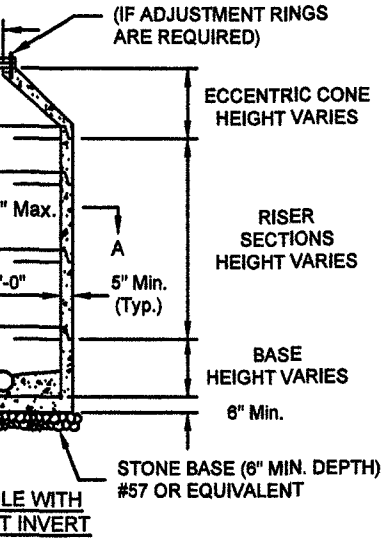


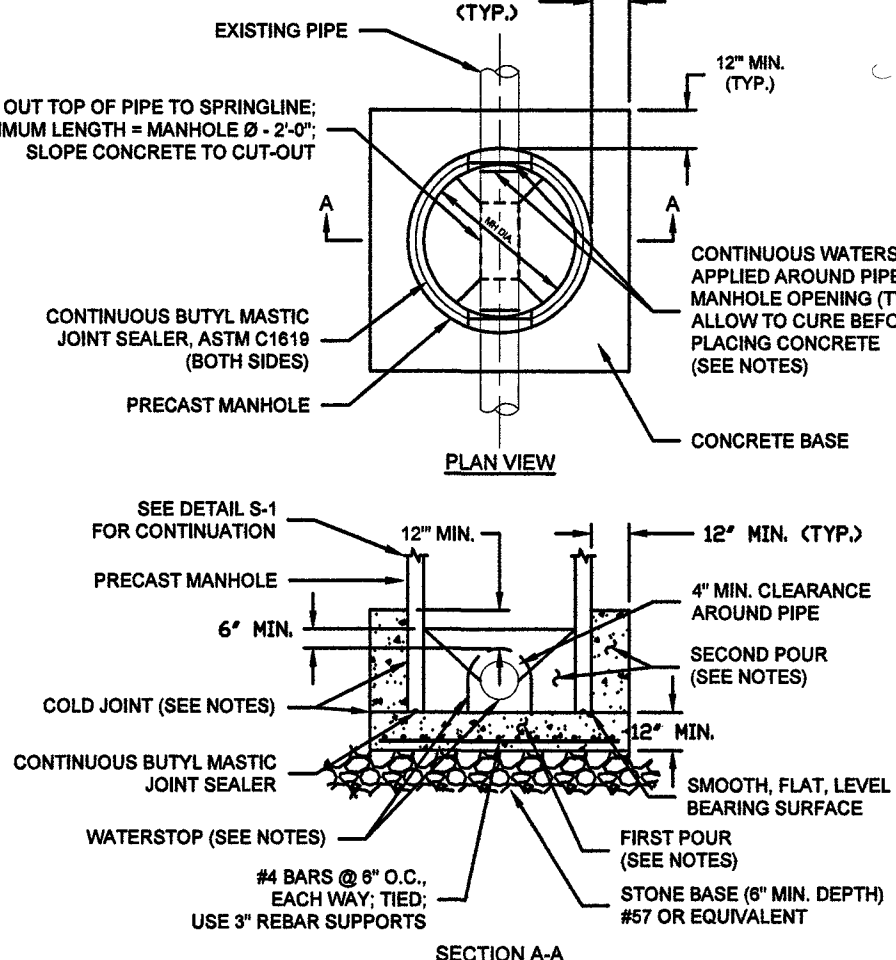
- 
- Diagram illustrating the connection between a precast hole and a flexible boot. The diagram shows a cross-section of the assembly. The precast hole is shown at the top, and the flexible boot is shown at the bottom. The grout annular space is indicated between the precast hole and the flexible boot. The dimension 4'-0" is shown for the grout annular space. The labels are: PRECAST HOLE (TYP.), GROUT ANNULAR SPACE (TYP. INLET & OUTLET), and FLEXIBLE BOOT WITH STAINLESS STEEL BAND (TYP.).
- SECTION A-A**



**WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL**

**4' STANDARD MANHOLE  
FOR PIPE 15" OR SMALLER  
(FOR DEPTHS UP TO 15 FEET)**

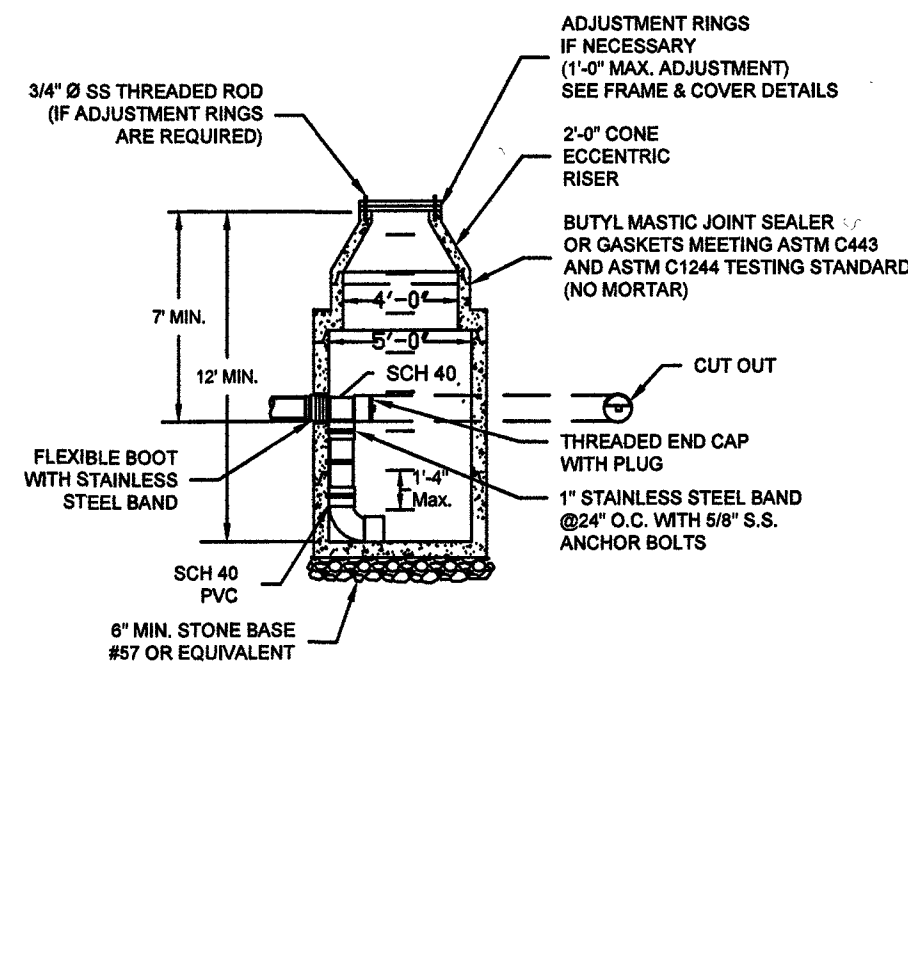
- 
- EXISTING PIPE (CTYP.)
- 12" MIN. (TYP.)
- CUT TOP OF PIPE TO SPRINGLINE:  
MINUM LENGTH = MANHOLE Ø - 2'-0"  
SLOPE CONCRETE TO CUT-OUT
- CONTINUOUS BUTYL MASTIC  
JOINT SEALER, ASTM C1181  
(BOTH SIDES)
- PRECAST MANHOLE
- PLAN VIEW
- CONCRETE BASE
- CONTINUOUS WATERSTOP APPLIED AROUND PIPE  
MANHOLE OPENING (IT  
ALLOW TO CURE BEFORE  
PLACING CONCRETE  
(SEE NOTES)
- SEE DETAIL S-1  
FOR CONTINUATION
- 12" MIN.
- 12" MIN. (CTYP.)
- 6" MIN.
- 4" MIN. CLEARANCE  
AROUND PIPE
- SECOND JOINT  
(SEE NOTES)
- COLD JOINT (SEE NOTES)
- 12" MIN.
- CONTINUOUS BUTYL MASTIC  
JOINT SEALER
- SMOOTH, FLAT, LEVEL  
BEARING SURFACE
- WATERSTOP (SEE NOTES)
- FIRST JOINT  
(SEE NOTES)
- #4 BARS @ 8" O.C.,  
EACH WAY; TIED;  
USE 3' REBAR SUPPORTS
- STONE BASE (8" MIN. DEPTH)  
#67 OR EQUIVALENT
- SECTION A-A



