

# Attachment J01

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## **J01 West Point Potable Water Utility System**

### **J01.1 West Point Area Overview**

The U. S. Army Garrison, West Point, New York, (West Point) is located on approximately 16,000 acres on the West Bank of the Hudson River, roughly 50 miles north of New York City and 15 miles south of Newburgh, NY. Since 1802 when President Jefferson signed legislation establishing the U.S. Military Academy (USMA) at West Point, USMA has produced graduates who have contributed to our country in peace and war.

The purpose of USMA is “to provide the Nation with leaders of character who serve the common defense.” The Mission of USMA is “To educate, train, and inspire the Corps of Cadets so that each graduate is a commissioned leader of character committed to the values of Duty, Honor, Country; professional growth throughout a career as an officer in the United States Army; and a lifetime of selfless service to the nation.”

Today, the Corps of Cadets includes over 4,300 men and women from every state in the Union as well as several foreign countries and U.S. Territories. In addition to the Corp of Cadets, the West Point community also includes approximately 8,000 officers, enlisted and civilian staff and faculty members (and their families) whose primary duty is the education and training of the cadets.

West Point was officially recognized for its historical significance and contributions to the country in 1960 when this rocky highland was declared a National Historical Landmark. It is estimated that almost 3 million tourists from around the world visit West Point every year to walk the grounds and, observe the cadets and enjoy the day along the banks of the Hudson River.

### **J01.2 Potable Water Utility System Description**

West Point’s Potable Water Utility System includes several subsystems, which serve the following areas: the Main Post area, the Camp Buckner / Camp Natural Bridge areas and several other subsystems typically consisting of a ground water well and a small amount of water line. The small subsystems located at the Round Pond Recreation area, Constitution Island, Lake Frederick, Bull Pond and Morgan Farms are not included in this privatization action. In addition to the small subsystems noted above, there are also a number of small systems located at various ranges in which potable water is trucked-in and as a result are not included in this action.

The raw water supply and the associated watershed are located on West Point property. Although the lakes, reservoirs and the watershed are considered part of the water system, the ownership of these facilities will not be transferred under the potential privatization. However, the operation and maintenance of these facilities will be provided under the privatization contract. ([Section C.22, Operation of the Watershed System](#) and Attachment J-34.) The lakes, reservoirs and raw water intakes are summarized in **Table 1**.

**TABLE 1 - RAW WATER RESERVOIRS**

		Capacity	Date		
	<u>Raw Water Source</u>	<u>MG</u>	<u>Constr.</u>	<u>Provides RW to:</u>	<u>Spills Over to Feed:</u>
1	Popolopen Lake	500	1943*	Camp Buckner WTP	Mine Lake
2	Mine Lake	64	1940*	Stillwell Lake	Stillwell Lake
3	Stillwell Lake	720	1945	Long Pond	Popolopen Brook
4	Long Pond Popolopen Brook	250	natural	Stony Lonesome WTP	Popolopen Brook
5	Intake	0.6	1932	Lusk Reservoir	Hudson River
6	Queensboro Intake	0.3	1942	Lusk Reservoir	Hudson River
7	Lusk Reservoir	78	1900	Lusk WTP	Hudson River

\* Acquired

The usable volume of water is approximately 600 million gallons (MG). The safe yield of the entire system under peak conditions is 5.2 million gallons per day (MGD). The average daily water use is 2.3 MGD, but may be over 5 MGD during summer months. A Safe Yield analysis is currently being updated.

**Main Post Subsystem**

The Main Post subsystem includes 5 raw water intake structures, 2 raw water pump stations, 11.2 miles of 20-inch raw water line, two surface water treatment plants (WTP), 7 booster pump stations (BPS) and pressure reducing stations (PRS), 13 potable water storage tanks and approximately 48.5 miles of potable water distribution lines ranging in size from less than 2-inch to 24-inch.

**Table 2** summarizes the raw water intake and pump station information.

**TABLE 2 - MAIN POST AREA - RAW WATER INTAKES & PUMP STATIONS**

<u>Fac. No.</u>	<u>Location/Description</u>	<u>Type</u>	<u>Date Constr.</u>	<u>No. of Pumps</u>	<u>Capacity (gph)</u>	<u>Motor Type</u>	
1	--	Queensboro Intake	Gravity	1942	NA	NA	
2	--	Popolopen Brook Intake	Gravity	1932	NA	NA	
3	728	Lusk Intake	Gravity	1932	NA	NA	
4	1610	Stillwell Intake/Pump Station	BPS	1970	2 – 40 HP 1 - Aux.	75,000 150,000	Electric Gasoline
5	1310	Long Pond Intake/Pump Station	BPS	1970	2 1 - Aux.	75,000 150,000	Electric Gasoline

**Table 3** summarizes the raw water lines.

**TABLE 3 - MAIN POST AREA - RAW WATER LINES**

	<u>Location/Description</u>		<u>Date</u>	<u>From:</u>	<u>To:</u>
1	20 inch Raw Water Line Relined in 1985	6.3 miles	1905	Queensboro & Popolopen Brook Intakes	Lusk Reservoir
2	20 inch Raw Water Line	1.6 miles	1969	Stillwell Pump Station	Long Pond Pump Station
3	20 inch Raw Water Line	<u>3.3 miles</u>	1969	Long Pond Pump Station	Stony Lonesome WTP
	<b>Total</b>	11.2 miles			

The **Lusk WTP (Facility No. 726)** is located in the Main Post Area just northeast of the Lusk Reservoir. Initially constructed in 1932, the WTP was designed to treat 4.0 MGD. However, due to the chlorine contact time requirement, the effective capacity of the WTP is limited to 2.8 MGD. Since its initial construction, a basement was added to the plant in 1937; a 2,050 sq. ft. addition for accelerator, a 3,880 sq. ft. soda ash storage facility, two filters units and a locker room were added in 1947; electric meter reading equipment was installed in 1957-58; and various conversions and modifications have been made to the pumping, chemical feed systems and filter media.

