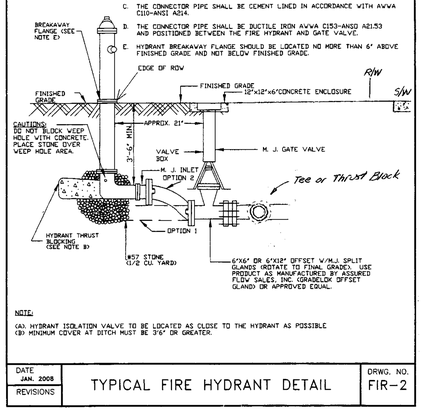
PRINCE GEORGE COUNTY
DEPARTMENT OF PUBLIC UTILITIES

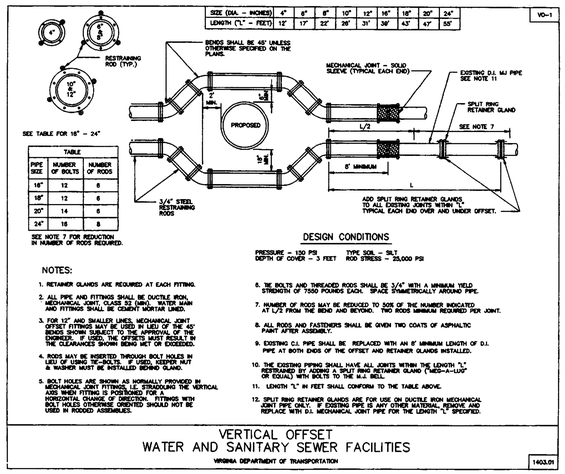
OPTION 1: IF GRADE ADJUSTMENT IS NOT REQUIRED:
A. CONNECTOR PIPE MAY BE APPROVED D.I. OR P.V.C. PIPE.
B. ALL JOINTS FROM HYDRANT TEE TO HYDRANT ARE TO BE RESTRAINED WITH APPROVED JOINT RESTRAINT DEVICES AND THRUST BLOCKING BEHIND THE HYDRANT.

OPTION 2: IF GRADE ADJUSTMENT IS REQUIRED:
A. THE CONNECTOR PIPE SHALL BE OF THE OFFSET DESIGN SO THAT THE FIRE HYDRANT CAN BE ADJUSTED TO ENSURE PLACEMENT AT THE PROPER GRADE. WHEN THE CONNECTOR PIPE IS THE OFFSET DESIGN IT SHALL HAVE AN ANCHORING FEATURE AT BOTH ENDS SO THAT WHEN USED WITH M.J. SPLIT GLANDS A RESTRAINED JOINT IS PROVIDED.
B. ALL JOINTS FROM HYDRANT TEE TO HYDRANT ARE TO BE RESTRAINED WITH APPROVED JOINT RESTRAINT DEVICES AND THRUST BLOCKING BEHIND THE HYDRANT.
C. THE CONNECTOR PIPE SHALL BE CEMENT LINED IN ACCORDANCE WITH AWWA C110-ANSI A214.
D. THE CONNECTOR PIPE SHALL BE DUCTILE IRON AWWA C153-ANSI A21.53 AND POSITIONED BETWEEN THE FIRE HYDRANT AND GATE VALVE.
E. HYDRANT BREAKAWAY FLANGE SHOULD BE LOCATED NO MORE THAN 6" ABOVE FINISHED GRADE AND NOT BELOW FINISHED GRADE.



NOTE:
(A). HYDRANT ISOLATION VALVE TO BE LOCATED AS CLOSE TO THE HYDRANT AS POSSIBLE
(B) MINIMUM COVER AT DITCH MUST BE 3'6" OR GREATER.

