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**DRAFT**

**Environmental Assessment for  
Reclaimed Wastewater Injection Well  
MacDill Air Force Base, Florida**



**June 2023**

TABLE OF CONTENTS

**ABBREVIATIONS AND ACRONYMS ..... iv**

**1.0 PURPOSE OF AND NEED FOR PROPOSED ACTION ..... 1**

1.1 Introduction ..... 1

1.2 Background ..... 1

1.2.1 Golf Course Reuse Irrigation — R-001 ..... 5

1.2.2 Spray Field — R-002 ..... 6

1.2.3 Wet Weather Pond — R-003 ..... 6

1.3 The Purpose and Need for the Proposed Action ..... 7

1.4 Interagency/Intergovernmental Coordination and Consultations..... 7

1.5 Environmental Permit Requirements ..... 9

**2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES..... 10**

2.1 Selection Standards ..... 10

2.1.1 Selection Standard Analysis..... 12

2.2 Detailed Description of the Proposed Action and Alternatives ..... 14

2.2.1 Proposed Action ..... 14

2.3 Description of the No Action Alternative ..... 21

**3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES..... 22**

3.1 Air Quality ..... 23

3.1.1 Definition of the Resource..... 23

3.1.2 Existing Conditions ..... 23

3.1.3 Environmental Consequences..... 24

3.2 Noise..... 26

3.2.1 Definition of the Resource..... 26

3.2.2 Existing Conditions ..... 27

3.2.3 Environmental Consequences..... 27

3.3 Geology and Soils..... 28

3.3.1 Definition of the Resource ..... 28

3.3.2 Existing Conditions ..... 28

3.3.3 Environmental Consequences ..... 29

3.4 Wastes, Hazardous Materials, and Stored Fuel..... 30

3.4.1 Definition of the Resource..... 30

3.4.2 Existing Conditions ..... 31

3.4.3 Environmental Consequences..... 36

3.5 Water Resources ..... 38

3.5.1 Definition of the Resource..... 38

3.5.2 Existing Conditions ..... 38

3.5.3 Environmental Consequences..... 40

3.6 Floodplains ..... 43

3.6.1 Definition of the Resource..... 43

3.6.2 Existing Conditions ..... 43

3.6.3 Environmental Consequences..... 45

3.7 Natural and Biological Resources ..... 45

1	3.7.1	Definition of the Resource.....	45
2	3.7.2	Existing Conditions.....	47
3	3.7.3	Environmental Consequences.....	51
4	3.8	Cultural Resources.....	55
5	3.8.1	Definition of the Resource.....	55
6	3.8.2	Existing Conditions.....	56
7	3.8.3	Environmental Consequences.....	57
8	3.9	Safety and Occupational Health.....	59
9	3.9.1	Definition of the Resource.....	59
10	3.9.2	Existing Conditions.....	60
11	3.9.3	Environmental Consequences.....	60
12	3.10	Greenhouse Gases and Climate Change.....	61
13	3.10.1	Definition of the Resource.....	61
14	3.10.2	Existing Conditions.....	61
15	3.10.3	Environmental Consequences.....	63
16	3.11	Reasonably Foreseeable Future Projects/Cumulative Effects.....	65
17	<b>4.0</b>	<b>MANAGEMENT REQUIREMENTS.....</b>	<b>73</b>
18	4.1.	Air Quality.....	73
19	4.2.	Hazardous Materials/Wastes.....	73
20	4.3.	Water Resources.....	73
21	4.4	. Safety and Occupational Health.....	73
22	4.5.	Biological Resources.....	74
23	4.6	Cultural Resources.....	74
24	<b>5.0</b>	<b>PERSONS CONTACTED.....</b>	<b>76</b>
25	<b>6.0</b>	<b>LIST OF PREPARERS.....</b>	<b>77</b>
26	<b>7.0.</b>	<b>REFERENCES.....</b>	<b>78</b>

**FIGURES**

31	Figure 1	Site Location Map.....	2
32	Figure 2	Wastewater Effluent Disposal Sites and Storage Ponds.....	3
33	Figure 3	Treated Wastewater Effluent Disposal System.....	4
34	Figure 4	Injection Well and Monitoring Well Locations.....	16
35	Figure 5	Location of Environmental Restoration.....	34
36	Figure 6	Location of 100-Year Floodplain and 500-Year Floodplain on Macdill AFB.....	44
37	Figure 7	Location of Sensitive Species Habitat.....	49
38	Figure 8	Location of Potential Cultural Resource Areas.....	58

**TABLES**

1  
2  
3 Table 1-1 Public Library Locations ..... 9  
4 Table 1-1 Public Library Locations ..... 9  
5 Table 2-1 Alternative Comparison Matrix ..... 13  
6 Table 3-1 Summary of Protected Species Occurring and Potentially Occurring at MacDill  
7 Air Force Base ..... 50  
8 Table 3.2 Annual GHG Emissions 2022 — MacDill AFB ACAM 2023 Estimated CO<sub>2</sub>e Emissions  
9 for the Preferred Alternative and Alternative 1 ..... 65  
10 Table 3-3 Comparison of Environmental Consequences ..... 66  
11 Table 3-4 Reasonably Foreseeable Actions at MacDill AFB and Vicinity ..... 67  
12  
13

**APPENDICES**

14  
15  
16 Appendix A Coastal Zone Management Act Consistency Determination 1  
17 Appendix B Agency Coordination Letters and Comments 1  
18 Appendix C Public Notice and Comments 1  
19 Appendix D Air Compliance and Assessment Model Reports 1  
20 Appendix E Environmental Restoration Program Site Summaries 1  
21  
22  
23

1 **ABBREVIATIONS AND ACRONYMS**

2

3 AADF annual average daily flow

4 ACAM Air Force Conformity Applicability Model

5 AFB Air Force Base

6 APE area of potential effect

7 6 ARW 6th Air Refueling Wing

8 ASR aquifer storage and recovery

9 AST aboveground storage tank

10

11 BMP best management practice

12

13 CAA Clean Air Act

14 CEIE Civil, Environmental, and Infrastructure Engineering

15 CFR Code of Federal Regulations

16 CH<sub>4</sub> methane

17 CO carbon monoxide

18 CO<sub>2e</sub> carbon dioxide equivalent

19 COC Contaminants of concern

20 CZMA Coastal Zone Management Act

21

22 DAF Department of Air Force

23 DAFI Department of the Air Force Instruction

24 DAFMAN Department of the Air Force Manual

25 dB decibels

26 dBA A-weighted decibels

27 DNL day-night sound level

28 DOD Department of Defense

29

30 EA Environmental Assessment

1	EO	Executive Order
2	EPC	Environmental Protection Commission (of Hillsborough County)
3	ERP	Environmental Restoration Program
4	ESA	Endangered Species Act
5		
6	F	Fahrenheit
7	F.S.	Florida Statutes
8	FCMP	Florida Coastal Management Program
9	FDEP	Florida Department of Environmental Protection
10	FEMA	Federal Emergency Management Agency
11	FGUA	Florida Governmental Utilities Authority
12	FONPA	Finding of No Practical Alternative
13	FONSI	Finding of No Significant Impact
14	FWC	Florida Fish and Wildlife Conservation Commission
15		
16	GHG	greenhouse gases
17	GHGRP	Greenhouse Gas Reporting Program
18	GWP	global warming potential
19		
20	HAZWOPER	Hazardous Waste and Emergency Response
21		
22	in	inches
23	INRMP	Integrated Natural Resource Management Plan
24	IEA	International Energy Agency
25	IW	Injection Well
26		
27	LBP	lead-based paint
28	LUCs	Land Use Controls
29		
30	MBTA	Migratory Bird Treaty Act
31	MG	million gallons

1	MGD	million gallons per day
2	MMT	million metric tons
3	MS4	Municipal Separate Storm Sewer System
4	MT	metric tons
5		
6	OSHA	Occupational Safety and Health Administration
7		
8	PM10	particulate matter with an aerodynamic diameter less than or equal to 10 micrometers
9		
10	NAAQS	National Ambient Air Quality Standards
11	NHPA	National Historic Preservation Act
12	NMFS	National Marine Fisheries Service
13	NOA	Notice of Availability
14	NPDES	National Pollutant Discharge Eliminations System
15	NRHP	National Register of Historic Places
16	PAHs	polycyclic aromatic hydrocarbons
17		
18	RCRA	Resource Conservation and Recovery Act
19		
20	SHPO	State Historic Preservation Office
21	SO <sub>2</sub>	sulfur dioxide
22	SPCC	Spill Prevention, Control, and Countermeasure Plan
23	SWMU	Solid Waste Management Unit
24	SWPPP	Storm Water Pollution Prevention Plan
25		
26	UIC	Underground Injection Control
27	USAF	U.S. Air Force
28	USDW	underground source of drinking water
29	USFWS	U.S. Fish and Wildlife Service
30	USEIA	U.S. Energy Information Administration

- 1 U.S. EPA U.S. Environmental Protection Agency
- 2 U.S. Water U.S. Water Services Corporation
- 3
- 4 VOC volatile organic compound
- 5
- 6 WWTP Wastewater Treatment Plant



# **1.0 PURPOSE OF AND NEED FOR PROPOSED ACTION**

## **1.1 Introduction**

The Florida Governmental Utilities Authority (FGUA), who owns and operates the wastewater treatment plant (WWTP) on MacDill Air Force Base (AFB) or “Base,” proposes to install an injection well (IW) to dispose of treated effluent from the WWTP. In 2011, the Department of the Air Force (DAF) privatized the ownership and operation of the domestic wastewater system including the gravity flow lines, force mains, lift stations, and the WWTP. FGUA operates the WWTP under Hillsborough County Environmental Protection Commission (EPC) Permit FLA012124-027. The EPC permit expires in 2026. An IW would provide a safe and environmentally-sound means to discharge treated wastewater effluent from the facility. Figure 1 shows the WWTP location within MacDill AFB.

## **1.2 Background**

MacDill AFB is located in Hillsborough County, Florida, 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 currently home to the 6th Air Refueling Wing (6 ARW), U.S. Central Command, the U.S. Special Operations Command headquarters, and other mission partners.

The WWTP currently relies on three secondary disposal sites to discharge treated effluent:

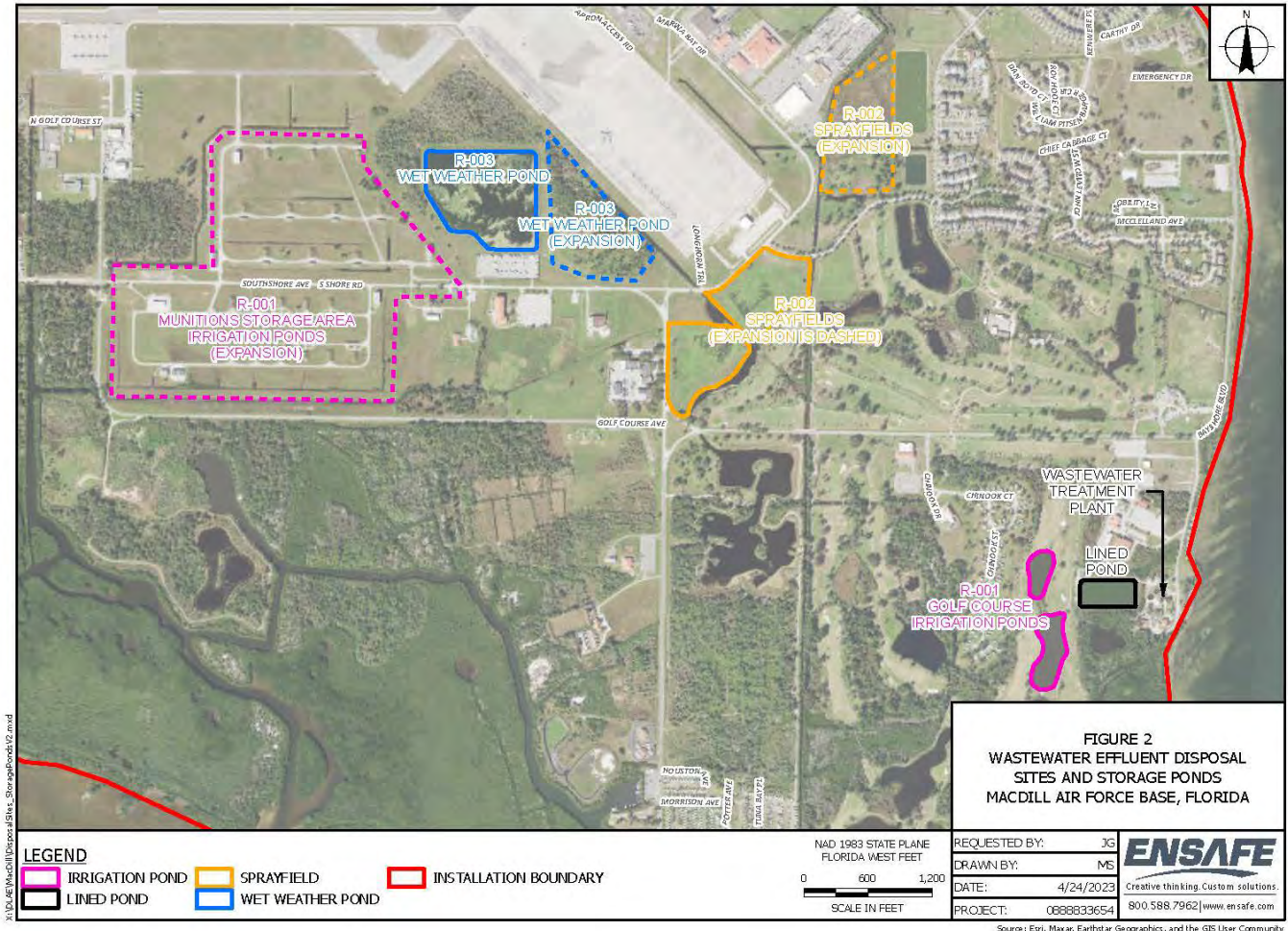
- 1 A Slow-Rate Part III Public Access Reuse irrigation system at the Bay Palms Golf Complex (R-001),
- 2 A Slow-Rate Restricted Public Access Reuse spray irrigation system near the southeast end of the  
3 airfield (R-002), and
- 4 A Restricted Public Access Rapid infiltration basin south of the airfield (R-003), also known as the  
5 wet weather pond, that is used only when irrigation at R-001 and R-002 is not possible.

Figure 2 shows the location of the WWTP disposal sites and storage ponds; Figure 3 shows a schematic of the current WWTP effluent disposal process.

1 Figure 1 Site Location Map



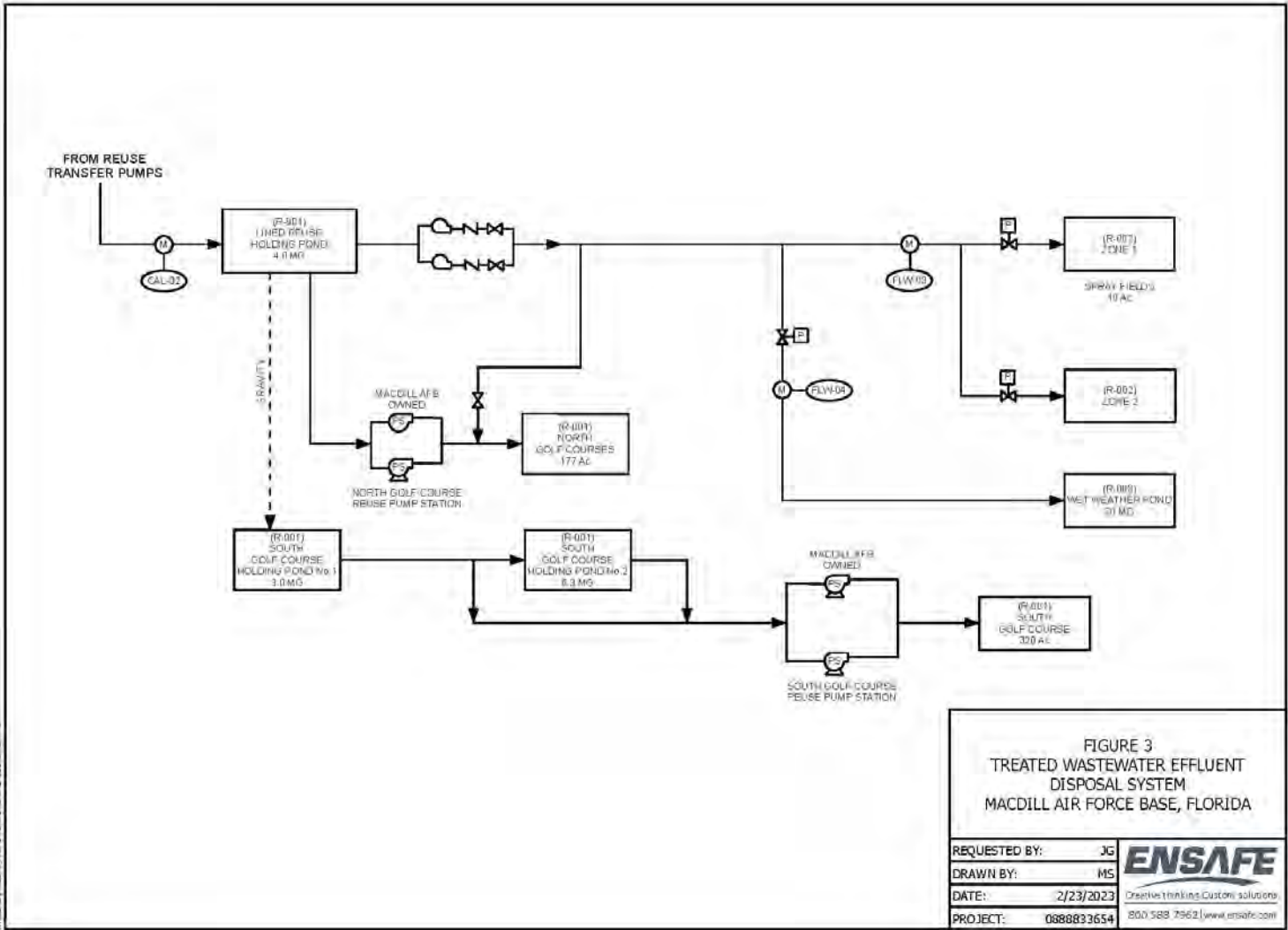
1 Figure 2 Wastewater Effluent Disposal Sites and Storage Ponds



2

1

Figure 3 Treated Wastewater Effluent Disposal System





1 The MacDill WWTP is currently permitted to process 1.2 million gallons per day (MGD) annual average  
2 daily flow (AADF), although, the WWTP currently processes about half of its permitted treatment capacity.  
3 The facility has experienced a significant reduction in reclaimed water demand from its primary disposal  
4 location (R-001), the Bay Palms Golf Course, which has contributed to flow exceedances to the secondary  
5 disposal locations (spray field [R-002] and wet weather pond [R-003]). During wet weather months, the  
6 WWTP primary disposal system capacity decreases during peak flow times because the secondary disposal  
7 options (golf courses and spray field) experience periods of excessive rainfall reducing irrigation needs at  
8 those sites. This has resulted in exceedances of the secondary disposal sites permitted capacities and violation  
9 of the WWTP's wastewater treatment and disposal permit.

10  
11 During the wet season, the WWTP has occasionally discharged water that exceeded its permitted capacity in  
12 violation of its wastewater facility permit (FLA012124). On 17 September 2021, FGUA entered into a  
13 Settlement Agreement with the EPC to correct deficiencies in the current disposal system (EPC 2021).  
14 The Settlement Agreement required that FGUA complete an alternative wastewater disposal feasibility study  
15 to identify available opportunities for expansion of the effluent disposal system to comply with the WWTP's  
16 permitted limits. Additionally, FGUA implemented corrective measures to reconfigure flow meter piping and  
17 installed new flow meters at R-002 and R-003 to reduce the chance for flow measurement error of effluent  
18 sent to each disposal system. U.S. Water Services Corporation (U.S. Water) prepared the feasibility study in  
19 September 2021 and updated it in August 2022 (U.S. Water 2021; U.S. Water 2022). The following  
20 subsections describe the WWTP disposal sites for treated wastewater.

### 21 22 **1.2.1 Golf Course Reuse Irrigation — R-001**

23 Currently, treated wastewater effluent flows into a 4-million gallon (MG) lined reuse holding pond adjacent to  
24 the WWTP and is distributed from there. When the golf course needs irrigation water, effluent that meets all  
25 disposal requirements flows by gravity through pipes to two lined golf course ponds located at the south golf  
26 course (e.g., 3.0 MG and 6.3 MG; maximum storage 9.3 MG). Flow to the north golf course is pumped  
27 directly from the WWTP storage pond by a separate, dedicated pump station. The golf course operators  
28 control flow from the WWTP holding pond to the golf course irrigation system (north and south) whenever  
29 they need water for irrigation. The golf course provides 497 acres for irrigation (i.e., south golf course  
30 320 acres and north golf course 177 acres).

1 **1.2.2 Spray Field — R-002**

2 The spray field is identified in the EPC permit as R-002, a Slow-Rate Part II Restricted Public Access  
3 spray irrigation that has an application area of approximately 10 acres and a maximum annual average  
4 application rate of 80,000 gallons per day (e.g., AADF of 0.08 MGD). This spray field is located northwest of  
5 the WWTP site and southeast of the wet weather pond (R-003). The spray field is needed as a site that can  
6 dispose of any water that does not meet the requirements for Part III public access reuse  
7 (i.e., off-specification), which cannot be used for golf course irrigation. Off-specification water is diverted  
8 from discharge to the 4-MG lined reuse holding pond adjacent to the WWTP and is pumped directly to R-002.  
9 The WWTP operators control flow to each wastewater disposal site through a series of valves. The permitted  
10 80,000 gallons AADF is only about 6.6% of permitted average daily flow and about 12-15% of the plant's  
11 current flow rate. Although the spray field area provides adequate disposal capacity for off-specification  
12 events, it does not possess adequate disposal capacity for the excess reclaimed wastewater that is not utilized  
13 by the golf course.

14  
15 As an additional reuse and land application requirement, the hydraulic loading to the spray field must not  
16 produce surface runoff or ponding of the applied reuse water. The low irrigation demand associated with  
17 R-001 has led to unavoidable ponding and runoff at R-002.

18  
19 **1.2.3 Wet Weather Pond — R-003**

20 The wet weather pond, R-003, is a Restricted Public Access holding pond permitted to receive Part IV reuse  
21 water meeting high-level disinfection during wet weather periods when irrigation of R-001 and R-002 is not  
22 possible. The WWTP operators control flow to R-003. This wet weather pond is not lined and is permitted to  
23 percolate into the ground with approximately 18 acres total bottom area and 20 MG holding capacity.  
24 The EPC permit does not define a maximum loading rate based on volume of water; instead, a maximum  
25 loading level is approximately 12.3 feet of water depth in the pond. The wet weather pond is equipped with a  
26 high-level overflow structure that directs flows into an adjacent swale that discharges into a drainage ditch  
27 network that flows into Lewis Lake and eventually conveys these flows to Tampa Bay through the  
28 storm water system. Discharges from this system are a reportable event per the EPC permit.

1 **1.3 The Purpose and Need for the Proposed Action**

2 The purpose of the Proposed Action is to provide a reliable means of disposal of wastewater effluent capable  
3 of meeting current and anticipated future demand and the regulatory requirements specified in the FGUA’s  
4 wastewater facility permit. Historically, the primary disposal sites golf course ponds (R-001) cannot use  
5 100% of the WWTP effluent due to wet weather and irrigation patterns. This has led periodically to runoff  
6 from the secondary disposal site spray fields (R-002) and overflows from the secondary disposal site wet  
7 weather pond (R-003) in violation of the WWTP wastewater facility permit (FLA012124). Once the golf  
8 course ponds reach their maximum allowable high-water level (e.g., 3.3 National Geodetic Vertical Datum  
9 feet), the WWTP operators must utilize the secondary the spray field and the wet weather pond. The spray  
10 field is the only available means to dispose of off-specification effluent. During the rainy season this has  
11 become a regular occurrence. FGUA needs an alternate means of wastewater effluent disposal to maintain  
12 compliance with their permit and regulatory requirements. Ultimately the goal would be to increase the  
13 disposal capacity of the WWTP to dispose of a minimum of 1.2 MGD of effluent, enabling management of  
14 disposal demands far into the future.

15  
16 **1.4 Interagency/Intergovernmental Coordination and Consultations**

17 Scoping is an early and open process for developing the breadth of issues to be addressed in this  
18 Environmental Assessment (EA) and for identifying significant concerns related to a Proposed Action.  
19 Per the requirements of Executive Order (EO) 12372, federal, state, and local agencies with jurisdiction that  
20 could be affected by the Proposed Actions were notified during the development of this EA. Agency  
21 consultation and coordination efforts made as part of this EA are detailed in Section 3.

22  
23 The federal Coastal Zone Management Act (CZMA) requires federal agencies carrying out activities subject  
24 to the Act to provide a “consistency determination” to the relevant state agency. The Florida Department of  
25 Environmental Protection (FDEP), with input from state and county agencies, determined that the proposed  
26 project is consistent with the Florida Coastal Management Program. The Air Force’s CZMA Consistency  
27 Determination is contained in Appendix A; the Florida State Clearinghouse concurrence is pending. The Air  
28 Force also coordinated with other federal, state, and tribal governments. Copies of governmental  
29 correspondence is contained in Appendix B.

30  
31 This EA examines the potential for impacts to the environment resulting from the installation of an IW to

1 safely dispose of treated wastewater effluent. This environmental analysis was conducted in accordance with  
2 the President’s Council on Environmental Quality regulations, Title 40 of the Code of Federal Regulations  
3 (CFR) §§1500-1508, as the DAF implements the requirements of the National Environmental Policy Act of  
4 1969, 42 U.S.C. §4321, et seq., and 32 CFR Part 989, Environmental Impact Analysis Process, and Air Force  
5 Instruction [DAFI] 32-1015, Integrated Installation Planning (Secretary of the Air Force, 2021).  
6 The information presented in this document serves as the basis for deciding whether the Proposed Action  
7 would result in a significant impact to the human environment, requiring the preparation of an Environmental  
8 Impact Statement, or whether no significant impacts would occur, in which case an EA with a Finding of No  
9 Significant Impact (FONSI) would be appropriate.

10  
11 The Proposed Action includes activities within a floodplain. Per EO 11988, Floodplain Management as  
12 amended by EO 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further  
13 Soliciting and Considering Stakeholder Input, a Finding of No Practicable Alternative (FONPA) would be  
14 prepared in conjunction with the FONSI.

15  
16 Per the requirements of Section 106 of the National Historic Preservation Act and implementing regulations  
17 (36 CFR Part 800), Section 7 of the Endangered Species Act and implementing regulations,  
18 Magnuson-Stevens Fishery Conservation and Management Act and implementing actions, and CZMA and  
19 implementing action, findings of effect and requests for concurrence were transmitted to the Florida State  
20 Historic Preservation Officer, the U.S. Fish and Wildlife Service, the Florida State Clearinghouse and  
21 National Marine Fisheries Service. Section 106 of the National Historic Preservation Act also necessitates  
22 consultation with federally-recognized tribes. For MacDill AFB, those are: Miccosukee Tribe of Indians,  
23 The Muscogee (Creek) Nation, The Seminole Nation of Oklahoma, and the Seminole Tribe of Florida.

24  
25 In accordance with EO 11988, the DAF published early notice in the Tampa Bay Times Newspaper on  
26 **19 February 2023** that the Proposed Action would occur in a floodplain. The notice was distributed to solicit  
27 public comment on the Proposed Action and any practicable alternatives. The early notice is provided in  
28 Appendix C.

29  
30 Pursuant to 32 CFR 989, a Notice of Availability (NOA) of the Draft EA and FONSI/FONPA was published  
31 in the Tampa Bay Times Newspaper, announcing the availability of the EA for review on TBD. The NOA



1 invited the public to review and comment on the Draft EA. The Draft EA and Draft FONSI/FONPA were  
2 made available for a 30-day public comment period to solicit the input of the public, agencies, and other  
3 interested parties. The public and agency review period ended on TBD. The NOA and public and agency  
4 comments are provided in Appendix C.

5  
6 The NOA and early notice of project execution in a floodplain and wetland was published in the Tampa Bay  
7 Times Newspaper. Copies of the Draft EA and FONSI were also made available for review at the locations  
8 listed in Table 1-1.

<b>General Public Access</b>	<b>MacDill Air Force Base Personnel</b>
John F. Germany Public Library 900 North Ashley Drive Tampa, Florida 33602	MacDill AFB Library 8102 Condor Street, Building #252 MacDill AFB, Florida 33621

## 11 **1.5 Environmental Permit Requirements**

12 Completion of this project would require permits from the EPC and the FDEP's Underground Injection  
13 Control (UIC) program. FGUA's current EPC wastewater permit would have to be modified to include use of  
14 an IW for effluent disposal and construction of the proposed IW would require a FDEP UIC permit. As long  
15 as the area of land disturbance is anticipated to be much less than one acre in total area, a National Pollutant  
16 Discharge Elimination System (NPDES) Construction Generic Permit would not be required. Although the  
17 proposed well location is about 80 feet from a known wetland, impacts to wetlands would be avoided through  
18 project planning and engineering controls. However, a Storm Water Pollution Prevention Plan (SWPPP), a  
19 Spill Prevention, Control, and Countermeasure (SPCC) Plan, and other best management practices (BMPs)  
20 would be required to protect nearby wetlands. Storm water management permitting is not required since the  
21 amount of impervious surface created is considered *de minimis* (i.e., <1 acre of disturbance). The entire  
22 project area is in the coastal 100-year floodplain.

## 2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This section provides a description of the Proposed Action and alternatives to the Proposed Action. The Proposed Action involves the safe disposition of WWTP effluent at MacDill AFB. The EA considers several alternatives for wastewater effluent disposal including:

- Preferred Alternative: installation of a Class I IW and an associated monitoring well,
- Alternative 1: enhancement and expansion of the existing effluent disposal system,
- Alternative 2: installation of a Class V aquifer recharge or aquifer storage and recovery (ASR) well and an associated monitoring well,
- Alternative 3: permitting a wet weather discharge from either the golf course ponds (R-001) or the wet weather storage pond (R-003),
- Alternative 4: expanding the disposal system for residential area irrigation, and
- No Action Alternative.

### 2.1 Selection Standards

The purpose of this evaluation is to identify all viable options to increase the disposal capacity of the MacDill WWTP and provide a recommendation for the most viable option. The WWTP has experienced a significant reduction in reclaimed water demand from its primary disposal location, the Bay Palms Golf Course (R-001), which has contributed to flow exceedances to the secondary disposal locations (spray field [R-002] and wet weather pond [R-003]). As a result, the Hillsborough County EPC required FGUA to conduct an effluent disposal feasibility study as part of the Settlement Agreement issued in response to the permitted flow exceedances. The goal of the feasibility study was to determine the best options available to the FGUA to construct a new disposal system or expand the existing systems to ensure that the facility complies with permitted flow limitations now and in the future. The FGUA commissioned U.S. Water

1 to assist with this investigation. The feasibility study included the following parameters for investigating  
2 various disposal methods:

- 3
- 4 • Regulatory compliance,
- 5 • Estimated construction costs,
- 6 • Estimated operation and maintenance costs, and
- 7 • The disposal efficiency to accomplish the stated goals (U.S. Water 2021; U.S. Water 2022).
- 8

9 ASRus, LLC assisted with an IW review as part of the feasibility study (ASRus 2021).

10

11 The National Environmental Policy Act requires consideration of “reasonable alternatives” for a  
12 Proposed Action. Selection standards are specific to each project and are used to identify the alternative most  
13 likely to meet the purpose and need details outlined above. The general selection standards for this  
14 Proposed Action include:

- 15
- 16 • Feasibility of implementation,
- 17
- 18 • Capability of achieving purpose and need in a timely manner consistent with the Settlement  
19 Agreement,
- 20
- 21 • Compatibility with existing land use and mission, and
- 22
- 23 • Compliance with permits and other regulatory requirements.
- 24

25 U.S. Water has reviewed the recently enacted Senate Bill 64, Reclaimed Water, as it pertains to the MacDill  
26 WWTP effluent disposal system. The Bill was signed into law 29 June 2021 and requires the removal of all  
27 surface water discharges from domestic wastewater facilities by 1 January 2032. Section 40.3.064 of the  
28 Florida Statutes (F.S.) was modified to incorporate this act. The F.S. does, however, allow for wet weather  
29 discharges that occur in accordance with an applicable department permit. The environmental legislation in  
30 Florida is becoming increasingly focused on surface water quality, which puts the wet weather discharges  
31 from R-001 or R-003 at high risk of not being permitted or having to be removed based on future laws.

1 Review of the F.S. is part of the selection process outlined below.

2 The following specific selection standards (screening criteria) were used to develop the reasonable range of  
3 alternatives described in Sections 2.2 and 2.3.

4  
5 1 The preferred alternative would use the existing on-base WWTP to process wastewater to capitalize on  
6 a treatment system that already exists, has sufficient treatment capacity, and has been historically  
7 cost effective to operate.

8  
9 2 The preferred alternative would keep the wastewater distribution system within the installation  
10 boundary to ensure that the wastewater treatment process is fully controlled by the Air Force to  
11 maintain operational security.

12  
13 3 The preferred alternative would be capable of disposing of all effluent throughout the year, especially  
14 in wet weather conditions.

15  
16 4 The preferred alternative would comply with all requirements of EPC wastewater facility permit  
17 (FLA012124) and all associated laws and regulations.

18  
19 5 The preferred alternative would maximize the WWTP's ability to handle future increases in  
20 wastewater flows with minimal changes to existing infrastructure.

21  
22 6 The preferred alternative would minimize the use of land needed to support the disposal system  
23 infrastructure, and, if possible, return land currently used for discharge disposal to the Air Force for  
24 future mission needs.

25  
26 7 The preferred alternative would minimize impacts to sensitive environmental resources (e.g., wetlands,  
27 threatened and endangered species, and archaeological sites) to the maximum extent practical.

### 28 29 **2.1.1 Selection Standard Analysis**

30 The selection standards described in Section 2.1 were applied to the alternatives to determine which  
31 alternatives reasonably meet the goals of the Proposed Action. A summary of the selection standard analysis  
32 is presented in Table 2-1. A more detailed selection standard analysis is discussed in Section 2.2.

**Table 2-1  
Alternative Comparison Matrix**

Alternative	Selection Standard						
	Use Existing Wastewater Treatment Plant	Treated Wastewater Disposed Onsite	Fully Functional Disposal Process in Wet Season	Fully Compliant with EPC Permit and FDEP Regulations	Sanitary Sewer System Expansion Needed	Additional Land Needed	Minimize Impacts to Sensitive Environmental Resources
<b>Preferred Alternative</b> Construct Class I IW	Yes	Yes	Yes	Yes, but would require EPC permit modification and new FDEP permit	Yes, minor hookup to new well	No	Minimal adverse impacts to sensitive resources
<b>Alternative 1</b> Expand/Enhance Existing Disposal Assets	Yes	Yes	Yes, but would require substantial modification; possibly need additional land for irrigation expansion and off-specification disposal	Yes, but would require EPC permit modification	Yes, to new irrigation area and spray field	Yes, for all three new irrigation areas	Minor adverse impacts to sensitive resources
<b>Alternative 2</b> Construct Class V ASR Well	Yes	Yes	Yes, but would require substantial permit modification and monitoring	Yes, would require EPC permit modification and new FDEP permit for each ASR well	Yes, provide infrastructure to new ASR wells for future growth	Yes, depends on number of new wells needed	Minimal adverse impacts to sensitive resources
<b>Alternative 3</b> Permit a Wet Weather Discharge from R-001 or R-003	Yes	Yes	Yes, but would require substantial permit modification and monitoring	Maybe, but would require substantial modification; may not be permissible in future due to antidegradation rule	Yes, renovation of wet weather pond	No	Possible adverse impacts to wetlands and Tampa Bay
<b>Alternative 4</b> Expand Disposal System for Residential Irrigation	Yes	Yes	No, system would be subject to same restrictions as R-001 and R-002	Yes, but would require EPC permit modification	Yes, provide infrastructure to connect to residential areas	No	Possible adverse impacts to wetlands and other sensitive resources
<b>No Action Alternative</b> (Status Quo)	Yes	Yes	No	No	No	No	Possible adverse impacts to surface water and other sensitive resources

**Notes:**

EPC = Environmental Protection Commission

FDEP = Florida Department of Environmental Protection

IW = injection well

ASR = aquifer storage and recovery

Color Code: green=no problems anticipated, yellow=some minor problems likely, orange=moderate problems expected, red=major problems expected

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1 **2.2 Detailed Description of the Proposed Action and Alternatives**

2 **2.2.1 Proposed Action**

3 The Proposed Action involves implementing measures to increase the disposal capacity of the  
4 MacDill WWTP. The Proposed Action would provide a safe and reliable means of wastewater effluent  
5 discharge at current demand and managing future demand for many years. A feasibility study prepared by  
6 U.S. Water identified several possible ideas to accomplish the Proposed Action; however, only two  
7 alternatives were considered truly viable based on the selection criteria. Of the two primary alternatives  
8 considered for implementation of the Proposed Action, one was considered more favorable and is identified as  
9 the Preferred Alternative, and the other is identified as Alternative 1. Both alternatives are described in detail  
10 below.

11  
12 **2.2.2.1 Detailed Description of the Preferred Alternative**

13 The Preferred Alternative involves the construction of a Class I IW for disposal of treated wastewater, and  
14 will supplement continued use of disposal sites R-001, R-002, and R-003, while ensuring permit compliance  
15 during normal and wet weather periods. This alternative would provide a reliable disposal option during  
16 wet weather and would solve the current and future problem of excess reclaimed water. A Class I IW would  
17 allow FGUA to inject treated WWTP effluent below the lowermost underground source of drinking water.  
18 Implementation of the Preferred Alternative could potentially allow some of the existing disposal systems to  
19 be removed from service, which could free up additional land for DAF projects.

20  
21 An IW would mitigate the decrease in irrigation demand and non-compliance events by providing a reliable  
22 disposal capacity. The construction details, geologic/hydrogeological details, permitting considerations, and  
23 estimated construction costs are contained in the feasibility study and injection well application (U.S. Water  
24 2021; ASRus 2022).

25  
26 Disposal capacity for a new Class I IW system would depend on hydrogeology and the final well design.  
27 Initial plans are to drill a 24-inch diameter well down to the top of the Avon Park Formation with a 13-inch  
28 open borehole from ~800 to 900 feet below land surface at completion. A 13-inch inside diameter final casing  
29 could provide up to 5.96 MGD of capacity based on 10 feet per second, assuming the zone is moderately  
30 permeable (ASRus 2022). The actual capacity of the well would be determined during testing.  
31 The conservative targeted zone for the new Class I IW is approximately 800 to 900 feet below ground surface,

1 beneath the base of the lowermost Underground Source of Drinking Water (ASRus 2022), like several  
2 operating IWs in St. Petersburg directly across Tampa Bay from MacDill AFB. Final depth and well  
3 dimensions would depend on conditions encountered while drilling. This would provide sufficient capacity to  
4 meet all the existing and future disposal needs for the MacDill WWTP.

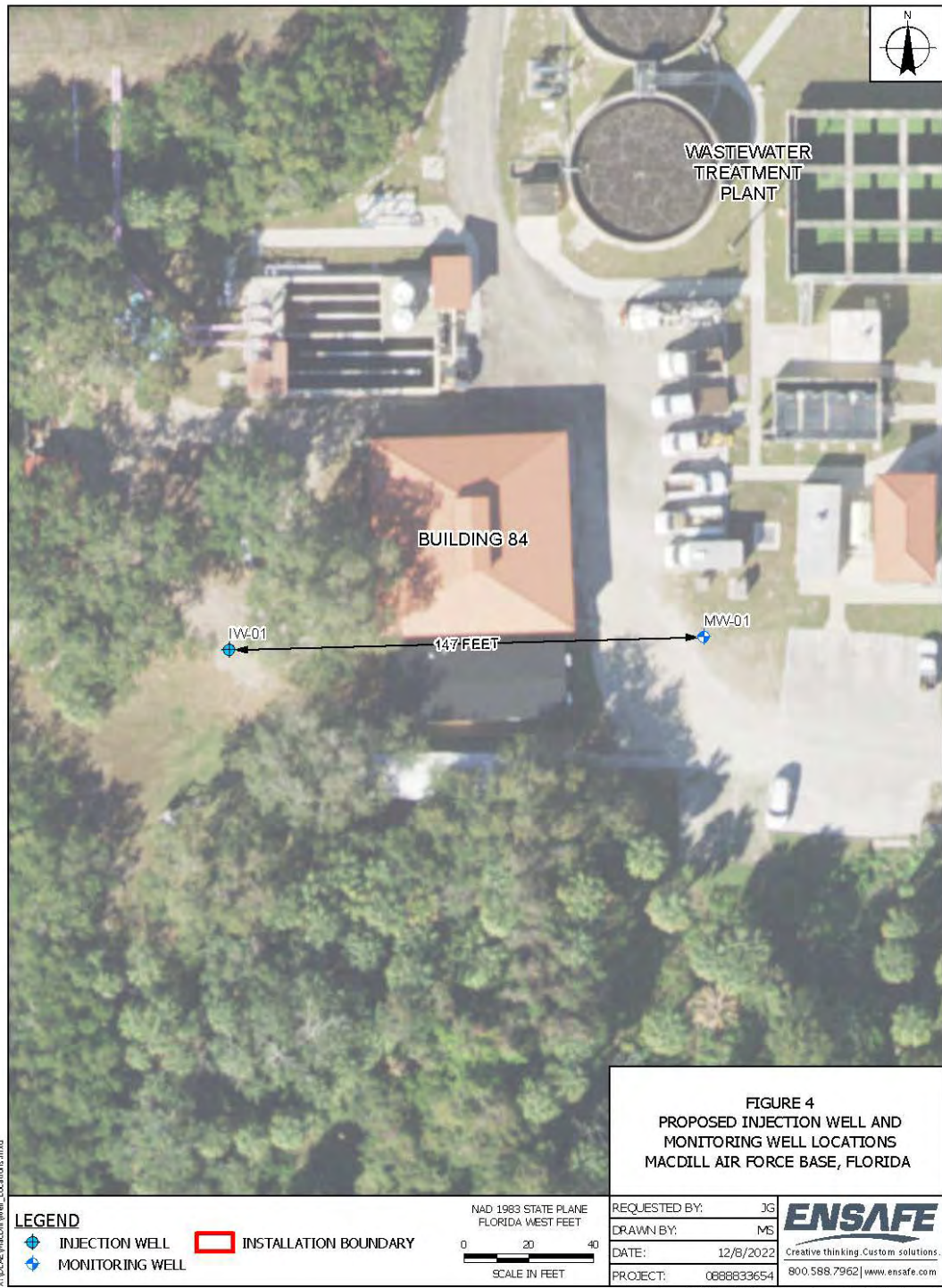
5  
6 The proposed well location would be in an open area near the southwest corner of the WWTP (27.83015643°,  
7 -82.47243306°) (Figure 4). During installation/testing of the Class I IW, FGUA would assess the  
8 hydrogeology (e.g., confining layers, water quality, and injection zone hydraulic capacity) in all subsurface  
9 aquifer zones and determine the most effective well completion that optimizes the disposal of excess  
10 reclaimed water. A Class I IW is the best option for the Proposed Action because this maximizes the disposal  
11 capacity with a single well.

