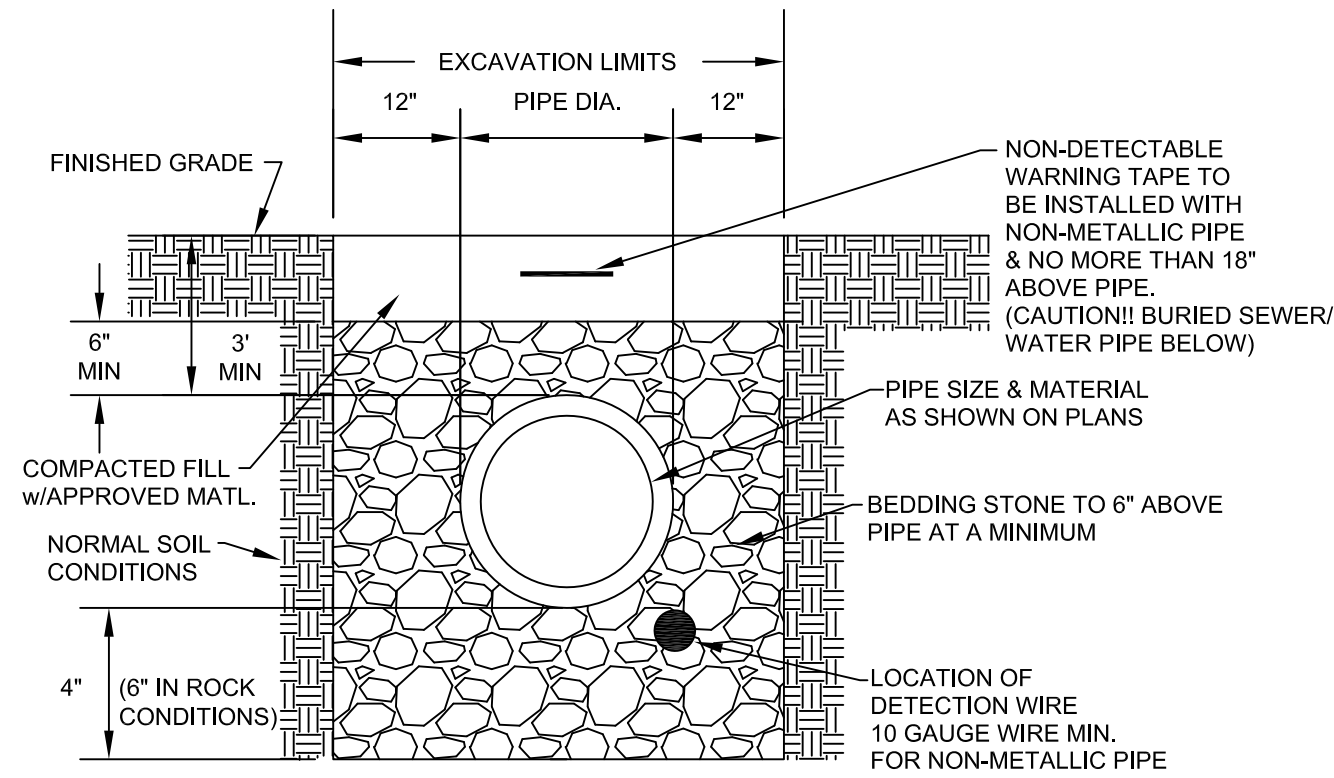


1. BEDDING, HAUNCHING AND INITIAL BACKFILL CONSTRUCTION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.
2. WHEN INSTALLING NON-DETECTABLE WARNING TAPE SHALL BE BURIED AT A MINIMUM 6" BELOW GRADE AND APPROXIMATELY 12" TO 18" ABOVE NON-METALLIC PIPE. IT SHALL BE INSTALLED IN THE STANDARD AND INSTALLED CONTINUOUS FROM VALVE BOX TO VALVE BOX OR MANHOLE TO MANHOLE.
3. ALL PVC PIPE SHALL BE BEDDED IN COMPACTED GRANULAR MATERIAL WHICH SHALL BE CRUSHED STONE OR 1/4" SAND AND 3/4" GRADUATED FILL.
4. IN AREAS NOT SUBJECTED TO VEHICULAR TRAFFIC, BEDDING STONE AND FILL SHALL BE PLACED IN 10" LIFTS AND SHALL BE COMPACTED TO AT LEAST 90% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D1557.
5. ALL SEWER LINE PIPE SHALL BE BEDDED IN COMPACTED GRANULAR MATERIAL. BEDDING REQUIREMENTS FOR ALL UTILITY LINES ARE DEPENDENT ON THE MANUFACTURER'S BEDDING CRITERIA.
6. ALL EXCAVATIONS SHALL COMPLY WITH OSHA REGULATIONS, CHAPTER 2, TITLED "EXCAVATIONS: HAZARD RECOGNITION IN TRENCHING AND SHORING."

