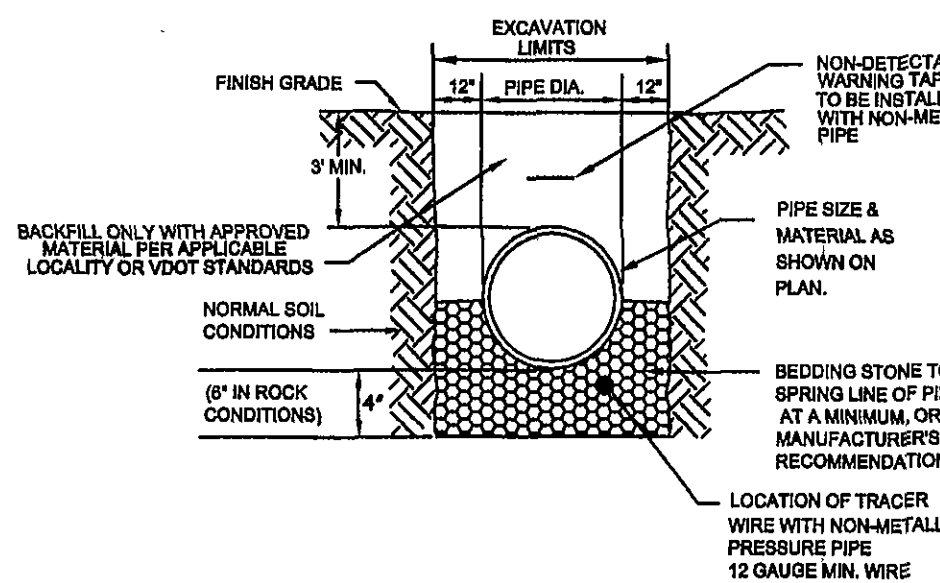
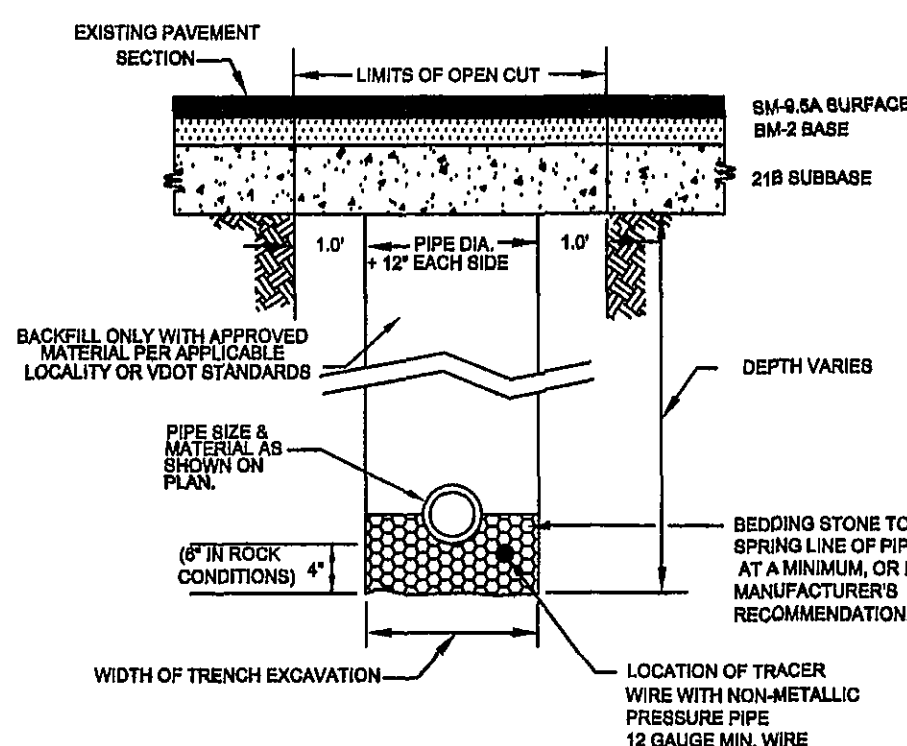