12  
13 A new monitoring well would be installed in an open area east of the WWTP near the southeast corner of the  
14 WWTP (27.83016909°, -82.47197861°) (Figure 4), within a 150-foot radius of the injection well as required  
15 by Rule 62-528.425(1)(g)3 Florida Administrative Code. The monitoring well would provide a means to  
16 demonstrate compliance with FGUA's wastewater permit requirements. The monitoring well design would  
17 be similar to other typical monitoring wells. The monitoring well would be completed at a depth within the  
18 first permeable unit overlying the receiving zone of the IW. The monitoring well would serve to demonstrate  
19 that there is no upward migration of treated wastewater from the lower injection zone. Construction of an IW  
20 could possibly allow FGUA to decommission or minimize use of the spray field (R-002) for disposal of off-  
21 specification wastewater, or the retrofit of the wet weather pond (R-003) for that use. Once the IW is in  
22 service, further evaluation would be needed to determine the viability of converting the wet weather pond to  
23 off-specification wastewater disposal. This would entail draining and cleaning the pond to allow for a  
24 hydrogeologic analysis to include installing soil borings, determining percolation rates, and needed ground  
25 modifications. If the pond is found to be suitable for conversion to off-specification disposal, then the spray  
26 field may be removed from the permit and that land made available to MacDill AFB for repurposing.

#### 27 28 **2.2.2.2 Detailed Description of Alternative 1**

29 Alternative 1 would include expanding or enhancing the current three permitted disposal sites (e.g., R-001,  
30 R-002, and R-003).

1 Figure 4 Proposed Injection Well and Monitoring Well Locations



2



1 **Irrigation System Expansion (R-001)**

2 Currently, the MacDill WWTP provides irrigation water to the Bay Palms Golf Course. U.S. Water reviewed  
3 the surrounding areas to determine an adequate location to provide reuse water for irrigation. Based on  
4 availability and proximity, U.S. Water recommended the Munitions Storage Area for potential irrigation  
5 expansion (Figure 2). The Munitions Storage Area is comprised of 110 acres adjacent to the wet weather  
6 pond (R-003). This would require installation of irrigation piping at the new site and a new booster pump  
7 station and piping to convey the effluent from the WWTP to this location. Assuming an irrigation loading  
8 rate of 1 inch per week, the irrigation system expansion could provide an additional capacity up to 0.43 MGD  
9 of disposal. Access to the Munitions Storage Area would require special clearance for installation and  
10 maintenance of an irrigation system.

11  
12 **Spray Field Expansion (R-002)**

13 Percolation tests and an analysis of historical flows would be needed to determine the size of the spray field  
14 expansion. For the purposes of estimation, U.S. Water assumed that the spray field would need to be doubled  
15 in size to provide a total spray field capacity of 160,000 gallons AADF. This would provide additional  
16 insurance against permit violations for overloading the existing spray field system (R-002) or sending  
17 off-specification, Part III water to the wet weather pond (R-003). This option would require the DAF to grant  
18 additional land, estimated at 10 acres, to the wastewater utility system (Figure 2). If the DAF could  
19 provide land near the current spray field, some of the existing piping and infrastructure could also serve this  
20 new spray field, but additional pipes, equipment, and controls would be required.

21  
22 **Wet Weather Pond Expansion (R-003)**

23 The existing wet weather pond (R-003) would be enhanced to maximize percolation to the shallow aquifer by  
24 regrading and scarifying the pond bottom and reconfiguring the berms to provide at least two cells and  
25 provide more capacity by raising the berms at least 2 feet. Once this is completed the FGUA would establish  
26 an allowable loading rate based on percolation tests in the cleaned pond. This would provide the data needed  
27 to size the expansion of the pond or to size an additional pond. For estimating purposes, U.S. Water assumed  
28 a pond expansion of 50% of the existing storage volume; a 9-acre expansion (Figure 2). This would provide  
29 up to 10 MG of additional storage, which equates to over 8 days of additional storage at the full permitted  
30 WWTP capacity. This would help contain wet weather flows during the wet season. Historically, this pond  
31 has drained through percolation and evaporation during dry periods. The full cycle of wet and dry periods

1 throughout the year would be restored under this option. The pond expansion would require additional or  
2 relocated monitoring wells to document the hydraulic grade line and water quality when being loaded.  
3 Recovery of the storage volume could then be modeled accurately utilizing the data from the monitoring well  
4 system. The pond's location renders one of the last parcels of land adjacent to the airfield apron unavailable  
5 for military operations. If the wet weather pond is not needed (or expanded) for wastewater disposal, that land  
6 area could be available for other mission critical support infrastructure for military operations.

7  
8 Ultimately logistical and force protection/security concerns may limit the opportunity to expand the irrigation  
9 system and spray field. Renovation and expansion of the wet weather pond is the most feasible option for  
10 Alternative 1.

### 11 **2.2.2.3 Alternatives Eliminated from Further Study**

#### 12 **Provide an Aquifer Storage and Recovery Well (Alternative 2)**

13 This alternative assumed a new IW would be permitted as a Major Class V ASR well. To begin this process,  
14 a test well would be required by the FDEP UIC program to evaluate the geologic strata that underlies the area  
15 where the well is planned and to verify and quantify the pumping rate that could be sustained. Once the data  
16 is confirmed and the location is determined to be viable, the test well could then be converted to an ASR well  
17 to dispose of excess reclaimed WWTP effluent to enhance and *freshen* the shallow aquifer.

18  
19 Unfortunately, the FDEP's current permitting policy does not allow the flexibility of drilling a test well to  
20 determine the hydrogeology and then completing the test well as an operational injection well. Also, ASR  
21 wells completed at shallower depths and zones with lower total dissolved solids content would likely require  
22 additional treatment processes at the WWTP to meet water-quality discharge requirements. ASR wells have  
23 an increased risk of permit violations for their required effluent monitoring program (e.g., Primary and  
24 Secondary drinking water standards), since the receiving aquifer would be considered a potential drinking  
25 water source by the FDEP. Use of an ASR well also would require added instrumentation and controls, an  
26 additional well pump, and a significant amount of water quality monitoring to demonstrate permit compliance.  
27 These items are hard cost drivers, especially in the current economic and supply-chain environment, requiring  
28 unplanned capital improvements, and increased long-term operations and maintenance activities.  
29  
30

1 Based on the feasibility study, an ASR well would be expected to be limited to approximately 1 to 2 MGD  
2 capacity (U.S. Water 2022). Therefore, multiple ASR wells could be needed to adequately manage  
3 anticipated future wastewater disposal demands. Construction of each new well would require a separate  
4 FDEP permit and additional land and infrastructure to support each additional well.

5  
6 The recovery of injected reclaimed water for use during the dry season is not a high priority for the FGUA  
7 because they only have one reclaimed water customer, the golf course. The FGUA is at risk of losing 100%  
8 of its reclaimed water disposal capacity if the golf course were to cease operation or otherwise become  
9 unavailable. This could render an ASR well noncompliant since there would not be adequate withdrawal rates  
10 without the golf course disposal. For these reasons, the ASR alternative was not carried forward for detailed  
11 evaluation.

### 12 13 **Permit a Wet Weather Discharge from R-001 or R-003 (Alternative 3)**

14 According to FDEP Rule 62-610.830 (1) and (3), all surface water discharges must demonstrate they would  
15 not degrade the water quality of the waters into which they are discharging. This is done through the  
16 development of an antidegradation study and filing to the FDEP. Florida's antidegradation policy for surface  
17 water discharges is derived from the federal antidegradation requirements of 40 CFR §131.12 and from  
18 Section 403.088(2)(b) of the F.S. The antidegradation analysis is intended to show that the project clearly  
19 meets both the letter and the intent of the state's policy, and that the project as proposed is in the public  
20 interest.

21  
22 U.S. Water has reviewed the antidegradation requirements and determined that the MacDill WWTP can meet  
23 these requirements. However, the MacDill WWTP contains two different discharge points in the disposal  
24 systems, the south golf course ponds (R-001) overflow flume, and the wet weather pond (R-003) overflow  
25 box. The water quality from each of these locations is potentially different. By looking at both systems, the  
26 FGUA could determine and work with the permitting agencies to decide which option, if any, would impact  
27 the receiving waters the least. Permitting discharges from the south golf course pond (R-001) may be  
28 possible, but overflow would be discharged directly into a wetland marsh before flowing into Tampa Bay.  
29 While this would provide the highest potential for additional treatment of the effluent through nutrient uptake;  
30 FGUA would have to demonstrate via routine testing and compliance monitoring that the discharge effluent is  
31 not adversely affecting the wetland or Tampa Bay. This disposal option does not guarantee permit

1 compliance or ensure protection of the environment as water quality from the WWTP can occasionally be  
2 off-specification, which could result in impacts to the receiving wetland and Tampa Bay. Such impacts would  
3 result in compliance violations and fines for FGUA. In addition, the requirement for testing and compliance  
4 monitoring in perpetuity is an added long-term operational cost. The wet weather pond (R-003) discharges  
5 directly into the MacDill AFB storm water system, which flows into Lewis Lake, and eventually into  
6 Tampa Bay. Permitting a discharge from the wet weather pond (R-003) would pose the same risks to the  
7 environment and carry the same heavy compliance monitoring requirements as noted above for the golf  
8 course ponds (R-001). These limitations make both options untenable.

9  
10 Ultimately, discharges from R-001 or R-003 would not be protective of surface water quality in Tampa Bay.  
11 Although this alternative is much more economical than the other options, it is not recommended because it  
12 does not eliminate future surface water discharges, it would be difficult to permit, it would not be protective of  
13 aquatic resources, and it is susceptible to future legislation. For these reasons, the R-001 or R-003 wet  
14 weather discharge alternative was not carried forward for detailed evaluation.

#### **Expand Disposal System for Residential Irrigation (Alternative 4)**

15  
16 Another option initially considered for management of WWTP effluent was expansion of the disposal system  
17 to the residential community on MacDill AFB for use for landscape irrigation. Expanding the re-use system  
18 for residential irrigation could add up to 268 acres of new land application areas for disposal of wastewater  
19 effluent. The anticipated discharge flow rate for a residential irrigation system would be substantially lower  
20 than the high-volume application rates for R-001 and R-002; however, the number of discharge points  
21 (irrigation heads) would be significantly increased when compared to R-001 and R-002. Using a typical  
22 residential irrigation system application rate of 1.5 gallons per minute per irrigation head, and an estimated  
23 3,000 irrigation points within the housing area, with an estimated irrigation period of 30 minutes per day, the  
24 residential irrigation system would be capable of land applying 135,000 gallons per day.

25  
26  
27 Disposal of 135,000 gallons per day does not substantially increase the overall wastewater discharge capacity  
28 for the WWTP. In addition, the irrigation of residential areas would not occur daily, and at most would more  
29 typically occur two or three times per week, and would not occur during wet weather periods, further reducing  
30 the possible daily effluent disposal volume.

1 Furthermore, the cost to install the infrastructure (distribution mains, irrigation laterals, spray irrigation heads)  
2 required to support a residential community irrigation system would be substantial. Currently, wastewater  
3 effluent distribution lines only extend to the northwest of the WWTP to R-002 and R-003. Installing new  
4 effluent distribution lines north to the family housing area would be expensive, and the installation of  
5 irrigation laterals throughout the residential area would further increase the cost to establish this additional  
6 effluent disposal system.

7  
8 Finally, the residential housing area is privatized and the construction of a new residential irrigation system  
9 would require substantial, although temporary, disturbance of the grounds within the housing community  
10 which would not be well received by the privatized housing contractor.

11  
12 Although the application of effluent for residential landscape irrigation initially appeared like a feasible  
13 option, the limited volume of effluent disposal combined with the added cost to install the supporting  
14 wastewater distribution infrastructure made this alternative impractical and this alternative was eliminated  
15 from further consideration.

### 16 17 **2.3 Description of the No Action Alternative**

18 The No Action alternative was also considered as part of the initial alternatives evaluation and will be carried  
19 through the EA process along with the Preferred Alternative and Alternative 1.

20  
21 Under the No Action Alternative, FGUA would continue to utilize the existing MacDill WWTP effluent  
22 disposal system and manage flows to R-001, R-002, and R-003 to comply with current permit discharge  
23 requirements. There would continue to be a risk of permit violations during the wet season when irrigation  
24 water is not needed.

### **3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

In compliance with National Environmental Policy Act, Council on Environmental Quality, and Environmental Impact Analysis Process (32 CFR 989) guidelines, Section 3 of this document focuses only on those resource areas potentially subject to impacts from the two alternatives carried forward for implementation of the Proposed Action, as well as the No Action Alternative. Section 3.11 presents the potential environmental impacts from the Preferred Alternative, Alternative 1, and the No Action Alternative. All potentially relevant resource areas were initially considered for analysis in this EA. Some resource areas would not be affected with implementation of the Proposed Action or the No Action Alternative. Resource areas that have been eliminated from further detailed study in this document and the rationale for eliminating them are presented below:

#### **Transportation**

The facilities around the WWTP are in an area with very little vehicle traffic on the road. In addition, the construction activities associated with the Proposed Action would occur within relatively remote areas or within the right-of-way for existing roads. During construction, roadway cuts that might divert traffic or require traffic management are not expected because the locations associated with the Proposed Action are small and generally away from local roads. There would be no long-term effects on transportation upon completion of the proposed upgrades to the wastewater disposal system. The Proposed Action would have a negligible impact on traffic patterns and transportation either short term or long term.

#### **Socioeconomics**

The estimated cost of construction for all phases of the IW installation project is \$9 million. This expenditure would have a negligible impact on the \$3.9 billion in total economic impact that MacDill AFB provides to the Economic Impact Region (50-mile radius) around the installation.

#### **Environmental Justice and Protection of Children**

There are no environmental justice areas of low-income and (or) minority or child populations immediately adjacent to the area of the Proposed Action. Site construction would not adversely impact low-income and(or) minority or child populations. No subsistence populations, facilities utilized for environmental justice communities, or school or daycare locations exist within or adjacent to the project area. Consequently, environmental justice and protection of children was eliminated from further analysis in this environmental assessment.

1 **Land Use**

2 Construction associated with the Proposed Action would not change land use classifications in any areas  
3 where it occurs, neither in the short term or the long-term. Similarly, implementation of the Proposed Action  
4 would not alter land use within or adjacent to project areas. Therefore, land use was eliminated from further  
5 consideration in this environmental assessment.

6  
7 **Airspace and Airfield Operations**

8 Construction associated with the proposed action would not require access to airspace or interfere with airfield  
9 operations. Therefore, airspace and airfield operations was eliminated from further consideration in this  
10 environmental assessment.

11  
12 **3.1 Air Quality**

13 **3.1.1 Definition of the Resource**

14 Air pollution is the presence in the outdoor atmosphere of one or more contaminants (e.g., dust, fumes, gas,  
15 mist, odor, smoke, vapor) in quantities and of characteristics and duration such as to be injurious to human,  
16 plant, or animal life, or to interfere unreasonably with the comfortable enjoyment of life and property.  
17 Air quality as a resource incorporates several components that describe the levels of overall air pollution  
18 within a region, sources of air emissions, and regulations governing air emissions.

19  
20 **3.1.2 Existing Conditions**

21 The Clean Air Act (CAA), as amended in 1977 and 1990, provides the basis for regulating air pollution to the  
22 atmosphere. The United States Environmental Protection Agency (U.S. EPA) established National Ambient  
23 Air Quality Standards (NAAQS) for six “criteria” pollutants: carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>),  
24 ozone (O<sub>3</sub>), sulfur oxides (SO<sub>x</sub>), measured as sulfur dioxide (SO<sub>2</sub>), lead (Pb), and particulate matter with an  
25 aerodynamic diameter less than or equal to 10 micrometers (PM<sub>10</sub>). These standards are the cornerstone of  
26 the CAA. Although not directly enforceable, they are the benchmark for the establishment of emission  
27 limitations by the states for the pollutants the U.S. EPA determines may endanger public health or welfare.

28  
29 The Hillsborough County EPC is responsible for issuing and enforcing the CAA Minor Source Air Operation  
30 Permit (Permit No. 0570141-027-AO, issued 10 September 2021) for MacDill AFB. The 2020 air emission

1 inventory at MacDill AFB found the installation is not a major source of potential emissions for any criteria  
2 pollutants.

3  
4 The U.S. EPA tracks compliance with the air quality standards through designation of a particular region as  
5 “attainment” or “non-attainment.” MacDill AFB is in Hillsborough County within the West Central Florida  
6 Intrastate Air Quality Control Region. The area encompassed by MacDill AFB is currently classified as  
7 being in attainment for all criteria pollutants stipulated under the NAAQS.

### 9 **3.1.3 Environmental Consequences**

10 Environmental impacts on air quality are determined based on increases in emissions of regulated pollutants  
11 when compared to existing conditions. Impacts would be considered significant if the Proposed Action were  
12 to exceed the general conformity rule *de minimis* thresholds, or would contribute to a violation of any federal,  
13 state, or local air regulations. Although the area within and around MacDill AFB is in attainment for the  
14 NAAQS and the general conformity rule does not apply, the *de minimis* thresholds have been utilized as part  
15 of the environmental assessment of the Proposed Action as a surrogate to determine the level of effects under  
16 the National Environmental Policy Act.

17  
18 For projects not directly related to aircraft, such as the installation of the IW and monitoring well, an approved  
19 air quality database or tool should be used in conjunction with best available local information to quantify air  
20 emissions and estimate potential for impacts to air quality. For the purposes of this project, the air emissions  
21 generated from construction equipment and workers commuting to the project site were estimated using the  
22 Air Force Air Conformity Applicability Model (ACAM). The ACAM evaluation was used to assess potential  
23 air quality impacts associated with the Proposed Action. The modeling results identified priority pollutant  
24 emissions for the Preferred Alternative and Alternative 1; however, all emission estimates were significantly  
25 lower than applicable Major Source thresholds and generally reflect the nature of the planned work that is  
26 characterized by excavation and earth moving activities. In addition, none of estimated emissions associated  
27 with this action as estimated by the ACAM analysis runs are above the conformity threshold values  
28 established at 40 CFR 93.153(b). Therefore, the requirements of the General Conformity Rule are not  
29 applicable. The ACAM reports for the Preferred Alternative and Alternative 1 are found in Appendix D.



1 **3.1.3.1 Preferred Alternative**

2 The Preferred Alternative includes installation of an IW, monitoring well, and associated piping/infrastructure  
3 to enable disposal of wastewater effluent to the IW. Air quality impacts would occur during drilling and  
4 construction of the IW and associated monitoring well and construction of the associated piping/infrastructure;  
5 however, these air quality impacts would be insignificant, minor, and temporary.

6  
7 Fugitive dust (suspended and PM<sub>10</sub> particulate matter) and construction vehicle exhaust emissions would be  
8 generated during construction. Dust generated by equipment and construction activities would fall rapidly  
9 within a short distance from the source. If required, areas of exposed soil could be sprayed with water daily  
10 to suppress dust.

11  
12 Pollutants from construction and drilling equipment and vehicle exhausts include CO and carbon dioxide, NO<sub>2</sub>  
13 and nitrogen monoxide, SO<sub>2</sub>, particulate matter, and volatile organic compounds (VOCs). Internal  
14 combustion engine exhausts from the proposed action would be insignificant and temporary and, like  
15 fugitive dust emission, would not result in long-term impacts.

16  
17 Emissions from the use of construction equipment would be short-term and occur in low concentrations due to  
18 the limited use of heavy equipment. In addition, the open-air nature of the project vicinity would minimize  
19 the potential for the concentration of harmful air pollutants to hazardous levels. Overall, no significant  
20 impact on regional or local air quality is expected from implementation of the Preferred Alternative.  
21 The ACAM report for the Preferred Alternative is found in Appendix D.

22  
23 **3.1.3.2 Alternative 1**

24 Alternative 1 would involve renovation and/or expansion of the current wastewater effluent disposal sites  
25 (R-001 golf course irrigation, R-002 spray field, or R-003 wet weather pond). Expansion of these disposal  
26 sites, as described in Section 2.2.2.2, would provide the additional capacity necessary for disposal of excess  
27 reclaimed wastewater.

28  
29 Air quality impacts would occur during construction; however, these air quality impacts would be less than  
30 significant, minor, and temporary. As with the Preferred Alternative, fugitive dust and emissions from the use  
31 of construction equipment would be short-term and occur in low concentrations due to the limited use of

1 heavy equipment. In addition, the open-air nature of the project vicinity would minimize the potential for the  
2 concentration of harmful air pollutants to hazardous levels.

3  
4 ACAM was used to estimate potential air quality impacts from construction activities for Alternative 1.  
5 Air quality impacts would occur during construction activities; however, these air quality impacts would be  
6 insignificant, minor, and temporary. Predicted emissions for all pollutants were consistently higher for  
7 Alternative 1, but still well below general conformity thresholds. No significant impacts to air quality would  
8 result from Alternative 1. The ACAM report for Alternative 1 is found in Appendix D.

### 10 **3.1.3.3 No Action Alternative**

11 Because the status quo would be maintained, there would be no impacts to air quality under the No Action  
12 Alternative. Therefore, ACAM evaluation of this alternative is not applicable.

## 14 **3.2 Noise**

### 15 **3.2.1 Definition of the Resource**

16 Sound is a physical phenomenon consisting of vibrations that travel through a medium, such as air or water,  
17 and are sensed by the human ear. Noise is defined as any sound that is undesirable because it interferes with  
18 communication, is intense enough to damage hearing, or is otherwise intrusive. Human response to noise  
19 varies depending on the type and characteristics of the noise, distance between the noise source and the  
20 receptor, receptor sensitivity, and time of day. Noise is often generated by activities essential to a  
21 community's quality of life, such as aircraft operations, construction equipment, or vehicular traffic.

22  
23 Sound varies by both intensity and frequency. Sound pressure level, described in decibels (dB), quantifies  
24 sound intensity. The dB is a logarithmic unit that expresses the ratio of a sound pressure level to a standard  
25 reference level. Hertz quantifies sound frequency. The human ear responds differently to different  
26 frequencies. "A-weighting," measured in A-weighted decibels (dBA), approximates a frequency response  
27 expressing the perception of sound by humans.

28  
29 The dBA noise metric describes steady noise levels, although very few noises are, in fact, constant; therefore, a  
30 day-night sound level (DNL) has been developed. DNL is defined as the average sound energy in a 24-hour  
31 period with a 10-dB penalty added to the nighttime levels (10 p.m. to 7 a.m.). DNL is a useful descriptor for

1 noise because it averages ongoing yet intermittent noise and measures total sound energy over a 24-hour period.  
2 The DAF uses the DNL metric in assessing the amount of aircraft noise exposure, and as a metric for  
3 community response to the various levels of exposure. In addition, equivalent sound level (Leq), the average  
4 sound level in dBA, is often used to describe the overall noise environment.  
5

### 6 **3.2.2 Existing Conditions**

7 The Air Installation Compatible Use Zone Study (2014) plotted the DNL contours from 65 to 80 dB for an  
8 average day and a busy day of aircraft operations at MacDill AFB. The DNL 65 dB contour covers the main  
9 runway, and extends about 1 mile southwest over Tampa Bay, and about 1 mile northeast over South Tampa.  
10 Smaller DNL 65 dB contours are centered near the north and south parking ramps at MacDill AFB.  
11 Construction activities for the Proposed Action would occur at the WWTP (Preferred Action) or at R-001,  
12 R-002, or R-003 disposal sites (Alternative 1) which extend as far out as the southeastern end of the airfield  
13 apron. Work areas for the Proposed Action would occur in areas where expected noise levels would be much  
14 less than 65 dB, therefore, 65 dB is the benchmark for specific assessment of noise for each alternative as  
15 discussed below.  
16

### 17 **3.2.3 Environmental Consequences**

18 Changes in noise would be considered significant if they were to lead to a violation of any federal, state, or  
19 local noise ordinance, or would substantially increase areas of incompatible land use outside the MacDill AFB  
20 boundary.  
21

#### 22 **3.2.3.1 Preferred Alternative**

23 Workers at the WWTP would be the closest noise-sensitive receptors in the vicinity of construction activities  
24 associated with the IW and monitoring well installation and construction of associated piping/infrastructure.  
25

26 The adjacent receptors would probably experience noise impacts from drilling activities and/or construction-  
27 related vehicles. The magnitude of these impacts would be directly related to the proximity of the occupied  
28 facility to the work site at the WWTP. In addition, the impacts vary according to the activity occurring on  
29 any particular day, and impacts would cease when well installation and construction are completed. Noise levels  
30 associated with well drilling/construction activities would be expected to be much less than 65 dB. Occupants of  
31 the buildings nearest the drilling and construction locations at the WWTP could occasionally experience

1 higher-than-normal noise levels during those activities. However, those impacts would be temporary and  
2 would be considered minor, and no significant noise impacts would occur.

### 3.2.3.2 Alternative 1

3  
4  
5 Alternative 1 would have impacts somewhat similar to those identified for the Preferred Alternative.  
6 However, construction activities would be at, and in the vicinity of, the existing wet weather pond (R-003), as  
7 shown on Figure 2. The closest occupied buildings to the wet weather pond are the Navy Operational  
8 Support Center (<500 feet south) and the 290th Joint Communications Support Squadron (<1,300 feet  
9 southeast). Under Alternative 1, workers in the facilities near to the construction activities could occasionally  
10 experience higher than normal noise levels during construction; however, the exposure would be temporary,  
11 intermittent, and minor in nature, and no significant noise impacts would occur.

### 3.2.3.3 No Action Alternative

12  
13  
14 Under the No Action Alternative, no noise impacts higher than normal levels would occur.

## 3.3 Geology and Soils

### 3.3.1 Definition of the Resource

15  
16  
17  
18 Geologic resources at MacDill AFB include the Earth's surface and subsurface materials including  
19 unconsolidated deposits of marine sediments and bedrock. Soil resources include the unconsolidated mineral  
20 or organic material on the immediate surface of the Earth that serves as a natural medium for the growth of  
21 land plants.

### 3.3.2 Existing Conditions

#### Geology

22  
23  
24  
25 MacDill AFB is in the Southern Gulf Coastal Lowlands physiographic province and the Pamlico Terrace.  
26 There are three principal lithologic sequences in the area. The surficial unit is unconsolidated sand, clay, and  
27 marl. This unit may include remnants of the Hawthorn Formation composed of sand, clay, and thin lenses of  
28 limestone. Sands in this unit range from 5 to 20 feet thick with clay layers up to 40 feet thick. This surficial  
29 layer is very-thin-to-absent on the eastern side of the installation, and underlying limestone formations may  
30 outcrop in this area. The Tampa and Suwannee limestones, which range from 250 to 450 feet thick, underlie  
31 the unconsolidated surficial layer. Below this layer is the Ocala Group, consisting of Avon Park, Lake City,

1 and Oldsmar limestones; and the Cedar Keys Limestone, which range from approximately 450 to 3,600 feet  
2 deep (MacDill AFB 2021c; ASRus 2021).

### 4 **Soils**

5 The Natural Resources Conservation Service mapped nine soil series within the MacDill AFB boundary  
6 (USAF 2021c). These soil series include Arents, Malabar, Myakka, Pomello, Quartzipsamments,  
7 St. Augustine, Tavaress, Urban Land, and Wabasso. More than 50% of these soils are classified as  
8 Urban Land where existing development has altered or obscured the original soils beyond identification.  
9 There are no prime or unique farmland soils at MacDill AFB (US Air Force 2021c). Two soil series are  
10 hydric soils (Malabar and Myakka fine sands) and several other soil series have minor inclusions of hydric  
11 soils (USAF 2021c).

12  
13 Soils at the WWTP area (Preferred Alternative area) are mapped as St. Augustine-Urban land complex;  
14 soils at R-001, R-002, and R-003 (Alternative 1 areas) are mapped as St. Augustine-Urban land complex,  
15 Myakka fine sand, and Pomelo fine sand. Soils at these locations have been altered by past land-clearing and  
16 construction.

## 18 **3.3.3 Environmental Consequences**

### 19 **3.3.3.1 Preferred Action**

20 The Preferred Action includes installation of an IW and associated monitoring well and piping/infrastructure  
21 at the WWTP. The final depth of the IW will depend on conditions encountered during drilling and testing  
22 but is anticipated to extend into the lower part of the upper Floridan aquifer in the Upper Avon Park  
23 Formation (estimated depth approximately 800 to 900 feet below land surface). Once the well is completed, it  
24 will be connected to the wastewater disposal system at the WWTP. The final depth of the monitoring well  
25 will extend into the closest permeable unit above the receiving zone of the IW (estimated depth approximately  
26 550 feet below land surface). FDEP regulations specify that the monitoring well must be within 150 feet  
27 horizontally of the IW. Both wells will receive 10 feet by 10 feet concrete housekeeping pads at ground  
28 surface. The total area of soil disturbance from excavation was estimated at 200 square feet; approximately  
29 100 cubic yards of soil cuttings and other material from the boreholes would need to be disposed offsite.  
30 Excavation associated with installation of the piping/infrastructure to get the effluent water to the IW would  
31 generate approximately 50 cubic yards of soil. The overall footprint of the IW construction area is <1 acre.

1 **3.3.3.2 Alternative 1**

2 Alternative 1 involves expansion one or more of the currently permitted wastewater disposal sites (R-001,  
3 R-002, and R-003). Expansion of R-001 and R-002 would potentially require several acres of soil disturbance  
4 to install associated piping/infrastructure, depending on the final location of available areas. Expansion and/or  
5 modification of the R-003 wet weather pond could require up to 9 acres of additional land.

6  
7 Some soil erosion would occur during construction activities for expansion of the effluent disposal system;  
8 however, implementation of a sediment and erosion control plan, including use of best management practices  
9 (BMPs) such as silt fencing and hay bales, would dramatically reduce erosion and sedimentation.  
10 Since Alternative 1 would disturb more than one acre of soil, a NPDES construction general permit from the  
11 FDEP would be required. Any potential for impacts to storm water because of soil disturbance would be short  
12 term in nature and would be mitigated once the construction sites are stabilized with sod or seeding.  
13 Alternative 1 would not increase impervious surfaces, and construction of storm water management systems  
14 would not be required.

15  
16 **3.3.3.3 No Action Alternative**

17 Under the No Action Alternative, no new impacts to geologic resources would occur.

18  
19 **3.4 Wastes, Hazardous Materials, and Stored Fuel**

20 **3.4.1 Definition of the Resource**

21 Hazardous materials are defined by 49 CFR § 171.8 as hazardous substances, hazardous wastes,  
22 marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous  
23 Materials Table (49 CFR § 172.101), and materials that meet the defining criteria for hazard classes and  
24 divisions in 49 CFR § 173. Hazardous wastes are defined by the Resource Conservation and Recovery Act  
25 (RCRA) at 42 USC § 6903(5), as amended by the Hazardous and Solid Waste Amendments, as “a solid waste,  
26 or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or  
27 infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an  
28 increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or  
29 potential hazard to human health or the environment when improperly treated, stored, transported, or disposed  
30 of, or otherwise managed.”

1 Evaluation of hazardous materials and wastes focuses on the presence, storage, transport, handling, and  
2 disposal of these substances. Consideration of existing environmental contamination sites also is included  
3 during the evaluation of hazardous materials and wastes potentially associated with the Proposed Action.  
4 In addition to being a threat to humans, the improper release of hazardous materials and wastes can threaten  
5 the health and well-being of wildlife species, botanical habitats, soil systems, and water resources. In the  
6 event of a release of hazardous materials or wastes, the extent of contamination varies based on the  
7 contaminant(s), soil type, topography, depth to groundwater, and water resources.

8  
9 Under the Superfund Amendments and Reauthorization Act, the Defense Environmental Restoration Program  
10 (ERP) requires defense installations to identify, investigate, and clean up hazardous waste dispersal or release  
11 sites. In accordance with DAF policy (DAFI 32-7020), all ERP sites on MacDill AFB are addressed in a  
12 manner consistent with the Comprehensive Environmental Response, Compensation, and Liability Act and  
13 RCRA requirements and are overseen by the FDEP.

### 14 15 **3.4.2 Existing Conditions**

16 Hazardous wastes generated at MacDill AFB include solvents, fuels, lubricants, stripping materials, used oils,  
17 waste paint-related materials, and other miscellaneous wastes. The responsibility for managing hazardous  
18 waste lies with the generating organization and 6th Civil Engineer Squadron, Environmental Element (CEIE).  
19 Wastes come from approximately 50 locations throughout the Base and are managed at satellite accumulation  
20 points base-wide.

21  
22 Approximately 105 operations base-wide use hazardous materials. Hazardous materials on Base  
23 include various organic solvents, chlorine, freon, paints, thinners, oils, lubricants, compressed gases,  
24 pesticides, herbicides, nitrates, and chromates. A detailed tracking and accounting system is in place to  
25 identify potentially hazardous materials and to ensure that Base organizations are approved to use specific  
26 hazardous materials.

27  
28 The Base receives jet fuel (Jet-A) at the Defense Fuel Support Point by pipeline from Port Tampa.  
29 The Defense Fuel Support Point facility has three large aboveground storage tanks ([ASTs] 2 MG each) for  
30 storage of Jet-A and there are two additional large ASTs (1.2 MG each) at the hydrant fueling system adjacent  
31 to the North Flight Apron (North Ramp). Numerous other aboveground and underground storage tanks can

1 be found around the installation, ranging in size from 50 gallons to 25,000 gallons that are used primarily for  
2 storage of diesel and gasoline.

3  
4 All generated wastewater is treated at the WWTP. The plant is permitted to treat a volume of 1.2 MGD.  
5 Currently, the plant operates at an average of approximately 0.6 MGD. All treated wastewater is currently  
6 reused on-base by reclamation, principally through irrigation and spray application at R-001 and R-002 near  
7 the golf courses.

### 9 **3.4.2.1 Environmental Restoration Program Sites**

10 Hazardous waste site clean-up operations at MacDill AFB are accomplished under the RCRA Corrective Action  
11 program under permit number 34506/HH/00. Several ERP sites are located near areas proposed for  
12 construction under the Proposed Action including solid waste management unit (SWMU) 02, SWMU03,  
13 SWMU25, SWMU78, Site 57/FP28, and TG285A. The locations of these sites are shown in Figure 5.  
14 Additional information about these six areas is provided in Appendix E.

15  
16 The ERP office directs work at any areas of MacDill AFB that may have known contamination, and directs  
17 remediation of such known contaminated areas. The ERP office also directs assessment of suspected areas of  
18 contamination, including assessment for emerging contaminants such as per- and polyfluoroalkyl substances  
19 (PFAS). PFAS are unregulated by EPA and FDEP at this time, but both agencies have strategic plans in place  
20 to potentially classify PFAS as hazardous substances and promulgate cleanup criteria for PFAS in various  
21 media. At this time, if subsurface disturbance is planned for an area that is located within the boundary of a  
22 known or suspected contaminated site(s), the ERP office will provide the contractor with a Site Summary  
23 document that includes information on the nature of the contaminant(s) at the site(s), as well as the media  
24 affected (groundwater, soil, or sediment). The ERP office is also directing contractors that, even if the project  
25 area is NOT within a known or suspected contaminated site(s), the groundwater and soil may be contaminated  
26 with PFAS based on recent and ongoing base-wide assessment. Their current information is showing  
27 potential PFAS in groundwater and soil at MacDill AFB above interim screening levels; and the ERP office  
28 requires that all waste generated from construction projects must be sampled for PFAS regardless of location  
29 on the installation until the current PFAS investigation is complete. Due to the dynamic regulatory  
30 environment concerning PFAS the construction managers and contractors should engage the ERP office  
31 (AFCEC 6 CES/CZOE) prior to such work to confirm the PFAS requirements, obtain Air Force Policy



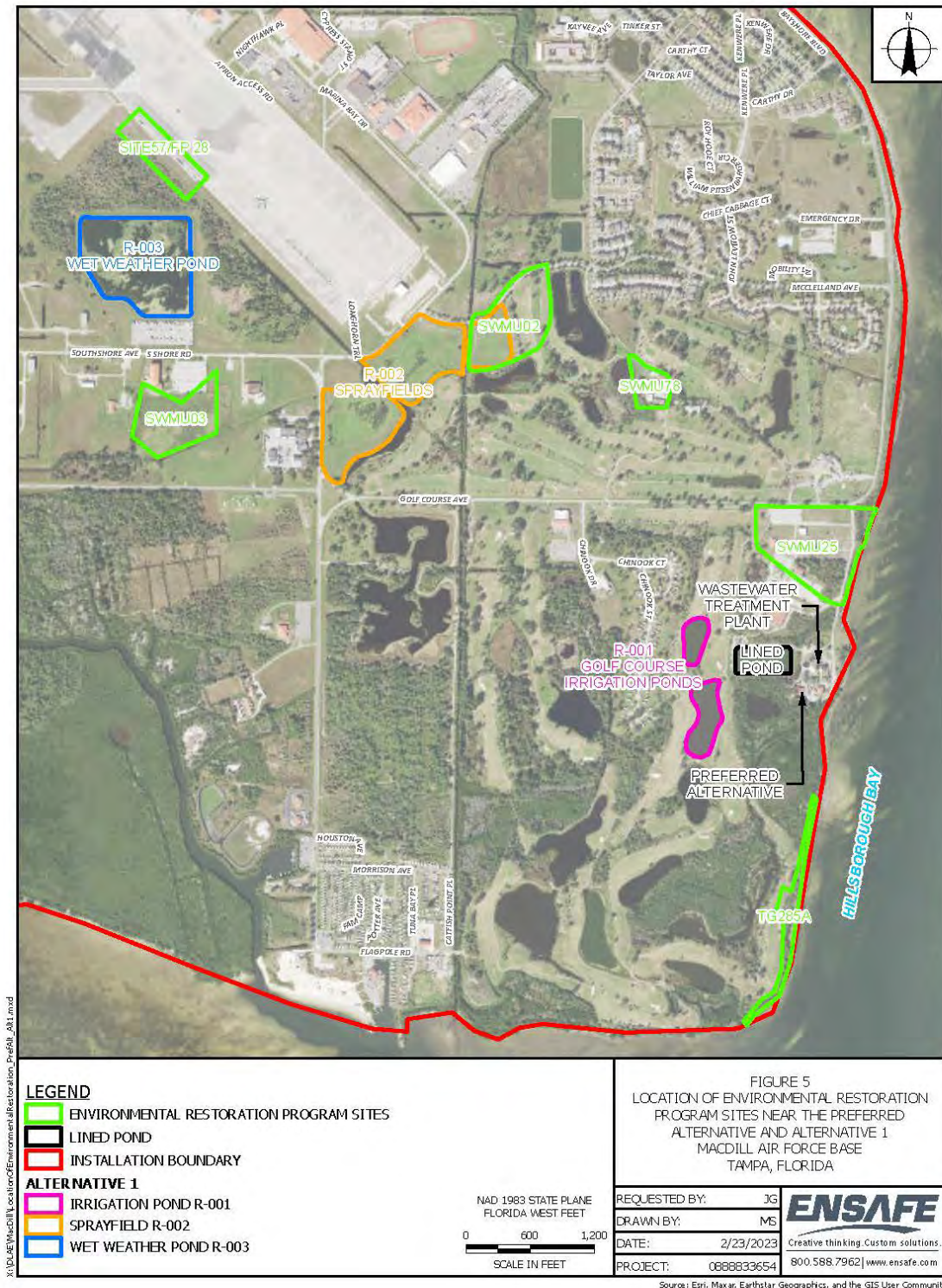
1 guidance/instructions, and available data for the work area.  
2

3 In December 2022 EPA issued interim guidance recommending wastewater permitting authorities require all  
4 dischargers to sample for PFAS, and if present commence a quarterly sampling plan and attempt to eliminate  
5 sources of PFAS in treated effluent (EPA 2022). Currently FDEP and EPC do not regulate PFAS in  
6 wastewater effluent, and have not requested that dischargers comply with EPA's interim guidance. While  
7 EPA and local PFAS regulations are in flux and interim or draft, the ERP office will continue the base-wide  
8 PFAS assessment and keep the FGUA informed regarding the extent of PFAS contamination at MacDill AFB,  
9 including within or near areas permitted by the EPC for the FGUA's application of reclaimed water. FGUA  
10 will continue to keep informed of the potential regulation changes and will respond when FDEP or EPC  
11 change or issue new permit requirements for PFAS monitoring and/or treatment.  
12

### 13 **Solid Waste Management Unit 02**

14 SWMU02 is a former landfill at the north golf course, approximately 4,800 feet northwest of the WWTP.  
15 This SWMU is immediately adjacent to the R-002 spray field. Contaminants of concern (COCs) in  
16 groundwater included arsenic, iron, and manganese; and in soil included arsenic, polycyclic aromatic  
17 hydrocarbons (PAHs), and unspecified landfill materials. The site was closed in 2006 with established  
18 Land Use Controls (LUCs) (non-residential use, groundwater use restrictions, and annual inspections).  
19 The Preferred Alternative would not affect this SWMU; however, the R-002 spray field would continue to  
20 process treated wastewater as needed, and any expansion of the R-002 spray field under Alternative 1 would  
21 need to consider proximity to the restricted areas pursuant to the LUCs.  
22

1 Figure 5 Location of Environmental Restoration



2

1 **Solid Waste Management Unit 03**

2 SWMU03 is a former landfill at the Dog Kennel on the south side of the Navy Operational Support Center,  
3 approximately 5,600 feet west-northwest of the WWTP and 640 feet south of the R-003 wet weather pond.  
4 The site contains old landfill materials. Construction associated with the Proposed Action would not affect  
5 SWMU03. Potential COCs include landfill materials; no groundwater or soil contamination has been  
6 identified. SWMU03 was closed in 2006 with LUCs (non-residential use and annual inspections).  
7 The Preferred Alternative would not affect SWMU03; however, Alternative 1 expansion of the R-003 wet  
8 weather pond would need to consider proximity to the restricted areas pursuant to the LUCs.

9  
10 **Solid Waste Management Unit 25**

11 SWMU25 is a former AST facility approximately 800 feet north of the WWTP. The site had groundwater  
12 contamination associated with tetrachloroethylene, cis-1,2-dichloroethene, trichloroethylene, vinyl chloride,  
13 and naphthalene. SWMU25 is still an active groundwater remediation site. Neither the Preferred Alternative  
14 nor Alternative 1 would affect SWMU25.

