

ATTACHMENT J1

127th Wing Electric Distribution System

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J1 127th Wing Electric Distribution System

J1.1 Selfridge Overview

Selfridge is located on the north side of the metropolitan area of Detroit, Michigan, along the western shore of Lake St. Clair. It is the home of the 127th Wing of the Michigan Air National Guard and the United States Army Garrison-Selfridge. The 127th Wing of the ANG includes the Logistics, Operations, and Support Groups. Aircraft that are assigned to the base include the F-16 “Fighter Falcon,” and C-130 “Hercules” (ANG), KC-135 “Strato-Tanker” (AFRC), and the HH-65 “Dolphin” helicopter of the Coast Guard. The Army portion of Selfridge also provides housing for military personnel. The Air Force Reserve (AFRC) 927th Air Refueling Wing provides the KC-135 mission on base and occupies numerous facilities on ANG property, making it the third largest group on base. The 127th Wing is the host command.

U.S. Army Garrison-Selfridge serves the Tank-automotive and Armaments Command (TACOM) supporting tank construction in the Detroit area. Other army units stationed at Selfridge include an active Army Readiness unit, Army Reserves, and a unit of the Army Guard (Rangers).

Several other branches of the U.S. military also have offices or units on the base. They include the 425th infantry and Army Guard Recruiting, Naval Mobile Construction Battalion, Naval Air Reserve Activity Selfridge, Naval Reserve Center, Immigration and Naturalization Service for U.S. Boarder Patrol, Marine Wing Support Group 47, the Army’s 3rd Brigade, 85th Division, and the 75th Explosive Ordnance Company. The Coast Guard Air Station Detroit also uses Selfridge as a base of operations.

The working population of the base is currently 550 on active duty, 1,720 civilian workers, and 4,200 reservists and guardsmen.

The site upon which Selfridge is located initially was established as an airfield during the early part of the 20th century. It began being used as an airfield for the U.S. Army Air Corps in the 1920s. Over the years, it grew into an active duty base for the Air Force. In 1971 the U.S. granted a license to the State of Michigan for the use of the former Selfridge Air Force Base for National Guard purposes. The base at that time consisted of roughly 3,075 acres of land, including a complete airfield, buildings to support base operations and flight-line activities, 593 on-base housing units and associated quality of life facilities, and miscellaneous other buildings. In 1989, the Air Force transferred 520 acres of the base and the 102-acre Seville Manor housing area to the U.S. Army. The ANG also leases another area at the southeast corner of the base to the U.S. Army.

Currently the 127th Wing side of the base contains 228 buildings, and the U.S. Army side including Seville Manor contains 495 buildings (mostly housing). The total structure surface area over the entire base covers 1,922,310 ANG, 1,513,954 Army for a total of 3,436,255 square feet.

In 1997 Team Selfridge completed the Vision 2000 Base Renovation Plan. The Vision 2000 document identifies the condition of many aspects of the utility infrastructure, pavement,

and buildings on the site. It also lays out a plan for implementing the recommendations for renovations presented in the plan. Based upon the Vision 2000 document, plans for demolition, construction, and new infrastructure projects have begun. Of particular interest to this feasibility analysis report is the expectation that demolition and construction on the base will result in a net reduction in the surface area of structures (127th Wing and U.S. Army). The reduction in building area is expected to result in a proportionate reduction in demand for the four commodities being analyzed by the project.

J1.2 Electric Distribution System Description

J1.2.1 Electric Distribution System Fixed Equipment Inventory

The 127th Wing electric distribution system consists of all appurtenances physically connected to the distribution system from the point in which the distribution system enters the Installation (from the main substation) and Government ownership currently starts to the point of demarcation, defined by the Right of Way. The system may include, but is not limited to, transformers, circuits, protective devices, utility poles, duct banks, switches, street lighting fixtures, and other ancillary fixed equipment. The actual inventory of items sold will be in the bill of sale at the time the system is transferred. The following description and inventory is included to provide the Contractor with a general understanding of the size and configuration of the distribution system. The Government makes no representation that the inventory is accurate. The Contractor shall base its proposal on site inspections, information in the technical library, other pertinent information, and to a lesser degree the following description and inventory. Under no circumstances shall the Contractor be entitled to any service charge adjustments based on the accuracy of the following description and inventory.