1. BEDDING, HAUNCHING AND INITIAL BACKFILL CONSTRUCTION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.
2. BEDDING AND HAUNCHING OF ALL PIPES - NON-DETECTABLE WARNING TAPES SHALL BE BURIED AT A MINIMUM 6" BELOW GRADE AND APPROXIMATELY 10" TO 12" ABOVE NON-METALLIC PIPE. IT SHALL BE SUFFICIENT TO PROTECT THE PIPE FROM DAMAGE BY SHARP OBJECTS AND SHALL BE SUFFICIENT TO MANHOLE.
3. BEDDING SHALL BE GRADED IN COMPACTED GRANULAR MATERIAL WHICH SHALL BE CRUSHED STONE MEETING VDOT STANDARDS FOR GRADUATION 57 OR 58 STONE.
4. IN AREAS NOT SUBJECTED TO VEHICULAR TRAFFIC, BEDDING STONE AND FILL SHALL BE PLACED IN 10" LAYERS TO A MINIMUM 18" BELOW GRADE. IN AREAS SUBJECT TO VEHICULAR TRAFFIC, BEDDING SHALL BE PLACED TO A MINIMUM 18" BELOW GRADE.
5. BEDDING FOR DUCTILE IRON PIPE SHALL BE BEDDED IN COMPACTED GRANULAR MATERIAL. BEDDING REQUIREMENTS FOR DUCTILE WATER LINE ARE DEPENDENT ON MANUFACTURER'S BEDDING CRITERIA.