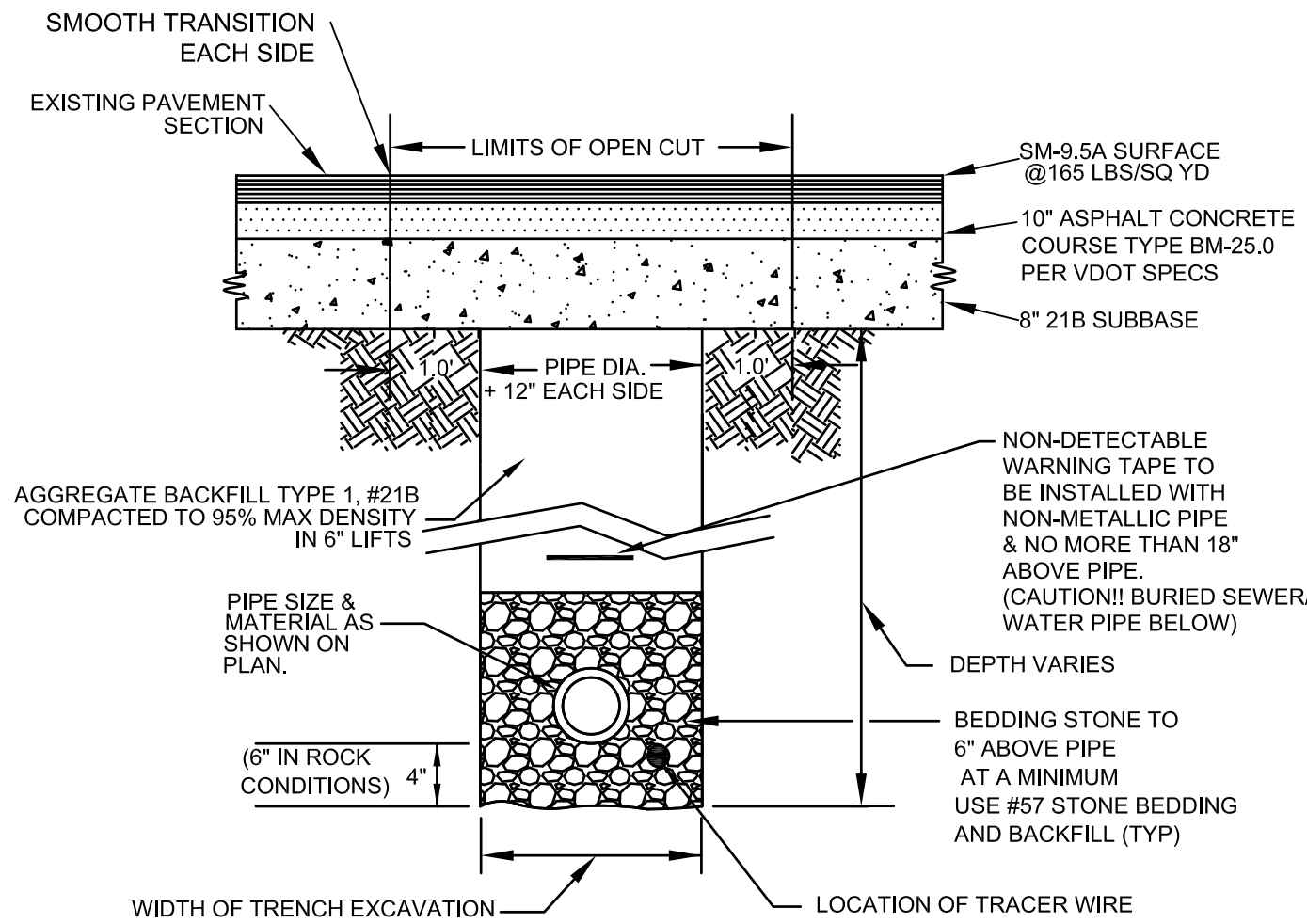


**BOTETOURT COUNTY**  
**PUBLIC FACILITIES & PROGRAMS**  
30 WEST BACK STREET, NUMBER 4  
FINCASTLE, VA 24090  
Ph: 540-473-8316  
Fx: 540-473-8360

## CONSTRUCTION STANDARDS

### BEDDING AND BACKFILL OUTSIDE OF PAVED AREAS

DATE: MARCH 2005	BC #  G-01
REVISIONS	



1. THE CONTRACTOR SHALL REPLACE THE OPEN CUT WITH A MINIMUM TOP COURSE OF 2" VDOT SM-9.5A, BASE COURSE OF 3" VDOT BM-2, AND SUBBASE OF 8" VDOT 21B, OR AS REQUIRED BY VDOT.
2. ALL CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE AS SPECIFIED BY VDOT.
3. PRIOR TO CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR SECURING ALL REQUIRED PERMITS FROM VDOT.
4. ALL WATER LINES BENEATH PAVEMENT SHALL BE DUCTILE IRON UNLESS INSTALLED IN CASING PIPE OR BY DIRECTIONAL BORING.
5. IN AREAS SUBJECTED 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 D 698.
6. ALL SEWER LINE PIPE SHALL BE BEDDED IN COMPACTED GRANULAR MATERIAL. BEDDING REQUIREMENTS FOR DUCTILE IRON PIPE ARE DEPENDENT ON MANUFACTURER'S BEDDING CRITERIA.
7. ALL PVC PIPE SHALL BE BEDDED IN COMPACTED GRANULAR MATERIAL.
8. ALL EXCAVATIONS SHALL COMPLY WITH OSHA TECHNICAL MANUAL, CHAPTER 2, TITLE "EXCAVATIONS: HAZARD RECOGNITION IN TRENCHING AND SHORING."

TRACK COAT 0.05 -0.15 GAL SHALL CONFORM TO REQUIREMENTS OF AASHTO M208 PER SQ.YD (TYP)



