Attachment J01

Fort Meade Potable Water Distribution and Treatment System

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Fort Meade Water System

1.1. Fort Meade Overview

Fort George G. Meade (FGGM or the Installation), established in 1917 as a training site for three infantry divisions, three training battalions and one depot brigade, is located almost midway between the cities of Baltimore, Md. and Washington, D.C. The Installation consists of 5,415 acres and is comprised of approximately 1,300 facilities. Fort Meade is home to approximately 10,000 military personnel along with approximately 25,800 civilian employees.
Fort Meade's mission is to provide a wide range of support to more than 78 organizations from all four services and to several federal agencies. Major tenants include the National Security Agency (NSA), the Defense Information School, and the U.S. Environmental Protection Agency Center.

1.2. Water System Description

The Fort meade potable water distribution and treatment system consists of all appurtenances physically connected to the system from the point in which the Government ownership currently, starts to the point of demarcation defined by the real estate instruments. Generally, the point of demarcation will be the building footprint. The system may include, but is not limited to, the water wells, the water treatment plant, the storage tanks and the distribution lines including service laterals. The following description and inventory is included to provide the Offeror with a general understanding of the size and configuration of the distribution system. The Offeror shall base the proposal on site inspections, information in the bidders' library, other pertinent information, and to a lesser degree the following description. Under no circumstances shall the successful Contractor be entitled to any rate adjustments based on the accuracy of the following description and inventory.

1.2.1. Water System Fixed Equipment Inventory

FGGM's potable water utility system includes five functioning groundwater wells, one abandoned-in-place well, a low-lift pumping station, two high lift pump stations, a water treatment plant, three clearwells, one booster station, four elevated storage tanks, three ground storage tanks, and a potable water distribution system containing approximately 90 miles of pipe.
For the purposes of this document, Fort Meade's potable water system has been divided into the following three components: (1) raw water supply, (2) water treatment plant, and (3) water distribution and storage. The schematic diagram of the FGGM potable water system is shown in Figure 2.1.2. **Note: All figures are contained in a separate "pictures only" file.**

Figure 2.1.2 - Fort meade potable water distribution and treatment system Schematic

Raw Water Supply

FGGM's raw water supply sources include both surface water and groundwater. The Installation's primary source of water is the surface water from the Little Patuxent River which provides approximately 80 percent of water used at FGGM. The other raw water source, which provided the remaining 20 percent of the Installation's raw water requirements, is groundwater pumped from the five wells.
Under a permitting system administered by the Department of Natural Resources, Fort Meade is authorized to draw raw water from two sources. A surface water permit authorizes the Post to use 5.2 MGD from the Little Patuxent River, and a groundwater permit allows a withdrawal of 2 MGD from a field of six artesian wells located on the Fort Meade installation; both thresholds are averaged over a twelve-month period. The Low Lift Pump Station (LLPS) adjacent to the river houses three electric pumps total combined capacity rated at 13.4 MGD (9,300 gpm). The well field draws from a confined

aquifer at depths of 400' – 785' below ground level and has an aggregate capacity of 8.28 MGD (5750 gpm).
The surface water is taken at the low-lift pumping station located near Maryland Route 198 and upstream of the wastewater treatment plant discharge. Approximately 20 feet downstream of the intakes is a dam (see Figure 2.1.2.1.a). The dam is a concrete structure with an overflow weir, a sluice gate on the east side, and a fish ladder (see Figure 2.1.2.1.b) on the west end. There are two water intake structures with trash racks and stop log groves. Silt build-up in front of the raw water intake at the LLPS is a problem and imposes limitations on water withdrawal from the river. The weir in front of the raw water intake will need periodic dredging in order for the Installation to withdraw surface water from the river.
The LLPS structure, located on the river's east bank, houses three raw water pumps that pump water to the water treatment facility. There are three electric pumps located at this pumping station. The combined capacity of the three electric pumps is 9,300 gallon per minute (gpm), or approximately 13.4 million gallons per day (MGD). The raw water is pumped from the LLPS through three 12-inch diameter water mains, approximately 4,000 feet long, to the water treatment plant. The quality of the river water is considered acceptable for treatment, except when high chloride concentrations are present in the river water resulting from winter de-icing operations upstream of the pumping station.
As previously noted, the secondary raw water source is groundwater pumped from wells. Well No. 1 is located near the water treatment plant facilities. Wells No. 2 through No. 6 are located in the well field, south of the main Installation. Each well utilizes one vertical turbine-type pump located within its individual well house. The rated capacity of Well No. 1 is 700 gpm, while Wells No. 2, No. 3, No. 4 , and No. 6 have rated capacities of 1,000 gpm and Well No. 5 is rated at 1,050 gpm. The combined total capacity of the five operating wells is 5750 gpm, or 8.28 MGD. The groundwater is pumped to the water treatment plant through two 16-inch and one 12-inch diameter water pipelines. All wells are operated manually from the water treatment plant.

Water Treatment Plant

Although initially constructed around 1919 as a "run of the river"-type plant, the treatment plant facilities were upgraded in 1942, 1956, 1968, 1984, and most recently in 1986. The chemical feed has been replaced to use liquid chemical feed. The treatment plant had an original design capacity of 8.3 MGD. The present day actual design capacity is 7.2 MGD. For the past 10 years, the plant has produced an average daily capacity of 3.4 MGD. Typically, the seasonal peak daily demand is 4.5 MGD and usually occurs between July and September. The all-time peak daily demand was 6.5 MGD, which occurred during Desert Storm. The 5-year and 10-year future water requirements have been estimated to be 3.8 and 4.3 MGD, respectively. The treatment plant provides treated water to the NSA complex as well as Fort Meade. The schematic diagram of the FGGM water treatment plant is shown in Figure 2.1.2.2.

Figure 2.1.2.2.a - Fort Meade Water Treatment Plant Schematic

The raw river water is pumped by the LLPS to the treatment plant via three 12-inch pipes. The water is discharged into the rapid mix basin where alum is added. From the rapid mix basin, the flow is discharged into one of three sedimentation/flocculation basins (see Figure 2.1.2.2.b). Each basin has two mechanical flocculators followed by settling compartments. Lime is added to the water as it enters the sedimentation/flocculation basins to aid flocculation. Powdered activated carbon is added to treat odor on an as needed basis. The groundwater pumped from the wells enters the plant and flows into two induced-draft tray aerators for carbon dioxide removal and oxidation of iron and manganese. The water from the aerators is then discharged into Sedimentation Basin No. 4. After sedimentation the water is chlorinated. Final sedimentation takes place in the 0.5 million-gallon basin to settle iron precipitation.
Sludge is withdrawn from the basins by means of gravity flow. There are no mechanical scrapers or sludge collection devices in the sedimentation basins. Sludge is periodically withdrawn. Sludge is pumped from the water treatment plant to the wastewater treatment plant for disposal.

