

**MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
WATER AND SEWER DESIGN & COSTRUCTION STANDARDS
SECOND EDITION
SEPTEMBER 2007**

SECTION ONE - ADMINISTRATIVE

WATER / SEWER AVAILABILITY APPLICATION (1 page)
SIZING WATER SERVICE LINES AND METERS (1 page)
WATER METER FIXTURE VALUE CHART (1 page)
NON-RESIDENTIAL SANITARY SEWER CHECKLIST (7 pages)
PLAN SUBMITTAL CHECKLIST (1 page)
REQUEST FOR WAIVER, MODIFICATION, OR FIELD CHANGE FORM (1 page)
INSPECTION REQUIREMENTS (1 page)
ACCEPTANCE OF WATER / SEWER FACILITIES PROCEDURES (2 pages)
TYPICAL WATER OR SEWER MAIN LOCATION WITHIN VDOT RIGHT-OF-
WAYS (1 page)

**Montgomery County Public Service Authority
Water/Sewer Availability Application**

Date: _____

Applicant: _____

Mailing Address: _____

Phone: _____

Cell: _____

Fax: _____

Property Address: _____

Tax Map Number(s): _____

Development (Subdivision) Name: _____

Single Residential, Duplex, Multi-Residential, Mobile Home Park, Subdivision, or Commercial Facility? _____

Water Meter Size Requested: _____

Sewer Lateral Size Requested: _____

**COMPLETE THE FOLLOWING FOR
NON-RESIDENTIAL AND MULTI-RESIDENTIAL SERVICES**

Domestic Flow Required?** _____ GPM

** (Attach completed "Sizing Water Service Lines and Meters" Form AND "Non-Residential Sanitary Sewer Checklist", blank forms available on website under "Engineer's section".)

Is Building to be Sprinkled? Yes _____ No _____

Minimum Fire Flow Required? _____ GPM

Return to Robert Fronk; Phone: (540)381-1997; Fax: (540)382-5703
Postal Mail: 755 Roanoke Street, Suite 2-I, Christiansburg, VA 24073
fronkrc@montgomerycountyva.gov

**MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
SIZING WATER SERVICE LINES AND METERS**

DEVELOPMENT NAME: _____

TYPE OF OCCUPANCY: _____

Plumbing Fixture Type	Number of Fixtures	Fixture Value @ 35 PSI	Fixture Value
Bathtub	X	8	=
Bedpan Washer	X	10	=
Combination Sink & Tray	X	3	=
Dental Unit	X	1	=
Dental Lavatory	X	2	=
Drinking Fountain - Cooler	X	1	=
Drinking Fountain - Public	X	2	=
Sink - 1/2" Connection	X	3	=
Sink - 3/4" Connection	X	7	=
Lavatory - 3/8" Connection	X	2	=
Lavatory - 1/2" Connection	X	4	=
Laundry Tray - 1/2" Connection	X	3	=
Laundry Tray - 3/4" Connection	X	7	=
Shower Head	X	4	=
Urinal - Pedistal Flush Valve	X	35	=
Urinal - Wall Flush Valve	X	12	=
Urinal - Trough (2 Foot Unit)	X	2	=
Wask Sink (Each Set of Faucets)	X	4	=
Water Closet - Flush Valve	X	35	=
Water Closet - Tank Type	X	3	=
Dishwater - 1/2" Connection	X	5	=
Dishwater - 3/4" Connection	X	10	=
Washing Machine - 1/2" Connection	X	5	=
Washing Machine - 3/4" Connection	X	12	=
Washing Machine - 1" Connection	X	25	=
Hose Connection (Wash Down) - 1/2"	X	6	=
Hose Connection (Wash Down) - 3/4"	X	10	=
Hose (50 foot -Wash Down) - 1/2"	X	6	=
Hose (50 foot -Wash Down) - 5/8"	X	9	=
Hose (50 foot -Wash Down) - 3/4"	X	12	=

COMBINED FIXTURE VALUE TOTAL _____

Water Meter Fixture Value Chart

Residential Uses

<u>Meter Sizes</u>	<u>Max. Cap. (gpm)</u>	<u>Fixture Values (max.)</u>
5/8"	20	100
1"	50	600
1 1/2"	100	7,000
2"	160	*
3"	300	*
4"	500	*
6"	1,000	*

* For fixture values greater than 7,000, capacity of meter shall be 100 gpm + 1 gpm for each 160 fixture values over 7,000.

