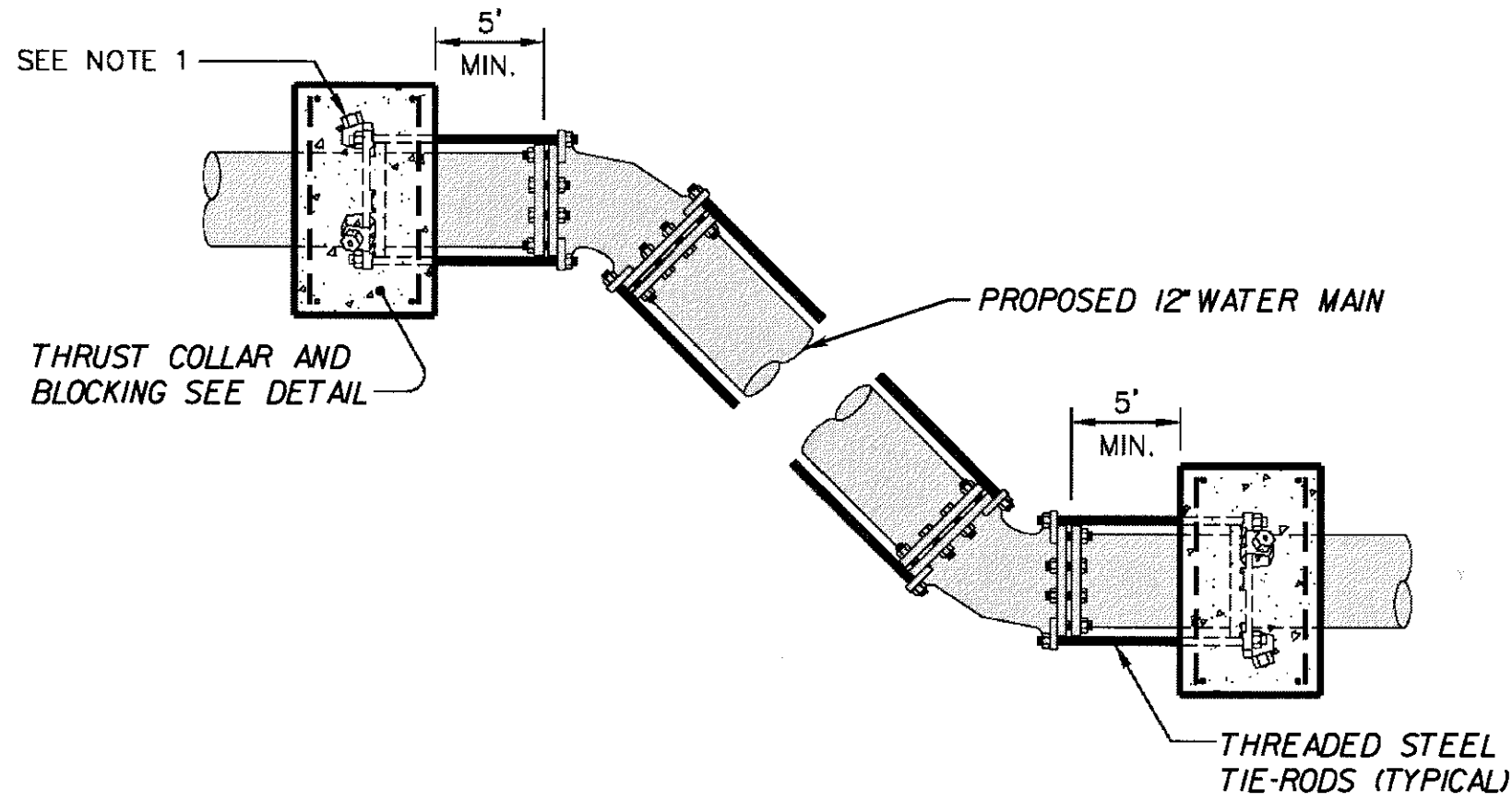


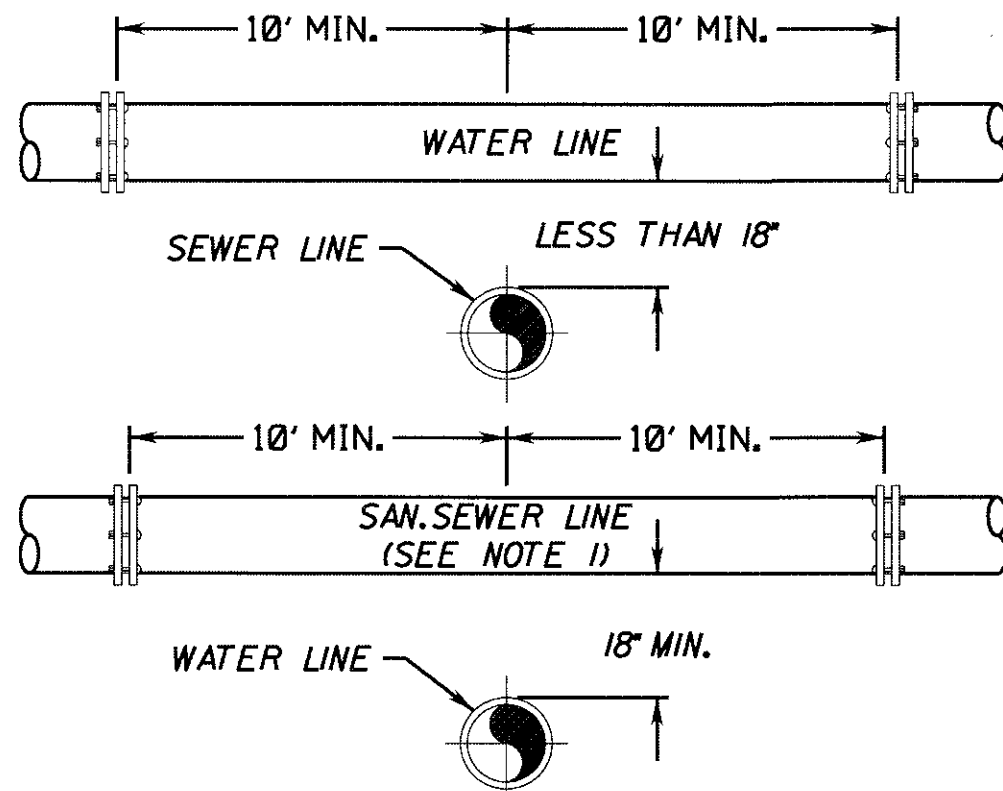
PROJECT MANAGER: *Mohammad Zaid, PE (1540) 387-5374 (Salem)*
SURVEYED BY: *Richard Ziams, L.S. (7031631-5325 (Burgess & Niple)*
DESIGN SUPERVISED BY: *J. Scott Hodge, PE (1540) 857-3322 (AECOM)*