The effluent from Sedimentation Basin No. 5 is filtered in six (1.2 MG each) tri-media (anthracite-sand-garnet) rapid-flow filters. After filtration, sodium silica fluoride along with lime and zinc bimetallic phosphate, are added for corrosion control. The treated water is chlorinated (post-chlorination) and flows to three aboveground clearwell storage tanks located near the plant. The clearwell storage tanks, which have a combined storage of 2.3 million gallons, also provide the required chlorine detention time.
The treated water is pumped from the clearwell storage tanks into the distribution system through High Lift Pump Stations (HLPS) No. 1 and No. 2 located near the water treatment plant. Approximately 3.4 MGD of potable water is pumped to Fort Meade and Fort Meade tenants.
HLPS No.1 (Building No. 8698) contains six total pumps, only five of which serve the distribution system. Pump No. 1 is a backwash pump used solely to backwash the rapid-flow sand filters in the plant and is the only pump capable of providing backwash water. The remaining five pumps serve the potable water distribution system. Pumps No. 2 and No. 5 each have a capacity of 1,000 gpm (1.44 MGD), while Pumps No. 3 and No. 4 each have a capacity of 700 gpm (1.0 MGD). There is also a diesel powered pump, Pump No. 6, with a capacity of 2,100 gpm (3.0 MGD), which can be used during power outages to supply water to the distribution system. This pump, however, is currently in need of repair and is not operational at time of this report. The combined capacity of high-lift pumping station No. 1 (when Pump No. 6 is operational) is roughly 5,500 gpm (7.92 MGD).
HLPS No. 2 (Building No. 8699) consists of four pumps (see Figure 2.1.2.2.c). Pumps No. 1 and No. 2 each have capacity of 1,200 gpm (1.73 MGD) one of these pumps can operate on either electricity or diesel fuel, while Pump No. 3 has a capacity of 1,500 gpm (2.16 MGD) and Pump No. 4 has a capacity of 2,500 gpm (3.60 MGD). The combined pump capacity of this station is 6,400 gpm (9.2 MGD). Under normal steady state conditions, HLPS No.2 pressurizes Pressure Zones No. 1and 2 and simultaneously maintains a 70 percent minimum fill level in the Chaffee Hill ground water storage tanks. A booster station draws water from the Chaffee Hill water storage tanks and pumps it to the higher Pressure Zones No. 3 and 4 for the Argonne Hills area supply. Overflow from the booster station is contained by the Pershing Hill elevated water storage tank.
The Water Treatment Plant has an emergency generator with enough capacity to sustain full plant operations; e.g., chemical mixing, flocculation, etc. Also, a diesel-generator set with automatic transfer switch supplies full backup power to the LLPS. There is no emergency power or diesel backup for operating the deep wells, and only limited emergency resources are available at HLPS No.1 and HLPS No. 2.

TABLE 1 TABLE 11
11. Plants and Towers
Water Distribution System – Fort Meade

Description	Facility Number	State Coordinates	Other Information
Water Treatment Plant			

"User Note: This table should include any parcels of land that the Grantee will need to be granted exclusive use under the right-of-way. This land should be described according to a state coordinate system."

Water Distribution and Storage

The water distribution system transports the water from the treatment plant facilities to the various facilities located on the Installation. The system provides domestic, industrial and fire water throughout

the Installation. The distribution system consists of pipes, valves, meters, fire hydrants and booster pump stations. The system has four pressure zones and is adequate to maintain a pressure of 30 pounds per square inch (psi) during peak daily flows. Figure 2.1.2 (illustrated previously in Subsection 2.1.2) indicates a high-pressure and a low-pressure zone. The high-pressure and the low-pressure zone each have a normally closed valve in place to create two separate high-pressure and two separate low-pressure zones.

Four elevated storage tanks and three ground storage tanks located throughout the system support FGGM's potable water distribution system. The type, location, manufacturer, date of fabrication and the capacity of each tank are summarized in Table 2.1.2.3 below. The combined capacity of the storage tanks is approximately 3.035 million gallons. All of the tanks have recently undergone extensive renovation consisting of removing existing paint, repainting all exterior and interior surfaces of the tanks, and replacing the cathodic protection systems within the tanks.

Fort Meade Potable Water Storage Tanks

Tank No.	Type	Location	Manufacturer*	Installed/ Upgrade	Capacity (gallons)
1	Elevated	Symonds and Zimborski	PDMSC	1928/1996	200,000
2	Elevated	Ordinance Area	PDMSC	1934/1996	305,000
3	Ground	Annapolis Hill	PDMSC	1940/1996	600,000
4	Elevated	Hunt Hill	PDMSC	1940/1996	500,000
6	Ground	Chaffee Hill	GTC	1954/1996	415,000
7	Ground	Chaffee Hill	GTC	1954/1996	600,000
8	Elevated	Pershing Hill	GTC	1958/1996	415,000
				Total	**3,035,000**

Note: *PDMS – Pittsburgh-Des Moines Steel Company
GTC – Graver Tank Company
Tank Upgrade include removal of lead paint and repainting tank

1.2.1.1. Inventory

Table 1 provides a general listing of the major water system fixed assets for the Fort Meade water system included in the purchase. The system will be transferred in a "as is, where is" condition without any warranty, representation, or obligation on the part of Government to make any alterations, repairs, or improvements. Ancillary equipment attached to, and necessary for, operating the system, though not specifically mentioned herein, is considered part of the purchased utility**.**

TABLE 2 TABLE 1A
1A. Fixed Inventory - Fort Meade
Water Distribution System Inventory

Item	Size	Quantity	Unit	Average Year of Construction
Pipe	Less than 4"	14,294	Linear Feet	1976
	4"	14,486	Linear Feet	1991
	6"	145,341	Linear Feet	1981
	8"	101,393	Linear Feet	1971
	10"	23,418	Linear Feet	1971

Item	Size	Quantity	Unit	Average Year of Construction
	12”	71,863	Linear Feet	1970
	14”	2,397	Linear Feet	1968
	16”	29,475	Linear Feet	1965
	18”	2,165	Linear Feet	1968
	20”	8,720	Linear Feet	1963
Total		413,552		
Main Valves	6” Gate Valve w/Box	105	Each	1969
	8” Gate Valve w/Box	247	Each	1960
Total		352		
Fire Hydrants	Fire Hydrant	552	Each	1973
Building Services	Building Service	1,251	Each	1981
Meters	Main Meters	3	Each	1967
Storage Tanks: (detailed in previous section)	3,035,000 gal.	7	Gal.	1996
Wells	Well #1	1	700 GPM	1972
	Well #2	1	1,000 GPM	1970
	Well #3	1	1,000 GPM	1989
	Well #4	1	1,000 GPM	1989
	Well #6	1	1,000 GPM	1989
High/Low Lift Stations	HLPS #1	1	Each	1958
	HLPS #2	1	Each	1968
	LLPS	1	Each	1967
Treatment Plant	Bldg #P-8688	1	Each	1970
Booster Pump Station	Booster Pump Station	2	Each	1958

