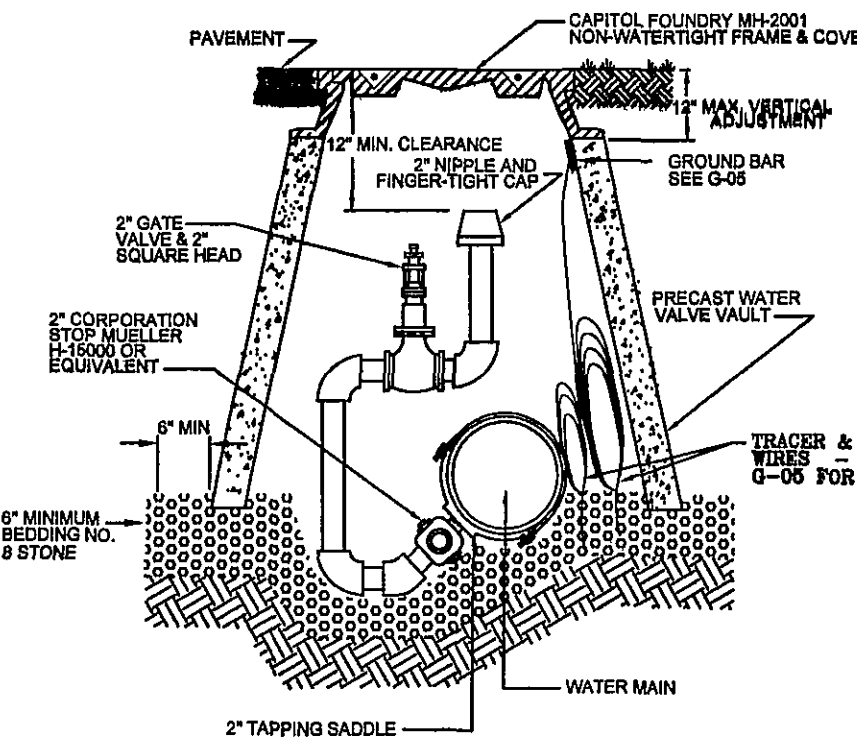
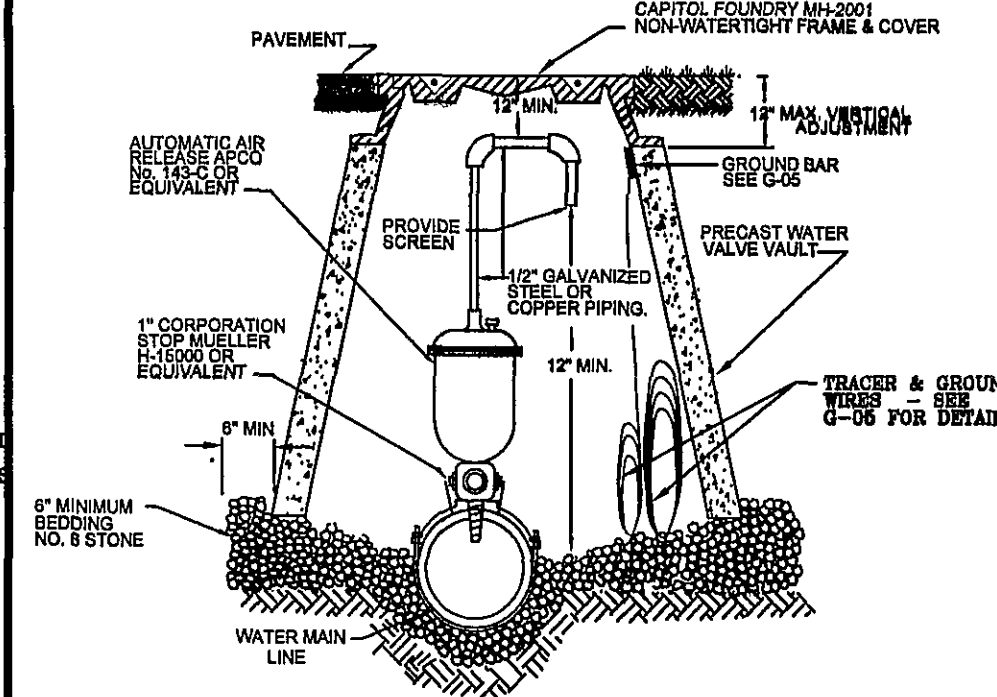


WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	W-08
07/01/04	WATER LINE VALVE	
03/01/06	INSTALLATION	

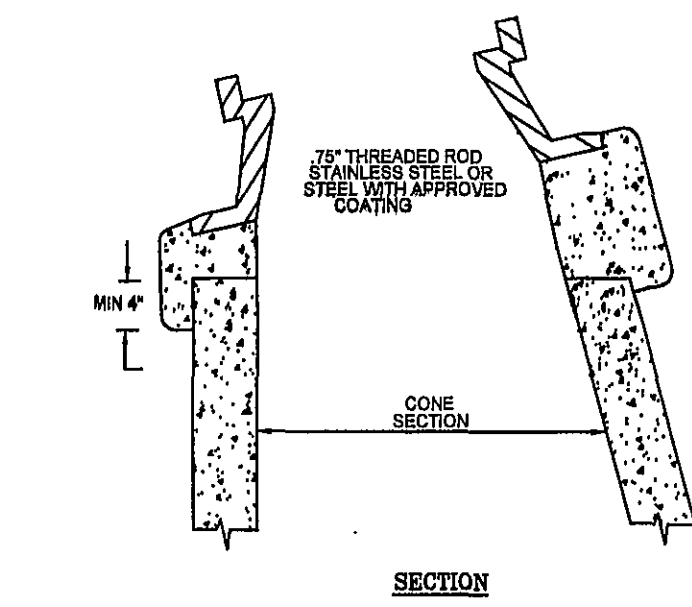
1. FIRE HYDRANTS MAY BE USED AT LOWPOINTS IN PLACE OF BLOW-OFFS WHERE IT IS DEMONSTRATED THAT A MINIMUM FLOWING VELOCITY OF 4 FT/S IS PROVIDED.
2. LINE AND "STREET ELB" BETWEEN CORPORATION STOP AND 2" GATE VALVE SHALL BE BRASS



