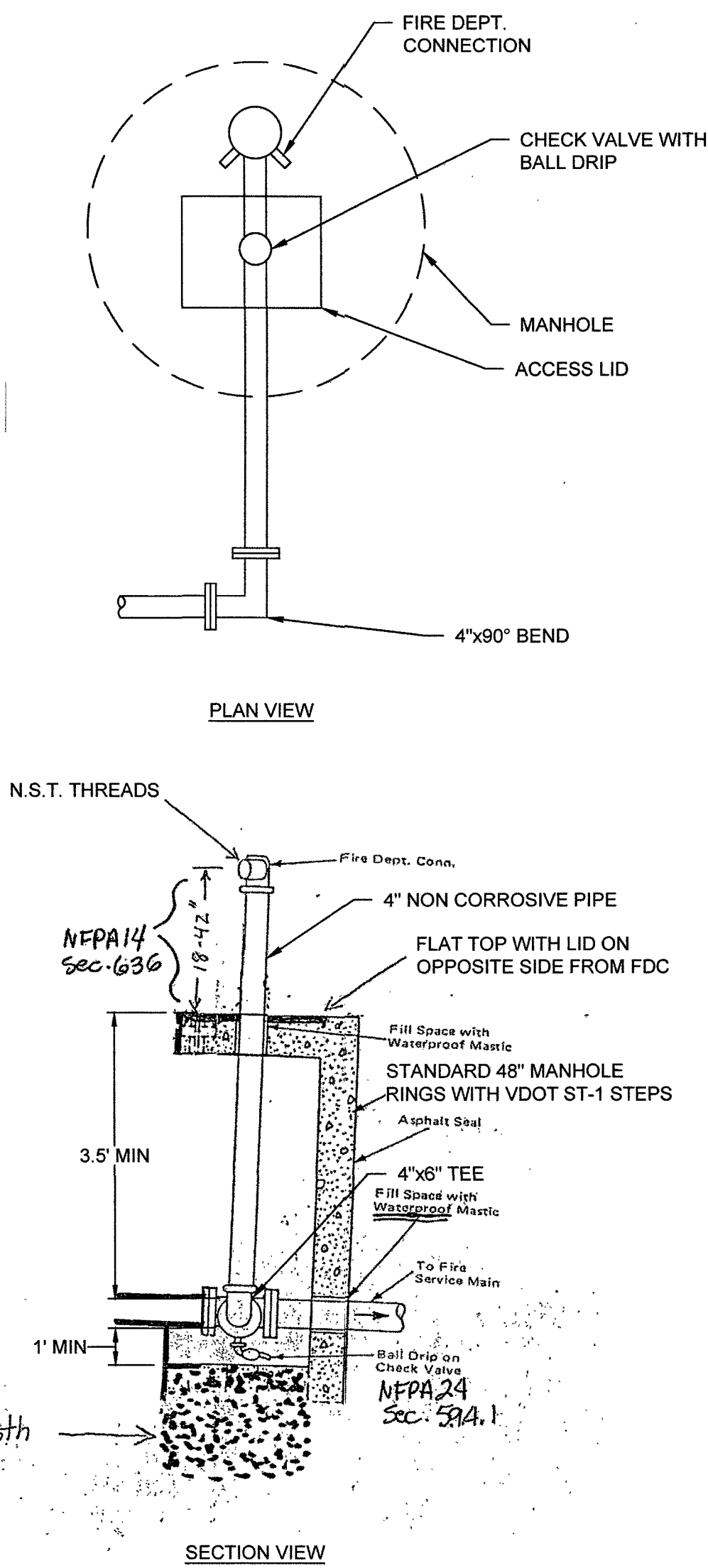


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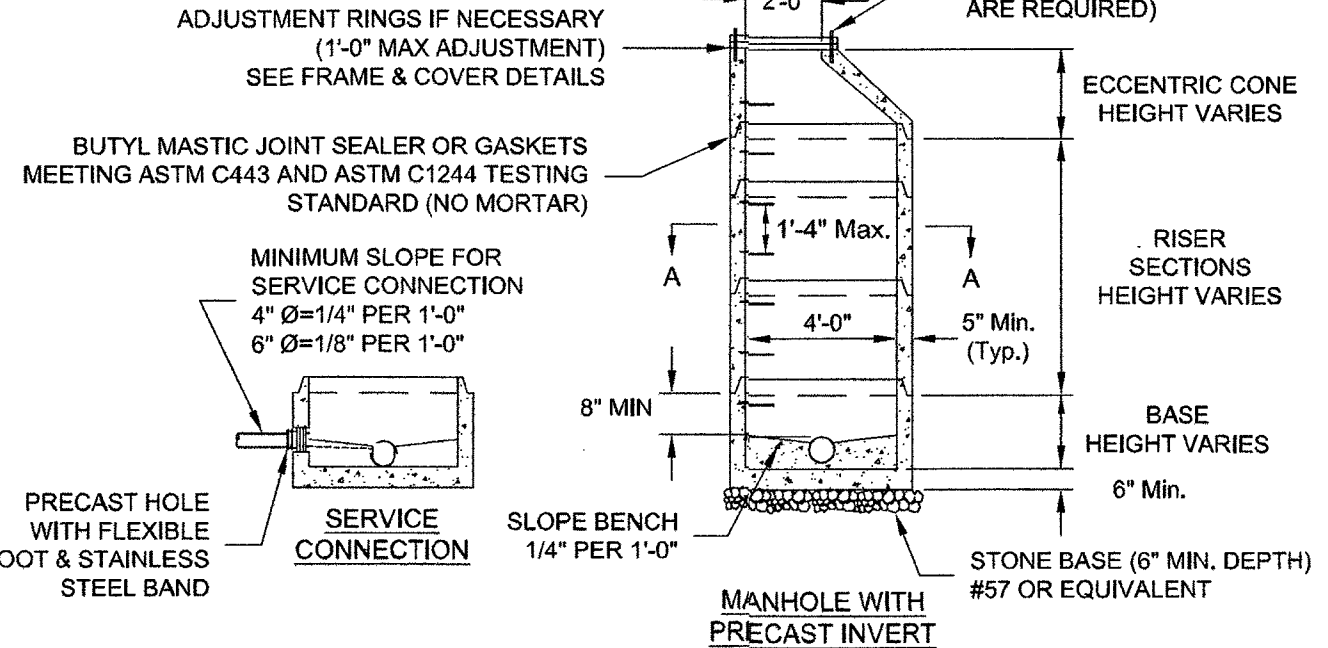


FIRE DEPARTMENT CONNECTION AND VAULT DETAIL
NO SCALE

WWVA Sizing Water Service Lines and Meters

Development:	LEWISGALE EMERGENCY CENTER	
Type of Occupancy:	AMBULATORY CARE CENTER / MEDICAL FACILITY	
Plumbing Fixture	No. of Fixtures	
Bathtub		
Bedpad Washers	1	
Combination Sink & Tray		
Dental Unit		
Dental Lavatory		
Drinking Fountain - Cooler		
Drinking Fountain - Public	1	
Sink	21	
Lavatory	9	
Laundry Tray	1/2" Connection 3/4" Connection	
Shower Head (Shower only)	5	
Urinal - Pedestal Flush Valve Wall Flush Valve Trough (2 foot unit)		
Wash Sink (each set of faucets)		
Water Closet - Flush Valve Tank Type	7	
Dishwasher - 1/2" connection 3/4" connection		
Washing Machine - 1/2" connection 3/4" connection 1" connection		
Hose Connection (Wash Down) - 1/2"	6	
	3/4"	5
Hose (50 foot Wash Down) - 1/2"		
	5/8"	
	3/4"	

