Environmental Assessment for MacDill Air Force Base Land Leasing Project to Site, Construct, and Operate a Tampa Electric Company-Owned Distributed Generation Facility

February 2021

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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

AFB	Air Force Base
AFI	Air Force Instruction
AICUZ	air installation compatible use zone
APE	area of potential effect
BESS	battery energy storage system
BHP	brake-horsepower
BMP	best management practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGP	Construction General Permit
CO	carbon monoxide
CZMA	Coastal Zone Management Act
dB	decibel
dBA	A-weighted decibel
DNL	day/night average sound level
DOD	U.S. Department of Defense
EA	environmental assessment
EAL	energy assurance lease
EBS	environmental baseline survey
EIAP	Environmental Impact Analysis Process
EIR	economic impact region
EO	executive order
EPA	U.S. Environmental Protection Agency
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FDEP	Florida Department of Environmental Protection
FEMA	Federal Emergency Management Agency
FONPA	finding of no practicable alternative
FONSI	finding of no significant impact
HAP	hazardous air pollutant
HVAC	heating, ventilation, and air conditioning
INRMP	Integrated Natural Resources Management Plan
ISO	International Organization for Standardization
MGD	million gallons per day
MMBtu	million British thermal units
MMBtu/hr	million British thermal units per hour
MW	megawatt
MWh	megawatt-hour
NAAQS	national ambient air quality standards
NEPA	National Environmental Policy Act
NFA	no further action
NO_2	nitrogen dioxide
NOA	notice of availability
NO_x	nitrogen oxide
NRHP	National Register of Historic Places
OSHA	Occupational and Health Administration

PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 micrometers
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers
PSD	Prevention of Significant Deterioration
ROI	region of influence
SCR	selective catalytic reduction
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide
SOCCENT	Special Operations Command Central
SO_x	sulfur oxides
SWPPP	stormwater pollution prevention plan
TEC	Tampa Electric Company
tpy	ton per year
U.S.C.	United States Code
USAF	U.S. Air Force
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound

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1.0 PURPOSE OF AND NEED FOR ACTION

1.1 INTRODUCTION

The Air Force Civil Engineering Center, Installations Directorate, as delegated by the Deputy Assistant Secretary of the Air Force for Installations, proposes to enter into a Title 10, United States Code (U.S.C.), Section 2667 authorized Energy Assurance Lease (the Federal Action) with Tampa Electric Company (TEC) (the Lessee) for the purpose of siting, constructing, owning and operating a distributed generation facility, battery storage, and underground transmission (the Lessee Improvements) on 4.5 acres of underutilized, non-excess real property on MacDill Air Force Base (AFB), Florida. The Lessee Improvements augment the existing power grid for South Tampa and provide energy resiliency for MacDill AFB during a grid outage or emergency consistent with Air Force Policy Directive 90-17, Energy and Water Management, which directs favorable consideration of projects that improve energy and water resilience for assets critical to mission accomplishment and leveraging alternative financing mechanisms to acquire onsite generation and resilience.

This environmental assessment (EA) was prepared to evaluate the potential environmental impacts of leasing these properties for development and associated construction activities, in compliance with the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4331 *et seq*.), the regulations of the President's Council on Environmental Quality (CEQ) that implement NEPA procedures (Title 40, Parts 1500 through 1508, Code of Federal Regulations [CFR]), the U.S. Air Force's (USAF's) Environmental Impact Assessment Process Regulations at 32 CFR 989, and Air Force Instruction (AFI) 32-1015, Integrated Installation Planning (Secretary of the Air Force, 2019, updated 2020).

MacDill AFB is located in Hillsborough County, Florida, within the City of Tampa, and occupies 5,696 acres of land. It was established in 1941 and has hosted a variety of missions and aircraft types throughout its history. MacDill AFB is home to the 6th Air Refueling Wing and U.S. Central Command, the U.S. Special Operations Command headquarters, and other tenants.

The information presented in this document would serve as the basis for deciding whether the Proposed Federal Action would result in a significant impact to the environment, requiring preparation of an environmental impact statement, or whether no significant impacts would occur, in which case a finding of no significant impact (FONSI) would be appropriate. If the execution of any of the Proposed Action

would involve "construction" in a wetland as defined in Executive Order (EO) 11990, Protection of Wetlands, or "action" in a floodplain under EO 11988, Floodplain Management, a finding of no practicable alternative (FONPA) would be prepared in conjunction with the FONSI. Construction and operation of the Lessee Improvements will also require permitting through all applicable state and local regulatory agencies.

1.2 BACKGROUND

This EA refers to the parcel proposed for leasing and development under an EAL as a distributed generation facility, battery storage, underground transmission, and offsite natural gas lateral pipeline not directly associated with the lease. EAL allows the U.S. Department of Defense (DOD) and its branches and agencies, under the authority of 10 U.S.C. §2667, to lease real property under its control that is not needed for public use, is not excess property, and would meet the specified lease conditions in the statute.

Under 10 U.S.C. §2667 Leases: Non-excess Property of Military Departments and Defense Agencies, USAF is permitted to lease non-excess real property for payment (in cash or in kind) that is not less than the fair market value for uses that promote the national defense or are in the public interest. The Federal Action requires the payment (in cash or in kind) by the Lessee of consideration in an amount that is not less than the fair market value of the lease interest. The preferred consideration for this Federal Action is the provision of utility services, which shall prioritize energy resilience in the event of commercial grid outages as authorized by the DOD leasing authority.

The objective of this project is to secure a long-term lease for the purpose of siting, developing, and operating an approximately 75-megawatt (MW) commercial distributed generation facility with 20-MW per 40-megawatt-hour (MWh) battery energy storage system (BESS) on approximately 4.5 non-contiguous acres of non-excess property on the perimeter of MacDill AFB. This third-party funded energy security capability minimizes the impact to critical missions at MacDill AFB in the event the primary grid fails or in the event of declared emergency. The natural gas plant and BESS will feed the commercial grid during normal operations, and TEC will be contractually obligated to enable electrically islanded capabilities at MacDill AFB from the Lessee Improvements when the primary source of electricity is disrupted or a state or national emergency is declared. This energy security capability is the preferred in-kind consideration for this 10 U.S.C. § 2667 real estate transaction.

The offsite facilities will be subject to all applicable state and local requirements. TEC will work collaboratively with the City of Tampa to develop the offsite portions of the project and will conform with applicable local and county regulations within those jurisdictions.

1.3 PURPOSE OF THE ACTION

The purpose of the proposed EAL on USAF real property for the siting, constructing, and operating of a distributed generation facility, battery storage, underground transmission, and offsite natural gas lateral pipeline is to achieve mutually beneficial results for TEC and MacDill AFB, which USAF has determined would promote the national defense and would be in the public interest. MacDill AFB is unable to fully utilize non-excess real property located in the northeastern corner of the base, just south of the Port Tampa gate. This property is currently used as a contractor laydown area. This current use does not take full advantage of the potential value of the area. The natural gas plant and the BESS will feed the commercial grid during normal operations, and TEC will be contractually obligated to enable electrically islanded capabilities at MacDill AFB from the Lessee Improvements when the primary source of electricity is disrupted or a state or national emergency is declared. The TEC distributed generation facility would primarily augment the existing power grid for South Tampa but would switch to serve as a backup power source for MacDill AFB during emergency situations.

1.4 NEED FOR THE PROPOSED ACTION

The need for the proposed EAL at MacDill AFB is to support USAF's strategic goal of assured access to reliable supplies of energy to meet mission essential requirements. The 2012 National Defense Authorization Act (Public Law 81-112) requires that DOD provide "assured access to reliable supplies of energy to meet mission essential requirements. …and provide power for assets critical to mission essential requirements on the installation in the event of a disruption." Due to increasing cyber, homeland security, and other threats, USAF's legacy diesel generators no longer provide sufficient energy resiliency in all situations, as the diesel generators are designed to be operated for periods lasting a maximum of 3 to 10 days. Therefore, to be sure critical national missions can continue with minimal disruption during a grid outage, MacDill AFB requires enhanced energy resiliency capabilities.

MacDill AFB seeks to improve the installation's energy resilience through establishment of alternative and/or redundant electrical power generation facilities. Redundant electrical power systems are needed to improve mission sustainability.

The USAF Energy Strategic Plan of March 2013 summarizes USAF's current energy strategy. Among its objectives are to mitigate risk that energy security vulnerabilities would impede USAF's ability to carry out its mission, reduce its demand for energy, assure energy supply by diversifying energy and fuel sources, and foster a culture of energy awareness.

The project location has been strategically selected to improve system reliability and resiliency to the region while leveraging existing infrastructure. This distributed generation project would directly interconnect and feed electrical power to the existing Interbay substation located due north of the AFB. The proposed distributed generation facility would provide needed redundancy, supplying more reliable power to the grid while ensuring emergency backup power to the base.

1.5 INTERAGENCY/INTERGOVERNMENTAL COORDINATION AND CONSULTATIONS

1.5.1 Interagency Coordination and Consultations

Scoping is an early and open process for developing the breadth of issues to be addressed in the EA and identifying relevant concerns related to a Proposed Action. Per the requirements of EO 12372, Intergovernmental Review of Federal Programs, federal, state, and local agencies with jurisdiction that could be affected by the Proposed Actions were notified during the development of this EA.

Appendix B contains the list of agencies consulted during this analysis and copies of correspondence.

1.5.2 Government to Government Consultations

Consistent with Section 106 of the National Historic Preservation Act and implementing regulations (36 CFR 800), DOD Instruction 4710.02, Interactions with Federally Recognized Tribes, and DAFI 90-2002, USAF Interaction with Federally Recognized Tribes, federally recognized tribes that are historically affiliated with the MacDill AFB geographic region are invited to consult on proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes. The tribal consultation process is distinct from NEPA consultation or the interagency coordination process, and it requires separate notification of the relevant tribes. The timelines for tribal consultation are also distinct from those of other consultations. The MacDill AFB point-of-contact for Native American tribes is the installation commander. Initial consultation with tribal governments began with letter correspondence regarding the project from the commander.

Appendix B lists the Native American tribal governments that were coordinated or consulted with regarding these actions and documentation of consultation correspondence.

1.5.3 Other Agency Consultations

Per the requirements of Section 106 of the National Historic Preservation Act and implementing regulations (36 CFR 800), Section 7 of the Endangered Species Act of 1973 and implementing regulations, the Coastal Zone Management Act (CZMA), findings of effect and request for concurrence were transmitted to the Florida State Historic Preservation Office (SHPO), Florida State Clearinghouse, and U.S. Fish and Wildlife Service (USFWS).

The Florida SHPO concurred on September 9, 2020, with MacDill AFB's finding that the action is "unlikely to adversely affect historic properties listed, or eligible for listing, in the NRHP, or otherwise of historical, architectural, or archaeological value within the area of potential effect." On DATE (TBD), MacDill AFB received the Florida State Clearinghouse concurrence with their CZMA consistency determination. On August 20, 2020, USFWS concurred with MacDill AFB's effect determination that the proposed action may affect but is not likely to adversely affect the wood stork and eastern indigo snake and that the Proposed Action would have no effect on any other federally listed species.

Appendix B presents copies of correspondence regarding the findings and concurrence and resolution of any adverse effects.

1.6 PUBLIC AND AGENCY REVIEW OF EA

Because the Proposed Action area and connected action for the natural gas pipeline coincide with wetlands and/or floodplains, it is subject to the requirements and objectives of EO 11990, Protection of Wetlands, and EO 11988, Floodplain Management. USAF published early notice that the Proposed Action would occur in a floodplain/wetland in the newspaper of record, the Tampa Bay Times, on October 25, 2020. The notice identified state and federal regulatory agencies with special expertise that had been contacted and solicited public comment on the Proposed Action and any practicable alternatives. The comment period for public and agency input on these projects ended November 25, 2020.

A notice of availability (NOA) of the Draft EA and FONPA/FONSI was published in the newspaper of record, Tampa Bay Times, announcing the availability of the EA for review on TBD, 2020. The NOA invited the public to review and comment on the Draft EA. The Draft EA and Draft FONPA/FONSI were made available for a 30-day public comment period to solicit input of the public, agencies, and other interested parties. The public and agency review period ended on TBD, 2020. Appendix B contains copies of the NOA and public and agency comments.

The NOA and early notice of project execution in a floodplain/wetland were published in the Tampa Bay Times newspaper, Tampa, Florida. Appendix B includes a copy of the proof of notice publication.

Copies of the Draft EA and FONPA/FONSI were also made available online at http://macdill.af.mil/ for review and at the John F. Germany Public Library (Tampa/Hillsborough County), 900 North Ashley Drive, Tampa, Florida 33606.

1.7 DECISION TO BE MADE

The EA evaluates whether the Proposed Actions would result in significant impacts on the environment. If significant impacts are identified, depending on the nature and cause of the proposed impact, MacDill AFB may undertake mitigation or ask other responsible parties to undertake mitigation to reduce impacts to below the level of significance, undertake preparation of an environmental impact statement addressing the Proposed Action, consider alternatives to the Proposed Action that would reduce impacts to below the level of significance or abandon the Proposed Action.

This EA is a planning and decision-making tool that would be used to guide MacDill AFB in implementing the Proposed Actions in a manner consistent with USAF standards for environmental stewardship.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

USAF and MacDill AFB propose to lease approximately 4.5 acres of non-excess, underutilized USAF-owned property to TEC for the purpose of developing the area for constructing and operating a distributed generation facility, battery storage, underground transmission, and offsite natural gas lateral pipeline. Requirements, authorities, and procedures for USAF real property transactions are established in AFI 32-9002, Management of Real Property, and AFI 32-9003, Granting Temporary Use of Air Force Real Property.

The development would include installation of four natural gas reciprocating internal combustion engines, two natural gas-fired emergency generators, a diesel fuel-fired emergency fire water pump, and supporting auxiliary equipment. The facility, as currently designed, would be capable of generating up to 75 MW of power with an additional battery energy storage system capable of 20-MW output for 2 hours. The proposed facility would include the necessary support equipment and utility systems. The distributed generation facility would connect to an existing electrical substation located north of the AFB via an underground transmission line. The project would also include installation of an offsite lateral natural gas pipeline that would connect the existing Tampa SW Gate Station to the new distributed generation facility to power the reciprocating internal combustion engines.

2.1.1 Onsite Facilities

2.1.1.1 Facilities Design Features

TEC intends to install four natural gas reciprocating internal combustion engines, two backup emergency generators, one emergency fire water pump, one fuel gas heater, and supporting auxiliary equipment. A battery energy storage system capable of 20-MW output is also proposed. Figures 2-1 through 2-3 illustrate the site location, overall facility layout, and equipment layout. A short underground section of the lateral natural gas pipeline would connect to the combustion engines through MacDill AFB.

Reciprocating Engines

Four reciprocating engines are proposed to generate electrical power. Each unit consists of a four stroke, lean-burn, reciprocating internal combustion engine, Wärtsilä Model 18V50SG-B or approved equal, rated at 26,820 brake-horsepower (BHP) to provide a nominally rated electrical output of

FIGURE 2-1.

SITE LOCATION MAP
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: ESRI, 2018; ECT, 2020.

ECT Environmental Consulting & Technology, Inc.

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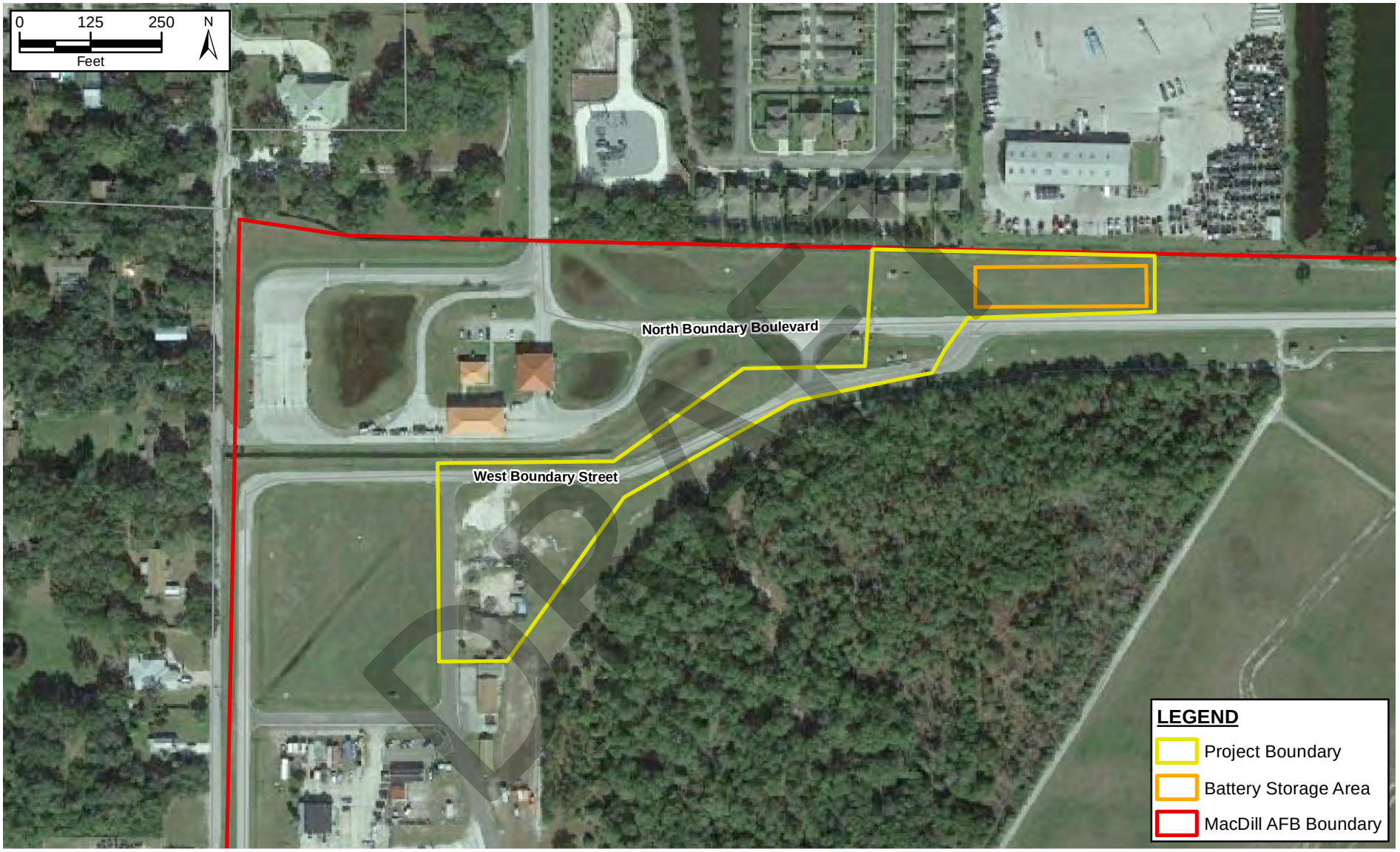

FIGURE 2-2.

PROJECT SITE MAP
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: FDOT, 2019; ECT, 2020.

ECT Environmental Consulting & Technology, Inc.

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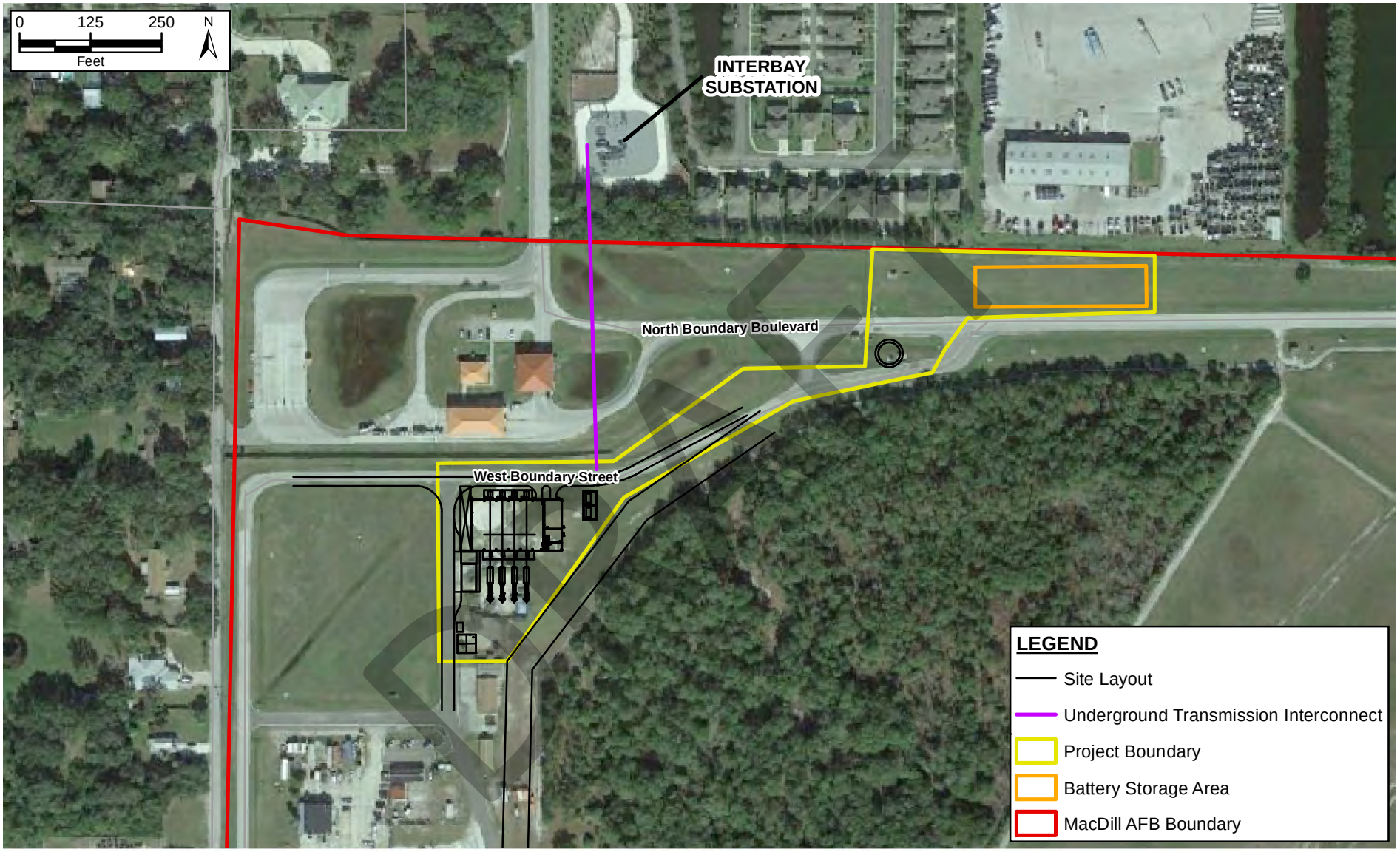

FIGURE 2-3.
PROJECT SITE LAYOUT MAP
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: FDOT, 2019; ECT, 2020.

ECT Environmental Consulting & Technology, Inc.

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18,879 kilowatts-electrical from the generator. Each engine will fire pipeline-quality natural gas exclusively to power the generator. The engines will be housed in a building to protect the equipment from the elements. Each engine will exhaust to atmosphere through a vertical exhaust stack, which will be approximately 75 feet above grade.

Backup Generators

The project includes two emergency generator engines, Caterpillar® Model G3512 or approved equal with a nominal engine output of 1,114 BHP. Each engine is a four-stroke, lean-burn, reciprocating internal combustion engine. One generator would supply power to the battery storage system. The second generator would supply backup power to reciprocating engines 1 through 4 and associated equipment. Each emergency generator unit would fire natural gas to generate the backup electrical energy to serve the auxiliary loads of the BESS and reciprocating engines so they can be started and operated when electrical power from the grid is unavailable. Each emergency generator will be housed in an enclosure designed to protect it from the elements as well as reduce noise emanating from the engine. The engine will exhaust to atmosphere through a vertical exhaust stack, which will be approximately 15 feet above grade.

Emergency Fire Water Pump

The project includes one emergency fire water pump engine, Cummins® Model CFP7E-F10 or approved equal with a nominal engine output of 174 BHP. The engine is a four-stroke, compression ignition, reciprocation internal combustion engine. In the event of a fire, the emergency fire water pump engine would be engaged to operate the fire suppression system when service power is unavailable. The engine would operate on ultra-low-sulfur diesel fuel to meet the emergency backup fire water requirements. A 200-gallon onsite tank would be adequate for fuel storage to run the emergency pump during an event. The emergency fire water pump engine will be housed in a building designed to protect it from the elements as well as reduce noise emanating from the engine.

Fuel Gas Heater

The project includes one natural gas-fired fuel gas heater with a rated heat input capacity of 500,000 British thermal units per hour. The heater is necessary to avoid the formation of hydrates, liquid hydrocarbons, and water as a result of pressure reduction when natural gas moves from the high-pressure pipeline to the lower pressure fuel gas lines at the station. The gas heater is designed to raise the temperature of the natural gas so that after pressure reduction, the temperature of the gas will be above the dew point temperature at operating conditions and maximum flow required for the reciprocating engines.

BESS Units

The batteries would be containerized lithium-ion battery units with a 20-MW, 40-MWh capacity. The proposed layout includes 10 battery containers and 10 inverter modules, although the exact number of containers and inverters may change once a specific manufacturer is selected. Each inverter would be integrated with a transformer to step the voltage up to distribution level. There would also be a small building housing common electrical and controls equipment. Each battery container would have multiple heating, ventilation, and air conditioning (HVAC) or chiller units for cooling purposes. The battery containers and inverters would be adequately separated to meet fire code and insurance requirements. There would be a backup natural gas generator to run the battery cooling system in the event of a grid outage. The output of the batteries would be interconnected to the existing Interbay substation utilizing a new 13.2-kilovolt underground cable.

2.1.1.2 Facility Construction

Construction would be performed so as to minimize disturbance to natural ground cover. Construction mats and low-pressure, rubber-tired or non-tracked vehicles would be used, when appropriate, to minimize potential for erosion. Turbidity screens, erosion control devices, and other best management practices (BMPs) would be utilized to minimize impacts to adjacent wetlands and water bodies to control the quality of runoff.

The facility would be constructed using materials common to most industrial facilities. The building housing the reciprocating engines would likely be supported on pile foundations and a concrete slab at grade level. The building itself would likely be a pre-engineered metal building with integral insulation for sound containment. Cast-in-place or tilt-up concrete construction would also be evaluated as a potential material for the building walls. The building would be one story with an estimated height of 55 feet and an open interior to sufficiently house and operate the equipment. Most of the building would have an unfinished interior; however, the building would contain an electrical room, battery room, information technology room, bathroom, and control room, portions of which would be finished. There would be some equipment located outside the building on concrete foundations or supported on elevated structural steel framing. The exhaust ductwork and stacks would include insulation as required for soundproofing and personnel protection. There would be paved access between the building and existing

roads. The area around the building and outdoor equipment would primarily be gravel surfacing to facilitate access and maintenance.

The portion of the facility where the batteries are located would primarily consist of metal containers housing the lithium-ion battery units. Outside and adjacent to each battery container would be associated inverters and transformers. Also near the battery containers would be one small building housing the electrical equipment common to all the battery containers. This small building would likely be a pre-engineered or pre-built metal building manufactured offsite and delivered to the site. The containers, inverters, and common electrical building would be set on concrete foundations or on elevated structural steel framing. The area surrounding the batteries would likely be gravel surfacing to facilitate access and maintenance.

2.1.1.3 Operation and Maintenance Activities

The proposed facility would typically be operated remotely, with no permanent staff onsite. However, there would be daily maintenance activities and checks performed to confirm fluid levels are adequate, checking for leaks, and generally that the equipment is operating as intended or ready to do so when called upon. Periodic deliveries of lubricating oil and selective catalytic reduction (SCR) reagent (urea) would be required. There would be regular preventative maintenance activities performed on equipment such as HVAC units, pumps, and motors. There would also be occasional maintenance required on major pieces of equipment such as the reciprocating internal combustion engines at scheduled intervals that would require additional maintenance personnel for a limited period.

2.1.2 Offsite Facilities

An offsite lateral pipeline would supply natural gas to the new facility, connecting to an existing Peoples Gas System Tampa SW Gate Station on McCoy Street. The conceptual route for this associated offsite linear facility is approximately 1 mile in length and is depicted in Figure 2-3. Proposed construction would be a new 6-inch steel pipeline largely collocated along existing pipeline infrastructure on McCoy Street and Manhattan Avenue. A short section of the underground lateral pipeline would extend through MacDill AFB to connect the supply to connect to the generating units on site.

Some limited site improvements and minor modifications are expected to be needed to the existing Gate Station at the McCoy Street Gas Yard, although the detailed design has not yet taken place and the amount of civil engineering required is not known at this time. No additional compression is anticipated.

A water pipeline connection would tie to the city potable water line along Manhattan Avenue. Electrical transmission interconnection would take place by way of a reinforced underground conduit from the battery storage units to the offsite Interbay substation to the north and separately from the reciprocating engines to the Interbay substation (Figure 2-4).

2.2 SELECTION STANDARDS

National Environmental Policy Act (NEPA) and CEQ regulations mandate consideration of reasonable alternatives for the Proposed Action. "Reasonable alternatives" are those that "meet the underlying purpose and need for the proposed action that would cause a reasonable person to inquire further before choosing a particular course of action …". Per the requirements of 32 CFR 989, USAF Environmental Impact Analysis Process (EIAP) regulations, selection standards are used to identify alternatives for meeting the purpose of and need for the Proposed Action.

Any proposed energy development on USAF property must support the purpose of and need for the action and meet the following baseline requirements to be advanced for proposal for leasing and construction-related activities under the EAL program:

- Be compatible with the existing, ongoing military mission and activities at MacDill AFB and other DOD installations in the area.
- Comply with USAF and DOD planning and design manuals, design standards, and safety requirements for USAF facilities and use market standards for development outside the MacDill AFB perimeter fence.
- Be compatible with existing infrastructure and development at MacDill AFB and its vicinity.
- Meet antiterrorism and force protection requirements within the installation perimeter fence.
- Be economically viable, cost effective, and financeable at reasonable market rates.

TEC is required to meet the growing electricity demand for its customers. To meet this need, TEC approached MacDill AFB to install four natural gas reciprocating internal combustion engines within the installation boundary. The location of the proposed project is strategic in its selection to provide system

FIGURE 2-4.

CONCEPTUAL NATURAL GAS PIPELINE ROUTE
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: FDOT, 2019; ECT, 2020.

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reliability and resilience while leveraging existing infrastructure and minimizing impacts associated with the facility. Location at the AFB puts the proposed generation near the anticipated load, while the exact site within the AFB boundary takes advantage of proximity to existing infrastructure.

In selecting possible candidate parcels to lease under an EAL, USAF and TEC looked for sites that met the following selection standards:

1. Proximity to the existing substation for economic efficiency (or to reduce utility run distance).
2. Ability to locate facility within 0.5 mile of the installation boundary to provide easy access for TEC staff, limit traffic, and minimize potential conflicts with on-base activities
3. At least 4.5 acres of non-contiguous land area
4. Ability to limit construction within the 100-year floodplain
5. Located in the northwest portion of the base to minimize the length of the natural gas pipeline for economic efficiency and reduce potential underground utility conflicts
6. Ability to locate facility sufficiently set back from runway so the exhaust stacks do not interfere with airfield operations
7. Facility capable of generating sufficient capacity to meet the USAF resiliency objective

Figure 2-5 identifies five locations considered for placement of the distributed generation facilities.

Any new linear facility should demonstrate in its route selection that certain considerations were evaluated, including costs, safety, long-range area planning, environmental factors, and alternative routes for the project. Considerations for identifying the offsite natural gas supply line options included the following routing criteria and selection standards:

1. Minimization of location through residential areas
2. Minimization of parcels crossed
3. Minimization of proximity to schools, community facilities (churches, recreational centers, parks)
4. Avoidance of impacts to known archaeological and historic resources.
5. Maximization of collocation opportunities (with existing utility, road, or rail rights-of-way)
6. Minimization of environmental impacts (wetlands, waterbodies, protected habitat)
7. Minimization of distance through 100-year floodplain
8. Avoidance of contaminated lands, including known landfills and avoidance of potable wells
9. Minimization of engineering constraints such as conflicts with existing infrastructure, sharp points of inflection

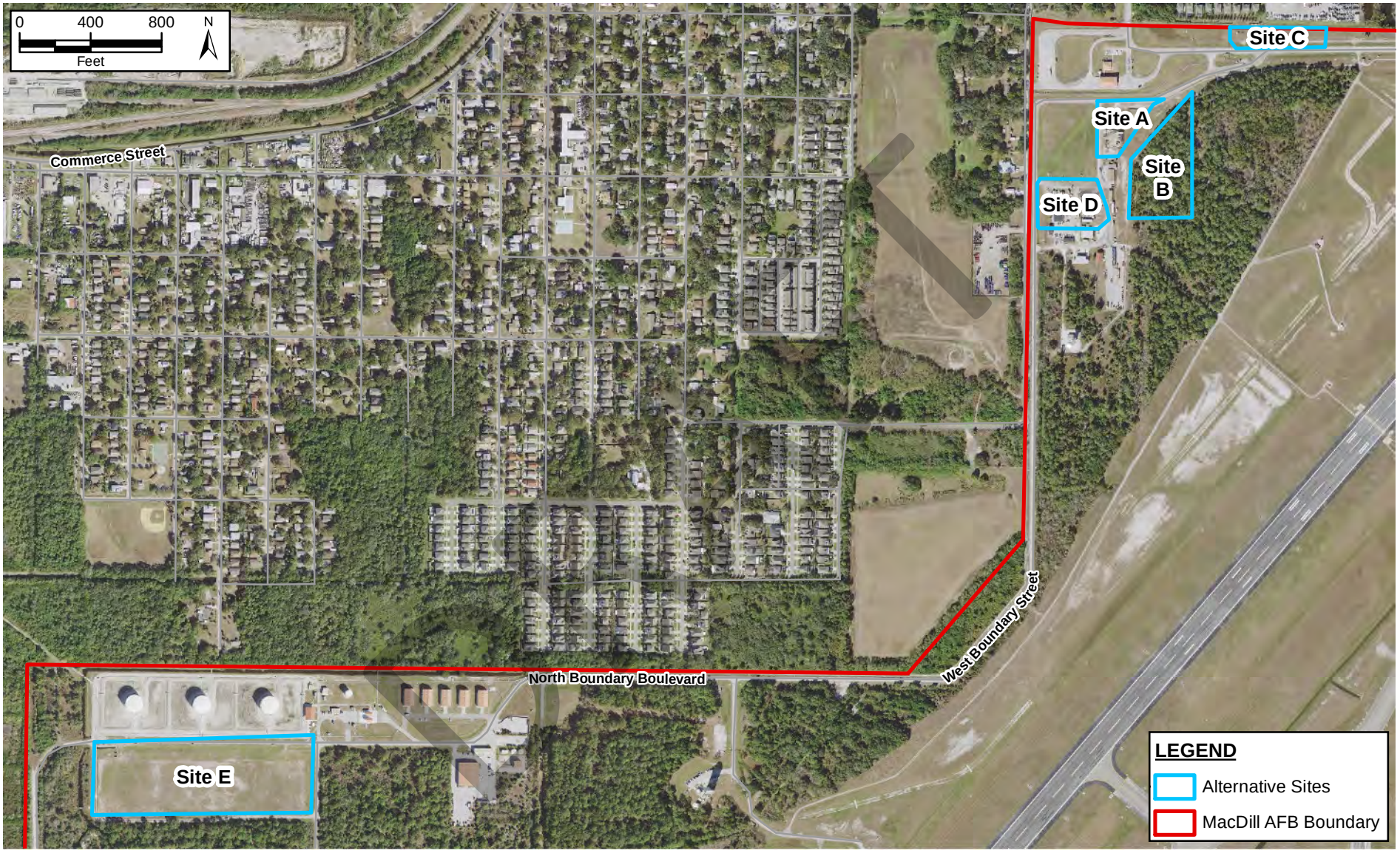

FIGURE 2-5.

ALTERNATIVE SITES MAP
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: FEMA, 2020; FDOT, 2019; ECT, 2020.

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10. Overall route length
11. Estimated cost

The primary consideration for the location of the underground transmission interconnection was minimization of distance to the existing offsite Interbay substation.

2.3 SCREENING OF ALTERNATIVES

For the purpose of discussing alternatives for the Proposed Action, we are addressing onsite and offsite facilities in separate sections.

2.3.1 Onsite Facilities

The following potential onsite alternative sites that might meet the purpose and need for construction and operation of a distributed generation facility and battery storage were considered:

1) Alternative 1 – Site A
   Approximately 3.2 acres located south of North Boundary Boulevard. This proposed construction parcel has been disturbed by previous base activities and the installation of underground utilities, ditching, and removal of contaminated soil in the eastern portion of the parcel. Most of the land is currently used for equipment storage.

2) Alternative 2 – Site B
   Approximately 4.2 acres located in the wooded area south of North Boundary Boulevard. The site would require additional site work, including tree clearing in wetlands, and has the added challenge of a nearby jet fuel pipeline. Additionally, this area is a potential location of the Port Tampa Cemetery.

3) Alternative 3 - Site C
   Approximately 1.0 acre located north of North Boundary Road. This site is too small to accommodate the project facilities but is contemplated for construction laydown and for placement of the proposed battery storage units.

4) Alternative 4 – Site D
   Approximately 3.0 acres along West Boundary Street. This proposed construction parcel is currently used for storage and contains multiple temporary outbuildings.

5) Alternative 5 – Site E

   Approximately 11.0 cleared acres near the Defense Fuels Supply Point, south of bulk fuel storage tanks at North Boundary Boulevard. The property is currently being managed under land use controls and is being monitored for petroleum contamination of the soil.

Additionally, another alternative included the building of a solar facility. This option was quickly eliminated from consideration because there was not enough land to install sufficient capacity to meet the electric load. Similarly, because of the intermittency of solar energy, this generation type did not meet the USAF's resiliency objectives.

The selection standards described in Section 2.2 were applied to these alternatives to determine which alternative(s) could maximize the value of currently available real property and other needs of the Proposed Action (Table 2-1).

Table 2-1. Screening of Onsite Alternatives

Alternative Descriptions	Selection Criteria						
	Proximity to Existing Infrastructure	Accessibility	Minimum 4.5 Acres of Non-contiguous Land Area	Outside of 100-year Floodplain	Minimization of New Infrastructure and Clearing Impacts	Suitable Distance from Runway/ Compatibility with AFB Operations	Ability to Produce Generation Capacity For Resiliency Objective
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Solar Generation Option	NA	NA	NA	NA	NA	NA	No
Alternative 1 - Site A	Yes	Yes	No	Yes	Yes	Yes	Yes
Alternative 2 – Site B	No	No	No	Yes	No	No	Yes
Alternative 3 – Site C	Yes	Yes	No	No	Yes	Yes	No
Alternative 4 – Site D	No	No	No	Yes	No	Yes	Yes
Alternative 5 – Site E	No	No	Yes	No	No	Yes	Yes
No-Action Alternative	NA	NA	NA	NA	NA	NA	No

2.3.2 Offsite Facilities

Lateral Pipeline

Using the criteria and selection standards identified in Section 2.2 for offsite features, the following pipeline routes to supply the generators were identified for evaluation and comparison. Figure 2-6 shows the alternative sites flood zone map. Each offsite route considered includes a short connection through the base to connect to the proposed facilities.

Conceptual Route—This route follows along an existing pipeline from the gas yard on McCoy Street. Exiting the gas yard from the south, the proposed route turns east along the south side of McCoy Street and collocates along the existing pipeline alignment for approximately 0.3 mile then turns south along the west side of South Manhattan Avenue, where it turns again south and continues another 0.44 mile south. From this point, the route turns east and enters the AFB property at a point south of the North Boundary Boulevard, where it continues the final 0.1 mile to the location of the proposed generation units. The overall route length of this option is approximately 0.89 mile.

Alternative Route 1—This alternative route exits the McCoy Street gas yard from the north, following along the parcel boundary for approximately 0.10 mile before turning east along an abandoned rail corridor, now owned by the City of Tampa. This route option continues east along the south side of the city-owned linear parcel for approximately 0.27 mile to the west side of South Manhattan Avenue. At this point Alternative Route 1 follows road right-of-way approximately 0.43 mile along the west side of South Manhattan Avenue to the south side of Interbay Boulevard where the route turns again east and continues another 0.12 mile to the east side of Tanker Way before turning south. The last 0.19 mile follows along Tanker Way into the AFB and terminates at the proposed generation units. The overall route length is approximately 1.1 miles.