The only source of raw water for the Lusk WTP is the Lusk Reservoir (78 MG), which also receives water from the Queensboro and the Popolopen intakes on the Popolopen Brook, via a 6.3-mile 20-inch gravity line. The Lusk WTP is a semi-automated WTP, which utilizes pre-chlorination, flocculation, sedimentation, rapid sand filtration and post-chlorination processes. The WTP utilizes chlorine gas chlorination, polyaluminum chloride, sodium carbonate and fluoride in the treatment process. The WTP has an auxiliary generator in the event that the Plant loses its primary power source.

The Lusk WTP supplies potable water to West Point's Water District Nos. 1, 2 and 3.

Chief Operator requires a Grade IA, NY State Water Treatment Plant Operator Certificate.  
Assistant Operator requires a Grade IIA, NY State Water Treatment Plant Operator Certificate.

The **Stony Lonesome WTP (Facility No. 1210)** is located in the Main Post area due west of the Lusk WTP. Initially constructed in 1970, the WTP was designed to treat 2.0 MGD. Since its initial construction, plant modifications were made in 1975 and a horizontal paddle flocculator was installed in 1985. Upgrades to the plant automation equipment are scheduled for 2006.

The source of raw water for the Stony Lonesome WTP is Stillwell Lake (720 MG) and Long Pond (250 MG). The raw water is pumped from Stillwell Lake via a 1.6-mile 20-inch line to the Long Pond Pumping Station. The raw water is then pumped from the Long Pond Pumping Station to the WTP via a 3.3-mile 20-inch line. The Stony Lonesome WTP is fully automated with the exception of the sand filter backwash function. The WTP utilizes pre-chlorination, flocculation, sedimentation, rapid sand filtration and post-chlorination processes. The WTP utilizes chlorine gas chlorination, polyaluminum chloride, sodium carbonate and fluoride in the treatment process. The WTP has an auxiliary generator in the event that the plant loses its primary power source.

The Stony Lonesome WTP supplies potable water to West Point's Water District Nos. 4 and 5. Flow to District No. 4 from the Stony Lonesome WTP is limited to 1.19 MGD.

Chief Operator requires a Grade IIA, NY State Water Treatment Plant Operator Certificate.  
Assistant Operator requires a Grade IIA, NY State Water Treatment Plant Operator Certificate.

Water can be pumped from District No. 3 to District No. 5 by two 180 gallons per minute (gpm) pumps pushing 470 feet of head. An auxiliary pump is also located at this pump station. Conversely, 1,080 gpm of potable water can be supplied from District No. 5 to District No. 3 through a pressure-reducing valve. Water can also be pumped to Water District Nos. 1, 2 and 4 via additional pumping stations.

**Table 4** summarizes the BPS and PRS information for the Main Post area.

**TABLE 4 - MAIN POST AREA - BOOSTER PUMP & PRESSURE REDUCING STATIONS**

<u>Fac. No.</u>	<u>Location</u>	<u>Type</u>	<u>Date Constr.</u>	<u>No. of Pumps/PRV</u>	<u>Capacity (gpm)</u>	<u>Water Districts</u>	
						<u>From</u>	<u>To</u>
1 672	Fenton Place	BPS	1945	1	1,080	3 <sup>rd</sup>	1 <sup>st</sup>
2 676	Ski Slope	PRS	1952	1	1,080	Clear Well At Stony Plant	4 <sup>th</sup>
3 910	South of E lot in vicinity of Tank 678	BPS	1942	2	180	3 <sup>rd</sup>	5 <sup>th</sup>
	South of E lot in vicinity of Tank 678	PRS	1942	1	1,080	5 <sup>th</sup>	3 <sup>rd</sup>
4 726	Lusk WTP	Low Lift	1932 Pumps Replaced 2001	2 sets of 2	800	Clear Well	1 <sup>st</sup>
	Lusk WTP	High Lift	1932 Pumps Replaced 2001	2 sets of 2	300	Clear Well	3 <sup>rd</sup>
5 731	Merritt Road	BPS	Pumps Replaced 1994	2 sets of 2	600	1 <sup>st</sup>	2 <sup>nd</sup>
	Merritt Road	BPS	Pumps Replaced 1994	2 sets of 2	300	1 <sup>st</sup>	4 <sup>th</sup>
	Merritt Road	PRS		1	1,080	4 <sup>th</sup>	2 <sup>nd</sup>
6 1210	Stony Lonesome WTP	High Lift	1970	2	500	Clear Well	5 <sup>th</sup>

Table 5 summarizes the potable water storage tank information for the Main Post Area.