- MATERIALS AND FABRICATION IN ACCORDANCE WITH ASTM C478-09.
- WHEN USED AS SAMPLING MANHOLE FLOW SHALL PASS STRAIGHT THROUGH, I.E., 180°.
- STEPS SHALL BE VERTICALLY ALIGNED. FIRST STEP SHALL BE WITHIN 12" OF COVER, BOTTOM STEP SHALL BE WITHIN 24" OF BOTTOM OF MANHOLE.
- FRAME AND COVER SHALL BE PROPERLY ALIGNED WITH THE 2 FOOT OPENING OF THE MANHOLE UTILITY.
- FLEXIBLE JOINT MANHOLE CONNECTION SHALL BE AS MANUFACTURED BY PRE-SEAL GASKET CORPORATION OR EQUAL.
- GROUT ANNUAL SPACE BETWEEN PIPE AND PRECAST MANHOLE ON INSIDE OF MANHOLE.
- WHEN REPLACING AN EXISTING MANHOLE OR INSTALLING A NEW PRECAST MANHOLE ON AN EXISTING SEWER, A MINIMUM OF SIX FEET (6') OF EXISTING PIPE SHALL BE REMOVED AND REPLACED WITH NEW MANHOLE ON INLET AND OUTLET OF MANHOLE.
- MANHOLES WHERE THE INVERT IS LOWER THAN THE NORMAL GROUNDWATER ELEVATION (I.E., ALONG CREEKS, RIVERS, LOW-LYING AREAS, ETC.) SHALL HAVE A FULL EXTERIOR COATING AND JOINT WRAP APPLIED IN ADDITION TO JOINT SEALANT. SEE NOTES 10 & 11.
- IF REQUIRED EXTERIOR VERTICAL WALL SURFACES SHALL BE FACTORY COATED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. COATING SHALL BE HIGH BUILD COAL TAR EPOXY MEETING ASTM D1227. COATING SHALL BE APPLIED IN TWO COATS TO A MINIMUM TOTAL THICKNESS OF 16 MILS.
- IF REQUIRED ALL MANHOLES SHALL UTILIZE AN EXTERNAL FRAME AND JOINT SEAL AT ALL JOINTS AND AT THE FRAME/CHIMNEY INTERFACE. SEAL SHALL BE MADE OF EPDM RUBBER IN ACCORDANCE WITH ASTM D412 OR POLYOLEFIN BACKED EXTERIOR JOINT WRAP IN ACCORDANCE WITH ASTM E-1745, C-877, AND C-990. EPDM SEAL SHALL HAVE A MINIMUM THICKNESS OF 60 MILS. POLYOLEFIN BACKED EXTERIOR JOINT WRAP SHALL HAVE A BACKING BAND ELEMENT WITH MINIMUM THICKNESS OF 4 MILS, AND BUTYL ROLLER ADHESIVE WITH MINIMUM THICKNESS OF 60 MILS. SEAL SHALL AGGRESSIVELY BOND TO CONCRETE AND METAL STRUCTURES.
- FOR PIPE LARGER THAN 15 INCHES IN DIAMETER, THE MINIMUM INSIDE DIAMETER OF THE MANHOLE SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS BASED ON PIPE SIZE AND ANGLE BETWEEN INLET AND OUTLET PIPING.
- 6" MINIMUM DIAMETER MANHOLE SHALL BE REQUIRED WHEN DEPTHS EXCEED 15' UNLESS OTHERWISE APPROVED BY PARTICIPATING UTILITY.