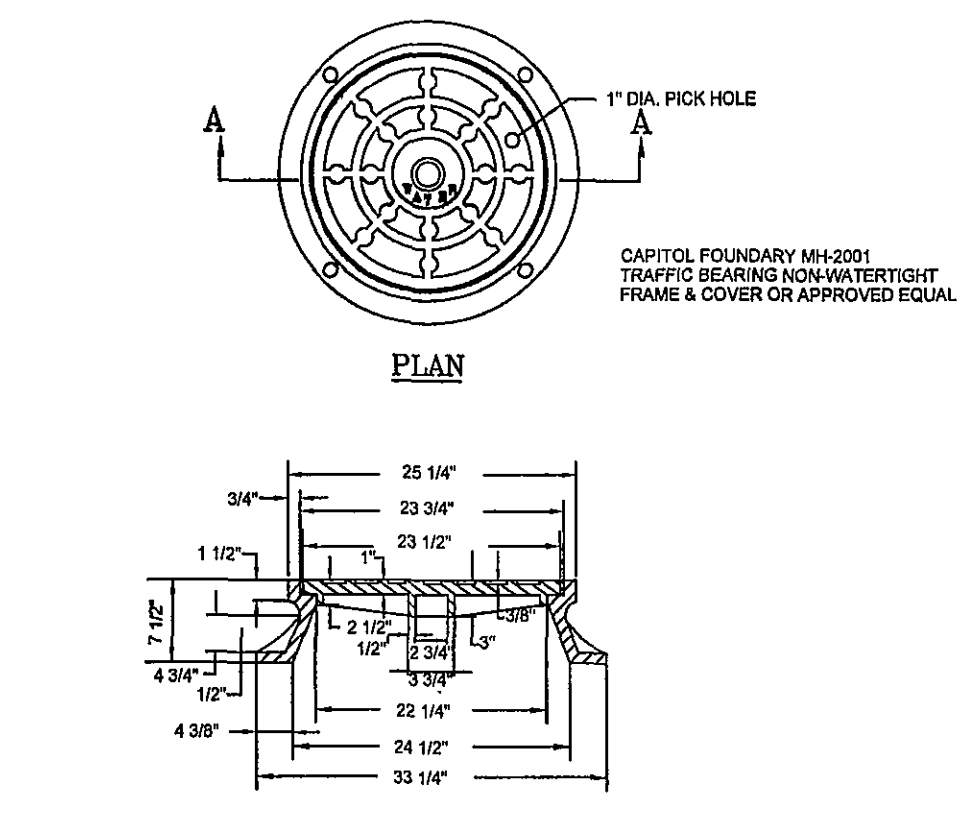
WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	W-11
07/01/04	IN-LINE	
03/01/06	BLOW-OFF ASSEMBLY	



WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	W-12
07/01/04	AUTOMATIC AIR	
03/01/06	RELEASE ASSEMBLY	

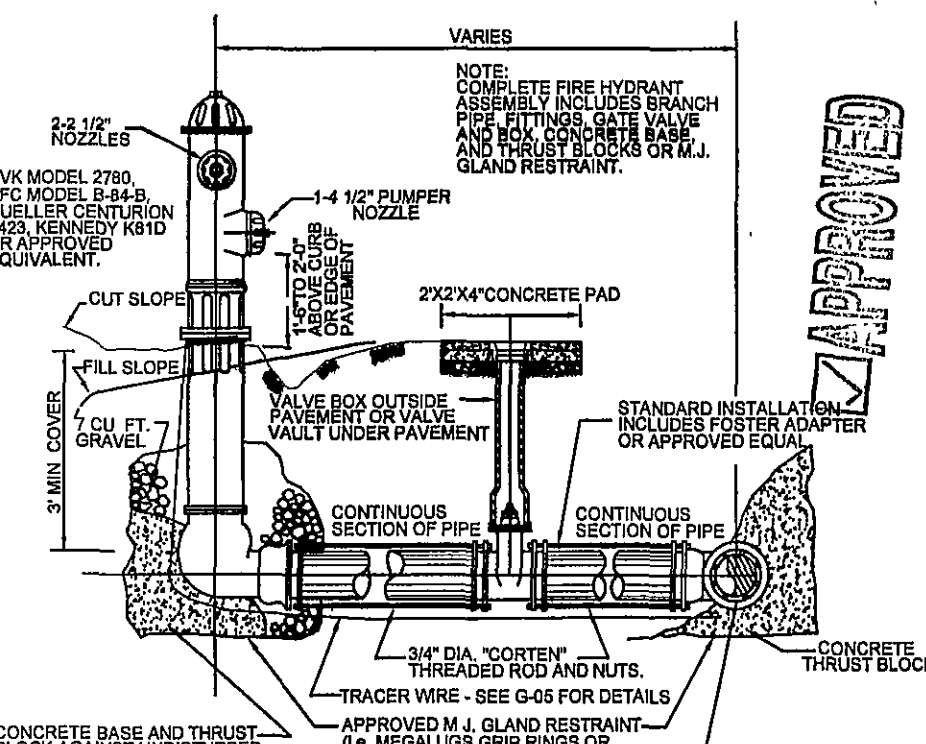


WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	W-16
07/01/04	INSTALLATION DETAIL	
03/01/06	FOR ALL FRAMES AND COVERS	