15  
16 **Solid Waste Management Unit 78**

17 SWMU78 is the Golf Course Maintenance Area. COCs in groundwater included arsenic and iron; and in soil  
18 included arsenic, benzo(a)pyrene equivalent, and chlordane. SWMU78 was closed in 2007 with LUCs  
19 (non-residential use, groundwater use restrictions, and annual inspections). Neither the Preferred Alternative  
20 nor Alternative 1 would affect SWMU78.

21  
22 **Site 57/Flightline Fuel System Pit 28**

23 Site 57/FP28 is the former Flightline Fuel System Pit 28 and is located along the edge of the south side of the  
24 airfield apron approximately 160 feet north of the wet weather pond (R-003). COCs in soil included PAHs.  
25 The site was closed in 2011 with LUCs for soil, monitored natural attenuation for groundwater, and annual  
26 inspections. The Preferred Alternative would not affect Site 57/FP28; however, the Alternative 1 expansion  
27 of the R-003 wet weather pond would need to consider proximity to the restricted areas pursuant to the LUCs

28  
29 **TG285A**

30 TG285A is the Former Skeet Range South, Shoreline Portion and is managed as part of the Military  
31 Munitions Response Program. The site is approximately 880 feet south-southeast of the WWTP. COCs in

1 soil included PAHs. TG285A was closed under institutional controls to restrict land use to non-residential use  
2 and to prevent exposure to clay target and other range-related debris left in place. Annual monitoring and  
3 inspections are conducted to remove clay target and related debris that has washed ashore. Neither the  
4 Preferred Alternative nor Alternative 1 would affect TG285A.  
5

### 6 **3.4.3 Environmental Consequences**

7 Impacts from hazardous materials and wastes would be considered significant if a proposed action would  
8 result in noncompliance with applicable federal or state regulations, or increase the amounts generated or  
9 procured beyond current MacDill AFB waste management procedures, permits, and capacities. Impacts also  
10 would be considered significant if a proposed action disturbed or created contaminated sites resulting in  
11 negative effects on human health or the environment, or if a proposed action made it substantially more  
12 difficult or costly to remediate existing contaminated sites. Issues related to PFAS in treated wastewater  
13 effluent are discussed in Section 3.4.2.1.  
14

#### 15 **3.4.3.1. Preferred Alternative**

16 A short-term increase in the generation of solid waste would occur during well drilling and construction  
17 activities for the Preferred Alternative, which would cease following construction rendering no long-term  
18 increase in the generation of solid waste. MacDill AFB has sufficient resources to manage the short-term  
19 increase in solid waste and the local landfills have sufficient capacity to accept the solid waste in the  
20 short term.  
21

22 Installation of the IW wastewater disposal system would enhance disposal options but not increase the quantity  
23 of water being processed by the WWTP. Therefore, no short- or long-term changes in use or generation of  
24 hazardous waste/materials is anticipated at the WWTP.  
25

26 Hazardous wastes/materials, such as paint, adhesives, and solvents, may be onsite during the construction  
27 work for the Preferred Alternative. All construction-related hazardous wastes/materials, including petroleum  
28 products, would be removed, and disposed of according to Base procedures, as well as applicable state  
29 and federal regulations. In general, the amount of hazardous materials/wastes would not change with  
30 construction of the Preferred Alternative and no impacts from hazardous materials or waste are anticipated  
31 during this project.  
32

1 **Environmental Restoration Program Sites**

2 The Preferred Alternative was evaluated for the potential for impacts to and/or from documented hazardous  
3 waste clean-up sites (both ERP and non-ERP sites) at MacDill AFB. The Preferred Alternative would not  
4 involve excavation within or near any existing SWMUs. If construction plans change, or unexpected contact  
5 with contaminated media associated with these sites occurs during construction, construction activities shall  
6 halt and the contractor shall coordinate with the MacDill ERP office and the FDEP to establish specific  
7 management actions to ensure that no environmental impacts or adverse effects to construction worker health  
8 and safety or the environment occur. Issues related to PFAS in treated wastewater effluent are discussed in  
9 Section 3.4.2.1.

10  
11 In summary, the Preferred Alternative avoids construction within all identified ERP sites and should not affect  
12 or be affected by any existing hazardous waste clean-up sites.

13  
14 **3.4.3.2 Alternative 1**

15 Alternative 1 could include construction activities to increase water storage and percolation in the wet weather  
16 pond (R-003). As with the Preferred Alternative, a short-term increase in the generation of solid waste would  
17 occur during construction activities for Alternative 1 which would cease following construction, rendering no  
18 long-term increase in the generation of solid waste. MacDill AFB has sufficient resources to manage the  
19 short-term increase in solid waste and the local landfills have sufficient capacity to accept the solid waste in  
20 the short term.

21  
22 Hazardous wastes/materials, such as paint, adhesives, and solvents, may be onsite during the construction  
23 work for Alternative 1. All construction-related hazardous wastes/materials, including petroleum products,  
24 would be removed, and disposed of according to MacDill AFB procedures, as well as applicable state and  
25 federal regulations. In general, the amount of hazardous materials/wastes would not change with construction  
26 of Alternative 1 and no impacts from hazardous materials or waste are anticipated during this project. Issues  
27 related to PFAS in treated wastewater effluent are discussed in Section 3.4.2.1.

28  
29 **Environmental Restoration Program Sites**

30 Alternative 1 would require additional consideration of proximity to restricted areas per the LUCs for  
31 SWMU02, SWMU03, and Site 57/FP28. Each of these sites has been remediated and closed with no further

1 action required, so construction in and around these sites does not represent an environmental or health and  
2 safety concern. However, each of these sites has LUCs that restrict the site from unauthorized disturbance.  
3 Although not currently proposed, construction within the boundary of each of these sites is permissible if  
4 proper protective measures are taken to protect the health, the environment, and safety of workers.  
5 Issues related to PFAS in ERP sites are discussed in Section 3.4.2.1.

### 6 7 **3.4.3.3 No Action Alternative**

8 Under the No Action Alternative, no impacts to wastes, hazardous materials, stored fuel, or ERP sites would  
9 occur since no construction activities would be implemented.

## 10 11 **3.5 Water Resources**

### 12 **3.5.1 Definition of the Resource**

13 Water resources are natural and man-made sources of water that are available for use by and for the benefit of  
14 humans and the environment. Water resources relevant to MacDill AFB include groundwater, surface water,  
15 and wetlands. This section also discusses water quality programs that are enforced as part of water resources  
16 protection regulations. Evaluation of water resources examines the quantity and quality of the resource and  
17 its demand for various purposes.

### 18 19 **3.5.2 Existing Conditions**

#### 20 **Surface Water**

21 Surface water flows at the Base are primarily from storm water runoff. Topographic maps show that the entire  
22 Base is an independent drainage area with no natural surface waters entering or leaving the site prior to final  
23 discharge into Tampa Bay. Most of the Base drains toward the southern tip of the Interbay Peninsula;  
24 however, the easternmost section of the Base drains toward Hillsborough Bay.

25  
26 About 25% of the Base surface cover is impervious. The soil type is predominantly poorly-drained fine  
27 sands. The drainage system consists of piping and surface ditches. Man-made ponds exist primarily on the  
28 southeast portion of the Base. In the southern portion of the Base there is a poorly-drained area that includes  
29 two creeks, Raccoon Hammock Creek, and Broad Creek. This area is subject to shallow flooding by the  
30 highest of normal tides.

1 The FDEP issued a NPDES Multi-Sector Generic Permit for Storm water Discharge Associated with  
2 Industrial Activity (FLR05E128-005) to MacDill AFB in April 2021. The FDEP issued a Phase II Municipal  
3 Separate Storm Sewer System (MS4) permit (FLR04E059 [Cycle 4]) to MacDill AFB in January 2018.  
4 In accordance with 40 CFR 112, the Base has developed an SPCC Plan and a Facility Response Plan, given  
5 the location adjacent to navigable waters and shorelines, as well as the amount of fuel storage capacity  
6 existing onsite.

## 8 **Groundwater**

9 There are three primary aquifer systems underlying MacDill AFB, the surficial aquifer, the upper Floridan  
10 aquifer, and the lower Floridan aquifer (ASRus 2021).

### 12 **Surficial Aquifer**

13 The surficial aquifer system consists generally of sands intermixed with clays, marl, and organic material.  
14 The aquifer is unconfined and is approximately 20 to 50 feet thick; however, the surficial aquifer is not used  
15 for water supply at MacDill AFB.

### 17 **Upper Floridan Aquifer**

18 The upper Floridan aquifer underlies the surficial aquifer and is separated from it by a clay confining layer.  
19 The upper Floridan aquifer extends from approximately 100 to 1,400 feet below land surface and includes  
20 portions of the Hawthorn Group (including the Tampa Member of the Arcadia Formation), Suwanee and  
21 Ocala Limestones, and the Upper Avon Park Formation. The upper Floridan aquifer is composed of a thick  
22 series of carbonate rocks.

### 24 **Lower Floridan Aquifer**

25 The lower Floridan aquifer extends from approximately 1,700 to 3,600 feet below land surface and includes  
26 the lower Avon Park Formation, the Oldsmar Formation, and the Upper Cedar Keys Formation.

27  
28 The upper and lower Floridan aquifers are separated by a relatively impermeable zone approximately 1,400 to  
29 1,700 feet below land surface. The lower and upper Floridan aquifers are major groundwater sources in the  
30 region, but neither is used for water supply at MacDill AFB. Potable water is supplied to MacDill AFB by the  
31 City of Tampa, which obtains most of its drinking water from surface water sources.

1 The water table in the surficial aquifer is shallow and ranges from land surface near Tampa Bay and tidal  
2 creeks to approximately 5 feet below land surface at inland locations. Groundwater levels and flow directions  
3 generally are determined by low gradients and are tidally influenced by ditches and canals and by  
4 Hillsborough and Tampa Bays. The direction of groundwater flow in the surficial aquifer is generally radial  
5 from the north-central portion of the Base towards the coastline.

6  
7 Groundwater quality has been affected by past and present Base activities. Elevated VOC concentrations  
8 have been found in surficial aquifer groundwater at various sites that contain or contained petroleum storage  
9 tanks. Elevated metals concentrations have been found in areas of former landfills. Elevated nitrate, nitrite,  
10 and pesticide concentrations have been identified in golf course areas.

## 11 **Wetlands**

12 The 1998 Wetland Delineation Study identified, delineated, and classified approximately 1,195 acres of  
13 wetlands on MacDill AFB (USAF 2021c). Wetland systems included palustrine wetlands (315 acres) and  
14 scrub/shrub wetlands (880 acres). Mangrove wetlands are the principal scrub/shrub wetland community on  
15 the Base. Black mangrove (*Avicennia germinans*) and white mangrove (*Laguncularia racemosa*) are the  
16 dominant species. Red mangrove (*Rhizophora mangle*) is also present at the waterward fringes of the  
17 community. The mangroves have been negatively impacted by historic dredge and fill activities and the  
18 excavation of mosquito ditches. However, despite these impacts, this community provides valuable wildlife  
19 habitat and is protected by state and local regulations. The only wetlands located in the immediately vicinity  
20 of the Preferred Alternative and Alternative 1 are drainage ditches located in and around the airfield and a  
21 mangrove complex approximately 80 feet west and south of the WWTP.

## 22 **3.5.3 Environmental Consequences**

### 23 **3.5.3.1 Preferred Alternative**

#### 24 **Surface Water**

25 Some soil erosion could occur during construction activities associated with the Preferred Alternative.  
26 Soil disturbance would be confined to a relatively small area (<0.25 acres) immediately around each well  
27 location, and the associated piping/infrastructure between the WWTP and the IW. Implementation of a  
28 sediment and erosion control plan, including use of BMPs such as silt fencing and hay bales, would reduce  
29 erosion and avoid potential storm water problems. As previously stated, the Preferred Alternative would  
30  
31



1 disturb less than 1 acre of soil and would therefore not require an NPDES construction general permit from  
2 the FDEP. Any potential for impacts to storm water as a result of soil disturbance would be short term in  
3 nature and would be mitigated once the construction area is stabilized with sod or seeding. The Preferred  
4 Alternative would not increase impervious surfaces, and construction of storm water management systems  
5 would not be required.

## 6 7 **Groundwater**

8 The IW and the monitoring well to be installed as part of the Preferred Alternative would be drilled to a  
9 targeted zone of approximately 800 to 900 feet below land surface, and 550 feet below land surface,  
10 respectively. The monitoring well would be installed within a 150-foot radius of the IW. Both wells would  
11 be installed using a mud rotary drilling method through the unconsolidated surface sediments, then using  
12 reverse-air drilling techniques in consolidated deposits to total depth. Both wells would receive 10-foot-by-  
13 10-foot concrete housekeeping pads at ground surface and well head appurtenances to control fluids.  
14 The injection wellhead would be connected to the WWTP's effluent pumping station with new ductile iron  
15 piping, control valves, and monitoring/automation controls.

16  
17 The Preferred Alternative would discharge treated effluent from the WWTP into the aquifer at a depth below  
18 the base of the underground source of drinking water (USDW) and therefore would not cause a violation of a  
19 primary drinking water standard to occur within the USDW. Secondary drinking water standards for color,  
20 total dissolved solids, or other parameters would also not be applicable to the use of the IW since injection is  
21 below the USDW. However, the UIC permit would mandate that the WWTP effluent meet high-level  
22 disinfection requirements and not be a characteristically hazardous waste stream. The WWTP discharge  
23 already meets these requirements and would not pose a hazard to groundwater.

## 24 25 **Wetlands**

26 The Preferred Alternative should have no impact on wetlands in the vicinity of the WWTP. The new IW,  
27 monitoring well, and associated piping/infrastructure would be no closer than approximately 80 feet from a  
28 mangrove wetland; and implementation of a SWPPP, SPCC, and associated BMPs would avoid impacts to the  
29 wetland from soils erosion and storm water during the construction activities. Normal operation of the IW  
30 and new disposal system also would not pose impact to the nearby wetland.

1 **3.5.3.2 Alternative 1**

2 **Surface Water**

3 As discussed in Section 3.3.3.1, renovation and/or expansion of the wet weather pond (R-003) would increase the  
4 storage capacity and the percolation rate of the pond. Some soil erosion would occur during construction  
5 activities to expand the wet weather pond; however, implementation of a sediment and erosion control plan  
6 including use of BMPs would dramatically reduce erosion and avoid potential storm water violations.  
7 No long-term impacts to surface water would result.

8

9 **Groundwater**

10 Alternative 1 would include the expansion of the wet weather pond (R-003) allowing it to hold and process  
11 more treated wastewater through percolation into the surficial aquifer. The pond would enable settling of any  
12 sediment/turbidity in the wastewater and natural uptake via biological activity in the pond which have the  
13 potential to enhance groundwater quality in the vicinity of the pond. Percolation from the pond is expected to  
14 have a positive long-term effect on shallow groundwater levels by maintaining saturation during dry periods.

15

16 **Wetlands**

17 Alternative 1 expansion or retrofit of the wet weather pond (R-003) could include construction activities in the  
18 vicinity of nearby drainage ditches and wetlands. To ensure no adverse impact to wetlands, the project will  
19 include implementation of a sediment and erosion control plan and associated BMPs during the construction  
20 activities. The pond expansion would mitigate the overflow events that periodically occur during wet weather  
21 periods thereby protecting the drainage ditches and more than 50 acres of estuarine and freshwater wetlands  
22 after construction.

23

24 **3.5.3.3 No Action Alternative**

25 The No Action Alternative would not disturb soils as no construction activities are involved. The existing  
26 wastewater disposal systems would remain in use; however, the No Action Alternative has the ability to pose  
27 impacts to the Base water resources. Under the No Action Alternative there could be impacts to surface water  
28 resources and wetlands during wet weather periods due to runoff from the secondary disposal site spray field  
29 (R-002) and overflows from the secondary disposal site wet weather pond (R-003), which events are in  
30 violation of the WWTP wastewater facility permit (FLA012124).

31

1 **3.6 Floodplains**

2 **3.6.1 Definition of the Resource**

3 Floodplains are areas of low-level ground present along rivers, stream channels, large wetlands, or coastal  
4 waters. Floodplain ecosystem functions include natural moderation of floods, flood storage and conveyance,  
5 groundwater recharge, and nutrient cycling. Risk of flooding typically depends on local topography, the  
6 frequency of precipitation events, and the size of the watershed above the floodplain. Flood potential is  
7 evaluated by the Federal Emergency Management Agency (FEMA), which defines 100-year and 500-year  
8 floodplains. The 100-year floodplain is an area that has a 1% chance of inundation by a flood event in a  
9 given year, while 500-year floodplains have a 0.2% chance of inundation in a given year.

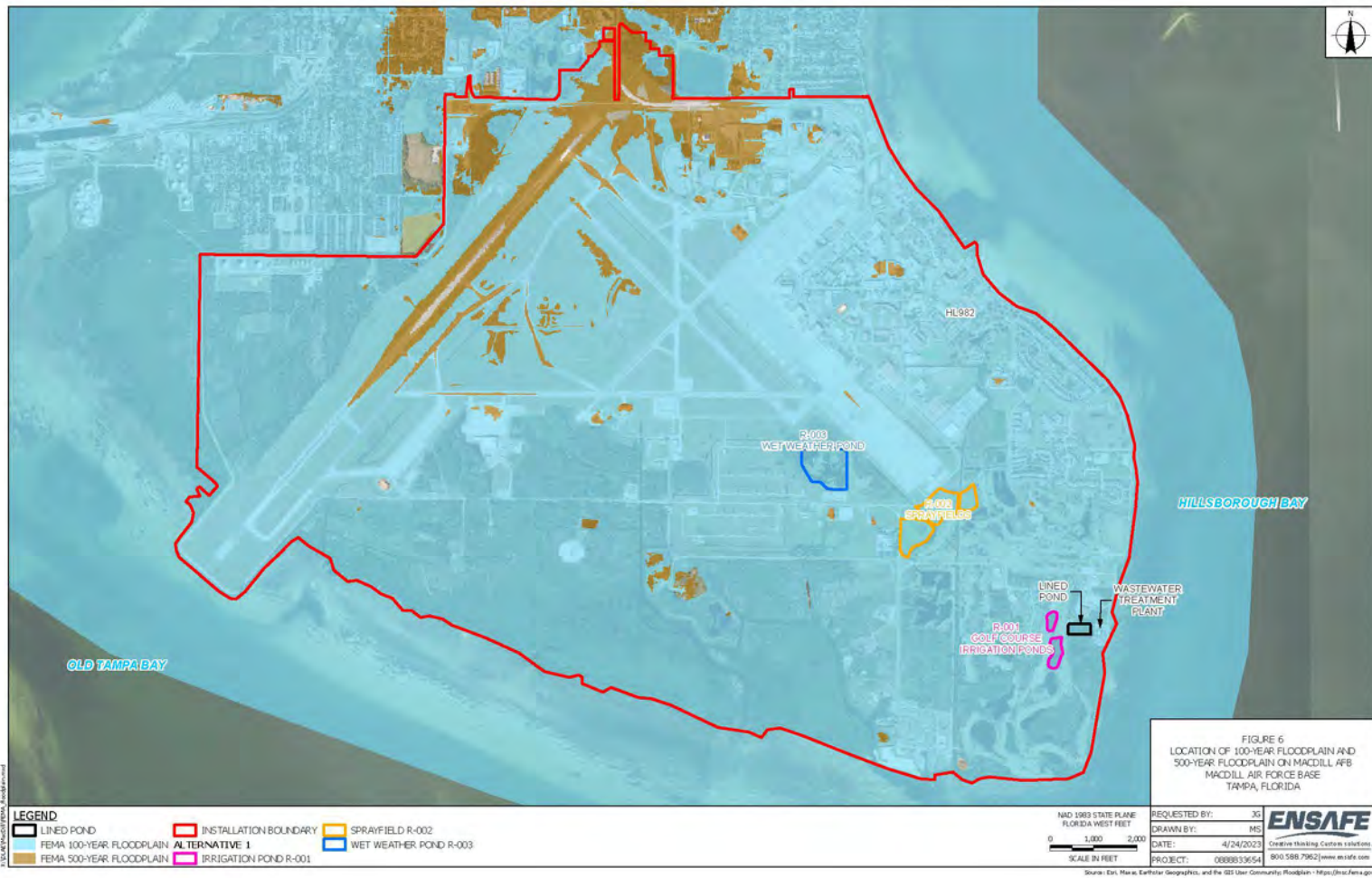
10  
11 EO 11988, Floodplain Management, as amended by EO 13690, Establishing a Federal Risk Management  
12 Standard and a Process for Further Soliciting and Considering Stakeholder Input, requires federal agencies to  
13 determine whether a proposed action would occur within a floodplain. This determination typically involves  
14 consultation of FEMA Flood Insurance Rate Maps, which contain enough general information to determine  
15 the relationship of the project area to nearby floodplains. EO 11988 directs Federal agencies to avoid  
16 floodplains unless the agency determines that no practicable alternative exists. Where the only practicable  
17 alternative is to site in a floodplain, the agency should develop measures to reduce impacts and mitigate  
18 unavoidable impacts.

19  
20 **3.6.2 Existing Conditions**

21 According to information provided by the FEMA Maps (effective date 7 October 2021), more than 92% of the  
22 Base is within the 100-year coastal floodplain and nearly all of the installation lies in the 500-year coastal  
23 floodplain (Figure 6). Flood maps indicate that all the residential, industrial, and institutional (medical and  
24 education) land uses on the Base are within the 100-year floodplain, along with most of the commercial and  
25 aviation support areas. Most of the land that is above the floodplain is found in the northwestern portion of  
26 the installation and along the northern portion of the active runway. Much of the area outside of the 100-year  
27 floodplain is designated for airfield operations.

28  
29 Activities associated with the Preferred Alternative and Alternative 1 would occur within the 100-year  
30 floodplain.

1 Figure 6 Location of 100-Year Floodplain and 500-Year Floodplain on Macdill AFB



2

1 **3.6.3 Environmental Consequences**

2 **3.6.3.1 Preferred Alternative**

3 Ultimately, given that the WWTP and majority of the Base are within the 100-year coastal floodplain, there is  
4 no practicable alternative for locating the Preferred Alternative outside the floodplain. However,  
5 implementation of the Preferred Alternative would include specific measures to reduce impacts and mitigate  
6 unavoidable impacts. Such measures would include elevated placement of any electrical components  
7 associated with the IW or piping/pumping infrastructure, completion of IW and monitoring well heads in a  
8 manner that will prevent infiltration during flooding events, and minimizing installation of any impervious  
9 surfaces so that flood waters could naturally infiltrate and dissipate with time.

10  
11 **3.6.3.2 Alternative 1**

12 As with the Preferred Alternative, implementation of Alternative 1 would be within the 100-year floodplain  
13 and would include specific measures to reduce impacts and mitigate unavoidable impacts. Expansion of the  
14 Alternative 1 disposal site R-003 wet weather pond would involve use of an additional 9 acres of land also  
15 unavoidably within the floodplain. Measures to reduce impacts would include elevated placement of any  
16 electrical components associated with the disposal sites' expansion or piping/pumping infrastructure, and  
17 minimizing installation of any impervious surfaces so that flood waters could naturally infiltrate and dissipate  
18 with time.

19  
20 **3.6.3.3 No Action Alternative**

21 The No Action Alternative would have no impact, positive or negative, on the 100-year coastal floodplain.  
22 Flooding conditions would impact the operation of the WWTP and effluent disposal systems, in a manner  
23 similar to impacts periodically occurring from wet weather conditions.

24  
25 **3.7 Natural and Biological Resources**

26 **3.7.1 Definition of the Resource**

27 Biological resources include native or naturalized plants and animals and the habitats (e.g., grasslands, forests,  
28 and wetlands) in which they exist. Protected and sensitive biological resources include Endangered Species Act-  
29 (ESA) listed species (threatened or endangered) and those proposed for ESA listing as designated by the  
30 U.S. Fish and Wildlife Service (USFWS) (terrestrial and freshwater organisms) and National Marine Fisheries  
31 Service (NMFS) (marine organisms), and migratory birds. Migratory birds are protected species under the

1 Migratory Bird Treaty Act (MBTA). Sensitive habitats include those areas designated or proposed by the  
2 USFWS or the NMFS as critical habitat protected by the ESA and as sensitive ecological areas designated by  
3 state or other federal rulings. Sensitive habitats also include wetlands, plant communities that are unusual  
4 or limited in distribution, and important seasonal use areas for wildlife (e.g., migration routes, breeding areas,  
5 or crucial summer and winter habitats).

6  
7 The ESA (16 USC § 1531 et seq.) establishes a federal program to protect and recover imperiled species and  
8 the ecosystems upon which they depend. The ESA requires federal agencies, in consultation with the  
9 USFWS, to ensure that actions they authorize, fund, or conduct are not likely to jeopardize the continued  
10 existence of any listed species or result in the destruction or adverse modification of designated critical habitat  
11 of such species. Under the ESA, “jeopardy” occurs when an action is reasonably expected, directly or  
12 indirectly, to diminish numbers, reproduction, or distribution of a species so that the likelihood of survival and  
13 recovery in the wild is appreciably reduced. An “endangered species” is defined by the ESA as any species in  
14 danger of extinction throughout all or a significant portion of its range. A “threatened species” is defined by  
15 the ESA as any species likely to become an endangered species in the foreseeable future. The ESA also  
16 prohibits any action that causes a “take” of any listed animal. “Take” is defined as “to harass, harm, pursue,  
17 hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct.” Listed plants are  
18 not protected from take, although it is illegal to collect or maliciously harm them on federal land.

19  
20 Critical habitat is designated if the USFWS or the NMFS determines that the habitat is essential to the  
21 conservation of a threatened or endangered species. Federal agencies must ensure that their activities do not  
22 adversely modify designated critical habitat to the point that it will no longer aid in the species’ recovery.

23  
24 The Florida Fish and Wildlife Conservation Commission (FWC) oversees the protection and management of  
25 state-protected fauna under the Florida Endangered and Threatened Species Act (Florida Statute 372.072).  
26 Within the FAC, protection is provided to endangered species (68A-27.003 FAC) and threatened species  
27 (68A-27.004 FAC). The Florida Department of Agriculture and Consumer Services maintains the state list of  
28 plants designated as endangered, threatened, and commercially exploited (5B-40 FAC) as defined under  
29 Florida Statute 581.185(2).

1 The MBTA of 1918 (16 U.S.C. 703–712), as amended, and EO 13186, Responsibilities of Federal Agencies to  
2 Protect Migratory Birds, require federal agencies to minimize or avoid impacts on migratory birds. Unless  
3 otherwise permitted by regulations, the MBTA makes it unlawful to (or attempt to) pursue, hunt, take,  
4 capture, or kill any migratory bird, nest, or egg. If design and implementation of a federal action cannot  
5 avoid measurable negative impacts on migratory birds, EO 13186 directs the responsible agency to develop  
6 and implement, within 2 years, a Memorandum of Understanding with the USFWS that shall promote the  
7 conservation of migratory bird populations.

8  
9 Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act, which prohibits the  
10 “take” of bald or golden eagles in the United States. The Act defines “take” as “pursue, shoot, shoot at,  
11 poison, wound, kill, capture, trap, collect, molest, or disturb.” For purposes of these guidelines, “disturb”  
12 means “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause: (1) injury to an  
13 eagle; (2) a decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering  
14 behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering  
15 behavior” based on the best scientific information available. In addition to immediate impacts, this definition  
16 also covers impacts that result from human-induced alterations initiated around a previously used nest site  
17 during a time when eagles are not present, if, upon the eagle’s return, such alterations agitate or bother an  
18 eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes  
19 injury, death, or nest abandonment.

### 21 **3.7.2 Existing Conditions**

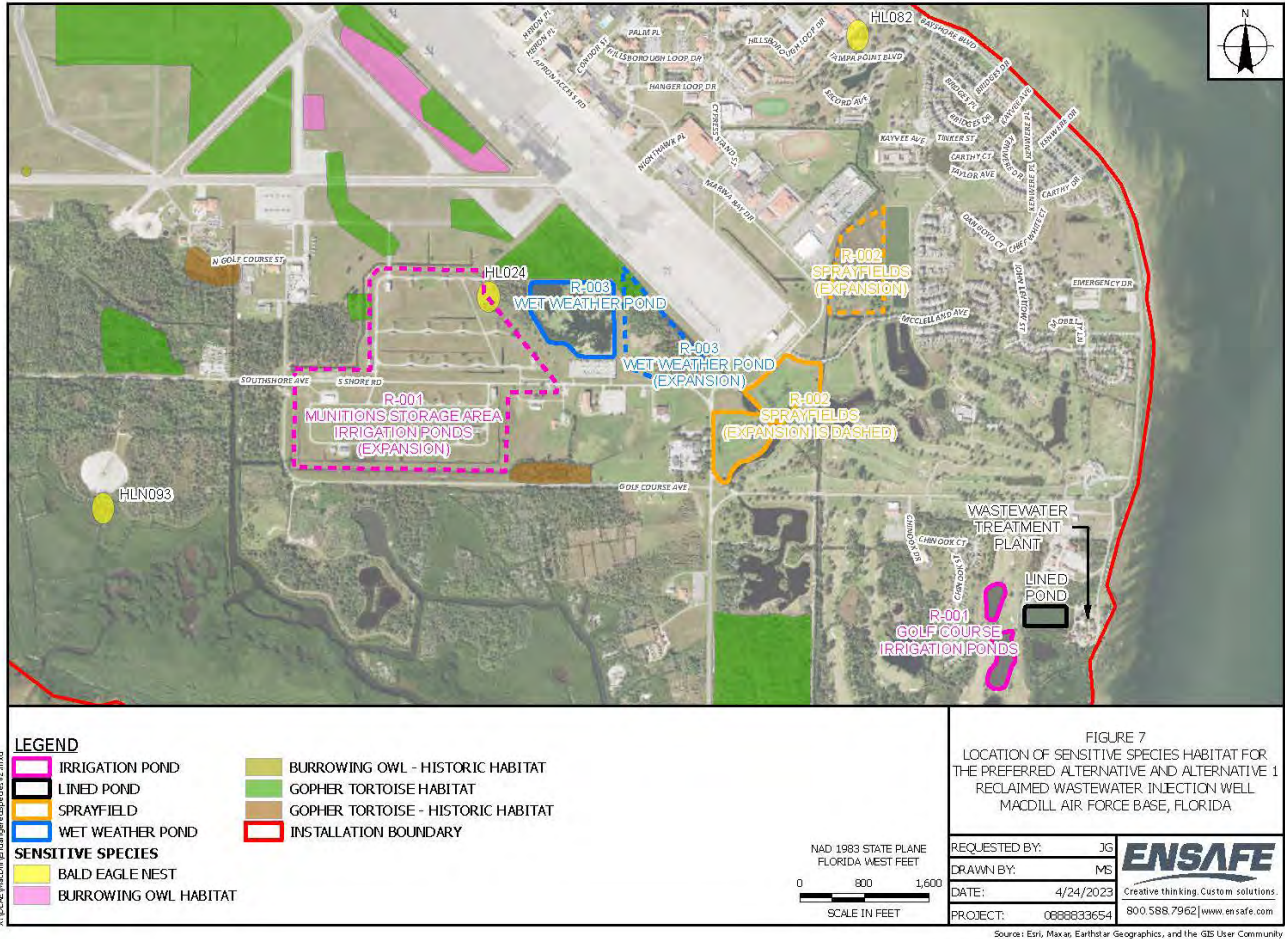
22 A detailed description of the biological resources found at MacDill AFB is provided in the *Integrated Natural*  
23 *Resources Management Plan* (INRMP) (USAF 2021). The INRMP has been approved by the state and federal  
24 fish and wildlife agencies. Land use on MacDill AFB includes urban, light industrial, residential, or improved  
25 vacant land. The few undeveloped areas within the Base boundaries have all experienced some degree of  
26 disturbance, such as ditching, clearing, or the encroachment of exotic vegetation.

27  
28 Wildlife species identified in the INRMP that are listed by federal or state agencies as endangered or  
29 threatened and known to occur permanently or periodically, or have the potential to occur on the Base are  
30 shown in Table 3.1. In 2018, Ecosphere Restoration Institute and Environmental Science Associates identified  
31 the general locations of protected species at MacDill AFB (Ecosphere Restoration Institute and Environmental

1 Science Associates 2019). Gopher tortoise colonies are found in one area where installation of the Proposed  
2 Action could occur (Figure 7). Gopher tortoises are a keystone species whose burrows also create habitat for  
3 numerous commensal species such as the gopher frog, Florida mouse, Eastern diamondback rattlesnake, and  
4 the federally-protected Eastern indigo snake, among others. Management and protection of gopher tortoise  
5 habitat must be considered, and would be avoided to the maximum extent allowable during project planning  
6 and implementation. In addition, numerous other state- and/or federally-protected avian species are routinely  
7 observed in areas identified for the Proposed Action including roseate spoonbill, little blue heron, Florida  
8 burrowing owl, and the federally-protected wood stork. The bald eagle is also commonly seen soaring and  
9 hunting around the airfield, although the three known active bald eagle nests are more than a mile from any  
10 proposed construction activities for the Preferred Alternative.



1 Figure 7 Location of Sensitive Species Habitat



2

**Table 3-1  
Summary of Protected Species Occurring and Potentially Occurring at MacDill Air Force Base**

Common name	Scientific Name	Status	
		Federal	State
<b>Reptile/Amphibians</b>			
American alligator **	<i>Alligator mississippiensis</i>	T (SA)	T (SA)C
American crocodile	<i>Crocodylus acutus</i>	T	T
Atlantic loggerhead turtle	<i>Caretta caretta</i>	T	T
Atlantic green turtle	<i>Chelonia mydas mydas</i>	E	E
Kemp's Ridley turtle	<i>Lepidochelys kempii</i>	E	E
Leatherback turtle	<i>Dermochelys coriacea</i>	E	E
Hawksbill turtle	<i>Eretmochelys imbricata</i>	E	E
Eastern indigo snake	<i>Drymarchon corais couperi</i>	T	T
Eastern diamondback rattlesnake**	<i>Crotalus adamanteus</i>	UR	—
Gopher tortoise**	<i>Gopherus polyphemus</i>	--	T
Gopher frog**	<i>Rana capito</i>	UR	—
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>	UR	T
Short-tailed snake	<i>Stilosoma extenuatum</i>	UR	T
<b>Birds</b>			
Scott's seaside sparrow	<i>Ammodramus martinus peninsulae</i>	—	T
Florida scrub jay	<i>Aphelocoma coerulescens</i>	T	T
Florida burrowing owl **	<i>Athene cunicularia</i>	—	T
Red knot**	<i>Calidris canutus rufa</i>	T	T
Piping plover **	<i>Charadrius melodus</i>	T	T
Little blue heron **	<i>Egretta caerulea</i>	—	T
Reddish egret **	<i>Egretta rufescens</i>	—	T
Tricolored heron **	<i>Egretta tricolor</i>	—	T
Southeastern American kestrel **	<i>Falco sparverius paulus</i>	—	T
Florida sandhill crane **	<i>Grus canadensis pratensis</i>	—	T
American oystercatcher **	<i>Haematopus palliatus</i>	—	T
Bald eagle **	<i>Haliaeetus leucocephalus</i>	DL BGEPA	T
Eastern black rail	<i>Laterallus jamaicensis jamaicensis</i>	T	—
Wood stork **	<i>Mycteria americana</i>	E	E
Red cockaded woodpecker	<i>Picoides borealis</i>	E	T
Roseate spoonbill **	<i>Platalea ajaja</i>	—	T
Least tern **	<i>Sterna antillarum</i>	—	T
Black skimmer **	<i>Rynchops niger</i>	—	T
<b>Mammals</b>			
Florida mouse	<i>Podomys floridanus</i>	UR	—
Tricolored bat	<i>Perimyotis subflavus</i>	P	—
West Indian manatee **	<i>Trichechus manatus</i>	E	E
<b>Fish</b>			
Giant manta ray	<i>Manta birostris</i>	T	—
Gulf sturgeon	<i>Acipenser oxyrinchus desotoi</i>	T	T
Smalltooth sawfish	<i>Pristis pectinata</i>	E	E

1

1 **Notes:**

- 2 T = threatened  
3 T(SA) = threatened/similarity of appearance  
4 E = endangered  
5 C = candidate for listing  
6 UR = under review  
7 P = petitioned  
8 DL = delisted  
9 BGEPA = Bald and Golden Eagle Protection Act

10 Source: Integrated Natural Resources Management Plan, MacDill AFB, Florida, 2021

11 \*\* Species has been documented at MacDill AFB

12  
13 **3.7.3 Environmental Consequences**

14 **3.7.3.1 Preferred Alternative**

15 The Preferred Alternative would require disturbance of grass and other herbaceous vegetation during drilling  
16 and construction activities, including equipment laydown areas. The disturbance would be temporary and  
17 construction areas would be stabilized with sod or hydroseeding upon completion of the work, so no long-term  
18 impacts to vegetation are anticipated.

19  
20 The Preferred Alternative would not disturb any natural wetland areas; however, there is a mangrove wetland  
21 approximately 80 feet west and south of the proposed IW location. Implementation of BMPs to control  
22 erosion and sediment transport would avoid any impacts to the wetland.

23  
24 Construction for the new wells and associated piping/infrastructure would create a potential for short-term  
25 impacts to wildlife, including threatened and endangered species. Construction activities would occur near  
26 select areas of relatively good habitat including the mangrove community west of the WWTP. The potential  
27 for incidental animal mortality exists but with implementation of proposed protective actions the potential is  
28 considered relatively low, and any losses would have negligible effect on the local and regional animal  
29 population levels. Noise generated during the drilling and construction activities would most likely disturb  
30 wildlife; however, most terrestrial species have adapted well to elevated noise levels across the Base including  
31 in the vicinity of the WWTP, where the work would occur.

32  
33 **Avian Species**

34 ***Wood Stork***

35 Avian species, such as the federally-protected wood stork, commonly forage in open areas of freshwater and  
36 estuarine wetlands, shallow tidal pools, or creeks and streams. Although the wood stork is currently

1 designated as Threatened, the USFWS proposed delisting the species on February 14, 2023. Wood storks  
2 have been observed historically at MacDill AFB and construction activities would be accomplished near areas  
3 where wood storks could forage. These same areas are also utilized as foraging areas by other avian species  
4 including Florida species of special concern such as snowy egret, white ibis, tricolored heron, roseate spoonbill,  
5 little blue heron, and great blue heron. All these birds are highly mobile and it is reasonable to expect that  
6 they would move away from the work zone as work begins. There are miles of drainage canal and water  
7 bodies on MacDill AFB, and the temporary impact to this habitat due to nearby construction work is considered  
8 insignificant.

9  
10 In accordance with Section 7(a)(2) of the Endangered Species Act of 1973, consultation with the USFWS was  
11 initiated to seek concurrence of the Air Force's determination of effect on USFWS resources. The Air Force  
12 determined that installation of the Proposed Action IW, monitoring wells and associated piping/infrastructure  
13 is not likely to adversely affect the wood stork and Eastern indigo snake, and would have no effect on any  
14 other federally-listed species in the area of potential effect. On 28 February 2023 the USFWS concurred with  
15 the Air Force's determination that the Proposed Action may affect, but is not likely to adversely affect the  
16 Eastern indigo snake and wood stork. Correspondence with the USFWS is included in Appendix B.  
17 Consultation with the FWC was accomplished recently for a similar project on the airfield which presented a  
18 potential for impact to two state-listed species, primarily the gopher tortoise and burrowing owls. Through  
19 consultation with FWC, several BMPs were developed, as well as mitigation strategies to avoid potential  
20 impact to state-listed species. These protective measures include:

- 21
- 22 • Surveying project areas prior to construction;
- 23
- 24 • Adjusting project boundaries to avoid conflict with species/burrows;
- 25
- 26 • Avoiding construction in ditches;
- 27
- 28 • Establishing a 25-foot buffer around any gopher tortoise burrows and a 33-foot buffer around  
29 owl burrows;
- 30
- 31 • Use of silt fences to mark and protect tortoise burrows and visual barrier around owl burrows near  
32 construction areas;

- 1
- 2 • Providing an *awareness briefing* to construction workers; and
- 3
- 4 • Relocating gopher tortoises, burrowing owls, and other species when conflicts cannot be avoided.
- 5

6 With implementation of the species protection strategies described above, adverse impacts to biological  
7 resources are not expected to result from project activities for the Preferred Alternative.

### 9 **3.7.3.2 Alternative 1**

10 Alternative 1 poses greater potential impacts to wildlife, including threatened and endangered species, than  
11 the Preferred Alternative because of large areas of known habitat next to the wet weather pond (R-003)  
12 subject to expansion under Alternative 1. However, implementation of the species protection strategies as  
13 described above for the Preferred Alternative, would mitigate adverse impacts to biological resources during  
14 implementation of Alternative 1.

### 16 **Florida Burrowing Owl and Gopher Tortoise**

17 The MacDill airfield provides habitat for two state-listed ground dwelling species, the Florida burrowing owl  
18 and the gopher tortoise. Both species dig burrows for refuge and these burrows often support other wildlife,  
19 much of which are also state- or federally-protected species such as the gopher frog, Florida pine snake,  
20 short-tailed snake, eastern indigo snake, and the Florida mouse. As shown in Figure 7, known gopher tortoise  
21 and burrowing owl habitat found during the 2018 survey are not near the WWTP or locations of  
22 Preferred Alternative components. However, prior to initiating construction activities, a project-specific  
23 survey of all designated work areas would be completed to determine if any gopher tortoise or burrowing owl  
24 burrows are in areas proposed for construction, equipment and materials laydown areas, or construction  
25 vehicle travel routes. Any burrows identified within such areas would be flagged with surveyor pin flags or  
26 3-foot wooden stakes with highly visible surveyor flagging to remind vehicle and heavy equipment operators  
27 of the presence of the burrows. In accordance with FWC Gopher Tortoise Permitting Guidelines, buffers  
28 would be established around each burrow to keep vehicle traffic at least 25 feet from burrow entrances.  
29 In addition, silt fence or construction fence would be used to clearly demarcate and protect gopher tortoise  
30 habitats. Silt fence or construction fence would be installed roughly parallel to the construction/work area,  
31 bending toward the burrows at either end but leaving full access (roughly 180 degrees) to the burrow.

1 Whenever possible, care would be taken to not place silt fence across any clearly visible pathways or trails  
2 that the tortoise may routinely follow when accessing the burrow. If avoidance of a gopher tortoise burrow  
3 is not possible and the burrow would be disturbed by construction activities, then the affected animal would be  
4 captured and relocated to an existing on-base colony prior to initiating construction work as allowed under the  
5 Gopher Tortoise Candidate Conservation Agreement. The existing gopher tortoise recipient site is located  
6 less than 4.2 miles west of the affected gopher tortoise habitat north of R-003. The recipient site is an  
7 existing, robust colony of tortoises in an area of high-quality gopher tortoise habitat. The recipient site is  
8 separated from the potentially affected gopher tortoise habitat by a large drainage ditch, creating a barrier for  
9 tortoises that may try to return home (and into harm's way).