TABLE 3 TABLE 1B
1B. Fixed Inventory - NSA
Water Distribution System Inventory

Item	Size	Quantity	Unit	Average Year of Construction
Pipe	Less than 4”	104	Linear Feet	1961
	4”	935	Linear Feet	1961
	6”	7,97	Linear Feet	1973
	8”	17,439	Linear Feet	1970
	10”	15,773	Linear Feet	1973
	12”	17,156	Linear Feet	1967
	14”	0	Linear Feet	----
	16”	2,163	Linear Feet	1958
	18”	0	Linear Feet	----
	20”	0	Linear Feet	----
Subtotal		61,567		
Main Valves	6” Gate Valve w/Box	9	Each	1976

Item	Size	Quantity	Unit	Average Year of Construction
	8” Gate Valve w/Box	73	Each	1970
	10” Gate Valve w/Box	60		1972
	12” Gate Valve w/Box	49		1964
	14” Gate Valve w/Box	13		1958
		204		
Fire Hydrants	Fire Hydrant	82	Each	1971
Building Services	Building Service	0	Each	----
Meters	Main Meters	0	Each	----

1.2.2. Water Distribution System Non-Fixed Equipment and Specialized Tools Inventory

Table 2 lists other ancillary equipment (spare parts) and **Table 3** lists specialized vehicles and tools included in the purchase. Offerors shall field verify all equipment and tools prior to submitting a bid. Offerors shall make their own determination of the adequacy of all equipment and tools. The successful Contractor shall provide any and all equipment, vehicles, and tools, whether included in the purchase or not, to maintain a fully operating system under the terms of this contract.

TABLE 4 TABLE 2
2. Spare Parts
Water Distribution System – Fort Meade

Qty	Item	Make/Model	Description	Remarks
Fort Meade indicated no spare parts are available for inventory.				

TABLE 5 TABLE 3
3. Specialized Equipment and Vehicles
Water Distribution System – Fort Meade

Description	Quantity	Location	Maker
No special equipment or vehicles are listed for transfer.			

1.2.3. Water System Manuals, Drawings, and Records Inventory

Table 4 lists the manuals, drawings, and records that will be transferred with the system.

TABLE 6 TABLE 4
4. Manuals, Drawings, and Records
Water Distribution System – Fort Meade

Qty	Item	Description	Remarks
Fort Meade maintains a limited collection of technical manuals, drawings, and records on the installed components of the water distribution system. This information will be transferred to the new owner during the transition period. System maps will be available in the bidders' library. Electronic versions of a few select photos/maps are contained in a Power Point file named "Add'l photos.ppt".			

1.3. Current Service Arrangement

The Army owned water system at Fort Meade is permitted to withdraw 2 MGD of groundwater from six artesian wells located on the Fort Meade installation and 5.2 MGD of surface water from the Little Patuxent River.

1.4. Secondary Metering

The Base may require secondary meters for internal billings of their reimbursable customers, utility usage management, and energy conservation monitoring. The Contractor shall assume full ownership and responsibility for existing and future secondary meters IAW Clause C.3.

1.4.1. Existing Secondary Meters

TABLE 7 TABLE 5
5. Existing Secondary Meters
Water Distribution System – Fort Meade

Meter Number	DOD-owned Building/Location	Serves	Remarks
70022849	6500	Defense Information School (DINFOS)	Operational, accuracy questionable
W1	2015	Anne Arundel County – Sarah's House	Non-operational
W2	2014	Anne Arundel County – Sarah's House	Non-operational
W3	2013	Anne Arundel County – Sarah's House	Non-operational
W5	Clark Road and MacArthur Road	Family Housing Areas	Non-operational
W6	Clark Road and 26th Street	Family Housing Areas	Non-operational
W10A	Rockenbach and Canine Roads	Cedar Knoll (off of the Post)	Main Line Meter - Non Operational
W10B	Rockenbach and Canine Roads	Cedar Knoll (off of the Post)	By-Pass Meter - Non Operational
W12	6600	Club Meade - Former Officer's Club	Non-operational
W13	4680	PX Gas Station	Non-operational
W14	Roberts and Varney Roads	Family Housing Areas	Non-operational
W15	Roberts and Wright Roads	Family Housing Areas	Non-operational
W16	Rock Avenue and Redwood Road	Family Housing Areas	Non-operational
W17	English and Llewellyn Avenues	Family Housing Areas	Non-operational
W18	Butler Road and Llewellyn Avenue	Family Housing Areas	Non-operational

Meter Number	DOD-owned Building/Location	Serves	Remarks
W19	McKay Road and Llewellyn Avenue	Family Housing Areas	Non-operational
W20	English Avenue and Mapes Road	Family Housing Areas	Non-operational
W21	2694	Family Housing	Non-operational
W22	2692	Family Housing	Non-operational
W23	Buckner Avenue and Rose Street	Family Housing Areas	Non-operational
W24	2786	Commissary	Non-operational
W25	2790	PX Main (Retail) Store	Non-operational
W26	2791	PX Shops	Non-operational
W27	2791	PX Garden Shop	Non-operational
W29	Ernie Pyle and 21st Streets	Family Housing Areas	Non-operational
W30	1250	Dekalb USARC Building	Non-operational
W31	1252	Reserve Center	Non-operational
W32	1957	Family Housing Areas	Non-operational
W33	1957	Family Housing Areas	Non-operational
W34A	Route 175, North of Walker Avenue	Family Housing Areas	Non-operational
W34B	Route 175, North of Walker Avenue	Family Housing Areas	Non-operational
W35A	Route 175, South of Walker Avenue	Family Housing Areas	Non-operational
W35B	Route 175, South of Walker Avenue	Family Housing Areas	Non-operational
W37	Range Road	Department of Interior	Non-operational
W38	8452	McGill Recreation Center	Non-operational
W40	9810	Sealandair Recreation Center	Non-operational
Meter #	Building/Location	Serves:	Remarks
W41	2011	Anne Arundel County – Sarah's House	Non-operational
W42	2016	Anne Arundel County – Sarah's House	Non-operational
W43	2017	Anne Arundel County – Sarah's House	Non-operational
1536779	1100	Meade Senior High School	Anne Arundel County owned; accuracy of meter questionable
19430751	3500	MacArthur Junior High School	Anne Arundel County owned; accuracy of meter questionable
166711893	7600	Pershing Hill Elementary School	Anne Arundel County owned; accuracy of meter questionable
1539329	7700	West Meade Elementary School	Anne Arundel County owned; accuracy of meter questionable
1539328	3001	Manor View Elementary School	Anne Arundel County owned; accuracy of meter questionable
N/A	1925	Meade Heights Elementary School	Anne Arundel County owned; accuracy of meter questionable
1540469	1103	Meade Middle School	Anne Arundel County owned; accuracy of meter questionable
	701	EPA Building	Meter for building

Meter Number	DOD-owned Building/Location	Serves	Remarks
	701	EPA Building	Meter for cooling tower

Notes:

1. Spreadsheet generated on 13 March 2002.
2. All meters, except for building 6500, listed above are by-passed, missing, broken, uncalibrated, etc. - useless.
3. Accuracy questionable - no maintenance nor calibration has been performed since meter was put into service.

