

**DRAFT  
ENVIRONMENTAL ASSESSMENT  
FOR THE  
MILITARY HOUSING  
PRIVATIZATION INITIATIVE (MHPI)  
MOODY AIR FORCE BASE, GEORGIA**



**July 2013**



### **PRIVACY ADVISORY**

Your comments on this Draft EA are requested. Letters or other written or oral comments provided may be published in the Final EA. As required by law, comments will be addressed in the Final EA and made available to the public. Any personal information provided will be used only to identify your desire to make a statement during the public comment period or to fulfill requests for copies of the Final EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of the Final EA. However, only the names of those individuals making comments and specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.



1 **DRAFT FINDING OF NO SIGNIFICANT IMPACT**  
2 **AND FINDING OF NO PRACTICABLE ALTERNATIVE**

3 **MILITARY HOUSING PRIVATIZATION INITIATIVE (MHPI)**  
4 **MOODY AFB, GEORGIA**

5 Pursuant to provisions of the National Environmental Policy Act (NEPA), 42 United States Code (USC)  
6 4321 to 4270d, implementing Council on Environmental Quality (CEQ) Regulations, 40 Code of Federal  
7 Regulations (CFR) 1500–1508, and 32 CFR Part 989, Environmental Impact Analysis Process, the U.S. Air  
8 Force assessed the potential environmental consequences associated with the development of  
9 privatized military family housing (MFH) for Moody Air Force Base (AFB), Georgia.

10 The purpose of the Proposed Action is to: 1) provide privatized, on-base housing for senior leadership to  
11 facilitate force protection and 2) provide privatized off-base housing for additional personnel.  
12 Determining the specific need for required housing for Moody AFB personnel involved estimating the  
13 number of appropriate private sector housing units available to military families within 20 miles, or a  
14 60-minute commute during peak driving conditions, through a Housing Requirements and Market  
15 Analysis (HRMA) conducted in September 2010. The HRMA identified the housing units available to  
16 military members in the private community and determine the number of units that the Air Force needs  
17 to provide for Moody AFB. The total end-state MFH requirement for Moody AFB is 471 total units. With  
18 287 existing units, 184 new units need to be constructed.

19 The need to provide on-base property for key senior officer houses is twofold. First, current senior  
20 officer quarters located on Moody AFB in the Quiet Pines housing area do not meet the size and amenity  
21 standards for senior officers. Secondly, on-base housing for senior officers is needed to meet a legal  
22 recommendation from the Judge Advocate General due to the Posse Comitatus Act (18 USC Section  
23 1385). The act prohibits members of the Army and Air Force from exercising law enforcement, police, or  
24 peace officer powers that maintain “law and order” on nonfederal property (states and their counties  
25 and municipal divisions) within the United States. As such, military law enforcement cannot provide the  
26 appropriate security for senior officers residing off-installation. The need to provide an area for off-base  
27 housing is associated with the fact that Moody AFB does not have the land area available (113 acres) to  
28 accommodate the additional 173 housing units.

29 The Environmental Assessment (EA), incorporated by reference into this finding, analyzes the potential  
30 environmental consequences of activities associated with development of new MFH units and provides  
31 environmental protection measures to avoid or reduce adverse environmental impacts. The EA  
32 considers all potential impacts of the Proposed Action and the No Action Alternative. The EA also  
33 considers cumulative environmental impacts associated with other projects at Moody AFB and the  
34 surrounding community.

35 **DESCRIPTION OF THE PROPOSED ACTION**

36 The Proposed Action would involve the construction, in two phases, of 11 housing units for senior  
37 leadership on a 15-acre parcel on the base and 173 units on a 113-acre parcel located northwest of the  
38 city of Valdosta, Georgia, on Val Del Road (the Val Del parcel). Development would also require housing  
39 area transportation infrastructure (e.g., roads) and utility connections for each housing unit, as well as  
40 desired community features such as athletic areas and community centers. The land area underlying  
41 the on-base units would be leased to the developer for a period of up to 50 years. The land area for the  
42 off-base parcel is privately owned, and a developer would develop, own, and operate the off-base  
43 housing area/units.

### Proposed Action Housing Details

Construction Features	Estimated Maximum Size/Unit	Phase I				Phase II		Total Square Footage
		Moody On-Base	Square Footage	Val Del	Square Footage	Val Del	Square Footage	
<b>Housing Units</b>								
SOQ Housing	2,920 ft <sup>2</sup>	8 units	23,360	N/A				23,360
FGO Housing	2,700 ft <sup>2</sup>	N/A		7 units	18,900	6 units	16,200	35,100
CGO Housing	2,500 ft <sup>2</sup>			14 units	35,000	13 units	32,500	67,500
Prestige Housing	2,700 ft <sup>2</sup>	3 units	8,100	N/A				8,100
SNCO Housing	2,500 ft <sup>2</sup>	N/A		5 units	12,500	4 units	10,000	22,500
JNCO Housing	2,220 ft <sup>2</sup>			64 units	142,080	60 units	133,200	275,280
<b>Housing Unit Total</b>		<b>11 units</b>	<b>31,460</b>	<b>90 units</b>	<b>208,480</b>	<b>83 units</b>	<b>191,900</b>	<b>431,840</b>
<b>Non-Housing</b>								
Moody Gazebo	1,200 ft <sup>2</sup>	1 unit	1,200	N/A				1,200
Community Center	8,000 ft <sup>2</sup>	N/A		1 unit	8,000	N/A		8,000
Maintenance Building	3,000 ft <sup>2</sup>			1 unit	3,000			3,000
Tennis Courts	7,200 ft <sup>2</sup>			2 units	14,400			14,400
Basketball Court	5,000 ft <sup>2</sup>			2 units	10,000			10,000
Splash Park	12,000 ft <sup>2</sup>			1 unit	12,000			12,000
<b>Non-Housing Total</b>		<b>1 unit</b>	<b>1,200</b>	<b>7 units</b>	<b>47,400</b>	<b>N/A</b>		<b>48,600</b>
<b>Other</b>								
Additional impervious surface (per housing unit)	1,250 ft <sup>2</sup>	11 units	13,750	90 units	112,500	83 units	103,750	230,000
Parking	N/A			Parking space for recreational area and maintenance building = 10,540 ft <sup>2</sup>				10,540
Roadways	36 feet wide	1 mile at 190,000 ft <sup>2</sup>		4 miles at 760,000 ft <sup>2</sup>				950,000
Utility Lines	Unknown							
<b>Other Total</b>			<b>203,750</b>	<b>986,790</b>				<b>1,190,540</b>
<b>Overall Total Square Footage</b>			<b>236,410</b>	<b>1,434,570</b>				<b>1,670,980</b>

1 CGO = commission grade officer; FGO = field grade officer; ft<sup>2</sup> = square feet; JNCO = junior noncommissioned Officer; N/A = not applicable; SNCO = senior noncommissioned officer; SOQ = senior officer quarters

1 The entire project would consist of two phases. Phase I involves development of 11 units on-base and  
2 development of 90 units at the Val Del parcel. Phase II includes development of 83 additional units at  
3 the Val Del parcel. The previous table summarizes the details of the Proposed Action; more information  
4 is provided in Chapter 2 of the EA.

#### 5 **NO ACTION ALTERNATIVE**

6 Under the No Action Alternative, the Air Force would not initiate the development of the privatized MFH  
7 for Moody AFB.

#### 8 **SUMMARY OF FINDINGS**

9 The Air Force has concluded that no significant adverse effects would result to the following resources  
10 as a result of the Proposed Action: air quality, water resources, biological resources, soils, solid waste,  
11 socioeconomics (including special risks to children) and environmental justice, and infrastructure  
12 (utilities and transportation). Special operating procedures and mitigations associated with the  
13 Proposed Action are identified in Chapter 6 of the EA. No significant adverse cumulative impacts would  
14 result from activities associated with the Proposed Action when considered with past, present, or  
15 reasonably foreseeable future projects within the project area. In addition, the EA concluded that the  
16 Proposed Action would not affect land use, noise, general public health and safety, and hazardous  
17 materials and waste.

18 **Air Quality.** The entire project area is in attainment for all criteria pollutants and no conformity  
19 determination is required. Emissions from construction activities would cause a temporary and minimal  
20 increase in criteria pollutant and greenhouse gas emissions. Once construction is completed, the  
21 emissions would return to baseline levels. Air emissions from Moody AFB personnel trips to and from  
22 Moody AFB would not result in significant air emissions.

23 **Water Resources.** Based on the information available at this time, it is expected that the Proposed  
24 Action would require the use of up to 1.9 acres of jurisdictional wetlands and 0.4 acre of non-  
25 jurisdictional (isolated) wetlands on the Val Del parcel. The U.S. Army Corps of Engineers (USACE) may  
26 allow the developer to utilize jurisdictional wetlands for development through the Clean Water Act  
27 (CWA) Section 404 permitting process, which would require mitigative measures to minimize potential  
28 impacts to both the jurisdictional and non-jurisdictional wetlands at the site. The State of Georgia has no  
29 requirements for use of these wetlands. A review of the Air Force design requirements, the size of the  
30 property, and the geographic features on the property make the limited use of wetlands necessary for  
31 completion of the Proposed Action on the Val Del parcel. Consequently, the Air Force has identified the  
32 need for a Finding of No Practicable Alternative in accordance with EO 11990, *Protection of Wetlands*.  
33 Mitigations for use of the wetlands will be developed through the Section 404 permitting process and  
34 would most likely be accomplished by purchasing wetland mitigation credits at a USACE-approved  
35 mitigation bank in the service area where Moody AFB is located. Under USACE guidelines, credit  
36 requirements anticipated to be in effect at the time of the Proposed Action could be as high as 12:1. The  
37 exact number of mitigation credits would be determined by USACE when the final permit is issued for  
38 the proposed project. Lowndes County development guidelines require a minimum of a 25-foot buffer  
39 zone around streams and jurisdictional wetland complexes that are not permitted for disturbance  
40 through the CWA Section 404 permitting process. Development plans at the proposed Val Del parcel  
41 would take this into consideration and provide a 75-foot buffer around the sinkhole and a minimum 25-  
42 foot buffer around any unpermitted jurisdictional wetlands, thus avoiding direct impacts to wetlands if  
43 permitting is not acquired.

1 The Val Del parcel is located within Lowndes County wetland and groundwater recharge protection  
2 areas, and increases in stormwater runoff and erosion would occur during the project. These impacts  
3 would be rendered insignificant by implementation National Pollutant Discharge Elimination System  
4 (NPDES) and Lowndes County land disturbance permits and associated Best management Practice and  
5 mitigation requirements. Construction-related impacts would be temporary and cease once the project  
6 is complete. As part of the design and development process and as required by Lowndes County land  
7 development codes, a minimum of 10 percent of the land area must be utilized for stormwater  
8 management. Housing area stormwater conveyance systems would be required to minimize stormwater  
9 from additional impervious surface area and prevent discharge to wetlands and an identified sinkhole  
10 on the property, and designs would be required to avoid impacts to groundwater recharge associated  
11 with the sinkhole per Lowndes County Unified Land Development Code, Section 4.06.01 B.4.

12 **Biological Resources.** No threatened or endangered species or habitats are known to occur at either of  
13 the proposed sites. Moody AFB biologists surveyed the Moody on-base site in January 2011, and a  
14 biological resources survey was conducted for the Val Del parcel in October 2012 and March 2013; no  
15 threatened or endangered species were identified. Some rare species were identified, however, the  
16 areas where they were located would be protected from construction and other direct impacts.

17 **Soils and Geology.** There may be a temporary increase in the potential for soil erosion during  
18 construction activities. However, this would be minimized through the implementation of  
19 NPDES/Lowndes County land disturbance permit-related requirements to mitigate soil erosion impacts  
20 from construction activities. The primary concern at the Val Del parcel is a sinkhole covering  
21 approximately 1.16 acres in the Phase II section of the site. The Project Owner will be required to obtain  
22 a Val Del Rd phase II site geotechnical report in accordance with local and state requirements on the  
23 suitability of the site for residential construction. Mitigation may include increased sinkhole buffer  
24 distances, or agreed upon phase II site re-configuration based upon business and engineering inputs.  
25 The Project Owner will make the Val Del Rd phase II site geotechnical report available to the Air Force  
26 and the Project Owner will comply with the recommendations included in such report. In order to begin  
27 Phase I, the developer would initially mitigate risk at the nearby Phase II area by establishing a 75-foot  
28 buffer around the sinkhole with a fence to prevent access to the area. Site designs would need to  
29 consider the development restrictions associated with poorly drained soils susceptible to wetness and  
30 flooding.

31 **Cultural Resources.** No traditional cultural properties (TCPs) or significant cultural resources are  
32 associated with the Moody on-base parcel. A cultural resources survey for the Val Del parcel was  
33 conducted in October 2012 and March 2013; no TCPs or significant cultural resources were identified.  
34 The Georgia State Historic Preservation Officer reviewed the survey report and concurred that there  
35 would be no effect on archaeological sites that are listed or eligible for listing on the National Register of  
36 Historic Places (NRHP). Moody AFB has also initiated consultation with local Native American tribes for  
37 concurrence on a finding of no effect to TCPs.

38 **Solid Waste.** Construction activities would generate approximately 8,098 tons of debris. Recycling  
39 actions would reduce this amount. The quantity of construction debris generated under the Proposed  
40 Action would not significantly impact the management capability or the overall life expectancy of local  
41 landfills.

42 **Socioeconomics / Environmental Justice.** There would be no influx of additional personnel or  
43 in-migration of workers that would impact local or regional population or housing demands.



1 Construction activities would provide a beneficial impact to the economy from the use of local labor and  
2 supplies, but such impacts would be temporary and minor, lasting only for the duration of construction  
3 activities. Redistribution of students from where they currently attend school could result in potential  
4 impacts to the local school district in terms of capacity, staffing levels, and revenue; however, these  
5 impacts would be relatively minor. The Air Force has not identified any impacts to minority or  
6 low-income populations resulting from the Proposed Action. There are potential risks to children during  
7 construction and operation of housing areas, particularly due to the presence of wetland areas and a  
8 1.16-acre sinkhole at the Val Del parcel. Mitigation measures, outlined in Section 6.1.6, would reduce  
9 the potential for safety risks to children.

10 **Infrastructure.** Utility connections are available and would be coordinated with local utility providers.  
11 No appreciable increase in utility use is expected, as there would be no additional personnel associated  
12 with the Proposed Action. The existing transportation infrastructure along the affected routes is  
13 adequate, and no reduction in level of service would occur. Potential traffic congestion at the main base  
14 gate and the entrance to the Val Del parcel could result from construction-related activities. Potential  
15 impacts would be minimized by limiting truck deliveries to the parcels during non-peak traffic hours.  
16 Measures to reduce potential safety impacts along Val Del Road include using flagmen to direct traffic  
17 during construction activities and constructing dedicated turn and merge lanes for traffic entering and  
18 exiting the parcel. A traffic safety engineering study would be required as part of site design, and all  
19 developed roadways and intersections would be designed in accordance with Georgia Department of  
20 Transportation (GDOT) safety requirements and would need to be approved by the GDOT and local  
21 agencies.

22 **PREFERRED ALTERNATIVE**

23 The Preferred Alternative is to implement the Proposed Action.

24 **FINDING OF NO PRACTICABLE ALTERNATIVE**

25 In February 2011, the Air Force issued a Request for Proposal (RFP) for a housing privatization project to  
26 provide Airmen and their families at Dyess AFB and Moody AFB with access to safe, secure, quality,  
27 affordable, well-maintained housing. The RFP required each offeror to identify in its proposal a suitable  
28 parcel of land located off-base within the Moody AFB market area for construction of 173 housing units  
29 in accordance with the requirements of the RFP. The land identified by the Highest Ranked Offeror is the  
30 Val Del parcel. Therefore, for the purposes of NEPA compliance, no other alternatives exist for the off-  
31 base portion of the project.

32 **FINDING OF NO SIGNIFICANT IMPACT**

33 Based on my review of the facts and analyses contained in the attached EA, conducted under the  
34 provisions of NEPA, CEQ Regulations, and 32 CFR Part 989, I conclude that the Preferred Alternative (the  
35 Proposed Action) cumulatively with other projects at Moody AFB would not result in significant  
36 environmental impacts. Accordingly, an Environmental Impact Statement is not required. The signing of  
37 this Finding of No Significant Impact/Finding of No Practicable Alternative completes the environmental  
38 impact analysis process.