Alternative Route 2—Alternative Route 2 exits the gas yard from the east and turns south along South Trask Road, traversing approximately 0.49 mile along the west side of Trask Road before turning east at West Loughman Street. Continuing another 0.34 mile due east from this location, the alignment terminates at the proposed generation units on the AFB property. The overall route length is approximately 0.89 mile.

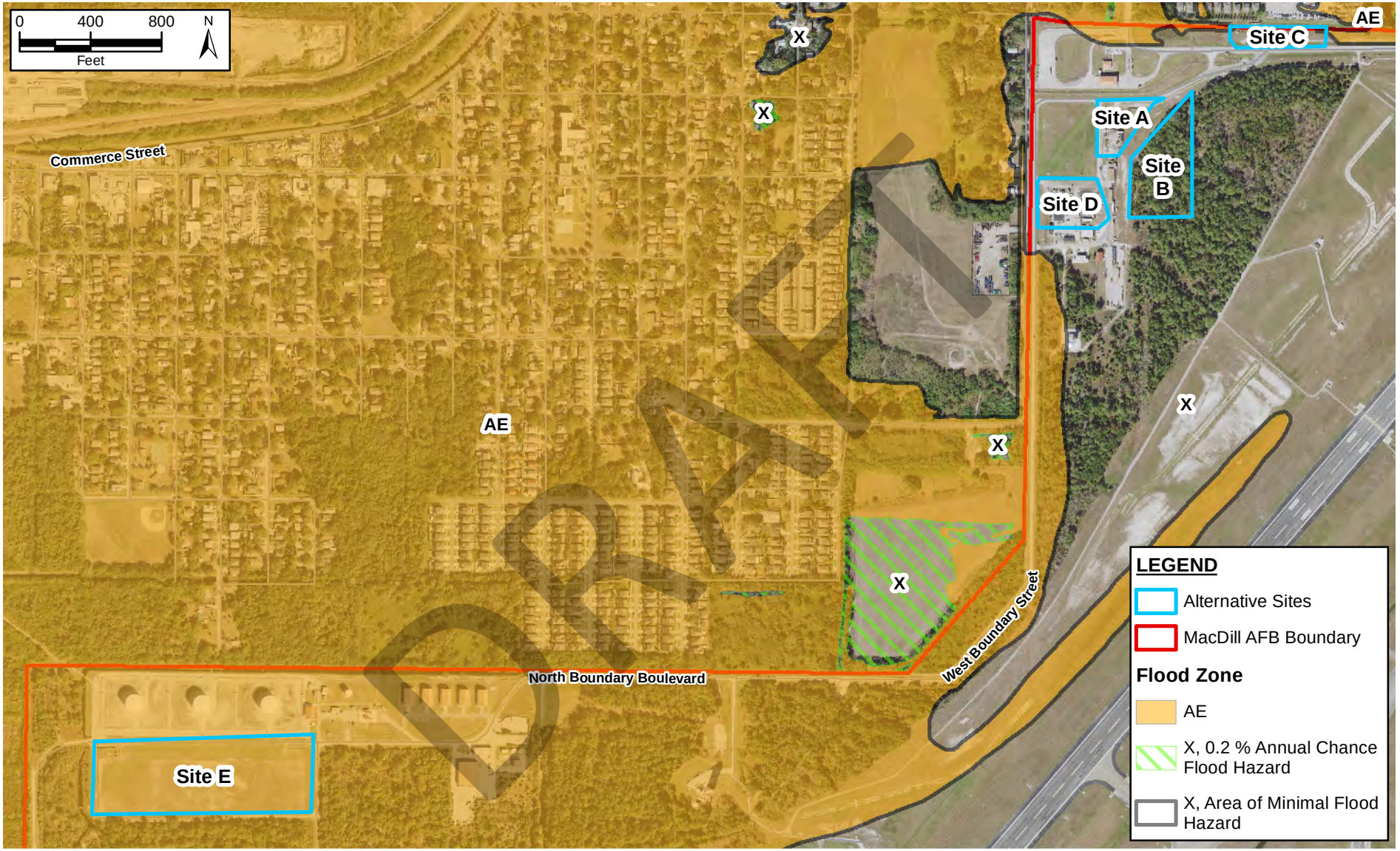

FIGURE 2-6.

ALTERNATIVE SITES FLOOD ZONE MAP
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: FEMA, 2020; FDOT, 2019; ECT, 2020.

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Alternative Route 3—Similar to Alternative Route 2, this option also exits the gas yard from the east, however it continues east to South Wall Street before turning south. From here the route continues south for approximately 0.41 mile along the west side of South Wall Street, where it turns again east at West Chisolm Street. Following along parcel boundaries another 0.19 mile to South Manhattan Avenue, this route option turns again south and continues for another 0.09 mile along the west side before turning east and traversing another 0.10 mile into the AFB property along the south side of North Boundary Boulevard and terminating at the proposed generation units. The approximate route length of this option is 0.90 mile.

The linear route criteria described in Section 2.2 were applied to these route options to determine which alternative(s) could meet the needs of the Proposed Action. Table 2-2 provides an overview of the quantitative evaluation of those alternative routes.

Route options are depicted in Figures 2-7 and 2-8.

Other options to fuel the reciprocating generation units were considered but eliminated from further evaluation. One included the addition of four mobile liquified natural gas tanks and a vaporizer at the McCoy Street gas yard. Another option was to burn jet fuel supplied by MacDill AFB and operate the generation units using dual fuel with natural gas from the McCoy Street gas yard. Both of these options also required the construction of a pipeline from the gas yard to the base.

Transmission Line

The shortest distance between the generators, battery storage units, and the Interbay substation was identified for the route for the underground transmission line, approximately 0.1 mile. Any potential impacts associated with construction of the line would be avoided by construction techniques (such as horizontal directional drill).

2.4 DESCRIPTION OF ALTERNATIVE ACTIONS

The NEPA and CEQ regulations mandate consideration of reasonable alternatives to the Proposed Action. "Reasonable alternatives" are defined by 32 CFR 989.8 as "alternatives that meet the underlying purpose and need for the proposed action and that would cause a reasonable person to inquire further before choosing a particular course of action.".

Table 2-2. Quantitative Evaluation of Pipeline Route Alternatives

Route Option	Overall Length (miles)	Approximate Costs (~$1.5M per mile)	Distance through 100-Year Floodplain (miles)	Residential Buildings within 250ft (Qty)	Non-Residential Buildings within 250ft (Qty)	Schools within 250 ft (Qty)	Parks/ Recreational within 250' (Qty)	Churches within 250' (Qty)	Distance through Parks (miles)	Co-location along Road Right-of-Way (miles)	Co-location along Rail Right-of-Way (miles)	Distance Crossed Through Land Use Type				
												Residential Vacant (miles)	Residential (miles)	Commercial Vacant (miles)	Industrial (miles)	Government (miles)
Conceptual	0.888	1.331	0.236	69	60	0	2	0	0.000	0.834	0.000	0.008	0.161	0.047	0.000	0.096
Alternative 1	1.096	1.644	0.472	53	58	0	2	0	0.265	0.418	0.028	0.000	0.010	0.015	0.050	0.560
Alternative 2	0.890	1.335	0.580	129	38	0	1	1	0.000	0.642	0.000	0.032	0.046	0.002	0.053	0.202
Alternative 3	0.901	1.351	0.323	89	45	0	0	0	0.000	0.591	0.000	0.008	0.240	0.003	0.100	0.096

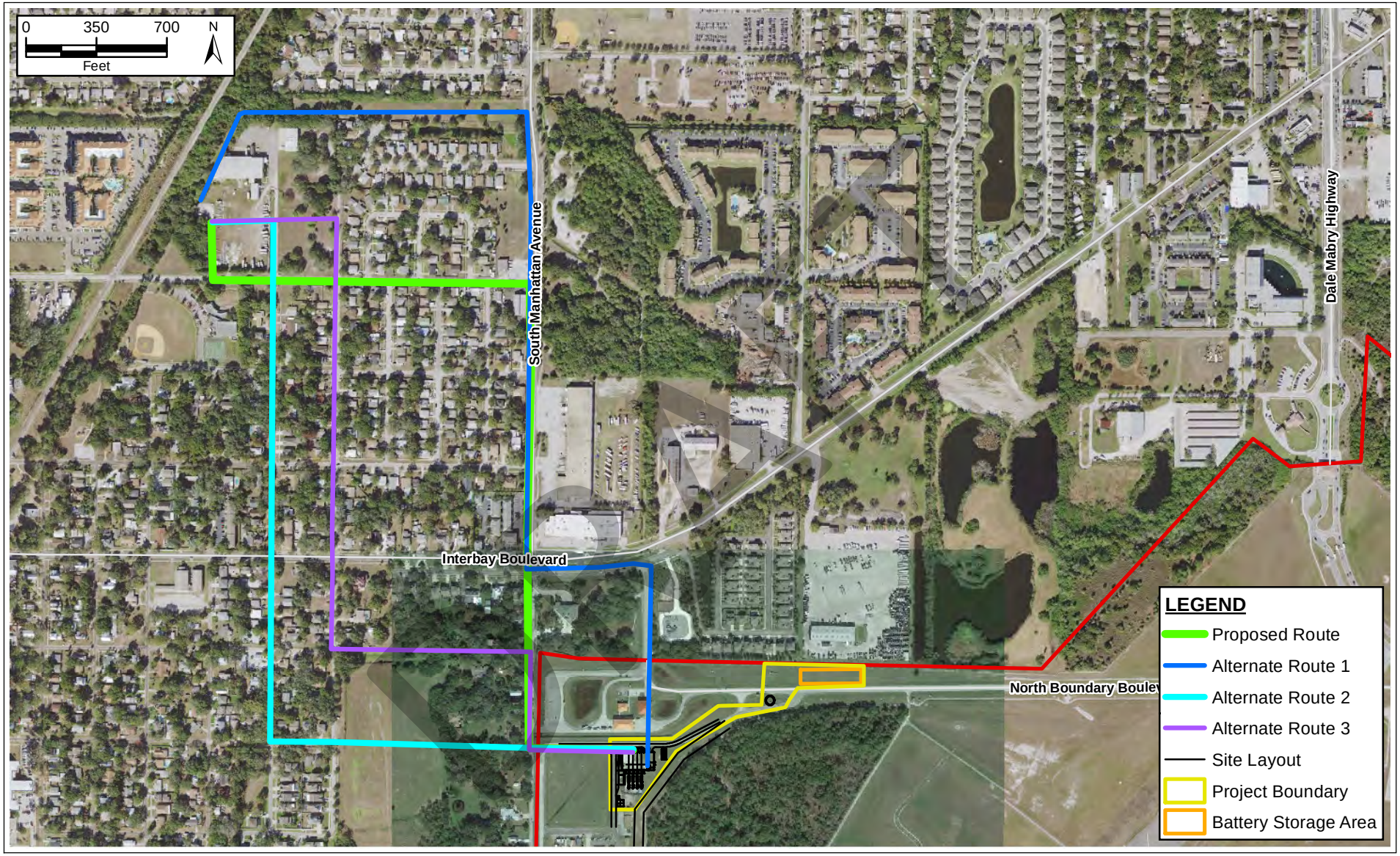

FIGURE 2-7.

ALTERNATIVE PIPELINE ROUTES CONSIDERED
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: FEMA, 2020; FDOT, 2019; ECT, 2020.

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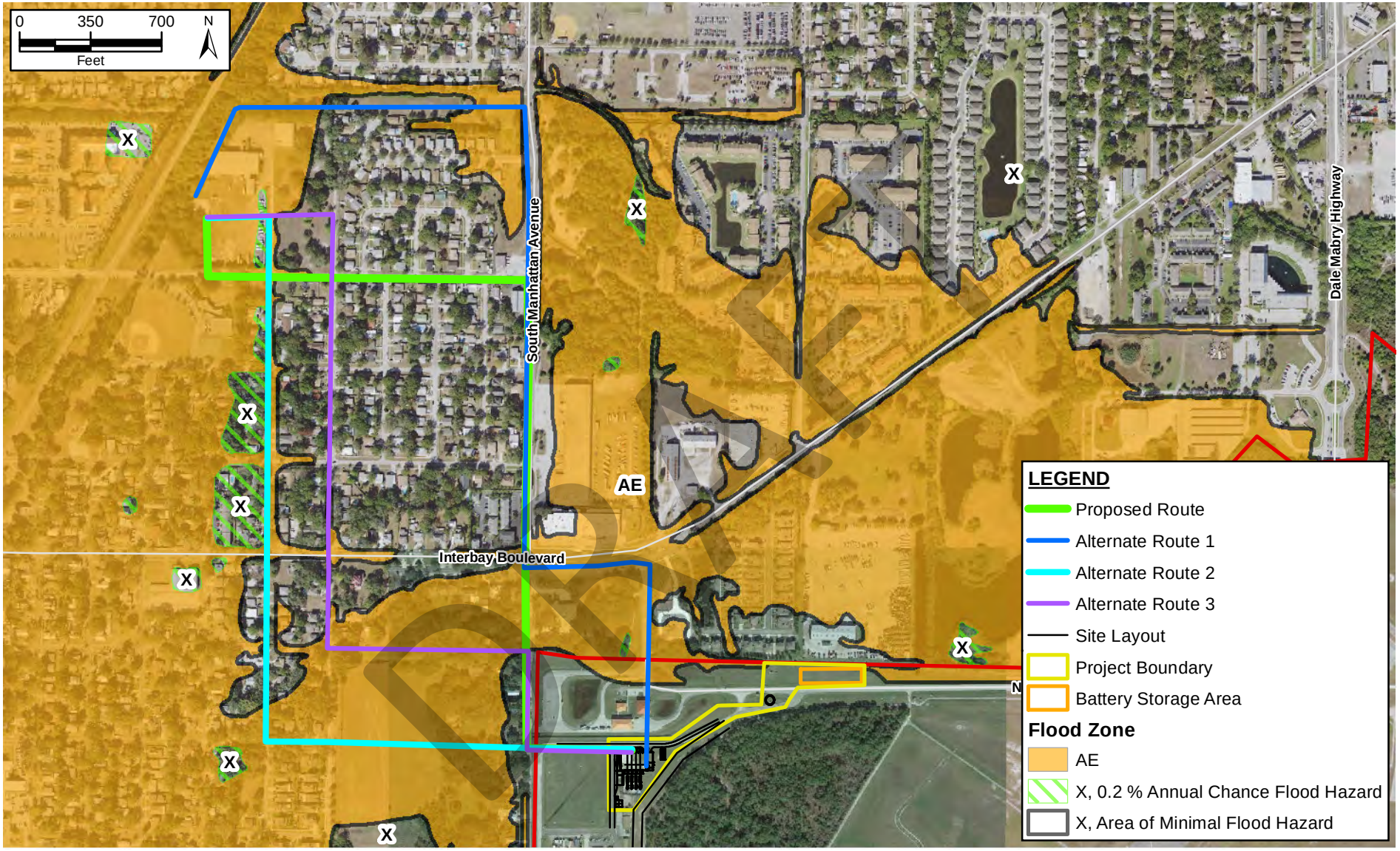

FIGURE 2-8.

ALTERNATIVE PIPELINE ROUTES FLOOD ZONE MAP
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: FEMA, 2020; FDOT, 2019; ECT, 2020.

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The Proposed Action satisfies applicable USAF, DOD, and state and/or federal requirements and supports current and future mission requirements. The NEPA process is intended to support flexible, informed decision-making; the analysis provided by this EA and feedback from the public and other agencies will inform decisions made about whether, when, and how to execute the Proposed Action. Among the alternatives evaluated is a no-action alternative. The no-action alternative will substantively analyze the consequences of not undertaking the Proposed Action, not simply conclude no impact, and would serve to establish a comparative baseline for analysis.

2.4.1 No-action Alternative

Under the no-action alternative, the proposed enhanced use lease of the underutilized non-excess properties, MacDill AFB would not be implemented, and the parcel would not be developed. USAF would fail to maximize the value of its real property assets, and the demand for energy resilience would not be addressed. The no-action alternative cannot be considered reasonable, as it fails to address the purpose of and need for the action as described in Chapter 1; however, it would be carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the Proposed Action/preferred alternative and action alternatives can be assessed.

2.4.2 Alternatives Eliminated from Further Study

Onsite

Several options and alternatives on the MacDill AFB property were originally identified and considered for potential use as the site for the generation and battery storage units (Figure 2-5). The primary selection criterion for the preferred site was determined to be proximity to existing infrastructure, i.e., the existing Interbay substation. As stated in Section 2.2.2, a solar option was initially considered and then eliminated due to lack of sufficient available space to generate capacity to meet resiliency objectives.

Other alternatives dropped from further consideration were Alternatives 2 and 4. Alternative 2 (Site B) was eliminated from further consideration because of constraints associated with location of a jet fuel supply line and it being the potential location of the Port Tampa Cemetery. In addition, there are possible height constraints because of the location of the runway and the amount of site preparation required to make the area construction ready. Cultural resource assessments within the wooded lot, which indicated archaeological finds and the presence of wetlands, also made this site less desirable.

Alternative 4 (Site D) was also dropped from further consideration because of its distance from the existing infrastructure, which was one of the selection criteria. It would have also created the need to relocate several contractor facilities that are actively in use. Distance from the entrance gate increases the distance TEC would need to travel to service the site, increasing the interaction with MacDill staff and potentially interfering with base operations.

Alternative 5 (Site E), the defense fuels supply point site, was rejected from further consideration because of several factors, including the existence of contaminated soils requiring ongoing monitoring and its greater distance from both the Interbay substation and the Tanker Way entrance. Additionally, this alternative site falls within the 100-year floodplain, which was an important consideration that made the site less desirable (Figure 2-6).

Alternative actions considered for further evaluation focus on minimizing conflicts with AFB operations and minimizing the distance for interconnection to existing facilities.

The alternatives retained for further evaluation are identified as the proposed site, which is derived from a combination of Site A and the easternmost portion of Site C, and the no-action alternative.

Offsite

Multiple options were considered for the natural gas supply pipeline. The route selection process considered numerous factors, including environmental, social, cultural, natural resources, land use in proximity, and engineering/construction feasibility. The use of existing linear rights-of-way for collocation opportunity was studied in addition to new routes to accommodate the new pipeline. Challenges identified include existing residential development and the extent of the study area being located in floodplain. See Figures 2-7 and 2-8 for a depiction of the study area and the route alternatives considered. Each offsite route would require a short segment through the base to connect to the generation facilities.

Alternative Route 1 was the longest route, at 1.1 miles and traversed 0.47 mile through floodplain. Alternative Route 2 crossed the greatest distance through 100-year floodplain and had the greatest number of residential buildings within 250 ft of the route. Alternative Route 3 was 0.90 miles long and was slightly longer than the conceptual route, had more residential structures within 250 ft and crossed

through a greater distance of 100-year floodplain. For these reasons Alternative Routes 1, 2 and 3 were considered less desirable and were eliminated from further consideration.

The route alternative for the pipeline retained for further evaluation is the conceptual route, which minimizes new impacts to human populations and the environment. The no-action alternative is also retained for further analysis.

2.4.3 Preferred Alternative

The preferred alternative is to implement the Proposed Action, as described in Section 2.1. This alternative provides for usable grounds in proximity to the Interbay substation, with sufficient room for equipment and associated structures without posing conflicts with AFB operations. The preferred alternative is identified as a combination of both Sites A and C, as shown in Figure 2-5. The preferred option for the natural gas pipeline is the conceptual route, which has been determined to minimize new land use, social, and environmental impacts. At 0.89 miles, the conceptual route is the shortest of the routes considered. It traverses the least distance through 100-year Floodplains and is largely collocated along an existing pipeline, further minimizing additional new impacts in the floodplain.

3.0 AFFECTED ENVIRONMENT

This section describes the characteristics of the existing natural and man-made environment that could be affected by the Proposed Action or no-action alternative. This section establishes the basis for assessing impacts of the alternatives on the affected environment provided in Section 4.0.

3.1 AIR QUALITY

The Clean Air Act (CAA), as amended in 1977 and 1990, provides the basis for regulating air pollution to the atmosphere. The U.S. Environmental Protection Agency (EPA) established national ambient air quality standards (NAAQS) for six "criteria" pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone, sulfur oxides (SO_x), measured as sulfur dioxide (SO_2), lead, and particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM_{10}). These standards are the cornerstone of the CAA. Although not directly enforceable, they are the benchmark for the establishment of emissions limitations by the states for the pollutants EPA determines may endanger public health or welfare.

The Environmental Protection Commission of Hillsborough County is responsible for issuing and enforcing MacDill AFB's current CAA Non-Title V Air Operation Permit (No. 0570141-023-AO effective June 6, 2019). MacDill AFB is not a major source of potential emissions for any criteria pollutant.

EPA tracks compliance with the air quality standards through designation of a particular region as "attainment" or "nonattainment." MacDill AFB is located in Hillsborough County within the West-central Florida Intrastate Air Quality Control Region. The area encompassed by MacDill AFB is currently classified as being in attainment for the criteria pollutants stipulated under the NAAQS (40 CFR 81.96 and 40 CFR 81.310).

3.2 BIOLOGICAL RESOURCES

Biological resources include native, or naturalized plant and animal species and the habitats within which they occur. Habitat can be defined as the resources and conditions found present in an area that support plant or animal life. The primary laws protecting biological resources of the study area are the Endangered Species Act (ESA), Migratory Bird Treaty Act, and Bald and Golden Eagle Protection Act. MacDill AFB implements biological resources management actions per their Integrated Natural

Resources Management Plan (INRMP) (MacDill AFB, 2019). INRMP guides the implementation of the natural resources program on MacDill AFB. This plan applies to both internal and external organizations that are involved with, or interested in, the management or use of MacDill AFB's natural resources to ensure the conservation of MacDill AFB's natural resources as well as compliance with related environmental laws and regulations. The INRMP encompasses all land at MacDill AFB, whether leased to others or not, and therefore is applicable to the proposed project.

During the initial stages of the environmental impact analysis process, a survey of the site was performed, and the results of prior protected species surveys were evaluated. This environmental baseline survey (EBS) is available as part of the administrative record. The preferred location for the Proposed Action is a previously disturbed area with no known sensitive resources, based on the current survey, prior surveys, and other existing biological resource data.

The Proposed Action would occur within a core foraging area for the wood stork (*Mycteria americana*), and wood storks have been observed on MacDill AFB in water features, including drainage swales and ditches. Stormwater features and drainage swales are located in the vicinity of the proposed construction site; however, there would be no direct impact to these water features. In addition, the species is habituated to activity and noise levels associated with ongoing activity at MacDill AFB, and noise from construction activities for the Proposed Action would be temporary.

There are two active bald eagle (*Haliaeetus leucocephalus*) nests (HL024 and HL982) on the AFB property; however, both are located more than a mile away from the Proposed Action area. Activity associated with construction of the site is not expected to impact the species.

Figure 3-1 provides a map of wood stork core foraging areas and active eagle nests.

The eastern indigo snake (*Drymarchon corais couperi*) can occur in suitable habitat throughout Florida. It has a wide range of habitat preferences and requires large tracts of land for survival. Often considered a gopher tortoise (*Gopherus polyphemus*) commensal, it can be found in xeric habitats but also utilizes more mesic or wetland habitat for foraging. Due to the heavily disturbed nature of the site and lack of refugia, indigo snakes are unlikely to be found present. No indigo snakes or gopher tortoise burrows were observed during the field assessments of the proposed project area.

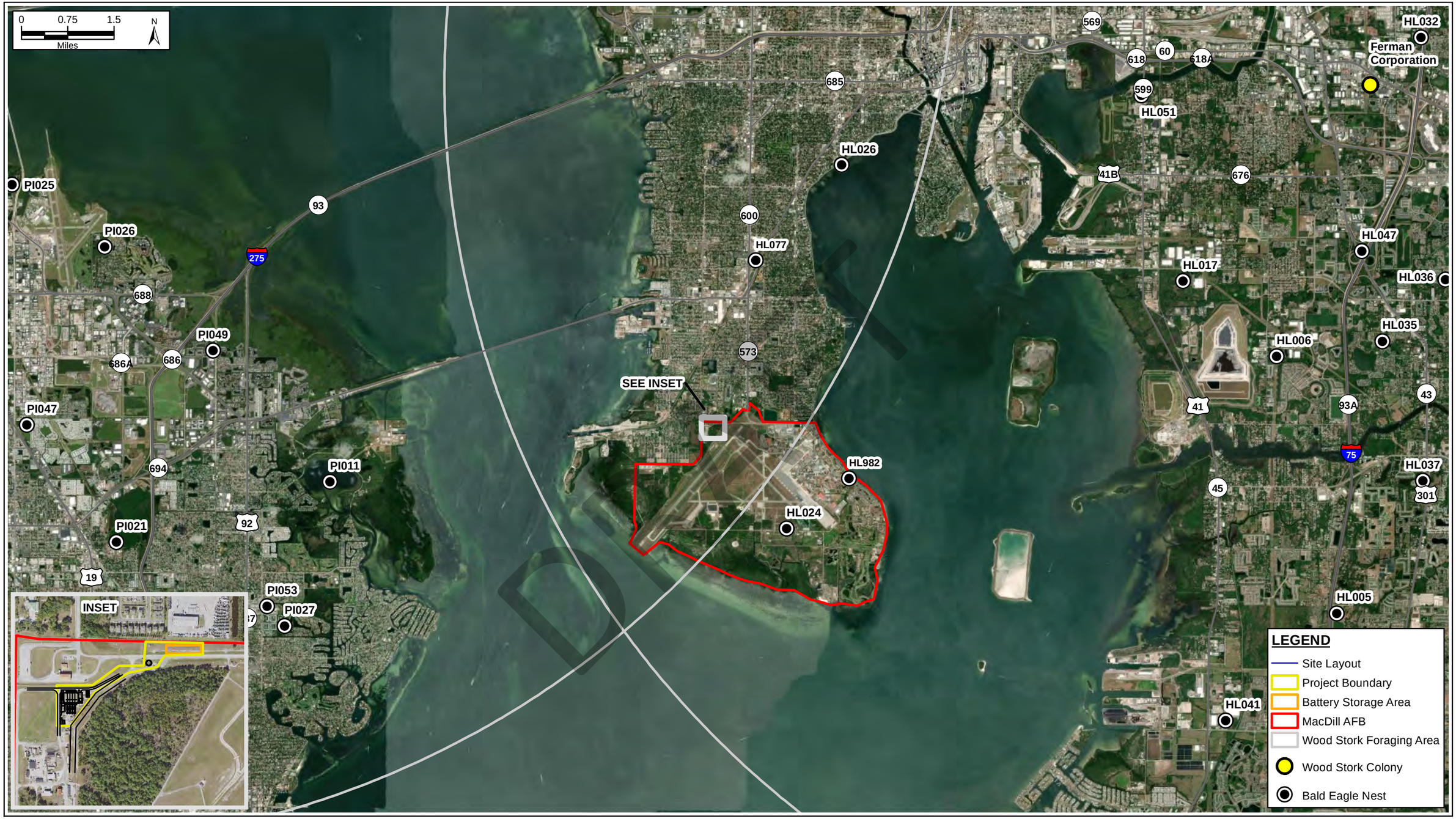

FIGURE 3-1.
PREFERRED SITE LISTED SPECIES MAP
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: FDOT, 2017; USFWS, 2017; FWC, 2017; FDOT, 2017; ECT, 2020.

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Gopher tortoises are currently a candidate species for listing by USFWS. They are typically found within upland habitats with well-drained, sandy soils. Gopher tortoise burrows are used by several other listed and non-listed wildlife species. No gopher tortoise burrows have been observed within the proposed project area during field assessments, and much of the available upland habitat has been previously developed or is heavily disturbed. As such, there is only a low probability of this species occurring within the project area. Nonetheless, TEC proposes to conduct a formal burrow survey within tortoise suitable habitat prior to development. If necessary, tortoises that may be affected by the project would be relocated from harm's way to an onsite recipient area in accordance with the Gopher Tortoise Candidate Conservation Agreement to which MacDill AFB is a party.

3.3 CULTURAL RESOURCES

A Phase I archaeological survey of the western portion of MacDill AFB was recently completed that encompasses the study area for this Proposed Action. No archaeological properties were identified within the footprint of the proposed project area; however, a low-density, precontact lithic scatter was discovered approximately 250 feet east of the project site (Figure 3-2). This find was determined ineligible for the National Register of Historic Places (NRHP). Additional information can be found in Appendix B.

MacDill also recently completed an investigation for the lost Port Tampa Cemetery. Although the location of the cemetery could not be conclusively determined, the preponderance of information gathered during the survey determined the location of the Port Tampa Cemetery to be approximately 400 feet due east of the proposed project area.

Additional information regarding cultural resources on MacDill AFB is available through the Integrated Cultural Resource Management Plan for MacDill AFB (USAF, 2018).

3.4 NOISE

The meaning of noise for this analysis is undesirable sound that interferes with speech communication and hearing or is otherwise annoying (unwanted sound). In June 1980, the Federal Interagency Committee on Urban Noise published guidelines relating day/night average sound level (DNL) values to compatible land uses. Most federal agencies have identified 65 decibels (dB) DNL as a criterion that protects those most affected by noise and that can often be achieved on a practical basis. The Air Installation

FIGURE 3-2.

PREFERRED SITE CULTURAL RESOURCES
MACDILL DISTRIBUTED GENERATION SITE
HILLSBOROUGH COUNTY, FLORIDA

Sources: FDOT, 2019; ECT, 2021.

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Compatible Use Zone (AICUZ) study (2014) plotted the DNL from 65 to 80 dB for an average day and a busy day at the base.

The DNL contours reflect the aircraft operations at MacDill AFB. The DNL 65-dB contour covers the main runway and extends approximately 1 mile southwest over Tampa Bay and approximately 1 mile northeast over South Tampa. Smaller DNL 65-dB contours are centered near the north and south parking ramps. The easternmost 65-dB contour at the northeastern end of the runway is approximately 0.5 miles from the location of the Proposed Action, except for the proposed location of the grounds maintenance yard, which lies just outside the contour. MacDill AFB conducted an AICUZ Study in 2008 that recommended land use guidelines for land surrounding the installation in the City of Tampa to assist in preparing their local land use plans.

Section 27-282.7 of the City of Tampa Code of Ordinances establishes A-weighted decibel (dBA) noise limits for sound emitted from industrial, manufacturing, and processing operations to residential, commercial, and industrial receiving land that apply to the project. Chapter 27 does not establish any C-weighted decibel noise limit criteria. The equivalent sound levels may not exceed those detailed in Table 3-1.

Table 3-1. City of Tampa Industrial Sound Level Limits

Receiving Land Use	Sound Pressure Level (dBA)	
	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Residential	60	55
Commercial	65	60
Industrial	75	75

Source: City of Tampa Code of Ordinances, Section 27-282.7.

The project may run at all hours of the day, so Tampa's nighttime sound level limits would be used as design goals for project mitigation scenarios. Tampa's limits are applicable to project sound levels only and are not inclusive of the ambient environment.

3.5 TRANSPORTATION

MacDill AFB is served by four operating gates at Dale Mabry Highway, Bayshore Boulevard, MacDill Avenue, and Tanker Way. The Tanker Way gate is used as the large vehicle (contractor truck, deliver vehicle, recreational vehicle) entry point. Large vehicles are inspected, and their credentials and destination are confirmed before entering the base.

The on-base transportation system consists of arterials, collectors, and local streets that connect with the off-base network through the four gates. On-base arterial facilities include North and South Boundary Boulevards, Bayshore Boulevard, Marina Bay Drive, and Tampa Point Boulevard. The most recent traffic study (2010) determined the service levels for traffic on-base are generally acceptable.[1]

3.6 WASTES, HAZARDOUS MATERIALS AND STORED FUELS

Hazardous wastes generated at MacDill AFB include solvents, fuels, lubricants, stripping materials, used oils, waste paint-related materials, and other miscellaneous wastes. The responsibility for managing hazardous waste lies with the generating organization and 6 CES/CEIE. Wastes come from approximately 50 locations throughout the base and are managed at satellite accumulation points base-wide.

Approximately 105 operations base-wide use hazardous materials, which include various organic solvents, chlorine, freon, paints, thinners, oils, lubricants, compressed gases, pesticides, herbicides, nitrates, and chromates. A detailed tracking and accounting system is in place to identify potentially hazardous materials and ensure base organizations are approved to use specific hazardous materials.

The base receives jet fuel (Jet A) at the defense fuel supply point by pipeline from Port Tampa. Jet A, diesel, biodiesel, gasoline, and used oil are stored throughout MacDill AFB in small to medium sized underground and aboveground storage tanks ranging in size from 55 to 1.2 million gallons.

The generated wastewater is treated at the base's privatized wastewater treatment plant. The plant is permitted to treat a volume of 1.2 million gallons per day (MGD). Currently, the plant operates at an average of approximately 0.6 MGD. All treated wastewater is currently reused on the base by reclamation, principally through spray application at the golf course located at the southeast quadrant of

[1] 2018 Final Environmental Assessment for SOCCENT Operations Facility MacDill AFB, Florida.

the base. The western portion of MacDill AFB is not tied to the base's privatized wastewater treatment plant and is served by individual septic systems.

Additionally, Environmental Restoration Program (ERP) sites are located on the MacDill AFB. A Phase I Environmental Baseline Study was conducted, and the results can be found in the administrative record. The types of ERP sites found on base currently include petroleum contamination sites, solid waste management units, areas with land use controls in place to prevent exposure to contaminants, areas subject to long-term monitoring, oil water separators, and general compliance sites. The status of active ERP sites ranges from undergoing assessments to long-term monitoring of remediation systems and/or land use controls (USAF, 2019). Research also determined that a historic north-south-oriented railroad spur extending through Parcel 1, as well as a rail spur along the eastern boundary of Parcel 1. The historical railroad activity and associated fill material used in the construction of the railroad tracks could be potential sources of PAHs and metals, such as arsenic.

Additional details are provided in section 5.5.2. of the EBS. The resulting recommendation from the report was that a Phase II EBS was warranted.

3.7 WATER RESOURCES

Surface water flows at the base are primarily from stormwater runoff. Most of the base drains toward the southern tip of the Interbay Peninsula; however, the easternmost section of the base drains toward Hillsborough Bay.

The Florida Department of Environmental Protection (FDEP) issued a National Pollutant Discharge Elimination System Multi-sector Generic Permit for Stormwater Discharge Associated with Industrial Activity (FLR05E128-004) to MacDill AFB in March 2016. FDEP issued a Phase II Municipal Separate Storm Sewer System (MS4) Permit (FLR04E059 [Cycle 4]) to MacDill AFB in January 2018. In accordance with 40 CFR 112, Oil Pollution Prevention, the base has developed a spill prevention control and countermeasures plan and a facility response plan given the location of the base adjacent to navigable waters and shorelines, as well as the amount of fuel storage capacity existing on site.

3.8 FLOODPLAINS

According to information provided by the Federal Emergency Management Agency (FEMA) (maps dated 1982 through 1991), 80 percent of the base is within the 100-year floodplain (Figures 3-3 and 3-4). The maps indicate the residential, industrial, and institutional (medical and education) land uses on the base are within the 100-year floodplain, along with most of the commercial and aviation support areas. Most of the 20 percent of land that is above the floodplain is designated for airfield operations.

EO 11988, Floodplain Management, requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. The federal CZMA of 1972 also requires federal agencies to demonstrate a proposed action is consistent with the Florida Coastal Management Program. In accordance with EO 11988, the CZMA, and AFI 32-7064, Integrated Natural Resources Management, the Air Force has issued an early public notice describing the proposed activity within the 100-year floodplain at MacDill AFB (Appendix B).

3.9 SAFETY AND OCCUPATIONAL HEALTH

This section focuses on the consideration of impacts to safety and occupational health resulting from placement of temporary facilities and construction of a new permanent facility. Safety and occupational health refers to the health and well-being of MacDill AFB personnel, employees, and contractors and other branches of services/agencies that access MacDill AFB.

All contractors and personnel performing construction activities at MacDill AFB are responsible for adhering to federal Occupational and Health Administration (OSHA) regulations and are required to conduct these activities in a manner that does not increase risk to workers or the public. OSHA regulations address the health and safety of people at work and cover potential exposure to a wide range of chemical, physical, and biological hazards, and ergonomic stressors. The regulations are designed to control these hazards by eliminating exposure to the hazards via administrative or engineering controls, substitution, use of personal protective equipment, and availability of safety data sheets.

No demolition would be associated with the Proposed Action either offsite or within the AFB.

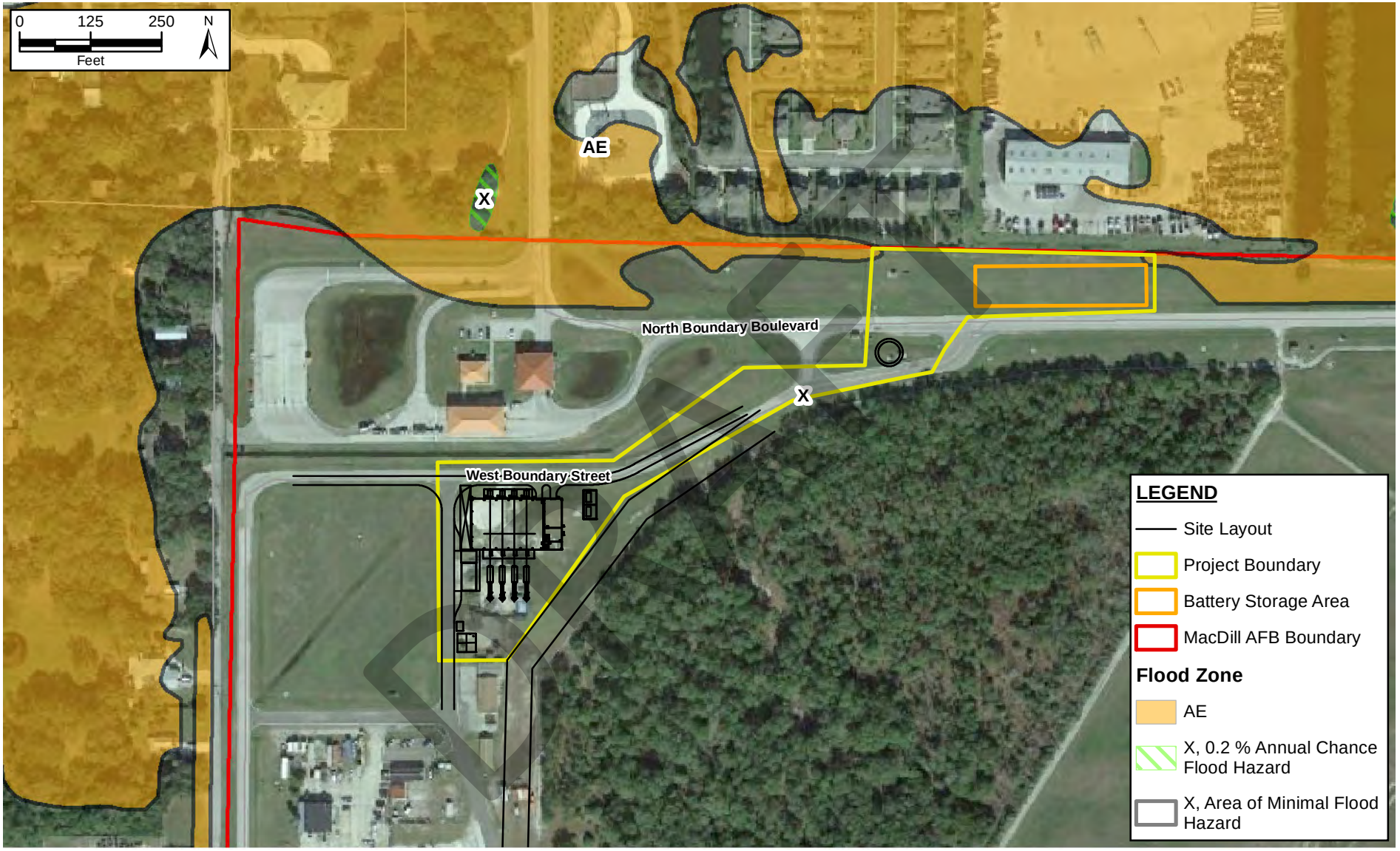

FIGURE 3-3.
FEMA FLOOD ZONE HAZARD MAP
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: FEMA, 2020; FDOT, 2019; ECT, 2020.