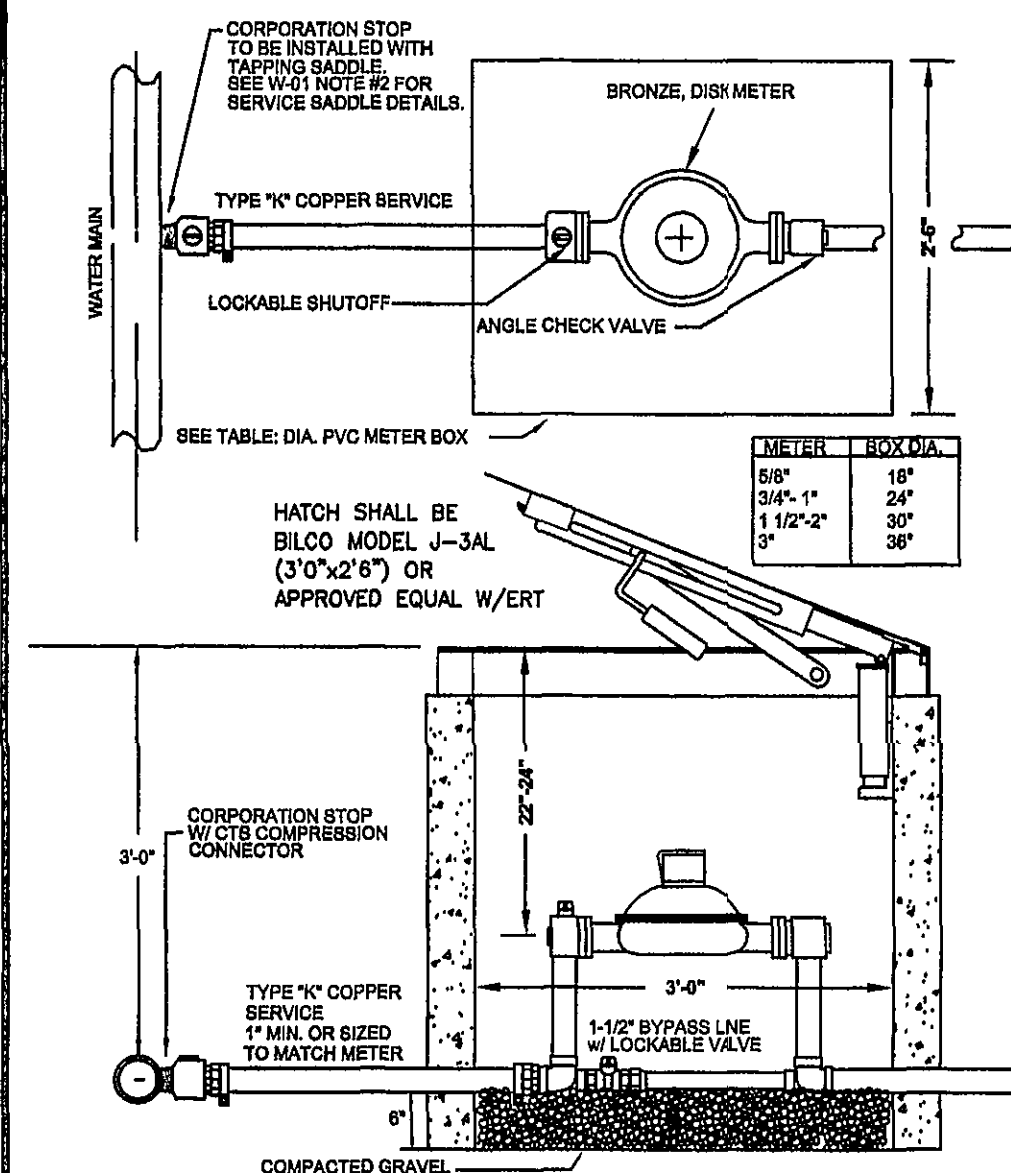


WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	BEDDING AND BACKFILL OUTSIDE OF PAVED AREAS	G-01
07/01/04		

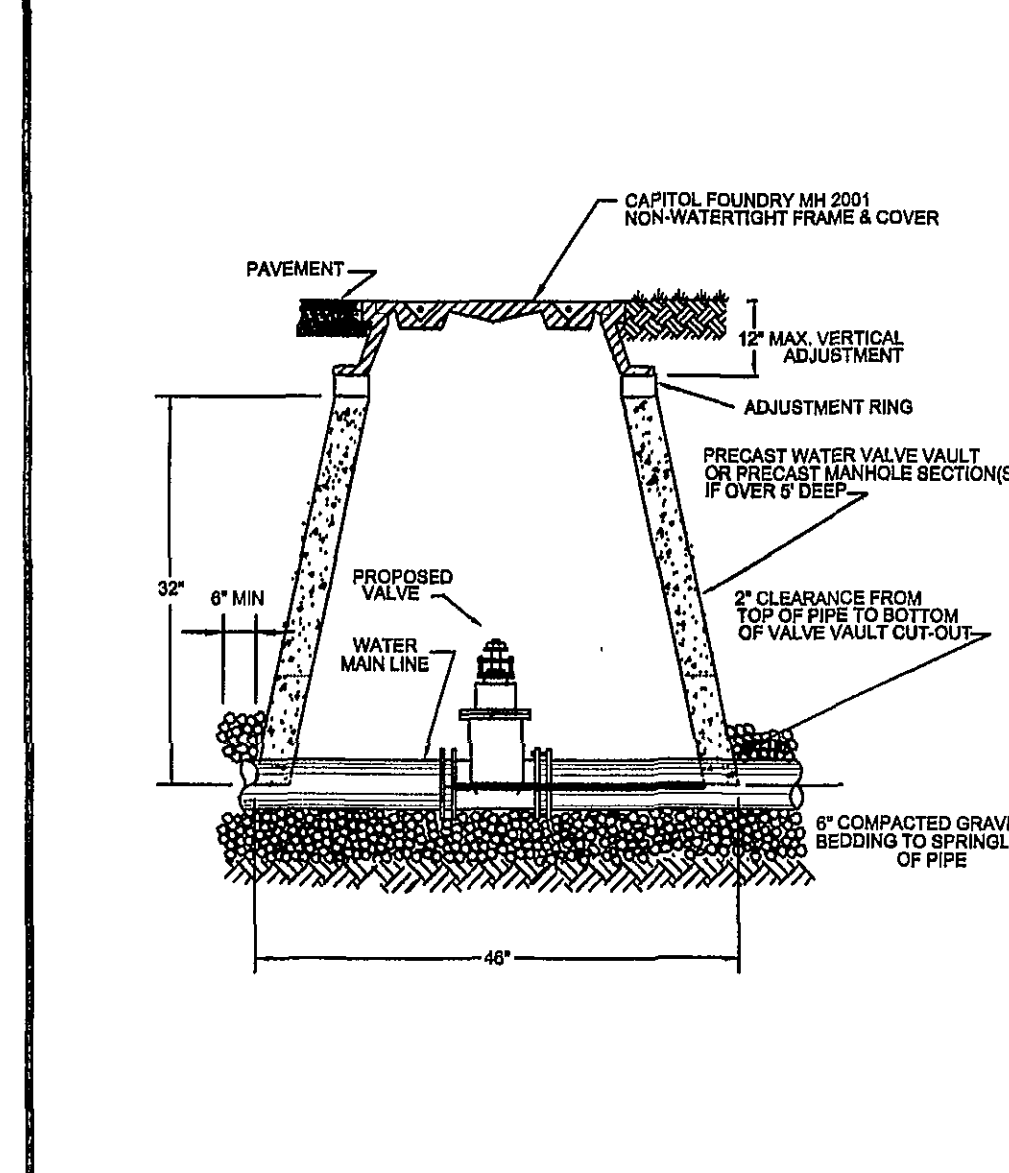
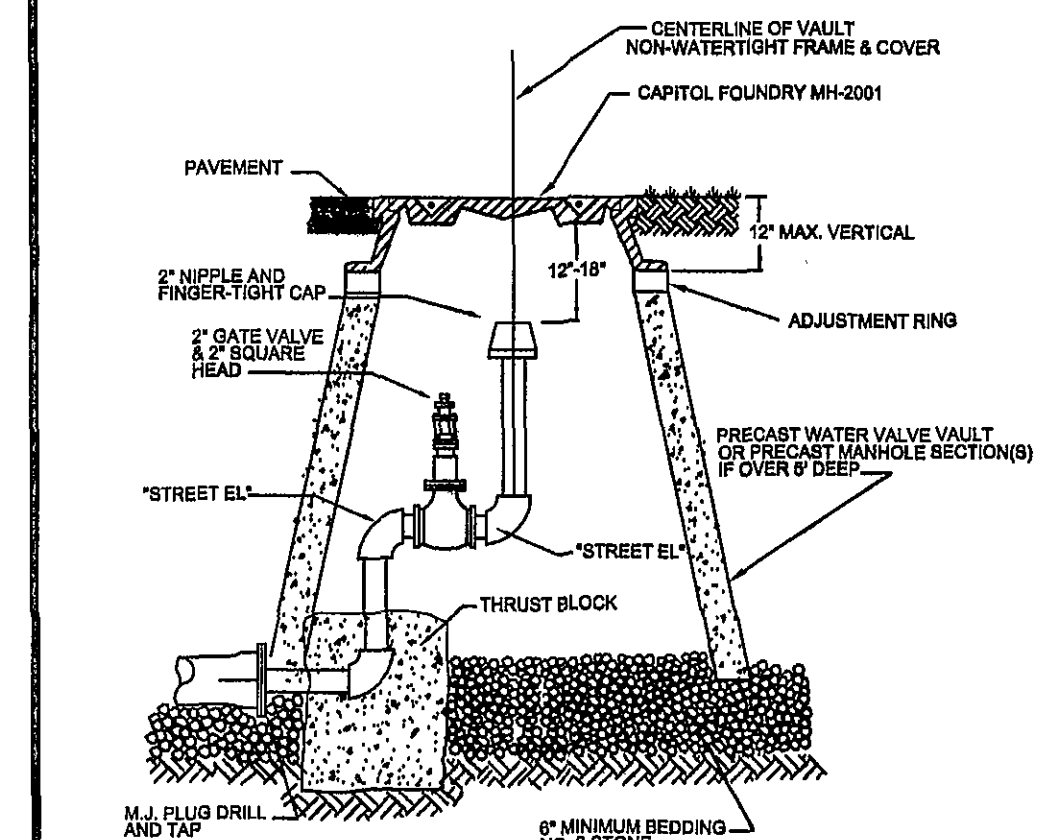