39  
40 \_\_\_\_\_  
41 DIMASALANG F. JUNIO, Col, USAF Date  
42 Chief, Programs Division (A7P)

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**July 2013**



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## **ACRONYMS, ABBREVIATIONS, AND SYMBOLS**

<b>ACAM</b>	Air Conformity Applicability Model
<b>ACHP</b>	Advisory Council on Historic Preservation
<b>AFB</b>	Air Force Base
<b>AFI</b>	Air Force Instruction
<b>AFOSH</b>	Air Force Occupational and Environmental Safety, Fire Protection, and Health
<b>AFPD</b>	Air Force Policy Directive
<b>BBC</b>	Balfour Beatty Communities
<b>BLS</b>	Bureau of Labor Statistics
<b>BMP</b>	best management practice
<b>CDC</b>	child development center
<b>CEQ</b>	Council on Environmental Quality
<b>CFR</b>	Code of Federal Regulations
<b>CGO</b>	commission grade officer
<b>CH<sub>4</sub></b>	methane
<b>CO</b>	carbon monoxide
<b>CO<sub>2</sub></b>	carbon dioxide
<b>CO<sub>2</sub>e</b>	carbon dioxide equivalent
<b>COC</b>	community of comparison
<b>CWA</b>	Clean Water Act
<b>DoD</b>	Department of Defense
<b>EA</b>	Environmental Assessment
<b>EIS</b>	Environmental Impact Statement
<b>EISA</b>	Energy Independence and Security Act
<b>EO</b>	Executive Order
<b>EMC</b>	Electric Membership Corporation
<b>EPD</b>	Environmental Protection Division
<b>ESA</b>	Endangered Species Act
<b>FGO</b>	field grade officer
<b>FONPA</b>	Finding of No Practicable Alternative
<b>FONSI</b>	Finding of No Significant Impact
<b>ft<sup>2</sup></b>	square feet
<b>GADNR</b>	Georgia Department of Natural Resources
<b>GDCA</b>	Georgia Department of Community Affairs
<b>GDOT</b>	Georgia Department of Transportation
<b>GHG</b>	greenhouse gas
<b>GWP</b>	global warming potential
<b>HAP</b>	hazardous air pollutant
<b>HRMA</b>	Housing Requirements and Market Analysis
<b>JNCO</b>	junior noncommissioned officer
<b>LOS</b>	level of service
<b>MFH</b>	military family housing
<b>MGD</b>	million gallons per day
<b>MHPI</b>	Military Housing Privatization Initiative
<b>mph</b>	miles per hour
<b>N<sub>2</sub>O</b>	nitrous oxide
<b>N/A</b>	not applicable
<b>NAAQS</b>	National Ambient Air Quality Standards
<b>NEI</b>	National Emissions Inventory
<b>NEPA</b>	National Environmental Policy Act
<b>NHPA</b>	National Historic Preservation Act

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<b>NO<sub>x</sub></b>	nitrogen oxides
<b>NPDES</b>	National Pollutant Discharge Elimination System
<b>NRHP</b>	National Register of Historic Places
<b>NWI</b>	National Wetland Inventory
<b>OSHA</b>	Occupational Safety and Health Administration
<b>PM<sub>10</sub></b>	particulate matter with a diameter of less than or equal to 10 microns
<b>PM<sub>2.5</sub></b>	particulate matter with a diameter of less than or equal to 2.5 microns
<b>RFP</b>	Request for Proposal
<b>ROI</b>	region of influence
<b>SGRC</b>	South Georgia Regional Commission
<b>SHPO</b>	State Historic Preservation Officer
<b>SIP</b>	State Implementation Plan
<b>SNCO</b>	senior noncommissioned officer
<b>SO<sub>2</sub></b>	sulfur dioxide
<b>SOQ</b>	Senior Officer Quarters
<b>SWPPP</b>	Stormwater Pollution Prevention Plan
<b>TCP</b>	traditional cultural property
<b>UFC</b>	Unified Facilities Criteria
<b>ULDC</b>	Unified Land Development Code
<b>USACE</b>	U.S. Army Corps of Engineers
<b>USC</b>	U.S. Code
<b>USEPA</b>	U.S. Environmental Protection Agency
<b>USFWS</b>	U.S. Fish and Wildlife Service
<b>USGS</b>	U.S. Geological Survey
<b>VOC</b>	volatile organic compound
<b>WWTP</b>	wastewater treatment plant

# 1. PURPOSE AND NEED FOR ACTION

## 1.1 INTRODUCTION

The United States Air Force, Air Combat Command proposes to develop privatized military family housing (MFH) for service members at Moody Air Force Base (AFB), Georgia. The Proposed Action would involve the construction, in two phases, of 11 housing units for senior leadership on a 15-acre parcel on the base (Figure 1-1), and 173 units on a 113-acre parcel located northwest of the city of Valdosta, Georgia (Figure 1-2). Development would also require housing area transportation infrastructure (e.g., roads) and utility connections for each housing unit. The land area underlying the on-base units would be leased to the developer for a period of up to 50 years. The land area for the off-base parcel is privately owned, and a developer would develop, own, and operate the off-base housing area/units. Chapter 2 details the Proposed Action and alternatives.

The National Defense Authorization Act of 1996 authorized the Department of Defense (DoD) to engage private sector businesses through a process of housing privatization, wherein private sector housing developers would renovate or demolish existing housing units, build new units, and provide the infrastructure needed to support such developments. The developer would own the units and collect rent from service members while providing maintenance and management. In some cases, land would be leased from the Air Force, and in others, land would be acquired off-base through lease or purchase from private landowners. Additional information and details regarding the Military Housing Privatization Initiative (MHPI) can be found on the DoD housing privatization website at <http://www.acq.osd.mil/housing>.

The proposed privatization activities at Moody AFB are part of a larger privatization effort that includes Dyess AFB, Texas. Both bases are grouped together as part of a single privatization request for proposal. However, environmental and socioeconomic impacts associated with the privatization action are specific to each installation. Therefore, impacts associated with privatization at each installation are analyzed separately for purposes of National Environmental Policy Act (NEPA) documentation.



Figure 1-1. Location of Moody AFB and Proposed Action (On-Base Parcel)

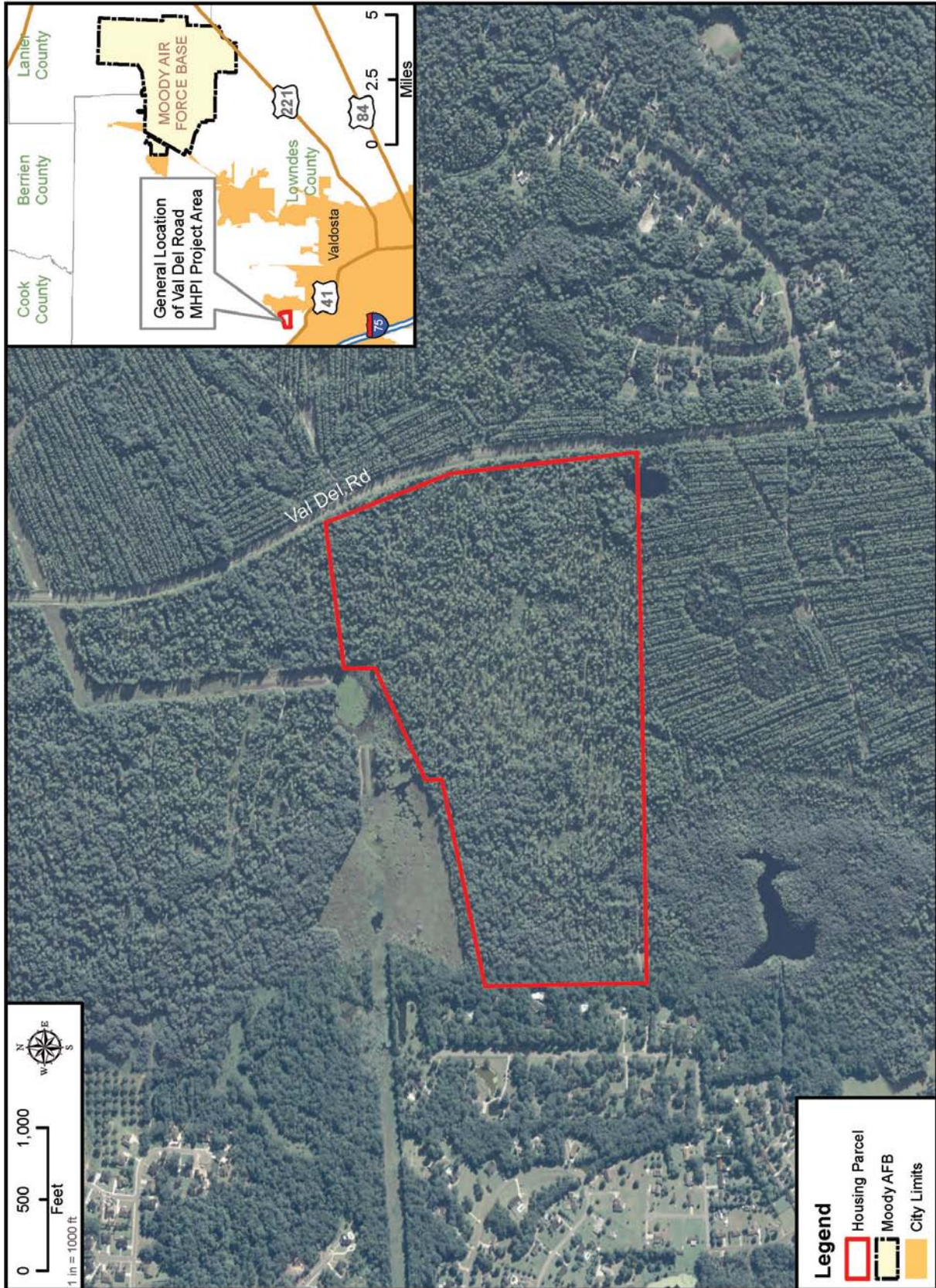


Figure 1-2. Location of Moody AFB and Val Del Parcel

## 1.2 LOCATION OF THE PROPOSED ACTION

Moody AFB comprises a total of 10,913 acres in Lowndes and Lanier Counties in south-central Georgia (see Figure 1-1). Moody AFB property includes a main base area, which consists of approximately 5,039 acres, and a 5,974-acre parcel of land east of the main base, called the Grand Bay Range. The main base portion, situated east of Parker Greene Highway/Bemiss Road (State Highway 125), includes the administrative, base support, aircraft operations, and maintenance areas, as well as the airfield. The proposed 15-acre on-base housing parcel is located along the southwestern boundary of Moody AFB main base.

Nearby cities include Valdosta, about 10 miles to the southwest, and Lakeland, about 6 miles northeast. Moody AFB is approximately 85 miles northeast of Tallahassee, Florida, and 120 miles northwest of Jacksonville, Florida. The closest major cities in Georgia are Macon, 150 miles north, and Atlanta, 220 miles north. Georgia State Highway 125 (Parker Greene Highway/Bemiss Road) is the primary access road to the main base.

The proposed 113-acre off-base housing parcel is currently undeveloped. It is located to the northwest of Valdosta, Georgia, on Val Del Road (Figure 1-2) and approximately 15 miles southwest of Moody AFB. Within the context of this Environmental Assessment (EA), this parcel is referred to as the “Val Del parcel.”

## 1.3 PURPOSE AND NEED FOR THE ACTION

The purpose of the Proposed Action is to 1) provide privatized, on-base housing for senior leadership to facilitate force protection and 2) provide privatized off-base housing for additional personnel. Determining the specific need for required housing for Moody AFB personnel involved estimating the number of appropriate private-sector housing units available to military families within 20 miles, or a 60-minute commute during peak driving conditions. To accomplish this, a Housing Requirements and Market Analysis (HRMA) was conducted in September 2010 to identify the housing units in the private community available to military members and determine the number of units that the Air Force needs to provide for Moody AFB. The total end-state MFH requirement for Moody AFB is 471 total units. With 287 existing units, 184 new units need to be constructed.

1           The need to provide on-base property to ensure security for key senior officer  
2 houses is twofold. First, current senior officer quarters (SOQ) located on Moody AFB in  
3 the Quiet Pines housing area do not meet the size and amenity standards for senior  
4 officers. These units would require extensive renovations, and it would be more cost  
5 effective to build new units. Secondly, on-base senior officer housing is needed to meet  
6 a legal recommendation from the Judge Advocate General due to the Posse Comitatus  
7 Act (18 United States Code [USC] Section 1385). The act prohibits members of the  
8 Army and Air Force from exercising law enforcement, police, or peace officer powers  
9 that maintain “law and order” on nonfederal property (states and their counties and  
10 municipal divisions) within the United States. As such, military law enforcement  
11 cannot provide the appropriate security for senior officers residing off-installation.

12           At most Air Force installations, this is not an issue, as key senior officers reside in  
13 privatized housing located on Air Force-owned land, where the Posse Comitatus Act  
14 does not apply. The construction of new SOQ for Moody AFB in the 15-acre parcel,  
15 separate from the Magnolia Grove housing area, would meet the purpose and need by  
16 providing SOQ that meet current size and amenity standards for senior officers, as well  
17 as provide for appropriate security for senior officers as required by DoD Unified  
18 Facilities Criteria (UFC) 4-010-01. The current SOQ in Moody AFB’s current MHPI  
19 private owner’s Magnolia Grove housing area will not be part of the second MHPI  
20 private owner’s inventory and will be used as housing.

21           The need to provide an area for off-base housing is associated with the fact that  
22 Moody AFB does not have the land available to develop 173 housing units.

#### 23 **1.4 SCOPE OF THE ENVIRONMENTAL REVIEW**

24           This EA identifies, describes, and evaluates the potential environmental impacts  
25 that may result from implementing the MHPI under both the Proposed Action as well  
26 as a no action alternative. As appropriate, the affected environment and environmental  
27 consequences may be described in terms of site-specific descriptions, safety, or regional  
28 overview. Finally, this document identifies measures that would prevent or minimize  
29 environmental impacts.

30           NEPA requires federal agencies to consider the environmental consequences of  
31 proposed actions in the decision-making process (42 USC 4321, et seq.). The Council on  
32 Environmental Quality (CEQ) was established under NEPA, 42 USC 4342, et seq., to  
33 implement and oversee federal policy in this process. In 1978, the CEQ issued

1 regulations implementing the NEPA process under Title 40, Code of Federal  
2 Regulations (CFR), Parts 1500–1508. The CEQ regulations require that the federal  
3 agency considering an action evaluate or assess the potential consequences of the action  
4 or alternatives to the action, which may result in the need for an EA or environmental  
5 impact statement (EIS). Under 40 CFR:

- 6 • An EA must briefly provide sufficient evidence and analysis to determine  
7 whether a finding of no significant impact (FONSI) or an EIS should be prepared.
- 8 • An EA must facilitate the preparation of an EIS if required.

9 The proposed activities addressed within this document constitute a federal  
10 action and, therefore, must be assessed in accordance with NEPA. To comply with  
11 NEPA, as well as other pertinent environmental requirements, the decision-making  
12 process for the Proposed Action must include the development of an EA to address the  
13 environmental issues related to the proposed activities. The Air Force Environmental  
14 Impact Analysis Process is accomplished via procedures set forth in CEQ regulations  
15 and 32 CFR Part 989.

## 16 **1.5 COOPERATING AGENCY, INTERGOVERNMENTAL** 17 **COORDINATION/CONSULTATIONS, AND PUBLIC AGENCY REVIEW**

18 There are no cooperating agencies associated with this Proposed Action.

19 The Air Force, after having conducted a cultural resources survey for the Val Del  
20 parcel that found no significant cultural resources present on-site, initiated consultation  
21 with the Georgia State Historic Preservation Officer (SHPO) and local Native American  
22 tribes as required by Advisory Council on Historic Preservation (ACHP) regulations,  
23 “Protection of Historic Properties” (36 CFR Part 800), and Section 106 of the National  
24 Historic Preservation Act (NHPA). The Georgia SHPO reviewed the survey report and  
25 concurred that there would be no effect on archaeological sites that are listed or eligible  
26 for listing on the National Register of Historic Places (NRHP) (See Appendix A). Moody  
27 AFB provided notification of the Proposed Action and requested concurrence on a  
28 finding of no effect to traditional cultural properties (TCPs) from 13 tribes (a list is  
29 provided in Chapter 7).

30 The Air Force published a public notice in the *Valdosta Daily Times* on July 15,  
31 2013, inviting the public to review and comment on the EA (available at the South  
32 Georgia Regional Library in Valdosta, Georgia). The Air Force also provided the



1 following agencies copies of the EA for review and comment: Georgia Environmental  
2 Protection Division, Georgia Department of Community Affairs, Georgia Wildlife  
3 Resources Division, Georgia Historic Protection Division, the South Georgia Regional  
4 Planning Council, the City of Valdosta, and the Lowndes County Commission. The  
5 public comment and agency review period will end on August 15, 2013. Any  
6 public/agency comments received will be provided in the Final EA.

## 7 **1.6 ORGANIZATION OF THE DOCUMENT**

8 This EA follows the requirements established by CEQ regulations  
9 (40 CFR 1500-1508). This document consists of the following chapters:

- 10 1. Purpose and Need for Action
- 11 2. Description of Proposed Action and Alternatives
- 12 3. Affected Environment
- 13 4. Environmental Consequences
- 14 5. Cumulative Impacts
- 15 6. Special Operating Procedures and Mitigations
- 16 7. Persons and Agencies Contacted
- 17 8. List of Preparers
- 18 9. References

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## 2. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

### 2.1 INTRODUCTION

This chapter describes the Proposed Action, the alternatives that the Air Force considered but did not carry forward, and the No Action Alternative. The potential environmental impacts of the Proposed Action and alternatives are summarized at the end of this chapter.

### 2.2 PROPOSED ACTION

The Proposed Action consists of two aspects: 1) the development of 11 housing units within a 15-acre parcel located on Moody AFB and 2) development of 173 housing units within a 113-acre parcel located northwest of Valdosta, Georgia (the Val Del parcel). The entire project would consist of two phases. Phase I would involve development of 11 units on-base and 90 units at the Val Del parcel (comprising 60 acres). Phase II includes development of 83 units at the Val Del parcel (comprising 47 acres). All construction would be required to meet conditions of UFC 3-101-01 (*Whole Building Design Guide*), and new construction on Moody AFB would be required to comply with Air Force Handbook 32-7084, *Air Installation Compatible Use Zone (AICUZ) Program*.

In addition, the action would include the following.

- Additional impervious surface: An estimated 1,250 square feet of impervious surface area per housing unit (i.e., sidewalks, patios, and driveways).
- New roads: The amount of new roadway constructed would be dependent on the developer's proposal. For analysis purposes, it is estimated that at the Moody on-base parcel, approximately 1 mile of paved two-lane roadway (24 feet wide) would be constructed, along with a parking lane (8 feet on one side), and curb (2 feet on each side), for approximately 190,000 square feet of roadway. For the Val Del parcel, it is estimated that approximately 4 miles of paved roadway with similar dimensions would be constructed (760,000 square feet), along with a gated entrance.
- Utility connections: Installation of underground water and electrical utilities would also be required, since there are no utilities on-site at either parcel. Utility connections will occur in the southeast portion of the property along Val Del Road in accordance with the latest site plan. It is assumed for purposes of

1 analysis that ground disturbance associated with utility installation would be  
2 minimal and would occur within established rights of way and avoid any  
3 sensitive areas, and disturbed areas would be revegetated once installation is  
4 complete. Any deviations would require additional NEPA analysis.