DATE JAN. 2008 / REVISIONS	TYPICAL FIRE HYDRANT DETAIL	DRWG. NO. FIR-2



SIZE (DIA. - INCHES)	4"	6"	8"	10"	12"	16"	18"	20"	24"
LENGTH ("L" - FEET)	12'	17'	22'	26'	31'	39'	43'	47'	55'

TABLE

PIPE SIZE	NUMBER OF BOLTS	NUMBER OF RODS
16"	12	6
18"	12	6
20"	14	6
24"	16	8

SEE NOTE 7 FOR REDUCTION IN NUMBER OF RODS REQUIRED.

DESIGN CONDITIONS

PRESSURE - 150 PSI — TYPE SOIL - SILT
DEPTH OF COVER - 3 FEET — ROD STRESS - 25,000 PSI

NOTES:

1. RETAINER GLANDS ARE REQUIRED AT EACH FITTING.
2. ALL PIPE AND FITTINGS SHALL BE DUCTILE IRON, MECHANICAL JOINT, CLASS 52 (MIN.). WATER MAIN AND FITTINGS SHALL BE CEMENT MORTAR LINED.
3. FOR 12" AND SMALLER LINES, MECHANICAL JOINT OFFSET FITTINGS MAY BE USED IN LIEU OF THE 45° BENDS SHOWN SUBJECT TO THE APPROVAL OF THE ENGINEER. IF USED, THE OFFSETS MUST RESULT IN THE CLEARANCES SHOWN BEHIND MET OR EXCEEDED.
4. RODS MAY BE INSERTED THROUGH BOLT HOLES IN LUGS. WHEN USED, A SPECIAL HEXAGON NUT & WASHER MUST BE INSTALLED BEHIND GLAND.
5. BOLT HOLES ARE SHOWN AS NORMALLY PROVIDED IN MECHANICAL JOINT FITTINGS, I.E. STRADDLING THE VERTICAL AXIS WHEN FITTING IS POSITIONED FOR A HORIZONTAL CHANGE OF DIRECTION. FITTINGS WITH BOLT HOLES ORIENTED DIFFERENTLY SHOULD NOT BE USED IN RODDED ASSEMBLIES.
6. THE BOLTS AND THREADED RODS SHALL BE 3/4" WITH A MINIMUM YIELD STRENGTH OF 7500 POUNDS EACH. SPACE SYMMETRICALLY AROUND PIPE.
7. NUMBER OF RODS MAY BE REDUCED TO 50% OF THE NUMBER INDICATED AT 1/2 FROM THE BEND AND BEYOND. TWO RODS MINIMUM REQUIRED PER JOINT.
8. ALL RODS AND FASTENERS SHALL BE GIVEN TWO COATS OF ASPHALTIC PAINT AFTER ASSEMBLY.
9. EXISTING C.I. PIPE SHALL BE REPLACED WITH AN 8' MINIMUM LENGTH OF D.I. PIPE AT BOTH ENDS OF THE OFFSET AND RETAINER GLANDS INSTALLED.
10. THE EXISTING PPWC SHALL HAVE ALL JOINTS WITHIN THE LENGTH "L" RESTRAINED BY ADDING A SPLIT RING RETAINER GLAND ("MEG-A-LUG" OR EQUAL) WITH BOLTS TO THE M.J. BELL.
11. LENGTH "L" IN FEET SHALL CONFORM TO THE TABLE ABOVE.
12. SPLIT RING RETAINER GLANDS ARE FOR USE ON DUCTILE IRON MECHANICAL JOINT PIPE ONLY. IF EXISTING PIPE IS ANY OTHER MATERIAL REMOVE AND REPLACE WITH D.I. MECHANICAL JOINT PIPE FOR THE LENGTH "L" SPECIFIED.

