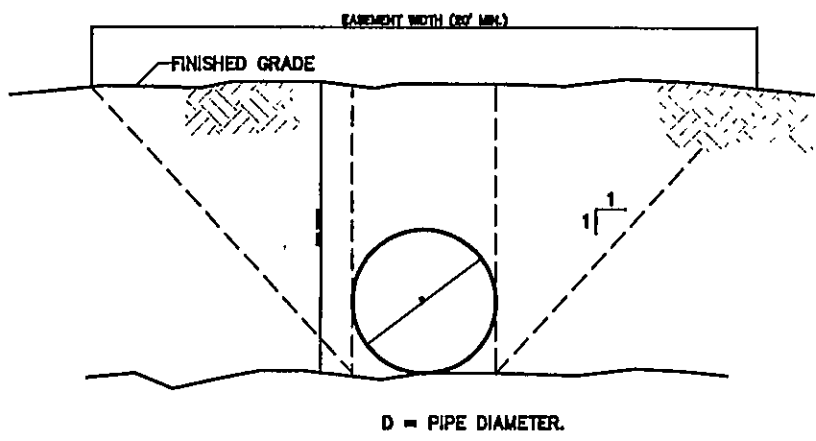


**SPECIFICATIONS**  
CURB & GUTTER  
ENTRANCE WAYS  
TRENCHES & CUTS

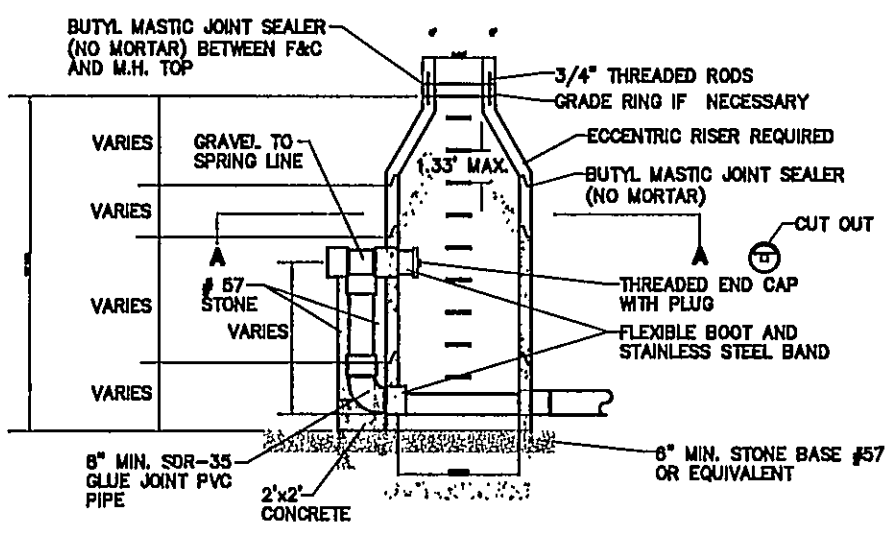
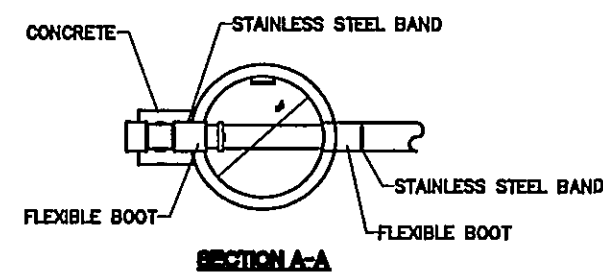


- NOTES:**
- A. PUBLIC EASEMENT WIDTH SHALL BE DETERMINED BASED ON 1:1 SIDE SLOPE EXTENDING FROM THE FINISHED GRADE TO OUTSIDE EDGE OF PIPE (NOMINAL PIPE DIAMETER) ROUNDED UP TO THE NEAREST 1" INCREMENT.
  - B. THIS EASEMENT SHALL EXTEND ALONG THE ENTIRE LENGTH OF THE SUBJECT PIPE AT LEAST ONE HALF THE DISTANCE OF EASEMENT PAST CENTER OF LAST MANHOLE.
  - C. MIN. 20' UNLESS APPROVED BY UTILITY ENGINEER.

WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	DESCRIPTION	DATE
07/01/04	SANITARY SEWER AND WATER LINE EASEMENTS	G-03

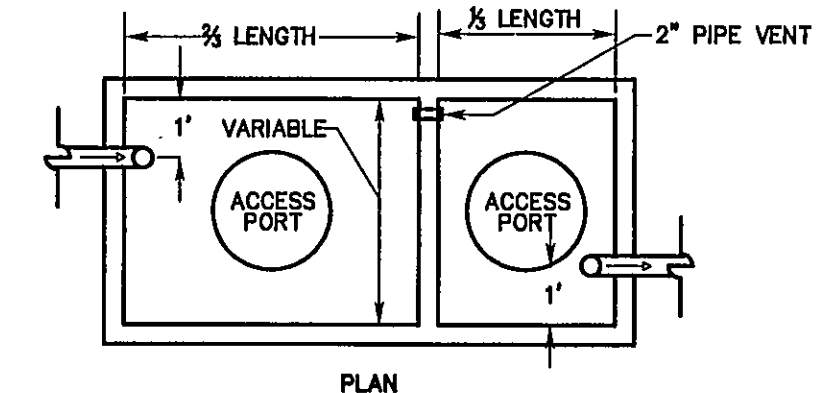
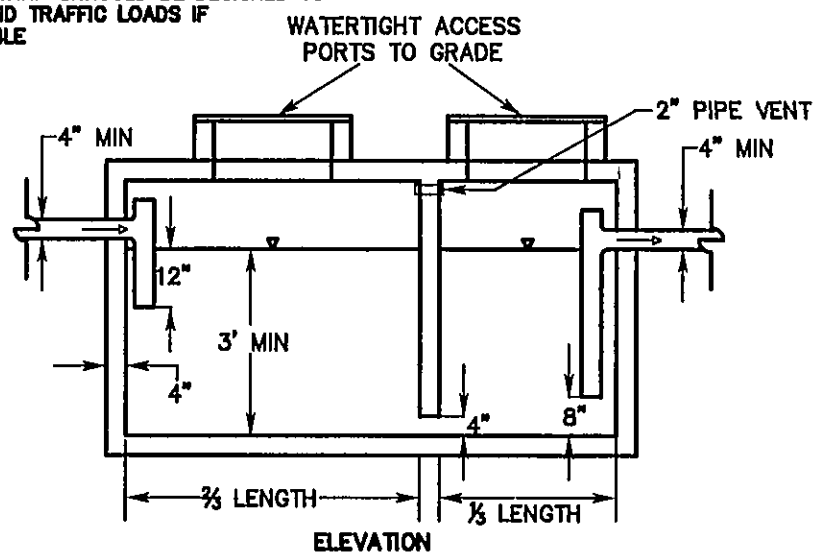
- NOTES:**
1. ALL MANHOLE FRAMES AND COVERS SHALL BE EAST JORDAN IRON WORKS, INC. WATER TIGHT MANHOLE FRAME MODEL #10452, WATER TIGHT COVER MODEL #10404CS, OR APPROVED EQUAL. BOLT-DOWN MANHOLE COVERS SHALL BE USED IN AREAS SUBJECT TO FLOODING OR AS DIRECTED BY THE AUTHORITY.
  2. STEPS TO BE VERTICALLY 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 EXCEED THROUGH RISER (CONC) SECTION OR JOINT.
  5. GROUT ANNUAL SPACE BETWEEN PIPE AND PRECAST MANHOLE ON INSIDE OF MANHOLE.



