## UTILITY DEVELOPMENT NOTES: 1. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THE LATEST WVWA DESIGN AND CONSTRUCTION STANDARDS. 2. THE CONTRACTOR OR DEVELOPER IS REQUIRED TO NOTIFY THE WESTERN VIRGINIA WATER AUTHORITY IN WRITING AT LEAST THREE (3) DAYS PRIOR TO ANY CONSTRUCTION. PLEASE CONTACT MARK SINK AT (540) 537-3460. ALL WORK SHALL BE SUBJECT TO INSPECTION BY THE WESTERN VIRGINIA WATER AUTHORITY. FIELD CORRECTIONS SHALL BE APPROVED BY THE WESTERN VIRGINIA WATER AUTHORITY PRIOR TO SUCH CONSTRUCTION. 5. THE CONTRACTOR SHALL MAINTAIN A MINIMUM OF 18" CLEARANCE VERTICALLY AND 2' MINIMUM HORIZONTALLY FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE AT ALL WATER, SANITARY SEWER CROSSINGS OF ANY OTHER UTILITIES. WHERE THIS CANNOT BE ACHIEVED ADDITIONAL MEASURES IN ACCORDANCE WITH WVWA STANDARDS SHALL BE ENFORCED. 6. ANY EXISTING APPURTENANCES SHOULD BE ADJUSTED TO GRADE AND NEW FRAME AND COVERS INSTALLED WHERE REQUIRED. 7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE ALL EXISTING UTILITIES LOCATED AND POTHOLED TO VERIFY LOCATIONS. THIS PLAN REVIEW DOES NOT REMOVE THE CONTRACTOR'S RESPONSIBILITY TO RELOCATE ANY EXISTING CONFLICTS FOUND DURING CONSTRUCTION. 8. ALL WATER AND SANITARY SEWER FACILITIES ARE TO BE INSTALLED ACCORDING TO THE WESTERN VIRGINIA WATER AUTHORITY DESIGN AND CONSTRUCTION STANDARDS. 9. ALL WATER CONNECTIONS TO EXISTING LINES SHALL BE COORDINATED WITH AND PERFORMED BY THE WESTERN VIRGINIA WATER **AUTHORITY** 10. ALL WATER AND SANITARY SEWER FACILITIES ARE TO BE INSTALLED ACCORDING TO THE WESTERN VIRGINIA WATER AUTHORITY DESIGN AND CONSTRUCTION STANDARDS. 11. CONTRACTOR TO PROVIDE THE WVWA WITH 5 BUSINESS DAYS' NOTICE TO SCHEDULE ANY EXPECTED WATER OUTAGES. PLEASE CONTACT MARK SINK AT (540) 537-3460. 12. CONTRACTOR TO SUBMIT TO WVWA A SHOP DRAWING OF WATER VAULT PRIOR TO VAULT INSTALLATION. PLEASE SUBMIT TO STEVEN.EAKIN@WESTERNVAWATER.ORG. . FOR 6" FIRE LINE, EXTERIOR VAULT DIMENSIONS SHALL BE (L x W x H) 6' X 6' X 5' WITH DOMESTIC TAF PUBLIC HYDRANTS SHALL BE PAINTED SILVER WITH AN OIL-BASED PAINT. PRIVATE HYDRANTS SHALL ALSO BE MADE INSIDE VAULT AS SHOWN BELOW PAINTED SILVER WITH AN OIL-BASED PAINT UNITESS OTHERWISE SPECIFIED BY THE JURISDICTIONAL FIRE FOR 8" FIRE LINE EXTERIOR VAULT DIMENSIONS SHALL BE (L X W X H) 6' X 6' X 6' WITH DOMESTIC TAP MADE OUTSIDE VAULT. BALL VALVE WITH LOCKING TABS SHALL BE PROVIDED INSIDE VAULT TO ALLOW FIRE HYDRANT SHALL BE INSTALLED 2' MIN. AND 4' MAX. FROM BACK OF CURB