

# Attachment J02

## Fort Meade Wastewater Distribution and Collection System

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## **J02 Fort Meade Wastewater Distribution and Collection System**

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### **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.

### **J02.2 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.

#### **J02.2.1 Wastewater System Fixed Equipment Inventory**

FGGM's wastewater system includes nine 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) 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 9 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.



## *Wastewater Treatment*

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

### **J02.2.1.1 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	6 <sup>th</sup> 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
	Warehouse Rd	1	Each	1941
	Airport	1	Each	1960
Leonard Wood	1	Each	1995	
Total		9		
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		

### J02.2.2 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

<b>List of Buildings and Grease Trap Size</b>				
<b>Building</b>	<b>Location</b>	<b>Trap size</b>		<b>Service required</b>
48	Sewage Lift Station		GL	October/January/April/July
370	NCO Club	500	GL	March/June/September
1251	97 <sup>th</sup> 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
<u>The buildings listed below could have a combination mixture of grease, water, and scum:</u>				
9581	WWTP/ #6	2,500	GL	March/September
9581	WWTP/ #2	1,600	GL	March/September

### J02.2.3 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

<b>Quantity</b>	<b>Item</b>	<b>Description</b>	<b>Remarks</b>
			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.

### J02.3 Current Service Arrangement

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

## J02.4 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.

### J02.4.1 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

### J02.4.2 Required New Secondary Meters

TABLE 6

6. New Secondary Meters  
Wastewater Collection System – Fort Meade

Meter Location	Meter Description
None Required.	

## J02.5 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 25<sup>th</sup> 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 25<sup>th</sup> 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 15<sup>th</sup> 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 25<sup>th</sup> 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.)

## **J02.6 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.

## **J02.7 Service Area**

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

## **J02.8 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.

## **J02.9 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

<b>Location</b>	<b>Description</b>
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

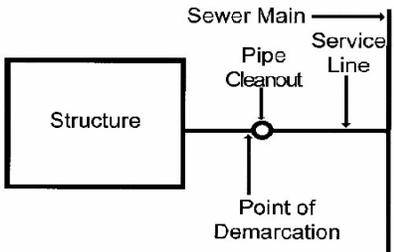
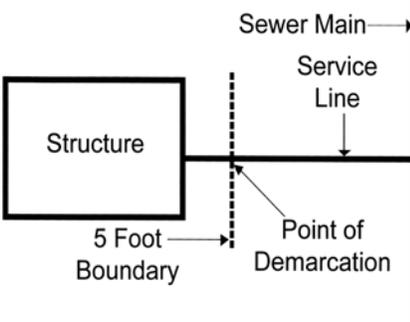
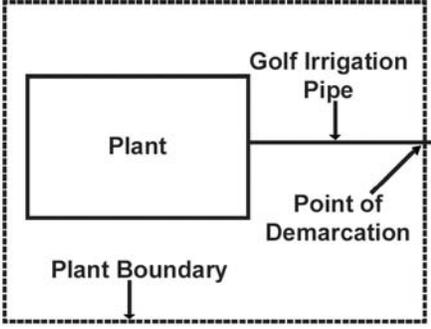
Project Location	Project Description
None Identified	

## **J02.10 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.

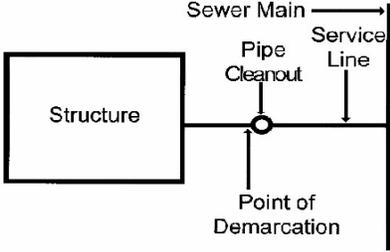
**TABLE 9A**  
9A. Points of Demarcation  
Wastewater Collection System – Fort Meade

**Wastewater Collection System Points of Demarcation - Ft. Meade**

Point of Demarcation	Applicable Scenario	Sketch
<p>Point of demarcation is the cleanout device, if within 10 feet of the structure perimeter.</p>	<p>No flow meter exists and a sewer system cleanout is located within 10 feet of the structure perimeter on the service line.</p>	 <p>The sketch shows a rectangular structure on the left. A horizontal line representing the service line extends from the structure to the right, where it meets a vertical line representing the sewer main. A small circle labeled 'Pipe Cleanout' is located on the service line, close to the structure. An arrow points to this cleanout with the label 'Point of Demarcation'. Labels 'Sewer Main' and 'Service Line' are also present with arrows pointing to their respective lines.</p>
<p>Point of demarcation is a point on the service line five feet from the structure. <i>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.</i></p>	<p>No flow meter or cleanout exists on the service line entering the structure.</p>	 <p>The sketch shows a rectangular structure on the left. A horizontal line representing the service line extends from the structure to the right, where it meets a vertical line representing the sewer main. A vertical dashed line is drawn to the right of the structure, with an arrow pointing to it from the label '5 Foot Boundary'. An arrow points to this dashed line with the label 'Point of Demarcation'. Labels 'Sewer Main' and 'Service Line' are also present with arrows pointing to their respective lines.</p>
<p>Point of demarcation is on the pipeline at the Wastewater treatment plant boundary</p>	<p>Golf course irrigation pipeline that conveys treated effluent from Wastewater Plant</p>	 <p>The sketch shows a rectangular area representing the 'Plant' boundary, enclosed by a dashed line. A horizontal line representing the 'Golf Irrigation Pipe' enters the plant boundary from the right. An arrow points to the entry point of the pipe with the label 'Point of Demarcation'. Labels 'Plant' and 'Plant Boundary' are also present with arrows pointing to their respective elements.</p>

**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.	

**J02.10.1 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.

**J02.11 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			
<i>“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.”</i>			