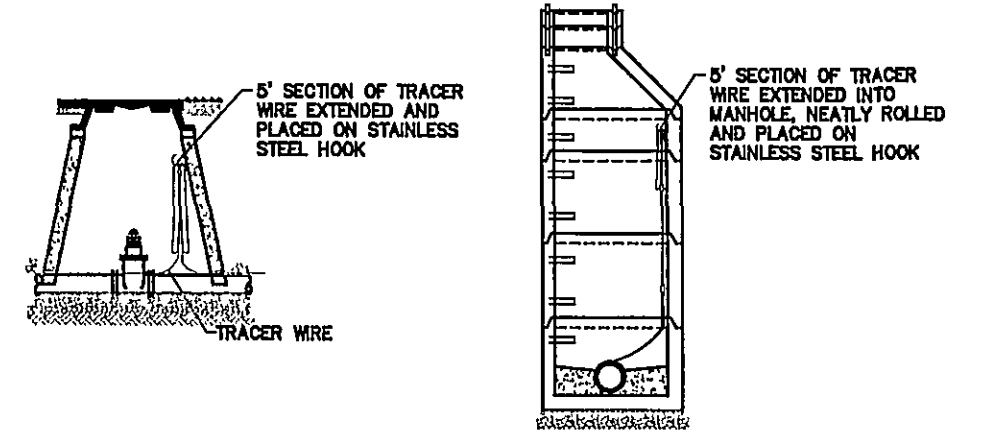
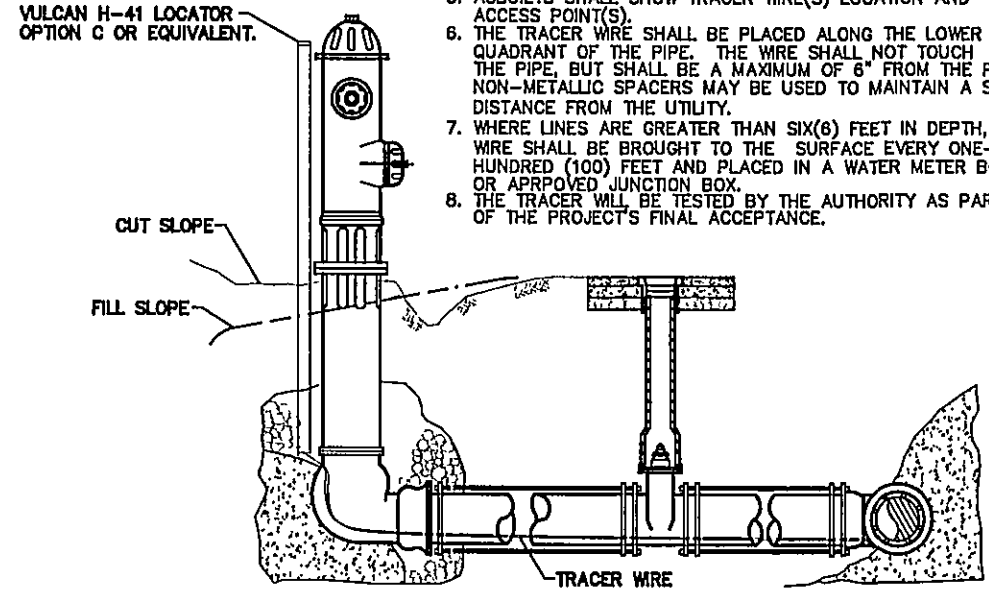
WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	DESCRIPTION	DATE
07/01/04	OUTSIDE DROP MANHOLE (FOR USE WITH PVC PIPE)	S-03

- NOTES:**
1. MINIMUM RETENTION TIME SHOULD BE 30 MINUTES AT PEAK FLOW.
  2. GREASE TRAP SHOULD BE DESIGNED TO WITHSTAND TRAFFIC LOADS IF APPLICABLE.



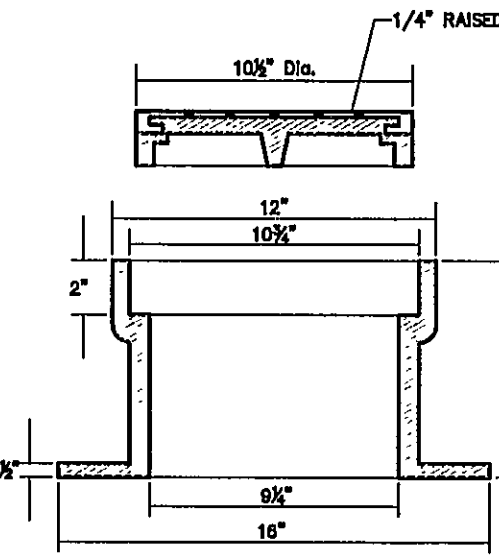
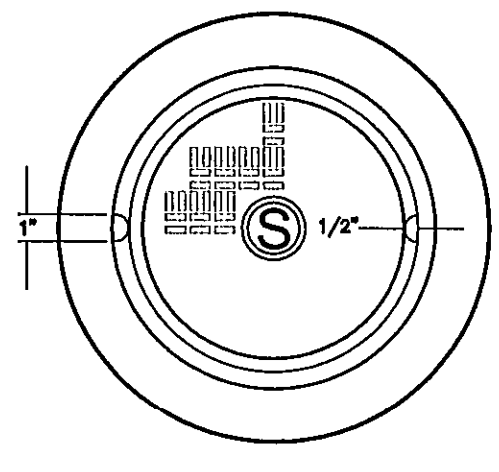
NO SCALE  
GREASE INTERCEPTOR  
GE-86A



WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	DESCRIPTION	DATE
07/01/04	TRACER WIRE FOR NON-METALLIC PRESSURE PIPE	G-05

- NOTES:**
1. A MINIMUM CLEARANCE OF 4" INCHES IS REQUIRED BETWEEN CLEANOUT CAP AND TOP OF COVER.
  2. CAPITOL FOUNDRY FRAME AND COVER ITEM # VB-09S.