OR 6' MIN. AND 12' MAX. FROM EDGI FOR ISOLATION OF DOMESTIC METER. OF PAVEMENT WHEN CURB IS NOT PRESENT. FIRE HYDRANT TO BE INSTALLED WITHIN RIGHT-OF-WAY OR SINGLE DETECTOR CHECK VALVE SHALL BE WILKINS 310 DALM, WATTS ES-SS07F - BP, OR APPROVED EASEMENT LINE. AREA AROUND HYDRANT AT A RADIUS OF 4' TO BE LEVEL AND UNOBSTRUCTED EQUAL WITH FLANGED END CONNECTIONS, BYPASS ASSEMBLY, AND ONE OS&Y GATE VALVE. WATERPROOF BAGS OR OUT OF SERVICE RINGS SHALL BE PLACED OVER ALL NEWLY INSTALLED FIRE HYDRANTS BYPASS ASSEMBLY SHALL INCLUDE 2 BALL VALVES TO ISOLATE METER. HYDRANT ASSEMBLIES SHALL BE RODDED AND RESTRAINED WITH APPROVED M.J. GLAND RESTRAINTS. HIGH DOMESTIC SHALL BE TYPE K COPPER WITH GRIP JOINT FITTINGS, BALL VALVE AT TAPPING SADDLE (WITH PRESSURE (OVER 150 PSI) ALSO REQUIRES CONCRETE THRUST BLOCKS AS SHOWN BELOW. LOCKING TABS) AND CHECK VALVE ON OUTLET. IF DURING CONSTRUCTION THE SEASONAL WATER LEVEL IS NOTED TO BE ABOVE THE DRAIN OUTLETS OF THE 1/2 NPT TAP DOMESTIC METER AND BYPASS METER TO BE SUPPLIED BY OWNER AND INSTALLED BY VENDOR. PROPOSED HYDRANT. THE PARTICIPATING UTILITY WILL BE NOTIFIED IMMEDIATELY SO THAT THE HYDRANT CA "UNI FLANGE" ADAPTOR FLANGE, OR APPROVED EQUAL, OR FLANGED - PLAIN END PIPING REQUIRED FOR FOR SUPERVISORY BE RELOCATED TO A SUITABLE LOCATION, OMITTED, OR THE DRAIN HOLE PLUGGED. SWITCH INLET AND OUTLET PIPING. TWO WRAPS OF TRACER WIRE SHALL BE WRAPPED AROUND BASE OF HYDRANT. VAULT TO BE INSTALLED ON MIN. 6" COMPACTED VDOT #57 STONE WITH FILTER FABRIC PLACED APPROVED MODELS - AVK MODEL 2780, AFC MODEL B-84-B-5, MUELLER CENTURION A423, KENNEDY K81D OF BETWEEN BOTTOM OF VAULT AND STONE BEDDING. FILTER FABRIC TO EXTEND VERTICALLY A MINIMUM WHERE HYDRANT LATERAL(S) IS APPROVED BY THE PARTICIPATING UTILITY TO BE LONGER IN LENGTH, MAKING OF 6" ON ALL FOUR SIDES OF VAULT. THE CONTINUOUS SECTION OF PIPE ON EACH SIDE OF THE GATE VALVE UNFEASIBLE, <u>RESTRAINED</u> PIPE JOINTS SHALL BE INSTALLED BETWEEN THE TEE AND GATE VALVE IN LIEU OF RODDING. HOWEVER, A RODDED CHECK VALVE -CONTINUOUS SECTION OF PIPE SHALL ALWAYS BE INSTALLED BETWEEN THE GATE VALVE AND HYDRANT DOMESTIC METER -ACCESS HATCH TO BE LOK-PAK METER CENTERED OVER PIPING COUPLING AND LADDER (NO OBSTRUCTIONS) 1 - 4 1/2" PUMPER TAPPING SADDLE NOZZLE (FACING THE ROAD) AND BALL VALVE W/ LOCKING TABS AVK MODEL 2780, AFC MODEL B-84-B-5, SMOOTH HOLE MUELLER CENTURION WITH LINK SEAL A423, KENNEDY K81D OR **EQUIVALENT** FINISHED GRADE VALVE BOX (W/ ADAPTOR) IF OUTS