- NOTES:
- D. IN ROCKWANE COUNTY, THE CONTRACTOR SHALL REPLACE THE OPEN CUT WITH A MINIMUM TOP WIDTH OF 2' VERTICAL SLOPE, BASE COURSE OF 2" VERTICAL SLOPE, AND RUBBEROID OF 2" VERTICAL SLOPE REQUIRED BY THE CONTRACTOR IN ROCKWANE COUNTY, CONTRACTOR SHALL MATCH EXISTING PAVEMENT LAYERS AND FINISHES.
 - E. ALL CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE AS SPECIFIED BY VDOT OR APPLICABLE LOCALITY.
 - F. THE CONTRACTOR, HOWEVER, CONTRACTOR IS RESPONSIBLE FOR SECURING ALL REQUIRED PERMITS FROM VDOT AND/OR APPLICABLE LOCALITY.
 - G. ALL WATER LINES BENEATH PAVEMENT SHALL BE DUCTILE IRON UNLESS INSTALLED IN CASING PIPE.
 - H. IN AREAS SUBJECT TO VEGETATION TRAIL, BEDDING STONE AND FILL SHALL BE PLACED IN A MANNER SUCH THAT SHALL BE COMPACTED TO AT LEAST 90% OF MAXIMUM DENSITY, DETERMINED BY ASTM D 698.
 - I. ALL 6" SLOPE LINE PIPE SHALL BE BEDDED IN COMPACTED GRANULAR MATERIAL, BEDDING REQUIREMENT SHALL BE AS SPECIFIED BY THE CONTRACTOR'S BEDDING CRITERIA.

WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	BEDDING AND BACKFILL UNDER PAVEMENT	G-02
07/21/04		

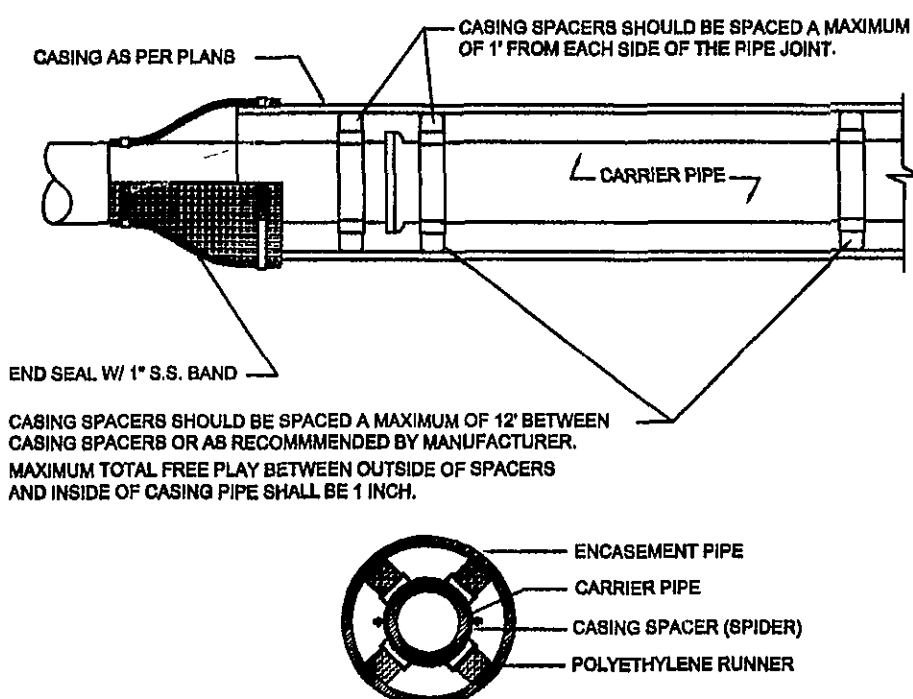


WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	COMMERCIAL WATER SERVICE	W-05
07/01/04		

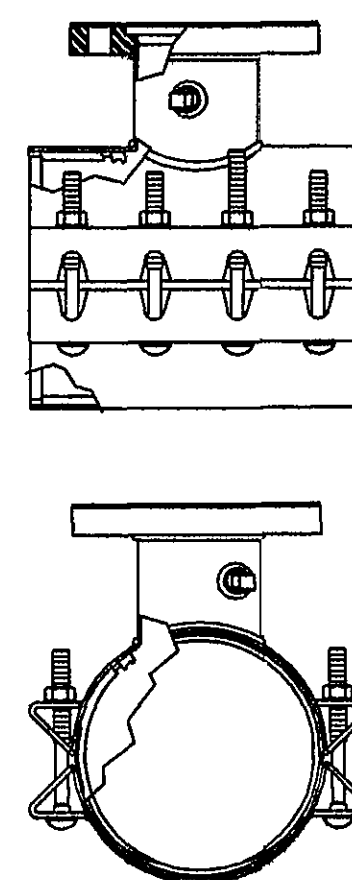
[illegible]

1. FIRE HYDRANT ASSEMBLIES MAY BE USED AS PERMANENT END OF LINES.
2. DETAIL FOR UP TO 8" MAINS, LARGER LINES SEE SEC. 101.10 FOR MIN. FLUSHING VALVE REQUIREMENTS.
3. THE END OF A PIPELINE SHALL NOT TERMINATE IN A PAVED AREA OR UNDER A CONCRETE VALLEY GUTTER

WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	PERMANENT END OF LINE	W-09
07/01/04		



NOTE: A 1" DRAIN WILL BE REQUIRED ON THE LOWER END OF THE CASING
IF THE CASING ENDS ARE SEALED WITH MORTAR AND BRICK.