VERTICAL OFFSET
WATER AND SANITARY SEWER FACILITIES
VIRGINIA DEPARTMENT OF TRANSPORTATION
1403.01

PRINCE GEORGE COUNTY
DEPARTMENT OF PUBLIC UTILITIES

NOTES:

1. ALL MATERIALS FOR SEWER AND WATER SYSTEMS SHOWN SHALL BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH THE LATEST SPECIFICATIONS OF PRINCE GEORGE COUNTY APPLICABLE AT THE TIME OF NOTICE TO PROCEED.
2. FOR SEWER AND WATER INSTALLATION WITHIN EXISTING VDOT R/W: UTILITY CONTRACTORS MUST NOTIFY VDOT WHEN INSTALLATION BEGINS SO THAT DENSITY CAN BE TESTED ON TRENCH BACKFILL (95% ASTM D-698 @ OPTIMUM MOISTURE ± 2%).
3. THE INSTALLATION OF A SEWER BACKFLOW DEVICE IS REQUIRED FOR ALL SERVICE CONNECTIONS WHERE THE FINISHED FLOOR ELEVATION IS LOWER THAN THE NEAREST DOWNGRADE AND/OR UPGRADE MANHOLE TOP ELEVATIONS. THIS DEVICE WILL BE INSPECTED BY THE BUILDING INSPECTION DEPARTMENT.
4. ALL WATER SERVICE CONNECTIONS BELOW THE ELEVATION CONTOUR OR WHERE THE PRESSURE IS GREATER THAN 80 P.S.I. WILL REQUIRE INDIVIDUAL PRESSURE REGULATORS AS REQUIRED BY BOCA CODE.
5. VERTICAL DATUM IS BASED ON MEAN SEA LEVEL (USC & GS DATUM). HORIZONTAL CONTROLS ARE BASED ON VIRGINIA STATE PLANE COORDINATE GRID, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD 83).
6. CONTRACTOR SHALL PROPERLY NOTIFY ALL PROPERTY OWNERS TWO (2) WEEKS PRIOR TO THE START OF ANY CONSTRUCTION (INCLUDING LAND CLEARING). NOTIFICATION SHALL BE IN THE FORM OF A LETTER SIMILAR TO THE "SAMPLE" REFLECTED IN THE COUNTY'S LATEST WATER AND SEWER SPECIFICATIONS (NOT-1).

REQUIRED INFORMATION FOR TITLE PAGE

APPLICANTS NAME _____
ZONING AND CASE# _____
NUMBER OF LOTS _____
TAX MAP NUMBER _____
DATE OF PLANNING _____
COMMISSION APPROVAL _____

DATE JAN. 2008 / REVISIONS	STANDARD SEWER AND WATER NOTES	DRWG. NO. DES-2

PRINCE GEORGE COUNTY
DEPARTMENT OF PUBLIC UTILITIES

NOTES CONT:

7. THE ENGINEER WILL CERTIFY THAT THE ROADS ARE WITHIN 6-INCHES OF SUBGRADE BEFORE WATERLINE CONSTRUCTION CAN BEGIN.
8. FOR SEWER AND WATER INSTALLATION WITHIN EXISTING VDOT R/W: UTILITY CONTRACTORS SHALL NOTIFY VDOT 48 HOURS IN ADVANCE WHEN INSTALLATION BEGINS SO THAT DENSITY CAN BE TESTED (95% @ OPTIMUM MOISTURE + 2%).
9. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES SHOWN ON THE PLANS PRIOR TO CONSTRUCTION PRIOR TO STARTING THE WORK. CONTACT ENGINEER IMMEDIATELY IF LOCATION OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON THE PLAN, OR IF THERE APPEARS TO BE A CONFLICT, AND UPON DISCOVERY OF ANY UTILITY NOT SHOWN ON THE PLAN CALL MISS UTILITY OF VIRGINIA AT 1-800-552-7001 (TOLL FREE).
10. THE INSTALLATION OF A BACKFLOW DEVICE IS REQUIRED IN ALL HOUSES WHERE THE FINISHED FLOOR ELEVATION IS LOWER THAN THE TOP UPGRADE MANHOLE. THIS DEVICE WILL BE INSPECTED BY THE COUNTY BUILDING INSPECTOR.
11. INDIVIDUAL WATER SERVICES SHALL BE 3/4".
12. ALL WATERLINE VALVES MUST BE LOCATED ON THE TEE OR CROSS WHEN APPLICABLE.
13. ALL MANHOLES IN UTILITY EASEMENTS ARE TO HAVE THE CONCRETE SECTION EXTENDED ONE FOOT ABOVE THE GROUND OR DITCH LINE. ALL MANHOLES SHALL BE USED
14. A SMOOTH TRANSITION OF A DROP MANHOLE MUST BE PROVIDED FOR EACH LATERAL OR SANITARY SEWER ENTERING A SANITARY MANHOLE
15. ALL FIRE HYDRANTS SHALL BE O.S.H.A. RED IN COLOR.
16. METER BOXES PROVIDED SHALL BE CAST IRON 12"x18"x24" HIGH WITH CAST IRON LIDS. THE METER ASSEMBLIES ARE TO BE SUPPLIED WITH NEPTUNE RESIDENTIAL ENCODERS COMPATIBLE WITH THE PROPOSED SYSTEM. THE LID METERS ARE TO BE COMPATIBLE WITH THE PROPOSED SYSTEM. A WAND TYPE VISUAL READER DEPARTMENT WITH THE WATER METERS.
17. ALL SANITARY SEWER LATERALS THAT ARE INSTALLED OUTSIDE OF THE R/W ARE TO HAVE THE CLEANOUT INSTALLED AT THE EDGE OF THE EASEMENT. A CHISELED MARKER SHALL ALSO BE INSTALLED TO INDICATE THEIR LOCATION.
18. ALL HYDRANTS AND BENDS SHALL BE EQUIPPED WITH MEGA LUGS, KICKERS AND THRUST BLOCKS.
19. PRESSURE REDUCING VALVES SHALL BE USED ON LOTS WHERE THE STATIC PRESSURE IN THE SYSTEM EXCEEDS 80 PSI OR AS REQUIRED BY BUILDING CODE.
20. CLEANOUTS ARE TO BE INSTALLED ON ALL SANITARY LATERALS IN ACCORDANCE WITH PRINCE GEORGE COUNTY SPECIFICATIONS. THESE CLEANOUTS SHOULD BE INSTALLED AT THE EDGE OF THE R/W.

DATE JAN. 2008 / REVISIONS	STANDARD SEWER AND WATER NOTES	DRWG. NO. DES-2 SHEET 2 OF 3

PRINCE GEORGE COUNTY
DEPARTMENT OF PUBLIC UTILITIES

NOTES CONT:

21. UTILITY INSPECTOR SHALL BE CONTACTED BEFORE INDIVIDUAL SERVICE CONNECTIONS ARE COVERED.
22. ALL MANHOLES WITHIN 1,000 FEET OF A FORCE MAIN DISCHARGE SHALL BE COATED AS REQUIRED IN THE LATEST COUNTY SPECIFICATIONS
23. ALL INDIVIDUAL WATER AND SEWER CONNECTIONS SHALL BE MADE USING DOUBLE SANDED, STAINLESS STEEL, EPOXY COATED SADDLES.
24. A "W" AND "S" SHALL BE STAMPED IN THE CURB WHILE THE CONCRETE IS STILL WET. THESE MARKS SHALL INDICATE THE ACTUAL LOCATION OF THE WATER AND SEWER CONNECTIONS FOR EACH LOT.
25. ALL MANHOLES SHALL BE SEALED AT THE JOINTS WITH AN EXTERNAL RUBBER SLEEVE SIMILAR TO THE INFI-SHIELD SEAL WRAP AS MANUFACTURED BY SEALING SYSTEMS, INC. THE SEAL SHALL BE MADE OF EPDM (ETHYLENE PROPYLENE DIENE MONOMER) RUBBER WITH A MINIMUM THICKNESS OF 65 MILS. EACH UNIT SHALL HAVE A 2-INCH WIDE MASTIC STRIP ON THE TOP AND BOTTOM EDGE OF THE RUBBER WRAP. THE MASTIC SHALL BE NON-HARDENING BUTYL RUBBER SEALANT, WITH A MINIMUM THICKNESS OF 125 MILS.
26. THE BOXES FOR THE SEWER CONNECTIONS MUST BE MARKED AS SEWER CONNECTIONS RATHER THAN WATER METER.
27. ALL GATE VALVE BOXES LOCATED OUTSIDE THE PAVEMENT NEED TO BE ENCLOSED IN A 12"x12"x6" CONCRETE ENCLOSURE.

