

SOLICITATION REQUIREMENTS

TEMPORARY POWER SERVICES



December 2023

SOLICITATION REQUIREMENTS - TEMPORARY POWER SERVICES

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SOLICITATION REQUIREMENTS - TEMPORARY POWER SERVICES

1 Scope of Work

Guam Power Authority seeks the services of a firm for the supply of temporary electric power service to GPA's grid for a firm capacity of approximately 40 MW under a lease agreement including operations and maintenance. The base lease term is two (2) years with an option to extend annually for three (3) additional one (1)-year terms upon mutual agreement between the parties.

The scope of work includes, but is not limited to, the following (the "Work" or "Works"):

- Design all Temporary Power Facility
- Construct, supply, and install all Temporary Power Facility
- Procure and transport all required equipment and material
- Obtain required approvals, permits, and fire protection from Authorities to install and operate the Temporary Power Facility
- Test and commission all Temporary Power Facility
- Operate and maintain all Temporary Power Facility
- Coordinate and report the operation and maintenance of Facility to GPA Dispatch Center
- Be responsible for all environmental requirements and compliance
- Supply all consumables (such as parts and lubricants) for the duration of the contract period
- Provide an estimated fuel consumption schedule fuel delivery planning purposes
- Continuously monitor fuel levels and report fuel delivery requirements ahead of time in accordance with the fuel supplier's delivery schedule throughout the use period
- Decommission and remove all Temporary Power Facility at contract termination
- Restore the site to its original condition upon demobilization
- Verify performance of existing electrical systems where modifications have been made
- Construct new fuel storage day tanks with capacity to support at least one day's operation at full load and pipeline connection to the existing GPA pipeline. Refer to Appendix C for an approximate location of the existing GPA pipeline.

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Temporary Power Facility includes all electrical equipment including, but not limited to, generators, cabling, transformers, distribution equipment (such as switchgear, switchboards, panel boards and transfer switches), safety devices (such as circuit breakers, ground fault interrupters, switches, disconnects, grounding, bonding and surge protection), control devices, and all associated equipment and components.

The Temporary Power Facility shall supply power to GPA on a power purchase agreement basis. GPA may negotiate a purchase of the Temporary Power Facility at the end of the contract period with the mutual consent of the parties.

2 Energy Conversion

GPA will be responsible for supplying ultra-low sulfur diesel (ULSD) fuel for this project according to the fuel specifications provided in Appendix A. PROPONENTS shall exclude the cost of fuel in their proposals. Summaries of GPA ULSD tank storage to guide PROPONENTS is provided in Appendix B.

3 General Deliverables

The set of General Deliverables includes but may not be limited to:

- Provide approximately 40 MW (net) of temporary power generation for two (2) years with an option to extend annually for three (3) additional one (1)-year terms upon mutual agreement between the parties
- Full compliance with US EPA Region IX emission requirements; inclusion of all required environmental controls depending on technology and US EPA emissions requirements
- GPA grid interconnection at 115 kV or 34.5 kV@ 60 Hz
- Possible siting at Piti adjacent to the GPA Bulk Storage Facility. Please refer to Appendix C for site drawings and information for the aforementioned potential site. The locations shown for the utilities are an approximation and the PROPONENT must field verify actual utility locations. If permit acquisition for the Piti site near the

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GPA Bulk Storage Facility risks a delay to the Commercial Operation Date (COD), GPA will consider alternative sites proposed by the PROPONENT, subject to Guam EPA and US EPA approval. Detailed plans for these alternative sites are required from the PROPONENT.

- System Protection Package including relay protection and other auxiliary protection devices that will be housed with the generator.
- Remote fast start capability.
- The Commercial Operation Date (COD) will be 100 calendar days or sooner from notice to proceed. Proposals that are unable to meet this requirement will be disqualified.
- At COD, facility must be able to supply power to GPA.
- High system availability (>95% nominal)
- Low Forced Outage Rate or Unavailability (<2% nominal or <5% unavailability).
- Maintenance records for all generation units provided.
- The Temporary Power Facility shall be comprised of at least two (2) generating units.