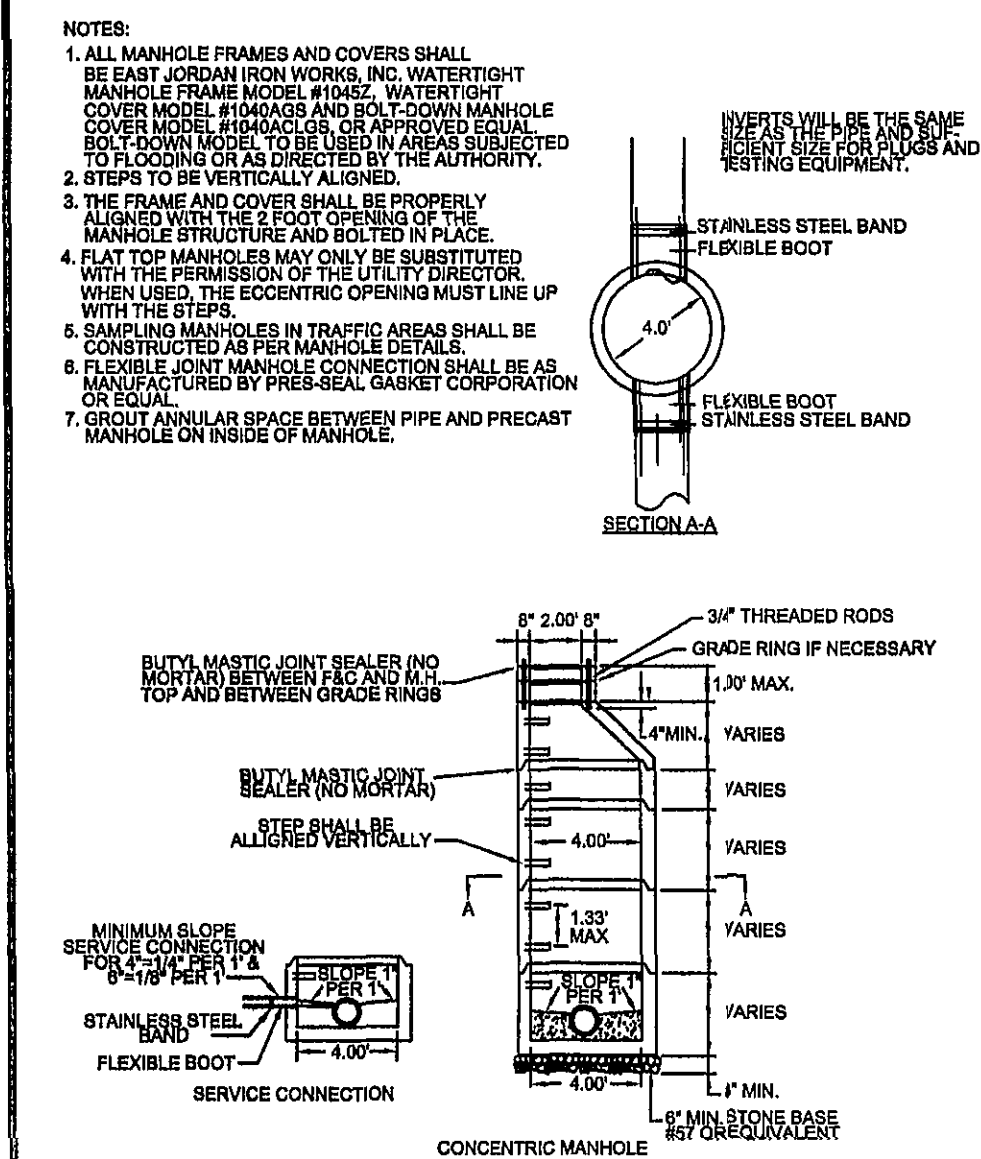
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1. TAPPING SLEEVE SHALL BE POWERSEAL MODEL 3490 TYPE 304 STAINLESS STEEL WITH CARBON STEEL FLANGE, ROMAC'S MODEL SST III OR APPROVED EQUIVALENT. SLEEVE SHALL BE RATED AT 250 PSI AND MUST HAVE A TEST PLUG.
2. TAPPING VALVE SHALL BE A VK RESILIENT SEATED GATE VALVE SERIES 26 MJFL OR MUELLER T-2360 RESILIENT WEDGE TAPPING VALVE WITH MJFL. VALVE SHALL BE RATED AT 250 PSI.
3. TAPPING SLEEVE AND VALVE SHALL BE FULL PORT TO ACCEPT FULL SIZE SHELL CUTTER

