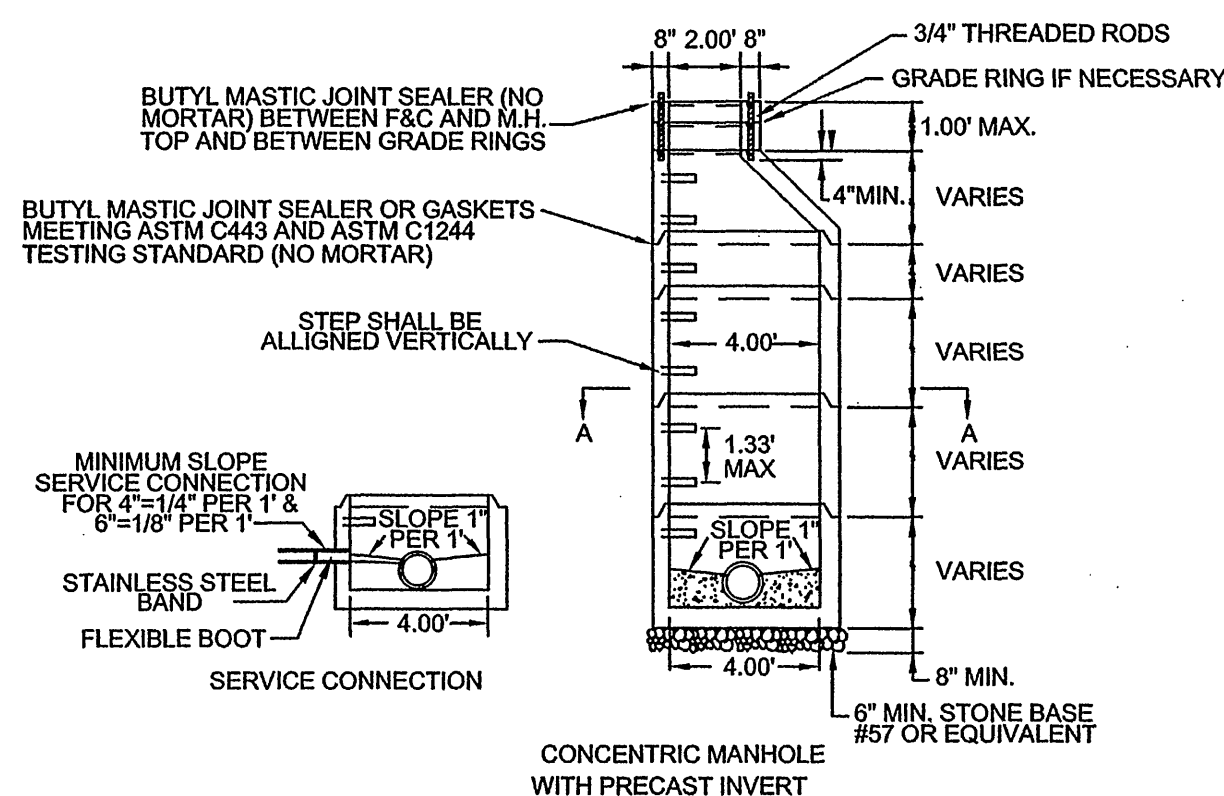
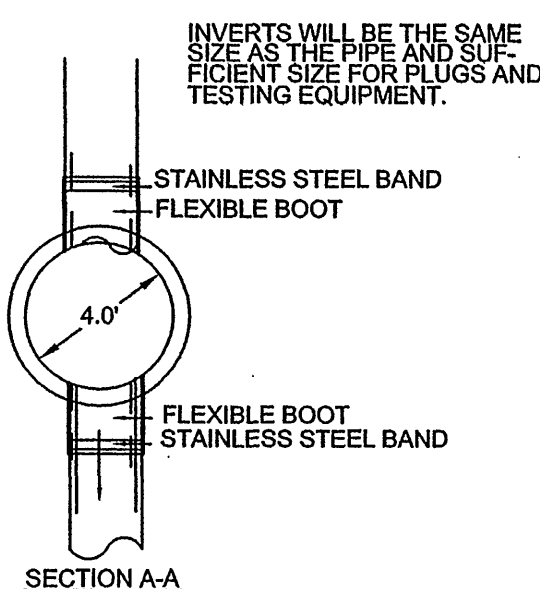