- 5 • Natural buffers: On Moody AFB, the development area would maintain a natural  
6 forest screen between Parker Greene Highway/Bemiss Road, Stone Road, and  
7 the homes. In addition, a gated entrance would be installed. At the Val Del  
8 parcel 30-foot green space buffer would be provided around the perimeter of the  
9 parcel per Lowndes County land development requirements. A minimum  
10 75-foot vegetative buffer would be maintained around the sinkhole. Based on  
11 the information available at this time, it is expected that the Proposed Action  
12 requires the use of up to 1.9 acres of jurisdictional wetlands and 0.4 acre of non-  
13 jurisdictional wetlands on the Val Del parcel. All unpermitted jurisdictional  
14 wetlands on the property will be surrounded by a 25-foot vegetative buffer.

15 In addition, the following desired features may be constructed depending on  
16 developer proposals/designs.

- 17 • Community area: A community center, approximately 8,000 square feet in size  
18 and consisting of combined housing office and recreational center, is desired at  
19 the Val Del parcel. At Moody AFB, a large gazebo with outdoor grilling area and  
20 play area at approximately 1,200 square feet may be constructed. Per Lowndes  
21 County Unified Land Development Code (ULDC), Section 6.01.03, Table  
22 6.01.03 (A), additional parking of approximately 10,000 square feet would be  
23 required.
- 24 • Val Del maintenance building: A maintenance building would be approximately  
25 3,000 square feet in size and would support housing maintenance activities. Per  
26 Lowndes County ULDC Section 6.01.03, Table 6.01.03 (A), additional parking of  
27 approximately 540 square feet would also be required.
- 28 • Val Del athletic courts: Potential athletic courts would consist of two tennis  
29 courts (7,200 square feet each) and two basketball courts (5,000 square feet each).  
30 Parking for this area would be the same as for the community area.
- 31 • Val Del splash park: A splash park is a zero-depth play area where water sprays  
32 from structures or ground sprays and then is drained away before it can  
33 accumulate. The splash park would include a nonporous surface with several  
34 water-spraying mechanisms, water drainage, and recirculation/disinfection  
35 features, as well as a playground with enclosed play structures, swings, and  
36 slides. Parking for this area would be the same as for the community area.

1 Table 2-1 summarizes the activities associated with the Proposed Action.

**Table 2-1. Proposed Action Housing Details**

Construction Features	Estimated Maximum Size/Unit	Phase I				Phase II		Total Square Footage
		Moody On-Base	Square Footage	Val Del	Square Footage	Val Del	Square Footage	
<b>Housing Units</b>								
SOQ Housing	2,920 ft <sup>2</sup>	8 units	23,360	N/A				23,360
FGO Housing	2,700 ft <sup>2</sup>	N/A		7 units	18,900	6 units	16,200	35,100
CGO Housing	2,500 ft <sup>2</sup>			14 units	35,000	13 units	32,500	67,500
Prestige Housing	2,700 ft <sup>2</sup>	3 units	8,100	N/A				8,100
SNCO Housing	2,500 ft <sup>2</sup>	N/A		5 units	12,500	4 units	10,000	22,500
JNCO Housing	2,220 ft <sup>2</sup>			64 units	142,080	60 units	133,200	275,280
<b>Housing Unit Total</b>		<b>11 units</b>	<b>31,460</b>	<b>90 units</b>	<b>208,480</b>	<b>83 units</b>	<b>191,900</b>	<b>431,840</b>
<b>Non-Housing</b>								
Moody Gazebo	1,200 ft <sup>2</sup>	1 unit	1,200	N/A				1,200
Community Center	8,000 ft <sup>2</sup>	N/A		1 unit	8,000	N/A		8,000
Maintenance Building	3,000 ft <sup>2</sup>			1 unit	3,000			3,000
Tennis Courts	7,200 ft <sup>2</sup>			2 units	14,400			14,400
Basketball Court	5,000 ft <sup>2</sup>			2 units	10,000			10,000
Splash Park	12,000 ft <sup>2</sup>			1 unit	12,000			12,000
<b>Non-Housing Total</b>		<b>1 unit</b>	<b>1,200</b>	<b>7 units</b>	<b>47,400</b>	<b>N/A</b>		<b>48,600</b>
<b>Other</b>								
Additional impervious surface (per housing unit)	1,250 ft <sup>2</sup>	11 units	13,750	90 units	112,500	83 units	103,750	230,000
Parking	N/A			Parking space for recreational area and maintenance building = 10,540 ft <sup>2</sup>				10,540
Roadways	36 feet wide	1 mile at 190,000 ft <sup>2</sup>		4 miles at 760,000 ft <sup>2</sup>				950,000
Utility Lines	Unknown							
<b>Other Total</b>			<b>203,750</b>	<b>986,790</b>				<b>1,190,540</b>
<b>Overall Total Square Footage</b>			<b>236,410</b>	<b>1,434,570</b>				<b>1,670,980</b>

2 CGO = commission grade officer; FGO = field grade officer; ft<sup>2</sup> = square feet; JNCO = junior noncommissioned  
3 Officer; N/A = not applicable; SNCO = senior noncommissioned officer; SOQ = senior officer quarters

4

1 Figure 1-1 and Figure 1-2 show the locations of activities associated with the  
 2 Proposed Action, while Figure 2-1 and Figure 2-2 show preliminary conceptual site  
 3 plans for the Moody on-base parcel and the Val Del parcel. The site plans presented in  
 4 this EA are only preliminary and conceptual at this time and may change as the project  
 5 evolves. They are provided in this document to allow the reader an understanding of  
 6 how these housing areas may be developed. Final site plans would account for  
 7 environmental constraints, management practices, special considerations, and any  
 8 mitigations identified in this EA. Any significant deviations from what is analyzed in  
 9 this EA may require additional NEPA analyses.



Figure 2-1. Preliminary Conceptual Design Plan for Moody SOQ Parcel



Figure 2-2. Preliminary Conceptual Design Plan for Val Del Parcel

1 **2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED**

2 The Air Force identified four possible alternatives (including the Proposed  
 3 Action) for locating the 11 senior officer units on Moody AFB and employed Balfour  
 4 Beatty Communities (BBC), an infrastructure services contractor, to identify a suitable  
 5 location for the remaining 173 units. Due to various reasons, the following alternatives  
 6 for locating Senior Officer housing on the installation and alternative for locating the  
 7 173 housing units were considered but not carried forward.

8 **2.3.1 Senior Officer Quarters**

9 **Mission Lake**

10 This alternative consisted of 17 acres behind Mission Lake. While outside of  
 11 wetlands, this location is near a former landfill, thus requiring soil gas surveys and  
 12 possible vapor mitigation measures. This alternative would also require relocation of  
 13 the Air-Ground Operations Wing Obstacle Course and is close to industrial areas and

1 the flightline, thus resulting in potential noise issues from flying operations. Therefore,  
2 this alternative was considered incompatible for housing and was not considered  
3 further.

#### 4 **Quiet Pines**

5 This alternative consisted of 9 acres north of the Quiet Pines housing area. The  
6 size of the site does not allow new construction to meet antiterrorism/force protection  
7 requirements under UFC 4-010-01, Table B-1, due to proximity to Parker Greene  
8 Highway/Bemiss Road. The code requires a standoff distance of 148 feet from  
9 roadways for new construction of family housing; this would equate to approximately  
10 1.5 acres used for standoff distance. Considering utility easements and roadways, the  
11 parcel is not large enough to support 11 new units, infrastructure, and standoff  
12 distances. Additionally, this location is in front of the sewage treatment plant. As a  
13 result, this alternative was not considered further.

#### 14 **2.3.2 173 Remaining Units**

15 In February 2011, the Air Force issued a Request for Proposal (RFP) for a  
16 housing privatization project to provide Airmen and their families at Dyess AFB and  
17 Moody AFB with access to safe, secure, quality, affordable, well-maintained housing.  
18 The RFP required each offeror to identify in its proposal a suitable parcel of land located  
19 off-base within the Moody AFB market area for construction of 173 housing units in  
20 accordance with the requirements of the RFP. The land identified by the Highest  
21 Ranked Offerors the Val Del parcel. Therefore, for the purposes of NEPA compliance,  
22 no other alternatives exist for the off-base portion of the project.

#### 23 **2.4 NO ACTION ALTERNATIVE**

24 Under the No Action Alternative, the Air Force would not build housing for  
25 senior leadership at Moody AFB and would manage and maintain existing and newly  
26 constructed housing in accordance with existing Air Force policy.



1 **2.5 IMPACT SUMMARY**

2 **2.5.1 Issues Not Carried Forward for Detailed Analyses**

3 Issues with minimal or no impacts were identified through a preliminary  
4 screening process. The following describes those issues not carried forward for a  
5 detailed analysis, along with the rationale for their elimination.

6 **Land Use**

7 Utilization of both parcels would change the land use designation from  
8 “undeveloped” to “housing” but would not affect surrounding land uses or result in  
9 incompatible land uses or zoning issues. As a result, the Air Force has not identified  
10 any impacts to adjacent land uses.

11 ***Moody AFB***

12 The proposed Moody AFB parcel is undeveloped and was formerly used for  
13 agriculture but is now idle and in old field succession.

14 ***Val Del Parcel***

15 The Val Del parcel is undeveloped forest area with no previous designated land  
16 use and is also idle. No development has occurred on either property; however, there  
17 are housing subdivisions located to the north, east, and west of the Val Del parcel.

18 **Safety and Occupational Health**

19 No general public safety risks have been identified associated with the proposed  
20 action and construction workers, whether on Moody AFB or at the Val Del parcel, are  
21 required to follow applicable Occupational Safety and Health Administration (OSHA)  
22 requirements.

23 ***Moody AFB***

24 No historical firing ranges or unexploded ordnance issues have been identified  
25 with the proposed housing areas. Day-to-day construction operations and maintenance  
26 activities at Moody AFB are conducted in accordance with applicable Air Force safety  
27 regulations, published Air Force technical orders, and standards prescribed by Air  
28 Force Occupational Safety and Health (AFOSH) requirements. For construction  
29 activities on the installation, appropriate job site safety plans are required; these plans  
30 explain how job safety would be ensured throughout the life of the project.

1 Occupational health and safety would be governed by the terms of the contract, which  
2 may incorporate Air Force regulations and technical orders, AFOSH standards, and  
3 OSHA standards.

4 Furthermore, the developer would be required to use criteria for site design  
5 elements found in UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*  
6 (19 January 2007) for housing units on Moody AFB. Other design elements (such as  
7 gates, fences, setbacks, traffic patterns, lighting, and landscaping designs) would also be  
8 required to minimize terrorist impacts, minimize access from surrounding  
9 communities, eliminate places of concealment, offer the most protection against crime,  
10 and discourage undesirable traffic. Therefore, the Air Force has not identified impacts  
11 to safety or occupational health, given required implementation of standard  
12 AFOSH/OSHA protocols and force protection standards.

### 13 *Val Del Parcel*

14 OSHA requirements and Lowndes County ULDC requirements would apply at  
15 this parcel, thus minimizing potential general safety and occupational health impacts to  
16 insignificant levels. Special risks to children associated with construction activities and  
17 the sinkhole at the Val Del parcel have been identified. These special risks to children  
18 are discussed in Section 4.7.2.

### 19 **Noise**

20 Construction activities associated with MHPI would occur over a one-year  
21 period. Thus, at any one time, several projects at multiple locations may be under way  
22 simultaneously. The primary sources of noise during these activities would be truck  
23 and vehicle traffic, heavy earth-moving equipment, and other construction equipment  
24 or infrastructure powered by internal combustion engines used on-site. Construction  
25 noise would cause a temporary, short-term increase in the ambient sound environment.  
26 Construction workers would be expected to wear appropriate hearing protection as  
27 required by OSHA. Construction activities associated with the Proposed Action would  
28 be minimal and would occur during normal business hours. Therefore, no noise issues  
29 would arise during evening, early morning, or weekend hours

30 Construction noise would not exceed U.S. Environmental Protection Agency  
31 (USEPA) benchmark annoyance levels (USEPA, 1974) more than 500 feet from the  
32 source at either Moody AFB or the Val Del parcel. Furthermore, no noise-generating  
33 construction activities would be conducted within 500 feet of any residences or other

1 noise receptors at either Moody AFB or the Val Del parcel. As a result, the Air Force  
2 has not identified significant noise impacts at either location.

### 3 ***Moody AFB***

4 The noise environment at Moody AFB is dominated by aircraft use, and the  
5 proposed parcel is located adjacent to Bemiss Road and a railroad track to the west and  
6 the main entrance road (Stone Road) to the east. Noise associated with construction  
7 would be minimal compared with the existing noise environment.

### 8 ***Val Del Parcel***

9 The noise environment at the Val Del parcel is mainly rural, ambient noise (e.g.,  
10 traffic). The parcel would be surrounded by a 30-foot vegetative buffer, which would  
11 act as a natural noise buffer. Given the timing of construction activities and that the fact  
12 that no noise-generating construction activities would be conducted within 500 feet of  
13 any residences, no impacts were identified.

### 14 **Hazardous Materials and Waste**

15 Common household chemicals would be used, and household hazardous wastes  
16 would be generated in the housing area by residents. Housing residents are provided  
17 with guidance for the storage and disposal of household hazardous waste, as well as  
18 information related to reporting any hazardous material/waste spills. Additionally,  
19 because both land areas are undeveloped, no lead-based paint, asbestos, or radon are  
20 present. There are also no aboveground or underground storage tanks associated with  
21 proposed housing areas.

### 22 ***Moody AFB***

23 There are no Environmental Restoration Program (ERP) sites within or adjacent  
24 to the proposed housing area on Moody AFB that would be affected by the Proposed  
25 Action. The developer would be required to comply with all applicable federal, state,  
26 local, and Air Force hazardous material and waste requirements, which are identified in  
27 the *Moody AFB Hazardous Materials and Waste Management Plan* (August 2005). This  
28 would preclude the potential for any hazardous material or waste impacts. Thus, no  
29 significant or adverse impacts associated with hazardous materials or waste would  
30 occur under the Proposed Action.

1 ***Val Del Parcel***

2           The ERP program is the Air Force program to remediate historical contamination  
3 on Air Force bases. Because of this, ERP sites would not occur on non-DoD property,  
4 such as the Val Del parcel. The developer would be required to comply with all  
5 applicable local and state requirements for the management of hazardous materials and  
6 waste.

7 **2.5.2 Summary of Impact Analysis**

8           The following environmental features were identified for analysis in this EA: air  
9 quality, water resources, biological resources, soils and geology, cultural resources,  
10 solid waste, socioeconomics/environmental justice, and infrastructure (utilities and  
11 transportation). Table 2-2 summarizes the impacts associated with the Proposed  
12 Action and No Action Alternative.

**Table 2-2. Alternative Impact Summary and Comparison**

Resource / Issue Area	Alternatives	
	Proposed Action	No Action
Air quality	The Air Force has not identified any significant impacts to regional air quality. The project area is in attainment for all criteria pollutants, and no conformity determination is required. Emissions from construction activities would cause a temporary and minimal increase in criteria pollutant and greenhouse gas emissions. Once construction is completed, the emissions would return to baseline levels. Air emissions from Moody AFB personnel trips to and from Moody AFB would not result in significant air emissions.	The No Action Alternative would not result in any additional impacts to the environment beyond the scope of normal conditions and influences within the region of influence.
Biological resources	The Air Force has not identified any significant adverse impacts to biological resources at either Moody AFB or the Val Del parcel. No threatened or endangered species or habitats are known to occur at either of the proposed sites. Moody AFB biologists surveyed the Moody on-base site in January 2011, and a biological resources survey was conducted for the Val Del parcel in October 2012 and March 2013; no threatened or endangered species were identified. Some rare species were identified; however, the areas where they were located would be protected from construction and other direct impacts.	
Soils and geology	The Air Force has not identified any significant adverse impacts to soils at either location. There may be a temporary increase in the potential for soil erosion during construction activities. However, this would be minimized through the implementation of National Pollutant Discharge Elimination System (NPDES)/Lowndes County land disturbance permit-related best management practices (BMPs) to mitigate soil erosion impacts from construction activities. The primary concern at the Val Del parcel is a sinkhole covering approximately 1.16 acres near the center of the site; the potential for gradual to sudden expansion exists in a karst environment. Analysis and proposed mitigations were based on the limited availability of information regarding the sinkhole. Any information obtained by the government in the future indicating the potential for significant environmental impact is cause for supplemental analysis and could put Air Force interests in the project at risk. Site designs would need to consider the development restrictions associated with poorly drained soils susceptible to wetness and flooding.	
Cultural resources	No cultural resources or traditional cultural properties (TCPs) are associated with the Moody on-base parcel. A cultural resources survey for the Val Del parcel was conducted in October 2012 and March 2013; no TCPs or significant cultural resources were identified. The Georgia State Historic Preservation Officer (SHPO) reviewed the survey report and concurred that there would be no effect on archaeological sites that are listed or eligible for listing on the National Register of Historic Places (NRHP). Moody AFB has initiated consultation with local Native American tribes for concurrence on a finding of no effect to TCPs. Correspondence with the SHPO and Native American tribes is found in Appendix A.	