PAVEMENT OR VALVE DETECTOR CHECK STANDARD INSTALLATION - INCLUDES FOSTER ADAPTER PLAN VIEW OR APPROVED EQUAL **DOUBLE DOOR GUTTER-FRAME H20 RATED -**1 1/2" HATCH ALUM, ACCESS HATCH 5 000 PSI REINFORCED -3/4" DIA. "CORTEN" CONCRETE THREADED ROD AND NUTS THRUST BLOCK FOR DRAINAGE (IF REQUIRED) TRACER WIRE SEE GENERAL DETAIL APPROVED M.J. GLAND RESTRAINT TEE - MAIN CONCRETE BASE AND THRUS (i.e. MEGALUGS, GRIP RINGS OR LINE SIZE **BLOCK (IF REQUIRED) AGAINST** NI-FLANGE) SHALL BE USED AT x 6" TO VALVE AND INDISTURBED SOIL, CONCRETE ALL M.J. FITTINGS SHALL NOT COVER HYDRANT M.J. FITTINGS SHALL NOT 4" BLOCKOUT FOR **EPOXY COATED STEEL PIPE SUPPORT** BE ENCASED IN CONCRETE VITH SS ANCHORS (TYP. OF 4) WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL FIRE HYDRANT ASSEMBLY COMMERCIAL METER VAULT 02/10/15 BEDDING, HAUNCHING AND INITIAL BACKFILL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THIS 2. ALL PVC PIPE SHALL BE BEDDED IN COMPACTED VDOT #57 OR #68 STONE, OR CRUSHER RUN. 3. IN AREAS SUBJECTED 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 4. BEDDING REQUIREMENTS FOR DUCTILE IRON WATER LINE ARE DEPENDENT ON MANUFACTURER'S BLOCK (TYP.) ALL EXCAVATIONS SHALL COMPLY WITH OSHA TECHNICAL MANUAL, CHAPTER 2, TITLED FACTOR OF SAFETY = 1.5 6. THE TRACER WIRE SHALL BE PLACED ALONG THE LOWER QUADRANT OF THE PIPE. THE WIRE SHALL **ELEVATION** NOT TOUCH THE PIPE, BUT SHALL BE A MAXIMUM OF 6" FROM THE PIPE. NON-METALLIC SPACERS **PLUGS** 3' | 50' | 26' | 26' | 21' | 10' | 5' D.I. 36' 21' 8' 4' 65' 41' 27' 27' 13' 7' \_18" MIN.-10"DIA. & LESS -16 #4 BARS EACH 24" MIN.-12"DIA. & GREATER WAY AS SHOWN TYP, CONC. THRUST-12" D.I. 51' 21' 10' 5' 91' 67' 27' 38' 18' 9' TYP. M.J. BEND W BLOCK MIN. 2" INTO RESTRAINER GLANDS 6" PVC 29' 21' 6' 3' 78' 25' 40' 32' 16' 8' UNDISTURBED NON-DETECTABLE WARNING MAT. ON 3 SIDES 8" PVC 37' 21' 8' 4' 102' 49' 43' 42' 21' 10' TAPE, 3 TO 5 MILS IN 10" PVC 44' 21' 9' 5' 122' 68' 41' 51' 25' 12' THICKNESS, TO BE INSTALLED 12" PVC 51' 21' 11' 6' 143' 89' 42' 60' 29' 15' APPROX. 24" ABOVE PIPE AND AT A MINIMUM OF 6" BELOW 1. ALL JOINTS SHALL BE RESTRAINED ON BOTH SIDES OF THE FITTING AND DOCUMENTED BY THE GRADE (ALL PIPE) SOIL (TYP.) INSPECTOR FOR THE LENGTH SHOWN UNLESS OTHERWISE INDICATED. RESTRAINED LENGTH SHOWN REFERS TO ANY DESIGNED OR POTENTIAL LINE STOP, INCLUDING ALL **BACKFILL ONLY WITH APPROVED** FOR VERT, BEND DOWN IN EXCESS OF 11 1/4" THRUST BLOCKS WITH "B" DIMENSION GREATER - MATERIAL PER APPLICABLE THAN 