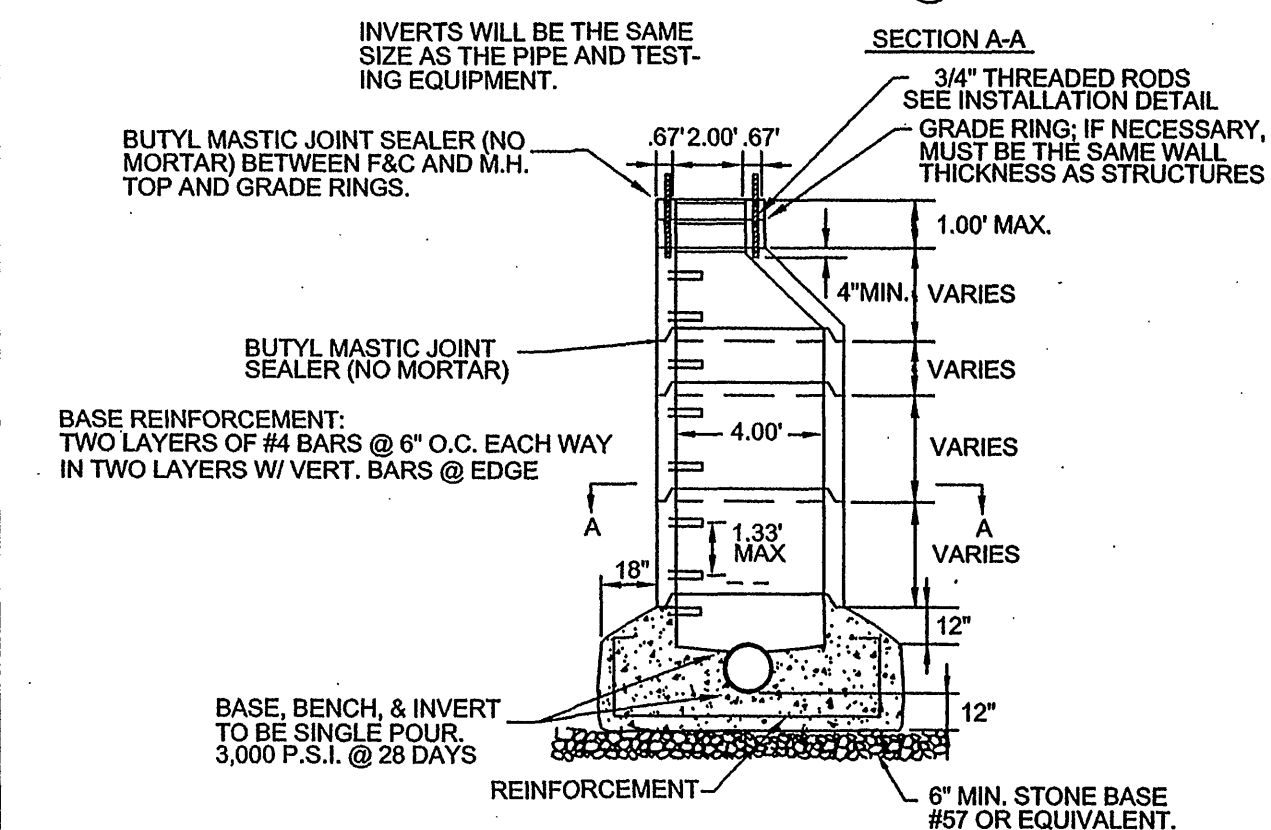
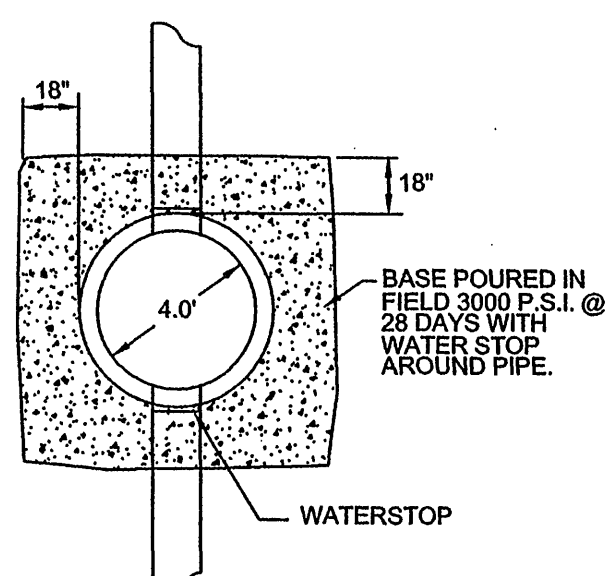