Commercial Uses

<u>Meter Sizes</u>	<u>Max. Cap. (gpm)</u>	<u>Fixture Values (max.)</u>
5/8"	20	50
1"	50	200
1 1/2"	100	600
2"	160	6,000
3"	300	*
4"	500	*
6"	1,000	*

* For fixture values greater than 6,000, capacity of meter shall be 175 gpm + 1 gpm for each 160 fixture values over 6,000.

**MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
NON-RESIDENTIAL SANITARY SEWER CHECKLIST**

Montgomery County is tasked by USEPA, VA DEQ, and local pretreatment agreements to evaluate all non-residential sanitary sewer users to determine the category of the user and to insure compliance with all applicable laws and regulations. This evaluation requires a thorough review of the type of business, building layout, plumbing configuration, processes performed, equipment utilized, chemicals used, chemicals stored, and expected discharges to the public sanitary sewer. Completion of the Montgomery County PSA Non-Residential Sanitary Sewer Checklist with requested attachments is the initial step of this evaluation.

If this evaluation determines that the facility is an industrial type user, large quantity discharges, or of significant potential, a wastewater discharge permit will be issued. Other responses include the facility collecting and analyzing a wastewater sample and site inspection. All submitted documentation will be filed for reference. If a wastewater analysis is required, the received results would be compared to the Montgomery County discharge limits, and if in compliance, would be placed on file for reference as conclusion to the evaluation process.

Montgomery County PSA will assist in completion of this form and to identify items of concern. All efforts should be made to prevent unsuitable materials from entering the sewer. Proper housekeeping operations can eliminate most of the sewer discharge violations.

Significant items of concern:

- Sampling structures are required for all non-residential facilities.
- All food preparation operations require a properly sized grease trap. Montgomery County, through experience, recommends that the trap be sized for 30 minutes of detention during peak flows. A copy of the cleaning schedule will also be required. It is highly recommended that the trap be placed outside the building so that a septic tank hauler can be used to clean/empty the trap.
- Floor drains should be restricted to bathrooms. Floor drains, in other areas, present a potential route for accidental spills to enter the sanitary sewer. If floor drains are needed outside of bathrooms, a spill prevention plan is required, all stored liquids of concern in the area must be placed within secondary containment devices, all equipment must have means to prevent lubricants or product from entering the floor drain, and other requirements may apply. Hub drains with a lip above the floor level to eliminate the spill potential concern are recommended for areas that need a drain.
- Film and X-ray processors require a "silver" recovery system to remove silver, lead, and cadmium from the discharged fixer, developer, AND wash streams. Montgomery County discharge limits for these metals are fairly stringent.
- Discharges from automotive or machining type operations may require a specifically designed petroleum type oil/water separator.
- "Plaster traps" are required where wash-up of inert materials are directed to the public sewer.

The Montgomery County PSA Non-Residential Sanitary Sewer Checklist must be submitted and reviewed prior to Plan Approval or release of the Building Occupancy

Permit. Questions relative to the checklist should be directed to **Montgomery County PSA**, (540) 381-1997.

September 2007
MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
NON-RESIDENTIAL SANITARY SEWER CHECKLIST

In order to properly review all non-residential sewer applications pursuant to the Montgomery County Sewer Use Standards, this checklist is required to be completed and submitted to the Montgomery County PSA. The sewer customer or building owner of an **EXISTING FACILITY** may complete this form **ONLY** if the facility plumbing fixtures are as listed below as **NORMAL RESIDENTIAL FIXTURES**. Checklists for all other facilities must be completed and submitted by a **PROFESSIONAL ENGINEER**. A determination will be made after review of this checklist and attachments as to any pretreatment or industrial sewer user requirements.

Instructions: Answer all question to the best of your knowledge.