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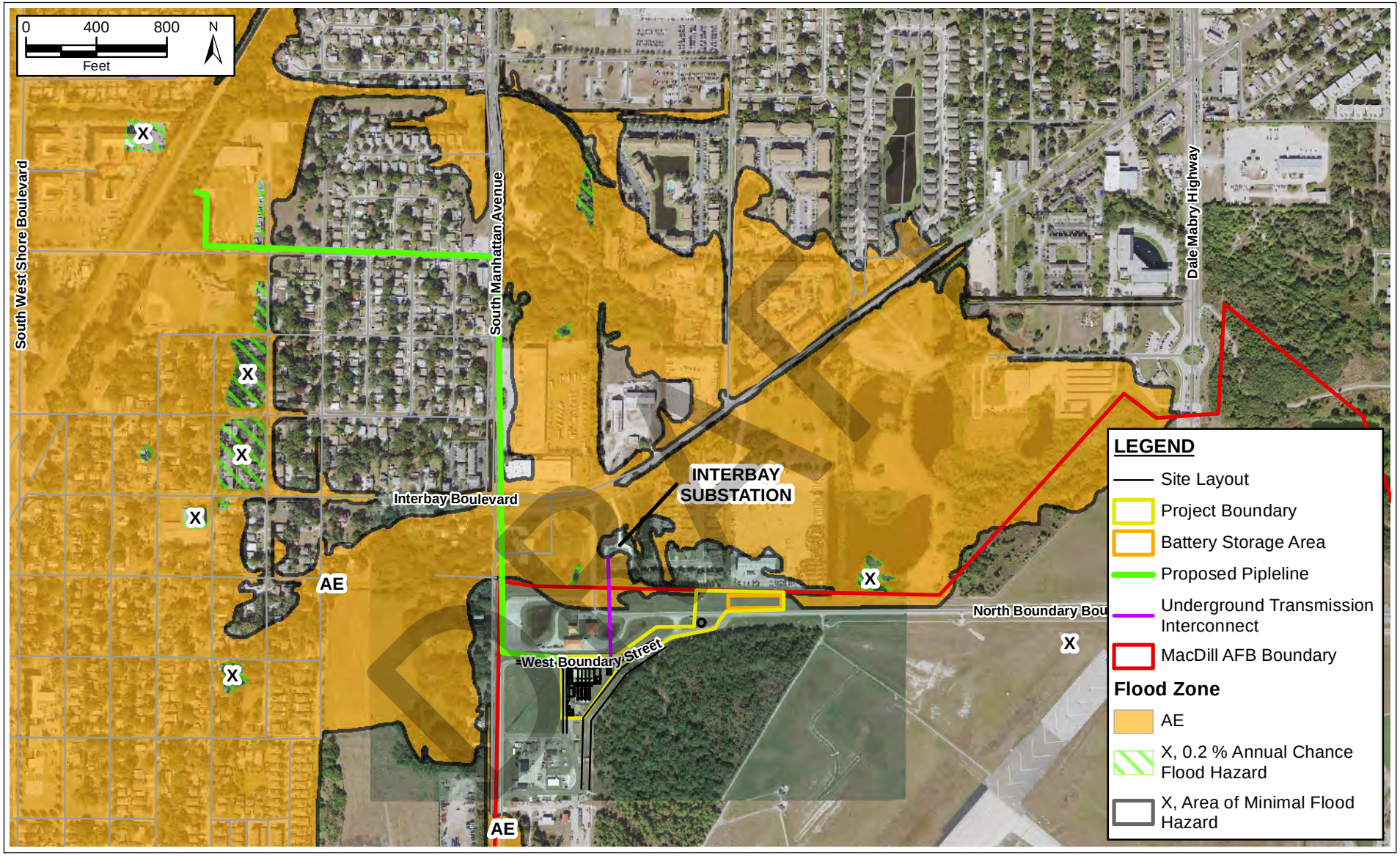

FIGURE 3-4.

FEMA FLOOD HAZARD MAP - ON AND OFFSITE FEATURES
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: FEMA, 2020; FDOT, 2019; ECT, 2020.

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3.10 ENVIRONMENTAL JUSTICE

Analysis of environmental justice evaluates impacts on environmental justice populations (i.e., minority and low-income populations) and is directed by EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. EO 12898 requires each federal agency to identify and address whether their Proposed Action results in disproportionately high and adverse environmental and health impacts on low income or minority populations.

Although not specifically identified as environmental justice populations, children and the elderly are considered sensitive receptors due to their inherent vulnerabilities. Analysis of potential impacts on children is directed by EO 13045, Protection of Children from Environmental Health Risks and Safety Risks. EO 13045 states that each federal agency "(a) shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately impact children; and (b) shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks." Activities occurring near areas that could have higher concentrations of children during any given time, such as schools and childcare facilities, might further intensify potential impacts on children. To the extent to which children might be impacted, disproportionate impact on children is inherent due to their inherent vulnerabilities. There are no standard procedures or regulatory requirements for including the elderly in the impact analysis process; however, the USEPA stresses the importance of addressing environmental issues that may adversely impact them (USEPA 2014b).

Consideration of concerns related to environmental justice and sensitive receptor populations includes the race, ethnicity, poverty status, and age of populations near a Proposed Action. For purposes of this EA, minority, low-income, child, and elderly populations are defined as follows: · Minority Population: Minority populations are defined as members of the following population groups: Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, and multi race that includes one of the aforementioned races; and Hispanic or Latino (CEQ 1997, USAF 2014c). The U.S. Census Bureau considers race and Hispanic or Latino origin (ethnicity) as two separate concepts, and these data are recorded separately:

- Low-income Population: Low-income populations are defined as individuals whose income is below the federal poverty threshold based on income data collected in the 2019 American

Community Survey. In 2019, the federal poverty threshold for an individual was $13,011 (U.S. Census Bureau 2019).

- Child Population: Children are defined as all people 5 years of age and under.
- Elderly Population: Elderly persons are defined as all people 65 years of age and over.

For the purpose of this analysis, the environmental justice and sensitive receptors within the region of influence (ROI) include the areas near MacDill AFB within which potential impacts from the MacDill AFB Alternative could occur (see Figure 3-5). The proposed activity most likely to disproportionately affect environmental justice populations and adversely affect sensitive receptor populations would be the operation of the power plant. Therefore, the ROI includes the census tracts within one mile of the planned location of the power plant that might contain people that could be affected by the MacDill AFB Alternative. Demographic data for the ROI provides key insights into environmental justice and sensitive receptor populations. The community of comparison for the ROI is the smallest set of U.S. census tracts.

FIGURE 3-5.

REGION OF INFLUENCE MAP
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: ESRI, 2018; ECT, 2020.

ECT Environmental Consulting & Technology, Inc.

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4.0 ENVIRONMENTAL CONSEQUENCES

The effects of the Proposed Action on the affected environment are considered and discussed in this section.

4.1 AIR QUALITY

4.1.1 Proposed Action

Air emissions from project construction would result from land clearing, grading and construction of the project site as well as along the natural gas pipeline and transmission line routes, operation of construction equipment internal combustion engines, and construction worker vehicle traffic and equipment deliveries. Although the overall area of the project site located on MacDill AFB property is approximately 4.5 acres, only approximately 3.3 acres would be disturbed during actual construction. Therefore, there will be minimal land clearing and grading, which could potentially emit fugitive dust emissions that could potentially result in a nuisance. The overall construction schedule is relatively short, anticipated to be approximately 12 months or less, and most equipment would arrive onsite pre-assembled. It is anticipated that only approximately 0.7 acres of land would be disturbed off MacDill AFB property for installation of the natural gas pipeline and transmission line and no land clearing or grading would be required.

Air emissions from construction activities will be minor, generated within a relatively small geographic area, and temporary in duration. Reasonable precautions will be employed to minimize fugitive dust emissions during project construction that could potentially result in a nuisance. Air emissions from construction activities have been estimated based on the area of disturbed land and the anticipated type and duration of the construction activities.

Air emissions during construction activities have been estimated based on previously accepted methods consistent with United States Air Force air emission methodologies, guidance and emission factors, Sacramento Metropolitan Air Quality Management District emission factors and procedures and EPA. Air emissions from construction activities have been summarized in Table 4-1. Details of the construction emissions are included in Appendix C.

Table 4-1. Potential Source of Non-stationary Air Emissions from Construction Activities

Construction Activity	NO_x (tons)	VOC (tons)	CO (tons)	SO_2 (tons)	PM_{10} (tons)	$PM_{2.5}$ (tons)	CO_2 (tons)
Combustion	5.1	0.4	2.2	0.4	0.4	0.3	577.2
Fugitive dust	N/A	N/A	N/A	N/A	3.8	0.4	N/A
Haul truck on-road	1.3	0.9	3.8	0.1	1.5	0.4	328.2
Commuter	0.1	0.1	0.7	0.0	0.0	0.0	98.6
TOTAL	**6.4**	**1.4**	**6.8**	**0.5**	**5.7**	**1.1**	**1,004.0**

Source: TECO, 2020.
MacDill AFB, 2020.
ECT, 2020.

Potential air emissions from project operations would primarily result from operation of the four Wärtsilä engine-generators and, to a lesser degree, the two emergency generators, one emergency fire water pump engine, and the natural gas heater. The Wärtsilä engine-generators would combust pipeline-quality natural gas exclusively to limit particulate matter (PM) and SO_2 air emissions. Each engine-generator would also be equipped with an SCR system to minimize nitrogen oxide (NO_x) emissions, an oxidation catalyst to minimize CO and VOC emissions, and an air-to-fuel control system to promote efficient combustion. Lastly, each Wärtsilä engine generator will be limited to an annual operating schedule of 3,500 hours per year, thus minimizing annual air emissions. The two emergency generators and the emergency fire water pump engine will be limited to 100 hours per year for non-emergency operation and will combust pipeline quality natural gas and ultra-low sulfur diesel, respectively. The natural gas heater can operate 8,760 hours per year and will combust pipeline quality natural gas.

Table 4-2 provides potential annual air emission estimates for the four Wärtsilä engine-generators, the two emergency generators, the fire water pump engine, and the fuel gas heater. This table also compares these potential air emissions to the Prevention of Significant Deterioration (PSD) preconstruction and the Title V operating permit major source thresholds. As shown, the Proposed Action will not trigger major source permitting for either the PSD or Title V permitting programs. From an air regulatory perspective, the Proposed Action would be subject to minor source air construction permitting and minor source air operation permitting. TEC will be responsible for obtaining and ensuring compliance with the minor source air construction permit and minor source air operation permit. These air permits will be issued to separate owner/operator and thus will be under separate control than any air construction or air operation permit issued to MAFB.

Table 4-2. Potential Source of Stationary Air Emissions from Operations

Pollutant	Proposed Action PTE (tpy)	PSD Major Source Threshold (tpy)	Title V/HAPs Major Source Threshold (tpy)	PSD Applicability (Yes/No)	Title V Applicability (Yes/No)
NO_x	25.6	250	100	No	No
CO	42.4	250	100		
VOC	38.0	250	100		
SO_2	6.3	250	100		
PM	24.4	250	100		
PM_{10}	24.4	250	100		
$PM_{2.5}$	24.4	250	100		
Formaldehyde	6.1	N/A	10		
Total HAPs	22.8	N/A	25		

Note: HAP = hazardous air pollutant.
$PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers.
tpy = ton per year.
VOC = volatile organic compound.

The General Conformity Rule is designed to ensure that any federal action or activities do not in any way cause or contribute to a violation of the NAAQS or would delay the attainment status of a nonattainment area. Obtaining all require air construction and air operation permits, reviewed by and issued through the state regulatory agency or their delegated representative authority, will ensure compliance with the NAAQS and the General Conformity Rule.

The federal PSD regulatory program is designed to protect air quality under EPA's New Source Review permitting program. Major stationary sources under the PSD program are subject to PSD regulatory requirements to ensure air quality is protected. The proposed action is not a major stationary source under the PSD program. In addition, the proposed action is not a major source under the federal Title V air operation permitting program. Based on this assessment, the project would have minor adverse impacts to the short- and long-term air quality in the immediate vicinity of the project.

4.1.2 No-action Alternative

Under the no-action alternative, the TEC distributed generation facilities would not be constructed. Air quality resources, as described in Section 3.1, would remain unchanged. Therefore, implementation of the no-action alternative would result in no significant impact to air quality.

4.2 BIOLOGICAL RESOURCES

This section focuses on vegetation types or wildlife that are important to the function of the ecosystem or are protected under federal or state law. Impacts to biological resources would be considered significant if the Proposed Action resulted in a permanent loss of high value habitat for fish and wildlife, or reduction in the population of a special status species.

4.2.1 Proposed Action

The Proposed Action takes place in a previously disturbed area with no sensitive resources. Implementation of the Proposed Action would not adversely affect known biological resources as there are no known protected species or critical habitat located within or adjacent to the proposed locations that would be impacted.[2]

No federal- or state-listed species or their habitat are present at the Proposed Action location, nor would any be impacted. Wood storks have been observed foraging in water features in the area; however, there would be no direct impact from the Proposed Action to those water features and the species is habituated to activity and noise levels associated with on-going and proposed demolition, construction, and vehicle activity at MacDill AFB. Noise associated with construction activities of the Proposed Action would be temporary and confined to regular working hours.

No gopher tortoise burrows have been observed within the proposed project area, and presence is considered unlikely due to poor habitat and the site being heavily disturbed. However, a formal burrow survey within tortoise suitable habitat would be conducted prior to development. If necessary, tortoises that may be affected by the project would be relocated from harm's way to an onsite recipient area.

Similarly, the eastern indigo snake is considered unlikely to be present due to the heavily disturbed nature of the site and lack of refugia.

Based on the analysis completed during preparation of the draft EA and in compliance with Section 7(a)(2) of the ESA, MacDill AFB notified the U.S. Fish and Wildlife Service regarding the Proposed Action, and USFWS concurred on August 20, 2020, that the Proposed Action may affect but is

[2] U.S. Air Force. 2020b. Final Environmental Baseline Survey, Energy Assurance Project Proposed Tampa Electric Company Site, MacDill Air Force Base, Florida.

not likely to adversely affect the wood stork and eastern indigo snake and would have no effect on any other federally listed species in the area of potential effect.

4.2.2 No-Action Alternative

Under the no-action alternative, the TEC distributed generation facilities would not be constructed. Biological resources, as described in Section 3.2, would remain unchanged. Therefore, implementation of the no-action alternative would result in no significant impact to biological resources.

4.3 CULTURAL RESOURCES

4.3.1 Proposed Action

With regard to archaeological resources, the project area of potential effect (APE) is defined as the area where grading, trenching, or similar land-disturbing activities would occur. For this project we have defined the APE as the primary project footprint shown in yellow on Figure 2-2, as well as a 30-foot-wide swath along the two linear corridors proposed for utility installation. These utility corridors include the underground transmission interconnection represented by the purple line on Figure 2-3 and the natural gas line depicted on Figure 2-4. Ground-disturbing activities associated with construction of the Proposed Action would primarily occur in previously disturbed areas. Although the archaeological site and the Port Tampa Cemetery are both located in the vicinity to the proposed project area, construction of the proposed power generation facility is not expected to adversely affect either site (see also Figure 3-2).

MacDill AFB received concurrence on September 9, 2020, from the SHPO that the proposed project is unlikely to adversely affect historic properties listed, or eligible for listing, in the NRHP or otherwise of historical, architectural, or archaeological value within the area of potential effect (Appendix B).

MacDill AFB is currently consulting with four Native American tribes (Seminole Tribe of Florida, Miccosukee Tribe of Indians of Florida, and Seminole Nation of Oklahoma and the Muscogee [Creek] Nation) with an expressed interest in activities at MacDill AFB, requesting concurrence with a finding of no-adverse-effect (Appendix B). Initial consultation letters were mailed to tribes on 31 August 2020 and also submitted electronically via e-mail to the tribes on 31 August 2020. A table detailing consultation and follow-up attempts is provided as part of Appendix B and are further documented in the Memorandum for Record (MFR).

4.3.2 No-action Alternative

Under the no-action alternative, the TEC distributing generation facilities would not be constructed, and existing facilities would not be relocated. Cultural resources, as described in Section 3.7, would remain unchanged. Therefore, implementation of the no-action alternative would result in no significant impact to cultural resources.

4.4 NOISE

4.4.1 Proposed Action

Project construction can generally be divided into several phases, with the noise level varying with the construction phase (based on Barnes *et al*., 1977):

- Site preparation and excavation
- Concrete pouring
- Steel erection
- Mechanical and electrical
- Clean up
- Startup and testing

Potential noise impacts during construction on MacDill AFB property are expected to be minimal and mitigated by the distance between the construction area of the engines/battery storage area and the nearest off-site receptors. Noise receptors in close proximity to the project site would likely experience some impacts from construction and/or construction-related vehicle noise. Noise generated from construction activities would include construction equipment internal combustion engines and the actual construction activities and would generally be limited to daytime hours, i.e., 7 a.m. to 6 p.m. Noise impacts from construction-related activities are expected to be relatively minor, intermittent, and temporary based on the relatively short duration of construction.

During the initial site preparation and foundation excavation phase, the major source of noise is expected to be heavy diesel-powered earth-moving equipment, such as bulldozers, graders, sheepsfoot roller compactors, dump trucks, backhoes, and front-end loaders. Typical noise levels emanating from this equipment can approach 90 dBA at a distance of 50 ft. For example, at a 50-ft distance, a bulldozer produces 90 dBA, and a tractor scraper produces 87 dBA (EPA, 1971).

Equipment used during the concrete pouring stage typically includes concrete trucks, concrete pump truck cranes, and equipment for backfilling foundations. Pile drivers (102 dBA at 50 ft [EPA, 1971]) and augers may also be used. The steel erection phase typically requires the use of cranes in varying sizes, air

compressors, welders, material delivery trucks, concrete trucks, and front-end loaders. The machinery installation phase requires the same types of equipment as the steel erection phase. The final phase, consisting generally of site cleanup and plant startup activities, is typically 10 dBA quieter than the other phases (Barnes *et al.*, 1977.)

During construction, noise related to truck traffic is normally the highest contributor due to noise levels generated (91 dBA at 50 ft [EPA, 1971]) and frequency. However, such impacts will be temporary since they would be limited to the construction phase.

A construction equipment inventory was developed for a typical construction project, with the high noise level equipment identified for evaluation. Table 4-3 presents the loudest equipment types that will generally be operating during each construction phase. The composite average or equivalent site noise level, representing noise from all equipment averaged over the workday, is also presented.

Table 4-3. Construction Equipment and Composite Site Noise Levels

Construction Phase	Loudest Construction Equipment	Maximum Equipment Noise Level at 50 ft (dBA)	Composite Site Noise Level for Construction Phase at 50 ft (dBA)
Site clearing and excavation	Bulldozer	90	89
	Truck	82	
	Backhoe	84	
	Grader	85	
	Tractor scraper	87	
	Compactor	83	
Concrete pouring	Ready-mix truck	84	87
	Mobile crane	85	
	Concrete pump	82	
	Pile driver	102	
Steel erection	Pneumatic tools	90	90
	Air compressor	76	
	Mobile crane	85	
	Cherry picker	80	
Mechanical	Pneumatic tools	90	89
	Air compressor	76	
	Mobile crane	85	
Cleanup	Truck	84	86
	Front-end loader	87	

Sources: Barnes *et al.*, 1977.
ECT, 2020.

The nearest off-property receptor is located approximately 425 ft west of the construction area. Table 4-4 presents average or equivalent construction noise levels projected at the closest off-site receptor, i.e., residences on the western property boundary. Average noise levels during the loudest construction activities are projected to be between 68 and 72 dBA at the western property boundary. Noise levels from construction activities will be lower at all other property boundaries. These noise levels from construction activities will not be continuous but rather will be intermittent and will only occur during daytime hours. Since the overall duration of each construction phase will be relatively short, noise impacts during construction will be minor.

Table 4-4. Projected Average Construction Noise Levels at Nearest (Western) Property Boundary Based on Composite Noise Levels

Construction Phase	Noise Level at Western Property Boundary (dBA)
Site clearing and construction	71
Concrete pouring	69
Steel erection	72
Mechanical	71
Cleanup	68

Source: ECT, 2020.

The project may operate during both daytime and nighttime hours, so Tampa's nighttime sound level limit would be used as design goals for project mitigation scenarios. The Tampa noise limits for residential noise receptors is 60 dBA during the daytime (7 a.m. to 10 p.m.) and 55 dBA during nighttime (10 p.m. to 7 a.m.). [ref: City of Tampa Code of Ordinances, Section 27-28.7] These noise limits are applicable to project sound levels only and are not inclusive of the ambient environment.

Ambient noise readings were obtained at several potential off-site noise-sensitive receptors in the general area of the Project. These receptors were considered to be residential noise receptors. The measured daytime sound levels ranged from 50 to 66 dBA and the measured nighttime sound levels ranged from 42 to 54 dBA. [ref: MacDill Air Force Base Sound Study, Burns & McDonnell, Revision 1, March 12, 2020]

Predictive noise modeling was performed for the proposed distributed generation engines using noise data obtained from the engine manufacturer and state-of-the-art noise predictive modeling software. Five off-

site residential noise receptors were selected in the general vicinity of the Project. The predictive results of the noise modeling for all four engine-generators at the off-site residential receptors range from 46 to 55 dBA. The noise study is appended as Appendix D. [ref: MacDill Air Force Base Sound Study, Burns & McDonnell, Revision 1, March 12, 2020]. Additionally, an acoustic enclosure will be used around the emergency generators if necessary, to meet applicable sound limitations.

Based on this assessment, the project would have minor adverse noise impacts on a short-term basis during construction and no adverse noise impacts on a long-term basis during operation in the immediate vicinity of the project.

4.4.2 No-action Alternative

Under the no-action alternative, the TEC distributed generation facilities would not be constructed. The noise environment, as described in Section 3.1, would remain unchanged. Therefore, implementation of the no-action alternative would result in no significant impact to the noise environment.

4.5 TRANSPORTATION

4.5.1 Proposed Action

An increase in traffic in the north-central portion of the base would result during implementation of the Proposed Action because of the increase in construction-related activities. These negative impacts are considered minor and short-term. Similarly, some traffic disruptions could occur along the pipeline route during construction. These impacts would be temporary and isolated. The Project will conform with all applicable local regulations, and TEC will work cooperatively with the City of Tampa during construction.

Upon completion, the Proposed Action would result in a slight increase in the number of vehicles entering the base, as a result of the additional personnel for occasional operations and maintenance activities. The transportation infrastructure, including entry and exit gates, would be able to accommodate the slight increase in traffic. Implementation of the Proposed Action would not result in a significant impact on base transportation of conflict with current base activities.

4.5.2 No-action Alternative

Under the no-action alternative no changes to transportation would be incurred by construction or operation of the Proposed Action.

4.6 WASTES, HAZARDOUS MATERIAL, AND STORED FUEL

The following section describes sanitary wastewater treatment, solid waste collection and disposal, hazardous material and waste management, and stored fuels management.

4.6.1 Proposed Action

A short-term increase in the generation of solid waste would occur during construction activities for the Proposed Action. A long-term increase in the generation of solid waste would occur after construction because of the additional activity. The base has sufficient resources to manage the short term and long-term increase in solid waste and the local landfills have sufficient capacity to accept the solid waste in the short term and long term.

The construction of restroom facilities is included in the Proposed Action. Implementation of the Proposed Action is not anticipated to result in a significant change in the total volume of wastewater to the AFB septic system. A 300- to 500-gallon holding tank of high-density polyethylene would be used to receive the high chloride regeneration wastewaters. All fittings, valves, piping should be of such a material to resist chloride corrosion. The holding tank should be vented and may be provided with a means to add a small amount of peroxide or chloride periodically to control biologic growths and odors. There should not be any significant additions of organics to support biological growth. Any suspected source of offensive odors would be eliminated at the onset. The size of the holding tank will be sufficient to accommodate the number of regeneration cycles per month, the total quantity of water that is generated from each cycle, and the anticipated pump out schedule.

Hazardous wastes/materials, such as paint, adhesives, and solvents, may be onsite during the construction work for the Proposed Action. All construction related hazardous wastes/materials, including petroleum products, would be removed and disposed of according to base procedures, as well as applicable state and federal regulations. Oils, greases, lubricants, adhesives, batteries, and other hazardous wastes/materials will be used to maintain the generation engines. Used oil and filters, greases, lubricants, and adhesive wastes may be generated during operation of the facility. Waste batteries will be generated. Minor

adverse impacts from hazardous materials or waste are anticipated from completion and operation of the project.

ERP sites are located in the vicinity of the Proposed Action, including one ERP site (SWMU-28) partially located on Site A. Entomology Wash Shop (SWMU-28) is located adjacent to the western/southwestern portion of Site A. The property is listed within the Division of Waste Management contaminated sites database, which is a listing of active or known sites. Following environmental restoration activities, a no-further-action (NFA) determination was granted for SWMU-28. Although the investigation and remediation activities sufficiently characterized and addressed the impacts at SWMU-28, as identified by the NFA determination, the presence of this site should be taken into consideration for future development activities on this site.

The environmental baseline survey also revealed a historical north-south-oriented railroad spur extending through Site A and a rail spur along the eastern boundary of Site A. The historical railroad activity and associated fill material used in the construction of the railroad tracks could be potential sources of PAHs and metals, such as arsenic.

Based on the findings of the EBS, it was recommended that MacDill AFB seek legal concurrence from Air Force Legal Operations Agency Environmental Law and Litigation and Deputy General Counsel of the Air Force for Installations, Energy and Environment regarding the historic rail spurs before proceeding with the out-grant of Parcel 1. Should MacDill AFB wish to proceed with the out-grant of the Subject Parcels following this review, the following restrictions and/or recommendations are provided:

- MacDill AFB may wish to conduct or require soil sampling by means of a Phase 2 EBS in accordance with §3.6 of AFI 32-7066 for PAHs and metals (chiefly arsenic) along the former extent of the railroad tracks/rail spur that were not characterized during previous investigations and remedial efforts completed at SWMU-28 (i.e., along track areas on the northern portion of Parcel 1 and along the eastern boundary of Parcel 1).
- Any site contamination discovered by the lessee that is different from that described herein, including areas previously remediated in association with SMWU-28, must be reported immediately to MacDill AFB.
- The lessee must apply for MacDill AFB digging permits prior to any soil disturbance to avoid damage to utilities and to avoid disturbance of areas with potential soil or groundwater contamination.

- The lessee must maintain the minimum required set-back distances from existing infrastructure (i.e., 25-foot set back from the Jet-fuel pipeline), MacDill AFB or Subject Parcel boundaries, and stormwater drainage features, as applicable.
- The lessee must maintain storm water drainage ditches located on the Subject Parcels in accordance with the integrated natural resource management plan protocols.

A 200-gallon tank will be stored onsite to supply diesel fuel for the emergency fire water pump during an event. Other storage tanks located onsite may include a 7,000-gallon new lubricating oil tank, a second separate 7,000-gallon service lubricating oil tank, and a 26,650-gallon urea storage tank, subject to final basis of design.

Waste, hazardous material and stored fuel associated with the construction and operation of the proposed facility would be stored or removed and disposed of according to base procedures, as well as applicable state and federal regulations. All tanks would be constructed, registered, and maintained in accordance with all applicable FDEP and Hillsborough County EPC requirements. It is unlikely the additional amounts of hazardous materials and hazardous wastes would exceed any new reporting threshold and; therefore, any new impacts would be insignificant. Hazardous materials and waste would continue to be managed in accordance with State of Florida and federal regulations, and through MacDill AFB's hazardous waste management plans.

4.6.2 No-action Alternative

Under the no-action alternative, the TEC distributed generation facilities would not be constructed, and existing facilities would not be relocated. Wastes, hazardous materials, and stored fuels, as described in Section 3.4, would remain unchanged. Therefore, implementation of the no-action alternative would result in no significant impact to wastes, hazardous materials, and stored fuels.

4.7 WATER RESOURCES

The analysis of potential impacts to water resources considers the potential impacts on groundwater, surface water, and wetlands.

4.7.1 Proposed Action

No impacts to wetlands are expected to occur as a result of the Proposed Action. Impacts to wetlands during construction would be avoided through the use of specialized construction techniques (such as horizontal directional drill) and BMPs. Some soil erosion would occur during construction activities; however, implementation of a sediment and erosion control plan, including use of BMPs such as silt fencing and hay bales, would dramatically reduce erosion and avoid potential storm water impacts. Any short-term, minor, adverse impacts on the MacDill AFB stormwater system resulting from construction associated with the Proposed Action Soil disturbance from construction activities has the potential to temporarily disrupt existing man-made stormwater drainage systems and natural drainage patterns through soil erosion and sediment production. Because construction would disturb more than 1 acre, discharge of stormwater runoff from construction activities must be covered under the National Pollutant Discharge Elimination System Construction General Permit (CGP) and authorized by FDEP. The CGP would require development of a site-specific stormwater pollution prevention plan (SWPPP) that includes soil erosion and sediment controls, and construction site waste control components.

Under the Proposed Action, there are no direct and only minimal indirect discharges to groundwater. Construction of the new impervious surfaces would include appropriately sized stormwater treatment/attenuation areas. The stormwater retention areas would collect surface water runoff from the impervious surfaces and allow it to infiltrate into the ground, recharging the groundwater in the surficial aquifer. Design of the stormwater management system would be permitted by the Southwest Florida Water Management District and would, therefore, be required to demonstrate a no-net increase in the post-development discharge of pollutants to receiving surface waters.

Wastewater generated under the Proposed Action includes a minimal amount of water softener discharge associated with the makeup water system. A review of disposal options concluded that a connection to the AFB wastewater treatment system would be cost-prohibitive, and the City of Tampa would not provide a service connection, since this facility would be located inside the AFB. Under the Proposed Action, the water softener discharge would be directed to an onsite holding tank. Due to the small volume of discharge generated, it is anticipated that the capacity of this holding tank would be between 300 and 500 gallons that would be contracted for pumping out on yearly basis or more frequently as needed. Any wastewater associated with the fire suppression system would collect in the stormwater attenuation areas, in the occasion of a fire event.

Additionally, the construction of restroom facilities is included in the Proposed Action. Implementation of the Proposed Action is not anticipated to result in a significant change in the total volume of wastewater to the AFB septic system.

Implementation of the Proposed Action would result in additional activity onsite, which would be accompanied by a slight increase in potable water usage.

Short-term impacts to water resources resulting from construction of the Proposed Action are expected to be minor and managed through the implementation of BMPs. Long-term minor impacts to water resources are not expected to be significant and would be managed through design controls.

4.7.2 No-action Alternative

Under the no-action alternative, the TEC distributed generation facilities would not be constructed, and existing facilities would not be relocated. Water resources, as described in Section 3.5, would remain unchanged. Therefore, implementation of the no-action alternative would result in no significant impact to water resources.

4.8 FLOODPLAINS

4.8.1 Proposed Action

In accordance with the requirements of EO 11988, CZMA, and Air Force Manual 32-7003, USAF must demonstrate there is no practicable alternative to carrying out the Proposed Action within the floodplain. The Proposed Action on the base property largely avoids the 100-year coastal floodplain. However, the proposed underground transmission line connecting the generation units, battery units, and the Interbay substation are located partially within the 100-year floodplain (Figure 3-3).

Similarly, off base features, including the underground transmission interconnection and a proposed natural gas pipeline, are located within the floodplain (Figure 3-4). The impacts would be avoided by using specialized construction methods such as horizontal directional drilling. Both features would be designed with the expectation of being regularly submerged by groundwater. Any additional impacts to these components due to floodwater levels up to the 100-year floodplain would be accounted for during the detailed design.

There are no long-term direct impacts to the floodplain associated with the development. These features will be constructed underground and will not impact floodplain hydrology once constructed. Hence, implementation of the Proposed Action would result short-term minor direct impacts and long-term indirect impacts to the floodplains. Therefore, the implementation of the proposed action would result in no significant impacts to floodplains.

4.8.2 No-action Alternative

Under the no-action alternative, the TEC distributed generation facilities would not be constructed, and existing facilities would not be relocated. Floodplains, as described in Section 3.6, would remain unchanged. Therefore, implementation of the no-action alternative would result in no significant impact to floodplains.

4.9 SAFETY AND OCCUPATIONAL HEALTH

The proposed construction activities for the project would pose safety hazards to the workers similar to those associated with typical industrial construction projects, such as falls, slips, heat stress, and machinery injuries. Construction would not involve any unique hazards and all construction methods would comply with OSHA requirements to ensure the protection of workers and the general public during construction. Diligent, but not controlling, governmental oversight of contractor activities would help assure OSHA compliance.

4.10 ENVIRONMENTAL JUSTICE

4.10.1 Proposed Action

Approximately 39 percent (38.8 percent) of the population in the ROI identifies as minority (i.e., those classified as not white and not Hispanic or Latino), which is lower than both Tampa (55) and Florida (45 percent). Table 4-5 provides information on race, ethnicity, and poverty characteristics across all geographic areas. Low-income residents make up 31.5 percent of the ROI, which is lower than Tampa (41 percent) and Florida (36 percent) (EJ Screen).

Table 4-5. Determination of Minority and Low-Income Populations

Geographic Area	Total Population	Percent Minority	Disproportionate	Percent Low-Income	Disproportionate	Minority Population	Low-Income Population
Florida	21,477,737	45	—	36	—	—	—
Tampa	366,082	55	—	41	—	—	—
ROI	29,123	38.8	No	31.5	No	No	No

*For which Minority Population is Calculated

Source: EJ Screen, 2020.

Table 4-6 provides the age distribution in the ROI, Tampa, and Florida. The population in the ROI has a slighter higher percentage of children under 5 (7.6 percent) compared to Tampa (6 percent) and Florida (5 percent). The percentage of elderly persons is lower in the ROI (10.5 percent) than in Tampa (12 percent) and Florida (19 percent).

Table 4-6. Determination of Age Populations (Percent)

Geographic Area	ROI	Tampa	Florida
Under 5	7.6	6	5
Over 65	10.5	12	19

While the population density of children within 1 mile of the proposed site may be higher, we look for "disproportionate impacts," which is defined as the "differences in impacts or risks that are extensive enough that they may merit Agency action." (EPA, 2016; AF Guide for EJ Analysis under the EIAP, September 2020). There is a day care facility located approximately 2,000 feet to the north-northwest and an elementary school located approximately 3,000 feet to the west. Children would be participating in outdoor activities during the day. The available census data allows for determining the population of children under 5 at the census tract level.

As noted in the discussion of air quality impacts describing potential sources of air emissions, the types of equipment to be used, the number of hours of operation, the use of selective catalytic reduction technology, and other factors will limit the potential impact to air quality even in the immediate vicinity of the project.

The Proposed Action would cost approximately $105 million to complete, based on 2020 cost estimates, and approximately $1.2 million in fuel costs per year to operate. Minority or low-income populations are not disproportionately represented in the area around near the Proposed Action; Therefore, no adverse effects on minority and low-income populations would occur with implementation of the Proposed Action at MacDill AFB.

Minority and low-income populations are not disproportionately represented in the likely area that could be impacted by the Proposed Action. Therefore, no adverse effects on minority and low-income populations are anticipated with implementation of the Proposed Action at the selected location at MacDill AFB.

4.10.2 No-action Alternative

Under the no-action alternative, no expenditure would occur. Therefore, there would be no additional economic impact to the local region. Impacts on environmental justice and sensitive receptor populations would not transpire under the no-action alternative. Facility construction would not occur, and there would be no increases in support personnel or aircraft operations. Environmental justice and sensitive receptor conditions at and surrounding MacDill AFB would remain unchanged when compared to existing conditions.

4.11 OTHER ITEMS WITH NO POTENTIAL IMPACTS

In addition to the resources discussed in the previous sections, the potential impacts to geology and soils on the MacDill AFB were evaluated along with socioeconomics and airspace and airfield operations. Based on this evaluation, there are no potential impacts likely to any of these resources resulting from implementation of the Proposed Action or any of the alternatives considered to be resources on the base.

The Proposed Action or any of the alternatives would also not affect minority or low-income populations. There are no minority or low-income populations near the Proposed Action; thus, there will not be disproportionately high or adverse impacts on such populations. No adverse environmental impacts would occur outside MacDill AFB. Therefore, no adverse effects on minority and low-income populations would occur with implementation of the Proposed Action at MacDill AFB.

4.12 COMPARISON OF ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION AND ALTERNATIVES

4.12.1 No-action Alternative

Evaluation of the no-action alternative is a requirement of NEPA and its associated implementing regulations (40 CFR 1502.14[d]) to allow federal decision-makers to compare the impacts of the proposed project and its alternatives with the impacts of not constructing the project. The no-action alternative considers the environmental impacts if the proposed project was not accomplished. Under the no-action alternative, the generation facility would not be constructed on AFB property. The project would either not be constructed or an alternative location offsite would be utilized; in either case, the environmental conditions on base would remain at baseline.

4.12.2 Proposed Action

Table 4-7 presents a summary comparison of the potential environmental impacts of the Proposed Action and the no-action alternative.

4.13 CUMULATIVE IMPACTS

CEQ regulations for NEPA implementation require that the cumulative impacts of a Proposed Action be assessed (40 CFR §§ 1500–1508). A cumulative effect is defined as the following (40 CFR § 1508.7): *The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.*

CEQ's guidance for considering cumulative effects states that NEPA documents "should compare the cumulative effects of multiple actions with appropriate national, regional, state, or community goals to determine whether the total effect is significant." Assessing cumulative effects involves identifying and defining the scope of other actions and their interrelationship with a Proposed Action or alternatives. The scope must consider other projects that coincide with the location and timeline of a Proposed Action and other actions. Table 4-8 lists planned MacDill AFB Installation Development Projects FY21-FY25.

As indicated in Table 4-7, the Proposed Action would result in minor, short-term beneficial impacts to socioeconomics. The Proposed Action would minimize new impacts to wetlands and floodplains through

Table 4-7. Comparison of Environmental Consequences

Environmental Resources	Proposed Action	No-action Alternative
Air quality	Short-term minor adverse Long-term minor adverse Cumulative no impact	Short-term no impact Long-term no impact Cumulative no impact
Noise	Short-term minor adverse Long-term no impact Cumulative no impact	Short-term no impact Long-term no impact Cumulative no impact
Hazardous materials	Short-term minor adverse Long-term minor adverse Cumulative no impact	Short-term no impact Long-term no impact Cumulative no impact
Water resources	Short-term minor adverse Long-term minor adverse Cumulative no impact	Short-term no impact Long-term no impact Cumulative no impact
Floodplains	Short-term minor adverse Long-term no impact Cumulative no impact	Short-term no impact Long-term no impact Cumulative no impact
Cultural resources	Short-term no impact Long-term no impact Cumulative no impact	Short-term no impact Long-term no impact Cumulative no impact
Transportation	Short-term minor adverse Long-term no impact Cumulative no impact	Short-term no impact Long-term no impact Cumulative no impact
Safety and occupational health	Short-term no impact Long-term no impact Cumulative no impact	Short-term no impact Long-term no impact Cumulative no impact
Socioeconomics	Short-term minor beneficial Long-term no impact Cumulative no impact	Short-term no impact Long-term no impact Cumulative no impact
Biological resources	Short-term no impact Long-term no impact Cumulative no impact	Short-term no impact Long-term no impact Cumulative no impact
Geology and soils	Short-term no impact Long-term no impact Cumulative no impact	Short-term no impact Long-term no impact Cumulative no impact
Environmental justice	Short-term no impact Long-term no impact Cumulative no impact	Short-term no impact Long-term no impact Cumulative no impact
Airspace and airfield operations	Short-term minor adverse Long-term no impact Cumulative no impact	Short-term no impact Long-term no impact Cumulative no impact

1

2 **Table 4-8. Planned MacDill AFB Installation Development Projects FY21-FY25**

Project Number	Project Title	Estimated Total Area Impacted (SF)	Project Description
NVZR153713	ADAL Fuel Cell Maintenance Dock Building 1071	30,500	Renovate approximately 17,000 SF of Building 1071 and construct a new 13,500 SF addition to improve KC-135 Fuel Maintenance.
NVR173702	Construct MARCENT HQ Facility	59,700	Construct an approximately 60,000 SF facility within the existing CENTCOM Complex and demolish Buildings 535 and 548 to support MARCENT Command functions.
NVZR153704	Construct CENTCOM Support Facility	134,400	Construct a multi-story CENTCOM Support Facility and demolish Buildings 529, 530, 531, 550, 1047, 3070, 3071, 3072, and 3541. Needed to accommodate personnel for command and control functions.
NVZR133713	Construct Youth Center	44,000	Construct a Youth Activity Center to consolidate functions currently operating in Building 307.
NVZR18-0070	Construct Alert Facility/Alert Ramp Improvements	86,000	Construct a 2-story 30,000 SF building with an additional alert ramp to house alert crews and to support operational readiness and administrative functions.
NVZR160038 & NVZR160034	Construct Wastewater Treatment Plant (WWTP) Administration Building and Storage Facility	40,000	Construct an administration building and adjacent warehouse along the shoreline at the WWTP for administrative and operational functions. Install new electrical utilities to upgrade service to the WWTP.
NVZR080003	Construct FAM Camp Annex	800,000	Clear wooded areas to add RV parking pads, a centralized activity center, and other amenities for the FAM Camp.
NVZR173708	Construct New Fire Station	10,000	Construct a new fire station with larger bays and drive-thru access near the Base Theater to house modern fire-fighting equipment.
NVZR053706	Construct Fuels Management Facility	10,500	Demolish Building 1062 and construct a new adequately sized and properly configured Fuel Management Facility, including a laboratory, resource control center, and offices.

