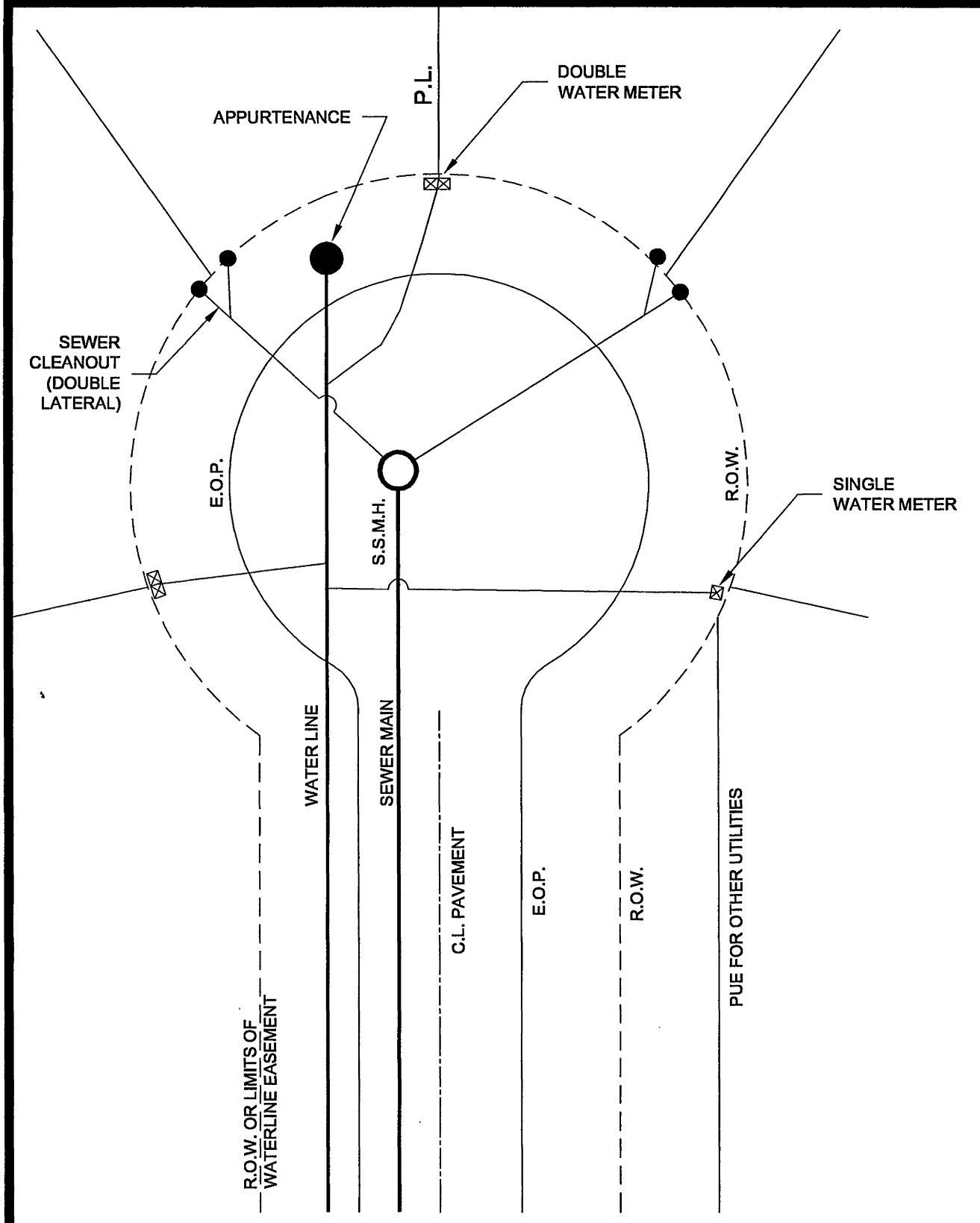


WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

PUBLIC WATER AND SANITARY SEWER
STANDARD CONFIGURATION IN PUBLIC ROADS

01/01/12

G-1



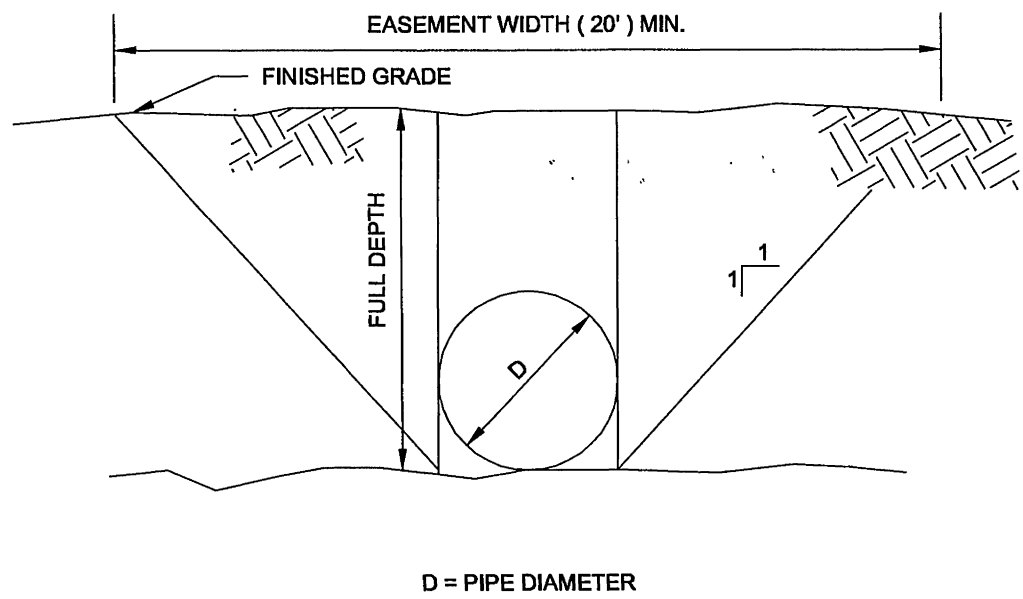
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

PUBLIC WATER AND SANITARY SEWER
STANDARD CUL-DE-SAC CONFIGURATION

01/01/12

G-2

1. PUBLIC EASEMENT WIDTH SHALL BE DETERMINED BASED ON 1:1 SIDE