30" SHALL HAVE THE RESTRAINED PIPE BEND, ANCHORAGE SHALL BE DESIGNED BY RESTRAINED LENGTH SHOWN REFERS TO THE BRANCH LINE ONLY. THE CONTINUOUS PIPE LENGTH LOCALITY OR VDOT STANDARDS INSTALLED WITH A MINIMUM OF 4' OF COVER. OF THE MAIN RUN SHALL BE A MINIMUM OF 10' ON EACH SIDE OF THE TEE FOR VERT. BEND UPWARD, BLOCKING TO BE REFER TO "MINIMUM THRUST RESTRAINT OF PIPE SIZE & MATERIAL SIMILAR TO THAT FOR HORZ. BEND. PIPE JOINTS DESIGN LENGTHS" DETAIL FOR RESTRAINED LENGTH SHOWN IS BASED ON REDUCING PIPE DIAMETER TO ONE SIZE SMALLER THAN WHEN THRUST BLOCKS ARE REQUIRED TO BE GLANDS & BOLTS SHALL BE PROTECTED FROM PIPE LISTED (ANY OTHER DIAMETER REDUCTION WILL REQUIRE ADDITIONAL CALCULATIONS BEFORE CONC. WITH PLASTIC SHEETING WHEN POURING FOR WATERLINES INSTALL WHEN THRUST BLOCK IS REQUIRED BUT NOT INSTALLATION). RESTRAINED LENGTH SHOWN IS UPSTREAM ON THE LARGE SIDE OF THE REDUCER. THRUST BLOCKS. BEDDING STONE TO SPRING LINE FEASIBLE TO CONSTRUCT, THRUST COLLAR ALL THRUST BLOCK & SUPPORT CONCRETE 12" AND SMALLER DIAMETER: IF UNDER 150 PSI WORKING PRESSURE, RESTRAINED JOINT(S) OF PIPE AT A MINIMUM, OR PER SHALL BE 3000 PSI READY MIX CONCRETE. SHALL BE USED. SEE "THRUST COLLAR" DETAIL. ARE TO BE USED. IF EQUAL TO OR OVER 150 PSI WORKING MANUFACTURER'S PRESSURE, BOTH THRUST BLOCK(S) AND RESTRAINED JOINT(S) SHALL RECOMMENDATION PRESSURE = 200psi FOR SEWER LINES BEDDING BEARING ≈ 2000psf SHALL BE MIN. 6" ABOVE PIPE FACTOR OF SAFETY = 1.5 LARGER THAN 12" DIAMETER: IF UNDER 100 PSI WORKING PRESSURE, RESTRAINED JOINT(S) ARE TO BE USED. IF EQUAL TO OR OVER 100 PSI WORKING PRESSURE, BOTH THRUST BLOCK(S) AND RESTRAINED JOINT(S) SHALL BE USED (UNLESS 90° BEND | 45° BEND | 22 ½° BEND | 11 ¼° BEND | TEE OTHERWISE APPROVED BY THE PARTICIPATING UTILITY). LOCATION OF TRACER WIRE WITH NON-METALLIC PRESSURE PIPE. FOR RESTRAINED JOINT PIPING REQUIREMENTS AT FITTING R.J. PVC AND R.J. DIP MAY BE USED TRACER WIRE NOT REQUIRED FOR INTERCHANGEABLY WITH APPROVAL FROM PARTICIPATING UTILITY. CONTRACTOR MUST PLAN TYPICAL GRAVITY SANITARY SEWER ACCORDINGLY FOR THE DIFFERENCE IN PVC AND DIP BELL AND SPIGOT DIMENSIONS. 10" 20" 16" 12" 14" 8" 12" 8" 12" 14" 16" SEE DETAIL G-4 FOR ADDITIONAL 12" 20" 16" 12" 14" 8" 12" 8" 12" 14" 16" 16" 30" 16" 26" 20" 16" 18" 11" 13" 11" 13" 18" 20" 20" 36" 24" 82" 42" 62" 30" 44" 22" 22" 16" 82" 42" 82" 42" 30" 185" 42" 100" 42" 52" 42" 40" 30" 185" 42" 185" 42" WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL THRUST BLOCK REQUIREMENTS