4 System Protection and Interconnection Guidelines

GPA System Protection Guidelines and design requirements will be discussed at the Pre-RFP Conference and Site Visit. All CONTRACTOR facilities required to provide Temporary Power Service must have adequate system protection equipment subject to GPA's approval and inspection. Time will be scheduled with GPA Engineering for discussions related to system interconnection. At a minimum, GPA requires the 115 kV transmission line to be looped in with a three (3) – breaker scheme. This will include transmission line and transformer protection requirements subject to GPA's approval. A Tesla 4000 transient fault recorder shall also be installed.

4.1 Frequency Limits

GPA frequency is 60 Hz. The frequency limitation of the operating unit or station for continuous operation shall be between the range of 58.5 Hz and 61.5 Hz. GPA requires the under frequency tripping relay to be set at 58.0 Hz with 10 seconds time delay and the over frequency tripping relay set at 63.0 Hz with 60 seconds time delay.

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4.2 Normal Voltage

The normal voltage at the high side of the step-up transformer shall be 115 kV or 34.5 kV, plus or minus 5 percent. GPA requires overvoltage tripping relay to be set at 125% of normal with a 2-minute time delay and under voltage tripping relay to be set at 80% of normal with 10 seconds time delay.

4.3 Power Dispatchability

GPA's Power System Control Center (PSCC) is responsible for dispatching the power plant. PSCC will manage plant dispatching either by providing SCADA signals for remote startup or by directly contacting the on-duty plant dispatcher.

4.4 Automatic Governor Controls (AGC) – Future Option

The proposed power station shall be capable with providing AGC data to the GPA Power System Control Center and accepting AGC controls from the GPA Energy Management System (EMSYS).

4.5 System Fault Level

GPA will provide Line To Ground Fault (MVA) and Three Phase Fault (MVA) once interconnection sites have been confirmed. Typically, GPA requires 40 KA fault level for Interrupting Capacity at 115 kV however, GPA may require PROPONENT to provide recommendation for Interrupting Capacity at 115 kV Fault level based on system fault level data.

5 General Operational Requirements

Operational requirements expected from contracted generation may include but may not be limited to:

- Droop operation
- Frequency regulation
- Load following capability
- Voltage/VAR support

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- Fast Start Reserve
- Fast ramp rates up & down
- Unrestricted up/down times
- High starting reliability
- Remote operator access including start & stop
- Black start capability
- AGC Capable

Generation dispatch and real-time grid operations requirements of the contracted generation will be under control of GPA's Power System Control Center power system operators.

PROPOSERS shall provide detailed descriptions of how their proposed system can provide the necessary functions above and any other operational benefits.

6 Key Proposal Elements

GPA will evaluate PROPOSER proposals based on proposed generation system and ability to deliver Temporary Power Service:

- Net capacity based on local ambient conditions
- Availability guarantees
- Heat rate (MMBTU/MWH on HHV and LHV basis) based on local ambient conditions
- Technical description completeness
- Engagement risk
- Ability of PROPOSER to deliver and commission plant within a 100 day or less period
- Financial position and capability
- Generation system operational flexibility and utility
- Logistical and operations support for operations and maintenance of generation system
- Insurance policy
- Proposed O&M outage schedules.

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Local Ambient Conditions:

- Average Temperature of 88 deg. F
- Average Relative Humidity of 85%
- Elevation ranging from 6.56 - 20 feet above mean sea level

PROPOSERS shall provide detailed descriptions of each of the above elements.

7 Technical Evaluation Using GPA Production Models

GPA will evaluate the efficacy of proposed temporary power generation to support grid operations and for fuel cost reduction. For this analysis, GPA will use its generation production, power flow, and system dynamics models.

Please note that the run-time required for contracted temporary power generation will be dictated by the proposed temporary generation system heat rate (efficiency) and variable charges (\$/MWH), and GPA generation outage schedules. If the proposed system provides a better economic benefit due to higher efficiencies and attractive variable costs, GPA may elect to operate it more. As part of its Technical Proposal, GPA requires PROPOSERS to provide its variable rate charge on a \$/MWH basis. PROPOSERS must not include any other cost element in its Technical Proposal.