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

STRADDLE MANHOLE

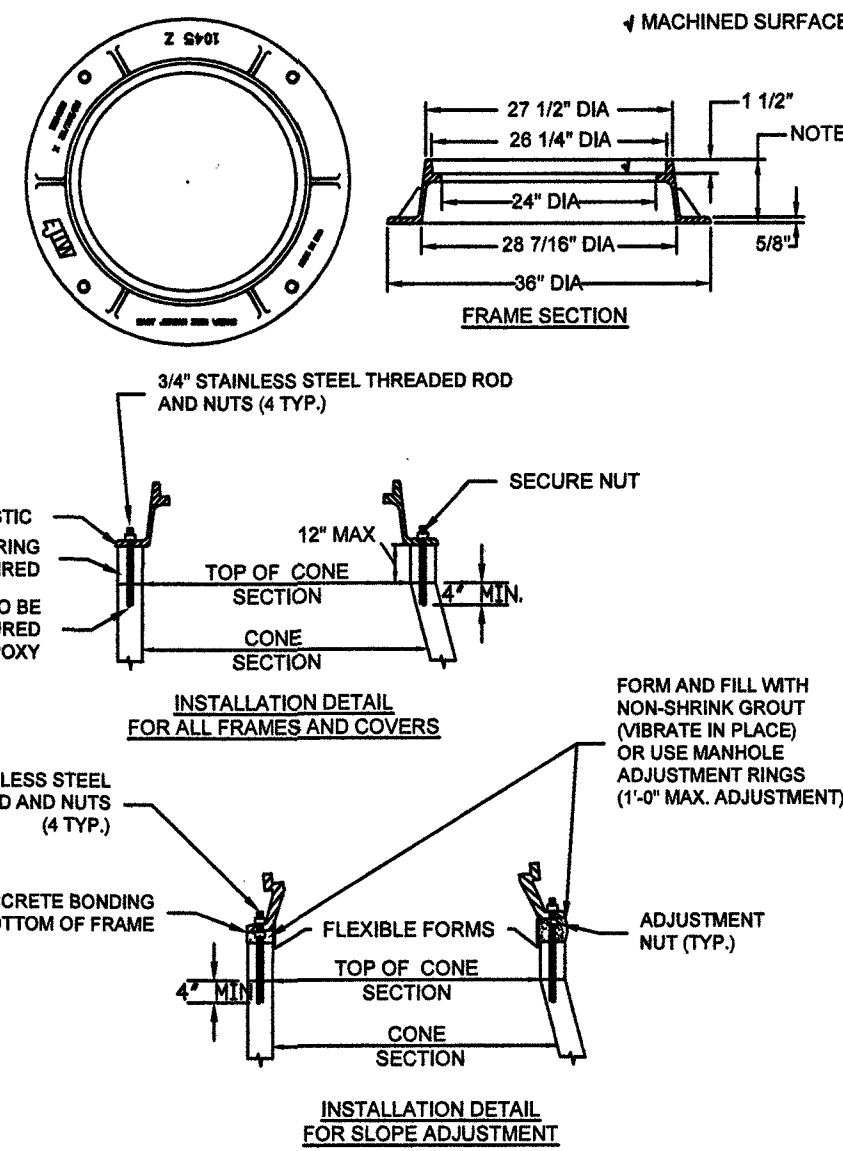
- 
- 3/4" Ø SS THREADED ROD  
(IF ADJUSTMENT RINGS  
ARE REQUIRED)
- ADJUSTMENT RINGS  
IF NECESSARY  
(1" Ø MAX. ADJUSTMENT)  
SEE FRAME & COVER DETAILS
- 2" Ø CONE  
ECCENTRIC  
RISER
- BUTYL MASTIC JOINT SEALER  
OR GASKETS MEETING ASTM C443  
AND ASTM C1244 TESTING STANDARD  
(NO MORTAR)
- 7" MIN.
- 12" MIN.
- 6" Ø
- SCH 40
- CUT OUT
- FLEXIBLE BOOT  
WITH STAINLESS  
STEEL BAND
- THREADED END CAP  
WITH PLUG
- 1" STAINLESS STEEL BAND  
@24" O.C. WITH 5/8" S.S.  
ANCHOR BOLTS
- SCH 40  
PVC
- 6" MIN. STONE BASE  
#57 OR EQUIVALENT
- 1" Max.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