**IP-71 DIMENSIONS** 

GROUNDLINE

TRENCH DEPTH

SEE TABLES FOR

GIVEN VALVE SIZE

AND TRENCH DEPTH

WOOMW 'OE MATMIAM

DIMENSION AS SHOWN.

NOT TO SCALE

AMERICAN POST INDICATOR VALVE (PIV)

REQUIREMENTS

TO GROUNDLINE

GROUNDLINE AS SHOWN

MODEL NUMBER

TOP IS ADJUSTED.

BOTTOM OF PIPE

"EXCAVATIONS: HAZARD RECOGNITION IN TRENCHING AND SHORING."

MAY BE USED TO MAINTAIN A SET DISTANCE FROM THE UTILITY.

NORMAL SOIL

CONDITIONS

ROCK CONDITIONS)

VIDTH OF TRENCH EXCAVATION

BEDDING AND BACKFILL OUTSIDE OF PAVED AREAS

PIPE DIA. + 6° EACH SIDE (MINIMUM)

DETAIL AND MANUFACTURER'S RECOMMENDATION.

 $\times\!\!\times\!\!\times\!\!\times$ 

GROUNDLINE

TRACER WIRES SHALL BE INSTALLED USING MANHOLES, TRACER WIRE ACCESS BOXES, VALVE BOXES OR VAULTS, WATER METE

AND THE HIDDANIA AS ACCUSED FORMS.

SPLICES SHALL ONLY BE MADE WITH GEL FILLED CONNECTORS DESIGNED FOR WIRE WITH A WOVEN POLYESTER FIBER CORE

SUCH AS NEPTCO TRACE-SAFE WATER BLOCKING CONNECTORS OR APPROVED EQUAL. SPLICES SHALL BE MADE IN ACCORDANG

WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. CONTRACTOR WILL BE RESPONSIBLE FOR ENSURING CONTINUITY AT

AN ACCESS POINT INSTALLED AT EACH HDPE/DUCTILE IRON TRANSITION. TRACER WIRE SHALL BE CONNECTED TO THE ACCESS

THE TRACER WIRE SHALL BE PLACED ALONG THE LOWER QUADRANT OF THE PIPE. THE WIRE SHALL NOT TOUCH THE PIPE, BUT

THE TRACER WILL BE TESTED BY THE PARTICIPATING UTILITY AS PART OF THE PROJECT'S FINAL ACCEPTANCE. CONTRACTOR WILL

GROUND ROD SHALL BE INSTALLED AT EACH LOCATION WHERE GROUND WIRE SURFACES AND CONNECTS TO GROUND BAR.