1.4.2. Required New Secondary Meters

The Contractor shall install and calibrate new secondary meters as listed in Table 6. New secondary meters shall be installed IAW Clause C.17, Transition Plan. After installation, the Contractor shall maintain and read these meters IAW Clauses C.3, H.5, and J04.5 below.

TABLE 8 TABLE 6
6. New Secondary Meters
Water Distribution System – Fort Meade

Meter Location	Meter Description
The intention of Fort Meade is to have the successful bidder provide and install water meters on all permanent buildings.	Listing of all Army Family Housing Units is attached in a separate Excel file located in Section J11.
Future non-DOD entities will negotiate directly with successful bidder.	Housing demolition schedule provided in separate Excel file located in Section J11.
Install necessary telemetry or similar equipment to meter NSA water use with monitoring capability for NSA.	NSA water consumption, excluding the Super-computer facility, is computed through deductive readings from flow meters at High Lift Pump Station #2 and Chaffee Hill Booster Station. Two sub-meter locations measure flow out of NSA to the former Cedar Knolls Hospital and the Washington D.C. Youth Services Administration's Youth Center.

1.5. Monthly Submittals

The Contractor shall provide the Government monthly submittals for the following: Invoice (IAW G.2). The Contractor's monthly invoice shall be presented in a format proposed by the Contractor and accepted by the Contracting Officer. Invoices shall be submitted by the 25th of each month for the previous month. Invoices shall be submitted to the Contracting Officer's designee. (This information will be provided upon award.)

Outage Report. The Contractor's monthly outage report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Outage reports shall include the following information for Scheduled and Unscheduled outages:

Scheduled: Requestor, date, time, duration, facilities affected, feedback provided during outage, outage notification form number, and digging clearance number.

Unscheduled: Include date, time and duration, facilities affected, response time after notification, completion times, feedback provided at time of outage, specific item failure, probability of future failure, long term fix, and emergency digging clearance number.

Outage reports shall be submitted by the 25th of each month for the previous month. Outage reports shall be submitted to the Contracting Officer's designee. (This information will be provided upon award.)

Meter Reading Report. The monthly meter reading report shall show the current and previous month readings for all secondary meters. The Contractor's monthly meter reading report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Meter reading reports shall be submitted by the 15th of each month for the previous month. Meter reading reports shall be submitted to the Contracting Officer's designee. (This information will be provided upon award.)

System Efficiency Report. If required by Paragraph C.3, the Contractor shall submit a system efficiency report in a format proposed by the Contractor and accepted by the Contracting Officer. System efficiency reports shall be submitted by the 25th of each month for the previous month. System efficiency reports shall be submitted to the Contracting Officer's designee. (This information will be provided upon award.)

1.6. Energy Savings and Conservation Projects

IAW C.3, Utility Service Requirement, the following projects have been implemented by the Government for energy conservation purposes:
None.

1.7. Service Area

IAW Clause C.4, Service Area, the service area is defined as all areas within the Fort Meade boundaries.

1.8. Off-Installation Sites

Water service is provided to the Washington D.C. Youth Services Administration's Youth Center and the former Cedar Knolls Hospital from the NSA portion of the distribution system. Water service will be required to these off-Installation sites.

1.9. Specific Transition Requirements

IAW Clause C.17, Transition Plan, **Table 7** lists service connections and disconnections required upon transfer, and **Table 8** lists the improvement projects required upon transfer of the Fort Meade water system.

TABLE 9 TABLE 7
7. Service Connections and Disconnections
Water Distribution System – Fort Meade

Location	Description
Future non-DOD entities will negotiate directly with successful bidder.	Housing demolition schedule provided in separate Excel file located in Section J11.
Planned Future MCA Projects are listed in a separate Excel file located in Section J11.	

TABLE 10 TABLE 8
8. System Improvement Projects
Water Distribution System – Fort Meade

Project Location	Project Description
None Identified	

1.10. Water Distribution System Points of Demarcation

The point of demarcation is defined as the point on the piping system where ownership changes from the Grantee to the building owner. The tables below identify the general locations of these points with respect to the building served.

TABLE 11 TABLE 9A
9A. Points of Demarcation
Water Distribution System – Fort Meade

Water Distribution System Points of Demarcation - Ft. Meade

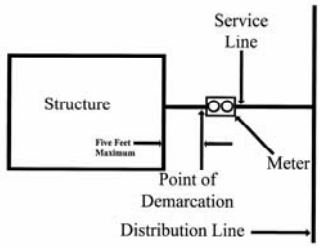
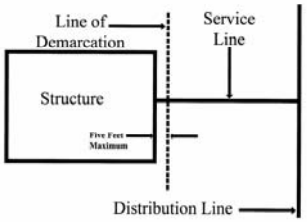
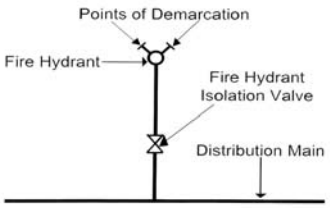
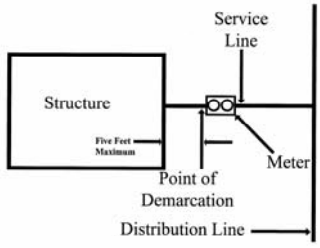
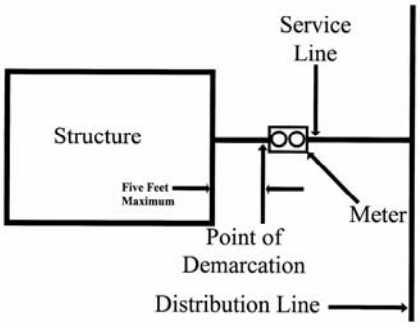
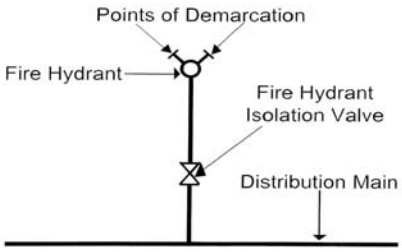
Point of Demarcation	Applicable Scenario	Sketch
The point of demarcation is the water meter, backflow device, or valve (closest apparatus to the exterior of the structure) within five feet of the face of the structure. If greater than five feet from the face of the structure, the demarcation point is five feet from the face of the structure.	Water meter, backflow device, or cutoff valve is located on the service line entering the structure within five feet of the exterior of the structure.	
The point of demarcation is five feet from the face of the structure where the service line enters the structure for either potable water or fire protection service.	No water meter, backflow device, or cutoff valve exists on the service line entering the structure.	
No point of demarcation exists; the utility service contractor will own all exterior fire suppression infrastructure, up to and including fire hydrants.	Exterior fire protection exists at the installation.	
The point of demarcation will be jointly determined by housing privatization contractor and the utility service contractor.	Water meter installed where service line or portions of service lines are owned by more than one contractor.	