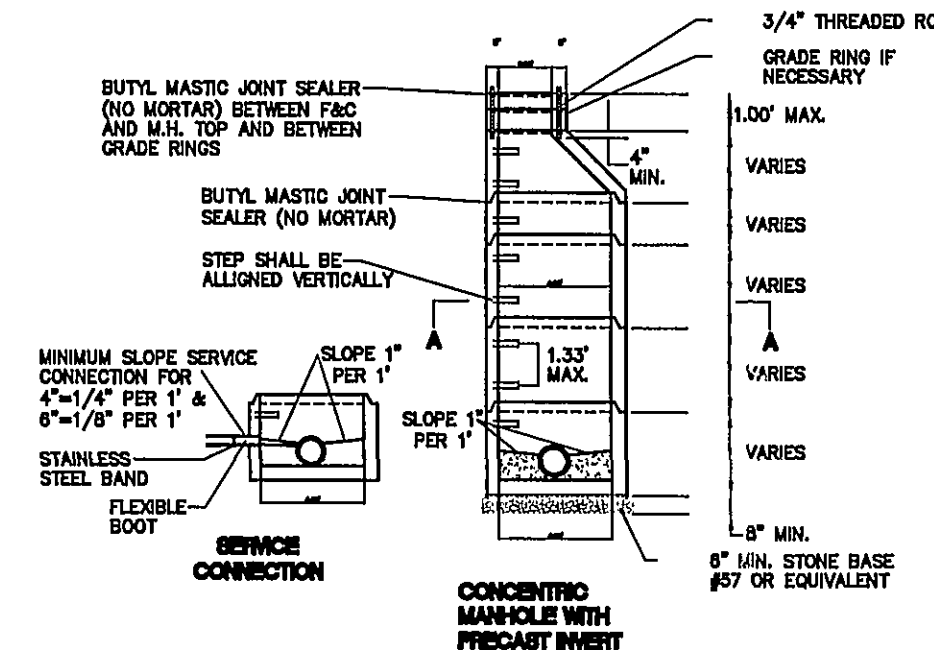
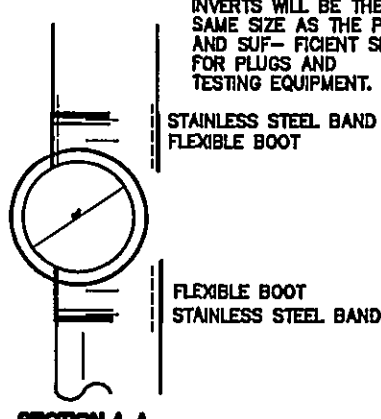


WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	DESCRIPTION	DATE
07/01/04	TRAFFIC BEARING CLEANOUT BOX	S-14

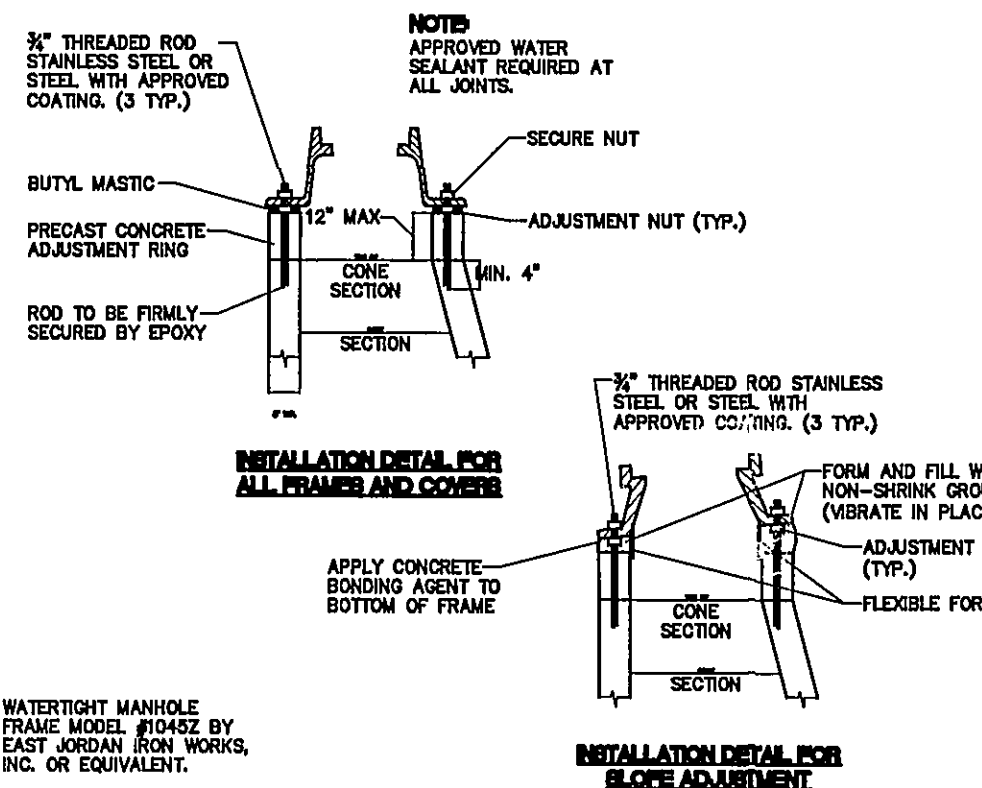
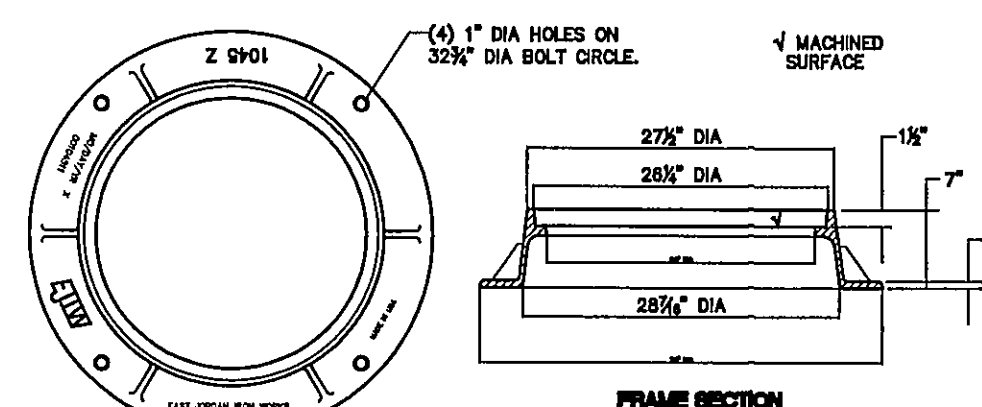
**NOTES:**

