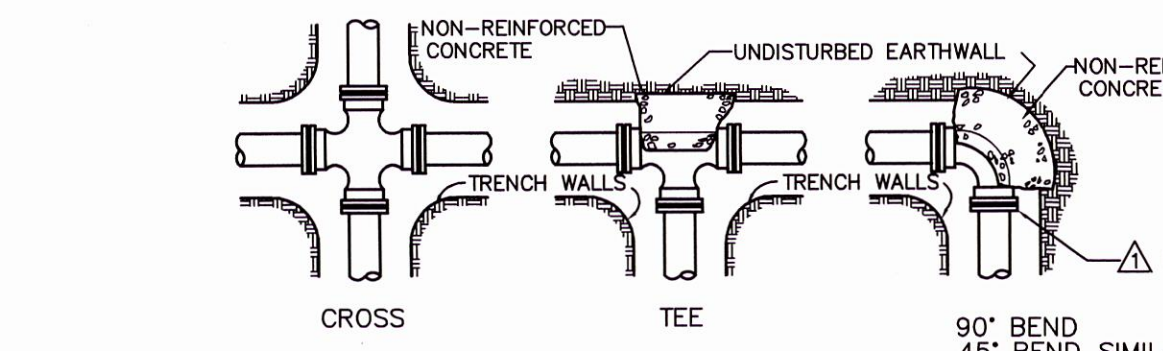
- NOTES:**
- SPACERS SHALL BE MANUFACTURED BY "ADVANCE PRODUCTS & SYSTEMS" AS SPECIFIED.
  - QUANTITY OF RUNNERS SHALL BE IN ACCORDANCE WITH CARRIER PIPE SIZE AS FOLLOWS:  
TO 14" DIAMETER - 4 RUNNERS  
TO 36" DIAMETER - 6 RUNNERS  
TO 48" DIAMETER - 8 RUNNERS
  - DIMENSIONS BETWEEN SPACERS SHALL BE AS FOLLOWS:  
TO 14" DIAMETER - 8" WIDTH  
TO 36" DIAMETER - 12" WIDTH  
TO 48" DIAMETER - 12" WIDTH
  - A MINIMUM OF THREE SPACERS PER FULL JOINT OF PIPE.
  - WATER LINES SHALL BE "CENTERED" IN CASING.
  - CASING SHALL EXTEND A MINIMUM OF 6 FEET (6') BEYOND THE FLOW LINE OF PARALLEL DITCHES, TOE OF THE FORESLOPE, OR FACE OF CURB AS APPLICABLE FOR THE ROAD SECTION.
  - ENCASEMENT SHALL BE OF METALLIC MATERIAL.
  - THE STRENGTH OF THE ENCASEMENT MATERIAL SHALL EQUAL OR EXCEED STRUCTURAL REQUIREMENTS FOR DRAINAGE CULVERTS.
  - MARKER - A MARKER BEARING THE UTILITY OWNER'S NAME SHALL BE PLACED AT EACH RIGHT OF WAY LINE WHERE CROSSED. (NOT REQUIRED FOR SERVICE LINES).
  - OWNERSHIP OF THE LINES SHALL BE SHOWN ON MARKERS.
  - CASING PIPE SHALL BE SEALED AT THE ENDS WITH A FLEXIBLE FERRULE COUPLING, OR APPROVED EQUAL.