### **Eastern Indigo Snake**

12 The Eastern indigo snake, often considered a commensal species to the gopher tortoise, could also be present  
13 around the work site. The Eastern indigo snake is designated as Threatened by the USFWS. To date, the  
14 Eastern indigo snake has not been found within the installation boundaries, but due to the favorable habitat  
15 adjacent to the Preferred Alternative work site, the potential for encounter does exist.

17 Prior to initiating construction activities for the project, site workers and supervisors would be briefed on the  
18 potential for interaction with gopher tortoises and Eastern indigo snakes and workers would be advised on the  
19 protection that these species are afforded. Construction workers would be provided with an informational  
20 flyer on how to identify Eastern indigo snakes and would be instructed to stop all work if Eastern indigo snake  
21 or gopher tortoise are observed within construction areas.

### **Burrowing Owl**

24 The burrowing owl is not federally listed but is classified as State Threatened by the FWC and is protected  
25 under the Migratory Bird Treaty Act. As indicated in Figure 7, burrowing owl burrows have not been  
26 identified near areas that could be affected by the Proposed Action; however, the owls do move around the  
27 airfield routinely. If the pre-construction survey noted above identifies nests/burrows within areas affected by  
28 construction activities, project plans would be modified to avoid each burrow and maintain at least a 33-foot  
29 buffer around any burrow entrance. To help visualize and maintain the 33-foot buffer around active owl  
30 burrows, a visual barrier consisting of four polyvinyl chloride poles and highly visible tape or rope would be  
31 constructed around those borrows as the preferred mitigation strategy recommended by the FWC (versus use

1 of silt fencing) because it offers the highest level of visibility for the owls and does not clutter or confuse their  
2 sightlines.

3  
4 Construction activities associated with Alternative 1 would have the potential to disturb gopher tortoises.  
5 However, implementation of the species protection strategies as described above for the Preferred Alternative,  
6 would mitigate adverse impacts to biological resources during implementation of Alternative 1.

### 8 **3.7.3.3 No Action Alternative**

9 No impacts to wildlife, including threatened and endangered species would occur under the No Action  
10 Alternative as no construction activities are involved.

## 12 **3.8 Cultural Resources**

### 13 **3.8.1 Definition of the Resource**

14 Cultural resources is an umbrella term for many heritage-related resources, including prehistoric and historic  
15 sites, buildings, structures, districts, or any other physical evidence of human activity considered important to  
16 a culture, a subculture, or a community for scientific, traditional, religious, or any other reason. Depending on  
17 the condition and historic use, such resources might provide insight into the cultural practices of previous  
18 civilizations, or they might retain cultural and religious significance to modern groups.

19  
20 Several federal laws and regulations govern protection of cultural resources, including the National Historic  
21 Preservation Act (NHPA) of 1966, the Archeological and Historic Preservation Act (1974), the American  
22 Indian Religious Freedom Act (1978), the Archaeological Resources Protection Act (1979), and the  
23 Native American Graves Protection and Repatriation Act (1990). MacDill AFB is required to comply with  
24 DAF regulations and instructions regarding cultural resources, including DAFMAN 32-7003, Environmental  
25 Conservation, and MacDill AFB's Integrated Cultural Resources Management Plan (MacDill AFB 2021).  
26 Consultation with federally-recognized tribes is required under the laws listed previously; EO 13175,  
27 Consultation and Coordination with Indian Tribal Governments; Department of Defense (DOD) Instruction  
28 4710.02, DOD Interactions with Federally-Recognized Tribes; and DAFI 90-2002, Interactions with  
29 Federally-Recognized Tribes. MacDill AFB regularly consults with four federally-recognized tribes  
30 affiliated with the area: the Seminole Tribe of Florida; the Miccosukee Tribe of Indians of Florida; the  
31 Seminole Nation of Oklahoma; and the Muscogee (Creek) Nation.

1 The NHPA establishes criteria for assessing the significance of cultural resources. Resources that are listed  
2 or eligible for listing in the National Register of Historic Places (NRHP) are termed “historic properties.”  
3 Under Section 110 of the NHPA, federal agencies are required to inventory resources under their purview and  
4 nominate those eligible to the NRHP. Section 106 of the NHPA requires federal agencies to assess the  
5 potential impact of their undertakings on historic properties in the area of potential effect (APE). This  
6 consultation process is described in greater detail in 36 CFR Part 800.8. DAF is consulting under Section  
7 106 of the NHPA with the State Historic Preservation Officer (SHPO) and federally-recognized tribes for the  
8 Proposed Action described in Section 2.2. As a part of the Section 106 process, DAF has defined the  
9 Undertaking as the Proposed Action, and defined the APE as the Proposed Action area which includes the  
10 footprints for the IW and monitoring well activities (Direct APE).

11  
12 Typically, cultural resources are subdivided into archaeological resources, architectural resources, or resources  
13 of traditional, cultural, or religious significance. Archaeological resources comprise areas where human  
14 activity has measurably altered the earth or deposits of physical remains are found (e.g., projectile points and  
15 bottles), but standing structures do not remain. Architectural resources include standing buildings, bridges,  
16 dams, other structures, and designed landscapes of historic or aesthetic significance. Generally, architectural  
17 resources must be more than 50 years old to warrant consideration for the NRHP. More recent structures  
18 might warrant protection if they are of exceptional importance or if they have the potential to gain significance  
19 in the future. Resources of traditional or religious significance can include archaeological resources, sacred  
20 sites, structures, prominent topographic features, habitat, plants, animals, or minerals considered essential for  
21 the preservation of traditional culture.

### 22 23 **3.8.2 Existing Conditions**

24 There are two historic districts on MacDill AFB, the MacDill Field District, and the Staff Officer’s Quarters  
25 District. Both are located in the northern part of the Base. There are 47 known archaeological sites on-base,  
26 located primarily in the less developed areas in the eastern, southern, and western portions of the installation  
27 closer to the coastline. Several historic facilities and archaeological sites are significant enough to be eligible  
28 for the NRHP. MacDill AFB consults with the SHPO and four Native American tribes regarding the  
29 potential effects of Base actions on these cultural resources. Correspondence with the SHPO and tribes is  
30 included in Appendix B.



1 **3.8.3 Environmental Consequences**

2 **3.8.3.1 Preferred Alternative**

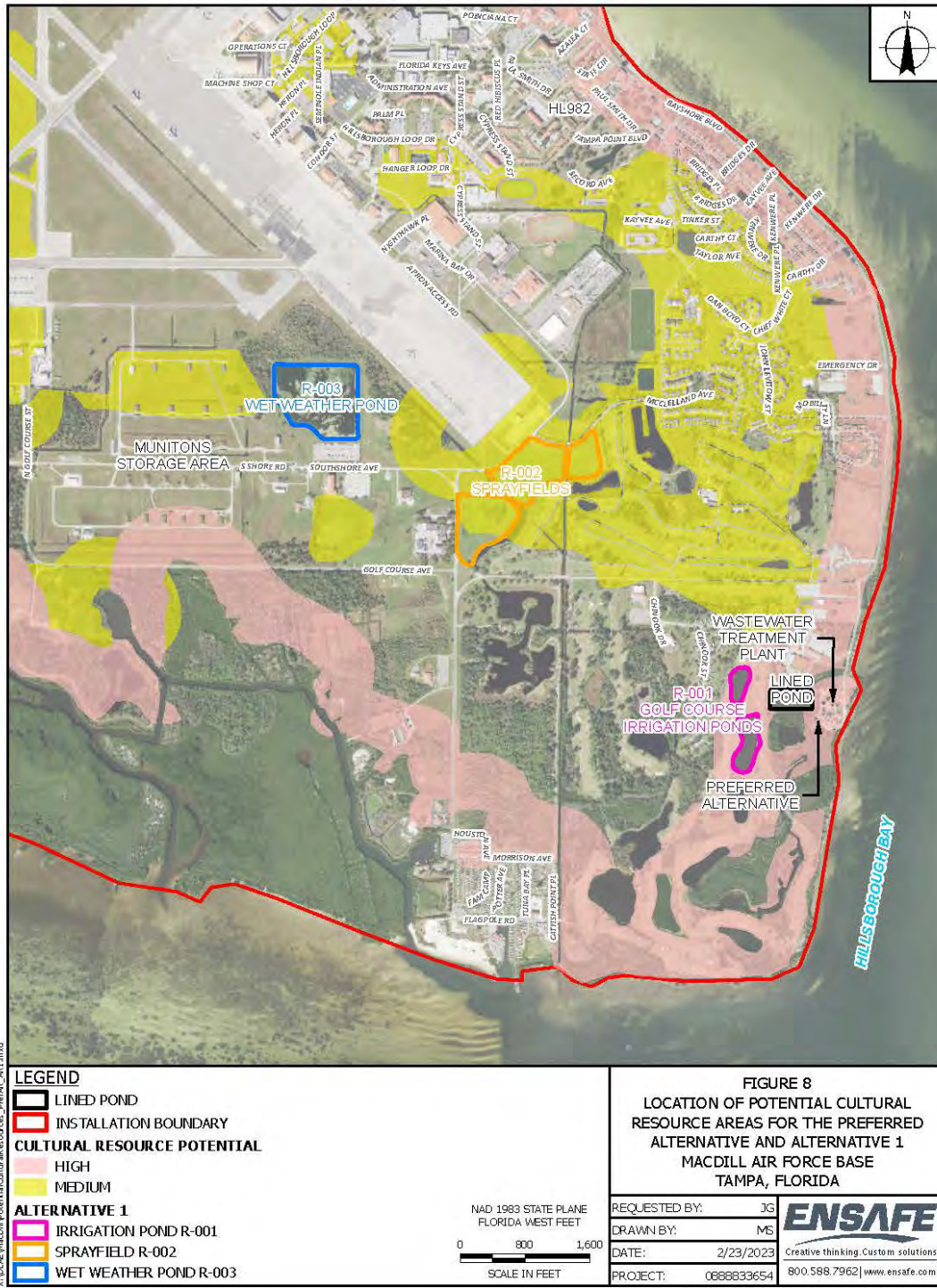
3 Construction activities for the Preferred Alternative fall within the land management area with high potential  
4 for the presence of cultural resources (Figure 8). The Preferred Alternative would involve two small areas at  
5 the WWTP to install the IW and monitoring well, and associated piping/infrastructure. Because of extensive  
6 previous soil disturbance associated with construction of the WWTP and surrounding infrastructure, there is  
7 minimal potential for contact with archaeological sites in this work area. The APE for the  
8 Preferred Alternative is a 50-foot-wide radius around the proposed locations for the IW and monitoring well  
9 and associated piping/infrastructure at the WWTP shown in Figure 4. FGUA would coordinate with  
10 appropriate Base personnel before initiating subsurface work in these areas.

11  
12 Based on the comprehensive scope of recent archaeological surveys, all facilities constructed between 1939  
13 and 1992 on MacDill AFB have been surveyed to determine if they possess any cultural or architectural  
14 significance and there are no culturally significant buildings or historic districts within or adjacent to the  
15 WWTP area for the Preferred Alternative. One known archaeological site (Site 8Hi00050) is located  
16 relatively close to the proposed IW and monitoring well locations. Site 8Hi00050 is eligible for the  
17 National Register of Historic Places. FGUA has moved the proposed IW and monitoring locations a few  
18 hundred feet away from Site 8Hi00050 to avoid adverse impacts to the site. It is unlikely that previously  
19 undocumented archaeological resources would be encountered during installation of the Preferred Alternative.  
20 However, in the unlikely event of an inadvertent discovery, all work in the vicinity of the discovery would  
21 stop and MacDill AFB would follow standard operating procedures described in the Integrated Cultural  
22 Resources Management Plan which includes prompt notification to the SHPO and the four tribes.

23  
24 The Air Force has determined that no historic properties of cultural or architectural significance would be  
25 affected by implementation of the Preferred Alternative. The SHPO is currently reviewing the Air Force's  
26 finding and correspondence with them can be found in Appendix B. Likewise, consultation with the four  
27 Native American tribes that are historically connected with the land on MacDill AFB was accomplished to  
28 gather their feedback on the proposed project. To date, no feedback from the tribes has been received.  
29 Documentation of tribal consultation is provided in Appendix B.

30  
31 Consequently, no impacts to cultural resources would result from the Preferred Alternative.

1 Figure 8 Location of Potential Cultural Resource Areas



2

1 **3.8.3.2 Alternative 1**

2 Construction activities for Alternative 1 would fall within the land management area with low to medium  
3 potential for the presence of cultural resources (Figure 8). As noted above for the Preferred Alternative, the  
4 Alternative 1 construction activities would take place in areas that have been disturbed by previous activities  
5 to construct the Munitions Storage Area, golf course, spray field, and wet weather pond and there are no  
6 eligible historical structures nearby. FGUA would coordinate with appropriate Base personnel before  
7 initiating subsurface work in these areas. In the unlikely event of an inadvertent discovery of artifacts, all  
8 work in the vicinity of the discovery would stop and MacDill AFB would follow standard operating  
9 procedures described in the Integrated Cultural Resources Management Plan which includes prompt  
10 notification to the SHPO and the four tribes.

11  
12 Consequently, no impacts to cultural resources would result from Alternative 1.

13  
14 **3.8.3.3 No Action Alternative**

15 Under the No Action Alternative, no impacts to cultural resources would occur as no construction activities  
16 are involved.

17  
18 **3.9 Safety and Occupational Health**

19 **3.9.1 Definition of the Resource**

20 A safe environment is one in which there is no, or an optimally reduced, potential for death, serious bodily  
21 injury or illness, or property damage. This section addresses the well-being, safety, and health of members of  
22 the public, contractors, and DAF personnel during the various aspects of the Proposed Action.

23  
24 Elements for an accident-prone situation or environment include the presence of the hazard itself together  
25 with the exposed (and possibly susceptible) population. The degree of exposure depends primarily on the  
26 proximity of the hazard to the population. Hazardous activities can include demolition, construction, and  
27 training activities. The proper operation, maintenance, fueling, and repair of aircraft and equipment also  
28 carry important safety implications. Extremely noisy environments can also mask verbal or mechanical  
29 warning signals such as sirens, bells, or horns.

1 **3.9.2 Existing Conditions**

2 The Proposed Action would pose safety hazards to the workers similar to those associated with typical  
3 industrial construction projects, such as slip, trip, fall, heat stress, and machinery injuries. Construction is not  
4 expected to involve any unique hazards. Construction methods would comply with Occupational Safety and  
5 Health Administration (OSHA) requirements to ensure the protection of workers and the general public during  
6 construction. The contractor implementing the proposed construction activities would be responsible for  
7 OSHA compliance.  
8

9 **3.9.3 Environmental Consequences**

10 **3.9.3.1 Preferred Alternative**

11 The proposed construction activities for the Preferred Alternative would pose safety hazards to the workers  
12 similar to those associated with typical industrial construction projects, such as falls, slips, heat stress, and  
13 machinery injuries. Construction would not involve any unique hazards and all construction methods would  
14 comply with OSHA requirements to ensure the protection of workers and the general public during  
15 construction. Diligent, but not controlling, governmental oversight of contractor activities by FGUA would  
16 help assure OSHA compliance.  
17

18 The Preferred Alternative also would not involve construction activities within active or unevaluated ERP  
19 sites. However, construction plans would include appropriate measures for dealing with the inadvertent  
20 discovery of contaminated media to ensure protection of workers from exposure. With such measures in  
21 place, implementation of the Preferred Alternative would not pose impacts to safety and occupational health.  
22

23 **3.9.3.2 Alternative 1**

24 As with the Preferred Alternative, Alternative 1 construction activities would pose safety hazards to the workers  
25 similar to those associated with typical industrial construction projects, such as falls, slips, heat stress, and  
26 machinery injuries. Construction would not involve any unique hazards and all construction methods would  
27 comply with OSHA requirements to ensure the protection of workers and the general public during  
28 construction.  
29

30 As noted in Section 3.4.3.2, Alternative 1 would require additional consideration of proximity to restricted  
31 areas per the LUCs for three ERP sites: SWMU02, SWMU03, and Site 57/FP28. Each of these sites has been

1 remediated and closed with no further action required, so construction in and around these sites does not  
2 represent an environmental or health and safety concern. However, each of these sites has LUCs that restrict  
3 the site from unauthorized disturbance. Construction within the boundary of each of these sites is permissible  
4 if proper protective measures are taken to protect the health, the environment, and safety of workers. None of  
5 the constituents of concern at these ERP sites represent an immediate threat to life and health. Consequently,  
6 no impacts to safety and occupational health would be incurred with implementation of Alternative 1 and  
7 associated planned protective measures. Issues related to PFAS in treated wastewater effluent are discussed in  
8 Section 3.4.2.1.

### 9 10 **3.9.3.3 No Action Alternative**

11 No impacts on safety and occupational health would be incurred under the No Action Alternative as no  
12 construction activities are involved.

## 13 14 **3.10 Greenhouse Gases and Climate Change**

### 15 **3.10.1 Definition of the Resource**

16 Greenhouse Gases (GHG) are gases that trap heat in the atmosphere and occur from both natural processes  
17 and human activities. The most common GHGs emitted include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and  
18 nitrous oxide (N<sub>2</sub>O). Each GHG is assigned a global warming potential (GWP) and is standardized to a CO<sub>2</sub>  
19 equivalent (CO<sub>2</sub>e) which has a value of one. For example, CH<sub>4</sub> has a GWP of 21, which means that it has a  
20 global warming effect 21 times greater than CO<sub>2</sub> on an equal-mass basis. Total GHG emissions from a source  
21 are reported as a CO<sub>2</sub>e and added together to produce a single, combined emission rate representing all GHGs.  
22 The accumulation of GHGs in the atmosphere have a potential cumulative impact on global climate change,  
23 which refers to long-term shifts in temperatures and weather patterns.

### 24 25 **3.10.2 Existing Conditions**

26 Florida is in the southeastern climate region of the United States, where climate change leaves this area  
27 exceptionally vulnerable to sea level rise, extreme heat events, hurricanes, and decreased water availability.  
28 MacDill AFB has experienced persistent coastal erosion resulting from higher storm surges and recurrent  
29 flooding, which threatens its roadways and other key infrastructure. Existing climate data was gathered from  
30 the nearest National Oceanic and Atmospheric Administration weather station at the Tampa International  
31 Airport in Tampa, FL, approximately 8 miles north of MacDill AFB. Tampa's average high temperature is in

1 the low to mid-90s Fahrenheit (°F) during the hottest months of July and August and average low  
2 temperatures hover around the mid-50s °F in the coldest months of December, January, and early February.  
3 Tampa has an average annual precipitation of 50 inches (in) per year with the wettest season lasting from June  
4 to September (NOAA 2022).

5  
6 In a typical year between 1985-2005, people in Tampa experienced about 7 days above 94.1°F in a year.  
7 By 2050, people in Tampa are projected to experience an average of about 80 days per year over 94.1°F. The  
8 annual precipitation in Tampa is projected to increase from 50.0 in to about 52.2 in over the next 30 years  
9 (ClimateCheck, 2023). The Hillsborough watershed, which contains Tampa, has experienced 423 weeks  
10 (37% of weeks) of drought (at any level) since 2000 and 60 weeks (5% of weeks) since 2000 in Extreme or  
11 Exceptional drought (U.S. Drought Monitor, 2023).

12  
13 The U.S. EPA's Greenhouse Gas Reporting Program (GHGRP), codified at 40 CFR Part 98, requires  
14 reporting of GHG data and other relevant information from large GHG emission sources, fuel and industrial  
15 gas suppliers, and CO<sub>2</sub> injection sites in the United States. A total of 41 categories of reporters are covered by  
16 the GHGRP. Facilities determine whether they are required to report based on the types of industrial  
17 operations located at the facility, their emission levels, or other factors. Facilities are generally required to  
18 submit annual reports under Part 98 if:

- 19
- 20 • GHG emissions from covered sources exceed 25,000 metric tons (MT) CO<sub>2</sub>e per year.
  - 21 • Supply of certain products would result in over 25,000 MT CO<sub>2</sub>e of GHG emissions if those products  
22 were released, combusted, or oxidized.
- 23

24 Currently, the MacDill WWTP does not reach the 25,000 MT threshold and is not required to report  
25 under Part 98. Guidance and EO to address GHGs and climate change that are relevant to the DAF include  
26 the following:

- 27  
28 • The DOD Climate Adaptation Plan provides a roadmap for the DOD's response to climate change in  
29 two ways: adaptation to enhance resilience to the effects of climate change; and mitigation to reduce  
30 GHG emissions. The Plan aides in maintaining the ability to operate under changing climate  
31 conditions while preserving operational capability and protecting systems essential to success.  
32 (DOD, 2021).

- 1 • EO 14008 (Federal Register Vol. 86, No. 19), *Tackling the Climate Crisis at Home and Abroad*, sets  
2 forth numerous policies to address climate change and establishes the issue as a priority for all  
3 agencies. Notably, this EO directs agencies to incorporate climate change considerations into their  
4 operations, including procurement policies. Amended by EO 14082 (Federal Register Vol. 87,  
5 No. 179) Implementation of the Energy and Infrastructure Provisions of the Inflation Reduction Act  
6 of 2022.  
7
- 8 • EO 14057 (Federal Register Vol. 86, No. 236), *Catalyzing Clean Energy Industries and Jobs Through*  
9 *Federal Sustainability*, tasks the federal government with leading “by example to achieve a carbon  
10 pollution-free electricity sector by 2035 and net-zero emissions economy-wide by 2050.” To that end,  
11 the head of each agency is required to meet a series of goals, including achieving a 65 percent  
12 reduction in scope 1 and scope 2 GHG emissions (i.e., those released from sources that are owned or  
13 controlled by a federal agency [scope 1] or those resulting from the generation of electricity, heat, or  
14 steam purchased by a federal agency [scope 2]) by 2030, as compared to a 2008 baseline.  
15

### 16 **3.10.3 Environmental Consequences**

#### 17 **3.10.3.1 Preferred Alternative**

18 The Preferred Alternative involves the construction of a Class I IW for disposal of all reclaimed water flows  
19 except for off specification effluent from the WWTP. The IW would be drilled in a targeted zone  
20 approximately 800 to 900 feet below ground surface. One, approximately 550 feet deep monitoring well  
21 would be installed within a 150-foot radius of the injection well. Both wells will be installed using mud rotary  
22 drilling through the unconsolidated surface sediments, then using reverse-air drilling techniques in  
23 consolidated deposits to total depth. The injection wellhead will be connected to the WWTP's effluent  
24 pumping station with new ductile iron piping, control valves, and monitoring/automation controls. This  
25 alternative would provide a reliable disposal option during wet weather and would solve the current and future  
26 problem of excess reclaimed water.  
27

28 The GHG emissions generated from construction equipment and workers commuting to the project site were  
29 estimated using ACAM (see Section 3.1). The modeling results identified GHG emissions for the Preferred  
30 Alternative; however, all emission estimates were significantly lower than the current annual global,  
31 nationwide, and statewide CO<sub>2</sub>e emissions (see Table 3-2). The impacts of such a small increase in GHG  
32 emissions would be negligible.

1 **3.10.3.2 Alternative 1**

2 Alternative 1 would include expanding or enhancing the current three permitted disposal sites (i.e., R-001  
3 Golf Course Irrigation, R-002 Spray Field, and R-003 Wet Weather Pond). Construction activities would  
4 include clearing and grubbing, grading, and installation of reclaimed water piping from new connections to  
5 the existing WWTP reclaimed water force main located near the existing Spray Field to the three new  
6 disposals sites are identified below.

7  
8 Irrigation System Expansion (R-001) — The Munitions Storage Area could be used for potential irrigation  
9 expansion. This would require installation of irrigation piping at the new site and a new booster pump station  
10 and piping to convey the effluent from the WWTP to this location. An estimated 110 acres of grass-covered  
11 land within the MSA could be irrigated (see Figure 2).

12  
13 Spray Field Expansion (R-002) — Additional land adjacent to the existing spray field would be used to  
14 double the size and spray field capacity for another 80,000 gallons AADF of off-specification, Part III water  
15 that cannot be applied to the golf courses or to the wet weather pond (R-003). This option would require an  
16 additional estimated 10 acres of land to be added to the wastewater utility system (see Figure 2).

17  
18 Wet Weather Pond Expansion (R-003) — The existing wet weather pond would be enhanced to complete a  
19 pond expansion of 50% of the existing storage volume; a 9-acre expansion (see Figure 2). This would  
20 provide up to 10 million gallons of additional storage that would help contain any wet weather flows during  
21 the wet season.

22  
23 The GHG emissions generated from construction equipment and workers commuting to the project site were  
24 estimated using ACAM. The modeling results identified GHG emissions for the “worst-case” (net gain/loss  
25 upon action fully implemented) for Alternative 1; however, all emission estimates were significantly lower  
26 than the current annual global, nationwide, and statewide CO<sub>2</sub>e emissions (see Table 3-1). The impacts of  
27 such a small increase in GHG emissions would be negligible.



<b>Table 3.2</b>	
<b>Annual GHG Emissions 2022 — MacDill AFB ACAM 2023 Estimated CO<sub>2</sub>e Emissions for the Preferred Alternative and Alternative 1.</b>	
<b>Scale</b>	<b>CO<sub>2</sub>e Emissions (MMT)</b>
Global	36,000
United States	4,970
Florida (Year 2020)	207.6
MacDill AFB Preferred Alternative	0.0003
MacDill AFB Alternative 1	0.0008

1  
2  
3  
4  
5  
6  
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8  
9  
10  
11  
12  
13  
14

Sources: USEIA, 2023; IEA, 2023

Key: CO<sub>2</sub>e =carbon dioxide equivalent; MMT = million metric tons

**3.10.3.3 No Action Alternative**

Overall, the No Action Alternative would have no or minor change in impacts to GHG or regional climate. The existing WWTP operations would continue to generate Scope 1 emissions from wastewater treatment, Scope 2 emissions associated with electricity use, and Scope 3 mobile source emissions from employee commuting and heavy equipment. No temporary and localized construction emissions would occur.

**3.11 Reasonably Foreseeable Future Projects/Cumulative Effects**

Table 3-3 is a summary of the potential environmental impacts of the Preferred Alternative, Alternative 1, and the No Action Alternative.

Table 3-3 Comparison of Environmental Consequences			
Environmental Resources	Preferred Alternative	Alternative 1	No Action Alternative
Air Quality	Short-term — Minor Adverse Impact Long-term — No Impact Cumulative — No Impact	Short-term — Minor Adverse Impact Long-term — No Impact Cumulative — No Impact	Short-term — No Impact Long-term — No Impact Cumulative — No Impact
Noise	Short-term — Minor Adverse Impact Long-term — No Impact Cumulative — No Impact	Short-term — Minor Adverse 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	Short-term — No Impact Long-term — No Impact Cumulative — No Impact
Wastes/Hazardous Materials/Stored Fuels	Short-term — Minor Adverse Impact Long-term — No Impact Cumulative — No Impact	Short-term — Minor Adverse Impact Long-term — No Impact Cumulative — No Impact	Short-term — No Impact Long-term — No Impact Cumulative — No Impact
Water Resources	Short-term — Minor Adverse Impact Long-term — No Impact Cumulative — No Impact	Short-term — Minor Adverse Impact Long-term — No Impact Cumulative — No Impact	Short-term — Minor Adverse Impact Long-term — No Impact Cumulative — No Impact
Floodplains	Short-term — No Impact Long-term — No Impact Cumulative — No Impact	Short-term — No Impact Long-term — No Impact Cumulative — No Impact	Short-term — No Impact Long-term — No Impact Cumulative — No Impact
Natural and Biological Resources	Short-term — Minor Adverse Impact Long-term — No Impact Cumulative — No Impact	Short-term — Minor Adverse Impact 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	Short-term — No Impact Long-term — No Impact Cumulative — No Impact
Safety and Occupational Health	Short-term — Minor Adverse Impact Long-term — No Impact Cumulative — No Impact	Short-term — Minor Adverse Impact Long-term — No Impact Cumulative — No Impact	Short-term — No Impact Long-term — No Impact Cumulative — No Impact
Greenhouse Gases and Climate Change	Short-term — No Impact Long-term — No Impact Cumulative — No Impact	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 — No Impact Long-term — No Impact Cumulative — No Impact	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	Short-term — No Impact Long-term — No Impact Cumulative — No Impact
Transportation	Short-term — No Impact Long-term — No Impact Cumulative — No Impact	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 — No Impact Long-term — No Impact Cumulative — No Impact	Short-term — No Impact Long-term — No Impact Cumulative — No Impact	Short-term — No Impact Long-term — No Impact Cumulative — No Impact

1

2 As indicated in Table 3-2, the Preferred Alternative, when examining it as a portion of the total proposed and/or  
3 ongoing construction projects on MacDill AFB, would result in minor beneficial cumulative impacts to

socioeconomics, due to a less than 1% increase in the annual expenditures MacDill AFB provides to the local economy.

When examining it as a portion of the total proposed and/or ongoing construction projects on MacDill AFB, the Preferred Alternative would have no significant cumulative impacts to air quality, noise, geology or soils, waste management, water resources, floodplains, natural and biological resources, cultural resources, safety and occupational health, GHG and climate change, airspace and airfield operations, socioeconomics, environmental justice, or transportation as outlined in Table 3-3.

When the Preferred Alternative is considered in conjunction with past, present, or reasonably foreseeable actions, no significant indirect or cumulative impacts would be expected for any resource area. No such effects would be expected under Alternative 1 or the No-Action Alternative either. A summary of planned development projects at MacDill AFB for fiscal year 2023 through 2028 is presented in Table 3-4 below.

<b>Table 3-4. Reasonably Foreseeable Actions at MacDill AFB and Vicinity</b>				
<b>Action</b>	<b>General Location</b>	<b>Estimated Timeframe</b>	<b>Description</b>	<b>Resource Area Interaction</b>
<b>MILITARY</b>				
Power Generation Facility	MacDill AFB	2022–2025	DAF has an energy insurance lease under TECO to construct and operate a distributed power generation facility	Air Quality, Noise, Land Use, Soils and Geology, Hazardous Waste and Materials, Infrastructure and Transportation
Defense Fuel Supply Pipelines Improvements	MacDill AFB	2022–2024	Replace the Defense Fuel Support Pipelines from the Chevron Bulk Terminal to the Defense Fuel Support Point	Soils and Geology, Hazardous Waste and Materials, Infrastructure and Transportation, Water Resources (wetlands)
USSOCOM — Special Operations Forces Operations Integration Facility	MacDill AFB	2024–2026	The National Security Council has directed a USSOCOM mission to operate at MacDill AFB. Offices within USSOCOM Headquarters at MacDill AFB have been remodeled to create 50 additional seats for personnel to begin the assigned mission. USSOCOM however needs a secure and segregated facility with secure network access for 180–190 personnel at a time to operate to accomplish the assigned mission. A permanent facility is being planned and would be constructed to support this mission in 2025, but it would not be ready when this mission is directed to begin in 2022. The temporary building serves as facilities for	Soils and Geology, Hazardous Waste and Materials, Infrastructure and Transportation

**Table 3-4.  
Reasonably Foreseeable Actions at MacDill AFB and Vicinity**

Action	General Location	Estimated Timeframe	Description	Resource Area Interaction
			USSOCOM until the permanent facility can be constructed. The modular and permanent facilities would be located just north of the Special Operations Command Central compound in the location of the current ground maintenance facilities. The grounds maintenance facilities would be relocated.	
FGUA Sanitary Sewer Effluent Deep Injection Well	MacDill AFB	2023–2024	FGUA’s wastewater permit currently allows for land application re-use on the golf courses, with two additional spray fields and a wet weather storage pond, but not NPDES discharge. FGUA is proposing to apply for a deep injection well for disposing the sanitary sewer effluent.	Soils and Geology, Water Resources, Infrastructure and Transportation, Cultural Resources
FGUA Sanitary Sewer Expansion to West Side	MacDill AFB	2023–2027	FGUA is proposing to expand the sanitary sewer system to the western side of the runway, which is currently served by septic systems. The proposed expansion would start at the new United States Army Reserve (UH-60) lift station, run to the Control Tower, and expand north and south from there.	Natural & Cultural Resources, Soils and Geology, Hazardous Waste and Materials, and Infrastructure and Transportation
Passenger Ferry	MacDill AFB	2023–2024	Passenger ferry service is proposed across Tampa Bay from MacDill AFB to southern Hillsborough County. The project would include a ferry terminal at MacDill AFB, a transit vehicle storage facility, and increased mass transit around the installation. Some dredging may be required to clear the channel for ferry crossing.	Noise, Water Resources, Infrastructure and Transportation, Biological Resources (imperiled species), Soils and Geology, Hazardous Waste and Materials, Socioeconomic
ERCIP Project – Convert Overhead Electrical Distribution to Underground	MacDill AFB	2024–2026	The ERCIP Project proposes the recapitalization of 31,600 feet of primary overhead electrical distribution systems to below ground. The Proposed Action would include installation of underground cables jacketed in Linear Low-Density Polyethylene into underground conduit encased in concrete, pad mounted transformers elevated above the 100-year floodplain, belowground cable junction boxes, distribution panels, switchgear and associated support equipment, and streetlights mounted on new poles. Construction would include a combination of directional boring, trenching, and excavation; dewatering of the excavated trench/bored hole; backfill; compaction; disposal of spoils in excess; temporary soil stockpiling; 4-inch topsoil placement in areas; and reseeding/replanting of the disturbed ground within the project area.	Natural and Cultural Resources, Soils and Geology, Hazardous Waste and Materials, Infrastructure and Transportation

**Table 3-4.  
Reasonably Foreseeable Actions at MacDill AFB and Vicinity**

Action	General Location	Estimated Timeframe	Description	Resource Area Interaction
ERCIP — Energy Resilience Transmission and Substations System	MacDill AFB	2022–2024	This action would improve the installation’s energy resilience by upgrading and adding redundancy to the electrical distribution system. Proposed improvements include upgrading the switch gear capacity at the Tanker Way Gate electrical substation from 25 kV to 35 kV. Additionally, a total of 22,100 linear feet of new 15-kV electrical distribution lines would be installed to interconnect the Tanker Way Gate substation with the Dale Mabry Gate, the MacDill Avenue Gate, and a new 2,037-square-foot switching station to be constructed near the south flight apron. A 768-square-foot electric power station building would be constructed at the Tanker Way Gate. The 15-kV, below-ground, electrical distribution line would be housed in high density polyethylene conduit, which would be encased in concrete. Installation of the electrical line would be accomplished primarily through direct burial with directional boring used, as needed, to avoid impacts to roadways, taxiways, drainage ditches, and archaeological sites.	Biological Resources, Cultural Resources, Soils and Geology, Hazardous Waste and Materials, Infrastructure and Transportation
Fuels Operations Facility	MacDill AFB	2025	Proposed construction of a new 3,580-square-foot fuels operation facility in the parking lot east of Building 1062. Once completed, Building 1062 would be demolished and a 4,296-square-foot parking lot would be constructed in its place.	Soils and Geology, Hazardous Waste and Materials, Infrastructure and Transportation
KC-46A Beddown	MacDill AFB	2026–2028	The existing (24 total) KC-135 aircraft would be replaced with the new KC-46A airframe. Beddown of the new (24 total) KC-46A aircraft would involve the construction of two new facilities (+0.6 acres), renovation of seven existing facilities (+0 acres), completion of the addition/alteration of 11 existing facilities (~8.8 acres), and upgrades to the existing hydrant fuel system (+0.01 acres). The beddown would also include increase mission personnel by ~1,092. There would be no change in existing flight patterns; however, flight operations are expected to increase by roughly 15% from baseline of 11,522 flights per year for the KC-135 to 13,221 flights per year for the KC-46A.	Natural and Cultural Resources, Soils and Geology, Hazardous Waste and Materials, Infrastructure and Transportation
Marina Channel Maintenance Dredging	MacDill AFB	2027–2028	The purpose of this action is to maintain required width and depth of the marina channel. This action is accomplished, on	Water Quality, Noise (underwater), Biological Resources, Cultural

**Table 3-4.  
Reasonably Foreseeable Actions at MacDill AFB and Vicinity**

Action	General Location	Estimated Timeframe	Description	Resource Area Interaction
			average, every 10 years. Maintenance dredging enables security forces to safely access the marina basin, Coon Creek basin, and Tampa Bay during all tidal levels throughout the year via two connecting channels. These channels are located within the same area on the southern portion of the installation.	Resources, Geology and Soils, Hazardous Materials and Waste
Various Installation Development Projects	MacDill AFB	2020–(ongoing)	This includes various short- to long-range facility, airfield, transportation network, energy, and utility development projects proposed to meet mission requirements at MacDill AFB.	All resources
<b>STATE AND LOCAL GOVERNMENT</b>				
FDOT projects	FDOT / Hillsborough County	Fiscal year 2023–2027	Projects include bridge repair/rehabilitation, traffic signal updates, Information Technology services communication	Noise, Air Quality, Infrastructure and Transportation
Manhattan / Interbay Improvements	City of Tampa	2022–(ongoing)	Improvements include maintenance and construction associated with roadways adjacent to MacDill AFB	Air Quality, Infrastructure and Transportation
ELAPP Stormwater Improvements — South Tampa	City of Tampa	2022–(ongoing)	A series of stormwater improvement projects are planned for the South Tampa area to better deal with surface water runoff during the rainy season. This project includes infrastructure improvements and biological stormwater treatment in a created wetland system.	Water Resources, Biological Resources, Infrastructure

Definitions of acronyms and initialisms used in table: TECO = Tampa Electric Company; FGUA = Florida Governmental Utility Authority; NPDES = National Pollutant Discharge Elimination System; ERCIP = Energy Resilience and Conservation Investment Program; kV = kilovolt; FDOT = Florida Department of Transportation; ELAPP = Environmental Land Acquisition and Protection Program

1 **4.0 MANAGEMENT REQUIREMENTS.**

2 **4.1. Air Quality**

3 The Proposed Action would not have adverse cumulative impacts on air quality. Air emissions from use of  
4 the drill rig and other construction support vehicles would be temporary and negligible with respect to  
5 regional criteria pollutant emissions. Air emissions from implementation of the Preferred Alternative or  
6 Alternative 1 would be temporary, intermittent, and minor.

7  
8 Use reasonable precautions to control the emissions of unconfined particulate matter during construction  
9 activities in accordance with Florida Administrative Code (FAC) Rule 62-296. Ensure that all hazardous  
10 materials used during construction comply with the MacDill AFB Hazardous Materials Management  
11 Program's requirements for low VOC content.

12  
13 **4.2. Hazardous Materials/Wastes**

14 Ensure hazardous materials are approved and tracked through MacDill AFB's Hazardous Materials  
15 Management Program. Coordinate characterization and disposal of any hazardous or special waste with  
16 MacDill AFB's Environmental Compliance Program. Coordinate with MacDill AFB's Pollution Prevention  
17 Program to ensure recycling of construction wastes, if possible. Ensure that any soil removed from active  
18 hazardous waste or contaminated environmental restoration sites are evaluated for COCs and, if contaminated,  
19 properly disposed.

20  
21 **4.3. Water Resources**

22 Submit appropriate water permit applications to FDEP and EPC for construction of the proposed IW and  
23 associated monitoring well. Submit appropriate water quality permit applications for active construction sites  
24 and post-construction storm water management systems. Implement a sediment and erosion control plan and  
25 BMPs, such as silt screens and placement of hay bales, during construction to prevent erosion and storm water  
26 violations during all construction activities. Ensure that the new construction complies with all applicable  
27 water and energy conservation requirements, as well as the MacDill AFB SWPPP and SPCC Plan.

28  
29 **4.4. Safety and Occupational Health**

30 Ensure construction activities comply with OSHA standards or more stringent standards if applicable.

1 Ensure that a site-specific health and safety plan is prepared prior to initiating construction within active  
2 hazardous waste clean-up sites or contaminated environmental restoration sites and ensure that all workers  
3 completing excavation or dirt moving activities in this area have 40-hour Hazardous Waste and Emergency  
4 Response (HAZWOPER) training and the annual 8-hour refresher course.  
5

#### 6 **4.5. Biological Resources**

7 Prior to construction, all proposed areas of construction, equipment and materials laydown areas, and  
8 construction vehicle travel corridors shall be surveyed for the presence of gopher tortoise and burrowing owl  
9 burrows. Any burrows identified within work zones shall have a buffer established around them (25 feet from  
10 a tortoise burrow and 33 feet from an owl borrow) using survey flagging or construction fencing to help  
11 reduce potential for impacts to these species from construction activities and construction traffic.  
12 Construction workers shall be briefed on the potential for contact with federally- and state-protected species,  
13 how to identify these species, and the added protection that these species are afforded. Ensure that any ground  
14 surface areas disturbed during construction are re-seeded or revegetated with native flora.  
15

#### 16 **4.6 Cultural Resources**

17 Prior to construction, all proposed areas of construction, equipment and materials laydown areas, and  
18 construction vehicle travel corridors shall be surveyed for the presence of potential cultural resource sites.  
19 In the unlikely event of an inadvertent discovery of human remains or cultural resource artifacts, all work in  
20 the vicinity of the discovery shall stop immediately and MacDill AFB shall follow standard operating  
21 procedures described in the Integrated Cultural Resources Management Plan which includes prompt  
22 notification to the SHPO and the four tribes.  
23



## 5.0 PERSONS CONTACTED

Nick Schrier  
Project Manager  
U.S. Water Services Corporation  
7100 W. Boundary Street  
MacDill AFB, Florida 33621  
813-418-2489

Michael Harrison  
Utility Manager  
Florida Government Utility Authority  
MacDill AFB, Florida 33621  
407-628-6757

Dave Shultz  
U.S. Water Services Corp.  
9109 Bayshore Boulevard  
MacDill AFB, Florida 33621  
813-828-3984

Jeff Curry  
6 CES/CEO  
7621 Hillsborough Loop Drive  
MacDill AFB, Florida 33621  
813-828-0463

Kristy Snyder  
6 CES/CZOE  
7621 Hillsborough Loop Drive  
MacDill AFB, Florida 33621-5207  
813-828-0789

Chris Stahl  
Florida State Clearinghouse  
2600 Blair Stone Road,  
M.S. 47  
Tallahassee, Florida 32399-2400  
850-717-9076

Brendan Myers  
U.S. Fish and Wildlife Service  
7915 Baymeadows Way, Suite 200  
Jacksonville, Florida 32256

Scott Edwards  
Division of Historical Resources  
Compliance Review Section  
500 S. Bronough Street  
Tallahassee, Florida 32399-0250  
800-245-6300

Annie Dziergowski  
U.S. Fish and Wildlife Service  
7915 Baymeadows Way, Suite 200  
Jacksonville, Florida 32256

Mr. Jason Kirkpatrick 6 CES/CEIE  
7621 Hillsborough Loop Drive  
MacDill AFB, Florida 33621-5207  
813-828-0459  
email: jason.kirkpatrick.2.ctr@us.af.mil

Mr. Andy Rider 6 CES/CEIE  
7621 Hillsborough Loop Drive  
MacDill AFB, Florida 33621-5207  
813-828-2718  
email: andrew.rider.2@us.af.mil

Andrew Lykens  
Contractor, Amentum  
NEPA, Natural & Cultural Resources Manager  
6th Civil Engineer Squadron, Environmental Element  
7621 Hillsborough Loop Drive  
MacDill AFB, Florida 33621  
813-828-0460  
DSN: 968-0460

1 **6.0 LIST OF PREPARERS**

2 Bridget Morello, PE  
3 EnSafe Inc.  
4 Tampa, Florida  
5 bmorello@ensafe.com  
6

7 Jimmy Groton, PWS  
8 EnSafe Inc.  
9 Knoxville, Tennessee  
10 jgroton@ensafe.com  
11

12 Joyce Barkley  
13 EnSafe Inc.  
14 Nashville, Tennessee  
15 jbarkley@ensafe.com  
16

17 Mark Senne  
18 EnSafe Inc.  
19 Nashville, Tennessee  
20 msenne@ensafe.com

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**Appendix A**  
**Coastal Zone Management Act Consistency Determination**

1 **CONSISTENCY DETERMINATION**

2 Coastal Zone Management Act Section 307 provides that federal agency activities shall be carried  
3 out in a manner which is consistent to the maximum extent practicable with the enforceable  
4 policies of approved state management programs. Section 307 applies to federal agency activity  
5 in a state’s coastal zone and also to federal agency activity outside the coastal zone if the activity  
6 affects a land or water use in or near natural resources of the coastal zone. Federal agency activity  
7 includes activity performed by a federal agency, approved by a federal agency, or for which a  
8 federal agency provides financial assistance. Such activity, whether direct, indirect, or cumulative,  
9 must be demonstrated to be consistent with the enforceable policies of the state’s coastal  
10 management program, unless full consistency is otherwise prohibited by federal law (per 15 Code  
11 of Federal Regulations part 930.32, “consistent to the maximum extent practicable”).