1. ALL MANHOLE FRAMES AND COVERS SHALL BE EAST JORDAN IRON WORKS, INC. WATERTIGHT COVER MODEL #1040AGS AND BOLT-DOWN MANHOLE COVER MODEL #1040AGS. THE COVER SHALL BE BOLT-DOWN TO BE USED IN AREAS SUBJECT TO FLOOD OR OVERPRESSURE BY THE AUTHORITY.
2. THE COVER SHALL BE VERTICAL & ALIGNED WITH THE FRAME AND COVER SHALL BE PROPERLY ALIGNED WITH THE 2 FOOT OPENING OF THE MANHOLE STRUCTURE TO THE STREET SPACE.
3. FLAT TOP MANHOLES MAY ONLY BE SUBSTITUTED WITH THE PERMISSION OF THE UTILITY DIRECTOR, WHEN USED, THE ECCENTRIC OPENING MUST LINE UP WITH THE TOPS.
4. SAMPLING MANHOLES IN TRAFFIC AREAS SHALL BE CONSTRUCTED AS PER MANHOLE DETAILS.
5. FLEXIBLE CURB, JURED BY PRECAST SLAB, GASKET CORPORATION OR EQUAL.
6. SUFFICIENT SPACE BETWEEN PIPE AND PRECAST MANHOLE ON INSIDE OF MANHOLE.