TYPICAL ENCASED PAVED ROAD CROSSING

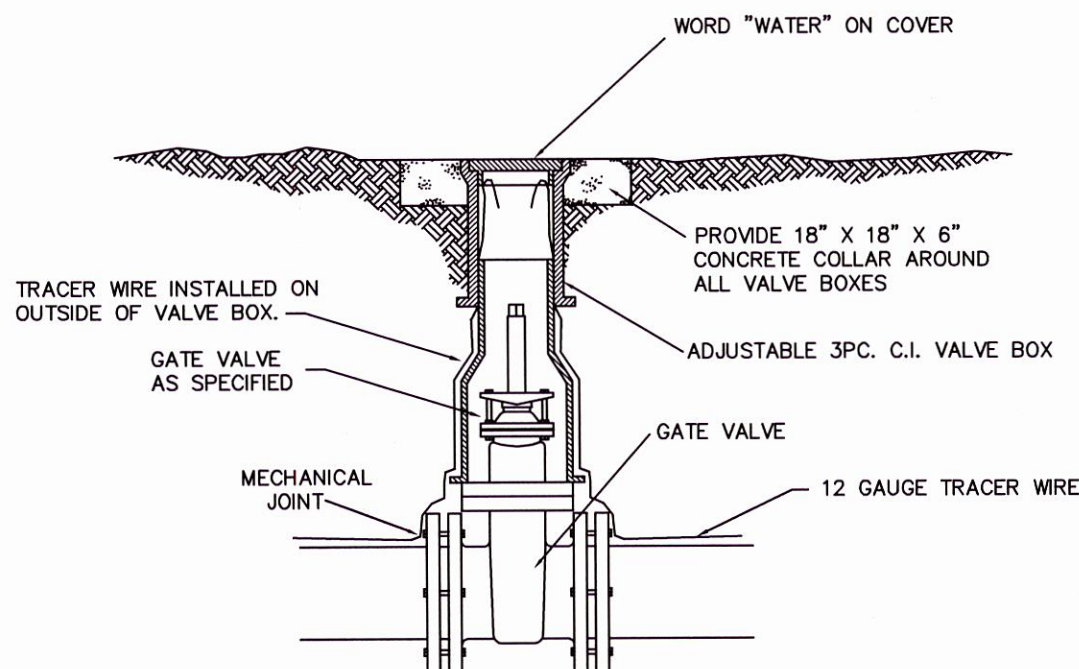


TYPICAL CASING SPACER CONFIGURATION

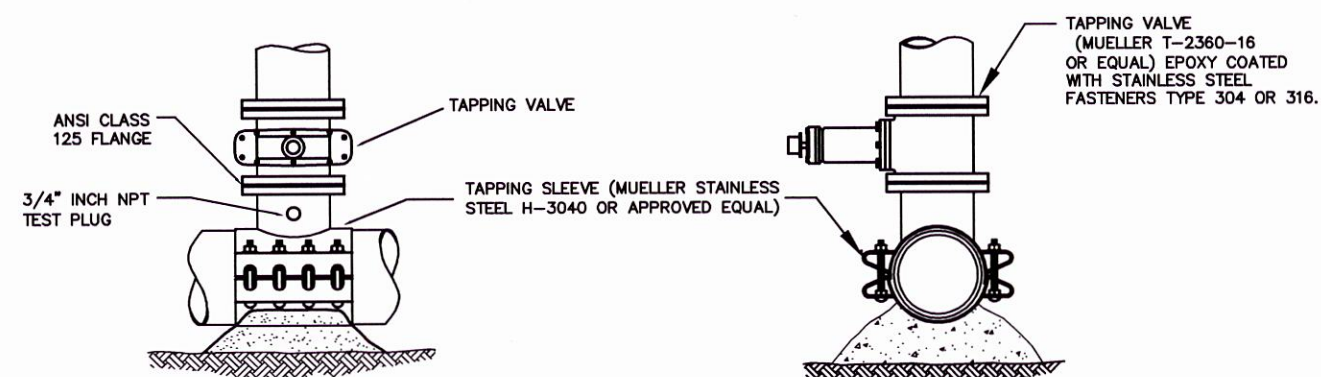


BLOCKING DETAILS

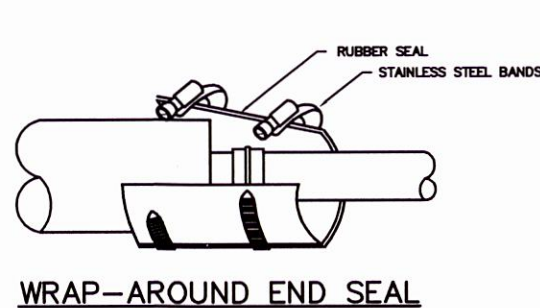
| REACTION BACKING TABLE                                          |                  |     |     |         |
|-----------------------------------------------------------------|------------------|-----|-----|---------|
| REQUIRED SQ. FT. OF UNDISTURBED EARTH WALL FOR REACTION BACKING |                  |     |     |         |
| SIZE                                                            | TYPE OF FITTINGS |     |     |         |
|                                                                 | TEE              | 90° | 45° | 22 1/2° |
| 2"                                                              | 1                | 1   | 1   | 1       |
| 3"                                                              | 1                | 1   | 1   | 1       |
| 4"                                                              | 1                | 2   | 1   | 1       |
| 6"                                                              | 4                | 4   | 2   | 1       |
| 8"                                                              | 7                | 7   | 4   | 2       |
| 10"                                                             | 10               | 10  | 5   | 3       |
| 12"                                                             | 13               | 13  | 7   | 4       |
| 14"                                                             | 17               | 17  | 9   | 5       |
| 16"                                                             | 21               | 21  | 12  | 6       |
| 18"                                                             | 26               | 26  | 14  | 7       |
| 20"                                                             | 28               | 28  | 16  | 8       |
| 24"                                                             | 38               | 38  | 20  | 10      |
| 30"                                                             | 58               | 58  | 30  | 16      |
| 36"                                                             | 85               | 85  | 46  | 23      |