Project Number	Project Title	Estimated Total Area Impacted (SF)	Project Description
NVZR093705	Extend Great Egret Avenue	60,000	Extend Great Egret Ave to S. Boundary Blvd to alleviate traffic congestion and improve traffic flow and promote pedestrian safety.
NVZR173706	Construct LRS Vehicle Maintenance Complex	32,000 (Building)/ 293,000 (Parking/ Roadway)	Demolish Buildings 119, 175, 178, 500, 510, and 3175 to clear site for new construction. New construction would consist of multiple buildings and a parking lot to support Logistics Readiness, Maintenance and Operations Squadron. Approximately 975 feet of Marina Bay Drive would be realigned, and two box culverts would be added.
Unknown/IDP	SOCOM Main HQ Replacement Facility (Building 501)	210,000	Construct a new secure SOCOM HQ facility to accommodate approximately 5,000 personnel needed to perform command and control functions.
Unknown / IDP	Construct SOCOM Parking Lot	43,500	Construct a new parking lot with approximately 400 parking spaces near the SOCOM facility to correct deficiency in parking availability.
NVZR143705	Add COCOM Essential Power Upgrade	Unknown	Upgrade to electrical system to provide reliable continuous power without voltage fluctuations.
Unknown / IDP	Construct Multi-Use Access Trails	30	Survey, design, and permit a series of access trails to provide established, maintained access points for accomplishing invasive species control work, provide maintained fire breaks for access and prescribed burn preparation and to provide for recreational opportunities.
Unknown / IDP	Dredge Hole Fill & Seagrass Restoration	10	Survey, design, model, and obtain permits for the placement of fill material in two historic dredge holes to restore historic bay bottom elevations in order to support the growth of seagrass beds and prevent further erosion as part of MacDill's Shoreline Stabilization effort.

the use of collocation opportunities and through the use specialized construction techniques and best management practices during construction.

When considered as a portion of the total proposed and/or ongoing construction projects on MacDill AFB[3], the Proposed Action would have no significant cumulative impacts to air quality, noise, waste management, water resources, transportation, safety and occupational health, biological resources, geology and soils, cultural resources, environmental justice, or airspace and airfield operations, as outlined in Table 4-7. The Proposed Action, when combined with past, present, and reasonably foreseeable future projects, would similarly not result in cumulatively significant effects on any resource area. Non-significant potential cumulative effects for each resource area identified in the previous sections are elaborated on below.

4.13.1 Air Quality

Taking into account the effects of all past, present, and reasonably foreseeable emissions, potential air emissions generated by construction and operation of the Proposed Action would be minor. It is understood that construction activities from the Proposed Action will be temporary and of relatively short duration. Air emissions during operation of the Proposed Action will be minor due to the limited size and nature and would not contribute appreciably to adverse cumulative effects to air quality. No planned project has been identified that when combined with the Proposed Action would have greater than significant effects to air quality. These effects would be minor.

4.13.2 Noise

Short-term minor, adverse effects from the Proposed Action during construction could occur and add cumulatively to noise generated from other proposed construction projects, temporarily resulting in a minor increase in overall noise impacts. The noise affecting the immediate area surrounding MacDill AFB would continue to be dominated by aircraft takeoff and landing operations. Additionally, the best available noise data were used as a comparative baseline to determine the level of effects. The Proposed Action will not contribute to long-term impacts to noise levels at receptors located off the air force base property.

[3] 2018 Final Environmental Assessment for SOCCENT Operations Facility MacDill AFB, Florida.

4.13.3 Water Resources

Short-term adverse, cumulative impacts on water resources would be expected from implementation of the Proposed Action and other cumulative projects involving ground disturbance. Soil disturbance from construction could temporarily result in erosion, sedimentation, and degraded water quality. The cumulative increase in impacts resulting from the Proposed Action and cumulative projects would be considered a minor contribution in the context of the whole watershed.

Because some of the Proposed Action takes place within the 100-year floodplain, construction activities when considered in conjunction with some of the other cumulative projects may contribute to a net increase of impacts within the floodplain. In accordance with federal and state stormwater regulations, the post-development hydrologic conditions of project areas must be maintained as they were during predevelopment. For these project areas, preservation of pre-development hydrologic conditions would be ensured through utilization of new and existing stormwater management systems and adherence to SWPPPs and incorporation of other BMPs. Appropriate low-impact development strategies would also be expected to attenuate potentially long-term, adverse impacts on water resources.

While long-term adverse impacts are not expected, there could be short-term, adverse, cumulative impacts on wetlands and waters of the United States. The Proposed Action would not result in direct impacts on wetlands, although it is possible that cumulative projects could result in direct or indirect impacts on wetlands. Design, siting, use of specialized construction techniques and the proper implementation of construction BMPs would minimize potential cumulative impacts.

5.0 CONCLUSIONS

Based on the analyses presented in this EA, it is expected that the Proposed Action would not have a significant effect on the quality of the environment and would have the added benefit of providing the area with increased energy security capability.

6.0 MANAGEMENT REQUIREMENTS

6.1 AIR QUALITY

Minor source air construction and air operation permits would be required for the distributed generation units. Reasonable precautions would be implemented to control emissions of unconfined particulate matter during construction activities in accordance with Rule 62-296.320(4)(c), Florida Administrative Code (F.A.C.). All hazardous materials used during construction must comply with the MacDill AFB Hazardous Materials Management Program's requirements for low volatile organic compound content.

6.2 HAZARDOUS MATERIALS/WASTES

Hazardous materials and stored fuels must be approved and tracked through MacDill AFB's Hazardous Materials Management Program. Characterization and disposal of any hazardous or special waste must be coordinated with MacDill AFB's Environmental Compliance Program. Permitting through the Hillsborough County Environmental Protection Commission would be required for large storage tanks (over 550 gallons).

6.3 WATER RESOURCES

Appropriate water quality permit applications for active construction sites and postconstruction storm water management systems must be submitted for the distributed generation units, including USACE permitting and an Environmental Resource Permit from FDEP. Depending on design level details not yet determined, the project may meet the threshold for a General Permit for a Stormwater Management System in uplands serving less than 10 acres of total project area and less than 2 acres of impervious surface under Section 403.814(12) F.S.[HB 589 2016]. Additionally, BMPs, such as silt screens and placement of hay bales, must be employed during construction to prevent erosion and stormwater violations during all construction activities. New construction must comply with applicable water and energy conservation requirements.

6.4 SAFETY AND OCCUPATIONAL HEALTH

Construction activities must be compliant with current OSHA standards or more stringent standards if applicable. A site-specific health and safety plan must be prepared prior to initiating construction. Workers completing excavation or dirt-moving activities must have completed 40-hour hazardous waste operations and emergency response training and the annual 8-hour refresher course.

6.5 BIOLOGICAL RESOURCES

Ground surface areas disturbed during construction must be reseeded or revegetated with native flora.

7.0 PERSONS CONTACTED

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9.0 REFERENCES

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APPENDIX A

AIR FORCE FORM AF 813

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol
RCS:

INSTRUCTIONS: *Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).*

SECTION I - PROPONENT INFORMATION

1. TO *(Environmental Planning Function)*	2. FROM *(Proponent organization and functional address symbol)*	2a. TELEPHONE NO.
6 CES/CEIEC	6 CES/CEP	

3. TITLE OF PROPOSED ACTION
MacDill Distributed Generation Facility

4. PURPOSE AND NEED FOR ACTION *(Identify decision to be made and need date)*
MacDill AFB seeks to improve the installation's energy resilience through establishment of alternative and/or redundant electrical power generation facilities. Redundant electrical power systems are needed to improve mission sustainability.

5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES *(DOPAA) (Provide sufficient details for evaluation of the total action.)*
Construct and operate natural gas-fired distributed generation facilities. The project includes a battery storage component and offsite underground transmission and pipeline for natural gas supply to the four proposed Wartsila units.

6. PROPONENT APPROVAL *(Name and Grade)*	6a. SIGNATURE	6b. DATE

SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY *(Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U= unknown effect)*	+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE *(Noise, accident potential, encroachment, etc.)*	☐	☒	☐	☐
8. AIR QUALITY *(Emissions, attainment status, state implementation plan, etc.)*	☐	☐	☒	☐
9. WATER RESOURCES *(Quality, quantity, source, etc.)*	☐	☒	☐	☐
10. SAFETY AND OCCUPATIONAL HEALTH *(Asbestos/radiation/chemical exposure, explosives safety quantity-distance, bird/wildlife aircraft hazard, etc.)*	☐	☐	☒	☐
11. HAZARDOUS MATERIALS/WASTE *(Use/storage/generation, solid waste, etc.)*	☐	☐	☒	☐
12. BIOLOGICAL RESOURCES *(Wetlands/floodplains, threatened or endangered species, etc.)*	☐	☒	☐	☐
13. CULTURAL RESOURCES *(Native American burial sites, archaeological, historical, etc.)*	☐	☒	☐	☐
14. GEOLOGY AND SOILS *(Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)*	☐	☒	☐	☐
15. SOCIOECONOMIC *(Employment/population projections, school and local fiscal impacts, etc.)*	☒	☐	☐	☐
16. OTHER *(Potential impacts not addressed above.)*	☐	☐	☐	☐

SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION

17. ☐ PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # _____ ; OR
☒ PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.

18. REMARKS

19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION *(Name and Grade)*	19a. SIGNATURE	19b. DATE

APPENDIX B

PUBLIC AND STAKEHOLDER LIST AND COMMUNICATIONS

APPENDIX B
PUBLIC AND STAKEHOLDER LIST AND COMMUNICATIONS

Federal Agency Contacts

U.S. Army Corps of Engineers, Mobile District

U.S. Fish and Wildlife Service Southeast Region, Regional Director

State Agency Contacts

Florida Coastal Management Program, Florida Department of Environmental Protection

Florida Department of Environmental Protection

Florida Division of Historical Resources

Florida Office of Intergovernmental Programs; Florida State Clearinghouse

Tribal Contacts

Seminole Tribe of Florida

Seminole Nation of Oklahoma

Miccosukee Tribe of Florida

Muscogee (Creek) Nation

BRIEFLY

UNITED STATES

FACEBOOK SAYS IT STOPPED THREE NETWORKS USING FAKE ACCOUNTS

Facebook said it took down three small, separate networks using fake accounts to try to mislead people on its social media sites, including at least one account sowing misinformation about the election. Two of the networks were targeting audiences in the United States, and one fake account was trying to convince people of unsubstantiated claims that voting systems have been compromised. Facebook took down the three networks under its coordinated inauthentic behavior policy, which removes fake accounts that work together to try to mislead people about who they are and their intentions. The company used the same policy this summer to take down a network of more than 100 pages and accounts affiliated with felon and former Republican operative Roger Stone. acebook was caught in a firestorm after such networks attempted to manipulate the 2016 election. It only discovered and took many of them down months after the election wrapped up.

JAE C. HONG | Associated Press

CALIFORNIA

Winds a risk as wildfires force thousands to evacuate

Firefighter Raymond Vasquez battles the Silverado Fire on Monday in Irvine, where residents had to evacuate and two firefighters were critically injured. A few miles away, another blaze sent people fleeing from Yorba Linda. More than 90,000 people were under evacuation orders in Southern California on Tuesday. Forecasts call for Santa Ana winds, with some of the strongest gusts howling through Orange County.

UNITED STATES

Google to ban political ads after election

Google said Tuesday it will ban all ads related to the U.S. election after polls close Nov. 3, adding it expects the ban to last at least a week. The company, based in Mountain View, Calif., cited its "sensitive events" policy, which seeks to stop brands from profiting off fast-moving, critical events. Election results will probably take longer to confirm this year as more people vote by mail, and Google said in a blog post Tuesday that the ban is necessary "to limit the potential for ads to increase confusion post-election." The ban will cover any ad that mentions a candidate, a political party, or an election, among other election-related content. Google used to same policy to halt political ads when protests broke out following the election in Belarus in August. The move follows similar ones by other tech giants. Facebook and Twitter have announced similar bans on political advertising in the days after the election

EUROPE

Virus restrictions spark new protests

Italy faced more nationwide protests Tuesday against virus-fighting measures like regional curfews, evening shutdowns for restaurants and bars and the closures of gyms, swimming pools and theaters — a sign of growing discontent across Europe with renewed coronavirus restrictions. But it wasn't just Italy. All of Europe is grappling with how to halt a fall resurgence of the virus before its hospitals become overwhelmed again. Nightly curfews have been implemented in French cities and in Spain, and restaurants and bars in Italy must close at 6 p.m. Schools have been closed in Northern Ireland and the Czech Republic. German officials have ordered de-facto lockdowns in some areas near the Austrian border and new mask-wearing requirements are popping up weekly across the continent, including a nationwide requirement in Russia.

FAITH IN ELECTIONS

1,000

More than 1,000 clergy members, religious scholars and other faith-based advocates have signed a statement that supports a comprehensive path to "a free and fair election" and urges leaders to heed the verdict of "legitimate election results" regardless of who wins in November. Signatories include senior officials at the National Association of Evangelicals and prominent religious advisers to Presidents George W. Bush and Barack Obama. The statement does not mention President Donald Trump or Democratic presidential nominee Joe Biden by name.

CANADA

Virus spike follows holiday gatherings

As the holiday season approaches amid a surge in coronavirus cases across the country, a Thanksgiving-related spike in Canada may serve as a cautionary tale for the United States. Canadians celebrate Thanksgiving on the second Monday of October, and both provincial and federal officials have pointed to the holiday as a culprit as case counts in much of Canada climb. In Ontario, officials logged a record-high number of daily cases over the weekend, and the province of British Columbia announced new restrictions on private gatherings after a weekend of record new cases.

Times news services

LEGAL NOTICE

NOTICE FOR EARLY PUBLIC REVIEW OF A PROPOSED ACTIVITY WITHIN THE 100-YEAR FLOODPLAIN – UNITED STATES AIR FORCE

The United States Air Force (USAF) is inviting public input on any practicable alternatives for a proposed activity within the 100-year floodplain at MacDill Air Force Base (AFB). The proposed action would include construction and operation of a distributed power generation facility, which includes four natural gas reciprocating internal combustion engines capable of producing 75 megawatts (MW), a battery energy storage system capable of 20-MW output, an offsite underground transmission line, and a pipeline for natural gas supply to the facility.

This notice is required by Executive Order 11988 and has been prepared and made available to the public by the USAF in accordance with 32 CFR 989 and Air Force Manual 32-7003 for actions proposed within the 100-year floodplain. The USAF invites the public to provide comments on the proposal, including any practicable alternatives to constructing in the floodplain.

The public comment period ends 30 days after the date of this notice. Address written comments to the 6 ARW Public Affairs, 8209 Hangar Loop Drive, Suite 14, MacDill AFB, Florida 33621-5502 or via email to 6.ARW.pa@us.af.mil. The telephone number is (813) 828-2215.

10/28/2020 0000117833-01

U.S. AIR FORCE

Lottery results (For late drawings, go to **tampabay.com/lottery**.)

Pick 2, 3, 4, 5
T..., Oct. 27, midday: 4 **280** **0322** **26321**
M..., Oct. 26, evening: 4 **013** **6112** **49119**

Fantasy 5
T..., Oct. 27: **Not available**
M..., Oct. 26: **12-13-16-21-36**

Correct	Winners	Payout
5 of 5	0	$0
4 of 5	224	$555.00
3 of 5	7,579	$21.00

Cash4Life
T..., Oct. 27: **Not available**

Lotto
Estimated jackpot for Wednesday: **$10.25 million**
Sat., Oct. 24: **12-15-32-35-41-53**

Powerball
Estimated jackpot for Wednesday: **$116 million**
Sat., Oct. 24: **18-20-27-45-65**
Powerball: **6** Power Play: **2**

Mega Millions
Today's estimated jackpot: **$109 million**

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PUBLIC NOTICE

UNITED STATES AIR FORCE

Notice of Availability

Draft Environmental Assessment (EA) for the Distributed Energy Generation Facility at MacDill Air Force Base (AFB), Florida

The United States Air Force (USAF) invites public review and comment on a USAF Environmental Impact Analysis Process (EIAP) document for the following project at MacDill AFB: construction and operation of a distributed power generation facility, which includes four natural gas reciprocating internal combustion engines capable of producing 75 megawatts (MW), a battery energy storage system capable of 20-MW output, an offsite underground transmission line, and a pipeline for natural gas supply to the facility.

The USAF invites public participation through the solicitation of comments on the Draft EA and Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA). Comments are invited and will be accepted for 30 days from the publication of this notice. The Draft EA and FONSI/ FONPA is available on the MacDill AFB public website, http://macdill.af.mil/, and a hard copy is available at the following local library:

John F. Germany Public Library
900 North Ashley Drive
Tampa, Florida 33606

Provide written comments to 6 ARW Public Affairs, 8209 Hangar Loop Drive, Suite 14, MacDill AFB, Florida 33621-5502 or via email to 6.arw.pa@us.af.mil, no later than 30 days from publication of this notice. The contact telephone number is (813) 828-2215.

CONSISTENCY DETERMINATION

Coastal Zone Management Act (CZMA) section 307 provides that federal agency activities shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved state management programs. Section 307 applies to federal agency activity in a state's coastal zone and also to federal agency activity outside the coastal zone if the activity affects a land or water use in or natural resources of the coastal zone. Federal agency activity includes activity performed by a federal agency, approved by a federal agency, or for which a federal agency provides financial assistance. Such activity, whether direct, indirect, or cumulative, must be demonstrated to be consistent with the enforceable policies of the state's coastal management program, unless full consistency is otherwise prohibited by federal law (per 15 CFR part 930.32, "consistent to the maximum extent practicable").

The State of Florida developed the Florida Coastal Management Program (FCMP), which was approved by the National Oceanic and Atmospheric Administration in 1981. The FCMP consists of a network of 24 Florida statutes, administered by multiple state agencies and water management districts. The FCMP includes enforceable policies that ensure the wise use and protection of the state's water, cultural, historic, and biological resources; minimize the state's vulnerability to coastal hazards; ensure compliance with the state's growth management laws; protect the state transportation system; and protect the state's proprietary interest as the owner of sovereignty submerged lands.

This document provides the State of Florida with the U.S. Air Force's (USAF's) Consistency Determination under the CZMA for the Proposed Action as analyzed in the accompanying Environmental Assessment (EA). This statement examines the potential environmental consequences of the Proposed Action and ascertains the extent to which the Proposed Action would be consistent with the objectives and enforceable policies of the FCMP as presented in the 2018 FCMP Guide (Florida Department of Environmental Protection 2018).

Upon review of the FCMP, it was determined which policies may be applicable to the Proposed Action and then an "effects test" was conducted to determine whether the Proposed Action would have a reasonably foreseeable direct, indirect, or cumulative effect on the state's coastal uses or resources. After conducting the effects test, the USAF determined whether the Proposed Action would result in reasonably foreseeable direct, indirect, or cumulative effects on Florida's coastal uses or resources.

Of the Florida Statutory Authorities included in the FCMP, the potential for impacts in the following areas are addressed in the EA: historic preservation (Chapter 267), water resources (Chapter 373), pollutant discharge prevention and removal (Chapter 376), fish and wildlife conservation (Chapter 379), environmental control (Chapter 403), and soil and water conservation (Chapter 582).

This consistency determination statement discusses how the Proposed Action may meet the FCMP objectives.

Table B-1. Florida Coastal Management Program Policy Review

Florida Statute	Legal Scope	Consistency Evaluation
Chapter 161: Beach and Shore Preservation Program	Authorizes the Bureau of Beaches and Coastal Systems within Department of Environmental Protection to regulate construction on or seaward of the state's beaches.	The Proposed Action would not include construction within or adjacent to any beach or shoreline and would not affect beach and shore management, specifically as it pertains to: • Coastal Construction Permit Program • Coastal Construction Control Line Program • Coastal Zone Protection

Florida Statute	Legal Scope	Consistency Evaluation
Chapter 163: Growth Policy; County and Municipal Planning; Land Development Regulation	Chapter 163, Part II requires local governments to prepare, adopt, and implement comprehensive plans that encourage the most appropriate use of land and natural resources in a manner consistent with the public interest.	The Proposed Action would not affect local (municipal or county) government comprehensive plans and would not affect public health, safety, comfort, good order, appearance, convenience, law enforcement, fire prevention, general welfare, concentration of population on the land, public facilities and services, or natural resources.
Chapter 186: State and Regional Planning	Details state-level planning requirements. Requires the development of special statewide plans governing water use, land development, and transportation.	The Proposed Action is consistent with state statutes and would not affect Florida state- or regional-level planning requirements or have a negative effect on state plans for water use, land development, or transportation.
Chapter 252: Emergency Management	Provides for planning and implementation of the state's response to, efforts to recover from, and mitigation of natural and man- made disasters.	The Proposed Action would not have an effect on the ability of the state to respond to or recover from natural or man-made disasters and would not affect evacuation procedures. The Proposed Action would have the additional benefit of being able to provide electrical power at MacDill Air Force Base (AFB) when the primary source of electricity is disrupted, or a state or national emergency is declared.
Chapter 253: State Lands	Addresses the state's administration of public lands and property of this state and provides direction regarding the acquisition, disposal, and management of all state lands.	No state lands would be disturbed during the construction or operations of the proposed facilities. Therefore, the Proposed Action is consistent with the state's administration of public lands.
Chapter 258: State Parks and Preserves	Addresses administration and management of state parks and preserves.	The Proposed Action would not impact the administration or management of state parks and preserves.
Chapter 259: Land Acquisitions for Conservation or Recreation	Authorizes acquisition of environmentally endangered lands and outdoor recreation lands.	The Proposed Action would not have an effect on the acquisition of environmentally endangered and outdoor recreation lands.
Chapter 260: Florida Greenways and Trails Act	Authorizes acquisition of land, planning, and management of a statewide system of greenways and trails for recreational and conservation purposes.	The Proposed Action would not have an impact on the acquisition of land, planning or management of the statewide greenways and trails system.
Chapter 267: Historical Resources	Addresses management and preservation of the state's archaeological and historical resources.	Potential impacts to cultural and historical resources are evaluated in Section 4.3 of the EA. The Florida State Historic Preservation Office concurred on September 9, 2020, with MacDill AFB's finding that the action is "unlikely to adversely affect historic properties listed, or eligible for listing, in the National Register of Historic Places, or otherwise of historical, architectural, or archaeological value within the area of potential effect. Therefore, the Proposed Action would be consistent with the management and preservation of the state's archaeological and historical resources.

Florida Statute	Legal Scope	Consistency Evaluation
Chapter 288: Commercial Development and Capital Improvements	Promotes and develops general business, trade and tourism components of the state economy.	The Proposed Action would not have significant adverse effects on any key Florida industries or economic diversification efforts. There would be a slight positive impact to the local economy associated with the construction activity.
Chapter 334: Transportation Administration	Addresses the state's policy concerning transportation administration.	The Proposed Action would not affect the state's administration of transportation.
Chapter 339: Transportation Finance and Planning	Addresses the finance and planning needs of the state's transportation system.	The Proposed Action would not affect the finance and planning needs of the state's transportation system.
Chapter 373: Water Resources	This statute addresses sustainable water management; the conservation of surface and ground waters for full beneficial use; the preservation of natural resources, fish, and wildlife; protecting public land; and promoting the health and general welfare of Floridians. The state's policy manages and conserves water and related natural resources by determining whether activities will unreasonably consume water; degrade water quality; or adversely affect environmental values (such as protected species habitat, recreational pursuits, and marine productivity).	The Proposed Action would be conducted in a manner consistent with Chapter 373. Potential impacts on water resources are evaluated in Sections 4.7 and 4.8 of the EA. The Proposed Action would not unreasonably consume water, degrade water quality, or adversely affect environmental values. The Proposed Action does not involve the use of groundwater. There are no wetlands impacted within or adjacent to the project area where facility development would occur. Potential impacts on nearby surface waters from sedimentation associated with construction activities would be minimized by the use of specialized construction techniques (i.e., horizontal directional drilling), appropriate best management practices (BMPs), and all applicable regulatory requirements and stormwater permits (e.g., Environmental Resources Permit) would be obtained prior to any construction activities. The Proposed Action would be fully consistent with Florida's Water Resources policy. Therefore, the Proposed Action would be consistent with the state's statutes and regulations regarding water resources.

Florida Statute	Legal Scope	Consistency Evaluation
Chapter 376: Pollution Discharge Prevention and Removal	This statute provides a framework for the protection of the state's coastline from spills, discharges, and releases of pollutants. The discharge of pollutants into or upon any coastal waters, estuaries, tidal flats, beaches, and lands adjoining the seacoast of the state is prohibited. The statute: • Provides for hazards & threats of danger and damages resulting from any pollutant discharge to be evaluated. • Requires the prompt containment and removal of pollution; provides penalties for violations. • Ensures the prompt payment of reasonable damages from a discharge.	Management of hazardous materials and wastes is addressed in Section 4.6 of the EA. All required permits would be procured for the Proposed Action, and established procedures for transport, storage, and handling of hazardous materials would be followed. USAF does not anticipate the discharge of any pollutants upon surface or ground waters. In the event of a spill, a written Spill Prevention, Control, and Countermeasure Plan would be followed. BMPs would be incorporated to avoid impacts to water quality. The Proposed Action would be fully consistent with Florida's Pollutant Discharge Prevention and Removal policy. Therefore, the Proposed Action would be consistent with the state's statutes regarding the transfer, storage or transportation of pollutants.
Chapter 377: Energy Resources	Addresses regulation, planning and development of oil and gas resources of the state.	The Proposed Action would not affect oil and gas resources of the state.
Chapter 379: Fish and Wildlife Conservation	This statute establishes the framework for the management and protection of Florida's wide diversity of fish and wildlife resources. It is Florida's policy to conserve and wisely manage these resources. Particular attention is given to those species defined as being endangered or threatened.	Potential impacts to fish and wildlife are evaluated in Section 4.2 of the EA. On August 20, 2020, USFWS concurred with MacDill AFB's effect determination that the proposed action may affect but is not likely to adversely affect the wood stork and eastern indigo snake and that the Proposed Action would have no effect on any other federally listed species. Likewise, the EA determined the Proposed Action would not result in a significant impact to state-listed species. Therefore, the Proposed Action would be consistent with the state's policies concerning the protection of fish and wildlife resources.
Chapter 380: Land and Water Management	Establishes land and water management policies to guide and coordinate local decisions relating to growth and development.	The Proposed Action would not affect state management of land or water.
Chapter 381: Public Health, General Provisions	Establishes public policy concerning the state's public health system.	The Proposed Action would not affect the state's policy concerning the public health system.
Chapter 388: Mosquito Control	Addresses mosquito control efforts in the state.	The Proposed Action would not affect mosquito control efforts.

Florida Statute	Legal Scope	Consistency Evaluation
Chapter 403: Environmental Control	The statute establishes public policy concerning environmental control in the state. Those policies most relevant to the Proposed Action include air and water pollution, pollution prevention, and ecosystem management.	The EA addresses the issues of protection of air quality (Section 4.1); conservation and protection of environmentally sensitive living resources and the protection of endangered or listed species (Section 4.2); solid, sanitary, and hazardous waste disposal (Section 4.6); protection of groundwater and surface water quality and quantity (Section 4.7); potable water supply (Section 4.7); and the protection of floodplains and wetlands (Section 4.8). Based on the evaluation, the Proposed Action would not have significant impacts on air quality, hazardous materials/wastes, floodplains or water quality. The Proposed Action would not significantly affect fish, wildlife, or critical habitats. Surface waters of the state would not be significantly affected by the project. The AFB has determined that the Proposed Action would be consistent to the maximum extent practicable with Florida's Fish and Wildlife Conservation policy. Therefore, the Proposed Action would be consistent with the state's statues concerning environmental control efforts.
Chapter 553: Building Construction Standards	Provides a mechanism for the uniform adoption, updating, amendment, interpretation, and enforcement of a single, unified state building code, to be called the Florida Building Code. Obtain a permit from the appropriate enforcing agency.	The Proposed Action would be consistent with the state's regulations and standards pertaining to building construction.
Chapter 582: Soil and Water Conservation	Provides for the control and prevention of soil erosion.	The EA addresses the potential of the Proposed Action and alternatives to disturb soil and presents possible measures to prevent or minimize soil erosion in Section 4.7. Impacts to groundwater and surface water resources also are discussed in Section 4.7 of the EA.
Chapter 597: Aquaculture	Establishes public policy concerning the cultivation of aquatic organisms.	The Proposed Action would not affect the state's policy regarding aquaculture.

CONCLUSION

Based on the aforementioned, USAF finds implementation of the Proposed Action as presented in the EA is consistent with Florida's CMP.

DEPARTMENT OF THE AIR FORCE
6TH AIR REFUELING WING (AMC)
MACDILL AIR FORCE BASE, FLORIDA

29 July 2020

MEMORANDUM FOR U.S. FISH AND WILDLIFE SERVICE (USFWS)
MR. JAY HERRINGTON
7915 BAYMEADOWS WAY, SUITE 200
JACKSONVILLE, FL 32256

FROM: 6 CES/CL
7621 HILLSBOROUGH LOOP DRIVE
MACDILL AFB, FL 33261-5207

SUBJECT: Proposed Distributed Energy Generation Facility at MacDill Air Force Base

1. The United States Air Force (USAF), in conjunction with Tampa Electric Company, is proposing to construct and operate a natural gas-fired distributed generation facility at the MacDill Air Force Base (AFB) (Proposed Action). The proposed facility will include natural gas-fired reciprocating internal combustion engine-generator(s), battery storage, and offsite underground transmission and pipeline for natural gas supply to the proposed facility.

2. In accordance with the Code of Federal Regulations, Title 32, Part 989 – Environmental Impact Analysis Process and the National Environmental Policy Act, the USAF is evaluating the potential environmental impacts of the project. We are preparing an environmental assessment (EA) to evaluate potential environmental impacts of a proposed natural gas-fired distributed generation facility. The preferred location for the Proposed Action is a previously disturbed area with no known sensitive resources, based on prior surveys and existing biological resource data.

3. The Proposed Action would occur within a core foraging area for the wood stork (Mycteria Americana), and wood storks have been observed on MacDill AFB in water features, including drainage swales and ditches. Storm water features and drainage swales are located in the vicinity of the proposed construction site; however, there would be no direct impact to these water features. In addition, the species is habituated to activity and noise levels associated with ongoing activity at MacDill AFB, and noise from construction activities for the Proposed Action would be temporary.

4. There are two active bald eagle nests (HL024 and HL982) on the AFB property; however, both are located more than a mile away from the Proposed Action area. Activity associated with construction of the new facility is not expected to impact the species.

5. The eastern indigo snake (Drymarchon corais couperi) can occur in suitable habitat throughout Florida. It has a wide range of habitat preferences and requires large tracts of land for survival. Often considered a gopher tortoise commensal, it can be found in xeric habitats but also uses more mesic or wetland habitat for foraging. Due to the heavily disturbed nature of the site and lack of refugia, eastern indigo snakes are unlikely to be present. No eastern indigo

snakes and no gopher tortoise burrows were observed during the field assessments of the proposed project area.

6. Gopher tortoises (Gopherus polyphemus) are currently a candidate species for listing by USFWS. They are typically found within upland habitats with well-drained, sandy soils. Gopher tortoise burrows are used by several other listed and non-listed wildlife species. No gopher tortoise burrows were observed within the proposed project area during field assessments, and much of the available upland habitat has been previously developed or is heavily disturbed. As such, there is only a low probability of this species occurring within the project area. Nonetheless, Tampa Electric Company proposes to conduct a formal burrow survey within tortoise-suitable habitat prior to site development. If necessary, tortoises that may be affected by the project will be relocated from harm's way to an onsite recipient area in accordance with the 2012 Gopher Tortoise Candidate Conservation Agreement that MacDill AFB is part of.

7. During the initial stages of the environmental impact analysis process, a survey of the site was performed, and the results of prior protected species surveys were evaluated. Based on the analysis completed during preparation of the draft EA and in compliance with Section 7(a)(2) of the Endangered Species Act of 1973 (ESA), the USAF has determined that implementation of the project may affect but is not likely to adversely affect the wood stork and eastern indigo snake and would have no effect on any other federally listed species in the area of potential affect.

8. If you have any questions or require additional information on the Proposed Action, please contact Jason Kirkpatrick, 6 CES/CEIE at (813) 828 0459.

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Date: 2020.07.29 08:21:21 -04'00'

ROBERT T. WYNN, GS-15, DAF
Director, 6th Civil Engineer Squadron

2 Attachments:
1. Site Map
2. Listed Species Map

FWS Log No 04EF1000-2020-I-1039

The Service concurs with your effect determination(s) for resources protected by the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). This finding fulfills the requirements of the Act.

Acting for Jay B. Herrington
Field Supervisor

Date

FIGURE 1.

SITE LOCATION MAP
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: ESRI, 2018; ECT, 2020.

ECT Environmental Consulting & Technology, Inc.

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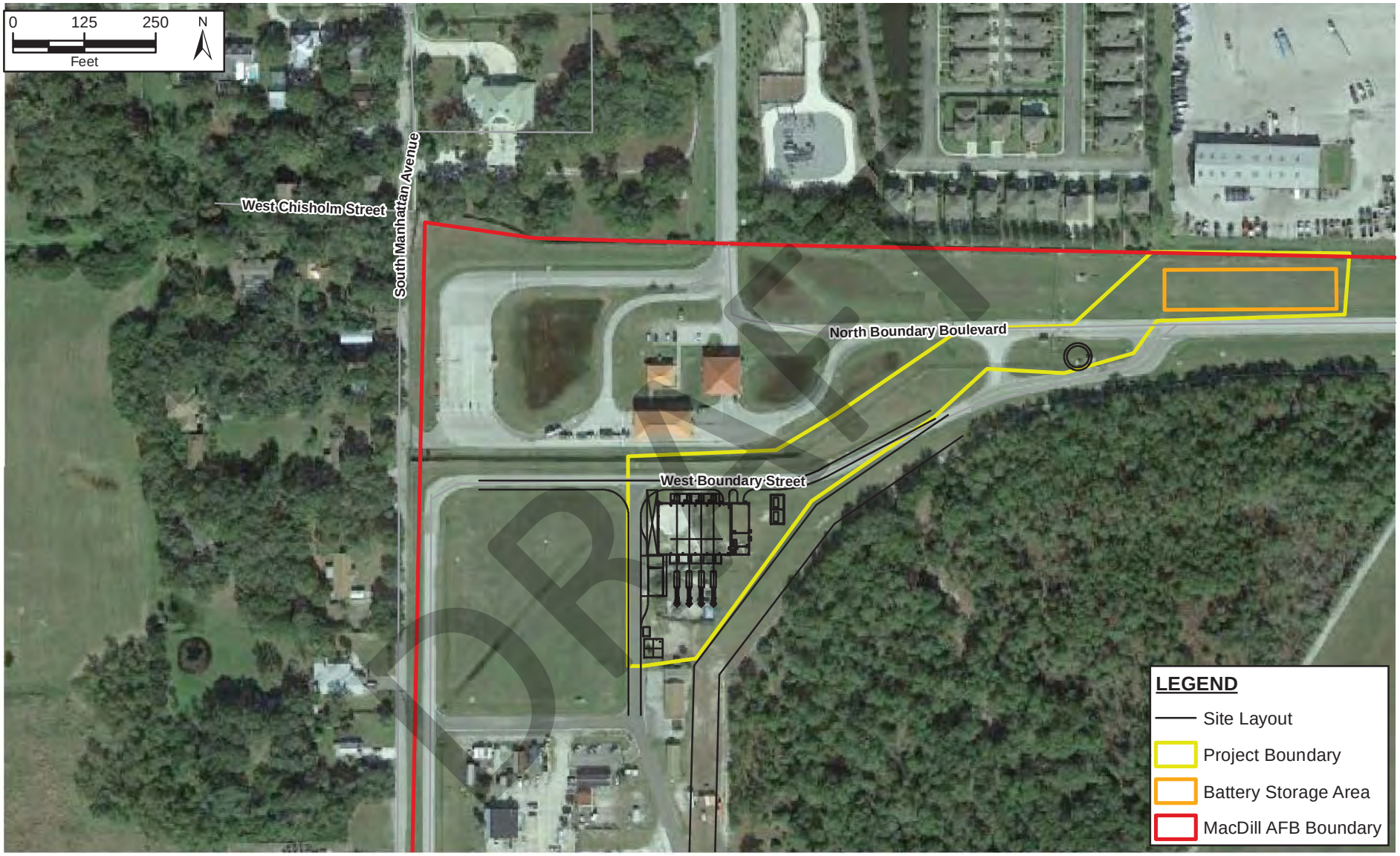

FIGURE 2.

PROJECT SITE LAYOUT MAP
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: FDOT, 2019; ECT, 2020.

ECT Environmental Consulting & Technology, Inc.

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FIGURE 3.
LISTED SPECIES MAP
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: FDOT, 2017; USFWS, 2017; FWC, 2017; FDOT, 2017; ECT, 2020.

ECT Environmental Consulting & Technology, Inc.

DEPARTMENT OF THE AIR FORCE
6TH AIR REFUELING WING (AMC)
MACDILL AIR FORCE BASE, FLORIDA

MEMORANDUM FOR DIVISION OF HISTORIC RESOURCES
MR. JASON ALDRIDGE
R.A. GRAY BUILDING
500 SOUTH BRONOUGH STREET
TALLAHASSEE, FLORIDA 32399-0250

FROM: 6 CES/CEIE
7621 HILLSBOROUGH LOOP DRIVE
MACDILL AFB, FL 33261-5702

SUBJECT: Section 106 Consultation for Proposed Distributed Generation Project, MacDill Air Force Base

1. The United States Air Force (USAF), in conjunction with Tampa Electric Company, is preparing an environmental assessment under the National Environmental Policy Act to evaluate potential environmental impacts of a proposed natural gas-fired distributed generation facility. The proposed facility will be located in a previously disturbed area of the MacDill Air Force Base (AFB). The proposed facility will include natural gas-fired reciprocating internal combustion engine-generator(s), battery storage, an underground transmission line for offsite transmission of power, and an underground pipeline for natural gas supply to the power generation facility.

2. As a federal undertaking, this proposed action is also subject to the requirements of Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at Code of Federal Regulations (CFR), Title 36, Part 800. In accordance with 36 CFR 800.3(c), this letter initiates our Section 106 consultation for this undertaking and requests your input on the proposal.

3. A Phase I archaeological survey of the western portion of MacDill AFB was recently completed. No archaeological properties were identified within the footprint of the proposed project area; however archaeological site 8HI14612 was discovered approximately 250 feet east of the project site. Site 8HI14612 is a low-density precontact lithic scatter and was determined ineligible for the National Register of Historic Places. Additional information on Site 8HI14612 can be found in final survey report entitled *Phase I Archaeological Survey of 2,236.79 Acres Within MacDill Air Force Base, Hillsborough County, Florida* (dated 20 February 2020) submitted to your office in April 2020.

4. MacDill also recently completed an investigation for the lost Port Tampa Cemetery. Although the location of the cemetery could not be conclusively determined, the preponderance of information gathered during the survey determined the location of the Port Tampa Cemetery to be approximately 400 feet due east of the proposed project area.

5. Although Site 8HI14612 and the Port Tampa Cemetery are both located in close vicinity to the proposed project area, construction of the proposed power generation facility is not expected to adversely affect either site.

6. MacDill AFB seeks feedback from the State Historic Preservation Office (SHPO) on these findings and concurrence that the proposed project will not affect historic properties listed or eligible for listing in the NRHP.

7. If you would like to inspect the proposed distributed generation project site, or if you have any questions on the project, please contact me at (352) 536-5634 or Mr. Jason Kirkpatrick 813-614-5729, or by email to jason.kirkpatrick.2.ctr@us.af.mil.