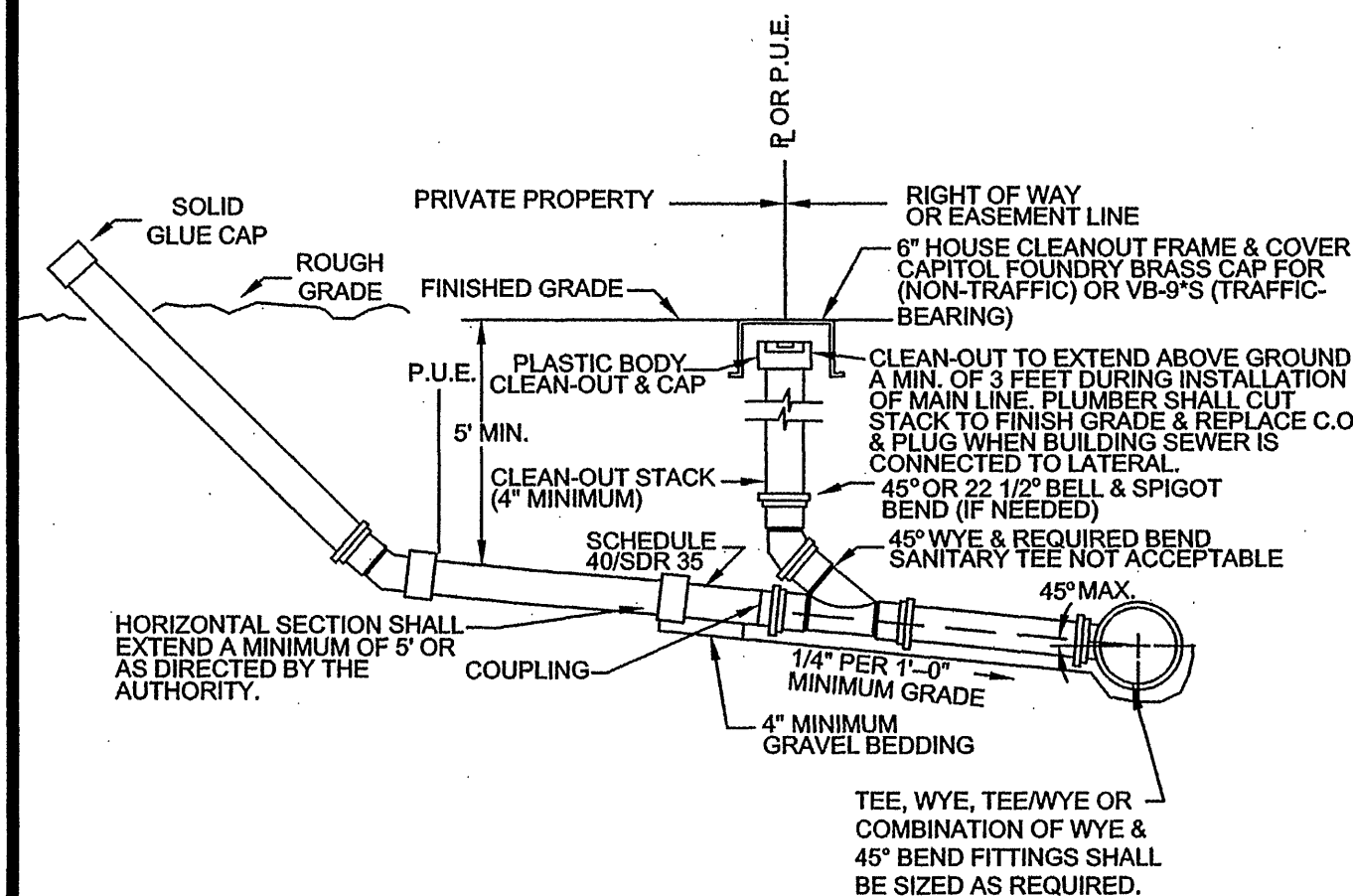
WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE		4' STANDARD MANHOLE FOR PIPE 15" OR SMALLER
07/01/04		
03/01/06		