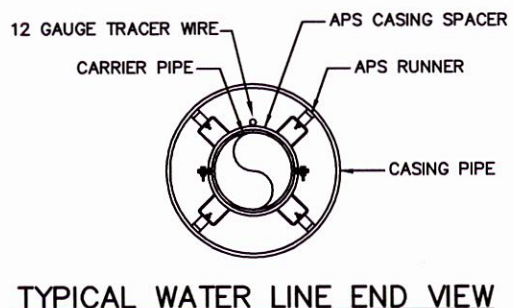
TYPICAL GATE VALVE AND VALVE BOX INSTALLATION DETAIL



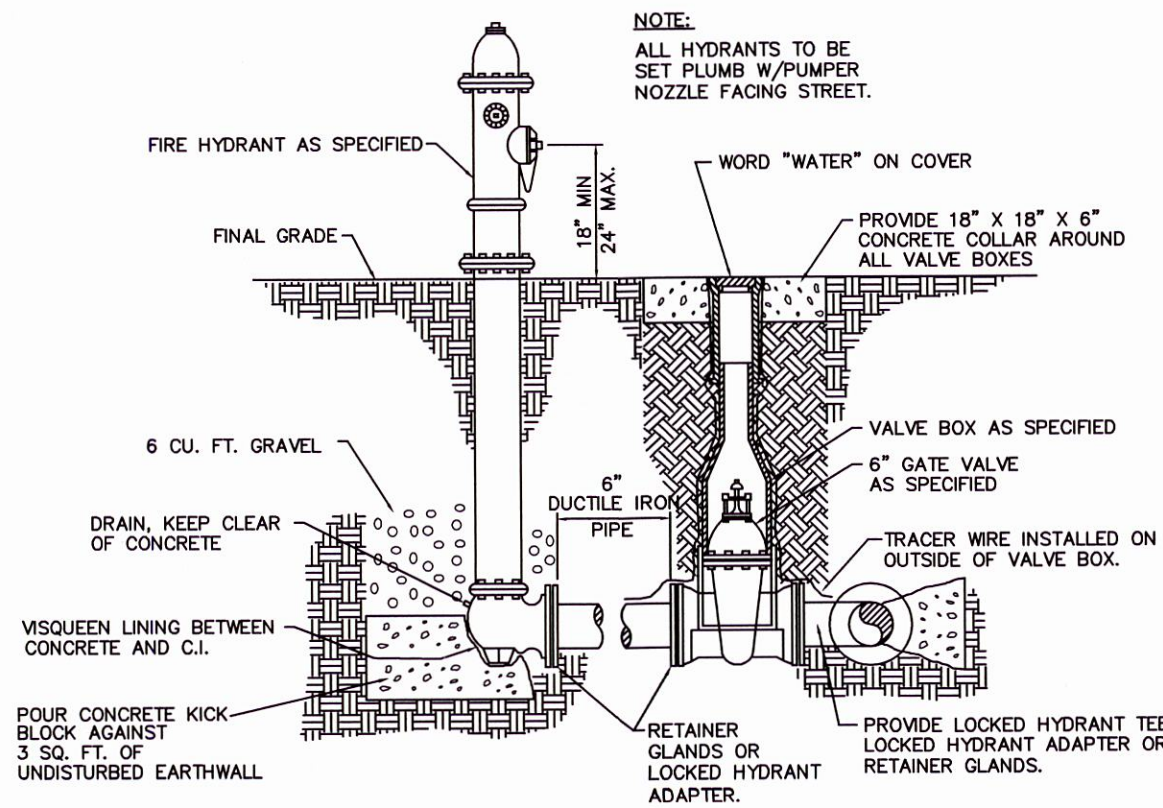
TYPICAL DETAIL OF TAPPING VALVE AND SLEEVE



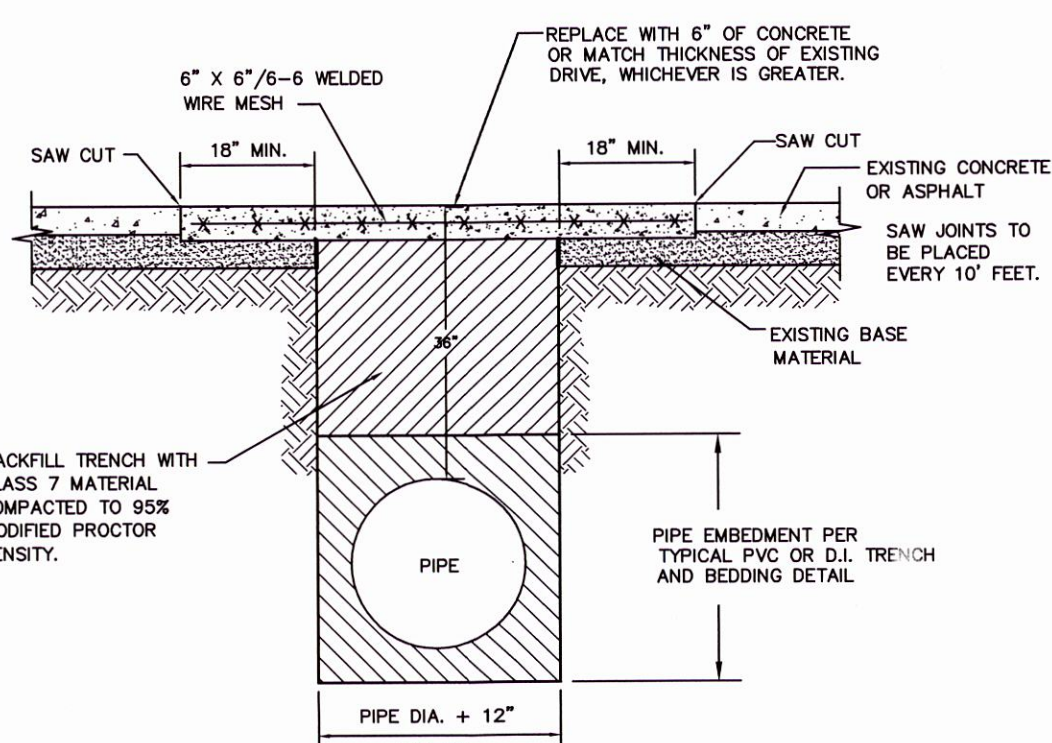
WRAP-AROUND END SEAL



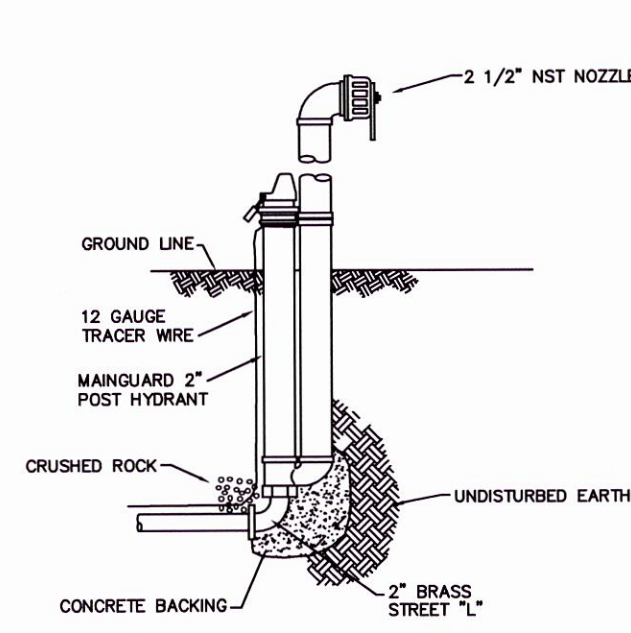