GROUND ROD SHALL BE COPPER COATED WITH A MINIMUM DIAMETER OF 5/8" AND SHALL BE BURIED A MINIMUM OF FOUR (4) FEE

SHALL BE INSTALLED IN (4) FOUR CENTER HOLES: 10-32SS NUTS, #10 SS WASHERS AND 10-32 X ₹ SS PHILLIPS. THE FOURTH HOLE

SHALL HAVE A BURNDY KA6U MECHANICAL TERMINAL LUG FOR THE #6 AWG GROUND WIRE. THE ASSEMBLY CAN BE ACQUIRED A

IF USING TRACER WIRE ACCESS BOX AS ACCESS POINT, GROUND BAR WILL NOT BE REQUIRED. WIRES SHALL BE CONNECTED AS

SHALL BE A MAXIMUM OF 6" FROM THE PIPE. NON-METALLIC SPACERS MAY BE USED TO MAINTAIN A SET DISTANCE FROM THI

. THE GROUND WIRE SHALL BE #6 AWG COPPER WIRE AND SHALL BE OF ADEQUATE LENGTH TO EXTEND A MINIMUM OF (5) FIVE

FEET BEYOND THE TOP OF THE STRUCTURE. THE END OF THE GROUND WIRED SHALL CONNECT TO THE GROUND BAR OR LID

1. THE GROUND BAR SHALL BE STAINLESS STEEL AND SHALL BE ATTACHED USING SS ‡ X 1‡ SS HEX TAPCON. THE FOLLOWING

RCS INDUSTRIAL SUPPLY, INC. (540-353-0683) - CLAMP RFC-11. THE ENDS OF THE TRACER WIRES SHALL BE PLACED IN THE

SHOWN BELOW, TRACER WIRE SHALL BE OF ADEQUATE LENGTH TO EXTEND FIVE (5) FEET ABOVE THE TOP OF ACCESS BOX.

4. WHEN USING ALL DUCTILE MAIN, TRACER WIRE FOR SERVICES SHALL BE 12 AWG COPPER TRACER WIRE. TRACER WIRE SHALL

LOCATING CLIP

(TS19-IL-LC-C)

WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

TRACER WIRE
FOR NON-METALLIC
PRESSURE PIPE

TS19-IL-LC-C = TRACE SAFE LOCATING CLIP AT GROUND BAR

TS19-C = SERVICE LATERAL TRACE SAFE CONNECTOR

NOTE: LEAVE FIVE FEET (5') OF EXCESS TRACER WIRE COILED UP IN VAULT

WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

TRACER WIRE SAMPLE

TEE/CROSS INTERSECTION

BLUE = TRACE SAFE TRACER WIRE

TS19-C —

LOCATING CLIP FRONT VIEW

(TS19-IL-LC-C)

GROUND WIRE = #6 AWG COPPER WIRE

BLACK = GROUND WIRE & GROUND BAR

5' TRACE SAFE

(TS19-IL-LC-C)

5' TRACE SAFE

GROUND BAR (TYP.)

LOCATING CLIP (TYP.)

(TS19-IL-LC-C)

3. TWO WRAPS OF TRACER WIRE SHALL BE WRAPPED SNUGGLY AROUND BASE OF HYDRANT. WIRE SHALL NOT BE LEFT IN A WAY

. WIRE SHALL BE BROUGHT TO THE SURFACE EVERY FIVE-HUNDRED (500) FEET AND PLACED IN A WATER METER BOX OR A

ECTED TO DUCTILE IRON PIPE ON EACH END, TRACER WIRE SHALL BE INSTALLED ALONG FULL LENGTH OF HDPE PIPE WITH

WHERE HOPE PIPE IS INSTALLED WITHOUT STEEL CASING PIPE, SUCH AS A DIRECTIONALLY DRILLED CROSSINGS, AND

AS-BUILTS SHALL SHOW TRACER WIRE(S) LOCATION AND ACCESS POINT(S), ALONG WITH BUTT SPLICE LOCATIONS.

DRAINAGE & WATER SOLUTIONS, INC. (OR APPROVED EQUAL) ALL CAST IRON TRACER WIRE ACCESS BOX.

SHALL BE NEPTCO TRACE-SAFE WATER BLOCKING TRACER WIRE OR APPROVED EQUAL

BE RESPONSIBLE FOR ENSURING ALL CONTINUITY OF TRACER WIRE.