INSIDE DROP MANHOLE

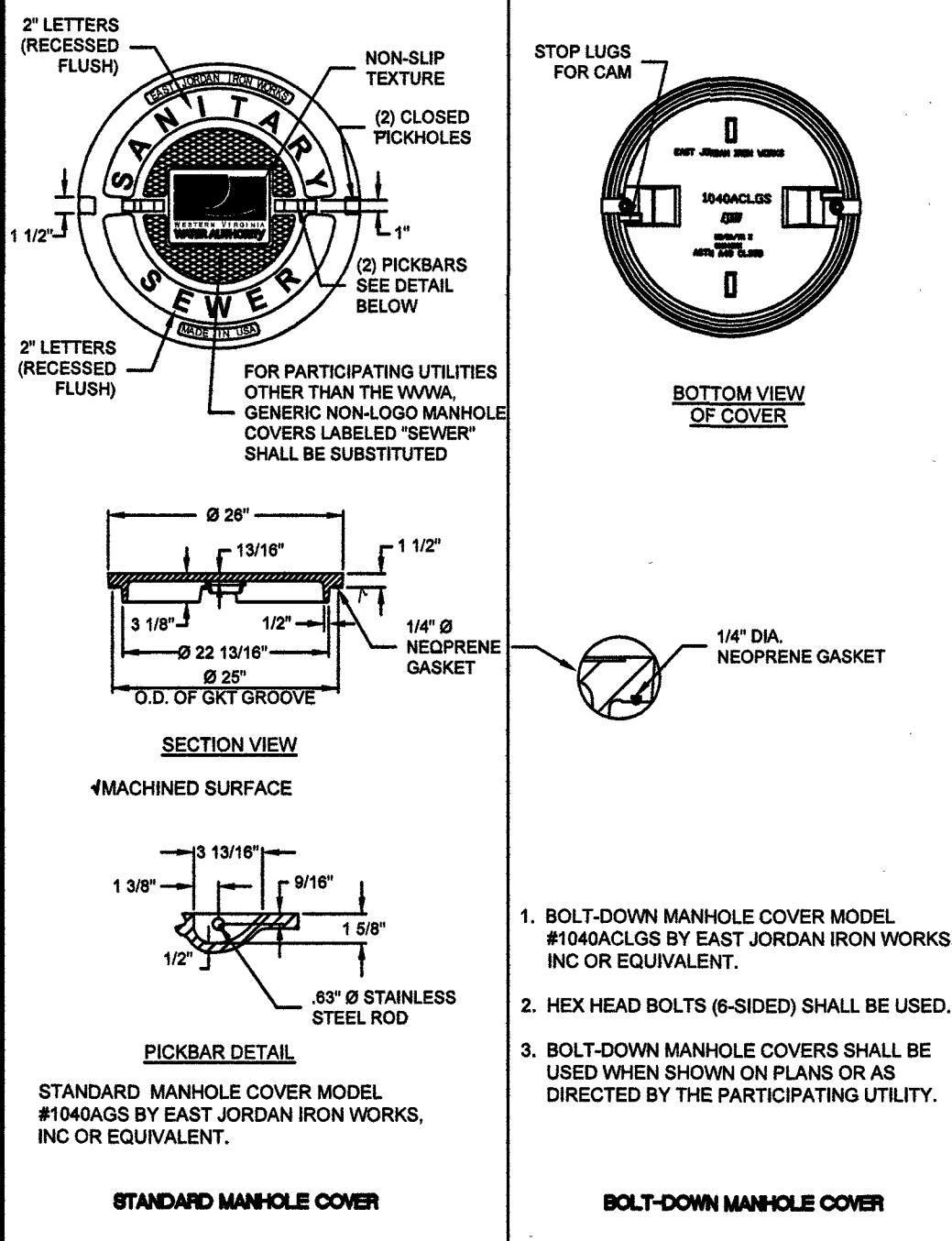
- 
- The image contains three technical drawings:
- Top Left:** A plan view of a circular frame. It features a central hole with a diameter of 2 5/8" and an outer ring with a diameter of 28 1/8". There are eight mounting holes around the perimeter, each with a diameter of 1/2". The text "FORM 2800 1/8\" is visible at the bottom.
  - Top Right:** A cross-sectional view of the frame. It shows a top flange with a 27 1/2" diameter and a 28 1/4" diameter. The central hole has a 24" diameter. The bottom flange has a 28 7/16" diameter and a 38" diameter. A 1 1/2" dimension is shown for the top flange's thickness. A note indicates "MACHINED SURFACE" for the top flange. A 5/8" dimension is shown for the bottom flange's thickness.
  - Bottom Left:** A cross-sectional view of the frame installed in a concrete wall. It shows a 3/4" stainless steel threaded rod and nut (4 TYP.) passing through the frame and into the concrete. The frame is secured with a "SECURE NUT". The concrete has a minimum thickness of 4" MIN. The frame is labeled "TOP OF CONE SECTION" and "CONE SECTION".
  - Bottom Right:** A cross-sectional view of the frame installed in a concrete wall, showing the use of "FLEXIBLE FORMS" and "ADJUSTMENT NUT (TYP.)". The concrete has a minimum thickness of 4" MIN. The frame is labeled "TOP OF CONE SECTION" and "CONE SECTION".
- INSTALLATION DETAIL FOR ALL FRAMES AND COVERS**
- INSTALLATION DETAIL FOR SLOPE ADJUSTMENT**