**Table 2-2. Alternative Impact Summary and Comparison, Cont'd**

Resource / Issue Area	Alternatives	
	Proposed Action	No Action
Solid waste	The Air Force has not identified any significant solid waste-related impacts. Construction activities would generate approximately 8,098 tons of construction debris. Recycling actions would reduce this amount. The quantity of construction debris generated under the Proposed Action would not significantly impact the management capability or the overall life expectancy of local landfills.	
Water resources	<p>Based on the information available at this time, it is expected that the Proposed Action would require the use of up to 1.9 acres of jurisdictional wetlands and up to 0.4 acre of non-jurisdictional wetlands on the Val Del parcel. Jurisdictional wetlands will be used, therefore a Clean Water Act (CWA) Section 404 permit is required for their use. The State of Georgia has no requirements for use of these wetlands. Lowndes County development guidelines require a minimum of a 25-foot buffer zone around streams and jurisdictional wetland complexes. In addition, a minimum 25-foot buffer would be required around the sinkhole (Fletcher, 2013); the Air Force will require a 75-foot buffer.</p> <p>The Val Del parcel is located within Lowndes County wetland and groundwater recharge protection areas, and stormwater runoff and erosion would increase during the project. These impacts would be rendered insignificant by implementation of NPDES and Lowndes County land disturbance permits and associated BMP and mitigation requirements. Construction-related impacts would be temporary and cease once the project is complete. As part of the design and development process and as required by Lowndes County land development codes, a minimum of 10 percent of the land area must be utilized for stormwater management. Housing area stormwater conveyance systems would be required to minimize stormwater from additional impervious surface area and prevent discharge to wetlands and an identified sinkhole on the property, and designs would be required to prevent impacts to groundwater recharge associated with the sinkhole per Lowndes County Unified Land Development Code Section 4.06.01 B.4.</p>	

**Table 2-2. Alternative Impact Summary and Comparison, Cont'd**

Resource / Issue Area	Alternatives	
	Proposed Action	No Action
Socioeconomics /Environmental Justice	<p>The Air Force has not identified any significant socioeconomic impacts. There would be no influx of additional personnel or in-migration of workers that would impact local or regional population or housing demands. Construction activities would provide a beneficial impact to the economy from the use of local labor and supplies, but such impacts would be temporary and minor, lasting only for the duration of the construction activities. Redistribution of students from where they currently attend school could result in potential impacts to the local school district in terms of capacity, staffing levels, and revenue; however, these impacts would be relatively minor. The Air Force has not identified any impacts to minority or low-income populations resulting from the Proposed Action. There is potential for risks to children during construction and operation of housing areas, particularly due to the presence of wetland areas and a 1.16-acre sinkhole at the Val Del parcel. Mitigation measures, outlined in Section 6.7 and including a risk assessment, would reduce the potential for safety risks to children.</p>	
Infrastructure	<p>The Air Force has not identified any significant infrastructure impacts at either location. Utility connections are available along both parcel boundaries and would be coordinated with local utility providers. No appreciable increase in utility use is expected, as there would be no additional personnel associated with the Proposed Action. The existing transportation infrastructure along the affected routes is adequate and no reduction in level of service would occur. Potential traffic congestion at the main base gate and the entrance to the Val Del parcel could result from construction-related activities. Potential impacts would be minimized by limiting truck deliveries to the parcels during nonpeak traffic hours. Measures to reduce potential safety impacts along Val Del Road would include using flagmen to direct traffic during construction activities and constructing dedicated turn and merge lanes for traffic entering and exiting the parcel. A traffic safety engineering study would be required as part of site design, and all developed roadways and intersections would be designed in accordance with Georgia Department of Transportation (GDOT) safety requirements and would need to be approved by GDOT and local agencies.</p>	

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### 3. AFFECTED ENVIRONMENT

This chapter details the resource areas potentially affected by the Proposed Action. Resources discussed include air quality, water resources, biological resources, soils and geology, cultural resources, solid waste, utilities, socioeconomics/ environmental justice, and transportation.

#### 3.1 AIR QUALITY

Air quality is determined by the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. The levels of pollutants are generally expressed on a concentration basis in units of parts per million or micrograms per cubic meter.

The baseline standards for pollutant concentrations are the National Ambient Air Quality Standards (NAAQS) and state air quality standards established under the Clean Air Act (CAA) of 1990. These standards represent the maximum allowable atmospheric concentration that may occur and still protect public health and welfare. The NAAQS provide both short- and long-term standards for the following criteria pollutants: carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter equal to or less than 10 and 2.5 micrometers (PM<sub>10</sub> and PM<sub>2.5</sub>), ozone (O<sub>3</sub>), and lead (Pb).

Under the CAA it is the responsibility of the individual states to achieve and maintain the NAAQS. To accomplish this, states use the USEPA-required State Implementation Plan (SIP). A SIP identifies goals, strategies, schedules, and enforcement actions designed to reduce the level of pollutants in the air and bring the state into compliance with the NAAQS.

All areas of the U.S. are designated as having air quality better than (attainment) or worse than (nonattainment) the NAAQS. Areas where there are insufficient air quality data for the USEPA to form a basis for attainment status are unclassifiable. Thus, such areas are treated as attainment areas until proven otherwise. “Maintenance areas” are those that were previously classified as nonattainment but where air pollution concentrations have been successfully reduced below the standard. Maintenance areas are subject to special maintenance plans to ensure compliance with the NAAQS.

1 Hazardous air pollutants (HAPs) are chemical pollutants and toxic chemical air  
2 pollutants for which occupational exposure limits have been established. Volatile  
3 organic compounds, an ozone precursor, are included in this definition and include any  
4 organic compound involved in atmospheric photochemical reactions, except those  
5 designated by a USEPA administrator as having negligible photochemical reactivity.  
6 HAPs are not covered by the NAAQS but may present a threat of adverse human health  
7 or environmental effects under certain conditions.

8 A detailed discussion of Federal and state standards are in Appendix B.

### 9 **3.1.1 Affected Environment**

#### 10 **Climate**

11 Moody AFB is located within the interior climate region of Georgia which is  
12 characterized as being humid subtropical. During the summer months, the area  
13 experiences long spells of warm and humid weather. Average high temperature ranges  
14 from the upper 80's degrees Fahrenheit (°F) to the low 90's °F. July is the warmest  
15 month of the year with an average maximum temperature of 90.4°F. Winters are cool  
16 with average temperatures in the 50's °F. January is the coldest month of the year  
17 (36.2°F monthly average). Temperature variations between night and day tend to be  
18 moderate during summer and winter; differences can reach 22°F and 23°F respectively.  
19 Precipitation is fairly evenly distributed throughout the year with an average of  
20 45 inches per year primarily in the form of rain (Idcide, 2013). Snowfall occurs a few  
21 days per year and is considered rare. Winds typically come from the north in the  
22 winter and south in the summer fluctuating between 6 and 10 miles per hour. Strong,  
23 gusty winds associated with thunderstorms and tropical systems affect the region  
24 (USAF, 2000).

#### 25 **Moody AFB**

26 Moody AFB is located in Lowndes and Lanier Counties. According to USEPA,  
27 both counties are in attainment (meaning measured ambient air pollutant  
28 concentrations are better than the NAAQS) for all criteria pollutants (USEPA, 2012), and  
29 a conformity determination would not be required. The proposed housing area is  
30 located in Lowndes County, therefore, this is the ROI used for the air quality analysis.

31 Emissions that would be generated under the Proposed Action and No Action  
32 Alternative were compared with Lowndes County emissions obtained from USEPA's

1 2008 National Emissions Inventory (NEI). NEI data are the latest available; these are  
 2 presented in Table 3-1. The county data include emissions amounts from point sources,  
 3 area sources, and mobile sources. *Point sources* are stationary sources that can be  
 4 identified by name and location. *Area sources* are point sources from which emissions  
 5 are too low to track individually, such as a home or small office building or a diffuse  
 6 stationary source, such as wildfires or agricultural tilling. *Mobile sources* are any kind of  
 7 vehicle or equipment with gasoline or diesel engine, an airplane, or a ship. Two types  
 8 of mobile sources are considered: on-road and nonroad. On-road sources consist of  
 9 vehicles such as cars, light trucks, heavy trucks, buses, engines, and motorcycles.  
 10 Nonroad sources are aircraft, locomotives, diesel and gasoline boats and ships, personal  
 11 watercraft, lawn and garden equipment, agricultural and construction equipment, and  
 12 recreational vehicles (USEPA, 2009).

**Table 3-1. Baseline Emissions Inventory for Lowndes County, Georgia  
 (tons per year)**

Criteria Pollutant (tons/year)					
CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	VOCs
42,674	6,919	9,366	2,348	752	24,322
Greenhouse Gases (tons/year)					
CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e	CO <sub>2</sub>	CH <sub>4</sub>
977,394	340	58	1,002,450	977,394	340

Source: USEPA, 2013

CH<sub>4</sub> = methane; CO = carbon monoxide; CO<sub>2</sub> = carbon dioxide; CO<sub>2</sub>e = carbon dioxide equivalent; N<sub>2</sub>O = nitrous oxide; NO<sub>x</sub> = nitrogen oxides; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter with a diameter of less than or equal to 10 microns and 2.5 microns, respectively; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound

### 18 Val Del Parcel

19 The Val Del parcel is located in Lowndes County, therefore, emissions generated  
 20 under the Proposed Action were compared with total county emissions shown in  
 21 Table 3-1.

### 22 GHG Emissions/Baseline

23 Greenhouse gases (GHGs) are gases that trap heat in the atmosphere; the  
 24 accumulation of these gases in the atmosphere has been attributed to the regulation of  
 25 Earth’s temperature. Human activity in the past century is “very likely” (90 percent  
 26 chance) the cause of the observed increase in GHG concentrations (Intergovernmental  
 27 Panel on Climate Change, 2007). Thus, regulations to inventory and decrease emissions

1 of GHGs have been promulgated. At this time, a threshold of significance has not been  
2 established for the emissions of GHGs.

3 The six primary GHGs, defined in Section 19(i) of Executive Order 13514 and  
4 internationally recognized and regulated under the Kyoto Protocol, are carbon dioxide,  
5 methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.  
6 Each GHG has an estimated global warming potential (GWP), which is a function of its  
7 atmospheric lifetime and its ability to absorb and radiate infrared energy emitted from  
8 the Earth’s surface. The GWP allows GHGs to be compared with each other by  
9 converting the GHG quantity into the common unit “carbon dioxide equivalent.”  
10 Baseline GHG emissions for Lowndes County, obtained from USEPA’s 2008 NEI, are  
11 summarized in Table 3-1.

## 12 **3.2 WATER RESOURCES**

13 This section discusses surface water, groundwater, wetlands, and floodplains  
14 located at or near the proposed parcel.

### 15 **3.2.1 Affected Environment**

#### 16 **Surface Water**

17 Surface water resources include lakes, rivers, streams, and wetlands. These  
18 resources are important for a variety of reasons, including irrigation, power generation,  
19 recreation, flood control, and human health.

20 Under the Clean Water Act (CWA), it is illegal to discharge pollutants from a  
21 point source into any surface water of the United States without a National Pollutant  
22 Discharge Elimination System (NPDES) permit. Under the CWA, applicants for a  
23 federal license or permit to conduct activities that may result in the discharge of a  
24 pollutant into waters of the United States must obtain certification from the state in  
25 which the discharge would originate, or if appropriate, from the interstate water  
26 pollution control agency with jurisdiction over the affected waters at the point where  
27 the discharge would originate. Therefore, all projects that have a federal component  
28 and may affect state water quality (including projects that require federal agency  
29 approval, such as issuance of a Section 404 permit) must also comply with the CWA.  
30 USEPA has the authority to set standards for the quality of wastewater discharges. The  
31 goal of the CWA, Section 402, is the “restoration and maintenance of the chemical,

1 physical, and biological integrity of the Nation’s waters.” Georgia has legal authority to  
2 implement and enforce the provisions of the CWA, while USEPA retains oversight  
3 responsibilities.

4 Under CWA Section 401, applicants for a federal license or permit to conduct  
5 activities that may result in the discharge of a pollutant into waters of the United States  
6 must obtain certification from the state in which the discharge would originate or, if  
7 appropriate, from interstate water pollution control agency with jurisdiction over  
8 affected waters at the point where the discharge would originate. Therefore, all projects  
9 that have a federal component and may affect state water quality (including projects  
10 that require federal agency approval, such as issuance of a Section 404 permit) must also  
11 comply with CWA Section 401.

12 Water resources in Georgia are afforded protection under the Georgia  
13 Department of Natural Resources (GADNR), Environmental Protection Division (EPD).  
14 These programs are administered in accordance with the state’s stormwater  
15 management program and the state’s erosion and sedimentation program (GADNR,  
16 2000; GADNR, 2001) under the auspices of Georgia’s Watershed Protection Branch.

17 Potential impacts caused by the Proposed Action triggers permitting  
18 requirements under Section 401 Certification Program (40 CFR 230.10[b]). EPD requires  
19 a minimum 25-foot buffer on all state waters (intermittent or perennial streams)  
20 regardless of whether or not CWA Sections 404 or 401 are applicable. The Georgia EPD  
21 reissued NPDES General Permits No. GAR100001, No. GAR100002, and No.  
22 GAR100003 for stormwater discharges associated with construction activity greater  
23 than 1 acre.

24 The Lowndes County government regulates Lowndes County’s Stormwater  
25 Management Program (SWMP) in compliance with the NPDES Phase II Municipal  
26 Stormwater Permit issued by the Georgia Environmental Protection Division in 2005.  
27 Lowndes County’s stormwater requirements are contained within the Lowndes County  
28 Unified Land Development Code (ULDC) (Appendix A, Land Disturbance) (Lowndes  
29 County, 2012). In Lowndes County, most land disturbance activities greater than 1 acre  
30 require a stormwater permit. The permit establishes minimum requirements and  
31 recommended best management practices (BMPs) to prevent soil erosion,  
32 sedimentation, and stormwater pollution. Developers must prepare an approved  
33 stormwater pollution prevention plan that specifies erosion and sediment control  
34 measures and practices based on the *Manual for Erosion and Sediment Control in Georgia*  
35 (GADNR, 2001). The Lowndes County Stormwater Division administers the SWMP.

1 **Moody AFB**

2 The proposed parcel is situated within the Suwannee River Basin, which  
3 discharges to the northeastern Gulf of Mexico. Water flow through the installation is  
4 generally south and southeast. Stormwater from the main base is discharged by a series  
5 of drainage ditches. No surface water features are located within the proposed parcel.  
6 Surface water features near the proposed parcel include one small, unnamed  
7 intermittent stream to the north of the property. The stream drains southeast into  
8 Mission Lake, which is over 4,000 feet southeast of and downstream from the proposed  
9 parcel (U.S. Air Force, 2001a). Figure 3-1 depicts the general location of the stream.

10 **Val Del Parcel**

11 The proposed Val Del parcel is located in the Withlacoochee River drainage,  
12 which is part of the Suwannee River basin as described above. Surface water resources  
13 at the site consist primarily of small, shallow, ponded wetlands and two very small,  
14 shallow, excavated ponds. There is an aboveground, perennial stream associated with a  
15 large wetland complex that borders a portion of the northwestern boundary of the site  
16 that flows northeast to the Withlacoochee River. The sinkhole is bisected by a long  
17 gully, which supports a small, intermittent stream approximately 365 feet long that is  
18 fed primarily by a series of groundwater seeps near the southern end of the stream. The  
19 stream occasionally receives surface water runoff during rainstorms from the  
20 surrounding area and a series of gullies from the northeast and southwest. The stream  
21 flows approximately 365 feet through the sinkhole before disappearing into the bottom  
22 of the pit at the deepest part of the sinkhole. The estimated maximum depth of the  
23 sinkhole is 60 to 70 feet below the surrounding ground surface. There is no visible  
24 subsurface opening in the bottom. In March 2013, there was approximately 6 to 7 feet of  
25 water in the bottom of the pit (SAIC, 2013). The sinkhole is probably deep enough to  
26 intersect the top of the Upper Floridan aquifer (Burgoon, 1991). The area around the  
27 sinkhole is dominated by mature hardwood forest. Figure 3-2 depicts the location of  
28 the two streams and sinkhole at the Val Del parcel.

29 **Groundwater**

30 Groundwater includes the subsurface hydrologic resources of the physical  
31 environment and is, by and large, a safe and reliable source of fresh water for the  
32 general population and is commonly used for potable water consumption, agricultural  
33 irrigation, and industrial applications. Groundwater plays an important role in the  
34 overall hydrologic cycle. Its properties are often described in terms of depth to aquifer  
35 or water table, water quality, and surrounding geologic composition.