TERMINAL USING A BURNDY KASU MECHANICAL TERMINAL LUG.

THAT WOULD INTERFERE WITH MOWING AROUND HYDRANT

HAVE BARE WIRE CONTACT TO DUCTILE MAIN.

TO GROUNDING

SOURCE

AND FIRE HYDRANTS AS ACCESS POINTS.

AN ACCESS POINT TO BEGIN TRACER WIRE.

ALL SPLICE LOCATIONS.

1. FILTER FABRIC TO BE INSTALLED BETWEEN BOTTOM OF PIPE AND STONE BEDDING. FABRIC TO EXTEND

CAPITOL FOUNDRY MH 2001

LABELED "WATER"

- NON-WATERTIGHT FRAME & COVER

12" MAX. VERTICAL

PRECAST WATER VALVE VAULT

OR PRECAST MANHOLE SECTION

SEE GENERAL DETAIL

FILTER FABRIC

TRACER & GROUND WIRES

2" CLEARANCE FROM

TOP OF PIPE TO BOTTO

OF VAULT CUT-OUT

01/01/14

ADJUSTMENT

IF DEPTH EXCEEDS 5

VERTICALLY A MINIMUM OF 6" FROM BOTTOM OF VAULT (FULL CIRCUMFERENCE).

**GROUND BAR** 

SEE GENERAL

WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

FILL WITH CONCRETE

- 6"DIA STEEL PIPE PAINTED YELLOW

TYPICAL CONCRETE

**EARLY STRENGTH** 

**BOLLARD DETAIL** 

GROUND ROD SEE GENERAL DETAIL

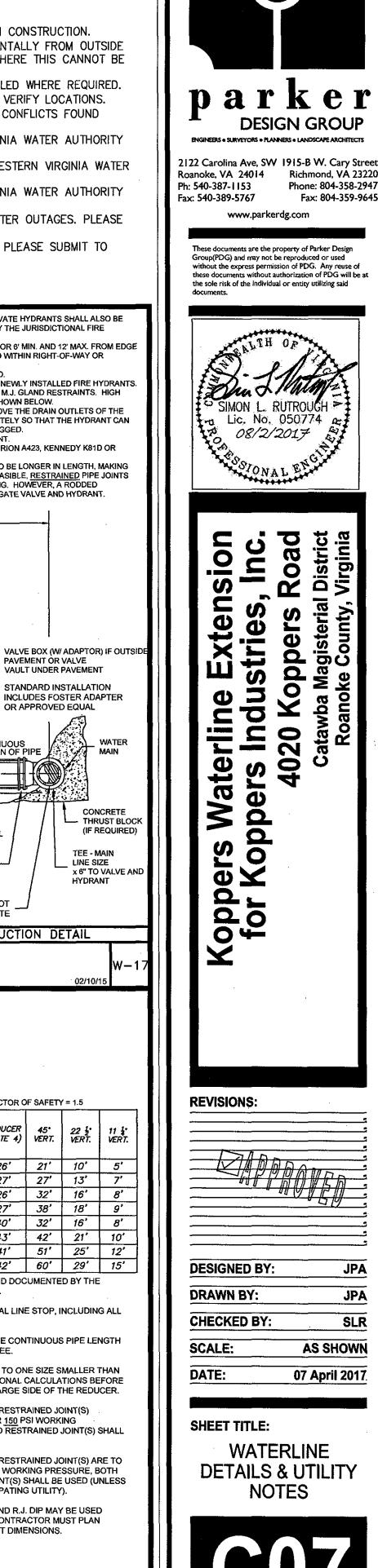
PROPOSED

PAVEMENT

ADJUSTMENT RING

6" COMPACTED

VDOT 57



Richmond, VA 23220

Phone: 804-358-2947

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AS SHOWN

07 April 2017

PROJECT NUMBER:

16-0151-03