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

WATERTIGHT  
MANHOLE FRAME

- 
- 2" LETTERS  
(RECESSED  
FLUSH)
- NON-SLIP  
TEXTURE
- (2) CLOSED  
PICKHOLES
- (2) PICKBARS  
SEE DETAIL  
BELOW
- 1 1/2"
- 1"
- 2" LETTERS  
(RECESSED  
FLUSH)
- FOR PARTICIPATING UTILITIES  
OTHER THAN THE WWA, A  
GENERIC NON-LOGO MANHOLE  
COVERS LABELED "SEWER"  
SHALL BE SUBSTITUTED
- BOTTOM VIEW  
OF COVER
- 10-HOLE GASKET  
GPM  
HOLE 1  
HOLE 2  
HOLE 3
- STOP LUGS  
FOR CAM
- 1 1/2"
- 13/16"
- 3 1/8"
- 1/2"
- 1/4" Ø  
NEOPRENE  
GASKET
- Ø 28"
- Ø 22 13/16"
- Ø 28"
- O.D. OF GKT GROOVE
- SECTION VIEW
- ↑ MACHINED SURFACE
- 3 1/8"
- 3 13/16"
- 9/16"
- 1 5/8"
- 1/2"
- 65° Ø STAINLESS  
STEEL ROD
- PICKBAR DETAIL
- STANDARD MANHOLE COVER MODEL  
#1040ACLS BY EAST JORDAN IRON WORKS,  
INC OR EQUIVALENT.
- STANDARD MANHOLE COVER
1. BOLT-DOWN MANHOLE COVER MODEL  
#1040ACLS BY EAST JORDAN IRON WORKS  
INC OR EQUIVALENT.
2. HEX HEAD BOLTS (6-SIDED) SHALL BE USED.
3. BOLT-DOWN MANHOLE COVERS SHALL BE  
USED WHEN SHOWN ON PLANS OR AS  
DIRECTED BY THE PARTICIPATING UTILITY.
- BOLT-DOWN MANHOLE COVER

