**RECOMMENDATIONS.**

The proposed number of casing spacers shall be installed to provide sufficient support as per manufacturer's recommendations.

1. **HDPE CASING SPACERS** as manufactured by ADVANCE PRODUCTS AND SYSTEMS, INC.; PIPELINE SEAL AND INSULATOR, INC.; or approved equal.

2. Minimum cover on casing = 4'-6" unless otherwise noted on plans. (5'-0" minimum under state and county highways).

3. Retaining glands (EBAA IRON SERIES 1600 MEGALUG, or approved equal) unless otherwise noted on plans. With wedge action retaining glands (EBAA IRON SERIES 1700 MEGALUG, or approved equal); or push joint PVC pipe with wedge action retaining glands (EBAA IRON SERIES 1100 MEGALUG, or approved equal); or integral restrained joint ductile iron pipe (U.S. PIPE TR-FLEX, or approved equal); push joint ductile iron pipe carrier pipe thru casing shall be either: mechanical joint ductile iron pipe with wedge action retaining glands (EBAA SERIES 1100 MEGALUG, or approved equal).

4. The engineer recommends using a steel casing pipe. The installation of stainless steel, high density polyethylene, or other corrosion-resistant pipe shall not be used.

**WATERLINE DETAILS**

1. **CORPORATION STOP DETAIL**

2. **SAMPLING POINT DETAIL**

3. **2" END BLOW-OFF ASSEMBLY DETAIL**

4. **CASING PIPE DETAIL**
5.

6. Service replacements shall be made under the following conditions:
   a. When services are less than 4" and placed in a trench or new R.O.W. new materials shall be repaced with new 1" dia. materials from the new waterline unless otherwise noted.
   b. When services larger than 1" are placed on a 6" pipe. When services are placed on 4" or smaller pipes, new copper in poor condition, or less than 1" typical water service line (or match existing size for services smaller than 1") will be replaced with new 1" dia. materials from the new waterline. No other fittings will be allowed unless otherwise noted or determined in the field by the engineer, all individual water services 1" dia. & smaller, unless otherwise noted.
   c. When services larger than 1" are placed on 6" or larger pipe and only where approved by the engineer.
   d. Where the existing curb box is improperly placed, shall be replaced by the contractor in a location acceptable to the engineer.

7. Notes:
   a. All existing and new curb boxes are to be adjusted to match existing curb and the existing curb stop & box.
   b. Existing service saddles shall be used under the following conditions:
      i. The service saddle must be capable of supporting the pressure of the water service and as acceptable to the engineer.
      ii. The service saddle must be capable of supporting the pressure of the water service and as acceptable to the engineer.
   c. All existing and new curb boxes are to be adjusted to match existing curb and the existing curb stop & box.

8. Service transfers shall be made under the following conditions:
   a. When services are placed on small pipes, new copper or ductile iron pipe. When services are placed on 4" or smaller pipes, new copper in poor condition, or less than 1" typical water service line (or match existing size for services smaller than 1") will be replaced with new 1" dia. materials from the new waterline. No other fittings will be allowed unless otherwise noted or determined in the field by the engineer, all individual water services 1" dia. & smaller, unless otherwise noted.
   b. All services on 4" or smaller pipes, new copper in poor condition, or less than 1" typical water service line (or match existing size for services smaller than 1") will be replaced with new 1" dia. materials from the new waterline. No other fittings will be allowed unless otherwise noted or determined in the field by the engineer, all individual water services 1" dia. & smaller, unless otherwise noted.
   c. If typical water service line is being used for service transfers, 4" only.
   d. Water service pipes shall be one continuous piece of pipe with no unions or couplings allowed with limits of pavement.
   e. All existing and new pipe shall be adjusted to match existing curb and the existing curb stop & box.

9. Water service pipes shall be one continuous piece of pipe with no unions or couplings allowed with limits of pavement.

10. All existing and new pipe shall be adjusted to match existing curb and the existing curb stop & box.