DATE JAN. 2008 / REVISIONS	STANDARD SEWER AND WATER NOTES	DRWG. NO. DES-2 SHEET 3 OF 3

REVISIONS	BY
10-7-13	
12-4-13	
2-3-14	
4-24-14	

Architectural Graphics
6676 LAKESHORE DRIVE
QUINTON, VIRGINIA 23141
804-551-6944

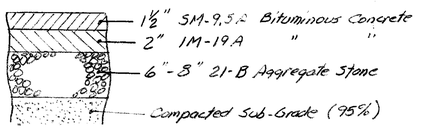
Pavement Design

Prince George Co ; Code 74
RF = 3.0 ; CBR = 8.0 ; SSV = 24

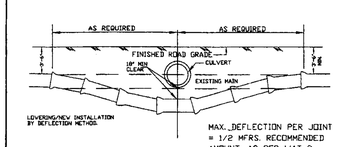
Layer	Material	Thickness Equivalent Value	Under ± 750 VPD Thickness	Under ± 750 VPD D_R	Over ± 750 VPD Thickness	Over ± 750 VPD D_R
Surface	SM-9.5A	1.67	1.5"	2.5	1.5"	2.5
Sub	IM-19A	1.67	2.0"	3.34	2.0"	3.34
Base	21-B	1.00	6.0"	6.00	8.0"	8.0
				11.84		13.84

Nomograph Thickness Determination

Location	Traffic	Thickness Reqd	Thickness Provided
10+0 - 33+58 Eagle Parkway	790 VPD	12.0	13.84
33+58 - End " "	240 VPD	7.7	11.84
10+0 - End Eagle Court	140 VPD	6.0	11.84

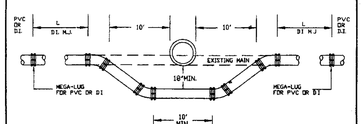


PRINCE GEORGE COUNTY
DEPARTMENT OF PUBLIC UTILITIES



MAX. DEFLECTION PER JOINT = 1/2 MFRS. RECOMMENDED AMOUNT, AS PER WAT-9.

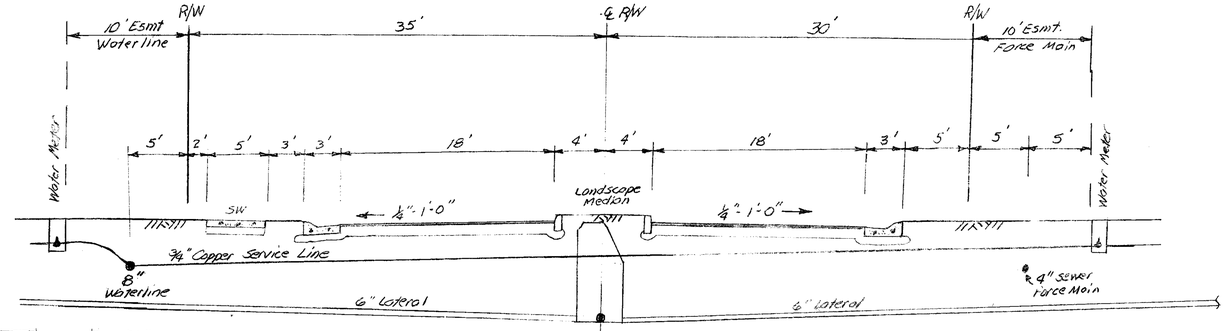
OR



LOWERED SECTION TO BE OF DUCTILE IRON MECHANICAL JOINT PIPE WITH RESTRAINED JOINTS AT ANY INCLUDED JOINTS. THE ENGINEER SHALL CALCULATE LENGTH OF RESTRAINED SECTION