Facility Name: _____

Facility Mailing Address: _____

Existing ____ or Proposed ____

Owner: _____

1. List facility operations:

1a. List Current Federal Standard Industrial Classification (SIC) Code(s):

2. What is the projected sewer flow for this facility:

**MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
NON-RESIDENTIAL SANITARY SEWER CHECKLIST**

3. Indicate the number of contributing fixtures that discharge to the sanitary sewer including floor drains:

a) Normal Residential Fixtures:

___ hand sink (lavatory)	___ toilet
___ kitchen sink	___ urinal
___ bathroom floor drain	

b) Non-Residential Fixtures:

___ air compressor	___ mop sink
___ air conditioner	___ neutralization tank
___ air cooling units	___ paint booth
___ chemical storage/blending tank	
___ cleaning unit	___ pressure washer
___ dental sink\cuspidor	___ steam table
___ dishwasher*	___ 3 compartment sink
___ distillation unit	___ 2 compartment sink
___ dry cleaner	___ wash rack
___ evaporator	___ washing machine
___ equalization tank	___ other:
___ film or x-ray processor	

___ floor drain(other than Bathroom)

*May be residential fixture for certain uses. Please submit explanation of use.

If any items are checked in block 3-b, a Professional Engineer will be required to complete remainder of the form. If there are questions, please contact Montgomery County PSA (540-381-1997) for clarification.

**MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
NON-RESIDENTIAL SANITARY SEWER CHECKLIST**

4. List any sewer pretreatment processes:

5. Are any heated waters or liquids to be discharged to the sanitary sewer system (except residential size hot water heaters)? _____ (if yes list temperature, quantity, and flow rate):

6. Are oil and/or grease trap(s) existing or to be installed?
_____ If yes, submit engineer calculations, manufacturers data, and maintenance schedule.

7. Are any garbage grinders existing or to be installed?
_____ If yes, submit manufacturers data.

8. Are floor drains existing or to installed in this facility? _____. If yes, provide sketch showing location of all floor drains.

**MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
NON-RESIDENTIAL SANITARY SEWER CHECKLIST**

9. Will any of the following elements (in any form) be stored or used in this facility? (mark yes or no for each)

YES	NO	ELEMENT	YES	NO	ELEMENT
___	___	acetate	___	___	grout
___	___	acid	___	___	heavy metal
___	___	alcohol	___	___	herbicides
___	___	algicides	___	___	inks
___	___	alkalis	___	___	ketone
___	___	aluminum*	___	___	lead
___	___	ammonia	___	___	lime*
___	___	antimony	___	___	manganese
___	___	antifreeze	___	___	mercury
___	___	arsenic	___	___	methane
___	___	barium	___	___	motor oil
___	___	benzene	___	___	naphtha
___	___	bismuth	___	___	nickel
___	___	boron	___	___	nitrogen
___	___	cadmium	___	___	paint
___	___	cement*	___	___	PCBs
___	___	chemical residuals	___	___	pesticides
___	___	chloride	___	___	phenols
___	___	chloroform	___	___	phosphorus
___	___	chromium	___	___	phthalates
___	___	cobalt	___	___	pitch
___	___	cooking oil	___	___	plating solutions
___	___	copper	___	___	salt*
___	___	creosote	___	___	sand*
___	___	cyanide	___	___	silver
___	___	diesel	___	___	soil
___	___	dyes	___	___	sugar*
___	___	ether	___	___	sulfate or sulfite
___	___	fats*	___	___	tanning solution
___	___	film developer or fixer	___	___	tar
___	___	fluoride	___	___	thinner
___	___	formaldehyde	___	___	toluene
___	___	fuel oil	___	___	wax

—	—	fungicides	—	—	whole blood*
—	—	gasoline	—	—	zinc
—	—	glue			
—	—	grease			

**MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
NON-RESIDENTIAL SANITARY SEWER CHECKLIST**

For each element checked yes, submit Material Safety Data Sheets, intended use, storage area, and any disposal procedure.

*Material Safety Data Sheet Not Required

10. List all stored materials that could enter the sanitary sewer system due to a spill. (Attach sheets as necessary)

11. Attach sketch showing proposed location of required sampling manhole.

12. What is the projected parameter loading for the following; if an existing facility, attach copy of sample analysis from laboratory certified for wastewater testing (in lb/day or mg/l):

Biochemical Oxygen Demand (BOD): _____

Chemical Oxygen Demand (COD): _____

Oil and Grease (O&G): _____

Total Phosphorus (P): _____

pH: _____

Total Suspended Solids (TSS): _____

Total Kjeldahl Nitrogen (TKN):

**MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
NON-RESIDENTIAL SANITARY SEWER CHECKLIST**

SEWER CUSTOMER/OWNER CERTIFICATION:

I, _____ hereby certify that the information provided in this document to be true and accurate. I further understand that if I change the facility operations and/or discharges to the public sewer in any way, I must notify the Montgomery County PSA prior to discharging any new materials to the public sewer. I also acknowledge that I will be liable for any cleaning or damages of the public sewer for any unauthorized discharges from this facility. **Engineer must also complete this certification if facility has other than normal residential fixtures.**

SIGNATURE: _____

TITLE: _____

HAVE ALL QUESTIONS BEEN FULLY ANSWERED? FAILURE TO ANSWER ALL QUESTIONS WILL RESULT IN REJECTION AND RESUBMISSION OF THIS FORM.

ENGINEER'S SEAL AND SIGNATURE

SIGNATURE OF ENGINEER: _____

TYPED NAME: _____

DATE: _____

NUMBER OF ATTACHMENTS: _____

AFFIX ENGINEER'S SEAL AND SIGNATURE BELOW

**MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
PLAN SUBMITTAL CHECKLIST**

Project Name: _____ Tax No. _____

Date: _____ Design Engineer: _____

1. ___ Obtain Availability Letter. (Water / Sewer Availability Application)
2. ___ Complete and submit "Sizing Water Service Lines and Meters" form. (Available in Water and Sewer Regulations manual)
3. ___ Non-residential sanitary sewer facilities shall complete and submit a Non-Residential Sanitary Sewer Checklist. (Available in Water and Sewer Regulations manual)
4. ___ Submit 2 sets of plans to the PSA office located at 755 Roanoke Street Christiansburg, VA 24073. Plans will be reviewed and comments issued in conjunction with the Montgomery County Planning Department process.
5. ___ Submit appropriate water and sewer design calculations (2 sets) as required by the Water and Sewer Regulations.
6. ___ Plans shall include plan and profile sheets for all water and sewer facilities.
7. ___ Provide table of sewer lateral invert elevations at the service clean-out at the property line and minimum sewer service elevation for each proposed building.
8. ___ Include all relevant PSA standard details. (Available in Water and Sewer Regulations manual)
9. ___ Show and label all adjoining and adjacent property lines, public right-of-way lines, streets and easements.
10. ___ Show and label all adjoining property owners including address, tax map number and tax parcel ID.
11. ___ Show and label all surveying benchmarks and monuments.
12. ___ Show and label existing and proposed water meter locations and sizes.
13. ___ Show and label existing and proposed sewer cleanouts and sizes.
14. ___ Show and label all existing and proposed water facilities, mains, valves, appurtenances, fittings, wet taps, etc. with stationing on plan and profile.
15. ___ Show and label all existing and proposed sewer facilities, mains, manholes, force mains, etc. with stationing on plan and profile.
16. ___ Show flow straight through sampling structures (vertical and horizontal).
17. ___ Label deflection angles of sewer lines at manholes.
18. ___ Provide details for all special water or sewer facilities (stream crossings, thrust blocks, slope anchors, abandonments, etc.)
19. ___ Show and label utility crossings and dimension separation distances.
20. ___ Provide static pressures at point of connection, high point, low point and fire hydrants on profile.
21. ___ Submit copy of completed Plan Submittal Checklist.

Developments will not be approved until all items on this checklist have been verified or waived by the PSA.

**REQUEST FOR WAIVER, MODIFICATION, OR FIELD CHANGE
MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
WATER AND SEWER REGULATIONS**

Item/Standard: _____

Water and Sewer Regulation Section Number: _____

Project: _____

Station: _____

Inspector/Engineer for Project

Person Making Request:

Name & Title

Telephone Number

Justification/Reason for Request:

Montgomery County PSA Inspector/Engineer Comments:

Montgomery County PSA Comments:

_____ **APPROVED**

_____ **DISAPPROVED**

Director - Montgomery County PSA

MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
Inspection Requirements

A. Construction Inspections:

1. Adequate inspections shall be performed by the design engineer or qualified project inspector to insure compliance with all applicable standards or specifications. Field inspection reports shall be completed for each site inspection.
2. The contractor shall keep a copy of the Montgomery County Public Service Authority Water and Sewer Design & Construction Standards on site during water and/or sanitary sewer work.
3. The PSA may require a full-time project inspector at the owner's expense, if PSA personnel determine the contractor is installing facilities in violation of any section of the Montgomery County Public Service Authority Water and Sewer Design & Construction Standards. Failure to comply with this provision may be cause for non-acceptance of facilities by the PSA.