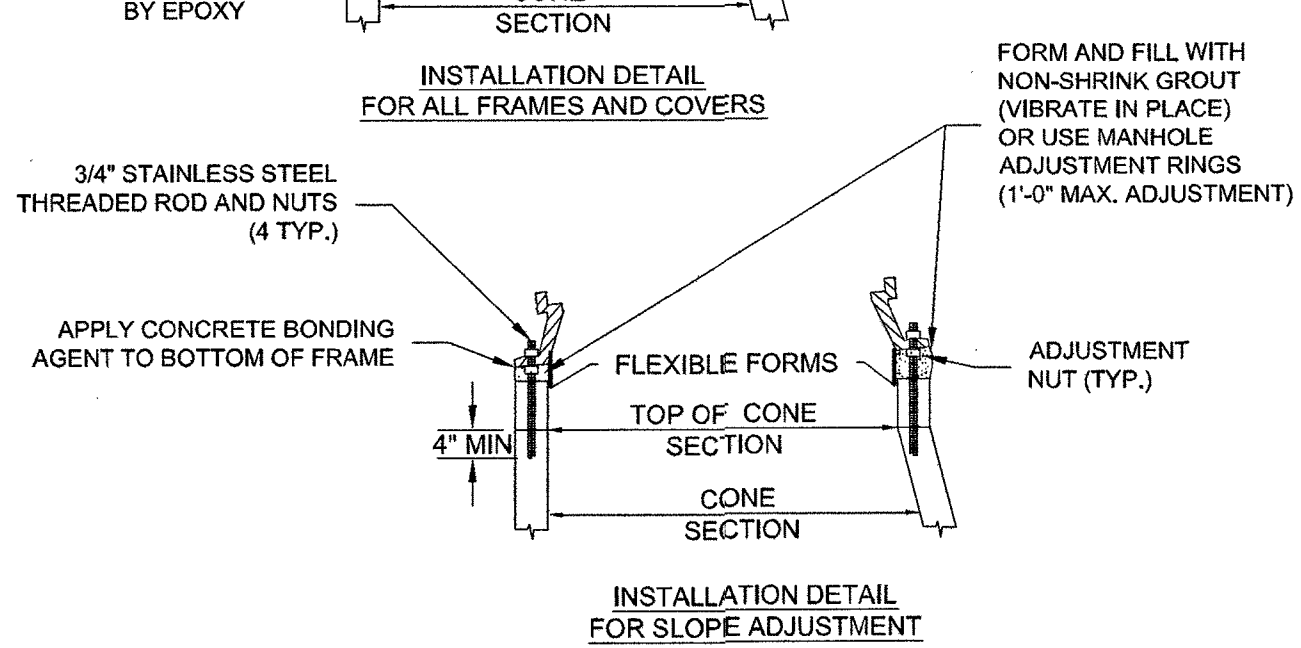


WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

4' STANDARD MANHOLE
FOR PIPE 15" OR SMALLER
(FOR DEPTHS UP TO 15 FEET)

S-1
08/01/15

- WATERTIGHT MANHOLE FRAME MODEL #10452 BY EAST JORDAN IRON WORKS, INC. OR EQUIVALENT.
- HOPE ADJUSTMENT RINGS SHALL MEET H-20 LOAD RATING AND SHALL BE INTERLOCKING OR UTILIZE BUTYL MASTIC JOINT SEALANT BETWEEN EACH RING TO FORM A WATERTIGHT JOINT.
- CONCRETE ADJUSTMENT RINGS SHALL MEET H-20 LOAD RATING AND UTILIZE BUTYL MASTIC JOINT SEALANT BETWEEN EACH RING AND FRAME AN COVER TO FORM A WATERTIGHT JOINT.
- FRAME HEIGHT SHALL BE 7" FOR BURIED LOCATIONS AND 4" FOR EXPOSED LOCATIONS.

