

WHEN USED AS SAMPLING MANHOLE FLOW SHALL PASS STRAIGHT THROUGH, I.S., 180°. STEPS SHALL BE VERTICALLY ALIGNED. FIRST STEP SHALL BE WITHIN 12" OF COVER, BOTTOM STEP SHALL BE WITHIN 24" OF BOTTOM OF MANHOLE.

CORPORATION OR EQUAL.
GROUT ANNULAR 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

MATERIAL ON INLET AND OUTLET OF MANHOLE.

MANHOLES WHERE THE INVERT IS LOWER THAN THE NORMAL GROUNDWATER ELEVATION (LE., ALONG CREEKS, RIVERS, LOW-LYING AREAS, ETC.) SHALL HAVE A FULL EXTERIOR COATING AND JOINT WRAP

CREEKS, RIVERS, LOW-LYING AREAS, ETC.) SHALL HAVE A PULL EXTERIOR COATING AND JUNE 1 WASHAPPLIED IN ADDITION TO JOINT SEALANT. SEE NOTES 10 & 11.

LIF REQUIRED EXTERIOR VERTICAL WALL SURFACES SHALL BE FACTORY COATED IN ACCORDANCE WITH THE MANUFACTURERS 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.

- PRECAST HOLE (TYP.)

GROUT
ANNULAR SPACE
(TYP. INLET & OUTLET)

FLEXIBLE BOOT WITH

ECCENTRIC CONE

- STAINLESS STEEL

3/4" Ø SS THREADED ROD

ARE REQUIRED)

SECTION A-A

IF REQUIRED ALL MANHOLES SHALL UTILIZE AN EXTERNAL FRAME AND JOINT SEAL AT ALL JOINTS AND AT THE FRAME/CHIMNEYINTERFACE.

SEAL SHALL BE MADE OF EPDM RUBBER INACCORDANCE WITH

ASTM D412 OR POLYOLEFIN BACKED EXTERIOR JOINT WRAP IN ACCORDANCE WITH ASTM E-1745, C-877, AND C-990. EDM SEAL SHALL HAVE A MINIMUM THICKNESS OF 60 MILS.

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 MANUFACTURERS RECOMMENDATIONS BASED ON PIPE SIZE AND ANGLE BETWEEN INLET AND OUTLET PIPING. 6' MINIMUM DIAMSTER MANHOLE SHALL BE REQUIRED WHEN DEPTHS EXCEED 15' UNLESS OTHERWISE

ADJUSTMENT RINGS IF NECESSARY (1'-0' MAX ADJUSTMENT) SEE FRAME & COVER DETAILS

APPROVED BY PARTICIPATING LITILITY.