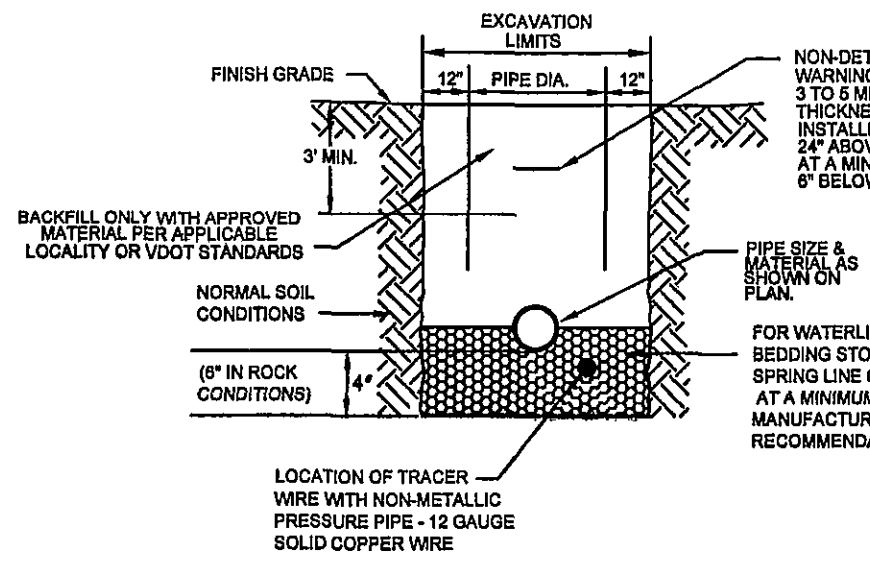
WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	W-17
07/01/04	MANHOLE FRAME	
03/01/06	AND COVER	

1. PUBLIC HYDRANTS SHALL BE PAINTED SILVER WITH AN OIL-BASED PAINT AND PRIVATE HYDRANTS SHALL BE PAINTED WHITE WITH AN OIL-BASED PAINT.
2. FIRE HYDRANT SHALL BE INSTALLED 7 MIN. AND 4 MAX. FROM BACK OF CURB OR 8 MIN. AND 12 MAX. WHEN CURB IS NOT PRESENT. FIRE HYDRANT TO BE INSTALLED WITHIN RIGHT-OF-WAY OR EASEMENT LINE.
3. HYDRANT SHALL BE INSTALLED AT A MINIMUM OF 4 FT. LEVEL, AND UNBUILT, UNCONSTRUCTED.
4. WATERPROOF BAGS SHALL BE PLACED OVER ALL NEWLY INSTALLED FIRE HYDRANTS.
5. HIGH PRESSURE (OVER 120 PSI) REQUIRES THE USE OF 3" RESTRAINTS.

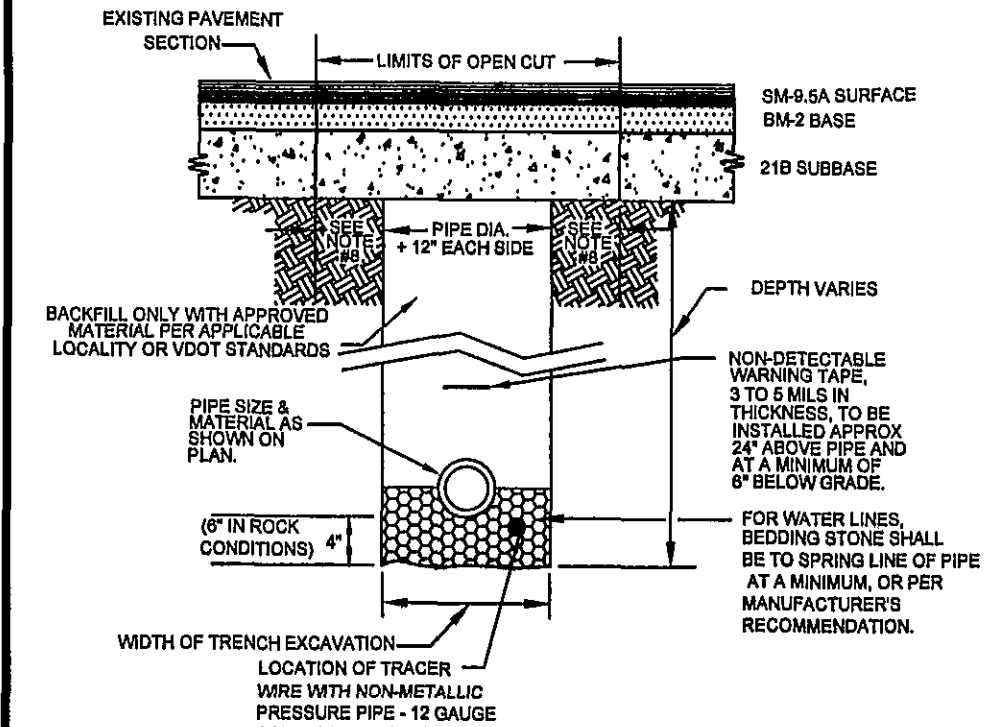


WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	W-18
07/01/04	FIRE HYDRANT	
03/01/06	ASSEMBLY	

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 #88 STONE.
3. IN AREAS NOT 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 12" 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."