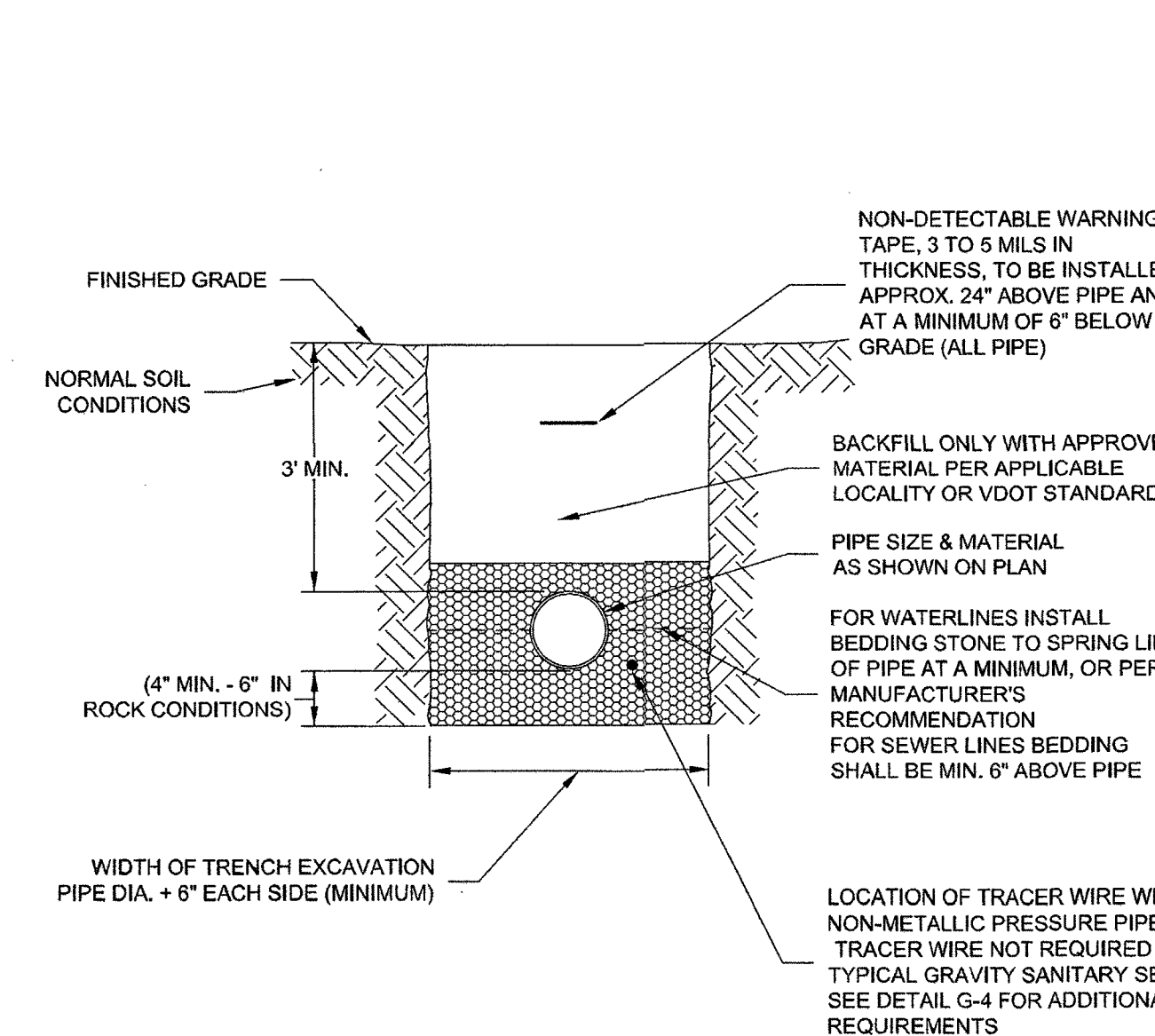


WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

WATERTIGHT
MANHOLE FRAME

S-4
01/01/14

- BEDDING, HAUNCHING AND INITIAL BACKFILL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THIS DETAIL AND MANUFACTURER'S RECOMMENDATION.
- ALL PVC PIPE SHALL BE BEDDED IN COMPACTED VDOT #57 OR #68 STONE, OR CRUSHER RUN.
- IN AREAS 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 10" LIFTS AND SHALL BE COMPACTED TO AT LEAST 90% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D 698.
- BEDDING REQUIREMENTS FOR DUCTILE IRON WATER LINE ARE DEPENDENT ON MANUFACTURER'S BEDDING CRITERIA.
- ALL EXCAVATIONS SHALL COMPLY WITH OSHA TECHNICAL MANUAL, CHAPTER 2, TITLED "EXCAVATIONS: HAZARD RECOGNITION IN TRENCHING AND SHORING."
- THE TRACER WIRE SHALL BE PLACED ALONG THE LOWER QUADRANT OF THE PIPE. THE WIRE SHALL NOT TOUCH THE PIPE, BUT SHALL BE A MAXIMUM OF 6" FROM THE PIPE. NON-METALLIC SPACERS MAY BE USED TO MAINTAIN A SET DISTANCE FROM THE UTILITY.