**TABLE 5 - MAIN POST AREA - POTABLE WATER STORAGE TANKS**

<u>Fac. No.</u>	<u>Location</u>	<u>Type</u>	<u>Material</u>	<u>Date Constr.</u>	<u>Capacity Gallons</u>	<u>Dimensions</u>		<u>Water Level</u>
						<u>Dia.-Ft.</u>	<u>Depth-Ft.</u>	
1 640	Fenton Place Old Water Treatment Plant converted to storage	UG	Concrete	1898	2,300,000			1 <sup>st</sup>
2 "	Fenton Place	UG	Concrete	1898		88	13	1 <sup>st</sup>
3 "	Fenton Place	UG	Concrete	1898		2 @ 95.5' x 62.8'		1 <sup>st</sup>
4 "	Fenton Place	UG	Concrete	1898		2 @ 115.5' x 53.4'		1 <sup>st</sup>
5 676	Ski Slope	Ground	Concrete	1954	500,000	62	23	4 <sup>th</sup>
6 678	South of E lot	Ground	Concrete	1942	500,000	58	26	3 <sup>rd</sup>
7 712	Fort Putnam	Ground	Concrete	1932	300,000	62	14	3 <sup>rd</sup>
8 726	Lusk WTP	Clear Well	Concrete	1932	250,000	96	15	1 <sup>st</sup> - 3 <sup>rd</sup>
9 730	Cadet Chapel	Ground	Concrete	1943	1,000,000	98	17.58	1 <sup>st</sup>
10 773	Delafield Road	Ground	Steel	1936	500,000	56	28	Interjacent
11 775	Behind Hospital	Ground	Steel	1936	500,000	56	28	2 <sup>nd</sup>
12 1209	Ski Slope	UG	Concrete	1969	250,000	52	17	5 <sup>th</sup>
13 1210	Stony Lonesome WTP	Clear Well	Concrete	1968	<u>500,000</u>	52' x 85'	18	4 <sup>th</sup> Gravity 5 <sup>th</sup> Pumped
<b>Main Post PW Storage Tanks</b>					<b>6,600,000</b>			

The potable distribution mains include approximately 48.5 miles of pipe ranging in size from less than 2-inch to 24-inch diameter. Materials used for mains are cast iron, steel, galvanized steel, ductile iron, plastic and transite. **Table 6** summarizes the potable water distribution mains for the Main Post Area.

**TABLE 6 - MAIN POST AREA – WATER DISTRIBUTION MAINS**

Item	Description	Size	Material	Quantity	Unit	Approx. Year of Constr.
Distribution mains & services	Pipe	<2 Inches	Unknown	13,563	Linear Feet	1972
Distribution mains & services	Pipe	2 Inches	Unknown	8,904	Linear Feet	1950
Distribution mains & services	Pipe	2-1/2 Inches	Unknown	1,087	Linear Feet	1916
Distribution mains & services	Pipe	3 Inches	Unknown	4,817	Linear Feet	1932
Distribution mains & services	Pipe	4 Inches	Unknown	13,074	Linear Feet	1916
Distribution mains & services	Pipe	6 Inches	Unknown	67,732	Linear Feet	1956
Distribution mains & services	Pipe	8 Inches	Unknown	47,594	Linear Feet	1955
Distribution mains & services	Pipe	10 Inches	Unknown	7,106	Linear Feet	1956
Distribution mains & services	Pipe	12 Inches	Unknown	30,910	Linear Feet	1942
Distribution mains & services	Pipe	16 Inches	Unknown	1,202	Linear Feet	1925
Distribution mains & services	Pipe	20 Inches	Unknown	547	Linear Feet	1928
Distribution mains & services	Pipe	24 Inches	Unknown	376	Linear Feet	1936
Distribution mains & services	Pipe	Unknown	Unknown	<u>59,094</u>	Linear Feet	1953
Total PW Distribution Lines				256,006	Linear Feet	

The water distribution system is over 100 years old in parts and its condition varies. There needs to be a systematic approach to the exercising and repair of valves. A leak detection program was instituted in 1999. As water requirement increase there will be increase pressure to conserve water and to look at opportunities to use raw water for irrigation so as to manage treated water capacity. Reviewing of water reuse opportunities is also being considered. There is also a need to monitor water pressure in multi story Academic and Cadet Housing facilities and to incorporate modeling of the system to improve efficiencies, reliability and fire protection.

All Distribution System Operators require Grade D, NY State Water Treatment Plant Distribution System Operator Certificate.

**Camp Buckner & Camp Natural Bridge Subsystem**

The Camp Buckner (CB) and Camp Natural Bridge (CNB) subsystem includes a raw water intake structure, a surface water treatment plant, a booster pump station, 2 potable water storage tanks and approximately 2.9 miles of potable water distribution lines ranging in size from 2-inch to 10-inch diameter.

The **CB WTP** is located on Popolopen Lake, within the Camp Buckner Area. Initially constructed in 1994, the WTP was designed to treat 0.5 MGD. The primary source of raw water for the CB WTP is Popolopen Lake (500 MG). The WTP plant is operated seasonally, from April through October, and is winterized and reactivated annually. The CB WTP is manually operated. The WTP utilizes pre-chlorination, flocculation, sedimentation, rapid sand filtration and post-chlorination processes. The WTP utilizes chlorine, sodium hypochlorite chlorination,

polyaluminum chloride, and sodium carbonate in the treatment process. The WTP has an auxiliary generator in the event that the plant loses its primary power source.

The CB WTP supplies potable water to the CB and CNB areas.