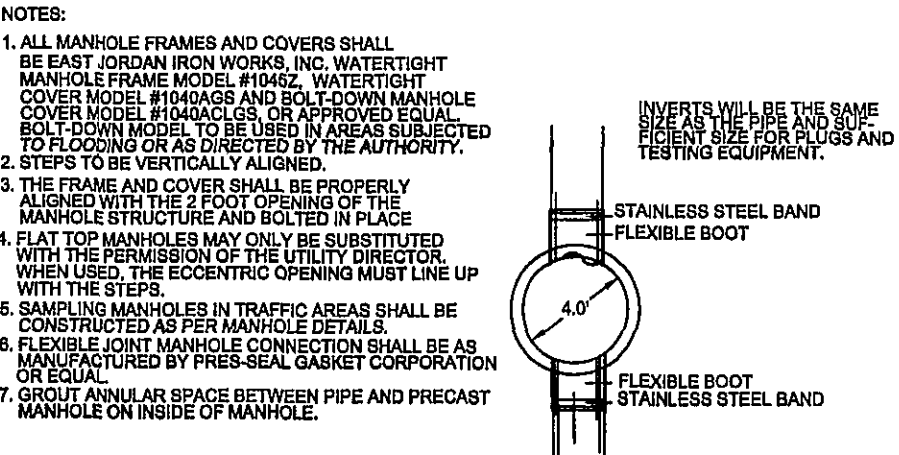


WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	W-24
07/01/04	BEDDING AND BACKFILL	
03/01/06	OUTSIDE OF PAVED AREAS	

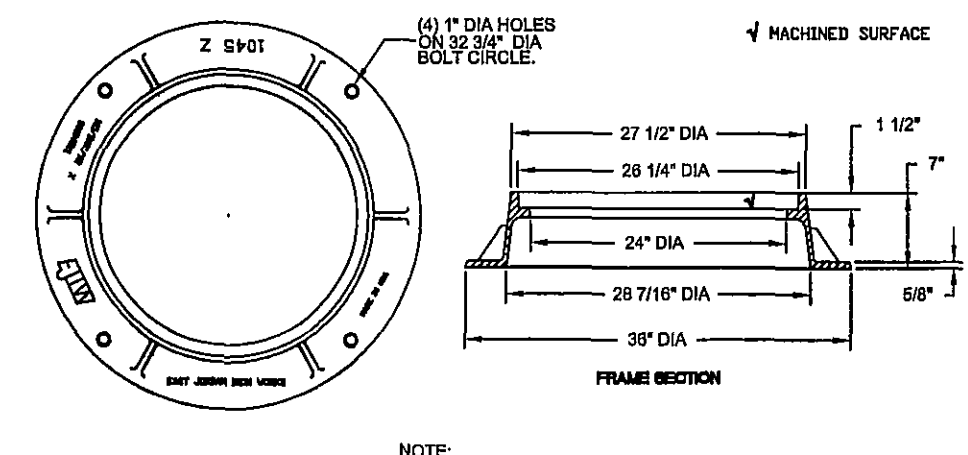


1. BEDDING, HAUNCHING AND INITIAL BACKFILL CONSTRUCTION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.
2. ALL PVC PIPE SHALL BE BEDDED IN COMPACTED VDOT #57 OR #88 STONE.
3. IN ROANOKE COUNTY, THE CONTRACTOR SHALL REPLACE THE OPEN CUT WITH A MINIMUM TOP COURSE OF 1 1/2" MINIMUM VDOT #57.4 BASE COURSE OF 1" VDOT #57.4 AND SUBBASE OF 1" VDOT #57.4.
4. ALL EXCAVATIONS SHALL COMPLY WITH OSHA TECHNICAL MANUAL, CHAPTER 2, TITLED "EXCAVATIONS: HAZARD RECOGNITION IN TRENCHING AND SHORING."

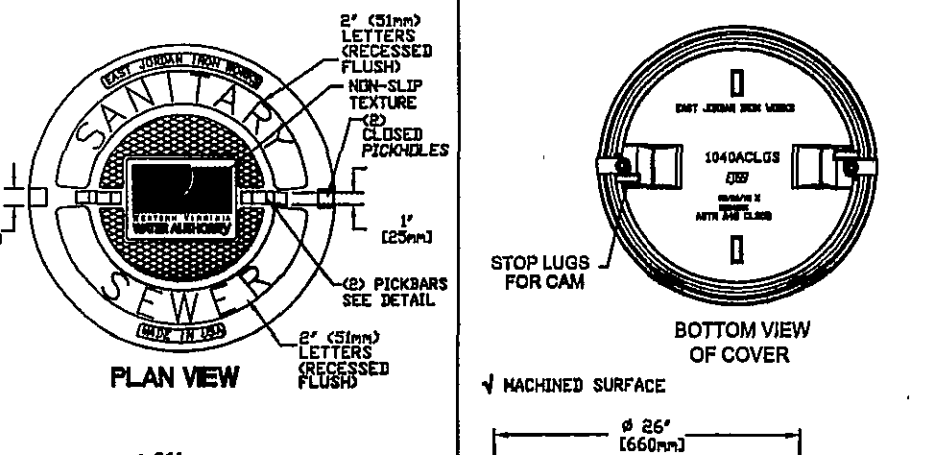
WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	W-25
07/01/04	BEDDING AND BACKFILL	
03/01/06	UNDER PAVEMENT AND RIGHT-OF-WAY	