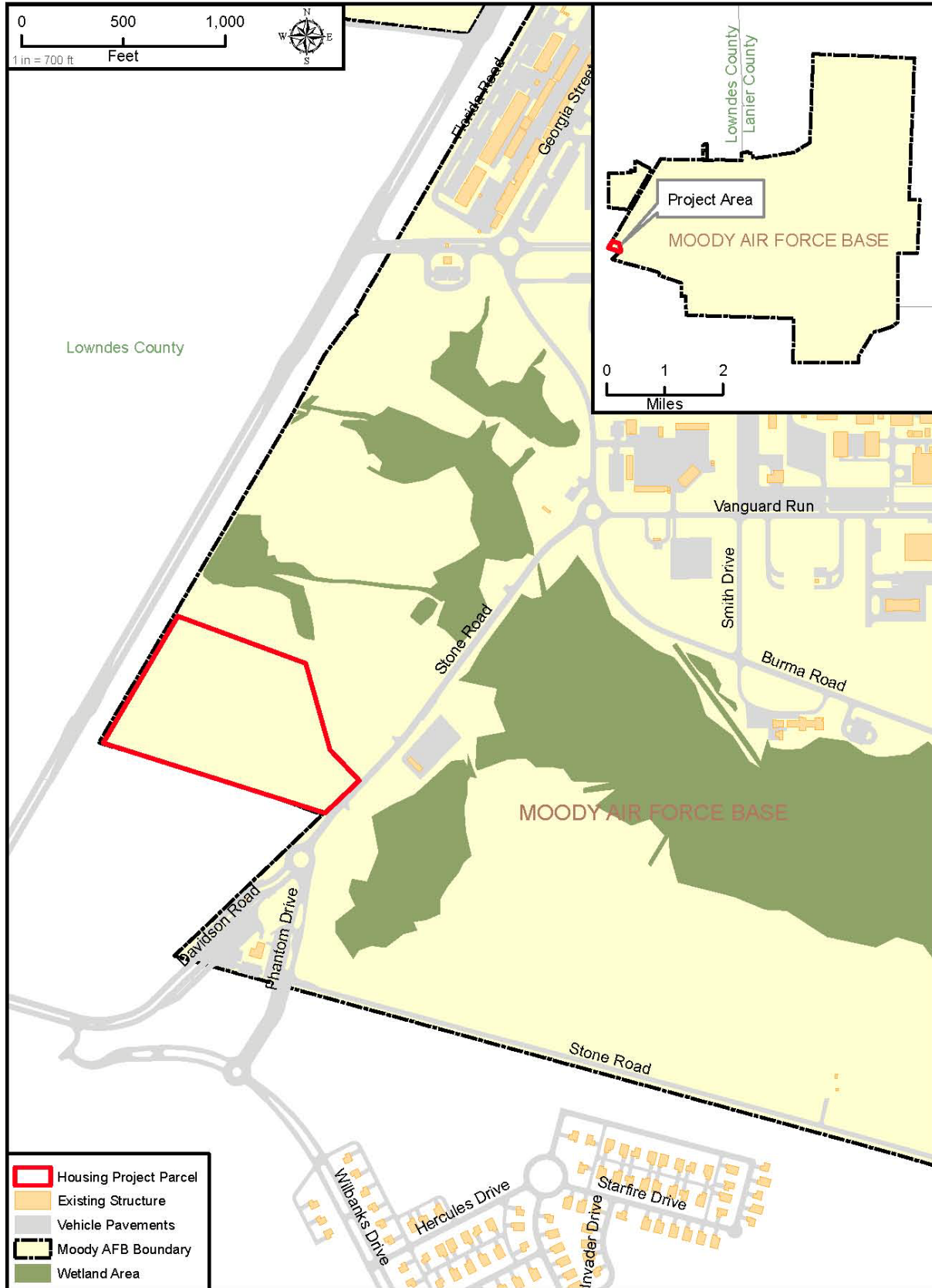


Figure 3-1. Surface Water Resources Near the Proposed Moody AFB Parcel

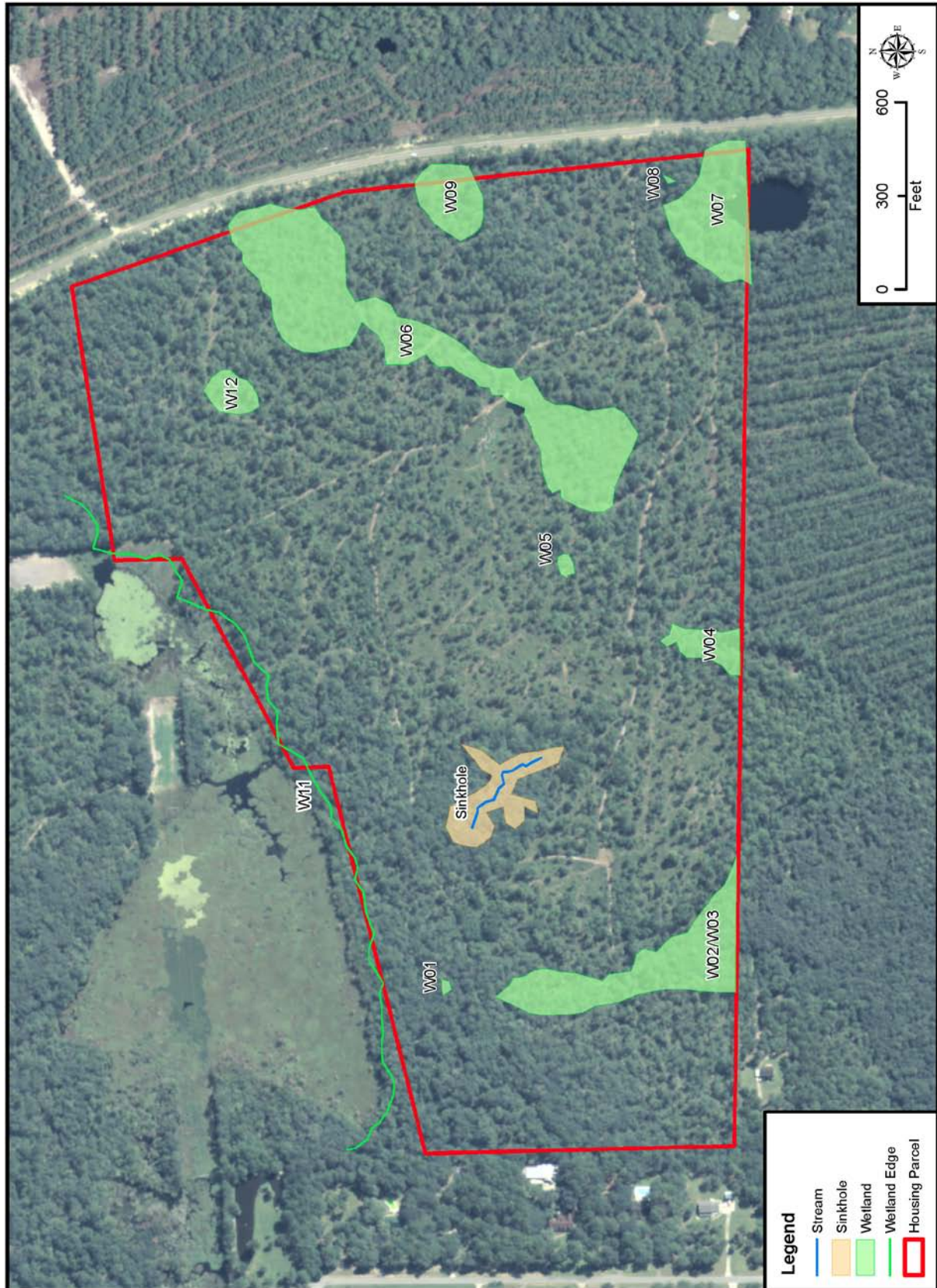


Figure 3-2. Surface Water Resources at the Val Del Parcel



1 To protect the groundwater resources of Lowndes County, the county  
2 government regulates development activities in groundwater recharge area protection  
3 districts. The purpose of these districts is to prevent introduction of contaminants into  
4 significant groundwater recharge areas, thereby protecting the quality of public  
5 drinking water resources. The Lowndes County ULDC (Section 3.03.00, Groundwater  
6 Recharge Protection Areas) identifies specific development criteria for specific land uses  
7 or activities (Lowndes County, 2012). The *Lowndes County Water Resource Protection*  
8 *Districts Ordinance (WRPDO) Overlay Map* (South Georgia Regional Commission  
9 [SGRC], 2006) identifies groundwater recharge areas in the county.

### 10 ***Moody AFB***

11 Groundwater would not be impacted at the Moody AFB parcel by the Proposed  
12 Action.

### 13 ***Val Del Parcel***

14 The primary groundwater source in the Valdosta area is the Floridan aquifer  
15 (Burgoon, 1991). The Floridan aquifer system, which consists of limestone, dolostone,  
16 and calcareous sand, is one of the most productive groundwater reservoirs in the  
17 region. This aquifer serves as the major source of water for domestic, commercial,  
18 industrial, irrigation, and municipal uses for Lowndes County (McConnell et al., 1994).

19 Although no specific groundwater studies have been conducted at the Val Del  
20 parcel, other groundwater investigations in the region reported that the upper part of  
21 the Upper Floridan aquifer could be as close as 70 to 75 feet below ground surface  
22 (Burgoon, 1991; McConnell et al., 1994). The sinkhole at the site is likely deep enough to  
23 contact the upper part of the Upper Floridan aquifer. The Val Del parcel is located in a  
24 designated groundwater recharge area (SGRC, 2006).

### 25 **Wetlands and Floodplains**

26 Wetlands are defined by the U.S. Army Corps of Engineers (USACE) and USEPA  
27 as “those areas that are inundated or saturated by surface or groundwater at a  
28 frequency and duration sufficient to support, and that under normal circumstances do  
29 support, a prevalence of vegetation typically adapted for life in saturated soil  
30 conditions. Wetlands generally include marshes, bogs, and similar areas.” Wetlands  
31 serve a variety of functions, including groundwater recharge and discharge, flood flow  
32 attenuation, sediment stabilization, sediment and toxicant retention, nutrient removal

1 and transformation, aquatic and terrestrial diversity and abundance, and uniqueness.  
2 Three criteria are necessary to define wetlands: vegetation (hydrophytes), soils  
3 (hydric), and hydrology (frequency of flooding or soil saturation).

4 Section 404 of the CWA established a program to regulate the discharge of  
5 dredged and fill material into waters of the United States, including wetlands. USACE,  
6 the lead agency in protecting wetland resources, maintains jurisdiction over federal  
7 wetlands (33 CFR 328.3) under Section 404 of the CWA (30 CFR 320–330) and Section 10  
8 of the Rivers and Harbors Act (30 CFR 329). Furthermore, Executive Order (EO) 11990,  
9 *Protection of Wetlands*, requires federal agencies to minimize the destruction, loss, or  
10 degradation of wetlands, and to preserve and enhance the natural and beneficial values  
11 of wetlands. EO 11990 requires federal agencies to avoid, to the extent possible, the  
12 long- and short-term adverse impacts associated with the destruction or modification  
13 of wetlands and to avoid direct or indirect support of new construction in wetlands  
14 wherever there is a practicable alternative.

15 Currently GADNR does not have a corresponding wetland program. For federal  
16 CWA permits, GADNR must issue a Section 401 Water Quality Certification. However,  
17 isolated wetlands or other wetlands not regulated by USACE are not yet regulated by  
18 the state.

19 The Lowndes County government recognizes the various functions and values of  
20 wetlands and the fragility of these sensitive natural resources. Accordingly, the county  
21 has established “wetlands protection districts” to protect wetlands. The districts are  
22 established based on National Wetland Inventory (NWI) maps created by the U. S. Fish  
23 and Wildlife Service (USFWS) but also include all wetlands at a site, including those not  
24 depicted on NWI maps.

25 The Lowndes County ULDC (Section 3.05.00, Wetlands Protection Districts)  
26 identifies specific development criteria for specific land uses or activities affecting  
27 wetlands (Lowndes County, 2012). Under the county’s protection criteria, no regulated  
28 activity is allowed within a wetlands protection district without a permit from the  
29 county; any proposed development within 25 feet of a wetlands protection district  
30 requires a determination by USACE. If USACE determines that wetlands are present at  
31 a proposed development site, the county permit or permission may not be granted until  
32 a Section 404 permit or letter of permission is issued. If USACE determines that  
33 wetlands at a site are isolated, there is no regulatory protection of these wetlands under  
34 state or local laws.

1 Floodplains are defined by EO 11988, *Floodplain Management*, as “the lowland  
2 and relatively flat areas adjoining inland and coastal waters including flood-prone areas  
3 of offshore islands, including at a minimum, the area subject to a 1 percent or greater  
4 chance of flooding in any given year” (that area inundated by a 100-year flood).

5 Floodplains and riparian habitat are biologically unique and highly diverse ecosystems  
6 providing a rich diversity of aquatic and terrestrial species, as well as promoting stream  
7 bank stability and regulating water temperatures. EO 11988 requires federal agencies to  
8 avoid, to the extent possible, the long- and short-term adverse impacts associated with  
9 the occupancy and modification of floodplains and to avoid direct or indirect support of  
10 floodplain development wherever there is a practicable alternative.

### 11 ***Moody AFB***

12 There are no wetlands or floodplains located within the proposed parcel (Moody  
13 AFB, 2007).

### 14 ***Val Del Parcel***

15 A wetland delineation at the Val Del parcel in September 2012 and March 2013  
16 identified 10 wetlands covering 13.071 acres at the site (see Figure 3-2 and Table 3-2).  
17 These wetlands include a variety of forested, scrub-shrub, and emergent wetland  
18 habitat. All 10 wetlands have been affected directly or indirectly by a 2011 timber  
19 harvest at the site and other human activities.

20 A site visit conducted by the USACE in April 2013 determined that seven  
21 wetlands (W02/03, W04, W06, W07, W08, W09, and W11), covering a total area of  
22 12.578 acres, have a direct or indirect hydrologic connection to the Withlacoochee River  
23 and would be regulated under Section 404 of the CWA (Kobs, 2013a). The remaining  
24 three wetlands (W01, W05, and W12), which cover combined area of 0.493 acre, are  
25 isolated hydrologically and would not be subject to regulation by the USACE (Kobs,  
26 2013a). The Lowndes County wetlands protection district requirements would apply  
27 at the proposed Val Del parcel. No floodplains exist within the proposed Val Del  
28 parcel.

29

**Table 3-2. Summary of Wetlands at the Val Del Parcel**

Wetland ID	Wetland Type <sup>a</sup>	Area (Acres)	Potential Jurisdictional Status <sup>c</sup>
W01	PUBF	0.024	Isolated
W02/03	PFO1E	2.738	Jurisdictional
W04	PSS3E	0.527	Jurisdictional
W05	PFO1/4E	0.068	Isolated
W06	PEM1E/PSS1E/PFO1E	6.441	Jurisdictional
W07	PFO1E	1.946	Jurisdictional
W08	PUBF	0.011	Jurisdictional
W09	PEM1F/PSS3E/PFO1E	0.915	Jurisdictional
W11	PEM1H/PFO1/4E	NA <sup>b</sup>	Jurisdictional
W12	PEM1E/PFO1/4E	0.401	Isolated
Total wetlands		13.701	
Total jurisdictional wetlands		12.578	
Total isolated wetlands		0.4931	

- 1 a. Classification codes as defined in Cowardin et al., 1979: PEM1E = palustrine emergent, persistent vegetation,  
 2 seasonally flooded/saturated; PEM1F = palustrine emergent, persistent vegetation, semipermanently  
 3 flooded/saturated; PEM1H = palustrine emergent, persistent vegetation, permanently flooded/saturated; PFO1E=  
 4 palustrine forested, broad-leaved deciduous vegetation, seasonally flooded/saturated; PFO4E= palustrine forested,  
 5 needle-leaved vegetation, seasonally flooded/saturated; PSS3E= palustrine scrub-shrub, broad-leaved evergreen  
 6 vegetation, seasonally flooded/saturated; PUBF=palustrine unconsolidated bottom, semipermanently  
 7 flooded/saturated; PUBH=palustrine unconsolidated bottom, permanently flooded/saturated.  
 8 b. Partial wetland boundary adjacent to Val Del parcel  
 9 c. Kobs, 2013a

### 10 3.3 BIOLOGICAL RESOURCES

11 Biological resources include native or naturalized terrestrial and aquatic plants  
 12 and animals and the habitats in which they occur. The region of influence (ROI) for  
 13 biological resources consists of lands within the vicinity of the proposed project areas at  
 14 Moody AFB. Although existence and preservation of biological resources are both  
 15 intrinsically valuable, these resources also provide essential aesthetic, recreational, and  
 16 socioeconomic values to society. This section focuses on plant and animal species and  
 17 vegetation types that typify or are important to the function of the ecosystem, are of  
 18 special societal importance, or are protected under federal or state law or statute. For  
 19 purposes of this assessment, sensitive biological resources are defined as those plant  
 20 and animal species listed as threatened or endangered by USFWS or GADNR.

21 USFWS and GADNR maintain lists of threatened and endangered species in  
 22 Georgia. Threatened and endangered species are protected from death, harm, or  
 23 harassment under the federal Endangered Species Act (ESA) (16 USC 1536). Under the

1 ESA, an *endangered* species is defined as any species in danger of extinction throughout  
2 all or a significant portion of its range. A *threatened* species is defined as any species  
3 likely to become an endangered species in the foreseeable future. Section 7(a)(2) of the  
4 act requires federal agencies to ensure that their actions are not likely to jeopardize  
5 listed species or result in the destruction or adverse modification of designated critical  
6 habitat. Endangered species are those at risk of extinction in all or a substantial portion  
7 of their range. Threatened species are those that could be listed as endangered in the  
8 near future.

9 There are frequently other species of regional concern that may or may not be  
10 designated as threatened or endangered by state or federal agencies. At present, these  
11 rare species receive no legal protection under the ESA, although some may be protected  
12 under other laws such as those described below.

13 EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds* (2001),  
14 recognized the ecological and economic importance of migratory birds to this and other  
15 countries. It requires federal agencies to evaluate the effects of their actions and plans  
16 on migratory birds (with an emphasis on species of concern) in their NEPA documents.  
17 Species of concern are those identified in 1) the USFWS report *Migratory Nongame Birds*  
18 *of Management Concern in the United States*, 2) priority species identified by established  
19 plans such as those prepared by Partners in Flight, or 3) listed species in 50 CFR 17.11,  
20 *Endangered and Threatened Wildlife*.

21 Article 4 of the Georgia Codes Title 12 – Conservation and Natural Resources,  
22 Chapter 4 – Mineral Resources and Caves is known as the “Cave Protection Act of  
23 1977.” The Cave Protection Act includes sinkholes and prohibits pollution and littering  
24 a cave with chemicals and other materials that may be detrimental to wildlife inhabiting  
25 the cave; prohibits altering the natural condition of the cave, and makes it unlawful to  
26 “remove, kill, harm or disturb any wildlife found within any cave.”

### 27 **3.3.1 Affected Environment**

#### 28 *Flora and Fauna*

#### 29 *Moody AFB*

30 Moody AFB is located within the lower coastal plains and flatwoods section of  
31 the Outer Coastal Plain Mixed Forest Province. Developed areas of the installation are  
32 landscaped with a variety of native and nonnative trees, shrubs, and grasses. The

1 majority of the project parcel is vegetated with hardwood shrubs and young pine trees.  
2 Common shrubs within the area include wax myrtle (*Myrica cerifera*), Japanese  
3 honeysuckle (*Lonicera japonica*), and blackberries (*Rubus* spp.). The primary upland tree  
4 species is slash pine (*Pinus elliotii*) (U.S. Air Force, 2001a,b and 2007a).

5 Common mammals found at Moody AFB include Virginia opossum (*Didelphis*  
6 *virginiana*), eastern cottontail (*Sylvilagus floridanus*), gray fox (*Urocyon cinereoargenteus*),  
7 striped skunk (*Mephitis mephitis*), white-tailed deer (*Odocoileus virginianus*), eastern gray  
8 squirrel (*Sciurus carolinensis*), and eastern woodrat (*Neotoma floridana*). Amphibian  
9 species living in wetland areas include spring peeper (*Hyla crucifer*), southern chorus  
10 frog (*Pseudacris nigrita*), eastern newt (*Notophthalmus viridescens*), and tiger salamander  
11 (*Ambystoma tigrinum*). The common box turtle (*Terrapene carolina*), ground skink  
12 (*Scincella lateralis*), eastern glass lizard (*Ophisaurus ventralis*), southern water snake  
13 (*Nerodia fasciata*), and rough earth snake (*Virginia striatula*) are common reptiles on  
14 Moody AFB (U.S. Air Force, 2007b).