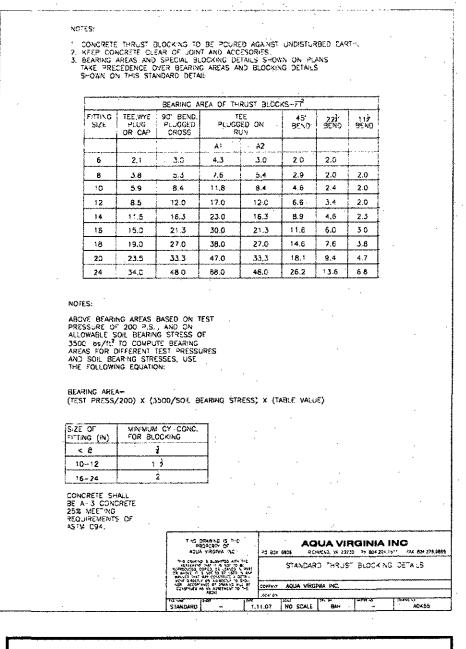
BUTYL MASTIC JOINT SEALER OR GASKETS

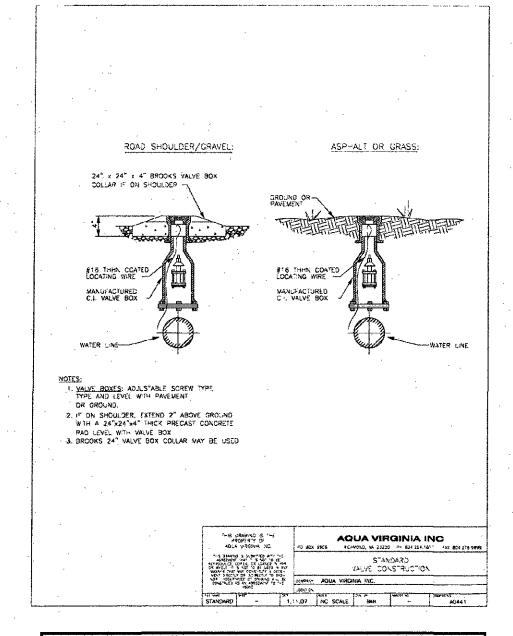
MEETING ASTM C443 AND ASTM C1244 TESTING STANDARD (NO MORTAR)

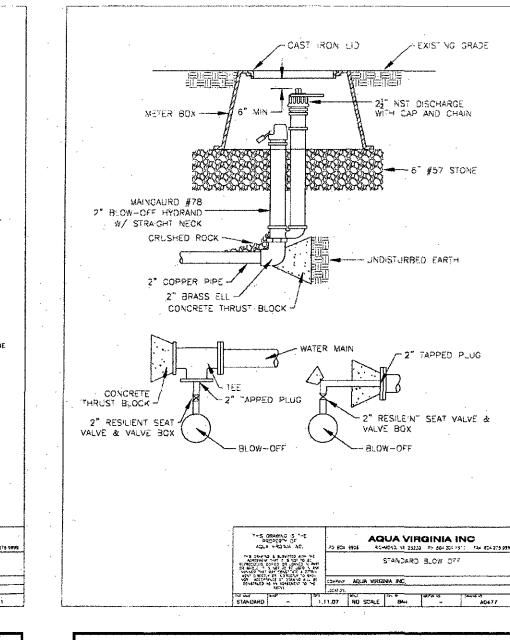
POLYOLEFIN BACKED EXTERIOR JOINT WRAP SHALL HAVE

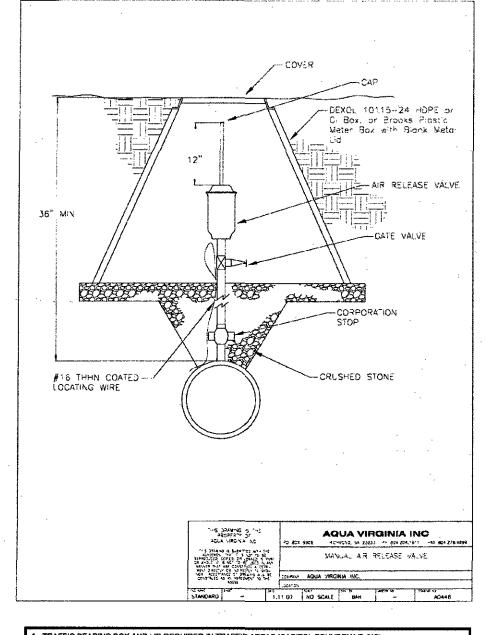
A BACKING BAND ELEMENT WITH MINIMUM THICKNESS OF 4 MH.S. AND BUTYL ROLLER ADHESIVE WITH MINIMUM

FRAME AND COVER SHALL BE PROPERLY ALIGNED WITH THE 2 FOOT OPENING OF THE MANHOLE STRUCTURE AND BOLTED IN PLACE.
FLAT TOP MANHOLES MAY ONLY BE SUBSTITUTED WITH THE PERMISSION OF THE PARTICIPATING UTILITY.
FLEXIBLE JOINT MANHOLE CONNECTION SHALL BE AS MANUFACTURED BY PRES-SEAL GASKET









CLEAN OUT BOX AND LID

(SET TO FINISHED GRADE)

CLEAN-OUT TO EXTEND ABOVE GROU

- 45° WYE (TEE NOT ACCEPTABLE)