SLOPE EXTENDING FROM THE FINISHED GRADE TO OUTSIDE EDGE OF PIPE (NOMINAL PIPE DIAMETER) ROUNDED UP TO THE NEAREST 1' INCREMENT, OR 20' MINIMUM, WHICHEVER IS GREATER.
2. THIS EASEMENT SHALL EXTEND ALONG THE ENTIRE LENGTH OF THE SUBJECT PIPE AT LEAST ONE HALF THE DISTANCE OF EASEMENT PAST CENTER OF LAST MANHOLE OR WATER APPURTENANCE.



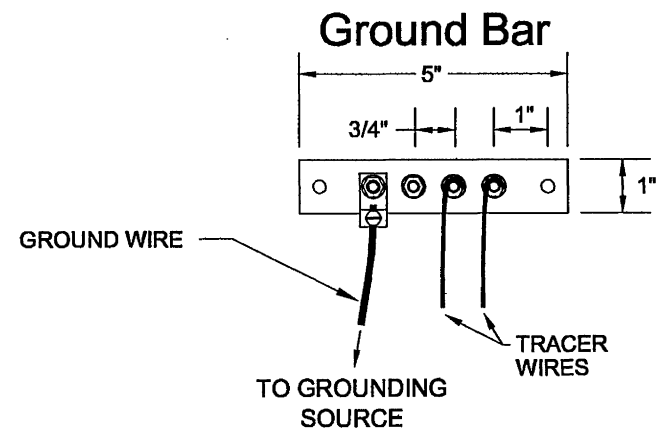
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