Chief Operator requires a Grade IA, NY State Water Treatment Plant Operator Certificate. Assistant Operator requires a Grade IIA, NY State Water Treatment Plant Operator Certificate.

**Table 7** summarizes the BPS information for the CB Area.

**TABLE 7 - CB AREA - BOOSTER PUMP STATIONS**

	<u>Fac. No.</u>	<u>Location</u>	<u>Type</u>	<u>Date</u>		<u>No. of Pumps/PRV</u>	<u>Capacity (gpm)</u>	<u>Water Districts</u>	
				<u>Constr.</u>	<u>Year</u>			<u>From</u>	<u>To</u>
1	1724 CB WTP	CB WTP	BPS	1995		2	240 EA	WTP	Storage Tanks
2	1719	CB Raw Water	BPS	1995		2 - 5HP	300 EA	Popolopen	WTP

**Table 8** summarizes the potable water storage tank information for the CB Area.

**TABLE 8 - CB AREA – POTABLE WATER STORAGE TANKS**

	<u>Fac. No.</u>	<u>Location</u>	<u>Type</u>	<u>Material</u>	<u>Date</u>		<u>Capacity Gallons</u>	<u>Dimensions</u>		<u>Water Level</u>
					<u>Constr.</u>	<u>Year</u>		<u>Dia.-Ft</u>	<u>Depth-Ft</u>	
1	1531	CB Green Tank	Ground	Steel	1942		175,000	—	35	33
2	1596	CB Silver Tank	Ground	Steel	1973		<u>200,000</u>	—	32	30
<b>CB PW Storage Tanks</b>							375,000			

The CB and CNB potable water distribution system includes approximately 2.9 miles of distribution mains, of which roughly 300 feet of the pipe is transite. **Table 9** summarizes the distribution mains serving CB and CNB Areas.

**TABLE 9 - CB AND CNB AREAS - WATER DISTRIBUTION MAINS**

<u>Item</u>	<u>Description</u>	<u>Size</u>	<u>Material</u>	<u>Quantity</u>	<u>Unit</u>	<u>Approx. Year of Constr.</u>
Distribution mains & services	Pipe	2 Inches	Unknown	1,160	Linear Feet	1964
Distribution mains & services	Pipe	4 Inches	Unknown	4,340	Linear Feet	1964
Distribution mains & services	Pipe	6 Inches	Unknown	800	Linear Feet	1964
Distribution mains & services	Pipe	8 Inches	Unknown	8,900	Linear Feet	1964
Distribution mains & services	Pipe	10 Inches	Unknown	<u>280</u>	Linear Feet	1964
Total PW Distribution Lines				15,480	Linear Feet	

**Other Small Subsystems**

There are several small subsystems consisting of a ground water well and a small amount of water distribution line. These subsystems are located at the Round Pond Recreation area, Constitution Island, Lake Frederick, Bull Pond and Morgan Farms are not included in this privatization action. In addition to the small subsystems noted above, there are also a number of

small systems located at various ranges in which potable water is trucked-in and as a result are not included in this action.

### J01.2.1 Inventory

**Table 10** provides a general listing of the major potable water distribution system fixed assets for the West Point water system included in the purchase. The system will be sold 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 10 - FIXED INVENTORY**

Item	Description	Size	Material	Quantity	Unit	Approx. Year of Constr.
<u>Raw Water Intakes / Pump Stations</u>						
Popolopen Brook Intake	Structure	0.6 MGD	Concrete	1	Each	1932
Queensboro Intake	Structure	0.3 MGD	Concrete	1	Each	1942
Lusk Intake (Fac. No. 728)	Structure	--	Concrete	1	Each	1932
Stillwell – Intake	Structure	--	Concrete	1	Each	1970
- Pump Station (Fac. No. 1610)	Pump (electric)	40 HP, 75,000 gph	--	2	Each	1970
	Pump (gasoline)	Aux., 150,000 gph	--	1	Each	1970
Long Pond – Intake	Structure	--	Concrete	1	Each	1970
- Pump Station (Fac. No. 1310)	Pump (electric)	40 HP, 75,000 gph	--	2	Each	1970
	Pump (gasoline)	Aux., 150,000 gph	--	1	Each	1970
<u>Raw Water Line</u>						
Queensboro and Popolopen Brook Intakes to Lusk Reservoir	Pipe	20-Inches	Cast Iron	33,264	Linear Feet	1905 Relined 1985
Stillwell to Long Pond	Pipe	20-Inches	Ductile Iron	8,448	Linear Feet	1969
Long Pond to Stony Lonesome	Pipe	20-Inches	Ductile Iron	<u>17,424</u>	Linear Feet	1969
Total Raw Water Lines	Pipe			59,136	Linear Feet	
Lusk WTP (Fac. No. 726)	Surface WTP	2.8 MGD	--	1	Each	1932
Stony Lonesome WTP (Fac. No. 1210)	Surface WTP	2.0 MGD	--	1	Each	1970
Camp Buckner WTP (Fac. No. 1724)	Surface WTP	0.5 MGD	--	1	Each	1970
<u>Booster Pump / Pressure Reducing Stations</u>						
Facility No. 672 - PRS	Structure	--	--	1	Each	1945