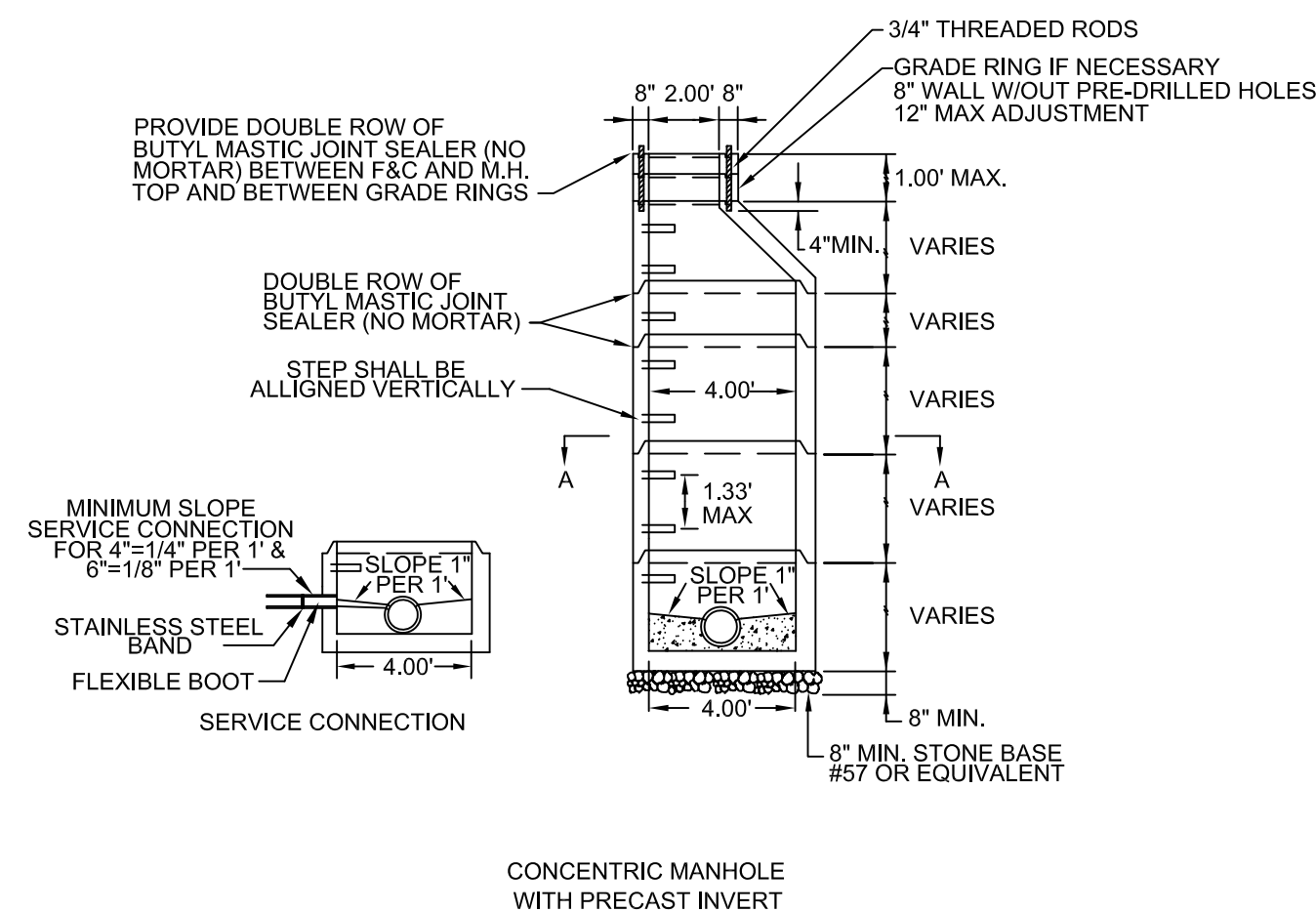
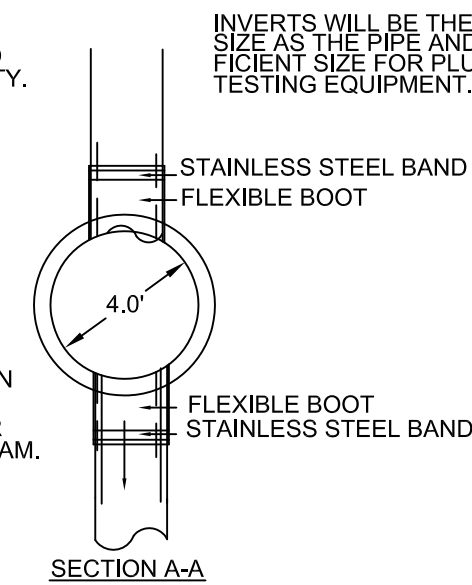
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**CONSTRUCTION STANDARD**

**BEDDING AND BACKFILL**  
**UNDER PAVEMENT**

DATE:	MARCH 2005	BC #  G-02
REVISIONS		

1. ALL MANHOLE FRAMES AND COVERS SHALL BE EXIST MANHOLE IRON WORKS, INC. WATER TIGHT MANHOLE FRAME MODEL #104045Z, WATER TIGHT MANHOLE FRAME MODEL #104046Z, BOLT DOWN MANHOLE COVER MODEL #104046CS, BOLT DOWN MANHOLE COVER MODEL #104046CS.
2. BOLT-DOWN MODEL TO BE USED IN AREAS SUBJECT TO HIGH WIND OR AS SPECIFIED BY SOLETCOURT COUNTY.
3. STEPS TO BE VERTICALLY ALIGNED.
4. THE FRAME AND COVER SHALL BE PROPERLY ALIGNED WITH THE 2 FOOT OPENING OF THE EXISTING STRUCTURE TO BE REMOVED IN PLACE.
5. FLAT TOP MANHOLES MAY ONLY BE SUBSTITUTED WITH THE PERMISSION OF THE UTILITY DIRECTOR.
6. THE ECCENTRIC OPENING MUST LINE UP WITH THE STEPS.
7. SAMPLING MANHOLES IN TRAFFIC AREAS SHALL BE CONSTRUCTED AS PER MANHOLE DETAILS.
8. ALL MANHOLE FRAMES AND COVERS SHALL BE MANUFACTURED BY PRE-SALE GASKET CORPORATION OR EQUAL.
9. PRE-SALE MANHOLES SHALL BE FROM MANUFACTURER WITH A VDOT APPROVED QUALITY ASSURANCE PROGRAM.