12  
13 The State of Florida developed the Florida Coastal Management Program (FCMP), which was  
14 approved by the National Oceanic and Atmospheric Administration in 1981. The FCMP consists  
15 of a network of 24 Florida statutes, administered by multiple state agencies and water management  
16 districts. The FCMP includes enforceable policies that ensure the wise use and protection of the  
17 state’s water, cultural, historic, and biological resources; minimize the state’s vulnerability to  
18 coastal hazards; ensure compliance with the state’s growth management laws; protects the state  
19 transportation system; and protect the state’s proprietary interest as the owner of sovereignty  
20 submerged lands.

21  
22 This document provides the State of Florida with the U.S. Air Force’s Consistency Determination  
23 under the Coastal Zone Management Act for the Proposed Action as analyzed in the accompanying  
24 Environmental Assessment. This statement examines the potential environmental consequences  
25 of the Proposed Action and ascertains the extent to which the Proposed Action would be consistent  
26 with the objectives and enforceable policies of the FCMP as presented in the 2018 FCMP Guide  
27 (Florida Department of Environmental Protection 2018).

28  
29 Upon review of the FCMP, it was determined which policies may be applicable to the  
30 Proposed Action and then an “effects test” was conducted to determine whether the  
31 Proposed Action would have a reasonably foreseeable direct, indirect, or cumulative effect on the  
32 state’s coastal uses or resources. After conducting the effects test, the U.S. Air Force determined

1 whether the Proposed Action would result in reasonably foreseeable direct, indirect, or cumulative  
 2 effects on Florida’s coastal uses or resources.

3  
 4 Of the Florida Statutory Authorities included in the FCMP, the potential for impacts in the  
 5 following areas are addressed in the Environmental Assessment:

- 7 • Historic preservation (Chapter 267),
- 8 • Water resources (Chapter 373),
- 9 • Pollutant discharge prevention and removal (Chapter 376),
- 10 • Fish and wildlife conservation (Chapter 379),
- 11 • Environmental control (Chapter 403), and
- 12 • Soil and water conservation (Chapter 582).

13  
 14 This consistency determination statement discusses how the Proposed Action may meet the FCMP  
 15 objectives (Table A-1).

16

<b>Table A-1</b>		
<b>Florida Coastal Management Program Policy Review</b>		
<b>Florida Statute</b>	<b>Legal Scope</b>	<b>Consistency Evaluation</b>
Chapter 161: Beach and Shore Preservation Program	Authorizes the Bureau of Beaches and Coastal Systems within the 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: <ul style="list-style-type: none"> <li>• Coastal Construction Permit Program</li> <li>• Coastal Construction Control Line Program</li> <li>• Coastal Zone Protection</li> </ul>
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.



<b>Table A-1 Florida Coastal Management Program Policy Review</b>		
<b>Florida Statute</b>	<b>Legal Scope</b>	<b>Consistency Evaluation</b>
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 affect the ability of the state to respond to or recover from natural or man-made disasters and would not affect evacuation procedures.
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 affect 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.	<p>Potential impacts to cultural and historical resources are evaluated in Section 3.8 of the EA. MacDill AFB believes that the action would not adversely affect historic properties listed, or eligible for listing, in the National Register of Historic Places, or otherwise of historic, architectural, or archaeological value within the area of potential effect.</p> <p>Therefore, the USAF believes that the Proposed Action would be consistent with the management and preservation of the state’s archaeological and historic resources.</p> <p>Concurrence from The Florida State Historic Preservation Office is pending.</p>

**Table A-1  
Florida Coastal Management Program Policy Review**

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 Section 3.5 of the EA. The Proposed Action would not unreasonably consume water, degrade water quality, or adversely affect environmental values. The Proposed Action is anticipated to improve water quality since it would eliminate discharges of off-specification wastewater effluent into waters of the state. The Proposed Action would include administrative and engineering controls to prevent any adverse effects to wetlands near or adjacent to the project area. Potential impacts on nearby surface waters from sedimentation associated with construction activities would be minimized by the use of administrative and engineering controls (e.g., Storm Water Pollution Prevention Plan, Spill Control Plan, and appropriate BMPs), and all applicable regulatory requirements and storm water permits (e.g., Environmental Resources Permit) would be obtained prior to any construction activities.

**Table A-1  
Florida Coastal Management Program Policy Review**

Florida Statute	Legal Scope	Consistency Evaluation
<p align="center">Chapter 376: Pollution Discharge Prevention and Removal</p>	<p>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.</p> <p>The statute:</p> <ul style="list-style-type: none"> <li>• Provides for hazards and threats of danger and damages resulting from any pollutant discharge to be evaluated.</li> <li>• Requires the prompt containment and removal of pollution; provides penalties for violations.</li> <li>• Ensures the prompt payment of reasonable damages from a discharge.</li> </ul>	<p>Management of hazardous materials and wastes is addressed in Section 3.4 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. The 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.</p>
<p align="center">Chapter 377: Energy Resources</p>	<p align="center">Addresses regulation, planning, and development of oil and gas resources of the state.</p>	<p>The Proposed Action would not affect oil and gas resources of the state.</p>
<p align="center">Chapter 379: Fish and Wildlife Conservation</p>	<p>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.</p>	<p>Potential impacts to fish and wildlife are evaluated in Section 3.7 of the EA. MacDill AFB has determined 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.</p> <p>Likewise, the EA determined that the Proposed Action would not result in a significant impact to state-listed species, including gopher tortoise and burrowing owl. Therefore, the Proposed Action would be consistent with the state’s policies concerning the protection of fish and wildlife resources.</p> <p>Concurrence from the USFWS was received 21 April 2023.</p>

<b>Table A-1 Florida Coastal Management Program Policy Review</b>		
<b>Florida Statute</b>	<b>Legal Scope</b>	<b>Consistency Evaluation</b>
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.
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.	<p>The EA addresses the issues of protection of air quality (Section 3.1); conservation and protection of environmentally-sensitive living resources and the protection of endangered or listed species (Section 3.7); solid, sanitary, and hazardous waste disposal (Section 3.4); protection of groundwater and surface water quality and quantity (Section 3.5); potable water supply (Section 3.5); and the protection of floodplains and wetlands (Sections 3.5 and 3.6).</p> <p>Based on the evaluation, the Proposed Action would not have significant impacts on air quality, hazardous materials/wastes, floodplains, or water quality.</p> <p>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.</p> <p>The USAF has determined that the Proposed Action would be consistent to the maximum extent practicable with Florida's Fish and Wildlife Conservation policy.</p> <p>Therefore, the Proposed Action would be consistent with the state's statues concerning environmental control efforts.</p>
Chapter 553: Building Construction Standards	The standard 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. Applicants must 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.

<b>Table A-1 Florida Coastal Management Program Policy Review</b>		
<b>Florida Statute</b>	<b>Legal Scope</b>	<b>Consistency Evaluation</b>
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 Sections 3.4 and 3.5.  Impacts to groundwater and surface water resources also are discussed in Section 3.5 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.
<b>CONCLUSION</b> Based on this information, the USAF finds implementation of the Proposed Action as presented in the EA is consistent with the Florida Coastal Management Program.		

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- Notes:**
- EA = Environment Assessment
  - AFB = Air Force Base
  - USAF = United States Air Force
  - BMP = Best Management Practices



## Appendix B1

US Fish and Wildlife Service Correspondence



**DEPARTMENT OF THE AIR FORCE  
6<sup>TH</sup> AIR REFUELING WING (AMC)  
MACDILL AIR FORCE BASE, FLORIDA**

MEMORANDUM FOR U.S. FISH AND WILDLIFE SERVICE  
ATTN: MR. ROBERT CAREY  
7915 BAYMEADOWS WAY, SUITE 200  
JACKSONVILLE, FL 32256-7517

FROM: 6 CES/CEIE  
7621 HILLSBOROUGH LOOP DRIVE  
MACDILL AFB, FL 33621-5207

SUBJECT: Initiation of Endangered Species Act (ESA) Section 7 Consultation for Reclaimed Wastewater Injection Well at MacDill Air Force Base

1. The Florida Government Utility Authority (FGUA) intends to improve the wastewater effluent disposal system on MacDill Air Force Base (AFB). The Wastewater Treatment Plant (WWTP) currently is permitted for three disposal sites to discharge treated effluent: a Slow-Rate Part III Public Access Reuse irrigation system at the Bay Palms Golf Complex (R-001), a Slow-Rate Restricted Public Access Reuse spray irrigation system near the southeast end of the airfield (R-002), and a Restricted Public Access Rapid-Rate infiltration basin south of the airfield (R-003) that is used only when irrigation of R-001 and R-002 is not possible. The land application of treated effluent can become difficult during the wet season because the primary disposal site (Golf Course) often does not need the additional irrigation water and the secondary disposal sites (R-002 & R003) must be utilized. During rainy weather, groundwater levels rise and the ground is often saturated due to rain which limits that ability of the spray field (R-002) to accept irrigation water. When the spray field is saturated, water gets discharged to the wet weather pond (R-003) which has a capacity limit of 20 million gallons.

2. Two alternatives are being evaluated to accomplish the improvements to the wastewater effluent disposal system:

a. The Preferred Alternative consists of installing a Class I injection well (IW) and an associated monitoring well at the WWTP. The IW would increase FGUA's capacity to safely discharge treated wastewater effluent to meet current and future needs. The monitoring well would provide a means to demonstrate compliance with FGUA's wastewater permit requirements.

b. Alternative 1 consists of enhancing and expanding the three existing disposal methods (i.e., R-001, R-002, and R-003). Additional land would be required for the expansion of all three existing disposal systems (R-001, R-002, and R-003). Alternative 1 would also require some additional piping, pumping, and infrastructure, depending on what land the Department of the Air Force can make available.



3. In accordance with the Code of Federal Regulations, Title 32, Part 989 — Environmental Impact Analysis Process and the National Environmental Policy Act, the U.S. Air Force is evaluating the potential environmental impacts of the project. We are preparing an Environmental Assessment to evaluate potential environmental impacts from the proposed utility repair work.

4. Until recently, gopher tortoises (*Gopherus polyphemus*) were designated a candidate species for listing by the United States Fish and Wildlife Service. However, in December 2022 United States Fish and Wildlife Service determined that the Eastern distinct population segment of the tortoise is stable and not in need of federal protection. However, their burrows do provide habitat for numerous protected species including the Federally-listed eastern indigo snake. Florida lists the tortoise as a threatened species. At MacDill AFB, gopher tortoise are managed in accordance with the 2012 Candidate Conservation Agreement. Gopher tortoises are known to be present throughout MacDill AFB, particularly in area proximal to the airfield, and data collected during the most recent threatened and endangered species survey (conducted for the Air Force in 2018) indicate that the wet weather pond (R-003) is immediately adjacent to gopher tortoise habitat (**Figure 1**), and the spray field (R-002) is in the vicinity of potential gopher tortoise habitat. The Preferred Alternative is not located in proximity to known gopher tortoise habitat and protective measures are not needed. If Alternative 1 is selected for implementation FGUA staff would work directly with the MacDill Environmental Office to best manage the protection of gopher tortoises and ensure that proposed construction zones, equipment laydown/staging areas, and planned construction-vehicle movement routes would not directly impact gopher tortoise burrows or cause undue deterioration of gopher tortoise habitat. Where practical, the project footprint can be adjusted during design to avoid any identified tortoise burrows. If applicable, prior to starting construction, a 25-foot buffer would be established around every active burrow using stakes and survey flagging to keep construction activities and traffic from damaging burrows. If the project footprint cannot be adjusted to avoid conflicts with tortoise burrows, the MacDill AFB Natural Resources Management staff shall accomplish the capture and relocation of these tortoises in accordance with the 2012 Gopher Tortoise Candidate Conservation Agreement. After construction activities have begun, a potential for impacts to this species would still exist since tortoises may wander into a work zone as they forage daily. To mitigate the potential for impacts, construction workers would be briefed at the outset of construction on the potential for interaction with gopher tortoises and the legal protection afforded this species. If gopher tortoises are discovered in or immediately adjacent to areas of active construction, work on the site would stop until the installation Natural Resources Manager can evaluate the situation and remove the tortoise from harm's way.

5. The eastern indigo snake (*Drymarchon corais couperi*) can occur in suitable habitat throughout Florida and is considered a gopher tortoise commensal. The presence of gopher tortoise burrows suggests the potential for eastern indigo snake; although the grassy, maintained areas around the current wastewater disposal areas is less than ideal habitat for the species. The eastern indigo snake has never been observed on the installation and is unlikely to be present in or near the proposed construction area for the injection well or either of the existing wastewater effluent disposal areas that could be expanded (R-002 and R-003). Nonetheless, construction personnel would be briefed on the potential to encounter, the appearance of, and the legal protection afforded the eastern indigo snake as part of the gopher tortoise briefing.

6. Wood storks (*Mycteria americana*) are regularly observed on MacDill AFB around water features, including drainage swales and ditches; and both the Preferred Alternative and Alternative 1 would likely have construction activities near areas where wood storks forage. Directional boring could be used for utility installation in areas where the WWTP infrastructure crosses drainage ditches. Consequently, no direct loss of foraging habitat would be expected to result from project construction. Indirect impacts could result when construction activities are conducted near drainage ditches or water bodies as the noise and movement of construction vehicles would likely disturb birds that may be foraging in these areas. However, wood storks are a highly mobile species and if they are inadvertently disrupted because of construction work, there are miles of drainage canals and surface water bodies on the installation that remain available to support wood storks. Given that the wood stork is highly mobile, they are expected to move away from construction activities, so the risk of injury or impact related to construction activities is considered negligible.

7. There are two active American bald eagle nests (i.e., HL024 and HL982) on the installation (Figure 1). Nest HL024 is located approximately 0.1-mile west of the wet weather pond (R-003) and 1.6-miles northwest of the WWTP; and nest HL982 is located approximately 0.8-mile northeast of the wet weather pond (R-003) and 1.5-miles north-northwest of the WWTP. Activity associated with implementation of the Preferred Alternative or Alternative 1 are not expected to impact the American Bald Eagle.

8. Historic wildlife survey data for protected species indicates that federally threatened and endangered (T&E) species may exist within or near areas being evaluated for this project. Additional data collection and survey work would be accomplished during project design to reduce any potential for impacts to T&E species. The completion of additional survey work, adjustments to the project design, and implementation of the project in the manner described above should dramatically reduce any potential for impact to federal T&E species. In accordance with Section 7(a)(2) of the Endangered Species Act of 1973, 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. Implementation of the Preferred Alternative is unlikely to disturb gopher tortoises since all activity would occur at the WWTP. Implementation of Alternative 1 could require work near known gopher tortoise habitat.

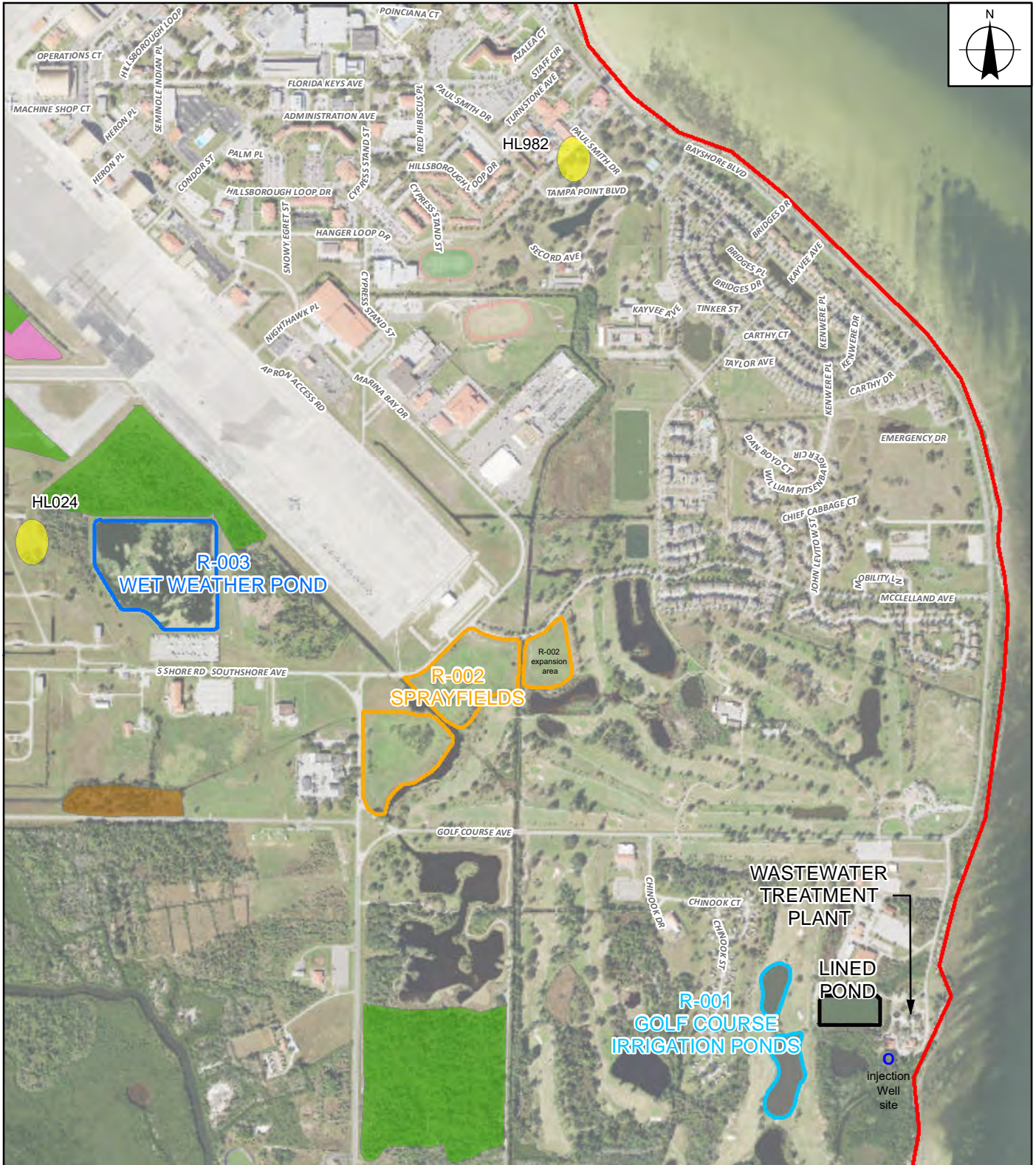
9. If you have any questions or require additional information on the Proposed Action, please contact Mr. Jason Kirkpatrick 6 CES/CEIE at 813-828-0459.

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

Attachment:  
Project Figures

**ATTACHMENT 1**

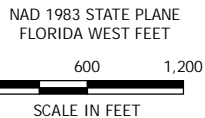
Figures



**LEGEND**

- BALD EAGLE NEST
- BURROWING OWL HABITAT
- GOPHER TORTOISE HABITAT
- GOPHER TORTOISE - HISTORIC HABITAT
- IRRIGATION POND R-001
- LINED POND
- SPRAYFIELD R-002
- WET WEATHER POND R-003

INSTALLATION BOUNDARY



**FIGURE 1**  
RARE SPECIES HABITAT MAP  
RECLAIMED WASTEWATER INJECTION WELL  
MACDILL AIR FORCE BASE, FLORIDA

REQUESTED BY:	JG
DRAWN BY:	MS
DATE:	1/13/2023
PROJECT:	0888833654

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Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community






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

MEMORANDUM FOR U.S. FISH AND WILDLIFE SERVICE  
ATTN: MR. ROBERT CAREY  
7915 BAYMEADOWS WAY, SUITE 200  
JACKSONVILLE, FL 32256-7517

FROM: 6 CES/CEIE  
7621 HILLSBOROUGH LOOP DRIVE  
MACDILL AFB, FL 33621-5207

	<b>Florida Ecological Services Field Office</b>
	<b>Service Project</b> Code No. _____
<small>The U.S. Fish and Wildlife Service has reviewed the information provided and finds that the proposed action is not likely to adversely affect any federally listed species or designated critical habitat protected by the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 et. seq.). A record of this consultation is on file at the Florida Ecological Services Field Office.</small>	
<small>This fulfills the requirements of section 7 of the Act and further action is not required. If modifications are made to the project, if additional information involving potential effects to listed species becomes available, or if a new species is listed, reinitiation of consultation may be necessary.</small>	
_____ Environmental Review Supervisor	

SUBJECT: Initiation of Endangered Species Act (ESA) Section 7 Consultation for Reclaimed Wastewater Injection Well at MacDill Air Force Base

1. The Florida Government Utility Authority (FGUA) intends to improve the wastewater effluent disposal system on MacDill Air Force Base (AFB). The Wastewater Treatment Plant (WWTP) currently is permitted for three disposal sites to discharge treated effluent: a Slow-Rate Part III Public Access Reuse irrigation system at the Bay Palms Golf Complex (R-001), a Slow-Rate Restricted Public Access Reuse spray irrigation system near the southeast end of the airfield (R-002), and a Restricted Public Access Rapid-Rate infiltration basin south of the airfield (R-003) that is used only when irrigation of R-001 and R-002 is not possible. The land application of treated effluent can become difficult during the wet season because the primary disposal site (Golf Course) often does not need the additional irrigation water and the secondary disposal sites (R-002 & R003) must be utilized. During rainy weather, groundwater levels rise and the ground is often saturated due to rain which limits that ability of the spray field (R-002) to accept irrigation water. When the spray field is saturated, water gets discharged to the wet weather pond (R-003) which has a capacity limit of 20 million gallons.

2. Two alternatives are being evaluated to accomplish the improvements to the wastewater effluent disposal system:

a. The Preferred Alternative consists of installing a Class I injection well (IW) and an associated monitoring well at the WWTP. The IW would increase FGUA's capacity to safely discharge treated wastewater effluent to meet current and future needs. The monitoring well would provide a means to demonstrate compliance with FGUA's wastewater permit requirements.

b. Alternative 1 consists of enhancing and expanding the three existing disposal methods (i.e., R-001, R-002, and R-003). Additional land would be required for the expansion of all three existing disposal systems (R-001, R-002, and R-003). Alternative 1 would also require some additional piping, pumping, and infrastructure, depending on what land the Department of the Air Force can make available.

3. In accordance with the Code of Federal Regulations, Title 32, Part 989 — Environmental Impact Analysis Process and the National Environmental Policy Act, the U.S. Air Force is evaluating the potential environmental impacts of the project. We are preparing an Environmental Assessment to evaluate potential environmental impacts from the proposed utility repair work.

4. Until recently, gopher tortoises (*Gopherus polyphemus*) were designated a candidate species for listing by the United States Fish and Wildlife Service. However, in December 2022 United States Fish and Wildlife Service determined that the Eastern distinct population segment of the tortoise is stable and not in need of federal protection. However, their burrows do provide habitat for numerous protected species including the Federally-listed eastern indigo snake. Florida lists the tortoise as a threatened species. At MacDill AFB, gopher tortoise are managed in accordance with the 2012 Candidate Conservation Agreement. Gopher tortoises are known to be present throughout MacDill AFB, particularly in area proximal to the airfield, and data collected during the most recent threatened and endangered species survey (conducted for the Air Force in 2018) indicate that the wet weather pond (R-003) is immediately adjacent to gopher tortoise habitat (**Figure 1**), and the spray field (R-002) is in the vicinity of potential gopher tortoise habitat. The Preferred Alternative is not located in proximity to known gopher tortoise habitat and protective measures are not needed. If Alternative 1 is selected for implementation FGUA staff would work directly with the MacDill Environmental Office to best manage the protection of gopher tortoises and ensure that proposed construction zones, equipment laydown/staging areas, and planned construction-vehicle movement routes would not directly impact gopher tortoise burrows or cause undue deterioration of gopher tortoise habitat. Where practical, the project footprint can be adjusted during design to avoid any identified tortoise burrows. If applicable, prior to starting construction, a 25-foot buffer would be established around every active burrow using stakes and survey flagging to keep construction activities and traffic from damaging burrows. If the project footprint cannot be adjusted to avoid conflicts with tortoise burrows, the MacDill AFB Natural Resources Management staff shall accomplish the capture and relocation of these tortoises in accordance with the 2012 Gopher Tortoise Candidate Conservation Agreement. After construction activities have begun, a potential for impacts to this species would still exist since tortoises may wander into a work zone as they forage daily. To mitigate the potential for impacts, construction workers would be briefed at the outset of construction on the potential for interaction with gopher tortoises and the legal protection afforded this species. If gopher tortoises are discovered in or immediately adjacent to areas of active construction, work on the site would stop until the installation Natural Resources Manager can evaluate the situation and remove the tortoise from harm's way.

5. The eastern indigo snake (*Drymarchon corais couperi*) can occur in suitable habitat throughout Florida and is considered a gopher tortoise commensal. The presence of gopher tortoise burrows suggests the potential for eastern indigo snake; although the grassy, maintained areas around the current wastewater disposal areas is less than ideal habitat for the species. The eastern indigo snake has never been observed on the installation and is unlikely to be present in or near the proposed construction area for the injection well or either of the existing wastewater effluent disposal areas that could be expanded (R-002 and R-003). Nonetheless, construction personnel would be briefed on the potential to encounter, the appearance of, and the legal protection afforded the eastern indigo snake as part of the gopher tortoise briefing.

6. Wood storks (*Mycteria americana*) are regularly observed on MacDill AFB around water features, including drainage swales and ditches; and both the Preferred Alternative and Alternative 1 would likely have construction activities near areas where wood storks forage. Directional boring could be used for utility installation in areas where the WWTP infrastructure crosses drainage ditches. Consequently, no direct loss of foraging habitat would be expected to result from project construction. Indirect impacts could result when construction activities are conducted near drainage ditches or water bodies as the noise and movement of construction vehicles would likely disturb birds that may be foraging in these areas. However, wood storks are a highly mobile species and if they are inadvertently disrupted because of construction work, there are miles of drainage canals and surface water bodies on the installation that remain available to support wood storks. Given that the wood stork is highly mobile, they are expected to move away from construction activities, so the risk of injury or impact related to construction activities is considered negligible.

7. There are two active American bald eagle nests (i.e., HL024 and HL982) on the installation (Figure 1). Nest HL024 is located approximately 0.1-mile west of the wet weather pond (R-003) and 1.6-miles northwest of the WWTP; and nest HL982 is located approximately 0.8-mile northeast of the wet weather pond (R-003) and 1.5-miles north-northwest of the WWTP. Activity associated with implementation of the Preferred Alternative or Alternative 1 are not expected to impact the American Bald Eagle.

8. Historic wildlife survey data for protected species indicates that federally threatened and endangered (T&E) species may exist within or near areas being evaluated for this project. Additional data collection and survey work would be accomplished during project design to reduce any potential for impacts to T&E species. The completion of additional survey work, adjustments to the project design, and implementation of the project in the manner described above should dramatically reduce any potential for impact to federal T&E species. In accordance with Section 7(a)(2) of the Endangered Species Act of 1973, 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. Implementation of the Preferred Alternative is unlikely to disturb gopher tortoises since all activity would occur at the WWTP. Implementation of Alternative 1 could require work near known gopher tortoise habitat.

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

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

Attachment:  
Project Figures

Appendix B2

Florida State Historic Preservation Officer Correspondence





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

**MEMORANDUM FOR DIVISION OF HISTORIC RESOURCES  
MR. SCOTT EDWARDS  
R.A. GRAY BUILDING  
500 SOUTH BRONOUGH STREET  
TALLAHASSEE FL 32399**

**FROM: 6 CES/CEIE  
7621 Hillsborough Loop Drive  
MacDill AFB 33621-5207**

**SUBJECT: Reclaimed Wastewater Injection Well at MacDill AFB**

1. The Florida Government Utility Authority (FGUA) intends to improve the wastewater effluent disposal system on MacDill Air Force Base (AFB) (Figure 1). The Wastewater Treatment Plant (WWTP) currently relies on three land application disposal sites to discharge treated effluent. During the wet season, irrigation options have historically been limited, and an alternative wastewater disposal needed.
2. In accordance with the Code of Federal Regulations, Title 32, Part 989 — Environmental Impact Analysis Process and the National Environmental Policy Act, the Department of the Air Force is preparing an Environmental Assessment to evaluate potential environmental impacts associated with construction of a deep injection well for disposal of reclaimed wastewater. Two alternatives, the Preferred Alternative and Alternative 1, are being evaluated to accomplish the improvements to the wastewater effluent disposal system.
3. For the Preferred Alternative, the FGUA would install a Class I injection well (IW) and an associated monitoring well at the WWTP to provide an alternative discharge point for tertiary treated wastewater. Initial plans are to drill a 24-inch diameter well down to the top of the Avon Park Formation with a 13-inch open borehole from ~800 to 900 feet below land surface; and a monitoring well to a depth of about 550 feet below land surface. Figure 1 presents the proposed location for the IW and the monitoring well. The IW would increase the FGUA's capacity to safely discharge treated wastewater effluent to meet current and future needs. The monitoring well would provide a means to demonstrate compliance with the FGUA's wastewater permit requirements.
4. One known archaeological site (Site 8HI00050) is located relatively close to the proposed IW and monitoring well locations. Site 8HI00050 is eligible for the National Register of Historic Places. The FGUA has moved the proposed IW location a few hundred feet away from Site 8HI00050 to avoid adverse impacts to the sensitive archaeological resources. Figure 2 presents the location for the Preferred Alternative in relation to known archaeological sites in the vicinity, including Site 8HI00050.

5. Alternative 1 consists of enhancing and expanding the existing land application disposal sites. Additional land would be required to expand these irrigations areas, as well as renovation and reconstruction of the wet weather storage pond. Alternative 1 would require some additional piping, pumps, and infrastructure, depending on what land the Air Force can make available. To the extent possible, pipes and other infrastructure required to expand the current effluent disposal system would be located to avoid previously identified cultural resource areas. Figure 3 presents the location of the Alternative 1 project sites in relation to known archaeological sites for this portion of the installation.

6. The potential for impact to archaeological sites for both of the alternatives evaluated is low; however, if artifacts, concentrations of shell, or unique soil conditions are discovered during well installation and construction, all construction activity in the vicinity of the discovery shall cease until the MacDill Cultural Resources Manager has assessed the situation in consultation with the Florida Division of Historic Resources.

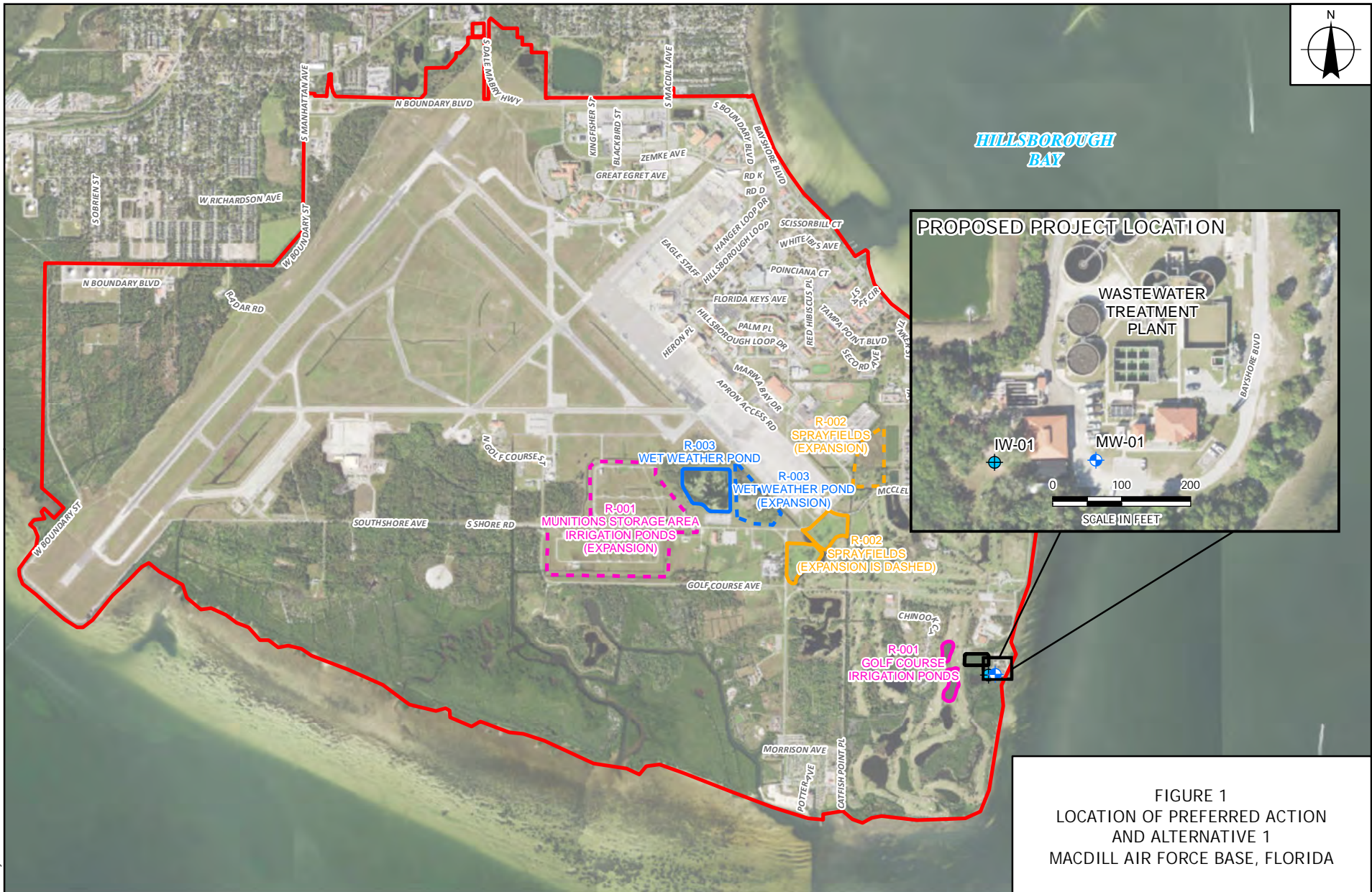
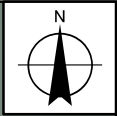
7. Neither the Preferred Alternative project site nor the Alternative 1 project site are located near either of MacDill's historic districts (Figure 4). Consequently, no impacts to architectural resources are expected to result from implementation of the proposed action.

8. The Department of the Air Force has determined that this project would have no adverse effect on cultural or historic resources under Section 106 of the National Historic Preservation Act. We seek the Florida Division of Historic Resources' input on the project and concurrence on MacDill AFB's determination of no effect. If the Florida Division of Historic Resources has any questions or requires additional information on the proposed project, please contact the undersigned at 813-828-2718 or Mr. Jason Kirkpatrick, at 813-828-0459.

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

Attachments:

1. Figure 1 – Location of Preferred Alternative and Alternative 1
2. Figure 2 – Archaeological sites near Preferred Alternative site
3. Figure 3 – Archaeological sites near Alternative 1 site
4. Figure 4 – Historic Districts in relation to Preferred Alternative and Alternative 1 sites



**FIGURE 1**  
**LOCATION OF PREFERRED ACTION**  
**AND ALTERNATIVE 1**  
**MACDILL AIR FORCE BASE, FLORIDA**

**LEGEND**

- INJECTION WELL
- MONITORING WELL
- IRRIGATION POND
- LINED POND
- SPRAYFIELD
- WET WEATHER POND
- INSTALLATION BOUNDARY

NAD 1983 STATE PLANE  
 FLORIDA WEST FEET  
 0 1,500 3,000  
 SCALE IN FEET

REQUESTED BY:	JG
DRAWN BY:	MS
DATE:	5/23/2023
PROJECT:	0888833654

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Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



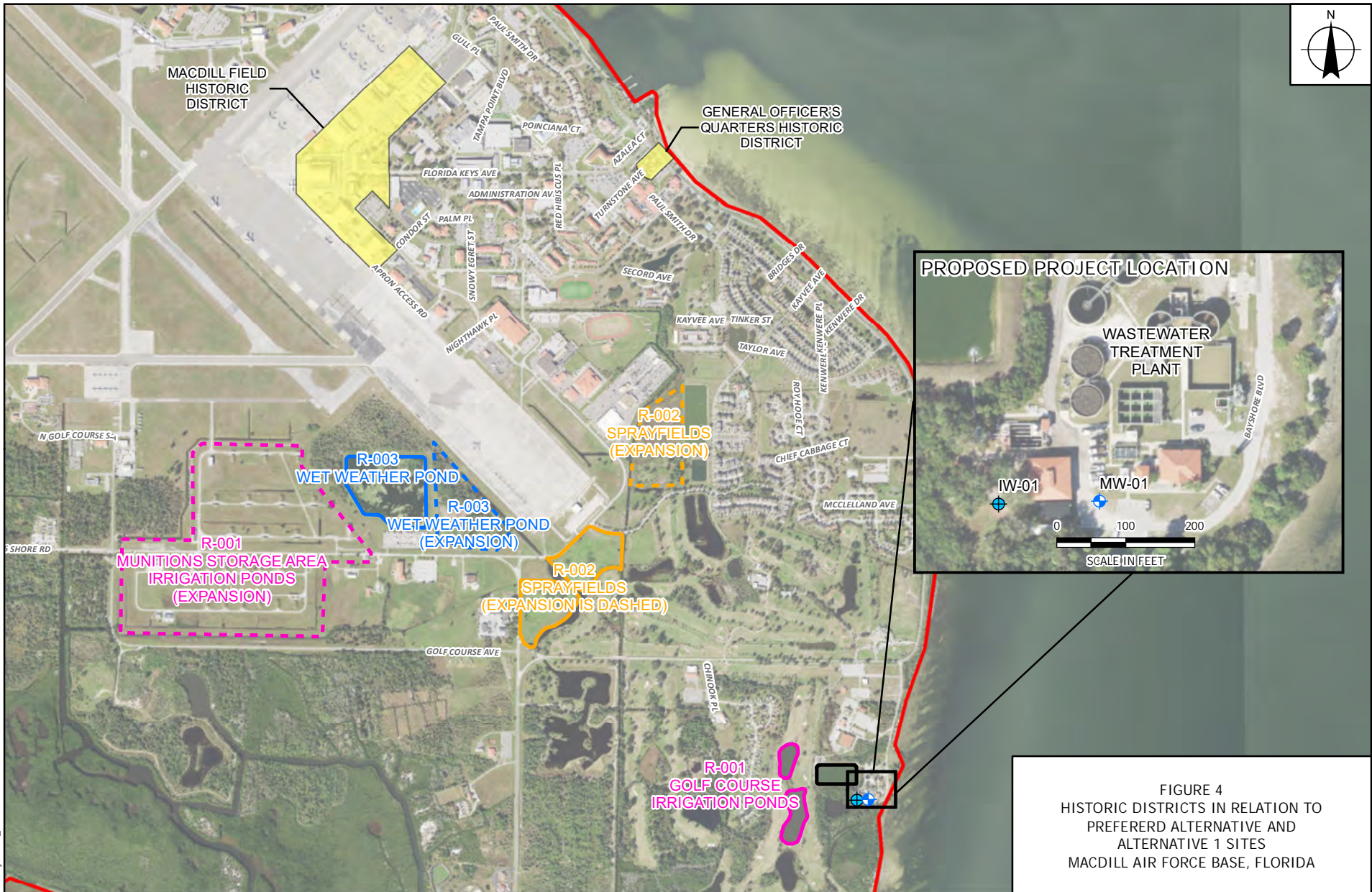
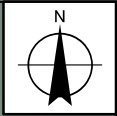










FIGURE 4  
 HISTORIC DISTRICTS IN RELATION TO  
 PREFERRED ALTERNATIVE AND  
 ALTERNATIVE 1 SITES  
 MACDILL AIR FORCE BASE, FLORIDA

**LEGEND**

-  INJECTION WELL
-  MONITORING WELL
-  HISTORIC DISTRICTS
-  IRRIGATION POND
-  LINED POND
-  SPRAYFIELD
-  WET WEATHER POND
-  INSTALLATION BOUNDARY

NAD 1983 STATE PLANE  
 FLORIDA WEST FEET  
 0 900 1,800  
 SCALE IN FEET

REQUESTED BY: JG  
 DRAWN BY: MS  
 DATE: 5/24/2023  
 PROJECT: 0888833654

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Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

## **TRIBAL CONSULTATION**





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

**DEC 15 2021**

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

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

Dear Mr. Cypress

The Florida Government Utility Authority (FGUA) has developed plans to implement two large scale improvements to the wastewater collection and treatment system at MacDill Air Force Base. Both of these projects would result in ground disturbance and create a potential, although limited, to affect archaeological resources.

In accordance with Executive Order 13175, *Consultation with Indian Tribal Governments*, the Air Force would like to initiate government-to-government consultation regarding the FGUA's plans to improve the base wastewater collection and treatment system. The Air Force desires to discuss the proposal in detail with you so that we may understand and consider any comments, concerns, and suggestions you may have. This letter also initiates our consultation under Section 106 of the National Historic Preservation Act (Code of Federal Regulations, Title 36, Part 800) and requests your input. The two projects are described in detail below and their locations are presented in the attached figures.