1. ALL MANHOLE FRAMES AND COVERS SHALL BE EAST JORDAN IRON WORKS, INC. WATER TIGHT MANHOLE FRAME MODEL #10452, WATER TIGHT COVER MODEL #10404CS, OR APPROVED EQUAL. BOLT-DOWN MANHOLE COVERS SHALL BE USED IN AREAS SUBJECT TO FLOODING OR AS DIRECTED BY THE AUTHORITY.
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 EXCEED THROUGH RISER (CONC) SECTION OR JOINT.
5. GROUT ANNUAL SPACE BETWEEN PIPE AND PRECAST MANHOLE ON INSIDE OF MANHOLE.



WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	DESCRIPTION	DATE
07/01/04	4" STANDARD MANHOLE FOR PIPE 15" OR SMALLER	S-01

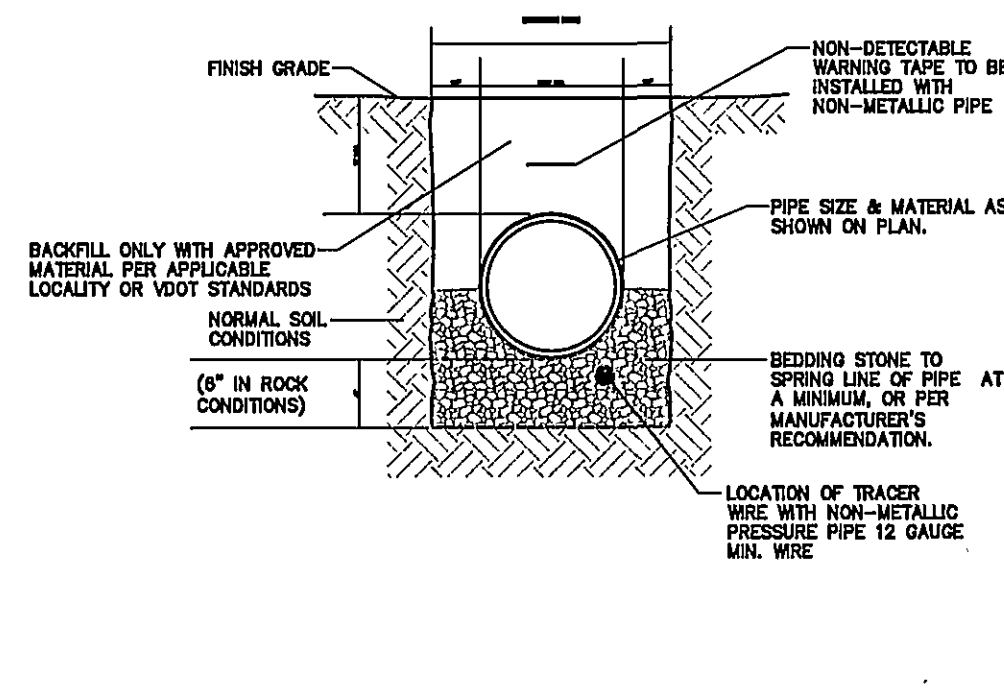


WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	DESCRIPTION	DATE