TEE, WYE, TEE/WYE OR

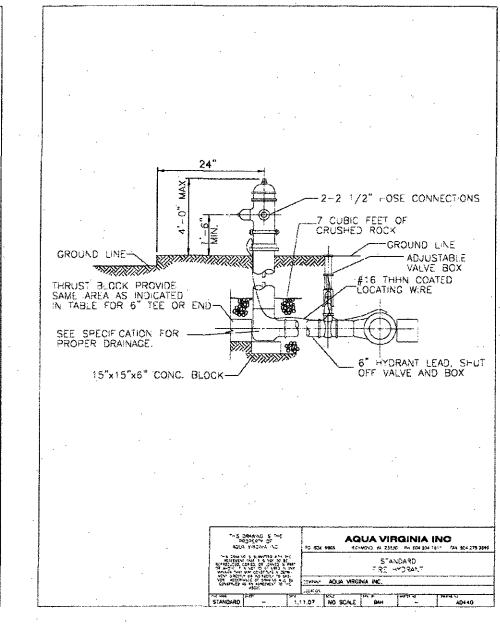
COMBINATION OF WYE & 45° BEND FITTINGS SHALL BE

45° MAX.

(SEE NOTE #2)

11.25° OR 22.5°

A MIN. OF 3 FEET DURING INSTALLATIO OF MAIN LINE. PLUMBER SHALL CUT STACK TO FINISHED GRADE AS SHOWN WHEN BUILDING SEWER IS CONNECTED



1. A 1" DRAIN WILL BE REQUIRED ON THE LOWER END OF THE CASING PIPE.
2. SPACERS SHALL BE RACI HDPE SPACERS OR EQUIVALENT. STAINLESS STEEL SPACERS MAY BE

IN TERIOR SURFACES OF THE CIRCULAR STAINLESS STEEL BAND SHALL BE LINED WITH EPT OR NEOPRENE MATERIAL.
 ABRASION RESISTANT RUNNERS/SKIDS SHALL BE POLYMER MATERIAL WITH EACH END BEVELED TO FACILITATE EASE OF INSTALLATION INTO CASING PIPE.
 SPACERS SHALL BE SPACED 6 1/2' ON SEWER PIPE.
 CARRIER PIPE SHALL BE DUCTILE OR HDPE IN ACCORDANCE WITH REGIONAL STANDARDS.
 IF HDPE CARRIER PIPE IS USED AND PRECISE GRADES ARE NOT REQUIRED THROUGH CASING, SPACES MAY BE OMITTED.

SPACERS MAY BE OMITTED.

6. CASING PIPE TO BE STEEL IN ACCORDANCE WITH VDOT STANDARD DETAIL EP-1 OR HDPE AS

SPECIFIED IN THE STANDARDS IF APPROVED BY THE PARTICIPATING UTILITY.

7. CONCRETE CASING PIPE WILL NOT BE ALLOWED.

8. DIAMETER OF CASING PIPE SHALL BE AS SHOWN IN THE TABLE BELOW LINLESS OTHERWISE

\* ADDITIONAL SPACING ALLOWED AS RECOMMENDED BY PIPE MANUFACTURER.

WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

MINIMIZE VOID SPACE BETWEEN CARRIER AND CASING PIPES.

CASING PIPE SIZE CHART

(NOMINAL DIAMETER)

12" 24"

14" 24"

16" 30" 18" 30"

TWO SPACERS PLACED

AT EACH END OF CASING (TYP)

SPECIFIED BY THE PARTICIPATING UTILITY. WHERE SPACERS ARE NOT REQUIRED, CASING PIPE SHALL BE MINIMUM DIAMETER TO ADEQUATELY INSTALL AND PASS CARRIER PIPE THROUGH AND TO