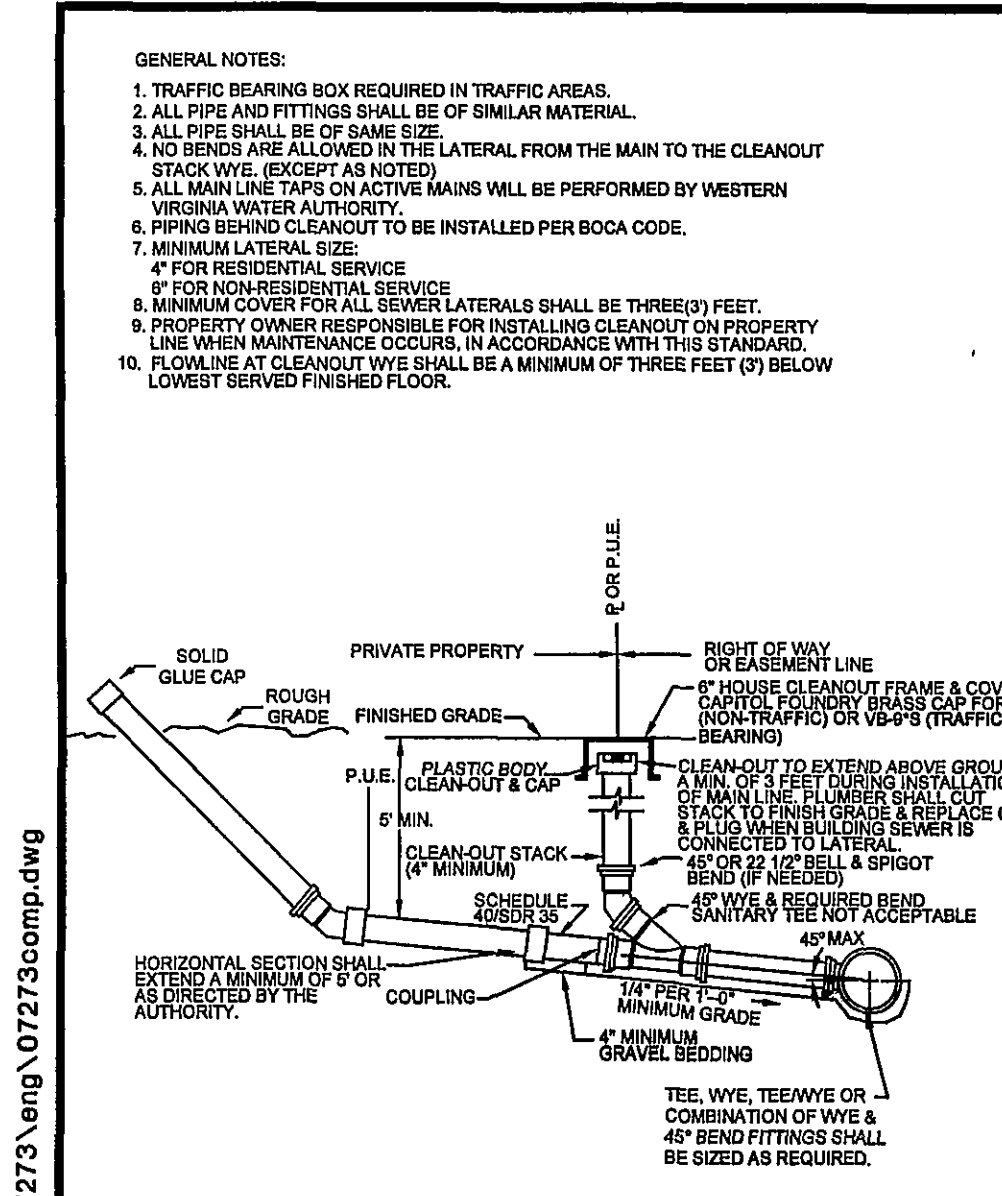
WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	S-01
07/01/04	4' STANDARD MANHOLE	
03/01/06	FOR PIPE 16" OR SMALLER	



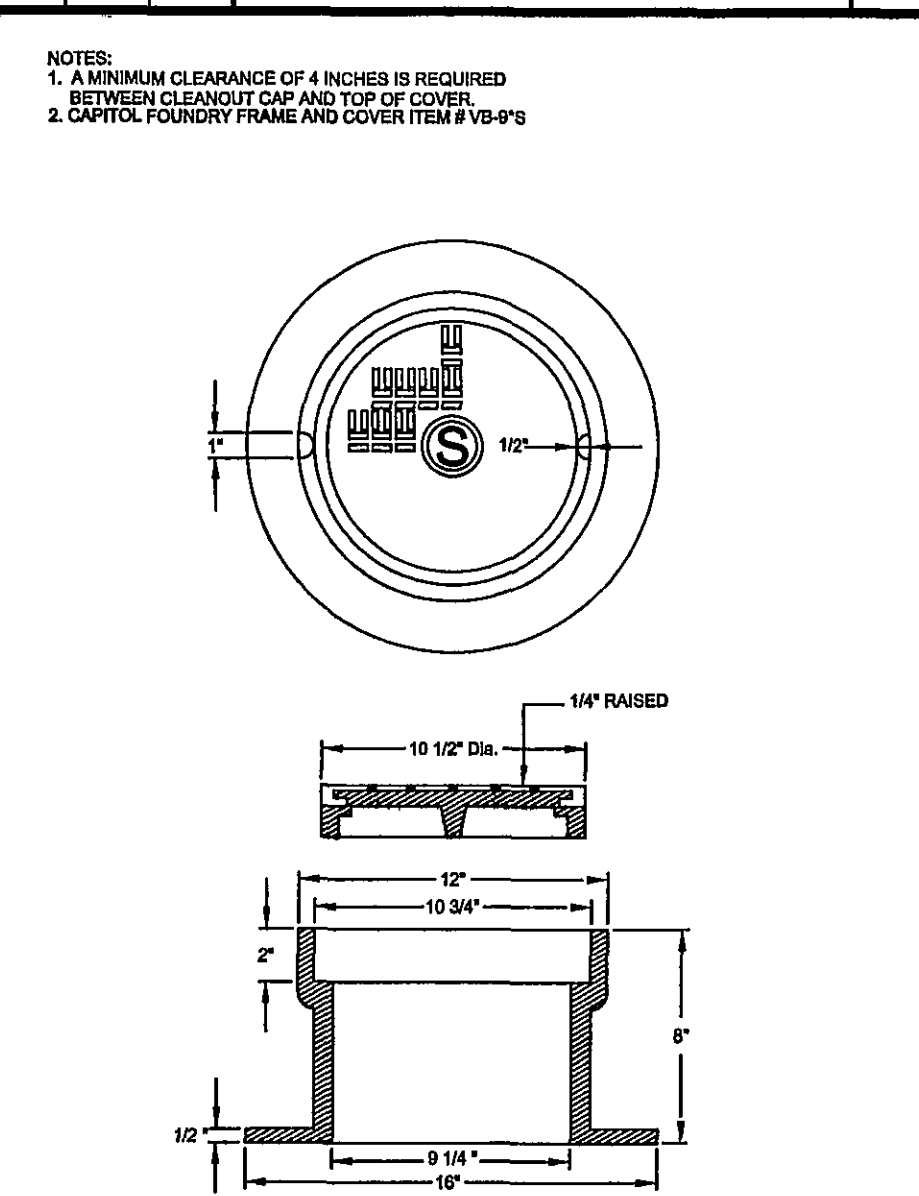
WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	S-05
07/01/04	WATERTIGHT MANHOLE	
03/01/06	FRAME	