Project #1 would extend the wastewater collection system to the western side of the installation. Expanding the sanitary sewer system west of the runway will eliminate the localized septic systems on the western portion of the installation. It may also encourage future development within a portion of the installation that has historically been under-utilized. The proposed work involves substantial excavation for the installation of multiple lift stations and a network of gravity and force main sanitary sewer lines. Installation of the force main piping would primarily be accomplished using a cut-and-cover trenching approach, although directional boring would be used to avoid the runway, taxiways, roadways, and ditch crossings. The new sanitary lines would connect existing facilities on the west side of the runway to the wastewater collection system that already operates on the eastern portion of the base. Figure 1 presents the proposed location for expansion of the sanitary sewer system. An alternative route for the westward expansion of the sanitary sewer system, the Northern Route, is also being considered. Figure 2 presents the location for the Northern Route for sanitary sewer expansion.

**MISSION FOCUSED...VALUED AIRMEN**



Project #2 would install a Class I deep injection well near the base wastewater treatment plant to provide an alternative discharge point for tertiary treated wastewater. Initial plans are for a 24" well to be drilled down to the top of the Avon Park Formation with an open borehole from ~700 to 900 feet below land surface. Figure 3 presents the three locations being considered for the deep injection well.

Figure 4 presents the location of ground disturbing activities associated with expansion of the sanitary sewer system west of the runway in relation to known archaeological sites. Figure 4 also presents the location for the Northern Route alternative for expansion of the sanitary sewer system. Only one archaeological site (8Hi14613) is located near the proposed route for the western sanitary sewer system, and with proper project planning MacDill can ensure that all ground disturbing activities remain outside a 25-meter buffer around the site. Site 8Hi14613 has been determined ineligible for the National Register of Historic Places. If the Northern Route alternative for expansion of the sanitary sewer is selected, the route would cross two culturally significant archaeological sites (8Hi03382 and 8Hi14510); however, disturbance of both sites would be avoided through the selective use of directional boring. The force main would be installed 10-20 feet below land surface beneath these sites and no ground disturbing activities would occur within a 25-meter buffer around the site.

Figure 5 presents possible locations for installation of the deep injection well in relation to known archaeological sites. One of the proposed sites for the deep injection well is located very near Site 8Hi00050, which is eligible for the National Register of Historic Places. Figure 6 presents the estimated site boundaries for site 8Hi00050 in relation to sites being considered for installation of the injection well. Attachment 2 provides a short description of the 30 sites within 1 km of both the sanitary sewer project and the injection well project. Overall, we believe the potential for impact to archaeological sites is low; however, if artifacts, concentrations of shell, or unique soil conditions are discovered during earth work, all construction activity in the vicinity of the discovery shall cease until the MacDill Cultural Resources Manager has assessed the situation in consultation with your tribe.

Please let us know when you would be available to discuss the 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

2 Attachments:

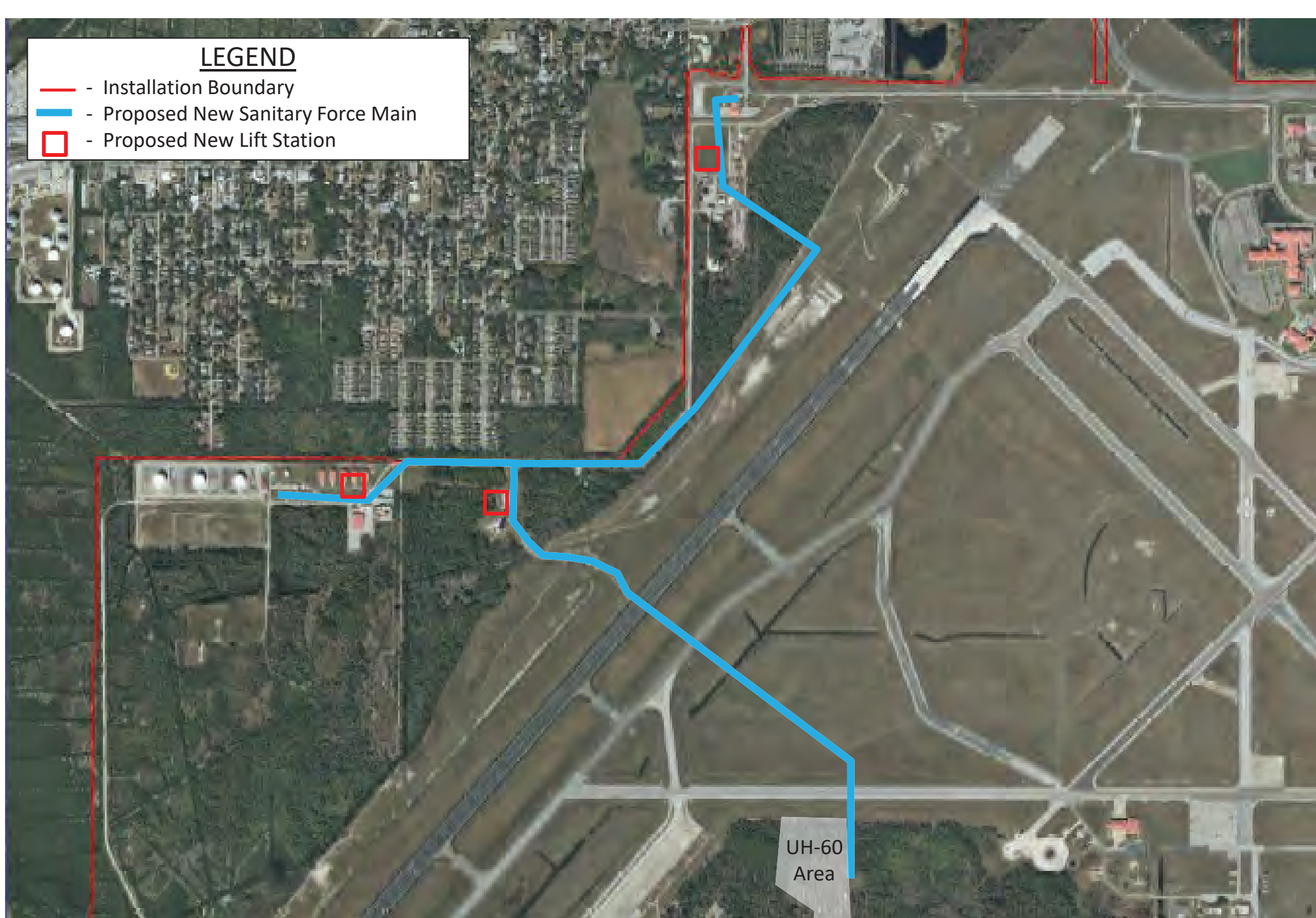
1. Figures 1 through 6
2. Archaeological Site Descriptions

cc:

Mr. Kevin Donaldson

## LEGEND

- Installation Boundary
- Proposed New Sanitary Force Main
- Proposed New Lift Station



UH-60  
Area

**Figure 1:** Location of the proposed force mains to support expansion of the sanitary sewer system to the western side of the installation.



## LEGEND

- Installation Boundary
- Proposed New Sanitary Force Main
- Proposed New Lift Station



Defense Fuels  
Support Point

Control Tower

UH-60  
Area

Tanker Way  
Gate

Medical  
Clinic



**Figure 2:** Location of proposed force main piping for the Northern Route Alternative considered for expansion of the sanitary sewer system to the western side of the installation.





**Figure 3:** Primary (#1) and alternative (#2 & #3) locations for the proposed wastewater injection well.



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

27 April 2022

MEMORANDUM FOR RECORD

FROM: 6 CES/CEIE

SUBJECT: Consultation with the Miccosukee Tribe of Indians of Florida Regarding Florida Government Utility Authority Expansion of the Sanitary Sewer System at MacDill AFB

1. A hard copy consultation letter for the subject project was mailed to the Miccosukee Tribe of Indians of Florida on 15 December 2022. In addition, an electronic version of the letter was e-mailed to Mr. Kevin Donaldson with the Miccosukee Tribe of Indians of Florida on 16 December 2021. A follow-up e-mail was sent to Mr. Donaldson on 1 April 2022 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 Florida Government Utility Authority Expand Sanitary Sewer System project.
2. On 27 April 2022, I placed a phone call to Mr. Donaldson to follow-up, there was no answer. Mr. Donaldson has previously 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.
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 W. KIRKPATRICK, Contractor  
Environmental Manager, 6th Civil Engineer Squadron



*Commit to Serve, Commit to Conserve*







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

**DEC 15 2021**

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

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

Dear Mr. Hill

The Florida Government Utility Authority (FGUA) has developed plans to implement two large scale improvements to the wastewater collection and treatment system at MacDill Air Force Base. Both of these projects would result in ground disturbance and create a potential, although limited, to affect archaeological resources.

In accordance with Executive Order 13175, *Consultation with Indian Tribal Governments*, the Air Force would like to initiate government-to-government consultation regarding the FGUA's plans to improve the base wastewater collection and treatment system. The Air Force desires to discuss the proposal in detail with you so that we may understand and consider any comments, concerns, and suggestions you may have. This letter also initiates our consultation under Section 106 of the National Historic Preservation Act (Code of Federal Regulations, Title 36, Part 800) and requests your input. The two projects are described in detail below and their locations are presented in the attached figures.

Project #1 would extend the wastewater collection system to the western side of the installation. Expanding the sanitary sewer system west of the runway will eliminate the localized septic systems on the western portion of the installation. It may also encourage future development within a portion of the installation that has historically been under-utilized. The proposed work involves substantial excavation for the installation of multiple lift stations and a network of gravity and force main sanitary sewer lines. Installation of the force main piping would primarily be accomplished using a cut-and-cover trenching approach, although directional boring would be used to avoid the runway, taxiways, roadways, and ditch crossings. The new sanitary lines would connect existing facilities on the west side of the runway to the wastewater collection system that already operates on the eastern portion of the base. Figure 1 presents the proposed location for expansion of the sanitary sewer system. An alternative route for the westward expansion of the sanitary sewer system, the Northern Route, is also being considered. Figure 2 presents the location for the Northern Route for sanitary sewer expansion.



Project #2 would install a Class I deep injection well near the base wastewater treatment plant to provide an alternative discharge point for tertiary treated wastewater. Initial plans are for a 24" well to be drilled down to the top of the Avon Park Formation with an open borehole from ~700 to 900 feet below land surface. Figure 3 presents the three locations being considered for the deep injection well.

Figure 4 presents the location of ground disturbing activities associated with expansion of the sanitary sewer system west of the runway in relation to known archaeological sites. Figure 4 also presents the location for the Northern Route alternative for expansion of the sanitary sewer system. Only one archaeological site (8Hi14613) is located near the proposed route for the western sanitary sewer system, and with proper project planning MacDill can ensure that all ground disturbing activities remain outside a 25-meter buffer around the site. Site 8Hi14613 has been determine ineligible for the National Register of Historic Places. If the Northern Route alternative for expansion of the sanitary sewer is selected, the route would cross two culturally significant archaeological sites (8Hi03382 and 8Hi14510); however, disturbance of both sites would be avoided through the selective use of directional boring. The force main would be installed 10-20 feet below land surface beneath these sites and no ground disturbing activities would occur within a 25-meter buffer around the site.

Figure 5 presents possible locations for installation of the deep injection well in relation to known archaeological sites. One of the proposed sites for the deep injection well is located very near Site 8Hi00050, which is eligible for the National Register of Historic Places. Figure 6 presents the estimated site boundaries for site 8Hi00050 in relation to sites being considered for installation of the injection well. Attachment 2 provides a short description of the 30 sites within 1 km of both the sanitary sewer project and the injection well project. Overall, we believe the potential for impact to archaeological sites is low; however, if artifacts, concentrations of shell, or unique soil conditions are discovered during earth work, all construction activity in the vicinity of the discovery shall cease until the MacDill Cultural Resources Manager has assessed the situation in consultation with your tribe.

Please let us know when you would be available to discuss the 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

2 Attachments:

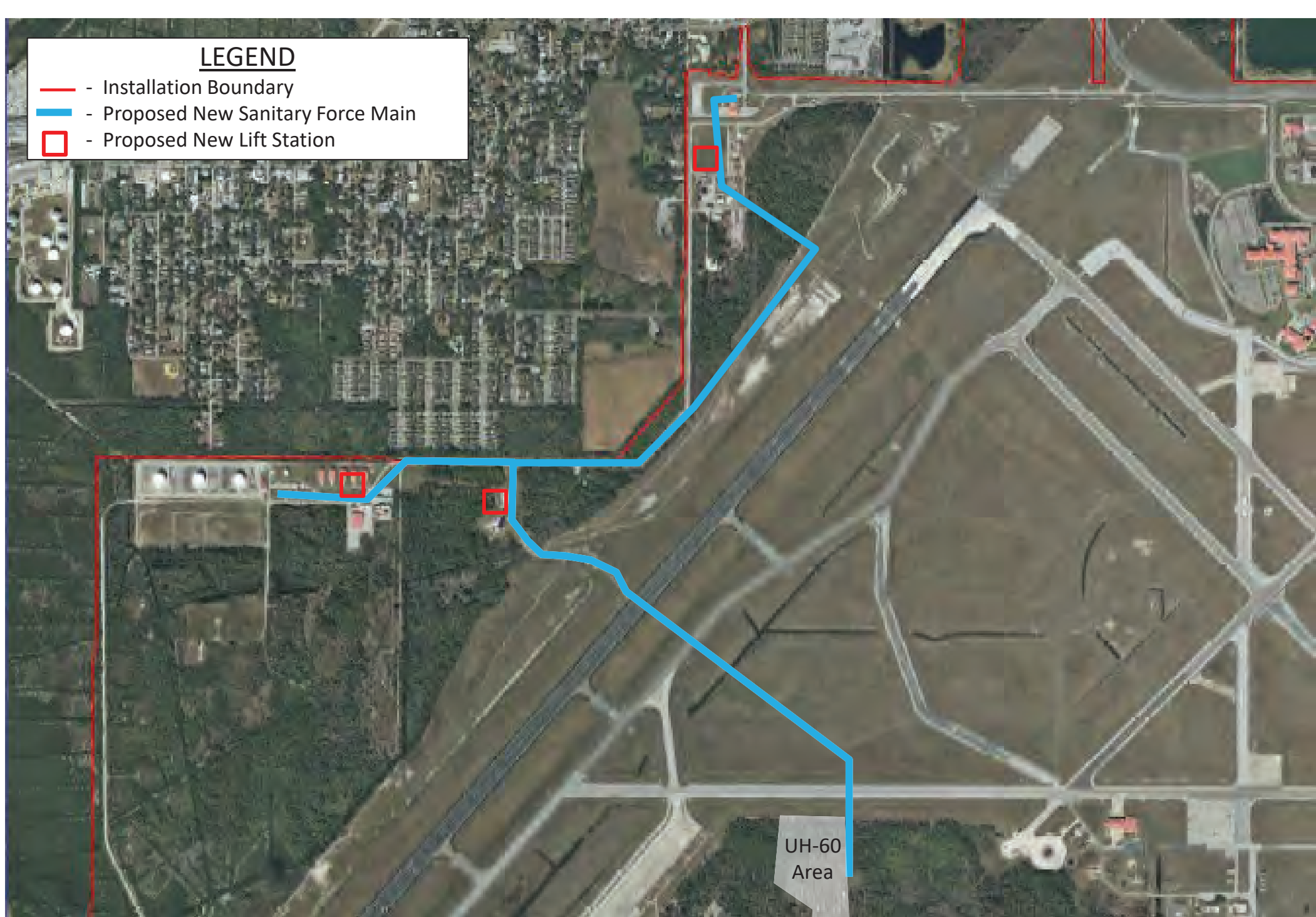
1. Figures 1 through 6
2. Archaeological Site Descriptions

cc:

Ms. RayLynn Butler

## LEGEND

- Installation Boundary
- Proposed New Sanitary Force Main
- Proposed New Lift Station



UH-60  
Area

**Figure 1:** Location of the proposed force mains to support expansion of the sanitary sewer system to the western side of the installation.



## LEGEND

- Installation Boundary
- Proposed New Sanitary Force Main
- Proposed New Lift Station



Defense Fuels  
Support Point

Control Tower

Tanker Way  
Gate

Medical  
Clinic

UH-60  
Area



**Figure 2:** Location of proposed force main piping for the Northern Route Alternative considered for expansion of the sanitary sewer system to the western side of the installation.





**Figure 3:** Primary (#1) and alternative (#2 & #3) locations for the proposed wastewater injection well.





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

27 April 2022

MEMORANDUM FOR RECORD

FROM: 6 CES/CEIE

SUBJECT: Consultation with the Muscogee (Creek) Nation Regarding Florida Government Utility Authority Expand Sanitary Sewer System Project at MacDill AFB

1. A hard copy consultation letter for the subject project was mailed to the Muscogee (Creek) Nation on 15 December 2021. In addition, an electronic version of the letter was e-mailed to Section 106 Administrative Mailbox for the Muscogee Creek Nation ([Section106@mcn-nsn.gov](mailto:Section106@mcn-nsn.gov)) as well as to Ms. RaeLynn Butler with the Muscogee (Creek) Nation on 16 December 2021. A follow-up e-mail was sent to Ms. Butler on 1 April 2022 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 Florida Government Utility Authority Expand Sanitary Sewer System project.
2. On 27 April 2022, I placed a call to the Historic and Cultural Preservation Department for the Muscogee (Creek) Nation to check-in and follow-up. I called Ms. Butler's direct extension and reached her voicemail. I left a detailed message for the reason for the call along with my phone number. No return call was received from Ms. Butler.
3. 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



*Commit to Serve, Commit to Conserve*





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

**DEC 15 2021**

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

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

Dear Mr. Chilcoat

The Florida Government Utility Authority (FGUA) has developed plans to implement two large scale improvements to the wastewater collection and treatment system at MacDill Air Force Base. Both of these projects would result in ground disturbance and create a potential, although limited, to affect archaeological resources.

In accordance with Executive Order 13175, *Consultation with Indian Tribal Governments*, the Air Force would like to initiate government-to-government consultation regarding the FGUA's plans to improve the base wastewater collection and treatment system. The Air Force desires to discuss the proposal in detail with you so that we may understand and consider any comments, concerns, and suggestions you may have. This letter also initiates our consultation under Section 106 of the National Historic Preservation Act (Code of Federal Regulations, Title 36, Part 800) and requests your input. The two projects are described in detail below and their locations are presented in the attached figures.

Project #1 would extend the wastewater collection system to the western side of the installation. Expanding the sanitary sewer system west of the runway will eliminate the localized septic systems on the western portion of the installation. It may also encourage future development within a portion of the installation that has historically been under-utilized. The proposed work involves substantial excavation for the installation of multiple lift stations and a network of gravity and force main sanitary sewer lines. Installation of the force main piping would primarily be accomplished using a cut-and-cover trenching approach, although directional boring would be used to avoid the runway, taxiways, roadways, and ditch crossings. The new sanitary lines would connect existing facilities on the west side of the runway to the wastewater collection system that already operates on the eastern portion of the base. Figure 1 presents the proposed location for expansion of the sanitary sewer system. An alternative route for the westward expansion of the sanitary sewer system, the Northern Route, is also being considered. Figure 2 presents the location for the Northern Route for sanitary sewer expansion.



Project #2 would install a Class I deep injection well near the base wastewater treatment plant to provide an alternative discharge point for tertiary treated wastewater. Initial plans are for a 24" well to be drilled down to the top of the Avon Park Formation with an open borehole from ~700 to 900 feet below land surface. Figure 3 presents the three locations being considered for the deep injection well.

Figure 4 presents the location of ground disturbing activities associated with expansion of the sanitary sewer system west of the runway in relation to known archaeological sites. Figure 4 also presents the location for the Northern Route alternative for expansion of the sanitary sewer system. Only one archaeological site (8Hi14613) is located near the proposed route for the western sanitary sewer system, and with proper project planning MacDill can ensure that all ground disturbing activities remain outside a 25-meter buffer around the site. Site 8Hi14613 has been determine ineligible for the National Register of Historic Places. If the Northern Route alternative for expansion of the sanitary sewer is selected, the route would cross two culturally significant archaeological sites (8Hi03382 and 8Hi14510); however, disturbance of both sites would be avoided through the selective use of directional boring. The force main would be installed 10-20 feet below land surface beneath these sites and no ground disturbing activities would occur within a 25-meter buffer around the site.

Figure 5 presents possible locations for installation of the deep injection well in relation to known archaeological sites. One of the proposed sites for the deep injection well is located very near Site 8Hi00050, which is eligible for the National Register of Historic Places. Figure 6 presents the estimated site boundaries for site 8Hi00050 in relation to sites being considered for installation of the injection well. Attachment 2 provides a short description of the 30 sites within 1 km of both the sanitary sewer project and the injection well project. Overall, we believe the potential for impact to archaeological sites is low; however, if artifacts, concentrations of shell, or unique soil conditions are discovered during earth work, all construction activity in the vicinity of the discovery shall cease until the MacDill Cultural Resources Manager has assessed the situation in consultation with your tribe.

Please let us know when you would be available to discuss the 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

2 Attachments:

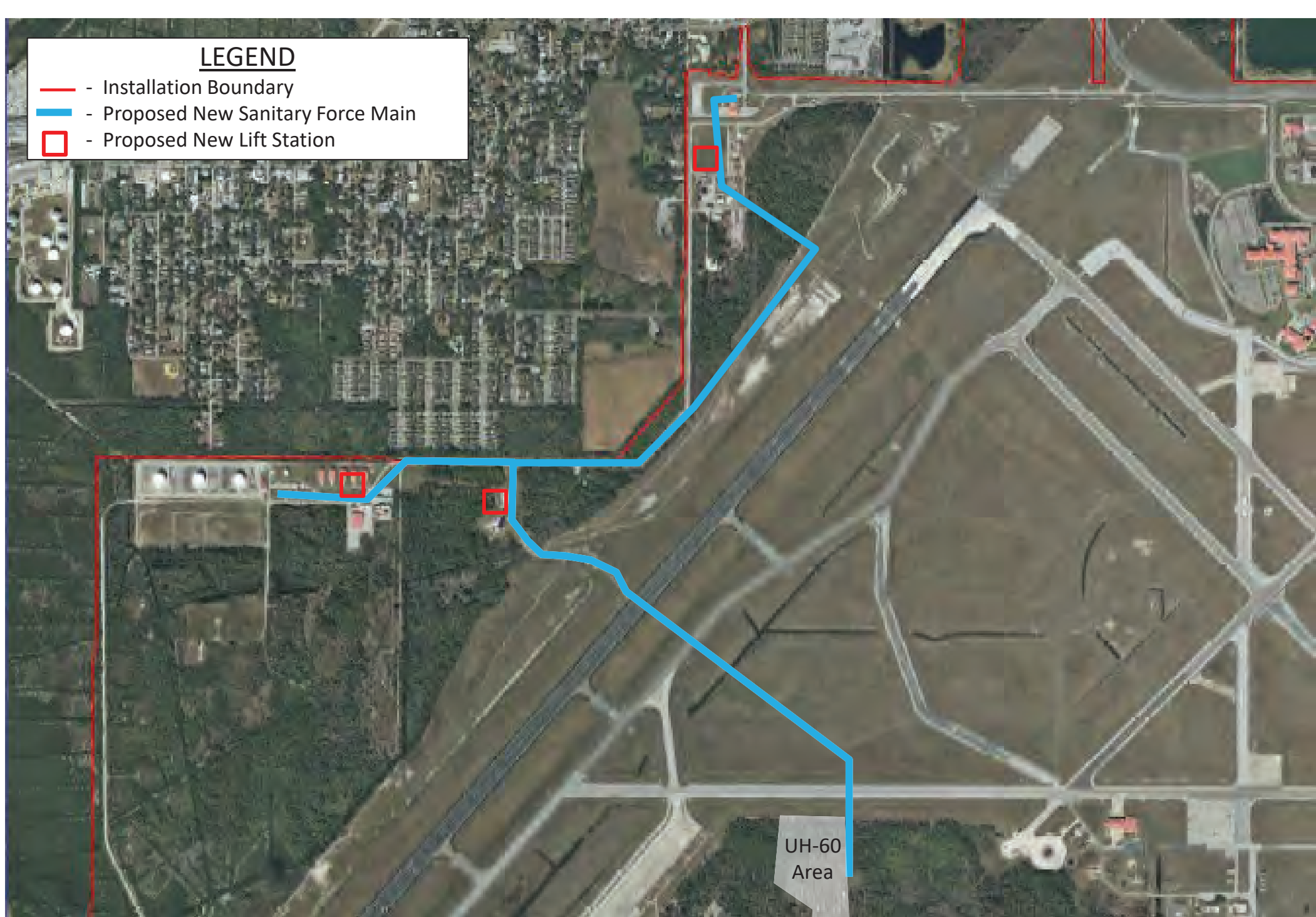
1. Figures 1 through 6
2. Archaeological Site Descriptions

cc:

Mr. Edwin Marshal

## LEGEND

- Installation Boundary
- Proposed New Sanitary Force Main
- Proposed New Lift Station



UH-60  
Area

**Figure 1:** Location of the proposed force mains to support expansion of the sanitary sewer system to the western side of the installation.



## LEGEND

- Installation Boundary
- Proposed New Sanitary Force Main
- Proposed New Lift Station



Defense Fuels  
Support Point

Control Tower

Tanker Way  
Gate

Medical  
Clinic

UH-60  
Area



**Figure 2:** Location of proposed force main piping for the Northern Route Alternative considered for expansion of the sanitary sewer system to the western side of the installation.





**Figure 3:** Primary (#1) and alternative (#2 & #3) locations for the proposed wastewater injection well.



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

27 April 2022

MEMORANDUM FOR RECORD

FROM: 6 CES/CEIEC

SUBJECT: Consultation with the Seminole Nation of Oklahoma Regarding Florida  
Government Utility Authority Expand Sanitary Sewer System Project at MacDill  
AFB

1. A hard copy consultation letter for the subject project was mailed to the Seminole Nation of Oklahoma on 15 December 2021. In addition, an electronic version of the letter was e-mailed to Mr. Edwin Marshall with the Seminole Nation of Oklahoma on 16 December 2021. A follow-up e-mail was sent to Mr. Marshall on 1 April 2022 to confirm that the initial consultation letter was received and to request feedback from the Seminole Nation of Oklahoma. To date, there has been no reply from Mr. Marshall on our requests for input on the Florida Government Utility Authority Expand Sanitary Sewer project.
2. On 27 April 2022, I placed a call to the Historic Preservation Office for the Seminole Nation of Oklahoma to check-in and follow-up. I was informed that Mr. Edwin Marshall is no longer the THPO, and a new THPO has not been established yet. If I receive any feedback at a later date, then I will update this memorandum.
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



*Commit to Serve, Commit to Conserve*







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

**DEC 15 2021**

Colonel Benjamin Jonsson  
Commander  
6th Air Refueling Wing  
8208 Hangar Loop Drive, Suite 1  
MacDill Air Force Base FL 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 Florida Government Utility Authority (FGUA) has developed plans to implement two large scale improvements to the wastewater collection and treatment system at MacDill Air Force Base. Both of these projects would result in ground disturbance and create a potential, although limited, to affect archaeological resources.

In accordance with Executive Order 13175, *Consultation with Indian Tribal Governments*, the Air Force would like to initiate government-to-government consultation regarding the FGUA's plans to improve the base wastewater collection and treatment system. The Air Force desires to discuss the proposal in detail with you so that we may understand and consider any comments, concerns, and suggestions you may have. This letter also initiates our consultation under Section 106 of the National Historic Preservation Act (Code of Federal Regulations, Title 36, Part 800) and requests your input. The two projects are described in detail below and their locations are presented in the attached figures.

Project #1 would extend the wastewater collection system to the western side of the installation. Expanding the sanitary sewer system west of the runway will eliminate the localized septic systems on the western portion of the installation. It may also encourage future development within a portion of the installation that has historically been under-utilized. The proposed work involves substantial excavation for the installation of multiple lift stations and a network of gravity and force main sanitary sewer lines. Installation of the force main piping would primarily be accomplished using a cut-and-cover trenching approach, although directional boring would be used to avoid the runway, taxiways, roadways, and ditch crossings. The new sanitary lines would connect existing facilities on the west side of the runway to the wastewater collection system that already operates on the eastern portion of the base. Figure 1 presents the proposed location for expansion of the sanitary sewer system. An alternative route for the westward expansion of the sanitary sewer system, the Northern Route, is also being considered. Figure 2 presents the location for the Northern Route for sanitary sewer expansion.



Project #2 would install a Class I deep injection well near the base wastewater treatment plant to provide an alternative discharge point for tertiary treated wastewater. Initial plans are for a 24" well to be drilled down to the top of the Avon Park Formation with an open borehole from ~700 to 900 feet below land surface. Figure 3 presents the three locations being considered for the deep injection well.

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Please let us know when you would be available to discuss the 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

2 Attachments:

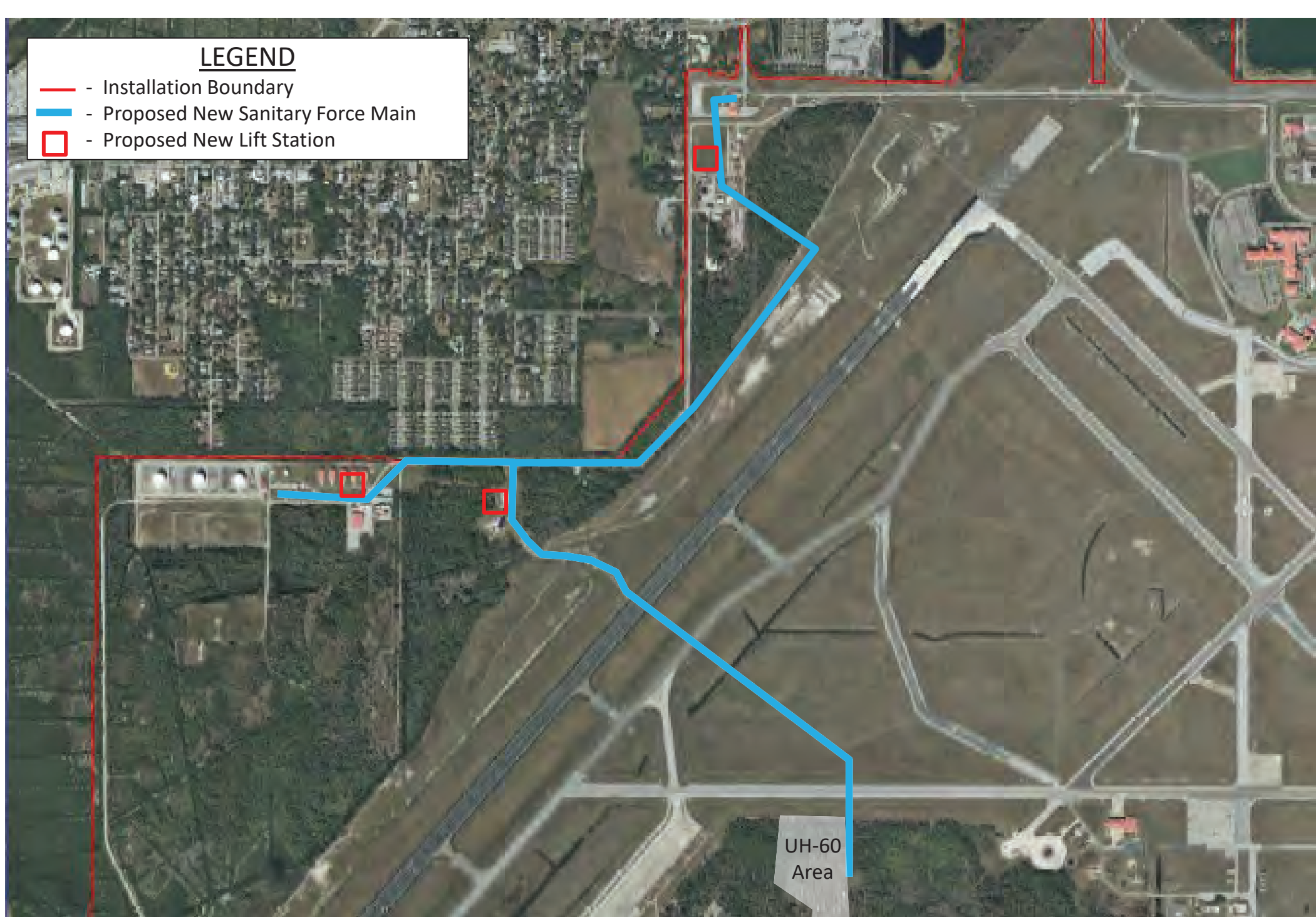
1. Figures 1 through 6
2. Archaeological Site Descriptions

cc:

Dr. Paul Backhouse

## LEGEND

- Installation Boundary
- Proposed New Sanitary Force Main
- Proposed New Lift Station



UH-60  
Area

**Figure 1:** Location of the proposed force mains to support expansion of the sanitary sewer system to the western side of the installation.



## LEGEND

- Installation Boundary
- Proposed New Sanitary Force Main
- Proposed New Lift Station



Defense Fuels  
Support Point

Control Tower

UH-60  
Area

Tanker Way  
Gate

Medical  
Clinic



**Figure 2:** Location of proposed force main piping for the Northern Route Alternative considered for expansion of the sanitary sewer system to the western side of the installation.





**Figure 3:** Primary (#1) and alternative (#2 & #3) locations for the proposed wastewater injection well.



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

27 April 2022

MEMORANDUM FOR RECORD

FROM: 6 CES/CEIE

SUBJECT: Consultation with the Seminole Tribe of Florida Regarding Florida Government Utility Authority Expand Sanitary Sewer System Project at MacDill AFB

1. A hard copy consultation letter for the subject project was mailed to the Seminole Tribe of Florida on 15 December 2021. In addition, an electronic version of the letter was e-mailed to Dr. Paul Backhouse, Mr. Bradly Mueller, and the STOF THPO Compliance in-box on 16 December 2021. A follow-up e-mail was sent to the above individuals/e-mail box on 1 April 2022 to confirm that the initial consultation letter was received and to request feedback from the Seminole Tribe of Florida. To date, there has been no reply from anyone from the Seminole Tribe of Florida on our requests for input on the Florida Government Utility Authority Expand Sanitary Sewer project.
2. On 27 April 2022, I placed a call to the Historic Preservation Office for the Seminole Tribe of Florida to check-in and follow-up. I left a voicemail message for Anne Mullins in the Tribal Historic Preservation Office. If I receive any feedback at a later date, then I will update this memorandum.
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 W. KIRKPATRICK, Contractor  
Environmental Manager, 6th Civil Engineer Squadron



*Commit to Serve, Commit to Conserve*



1  
2

**Appendix C**  
**Public Notice and Comments**

# Tampa Bay Times

tampabay.com

- Ad Proof -

02/14/2023

## Order Confirmation

**Ad Order Number**

0000272761

**Sales Rep.**

dbonett

**E-Mail**

dbonett@tampabay.com

**Order Taker**

dbonett

**Order Source**

**Customer**

GOVERNMENT SERVICES GROUP INC

**Customer Account**

117436

**Customer Address**

280 WEKIVA SPRINGS RD STE 2070

LONGWOOD FL 32779 USA

**Customer Phone**

4076296900

**Payor Customer**

GOVERNMENT SERVICES GROUP INC

**Payor Account**

117436

**Payor Address**

280 WEKIVA SPRINGS RD STE 2070

LONGWOOD FL 32779 USA

**Payor Phone**

4076296900

**PO Number**

**Ordered By**

Lauren

**Customer Fax**

4076296963

**Customer E-Mail**

John Carlson <jcarlson@govmserv.

**Special Pricing**

**Tear Sheets**

0

**Proofs**

0

**Affidavits**

2

**Blind Box**

**Promo Type**

**Materials**

**Invoice Text**

100 Year Floodplain

**Ad Order Notes**

**Net Amount**

\$423.56

**Tax Amount**

\$0.00

**Total Amount**

\$423.56

**Payment Method**

Credit Card

**Payment Amount**

\$423.56

**Amount Due**

\$0.00

# Tampa Bay Times

tampabay.com

- Ad Proof -

<u>Ad Number</u>	<u>Ad Type</u>	<u>Production Method</u>	<u>Production Notes</u>
0000272761-01	CLS Legal Liner	AdBooker	
<u>External Ad Number</u>	<u>Ad Attributes</u>	<u>Ad Released</u>	<u>Pick Up</u>
		No	0000097731-01

<u>Ad Size</u>	<u>Color</u>
2 X 34 li	

WYSIWYG Content

**NOTICE FOR EARLY PUBLIC REVIEW OF A PROPOSED  
ACTIVITY IN THE  
100-YEAR FLOODPLAIN**

The Air Force is inviting public input on any practicable alternatives for a proposed activity within the 100 year floodplain. The Proposed Action is construction of an injection well to dispose of treated effluent from the MacDill Air Force Base wastewater treatment plant. This notice is required by Section 2(a)(4) of Executive Order 11988, Floodplain Management, and has been prepared and made available to the public by the Air Force in accordance with 32 Code of Federal Regulations, Part 989.24(c) and Air Force Manual 32-7003 for actions proposed in a floodplain.

Disposal of treated wastewater is currently accomplished through a combination of three secondary disposal sites: a Slow-Rate Part III Public Access Reuse irrigation system at the Bay Palms Golf Complex (R-001), a Slow-Rate Restricted Public Access Reuse spray irrigation system (R-002), and a Restricted Public Access Rapid-Rate infiltration basin (R-003). The current system is severely limited during the wet weather season. Disposal of treated wastewater via an injection well would enable the wastewater treatment plant to meet current and anticipated future needs and avoid discharge violations in wet-weather conditions.

The public comment period will run for 30 days past the published date of this notice. Address 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. The telephone number is 813-828-2215.  
February 19, 2023 0000272761

<u>Run Date</u>	<u>Product</u>	<u>Placement</u>	<u>Position</u>	<u>Zone</u>
02/19/2023	Tampa Bay Times	Legals - CLS	Legal	BL-Pasco
02/19/2023	Tampa Bay Times	Legals - CLS	Legal	BL-Hillsborough



# Payment Receipt

Tuesday, February 14, 2023

Transaction Type: Payment

Order Number: 0000272761

Payment Method: Credit Card

Bad Debt: -

Credit Card Number: \*\*\*\*\*9113

Credit Card Expire Date: 11/28/2025

Payment Amount: 423.56

Reference Number: 043119

Charge to Company: **Times Publishing Company**

Category: Classified

Credit to Transaction Number: P112368

Invoice Text:

Invoice Notes:

Customer Type: Commercial

Customer Category:

Customer Status: Active

Customer Group: CLS All Other

Customer Trade:

Account Number: 117436

Phone Number: 4076296900

Company / Individual: **Company**

Customer Name: GOVERNMENT SERVICES GROUP INC

Customer Address: 280 WEKIVA SPRINGS RD STE 2070

LONGWOOD FL 32779 USA

Check Number:

Routing Number:

# **PUBLIC NOTICE** **UNITED STATES AIR FORCE**

## **Notice of Availability**

### **Draft Environmental Assessment (EA) on the construction and operation of a Reclaimed Wastewater Injection Well, MacDill Air Force Base (AFB), Florida**

The Department of Air Force (DAF) invites public review and comment on a DAF Environmental Impact Analysis Process document evaluating the proposed construction a Class I injection well for disposal of treated wastewater effluent at MacDill AFB.

The U.S. Air Force (USAF) invites public review and comment on a USAF Environmental Impact Analysis Process (EIAP) document for the following project at MacDill AFB: the construction of an injection well to dispose of treated effluent from the MacDill AFB wastewater treatment plant and an associated monitoring well.

The USAF invites public participation through the solicitation of comments on the Draft EA. Comments are invited and will be accepted for 30 days from the publication of this notice. The Draft EA is available on the MacDill AFB public web site, <http://www.macdill.af.mil/> and a hard copy is available at the following local library:

**John F. Germany Public Library  
(Tampa/Hillsborough County)**

900 N. Ashley Drive  
Tampa, Florida 33602

Provide written comments to 6 ARW Public Affairs, 8209 Hangar Loop Drive, Suite 14, MacDill AFB, FL 33621-5502, or via email to [6.arw.pa@us.af.mil](mailto:6.arw.pa@us.af.mil), no later than **Month day**, 2023. The contact telephone number is (813) 828-2215.



# DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

## 1. General Information

---

### - Action Location

**Base:** MACDILL AFB  
**State:** Florida  
**County(s):** Hillsborough  
**Regulatory Area(s):** Hillsborough County, FL

**- Action Title:** Reclaimed Wastewater Injection Well

**- Project Number/s (if applicable):** System Defficiency Correction (SDC) Project No. 65

**- Projected Action Start Date:** 9 / 2023

### - Action Purpose and Need:

The purpose of the Proposed Action is to provide a reliable means of wastewater effluent disposal that would manage current and anticipated future demand and meet the regulatory requirements specified in the AFB's wastewater facility permit. The facility has experienced a significant reduction in reclaimed water demand from its primary disposal location, the Bay Palms Golf Course, which has contributed to flow exceedances to the secondary disposal locations (spray field and wet weather pond). FGUA needs an alternate means of wastewater effluent disposal in order to maintain compliance with its permit and regulatory requirements.

### - Action Description:

The Preferred Alternative (Alternative 1 for this ACAM evaluation) involves the construction of a Class I Injection Well for disposal of all wet weather reclaimed water flows and off specification effluent from the FGUA wastewater treatment plant (WWTP) at MacDill AFB. This alternative would provide a reliable disposal option during wet weather and would solve the current and future problem of excess reclaimed water.

### - Point of Contact

**Name:** M. Harrison  
**Title:** Utility Manager  
**Organization:** Florida Governmental Utility Authority  
**Email:** mharrison@govmserv.com  
**Phone Number:** 407-628-6757

### - Activity List:

	Activity Type	Activity Title
2.	Construction / Demolition	Injection Well and Monitor Well Construction with pipe connection to the WWTP Effluent Pump Station

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

## 2. Construction / Demolition

---

### 2.1 General Information & Timeline Assumptions

#### - Activity Location

**County:** Hillsborough  
**Regulatory Area(s):** Hillsborough County, FL

# DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

**- Activity Title:** Injection Well and Monitor Well Construction with pipe connection to the WWTP Effluent Pump Station

**- Activity Description:**

The proposed injection well would be drilled in an open area near the southwest corner of the WWTP to a targeted zone approximately 800 to 900 feet below ground surface. One, approximately 550 feet deep monitoring well would be installed in an open area near the southeast corner of the WWTP within a 150-foot radius of the injection well. Both wells will be installed using mud rotary drilling through the unconsolidated surface sediments, then using reverse-air drilling techniques in consolidated deposits to total depth. Both wells will receive 10 feet by 10 feet concrete housekeeping pads at ground surface and well head appurtenances to control fluids. The injection wellhead will be connected to the WWTP's effluent pumping station with new ductile iron piping, control valves, and monitoring/automation controls.