TYPICAL WATER LINE END VIEW



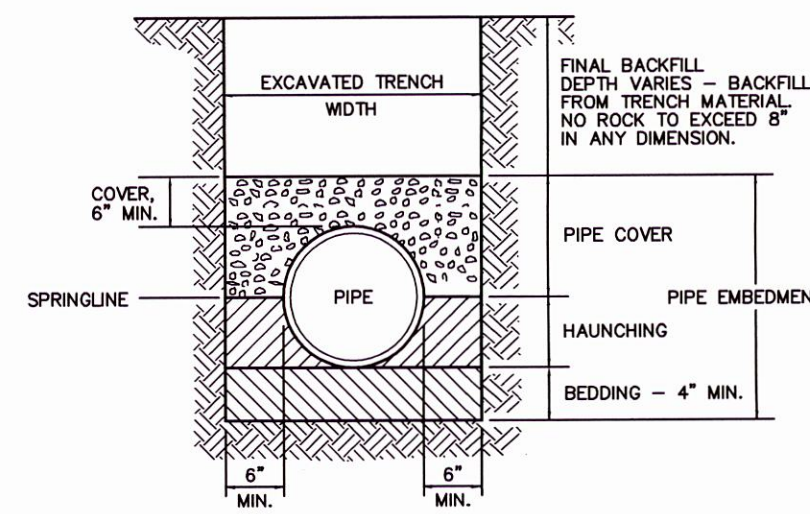
3-WAY FIRE HYDRANT & GATE VALVE DETAILS



CONCRETE AND ASPHALT DRIVE REPAIR

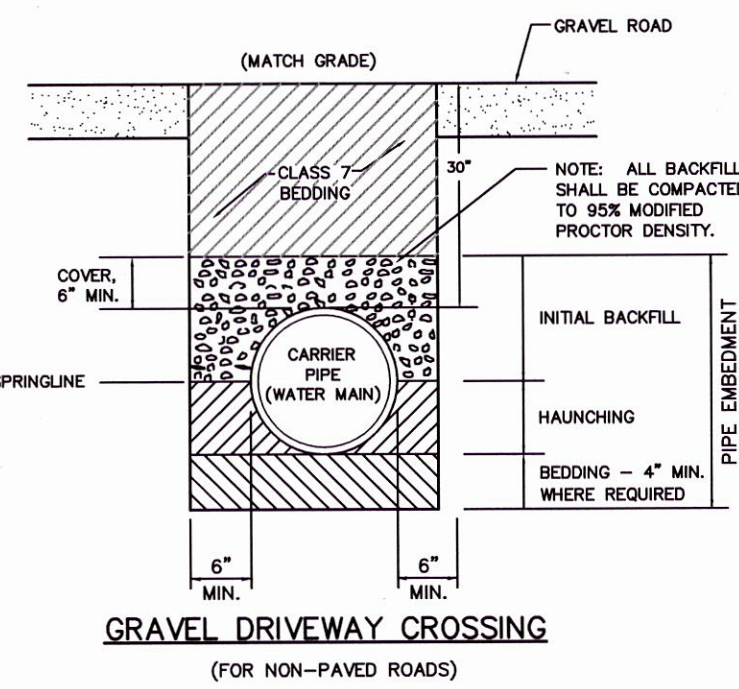


TYPICAL BLOW-OFF HYDRANT DETAIL

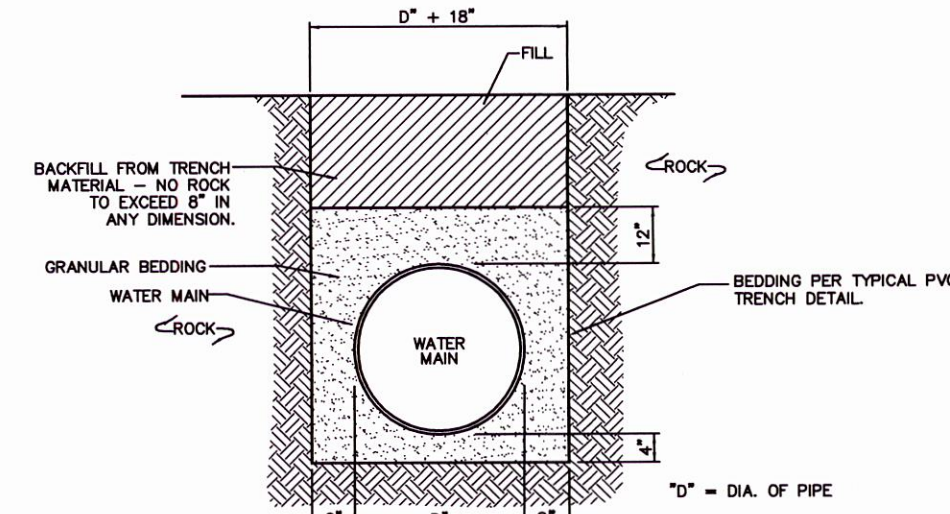