THRUST BLOCKS FOR VERTICAL BENDS MUST BE USED WITH RESTRAINED JOINTS

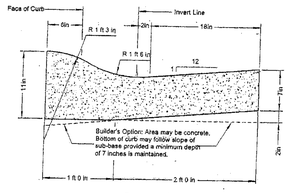
DATE JAN. 2008 / REVISIONS	LOWERING WATER MAIN OR NEW INSTALLATION	DRWG. NO. WAT-8

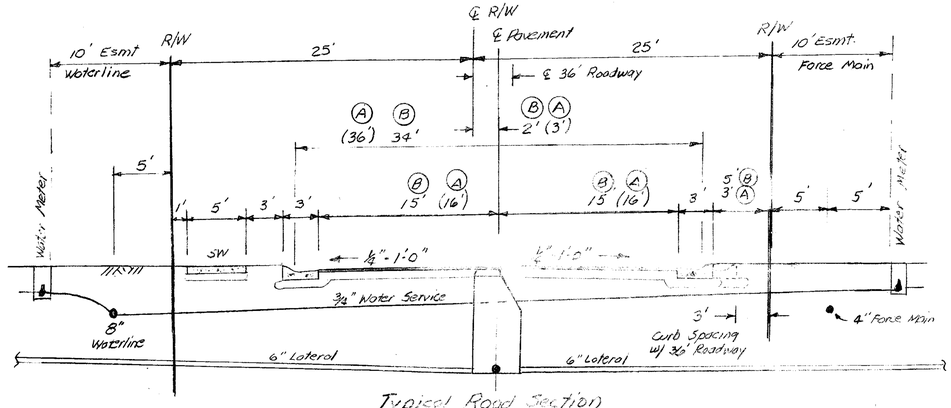


Typical Road Section @ Entrance
1"=6'

Note: Road section applies to the area of landscape median. Once past the median, the R/W and road section will decrease uniformly thru a distance of 265' to ultimately match the typical road section for 36' curb to curb @ station PC 14+64

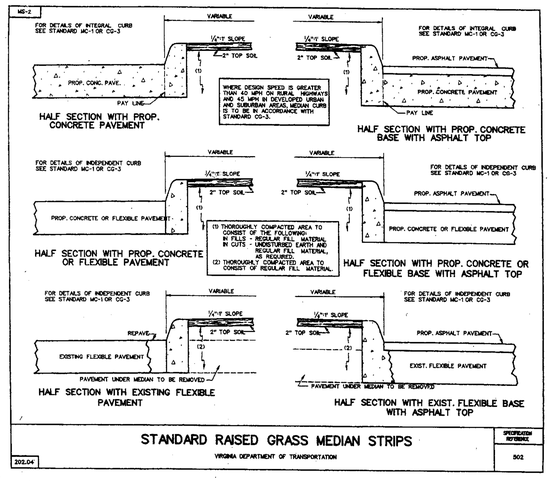
(A) Dimensions associated with 36' wide roadway Eagle Parkway Sta 14+64 to 34+58
(B) Dimensions associated with all other roadways



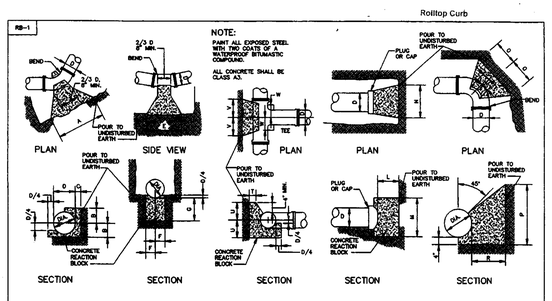


Typical Road Section
1"=6'

Note: Road Section indicating a 36' Curb to Curb dimension shall apply from the P.C. sta. 14+64 (following the median transition) to the intersection of Eagle Parkway and Foale Court (dimensions for 36' spacing shown as (B). Other dimensions are for 34' spacing throughout remainder of project (A)