SANITARY SEWER AND
WATER LINE EASEMENTS

01/01/12

G-3

1. TRACER WIRES SHALL BE INSTALLED USING MANHOLES, VALVE BOXES OR VAULTS, WATER METERS AND FIRE HYDRANTS AS ACCESS POINTS.
2. FOR WATER OR SEWER INSTALLED BY OPEN TRENCHING, TRACER WIRE SHALL BE COPPERHEAD INDUSTRIES COPPER CLAD STEEL DIRECT BURY #14 AWG SOLID (.0641" DIAMETER), STEEL CORE SOFT DRAWN HIGH STRENGTH TRACER WIRE, 250# AVERAGE TENSILE BREAK LOAD, 30 MIL HIGH MOLECULAR WEIGHT-HIGH DENSITY (GREEN OR BLUE) POLYETHYLENE JACKET COMPLYING WITH ASTM-D-1248, 30 VOLT RATING. A HEAVIER GAUGE MAY BE REQUIRED FOR DEPTHS EXCEEDING SIX FEET.
3. FOR WATER OR SEWER INSTALLED BY HORIZONTAL DIRECTIONAL DRILLING METHOD, TRACER WIRE SHALL BE COPPERHEAD INDUSTRIES COPPER CLAD STEEL DIRECT BURY #12 AWG SOLID (.0808" DIAMETER), STEEL CORE HARD DRAWN EXTRA HIGH STRENGTH HORIZONTAL DIRECTIONAL DRILL TRACER WIRE, 1150# AVERAGE TENSILE BREAK LOAD, 45 MIL HIGH MOLECULAR WEIGHT-HIGH DENSITY (GREEN OR BLUE) POLYETHYLENE JACKET COMPLYING WITH ASTM-D-1248, 30 VOLT RATING.
4. SPLICES SHALL BE MADE USING COPPERHEAD INDUSTRIES SNAKE BITE SPLICE KIT PART #SCX-01, OF THE APPROPRIATE COLOR, 3M DIRECT BURY SPLICE KIT (DBY), OR EQUIVALENT.
5. TRACER WIRE SHALL BE LONG ENOUGH TO EXTEND A DISTANCE OF FIVE (5) FEET BEYOND THE STRUCTURE.
6. AS-BUILTS SHALL SHOW TRACER WIRE(S) LOCATION AND ACCESS POINT(S).
7. THE TRACER WIRE SHALL BE PLACED ALONG THE LOWER QUADRANT OF THE PIPE. THE WIRE SHALL NOT TOUCH THE PIPE, BUT SHALL BE A MAXIMUM OF 6" FROM THE PIPE. NON-METALLIC SPACERS MAY BE USED TO MAINTAIN A SET DISTANCE FROM THE UTILITY.
8. WHERE LINES ARE GREATER THAN SIX (6) FEET IN DEPTH, WIRE SHALL BE BROUGHT TO THE SURFACE EVERY ONE-HUNDRED (100) FEET AND PLACED IN A WATER METER BOX OR APPROVED JUNCTION BOX.
9. THE TRACER WILL BE TESTED BY THE PARTICIPATING UTILITY AS PART OF THE PROJECT'S FINAL ACCEPTANCE.
10. THE GROUND WIRE SHALL BE #6 GAUGE COPPER WIRE AND SHALL BE OF ADEQUATE LENGTH TO EXTEND A MINIMUM OF FIVE (5) FEET BEYOND THE TOP OF STRUCTURE. THE END OF GROUND WIRE SHALL CONNECT TO THE GROUND BAR USING A BURNDY KA6U MECHANICAL CABLE LUG.
11. A GROUND ROD SHALL BE INSTALLED AT EACH LOCATION WHERE GROUND WIRE SURFACES AND CONNECTS TO GROUND BAR. GROUND ROD SHALL BE COPPER COATED, MINIMUM DIAMETER OF 5/8", AND SHALL BE BURIED A MINIMUM OF FOUR (4) FEET INTO THE GROUND.
12. THE GROUND BAR SHALL BE STAINLESS STEEL AND SHALL BE ATTACHED USING SS 1/4" X 1 1/4" SS HEX TAPCON. THE FOLLOWING SHALL BE INSTALLED IN 4 (FOUR) CENTER HOLES: 10-32 SS NUTS, #10 SS WASHERS AND 10-32 X 3/4 SS PHILLIPS. THE FOURTH HOLE SHALL HAVE A BURNDY CONNECTOR KA6U FOR THE #6 GAUGE GROUND WIRE. THE ASSEMBLY CAN BE ACQUIRED AT MAGIC CITY SUPPLY - CLAMP RFC-11. THE ENDS OF THE TRACER WIRES SHALL BE PLACED IN THE GROUND BAR AS SHOWN.
13. TWO WRAPS OF TRACER WIRE SHALL BE WRAPPED SNUGLY AROUND BASE OF HYDRANT. WIRE SHALL NOT BE LEFT IN A WAY THAT WOULD INTERFERE WITH MOWING AROUND HYDRANT.