Specifically excluded from the electric distribution system privatization are:

- Airfield Lighting
- Main Substation (owned by Detroit Edison)
- Electrical Circuit from Base to Seville Manor
- Ramp Lighting
- Emergency electrical generators
- Security lighting where the light fixture is attached to the building or Parking lot and security lights that are fed directly from buildings
- Water tower beacon lights

J1.2.1.1 Description

Detroit Edison supplies electric power to the 127th Wing through two 40-kV transmission lines that enter the north side of the base and terminate at the main substation, which is owned by Detroit Edison. Power is transformed at the main substation to 4,800 volts and delivered through a master meter to Selfridge's switchgear in building 854 for distribution throughout the base's nine feeders. Several separate electrical feeds from Detroit Edison supply power to areas not located on the main grid at the south end of the base. These locations are metered separately from the rest of the base.

The distribution system ranges from 120/240-volt, single-phase lines for housing units to 208-, 240-, and 480-volt, three-phase lines for industrial/commercial type buildings and

pump stations. The primary distribution system consists of both overhead and underground lines. The overhead lines comprise most of the system, whereas the underground lines lie mainly in the runway and taxiway areas. The secondary system consists of both overhead and underground lines. The system also includes:

- 146 single-phase transformers ranging from 5 to 300 kVA
- 475 utility poles
- 8 switches
- 36 electrical vaults

A detailed inventory of the electrical system is presented in the following section.

Selfridge has an ongoing preventive maintenance program that is making progress toward removing and renewing parts of the electrical system that have reached the ends of their useful lives. Construction dates for the underground and overhead circuits and other system components range from the 1940s to the 1990s. There are roughly 36,400 linear feet of underground lines, most of which were constructed during the 1980s. There are about 64,400 linear feet of overhead lines, most of which were constructed before 1970.

J1.2.1.2 Inventory

Table 1 provides a general listing of the major electric distribution system fixed assets for the 127th Wing electric distribution system included in the sale.

TABLE 1
 Fixed Inventory
 Electric Distribution System 127th Wing

Item	Size	Quantity	Unit	Approximate Year of Construction
Substations				
400 Area Sub #1		1	EA	1998
400 Area Sub #2		1	EA	1998
400 Area Sub #3		1	EA	1998
400 Area Sub #4		1	EA	1998
300 Area Sub #1		1	EA	1995
854 Main		1	EA	1985
Underground Circuits				
	AWG	Length		
3ph, 3w, in conduit	#2	11144	LF	1985
3ph, 3w, in conduit	#1/0	1497	LF	1985
3ph, 3w, in conduit	#250	3941	LF	1985
3ph, 3w, in conduit	#500	3641	LF	1985
3ph, 3w, in conduit	#2/0	3821	LF	1965
3ph, 3w, in conduit	#4/0	2234	LF	1965
3ph, 3w, in conduit	#6	1841	LF	1955
3ph, 3w, in conduit	#2	6079	LF	1945
3ph, 3w, in conduit	#1	2220	LF	1945
Overhead Circuits				
	AWG	Length		
3ph, 4w, 15000V, Conductor	#2 ACSR	1547	LF	1995
3ph, 4w, 15000V, Conductor	#1/0 ACSR	11570	LF	1985
3 ph, 3 w, conductor	#6 CU	300	LF	1965