RIDER.ANDREW.WARRICK.1153194676

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Date: 2020.07.08 11:28:35 -04'00'

ANDREW W. RIDER, GS-12, DAF
Chief, Environmental Element

Attachments:
Figures 1 through 3

ATTACHEMENTS

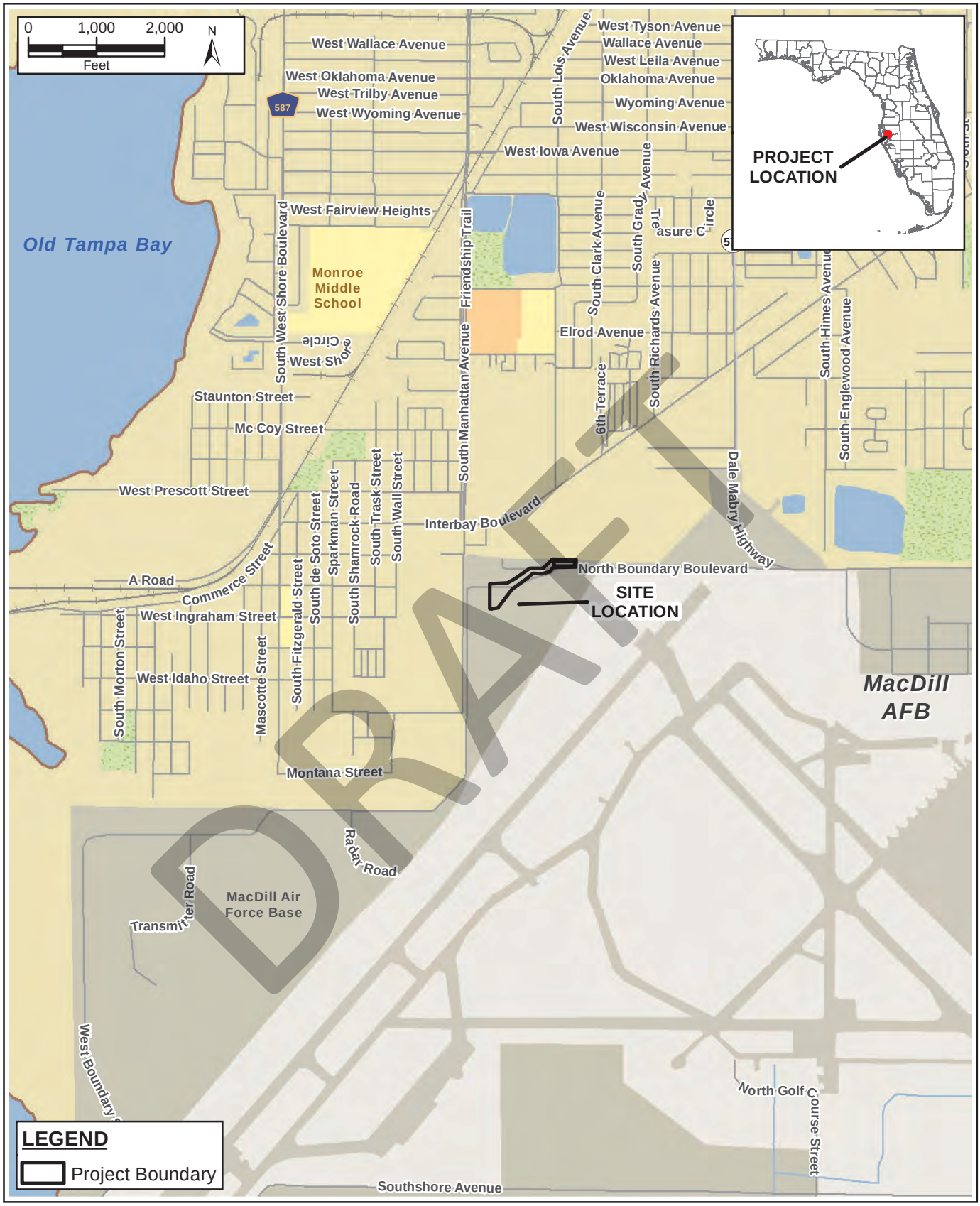


FIGURE 1.

SITE LOCATION MAP
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: ESRI, 2018; ECT, 2020.

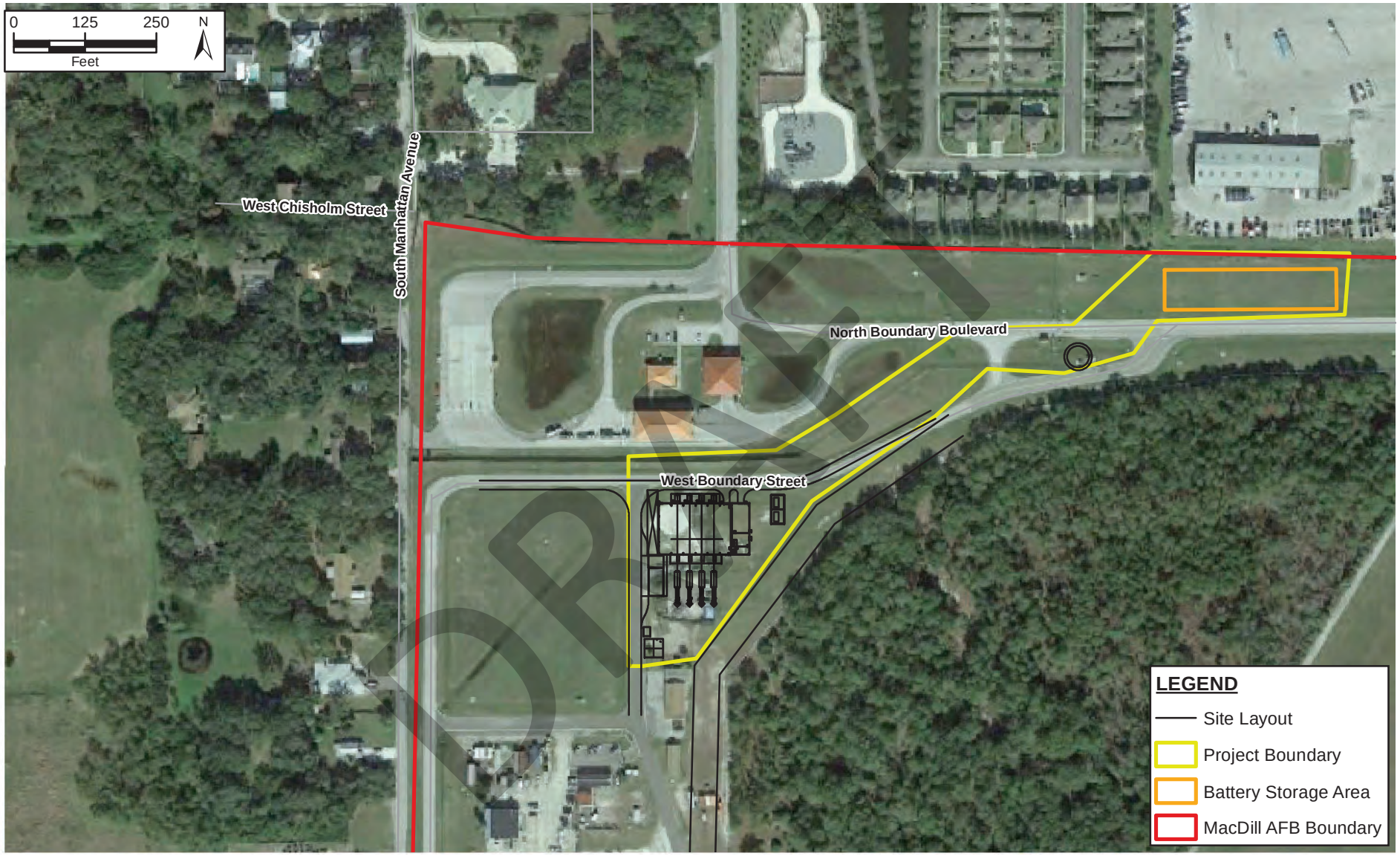


FIGURE 2.

PROJECT SITE LAYOUT MAP
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: FDOT, 2019; ECT, 2020.

FLORIDA DEPARTMENT of STATE

RON DESANTIS
Governor

LAUREL M. LEE
Secretary of State

Department of the Air Force
Andrew W. Rider
Chief, Environmental Element
6 CES/CEIE
7621 Hillsborough Loop Drive
MacDill Air Force Base, FL 33621-5207

September 9, 2020

RE: DHR Project File No.: 2020-4558, Received by DHR: July 8, 2020
Project: *Section 106 Consultation for Proposed Distributed Generation Project, MacDill Air Force Base*
County: Hillsborough

Mr. Rider:

Our office reviewed the referenced project for possible effects on historic properties listed, or eligible for listing, on the *National Register of Historic Places*. The review was conducted in accordance with Section 106 of the National Historic Preservation Act of 1966 (NRHP), as amended, and its implementing regulations in *36 CFR Part 800: Protection of Historic Properties.*

In a consultation letter sent to our office on 07/08/20, MacDill Air Force Base (AFB) stated they are preparing an environmental assessment under the National Environmental Policy Act to evaluate potential impacts of a proposed natural gas-fired distributed generation facility within a previously disturbed area of the MacDill AFB. MacDill AFB noted the project area was previously surveyed, *Phase I Archaeological Survey of 2,236.79 Acres Within MacDill Air Force Base, Hillsborough County, Florida*, and no archaeological resources were recorded within the project footprint. MacDill AFB concluded that although Site 8HI14612 and the Port Tampa Cemetery are both located in close vicinity to the proposed project area, construction of the proposed power generation facility is not expected to adversely affect either resource.

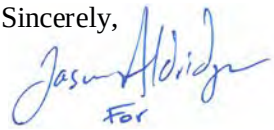
Based upon the information provided, our office concurs that the proposed project is unlikely to adversely affect historic properties listed, or eligible for listing, in the NRHP, or otherwise of historical, architectural or archaeological value within the APE. However, unexpected finds may occur during ground disturbing activities, and we request that the following special condition regarding inadvertent discoveries be followed:

- If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with Native American, early European, or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the vicinity of the discovery. The applicant shall contact the Florida Department of State, Division of Historical Resources, Compliance Review Section at (850)-245-

6333. Project activities shall not resume without verbal and/or written authorization. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities shall be notified in accordance with Section 872.05, *Florida Statutes*.

If you have any questions, please contact Kelly L. Chase, Historic Preservationist, by email at Kelly.Chase@dos.myflorida.com , or by telephone at 850.245.6341 or 800.847.7278.

Sincerely,



Timothy A Parsons, Ph.D.
Director, Division of Historical Resources
& State Historic Preservation Officer

Table B-1. MacDill Tribal Consultation Information

Agency	Date and Type of Correspondence	MacDill Consultation Notes
Seminole Tribe of Florida, Miccosukee Tribe of Indians of Florida, and Seminole Nation of Oklahoma and the Muscogee [Creek] Nation	Initial Letter Mailed and Electronically Submitted 31 August 2020	Initial consultation letters mailed to tribes on 31 August 2020 and also submitted electronically via e-mail to the tribes on 31 August 2020. No responses were received from any of the tribes in response to the initial consultation letter.
	On 13 November 2020, the first follow-up was accomplished. E-mails were sent to all four tribes with an electronic copy of the initial consultation letter attached	No responses were received in response to the 13 November e-mails.
	On 4 December 2020 follow-up phone calls were made to the Miccosukee Tribe of Indians, the Muscogee Creek Nation, and the Seminole Nation of Oklahoma.	
Miccosukee Tribe		We were able to reach Mr. Donaldson with the Miccosukee tribe and he stated that the Miccosukee will respond to consultation letters within 30-60 days if they are interested in a project, if no response is received the Air Force should assume that the tribe has no objections to the action. This was documented in the Memorandum for Record (MFR).
Muscogee Creek Nation		We were able to reach an unidentified person at the Muscogee Creek Nation on 4 December 2020. He stated that Robin Soweka was the appropriate person to speak with but he was not in the office and he would pass my contact information on to Robin and Robin will call me back. No call back has been received from Robin as of 28 December but will wait until 6 January to call back since it is a holiday period. The consultation effort with Muscogee Tribe to date has been documented in the MFR.
Seminole Nation of Oklahoma		We were able to reach Ms. Brigetta Leader with the Seminole Nation of Oklahoma on 4 December 2020. She stated that the THPO position at the SNO has been vacant but a new THPO is inbound (Mr. Edwin Marshal) and he will deal with all consultation moving forward. She took down my e-mail address and said she would send me Mr. Marshal's contact information).
	Follow-up email 7 December 2020	A follow-up e-mail was sent to Ms. Leader 7 December 2020 to see if she had the contact information yet, but no response was received from Ms. Leader. This course of events was documented in the MFR.
	Follow-up phone conversation 26 January 2021	THPO called. Followed-up with email response to phone call, awaiting response.
Seminole Tribe of Florida	Received emailed letter response on 30 December 2020	Letter received from THPO Danielle Simon requesting information regarding definition of Area of Potential Interest and requesting a copy of the draft EA. Consultation ongoing.

DEPARTMENT OF THE AIR FORCE
6TH AIR REFUELING WING (AMC)
MACDILL AIR FORCE BASE, FLORIDA

AUG 2 7 2020

Colonel Benjamin R. Jonsson
6th Air Refueling Wing Commander
8208 Hangar Loop Drive, Suite 1
MacDill Air Force Base, Florida 33621-5407

Mr. Greg Chilcoat, Principal Chief
Seminole Nation of Oklahoma
PO Box 1498
Wewoka, Oklahoma 74884

Dear Mr. Chilcoat

The United States Air Force (USAF), in conjunction with Tampa Electric Company, is preparing an environmental assessment under the National Environmental Policy Act to evaluate potential environmental impacts of a proposed natural gas-fired distributed generation facility. The proposed facility will be located in a previously disturbed area of the MacDill Air Force Base (AFB). The proposed facility will include natural gas-fired reciprocating internal combustion engine-generator(s), battery storage, and offsite underground transmission and pipeline for natural gas supply to the proposed facility.

In accordance with Executive Order 13175, Consultation with Indian Tribal Governments, USAF would like to initiate government-to-government consultation regarding this proposed project. USAF desires to discuss this proposed project in detail with you so we may understand and consider any comments, concerns, or suggestions you may have. This letter also initiates our consultation under Section 106 of the National Historic Preservation Act (NHPA) (Code of Federal Regulations [CFR], Title 36, Part 800) and requests your input.

A Phase I archaeological survey of the western portion of MacDill AFB was recently completed. No archaeological properties were identified within the footprint of the proposed project area; however, archaeological site 8HI14612 was discovered approximately 250 feet east of the project site. Site 8HI14612 is a low-density precontact lithic scatter and was determined ineligible for the National Register of Historic Places. Additional information on Site 8HI14612 can be found in final survey report entitled *Phase I Archaeological Survey of 2,236.79 Acres Within MacDill Air Force Base, Hillsborough County, Florida* (dated 20 February 2020) submitted to your office in April 2020.

Please let us know when you would be available to discuss this proposed project and your expectations on how to proceed with consultation. Please contact me at (813) 828-4444 to discuss dates and times for consultation.

Sincerely

BENJAMIN R. JONSSON, Colonel, USAF
Commander

Attachment:
Figures 1 through 3 PDF, 20 July 2020

cc:
Ms. Brigita Leader

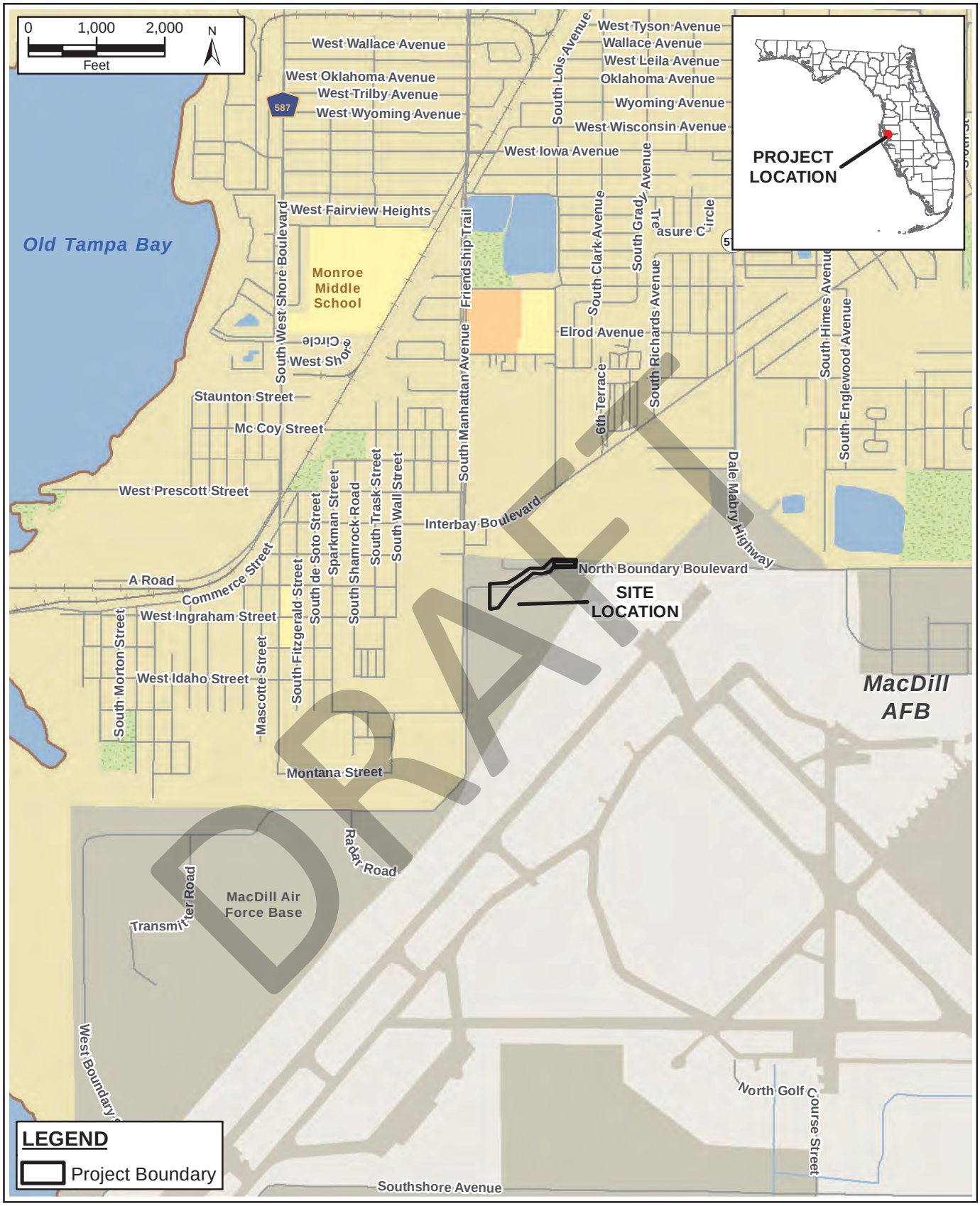


FIGURE 1.

SITE LOCATION MAP
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: ESRI, 2018; ECT, 2020.

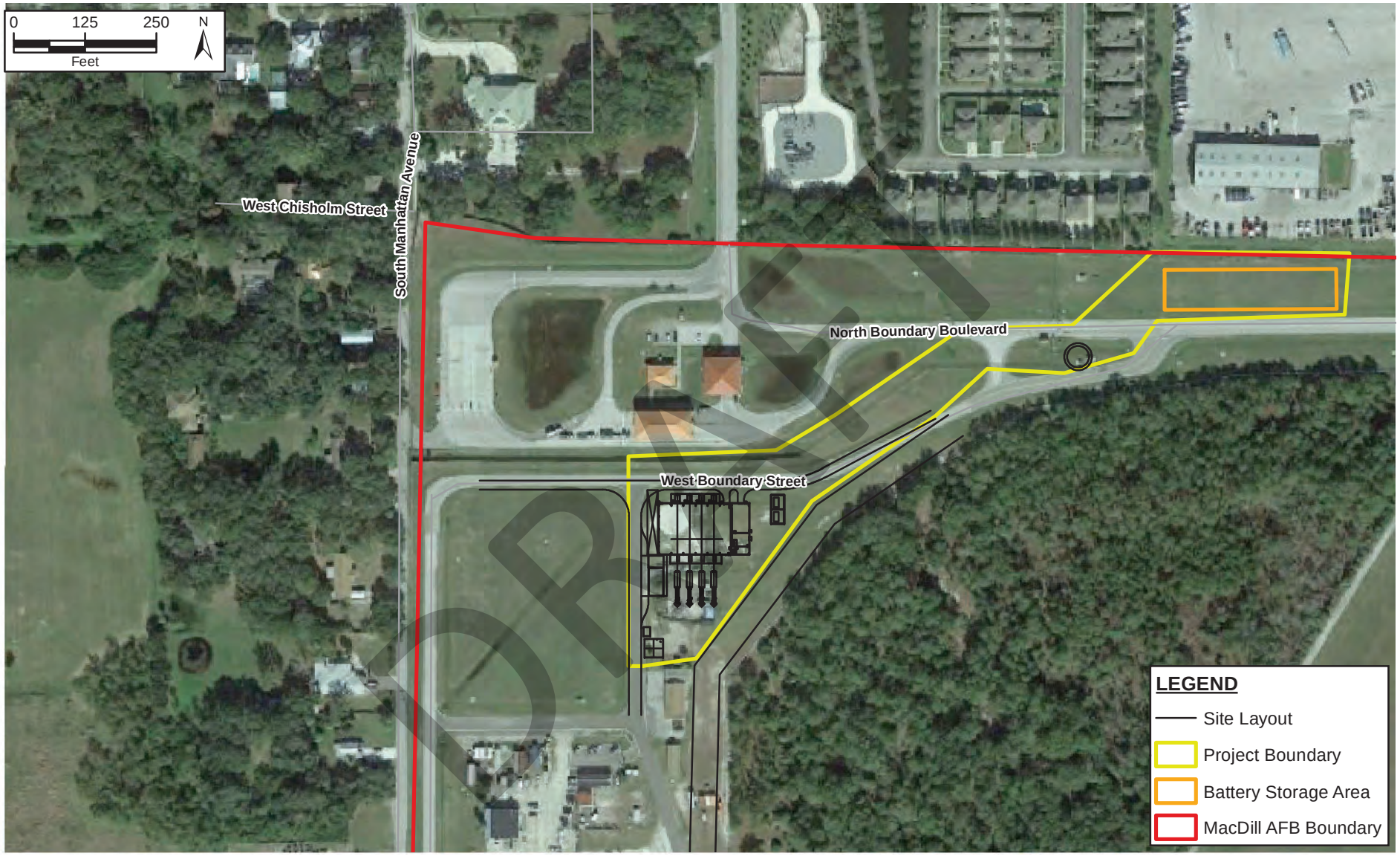


FIGURE 2.

PROJECT SITE LAYOUT MAP
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: FDOT, 2019; ECT, 2020.

DEPARTMENT OF THE AIR FORCE
6TH AIR REFUELING WING (AMC)
MACDILL AIR FORCE BASE, FLORIDA

AUG 2 7 2020

Colonel Benjamin R. Jonsson
6th Air Refueling Wing Commander
8208 Hangar Loop Drive, Suite 1
MacDill Air Force Base, Florida 33621-5407

Mr. Marcellus W. Osceola Jr., Chairman
Seminole Tribe of Florida
30290 Josie Billie Hwy, PMB 1004
Clewiston, FL 33440

Dear Mr. Osceola

The United States Air Force (USAF), in conjunction with Tampa Electric Company, is preparing an environmental assessment under the National Environmental Policy Act to evaluate potential environmental impacts of a proposed natural gas-fired distributed generation facility. The proposed facility will be located in a previously disturbed area of the MacDill Air Force Base (AFB). The proposed facility will include natural gas-fired reciprocating internal combustion engine-generator(s), battery storage, and an offsite underground transmission and pipeline to supply natural gas to the facility.

In accordance with Executive Order 13175, Consultation with Indian Tribal Governments, USAF would like to initiate government-to-government consultation regarding this proposed project. USAF desires to discuss this proposed project in detail with you so we may understand and consider any comments, concerns, or suggestions you may have. This letter also initiates our consultation under Section 106 of the National Historic Preservation Act (NHPA) (Code of Federal Regulations [CFR], Title 36, Part 800) and requests your input.

A Phase I archaeological survey of the western portion of MacDill AFB was recently completed. No archaeological properties were identified within the footprint of the proposed project area; however, archaeological site 8HI14612 was discovered approximately 250 feet east of the project site. Site 8HI14612 is a low-density precontact lithic scatter and was determined ineligible for the National Register of Historic Places. Additional information on Site 8HI14612 can be found in final survey report entitled *Phase I Archaeological Survey of 2,236.79 Acres Within MacDill Air Force Base, Hillsborough County, Florida* (dated 20 February 2020) submitted to your office in April 2020.

Please let us know when you would be available to discuss this proposed project and your expectations on how to proceed with consultation. Please contact me at (813) 828-4444 to discuss dates and times for consultation.

Sincerely

BENJAMIN R. JONSSON, Colonel, USAF
Commander

Attachment:
Figures 1 through 3 PDF, 20 July 2020

cc:
Dr. Paul Backhouse

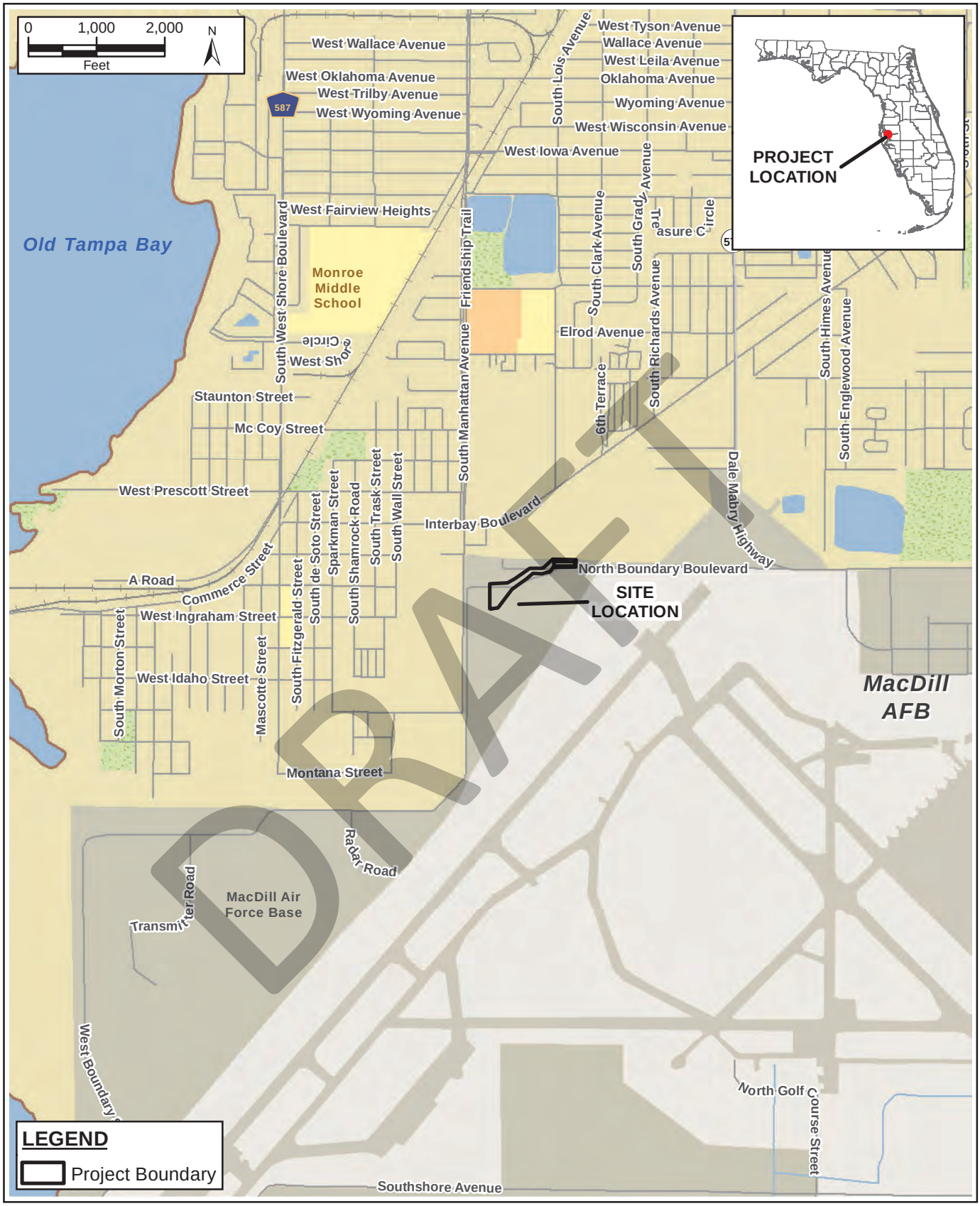
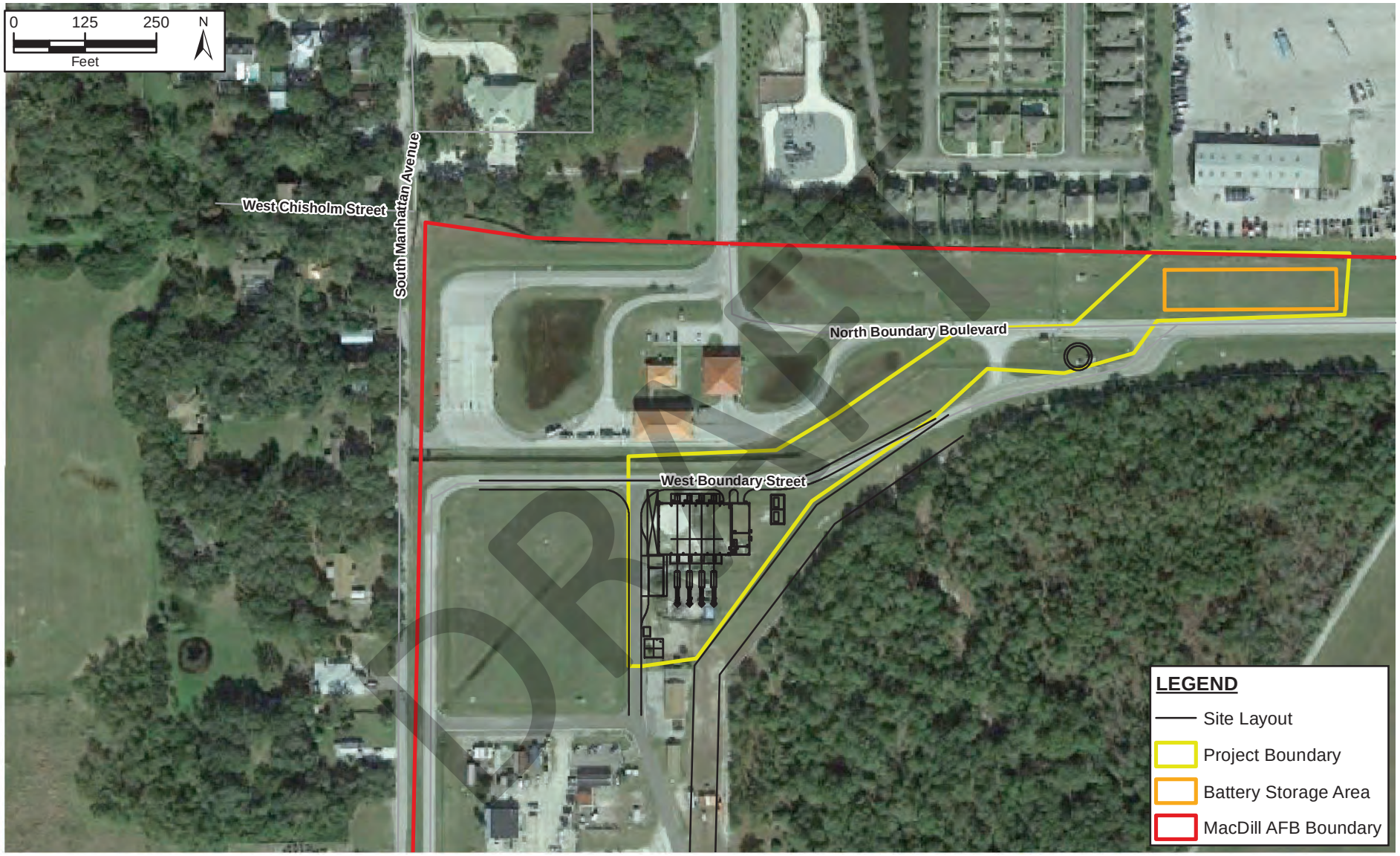


FIGURE 1.

SITE LOCATION MAP
MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: ESRI, 2018; ECT, 2020.



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HILLSBOROUGH COUNTY, FLORIDA

Sources: FDOT, 2019; ECT, 2020.

DEPARTMENT OF THE AIR FORCE
6TH AIR REFUELING WING (AMC)
MACDILL AIR FORCE BASE, FLORIDA

AUG 2 7 2020

Colonel Benjamin R. Jonsson
6th Air Refueling Wing Commander
8208 Hangar Loop Drive, Suite 1
MacDill Air Force Base, Florida 33621-5407

Mr. Billy Cypress, Chairman
Miccosukee Tribe of Indians of Florida
Tamiami Station
PO Box 440021
Miami, FL 33144

Dear Mr. Cypress

The United States Air Force (USAF), in conjunction with Tampa Electric Company, is preparing an environmental assessment under the National Environmental Policy Act to evaluate potential environmental impacts of a proposed natural gas-fired distributed generation facility. The proposed facility will be located in a previously disturbed area of the MacDill Air Force Base (AFB). The proposed facility will include natural gas-fired reciprocating internal combustion engine-generator(s), battery storage, and offsite underground transmission and pipeline for natural gas supply to the proposed facility.

In accordance with Executive Order 13175, Consultation with Indian Tribal Governments, USAF would like to initiate government-to-government consultation regarding this proposed project. USAF desires to discuss this proposed project in detail with you so we may understand and consider any comments, concerns, or suggestions you may have. This letter also initiates our consultation under Section 106 of the National Historic Preservation Act (NHPA) (Code of Federal Regulations [CFR], Title 36, Part 800) and requests your input.

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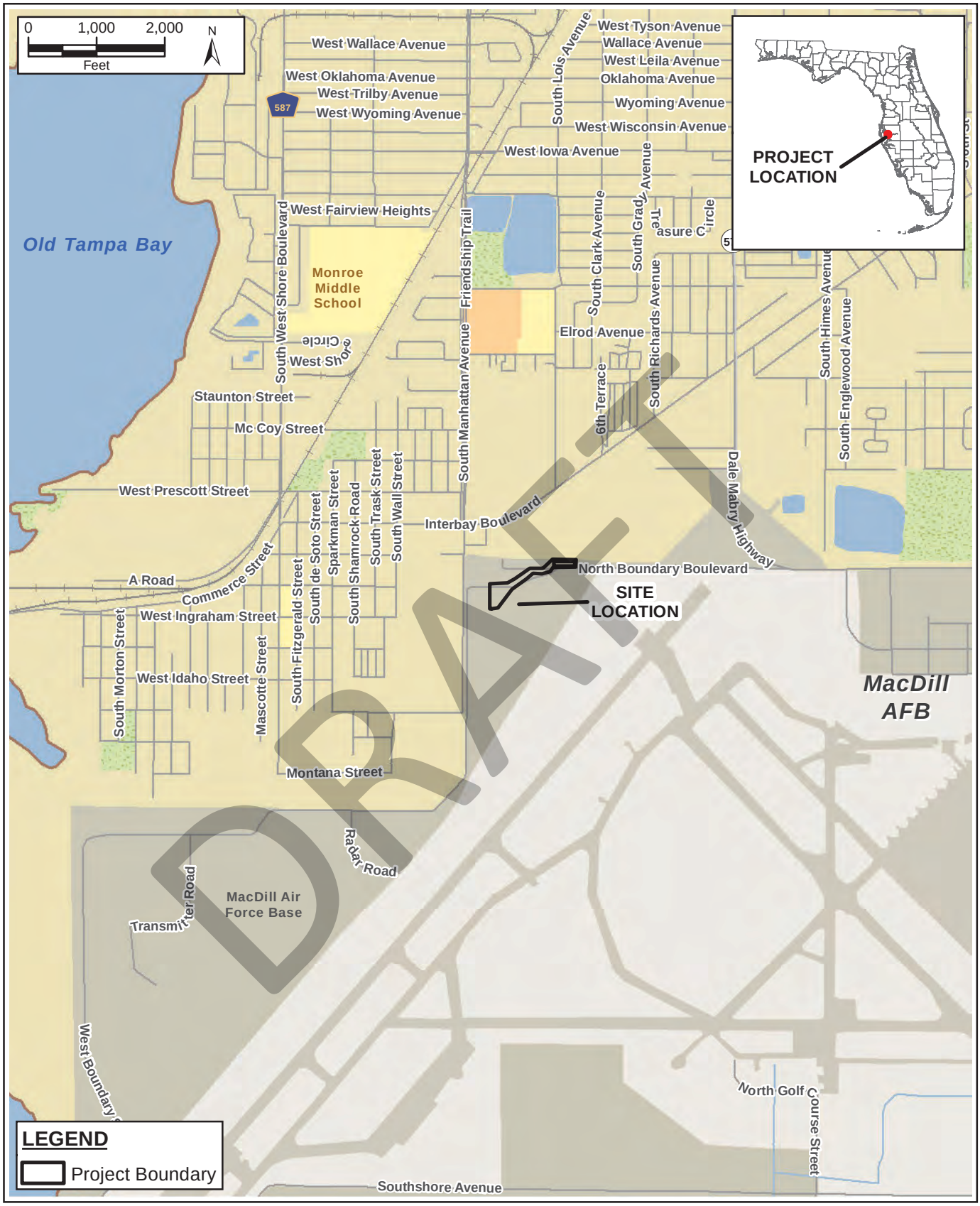
Sincerely

BENJAMIN R. JONSSON, Colonel, USAF
Commander

Attachment:
Figures 1 through 3 PDF, 20 July 2020

cc:
Mr. Kevin Donaldson



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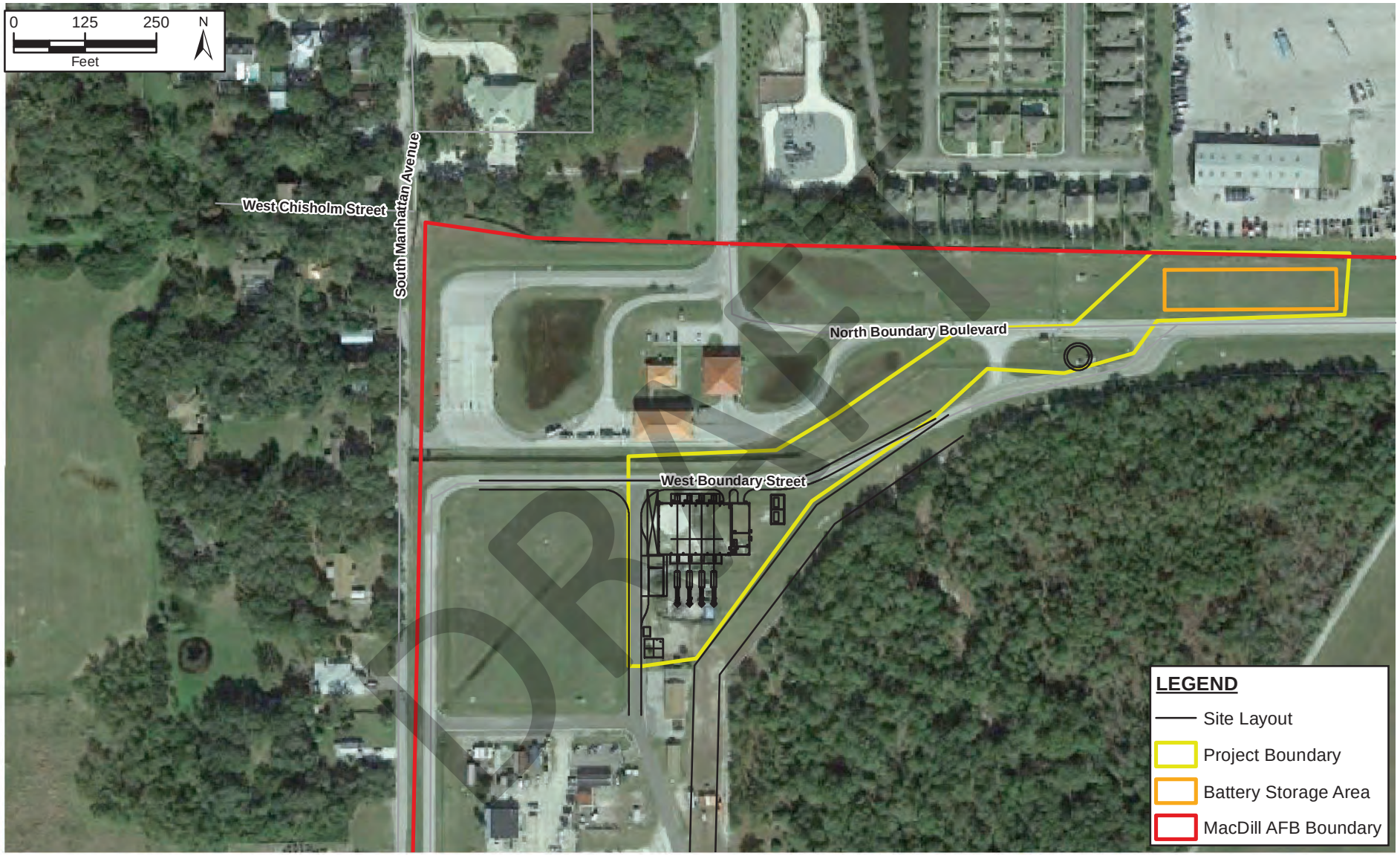

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Sources: FDOT, 2019; ECT, 2020.