- RESTRAINED JOINTS

8.5'\*
BETWEEN SPACERS
2' FROM BELL END

CASING SPACERS SHALL BE

- SPACED A MAXIMUM OF 1' FROM EACH SIDE OF THE PIPE JOINT

RUBBER END SEAL WITH STAINLESS STEEL BANDS

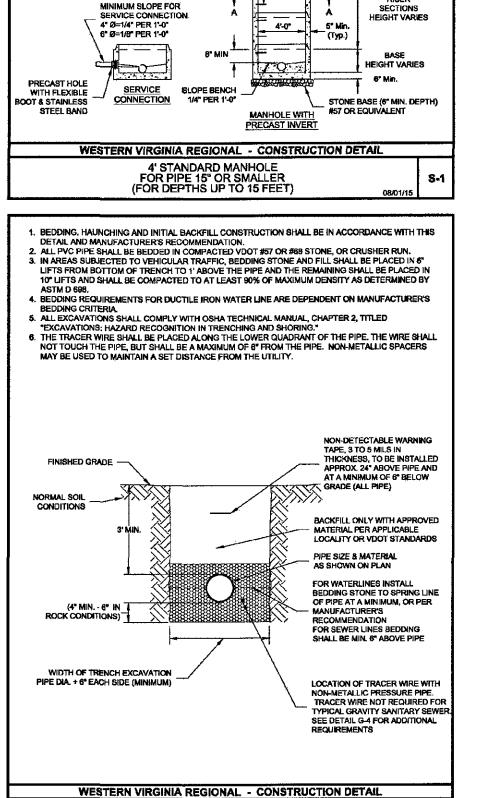
PIPELINE SEAL & INSULATOR INC., MODEL "C", "R", "S",

CARRIER PIPE

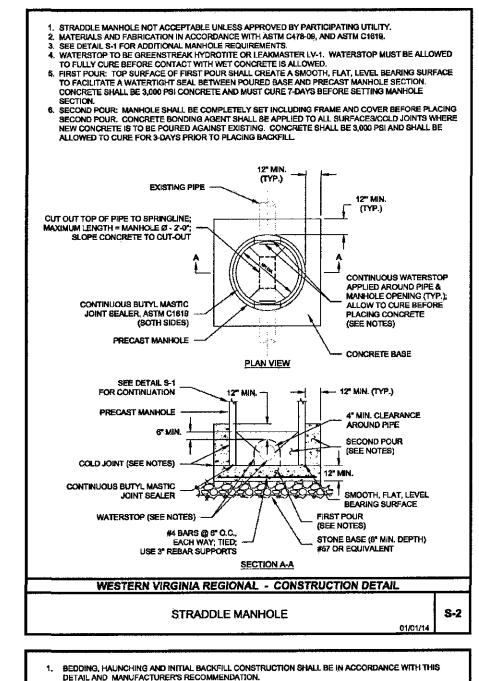
- POLYETHYLENE RUNNER

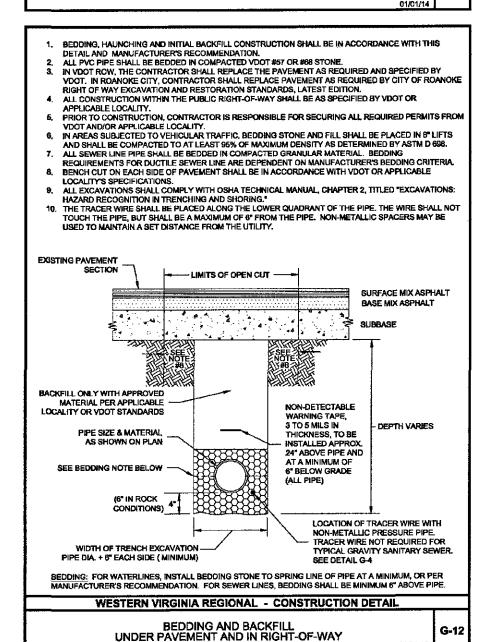
USED IF IN COMPLIANCE WITH THE FOLLOWING CRITERIA:

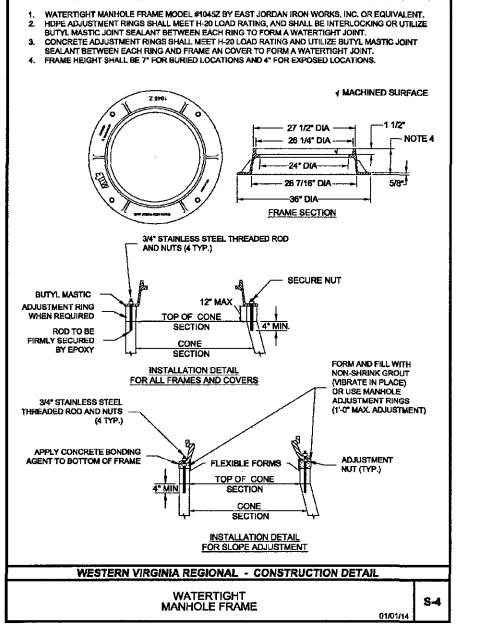
• INTERIOR SURFACES OF THE CIRCULAR STAINLESS STEEL BAND SHALL BE LINED WITH EPDM

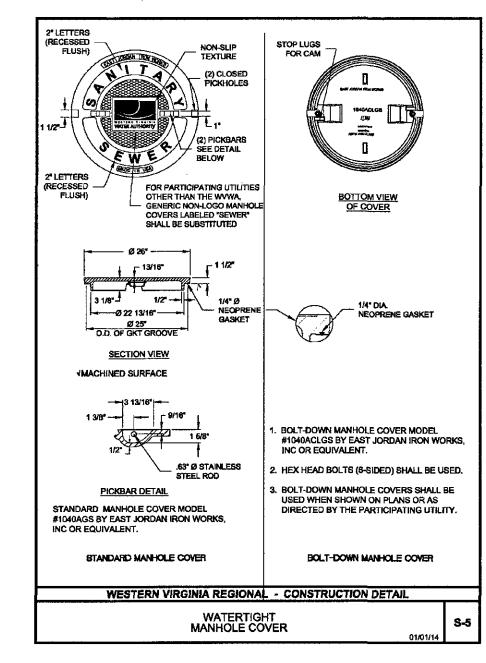


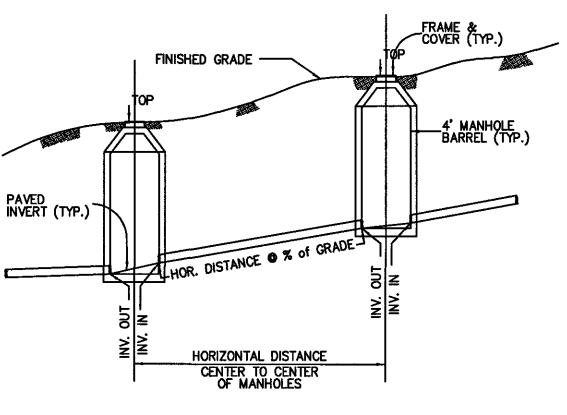
BEDDING AND BACKFILL OUTSIDE OF PAVED AREAS



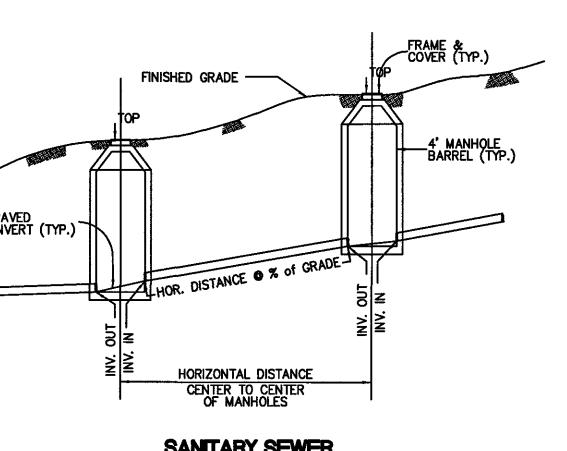












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2016-003

COMMISSION NO

**SHEET 12 OF 14** 

LUMSDEN AS ENGINEERS-SURV ROANOKE, VIRGIN

THOMAS C. DALE

Lic. No. 033002

7 25/17

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