1. ALL MANHOLE FRAMES AND COVERS SHALL BE EAST JORDAN IRON WORKS, INC. WATERIGHT MANHOLE FRAME MODEL #1044AC, WATERIGHT COVER MODEL #1044AC, OR APPROVED EQUAL COVER MODEL #1044ACQ, OR APPROVED EQUAL COVER MODEL #1044ACQ. THE COVER SHALL BE FLOODED OR AS DIRECTED BY THE AUTHORITY. THE COVER SHALL BE VERTICALLY ALIGNED. THE COVER SHALL BE INSTALLED INCLUDING FRAME AND COVER SHALL BE INSTALLED BEING THE BOTTOM OF THE SEWER PIPE IN THE MANHOLE. AUTHORITY IS NOT TO BE PRESENT DURING INSTALLATION.
2. THE FRAME AND COVER SHALL BE PROPERLY SET AND WITH THE FRAME OF THE MANHOLE STRUCTURE AND BOLTED IN PLACE.
3. RISER AND OTHER SECTIONS SHALL NOT BE INSTALLED FOR A MANHOLE.
4. AFTER POURING OF BASE, BENCH, & INVERT, GROUT ANNULAR SPACE BETWEEN PIPE AND COVER WITH BEST MATERIAL AVAILABLE.