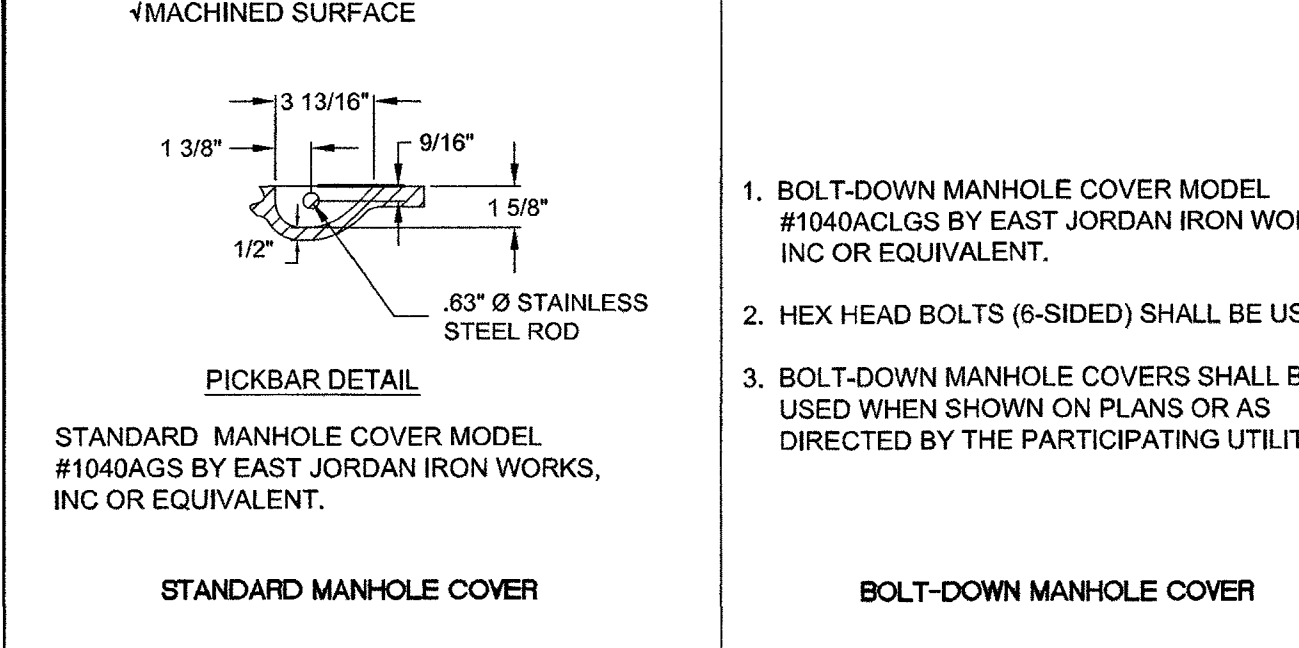


WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

BEDDING AND BACKFILL
OUTSIDE OF PAVED AREAS

G-11
08/01/15

- 2" LETTERS (RECESSED FLUSH)
- NON-SLIP TEXTURE
- STOP LUGS FOR CAM
- 2" PICKBARS (RECESSED FLUSH)
- 2" PICKBARS (RECESSED FLUSH)
- FOR PARTICIPATING UTILITIES OTHER THAN THE WWVA, GENERIC NON-LOGO MANHOLE COVERS LABELED "SEWER" SHALL BE SUBSTITUTED



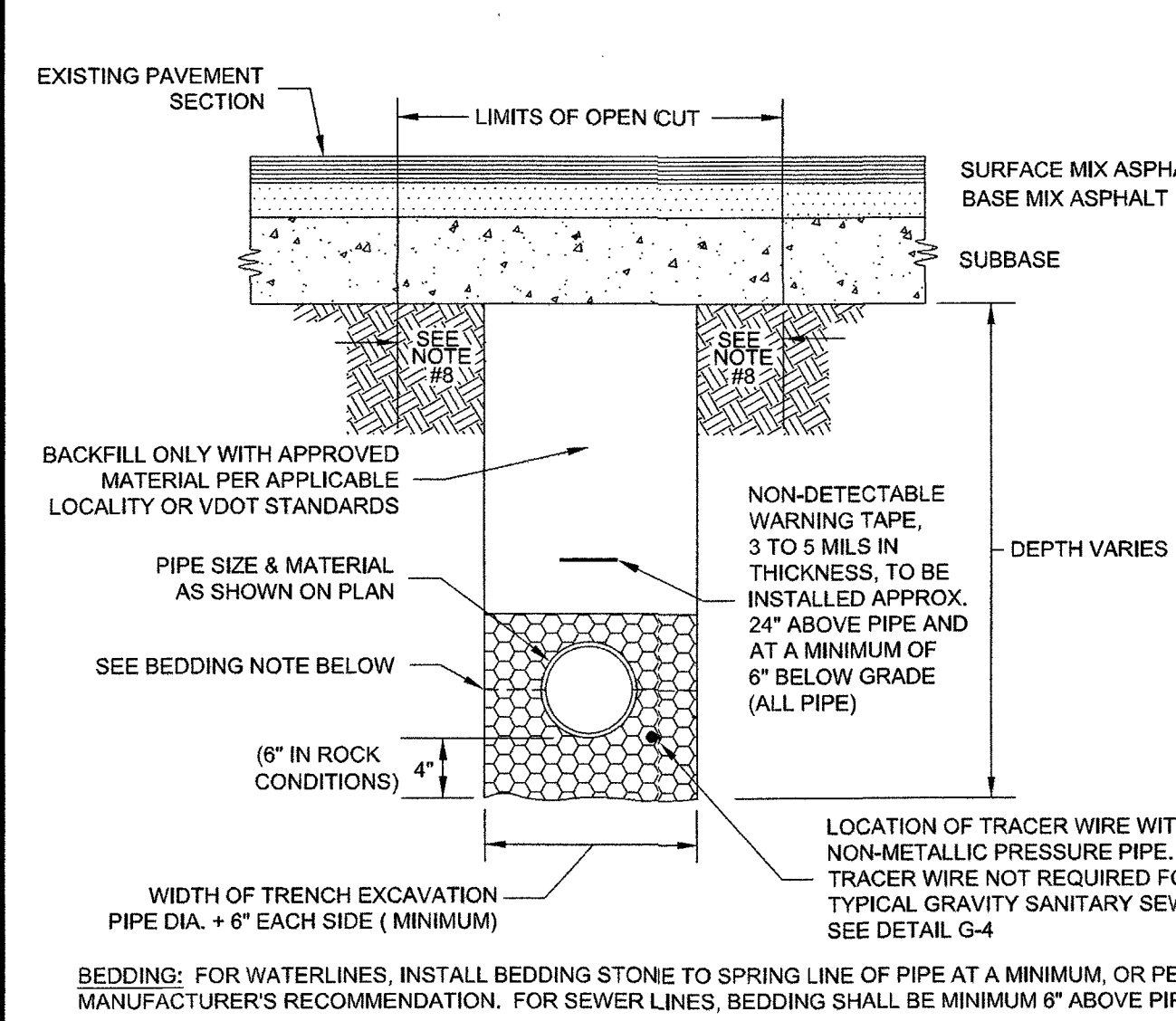
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