Item	Size	Quantity	Unit	Approximate Year of Construction
1 ph, 2 w, conductor	#4 CU	316	LF	1965
3 ph, 3 w, conductor	#2/0 ACSR	5895	LF	1965
3 ph, 3 w, conductor	#4/0 ACSR	5885	LF	1965
3ph, 4w, 15000V, Conductor	#8 CU	723	LF	1955
3ph, 4w, 15000V, Conductor	#6 CU	6736	LF	1955
3ph, 4w, 15000V, Conductor	#4 CU	737	LF	1955
3ph, 4w, 15000V, Conductor	#6 CU	3167	LF	1955
3ph, 4w, 15000V, Conductor	#2 CU	14951	LF	1955
3ph, 4w, 15000V, Conductor	#2/0 ACSR	1835	LF	1955
3ph, 4w, 15000V, Conductor	#4/0 ACSR	936	LF	1955
3ph, 4w, 15000V, Conductor	#6 CU	3674	LF	1945
3ph, 4w, 15000V, Conductor	#1/0 CU	816	LF	1945
3ph, 4w, 15000V, Conductor	#350 CU	527	LF	1945
3ph, 4w, 15000V, Conductor	#6 ACSR	3720	LF	1945
3ph, 4w, 15000V, Conductor	#2 ACSR	1083	LF	1945
Transformers	Nom kVA	No.		
1-Phase	5	1	EA	1995
1-Phase	15	1	EA	1995
1-Phase	50	7	EA	1995
1-Phase	75	2	EA	1995
1-Phase	100	3	EA	1995
1-Phase	5	3	EA	1985
1-Phase	10	3	EA	1985
1-Phase	25	5	EA	1985
1-Phase	10	1	EA	1965
1-Phase	25	1	EA	1965
1-Phase	50	3	EA	1965
1-Phase	75	3	EA	1965
1-Phase	100	5	EA	1965
1-Phase	5	3	EA	1955
1-Phase	10	7	EA	1955
1-Phase	15	3	EA	1955
1-Phase	25	7	EA	1955
1-Phase	37.5	27	EA	1955
1-Phase	50	11	EA	1955
1-Phase	75	3	EA	1955
1-Phase	100	6	EA	1955
1-Phase	167	9	EA	1955
1-Phase	250	12	EA	1955
1-Phase	5	2	EA	1945
1-Phase	10	3	EA	1945
1-Phase	15	4	EA	1945
1-Phase	25	6	EA	1945

Item	Size	Quantity	Unit	Approximate Year of Construction
1-Phase	75	5	EA	1945
Utility Poles	Height (ft)	No.		
	50	36	EA	1995
	50	151	EA	1985
	50	67	EA	1965
	50	154	EA	1955
	50	67	EA	1945
Switches	Type	No.		
	2-Way	8	EA	1965
Vaults	Type	No.		
	Utility	6	EA	1995
	Utility	17	EA	1985
	Utility	5	EA	1965
	Utility	7	EA	1955
	Utility	1	EA	1945
Lighting	Type	No.		
	Street	10	EA	1960
	Street	90	EA	1985
	Street	18	EA	1995
	Street	65	EA	2000

Notes: AWG = American Wire Gauge
 ea = each lf = linear feet
 ph – phase V = volts
 w = wire
 Nom kVA = nominal kilovolt-amperes

J1.2.2 Electric Distribution System Non-Fixed Equipment and Specialized Tools

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, vehicles, and tools prior to submitting a bid. Offerors shall make their own determination of the adequacy of all equipment, vehicles, and tools.

TABLE 2
 Spare Parts
 Electric Distribution System 127th Wing

Qty	Item	Make/Model	Description	Remarks
6	Cable and Bolt Cutters	N/A	Varying Sizes	
25	Transformers	N/A	Varying Sizes	
20	Utility Poles	N/A	55 feet	
3	Aluminum Poles	N/A		
	Assorted Hardware		For pole line repair, cross-arms, switches, insulators, fuses, lighting arrestors, clamps, performs, etc.	

TABLE 3
 Specialized Vehicles and Tools
Electric Distribution System 127th Wing

Description	Quantity	Location	Maker
Hot Sticks	12	On Base	
Hot Stick Tester	1	On Base	
Hand lines	2	On Base	
Load Break	1	On Base	
Grounding Set	1	On Base	
Misc. line hoses, rubber blankets			

J1.2.3 Electric Distribution System Manuals, Drawings, and Records

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

TABLE 4
 Manuals, Drawings, and Records
Electric Distribution System 127th Wing

Qty	Item	Description	Remarks
1	System map	Plan view showing recorded information	Available at Base
1	Assorted Manuals and records	A variety of manuals, drawings and records are available presenting information about the system.	Materials that are available will be located in the technical library
1	Upgrade of infrastructure utilities construction plans	Drawings for current infrastructure construction effort	Available at technical library

J1.3 Specific Service Requirements

The service requirements for the 127th Wing electric distribution system are as defined in the Section C, *Description/Specifications/Work Statement*. The following requirements are specific to the 127th Wing electric distribution system and are in addition to those found in Section C. If there is a conflict between requirements described below and Section C, the requirements listed below take precedence over those found in Section C:

- The contractor must subscribe to the *MISS DIG* utilities locating service.
- Grounds and structures areas shall be maintained to meet base standards.
- For all privatized lighting fixtures, operations and maintenance of lighting fixtures includes the purchase and replacement of the lighting element and the removal and disposal of replaced lighting element.