07/01/04	WATER TIGHT MANHOLE FRAME	S-05

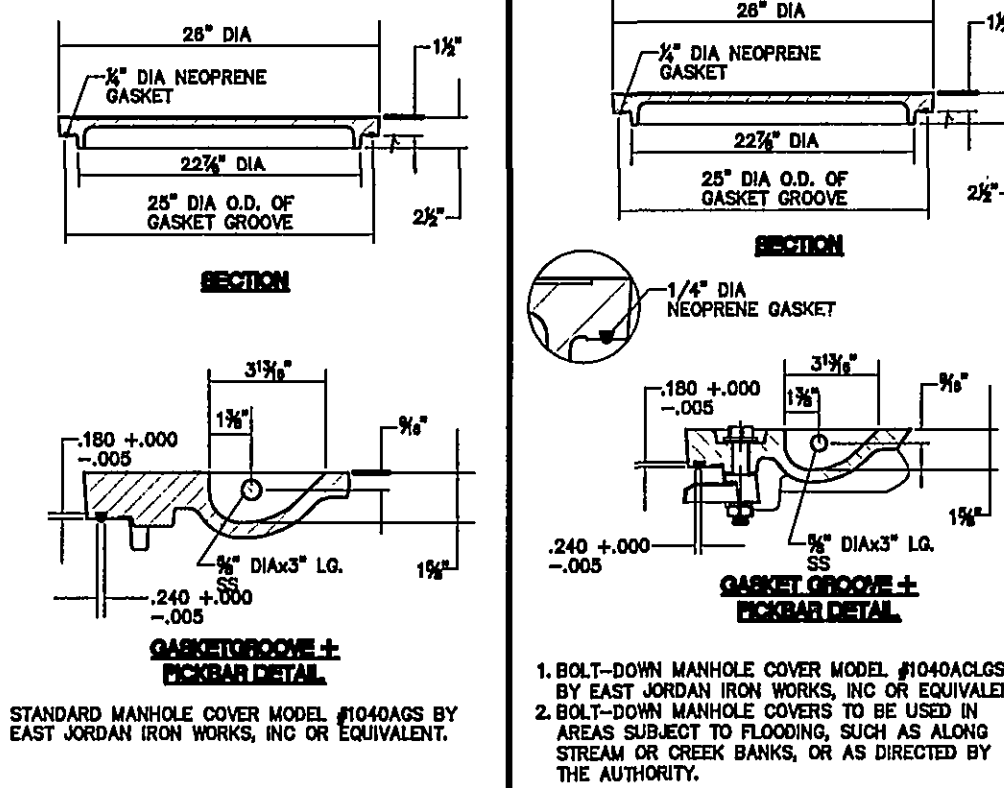
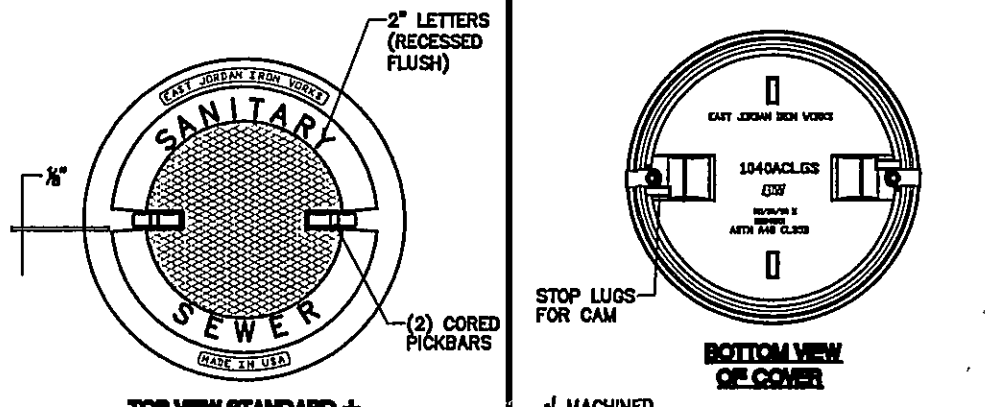
**NOTES:**

1. BEDDING, HAUNCHING AND INITIAL BACKFILL CONSTRUCTION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.
2. WHEN INSTALLING NON-METALLIC PIPE, 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 2 TO 5 MILS IN THICKNESS 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 MEETING VDOT STANDARDS FOR GRADUATION 57 OR 68 STONE.
4. IN AREAS NOT SUBJECT 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 D 698.
5. ALL SEWER LINE PIPE SHALL BE BEDDED IN COMPACTED GRANULAR MATERIAL. BEDDING REQUIREMENTS FOR DUCTILE WATER LINE ARE DEPENDENT ON MANUFACTURER'S BEDDING CRITERIA.