DEPARTMENT OF THE AIR FORCE
6TH AIR REFUELING WING (AMC)
MACDILL AIR FORCE BASE, FLORIDA

AUG 2 7 2020

Colonel Benjamin R. Jonsson
6th Air Refueling Wing Commander
8208 Hangar Loop Drive, Suite 1
MacDill Air Force Base, Florida 33621-5407

Mr. David Hill, Principal Chief
Muscogee (Creek) Nation
P.O. Box 580
Okmulgee, Oklahoma 74447

Dear Mr. Hill

The United States Air Force (USAF), in conjunction with Tampa Electric Company, is preparing an environmental assessment under the National Environmental Policy Act to evaluate potential environmental impacts of a proposed natural gas-fired distributed generation facility. The proposed facility will be located in a previously disturbed area of the MacDill Air Force Base (AFB). The proposed facility will include natural gas-fired reciprocating internal combustion engine-generator(s), battery storage, and offsite underground transmission and pipeline for natural gas supply to the proposed facility.

In accordance with Executive Order 13175, Consultation with Indian Tribal Governments, USAF would like to initiate government-to-government consultation regarding this proposed project. USAF desires to discuss this proposed project in detail with you so we may understand and consider any comments, concerns, or suggestions you may have. This letter also initiates our consultation under Section 106 of the National Historic Preservation Act (NHPA) (Code of Federal Regulations [CFR], Title 36, Part 800) and requests your input.

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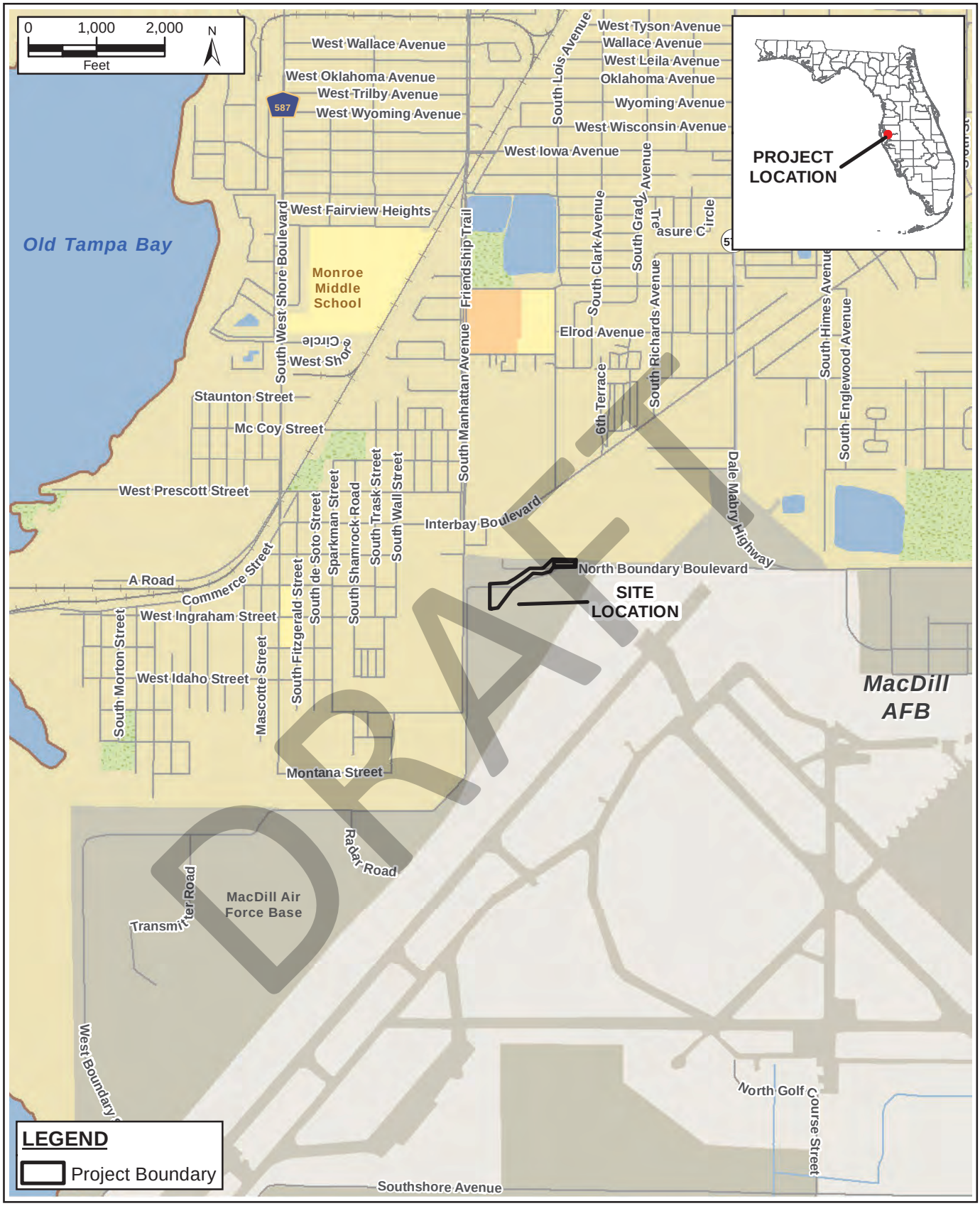
Sincerely

BENJAMIN R. JONSSON, Colonel, USAF
Commander

Attachment:
Figures 1 through 3 PDF, 20 July 2020

cc:
Ms. RaeLynn Butler



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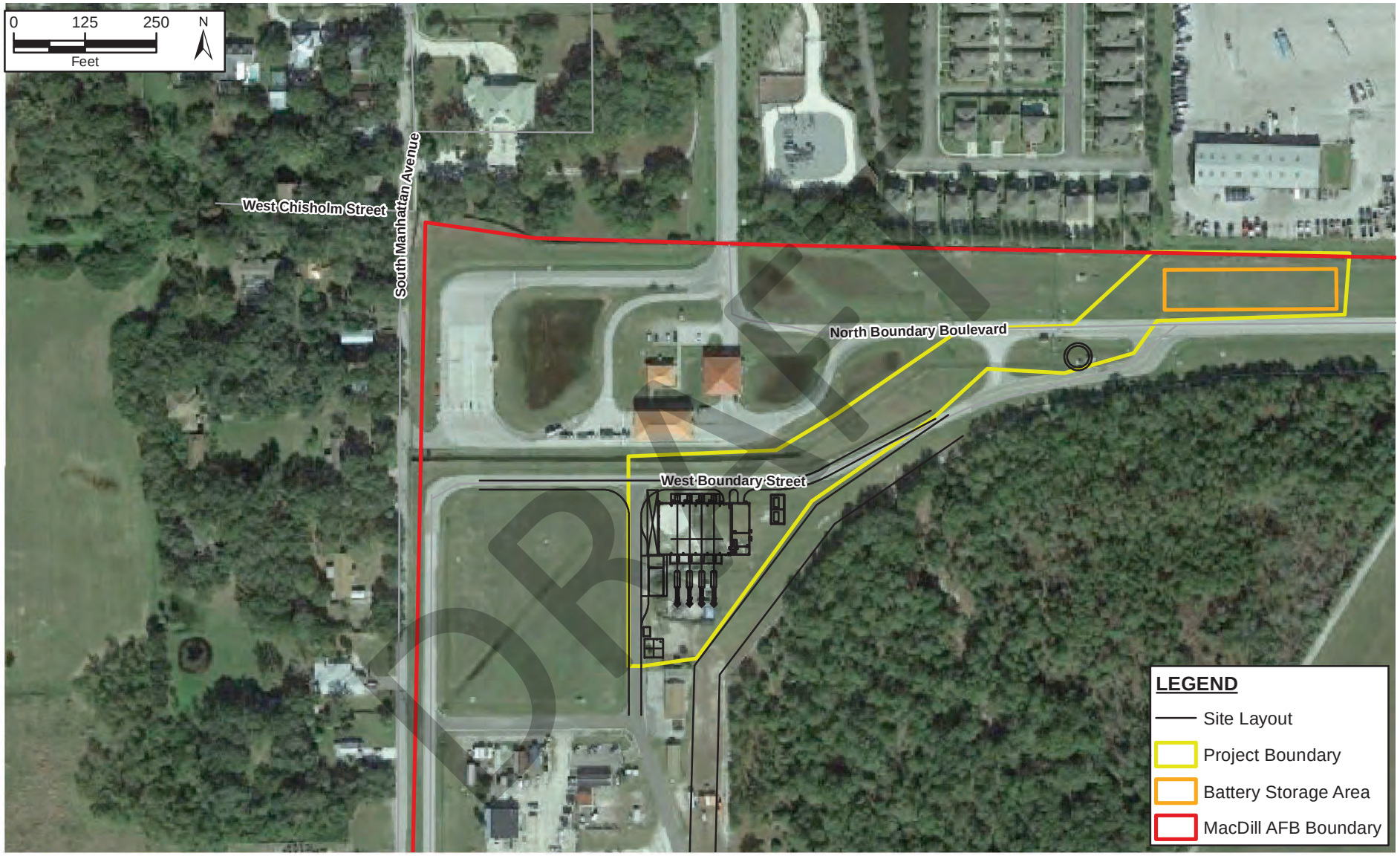

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MACDILL DISTRIBUTED GENERATION PROJECT
HILLSBOROUGH COUNTY, FLORIDA

Sources: FDOT, 2019; ECT, 2020.

MacDill Air Force Base Environmental
6 CES/CEIEC
7621 Hillsborough Loop Dr.
MacDill AFB, FL 33621

4 December 2020

MEMORANDUM FOR RECORD

FROM: 6 CES/CEIEC

SUBJECT: Consultation with the Miccosukee Tribe of Indians of Florida Regarding Tampa Electric Company Distributed Generation Project at MacDill AFB

1. A hard copy consultation letter for the subject project was mailed to the Miccosukee Tribe of Indians of Florida on 28 August 2020. In addition, an electronic version of the letter was e-mailed to Mr. Kevin Donaldson with the Miccosukee Tribe of Indians of Florida on 31 August 2020. A follow-up e-mail was sent to Mr. Donaldson on 13 November 2020 to confirm that the initial consultation letter was received and to request feedback from the Miccosukee Tribe. To date, no reply has been received from Mr. Donaldson on our requests for input on the Tampa Electric Company Distributed Generation project.

2. On 4 December 2020, I placed a call to Mr. Donaldson to follow-up. I was able to reach Mr. Donaldson on the phone and he confirmed that he had received the initial consultation letter via e-mail as well as the 13 November follow-up e-mail. Mr. Donaldson explained that they are frequently inundated with consultation requests, and that they only respond to those that they feel are a concern to the tribe. Mr. Donaldson stated that if no responses or phone calls are received by the Air Force within 30-60 days of submittal, we can assume the tribe has no objection to the project. In many years of consultation with the Miccosukee Tribe of Indians of Florida, the base has never received a written response from a project consultation letter.

3. The final NEPA documents will be executed, but it is understood that the tribe may provide comments or requests at any time and those requests will be considered accordingly.

Jason Kirkpatrick

JASON W. KIRKPATRICK, Contractor
Environmental Manager, 6th Civil Engineer Squadron

From:	Danielle Simon
To:	KIRKPATRICK, JASON W CTR USAF AMC 6 CES/CEIE
Cc:	THPO Compliance; Bradley Mueller; Kad Henderson; Paul Backhouse; RIDER, ANDREW W GS-12 USAF AMC 6 CES/CEIE; LYKENS, ANDREW S CTR USAF AMC 6 CES/CEIE
Subject:	[Non-DoD Source] Re: TECO Distributed Generation - MacDill AFB - Consultation
Date:	Wednesday, December 30, 2020 3:06:13 PM
Attachments:	image.png

SEMINOLE TRIBE OF FLORIDA
TRIBAL HISTORIC PRESERVATION OFFICE

TRIBAL HISTORIC PRESERVATION OFFICE
SEMINOLE TRIBE OF FLORIDA
30290 JOSIE BILLIE HIGHWAY
PMB 1004
CLEWISTON, FL 33440
THPO PHONE: (863) 983-6549
FAX: (863) 902-1117
THPO WEBSITE: WWW.STOFTHPO.COM

December 30, 2020

Mr. Jason W. Kirkpatrick, Contractor, PAE Inc.
6th Civil Engineer Squadron
7621 Hillsborough Loop Dr.
MacDill AFB, FL 33621
DSN 968-0459

Subject: MacDill AFB - TECO Distributed Generation
THPO Compliance Tracking Number: 0032629

In order to expedite the THPO review process:

1. Please correspond via email and provide documents as attachments (a THPO FTP site is available for large files),
2. Please send all emails to THPOCompliance@semtribe.com,
3. Please reference the THPO Compliance Tracking Number if one has been assigned.

Dear Mr. Kirkpatrick,

Thank you for contacting the Seminole Tribe of Florida – Tribal Historic Preservation Office (STOF-THPO) Compliance Section regarding the MacDill AFB - TECO Distributed Generation.

The proposed undertaking does fall within the STOF Area of Interest. We have reviewed the documents that you provided pursuant to Section 106 of the National Historic Preservation Act and its implementing authority, 36 CFR 800. In order for us to complete our review we would like to request the following additional information.

- Please provide the dimensions of the project APE.

- While we understand an Environmental Impact Analysis Process is still underway, if possible, please

provide a concise description of the proposed undertaking including the number, location(s), extent, and types of impacts (grading, trenching, etc.).

We would greatly appreciate receiving a copy of the Draft Environmental Assessment once your internal review is complete. Please continue to consult with us as the project develops and feel free to contact us with any questions or concerns.

Respectfully,
Danielle A. Simon, MA, RPA, Compliance Review Specialist
STOF-THPO, Compliance Review Section
30290 Josie Billie Hwy, PMB 1004
Clewiston, FL 33440
Email: daniellesimon@semtribe.com

From: KIRKPATRICK, JASON W CTR USAF AMC 6 CES/CEIE
Sent: Tuesday, December 29, 2020 2:26 PM
To: Paul Backhouse; Bradley Mueller
Cc: RIDER, ANDREW W GS-12 USAF AMC 6 CES/CEIE; LYKENS, ANDREW S CTR USAF AMC 6 CES/CEIE
Subject: RE: TECO Distributed Generation - MacDill AFB - Consultation

Good Afternoon;

We are working our way through the Environmental Impact Analysis Process for the proposed TECO Distributed Generation facility project. We have not received any input from the Seminole Tribe of Florida at this time and I wanted to follow-up to make sure you received a copy of the attached consultation letter with figures. We are currently completing our internal review of the preliminary draft Environmental Assessment for the project but would be happy to provide a copy of the Draft EA once it is available for public comment.

If you have any questions, please feel free to contact me via e-mail or at the phone number listed below. We look forward to hearing back from the Seminole Tribe of Florida.

Thank you

JasonK

JASON W. KIRKPATRICK, Contractor, PAE Inc.
Environmental Flight Manager
Cell 813-614-5729

From: KIRKPATRICK, JASON W CTR USAF AMC 6 CES/CEIE
Sent: Monday, August 31, 2020 11:31 AM
To: paulbackhouse@semtribe.com; bradleymueller@semtribe.com

Cc: RIDER, ANDREW W GS-12 USAF AMC 6 CES/CEIE <andrew.rider.2@us.af.mil>; Lykens, Andy [US] <Andrew.Lykens@pae.com>
Subject: TECO Distributed Generation - MacDill AFB - Consultation

Good Morning;

In an effort to improve energy resiliency for the installation, MacDill AFB is working with the Tampa Electric Company who would like to construct a new Distributed Generation power plant on the base. The auxiliary power generating facility will normally be used to augment the existing power grid for South Tampa but would be switched to act as a back-up power supply for MacDill AFB during emergency situations.

The environmental effects of the proposed project are being evaluated through preparation of an Environmental Assessment in accordance with the National Environmental Policy Act and Air Force regulations (32 CFR 989). As part of our environmental analysis we seek input on the proposed project from your tribe.

Also, if you would like to review the Draft Environmental Assessment, once it is completed, please let us know.

We look forward to hearing from you.

Jason K

JASON W. KIRKPATRICK, Contractor, PAE Inc.
6th Civil Engineer Squadron
7621 Hillsborough Loop Dr.
MacDill AFB, FL 33621
Cell 813-614-5729
Comm 813-828-0459
DSN 968-0459

MacDill Air Force Base Environmental
6 CES/CEIEC
7621 Hillsborough Loop Dr.
MacDill AFB, FL 33621

12 January 2021

MEMORANDUM FOR RECORD

FROM: 6 CES/CEIE

SUBJECT: Consultation with the Muscogee (Creek) Nation Regarding Tampa Electric Company Distributed Generation Project at MacDill AFB

1. A hard copy consultation letter for the subject project was mailed to the Muscogee (Creek) Nation on 28 August 2020. In addition, an electronic version of the letter was e-mailed to Ms. RaeLynn Butler with the Muscogee (Creek) Nation on 31 August 2020. A follow-up e-mail was sent to Ms. Butler on 13 November 2020 to confirm that the initial consultation letter was received and to request feedback from the Muscogee (Creek) Nation. To date, no reply has been received from Ms. Butler on our requests for input on the Tampa Electric Company Distributed Generation project.

2. On 4 December 2020, I placed a call to the Historic and Cultural Preservation Department for the Muscogee (Creek) Nation to check-in and follow-up. On the third attempt, I was able to get through the automated system and someone answered. The individual stated that Robin Soweka would be the appropriate person to talk to but that no one besides himself was in the office today. He collected my cell phone number and said he'd pass the information on to Mr. Soweka. We chatted for a bit about COVID and how that has affected office/home life for tribe members.

3. Additional follow-up phone calls were made on 11 January 2021. Using the automated directory (the only option) the name 'Robin Soweka' was not recognized, and I reached Ms. Sabon who is the Social Service Coordinator. She was unable to help with the Section 106 consultation, and was not familiar with the name Robin Soweka, but did forward me to Ms. RaeLynn Butler. Ms. Butler did not pick up the call, so I left a voicemail. I then called back and worked through the automated staff directory process to find Mr. David Proctor's (Section 106 Coordinator) extension. Mr. Proctor did not pick up the call and I left a voicemail message.

4. I feel we have made a strong effort to make contact with the Muscogee tribe and solicit their input on the Tampa Electric Company Distributed Generation project. To date, my phone calls and voicemail have not been returned. I will update this Memorandum for Record if additional feedback from the Muscogee tribe is received. The final NEPA documents will be executed, but it is understood that the tribe may provide comments or requests at any time and those requests will be considered accordingly.

Jason Kirkpatrick

JASON W. KIRKPATRICK, Contractor
Environmental Manager, 6th Civil Engineer Squadron

DEPARTMENT OF THE AIR FORCE
6TH AIR REFUELING WING (AMC)
MACDILL AIR FORCE BASE, FLORIDA

February 1, 2021

Mr. Robert T. Wynn
Installation Tribal Liaison Officer
6th Civil Engineer Squadron
7621 Hillsborough Loop Drive
MacDill Air Force Base, Florida 33621-5407

Dr. Paul N. Backhouse
Tribal Historic Preservation Officer
Seminole Tribe of Florida
30290 Josie Billie Hwy, PMB 1004
Clewiston, FL 33440

Dear Dr. Backhouse,

Thank you for your 30 December 2020 response to our initial consultation regarding the Tampa Electric Company Distributed Generation facility on MacDill Air Force Base (*STOF THPO Compliance Tracking Number 0032629*). As requested, a copy of the Draft Environmental Assessment for the project is attached for your review.

In your letter you requested that we provide the dimensions of the project's Area of Potential Effect (APE) and that we provide a concise description of the undertaking including the number, location(s), extent, and types of impacts (grading, trenching, etc.). A description of the undertaking is provided in Section 2.1 of the attached Draft Environmental Assessment. With regard to archaeological resources, we believe the project APE is defined as areas where grading, trenching or similar land disturbing activities would occur. As such, we have defined the APE as the primary project footprint shown in yellow in Figure 2-2, as well as, a 30-foot wide swath along the two linear corridors proposed for utility installation. These utility corridors include the underground transmission interconnection represented by the purple line in Figure 2-3 and the natural gas line represented by the green line in Figure 2-4 of the attached Draft Environmental Assessment.

We hope that the information provided above and in the Draft Environmental Assessment provide enough detail about the proposed Tampa Electric Company Distributed Generation project to address any concerns that the Seminole Tribe of Florida may have. If you would like additional information, please contact Mr. Jason Kirkpatrick at 813-614-5729 or by e-mail at jason.kirkpatrick.2.ctr@us.af.mil.

Sincerely

WYNN.ROBERT.T.1103491670
Digitally signed by WYNN.ROBERT.T.1103491670
Date: 2021.02.01 21:08:35 -05'00'

ROBERT T. WYNN, GS-15, DAF
Director, 6th Civil Engineer Squadron

Attachment
Draft Environmental Assessment for Tampa Electric Company Distributed Generation Facility

cc:
Ms. Danielle Simon

APPENDIX C

CONSTRUCTION EMISSIONS

Table C-1. Air Emissions From Construction - Summary

Summary Summarizes total emissions by calendar year for Demolish Bldg 1101

Combustion Estimates emissions from non-road equipment exhaust.

Fugitive Estimates particulate emissions from construction and demolition activities including earthmoving, vehicle traffic, and windblown dust.

Grading Estimates the number of days of site preparation, to be used for estimating heavy equipment exhaust and earthmoving dust emissions.

Haul Truck On-Road Estimates emissions from haul trucks hauling fill materials to the job site.

Construction Commuter Estimates emissions for construction workers commuting to the site.

AQCR Tier Report Summarizes total emissions for the West Central Florida Intrastate (WCFI) Air Quality Control Region Tier report for 2008, to be used to compare Construct DDR Facility to regional emissions.

Air Emissions for Distributed Generation Project

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	5.1	0.4	2.2	0.4	0.4	0.3	577.2
Fugitive Dust	-	-	-	-	3.8	0.4	-
Haul Truck On-Road	1.3	0.9	3.8	0.1	1.5	0.4	328.2
Commuter	0.1	0.1	0.7	0.0	0.0	0.0	98.6
TOTAL	***6.4***	***1.4***	***6.8***	***0.5***	***5.7***	***1.1***	***1,004.0***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***910.653***	***metric tons***	
State of Florida's CO2 emissions =	***227,957,000***	***metric tons***	*(U.S. DOE/EIA 2017)*
Percent of Florida's CO2 emissions =	***0.00040%***		
United States' CO_2 emissions =	***5,133,436,932***	***metric tons***	*(U.S. DOE/EIA 2017)*
Percent of USA's CO_2 emissions =	***0.000018%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 23 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory. Because Project C1 is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

West Central Florida Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	177,306	135,700	740,058	164,464	77,315	20,815

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 23 March 2012.

Air Emissions from Project C1

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	177,306	135,700	740,058	164,464	77,315	20,815
Emissions	6.4	1.4	6.8	0.5	5.7	1.1
% of Regional	**0.0036%**	**0.0010%**	**0.0009%**	**0.0003%**	**0.0074%**	**0.0054%**

Table C-2. Air Emissions From Construction - Combustion Sources

Combustion Emissions

Combustion Emissions of VOC, NO_x, SO_2, CO, $PM_{2.5}$, PM_{10}, and CO_2 due to Construction

	General Construction Activities	Area Disturbed		
1.)	Power Block	81,852	ft²	
2.)	Battery Storage	31,615	ft²	
3)	NG Pipeline	18,800	ft²	Assume 4,700 linear feet x 3 ft wide
4)	Transmission Line	12,000	ft²	Assume worse case, i.e. open cut v. HDD

Total Power Block Area:	81,852	ft²
	1.88	acres
Total Battery Storage Area:	31,615	ft²
	0.73	acres
Total NG Pipeline Area:	18,800	ft²
	0.43	acres
Total Transmission Line Area:	12,000	ft²
	0.28	acres
Total Disturbed Area:	144,268	ft²
	3.31	acres
Construction Duration:	12	months
Annual Construction Activity:	240	days

Assume 4 weeks per month, 5 days per week.

Emission Factors Used for Construction Equipment

References: Guide to Air Quality Assessment, SMAQMD, 2004; and U.S. EPA NONROAD Emissions Model, Version 2005.0.0
Emission factors are taken from the NONROAD model and were provided to e²M by Larry Landman of the Air Quality and Modeling Center (Landman.Larry@epamail.epa.gov) on 12/14/07. Factors provided are for the weighted average US fleet for CY2007.
Assumptions regarding the type and number of equipment are from SMAQMD Table 3-1 unless otherwise noted.

Grading

Equipment	No. Reqd.[a] per 10 acres	NO_x (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c] (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)	CO_2 (lb/day)
Bulldozer	1	13.60	0.96	5.50	1.02	0.89	0.87	1456.90
Motor Grader	1	9.69	0.73	3.20	0.80	0.66	0.64	1141.65
Water Truck	1	18.36	0.89	7.00	1.64	1.00	0.97	2342.98
Total per 10 acres of activity	3	41.64	2.58	15.71	3.45	2.55	2.47	4941.53

Paving

Equipment	No. Reqd.[a] per 10 acres	NO_x (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c] (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)	CO_2 (lb/day)
Paver	1	3.83	0.37	2.06	0.28	0.35	0.34	401.93
Roller	1	4.82	0.44	2.51	0.37	0.43	0.42	536.07
Truck	2	36.71	1.79	14.01	3.27	1.99	1.93	4685.95
Total per 10 acres of activity	4	45.37	2.61	18.58	3.93	2.78	2.69	5623.96

Demolition

Equipment	No. Reqd.[a] per 10 acres	NO_x (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c] (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)	CO_2 (lb/day)
Loader	1	13.45	0.99	5.58	0.95	0.93	0.90	1360.10
Haul Truck	1	18.36	0.89	7.00	1.64	1.00	0.97	2342.98
Total per 10 acres of activity	2	31.81	1.89	12.58	2.58	1.92	1.87	3703.07

Building Construction

Equipment[d]	No. Reqd.[a] per 10 acres	NO_x (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c] (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)	CO_2 (lb/day)
Stationary								
Generator Set	1	2.38	0.32	1.18	0.15	0.23	0.22	213.06
Industrial Saw	1	2.62	0.32	1.97	0.20	0.32	0.31	291.92
Welder	1	1.12	0.38	1.50	0.08	0.23	0.22	112.39
Mobile (non-road)								
Truck	1	18.36	0.89	7.00	1.64	1.00	0.97	2342.98
Forklift	1	5.34	0.56	3.33	0.40	0.55	0.54	572.24
Crane	1	9.57	0.66	2.39	0.65	0.50	0.49	931.93
Total per 10 acres of activity	6	39.40	3.13	17.38	3.12	2.83	2.74	4464.51

Note: Footnotes for tables are on following page

Architectural Coatings

Equipment	No. Reqd.[a] per 10 acres	NO_x (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)	CO_2 (lb/day)
Air Compressor	1	3.57	0.37	1.57	0.25	0.31	0.30	359.77
Total per 10 acres of activity	1	3.57	0.37	1.57	0.25	0.31	0.30	359.77

a) The SMAQMD 2004 guidance suggests a default equipment fleet for each activity, assuming 10 acres of that activity, (e.g., 10 acres of grading, 10 acres of paving, etc.). The default equipment fleet is increased for each 10 acre increment in the size of the construction project. That is, a 26 acre project would round to 30 acres and the fleet size would be three times the default fleet for a 10 acre project.

b) The SMAQMD 2004 reference lists emission factors for reactive organic gas (ROG). For the purposes of this worksheet ROG = VOC. The NONROAD model contains emissions factors for total HC and for VOC. The factors used here are the VOC factors.

c) The NONROAD emission factors assume that the average fuel burned in nonroad trucks is 1100 ppm sulfur. Trucks that would be used for the Proposed Actions will all be fueled by highway grade diesel fuel which cannot exceed 500 ppm sulfur. These estimates therefore over-estimate SO2 emissions by more than a factor of two.

d) Typical equipment fleet for building construction was not itemized in SMAQMD 2004 guidance. The equipment list above was assumed based on SMAQMD 1994 guidance.

PROJECT-SPECIFIC EMISSION FACTOR SUMMARY

Source	Equipment Multiplier*	Project-Specific Emission Factors (lb/day)						
		NO_x	VOC	CO	SO_2**	PM_{10}	$PM_{2.5}$	CO_2
Grading Equipment	1	41.641	2.577	15.710	3.449	2.546	2.469	4941.526
Paving Equipment	1	45.367	2.606	18.578	3.926	2.776	2.693	5623.957
Demolition Equipment	1	31.808	1.886	12.584	2.585	1.923	1.865	3703.074
Building Construction	1	39.396	3.130	17.382	3.116	2.829	2.744	4464.512
Air Compressor for Architectural Coating	1	3.574	0.373	1.565	0.251	0.309	0.300	359.773
Architectural Coating**			0.000					

*The equipment multiplier is an integer that represents units of 10 acres for purposes of estimating the number of equipment required for the project.

**Emission factor is from the evaporation of solvents during painting, per "Air Quality Thresholds of Significance", SMAQMD, 1994

Example: SMAQMD Emission Factor for Grading Equipment NOx = (Total Grading NOx per 10 acre)*(Equipment Multiplier)

Summary of Input Parameters

	Total Area (ft^2)	Total Area (acres)	Total Days	
Grading:	113,468	2.60	2	(from "Grading" worksheet)
Paving:	113,468	2.60	13	
Demolition:	0	0.00	0	
Building Construction:	144,268	3.31	240	
Architectural Coating	0	0.00	0	(per SMAQMD "Air Quality of Thresholds of Significance", 1994)

NOTE: The 'Total Days' estimate for paving is calculated by dividing the total number of acres by 0.21 acres/day, which is a factor derived from the 2005 MEANS Heavy Construction Cost Data, 19th Edition, for 'Asphaltic Concrete Pavement, Lots and Driveways - 6" stone base', which provides an estimate of square feet paved per day. There is also an estimate for 'Plain Cement Concrete Pavement', however the estimate for asphalt is used because it is more conservative. The 'Total 'Days' estimate for demolition is calculated by dividing the total number of acres by 0.02 acres/day, which is a factor also derived from the 2005 MEANS reference. This is calculated by averaging the demolition estimates from 'Building Demolition - Small Buildings, Concrete', assuming a height of 30 feet for a two-story building; from 'Building Footings and Foundations Demolition - 6" Thick, Plain Concrete'; and from 'Demolish, Remove Pavement and Curb - Concrete to 6" thick, rod reinforced'. Paving is double-weighted since projects typically involve more paving demolition. The 'Total Days' estimate for building construction is assumed to be 230 days, unless project-specific data is known.

Total Project Emissions by Activity (lbs)

	NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
Grading Equipment	83.28	5.15	31.42	6.90	5.09	4.94	9,883
Paving	589.77	33.87	241.52	51.03	36.09	35.01	73,111
Demolition	-	-	-	-	-	-	0
Building Construction	9,455.12	751.15	4,171.75	747.92	678.97	658.60	1,071,483
Architectural Coatings	-	-	-	-	-	-	0
Total Emissions (lbs):	**10,128.17**	**790.18**	**4,444.69**	**805.86**	**720.15**	**698.55**	**1,154,477**

Results: Total Project Annual Emission Rates

	NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
Total Project Emissions (lbs)	10,128.17	790.18	4,444.69	805.86	720.15	698.55	1,154,477
Total Project Emissions (tons)	5.1	0.4	2.2	0.4	0.4	0.3	577.2

Table C-3. Air Emissions From Construction - Fugitive Emissions

Construction Fugitive Dust Emissions

Construction Fugitive Dust Emission Factors

	Emission Factor	Units	Source
Construction Activities	0.19	ton PM_{10}/acre-month	MRI 1996; EPA 2001; EPA 2006
New Road Construction	0.42	ton PM_{10}/acre-month	MRI 1996; EPA 2001; EPA 2006

$PM_{2.5}$ Emissions

$PM_{2.5}$ Multiplier	0.10	(10% of PM_{10} emissions assumed to be $PM_{2.5}$)	EPA 2001; EPA 2006
Control Efficiency	0.50	(assume 50% control efficiency for PM_{10} and $PM_{2.5}$ emissions)	EPA 2001; EPA 2006

Project Assumptions

New Road Construction (0.42 ton PM_{10}/acre-month)

Duration of Project	12	months
Area	0.00	acres

General Construction Activities (0.19 ton PM_{10}/acre-month)

Duration of Project	12	months
Area	3.31	acres

	Project Emissions (tons/year)			
	PM_{10} uncontrolled	**PM_{10} controlled**	**$PM_{2.5}$ uncontrolled**	**$PM_{2.5}$ controlled**
New Roadway Construction	0.000	0.000	0.000	0.000
General Construction Activities	7.551	3.776	0.755	0.378
Total	**7.551**	**3.776**	**0.755**	**0.378**

Construction Fugitive Dust Emission Factors

General Construction Activities Emission Factor

0.19 ton PM_{10}/acre-month Source: MRI 1996; EPA 2001; EPA 2006

The area-based emission factor for construction activities is based on a study completed by the Midwest Research Institute (MRI) Improvement of Specific Emission Factors (BACM Project No. 1), March 29, 1996. The MRI study evaluated seven construction projects in Nevada and California (Las Vegas, Coachella Valley, South Coast Air Basin, and the San Joaquin Valley). The study determined an average emission factor of 0.11 ton PM_{10}/acre-month for sites without large-scale cut/fill operations. A worst-case emission factor of 0.42 ton PM_{10}/acre-month was calculated for sites with active large-scale earth moving operations. The monthly emission factors are based on 168 work-hours per month (MRI 1996). A subsequent MRI Report in 1999, Estimating Particulate Matter Emissions From Construction Operations, calculated the 0.19 ton PM_{10}/acre-month emission factor by applying 25% of the large-scale earthmoving emission factor (0.42 ton PM_{10}/acre-month) and 75% of the average emission factor (0.11 ton PM_{10}/acre-month). The 0.19 ton PM_{10}/acre-month emission factor is referenced by the EPA for non-residential construction activities in recent procedures documents for the National Emission Inventory (EPA 2001; EPA 2006). The 0.19 ton PM_{10}/acre-month emission factor represents a refinement of EPA's original AP-42 area-based total suspended particulate (TSP) emission factor in Section 13.2.3 Heavy Construction Operations. In addition to the EPA, this methodology is also supported by the South Coast Air Quality Management District as well as the Western Regional Air Partnership (WRAP) which is funded by the EPA and is administered jointly by the Western Governor's Association and the National Tribal Environmental Council. The emission factor is assumed to encompass a variety of non-residential construction activities including building construction (commercial, industrial, institutional, governmental), public works, and travel on unpaved roads. The EPA National Emission Inventory documentation assumes that the emission factors are uncontrolled and recommends a control efficiency of 50% for PM_{10} and $PM_{2.5}$ in PM nonattainment areas.

New Road Construction Emission Factor

0.42 ton PM_{10}/acre-month Source: MRI 1996; EPA 2001; EPA 2006

The emission factor for new road construction is based on the worst-case conditions emission factor from the MRI 1996 study described above (0.42 tons PM_{10}/acre-month). It is assumed that road construction involves extensive earthmoving and heavy construction vehicle travel resulting in emissions that are higher than other general construction projects. The 0.42 ton PM10/acre-month emission factor for road construction is referenced in recent procedures documents for the EPA National Emission Inventory (EPA 2001; EPA 2006).

$PM_{2.5}$ Multiplier 0.10

$PM_{2.5}$ emissions are estimated by applying a particle size multiplier of 0.10 to PM_{10} emissions. This methodology is consistent with the procedures documents for the National Emission Inventory (EPA 2006).

Control Efficiency for PM_{10} and $PM_{2.5}$ 0.50

The EPA National Emission Inventory documentation recommends a control efficiency of 50% for PM_{10} and $PM_{2.5}$ in PM nonattainment areas (EPA 2006). Wetting controls will be applied during project construction.

References:

EPA 2001. *Procedures Document for National Emissions Inventory, Criteria Air Pollutants, 1985-1999.* EPA-454/R-01-006. Office of Air Quality Planning and Standards, United States Environmental Protection Agency. March 2001.

EPA 2006. *Documentation for the Final 2002 Nonpoint Sector (Feb 06 version) National Emission Inventory for Criteria and Hazardous Air Pollutants.* Prepared for: Emissions Inventory and Analysis Group (C339-02) Air Quality Assessment Division Office of Air Quality Planning and Standards, United States Environmental Protection Agency. July 2006.

MRI 1996. *Improvement of Specific Emission Factors (BACM Project No. 1).* Midwest Research Institute (MRI). Prepared for the California South Coast Air Quality Management District, March 29, 1996.

Table C-4. Air Emissions From Construction - Grading

Grading Schedule

Estimate of time required to grade a specified area.

Input Parameters
Construction area: 3.31 acres/yr (from Combustion Worksheet)
Qty Equipment: 3.00 (calculated based on 3 pieces of equipment for every 10 acres)

Assumptions.
Terrain is mostly flat.
An average of 6" soil is excavated from one half of the site and backfilled to the other half of the site; no soil is hauled off-site or borrowed.
200 hp bulldozers are used for site clearing.
300 hp bulldozers are used for stripping, excavation, and backfill.
Vibratory drum rollers are used for compacting.
Stripping, Excavation, Backfill and Compaction require an average of two passes each.
Excavation and Backfill are assumed to involve only half of the site.

Calculation of days required for one piece of equipment to grade the specified area.

Reference: Means Heavy Construction Cost Data, 19th Ed., R. S. Means, 2005.

Means Line No.	Operation	Description	Output	Units	Acres per equip-day)	equip-days per acre	Acres/yr (project-specific)	Equip-days per year
2230 200 0550	Site Clearing	Dozer & rake, medium brush	8	acre/day	8	0.13	3.31	0.41
2230 500 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	3.31	1.62
2315 432 5220	Excavation	Bulk, open site, common earth, 150' haul	800	cu. yd/day	0.99	1.01	1.66	1.67
2315 120 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	1.66	0.69
2315 310 5020	Compaction	Vibrating roller, 6 " lifts, 3 passes	2,300	cu. yd/day	2.85	0.35	3.31	1.16
TOTAL								5.55

Calculation of days required for the indicated pieces of equipment to grade the designated acreage.

(Equip)(day)/yr: 5.55
Qty Equipment: 3.00
Grading days/yr: 1.85

Table C-5. Air Emissions From Construction - Haul Truck Emissions

Haul Truck Emissions

Emissions from hauling fill and excavated material are estimated in this spreadsheet.
Emission Estimation Method: United States Air Force (USAF) Institute for Environment, Safety and Occupational Health Risk Analysis (IERA) Air Emissions Inventory Guidance Document for Mobile Sources at Air Force Installations (Revised December 2003).

Fill and Excavation Materials Assumptions:
Haul trucks carry 20 cubic yards of material per trip.
The average distance from the project site to the materials source is 15 miles; therefore, a haul truck will travel 30 miles round trip.
Estimated number of trips required by haul trucks = total amount of material/20 cubic yards per truck

Amount of demoltion debris =	0	cubic yards	Demoltion area multiplied by 4 feet per floor. All buildings assumed to be one floor.
Amount of fill material =	0	cubic yards	Demoltion area multipled by depth of building foundations which are assumed to 12 feet.
Amount of Excavation Materials for Construction =	64,119	cubic yards	Construction area multiped by depth of disturbance which is assumed to be 12 feet.
Amount of Excavation Material for Paving =	4,203	cubic yards	Paving area multiplied by depth of disturbance which is assumed to be 1 foot.
Amount of Building Materials =	48,089	cubic yards	Construction area multipled by 9 feet.
Amount of Paving Materials =	4,203	cubic yards	Paving area multiplied 1 foot.

Number of trucks required =	6031	heavy duty diesel haul truck trips
Miles per trip =	30	miles

Heavy Duty Diesel Vehicle (HDDV) Average Emission Factors (grams/mile)

	NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
HDDV	**6.5**	**4.7**	**19.1**	**0.512**	**7.73**	**2.01**	**1645.605**

Notes:

Emission factors for all pollutants except CO_2 are from USAF IERA 2003.