	PRS Valve	1,080 gpm	--	1	Each	1945
Facility No. 676 - PRS	Structure	--	--	1	Each	1952
	PRS Valve	1,080 gpm	--	1	Each	1952
<u>Facility No. 910</u>	Structure	--	--	1	Each	1942
BPS	Pump (electric)	180 gpm	--	2	Each	1942
PRS	PRS Valve	1,080 gpm	--	1	Each	1942
<u>Facility No. 726 - Lusk WTP</u>	Structure	--	--	1	Each	1932
Low Lift	Pump (electric)	800 gpm	--	4	Each	2001
High Lift	Pump (electric)	300 gpm	--	4	Each	2001
<u>Facility No. 731</u>	Structure	--	--	1	Each	1975
BPS	Pump (electric)	600 gpm	--	4	Each	1994
BPS	Pump (electric)	300 gpm	--	4	Each	1994
PRS	PRS Valve	1,080 gpm	--	1	Each	1994
<u>Facility No. 1210</u>	Structure	--	--	1	Each	1970
High Lift	Pump (electric)	500 gpm	--	2	Each	1970
Facility No. 1719 - BPS	Pump (electric)	300 gpm	--	2	Each	1995
Facility No. 1724 - BPS	Pump (electric)	5 HP, 240 gpm	--	2	Each	1995
<u>Potable Water Storage Tanks</u>						
Facility No. 640 ( also includes Fac. Nos. 636 & 638)	UG	--	Concrete	2,300,000	Gallon	1898
Facility No. 676	Ground	--	Concrete	500,000	Gallon	1954
Facility No. 678	Ground	--	Concrete	500,000	Gallon	1942
Facility No. 712	Ground	--	Concrete	300,000	Gallon	1932
Facility No. 726	Clear Well	--	Concrete	250,000	Gallon	1932
Facility No. 730	Ground	--	Concrete	1,000,000	Gallon	1943
Facility No. 773	Ground	--	Steel	500,000	Gallon	1936
Facility No. 775	Ground	--	Steel	500,000	Gallon	1936
Facility No. 1209	UG	--	Concrete	250,000	Gallon	1969
Facility No. 1210	Clear Well	--	Concrete	500,000	Gallon	1968
Facility No. 1531	Ground	--	Steel	175,000	Gallon	1942
Facility No. 1596	Ground	--	Steel	<u>200,000</u>	Gallon	1973
Total PW Storage Tanks				6,975,000	Gallon	
<u>Potable Water Distribution Line</u>						
Distribution mains & services	Pipe	<2 Inches	Unknown	13,563	Linear Feet	1972
Distribution mains & services	Pipe	2 Inches	Unknown	10,064	Linear Feet	1952
Distribution mains & services	Pipe	2-1/2 Inches	Unknown	1,087	Linear Feet	1916
Distribution mains & services	Pipe	3 Inches	Unknown	4,817	Linear Feet	1932
Distribution mains & services	Pipe	4 Inches	Unknown	17,414	Linear Feet	1928

Distribution mains & services	Pipe	6 Inches	Unknown	68,532	Linear Feet	1956
Distribution mains & services	Pipe	8 Inches	Unknown	56,494	Linear Feet	1956
Distribution mains & services	Pipe	10 Inches	Unknown	7,386	Linear Feet	1956
Distribution mains & services	Pipe	12 Inches	Unknown	30,910	Linear Feet	1942
Distribution mains & services	Pipe	16 Inches	Unknown	1,202	Linear Feet	1925
Distribution mains & services	Pipe	20 Inches	Unknown	547	Linear Feet	1928
Distribution mains & services	Pipe	24 Inches	Unknown	376	Linear Feet	1936
Distribution mains & services	Pipe	Unknown	Unknown	<u>59,094</u>	Linear Feet	1953
Total PW Distribution Lines				271,486	Linear Feet	
Manholes	--	--	--	68	Each	1926
Bldg. Services	--	--	--	891	Each	1934
Main Valves	--	--	--	57	Each	1961
Post Indic. Valves includes new construction	--	--	--	17	Each	1972
Fire Hydrants estimate	--	--	--	300	Each	1955

### J01.2.2 Potable Water Utility System Non-Fixed Equipment and Specialized Tools Inventory

**Table 11** lists other ancillary equipment (spare parts) and **Table 12** lists specialized vehicles and tools included in the purchase. With regard to the water treatment plant, West Point plans to include the 310 items listed in its hand receipt records with a total acquisition cost in excess of \$160,000. A list of the items included in the hand receipts will be available in the Technical Library. **Table 12** lists the only hand receipt items with acquisition costs in excess of \$2,000.

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 Offeror 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 11 - SPARE PARTS**

Qty	Item	Make/Model	Description	Remarks
None				

**TABLE 12 - SPECIALIZED EQUIPMENT AND VEHICLES**

<b>Description</b>	<b>Quantity</b>	<b>Location</b>	<b>Maker</b>
Valve operator, portable electric drive	1	Water Treatment Plant	--
Portable radio	3	Water Treatment Plant	Motorola
Analyzer, SLFA 800	1	Water Treatment Plant	--
	2	Water Treatment Plant	Barnstead
Distiller, F12 streen double			
Autoclave	1	Water Treatment Plant	--
Pallet jack, electric, motorized	2	Water Treatment Plant	--
Pallet jack, hand truck	1	Water Treatment Plant	Multi-ton
Pallet truck, electric, motorized	1	Water Treatment Plant	--
Analytical balance, digital read-out	1	Water Treatment Plant	--
Analytical balance, sensitivity rating 0.1 milligram	1	Water Treatment Plant	--
Water test kits	2	Water Treatment Plant	--
Analytical balance	1	Water Treatment Plant	Mettler
Magnetic detector / locator	3	Water Treatment Plant	--
Meter, PH / ISE, bench top	1	Water Treatment Plant	--
Tripod, winch retrieval system	1	Water Treatment Plant	--

**J01.2.3 Potable Water Utility System Manuals, Drawings, and Records Inventory**

Table 13 lists the manuals, drawings, and records that will be transferred with the system.