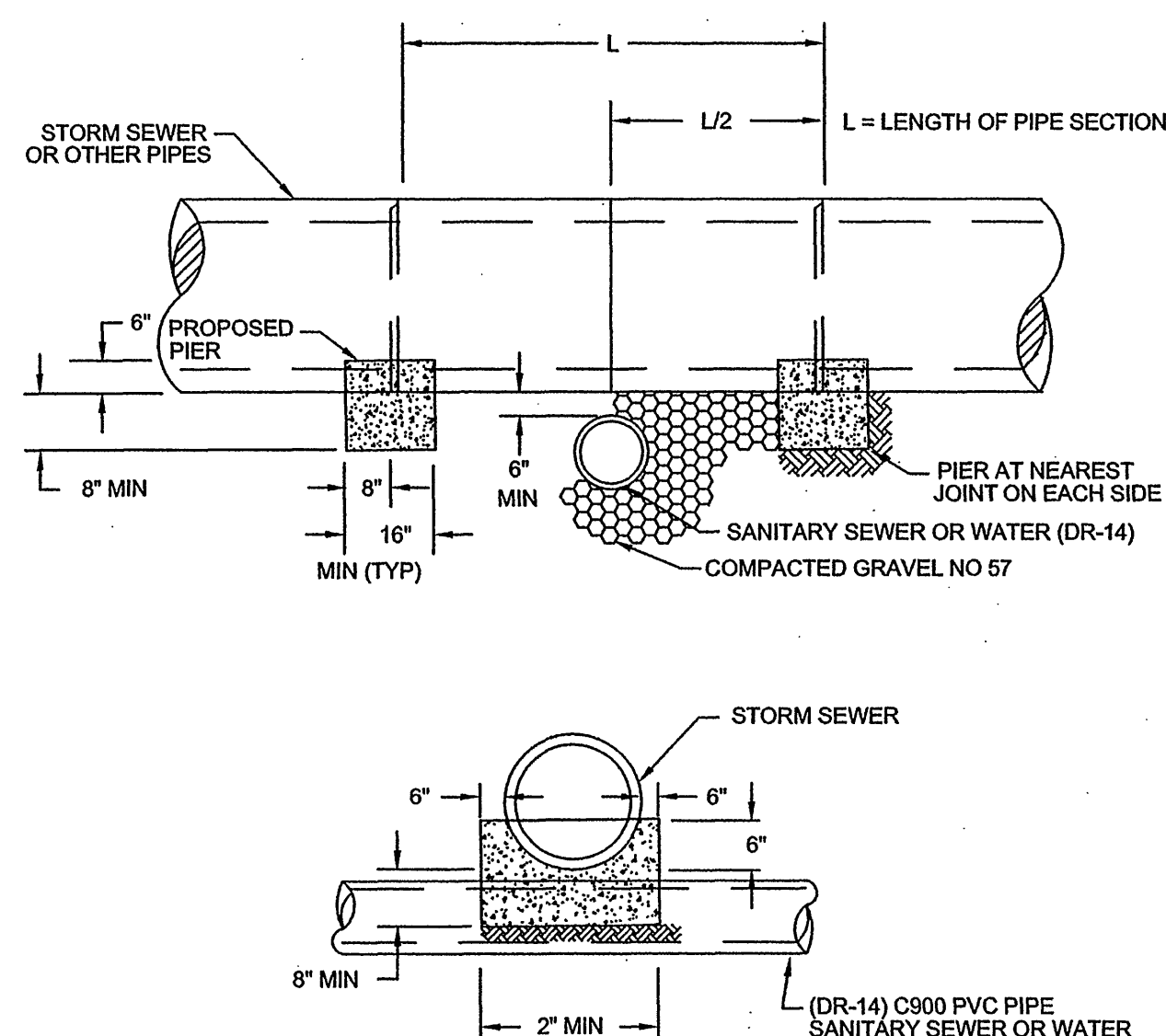


WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS			
REVISION DATE		STRADDLE MANHOLE FOR PIPE 15" OR SMALLER	S-02
07/01/04			

1. TRAFFIC BEARING BOX REQUIRED IN TRAFFIC AREAS.
2. ALL PIPE AND FITTINGS SHALL BE OF SIMILAR MATERIAL.
3. ALL PIPE SHALL BE OF SAME SIZE.
4. NO BENDS ARE ALLOWED IN THE LATERAL FROM THE MAIN TO THE CLEANOUT STACK (2 WYE EXD).
5. ALL MAIN LINE TAPS ON ACTIVE MAINS WILL BE PERFORMED BY WESTERN VIRGINIA WATER AUTHORITY.
6. ALL BEHIND CLEANOUTS TO BE INSTALLED PER BOCA CODE.
7. MINIMUM LATERAL SIZE:  
 4" FOR RESIDENTIAL SERVICE  
 6" FOR NON-RESIDENTIAL SERVICE
8. MINIMUM COVER FOR A SEWER LATERALS SHALL BE THREE(3) FEET.
9. PROPERTY OWNER RESPONSIBLE FOR INSTALLING CLEANOUT ON PROPERTY LINE WHEN MAINTENANCE OCCURS, IN ACCORDANCE WITH THIS STANDARD.
10. ALL CLEANOUTS SHALL BE A MINIMUM OF THREE FEET (3') BELOW LOWEST SERVICE FINISH D.F.