B. Inspection Certifications Required with Substantial Completion:

1. Certified as-built drawings
2. Water line pressure test results
3. Bacteriological sample test results (only valid for 30 days after sample collection)
4. Continuity certification for locator wire
5. Fire hydrant flow test results
6. Sewer main low pressure test results
7. Sewer manhole vacuum test results
8. Sewer force main pressure test results
9. Sewer wet well vacuum or exfiltration test results
10. All applicable water and/or sewer pump station certifications
11. All applicable water storage facility certifications

Inspections Required Prior to Release of Warranty Bond:

1. Internal closed-circuit television inspection of all public gravity sewer mains shall be performed at or about 11 months after issuance of acceptance to insure the integrity of sewers prior to release of the warranty bond. Certified inspection reports and video tapes shall be submitted to the PSA for confirmation.
2. The PSA shall perform any testing or inspections required to verify compliance with approved plans and standards prior to release of warranty bond. Written notice identifying deficiencies shall be submitted to the design engineer and developer for correction prior to release of warranty bond. Failure to make corrections in a timely manner may be cause for the PSA to make corrections using the warranty bond.

MONTGOMERY COUNTY PUBLIC SERVICE AUTHORITY
Acceptance of Water/Sewer Facilities

PURPOSE

This Standard Operating Procedure (SOP) outlines the method by which a developer requests the Public Service Authority (PSA) to accept water/sewer facilities for ownership and maintenance.

GENERAL

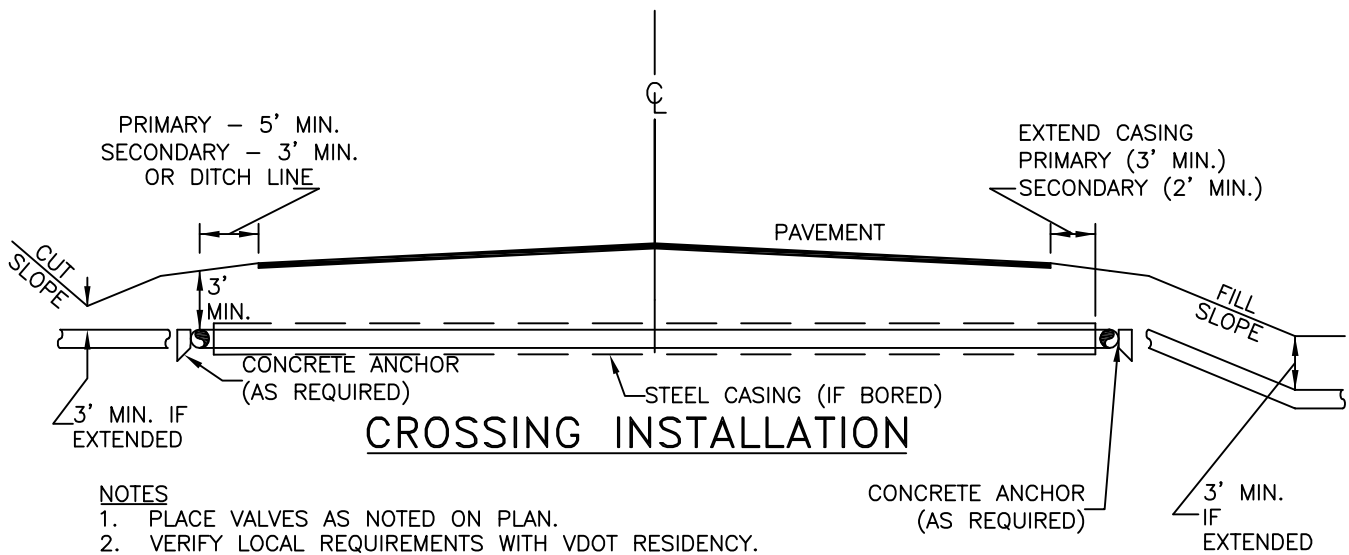
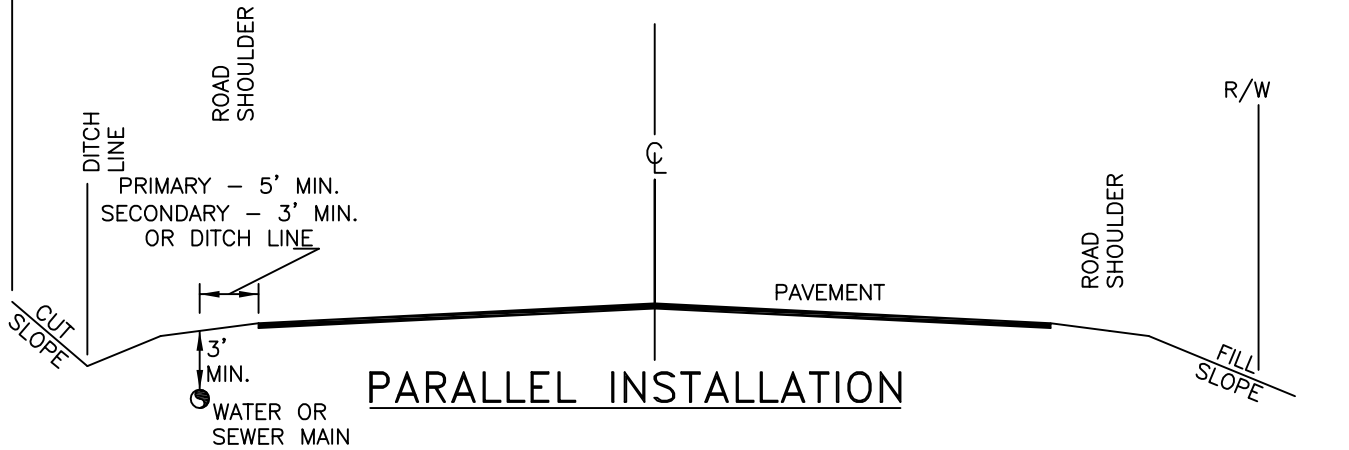
This procedure provides guidance and steps to have the PSA accept ownership of newly constructed water/sewer facilities.