J1.4 Current Service Arrangement

The current electricity provider for Selfridge is Detroit Edison, and the total base (including the U.S. Army) peak demand for FY 1998 was 7,645 kilowatts (kW) (occurred in April, 1998). The FY 1998 average power consumption is 3,375,900 kWh (including the U.S. Army). Future demand is expected to stay constant or drop as the total square footage of building is reduced by demolition activities. Additional demand reduction should occur as a result of improved energy efficiency in the new construction. Detroit Edison maintains several electric power feeds to specific locations along the south side of the base where electrical service is already privatized. These service points will not be included in the privatization.

J1.5 Secondary Metering

J1.5.1 Existing Secondary Meters

Table 5 provides a listing of the existing (at the time of contract award) secondary meters that will be transferred to the Contractor. The Contractor shall provide meter readings for all secondary meters IAW Paragraph C.3 and J1.6 below.

TABLE 5
 Existing Secondary Meters
Electric Distribution System 127th Wing

Meter Location/Building Number	Meter Description
14, 15, 17, 32, 34, 39, 99, 103, 104, 120, 117, 134, 137, 154, 158, 160, 162, 165, 168, 170, 171, 195, 298, 301, 302, 309, 310, 411, 412, 413, 414, 501, 507, 508, 515, 516, 517, 518, 519, 523, 527, 538, 552, 590, 708, 814, 826, 836, 887, 900, 903, 900, 1011, 1051, 1401, 1405, 1407, 1408, 1409, 1410, 1414, 1416, 1417, 1419, 1422, 1423, 1424, 1425, 1426, 1427, 1428, 1433, 1441, 1435, 1446, 1457, 1464, 1466, 1469, 1492, 1493, 1505, 1515, 1516, 1533, 1535, 1537, 1533, 1540, 1594	87 existing secondary meters.

J1.5.2 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 Paragraph C.13, Transition Plan. After installation, the Contractor shall maintain and read these meters IAW Paragraphs C.3 and J1.6 below.

TABLE 6
 New Secondary Meters
Electric Distribution System 127th Wing

Meter Location/Building Numbers	Meter Description
3, 5, 7, 9, 18, 24, 27, 33, 36, 37, 40, 45, 46, 47, 50, 101, 105, 109, 118, 126, 127, 128, 129, 130, 139, 140, 166, 167, 177, 178, 180, 190, 191, 192, 198, 303, 304, 305, 319, 327, 330, 340, 350, 505, 510, 524, 535, 559, 563, 565, 566, 578, 588, 712, 780, 806, 851, 853, 854, 857, 860, 880, 882, 883, 884, 885, 890, 891, 892, 893, 894, 895, 896, 897, 899, 906, 980, 990, 997, 1007, 1010, 1018, 1025, 1030, 1045, 1050, 1400, 1402, 1420, 1421, 1429, 1430, 1436, 1437, 1439, 1440, 1451, 1452, 1453, 1519, 1572	Use new secondary meters that match the base standards for new systems with the same manufacturer and model numbers. The 127 th CE has purchased and installed new meters during renovations or when the existing meters fail. New meters must be compatible with base systems and allow remote reading by a computer for energy use monitoring.. CE has also installed meters for tenant organizations instead of estimating the usage. The meters that CE has purchased and installed are Schlumberger Vectron Meters with PC-PRO + Software Version 3.0

J1.6 Monthly Submittals

The Contractor shall provide the Government monthly submittals for the following:

1. Invoice (IAW paragraph 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 10th of each month for the previous month. Invoices shall be submitted to:

Name 127 WG / CERU
Address: 43275 Mulberry, Selfridge ANGB, MI 48045
Phone number: (810) 307-4655

2. 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 be submitted by the 10th of each month for the previous month. Outage reports shall be submitted to:

*Name:*127 WG/CEO

Address: 43275 Mulberry, Selfridge ANGB, MI 48045

Phone number: (810) 307-4992

3. 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 10th of each month for the previous month. Meter reading reports shall be submitted to:

*Name:*127WG/CERU

Address: 43275 Mulberry, Selfridge ANGB, MI 48045

Phone number: (810) 307-4655

4. 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 10th of each month for the previous month. System efficiency reports shall be submitted to:

*Name:*127WG/CEEE

Address: 43275 Mulberry, Selfridge ANGB, MI 48045

Phone number: (810) 307-4992

J1.7 Energy Saving Projects

IAW Paragraph C.3, Requirement, the following projects have been implemented on the distribution system by the Government for energy conservation purposes:

- Demolition of unused structures
- Installation and reading of meters on buildings to monitor energy use
- Upgrade transformer locations to improve operation efficiency of system
- New infrastructure rehabilitation of the industrial area of base
- Install energy efficient equipment such as heating plants and lighting

J1.8 Service Area

IAW Paragraph C.4, Service Area, the service area is defined as all areas within the 127th Wing property boundary.

J1.9 Off-Installation Sites

There are no off-installation sites for the 127th Wing. Seville Manor Housing area is associated with the U.S. Army Garrison-Selfridge.

J1.10 Specific Transition Requirements

IAW Paragraph C.13, Transition Plan, **Table 7** provides a listing of service connections and disconnections required upon transfer.

TABLE 7

Service Connections and Disconnections

Electric Distribution System 127th Wing

Location	Description
Upgrade Infrastructure; East Side Cantonment area	<p>The 127th is currently completing a project to upgrade infrastructure in the center/east side of the installation. Construction is under way and is scheduled for completion in mid 2001. The work being performed includes primary electrical, domestic water, fire suppression water system, sanitary sewers, storm water system, street lighting, communication system, sidewalks, parking lots, secondary roadways and supporting systems. All systems to be in accordance with their respective national codes. Estimated cost \$10,000,000.</p> <p>The completion date may be after the award and transfer date for utility privatization. Ownership of these new portions of the utility system will be transferred after the construction is completed and the new portions of the system have been accepted by the 127th Wing. Contractor shall allow service connections to be made as part of the infrastructure project if they need to occur after the utility systems have been transferred.</p>

J1.11 Government Recognized System Deficiencies

Table 8 provides a listing of system improvements that the Government has planned. The Government recognizes these improvement projects as representing current deficiencies associated with the 127th Wing electric distribution system. If the system is sold, the Government will not accomplish these planned improvements. The Contractor shall make a determination as to its actual need to accomplish and the timing of any and all such planned improvements. Capital upgrade projects shall be proposed through the Capital Upgrades and Renewal and Replacement Plan process and will be recovered when the upgrade is put in useful service and as proposed in Schedule L-3. Renewal and Replacement projects will be recovered through Sub-CLIN AB.

Table 8

System Deficiencies
Electric Distribution System 127th Wing

Project Location	Project Description
Area 1000	Lines, poles and transformers are not providing adequate service and need replacement Provide switching stations for sectionalizing and fused taps for transformer locations. Replace outdoor, fenced, distribution transformer enclosures with pad mount transformers that meet code.
Area 1492	Electrical system is not performing adequately in this area and needs replacement similar to Area 1000
Joy Gate Area	Lines, poles and transformers are not performing adequately and need replacement similar to Area 1000
Area 1400	The condition of this primary system varies from good to poor per Giffels- Webster report. Cutouts are the single phase, "hot stick" operated, and not capable of breaking load for sectionalizing. Replace system similarly to Area 1000 .
Upgrade Infrastructure; East Side Cantonment area	<p>The Base infrastructure systems are old and have not been upgraded to meet current demands in many areas. The overhead electrical system is old undersized, and unreliable. The wooden poles are old, warped, cracked and not properly located. The street lighting system is direct buried at shallow depths and is un reliable. The domestic water system is over 50 years old in some areas, full of iron deposits that limits flow and not looped leading to dead-end lines. Since the water cannot properly circulate, the chlorination system does not work and as a result there is higher than normal bacteria content in these lines. The system is supplied by a single off-base source. The water lines that feed the Fire protection and suppression systems are undersized. The sanitary sewer system dates back to the 1930's with no significant upgrades and the lines experience storm water infiltration as a result of age and cracked lines.</p> <p>A project to correct these deficiencies in the East Side Cantonment Area is currently</p>

under construction and is scheduled to be completed by July 2001. The work being performed includes primary electrical, domestic water, fire suppression water system, sanitary sewers, storm water system, street lighting, communication system, sidewalks, parking lots, secondary roadways and supporting systems. All systems to be in accordance with their respective national codes. Estimated cost \$10,000,000