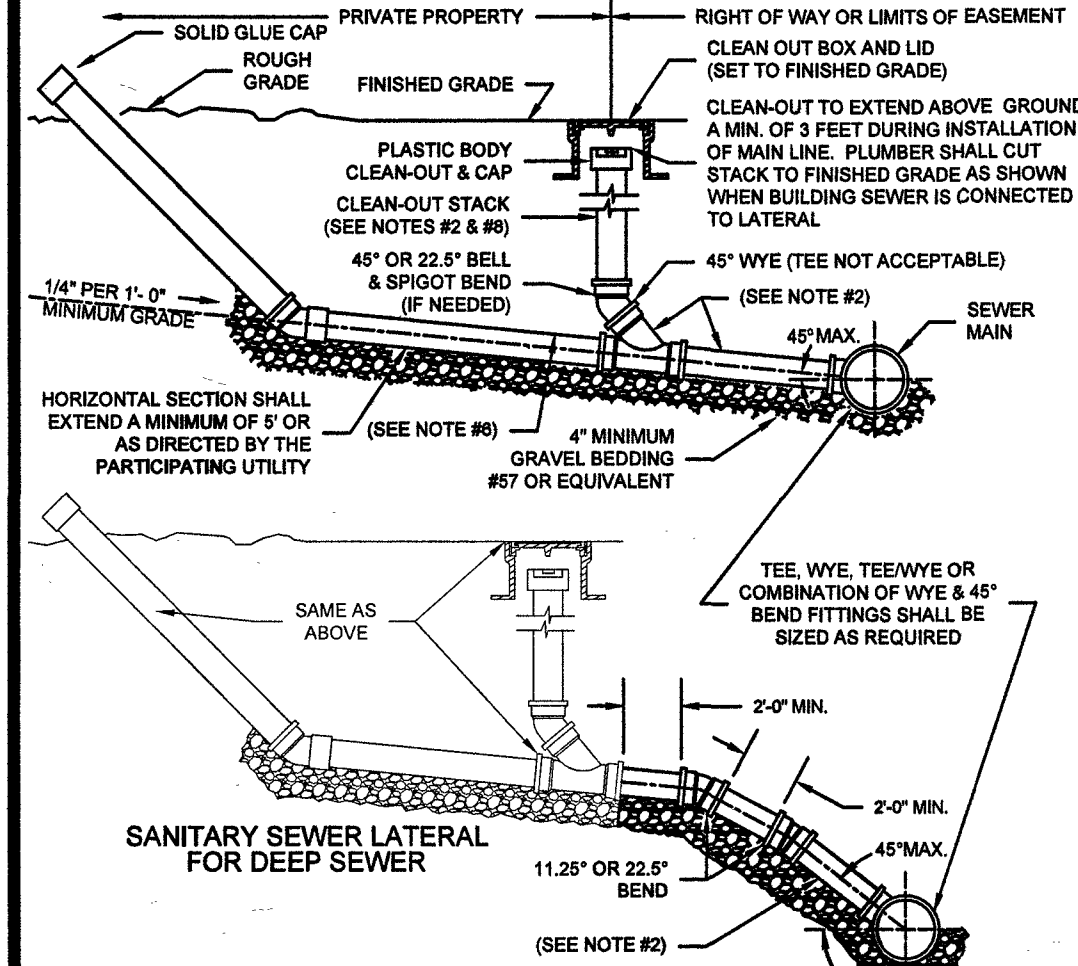


WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

WATERTIGHT  
MANHOLE COVER

01/01/16

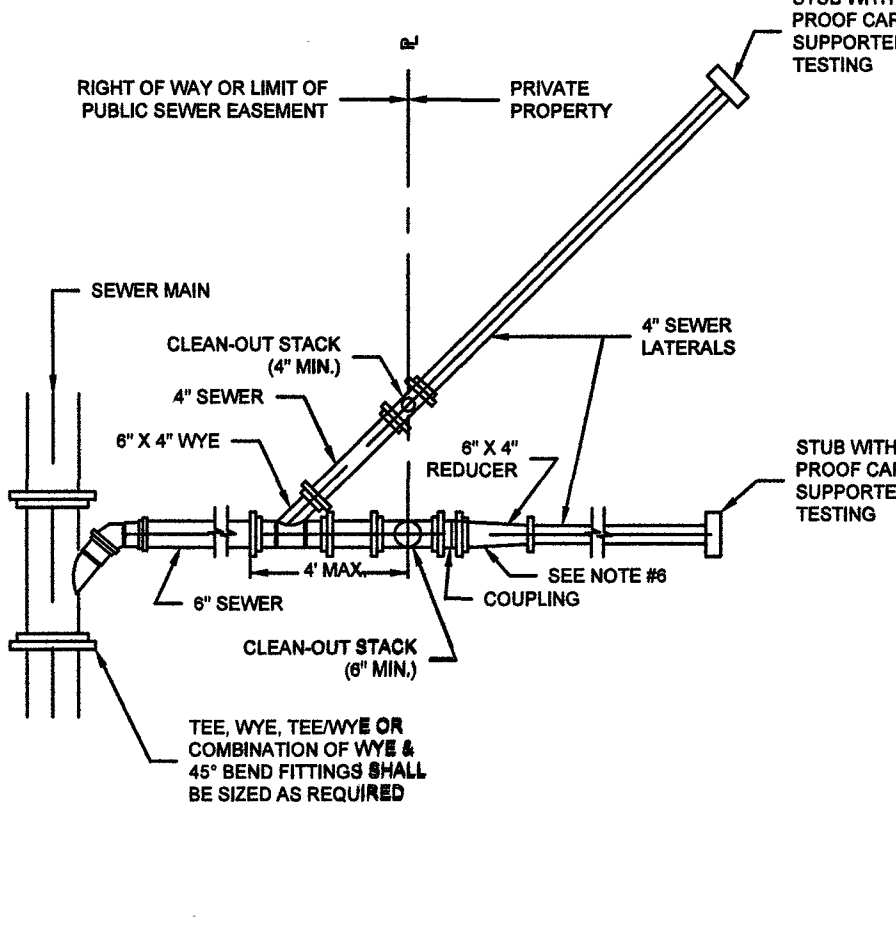
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**WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL**