DESIGNED BY: *Craig Biddle, PE (1540) 857-3369 (AECOM)*

UTILITY DETAILS



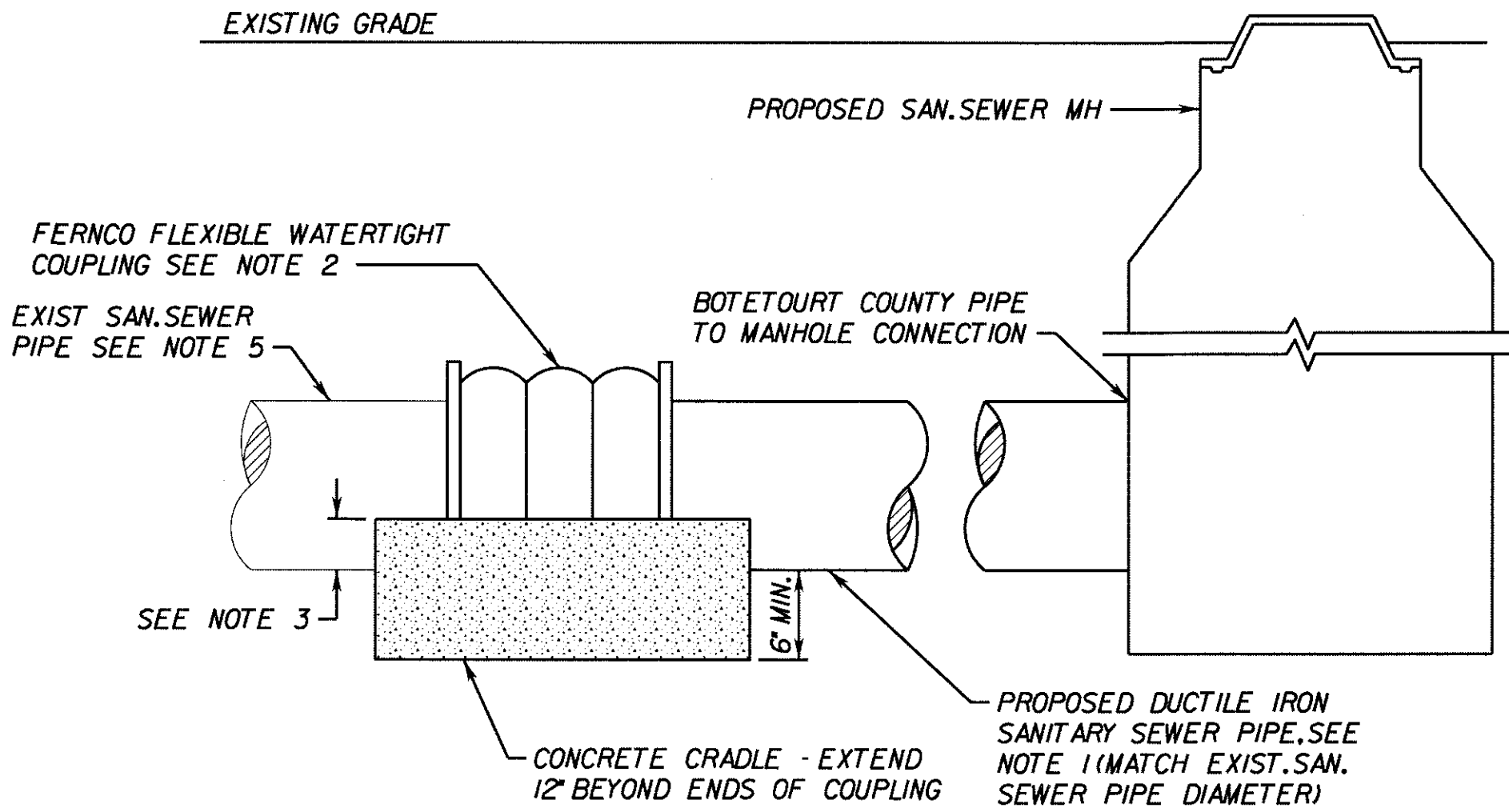
- NOTES:
1. RESTRAINED JOINT THRUST RING SHALL BE USED ON ALL FITTINGS.
 2. TIE-RODS SHALL BE ASTM A307 CADMIUM COATED TIE-RODS. PROVIDE SIX (6) - 3/4 INCH DIAMETER RODS.