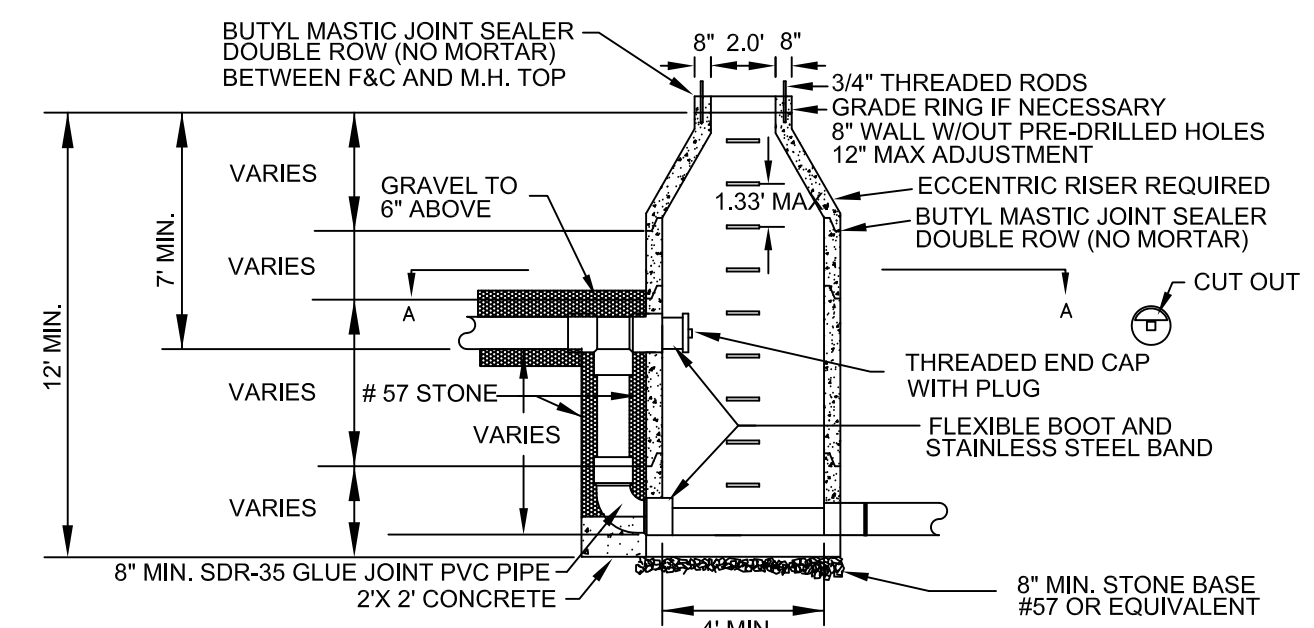
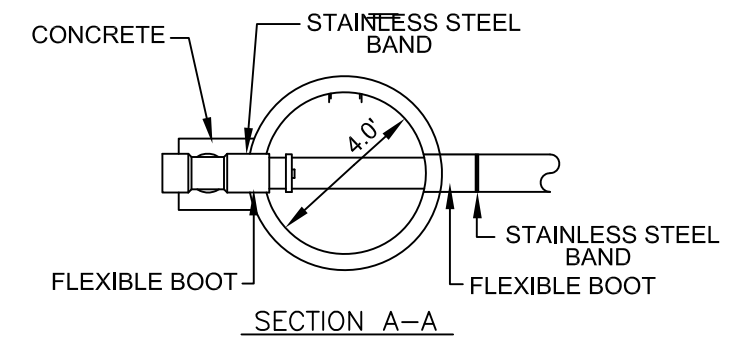