**SANITARY SEWER LATERAL**

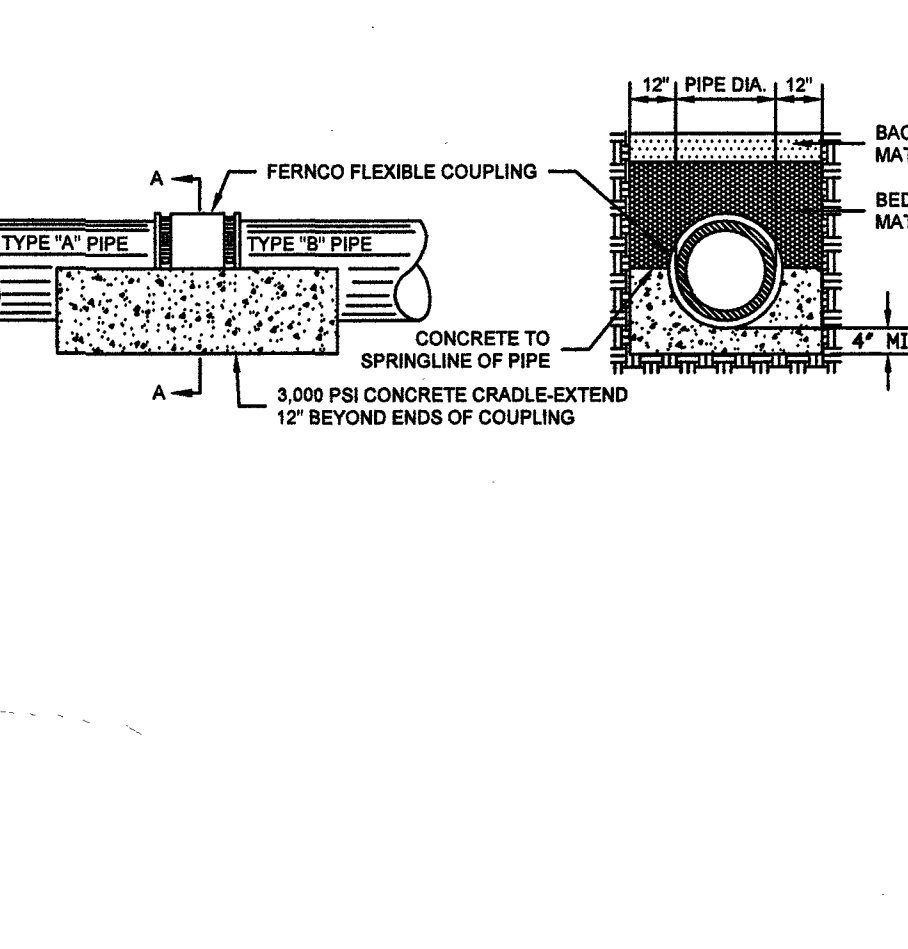
- 
- Diagram illustrating the installation of a sewer main, showing various components and labels:
- RIGHT OF WAY OR LIMIT OF PUBLIC SEWER EASEMENT
  - PRIVATE PROPERTY
  - SEWER MAIN
  - CLEAN-OUT STACK (6" MIN.)
  - 4" SEWER
  - 8" X 4" WYE
  - 4" SEWER LATERALS
  - 8" X 4" REDUCER
  - STUB WITH PROOF CAP SUPPORT TESTING
  - 6" SEWER
  - 4" MAX.
  - SEE NOTE #6
  - COUPLING
  - CLEAN-OUT STACK (6" MIN.)
  - TEE, WYE, TEE/WYE OR COMBINATION OF WYE & 45° BEND FITTINGS SHALL BE USED AS REQUIRED



**WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL**

**DOUBLE LATERAL  
COMBINED 6" BY TWO 4" LATERALS**

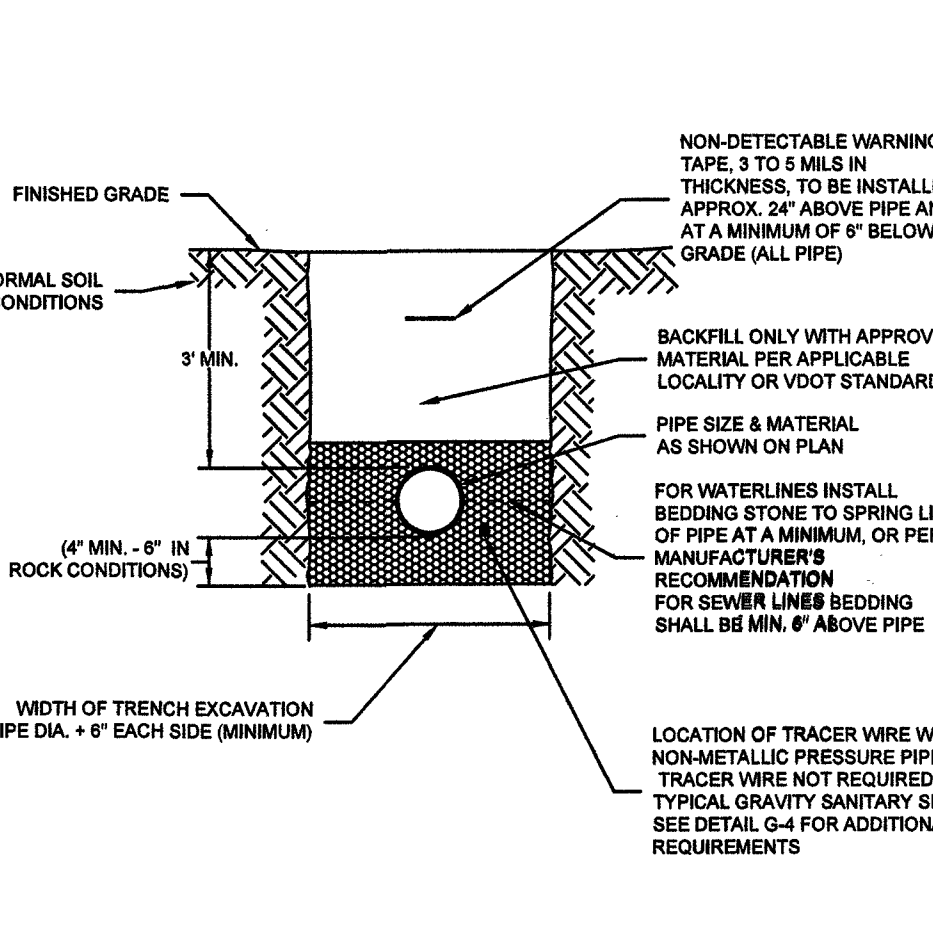
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## WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