VERTICAL BEND IN WATER LINE DETAIL
NO SCALE



- NOTES:
1. SAN. SEWER LINE ABOVE WATERLINE OR LESS THAN 18" BELOW TO BE CONSTRUCTED OF AWWA WATER LINE MATERIAL & PRESSURE TESTED AT NO ADDITIONAL COST. PROVIDE RESTRAINED JOINT PIPE FOR SAN. SEWER LINE PIPE. AMERICAN PIPE FLEX-RING, US PIPE TR-FLEX, OR APPROVED EQUAL TEST PRESSURE 30 PSI. INSTALLATION MUST CONFORM TO ALL VIRGINIA DEPARTMENT OF HEALTH AND VA DEQ REQUIREMENTS.
 2. JOINTS OF SEWER LINE SHALL BE PLACED EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER LINE JOINTS.
 3. BACKFILL BETWEEN PIPES MINIMUM FIVE (5) FEET EITHER SIDE OF CROSSING WITH FULL DEPTH AGGREGATE NO. 57 STONE.
 4. MINIMUM HORIZONTAL SEPARATION BETWEEN SEWER LINES AND MANHOLES AND WATER LINES SHALL BE TEN (10) FEET MINIMUM, MEASURED EDGE TO EDGE.

WATER AND SANITARY SEWER CROSSING DETAIL
NO SCALE



- NOTES:
1. MATCH GRADE AND ALIGNMENT OF EXIST SANITARY SEWER PIPE TO BE REPLACED WITH PROPOSED SANITARY SEWER PIPE.
 2. PROVIDE STAINLESS STEEL HARDWARE.
 3. CRADLE TO SPRING LINE OF PIPE.
 4. CONCRETE TO BE READY MIX, CLASS A3.
 5. CONTRACTOR SHALL CLEANLY CUT EXISTING SANITARY SEWER PIPES THAT ARE TO REMAIN IN SERVICE, AND SHALL ENSURE EXISTING SANITARY SEWER PIPE TO REMAIN IS UNDAMAGED.
 6. PROVIDE PROPOSED MANHOLE WITH PENETRATIONS AT VERTICAL/HORIZONTAL LOCATIONS AS REQUIRED.
 7. PROVIDE NECESSARY BYPASS PUMPING DURING REMOVAL OF EXISTING SAN. SEWER MANHOLE.
 8. BACKFILL ANY UNDERCUT AREAS REQUIRED TO REMOVE EXISTING SAN. SEWER MANHOLE WITH SUITABLE MATERIAL PER VDOT 303.04.
 9. REMOVE EXISTING SAN. SEWER PIPE AS REQUIRED AND INDICATED TO INSTALL PROPOSED SAN. SEWER MANHOLE.
 10. CONNECTIONS AND DETAILS FOR PROPOSED SAN. SEWER PIPE CONNECTIONS TO PROPOSED SAN. SEWER MANHOLE PER BOTETOURT COUNTY STANDARD.

REPLACEMENT OF EXISTING SANITARY SEWER MANHOLE WITH PROPOSED SANITARY SEWER MANHOLE
NO SCALE

| REVISED | STATE | STATE | | SHEET NO. |
|---------|-------|-------|---------------------------------------|-----------|
| | | ROUTE | PROJECT | |
| | VA. | 11 | 0081-011-120, PE-102 RW-202, C-502 | 18F |

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

AECOM TECH. SERV., INC.
ROANOKE, VIRGINIA
UTILITY ENGINEER

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR ANY TYPE OF CONSTRUCTION.