TABLE 12 TABLE 9B
9B. Points of Demarcation
Water Distribution System – NSA

Water Distribution System Points of Demarcation - NSA

Point of Demarcation	Applicable Scenario	Sketch
The point of demarcation is the water meter, backflow device, or valve (closest apparatus to the exterior of the structure).	Water meter, backflow device, or cutoff valve is located on the service line entering the structure.	
No point of demarcation exists; the utility service contractor will own all exterior fire suppression infrastructure, up to and including fire hydrants.	Exterior fire protection exists at the installation.	

1.10.1. Unique Points of Demarcation

The following table lists anomalous points of demarcation that do not fit any of the above categories.

TABLE 13 TABLE 10
10. Unique Points of Demarcation
Water Distribution System – Fort Meade

Building No.	Point of Demarcation Description
None Listed.	

1.11. Plants and Towers

Note: Figures listed correspond to digital images contained in a separate file. The images are very large and cannot be well supported via standard e-mail or Internet technology. Additional digital images are included that are not listed below. A CD-ROM will be made available that will contain all relevant digital images.

Attachment J02
Fort Meade Wastewater Distribution and Collection System

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J02 Fort Meade Wastewater Distribution and Collection System

J02.1 Fort Meade Overview

Fort George G. Meade (FGGM or the Installation), established in 1917 as a training site for three infantry divisions, three training battalions and one depot brigade, is located almost midway between the cities of Baltimore, Md. and Washington, D.C. The Installation consists of 5,415 acres and is comprised of approximately 1,300 facilities. Fort Meade is home to approximately 10,000 military personnel along with approximately 25,800 civilian employees.
Fort Meade's mission is to provide a wide range of support to more than 78 organizations from all four services and to several federal agencies. Major tenants include the National Security Agency (NSA), the Defense Information School, and the U.S. Environmental Protection Agency Center.

1.12. Wastewater System Description

The Fort Meade wastewater system consists of all appurtenances physically connected to the system from the point in which the Government ownership currently, starts to the point of demarcation defined by the real estate instruments. Generally, the point of demarcation will be the building footprint. The system may include, but is not limited to, the manholes, lift stations, wastewater treatment plant, and the collection lines, including service laterals. The following description and inventory is included to provide the Offeror with a general understanding of the size and configuration of the distribution system. The Offeror shall base the proposal on site inspections, information in the bidders' library, other pertinent information, and to a lesser degree the following description. Under no circumstances shall the successful Contractor be entitled to any rate adjustments based on the accuracy of the following description and inventory. Fort Meade wishes to transfer the ownership of the wastewater system components including, but not limited to, the wastewater treatment plant, the lift stations, the manholes, and the wastewater collection lines. There are currently no plans to transfer any land ownership inside the main cantonment area. However, the Government reserves the right to transfer or sell the associated land. The land inside the cantonment area, on which the lift stations are located, would be leased to the future utility service provider. The land on which the wastewater treatment plant/low lift stations are located outside the main cantonment would be initially leased to the future utility service provider until this land gets off the Superfund Site List. After that period the ownership of the land on which the wastewater treatment plant/low lift station are located may be transferred to the future utility service provider at the Government's discretion.

1.12.1. Wastewater System Fixed Equipment Inventory

FGGM's wastewater system includes 12 wastewater collection system sewage lift stations, 58 miles of pipe/force mains, an advanced wastewater treatment plant, and effluent pipeline used to water the Installation's 36-hole golf course. There is one wastewater pre-treatment facility in the NSA Complex which is not a part of this privatization study. NSA plans to own, operate and

maintain the pre-treatment facility in the future, regardless of whether privatization action is pursued by Fort Meade. Also, there are four monitoring points within the NSA complex. Currently, Fort Meade owns the National Pollution Discharge and Elimination System (NPDES) permit and NSA collects samples, performs analyses, and submits test results. In the future, if the wastewater system is privatized, the new owner of the system will obtain and maintain the NPDES permit and NSA will continue its compliance monitoring program.

For the purposes of this document, the wastewater system has been subdivided into two components: (1) wastewater collection and (2) wastewater treatment plant facilities. (The effluent pipeline has been included in the wastewater collection system.)

Wastewater Collection

All industrial and domestic wastewater collected from FGGM, the NSA Complex and the D.C. Children's Center is conveyed to the Fort Meade Advanced Wastewater Treatment Plant (AWTP) via 305,270 linear feet of sewer line. Approximately half of the sewage flows to the treatment plant are from lift station or Pump Station PS (East Side PS). Lift Station 88 (Airport PS, this lift station is not part of this privatization action) also pumps directly to the wastewater treatment plant. A housing area and an area north of the treatment plant are the only areas where sewage flows to the plant by gravity. A schematic diagram of the wastewater collection system is shown in Figure 2.2.1.

Within the Fort Meade wastewater collection system there are about 305,270 feet of sewer pipe. As summarized in Table 3.1-2, the sizes of collection pipe range from less than 4 inches in diameter to 30 inches in diameter with the majority of the pipe size being 8 inches. The large majority of the pipe is terra cotta type clay pipe. Terra cotta pipe is a clay material that is considered non-load bearing and would not be used as sewer pipe under today's standards. Also, within the sewer collection system are 1,210 manholes. Most of the wastewater collection system was constructed between the 1920s and the 1970s, with only replacement and upgrade work being completed since the 1970s. In 1998, upgrades to some of the trunk lines and manholes were performed. The work included relining of pipes, upgrading of manholes and some pipe replacement.

There are 12 lift stations and associated force mains within the wastewater collection system at FGGM. The length of the associated force mains is summarized in Table 1.