STANDARD RAISED GRASS MEDIAN STRIPS
VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIFICATION REFERENCE 502
202.04



DIA.	HORIZONTAL BENDS 11 1/4" A	B	C	22 1/2" A	B	C	45° A	B	C	UPPER VERTICAL BENDS 11 1/4" D	E	F	22 1/2" D	E	F	45° D	E	F	PLUGS D	H	N	HORIZONTAL BENDS 90° D	F	R	S	TEE BRANCH T	W
4"	.50	.58	.75	.81	.58	.75	.96	1.08	.58	.50	.58	.58	.50	.58	.58	.50	.58	.58	.50	1.17	1.50	1.17	1.17	1.67	.42	.75	.47	.75	.50
6"	.70	.83	.75	.98	.75	1.25	.98	.75	.70	.70	.83	.75	.70	.83	.75	.70	.83	.75	.70	1.67	1.50	1.67	1.67	2.42	.42	.75	.47	.75	.70
8"	.90	.97	.75	1.00	.97	.75	1.25	.98	.75	.90	.97	.75	.90	.97	.75	.90	.97	.75	.90	1.67	1.50	1.67	1.67	2.42	.42	.75	.47	.75	.90
10"	.93	.93	1.00	.75	.93	1.00	.75	.98	.93	.93	.93	.93	.93	.93	.93	.93	.93	.93	.93	2.00	1.50	2.00	2.00	2.92	.75	.50	.83	1.00	1.25
12"	1.00	.83	.75	1.18	.83	.83	1.68	.75	1.17	1.00	.83	.83	.87	2.00	.83	.93	.83	.83	2.50	2.33	1.58	2.00	2.00	1.92	.58	1.00	1.33	1.42	.83
16"	1.33	1.00	.75	2.00	1.00	1.00	1.42	1.00	1.42	1.33	1.00	.75	1.33	1.00	.75	1.33	1.00	.75	3.33	2.83	1.67	3.00	3.00	2.17	.83	1.17	1.67	1.83	.83
18"	1.67	1.17	1.00	1.17	1.17	1.50	1.75	1.25	1.83	1.67	1.17	.83	3.00	1.17	1.00	2.00	1.17	1.00	3.67	3.17	1.67	3.50	3.83	2.83	1.00	1.33	1.92	2.25	1.33
20"	2.00	1.33	1.00	2.00	1.33	1.00	2.08	1.67	1.83	2.00	1.33	1.00	2.00	1.33	1.00	2.00	1.33	1.00	4.25	3.25	2.67	4.00	4.00	1.00	1.50	1.50	2.67	1.50	1.33
24"	2.00	1.50	1.08	2.00	1.50	1.08	1.92	1.58	2.00	2.00	1.50	1.08	4.17	1.50	1.08	4.50	2.50	2.00	5.25	3.00	3.42	7.42	5.33	3.00	2.33	1.17	1.75	1.08	3.92	1.83
30"	3.00	1.67	1.17	3.75	2.00	2.00	6.92	2.00	3.33	3.00	1.58	1.17	7.50	1.58	1.17	7.50	2.67	2.00	6.50	3.00	6.50	9.00	6.83	6.00	2.83	1.17	2.00	1.25	5.92	1.83

SHEET 1 OF 3

REACTION BLOCKING
WATER AND SANITARY SEWER FACILITIES
VIRGINIA DEPARTMENT OF TRANSPORTATION
1402.01

UTILITY DETAILS
EAGLE PRESERVE
AT JORDAN ON THRTHR JAMES

SEAL: COMMONWEALTH OF VIRGINIA — WALTER H. ALTMAN III — No. 11030 — 4/24/14 — PROFESSIONAL ENGINEER

DRAWN : PBM	CHECKED : WHA
DATE : 8-19-13	
SCALE : AS NOTED	
JOB NO. :	
SHEET C19	
OF 35 SHEETS	