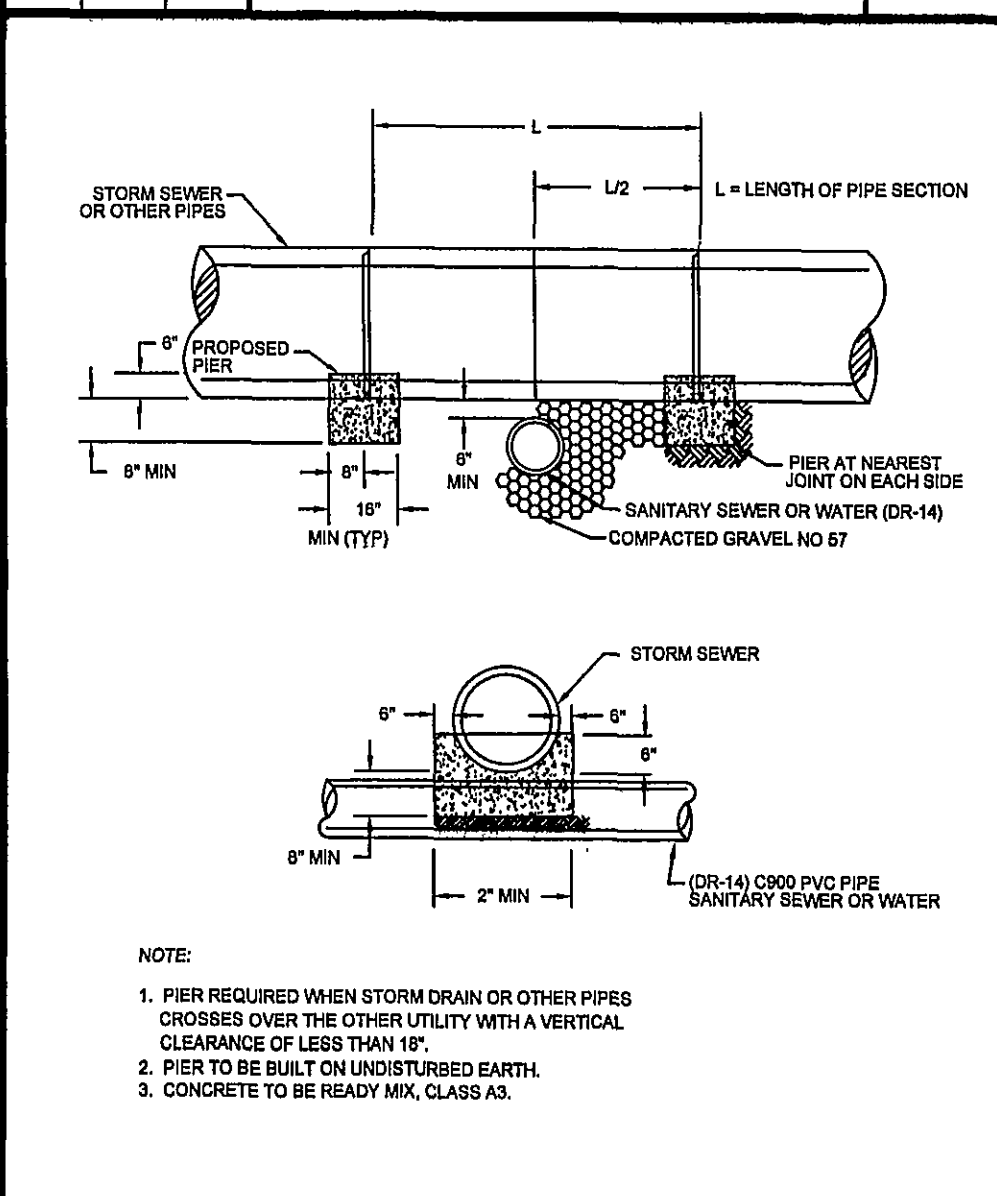
WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	S-06
07/01/04	STANDARD MANHOLE COVER	
03/01/06	WATERTIGHT MANHOLE COVER	