8 Cyber and Physical Security.

The Awarded Proponent shall provide a Cyber and Physical Security Plan for GPA's approval within 60 days of award. Such plan shall include the following:

Minimum Requirements:

- Follows NIST 800 framework.
- Addresses the following NERC CIP standards:
 - Management of Security Controls
 - Training and Management of Security Personnel
 - Safeguarding Electronic Security Perimeters

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- Management of Security Systems
 - Incident Reporting and Response Planning
 - Recovery Planning
 - Configuration Change Management
 - Protection of Information Management of Supply Chain Risk
 - Physical Security
-
- Allows for GPA to review and/or test the Cyber & Physical Security controls of the Temporary Power Facility based on the approved Cyber and Physical Security Plan. Such review can be on a needed or regular basis.
 - Cyber & Physical Security Plan should be updated on a regular basis to address changes in the Cyber and/or Physical security controls of the facility or its operation.

9 Required Deliverables

Proposals shall comply with all requirements listed in the sections above. Failure to do so will result in proposal disqualification. The following items must be completed and submitted

- Table 1: PROPOSED GENSET/SYSTEM
- Table 2: ESTIMATED EMISSIONS

Not providing the information listed in Table 1 and Table 2 is grounds for proposal disqualification.

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Table 1: PROPOSED GENSET/SYSTEM

Parameter	Value	
Technology		
Make		
Model		
Unit Capacity (MW) (net)		
Number of Units Provided		
Total Capacity (MW) (net)	-	
Footprint - Length	Linear Units	
Footprint - Width		
Height		
Equivalent Availability Factor (%)		
Equivalent Forced Outage Rate (%)		
Allowable Number of Starts Per Year		
Remote Start Capability		
Heat Rate Curve at Guam Ambient Conditions (HHV)		
@ 25% MCR, MBTU/MWH		
@ 50% MCR, MBTU/MWH		
@ 75% MCR, MBTU/MWH		
@ 100% MCR, MBTU/MWH		
Heat Rate Curve at Guam Ambient Conditions (LHV)		
@ 25% MCR, MBTU/MWH		
@ 50% MCR, MBTU/MWH		
@ 75% MCR, MBTU/MWH		
@ 100% MCR, MBTU/MWH		

Guarantee	Value
Guaranteed Commercial Operation Date (Days after NTP)	
Guaranteed Equivalent Availability Factor (%)	
Guaranteed Minimum Availability (Days/Year)	
Maximum Unavailability (Days/Year)	
Compliance with all requirements in this solicitation (Yes/No)	

Variable Charge (\$/MWH)	
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Table 2: ESTIMATED EMISSIONS

Emissions Information Required	ISO Conditions	Guam Ambient Conditions
Gross Output (MVA)		
Net Output (MVA)		
Using Water Injection (Supplied with System)		
NOx mg/Nm3 Ref 15% O2		
NOx as NO2, kg/hr		
CO mg/Nm3 Ref 15% O2		
CO, kg/hr		
HC mg/Nm3 Ref 15% O2		
HC as CH4, kg/hr		
VOC mg/Nm3 Ref 15% O2		
VOC as CH4, kg/hr		
PM10, mg/Nm3, dry, @ 15% O2		
PM 10, kg/hr (front half)		
SOX as SO2, mg/Nm3, dry, @ 15% O2		
SOX as SO2, kg/hr		
Totals for Equivalent # of Units		
Total Output		
Total NOx as NO2, kg/hr		
Total CO, kg/hr		
Total HC, kg/hr		
Total PM10, kg/hr		
Total SOX, kg/hr		
@ 100% Utilization %	100%	
NOx, Tons Per Year		
CO, Tons Per Year		
HC, Tons Per Year		
PM, Tons Per Year		
Sox, Tons Per Year		
NOX, Ton/kWYear		