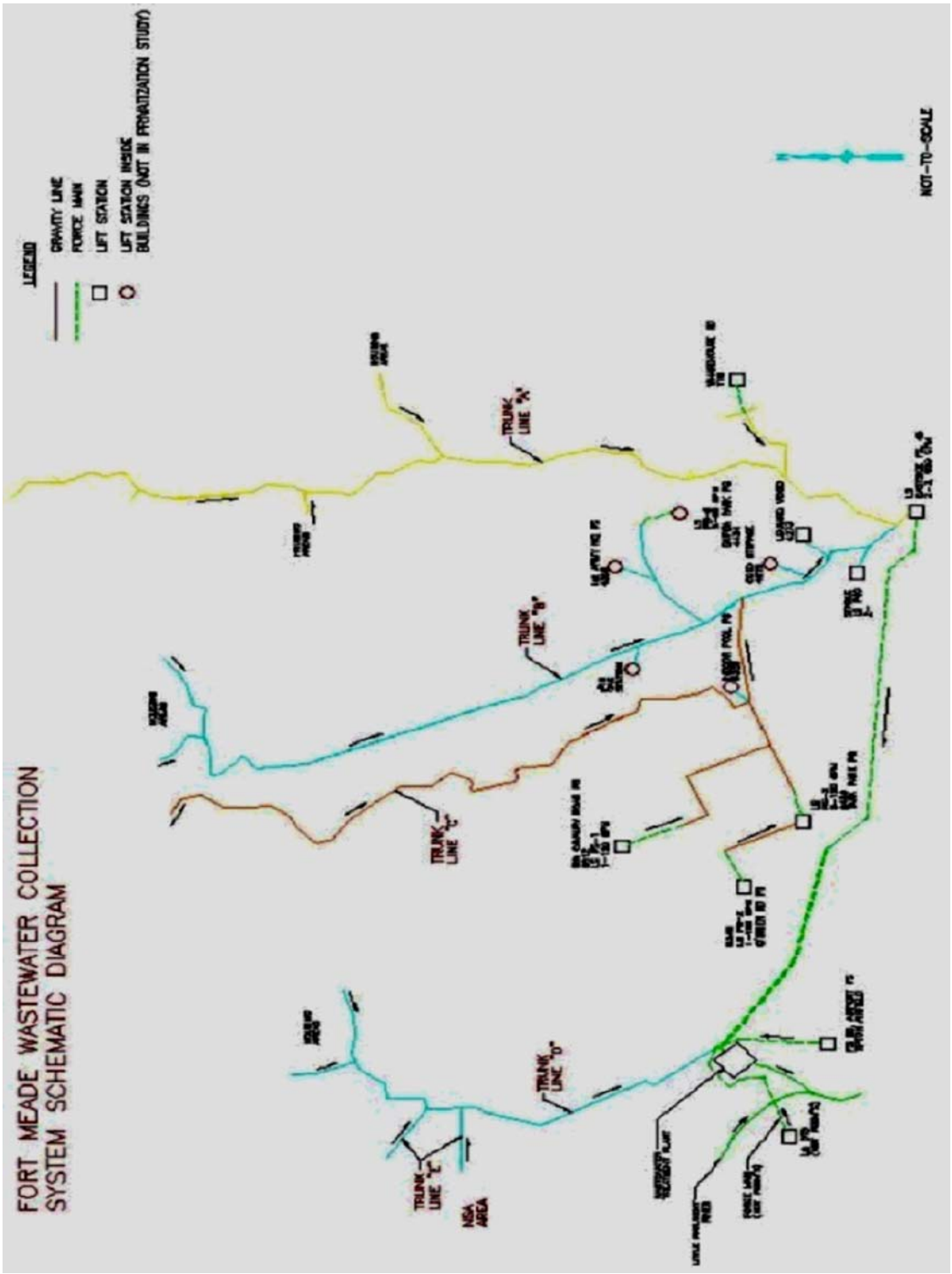


Figure 2.2.1: Fort Meade Wastewater Collection System Scematic

Wastewater Treatment

The Fort Meade Advanced Wastewater Treatment Plant is discussed later under Section J02.11.

1.12.1.1. Inventory

Table 1 provides a general listing of the major wastewater system fixed assets for the Fort Meade wastewater system included in the purchase. The system will be transferred in a "as is, where is" condition without any warranty, representation, or obligation on the part of Government to make any alterations, repairs, or improvements. Ancillary equipment attached to, and necessary for, operating the system, though not specifically mentioned herein, is considered part of the purchased utility**.**

TABLE 1A
1A. Fixed Inventory – Fort Meade
Wastewater Collection System

Item	Size	Quantity	Unit	Average Year of Construction
Pipe and Mains	Less than 4"	175	Linear Feet	1976
	4"	70	Linear Feet	1950
	6"	20,417	Linear Feet	1950
	8"	165,353	Linear Feet	1960
	10"	22,861	Linear Feet	1961
	12"	25,325	Linear Feet	1964
	15"	4,100	Linear Feet	1987
	18"	14,030	Linear Feet	1963
	20"	5,110	Linear Feet	1966
	24"	11,049	Linear Feet	1941
	30"	0	Linear Feet	----
	3" Force Main	425	Linear Feet	1930
	4" Force Main	1,080	Linear Feet	1954
	6" Force Main	2,945	Linear Feet	1950
	10" Force Main	2,070	Linear Feet	1955
	18" Force Main	6,455	Linear Feet	1945
	24" Force Main	3,230	Linear Feet	1941
Total		284,695		
Manholes		1,135	Each	1960
Building Services	Residential	770	Each	1958
	Industrial	331	Each	1948
		1,101		
Pump/Lift Stations				
	6th Calvary Rd	1	Each	1954
	O'Brien Rd	1	Each	1954
	Tank Park	1	Each	1950
	East Side	1	Each	1983
	Stable	1	Each	1964
	Indoor Pool	1	Each	1941
	97th ARCOM	1	Each	1941
	Leonard Wood	1	Each	1995
	Back Gate	1	Each	1995
	NSA Range	1	Each	1995
	Burba Lake	1	Each	1995
	Gas Station	1	Each	1995
Total		12		

Item	Size	Quantity	Unit	Average Year of Construction
Advanced WW Treatment Plant		1	Each	1983

TABLE 1B
1B. Fixed Inventory – NSA
Wastewater Collection System

Item	Size	Quantity	Unit	Average Year of Construction
Pipe and Mains	Less than 4”	0	Linear Feet	----
	4”	0	Linear Feet	----
	6”	195	Linear Feet	1980
	8”	8,575	Linear Feet	1965
	10”	850	Linear Feet	1959
	12”	3,155	Linear Feet	1959
	15”	2,510	Linear Feet	1959
	18”	865	Linear Feet	1959
	20”	820	Linear Feet	1959
	24”	2,260	Linear Feet	1959
	30”	1,345	Linear Feet	1959
	3” Force Main	0	Linear Feet	----
	4” Force Main	0	Linear Feet	----
	6” Force Main	0	Linear Feet	----
	10” Force Main	0	Linear Feet	----
	18” Force Main	0	Linear Feet	----
	24” Force Main	0	Linear Feet	----
Total		20,575		
Manholes		75	Each	1961
Building Services	Residential	0	Each	----
	Industrial	15	Each	1963
		15		

1.12.2. Wastewater Collection System Non-Fixed Equipment and Specialized Tools Inventory

Table 2 lists other ancillary equipment (spare parts) and **Table 3** lists specialized vehicles and tools included in the purchase. Offerors shall field verify all equipment and tools prior to submitting a bid. Offerors shall make their own determination of the adequacy of all equipment and tools. The successful Contractor shall provide any and all equipment, vehicles, and tools, whether included in the purchase or not, to maintain a fully operating system under the terms of this contract.