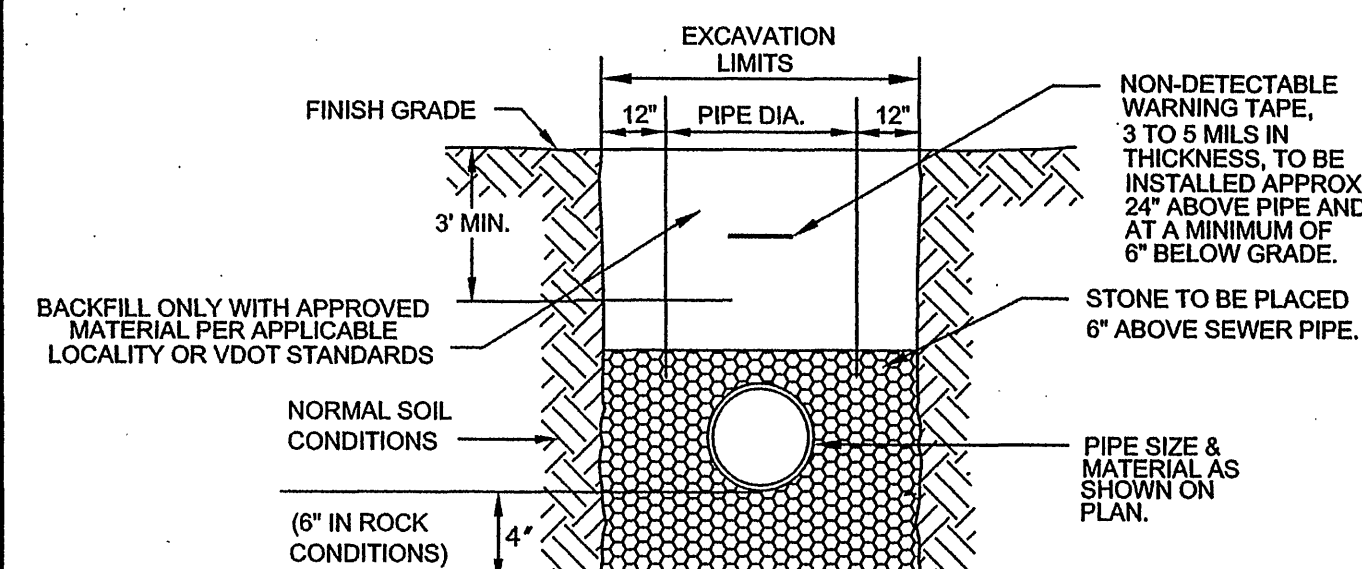
WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS			
REVISION DATE		SANITARY SEWER LATERAL	S-08
07/01/04			
03/01/06			



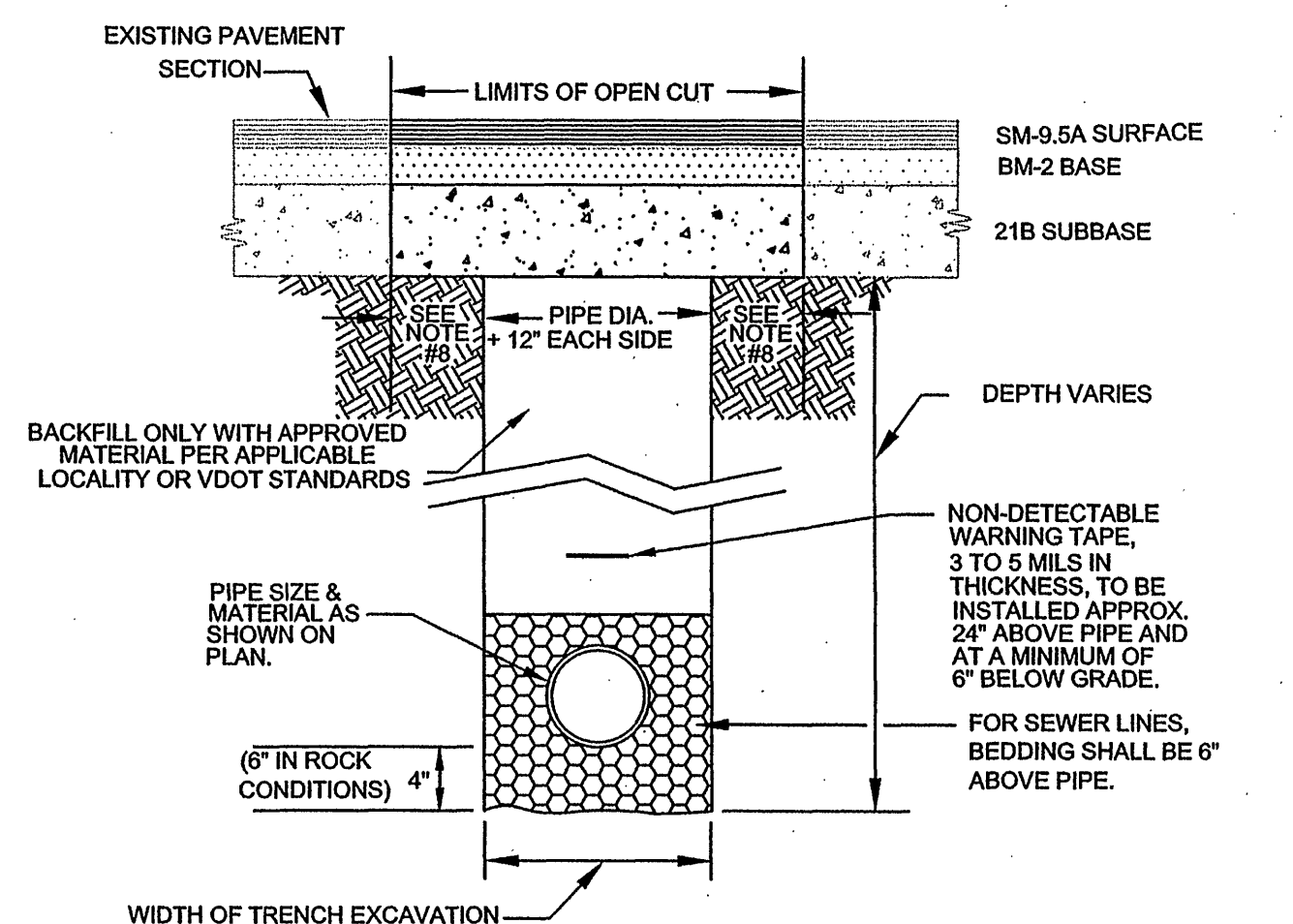
1. PIER REQUIRED WHEN STORM DRAIN OR OTHER PIPES CROSSES OVER THE OTHER UTILITY WITH A VERTICAL CLEARANCE OF LESS THAN 18".
2. PIER TO BE BUILT ON UNDISTURBED EARTH.
3. CONCRETE TO BE READY MIX. CI ASS A3.