TYPICAL DUCTILE-IRON PIPE TRENCH DETAIL

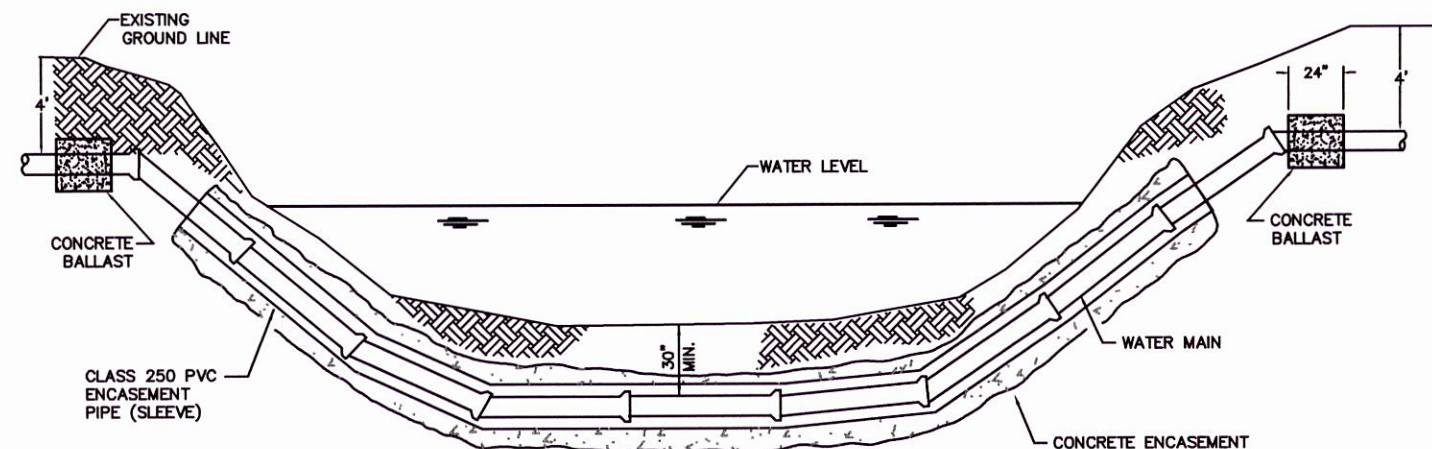
- BEDDING NOTES:**
- PIPE EMBEDMENT SHALL HAVE NO PARTICLE SIZE IN EXCESS OF 3" IN ANY DIMENSION.
  - FINAL BACKFILL SHALL HAVE NO PARTICLE SIZE IN EXCESS OF 6" IN ANY DIMENSION.
  - MINIMUM TRENCH WIDTH SHALL BE PIPE DIAMETER PLUS 12" MEASURED AT THE SPRINGLINE TO ENABLE BACKFILL MATERIAL TO BE INSTALLED IN THE HAUNCHING AREA. IN NO CASE SHALL THE TRENCH WIDTH BE LESS THAN 18" WIDE.
  - PIPING SHALL HAVE A MINIMUM COVER OF 30 INCHES OVER THE TOP OF THE PIPE.