STANDARD MANHOLE COVER

BOLT-DOWN MANHOLE COVER

S-5
01/01/14

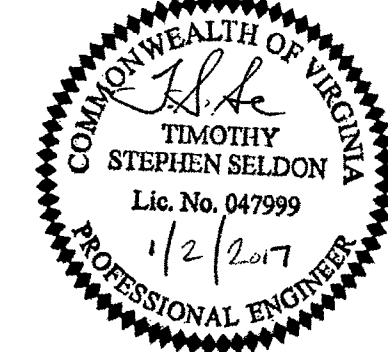
- BEDDING, HAUNCHING AND INITIAL BACKFILL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THIS DETAIL AND MANUFACTURER'S RECOMMENDATION.
- ALL PVC PIPE SHALL BE BEDDED IN COMPACTED VDOT #57 OR #68 STONE.
- IN VDOT ROW, THE CONTRACTOR SHALL REPLACE THE PAVEMENT AS REQUIRED AND SPECIFIED BY VDOT. IN ROANOKE CITY, CONTRACTOR SHALL REPLACE PAVEMENT AS REQUIRED BY CITY OF ROANOKE RIGHT OF WAY EXCAVATION AND RESTORATION STANDARDS, LATEST EDITION.
- 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.
- 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 SEWER LINE ARE DEPENDENT ON MANUFACTURER'S BEDDING CRITERIA.
- BENCH CUT ON EACH SIDE OF PAVEMENT SHALL BE IN ACCORDANCE WITH VDOT OR APPLICABLE LOCALITY'S SPECIFICATIONS.
- ALL EXCAVATIONS SHALL COMPLY WITH OSHA TECHNICAL MANUAL, CHAPTER 2, TITLED "EXCAVATIONS: HAZARD RECOGNITION IN TRENCHING AND SHORING."
- THE TRACER WIRE SHALL BE PLACED ALONG THE LOWER QUADRANT OF THE PIPE. THE WIRE SHALL NOT TOUCH THE PIPE, BUT SHALL BE A MAXIMUM OF 6" FROM THE PIPE. NON-METALLIC SPACERS MAY BE USED TO MAINTAIN A SET DISTANCE FROM THE UTILITY.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

BEDDING AND BACKFILL
UNDER PAVEMENT AND IN RIGHT-OF-WAY

G-12
08/01/15



THIS DRAWING PREPARED AT THE
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REVISION DESCRIPTION	DATE	REVISION PER COUNTY AND VDOT COMMENTS	SIGNATURE SETS
1	9/28/2016		
2	11/1/2016		
3	1/2/2017		
DATE	8-23-2016		
DRAWN BY	T. SELDON		
DESIGNED BY	T. SELDON		
CHECKED BY	T. SELDON		
SCALE	NONE		

LEWISGALE EMERGENCY CENTER
CAVE SPRING DISTRICT - ROANOKE COUNTY - VIRGINIA
UTILITY NOTES AND DETAILS

JOB NO.
38321
SHEET NO.
C1.4

APPROVED

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