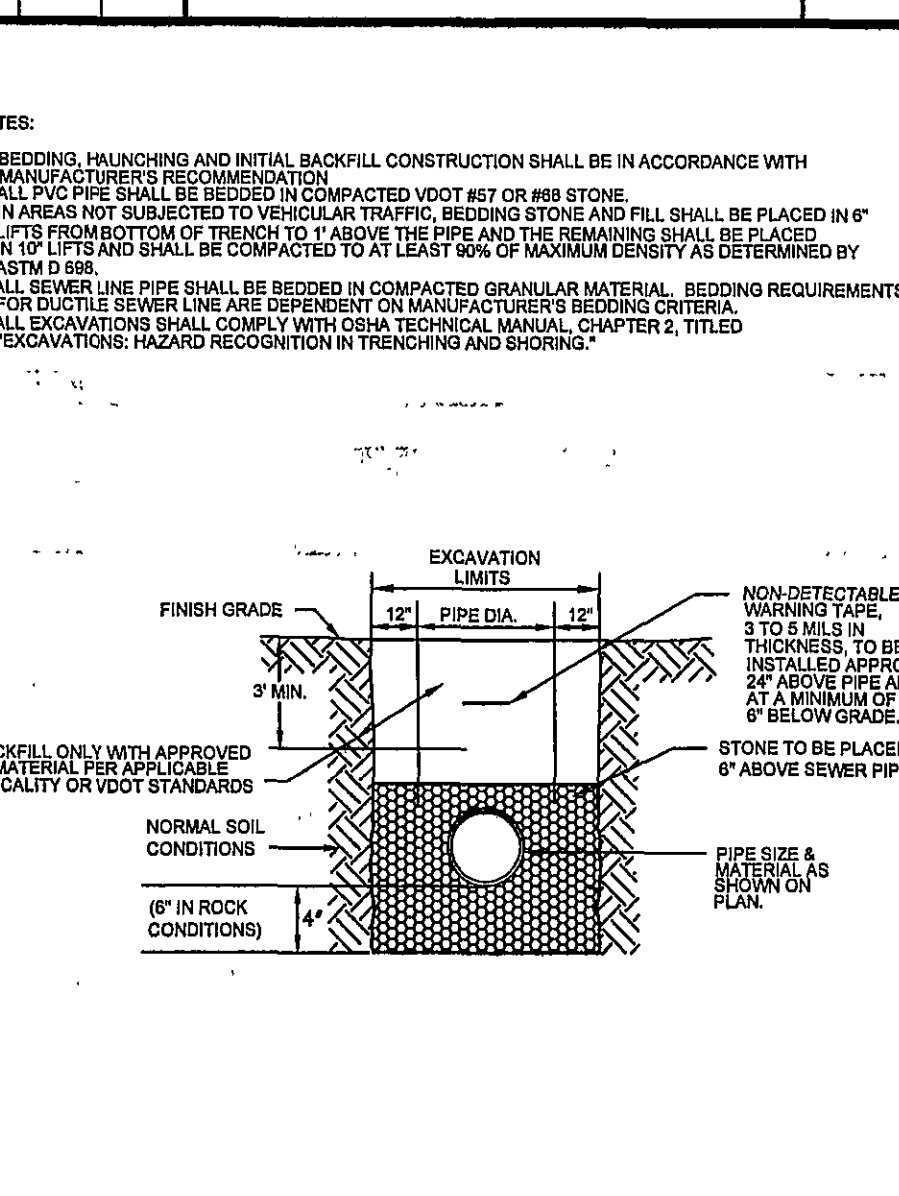
WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	S-08
07/01/04	SANITARY SEWER LATERAL	
03/01/06		



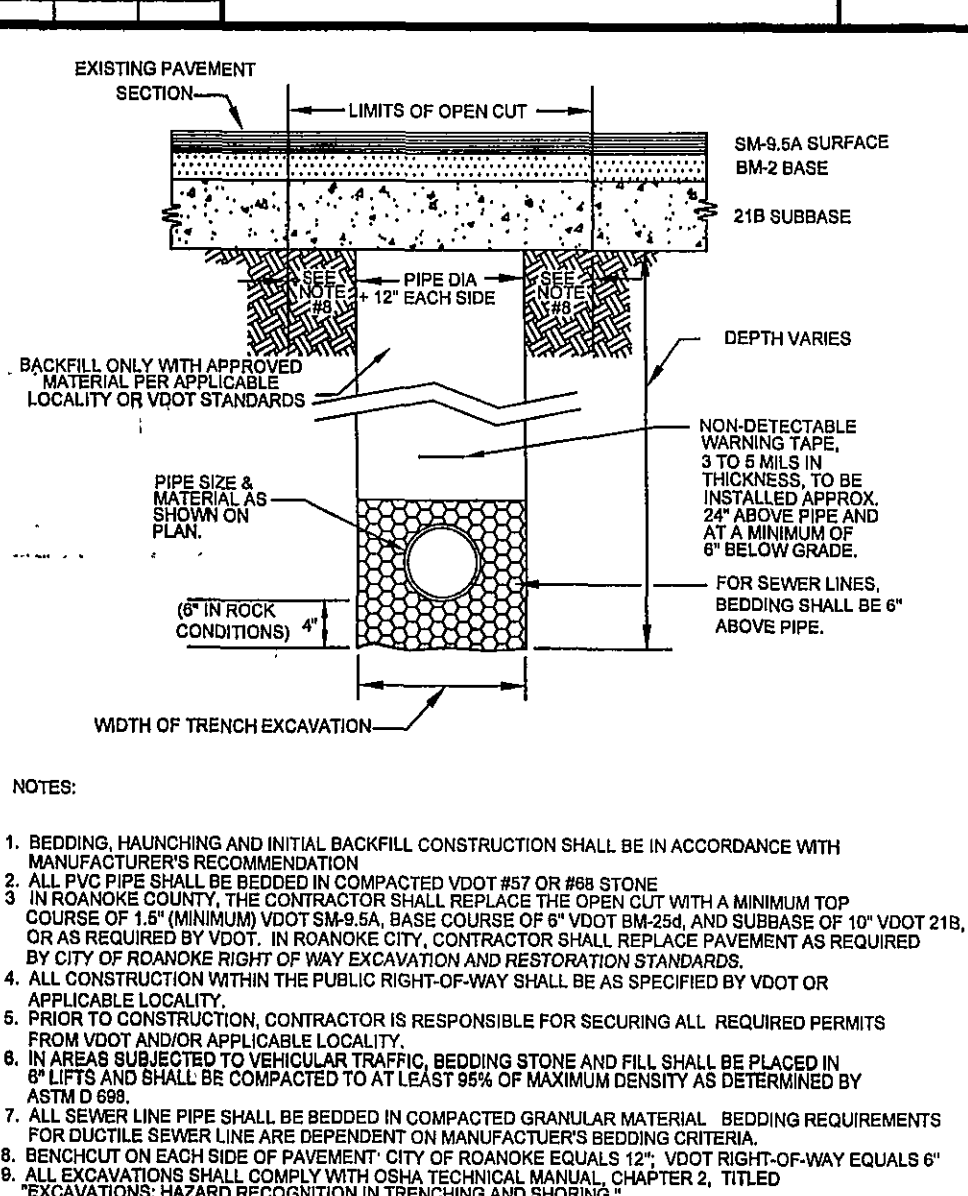
WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	S-13
07/01/04	TRAFFIC BEARING	
03/01/06	CLEANOUT BOX	