APPENDIX A

GPA ULSD Fuel Specifications

GPA ULTRA-LOW SULFUR DIESEL FUEL SPECIFICATIONS

PRODUCT QUALITY SPECIFICATION: DIESEL FUEL Oil No. 2 ^A

Property	ASTM Test Method ^B	Alternate Method ASTM	Unit of Measure	Limits
Flash Point	D93		°C	52 Min
Water & Sediment	D2709		% vol	0.05 Max
Distillation Temp, °C 90%, recovered	D86		°C	280 Min 360 Max
Kinematic Viscosity	D-445		mm ² at 40°C	1.9 Min 4.1 Max
Ash	D482		% mass	0.01 Max
Sulfur	D5453	D-7039	ppm (µg/g)	15 Max
Copper Strip Corrosion Rating (3hrs min at 50°C)	D130			No.1 Max
Cetane Index	D 613	D976-80 D 4737		46 Min
Total Aromatic Hydrocarbons	D1319	IP391	% mass	15 Min 35 Max
Micro Carbon Residue on 10% distillation residue	D189	D524 D6371 D4530	% mass	0.20 Max
Lubricity, HFRR @ 60°C	D6079		Micron	460 Max
Conductivity	D2624	D4308	pS/m	25 Min
Density @ 15°C	D4052	D1298	Kg/m ³	820 Min 850 Max
Gravity, API @ 60°F	D1298	D4052		35 Min 41 Max
Color	D1500	D6045	ASTM	2.0 Max
Strong Acid No.	D974		mg KOH/g	NIL
Total Acid No.	D974		mg KOH/g	0.5 Max
Stability (Oxidation), 16Hrs	D2274		mg/L	25 Max
Appearance @ ambient temp ^C	Visual			Report
Guaranteed Heating Value (HHV)	D240		MMBTU/bbl	5.70 Min

^A Follows the minimum requirements for **Ultra-Low Diesel Fuel Oils (ULSD)** listed under ASTM 975-10.

^B These test methods are specified in 40CFR Part 80. Test methods must follow the latest version.

^C Appearance must be clear and bright at ambient temperature and free from water and particulates.

FUEL SUPPLY ARRANGEMENTS

Delivery	<p>GPA and CONTRACTOR will liaise to prepare weekly fuel schedules showing anticipated times and quantities of fuel to be utilized by the Plant. GPA shall be responsible for ensuring the availability of fuel supplies, including funding and payments.</p> <p>The CONTRACTOR and plant staff shall comply with requirements set forth in the Diesel Fuel Supply Contract and related SOPs. The CONTRACTOR and GPA Assistant Plant Superintendent shall ensure that the plant has adequate fuel supply daily, and shall follow the fuel supply request procedures discussed with the Diesel Fuel Suppliers.</p> <p>Delivery requests may be made between 7:00 AM to 5:00 PM daily including weekends and holidays. Fuel deliveries will be on an as needed / on call basis and may be available daily including weekends and holidays except during receiving of bulk fuel shipments by pipeline transfer at the supply source. Changes to these procedures shall be coordinated by GPA, the CONTRACTOR and the Fuel Suppliers ahead of time.</p> <p>All fuel will be delivered to the designated plant sites. Title and custody to the fuel shall pass from GPA to the CONTRACTOR when:</p> <ol style="list-style-type: none">the fuel oil has passed the GPA pipeline flange connection to the first flange of the CONTRACTOR storage tank receiving pipeline, if delivery is via pipeline transfer; orthe fuel oil has passed the fuel supplier tanker truck hose connection to the first flange of the CONTRACTOR storage tank receiving pipeline, if delivery via road tankers.
Fuel Oil Storage	<p>The CONTRACTOR shall ensure that CONTRACTOR fuel storage facility has sufficient capacity (excluding deadstock) to sustain continuous operation at maximum consumption without refueling for at least five (5) consecutive days.</p> <p>The CONTRACTOR shall direct Plant Staff to comply with standard operating procedures to ensure that fuel inventory is handled in accordance with operating and regulatory requirements. One of the critical tasks is ensuring that water is drained regularly.</p> <p>CONTRACTOR shall calibrate the fuel tanks in an approved manner.</p>
Testing	<p>Upon each delivery of fuel to and, from time to time thereafter, a suitable sample shall be taken and analyzed by the CONTRACTOR from the storage tank to ensure that it meets the specifications as shown above. Oil sampling and testing for quality by shall be performed by an independent third party surveyor and laboratory and results shall be reported to CONTRACTOR and GPA.</p>
Metering	<p>CONTRACTOR shall install a fuel meter at the CONTRACTOR storage tank, configured in manner that will allow on-site calibration. Meters shall be calibrated by CONTRACTOR and tested every six months under the CONTRACTOR Routine O&M Spending Budget by a third party agreed between CONTRACTOR and GPA.</p>

Variation in rate
Of delivery

CONTRACTOR and GPA will liaise in estimating the fuel required to comply with GPA's annual, monthly and weekly systems operating plans.