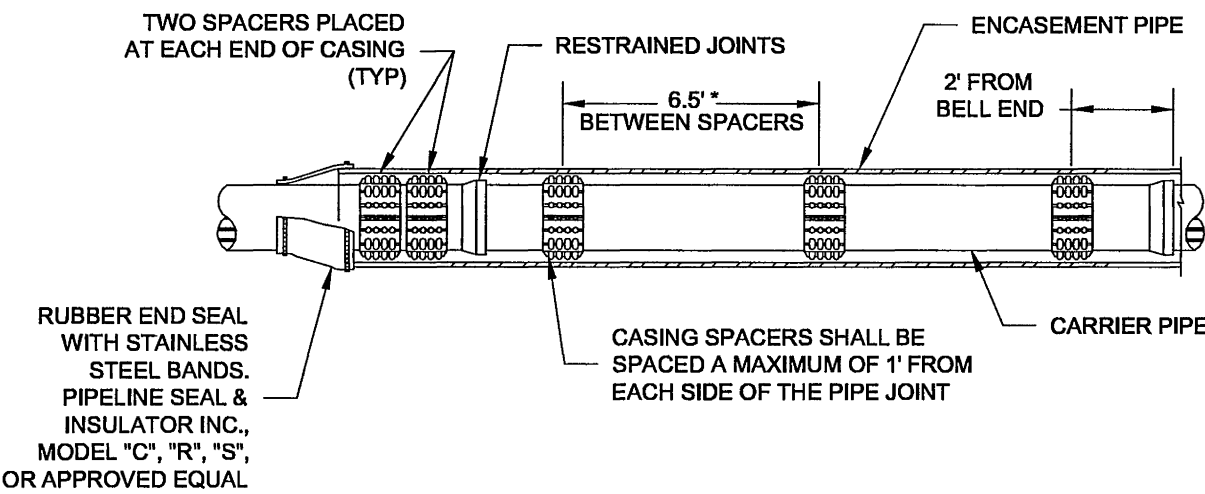
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