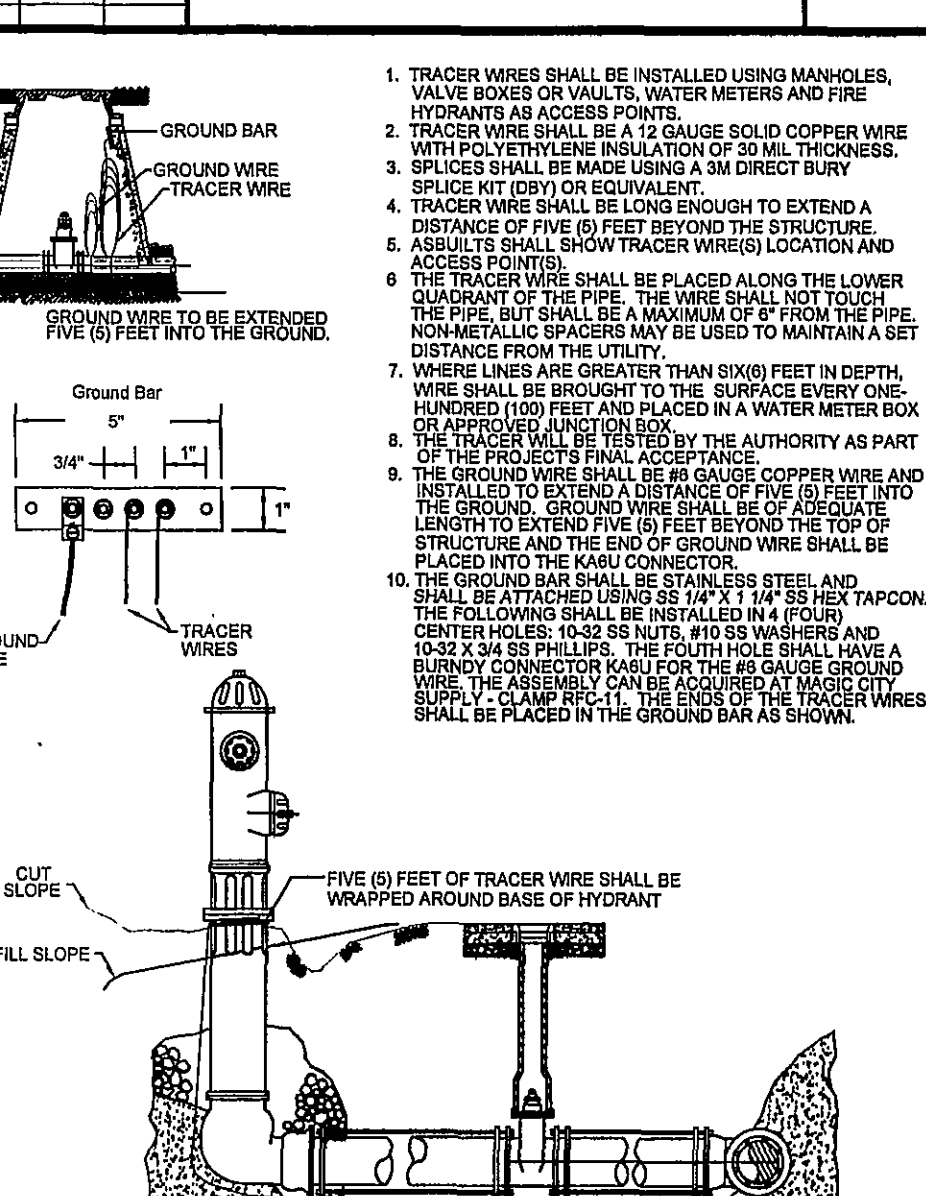
WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	S-16
07/01/04	CONCRETE PIER	
03/01/06		



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

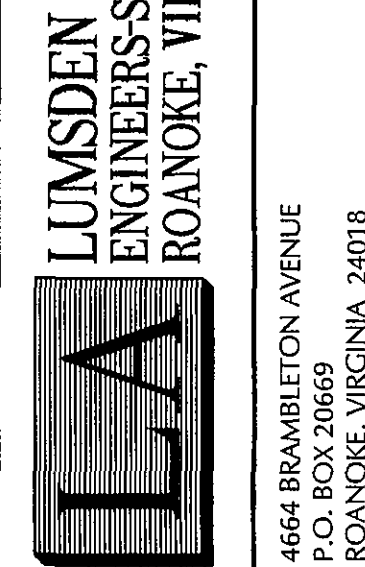


WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	S-31
07/01/04	BEDDING AND BACKFILL	
03/01/06	UNDER PAVEMENT AND RIGHT-OF-WAY	



WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	DESCRIPTION	G-05
07/01/04	TRACER WIRE	
03/01/06	FOR ELECTRIC PRESSURE PIPE	

LUMSDEN ASSOCIATES, P.C.
ENGINEERS-SURVEYORS-PLANNERS
ROANOKE, VIRGINIA



THOMAS C. DALE
Lic. No. 033002
PROFESSIONAL ENGINEER

WATER AND
SANITARY SEWER
DETAILS

TRACTOR SUPPLY COMPANY
AT GANDER MOUNTAIN PLAZA
PREPARED FOR
TCL ARCHITECTS/ENGINEERS/CONTRACTOR
HOLLINS MAGISTERIAL DISTRICT
ROANOKE COUNTY, VIRGINIA

REVISIONS		DATE	
NO.	DESCRIPTION	DATE	DESCRIPTION
1		January 3, 2008	
2			
3			
4			
5			

SCALE: NONE
COMMISSION NO. 2007-273
SHEET 12 OF 12