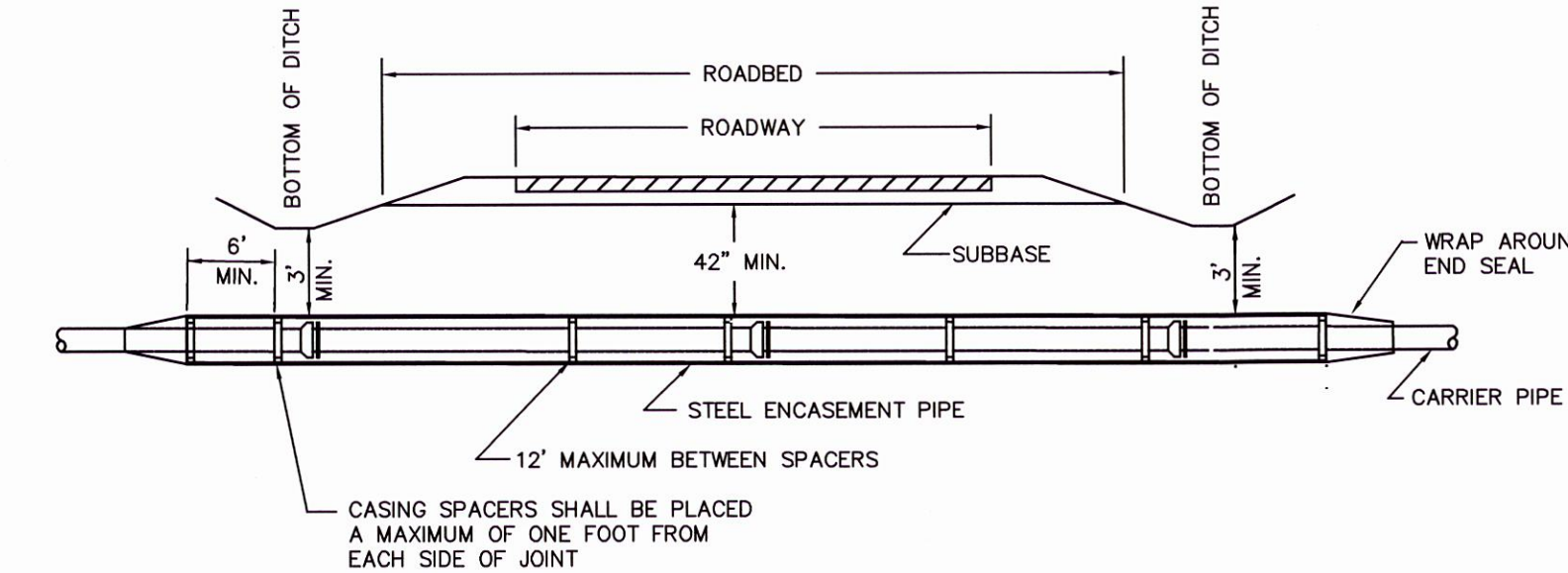
GRAVEL DRIVEWAY CROSSING (FOR NON-PAVED ROADS)