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CONSTRUCTION STANDARD:  
4ft STANDARD MANHOLE  
FOR PIPES 15"  
AND SMALLER

DATE: MARCH 2005	BC #  SS-01
REVISIONS	

1. ALL MANHOLE FRAMES AND COVERS SHALL BE EAST JORDAN IRON WORKS, INC. WATERTIGHT MANHOLE FRAME MODEL #10452. WATERTIGHT COVER MODEL #10404GS AND BOLT-DOWN MANHOLE COVER MODEL #10404GS. THE BOLT-DOWN MODEL TO BE USED IN AREAS SUBJECT TO FLOODING OR AS DIRECTED BY BOTETOURT COUNTY.
2. STEPS TO BE VERTICALLY ALIGNED.
3. THE FRAME AND COVER SHALL BE PROPERLY ALIGNED WITH THE 2 FOOT OPENING OF THE MANHOLE STRUCTURE AND BOLTED IN PLACE.
4. TOP INVERT LINE SHALL NOT ENTER THROUGH RISE AND FALL NOTATION.
5. FLEXIBLE JOINT MANHOLE CONNECTION SHALL BE AS MANUFACTURED BY PRE-SEAL GASKET CORPORATION OR EQUAL.
6. PRECAST MANHOLES SHALL BE FROM MANUFACTURER WITH A VDOT APPROVED QUALITY ASSURANCE PROGRAM.