**TABLE 13 - MANUALS, DRAWINGS, AND RECORDS**

<b>Qty</b>	<b>Item</b>	<b>Description</b>	<b>Remarks</b>
	West Point will provide copies of all manuals, drawings and records to the successful bidder.		

**J01.2.4 Known System Deficiencies**

Table 14 details the planned upgrade projects associated with the known deficiencies in the water utility systems. However, it is the responsibility of the Offeror to perform due diligence and make their own determination regarding known and unknown deficiencies within the systems.

**TABLE 14 - KNOWN DEFICIENCIES**

<b>Project No.</b>	<b>Description</b>	<b>Location</b>
--	Install New Water Treatment Monitoring Equipment	Stony-Lonesome WTP
--	Install New Water Treatment Monitoring Equipment	Lusk WTP
--	Install New Flow Monitoring Equipment	Distribution Systems
--	Prepare Water Distribution System Study	Main Post Distribution System

### J01.2.5 Technical Library

Table 15 provides a list of the reports and documents contained in the Technical Library, which will be available for review during the site visit or by scheduling an appointment.

**TABLE 15 - DOCUMENTS PROVIDED IN THE TECHNICAL LIBRARY**

	The following documents will be made available according to current security procedures.
1.	USMA Regulation 11-28, Emergency Water Supply Plan (EWSP)
2.	Utility Maps - AutoCAD Files
3.	Utility Maps - Hard Copies
4.	Potable Water System Inventory
5.	Environmental Compliance Assessment System (ECAS) Report
6.	Installation Status Report and Environmental Sites Information
7.	Historical System Replacement Contracts
8.	Operations and Maintenance Guidance Documents
9.	Standard Operating Procedures
10.	Preventive Maintenance Procedures
11.	Draft Environmental Baseline Study (EBS) and Environmental Assessment (EA)
12.	Regulatory Compliance Reports
13.	Material and Chemical Usage Information
14.	Service Contract Wage Rates
15.	Monthly Operating Reports filed with the NY State Department of Health
16.	Logbook
17.	Water Pumpage Data Reports
18.	Monitoring Requirements
19.	Monthly Disinfection Summary
20.	Monthly Microbiological Report
21.	Sampling Reports
22.	Public Notifications
23.	Repair Records
24.	Cross Connection Backflow Prevention Program Records and Logs
25.	Water Main Flushing Records
26.	Hydrant Flow Tests
27.	Hydraulic Modeling
28.	Installation Master Plan

### J01.3 Current Service Arrangement

West Point owns and operates the source water collection and storage system. A watershed consisting of approximately 19 square miles provides surface water to the three treatment plants through a series of reservoirs and distribution facilities. There are ongoing discussions with the surrounding municipalities concerning providing water. Safe Yield analyses are being updated. Past Safe Yield analyses have indicated a safe yield in the 3 MGD range, a summer average yield

in the 4 MGD range and a peak yield in 5 MGD range. These numbers are currently being reviewed.

There might be opportunities for the offer to have access to additional water supplies so as to reduce the cost to West Point. These opportunities will be negotiated with West Point and will require justification and guarantees that West Point water requirements will take priority over any additional water use from other entities.

**Table 16** summarizes the annual volume of raw water treated and/or used by West Point over the last three calendar years.

**TABLE 16 - ANNUAL VOLUMES OF RAW WATER TREATED OR USED**

	<b>CY2001</b>	<b>CY2002</b>	<b>CY2003</b>	<b>3-Yr Avg.</b>
	<b>MG</b>	<b>MG</b>	<b>MG</b>	<b>MG</b>
Lusk WTP	426.916	549.762	597.837	524.838
Stony Lonesome WTP	288.862	264.966	262.805	272.211
Camp Buckner WTP	17.143	19.315	17.794	18.084
Round Pond Well	0.078	0.192	0.324	0.198
Raw Water - Golf Course	0.000	0.000	0.000	10*
Total	732.999	834.235	878.760	825.331

**Table 17** summarizes the peak day volumes of raw water treated and/or used by West Point over the last three calendar years.

\* We have started metering this year. Previously they averaged 4 to 7 hours a day at 40,000 gallons per hour or best estimate, 10 MG per year.

**TABLE 17 - PEAK DAY VOLUMES OF RAW WATER TREATED OR USED**

	<b>CY2001</b>	<b>CY2002</b>	<b>CY2003</b>	<b>3-Yr Avg.</b>
<b>Peak Day Volumes</b>	<b>MGD</b>	<b>MGD</b>	<b>MGD</b>	<b>MGD</b>
Lusk WTP	2.433	2.726	2.693	2.617
Stony Lonesome WTP	2.439	2.151	1.801	2.130
Camp Buckner WTP	0.227	0.307	0.241	0.258
Round Pond Well	0.002	0.007	0.009	0.006
Raw Water - Golf Course	0.000	0.000	0.000	.28*
Total	5.101	5.191	4.744	5.292

\* Peak use is 7 hours at 40,000 gallons/hr

### **J01.4 Secondary Metering**

West Point may require secondary meters for internal billing of reimbursable customers, utility usage management and water conservation monitoring. The Offeror shall assume full ownership and responsibility for existing and future secondary meters IAW Paragraph C.3, Future Secondary Meters.