Security

CONTRACTOR shall be responsible for all security and safety arrangements in respect of the fuel in the Site tanks

Spill Prevention
Control and
Countermeasure
Plan (SPCC Plan)

1. CONTRACTOR shall be responsible for the preparation of SPCC plan for the facility for EPA and GPA's approval.
2. CONTRACTOR shall be responsible for the full compliance of the Facility SPCC plan.

Best Management
Plan (BMP)

CONTRACTOR shall be responsible for the preparation of the Facility BMP plan for EPA and GPA's approval, including full compliance with the plan.

APPENDIX B

GPA ULSD Fuel Storage Summaries

Guam Power Authority

Fuel Storage Tanks (ULSD)

PLANTS	Description	Tank No.	Type	Nom. Dia. (ft-in)	Height / Length (ft-in)	Nominal Capacity		SAFE FILL CAPACITY		Status
						(barrels)	(gallons)	(barrels)	(gallons)	
Cabras 1 & 2 (Bslid)	Daytank	DT-1	Vert	20-00	22-11	1,286	53,998	1,029	43,198	Active
MEC 8 & 9 (Bslid)	Daytank	TA-FO-04	Vert	45-00	40-00	10,000	420,000	8,000	336,000	Active
	Daytank	TA-FO-05	Vert	45-00	40-00	10,000	420,000	8,000	336,000	Active
Piti 7	Daytank	DT-1	Vert	31-00	23-00	3,215	135,026	2,572	108,021	Active
	Service Tank	ST-1	Hor	08-02	36-06	332	13,930	265	11,144	Active
	Service Tank	ST-2	Hor	08-02	36-06	332	13,930	265	11,144	Active
Dededo FT	Daytank	DT-1	Vert	19-00	18-02	907	38,100	726	30,480	Inactive*
	Daytank	DT-2	Vert	19-00	18-02	907	38,100	726	30,480	Inactive*
Dededo CT	Raw Tank	Tk 110	Vert	33-00	26-00	3,943	165,613	3,155	132,490	Active
	Purified Tank	Tk 120	Vert	33-00	26-00	3,943	165,613	3,155	132,490	Active
Macheche CT	Raw Tank	Tk 110	Vert	24-11	23-11	2,081	87,406	1,665	69,925	Active
	Raw Tank	Tk 120	Vert	24-11	23-11	2,081	87,406	1,665	69,925	Active
	Purified Tank	Tk 130	Hor	10-00	39-04	528	22,167	422	17,734	Active
	Purified Tank	Tk 140	Hor	10-00	39-04	528	22,167	422	17,734	Active
Yigo CT	Raw Tank	Tk 120	Hor	12-00	35-00	695	29,190	556	23,352	Active
	Purified Tank	Tk 130	Hor	10-00	39-05	527	22,120	421	17,696	Active
	Purified Tank	Tk 140	Hor	10-00	39-05	527	22,120	421	17,696	Active
Yigo Diesel (former Aggreko)	Raw Tank	Tk 110	Hor	12-00	35-00	695	29,190	556	23,352	Active
	Storage Tanks	10 tanks	Hor			1,190	50,000	952	40,000	Active
Marbo CT	Daytank	DT-1	Vert	29-08	24-00	2,965	124,513	2,372	99,610	Inactive*
Tenjo FT	Service Tank	Tk-1	Hor	12-00	35-00	697	29,253	557	23,402	Active
	Service Tank	Tk-2	Hor	12-00	35-00	697	29,253	557	23,402	Active
	Daytank	Tk-3	Vert	26-00	32-00	3,014	126,579	2,411	101,263	Active
Talofoto FT	Daytank	TA-FO-01	Hor	12-00	35-00	694	29,157	555	23,326	Active
Manengon FT	Daytank	DT-1	Hor	13-00	50-00	1,187	49,874	950	39,899	Active
	Daytank	DT-2	Hor	13-00	50-00	1,187	49,874	950	39,899	Active
	Daytank	DT-3	Hor	13-00	50-00	1,187	49,874	950	39,899	Active
	Buffer Tank	ST-1	Hor			119	5,000	95	4,000	Active
TOTAL PLANT DIESEL						55,463	2,329,453	44,371	1,863,562	