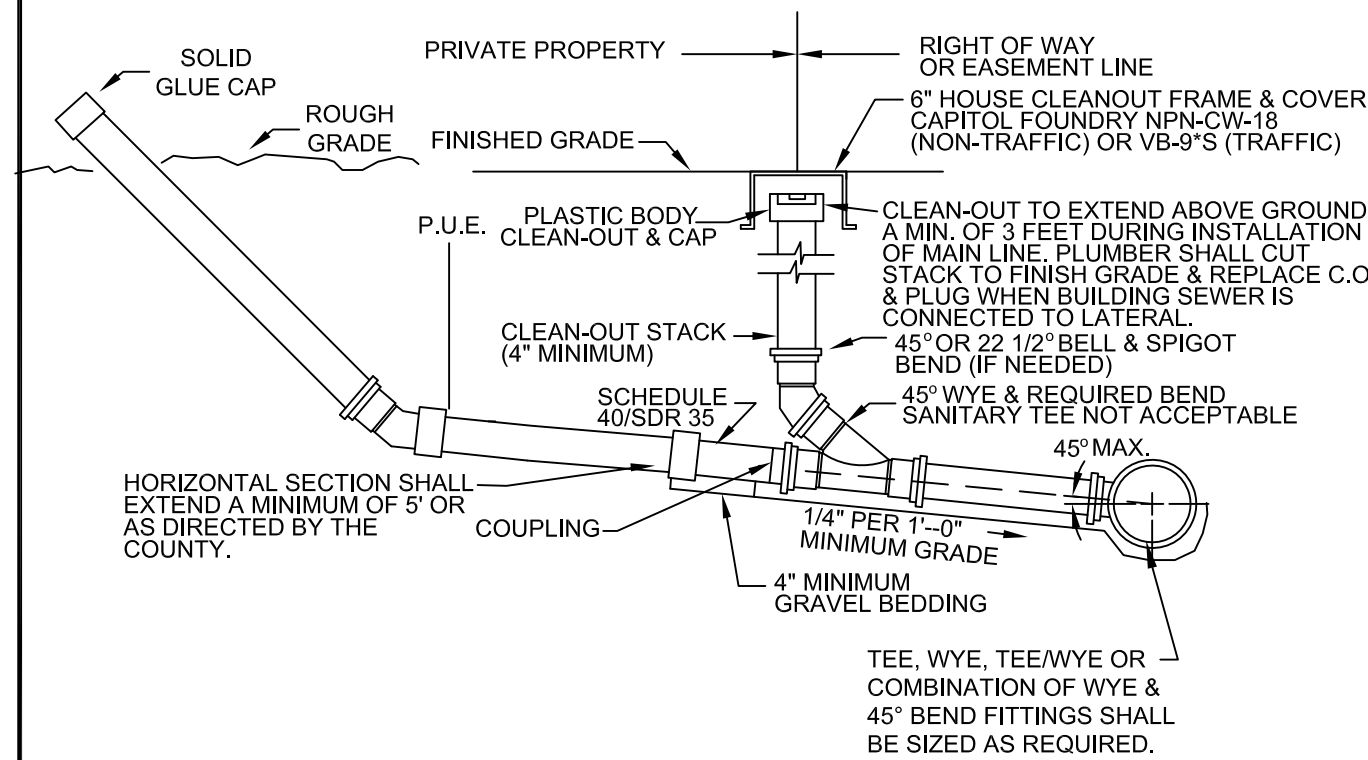


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CONSTRUCTION STANDARDS	
MAINLINE OR OUTSIDE DROP (FOR USE WITH	LATERAL MANHOLE PVC PIPE)

DATE: MARCH 2005		BC #  SS-03
REVISIONS		

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 WYE. (EXCEPT AS NOTED)
5. ALL MAIN LINE TAPS ON ACTIVE MAINS WILL BE PERFORMED BY CONTRACTOR
6. AND INSDS REQUIRED BY BOCA IN THE COUNTY
7. PIPING BETWEEN CLEANOUT TO BE INSTALLED PER BOCA CODE.
8. MINIMUM LATERAL SIZE:
  - 4" FOR RESIDENTIAL SERVICE
  - 6" FOR NON-RESIDENTIAL SERVICE
9. MINIMUM COVER FOR ALL SEWER LATERALS SHALL BE THREE(3) FEET.
10. PROPERTY OWNER RESPONSIBLE FOR INSTALLING CLEANOUT ON PROPERTY LINE WHEN MAINTENANCE OCCURS.