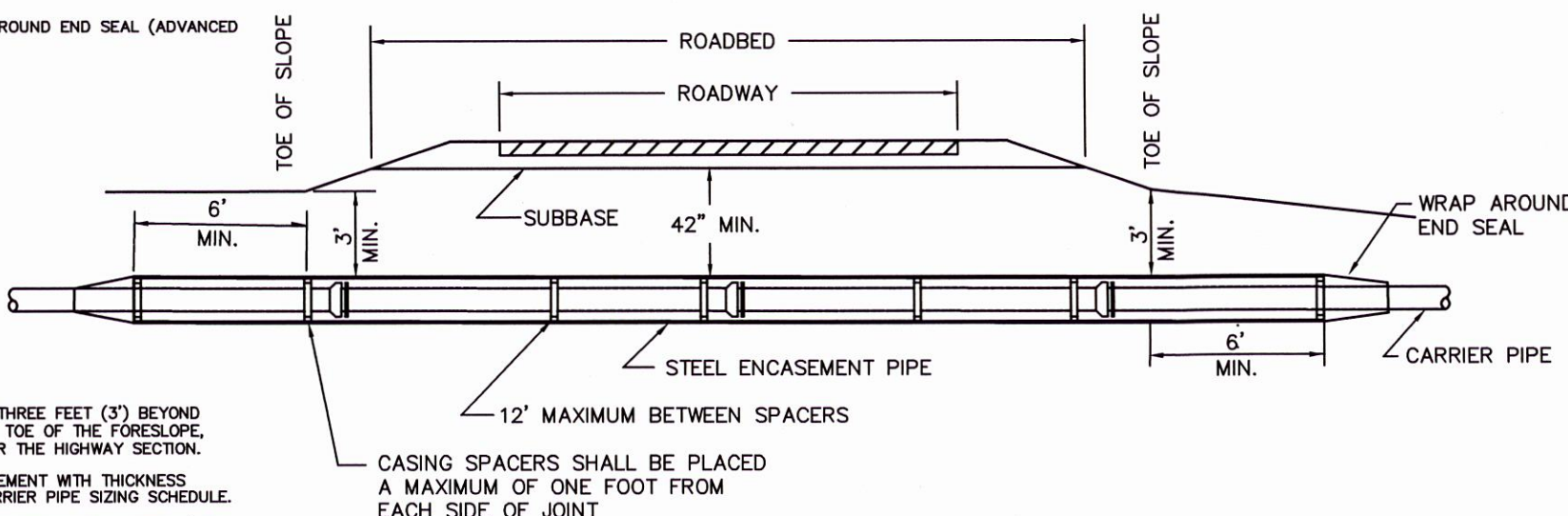
TYPICAL ROCK EXCAVATION AND BEDDING FOR WATER MAIN



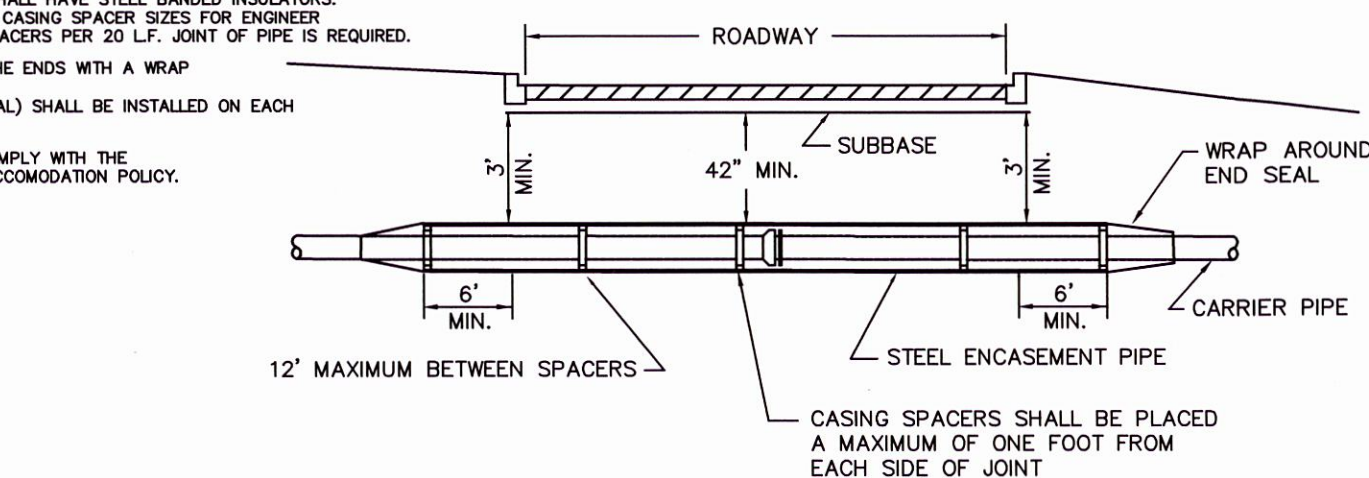
SECTION VIEW TYPICAL CREEK CROSSING DETAIL (FOR PVC)



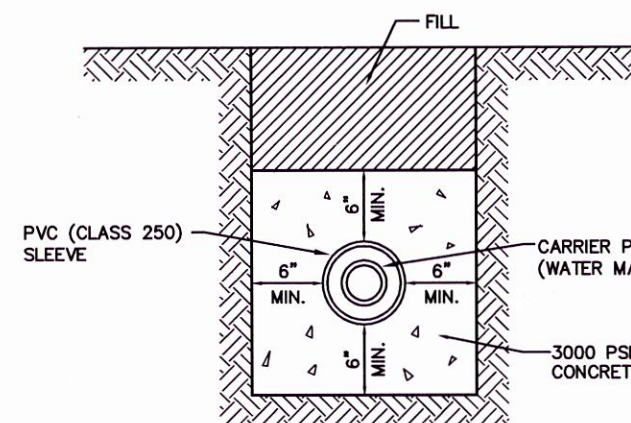
TYPE I TYPICAL ENCASED HIGHWAY CROSSING



TYPE II TYPICAL ENCASED HIGHWAY CROSSING



TYPE III TYPICAL ENCASED HIGHWAY CROSSING



TYPICAL CONCRETE ENCASEMENT (FOR PVC)

TYPICAL DETAILS

CONTRACT SECTION II - WATER TRANSMISSION MAINS  
CRITICAL NEEDS PHASE - NEWTON COUNTY IMPROVEMENTS  
OZARK MOUNTAIN REGIONAL PUBLIC WATER AUTHORITY  
NEWTON COUNTY, ARKANSAS

| REVISION | DATE | DESCRIPTION |
|----------|------|-------------|
|          |      |             |
|          |      |             |
|          |      |             |
|          |      |             |

SCALE: N.T.S.  
DATE: JAN. 2009  
ENGINEER: T.M.  
DRAWN BY: J.M.  
W.O. #: 08822