**- Activity Start Date**

**Start Month:** 9  
**Start Month:** 2023

**- Activity End Date**

**Indefinite:** False  
**End Month:** 5  
**End Month:** 2024

**- Activity Emissions:**

Pollutant	Total Emissions (TONs)
VOC	0.157786
SO <sub>x</sub>	0.003745
NO <sub>x</sub>	0.910094
CO	1.454692
PM 10	0.047143

Pollutant	Total Emissions (TONs)
PM 2.5	0.029209
Pb	0.000000
NH <sub>3</sub>	0.000596
CO <sub>2e</sub>	360.2

## 2.1 Trenching/Excavating Phase

### 2.1.1 Trenching / Excavating Phase Timeline Assumptions

**- Phase Start Date**

**Start Month:** 9  
**Start Quarter:** 1  
**Start Year:** 2023

**- Phase Duration**

**Number of Month:** 9  
**Number of Days:** 0

### 2.1.2 Trenching / Excavating Phase Assumptions

**- General Trenching/Excavating Information**

**Area of Site to be Trenched/Excavated (ft<sup>2</sup>):** 200  
**Amount of Material to be Hauled On-Site (yd<sup>3</sup>):** 30  
**Amount of Material to be Hauled Off-Site (yd<sup>3</sup>):** 100

**- Trenching Default Settings**

**Default Settings Used:** No  
**Average Day(s) worked per week:** 5

**- Construction Exhaust**

# DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Equipment Name	Number Of Equipment	Hours Per Day
Air Compressors Composite	1	12
Bore/Drill Rigs Composite	1	12
Cement and Mortar Mixers Composite	1	4
Tractors/Loaders/Backhoes Composite	1	8

**- Vehicle Exhaust**

Average Hauling Truck Capacity (yd<sup>3</sup>): 20  
 Average Hauling Truck Round Trip Commute (mile): 20

**- Vehicle Exhaust Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

**- Worker Trips**

Average Worker Round Trip Commute (mile): 20

**- Worker Trips Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

### 2.1.3 Trenching / Excavating Phase Emission Factor(s)

**- Construction Exhaust Emission Factors (lb/hour)**

**- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)**

	VOC	SO <sub>x</sub>	NO <sub>x</sub>	CO	PM 10	PM 2.5	Pb	NH <sub>3</sub>	CO <sub>2e</sub>
LDGV	000.578	000.008	000.613	005.086	000.009	000.008		000.034	00391.932
LDGT	000.823	000.010	001.060	008.566	000.010	000.009		000.034	00522.586
HDGV	001.597	000.016	002.785	026.982	000.023	000.020		000.046	00814.010
LDDV	000.216	000.004	000.307	004.001	000.006	000.006		000.008	00402.372
LDDT	000.537	000.006	000.822	008.176	000.008	000.008		000.008	00626.077
HDDV	000.762	000.015	007.639	002.810	000.395	000.363		000.028	01633.017
MC	003.190	000.008	000.648	014.785	000.027	000.024		000.048	00392.026

### 2.1.4 Trenching / Excavating Phase Formula(s)

**- Fugitive Dust Emissions per Phase**

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

PM10<sub>FD</sub>: Fugitive Dust PM 10 Emissions (TONs)  
 20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)  
 ACRE: Total acres (acres)  
 WD: Number of Total Work Days (days)  
 2000: Conversion Factor pounds to tons

**- Construction Exhaust Emissions per Phase**

$$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$$

CEE<sub>POL</sub>: Construction Exhaust Emissions (TONs)  
 NE: Number of Equipment  
 WD: Number of Total Work Days (days)  
 H: Hours Worked per Day (hours)  
 EF<sub>POL</sub>: Emission Factor for Pollutant (lb/hour)



# DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

2000: Conversion Factor pounds to tons

## - Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

VMT<sub>VE</sub>: Vehicle Exhaust Vehicle Miles Travel (miles)  
HA<sub>OnSite</sub>: Amount of Material to be Hauled On-Site (yd<sup>3</sup>)  
HA<sub>OffSite</sub>: Amount of Material to be Hauled Off-Site (yd<sup>3</sup>)  
HC: Average Hauling Truck Capacity (yd<sup>3</sup>)  
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd<sup>3</sup>)  
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V<sub>POL</sub>: Vehicle Emissions (TONs)  
VMT<sub>VE</sub>: Vehicle Exhaust Vehicle Miles Travel (miles)  
0.002205: Conversion Factor grams to pounds  
EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile)  
VM: Vehicle Exhaust On Road Vehicle Mixture (%)  
2000: Conversion Factor pounds to tons

## - Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT<sub>WT</sub>: Worker Trips Vehicle Miles Travel (miles)  
WD: Number of Total Work Days (days)  
WT: Average Worker Round Trip Commute (mile)  
1.25: Conversion Factor Number of Construction Equipment to Number of Works  
NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V<sub>POL</sub>: Vehicle Emissions (TONs)  
VMT<sub>VE</sub>: Worker Trips Vehicle Miles Travel (miles)  
0.002205: Conversion Factor grams to pounds  
EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile)  
VM: Worker Trips On Road Vehicle Mixture (%)  
2000: Conversion Factor pounds to tons

## 2.2 Building Construction Phase

### 2.2.1 Building Construction Phase Timeline Assumptions

#### - Phase Start Date

Start Month: 4  
Start Quarter: 1  
Start Year: 2024

#### - Phase Duration

Number of Month: 2  
Number of Days: 0

### 2.2.2 Building Construction Phase Assumptions

#### - General Building Construction Information

# DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

**Building Category:** Office or Industrial  
**Area of Building (ft<sup>2</sup>):** 500  
**Height of Building (ft):** 10  
**Number of Units:** N/A

**- Building Construction Default Settings**

**Default Settings Used:** No  
**Average Day(s) worked per week:** 5

**- Construction Exhaust**

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	4
Forklifts Composite	1	4
Tractors/Loaders/Backhoes Composite	1	8

**- Vehicle Exhaust**

**Average Hauling Truck Round Trip Commute (mile):** 20

**- Vehicle Exhaust Vehicle Mixture (%)**

	LDGV	LDGT	HdGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

**- Worker Trips**

**Average Worker Round Trip Commute (mile):** 20

**- Worker Trips Vehicle Mixture (%)**

	LDGV	LDGT	HdGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

**- Vendor Trips**

**Average Vendor Round Trip Commute (mile):** 40

**- Vendor Trips Vehicle Mixture (%)**

	LDGV	LDGT	HdGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

## 2.2.3 Building Construction Phase Emission Factor(s)

**- Construction Exhaust Emission Factors (lb/hour)**

Cranes Composite								
	VOC	SO <sub>x</sub>	NO <sub>x</sub>	CO	PM 10	PM 2.5	CH <sub>4</sub>	CO <sub>2e</sub>
Emission Factors	0.0715	0.0013	0.4600	0.3758	0.0161	0.0161	0.0064	128.78
Forklifts Composite								
	VOC	SO <sub>x</sub>	NO <sub>x</sub>	CO	PM 10	PM 2.5	CH <sub>4</sub>	CO <sub>2e</sub>
Emission Factors	0.0246	0.0006	0.0973	0.2146	0.0029	0.0029	0.0022	54.451
Tractors/Loaders/Backhoes Composite								
	VOC	SO <sub>x</sub>	NO <sub>x</sub>	CO	PM 10	PM 2.5	CH <sub>4</sub>	CO <sub>2e</sub>
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

**- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)**

	VOC	SO <sub>x</sub>	NO <sub>x</sub>	CO	PM 10	PM 2.5	Pb	NH <sub>3</sub>	CO <sub>2e</sub>
LDGV	000.282	000.002	000.207	003.392	000.006	000.005		000.023	00341.791
LDGT	000.376	000.003	000.373	004.889	000.007	000.006		000.024	00439.705

# DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

HDGV	000.832	000.005	000.964	016.217	000.016	000.014		000.046	00814.851
LDDV	000.084	000.003	000.127	002.822	000.004	000.004		000.008	00334.379
LDDT	000.227	000.004	000.365	004.850	000.007	000.006		000.008	00473.628
HDDV	000.423	000.014	004.175	001.653	000.176	000.162		000.028	01559.331
MC	003.040	000.003	000.626	013.017	000.026	000.023		000.052	00392.775

## 2.2.4 Building Construction Phase Formula(s)

### - Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$$

CEE<sub>POL</sub>: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

EF<sub>POL</sub>: Emission Factor for Pollutant (lb/hour)

2000: Conversion Factor pounds to tons

### - Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = BA * BH * (0.42 / 1000) * HT$$

VMT<sub>VE</sub>: Vehicle Exhaust Vehicle Miles Travel (miles)

BA: Area of Building (ft<sup>2</sup>)

BH: Height of Building (ft)

(0.42 / 1000): Conversion Factor ft<sup>3</sup> to trips (0.42 trip / 1000 ft<sup>3</sup>)

HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V<sub>POL</sub>: Vehicle Emissions (TONs)

VMT<sub>VE</sub>: Vehicle Exhaust Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

### - Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT<sub>WT</sub>: Worker Trips Vehicle Miles Travel (miles)

WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)

1.25: Conversion Factor Number of Construction Equipment to Number of Works

NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V<sub>POL</sub>: Vehicle Emissions (TONs)

VMT<sub>WT</sub>: Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

### - Vender Trips Emissions per Phase

# DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

$$VMT_{VT} = BA * BH * (0.38 / 1000) * HT$$

VMT<sub>VT</sub>: Vender Trips Vehicle Miles Travel (miles)  
 BA: Area of Building (ft<sup>2</sup>)  
 BH: Height of Building (ft)  
 (0.38 / 1000): Conversion Factor ft<sup>3</sup> to trips (0.38 trip / 1000 ft<sup>3</sup>)  
 HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$$

V<sub>POL</sub>: Vehicle Emissions (TONs)  
 VMT<sub>VT</sub>: Vender Trips Vehicle Miles Travel (miles)  
 0.002205: Conversion Factor grams to pounds  
 EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile)  
 VM: Worker Trips On Road Vehicle Mixture (%)  
 2000: Conversion Factor pounds to tons

## 2.3 Architectural Coatings Phase

### 2.3.1 Architectural Coatings Phase Timeline Assumptions

**- Phase Start Date**

Start Month: 5  
 Start Quarter: 1  
 Start Year: 2024

**- Phase Duration**

Number of Month: 1  
 Number of Days: 0

### 2.3.2 Architectural Coatings Phase Assumptions

**- General Architectural Coatings Information**

Building Category: Non-Residential  
 Total Square Footage (ft<sup>2</sup>): 600  
 Number of Units: N/A

**- Architectural Coatings Default Settings**

Default Settings Used: Yes  
 Average Day(s) worked per week: 5 (default)

**- Worker Trips**

Average Worker Round Trip Commute (mile): 20 (default)

**- Worker Trips Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

### 2.3.3 Architectural Coatings Phase Emission Factor(s)

**- Worker Trips Emission Factors (grams/mile)**

	VOC	SO <sub>x</sub>	NO <sub>x</sub>	CO	PM 10	PM 2.5	Pb	NH <sub>3</sub>	CO <sub>2e</sub>
LDGV	000.282	000.002	000.207	003.392	000.006	000.005		000.023	00341.791
LDGT	000.376	000.003	000.373	004.889	000.007	000.006		000.024	00439.705
HDGV	000.832	000.005	000.964	016.217	000.016	000.014		000.046	00814.851

# DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

LDDV	000.084	000.003	000.127	002.822	000.004	000.004		000.008	00334.379
LDDT	000.227	000.004	000.365	004.850	000.007	000.006		000.008	00473.628
HDDV	000.423	000.014	004.175	001.653	000.176	000.162		000.028	01559.331
MC	003.040	000.003	000.626	013.017	000.026	000.023		000.052	00392.775

## 2.3.4 Architectural Coatings Phase Formula(s)

### - Worker Trips Emissions per Phase

$$VMT_{WT} = (1 * WT * PA) / 800$$

VMT<sub>WT</sub>: Worker Trips Vehicle Miles Travel (miles)

1: Conversion Factor man days to trips ( 1 trip / 1 man \* day)

WT: Average Worker Round Trip Commute (mile)

PA: Paint Area (ft<sup>2</sup>)

800: Conversion Factor square feet to man days ( 1 ft<sup>2</sup> / 1 man \* day)

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V<sub>POL</sub>: Vehicle Emissions (TONs)

VMT<sub>WT</sub>: Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

### - Off-Gassing Emissions per Phase

$$VOC_{AC} = (AB * 2.0 * 0.0116) / 2000.0$$

VOC<sub>AC</sub>: Architectural Coating VOC Emissions (TONs)

BA: Area of Building (ft<sup>2</sup>)

2.0: Conversion Factor total area to coated area (2.0 ft<sup>2</sup> coated area / total area)

0.0116: Emission Factor (lb/ft<sup>2</sup>)

2000: Conversion Factor pounds to tons

# AIR CONFORMITY APPLICABILITY MODEL REPORT RECORD OF CONFORMITY ANALYSIS (ROCA)

**1. General Information:** The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

**a. Action Location:**

**Base:** MACDILL AFB  
**State:** Florida  
**County(s):** Hillsborough  
**Regulatory Area(s):** Hillsborough County, FL

**b. Action Title:** Reclaimed Wastewater Injection Well

**c. Project Number/s (if applicable):** System Defficiency Correction (SDC) Project No. 65

**d. Projected Action Start Date:** 9 / 2023

**e. Action Description:**

The Preferred Alternative (Alternative 1 for this ACAM evaluation) involves the construction of a Class I Injection Well for disposal of all wet weather reclaimed water flows and off specification effluent from the FGUA wastewater treatment plant (WWTP) at MacDill AFB. This alternative would provide a reliable disposal option during wet weather and would solve the current and future problem of excess reclaimed water.

**f. Point of Contact:**

**Name:** M. Harrison  
**Title:** Utility Manager  
**Organization:** Florida Governmental Utility Authority  
**Email:** mharrison@govmserv.com  
**Phone Number:** 407-628-6757

**2. Analysis:** Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" and "steady state" (net gain/loss upon action fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

Based on the analysis, the requirements of this rule are:  applicable  
 not applicable

**Conformity Analysis Summary:**

**2023**

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Hillsborough County, FL			
VOC	0.060		
NOx	0.367		
CO	0.589		
SOx	0.002	100	No
PM 10	0.020		
PM 2.5	0.012		
Pb	0.000		



## AIR CONFORMITY APPLICABILITY MODEL REPORT RECORD OF CONFORMITY ANALYSIS (ROCA)

NH3	0.000		
CO2e	147.2		

### 2024

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Hillsborough County, FL			
VOC	0.098		
NOx	0.543		
CO	0.865		
SOx	0.002	100	No
PM 10	0.027		
PM 2.5	0.017		
Pb	0.000		
NH3	0.000		
CO2e	213.0		

### 2025 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Hillsborough County, FL			
VOC	0.000		
NOx	0.000		
CO	0.000		
SOx	0.000	100	No
PM 10	0.000		
PM 2.5	0.000		
Pb	0.000		
NH3	0.000		
CO2e	0.0		

None of estimated emissions associated with this action are above the conformity threshold values established at 40 CFR 93.153 (b); Therefore, the requirements of the General Conformity Rule are not applicable.

**Michael J. Harrison**

Digitally signed by Michael J.  
Harrison  
Date: 2023.02.10 07:59:34 -05'00'

**02/10/2023**

M. Harrison, Utility Manager

DATE

# AIR CONFORMITY APPLICABILITY MODEL REPORT RECORD OF CONFORMITY ANALYSIS (ROCA)

**1. General Information:** The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

**a. Action Location:**

**Base:** MACDILL AFB  
**State:** Florida  
**County(s):** Hillsborough  
**Regulatory Area(s):** Hillsborough County, FL

**b. Action Title:** Reclaimed Wastewater Injection Well - Alternative 1 - Expansion of Disposal Sites

**c. Project Number/s (if applicable):** System Deficiency Correction (SDC) Project No. 65

**d. Projected Action Start Date:** 9 / 2023

**e. Action Description:**

This project alternative would include expanding or enhancing the current three permitted disposal sites (i.e., R-001 Golf Course Irrigation, R-002 Spray Field, and R-003 Wet Weather Pond). The expansion of these disposal sites described below could provide additional capacity for reclaimed water disposal.

**Irrigation System Expansion (R-001)** — Based on availability and proximity, the Munitions Storage Area could be used for potential irrigation expansion. This would require installation of irrigation piping at the new site and a new booster pump station and piping to convey the effluent from the WWTP to this location. Assuming an irrigation loading rate of 1 inch per week, the irrigation system expansion could provide an additional capacity up to 0.43 MGD of disposal.

**Spray Field Expansion (R-002)** — Additional land adjacent to the existing spray field would be used to double the size and spray field capacity for another 80,000 gallons AADF of off-specification, Part III water that cannot be applied to the golf courses or to the wet weather pond (R-003). This option would require an additional estimated at 10 acres of land added to the wastewater utility system.

**Wet Weather Pond Expansion (R-003)** — The existing wet weather pond (R-003) would be enhanced to complete a pond expansion of 50% of the existing storage volume; a 9-acre expansion. This would provide up to 10 million gallons of additional storage that would help contain any wet weather flows during the wet season.

**f. Point of Contact:**

**Name:** M. Harrison  
**Title:** Utility Manager  
**Organization:** Florida Governmental Utility Authority  
**Email:** mharrison@govmserv.com  
**Phone Number:** 407-628-6900

**2. Analysis:** Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" and "steady state" (net gain/loss upon action fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

Based on the analysis, the requirements of this rule are: \_\_\_\_\_ applicable

# AIR CONFORMITY APPLICABILITY MODEL REPORT RECORD OF CONFORMITY ANALYSIS (ROCA)

\_X\_ not applicable

**Conformity Analysis Summary:**

### 2023

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Hillsborough County, FL			
VOC	0.564		
NOx	3.358		
CO	3.205		
SOx	0.009	100	No
PM 10	88.185		
PM 2.5	0.133		
Pb	0.000		
NH3	0.001		
CO2e	934.5		

### 2024

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Hillsborough County, FL			
VOC	0.282		
NOx	1.679		
CO	1.603		
SOx	0.005	100	No
PM 10	44.092		
PM 2.5	0.067		
Pb	0.000		
NH3	0.001		
CO2e	467.2		

### 2025 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Hillsborough County, FL			
VOC	0.000		
NOx	0.000		
CO	0.000		
SOx	0.000	100	No
PM 10	0.000		
PM 2.5	0.000		
Pb	0.000		
NH3	0.000		
CO2e	0.0		

None of estimated emissions associated with this action are above the conformity threshold values established at 40 CFR 93.153 (b); Therefore, the requirements of the General Conformity Rule are not applicable.

**Michael J. Harrison**

Digitally signed by Michael J.  
Harrison  
Date: 2023.02.14 08:09:21 -05'00'

**02/13/2023**

M. Harrison, Utility Manager

DATE

# DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

## 1. General Information

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### - Action Location

**Base:** MACDILL AFB  
**State:** Florida  
**County(s):** Hillsborough  
**Regulatory Area(s):** Hillsborough County, FL

**- Action Title:** Reclaimed Wastewater Injection Well - Alternative 1 - Expansion of Disposal Sites

**- Project Number/s (if applicable):** System Defficiency Correction (SDC) Project No. 65

**- Projected Action Start Date:** 9 / 2023

### - Action Purpose and Need:

The purpose of the Proposed Action is to provide a reliable means of wastewater effluent disposal that would manage current and anticipated future demand and meet the regulatory requirements specified in the AFB's wastewater facility permit. The facility has experienced a significant reduction in reclaimed water demand from its primary disposal location, the Bay Palms Golf Course, which has contributed to flow exceedances to the secondary disposal locations (spray field and wet weather pond). FGUA needs an alternate means of wastewater effluent disposal in order to maintain compliance with its permit and regulatory requirements.

### - Action Description:

This project alternative would include expanding or enhancing the current three permitted disposal sites (i.e., R-001 Golf Course Irrigation, R-002 Spray Field, and R-003 Wet Weather Pond). The expansion of these disposal sites described below could provide additional capacity for reclaimed water disposal.

Irrigation System Expansion (R-001) — Based on availability and proximity, the Munitions Storage Area could be used for potential irrigation expansion. This would require installation of irrigation piping at the new site and a new booster pump station and piping to convey the effluent from the WWTP to this location. Assuming an irrigation loading rate of 1 inch per week, the irrigation system expansion could provide an additional capacity up to 0.43 MGD of disposal.

Spray Field Expansion (R-002) — Additional land adjacent to the existing spray field would be used to double the size and spray field capacity for another 80,000 gallons AADF of off-specification, Part III water that cannot be applied to the golf courses or to the wet weather pond (R-003). This option would require an additional estimated at 10 acres of land added to the wastewater utility system.

Wet Weather Pond Expansion (R-003) — The existing wet weather pond (R-003) would be enhanced to complete a pond expansion of 50% of the existing storage volume; a 9-acre expansion. This would provide up to 10 million gallons of additional storage that would help contain any wet weather flows during the wet season.

### - Point of Contact

**Name:** M. Harrison  
**Title:** Utility Manager  
**Organization:** Florida Governmental Utility Authority  
**Email:** mharrison@govmserv.com  
**Phone Number:** 407-628-6900

### - Activity List:

Activity Type	Activity Title
2. Construction / Demolition	Expansion of the Irrigation System, Spray Field and Wet Weather Pond

# DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

## 2. Construction / Demolition

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### 2.1 General Information & Timeline Assumptions

#### - Activity Location

**County:** Hillsborough  
**Regulatory Area(s):** Hillsborough County, FL

**- Activity Title:** Expansion of the Irrigation System, Spray Field and Wet Weather Pond

#### - Activity Description:

Complete construction activities that include clearing and grubbing, grading, and installation of reclaimed water piping from new connections to the existing WWTP reclaimed water force main located near the existing Spray Field to the three new disposals sites identified below.

Irrigation System Expansion (R-001) — Based on availability and proximity, the Munitions Storage Area could be used for potential irrigation expansion. This would require installation of irrigation piping at the new site and a new booster pump station and piping to convey the effluent from the WWTP to this location. An estimated 30 acres of grass-covered land within the MSA could be irrigated.

Spray Field Expansion (R-002) — Additional land adjacent to the existing spray field would be used to double the size and spray field capacity for another 80,000 gallons AADF of off-specification, Part III water that cannot be applied to the golf courses or to the wet weather pond (R-003). This option would require an additional estimated at 10 acres of land added to the wastewater utility system.

Wet Weather Pond Expansion (R-003) — The existing wet weather pond (R-003) would be enhanced to complete a pond expansion of 50% of the existing storage volume; a 9-acre expansion. This would provide up to 10 million gallons of additional storage that would help contain any wet weather flows during the wet season.

#### - Activity Start Date

**Start Month:** 9  
**Start Month:** 2023

#### - Activity End Date

**Indefinite:** False  
**End Month:** 2  
**End Month:** 2024

#### - Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.845321
SO <sub>x</sub>	0.014114
NO <sub>x</sub>	5.037481
CO	4.807922
PM 10	132.277447

Pollutant	Total Emissions (TONs)
PM 2.5	0.200168
Pb	0.000000
NH <sub>3</sub>	0.001521
CO <sub>2e</sub>	1401.7

### 2.1 Site Grading Phase

# DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

## 2.1.1 Site Grading Phase Timeline Assumptions

**- Phase Start Date**

Start Month: 9  
 Start Quarter: 1  
 Start Year: 2023

**- Phase Duration**

Number of Month: 6  
 Number of Days: 0

## 2.1.2 Site Grading Phase Assumptions

**- General Site Grading Information**

Area of Site to be Graded (ft<sup>2</sup>): 2134000  
 Amount of Material to be Hauled On-Site (yd<sup>3</sup>): 5125  
 Amount of Material to be Hauled Off-Site (yd<sup>3</sup>): 500

**- Site Grading Default Settings**

Default Settings Used: Yes  
 Average Day(s) worked per week: 5 (default)

**- Construction Exhaust (default)**

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	2	8
Other Construction Equipment Composite	2	8
Rubber Tired Dozers Composite	2	8
Scrapers Composite	4	8
Tractors/Loaders/Backhoes Composite	2	8

**- Vehicle Exhaust**

Average Hauling Truck Capacity (yd<sup>3</sup>): 20 (default)  
 Average Hauling Truck Round Trip Commute (mile): 20 (default)

**- Vehicle Exhaust Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

**- Worker Trips**

Average Worker Round Trip Commute (mile): 20 (default)

**- Worker Trips Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

## 2.1.3 Site Grading Phase Emission Factor(s)

**- Construction Exhaust Emission Factors (lb/hour) (default)**

Graders Composite								
	VOC	SO <sub>x</sub>	NO <sub>x</sub>	CO	PM 10	PM 2.5	CH <sub>4</sub>	CO <sub>2e</sub>
Emission Factors	0.0757	0.0014	0.4155	0.5717	0.0191	0.0191	0.0068	132.91
Other Construction Equipment Composite								
	VOC	SO <sub>x</sub>	NO <sub>x</sub>	CO	PM 10	PM 2.5	CH <sub>4</sub>	CO <sub>2e</sub>



# DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Emission Factors	0.0483	0.0012	0.2497	0.3481	0.0091	0.0091	0.0043	122.61
<b>Rubber Tired Dozers Composite</b>								
	<b>VOC</b>	<b>SO<sub>x</sub></b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>PM 10</b>	<b>PM 2.5</b>	<b>CH<sub>4</sub></b>	<b>CO<sub>2e</sub></b>
Emission Factors	0.1830	0.0024	1.2623	0.7077	0.0494	0.0494	0.0165	239.49
<b>Scrapers Composite</b>								
	<b>VOC</b>	<b>SO<sub>x</sub></b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>PM 10</b>	<b>PM 2.5</b>	<b>CH<sub>4</sub></b>	<b>CO<sub>2e</sub></b>
Emission Factors	0.1640	0.0026	1.0170	0.7431	0.0406	0.0406	0.0148	262.85
<b>Tractors/Loaders/Backhoes Composite</b>								
	<b>VOC</b>	<b>SO<sub>x</sub></b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>PM 10</b>	<b>PM 2.5</b>	<b>CH<sub>4</sub></b>	<b>CO<sub>2e</sub></b>
Emission Factors	0.0364	0.0007	0.2127	0.3593	0.0080	0.0080	0.0032	66.879

## - Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	<b>VOC</b>	<b>SO<sub>x</sub></b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>PM 10</b>	<b>PM 2.5</b>	<b>Pb</b>	<b>NH<sub>3</sub></b>	<b>CO<sub>2e</sub></b>
LDGV	000.282	000.002	000.207	003.392	000.006	000.005		000.023	00341.791
LDGT	000.376	000.003	000.373	004.889	000.007	000.006		000.024	00439.705
HDGV	000.832	000.005	000.964	016.217	000.016	000.014		000.046	00814.851
LDDV	000.084	000.003	000.127	002.822	000.004	000.004		000.008	00334.379
LDDT	000.227	000.004	000.365	004.850	000.007	000.006		000.008	00473.628
HDDV	000.423	000.014	004.175	001.653	000.176	000.162		000.028	01559.331
MC	003.040	000.003	000.626	013.017	000.026	000.023		000.052	00392.775

## 2.1.4 Site Grading Phase Formula(s)

### - Fugitive Dust Emissions per Phase

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

PM10<sub>FD</sub>: Fugitive Dust PM 10 Emissions (TONs)

20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)

ACRE: Total acres (acres)

WD: Number of Total Work Days (days)

2000: Conversion Factor pounds to tons

### - Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$$

CEE<sub>POL</sub>: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

EF<sub>POL</sub>: Emission Factor for Pollutant (lb/hour)

2000: Conversion Factor pounds to tons

### - Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

VMT<sub>VE</sub>: Vehicle Exhaust Vehicle Miles Travel (miles)

HA<sub>OnSite</sub>: Amount of Material to be Hauled On-Site (yd<sup>3</sup>)

HA<sub>OffSite</sub>: Amount of Material to be Hauled Off-Site (yd<sup>3</sup>)

HC: Average Hauling Truck Capacity (yd<sup>3</sup>)

(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd<sup>3</sup>)

HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V<sub>POL</sub>: Vehicle Emissions (TONs)

# DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

$VMT_{VE}$ : Vehicle Exhaust Vehicle Miles Travel (miles)  
 0.002205: Conversion Factor grams to pounds  
 $EF_{POL}$ : Emission Factor for Pollutant (grams/mile)  
 $VM$ : Vehicle Exhaust On Road Vehicle Mixture (%)  
 2000: Conversion Factor pounds to tons

**- Worker Trips Emissions per Phase**

$$VMT_{WT} = WD * WT * 1.25 * NE$$

$VMT_{WT}$ : Worker Trips Vehicle Miles Travel (miles)  
 $WD$ : Number of Total Work Days (days)  
 $WT$ : Average Worker Round Trip Commute (mile)  
 1.25: Conversion Factor Number of Construction Equipment to Number of Works  
 $NE$ : Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

$V_{POL}$ : Vehicle Emissions (TONs)  
 $VMT_{WT}$ : Worker Trips Vehicle Miles Travel (miles)  
 0.002205: Conversion Factor grams to pounds  
 $EF_{POL}$ : Emission Factor for Pollutant (grams/mile)  
 $VM$ : Worker Trips On Road Vehicle Mixture (%)  
 2000: Conversion Factor pounds to tons

## 2.2 Trenching/Excavating Phase

### 2.2.1 Trenching / Excavating Phase Timeline Assumptions

**- Phase Start Date**

**Start Month:** 9  
**Start Quarter:** 1  
**Start Year:** 2023

**- Phase Duration**

**Number of Month:** 6  
**Number of Days:** 0

### 2.2.2 Trenching / Excavating Phase Assumptions

**- General Trenching/Excavating Information**

**Area of Site to be Trenched/Excavated (ft<sup>2</sup>):** 78800  
**Amount of Material to be Hauled On-Site (yd<sup>3</sup>):** 0  
**Amount of Material to be Hauled Off-Site (yd<sup>3</sup>):** 0

**- Trenching Default Settings**

**Default Settings Used:** Yes  
**Average Day(s) worked per week:** 5 (default)

**- Construction Exhaust (default)**

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

# DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

**- Vehicle Exhaust**

Average Hauling Truck Capacity (yd<sup>3</sup>): 20 (default)  
 Average Hauling Truck Round Trip Commute (mile): 20 (default)

**- Vehicle Exhaust Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

**- Worker Trips**

Average Worker Round Trip Commute (mile): 20 (default)

**- Worker Trips Vehicle Mixture (%)**

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

## 2.2.3 Trenching / Excavating Phase Emission Factor(s)

**- Construction Exhaust Emission Factors (lb/hour) (default)**

Graders Composite								
	VOC	SO <sub>x</sub>	NO <sub>x</sub>	CO	PM 10	PM 2.5	CH <sub>4</sub>	CO <sub>2e</sub>
Emission Factors	0.0757	0.0014	0.4155	0.5717	0.0191	0.0191	0.0068	132.91
Other Construction Equipment Composite								
	VOC	SO <sub>x</sub>	NO <sub>x</sub>	CO	PM 10	PM 2.5	CH <sub>4</sub>	CO <sub>2e</sub>
Emission Factors	0.0483	0.0012	0.2497	0.3481	0.0091	0.0091	0.0043	122.61
Rubber Tired Dozers Composite								
	VOC	SO <sub>x</sub>	NO <sub>x</sub>	CO	PM 10	PM 2.5	CH <sub>4</sub>	CO <sub>2e</sub>
Emission Factors	0.1830	0.0024	1.2623	0.7077	0.0494	0.0494	0.0165	239.49
Scrapers Composite								
	VOC	SO <sub>x</sub>	NO <sub>x</sub>	CO	PM 10	PM 2.5	CH <sub>4</sub>	CO <sub>2e</sub>
Emission Factors	0.1640	0.0026	1.0170	0.7431	0.0406	0.0406	0.0148	262.85
Tractors/Loaders/Backhoes Composite								
	VOC	SO <sub>x</sub>	NO <sub>x</sub>	CO	PM 10	PM 2.5	CH <sub>4</sub>	CO <sub>2e</sub>
Emission Factors	0.0364	0.0007	0.2127	0.3593	0.0080	0.0080	0.0032	66.879

**- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)**

	VOC	SO <sub>x</sub>	NO <sub>x</sub>	CO	PM 10	PM 2.5	Pb	NH <sub>3</sub>	CO <sub>2e</sub>
LDGV	000.282	000.002	000.207	003.392	000.006	000.005		000.023	00341.791
LDGT	000.376	000.003	000.373	004.889	000.007	000.006		000.024	00439.705
HDGV	000.832	000.005	000.964	016.217	000.016	000.014		000.046	00814.851
LDDV	000.084	000.003	000.127	002.822	000.004	000.004		000.008	00334.379
LDDT	000.227	000.004	000.365	004.850	000.007	000.006		000.008	00473.628
HDDV	000.423	000.014	004.175	001.653	000.176	000.162		000.028	01559.331
MC	003.040	000.003	000.626	013.017	000.026	000.023		000.052	00392.775

## 2.2.4 Trenching / Excavating Phase Formula(s)

**- Fugitive Dust Emissions per Phase**

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

PM10<sub>FD</sub>: Fugitive Dust PM 10 Emissions (TONs)

20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)

ACRE: Total acres (acres)

WD: Number of Total Work Days (days)

2000: Conversion Factor pounds to tons

# DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

## - Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$$

CEE<sub>POL</sub>: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

EF<sub>POL</sub>: Emission Factor for Pollutant (lb/hour)

2000: Conversion Factor pounds to tons

## - Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

VMT<sub>VE</sub>: Vehicle Exhaust Vehicle Miles Travel (miles)

HA<sub>OnSite</sub>: Amount of Material to be Hauled On-Site (yd<sup>3</sup>)

HA<sub>OffSite</sub>: Amount of Material to be Hauled Off-Site (yd<sup>3</sup>)

HC: Average Hauling Truck Capacity (yd<sup>3</sup>)

(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd<sup>3</sup>)

HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V<sub>POL</sub>: Vehicle Emissions (TONs)

VMT<sub>VE</sub>: Vehicle Exhaust Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile)

VM: Vehicle Exhaust On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

## - Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT<sub>WT</sub>: Worker Trips Vehicle Miles Travel (miles)

WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)

1.25: Conversion Factor Number of Construction Equipment to Number of Works

NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V<sub>POL</sub>: Vehicle Emissions (TONs)

VMT<sub>WT</sub>: Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

1  
2

**Appendix E**  
**Environmental Restoration Program Site Summaries**

**Site Summary:** LF002 – FORMER LANDFILL AT THE GOLF COURSE  
**Environmental Restoration Program, MacDill AFB, Tampa, Florida**

**Site ID:** LF002 (SWMU02)

**Site Acreage:** 11.3 acres

**Site Status:** Annual Land Use Controls (LUC) surveillance:  
-Groundwater Use Restrictions  
-Non-residential use  
-No monitoring



**Contaminants of Concern (CoCs):**

Groundwater: arsenic, iron, and manganese

Soils: arsenic, PAHs, and landfill material

Surface Water: None

Sediments: None

**Point of Contact:**

Kristy Snyder, Program Manager  
AFCEC 6 CES/CZOE  
7621 Hillsborough Loop Dr. (Bldg 30)  
MacDill AFB, FL 33621  
Phone: 813-828-0776  
Cell: 813-716-4293  
Email: kristy.snyder.2@us.af.mil

**Buildings Located on Site:** None

**Site Description:**

LF002, the former landfill at the Golf Course, is located in the southeastern section of the base, approximately 3,500 feet west of Hillsborough Bay, south of McClelland Drive, and west of Lake McClelland. The site is a former landfill currently covered by a portion of the MAFB North Golf Course. Surface drainage from this area flows in various directions, specifically, east into Lake McClelland, west to a canal on the western border of the site, south into a small lake, and to ditches along golf course fairways 6 and 7. There are no environmentally sensitive areas around LF002.



**Site History:**

The landfill was active from approximately 1940 to 1950 and reportedly received concrete rubble and general refuse. Trees killed during a frost in 1965 or 1966 were also reportedly buried at this site. No known industrial or hazardous wastes were disposed of in this landfill; however, such activities could have occurred. The exact boundaries of the landfill and the volume of wastes received are unknown. Upon deactivation, the landfill was covered with native soil and graded level.

The approved remedy for LF002 is Land Use Controls (LUCs) with non-residential use and groundwater use restrictions. The remedy was based on previous investigations at LF002, which confirmed the CoCs listed above, exceeding their residential Soil Cleanup Target Levels (SCTLs) and Groundwater Cleanup Target Levels (GCTLs). LUC inspections have been conducted annually at LF002 since March 2006.

## Contaminated Media Disposal Guidelines

If construction is planned for an area that is located within the boundary of (a) known or suspected contaminated site(s), the Contractor shall be provided with a Site Summary document that includes information on the nature of the contaminant(s) at the site(s), as well as the media affected (groundwater, soil, or sediment); however, even if the project area is NOT within (a) known or suspected contaminated site(s), the groundwater and soil may be contaminated with per- and polyfluoroalkyl substances (PFAS), a group of emerging contaminants currently being investigated on MacDill AFB. Current information is showing potential PFAS in all groundwater and soil at MacDill AFB above screening levels, therefore all waste generated from construction projects must be sampled, regardless of location on the installation until the current investigation is complete. Due to the dynamic regulatory environment (concerning PFAS) please contact the Environmental Restoration Program office (AFCEC 6 CES/CZOE) for the most current PFAS guidance.

Depending on the nature of the contaminant, the Contractor shall comply with the following procedures:

1. When excavating on (a) site(s) known or suspected to have soil/sediment contamination, any material excavated as a result of construction activity must be backfilled to the location from which it was removed. If there is not enough space in the excavation area to replace all the removed material, the soil/sediment must be stockpiled in a manner as not to spread contamination; i.e., staging in a roll off container or piling on a layer of polyethylene plastic sheeting (if this method is used, soil must also be covered with plastic to prevent rain from spreading contamination). Prior to removal from site, the staged material must be analyzed, at the Contractor's expense, by a certified laboratory. The site-specific Site Summary document (when applicable) lists the contaminant information for the site and should be provided to the lab when arranging for analysis. Additionally, all soil/sediment to be removed from the installation during construction is to be analyzed for PFAS. The analysis should be performed by a laboratory that is able to achieve a detection level below the current US EPA regional screening level (RSL) for soil of 0.013 parts per million (ppm). Please contact AFCEC 6 CES/CZOE for a list of accredited laboratories. The Contractor shall provide the results of lab analysis to AFCEC 6 CES/CZOE for interpretation prior to any action. The soil/sediment resulting from construction activity on a contaminated site may never be placed on another area of the site or used for backfill anywhere else on the installation. Upon notice from AFCEC 6 CES/CZOE, the Contractor will be required to remove the stockpiled material from the site and arrange for transport to an appropriate disposal facility.
  - a. If test results are below Florida Department of Environmental Protection (DEP) Soil Cleanup Target Levels (SCTLs) and the US EPA RSL for soil, the soil/sediment must be hauled off-site and transported, at the Contractor's

expense, to a landfill/facility that accepts Class III wastes, IAW FAC 62-701, Solid Waste Management Facilities.

- b. If soil/sediment is found to exceed Florida DEP SCTLs or the US EPA RSL for soil, the soil/sediment must be hauled off-site and transported, at the Contractor's expense, to a landfill/facility that accepts Class I waste, IAW FAC 62-701, Solid Waste Management Facilities. In addition, the Contractor must coordinate with AFCEC 6 CES/CZOE for signatures on the non-hazardous waste profiles/manifests that are required for transport.
2. When excavating on (a) site(s) known or suspected to have groundwater contamination, groundwater extracted as a result of excavation must be contained and analyzed, at the Contractor's expense, by a certified laboratory. The site-specific Site Summary document (when applicable) lists the contaminant information for the site and should be provided to the lab when arranging for analysis. Additionally, all groundwater generated from dewatering activities is to be analyzed for PFAS. The analysis should be performed by a laboratory able to achieve a detection level below the current US EPA regional screening levels (RSL) of 4 parts per trillion (ppt). Please contact AFCEC 6 CES/CZOE for a list of accredited laboratories. The Contractor shall provide the results of lab analysis to AFCEC 6 CES/CZOE for interpretation prior to any action. Upon notice from AFCEC 6 CES/CZOE, the Contractor will be required to dispose of dewater product in one of the following ways:
- a. If the test results are below Florida DEP Groundwater Cleanup Target Levels (GCTLs) and the US EPA RSL for groundwater, the Contractor may discharge the groundwater back to the ground or storm water pond, allowing the water to infiltrate back into the groundwater table, at a rate which does not allow the water to runoff into any nearby storm water systems; or they may discharge groundwater to the sanitary sewer system to allow water to enter the base wastewater treatment plant, be processed and land applied, upon approval from the Florida Government Utility Authority (FGUA).
  - b. If the test results are above Florida DEP GCTLs or the US EPA RSL for groundwater, the contaminated groundwater must be transported off- site for disposal/treatment at the Contractor's expense, IAW Section 6 (Investigation Derived Wastes (IDW) of the MAFB Uniform Federal Policy Quality Assurance Project Plan (UFP/QAPP) Geology Supplement to the Scope of Services, located in APPENDIX I ENVIRONMENTAL RESTORATION of the MacDill AFB Design Guide. In addition, the Contractor must coordinate with AFCEC 6 CES/CZOE for signatures on the non-hazardous waste profiles/manifests that are required for transport.
- For large quantities of PFAS liquid concentrations, on-site
- c. groundwater treatment can be used which includes Granular Activated Carbon (GAC) or other approved treatment technology to bring chemical concentrations below

the US EPA RSL for groundwater. For more details concerning on-site treatment systems, contact AFCEC 6 CES/CZOE.