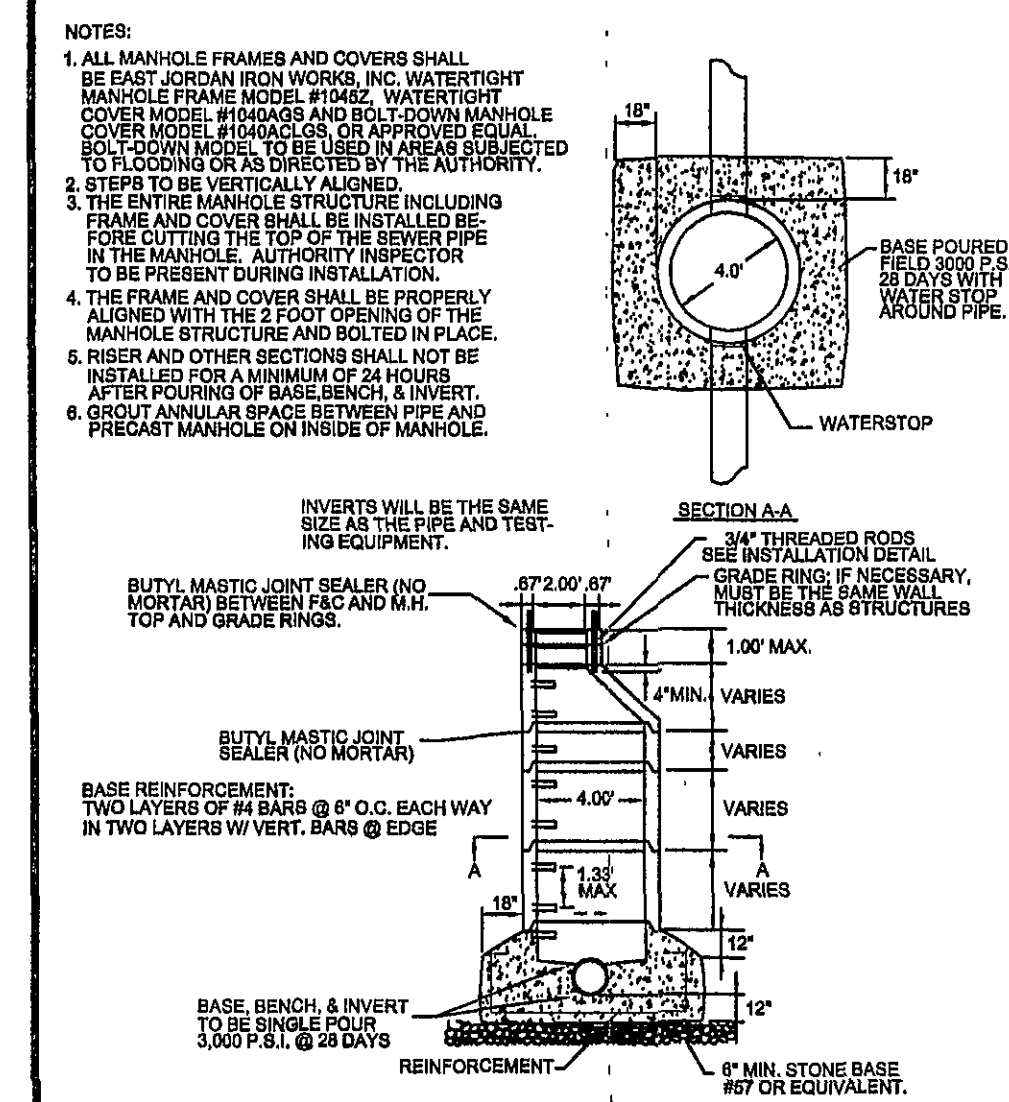
WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE		
07/01/04		