### 15 *Val Del Parcel*

16 There are six types of vegetation communities in the Val Del parcel including  
17 mesic flatwoods, hydric flatwoods, mixed forested wetlands, mesic oak, karst feature,  
18 and lake (Cardno-Entrix, 2013) (Table 3-3). Additionally, there is a borrow area of  
19 approximately 440 square feet. With the exception of the karst feature sinkhole,  
20 vegetative communities are low to medium quality as a result of previous human  
21 modifications to the landscape (Figure 3-3). The karst feature has a unique  
22 microclimate that supports numerous species. Surveys of the Val Del parcel in 2012 and  
23 2013 identified numerous plant species associated with each vegetative community  
24 (Cardno-Entrix, 2013).

**Table 3-3. Val Del Parcel Vegetative Communities**

Habitat Type	Acreage
Mesic flatwoods	78.0
Mesic oak	21.02
Mixed forested wetlands	11.71
Karst feature	1.18
Hydric flatwoods	1.01
Lake	0.14

25

1 Wildlife expected to occur within the Val Del parcel would be similar to those  
2 found on Moody AFB, discussed previously in this section.

### 3 *Sensitive Species*

#### 4 *Moody AFB*

5 Table 3-4 lists all rare, threatened, and endangered species found on Moody AFB  
6 (U. S. Air Force, 2007a). No rare, threatened, and endangered plant or animal species  
7 are known to occur within the proposed parcel (BHE, 2002; U.S. Air Force, 2007a). Soil  
8 conditions within the parcel are favorable for the presence of gopher tortoise burrows,  
9 but none have been identified in the immediate area (U.S. Air Force, 2007a), the closest  
10 being more than 1.5 miles from the site (Lopez, 2011). Moody AFB biologists conducted  
11 a survey of the area in January 2011 and did not identify any sensitive species in the  
12 area (Lopez, 2011).

13 Sensitive habitats include wetlands, plant communities designated as unusual or  
14 of limited distribution, and important seasonal use areas for wildlife (e.g., migration  
15 routes, breeding areas, crucial winter/summer habitat). However, no unusual or  
16 limited-distribution plant communities or important seasonal use areas for wildlife  
17 have been identified within the parcel. Also, no other sensitive habitats are known to  
18 be present (U.S. Air Force, 2001b, 2007a).

#### 19 *Val Del Parcel*

20 Table 3-5 lists all rare, threatened, and endangered species found on or having a  
21 reasonable likelihood of occurrence on the Val Del parcel, based on surveys conducted  
22 in 2012 and 2013 (Cardno-Entrix, 2013). No state or federal status fish, birds, mammals,  
23 or reptiles have been identified on the Val Del parcel, or they are not reasonably likely  
24 to occur on the parcel. Two plant species with a state status of “unusual,” the green-fly  
25 orchid and hooded pitcher plant, and one with a natural heritage status of S2 (imperiled  
26 in the state due to rarity), the shadow-witch orchid, were recorded on the Val Del parcel  
27 and are shown in Figure 3-4.

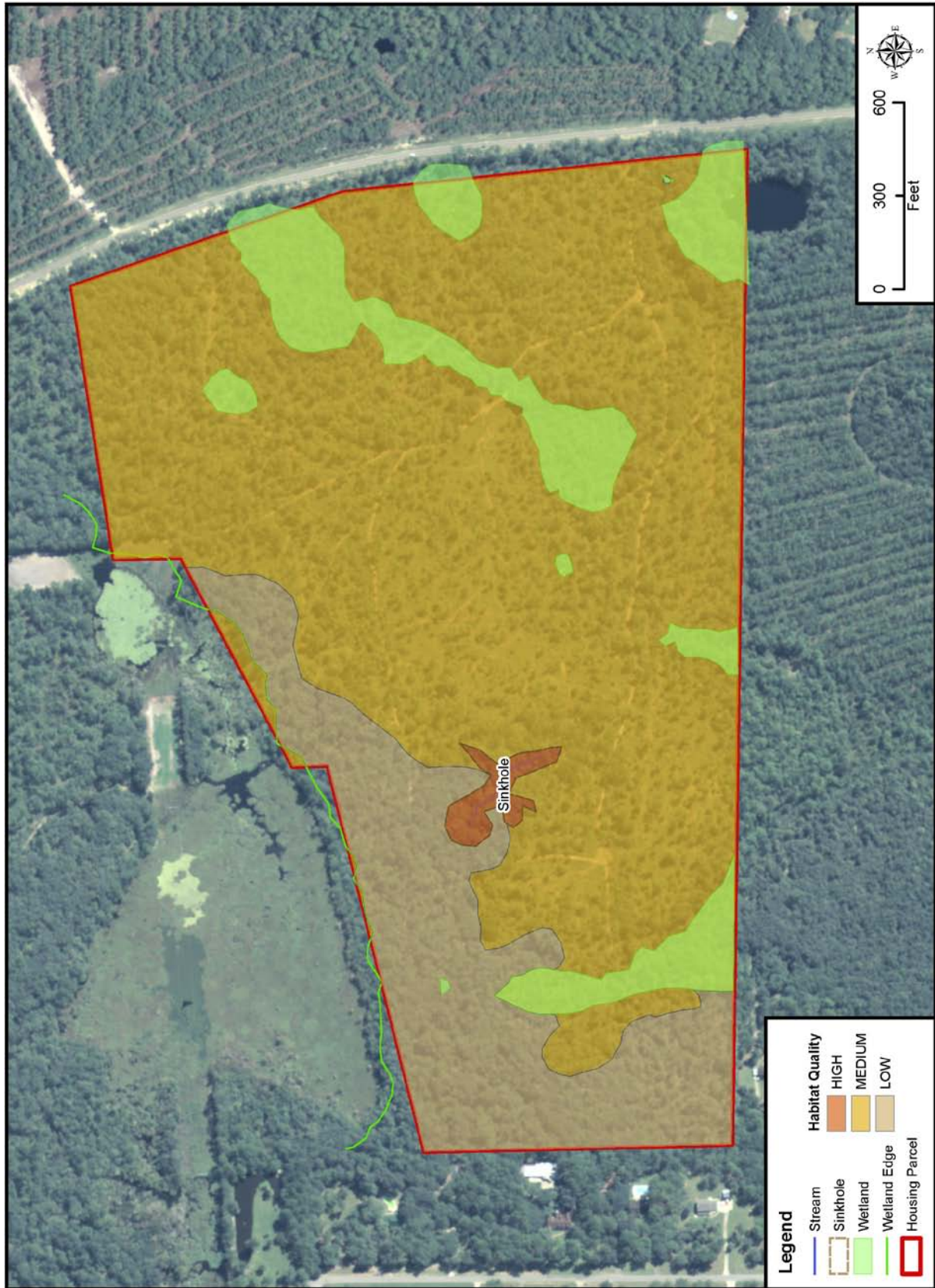


Figure 3-3. Habitat Quality at the Val Del Parcel



**Table 3-4. Rare, Threatened, and Endangered Species Identified on Moody AFB**

Common Name	Scientific Name	Federal Status <sup>a</sup>	State Status <sup>b</sup>	Natural Heritage Status <sup>c</sup>
<b>Plants</b>				
Blue maidencane	<i>Amphicarpum muehlenbergianum</i>	None	None	G4/S3?
Green-fly orchid	<i>Epidendrum conopseum</i>	None	U	G4/S3
Climbing heath	<i>Pieris phillyreifolia</i>	None	None	G3/S3
Needle palm	<i>Rhaphidophyllum hystrix</i>	None	None	G4/S3S2
Hooded pitcher plant	<i>Sarracenia minor</i>	None	U	G4/S4
<b>Amphibians</b>				
Dwarf siren	<i>Pseudobranchius striatus</i>	None	None	G5/S3
<b>Birds</b>				
Bachman’s sparrow	<i>Aimophila aestivalis</i>	None	R	G3/S3
American bittern	<i>Botaurus lentiginosus</i>	None	None	G4/S3?
Little blue heron	<i>Egretta caerulea</i>	None	None	G5/S3?
Southeastern American kestrel	<i>Falco sparverius paulus</i>	None	None	G5/S3
Florida sandhill crane	<i>Grus canadensis pratensis</i>	None	None	G5/S1
Greater sandhill crane	<i>Grus canadensis tabida</i>	None	None	G5/S2
Wood stork	<i>Mycteria americana</i>	E	E	G4/S2
Southern bald eagle	<i>Haliaeetus leucocephalus leucocephalus</i>	None	E	G4/S2
Loggerhead shrike	<i>Lanius ludovicianus migrans</i>	None	None	G5/S?
<b>Fish</b>				
Mud sunfish	<i>Acanthrarchus pomotis</i>	None	None	G5/S3
Golden topminnow	<i>Fundulus chryсотus</i>	None	None	G5/S3
<b>Mammals</b>				
Northern yellow bat	<i>Lasiurus intermedius</i>	None	None	G4G5/S2S3
Southeastern myotis	<i>Myotis austroriparius</i>	None	None	G3G4/S3
Round-tailed muskrat	<i>Neofiber alleni</i>	None	T	G3/S3
<b>Reptiles</b>				
American alligator	<i>Alligator mississippiensis</i>	T (S/A)	None	G5/S4
Eastern indigo snake	<i>Drymarchon corais couperi</i>	T	T	G4/S3
Gopher tortoise	<i>Gopherus polyphemus</i>	None	T	G3/S3
Southern hognose snake	<i>Heterodon simus</i>	None	None	G2/S2
Striped mud turtle	<i>Kinosternon barii</i>	None	None	G5/S3
Alligator snapping turtle	<i>Macrolemys temminckii</i>	None	T	G3G4/S3
Eastern coral snake	<i>Micrurus fulvius fulvius</i>	None	None	G5/S3

Source: U.S. Air Force, 2007a

a. Federal status: E = endangered: a species that may become extinct or disappear from a significant part of its range if not immediately protected; T = threatened: a species that may become endangered if not protected; S/A = similarity of appearance

b. State status: E = endangered: a species is in danger of extinction throughout all or part of its range in Georgia; T = threatened: a species likely to become an endangered species in the foreseeable future throughout all or part of its range in Georgia;

R = rare: a species that may not be endangered or threatened but should be protected because of its scarcity; U = unusual: a species deserving of special consideration and plants subjected to commercial exploitation

c. Natural heritage status: G1 = critically imperiled globally because of extreme rarity (5 or fewer occurrences); G2 = imperiled globally because of rarity (6 to 20 occurrences); G3 = rare and local throughout range or in a special habitat or narrowly endemic (on the order of 21 to 100 occurrences); G4 = apparently secure and of no immediate conservation concern;

G5 = demonstrably secure globally; S1 = critically imperiled in Georgia because of extreme rarity (5 or fewer occurrences);

S2 = imperiled in Georgia because of rarity (6 to 20 occurrences); S3 = rare and uncommon throughout the state or in a special habitat or narrowly endemic (on the order of 21 to 100 occurrences); S4 = apparently secure and of no immediate conservation concern; S5 = demonstrably secure in state; ? = denotes questionable rank, best guess given whenever possible

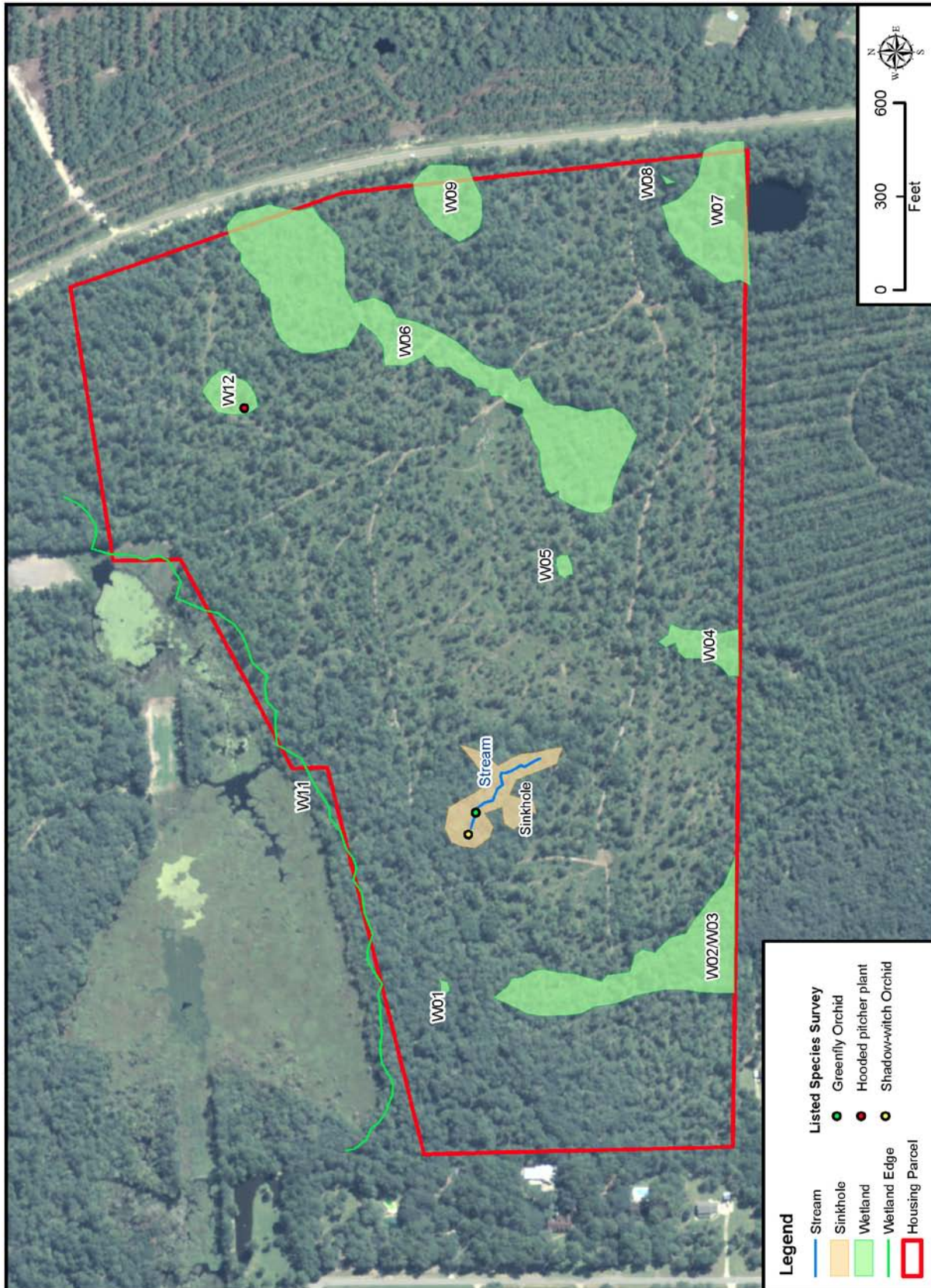


Figure 3-4. Locations of Special Status Species Observed on the Val Del Parcel

**Table 3-5. Rare, Threatened, and Endangered Species that Occur or Are Reasonably Likely to Occur on the Val Del Parcel**

Common Name	Scientific Name	Federal Status <sup>a</sup>	State Status <sup>b</sup>	Natural Heritage Status <sup>c</sup>	Observed
<b>Amphibians</b>					
Frosted flatwoods salamander	<i>Ambystoma cingulatum</i>	T	T	G2/S2	No
Striped newt	<i>Notophthalmus perstriatus</i>		T	G2G3/S2	No
Dwarf siren	<i>Pseudobranchius striatus</i>			G5T2T3/S3	No
Eastern tiger salamander	<i>Ambystoma tigrinum</i>			G5T5	No
<b>Birds</b>					
Bachman's sparrow	<i>Aimophila aestivalis</i>		R	G3/S2	No
American bittern	<i>Botaurus lentiginosus</i>			G4	No
Swallow-tailed kite	<i>Elanoides forficatus</i>		R	G5 /S2	No
Florida sandhill crane	<i>Grus canadensis pratensis</i>			G5T2T3/S1	No
Bald eagle	<i>Haliaeetus leucocephalus</i>		T	G5/S2	No
Migrant loggerhead shrike	<i>Lanius ludovicianus migrans</i>			G4T3Q	No
Wood stork	<i>Mycteria americana</i>	E	E	G4/S2	No
Yellow-crowned night-heron	<i>Nyctanassa violacea</i>			G4/S4	No
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	E	G3/S2	No
Glossy ibis	<i>Plegadis falcinellus</i>			G5	No
<b>Mammals</b>					
Florida black bear	<i>Ursus americanus floridanus</i>			G2T2/S3?	No
<b>Reptiles</b>					
Spotted turtle	<i>Clemmys guttata</i>		U	G5/S3	No
Eastern diamond-backed rattlesnake	<i>Crotalus adamanteus</i>			G4	No
Eastern indigo snake	<i>Drymarchon corais couperi</i>	LT	T	G3/S3	No
Gopher tortoise	<i>Gopherus polyphemus</i>		T	G3/S2	No
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>			G4T3	No
Crayfish snake	<i>Regina alleni</i>			G5/S2	No
Florida crowned snake	<i>Tantilla relictia</i>			G5	No
<b>Plants</b>					
Scale-leaf purple foxglove	<i>Agalinis aphylla</i>			G3G4/S3?	No
Pineland purple foxglove	<i>Agalinis divaricata</i>			G3?/S1?	No
Georgia purple foxglove	<i>Agalinis georgiana</i>			G1Q/S1	No
Sandhill angelica	<i>Angelica dentata</i>			G2G3/S2?	No
Leconte's wild indigo	<i>Baptisia lecontei</i>			G4?/S1	No
Hop sedge	<i>Carex lupulifomis</i>			G4?/S1	No
Tracy's dew threads	<i>Drosera tracyi</i>			G3G4/S1	No
Green fly orchid	<i>Epidendrum magnoliae</i>		U	G4/S3	<b>Yes</b>
Southern umbrella sedge	<i>Fuirena scirpoidea</i>			G5/S1	No