TABLE 2
2. Spare Parts
Wastewater Collection System – Fort Meade

Quantity	Item	Make/Model	Description	Remarks
Fort Meade indicated no spare parts are available for inventory.				

TABLE 3
3. Specialized Equipment and Vehicles
Wastewater Collection System – Fort Meade

List of Buildings and Grease Trap Size				
Building	**Location**	**Trap size**		**Service required**
48	Sewage Lift Station		GL	October/January/April/July
370	NCO Club	500	GL	March/June/September
1251	97th ARCOM	200	GL	March/September
2480	Kimbrough Army Community (KACH)	1,200	GL	March/June/September
2786	Commissary	275	GL	March/June/September
3100	Child Development Center	275 & 25	GL GL	March/September
4725	Child Development Center	275 & 25	GL GL	March/September
4273	Sewage Lift Station		GL	October/January/April/July
6600	Officer's Club	1,250	GL	March/July
6800	Golf Course	30	GL	March/September
8545	Dining Facility	1,250	GL	October/January/April/July
8610	Dining Facility	1,250	GL	October/January/April/July
9829	Dining Facility	1,250	GL	October/January/April/July
The buildings listed below could have a combination mixture of grease, water, and scum:				
9581	WWTP/ #6	2,500	GL	March/September
9581	WWTP/ #2	1,600	GL	March/September

1.12.3. Wastewater System Manuals, Drawings, and Records Inventory

Table 4 lists the manuals, drawings, and records that will be transferred with the system.

TABLE 4
4. Manuals, Drawings, and Records
Wastewater Collection System – Fort Meade

Quantity	Item	Description	Remarks
Fort Meade maintains a limited collection of technical manuals, drawings, and records on the installed components of the wastewater collection system. This information will be transferred to the new owner during the transition period. System maps will be available in the bidders' library.			

1.13. Current Service Arrangement

The Army currently treats wastewater at the Fort Meade Advanced Wastewater Treatment Plant.

1.14. Secondary Metering

The Base may require secondary meters for internal billings of their reimbursable customers, utility usage management, and energy conservation monitoring. The Contractor shall assume full ownership and responsibility for existing and future secondary meters IAW Clause C.3.

1.14.1. Existing Secondary Meters

TABLE 5
5. Existing Secondary Meters
Wastewater Collection System – Fort Meade

Meter Location	Meter Description
Golf Irrigation Water Meter	Meters treated effluent to irrigate the Golf Course at FGGM

1.14.2. Required New Secondary Meters

TABLE 6
6. New Secondary Meters
Wastewater Collection System – Fort Meade

Meter Location	Meter Description
None Required.	

1.15. Monthly Submittals

The Contractor shall provide the Government monthly submittals for the following: Invoice (IAW G.2). The Contractor's monthly invoice shall be presented in a format proposed by the Contractor and accepted by the Contracting Officer. Invoices shall be submitted by the 25th of each month for the previous month. Invoices shall be submitted to the Contracting Officer's designee. (This information will be provided upon award.)

Outage Report. The Contractor's monthly outage report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Outage reports shall include the following information for Scheduled and Unscheduled outages:

Scheduled: Requestor, date, time, duration, facilities affected, feedback provided during outage, outage notification form number, and digging clearance number.

Unscheduled: Include date, time and duration, facilities affected, response time after notification, completion times, feedback provided at time of outage, specific item failure, probability of future failure, long term fix, and emergency digging clearance number.

Outage reports shall be submitted by the 25th of each month for the previous month. Outage reports shall be submitted to the Contracting Officer's designee. (This information will be provided upon award.)

Meter Reading Report. The monthly meter reading report shall show the current and previous month readings for all secondary meters. The Contractor's monthly meter reading report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Meter reading reports shall be submitted by the 15th of each

month for the previous month. Meter reading reports shall be submitted to the Contracting Officer's designee. (This information will be provided upon award.)

System Efficiency Report. If required by Paragraph C.3, the Contractor shall submit a system efficiency report in a format proposed by the Contractor and accepted by the Contracting Officer. System efficiency reports shall be submitted by the 25th of each month for the previous month. System efficiency reports shall be submitted to the Contracting Officer's designee. (This information will be provided upon award.)

1.16. Energy Savings and Conservation Projects

IAW C.3, Utility Service Requirement, the following projects have been implemented by the Government for energy conservation purposes:
None.

1.17. Service Area

IAW Clause C.4, Service Area, the service area is defined as all areas within the Fort Meade boundaries.

1.18. Off-Installation Sites

Domestic wastewater collected from Fort Meade and the D.C. Children's Center is conveyed to the Fort Meade Advanced Wastewater Treatment Plant.

1.19. Specific Transition Requirements

IAW Clause C.17, Transition Plan, **Table 6** lists service connections and disconnections required upon transfer, and **Table 7** lists the improvement projects required upon transfer of the Fort Meade wastewater system.

TABLE 7
7. Service Connections and Disconnections
Wastewater Collection System – Fort Meade

Location	Description
Future non-DOD entities will negotiate directly with successful bidder.	
Planned Future MCA Projects are listed in a separate Excel file located in Section J05.	

The utility service provider will coordinate with Fort Meade for future addition or demolition of buildings. For existing and new family housing units and facilities, the utility service provider shall coordinate directly with the housing privatization contractor. The utility service provider may or may not be responsible, as mutually agreed upon by the utility service provider and the housing privatization contractor, for installing new service lines and meters up to the mutually agreed upon demarcation point for future housing. Also, the utility service provider may or may not be responsible, as mutually agreed upon by the utility service provider and the housing privatization contractor, for disconnecting service to abandoned buildings, and for removal, reuse

or disposal of the associated meters and piping. The utility service provider may or may not be responsible, as mutually agreed upon by the utility service provider and the housing privatization contractor for ownership, operation, and maintenance of existing piping owned by the housing privatization contractor.