[illegible]

1. BEDDING, HAUNCHING AND INITIAL BACKFILL CONSTRUCTION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.
2. ALL PVC PIPE SHALL BE BEDDED IN COMPACTED VDOT #67 OR #68 STONE.
3. IN AREAS NOT SUBJECT TO VEHICULAR TRAFFIC, BEDDING STONE AND FILL SHALL BE PLACED IN 6" LIFTS FROM THE BOTTOM OF THE TRENCH TO THE TOP OF THE HAUNCHING SHALL BE PLACED IN 10" LIFTS AND SHALL BE COMPACTED TO AT LEAST 90% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D 698.
4. ALL SEWER LINE PIPE SHALL BE BEDDED IN COMPACTED GRANULAR MATERIAL. BEDDING REQUIREMENTS FOR DUCTILE SEWER LINE ARE DEPENDENT ON MANUFACTURER'S BEDDING CRITERIA.
5. ALL EXCAVATIONS SHALL COMPLY WITH OSHA TECHNICAL MANUAL, CHAPTER 2, TITLED EXCAVATION COGNITION.

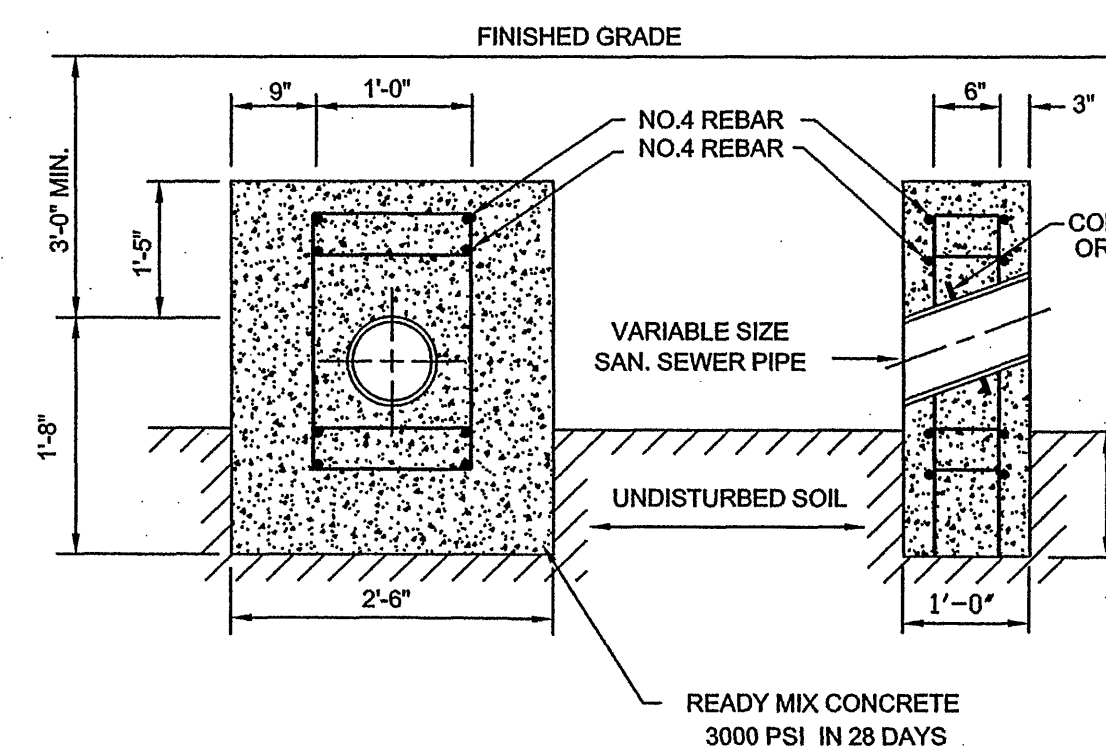


WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS			
REVISION DATE		BEDDING AND BACKFILL OUTSIDE OF PAVED AREAS	S-30
07/01/04			
03/01/06			



1. BEDDING, HAUNCHING AND INITIAL BACKFILL CONSTRUCTION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.
2. ALL PVC PIPE SHALL BE BEDDED IN COMPACTED VDOT #57 OR #68 STONE.
3. IN ROANOKE COUNTY, THE CONTRACTOR SHALL REPLACE THE OPEN CUT WITH A MINIMUM TOP COURSE OF 1.5" (MINIMUM) VDOT SM-45A, BASE COURSE OF 6" VDOT BM-250, AND SUBBASE OF 10" VDOT 21B OR AS REQUIRED BY VDOT IN ROANOKE CITY. CONTRACTOR SHALL REPLACE PAVEMENT AS REQUIRED BY CITY OF ROANOKE RIGHT OF WAY EXCAVATION AND RESTORATION STANDARDS.
4. ALL CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE AS SPECIFIED BY VDOT OR APPLICABLE LOCALITY.
5. PRIOR TO CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR SECURING ALL REQUIRED PERMITS FROM VDOT AND/OR APPLICABLE LOCALITY.
6. IN AREAS SUBJECT TO VEHICULAR TRAFFIC, BEDDING STONE AND FILL SHALL BE PLACED IN 6" LIFTS AND SHALL BE COMPACTED TO AT LEAST 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D698.
7. ALL SEWER LINE PIPE SHALL BE BEDDED IN COMPACTED GRANULAR MATERIAL. BEDDING REQUIREMENTS FOR DUCTILE SEWER LINE ARE DEPENDENT ON MANUFACTURER'S BEDDING CRITERIA.
8. BENCHOUT ON EACH SIDE OF PAVEMENT: CITY OF ROANOKE EQUALS 12"; VDOT RIGHT-OF-WAY EQUALS 6".
9. ALL EXCAVATIONS SHALL COMPLY WITH OSHA TECHNICAL MANUAL, CHAPTER 2, TITLED EXCAVATIONS AND SHIELDING, PRESENT EDITION.

<b>WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS</b>						
<b>REVISION DATE</b>						
07/01/04			BEDDING AND BACKFILL			S
03/01/06			UNDER PAVEMENT AND RIGHT-OF-WAY			



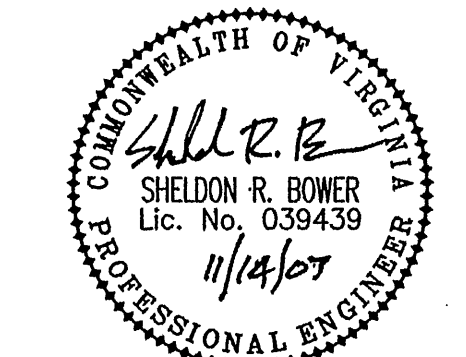
\* WITH WRITTEN APPROVAL OF UTILITY ENGINEER

WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS				
REVISION DATE		ANCHOR BLOCK	S-17	
07/01/04				
03/01/06				



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# Comprehensive Site Plan for The Village at Tinker Creek-Phase II Prepared for Star City Developers

**REVISIONS:**  
Revisions per Roanoke County comments  
 10-31-07  
Revisions per Roanoke County comments  
 11-14-07

DESIGNED BY: SKB

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DATE: July 20, 2007

**SHEET TITLE:**

## Sanitary Sewer Details

**C16**  
**16 OF 16**  
PROJECT NUMBER:  
**06-0402-04**