Emission factors for PM, PM_{10}, SO_x are from HDDV in Table 4-50 (USAF IERA 2003).

Emission factors for VOC, CO, and NO_x are from Tables 4-41 through 4-43 for the 2010 calendar year, 2000 model year (USAF IERA 2003).
Diesel fuel produces 22.384 pounds of CO2 per gallon.
It is assumed that the average HDDV has a fuel economy of 6.17 miles per gallon, Table 4-51 (USAF IERA 2003)
CO_2 emission factor = 22.384 lbs CO_2/gallon diesel * gallon diesel/6.17 miles * 453.6 g/lb

HDDV Haul Truck Emissions

	NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
lbs	**2592.548**	**1874.612**	**7618.104**	**204.213**	**3083.138**	**801.696**	**656355.447**
tons	**1.296**	**0.937**	**3.809**	**0.102**	**1.542**	**0.401**	**328.178**

Example Calculation: NO_x emissions (lbs) = 30 miles per trip * 369 trips * NO_x emission factor (g/mile) * lb/453.6 g

Table C-6. Air Emissions From Construction - Commuter Vehicle Emissions

Construction Commuter Emissions

Emissions from construction workers commuting to the job site are estimated in this spreadsheet.

Emission Estimation Method: Emission factors from the South Coast Air Quality Management District (SCAQMD) EMFAC 2007 (v 2.3) Model (on-road) were used. These emission factors are available online at http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html.

Assumptions:
Passenger vehicle emission factors for scenario year 2010 are used.

The average roundtrip commute for a construction worker =	30	miles
Number of construction days =	240	days
Number of construction workers (daily) =	25	people

Passenger Vehicle Emission Factors for Year 2010 (lbs/mile)

NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
0.00091814	0.00091399	0.00826276	0.00001077	0.00008698	0.00005478	1.09568235

Source: South Coast Air Quality Management District. EMFAC 2007 (ver 2.3) On-Road Emissions Factors. Last updated April 24, 2008. Available online: <http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html>. Accessed 27 May 2009.
Notes:
The SMAQMD 2007 reference lists emission factors for reactive organic gas (ROG). For purposes of this worksheet ROG = VOC.

Construction Commuter Emissions

	NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
lbs	**165.265**	**164.518**	**1487.296**	**1.939**	**15.656**	**9.861**	**197222.823**
tons	**0.083**	**0.082**	**0.744**	**0.001**	**0.008**	**0.005**	**98.611**

Example Calculation: NO_x emissions (lbs) = 60 miles/day * NO_x emission factor (lb/mile) * number of construction days * number of workers

APPENDIX D

NOISE STUDY

MacDill Air Force Base Sound Study

Tampa Electric Company

MacDill Air Force Base
Project No. 119465

Revision 1
3/12/2020

MacDill Air Force Base Sound Study

prepared for

Tampa Electric Company
MacDill Air Force Base
Tampa, Florida

Project No. 119465

Revision 1
3/12/2020

prepared by

Burns & McDonnell Engineering Company, Inc.
Chicago, IL

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LIST OF ABBREVIATIONS

Abbreviation	Term/Phrase/Name
ANSI	American National Standards Institute
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
CadnaA	Computer Aided Noise Abatement
dB	decibels
dBA	A-weighted decibels
dBC	C-weighted decibels
Hz	Hertz
ISO	International Organization of Standardization
L_{eq}	equivalent sound level
MP	measurement point
Project	proposed reciprocating engine power plant at the MacDill Air Force Base
Rec	noise-sensitive receiver
Tampa Ordinance	City of Tampa Code of Ordinances
TECO	Tampa Electric Company
UFC	Unified Facilities Criteria

1.0 EXECUTIVE SUMMARY

Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) conducted an environmental sound study for the proposed reciprocating engine power plant at the MacDill Air Force Base (Project) for Tampa Electric Company (TECO).

Burns & McDonnell reviewed the appropriate applicable regulations for the City of Tampa and the Unified Facilities Criteria (UFC). Both regulations have daytime and nighttime sound level limits applicable at residential properties. The City of Tampa restricts noise at residential property to 60 A-weighted decibels (dBA) during daytime hours and 55 dBA during nighttime hours while the UFC restricts continuous sound levels at residential properties to 57 dBA during daytime hours and 47 dBA during nighttime hours. This analysis used various scenarios to design the Project to meet either of the most restrictive nighttime regulations.

Burns & McDonnell personnel conducted an ambient sound level survey at potential noise-sensitive receptors in the surrounding area of the Project. Onsite the base, the airstrip is active with aircrafts during daytime hours. The surrounding area contains busy roadways, a fire station, heavy morning truck traffic, and other fluctuating daily sound levels. Measured residential daytime sound levels ranged from 50 dBA to 66 dBA and nighttime sound levels ranged from 42 dBA to 54 dBA.

A sound model was developed to estimate the Project sound levels onto surrounding noise-sensitive property. Multiple scenarios were developed using varying vendors, design goals, and mitigation equipment. The reductions modeled in the mitigation phases were based off the 55 dBA and 47 dBA design goals and may be challenging to achieve.

2.0 ACOUSTICAL TERMINOLOGY

The terms “noise level” and “sound level” are often used interchangeably to describe two different sound characteristics called sound power and sound pressure. Every source that produces sound has a sound power level. The sound power level is the acoustical energy emitted by a sound source and is an absolute number that is not affected by the environment. The acoustical energy produced by a source propagates through the air as air pressure fluctuations. These pressure fluctuations, also called sound pressure, are what human ears hear and microphones measure.

Sound energy is physically characterized by amplitude and frequency. Sound amplitude is measured in decibels (dB) as the logarithmic ratio of a sound pressure to a reference sound pressure (20 microPascals). The reference sound pressure corresponds to the typical threshold of human hearing. A 3-dB change in a continuous broadband sound level is generally considered “just barely perceptible” to the average listener. A 5-dB change is generally considered “clearly noticeable,” and a 10-dB change is generally considered a doubling (or halving, if the sound is decreasing) of the apparent loudness.

Frequency is measured in Hertz (Hz), which is the number of cycles per second. The typical human ear can hear frequencies ranging from approximately 20 to 20,000 Hz. Normally, the human ear is most sensitive to sounds in the middle frequencies (1,000 to 8,000 Hz) and is less sensitive to sounds in the low and high frequencies. As such, the A-weighted scale was developed to simulate the frequency response of the human ear to sounds at typical environmental levels. The A-weighted scale emphasizes sounds in the middle frequencies and de-emphasizes sounds in the low and high frequencies. Any sound level to which the A-weighted scale has been applied is expressed in dBA. Similarly, the C-weighted scale is utilized to quantify low frequencies perceptible to the human ear. Any sound level to which the C-weighted scale has been applied is expressed in dBC. For reference, the sound pressure level and subjective loudness associated with some common sound sources are listed in Table 2-1.

Sound in the environment is constantly fluctuating, for example, when a car drives by, a dog barks, or a plane passes overhead. Although an instantaneous sound level measured in dBA may indicate the level of noise experienced by an observer at that point in time, environmental noise levels vary continuously. Most ambient environmental noise includes a mixture of noise from some identifiable sources plus a relatively steady background noise where no particular source is identifiable. A single descriptor called the equivalent sound level (L_{eq}) is used to describe sound that is constant or changing in level. The L_{eq} is the average sound level for a specific time period.

Table 2-1: Typical Sound Pressure Levels Associated with Common Sound Sources

Sound Pressure Level (dBA)	Subjective Evaluation	Environment	
		Outdoor	Indoor
140	Deafening	Jet aircraft at 75 ft.	--
130	Threshold of pain	Jet aircraft during takeoff at a distance of 300 ft.	--
120	Threshold of feeling	Elevated train	Hard rock band
110	--	Jet flyover at 1,000 ft.	Inside propeller plane
100	Very loud	Power mower, motorcycle at 25 ft., auto horn at 10 ft., crowd noise at football game	--
90	--	Propeller plane flyover at 1,000 ft., noisy urban street	Full symphony or band, food blender, noisy factory
80	Moderately loud	Diesel truck (40 mph) at 50 ft.	Inside auto at high speed, garbage disposal
70	Loud	B-757 cabin during flight	Close conversation, vacuum cleaner
60	Moderate	Air-conditioner condenser at 15 ft., near highway traffic	General office
50	Quiet	--	Private office
40	--	Farm field with light breeze, birdcalls	Soft stereo music in residence
30	Very quiet	Quiet residential neighborhood	Bedroom, average residence (without TV and stereo)
20	--	Rustling leaves	Quiet theater, whisper
10	Just audible	--	Human breathing
0	Threshold of hearing	--	--

Sources:
(1) Adapted from *Architectural Acoustics*, M. David Egan, 1988
(2) *Architectural Graphic Standards*, Ramsey and Sleeper, 1994

3.0 APPLICABLE REGULATIONS

The State of Florida does not provide noise regulations that are applicable to the Project. The City of Tampa Code of Ordinances (Tampa Ordinance) Chapter 14 provides dBA and C-weighted decibel (dBC) sound level limits, provided in Table 3-1, that do not apply to the Project because it is not within the Central Business District, the Ybor City Historic District, or the Channel District.

Table 3-1: City of Tampa District Sound Level Limits – Not Applicable to Project

Sound Source Location	Sound Level Limit		
	Metric	6PM to 3AM	3AM to 6PM
Central Business District, the Ybor City Historic District, and Channel District	dBA	85	65
	dBC	87	75

Chapter 27 establishes dBA noise limits for sound emitted from industrial, manufacturing and processing operations to residential, commercial, and industrial receiving land that does apply to the Project. Chapter 27 does not establish any dBC noise limit criteria. The maximum A-weighted sound levels may not exceed those detailed in Table 3-2.

Table 3-2: City of Tampa Industrial Sound Level Limits

Receiving Land Use	Sound Pressure Level (dBA)	
	Daytime (7AM to 10PM)	Nighttime (10PM to 7AM)
Residential	60	55
Commercial	65	60
Industrial	75	75

Source: City of Tampa Code of Ordinances, Section 27-28.7

The UFC was issued by the Department of Defense to serve as criteria for the design of engine driven generator systems. In Section 2-4.2.2, the UFC states that these facilities should comply with federal, state, and local codes or the UFC sound limits provided in Table 3-3, whichever is stricter. The UFC sound levels are summarized in Table 3-3 and are stricter than the City of Tampa limits.

Table 3-3: UFC Sound Level Limits

Receiving Land Use	Sound Pressure Level (dBA)			
	Peak Daytime	Peak Nighttime	Continuous Daytime	Continuous Nighttime
Residential	62	52	57	47
Light Industrial	67	57	62	52
Heavy Industrial	72	62	67	57
Hospital	45	40	35	30

Source: UFC 3-540-01 Section 2-4.2.2 Table 2-1

The Project may run at all hours of the day, so the City of Tampa nighttime and UFC continuous nighttime sound level limits will be used as design goals for the Project mitigation scenarios. Both the City of Tampa and UFC limits are applicable to Project sound levels only and are not inclusive of the ambient environment.

4.0 ENVIRONMENTAL SETTING

Burns & McDonnell personnel conducted an ambient sound level survey from February 12 to 13, 2020. Prior to onsite measurements, a desktop study was conducted to investigate potential noise-sensitive receivers within an approximately 1,500 feet radius of the proposed Project. Measurement points were then chosen in accessible locations to best represent the current sound environment of these identified noise-sensitive receivers.

4.1 Project Area

The area immediately surrounding the Project is the MacDill Air Force Base. Onsite the base, the airstrip is active with aircrafts during daytime hours. Just north of the Project site, the Tanker Way Gate Guardhouse has many semi-trailer trucks and other large vehicles during the morning hours and into the afternoon. North of the Tanker Way Gate Guardhouse is the Firehouse #19 Port Tampa just off of the frequently traveled Interbay Boulevard roadway.

There are residential developments in the area just beyond the base. A few residences are located approximately 500 feet west of the Project site, directly west of South Manhattan Ave. These residences are exposed to moderate passing traffic on South Manhattan Ave and temporary significant increases during takeoff and landing of air force base aircrafts. Another neighborhood begins approximately 550 feet northeast of the Project site and is exposed to the heavy truck traffic through Tanker Way Gate Guardhouse in addition to air force base activity. A large group of homes begins approximately 1,400 feet west of the Project site with less exposure to noise from traffic and air force activity.

4.2 Noise-Sensitive Receivers

Noise-sensitive areas are commonly defined as places where people live, sleep, recreate, worship, and study. Five noise-sensitive receivers (Rec), labeled Rec01 to Rec05, were selected to be representative of Project sound levels of residential properties in the vicinity of the Project. An additional receiver (Rec06) is located onsite near the Guardhouse and was also analyzed; however, it is not subject to the City of Tampa or UFC nighttime regulation. The six noise-sensitive receivers are shown in Figure 4-1.

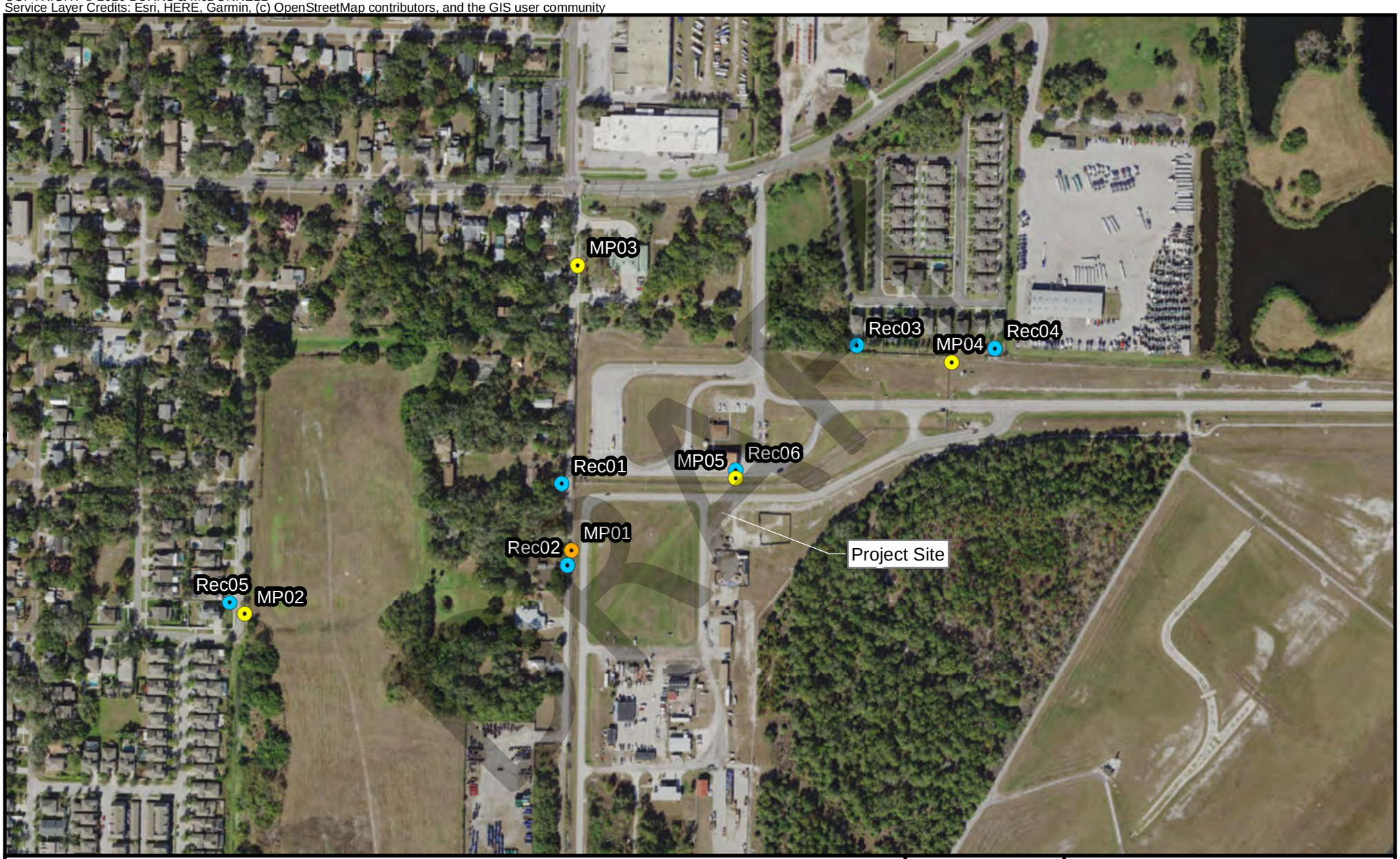
Table 4-1: Noise-Sensitive Receiver Information

Receiver	Land Use	Approximate Distance from Site (feet)
Rec01	Residential	450
Rec02	Residential	450
Rec03	Residential	550
Rec04	Residential	800
Rec05	Residential	1,500
Rec06[a]	Air Force Base	100

(a) Not located on residential property and is not subject to the City of Tampa or UFC nighttime regulation.

Path: G:\Projects\Air-Noise Dept\Project Files\TECO\GIS\Figure 4-1 - Receiver and Measurement Locations.mxd rjgurreri 2/25/2020

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community



Long-Term Measurement (MP)
Short-Term Measurement (MP)
Residential Receiver (Rec)

NORTH

400 200 0 400

Scale in Feet

BURNS McDONNELL

Figure 4-1
TECO
MacDill Air Force Base
Receiver and Measurement Locations

Source: ESRI, Burns & McDonnell

Issued: 2/25/2020

4.3 Existing Sound Environment

The sound survey included short-term and long-term far-field measurements at offsite and onsite measurement locations. A correspondent measurement location for each noise-sensitive receiver was chosen to quantify the existing sound environment. The measurement locations were selected because they were accessible and representative of existing ambient sound levels in the direction of noise-sensitive receivers. The measurement locations, labeled measurement point (MP) MP01 to MP05, are provided in Figure 4-1.

4.3.1 Sound Survey Methodology

Measurements were taken using American National Standards Institute (ANSI) S1.4 type 1 sound level meters (Larson Davis Model 831). The sound level meters were calibrated at the beginning and end of each set of measurements. None of the calibration level changes exceeded ± 0.5 dB. Windscreens were used at all times on the microphones, and the meters were mounted on tripods. The microphones were located approximately 5 feet above ground level for short-term measurements and 7 feet for long-term measurements with the microphone directed towards the Project site, angled per the manufacturer's recommendation. All measurements were taken when meteorological conditions were favorable for conducting background sound level measurements per ANSI standards (low wind, moderate temperatures, humidity and minimal precipitation).

4.3.2 Short-Term Measurements

Short-term far-field measurements were taken during four time periods over a 24-hour span. Short-term far-field measurements were 10 minutes in duration, and measured values were logged by the sound level meter at each measurement point. The overall A-weighted L_{eq} sound level collected during the measurements are shown below in Table 4-2.

Table 4-2: Short-Term Far-Field Measurement Data

Measurement Point	Sound Pressure Level L_{eq} (dBA)			
	Morning (5:00 AM)	Day (11:00 AM)	Evening (5:00 PM)	Night (11:00 PM)
MP01	62	61	60	54
MP02	47	54	54	46
MP03	63	64	65	53
MP04	45	64	50	42
MP05	51	66	54	47

The sound levels varied at each measurement point due to proximity to the MacDill Air Force Base and extraneous noises that occurred during each measurement. Aircrafts, vehicle traffic, and construction at MacDill Air Force Base were audible at the far-field measurement locations, but measurements also included other significant extraneous sounds. Extraneous sounds not produced by the MacDill Air Force Base at far-field locations included vehicle traffic, residential HVAC, insects, rustling leaves, commercial planes, etc. The measured sound levels and various noise sources for each measurement are presented in Appendix A.

4.3.3 Long-Term Measurement

A long-term far-field measurement was taken continuously and collected data over the duration of the sound study. The long-term far-field sound level meter was located at MP01 inside of the facility fenceline. The measurement was selected because it was representative of existing sound levels near residential properties and provided the ability to secure the equipment for unattended operation. Short-term measurements were taken by Burns & McDonnell personnel next to the long-term meter with accompanying measurement notes to better identify the sources of the long-term sound level data.

The sound levels varied at the long-term measurement location due to fluctuating sound sources during the continuous measurement period. The 1-minute Leq sound level was commonly influenced by passing traffic on South Manhattan Ave or passing traffic from inside the facility fenceline. Other short-term spikes were seen during takeoff events of facility aircrafts onsite. During nighttime hours, the background sound level came to a minimum, constant sound level during the late hours of the night. Graphs of the sound levels measured by long-term monitor throughout the duration of the survey is provided in Appendix B.

5.0 PREDICTIVE MODELING

Burns & McDonnell performed predictive modeling to estimate the potential noise impacts of the Project and compared the modeled sound levels to applicable regulations. Multiple scenarios were developed for varying vendors, design goals, and mitigation equipment as detailed in the following sections. Wartsila and MAN were the analyzed engine vendors. A base mitigation scenario was developed for each vendor as well as two additional mitigation scenarios per vendor that either bring the Project into compliance with the 55-dBA nighttime Tampa regulation or the 47-dBA UFC nighttime regulation.

5.1 Methodology

Noise modeling was performed using the industry-accepted sound modeling software Computer Aided Noise Abatement (CadnaA), version 2020. The software is a scaled, three-dimensional program, which takes into account air absorption, terrain, ground absorption, and reflections and shielding for each piece of noise-emitting equipment and predicts sound pressure levels. The model calculates sound propagation based on International Organization of Standardization (ISO) 9613-2:1996, General Method of Calculation. ISO 9613-2 assesses the sound level propagation based on the octave band center-frequency range from 31.5 to 8,000 Hz.

The ISO standard considers sound propagation and directivity. The software calculates sound propagation using omnidirectional, downwind sound propagation and worst-case directivity factors. In other words, the model assumes that each piece of equipment propagates its maximum sound level in all directions at all times. Empirical studies accepted within the industry have demonstrated that modeling may over-predict sound levels in certain directions, and as a result, modeling results generally are considered a conservative measure of the Project's actual sound level.

The modeled atmospheric conditions were assumed to be calm, and the temperature and relative humidity were left at the program's default values. Reflections and shielding were considered for sound waves encountering physical structures. Sound levels around the proposed Project can be influenced by the sound reflections from physical structures onsite. The physical structures were modeled with structured facades, which account for sound reflected and the amount of sound absorbed by the structure itself. The area surrounding the Project has a significant amount of elevation change, and terrain was included to account for surface effects. Ground absorption was set to 0.5 for all areas surrounding the Project as a conservative assumption. All sound modeling parameters used are provided in Table 5-1.

Table 5-1: Sound Modeling Parameters

Model Input	Parameter Value
Ground Absorption	0.5
Number of Reflections	2
Receptor Height	5 feet above grade
Terrain	USGS topographic land data
Temperature	50 °F
Humidity	70%

5.2 Balance of Plant Equipment

Additional equipment such as a fuel gas heater, transformers, inverters, make-up air units, etc. are also a part of the Project but are not provided by the analyzed vendors. Vendor provided sound levels are the significant sound levels of the Project and necessary BOP equipment can be designed in conjunction with the vendor provided equipment to meet the Project design goals. Appendix C summarizes the modeled sound power level of each piece of balance of plant and vendor equipment for each modeled scenario.

Make-up air units are intake fans used to ventilate the interior of the engine hall. Make-up air unit sound levels are significantly influenced by the interior engine hall sound level in addition to their own fan noise. Various sound level silencer reductions for the make-up air units were designed to the given scenario's design goal as detailed in Appendix C.

All base and mitigation scenarios for the engine hall include concrete panels building construction with steel roof ridge vent and silencer. The roof ridge vent provides ventilation for the engine hall interior but does not have any fans associated with it. The ridge vent noise source is fully attributable to interior engine hall noise and silencers ranging from 3 to 10 feet in width were design to the given scenario's design goal. Reductions for these options are shown in Appendix C.

5.3 Wartsila Equipment Analysis

5.3.1 Wartsila Supplied Equipment

Each piece of vendor supplied equipment associated with the proposed Project was modeled with expected sound levels applied to them. Wartsila provided sound level data for the engine, charge air intake, exhaust gas outlet, and radiators. All Wartsila noise radiator sound options are provided per radiator unit. Standard noise radiator and low-noise radiator are specified as four radiator units per engine,

while ultra-low noise radiators are specified as five radiator units per engine. A-weighted octave-band and overall sound power levels provided by Wartsila for each piece of equipment is provided in Table 5-2.

Table 5-2: Wartsila Provided Sound Power Levels

Equipment	A-weighted Octave Band Sound Power Level (dBA) (Hz)									Total (dBA)
	31.5	63	125	250	500	1000	2000	4000	8000	
W18V50SG Engine	--	87	108	115	120	122	124	120	112	**128**
Charge Air Intake[a]	79	89	92	95	108	125	135	136	134	**140**
Exhaust Gas Outlet[a]	120	121	125	133	133	135	139	117	--	**142**
Standard Noise Radiator[b]	79	79	87	96	100	102	100	97	94	**107**
Low Noise Radiator[b]	75	75	82	92	96	98	96	93	90	**103**
Ultra-Low Noise Radiator[c]	--	67	75	78	86	87	87	84	75	**93**

(a) Charge air intake and exhaust gas outlet are without silencer and are rated per piece of equipment
(b) For one radiator unit, four radiator units per engine
(c) For one radiator unit, five radiator units per engine

The Project was modeled with the various sound level reductions to meet the strictest applicable regulations. Table 5-3 provides a summary of the potential mitigation required for each scenario with an overall reduction. Appendix C provides a detailed octave-band and overall sound power levels for each piece of modeled equipment for each modeled scenario. Mitigation measures provided are considered preliminary and final mitigation design is to be determined during detailed design of the Project.

Table 5-3: Modeled Wartsila Sound Level Reduction

Mitigation	Wartsila Mitigation Scenarios		
	Base	**Mitigation 1**	**Mitigation 2**
Design Goal at Nearest Residence	--	*55 dBA*	*47 dBA*
Charge Air Intake	Standard Inlet Silencer (45-dB total reduction)	Standard Inlet Silencer (45-dB total reduction)	Custom Charge Air Silencer (55-dB total reduction)
Exhaust Stack	Standard Exhaust Silencer (35-dB total reduction)	Custom Exhaust Silencer (40-dB total reduction)	Custom Exhaust Silencer (47-dB total reduction)
Exhaust Ducting	No Lagging	Standard Duct Lagging (10-dB total reduction)	Custom Duct Lagging (17-dB total reduction)
Radiator	Standard Radiator	Ultra-Low Noise Radiator (13-dB reduction from Standard Radiator)	Ultra-Low Noise Radiator plus Additional Reductions (24-dB reduction from Standard Radiator)

The site general arrangement was used to locate each structure and piece of equipment in the model and is provided in Appendix D.

5.3.2 Wartsila Model Results

Sound levels were modeled at the six previously designated noise-sensitive receivers in the surrounding community. The predicted sound levels were compared to the strictest applicable limit for each receiver land use location. Modeled sound levels are potential Project-emitted sound levels only and are not inclusive of ambient environment. Sound level contours of all the modeled scenarios are provided in Appendix E.

5.3.2.1 Wartsila Base Scenario Results

The Base scenario was modeled with no additional attenuation incorporated for each scenario and no design goal. Table 5-4 presents the estimated Project sound level compared to the applicable design goal for this scenario.

Table 5-4: Wartsila Base Scenario Modeled Sound Levels from Project

Receiver Location	Land Use	Sound Pressure Level (dBA / dBC)	
		Project	Design Goal
Rec01	Residential	69 / 92	-- / --
Rec02	Residential	69 / 94	-- / --
Rec03	Residential	67 / 87	-- / --
Rec04	Residential	64 / 85	-- / --
Rec05	Residential	59 / 86	-- / --
Rec06	Air Force Base	78 / 93	-- / --

5.3.2.2 Mitigation Scenario 1 Results

The Mitigation Scenario 1 was modeled with a standard charge air silencer, a custom exhaust silencer, standard duct lagging, and ultra-low noise radiator. The design goal of 55 dBA for this scenario was achieved at the nearest noise-sensitive receivers. Table 5-5 presents the estimated Project sound level compared to the applicable design goal for this scenario.

Table 5-5: Wartsila Mitigation 1 Scenario Modeled Sound Levels from Project

Receiver Location	Land Use	Sound Pressure Level (dBA / dBC)	
		Project	Design Goal
Rec01	Residential	53 / 83	55 / --
Rec02	Residential	55 / 86	55 / --
Rec03	Residential	50 / 78	55 / --
Rec04	Residential	49 / 76	55 / --
Rec05	Residential	46 / 78	55 / --
Rec06	Air Force Base	61 / 84	-- / --

5.3.2.3 Mitigation Scenario 2 Results

The Mitigation Scenario 2 was modeled with a custom charge air silencer, a custom exhaust silencer, custom duct lagging, and ultra-low noise radiator with added custom radiator reductions. The design goal for this scenario was 47 dBA at the nearest noise-sensitive receiver. The reductions modeled in this phase were based on the design goal of 47 dBA and may be challenging to achieve. Table 5-6 presents the estimated Project sound level compared to the applicable design goal for this scenario.

Table 5-6: Wartsila Mitigation 2 Scenario Modeled Sound Levels from Project

Receiver Location	Land Use	Sound Pressure Level (dBA / dBC)	
		Project	Design Goal
Rec01	Residential	45 / 73	47 / --
Rec02	Residential	47 / 77	47 / --
Rec03	Residential	45 / 69	47 / --
Rec04	Residential	45 / 67	47 / --
Rec05	Residential	38 / 69	47 / --
Rec06	Air Force Base	53 / 75	-- / --

5.4 MAN Equipment Analysis

5.4.1 MAN Supplied Equipment

Each piece of equipment associated with the proposed Project was modeled with expected sound levels applied to them. MAN provided sound level data for the engine, charge air intake, exhaust gas outlet, and radiators. Only one MAN radiator cooler option was provided with overall sound levels and no octave-band components. The frequency spectrum provided by Wartsila was used and scaled to the specified MAN overall sound level for the radiators. MAN radiator cooler is specified per one radiator unit and requires one radiator unit per engine. A-weighted octave-band and overall sound power levels provided by MAN for each piece of equipment is provided in Table 5-7.

Table 5-7: MAN Provided Sound Power Levels

Equipment	Octave Band Sound Power Level (dB) (Hz)									Total (dBA)
	31.5	63	125	250	500	1000	2000	4000	8000	
18V 51/60 G Engine	111	111	107	107	108	106	106	99	96	**112**
Charge Air Intake[a]	136	135	133	131	132	148	148	143	141	**153**
Exhaust Gas Outlet[a]	150	150	142	138	136	135	133	132	131	**141**
Radiator Coolers[b]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**110**

(a) Charge air intake and exhaust gas outlet are without silencer and are rated per piece of equipment
(b) For one radiator unit, one radiator unit per engine

The Project was modeled with the various sound level reductions to meet the strictest applicable regulations. Table 5-8 provides a summary of the mitigation required for each scenario with an overall reduction. Appendix C provides sound power levels for each piece of modeled equipment for each

modeled scenario. Mitigation measures provided are considered preliminary and final mitigation design is to be determined during detailed design of the Project.

Table 5-8: Modeled MAN Sound Level Reduction

Mitigation	MAN Mitigation Scenarios		
	Base	**Mitigation 1**	**Mitigation 2**
Design Goal at Nearest Residence	--	*55 dBA*	*47 dBA*
Charge Air Intake	Standard Inlet Silencer (45-dB total reduction)	Custom Inlet Silencer (54-dB total reduction)	Custom Inlet Silencer (62-dB total reduction)
Exhaust Stack	Standard (35-dB total reduction)	Custom Exhaust Silencer (38-dB total reduction)	Custom Exhaust Silencer (42-dB total reduction)
Exhaust Ducting	No Lagging	Standard Duct Lagging (10-dB total reduction)	Custom Duct Lagging (13-dB total reduction)
Radiator	Standard Radiator	Radiator Coolers plus Additional Mitigation (11-dB reduction from Standard Radiator)	Radiator Coolers plus Additional Mitigation (19-dB reduction from Standard Radiator)

5.4.2 MAN Model Results

Sound levels were modeled at noise-sensitive receivers in the surrounding community. The same six noise-sensitive receivers modeled for the Wartsila equipment scenarios, as shown in Figure 4-1, was also modeled for the MAN scenarios. The predicted sound levels were compared to the strictest applicable limit for each receiver land use location. Modeled sound levels are potential Project-emitted sound levels only and are not inclusive of ambient environment. Sound level contours of all the modeled scenarios are provided in Appendix E.

5.4.2.1 MAN Base Scenario Results

The Base scenario was modeled with no additional attenuation incorporated for each scenario and no design goal. Table 5-9 presents the estimated Project sound level compared to the applicable design goal for this scenario.

Table 5-9: MAN Base Scenario Modeled Sound Levels from Project

Receiver Location	Land Use	Sound Pressure Level (dBA / dBC)	
		Project	Design Goal
Rec01	Residential	63 / 88	-- / --
Rec02	Residential	70 / 94	-- / --
Rec03	Residential	55 / 80	-- / --
Rec04	Residential	55 / 79	-- / --
Rec05	Residential	60 / 85	-- / --
Rec06	Air Force Base	63 / 87	-- / --

5.4.2.2 Mitigation Scenario 1 Results

The Mitigation Scenario 1 was modeled with a custom charge air silencer, a custom exhaust silencer, standard duct lagging, and ultra-low noise radiator. The design goal for this scenario was 55 dBA at the nearest noise-sensitive receptor. Table 5-10 presents the estimated Project sound level compared to the applicable design goal for this scenario.

Table 5-10: MAN Mitigation Scenario 1 Modeled Sound Levels from Project

Receiver Location	Land Use	Sound Pressure Level (dBA / dBC)	
		Project	Design Goal
Rec01	Residential	51 / 80	55 / --
Rec02	Residential	55 / 84	55 / --
Rec03	Residential	47 / 74	55 / --
Rec04	Residential	47 / 72	55 / --
Rec05	Residential	46 / 76	55 / --
Rec06	Air Force Base	53 / 80	-- / --

5.4.2.3 Mitigation Scenario 2 Results

The Mitigation Scenario 2 was modeled with a custom charge air silencer, a custom exhaust silencer, custom duct lagging, and ultra-low noise radiator with added custom radiator reductions. The design goal for this scenario was 47 dBA at the nearest noise-sensitive receptor. The reductions modeled in this phase were based on the design goal of 47 dBA and may be challenging to achieve. Table 5-11 presents the estimated Project sound level compared to the applicable design goal for this scenario.

Table 5-11: MAN Mitigation Scenario 2 Modeled Sound Levels from Project

Receiver Location	Land Use	Sound Pressure Level (dBA / dBC)	
		Project	Design Goal
Rec01	Residential	45 / 72	47 / --
Rec02	Residential	47 / 76	47 / --
Rec03	Residential	45 / 67	47 / --
Rec04	Residential	45 / 65	47 / --
Rec05	Residential	38 / 68	47 / --
Rec06	Air Force Base	51 / 73	-- / --

6.0 CONCLUSION

Burns & McDonnell conducted an environmental sound study of the Project for TECO. Regulations applicable to the Project were reviewed from the Tampa Ordinance and UFC. Both regulations have daytime and nighttime sound level limits at residential property, where nighttime limit are more restrictive. Three scenarios were developed around these regulations: a base scenario with standard equipment, a first mitigation scenario to comply with the City of Tampa nighttime limit, and a second mitigation scenario to comply with the stricter UFC nighttime limit.

An ambient sound level survey was conducted at potential noise-sensitive receptors in the surrounding area of the Project. The significant existing sound environment consists of the MacDill Air Force Base active airstrip, busy roadways, a nearby fire station, and heavy morning truck traffic. Measured residential daytime sound levels ranged from 50 dBA to 66 dBA and nighttime sound levels ranged from 42 dBA to 54 dBA.

A sound model was developed to estimate the Project sound levels onto surrounding noise-sensitive property. Multiple scenarios were developed using varying vendors, design goals, and mitigation equipment. The reductions modeled in the mitigation phases were based off the 55 dBA and 47 dBA design goals and may be challenging to achieve.