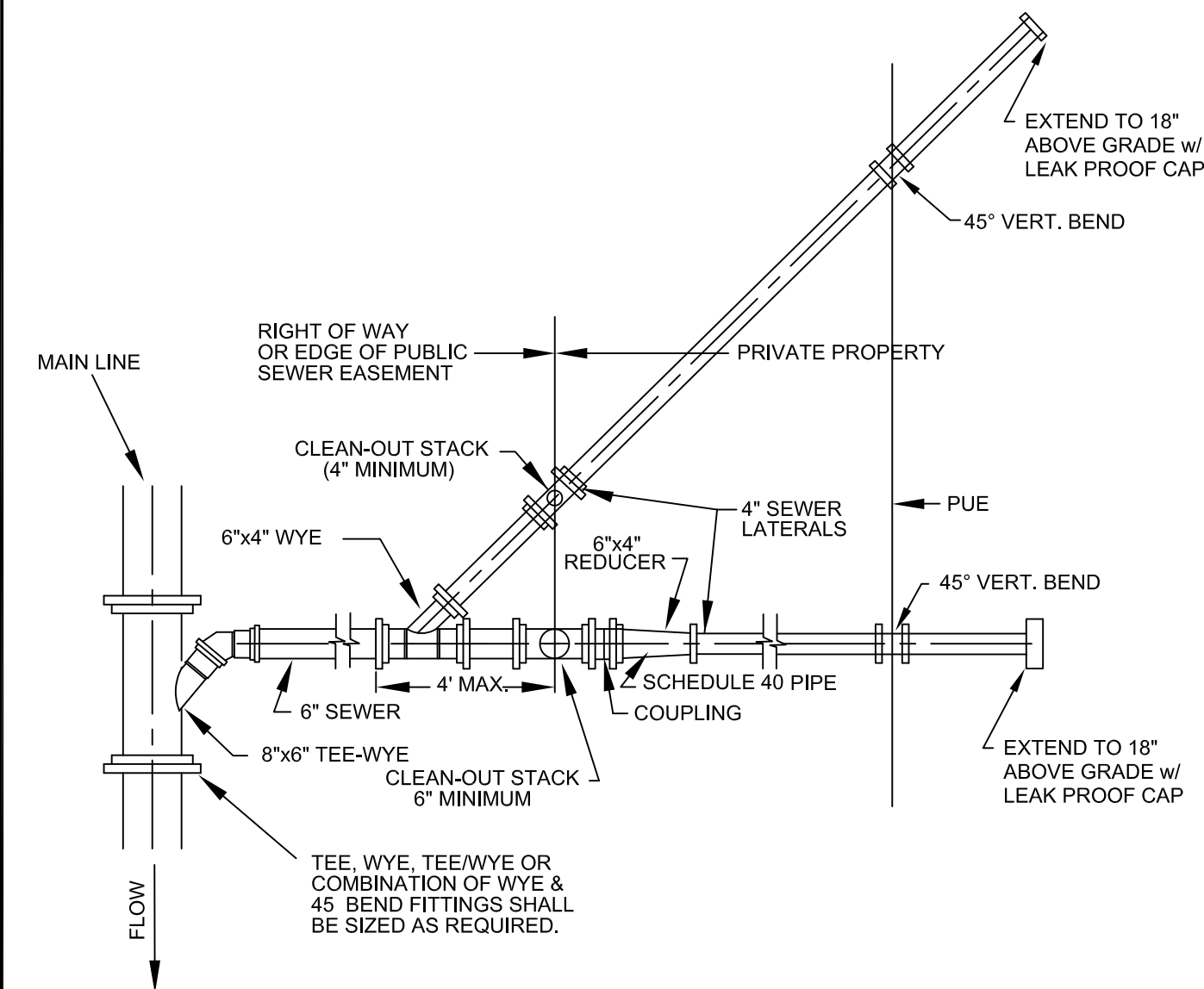


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CONSTRUCTION STAND.  
SANITARY SEWER  
LATERAL

DATE:	MARCH 2005	BC #
REVISIONS		
		SS-08

1. TRAFFIC BEARING BOX REQUIRED IN TRAFFIC AREAS.
2. ALL PIPE AND FITTINGS SHALL BE OF SIMILAR MATERIAL.
3. ALL PIPE SHALL BE OF SIZE SHOWN.
4. NO BENDS ARE ALLOWED IN THE LATERAL FROM THE MAIN TO THE CLEAN-OUT STACK WYE.  
(EXCEPT AS NOTED.)
5. ALL MAIN LINE TAPS ON ACTIVE MAINS WILL BE PERFORMED BY CONTRACTOR AND INSPECTED BY THE COUNTY.
6. PIPING BETWEEN CLEANOUT TO BE INSTALLED PER BOCA CODE.
7. MINIMUM COVER FOR ALL SEWER LATERALS SHALL BE THREE (3) FEET.