### JOINING DISSIMILAR PIPE FOR USE WITH EXISTING PIPE

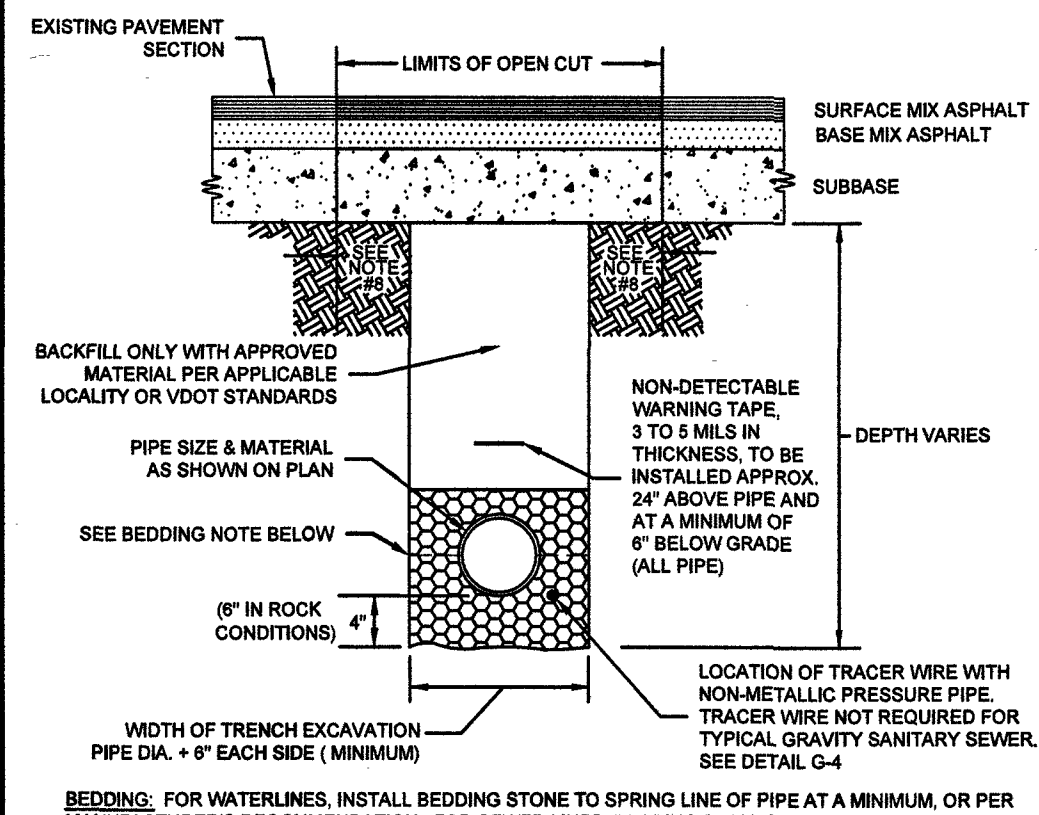
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**WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL**

**BEDDING AND BACKFILL  
OUTSIDE OF PAVED AREAS**

- 
- EXISTING PAVEMENT SECTION
- LIMITS OF OPEN CUT
- SURFACE MIX ASPHALT
- BASE MIX ASPHALT
- SUBBASE
- DEPTH VARIES
- NON-DETECTABLE WARNING TAPE, 3 TO 5 MILS IN THICKNESS, TO BE INSTALLED APPROX. 24" ABOVE PIPE AND AT A MINIMUM OF 6" BELOW GRADE (ALL PIPE)
- BACKFILL ONLY WITH APPROVED MATERIAL, PER APPLICABLE LOCALITY OR VDOT STANDARDS
- PIPE SIZE & MATERIAL AS SHOWN ON PLAN
- SEE BEDDING NOTE BELOW
- (6" IN ROCK CONDITIONS)
- WIDTH OF TRENCH EXCAVATION
- PIPE DIA. + 6" EACH SIDE (MINIMUM)
- LOCATION OF TRACER WIRE WITH NON-METALLIC PRESSURE PIPE. TRACER WIRE NOT REQUIRED FOR TYPICAL GRAVITY SANITARY SEWER. SEE DETAIL G-4
- BEDDING:** FOR WATERLINES, INSTALL BEDDING STONE TO SPRING LINE OF PIPE AT A MINIMUM, OR PER



**WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL**

**BEDDING AND BACKFILL  
UNDER PAVEMENT AND IN RIGHT-OF-WAY**

08/01/14