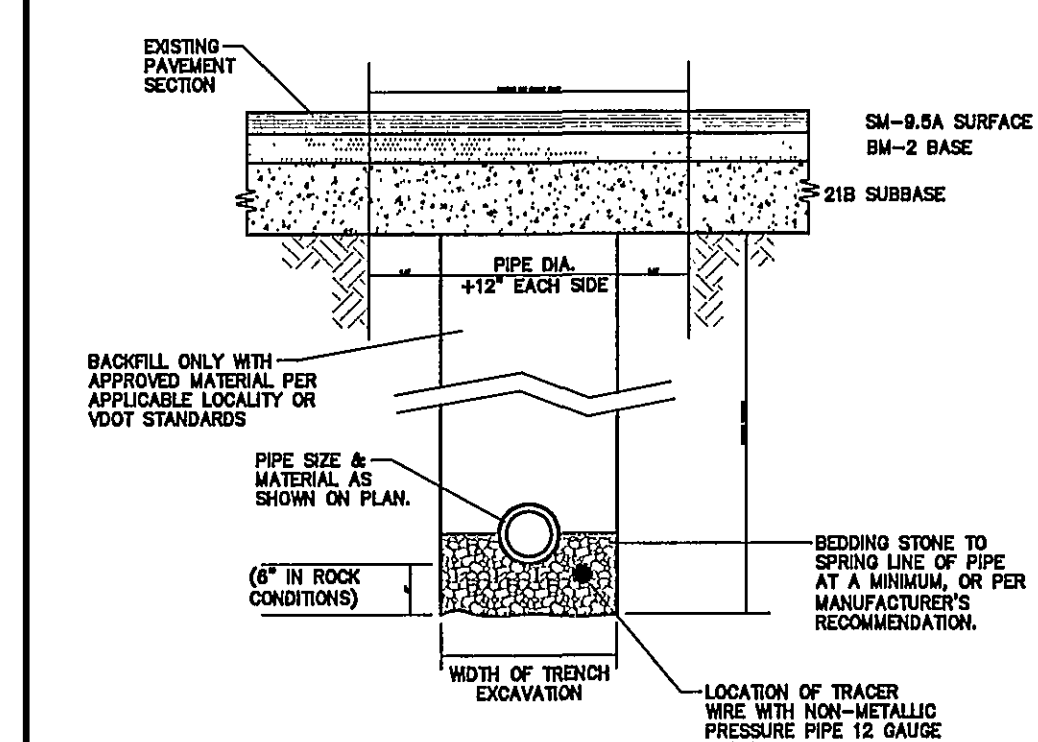
WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	DESCRIPTION	DATE
07/01/04	BEDDING AND BACKFILL OUTSIDE OF PAVED AREAS	G-01



WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

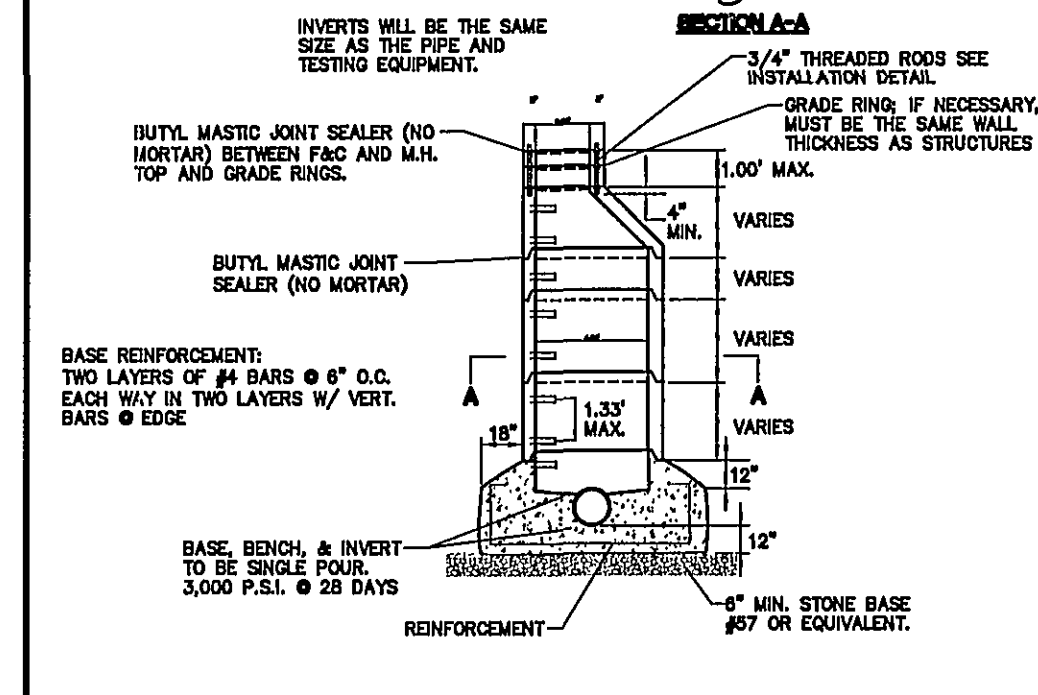
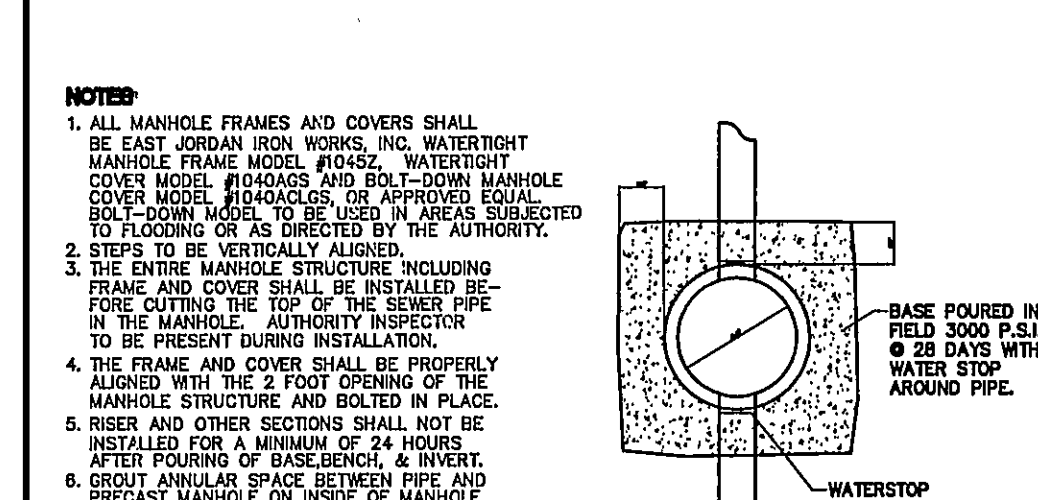
REVISION DATE	DESCRIPTION	DATE
07/01/04	WATER TIGHT MANHOLE COVER	S-06



- NOTES:**
- IN ROCKING COUNTY, 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. IN ROCKING COUNTY, CONTRACTOR SHALL MATCH EXISTING PAVEMENT LAYERS OR AS REQUIRED BY CITY STANDARDS.
  - ALL CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE AS SPECIFIED BY VDOT OR APPLICABLE LOCALITY.
  - PRIOR TO CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR SECURING ALL REQUIRED PERMITS FROM VDOT AND/OR APPLICABLE LOCALITY.
  - ALL WATER LINES BENEATH PAVEMENT SHALL BE DUCTILE IRON UNLESS INSTALLED IN CASING PIPE OR BY DIRECTIONAL BORING.
  - 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 D 698.
  - ALL SEWER LINE 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	DESCRIPTION	DATE
07/01/04	BEDDING AND BACKFILL UNDER PAVEMENT	G-02



WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	DESCRIPTION	DATE
07/01/04	STRADDLE MANHOLE FOR PIPE 18" OR SMALLER	S-02

**GAY AND NEEL, INC.**  
CIVIL ENGINEERING  
LAND PLANNING  
SURVEYING

Western Virginia  
Water Authority  
Sewer and General  
Details

Kabuki Expansion  
Prepared For  
Koeda Akio  
City of Roanoke, Virginia

COMMONWEALTH OF VIRGINIA  
MICHAEL G. GAY  
Lic. No. 17560  
PROFESSIONAL ENGINEER

REVISED:  
10/19/07  
11/02/07

DESIGNED/CALC.: RCM  
CHECKED: RCM  
DRAWN: PLJ/RWA  
SCALE: N/A  
DATE: 07/02/07

JOB NO. 1800.0

SHEET 13 OF 13