### J01.4.1 Existing Secondary Meters

Secondary meters will be transferred to the Offeror. The Government shall provide meter readings once a month for all secondary meters.

**TABLE 18 - EXISTING OR FUTURE SECONDARY METERS**

<b>Meter Location</b>	<b>Meter Description</b>
New PX, (Bldg. No. 1204)	1 Meter, WF Badger, Serial No. 19915696
New PX, (Bldg. No. 1204)	1 Meter, WR Kent, Serial No. 80042635
Herbert Hall AOG, (Bldg. No. 698)	1 Meter, Hersey, Serial No. 9406139
Class VI Store, (Bldg. No. 1202)	1 Meter, Read-O-Matic, Serial No. 34210-067
Commissary (Bldg. No. 1200)	1 Meter, Hersey, Serial No. 7126003
Keller Army Hospital (Bldg. No. 900)	1 Meter, --, --
Post Laundry (Bldg. No. 845)	1 Meter, Neptune, Serial No. 26244130
Post Laundry (Bldg. No. 845)	1 Meter, --, Serial No. 9156955
Post Laundry (Bldg. No. 845)	1 Meter, --, --
Dependent Middle School, (Bldg. No. 705A)	1 Meter, Badger, Serial No. 15434245
Dependent Middle School, (Bldg. No. 705)	1 Meter, Hersey, Serial No. 9401008
Post Exchange (Bldg. No. 683)	1 Meter, --, --
Computer Center (Bldg. No. 2101)	1 Meter, --, Serial No. 7193197
Hospitality House (Bldg. No. 2104)	1 Meter, --, Serial No. 32274332
Visitor Center Gift Shop (Bldg. No. 2107)	1 Meter, Rockwell, Serial No. 37996159
Archives (Bldg. No. 2107)	1 Meter, --, Serial No. 7211792
Museum (Bldg. No. 2110)	1 Meter, --, Serial No. 9401007
BOQ (Bldg. No. 2113)	1 Meter, Neptune, Serial No. 70055829
Old PX (Bldg. No. 683)	1 Meter, Hersey, Serial No. 9116
Morgan Farms	1 Meter, --, --
Stem Law Enforcement Center (Bldg. No. 616)	1 Meter, Hersey, Serial No. 9402942
WP Club (Bldg. No. 603)	1 Meter, Hersey, Serial No. 9109896
Round Pound DCFA	1 Meter, --, --
Ski Slope (Bldg. No. 716)	1 Meter, --, --
Hotel Thayer (Bldg. No. 674)	1 Meter, Badger Meter, Serial No. 99172853
Golf Course	1 Meter, --, --
Power Plant (Bldg. No. 604)	2 Meters, --, --

Family Housing	?? Meters
Army Athletic Association (Bldg. No. 1015)	1 Meter, --, --
Army Athletic Association (Bldg. No. 24)	1 Meter, --, --
Army Athletic Association (Bldg. No. 1012)	1 Meter, --, --
Army Athletic Association (Bldg. No. 1050)	1 Meter, --, --
Army Athletic Association (Bldg. No. 1002)	6 Meters, --, --
Army Athletic Association (Bldg. No. 1008)	2 Meters, --, --
Army Athletic Association (Bldg. No. 1010)	2 Meters, --, --
Army Athletic Association (Bldg. No. 1000)	1 Meter, --, --
Army Athletic Association (Bldg. No. 1000)	1 Meter, --, --

### J01.4.2 Required New Secondary Meters

The Contractor shall install and calibrate new secondary meters as listed in **Table 19**. New secondary meters shall be installed IAW Clause C.13, Operational Transition Plan. After installation, the Contractor shall maintain and read these meters IAW Clause C.3 and J01.5 below. Although at the present time, the Installation does not require any new meters to be installed, if meters are required in the future, the Contractor shall comply with Clause C.3.3. New buildings and fully renovated buildings will require secondary meters.

**TABLE 19 - NEW SECONDARY METERS**

Meter Location	Description
None	

### J01.5 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 presented in a 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.** If required by the Contracting Officer, 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.)

### **J01.6 Energy Savings and Conservation Projects**

IAW Clause C.3, Utility Service Requirement, there are no projects planned or currently executed by West Point for energy conservation purposes.

### **J01.7 Service Area**

IAW Paragraph C.4, Service Area, the service area is defined as all areas within the Main Installation boundaries including the South Post area, Camp Buckner and Camp Natural Bridge areas, Golf Course and Ski Slope.

### **J01.8 Off-Installation Sites**

There are no off-Installation sites associated with this scope.

### **J01.9 Specific Transition Requirements**

IAW Clause C.13, Operational Transition Plan, **Table 20** lists service connections and disconnections required upon transfer.

**TABLE 20 - SERVICE CONNECTIONS AND DISCONNECTIONS**

Location	Description
None.	