**Table 3-5. Rare, Threatened, and Endangered Species that Occur or Are Reasonably Likely to Occur on the Val Del Parcel, Cont'd**

Common Name	Scientific Name	Federal Status <sup>a</sup>	State Status <sup>b</sup>	Natural Heritage Status <sup>c</sup>	Observed
Southern bog-button	<i>Lachnocaulon beyrichianum</i>			G4/S1?	No
Pond spice	<i>Litsea aestivalis</i>		R	G3/S2	No
Boykin lobelia	<i>Lobelia boykinii</i>		R	G2G3/S2S3	No
Carolina bogmint	<i>Macbridea caroliniana</i>		R	G2G3/S1	No
Savanna cowbane	<i>Oxypolis denticulata</i>			G3/S2	No
Shadow-witch orchid	<i>Ponthieva racemosa</i>			G4G5S2?	Yes
Georgia milkwort	<i>Polygala leptostachys</i>			G3G4/S1	No
Bluff white oak	<i>Quercus austrina</i>			G4?/S3	No
Yellow pitcher plant	<i>Sarracenia flava</i>		U	G5?/S3S4	No
Hooded pitcher-plant	<i>Sarracenia minor</i> var. <i>minor</i>		U	G4T4/S4	Yes
Heartleaf nettle vine	<i>Tragia cordata</i>			G4/S2?	No
Three-birds orchid	<i>Triphora trianthophora</i>			G3G4/S2?	No

1 Source: Cardno-Entrix, 2013

2 a. Federal status: E = endangered: a species that may become extinct or disappear from a significant part of its range  
 3 if not immediately protected; T = threatened: a species that may become endangered if not protected;

4 S/A = similarity of appearance

5 b. State status: E = endangered: a species is in danger of extinction throughout all or part of its range in Georgia;  
 6 T = threatened: a species likely to become an endangered species in the foreseeable future throughout all or part of its  
 7 range in Georgia; R = rare: a species that may not be endangered or threatened but should be protected because of its  
 8 scarcity; U = unusual: a species deserving of special consideration and plants subjected to commercial exploitation

9 c. Natural heritage status: G1 = critically imperiled globally because of extreme rarity (5 or fewer occurrences);  
 10 G2 = imperiled globally because of rarity (6 to 20 occurrences); G3 = rare and local throughout range or in a special  
 11 habitat or narrowly endemic (on the order of 21 to 100 occurrences); G4 = apparently secure and of no immediate  
 12 conservation concern; G5 = demonstrably secure globally; S1 = critically imperiled in Georgia because of extreme  
 13 rarity (5 or fewer occurrences); S2 = imperiled in Georgia because of rarity (6 to 20 occurrences); S3 = rare and  
 14 uncommon throughout the state or in a special habitat or narrowly endemic (on the order of 21 to 100 occurrences);  
 15 S4 = apparently secure and of no immediate conservation concern; S5 = demonstrably secure in state; ? = denotes  
 16 questionable rank, best guess given whenever possible

17 **Green-fly orchid (*Epidendrum magnoliae*).** This species is about 30 centimeters  
 18 long with narrow green leaves and purple tinged flowers. Flowering from June to July  
 19 and sometimes October, the green-fly orchid grows on trees and rocks in moist to  
 20 seasonally dry woods, and on walls of deep, cool sandstone crevices. It occurs in about  
 21 15 conservation areas in 26 south Georgia counties. A single occurrence of this species  
 22 was noted in the karst feature (Cardno-Entrix, 2013).

23 **Shadow witch orchid (*Ponthieva racemosa*).** The shadow-witch orchid is a  
 24 small orchid with thick, fleshy roots and leaves up to 17 centimeters long. It ranges  
 25 from Virginia south to Florida and west to Texas, and it is found near woodland  
 26 streams, moist ravines, bottomlands, floodplains, and shady edges of ponds in  
 27 limestone soils. Identification of this plant on the Val Del parcel is “preliminary,”

1 because its vegetative state lacked characteristics required for positive identification.  
2 Observation of flowering structures later in the year would be necessary to positively  
3 identify this species. This species typically flowers in September to October. This  
4 species has not previously been recorded in Lowndes County, Georgia (Cardno-  
5 Entrix, 2013).

6 **Hooded pitcherplant (*Sarracenia minor var minor*).** The hooded pitcher plant  
7 occurs in open boggy areas of the southeastern coastal plain from North Carolina south  
8 to Georgia and middle Florida. On the Val Del parcel, this species was observed within  
9 a shallow hydric flatwoods depression. Hooded pitcher plants have a Georgia state  
10 listing as “unusual” (Cardno-Entrix, 2013).

### 11 **3.4 SOILS AND GEOLOGY**

12 This section discusses the underlying geology and potential for geologic hazards,  
13 as well as soil resources within the affected environment that are located within the ROI  
14 of the Proposed Action.

15 The term “geologic hazard” refers to geologic conditions with the potential to  
16 cause damage to persons or property (such as landslides or earthquakes). The term  
17 “soil” refers to unconsolidated materials overlying bedrock or other parent material.  
18 Soil structure, elasticity, strength, shrink-swell potential, and erodibility all determine  
19 the ability of the ground to support man-made structures and facilities, provide a  
20 landscaped environment, and control the transport of eroded soils into nearby  
21 drainages. In undeveloped areas, the quality and productivity of soil are critical  
22 components of agricultural production. The ROI for soils and geologic resources  
23 includes the proposed MHPI portion of Moody AFB and the property line extent of the  
24 Val Del parcel.

#### 25 **3.4.1 Affected Environment**

26 Lowndes County is located within the Tifton Upland District of the Atlantic  
27 Coastal Plain physiographic province. The underlying geology consists of the  
28 Hawthorn Formation that overlies the Tampa Formation. The Hawthorn Formation  
29 averages 150 feet in thickness and is phosphatic in composition (Stevens, 1979; U.S.  
30 Geological Survey [USGS], 2013). The underlying Tampa Formation is composed of  
31 limestone that can be seen in outcrops along the Withlacoochee River (Stevens, 1979;  
32 USGS, 2013). Lowndes County is a karst region, having abundant sinkholes and

1 sinkhole lakes that have formed where the aquifer crops out and the overlying  
2 confining unit has been removed by erosion (Krause, 1979; Leeth et al., 2001). These are  
3 a result of groundwater dissolving the high calcium carbonate content of the underlying  
4 limestone formations.

5 The region within which both parcels are located is considered a medium hazard  
6 area for aquifer vulnerability, because of the moderately shallow depth to water and  
7 moderately high recharge movement and low containment rate. The Val Del parcel in  
8 particular is located within an identified groundwater recharge zone (Figure 3-5).  
9 Direct and unfiltered recharge from rivers to the Upper Floridan aquifer occurs through  
10 these sinkholes at a rate of about 70 million gallons per day (MGD) (Krause, 1979; Leeth  
11 et al., 2001).

## 12 **Moody AFB**

13 Moody AFB is located within the Tifton Upland District of the Lower Coastal  
14 Plain. In general, soils on uplands in this region were formed in deep sedimentary  
15 sands and clays. Alluvial soils near streams and tributaries generally originated from  
16 material eroded from the uplands (U.S. Air Force, 2007a).

17 The soil association for the Moody AFB parcel is Leefield-Pelham-Clarendon.  
18 These soils have a sandy surface layer and loamy subsoil and are found on low upland  
19 and in depressions. Three soil series within this association are located on the parcel at  
20 Moody AFB (Table 3-6): Clarendon loamy sand (5.0 percent of total area), Leefield  
21 loamy sand (92.8 percent of total area), and Olustee sand (2.2 percent of total area)  
22 (Figure 3-6). Leefield loamy sand is associated with the majority of the parcel, but a  
23 small area of Clarendon loamy sand is found in the southeast portion of the parcel  
24 adjacent to Stone Road. The small area of Olustee sand is located in the northwest  
25 corner of the parcel. Clarendon loamy sand is considered a prime farmland soil type.

**Table 3-6. Soil Types at Moody AFB Housing Parcel**

Soil	Acres	Restrictive Development Soil Features for Dwellings without Basements <sup>1</sup>
Clarendon loamy sand	0.765	Moderate: wetness
Leefield loamy sand	14.22	Moderate: wetness
Olustee sand	0.345	Severe: wetness
<b>Total acres</b>	<b>15.33</b>	

26 1. Stevens, 1979

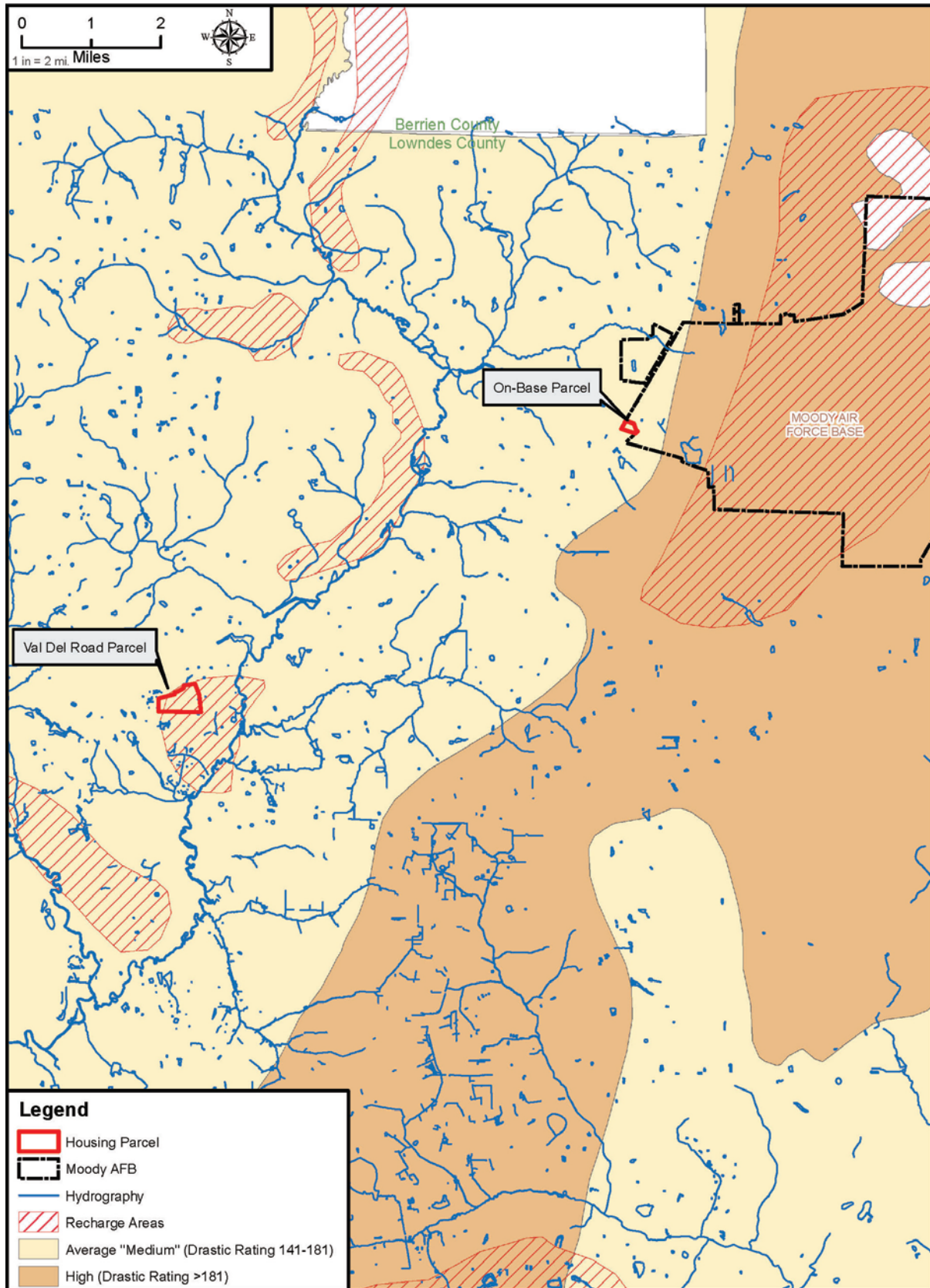


Figure 3-5. Karst Topography and Groundwater Recharge Areas

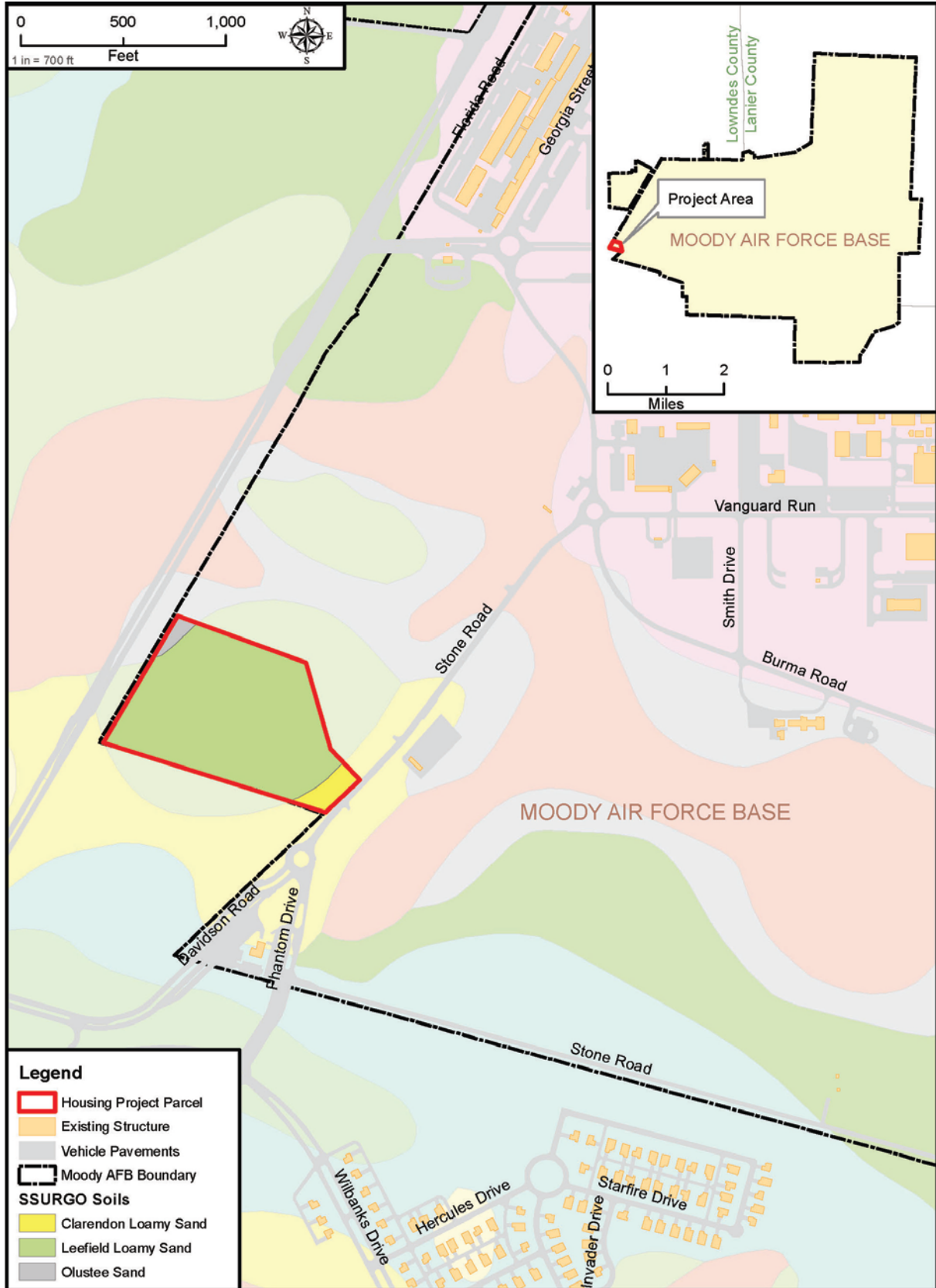


Figure 3-6. Soil Resources at Moody AFB



1 **Val Del Parcel**

2 As with the parcel on Moody AFB, the Val Del parcel is located within the Tifton  
3 Upland District of the Lower Coastal Plain and, similarly, the soils on uplands in this  
4 region were formed in deep sedimentary sands and clays. Six soil series are located on  
5 the Val Del parcel (Table 3-7): these include Mascotte sand (63 percent of total area),  
6 Pelham loamy sand (10.5 percent of total area), Olustee sand (8.9 percent of total area),  
7 Leefield loamy sand (8.7 percent of total area), Albany sand (8.1 percent of total area),  
8 and Johnston loam (0.5 percent of total area) (Figure 3-7).

**Table 3-7. Soil Types at the Val Del Parcel**

Soil	Acres	Restrictive Development Soil Features for Dwellings without Basements <sup>1</sup>
Albany sand	9.42	Moderate: wetness
Johnston loam	0.63	Severe: floods, wetness
Leefield loamy sand	10.13	Moderate; wetness
Mascotte sand	70.18	Severe: wetness
Olustee sand	10.37	Severe: wetness
Pelham loamy sand	12.23	Severe: floods, wetness
Water	0.16	N/A
<b>Total acres</b>	<b>113.12</b>	

9 1. Stevens, 1979

10 Mascotte sand is associated with a majority of the surface area within the parcel.  
11 It is a poorly drained soil commonly found on broad, level flats between the cypress  
12 ponds. Olustee sand and Pelham loamy sand are poorly drained, seasonally flooded,  
13 and found on broad flats or low areas and drainage ways. Mascotte, Olustee, and  
14 Pelham series are poorly suited for development due to wetness and flooding. Albany  
15 sand is a deep, somewhat poorly drained soil found in low, flat uplands. If the soil is  
16 adequately drained, it has a medium potential for selected agriculture but a low  
17 potential for other uses, due to wetness and ponding. None of the acreage is suited for  
18 cultivation (Stevens, 1979).