TAPPING SLEEVE
AND VALVE

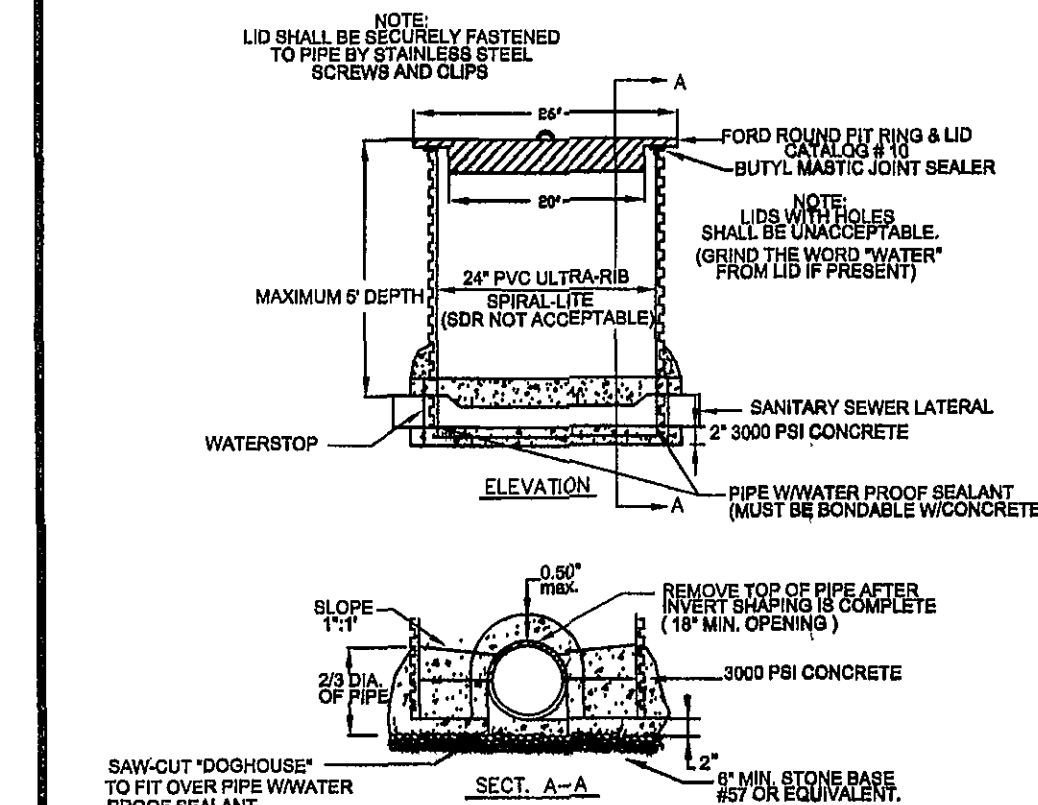
W-23



WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS		
REVISION DATE	4' STANDARD MANHOLE FOR PIPE 15" OR SMALLER	S-01
07/29/04		



WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS			
REVISION DATE		STRADDLE MANHOLE FOR PIPE 15" OR SMALLER	S-02
07/21/04			



- NOTES:
1. NOT ACCEPTABLE FOR USE IN TRAFFIC AREAS OR AREAS SUBJECT TO FLOODING.
 2. JOINTS OR EJECTA IN TRAFFIC TESTING SHALL BE USED. VACUUM TESTING SHALL MEET THE REQUIREMENTS OF STANDARD SPECIFICATION FOR TRAFFIC TESTING SHALL HAVE NO JOINTS WITHIN.
 3. "AQUACURE" WASTEWATER ACCESS CHAMBERS MAY BE SUBSTITUTED FOR TRAFFIC TESTING CHAMBERS WILL BE REQUIRED IF INSTALLED IN TRAFFIC AREAS. TESTING OF CHAMBERS SHALL BE IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODE FOR SEWER LATERALS.
 4. 2" DIA. CONCRETE WALL CASING SHALL BE SUBSTITUTED FOR 4" DIA. CONCRETE WALL CASING FOR ULTRA-BRIPE. ANY VEE JOINTS IN THE CASING PIPE SHALL BE REINFORCED BY BEING CONNECTED WITH MASTIC.

WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS					
REVISION DATE		SAMPLING STRUCTURE DETAIL			8-07
07/01/04					

REVISION	DATE	DESCRIPTION
DESIGNED		ADDITIONAL WATER & SEWER DETAILS FOR "OLDE DOMINION OFFICE PARK" PREPARED FOR JAVA, LLC WINDSOR HILLS MAGISTERIAL DISTRICT ROANOKE COUNTY, VIRGINIA
DRAWN		
CHECKED		
LUMSDEN ASSOCIATES, P.C. ENGINEERS-SURVEYORS-PLANNERS ROANOKE, VIRGINIA		SCALE: NONE DATE: JAN 4, 05
		COMM: 95-283 SHEET 3A of 3