APPENDIX A - MEASUREMENT DATA

Appendix A - Measurement Data

TECO

MacDill Air Force Base

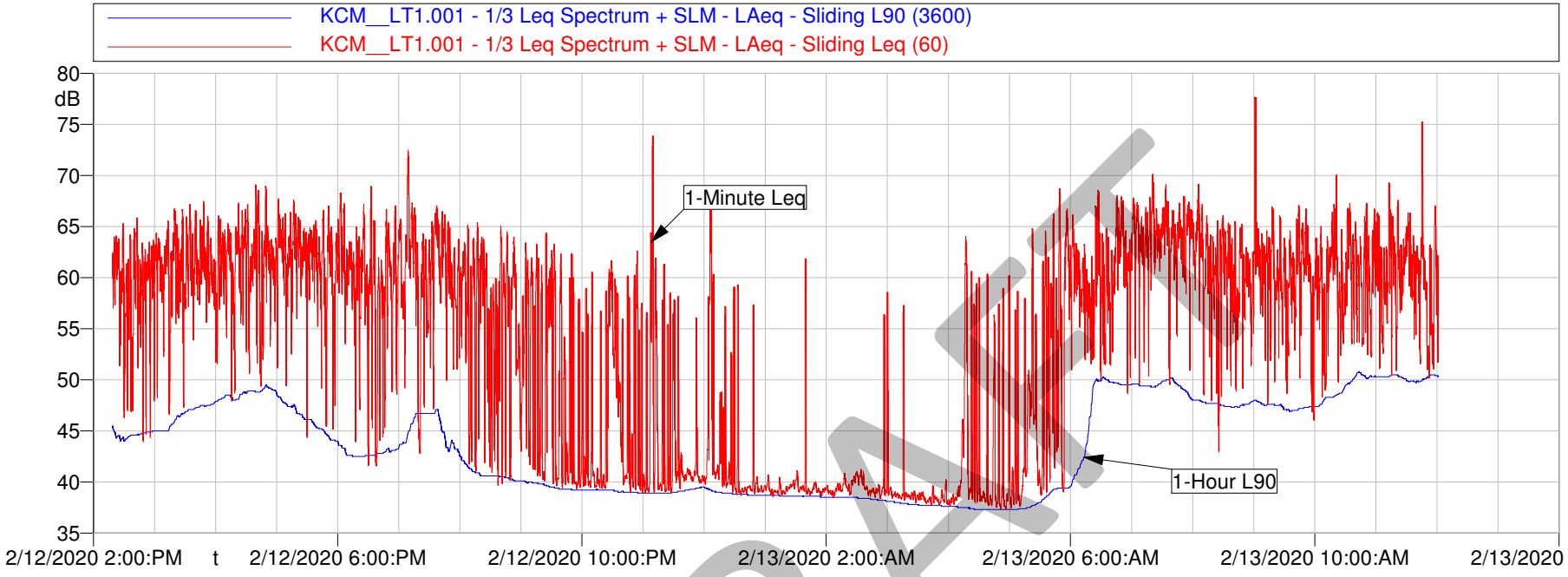
Point Number	*LAeq* [1]	*LA90* [2]	*LCeq* [3]	*Notes*
02/12/20 - 5:00 PM - Evening				
79°F, 86% hm, 75°F dp, 1-3 mph				
MP01	60 dBA	42 dBA	66 dBC	Passing traffic, planes, car horn, dog barking
MP02	54 dBA	42 dBA	67 dBC	Constant insects, low frequency truck rumble, passing traffic, aircrafts, backup alarms
MP03	65 dBA	52 dBA	72 dBC	Passing traffic, dog barking, firetruck, aircrafts
MP04	50 dBA	46 dBA	63 dBC	Aircrafts, constant insects, neighborhood activity, dog barking
MP05	54 dBA	41 dBA	68 dBC	Aircrafts, insects, commercial planes, distant traffic, horn, passing traffic, 6:03 takeoff
02/12/20 - 11:00 PM - Night				
72°F, 94% hm, 70°F dp, calm				
MP01	54 dBA	40 dBA	60 dBC	Water pump, idling aircraft, constant insects
MP02	46 dBA	39 dBA	56 dBC	Residential HVAC, constant insects, distant water pump, truck start
MP03	53 dBA	45 dBA	61 dBC	Constant fire station HVAC, constant insects, distant water pump
MP04	42 dBA	41 dBA	59 dBC	Idling aircraft, constant insects, distant water pump
MP05	47 dBA	38 dBA	59 dBC	Idling aircraft, distant traffic, distant water pump, constant insects, passing traffic
02/13/20 - 5:00 AM - Morning				
72°F, 77% hm, 64°F dp, calm				
MP01	62 dBA	50 dBA	73 dBC	Constant insects, passing traffic, distant water pump, heavy trucks at Tanker Way
MP02	47 dBA	42 dBA	56 dBC	Water pump, residential HVAC, constant insects, passing traffic, distant traffic
MP03	63 dBA	46 dBA	72 dBC	Fire station HVAC, constant insects, passing traffic, 5:19 haul truck, 5:22 motorcycle
MP04	45 dBA	38 dBA	62 dBC	Constant insects, passing traffic, garage door
MP05	51 dBA	41 dBA	64 dBC	Commercial planes, distant water pump, distant traffic, passing traffic, conversation
02/13/20 - 11:00 AM - Day				
79°F, 76% hm, 71°F dp, 3-5 mph out of SW				
MP01	61 dBA	49 dBA	72 dBC	Water pump, haul trucks, construction, leaves, backup alarms, passing traffic, dog barking, commercial planes
MP02	54 dBA	45 dBA	69 dBC	Passing traffic, birds, insects, distant construction, leaves
MP03	64 dBA	52 dBA	76 dBC	Dog barking, passing traffic, fire station HVAC, leaves, 12:21 air force base intercom, 12:26 takeoff
MP04	64 dBA	55 dBA	76 dBC	Aircrafts, commercial planes, haul trucks, leaves, 11:30 takeoff, 11:32 takeoff, 11:34 takeoff
MP05	66 dBA	50 dBA	76 dBC	Haul trucks, construction, water pump, backup alarms, passing traffic, door slam, car start

Note:

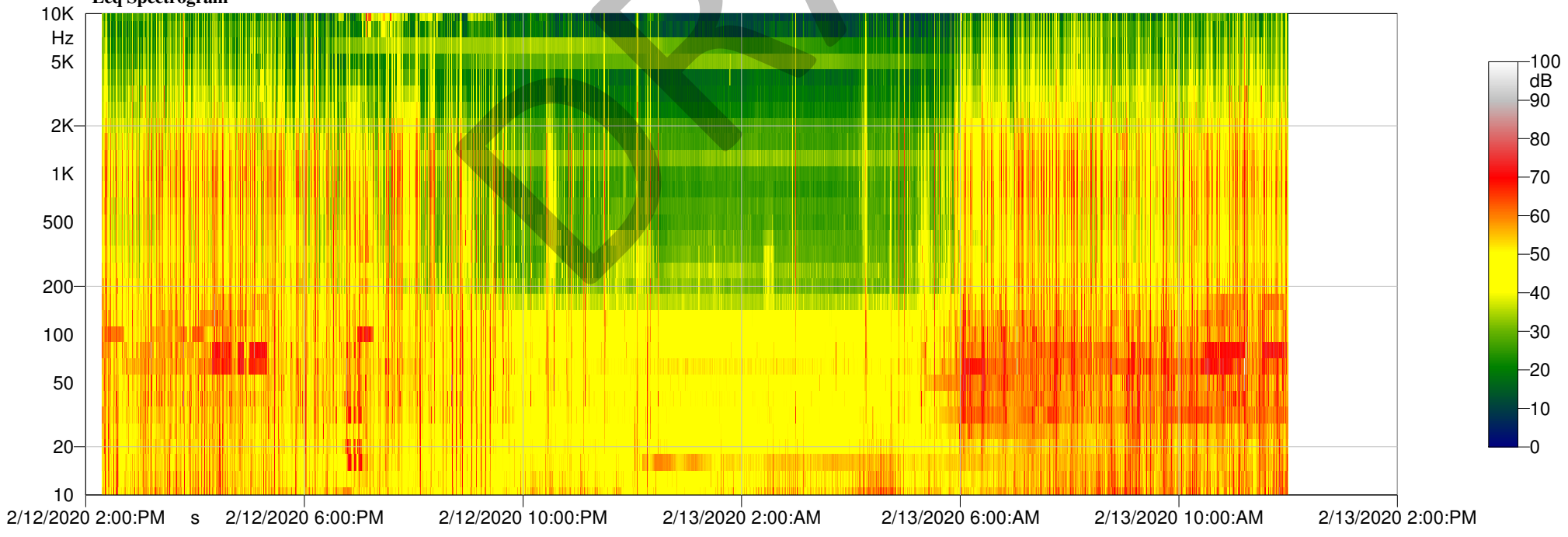
1. Equivalent sound pressure level in dBA
2. Equivalent 90% exceedance sound pressure level in dBA, otherwise known as background sound exceeded 90% of the duration of the measurement
3. Equivalent sound pressure level in dBC

APPENDIX B - LONG-TERM SOUND LEVEL DATA

Measurement: MacDill Air Force Base 02-12-20
Location: MP01



Leq Spectrogram



APPENDIX C - MODELED SOUND POWER LEVELS

Appendix C - Modeled Sound Power Levels

TECO

MacDill Air Force Base

Vendor: Wartsila

Mitigation Scenario	Equipment	Name	Number of Sources	Sound Power Level (dB)[1] Octave Band Frequency (Hz)									Overall (dBA)
				31.5	63.0	125	250	500	1000	2000	4000	8000	
Base	Wartsila	Exhaust Stack Outlet	4	140	120	104	102	92	82	84	66	--	**103**
		Exhaust Duct[2]	4	126	110	100	96	83	76	73	49	--	**92**
		Radiators[3]	4	124	111	109	111	109	108	105	102	101	**113**
		Charge Air Inlet	8	124	120	107	88	79	93	92	92	102	**104**
	BOP	Engine Hall Roof Vent[2]	1	--	110	119	115	108	100	102	106	104	**113**
		Inverter	5	68	66	69	69	65	62	57	60	56	**85**
		Battery Transformer	5	61	66	78	67	64	60	59	58	47	**86**
		Fuel Gas Heater	1	90	86	75	67	66	72	74	77	75	**82**
		Plant Transformer	2	80	85	97	86	83	79	78	77	66	**103**
		Make-Up Air Unit	4	--	91	102	102	101	100	101	97	91	**113**
Mit 1 (55 dBA goal)	Wartsila	Exhaust Stack Outlet	4	135	114	103	98	90	80	83	65	--	**98**
		Exhaust Duct[2]	4	114	98	90	86	78	71	68	44	--	**82**
		Radiators[4]	4	--	100	98	94	96	94	93	90	83	**100**
		Charge Air Inlet	8	124	120	107	88	79	93	92	92	102	**104**
	BOP	Engine Hall Roof Vent[2]	1	--	85	90	85	71	59	59	76	77	**82**
		Inverter	5	68	66	69	69	65	62	57	60	56	**85**
		Battery Transformer	5	61	66	78	67	64	60	59	58	47	**86**
		Fuel Gas Heater	1	90	86	75	67	66	72	74	77	75	**82**
		Plant Transformer	2	80	85	97	86	83	79	78	77	66	**103**
		Make-Up Air Unit	4	--	74	85	85	84	83	84	80	74	**96**
Mit 2 (47 dBA goal)	Wartsila	Exhaust Stack Outlet	4	124	105	94	94	83	79	82	64	--	**91**
		Exhaust Duct[2]	4	107	93	83	79	71	66	66	44	--	**76**
		Radiators[4]	4	--	101	94	89	82	77	76	81	84	**89**
		Charge Air Inlet	8	117	105	97	81	72	81	80	82	95	**95**
	BOP	Engine Hall Roof Vent[2]	1	--	82	84	75	60	52	52	68	72	**75**
		Inverter	5	68	66	69	69	65	62	57	60	56	**85**
		Battery Transformer	5	61	66	78	67	64	60	59	58	47	**86**
		Fuel Gas Heater	1	90	86	75	67	66	72	74	77	75	**82**
		Plant Transformer	2	80	85	97	86	83	79	78	77	66	**103**
		Make-Up Air Unit	4	--	61	72	72	71	70	71	67	61	**83**

Notes:

1. All sound levels are inclusive of required attenuation.
2. Sound level per meter of length
3. Sound levels per engine, assuming four Standard Radiator units per engine
4. Sound levels per engine, assuming five Ultra-Low Noise Radiator units per engine

Appendix C - Modeled Sound Power Levels

TECO

MacDill Air Force Base

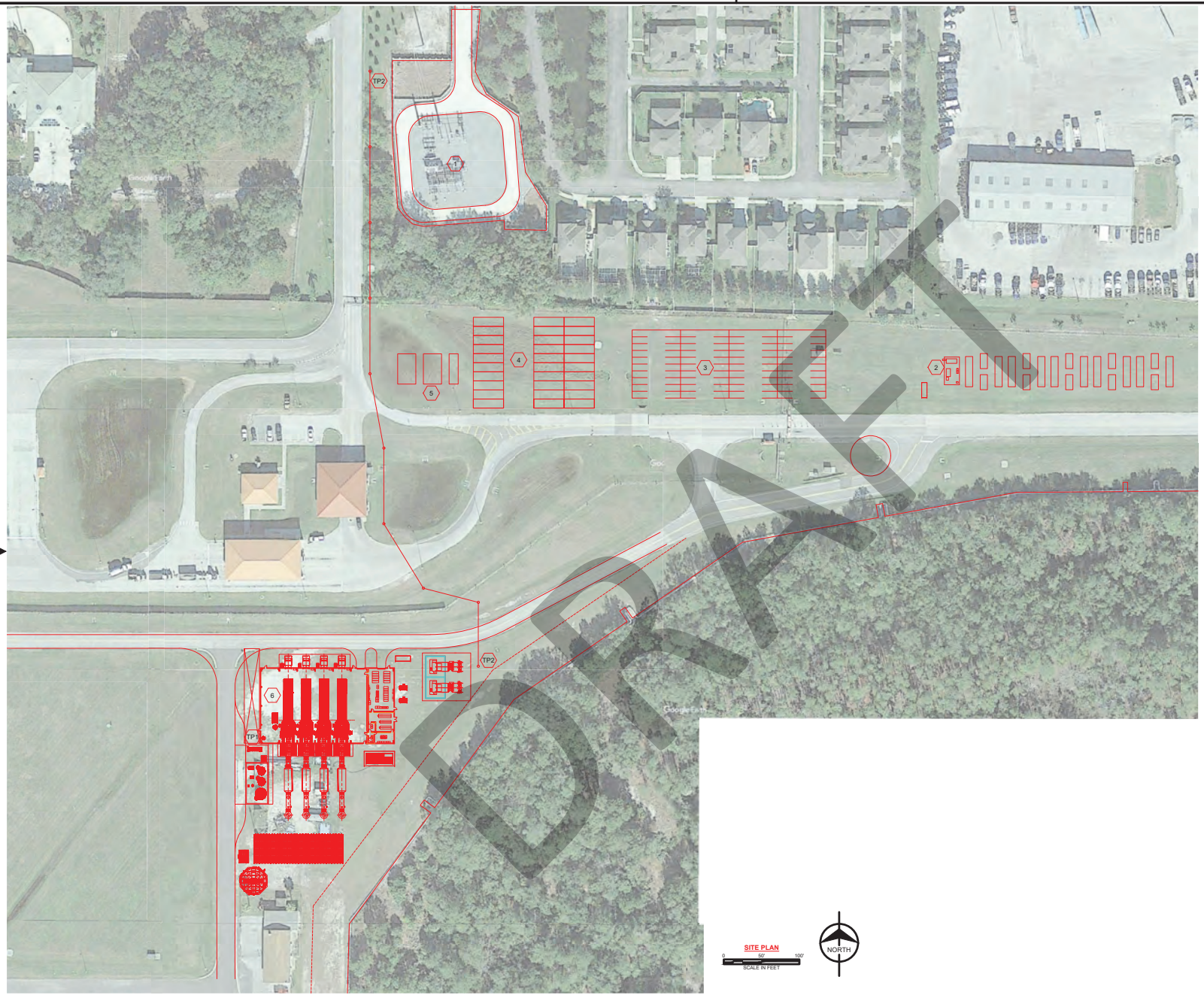
Vendor: MAN

Mitigation Scenario	Equipment	Name	Number of Sources	Sound Power Level (dB)[1] Octave Band Frequency (Hz)									Overall (dBA)
				31.5	63.0	125	250	500	1000	2000	4000	8000	
Base	MAN	Exhaust Stack Outlet	4	131	123	105	98	92	82	79	82	88	**100**
		Exhaust Duct[2]	4	117	113	101	92	83	76	68	65	65	**91**
		Radiators[3]	4	122	108	106	108	106	105	102	99	98	**110**
		Charge Air Inlet	8	134	132	124	112	97	108	103	97	105	**114**
	BOP	Engine Hall Roof Vent[2]	1	--	86	80	76	71	62	63	64	65	**74**
		Inverter	5	68	66	69	69	65	62	57	60	56	**85**
		Battery Transformer	5	61	66	78	67	64	60	59	58	47	**86**
		Fuel Gas Heater	1	90	86	75	67	66	72	74	77	75	**82**
		Plant Transformer	2	80	85	97	86	83	79	78	77	66	**103**
		Make-Up Air Unit	4	89	89	85	85	86	84	84	77	74	**96**
Mit 1 (55 dBA goal)	MAN	Exhaust Stack Outlet	4	126	115	105	98	92	82	79	82	88	**97**
		Exhaust Duct[2]	4	108	100	90	81	76	69	61	58	58	**80**
		Radiators[3]	4	122	108	101	98	88	83	81	87	98	**99**
		Charge Air Inlet	8	126	109	101	104	91	85	87	91	105	**105**
	BOP	Engine Hall Roof Vent[2]	1	--	83	73	68	56	43	42	56	60	**65**
		Inverter	5	68	66	69	69	65	62	57	60	56	**85**
		Battery Transformer	5	61	66	78	67	64	60	59	58	47	**86**
		Fuel Gas Heater	1	90	86	75	67	66	72	74	77	75	**82**
		Plant Transformer	2	80	85	97	86	83	79	78	77	66	**103**
		Make-Up Air Unit	4	72	72	68	68	69	67	67	60	57	**79**
Mit 2 (47 dBA goal)	MAN	Exhaust Stack Outlet	4	120	107	97	95	86	82	79	82	88	**93**
		Exhaust Duct[2]	4	104	90	83	77	69	66	61	60	60	**75**
		Radiators[3]	4	112	100	90	85	80	75	71	77	90	**91**
		Charge Air Inlet	8	115	101	90	93	88	77	77	81	97	**97**
	BOP	Engine Hall Roof Vent[2]	1	--	80	67	58	45	36	35	48	55	**59**
		Inverter	5	68	66	69	69	65	62	57	60	56	**85**
		Battery Transformer	5	61	66	78	67	64	60	59	58	47	**86**
		Fuel Gas Heater	1	90	86	75	67	66	72	74	77	75	**82**
		Plant Transformer	2	80	85	97	86	83	79	78	77	66	**103**
		Make-Up Air Unit	4	59	59	55	55	56	54	54	47	44	**66**

Notes:

1. All sound levels are inclusive of required attenuation.
2. Sound level per meter of length
3. Sound levels per engine

APPENDIX D - SITE LAYOUT



SITE KEY	
1	EXISTING SUBSTATION
2	BESS FACILITY
3	CONSTRUCTION PARKING
4	CONTAINER STORAGE
5	CONSTRUCTION TRAILERS
6	RICE PLANT

SITE KEY	
TP1	NATURAL GAS TIE-IN POINT
TP2	ELECTRICAL TIE-IN POINT

SITE PLAN
0 50' 100'
SCALE IN FEET

NORTH

PRELIMINARY - NOT FOR CONSTRUCTION

no.	date	by	ckd	description
D	01/12/20	WRL		ADDED BESS LAYOUT AND EXISTING SUBSTATION
C	10/28/19	WRL		ADJUSTED RADIATORS
B	10/24/19	WRL		ADJUSTED ELECTRICAL EQUIPMENT AND ADDED CONTROL ROOM
A	09/19/19	WRL		PRELIMINARY

BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-605-7822

designed
detailed W. LESNIAK

HONOLULU, HAWAII

MacDILL RICE PLANT
4 x 18MW GAS RECIP ENGINE PLANT
OVERALL SITE PLAN

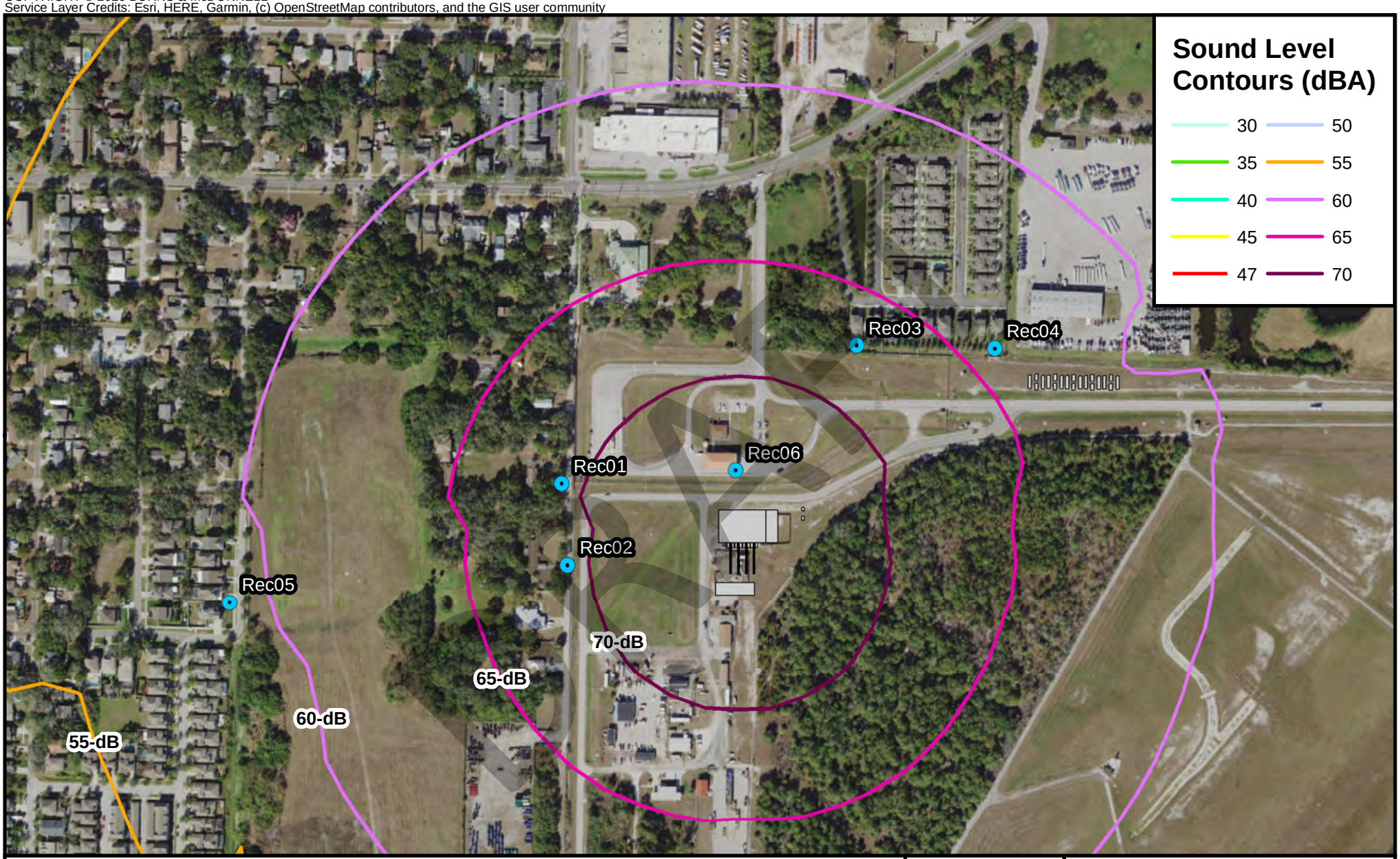
project | contract
drawing SITEPLAN rev. A
sheet of sheets
file 119465_SITEPLAN_RED.DWG

C:\USERS\WLESNIAK\DOCUMENTS\JOB PDFS\RENDERINGS\TECO ENR\119465_SITEPLAN_RED.DWG 1/13/2020 8:19 AM WLESNIAK

APPENDIX E - SOUND LEVEL CONTOURS

Path: G:\Projects\Air-Noise Dept\Project Files\TECO\GIS\Figure 1 - Wartsila Base.mxd rjgurreri 2/25/2020

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community



Residential Receiver (Rec)

NORTH

400 200 0 400

Scale in Feet

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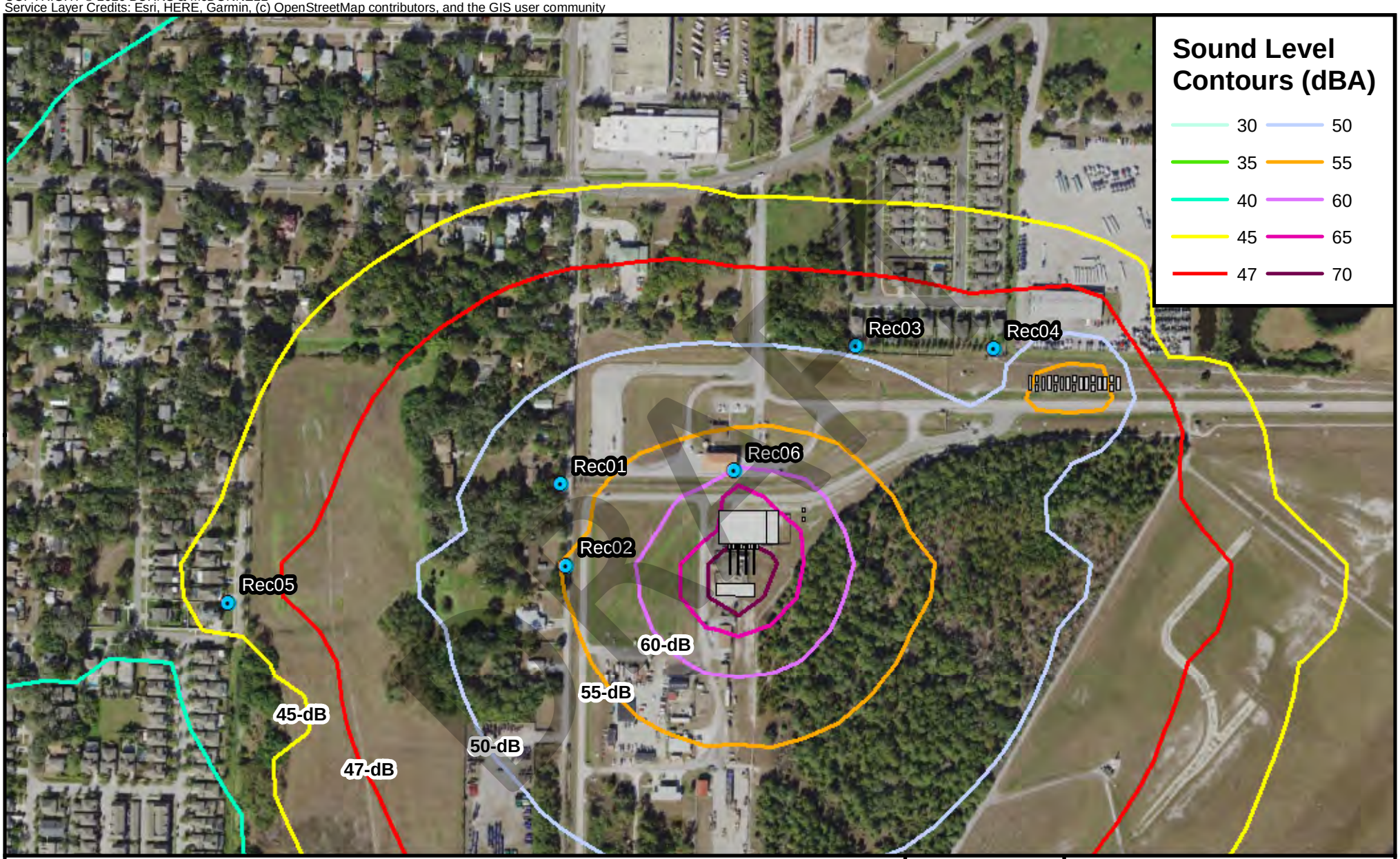
Figure 1
TECO
MacDill Air Force Base
Sound Level Contours
Wartsila - Base

Source: ESRI, Burns & McDonnell

Issued: 2/25/2020



Residential Receiver (Rec)

NORTH

400 200 0 400

Scale in Feet

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Figure 2
TECO
MacDill Air Force Base
Sound Level Contours
Wartsila - Mitigation 1

Source: ESRI, Burns & McDonnell

Issued: 2/25/2020

Path: G:\Projects\Air-Noise Dept\Project Files\TECO\GIS\Figure 3 - Wartsila Mit2.mxd rjgurreri 2/25/2020

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

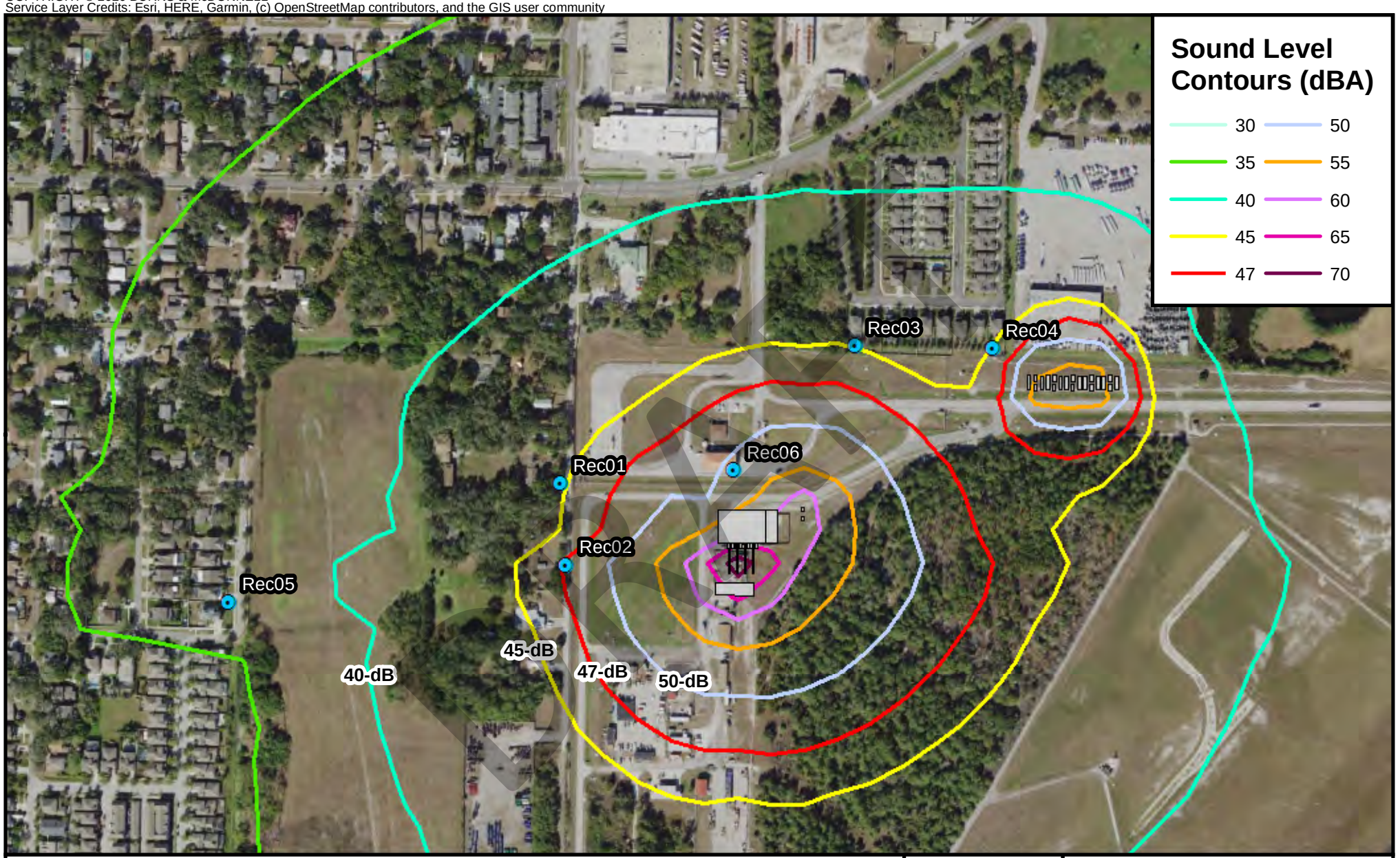
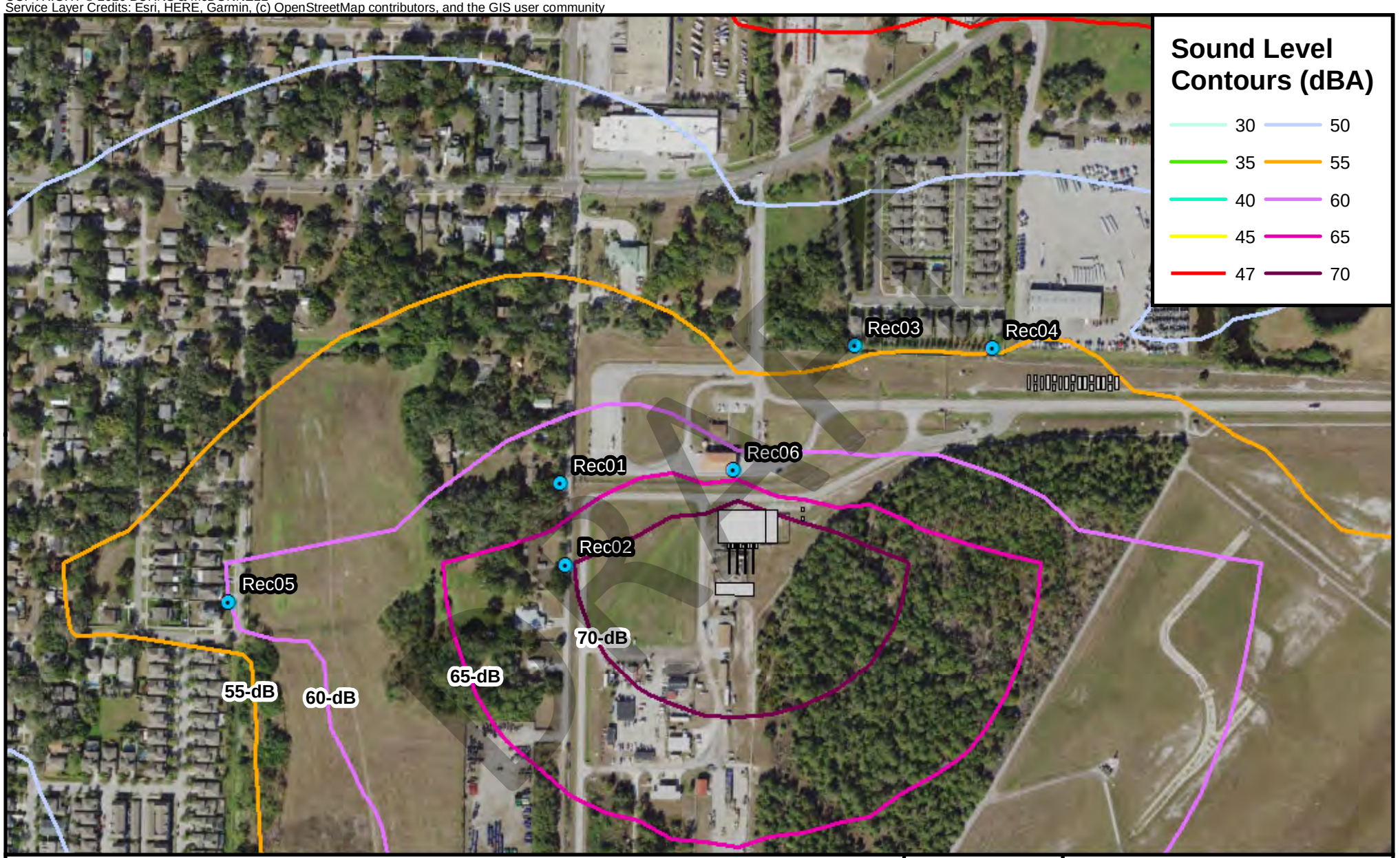


Figure 3
TECO
MacDill Air Force Base
Sound Level Contours
Wartsila - Mitigation 2

Source: ESRI, Burns & McDonnell

Issued: 2/25/2020



Residential Receiver (Rec)

NORTH

400 200 0 400

Scale in Feet

BURNS McDONNELL

Figure 4
TECO
MacDill Air Force Base
Sound Level Contours
MAN - Base

Source: ESRI, Burns & McDonnell

Issued: 2/25/2020

Path: G:\Projects\Air-Noise Dept\Project Files\TECO\GIS\Figure 5 - MAN Mit1.mxd rjgurreri 2/25/2020

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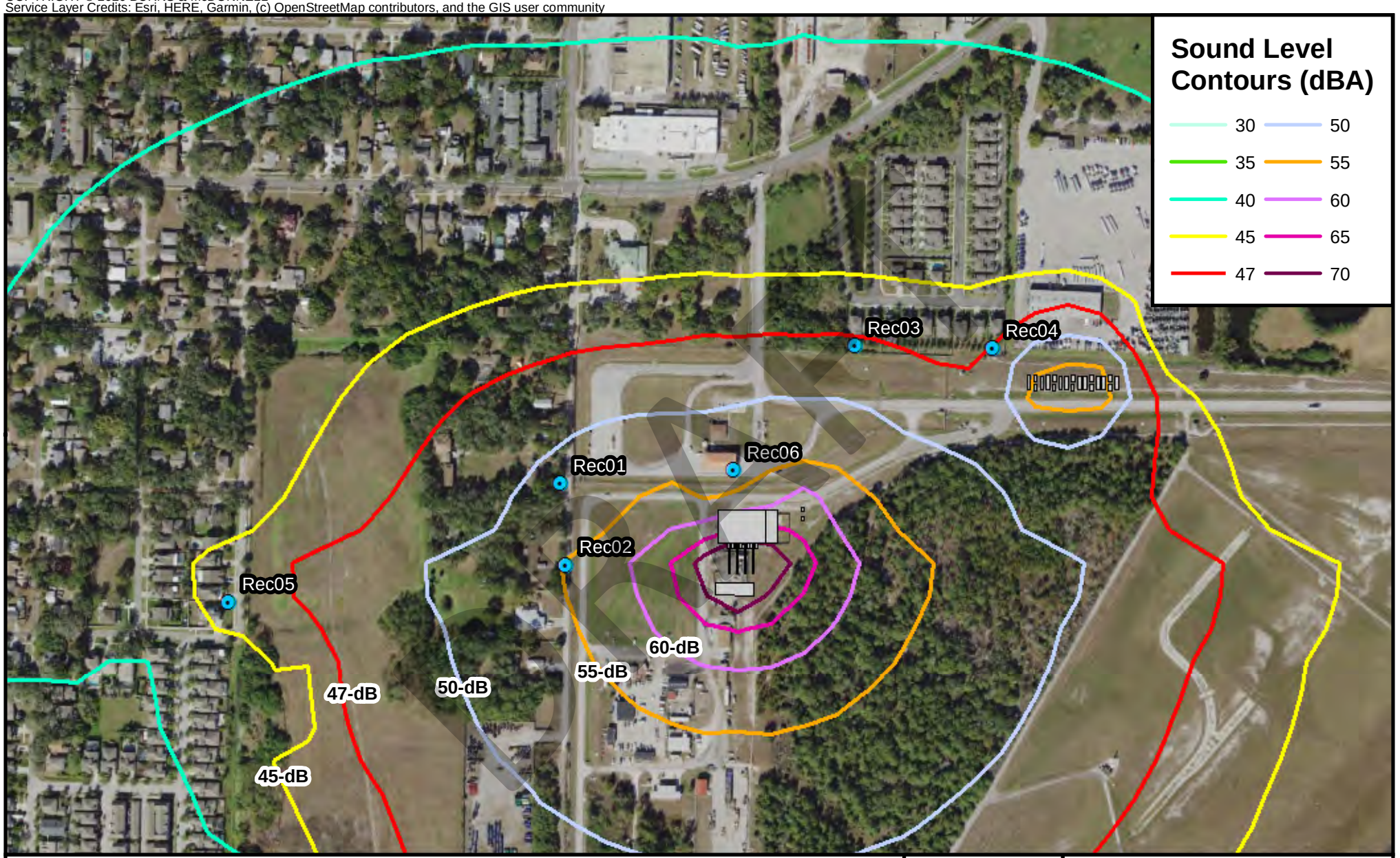


Residential Receiver (Rec)

NORTH

400 200 0 400

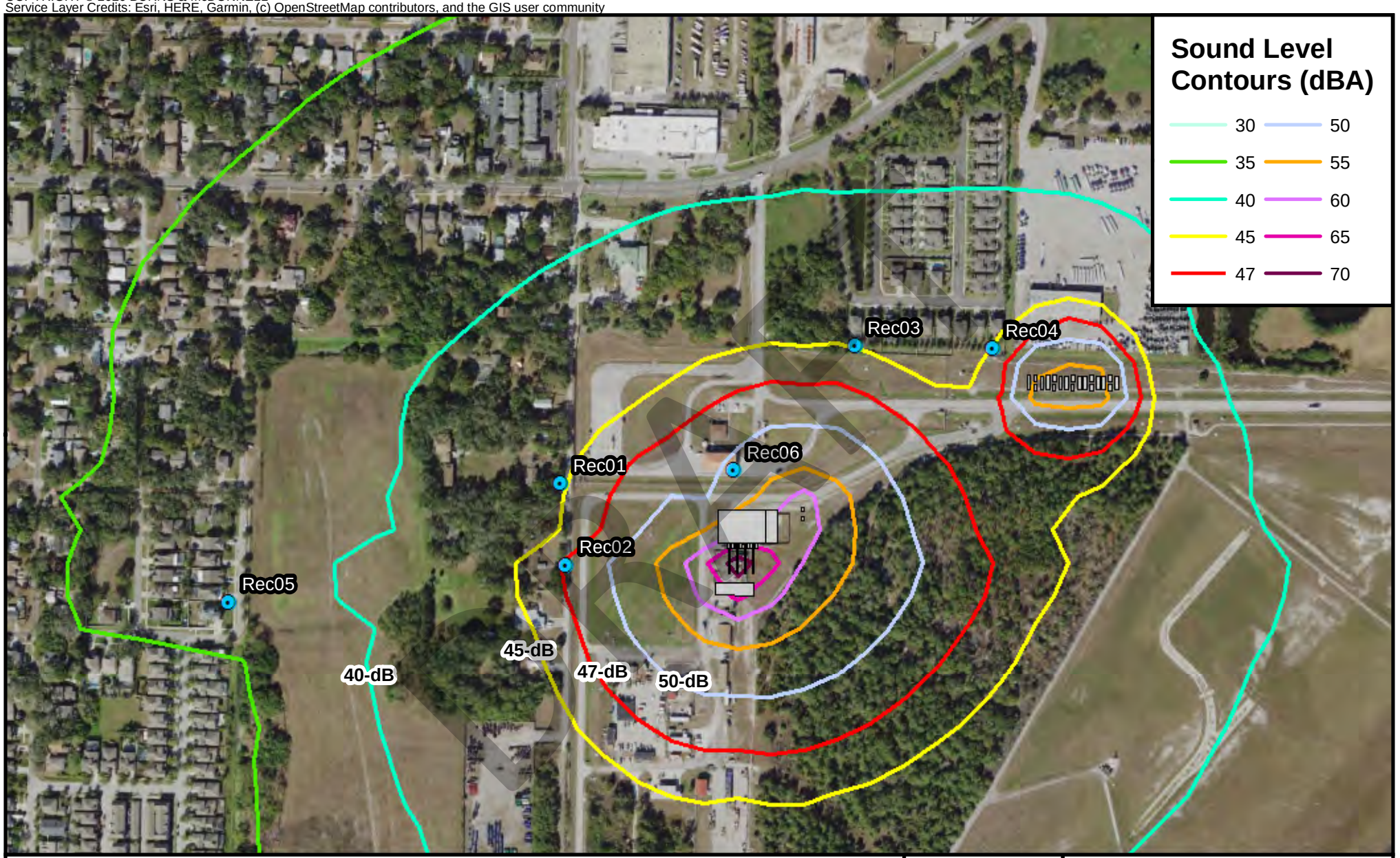
Scale in Feet

BURNS McDONNELL

Figure 5
TECO
MacDill Air Force Base
Sound Level Contours
MAN - Mitigation 1

Source: ESRI, Burns & McDonnell

Issued: 2/25/2020



Residential Receiver (Rec)

NORTH

400 200 0 400

Scale in Feet

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Figure 6
TECO
MacDill Air Force Base
Sound Level Contours
MAN - Mitigation 2

Source: ESRI, Burns & McDonnell

Issued: 2/25/2020

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