TRACER WIRE
FOR NON-METALLIC
PRESSURE PIPE

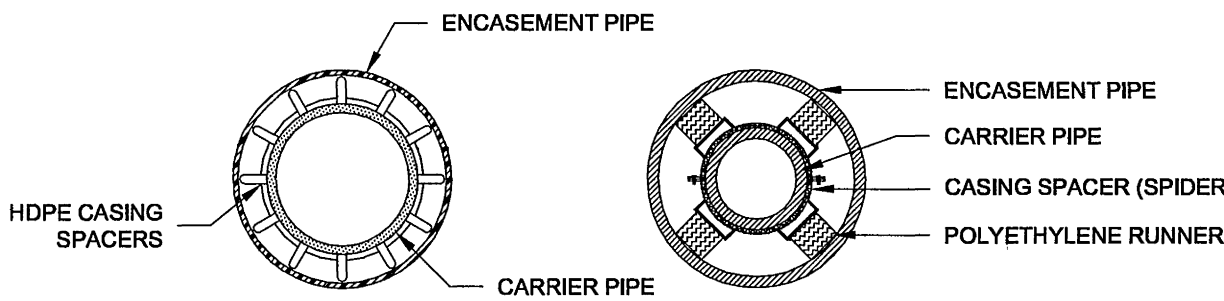
01/01/12

G-4

1. A 1" DRAIN WILL BE REQUIRED ON THE LOWER END OF THE ENCASEMENT PIPE.
2. SPACERS SHALL BE RACI HDPE SPIDER OR EQUIVALENT.
3. SPACERS SHALL BE SPACED 6 1/2" ON SEWER PIPE.
4. CARRIER PIPE SHALL BE DUCTILE OR HDPE IN ACCORDANCE WITH REGIONAL STANDARDS.
5. ENCASEMENT PIPE TO BE STEEL IN ACCORDANCE WITH VDOT STANDARD DETAIL EP-1, OR HDPE AS SPECIFIED IN THE STANDARDS IF APPROVED BY THE PARTICIPATING UTILITY.
6. CONCRETE ENCASEMENT PIPE WILL NOT BE ALLOWED.
7. DIAMETER OF ENCASEMENT PIPE TO BE DETERMINED BY PARTICIPATING UTILITY.



* ADDITIONAL SPACING ALLOWED AS RECOMMENDED BY PIPE MANUFACTURER.



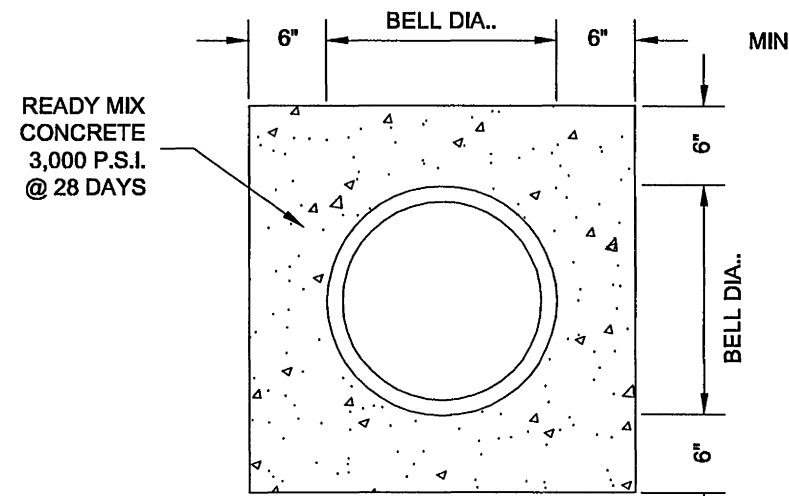
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

PIPE SUPPORT
IN ENCASEMENT PIPE

01/01/12

G-6

1. WHEN WATER LINE IS LOCATED BELOW A SEWER LINE, THE SEWER LINE IS TO BE ENCASED ALONG ITS LENGTH WHERE IT IS WITHIN 10' OF WATER LINE.
2. WATER AND SEWER LINES CROSSING STREAMS MUST BE CONCRETE ENCASED.