3. The Contractor shall consider any drill cuttings or slurries generated from excavation activities within a known or suspected contaminated site to be Investigation Derived Waste (IDW) and must be disposed of IAW Section 6 (Investigation Derived Wastes (IDW) of the MAFB Uniform Federal Policy Quality Assurance Project Plan (UFP/QAPP) Geology Supplement to the Scope of Services, located in APPENDIX I ENVIRONMENTAL RESTORATION of the MacDill AFB Design Guide. In addition, the Contractor must coordinate with AFCEC 6 CES/CZOE for signatures on the non-hazardous waste profiles/manifests that are required for transport.
4. When backfilling soil sourced from an off-base location to any location on MAFB, the Contractor will ensure that the soil is certified clean fill soil IAW memorandum, Preapproval Program Backfill Quality Assurance Procedure for Sites Undergoing Excavation, located in APPENDIX I ENVIRONMENTAL RESTORATION of the MacDill AFB Design Guide.
5. Groundwater monitoring wells may be located in the project area. Approximate well locations are provided upon project design; however, more wells may exist in the project area than are shown. The Contractor shall survey the site prior to start of work for exact locations of all wells. Great care must be taken to protect all the wells found in the project area; as such wells must be identified and clearly marked;
  - a. If any of these wells are damaged during this project, the Contractor shall either repair or abandon and reinstall the well at the Contractor's expense, IAW the Section 4.0 (Well Design and Installation) and Section 7 (Well Abandonment) of the MAFB Uniform Federal Policy Quality Assurance Project Plan (UFP/QAPP) Geology Supplement to the Scope of Services, located in APPENDIX I ENVIRONMENTAL RESTORATION of the MacDill AFB Design Guide. The determination as to whether the well can be repaired or must be properly abandoned and a new well installed will be made by AFCEC 6 CES/CZOE.
  - b. If the work is such that damage to a well is unavoidable, the well must be properly abandoned prior to construction activities and a new well installed at the Contractor's expense upon completion of construction activities. The Contractor shall coordinate the well abandonment and reinstallation activities with AFCEC 6 CES/CZOE to ensure that well locations are acceptable to regulators before construction activities take place.
  - c. Wells must be abandoned/reinstalled by a Florida licensed driller and surveyed by a Registered Land Surveyor in the State of Florida. Well locations are to be surveyed to within 1 foot accuracy using Florida State plane, West Zone, North American Datum, 1983 (NAD 83). Ground surface elevations and top of concrete pad elevations will be surveyed to within 0.1 ft

accuracy; and top of casing elevations will be surveyed to within 0.01 ft accuracy. Elevations will be referenced to the National Geodetic Vertical Datum of 1929 (NGVD-29).

- d. All field logs, permits and survey forms must be provided to AFCEC 6 CES/CZOE at the completion of well abandonment/installation. The Contractor must coordinate with AFCEC 6 CES/CZOE to obtain well tag specifications and ordering information.
- e. For additional information on contaminated sites, please contact the POC for AFCEC 6 CES/CZOE, Kristy Snyder at 813-828-0776/813-716-4293, kristy.snyder.2@us.af.mil.
- f. See APPENDIX I ENVIRONMENTAL RESTORATION of the MacDill AFB Design Guide for more information.







**Site Summary:** LF003 – FORMER LANDFILL AT THE DOG KENNEL  
**Environmental Restoration Program, MacDill AFB, Tampa, Florida**

**Site ID:** LF003 (SWMU03)

**Site Acreage:** 9 acres

**Site Status:** Annual Land Use Controls surveillance:  
- Non-residential use restrictions



**Contaminants of Concern (CoCs):**

Groundwater: None

Soils: Landfill Materials

Surface Water: None

Sediments: None

**Point of Contact:**

Kristy Snyder, Program Manager  
AFCEC 6 CES/CZOE  
7621 Hillsborough Loop Dr. (Bldg 30)  
MacDill AFB, FL 33621  
Phone: 813-828-0776  
Cell: 813-716-4293  
Email: kristy.snyder.2@us.af.mil

**Buildings Located on Site:** None

**Site Description:**

LF003, the Former Landfill at the Dog Kennel, is located in the southeastern section of the base between Golf Course Avenue and Southshore Avenue. LF003 is east of the munition storage area and the dog kennel and south of the Naval Reserve building. The site is covered with grass and is bordered to the south and west by drainage ditches, to the north by South shore Road, and to the east by Building 1750.

**Site History:**

LF003 is a former base landfill that received wastes from 1950 to 1959. The landfill was reported to contain municipal-type refuse and construction debris. No written documentation exists about specific materials deposited in the landfill. The approved remedy for LF003 is monitored natural attenuation (MNA) for groundwater, groundwater use restrictions, and non-residential Land Use Controls (LUCs). The remedy was based on previous investigations at LF003, which determined that CoC's exceeded their respective Groundwater Cleanup Target Levels (GCTLs) and/or background concentrations. LUC inspections have been conducted annually at LF003 since September 2007.

Periodic groundwater sampling for metals has been conducted at LF003. The Tenth Annual Basewide Groundwater Monitoring Report in 2016 reviewed the occurrence of metals in groundwater at landfill sites located in the southern portion of MAFB and concluded that arsenic and iron concentrations at LF003 were likely related to naturally occurring metal sources. The annual report recommended that groundwater monitoring be discontinued at LF003. Three LF003 monitoring wells were abandoned on January 2017 in accordance with the Well Abandonment Letter Work Plan, Landfill Sites.

## Contaminated Media Disposal Guidelines

If construction is planned for an area that is located within the boundary of (a) known or suspected contaminated site(s), the Contractor shall be provided with a Site Summary document that includes information on the nature of the contaminant(s) at the site(s), as well as the media affected (groundwater, soil, or sediment); however, even if the project area is NOT within (a) known or suspected contaminated site(s), the groundwater and soil may be contaminated with per- and polyfluoroalkyl substances (PFAS), a group of emerging contaminants currently being investigated on MacDill AFB. Current information is showing potential PFAS in all groundwater and soil at MacDill AFB above screening levels, therefore all waste generated from construction projects must be sampled, regardless of location on the installation until the current investigation is complete. Due to the dynamic regulatory environment (concerning PFAS) please contact the Environmental Restoration Program office (AFCEC 6 CES/CZOE) for the most current PFAS guidance.

Depending on the nature of the contaminant, the Contractor shall comply with the following procedures:

1. When excavating on (a) site(s) known or suspected to have soil/sediment contamination, any material excavated as a result of construction activity must be backfilled to the location from which it was removed. If there is not enough space in the excavation area to replace all the removed material, the soil/sediment must be stockpiled in a manner as not to spread contamination; i.e., staging in a roll off container or piling on a layer of polyethylene plastic sheeting (if this method is used, soil must also be covered with plastic to prevent rain from spreading contamination). Prior to removal from site, the staged material must be analyzed, at the Contractor's expense, by a certified laboratory. The site-specific Site Summary document (when applicable) lists the contaminant information for the site and should be provided to the lab when arranging for analysis. Additionally, all soil/sediment to be removed from the installation during construction is to be analyzed for PFAS. The analysis should be performed by a laboratory that is able to achieve a detection level below the current US EPA regional screening level (RSL) for soil of 0.013 parts per million (ppm). Please contact AFCEC 6 CES/CZOE for a list of accredited laboratories. The Contractor shall provide the results of lab analysis to AFCEC 6 CES/CZOE for interpretation prior to any action. The soil/sediment resulting from construction activity on a contaminated site may never be placed on another area of the site or used for backfill anywhere else on the installation. Upon notice from AFCEC 6 CES/CZOE, the Contractor will be required to remove the stockpiled material from the site and arrange for transport to an appropriate disposal facility.
  - a. If test results are below Florida Department of Environmental Protection (DEP) Soil Cleanup Target Levels (SCTLs) and the US EPA RSL for soil, the soil/sediment must be hauled off-site and transported, at the Contractor's

expense, to a landfill/facility that accepts Class III wastes, IAW FAC 62-701, Solid Waste Management Facilities.

- b. If soil/sediment is found to exceed Florida DEP SCTLs or the US EPA RSL for soil, the soil/sediment must be hauled off-site and transported, at the Contractor's expense, to a landfill/facility that accepts Class I waste, IAW FAC 62-701, Solid Waste Management Facilities. In addition, the Contractor must coordinate with AFCEC 6 CES/CZOE for signatures on the non-hazardous waste profiles/manifests that are required for transport.
2. When excavating on (a) site(s) known or suspected to have groundwater contamination, groundwater extracted as a result of excavation must be contained and analyzed, at the Contractor's expense, by a certified laboratory. The site-specific Site Summary document (when applicable) lists the contaminant information for the site and should be provided to the lab when arranging for analysis. Additionally, all groundwater generated from dewatering activities is to be analyzed for PFAS. The analysis should be performed by a laboratory able to achieve a detection level below the current US EPA regional screening levels (RSL) of 4 parts per trillion (ppt). Please contact AFCEC 6 CES/CZOE for a list of accredited laboratories. The Contractor shall provide the results of lab analysis to AFCEC 6 CES/CZOE for interpretation prior to any action. Upon notice from AFCEC 6 CES/CZOE, the Contractor will be required to dispose of dewater product in one of the following ways:
- a. If the test results are below Florida DEP Groundwater Cleanup Target Levels (GCTLs) and the US EPA RSL for groundwater, the Contractor may discharge the groundwater back to the ground or storm water pond, allowing the water to infiltrate back into the groundwater table, at a rate which does not allow the water to runoff into any nearby storm water systems; or they may discharge groundwater to the sanitary sewer system to allow water to enter the base wastewater treatment plant, be processed and land applied, upon approval from the Florida Government Utility Authority (FGUA).
  - b. If the test results are above Florida DEP GCTLs or the US EPA RSL for groundwater, the contaminated groundwater must be transported off-site for disposal/treatment at the Contractor's expense, IAW Section 6 (Investigation Derived Wastes (IDW) of the MAFB Uniform Federal Policy Quality Assurance Project Plan (UFP/QAPP) Geology Supplement to the Scope of Services, located in APPENDIX I ENVIRONMENTAL RESTORATION of the MacDill AFB Design Guide. In addition, the Contractor must coordinate with AFCEC 6 CES/CZOE for signatures on the non-hazardous waste profiles/manifests that are required for transport.
- For large quantities of PFAS liquid concentrations, on-site
- c. groundwater treatment can be used which includes Granular Activated Carbon (GAC) or other approved treatment technology to bring chemical concentrations below

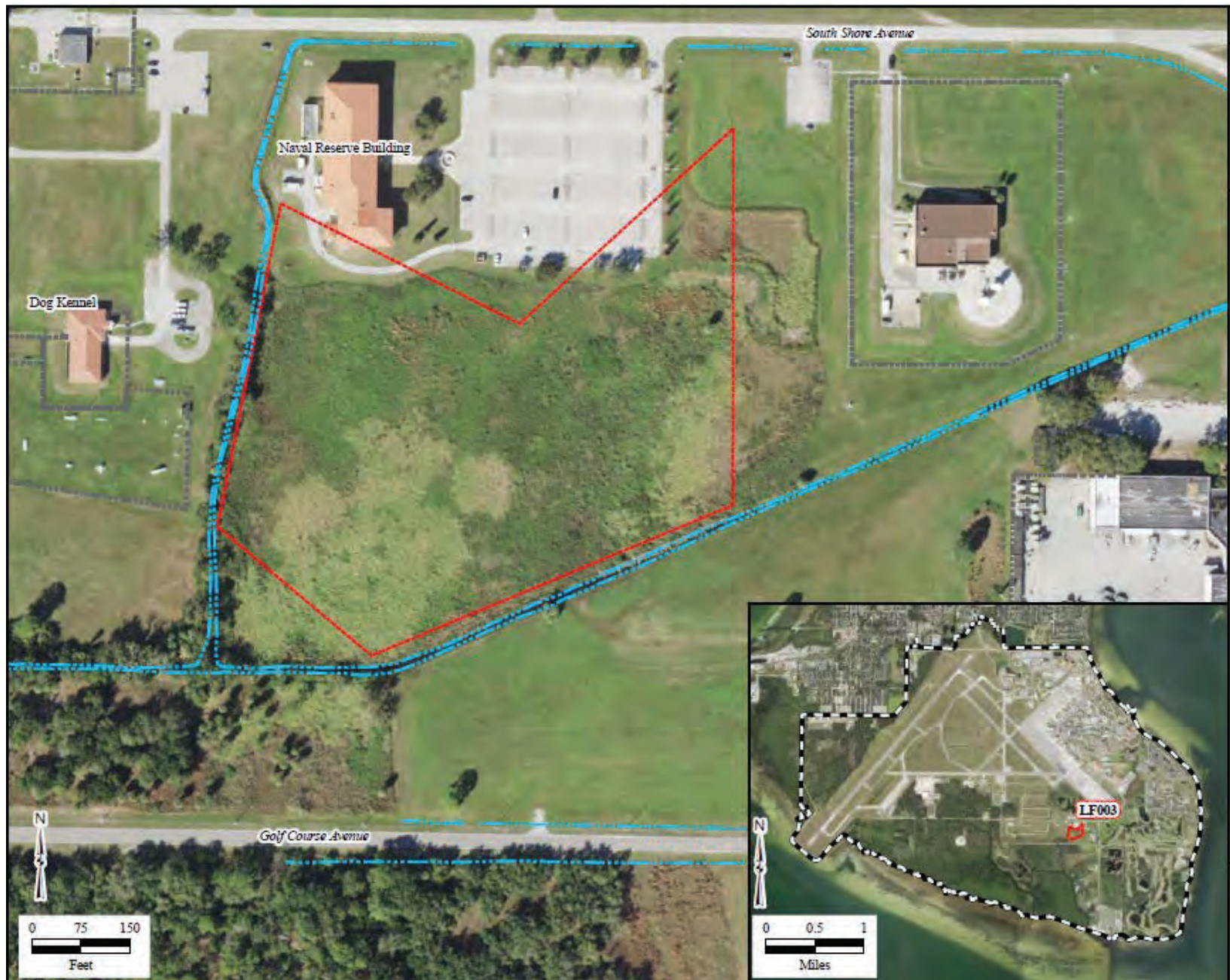
the US EPA RSL for groundwater. For more details concerning on-site treatment systems, contact AFCEC 6 CES/CZOE.

3. The Contractor shall consider any drill cuttings or slurries generated from excavation activities within a known or suspected contaminated site to be Investigation Derived Waste (IDW) and must be disposed of IAW Section 6 (Investigation Derived Wastes (IDW) of the MAFB Uniform Federal Policy Quality Assurance Project Plan (UFP/QAPP) Geology Supplement to the Scope of Services, located in APPENDIX I ENVIRONMENTAL RESTORATION of the MacDill AFB Design Guide. In addition, the Contractor must coordinate with AFCEC 6 CES/CZOE for signatures on the non-hazardous waste profiles/manifests that are required for transport.
4. When backfilling soil sourced from an off-base location to any location on MAFB, the Contractor will ensure that the soil is certified clean fill soil IAW memorandum, Preapproval Program Backfill Quality Assurance Procedure for Sites Undergoing Excavation, located in APPENDIX I ENVIRONMENTAL RESTORATION of the MacDill AFB Design Guide.
5. Groundwater monitoring wells may be located in the project area. Approximate well locations are provided upon project design; however, more wells may exist in the project area than are shown. The Contractor shall survey the site prior to start of work for exact locations of all wells. Great care must be taken to protect all the wells found in the project area; as such wells must be identified and clearly marked;
  - a. If any of these wells are damaged during this project, the Contractor shall either repair or abandon and reinstall the well at the Contractor's expense, IAW the Section 4.0 (Well Design and Installation) and Section 7 (Well Abandonment) of the MAFB Uniform Federal Policy Quality Assurance Project Plan (UFP/QAPP) Geology Supplement to the Scope of Services, located in APPENDIX I ENVIRONMENTAL RESTORATION of the MacDill AFB Design Guide. The determination as to whether the well can be repaired or must be properly abandoned and a new well installed will be made by AFCEC 6 CES/CZOE.
  - b. If the work is such that damage to a well is unavoidable, the well must be properly abandoned prior to construction activities and a new well installed at the Contractor's expense upon completion of construction activities. The Contractor shall coordinate the well abandonment and reinstallation activities with AFCEC 6 CES/CZOE to ensure that well locations are acceptable to regulators before construction activities take place.
  - c. Wells must be abandoned/reinstalled by a Florida licensed driller and surveyed by a Registered Land Surveyor in the State of Florida. Well locations are to be surveyed to within 1 foot accuracy using Florida State plane, West Zone, North American Datum, 1983 (NAD 83). Ground surface elevations and top of concrete pad elevations will be surveyed to within 0.1 ft

accuracy; and top of casing elevations will be surveyed to within 0.01 ft accuracy. Elevations will be referenced to the National Geodetic Vertical Datum of 1929 (NGVD-29).

- d. All field logs, permits and survey forms must be provided to AFCEC 6 CES/CZOE at the completion of well abandonment/installation. The Contractor must coordinate with AFCEC 6 CES/CZOE to obtain well tag specifications and ordering information.
- e. For additional information on contaminated sites, please contact the POC for AFCEC 6 CES/CZOE, Kristy Snyder at 813-828-0776/813-716-4293, kristy.snyder.2@us.af.mil.
- f. See APPENDIX I ENVIRONMENTAL RESTORATION of the MacDill AFB Design Guide for more information.





**Site Summary:** ST025 – DETACHMENT 1 (FACILITY 82/83) FORMER ABOVEGROUND STORAGE TANKS  
**Environmental Restoration Program, MacDill AFB, Tampa, Florida**

**Site ID:** ST025 (SWMU 25)

**Site Acreage:** 15.9 acres

**Site Status:** Annual Land Use Controls (LUCs)

Surveillance:

- Non-residential use restrictions

Additional groundwater remedial activities needed.



**Contaminants of Concern (CoCs):**

Groundwater: PCE, cis-1,2-dichlorethene (DCE), TCE, Vinyl Chloride (VC), and Naphthalene

Soils: None

Surface Water: None

Sediments: None

**Point of Contact:**

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MacDill AFB, FL 33621  
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Email: kristy.snyder.2@us.af.mil

**Buildings Located on Site:** 65,72, 82, 85, 86, 724, 725, 1205

**Site Description:**

ST025, Detachment 1 (Facility 82/83), Former Aboveground Storage Tanks (ASTs), is located in the southeastern portion of MAFB immediately adjacent to Hillsborough Bay, south of Golf Course Road and extending east of Bayshore Drive to the bay.

### **Site History:**

The site is a former missile warning facility that was active from 1960 to 1985. Diesel fuel for generators was stored on site in three ASTs. Improper fuel handling techniques and/or underground pipe leaks during AST operational period released petroleum products into the subsurface. The ASTs were removed in the late 1980s.

The approved remedy established in 2007 for ST025 is enhanced bioremediation with monitored natural attenuation (MNA) for groundwater and LUCs. The remedy was based on previous investigations, which determined that the CoC's (listed above) exceeded Groundwater cleanup Target Levels (GCTLs). A remedial action plan (RAP) and post active remediation monitoring (PARM) plan was prepared for ST025 to address groundwater contamination at ST025, and approved by the FDEP in 2014. Between April 2007 and July 2014, two injection events of Anaerobic Biochem (ABC) occurred. Anaerobic Biochem (ABC) injections were performed to mitigate a chlorinated volatile organic compound (CVOC) plume between February 2015 and October 2015. Following the first four quarters of PARM, the extent of the CVOC plume had decreased from approximately 13 acres to approximately 1.1 acres, a 92 percent reduction. However, residual CoC concentrations were still present in groundwater in some areas of the distal plume, still present in an area referred to as the eastern source area. From 2017 to 2020, additional ABC injections were performed, including injections of Modified Fenton's Reagent (MFR) and Petrox (anaerobic microorganism capable of degrading petroleum hydrocarbons) to address residual CoCs. Based on results from the March 2020 PARM event, groundwater COC concentrations met FDEP requirements for PARM at several source area monitoring wells but will continue to be monitored under PARM events. The 2022 Remedial Action Plan (RAP) Addendum proposed thermally enhanced reductive dechlorination (ThERD) injections using existing injection wells from the 2017 ThERD pilot study, followed by ABC injections, to remediate the CVOC plume. Additional remedial actions to address residual groundwater contamination at ST025 still continues.



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- For large quantities of PFAS liquid concentrations, on-site
- c. groundwater treatment can be used which includes Granular Activated Carbon (GAC) or other approved treatment technology to bring chemical concentrations below

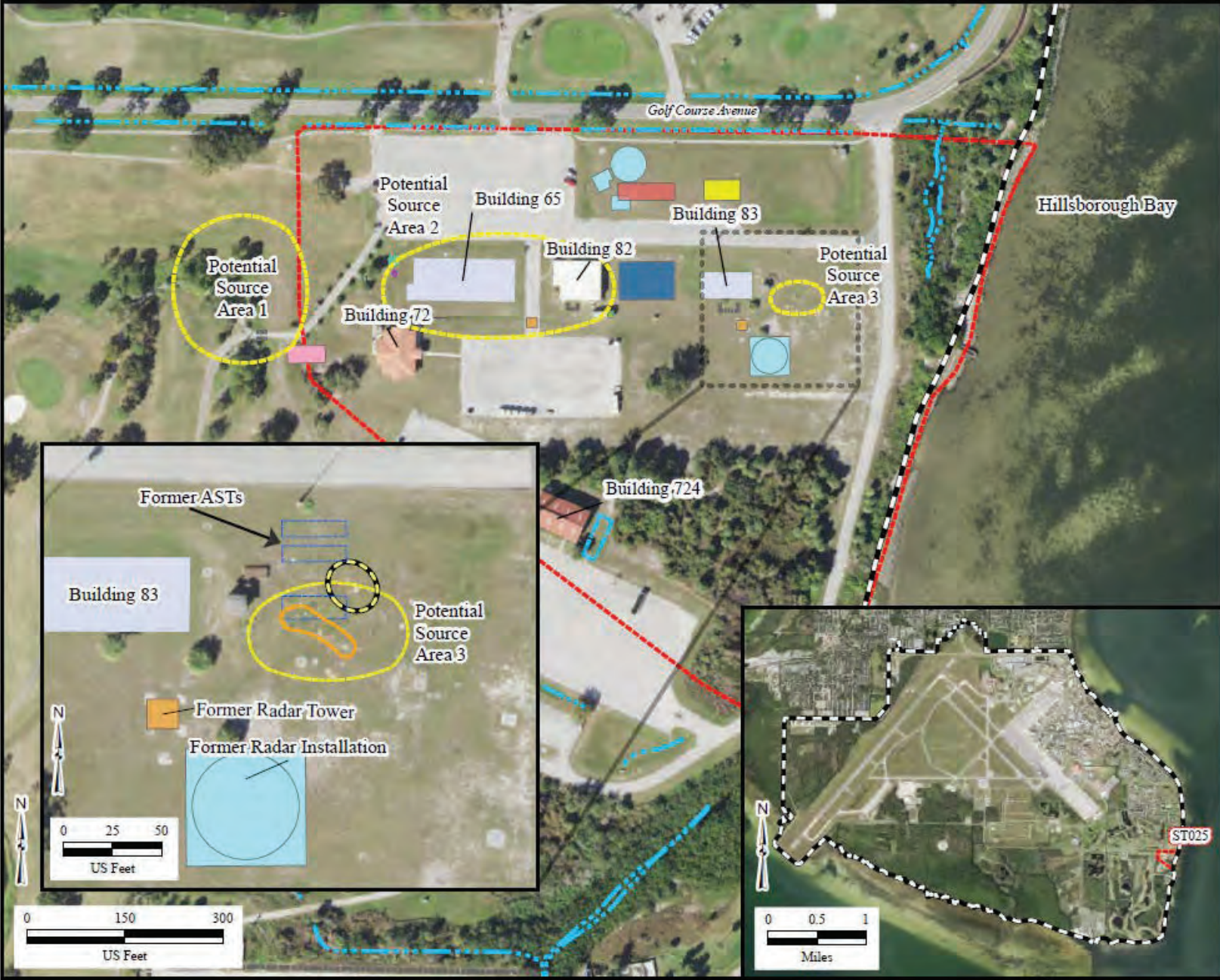
the US EPA RSL for groundwater. For more details concerning on-site treatment systems, contact AFCEC 6 CES/CZOE.

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  - a. If any of these wells are damaged during this project, the Contractor shall either repair or abandon and reinstall the well at the Contractor's expense, IAW the Section 4.0 (Well Design and Installation) and Section 7 (Well Abandonment) of the MAFB Uniform Federal Policy Quality Assurance Project Plan (UFP/QAPP) Geology Supplement to the Scope of Services, located in APPENDIX I ENVIRONMENTAL RESTORATION of the MacDill AFB Design Guide. The determination as to whether the well can be repaired or must be properly abandoned and a new well installed will be made by AFCEC 6 CES/CZOE.
  - b. If the work is such that damage to a well is unavoidable, the well must be properly abandoned prior to construction activities and a new well installed at the Contractor's expense upon completion of construction activities. The Contractor shall coordinate the well abandonment and reinstallation activities with AFCEC 6 CES/CZOE to ensure that well locations are acceptable to regulators before construction activities take place.
  - c. Wells must be abandoned/reinstalled by a Florida licensed driller and surveyed by a Registered Land Surveyor in the State of Florida. Well locations are to be surveyed to within 1 foot accuracy using Florida State plane, West Zone, North American Datum, 1983 (NAD 83). Ground surface elevations and top of concrete pad elevations will be surveyed to within 0.1 ft



accuracy; and top of casing elevations will be surveyed to within 0.01 ft accuracy. Elevations will be referenced to the National Geodetic Vertical Datum of 1929 (NGVD-29).

- d. All field logs, permits and survey forms must be provided to AFCEC 6 CES/CZOE at the completion of well abandonment/installation. The Contractor must coordinate with AFCEC 6 CES/CZOE to obtain well tag specifications and ordering information.
- e. For additional information on contaminated sites, please contact the POC for AFCEC 6 CES/CZOE, Kristy Snyder at 813-828-0776/813-716-4293, kristy.snyder.2@us.af.mil.
- f. See APPENDIX I ENVIRONMENTAL RESTORATION of the MacDill AFB Design Guide for more information.



**Site Summary:** SS078 – GOLF COURSE MAINTENANCE AREA  
**Environmental Restoration Program, MacDill AFB, Tampa, Florida**

**Site ID:** SS078 (SWMU 78)

**Site Acreage:** 2.9 acres

**Site Status:** Annual Land Use Controls (LUCs)

Surveillance:

- Non-residential use restrictions
- No monitoring



**Contaminants of Concern (CoCs):**

Groundwater: Arsenic and Iron

Soils: Arsenic, Benzo(a)pyrene Equivalent, and Chlordane

Surface Water: None

Sediments: None

**Point of Contact:**

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AFCEC 6 CES/CZOE  
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**Buildings Located on Site:** 1701, 1701 S1, 1701 S2, 1701 S3, 1702, 1704, 1706, 1711, 1711 S1

**Site Description:**

SS078, the Golf Course Maintenance Area, is located within the northern portion of the North Golf Course. The golf course maintenance area contains the golf course maintenance offices, fertilizer and seed equipment shed; chemical storage and equipment rinse area; pesticide storage shed (including a rinse station and pesticide load station); additional maintenance garage and storage buildings; and uncovered areas designated for equipment storage. Both the rinse station and a pesticide load station have concrete floors sloped to a central drain cap, and two enclosed structures marked with “Poison” placards.

**Site History:**

From around 1948 until the 1980s, all pesticide washing and rinsing water was discharged to a septic tank. It is possible that some material was discharged to the surface. MAFB golf course maintenance records documented routine, legal applications of two arsenic-based herbicides (Trimec Plus and monosodium methanearsonic acid) on the golf courses. In addition, milorganite, a fertilizer that contains iron, is periodically applied to the golf course. The ground surface within the compound slopes gently toward the center and drains toward the southwest alongside the southern end of the pesticide building continuing outside the fenced area to a canal approximately 50 feet away. The canal drains into the lake immediately west of SS078.

The approved remedy established in 2007 for SS078 is implementing LUCs. The remedy was based on previous investigations at SS078 having detected concentrations of BEQ, arsenic, and chlordane in soils above their residential Soil Cleanup Target Levels (SCTLs) and arsenic and iron in groundwater above their respective Groundwater Cleanup Target Levels (GCTLs) and/or naturally occurring background concentrations. LUC inspections have been conducted annually at SS078 since 2007.



## Contaminated Media Disposal Guidelines

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the US EPA RSL for groundwater. For more details concerning on-site treatment systems, contact AFCEC 6 CES/CZOE.

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4. When backfilling soil sourced from an off-base location to any location on MAFB, the Contractor will ensure that the soil is certified clean fill soil IAW memorandum, Preapproval Program Backfill Quality Assurance Procedure for Sites Undergoing Excavation, located in APPENDIX I ENVIRONMENTAL RESTORATION of the MacDill AFB Design Guide.
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  - a. If any of these wells are damaged during this project, the Contractor shall either repair or abandon and reinstall the well at the Contractor's expense, IAW the Section 4.0 (Well Design and Installation) and Section 7 (Well Abandonment) of the MAFB Uniform Federal Policy Quality Assurance Project Plan (UFP/QAPP) Geology Supplement to the Scope of Services, located in APPENDIX I ENVIRONMENTAL RESTORATION of the MacDill AFB Design Guide. The determination as to whether the well can be repaired or must be properly abandoned and a new well installed will be made by AFCEC 6 CES/CZOE.
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- d. All field logs, permits and survey forms must be provided to AFCEC 6 CES/CZOE at the completion of well abandonment/installation. The Contractor must coordinate with AFCEC 6 CES/CZOE to obtain well tag specifications and ordering information.
- e. For additional information on contaminated sites, please contact the POC for AFCEC 6 CES/CZOE, Kristy Snyder at 813-828-0776/813-716-4293, kristy.snyder.2@us.af.mil.
- f. See APPENDIX I ENVIRONMENTAL RESTORATION of the MacDill AFB Design Guide for more information.





**Site Summary:** ST057/FP 28 – FLIGHTLINE FUEL SYSTEM FUEL PIT 28  
**Environmental Restoration Program, MacDill AFB, Tampa, Florida**

**Site ID:** ST057/FP 28

**Site Acreage:** 2.5 acres

**Site Status:** Annual Land Use Controls (LUCs)  
Surveillance:  
- Non-residential use restrictions  
- No monitoring



**Contaminants of Concern (CoCs):**

Groundwater: None

Soils: PAHs

Surface Water: None

Sediments: None

**Point of Contact:**

Kristy Snyder, Program Manager  
AFCEC 6 CES/CZOE  
7621 Hillsborough Loop Dr. (Bldg 30)  
MacDill AFB, FL 33621  
Phone: 813-828-0776  
Cell: 813-716-4293  
Email: kristy.snyder.2@us.af.mil

**Buildings Located on Site:** None

**Site Description:**

ST057/FP 28 is located on the edge of the South Apron, northeast of Former FP 29, and southwest of Former Fuel Pit 27 and the South Apron. Southwest of Former Fuel Pit 28 and the South Apron, the area is grassed directly adjacent to the pavement and vegetated with pines and saw palmetto several hundred feet away from the pavement. Approximately 150 feet southwest of the South Apron pavement edge is a large ditch designed to collect and manage surface water drainage from the impervious flightline area. The site is currently designated for industrial use, and groundwater is not used as a source of potable water.

### **Site History:**

Former fuel pit 28 (FP 28) was a component of ST057, the flightline refueling system. Historically, Former Fuel Pit 28 has been included with the area known as “Fuel Pits 26-30/Defuel Pit Z-1.” A contaminant assessment was performed in 1994 and found contaminated groundwater and soil. Contaminated soil was delineated in the area of the USTs and pipelines associated with Fuel Pit 28. From 1994 to 1997, groundwater samples were collected in the immediate vicinity of Former Fuel Pit 28/Defuel Pit Z-1. VOCs, PAHs, TRPH, and lead were detected above the Groundwater Cleanup Target Levels (GCTLs). The approved remedial alternative in the Site 57 RAP Addendum, approved by the FDEP in 2008 recommended excavation and disposal of contaminated soils, LUCs for soil, and monitored natural attenuation (MNA) with LUCs for groundwater. Annual monitoring in support of MNA began in 2008 and concluded in 2009.

The approved remedy, established in 2011, for ST057/FP 28 is No Further Action (NFA) for groundwater with LUCs and Institutional Controls (ICs) for soils. The remedy was based on previous investigations in which concentrations of CoCs were detected in soil above its industrial Soil Cleanup Target Level (SCTL) and in which no constituents were detected in groundwater during the last two sampling events (June/July 2008 and June 2009). As recommended in the Seventh Annual Basewide Monitoring Report LUC surveillance will continue to be conducted annually. This recommendation was approved by FDEP in 2013. Annual LUC surveillance has been conducted at the site starting in 2014. ST057/FP 28 is not scheduled for remediation in the near future and will remain in the LUC surveillance program until the current land use changes.

## Contaminated Media Disposal Guidelines

If construction is planned for an area that is located within the boundary of (a) known or suspected contaminated site(s), the Contractor shall be provided with a Site Summary document that includes information on the nature of the contaminant(s) at the site(s), as well as the media affected (groundwater, soil, or sediment); however, even if the project area is NOT within (a) known or suspected contaminated site(s), the groundwater and soil may be contaminated with per- and polyfluoroalkyl substances (PFAS), a group of emerging contaminants currently being investigated on MacDill AFB. Current information is showing potential PFAS in all groundwater and soil at MacDill AFB above screening levels, therefore all waste generated from construction projects must be sampled, regardless of location on the installation until the current investigation is complete. Due to the dynamic regulatory environment (concerning PFAS) please contact the Environmental Restoration Program office (AFCEC 6 CES/CZOE) for the most current PFAS guidance.

Depending on the nature of the contaminant, the Contractor shall comply with the following procedures:

1. When excavating on (a) site(s) known or suspected to have soil/sediment contamination, any material excavated as a result of construction activity must be backfilled to the location from which it was removed. If there is not enough space in the excavation area to replace all the removed material, the soil/sediment must be stockpiled in a manner as not to spread contamination; i.e., staging in a roll off container or piling on a layer of polyethylene plastic sheeting (if this method is used, soil must also be covered with plastic to prevent rain from spreading contamination). Prior to removal from site, the staged material must be analyzed, at the Contractor's expense, by a certified laboratory. The site-specific Site Summary document (when applicable) lists the contaminant information for the site and should be provided to the lab when arranging for analysis. Additionally, all soil/sediment to be removed from the installation during construction is to be analyzed for PFAS. The analysis should be performed by a laboratory that is able to achieve a detection level below the current US EPA regional screening level (RSL) for soil of 0.013 parts per million (ppm). Please contact AFCEC 6 CES/CZOE for a list of accredited laboratories. The Contractor shall provide the results of lab analysis to AFCEC 6 CES/CZOE for interpretation prior to any action. The soil/sediment resulting from construction activity on a contaminated site may never be placed on another area of the site or used for backfill anywhere else on the installation. Upon notice from AFCEC 6 CES/CZOE, the Contractor will be required to remove the stockpiled material from the site and arrange for transport to an appropriate disposal facility.
  - a. If test results are below Florida Department of Environmental Protection (DEP) Soil Cleanup Target Levels (SCTLs) and the US EPA RSL for soil, the soil/sediment must be hauled off-site and transported, at the Contractor's



expense, to a landfill/facility that accepts Class III wastes, IAW FAC 62-701, Solid Waste Management Facilities.

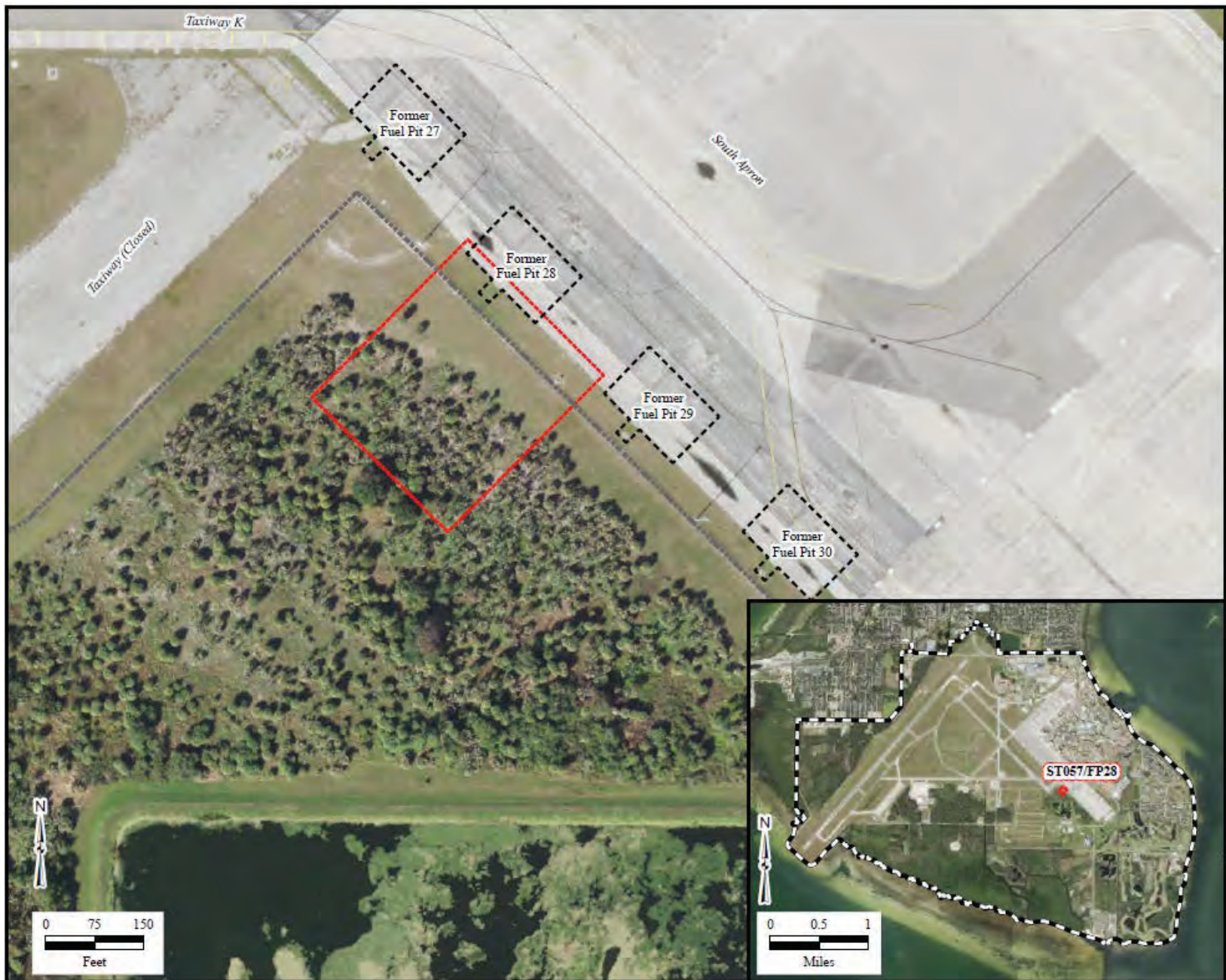
- b. If soil/sediment is found to exceed Florida DEP SCTLs or the US EPA RSL for soil, the soil/sediment must be hauled off-site and transported, at the Contractor's expense, to a landfill/facility that accepts Class I waste, IAW FAC 62-701, Solid Waste Management Facilities. In addition, the Contractor must coordinate with AFCEC 6 CES/CZOE for signatures on the non-hazardous waste profiles/manifests that are required for transport.
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- For large quantities of PFAS liquid concentrations, on-site
- c. groundwater treatment can be used which includes Granular Activated Carbon (GAC) or other approved treatment technology to bring chemical concentrations below

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  - c. Wells must be abandoned/reinstalled by a Florida licensed driller and surveyed by a Registered Land Surveyor in the State of Florida. Well locations are to be surveyed to within 1 foot accuracy using Florida State plane, West Zone, North American Datum, 1983 (NAD 83). Ground surface elevations and top of concrete pad elevations will be surveyed to within 0.1 ft

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- d. All field logs, permits and survey forms must be provided to AFCEC 6 CES/CZOE at the completion of well abandonment/installation. The Contractor must coordinate with AFCEC 6 CES/CZOE to obtain well tag specifications and ordering information.
- e. For additional information on contaminated sites, please contact the POC for AFCEC 6 CES/CZOE, Kristy Snyder at 813-828-0776/813-716-4293, kristy.snyder.2@us.af.mil.
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**Site Summary:** TG285a – Former Skeet Range South, Shoreline Portion  
**Environmental Restoration Program, MacDill AFB, Tampa, Florida**

**Site ID:** TG285a

**Site Acreage:** 3.4 Acres

**Site Status:** Annual Land Use Controls (LUCs)

Surveillance:

- Groundwater use restriction
- Soil use restriction
- Non-residential use restriction
- Long Term Monitoring



**Contaminants of Concern (CoCs):**

Groundwater: None

Soils: Clay target/range-related/PAHs

Surface Water: None

Sediments None

**Point of Contact:**

Kristy Snyder, Program Manager  
AFCEC 6 CES/CZOE  
7621 Hillsborough Loop Dr. (Bldg 30)  
MacDill AFB, FL 33621  
Phone: 813-828-0776  
Cell: 813-716-4293  
Email: kristy.snyder.2@us.af.mil

**Buildings Located on Site:** None

**Site Description:**

The Skeet Range South, TG285a is located along the beach of Hillsborough Bay in the southeast portion of MacDill AFB, adjacent to the south golf course. TG285a is composed of mainly sand, grass, and a few trees.

### **Site History:**

The Skeet Range South, TG285a was once used for skeet target shooting. The exact dates when this skeet range was operational are unknown, but it is presumed to have been in use during the 1940s. The skeet range was likely recreational in use. Typical skeet ranges during the period of activity for this type of range used 12-, 20-, and 28- gauge ammunition in shotguns, in which lead shot was the primary component of the projectile. The former firing point was located on-shore near the northwest boundary of TG285a. The firing direction was toward the east. Clay targets were presumably thrown out over the waters of the bay when recreational firing was conducted. No other information gathered during the site investigation or historical research suggested that this range was used for any other purpose.

Comprehensive Site Evaluation (CSE) Phase I and Phase II were completed at Skeet Range South (TG285a) in 2007 and 2010 respectively. The CSE Phase I included a historical records review and site walk. The CSE Phase II included visual surveys and environmental sampling. During the CSE Phase II clay target debris was identified and the site was sampled for antimony, lead, and polynuclear aromatic hydrocarbons (PAH). Elevated levels of PAHs were identified in the soils during the CSE Phase II. After the CSE Phase II was completed follow on ground water sampling was performed and one well had elevated levels of antimony detected. An intensive pre-excavation confirmation sampling event was completed to determine the soil removal areas within TG285a. Approximately 1,600 tons of soil was removed. Clay target debris was also removed as it was discovered throughout the duration of the soil removal effort. Post Active Remediation Monitoring (PARM) was conducted in November 2012 and April 2013. No CoCs were detected above groundwater cleanup target levels (GCTLs) in the first PARM event. The second PARM event detected several PAHs above their respective GCTLs, however, they were believed to be from shipping and other industrial activities in Hillsborough Bay. The selected remedy for TG285a is Institutional Controls (ICs) to restrict land use to non-residential use and prevent exposure to the clay target and other range-related debris that is a potential source of PAH contamination for surface soils, subsurface soils, and groundwater, and ensures protection of human health and the environment. In addition, annual monitoring and inspection will be conducted to remove any clay target or range-related debris that has washed ashore. After five consecutive years of no clay target or range-related debris being found, the site will be closed.



## Contaminated Media Disposal Guidelines

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