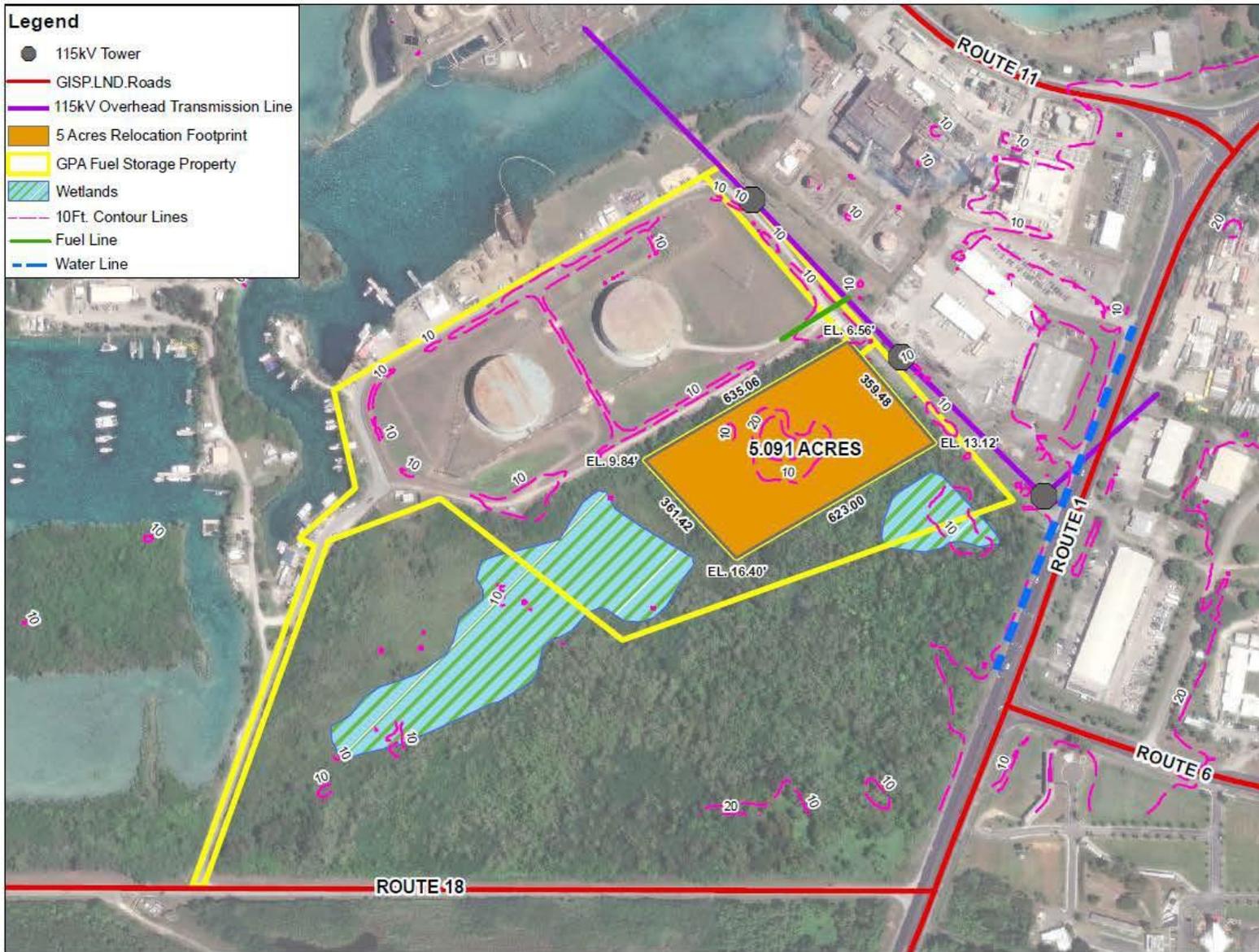
APPENDIX C

Site Layouts for GPA Fuel Storage Property (Piti)

GPA Fuel Storage Property, Piti

Legend

- 115kV Tower
- GISPLND.Roads
- 115kV Overhead Transmission Line
- 5 Acres Relocation Footprint
- GPA Fuel Storage Property
- ▨ Wetlands
- - - 10Ft. Contour Lines
- Fuel Line
- Water Line



Guam Power Authority
 Division: Engineering
 Section: Real Estate-GIS
 Prepared by: rtsantos
 1 in = 268 ft