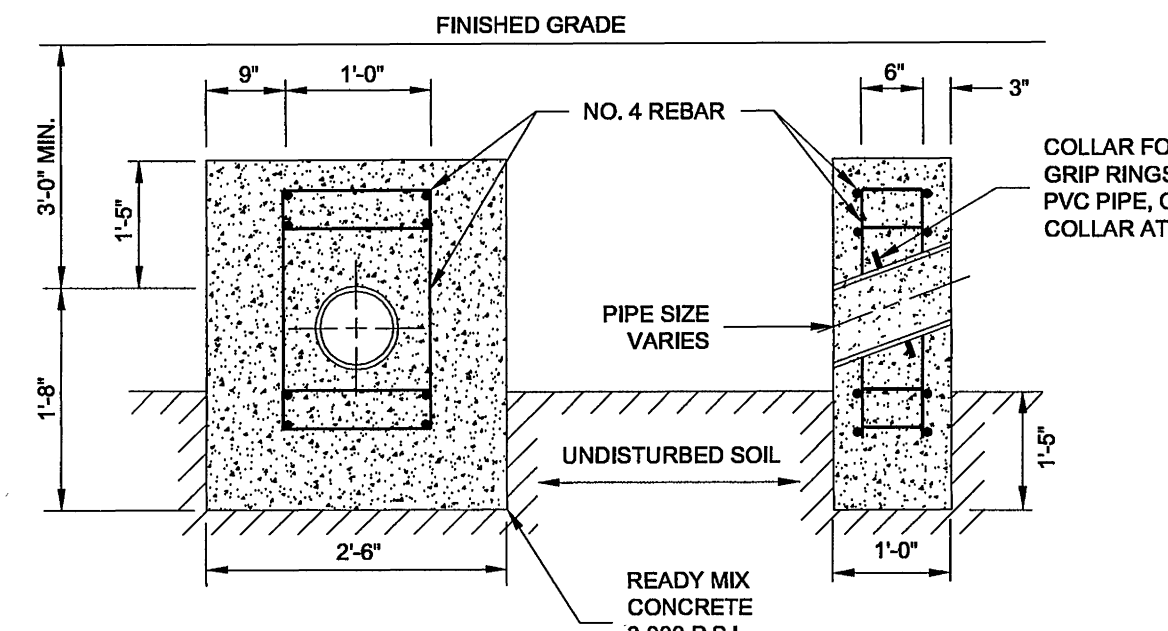
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

CONCRETE ENCASED PIPE

01/01/12

G-9

1. IN ADDITION TO ANCHOR BLOCKS, RESTRAINED JOINT PIPE WILL BE REQUIRED FOR ALL SLOPES EXCEEDING 20%.
2. MINIMUM SPACING REQUIREMENTS SHALL BE AS FOLLOW:
SLOPES 20% TO 35% - 36 FT ON CENTER
SLOPES 35% TO 50% - 24 FT ON CENTER
SLOPES 50% TO 60% - 16 FT ON CENTER
* ONLY ALLOWED WITH WRITTEN APPROVAL OF PARTICIPATING UTILITY



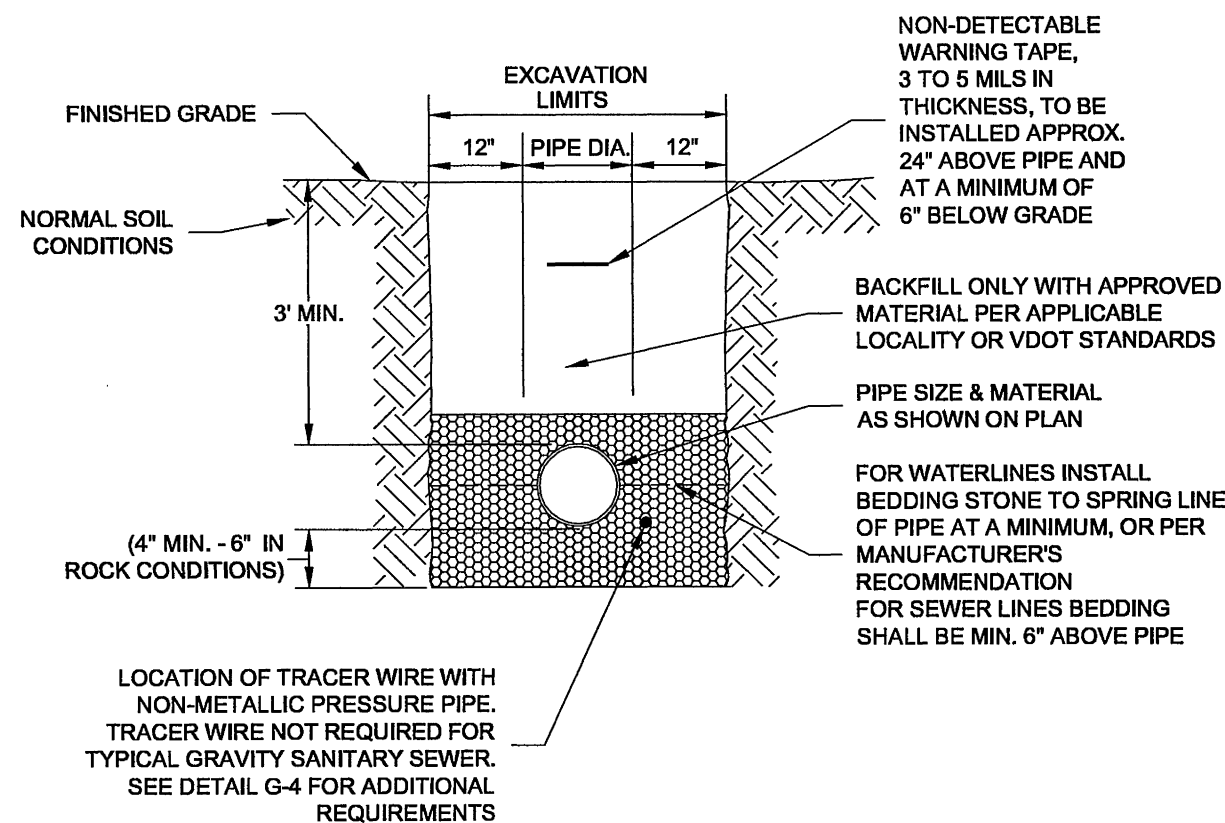
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