PROCEDURE

- A. Upon completion of the project or approved phase, the developer/agent will notify the PSA, in writing, that the facility is ready for testing.
- B. The developer/agent will notify the PSA at least 48 hours in advance of all required testing.
- C. The developer/agent will perform testing in accordance with the PSA water/sewer technical specifications and provide certification by a professional engineer or certified laboratory.
- D. The developer/agent will forward test certification and laboratory results to the VDH District Engineer for applicable water facilities or DEQ Area Engineer for applicable sewer facilities and the PSA Engineer along with the developer's engineer's certificate of substantial completion.
- E. VDH District Engineer for applicable water facilities or DEQ Area Engineer for applicable sewer facilities and the PSA Engineer will approve the facility to be placed in service or provide the developer with the criteria needed for acceptance.
- F. The developer/agent will request, in writing that the PSA accept the facility for ownership and maintenance. Certified as-built drawings in both paper and electronic format must accompany this request.
- G. PSA Engineer will review as-built drawings and provide PSA Director a recommendation for acceptance.
- H. The PSA Director will issue an acceptance letter identifying date of the one-year warranty period. The PSA Director will establish a bond amount to be posted by the developer/agent.

- I. Developer/agent will execute acceptance letter including any applicable documents/deeds and return with appropriate bond instrument to PSA Director.
- J. PSA will accept and commence operation of the facilities upon receipt of executed acceptance letter and all requested documents.
- K. PSA Director will request the PSA Board to accept the facilities by resolution. The value of the new facilities will be added to PSA assets inventory.
- L. PSA Director will arrange for a warranty inspection with the developer/agent at least two weeks before the end of the warranty period.
- M. The developer/agent will make necessary corrections and notify PSA after completion.
- N. PSA Director will release the bond after satisfactory completion of the repairs.

R/W AS NOTED ON PLANS



NOTES

1. PLACE VALVES AS NOTED ON PLAN.
2. VERIFY LOCAL REQUIREMENTS WITH VDOT RESIDENCY.

REVISIONS			
NO.	DATE		
ORIGINAL	12/01/06		

TYPICAL WATER OR SEWER
MAIN LOCATION WITHIN
VDOT RIGHT-OF-WAY

DRAWING VDOT-ROW