Table 8
8. System Improvement Projects
Wastewater Collection System – Fort Meade

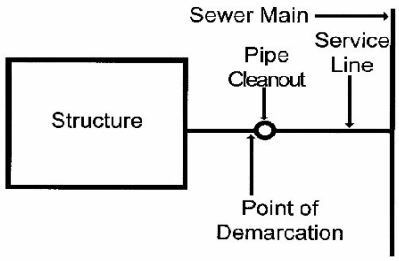
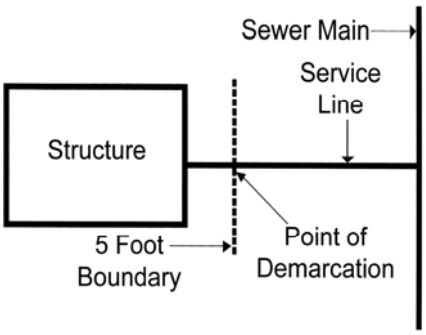
Project Location	Project Description
None Identified	

1.20. Wastewater Collection System Points of Demarcation

The point of demarcation is defined as the point on the piping system where ownership changes from the Grantee to the building owner. The table below identifies the general locations of these points with respect to the building served.

TABLE 9A
9A. Points of Demarcation
Wastewater Collection System – Fort Meade

Wastewater Collection System Points of Demarcation - Ft. Meade

Point of Demarcation	Applicable Scenario	Sketch
Point of demarcation is the cleanout device, if within 10 feet of the structure perimeter.	No flow meter exists and a sewer system cleanout is located within 10 feet of the structure perimeter on the service line.	
Point of demarcation is a point on the service line five feet from the structure. *Note: A new cleanout device should be installed within 5 feet but beyond five feet of a building during any stoppage or maintenance action. This will then become the new point of demarcation.*	No flow meter or cleanout exists on the service line entering the structure.	

Wastewater Collection System Points of Demarcation - Ft. Meade

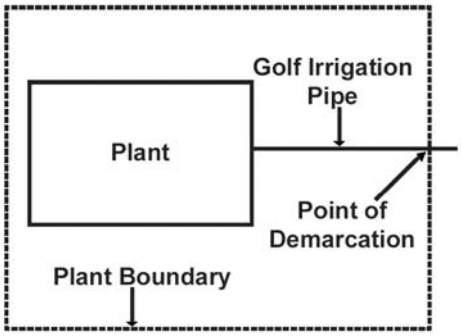
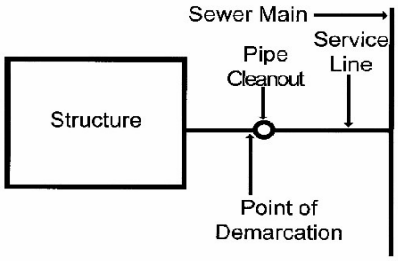
Point of Demarcation	Applicable Scenario	Sketch
Point of demarcation is on the pipeline at the Wastewater treatment plant boundary	Golf course irrigation pipeline that conveys treated effluent from Wastewater Plant	

TABLE 9B
9B. Points of Demarcation
Wastewater Collection System – NSA

Wastewater Collection System Points of Demarcation - NSA

Point of Demarcation	Applicable Scenario	Sketch
Point of demarcation is the cleanout device, if within 10 feet of the structure perimeter.	No flow meter exists and a sewer system cleanout is located within 10 feet of the structure perimeter on the service line.	

1.20.1. Unique Points of Demarcation

The following table lists anomalous points of demarcation that do not fit any of the above categories.

TABLE 10
10. Unique Points of Demarcation
Wastewater Collection System – Fort Meade

Point of Demarcation	Applicable Scenario
Point of demarcation is at a boundary mutually agreed upon by the utility service provider and the housing privatization contractor.	Includes but not necessarily limited to: Utility service provider owned piping connects to housing privatization contractor owned piping. New housing constructed before and after utility service provider takes over the system.

1.21. Plants

Wastewater Treatment

Constructed in 1984, Fort Meade's AWTP had a rated design treatment capacity of 4.5 MGD. The plant's rated capacity is somewhat less today because of modifications made to the treatment process primarily to provide treatment for de-nitrification. The 10-year average flow to the plant is 2.3 MGD with a maximum instantaneous flow of 12 MGD. The maximum flow to the plant typically occurs during wet weather. The maximum-recorded wet weather flow was 7.8 MGD. The projected average daily flows to the plant for the next 5 and 10 years are estimated to be 2.5 and 2.9 MGD, respectively. With the new building additions proposed, it has been estimated that the peak flow rate to the plant during heavy rain will be about 11.4 MGD. When the flows to the wastewater treatment plant exceed that plant's capacity the quality of the discharge is reduced. A schematic diagram of the treatment plant process is shown in Figure 2.2.1.

Upon entering the wastewater treatment plant, the wastewater first flows through the aerated grit chamber, where sand and other heavy materials are removed. Next, the wastewater flows through a comminutor, where the large solids are shredded.

An excess holding tank was added in 1997 and is located on the southeast side of the plant. The tank has two cells, will hold excess wastewater flows during peak periods, and will supply the stored wastewater to be treated during non-peak periods. Each of the tank cells has four mixers, a pump, and an aeration system. The aerators are connected to two air compressors.

The wastewater then flows to the rapid mix chambers, where various chemicals are added before flowing through the flocculation chambers. The wastewater flows to the primary settling tanks where phosphorus, suspended solids, BOD, and scum are partially removed. After the primary settling tanks, the wastewater is directed to the nitrification reactors. The reactors have been modified to de-nitrify (BNR using methanol) where it is mixed with returned activated sludge and aerated by mechanical surface aerators. Next, the wastewater enters the nitrification settling tanks where the effluent is clarified by removing additional BOD and solids and then flows to the flash mix tanks. Chemicals are added at these tanks for additional phosphorus removal.

The wastewater then flows to the multi-media filters followed by the chlorine contact tank where chlorine is added for disinfection. Following the chlorine contact tank, the wastewater flows to the de-chlorination structure where sulphur dioxide is added to remove excess chlorine. After de-chlorination, the treated effluent enters the re-aeration tanks where dissolved oxygen is added. The treated water is then discharged primarily to the Little Patuxent River just downstream of the low water dam. During the summer months, a portion of the treated water is metered and discharged, via a 12-inch unused water pipe, to the golf course for irrigation. This 12-inch water pipe from outside the plant boundary is not considered in this utility privatization action and will remain a part of the golf irrigation system.

The sludge that settles out in the primary settling tanks is thickened in tanks. Most of the activated sludge accumulated in the nitrification settling tanks is reused in the nitrification reactors as return sludge. Sludge is lime stabilized by contractor. The stabilized sludge is transported to farm fields to grow crops.

TABLE 11
11. Plants
Wastewater Collection System – Fort Meade

Description	Facility Number	State Coordinates	Other Information
Advanced Wastewater Treatment Plant			

"User Note: This table should include any parcels of land that the Grantee will need to be granted exclusive use under the right-of-way. This land should be described according to a state coordinate system."