ANCHOR BLOCK

01/01/12

G-10

1. BEDDING, HAUNCHING AND INITIAL BACKFILL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THIS DETAIL AND MANUFACTURER'S RECOMMENDATION.
2. ALL PVC PIPE SHALL BE BEDDED IN COMPACTED VDOT #57 OR #68 STONE, OR CRUSHER RUN.
3. IN AREAS SUBJECT TO VEHICULAR TRAFFIC, BEDDING STONE AND FILL SHALL BE PLACED IN 6" LIFTS FROM BOTTOM OF TRENCH TO 1' ABOVE THE PIPE AND THE REMAINING SHALL BE PLACED IN 10" LIFTS AND SHALL BE COMPACTED TO AT LEAST 90% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D 698.
4. BEDDING REQUIREMENTS FOR DUCTILE IRON WATER LINE ARE DEPENDENT ON MANUFACTURER'S BEDDING CRITERIA.
5. ALL EXCAVATIONS SHALL COMPLY WITH OSHA TECHNICAL MANUAL, CHAPTER 2, TITLED "EXCAVATIONS: HAZARD RECOGNITION IN TRENCHING AND SHORING."
6. THE TRACER WIRE SHALL BE PLACED ALONG THE LOWER QUADRANT OF THE PIPE, THE WIRE SHALL NOT TOUCH THE PIPE, BUT SHALL BE A MAXIMUM OF 6" FROM THE PIPE. NON-METALLIC SPACERS MAY BE USED TO MAINTAIN A SET DISTANCE FROM THE UTILITY.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

BEDDING AND BACKFILL
OUTSIDE OF PAVED AREAS

01/01/12

G-11



ANDERSON & ASSOCIATES, INC.
Professional Design Services
www.andassoc.com

100 Ardmore St.
Blacksburg, Va. 24060
540-552-5592

DATE : 07 JUN 13
DESIGNED : CSF
DRAWN : SEC
CHECKED : MGG
QA / QC : CSF

REV. #

COMMENTS

DATE

FRANKLIN COUNTY / WESTERN VIRGINIA WATER AUTHORITY
BURNT CHIMNEY WATER EXTENSION
FRANKLIN COUNTY, VIRGINIA

WWA STANDARD DETAILS 1

DOCUMENT NO.
30337 - 002
SHEET
40 OF **44**

Caddwell, Shawn / 6/6/2013 3:18 PM / \\apoprojects\projects\30\30337\30337_engineering\design\plans\30337_details.dwg