### **J01.10 Specific Service Requirements**

The service requirements for the West Point potable water utility system are as defined in Paragraph C, *Description/Specifications/Work Statement*. The following requirements are specific to the West Point potable water utility system and are in addition to those found in Section C. If there is a conflict between requirements described below and Paragraph C, the requirements listed below take precedence over those found in Paragraph C.

### **J01.10.1 Dig Safe Policy**

The successful bidder will be required to adhere to Dig Safe Policy. As noted in Section J01.2.5, a copy of the Dig Safe Policy is included in the Technical Library. This document will be available for review during the site visit or by scheduling an appointment.

### **J01.10.2 Watershed Maintenance Tasks**

Although the watershed and commodity are maintained by west point the contractor will be required to perform services that affect these resources. As a part of this contract the contractor will be required to perform dam inspections, stream restoration projects, monitoring and control of reservoir capacity, managing algae, monitoring of water quality, maintenance and repair to outlet and inlet structures, source water assessments and watershed protection programs.

This task list includes Sample Tasks that might be requested of the contractor to support West Point's Watershed Protection and Source Water Protection Programs. These tasks might also be used to support the distribution system associated with the reservoirs and watershed.

The operational and legal rights to the water pumped, produced and /or treated is retained by the Government.

The Watershed Maintenance Task List includes the following:

1. Provide a study of Dams for safety compliance to include identification, design and implementation of corrective action. Frequency is in compliance with NY State Dam Safety Program.
2. Provide a study of reservoirs, dams, inlet and outlet structures for operational and maintenance efficiencies - to include identification, design and implementation of corrective action.
3. Initial Corrective actions are part of the initial capital plan and are provided at Attachment J.XX
4. Water sampling, laboratory support and environmental engineering and public health consultation.
5. Chemically treat lakes Long, Popolopen, Stillwell, and Mine with copper sulfate to reduce algae bloom. Check with Environmental for historic frequency. Coordination with environmental management division is required.
6. Provide hydrologic habitat modification and stream assessment surveys to support watershed protection programs. Survey might identify management practices to reduce erosion and sediment transport - design and implement such practices. Management practices might include establishing buffers, bank stabilization with vegetation, and redesign of stream corridors.
7. Provide corrective action for source water assessment surveys.
8. Provide watershed protection consultation services.

### J01.10.3 Protection of Trees and Plant Material

The successful bidder will be required to adhere to the Protection of Trees and Plant Material. As noted in Section J01.2.5, a copy of the Protection of Trees and Plant Material is included in the Technical Library. This document will be available for review during the site visit or by scheduling an appointment.

### J01.10.4 NY State Historic Property (SHPO) Agreement

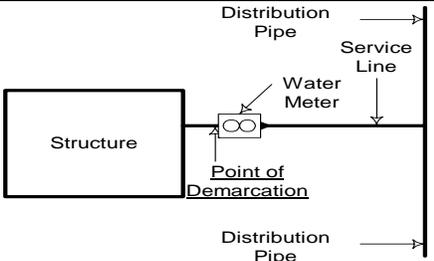
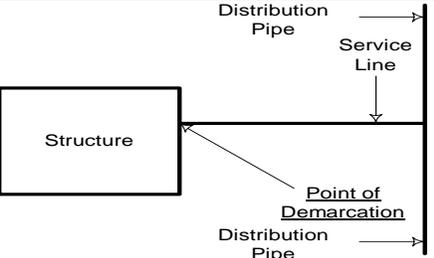
The successful bidder will be required to adhere to the NY State Historic Property Office (SHPO) Agreement. As noted in Section J01.2.5, copies of the NY SHPO Agreement and the Building Facility Inventory and Historic Status are included in the Technical Library. These documents will be available for review during the site visit or by scheduling an appointment.

### J01.11 Potable Water System Points of Demarcation

The West Point potable water utility system consists of all pipes, valves and other items needed to treat and distribute water at USMA. The water utility systems system starts from the raw water intakes and ends at the either the water meter or the point at which the pipe enters the building. This includes all raw water intakes, raw water pump stations, raw water lines, treatment facilities, distribution mains, booster pump and pressure reducing station, storage tanks, meters, valves, fire protection and monitoring equipment.

The point of demarcation is defined as the point on the piping system where ownership changes from the Grantee to the building owner. During the operation and maintenance transition period, concurrence on specific demarcation points will be documented during the joint inventory of facilities.

**TABLE 21 - WATER DISTRIBUTION SYSTEM POINTS OF DEMARCATION**

Point of Demarcation	Applicable Scenario	Sketch
Water meter or backflow device, or valve (closest apparatus to the exterior of the structure).	Water meter, backflow device, or valve is located on the service line entering the structure within 25 feet of the exterior of the structure.	
Point where the service line enters the structure.	No water meter, backflow device, or valve exists on the service line entering the structure.	

#### J01.11.1 Unique Points of Demarcation

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

**TABLE 22 - UNIQUE POINTS OF DEMARCATION**

<b>Building No. / Facility</b>	<b>Point of Demarcation</b>
Ski Slope Snow Making System	The Snow making demarcation is the valve outside the pump house facility
The Plain (Parade Ground) Irrigation System	The demarcation for the irrigation system is the valve downstream from the Back Flow Prevention Device which will be part of the private contractors responsibility
Athletic Field Irrigation Systems	The demarcation for the irrigation system is the valve downstream from the Back Flow Prevention Device which will be part of the private contractors responsibility
Water Fountains	Shut off valve to the Water Fountain