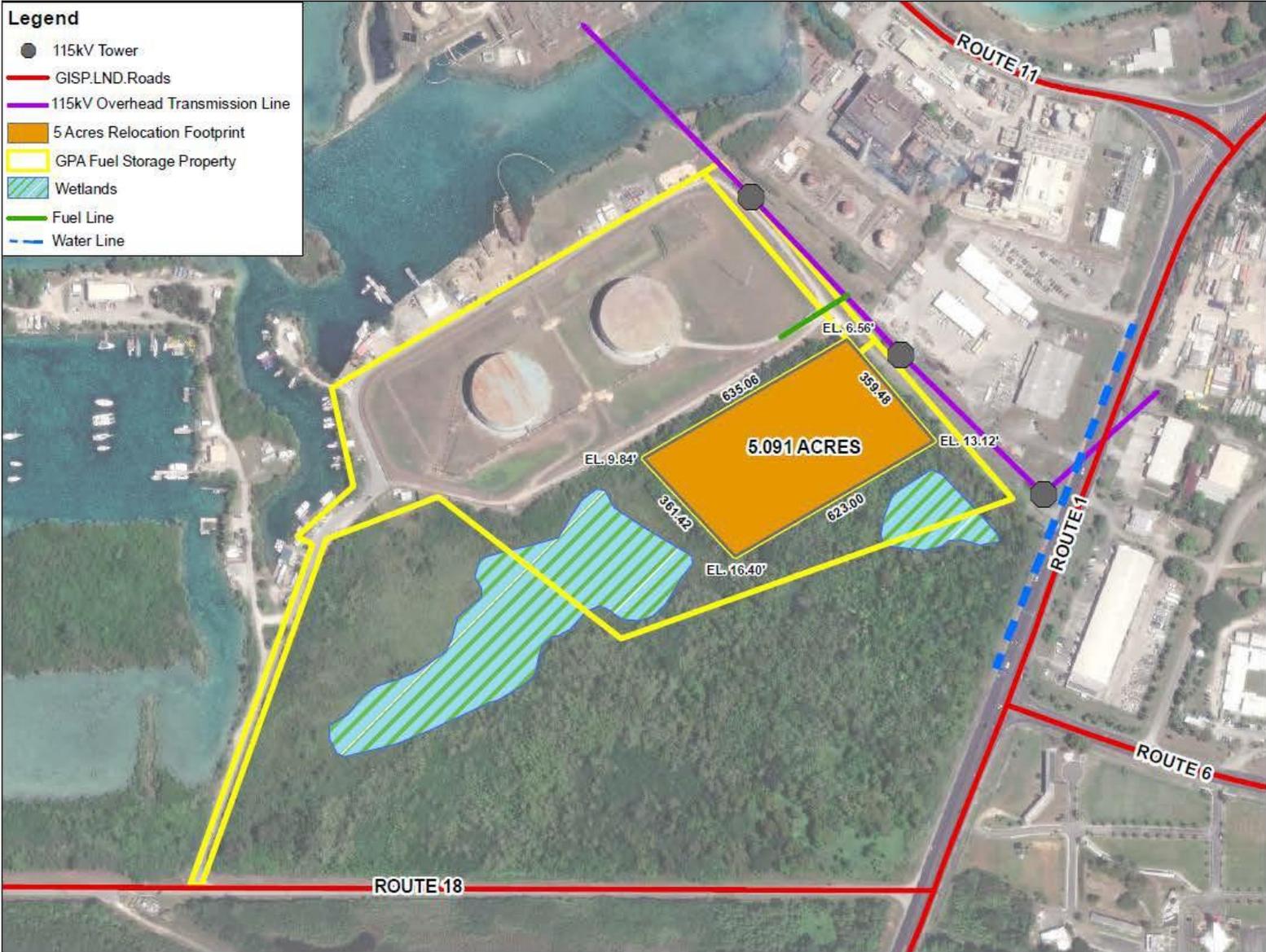


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GPA Fuel Storage Property, Pitti

- Legend**
- 115kV Tower
 - GISP.LND.Roads
 - 115kV Overhead Transmission Line
 - 5 Acres Relocation Footprint
 - GPA Fuel Storage Property
 - ▨ Wetlands
 - Fuel Line
 - Water Line



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