8. PROPERTY OWNER RESPONSIBLE FOR INSTALLING CLEANOUT ON PROPERTY LINE WHEN MAINTENANCE OCCURS.

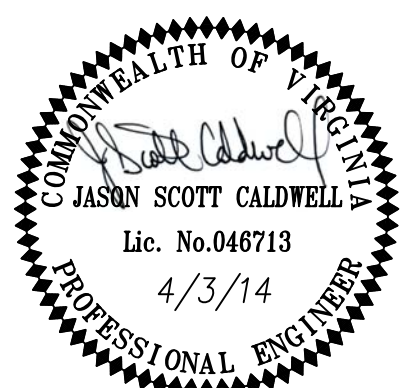


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CONSTRUCTION STANDARD  
COMBINED 6" BY  
TWO 4" SANITARY  
SEWER LATERALS

DATE:	MARCH 2005	
REVISIONS	BC #	

SS-11

[illegible]

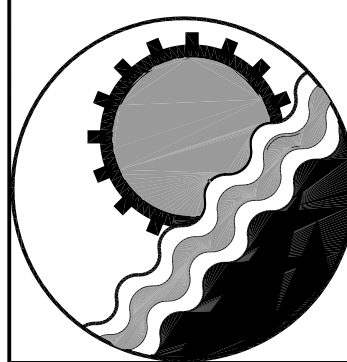
Drawn	MSM
Designed	MSM
Checked	JSC
Approved	JSC

SANITARY SEWER ADDITION  
SANITARY SEWER DETAILS

BERKLEY COMMONS  
TROUTVILLE, VIRGINIA

SCALE: NONE
DATE: APRIL 3, 2014
PROJECT: 14019

2 of 2



**ENGINEERING CONCEPTS, INC.**

**20 S. ROANOKE ST., PO BOX 619  
FINCASTLE, VIRGINIA 24090  
540.473.1253 FAX: 540.473.1254**