19 There is a moderately large sinkhole covering approximately 1.16 acres near the  
20 center of the site. Historical images were examined as part of the archaeological survey  
21 (Trudeau, 2013). Images from 1943 (aerial photo from the Agricultural Stabilization and  
22 Conservation Service), 1961 (USGS topographic map), and 1988 (USGS topographic  
23 map) all show a developing depression in the vicinity of where the current sinkhole  
24 exists. This apparent gradual historical growth could suggest that expansion of the  
25 sinkhole may not be complete and further widening and deepening is possible.

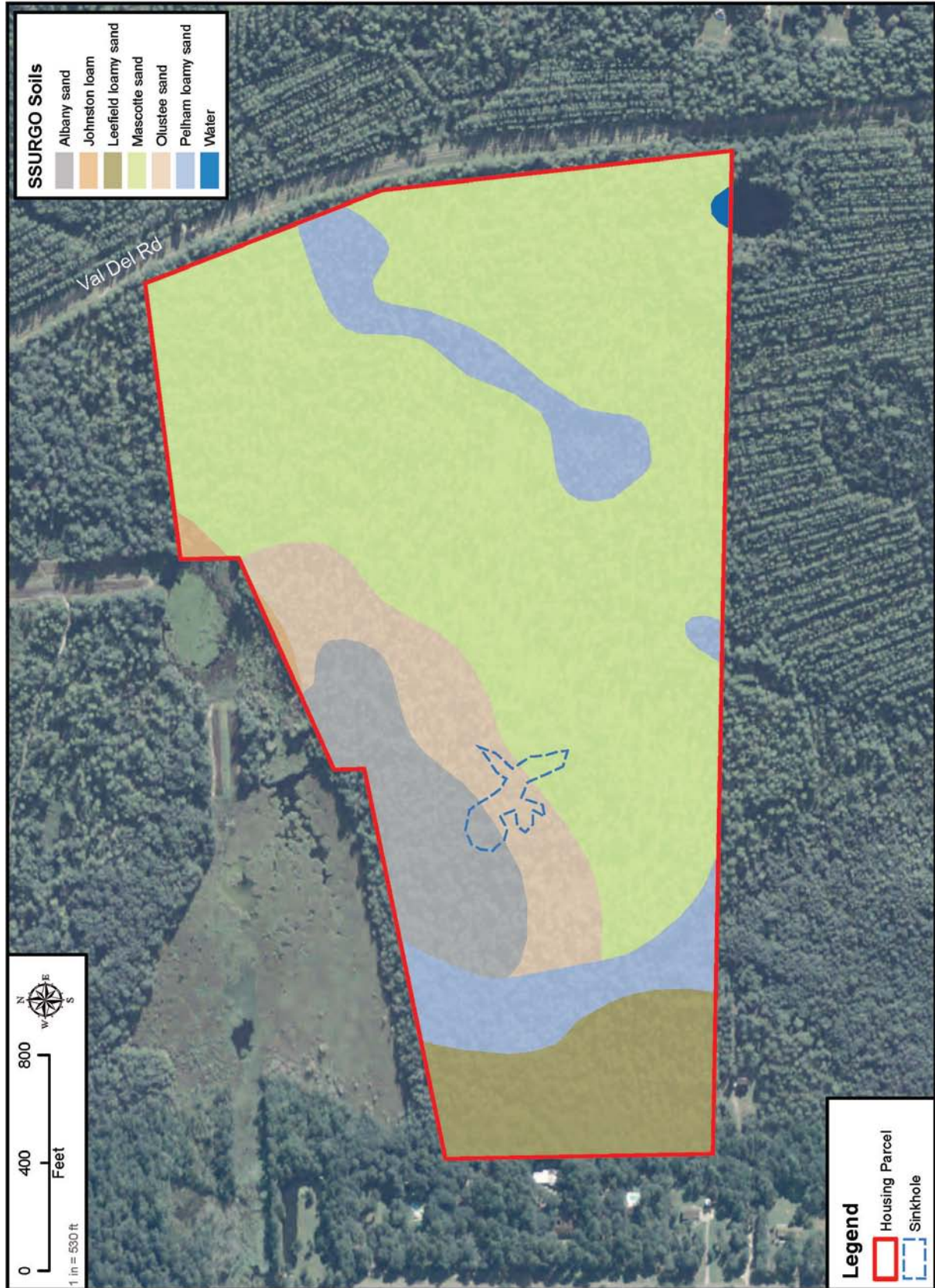


Figure 3-7. Soil and Geologic Resources at Val Del Parcel

## 3.5 CULTURAL RESOURCES

This section discusses potential impacts to cultural resources, including historic and prehistoric resources located within and around the Moody AFB and Val Del parcels. Analysis focuses on assessing the potential for adverse effects to archaeological sites and historic structures from site clearing and construction activities, and on identifying methods to reduce the potential for adverse effects to cultural resources from these activities.

Potential impacts to cultural resources can occur by physically altering, damaging, or destroying a resource or by altering characteristics of the surrounding environment that contribute to the resource’s significance. Resources can also be impacted by neglecting the resource to the extent that it deteriorates or is destroyed.

### 3.5.1 Affected Environment

#### **Moody AFB**

The proposed parcel contains no archaeological sites, historic structures, historic districts, cemeteries, or TCPs (U.S. Air Force, 2012a). The most proximal identified resources considered eligible for listing on the NRHP is Building 618 (Water Tower), located approximately 1 mile from the parcel. As the Moody AFB parcel does not contain NRHP-eligible cultural resources, the Proposed Action does not have the potential to adversely affect cultural resources at this location.

In the case of inadvertent discovery of cultural resources during execution of the Proposed Action, work on-site would cease and the discovery must be reported immediately to the cultural resource manager and the Section 106 process initiated. Additionally, the archaeological site must be treated as potentially eligible for listing on the NRHP under Section 106 until the Georgia State Historic Preservation Officer (SHPO) has concurred that the site is not eligible and Air Force activity can then continue (U.S. Air Force, 2012a).

#### ***Val Del Parcel***

Survey of the Val Del parcel was completed in March 2013 (Trudeau, 2013). The survey identified one prehistoric lithic scatter (9LW113) and two isolated finds that are categorically ineligible for listing on the NRHP. As the Val Del parcel does not contain NRHP-eligible cultural resources or TCPs, the Proposed Action does not have the

1 potential to adversely affect cultural resources. The Georgia SHPO reviewed the survey  
2 report and concurred that there would be no effect on archaeological sites that are listed  
3 or eligible for listing on the NRHP (See Appendix A). Moody AFB has initiated  
4 consultation with local Native American tribes for concurrence on a finding of no effect  
5 to TCPs (a list of tribes is provided in Chapter 7).

6 As with the Moody AFB parcel, in the case of inadvertent discovery of cultural  
7 resources during execution of the Proposed Action, work on-site would cease and the  
8 discovery must be reported immediately to the cultural resource manager and the  
9 Section 106 process initiated. Additionally the archaeological site must be treated as  
10 potentially eligible for listing on the NRHP under Section 106 until the Georgia SHPO  
11 has concurred that the site is not eligible and Air Force activity can then continue (U.S.  
12 Air Force, 2012a).

### 13 **3.6 SOLID WASTE**

14 “Solid waste,” is defined in the *Official Code of Georgia 12-8-20 Georgia*  
15 *Comprehensive Solid Waste Management Act of 1980* as garbage, rubbish, refuse, sludge  
16 from a waste treatment plant, water supply treatment plant, or air pollution control  
17 facility, and other discarded material, including solid, liquid, semisolid, or contained  
18 gaseous material resulting from industrial, municipal, commercial, mining, and  
19 agricultural operations and from community and institutional activities. State  
20 regulations specify permit requirements for landfills and the types of waste landfills can  
21 accept. The statutes and regulations governing solid waste management in Georgia  
22 include:

- 23 ● *Official Code of Georgia 12-8-20, Georgia Comprehensive Solid Waste Management Act*  
24 *of 1980*: Establishes the regulation of the collection, transport, storage, separation,  
25 processing, recycling, and disposal of solid wastes and requires the development  
26 of regulations to govern the listed activities.
- 27 ● *Georgia Environmental Rule 391-3-4, Solid Waste Management*: Establishes  
28 regulations for the construction, operation, and closure of solid waste facilities  
29 including landfills.

30 Air Force regulatory requirements and management of solid waste are  
31 established by Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*.  
32 AFPD 32-70 requires compliance with applicable federal, state, and local environmental

1 laws and standards. For solid waste, AFD 32-70 is implemented by Air Force  
2 Instruction (AFI) 32-7042, *Solid and Hazardous Waste*. AFI 32-7042 requires that each  
3 installation have a solid waste management program that includes a solid waste  
4 management plan to address handling, storage, collection, disposal, and reporting of  
5 solid waste. AFI 32-7080, *Pollution Prevention Program*, contains the solid waste  
6 requirement for preventing pollution through source reduction, resource recovery, and  
7 recycling. These requirements would apply to all on-base housing areas.

8 Wastes generated or requiring management under the Proposed Action would  
9 consist of construction debris. The ROI for solid waste includes regional landfills that  
10 may receive generated wastes.

### 11 **3.6.1 Affected Environment**

12 The Veolia E.S. Evergreen Municipal Solid Waste Landfill, located in Lowndes  
13 County, is utilized by Moody AFB for disposal of municipal solid waste, which includes  
14 household refuse. This landfill receives an average daily tonnage of 1,500 tons/day and  
15 has a projected life expectancy of 32 years (Georgia Department of Community Affairs  
16 [GDCA], 2013).

17 In addition, there are two landfills in the region that are permitted to accept  
18 construction debris: the Atkinson County Landfill and the Fitzgerald Landfill located in  
19 Ben Hill County, Georgia. Construction debris includes waste building materials and  
20 rubble resulting from construction activities. These landfills also accept tree trimmings  
21 and wood debris, as may be generated at the proposed Val Del parcel. The average  
22 daily tonnage and life expectancy for the Atkinson County Landfill is 105 tons/day,  
23 21 years and for the Fitzgerald Landfill, 13 tons/day, 11 years (GDCA, 2013).

### 24 **3.7 SOCIOECONOMICS/ENVIRONMENTAL JUSTICE**

25 Socioeconomic resources are defined as the basic attributes associated with  
26 human activities. The Moody AFB MHPI is primarily associated with the construction  
27 of on-base housing units for senior leadership and off-base housing for military  
28 personnel. Therefore, the following resources are addressed under socioeconomics as  
29 the indicators that could potentially be impacted by the MHPI process: population,  
30 economic activity (employment and earnings), schools, and housing.

31 Concern that certain disadvantaged communities may bear a disproportionate  
32 share of adverse health and environmental effects compared with the general

1 population led to the enactment in 1994 of EO 12898, *Federal Actions to Address*  
2 *Environmental Justice in Minority Populations and Low-income Populations*. This EO directs  
3 federal agencies to address disproportionate environmental and human-health effects in  
4 minority and low-income communities. In addition, 32 CFR 989, *Environmental Impact*  
5 *Analysis Process*, addresses the need for consideration of environmental justice issues in  
6 compliance with NEPA. EO 12898 applies to federal agencies that conduct activities  
7 that could substantially affect human health or the environment. The evaluation of  
8 environmental justice is designed to:

- 9 • Focus attention of federal agencies on the human health and environmental  
10 conditions in minority communities and low-income communities with the goal  
11 of achieving environmental justice.
- 12 • Foster nondiscrimination in federal programs that may substantially affect  
13 human health or the environment.
- 14 • Give minority communities and low-income communities greater opportunities  
15 for public participation in, and access to, public information on matters relating  
16 to human health and the environment.

17 Environmental justice analysis also addresses the protection of children, as  
18 required by EO 13045, *Protection of Children from Environmental Health Risks and Safety*  
19 *Risks (Protection of Children)*, issued in 1997 to identify and address issues that affect the  
20 protection of children. According to the EO, all federal agencies must assign a high  
21 priority to addressing health and safety risks to children, to coordinating research  
22 priorities on children’s health, and to ensuring that their standards take into account  
23 special risks to children. The EO states that, “...environmental health risks and safety  
24 risks’ mean risks to health or to safety that are attributable to products or substances  
25 that the child is likely to come in contact with or ingest (such as the air we breathe, the  
26 food we eat, the water we drink or use for recreation, the soil we live on, and the  
27 products we use or are exposed to).”

### 28 **3.7.1 Affected Environment**

#### 29 **Population**

30 The influence of Moody AFB is distinguishable within a two-county ROI  
31 composed of Lanier County and Lowndes County, Georgia. The individual parcel of  
32 the proposed off-base housing area is located along Val Del Road northwest of Valdosta  
33 in Lowndes County.

1 The estimated population of the ROI totaled 124,952 persons in 2012,  
2 representing an increase of more than 5,641 persons since 2010, at an average annual  
3 rate of 2.34 percent (U.S. Census Bureau 2010a,b; 2013a,b). The greatest absolute  
4 contribution to this increase was derived from the population increase in Lowndes  
5 County (approximately 5,319 persons), followed by Lanier County (approximately  
6 322 persons). Lowndes County experienced the highest percentage growth rate  
7 (2.4 average annual percent) of the two counties (U.S. Census Bureau 2010b, 2013b).  
8 Lanier County experienced a slower growth with an average population increase of  
9 1.5 percent between 2010 and 2012 (U.S. Census Bureau 2010a, 2013a).

10 Currently, of the 159 counties in Georgia, Lowndes County is the 20th most  
11 populous county in the state of Georgia (U.S. Census Bureau, 2013c). In Lowndes  
12 County, the community with the largest population is the city of Valdosta. Lanier  
13 County is currently ranked as the 126th most populous county in the state of Georgia  
14 (U.S. Census Bureau, 2013c). The only incorporated municipality in Lanier County is  
15 Lakeland City, which is also the county seat.

16 In 2010, Moody AFB had a total population of 10,914, including 5,230 military  
17 personnel, 836 civilians, and 4,848 dependents (U.S. Air Force, 2010).

## 18 **Employment**

19 In 2011, the latest data available, total employment in the region was  
20 approximately 65,866 jobs (U.S. Bureau of Economic Analysis, 2013). As with  
21 population, Lowndes County had the largest share of employment with over  
22 63,000 jobs (U.S. Bureau of Economic Analysis, 2013). Lanier County had a total  
23 employment of approximately 2,604 jobs during the same time period (U.S. Bureau of  
24 Economic Analysis, 2013).

25 In 2011, the unemployment rate in Lanier County was 8.5 percent (Bureau of  
26 Labor Statistics [BLS], 2013a), lower than both the national level of 8.9 percent and the  
27 state level of 9.9 percent (BLS, 2013b). The unemployment rate in Lowndes County was  
28 9.3 percent, higher than the national level but lower than the state (BLS, 2013a).

29 Moody AFB spans over two counties in the region; therefore, the military and  
30 other defense-related industries are large contributors to the local economy. Moody  
31 AFB has an overall economic impact of \$448 million (U.S. Air Force, 2010). A large part  
32 of the economic activity attributed to Moody AFB stems from related industries such as  
33 defense contractors. In 2010, over \$86 million were attributed to local contract  
34 expenditures, of which \$294,859 was for military family housing construction. In

1 addition, an estimated 1,872 local jobs had been created in industries related to military  
2 spending at Moody AFB (U.S. Air Force, 2010).

### 3 **Schools**

4 There is one school district located in Lanier County. The school district has a  
5 total of one elementary school, one middle school, and one high school with a total  
6 enrollment of 1,845 students (Lanier County Schools, 2013). There are two school  
7 districts located in Lowndes County, the Lowndes County School District and the  
8 Valdosta City School District. Lowndes County School District has a total of seven  
9 elementary schools, three middle schools, and one high school with a total enrollment  
10 of 10,113 (Lowndes County Schools, 2013). Valdosta City School District serves the city  
11 of Valdosta and has a total of five elementary schools, two middle schools, and one high  
12 school with a total enrollment of over 7,700 students (Valdosta City Schools, 2013).

13 There are no schools located on Moody AFB. Public schools in Lowndes County  
14 that service Moody family housing include Pine Grove Elementary School, Pine Grove  
15 Middle School, and Lowndes High School (Moody AFB, 2013a). There are currently  
16 two child development centers (CDCs) located on Moody AFB, CDC I and CDC II.  
17 CDC I is currently closed for renovations. CDC II is a 7-acre facility located on-base  
18 with capacity of 280 children (Moody AFB, 2011). The facility provides full-time care  
19 for children 6 weeks to 5 years old (Moody Force Support Squadron, 2013).

### 20 **Housing**

21 At the time of the 2010 census, there were a total of 46,932 housing units in the  
22 ROI. Approximately 3,011 housing units were in Lanier County, of which 86.1 percent  
23 were occupied (U.S. Census Bureau, 2010a). There were 43,921 housing units in  
24 Lowndes County, of which 90.5 percent were occupied (U.S. Census Bureau, 2010b).  
25 The unincorporated areas of Lowndes County had the highest rate of owner-occupied  
26 units and are associated with the increasing percentage of residents locating to these  
27 areas. The city of Remerton has one of the lower owner-occupied rates, but this is  
28 largely due to its high population of college students (Lowndes County, 2013).

29 There are approximately 24,000 rental units located within the city of Valdosta  
30 and the towns of Hahira, Lakeland, Ray City, Nashville, and Lake Park, all within  
31 20 miles of the base (Moody AFB, 2013a). The average monthly rent in these areas is  
32 approximately \$570 for a two-bedroom, \$890 for a three bedroom, and \$1,330 for a four-  
33 bedroom unit (Moody AFB, 2013a).



In addition to purchasing or renting options in the local community, personnel may also choose to live in privatized housing on-base. Privatized family housing at Moody AFB is owned and maintained by Hunt Military Communities. There are two privatized housing communities at Moody AFB, including the Quiet Pines neighborhood and the Magnolia Grove neighborhood.

Unaccompanied housing is available for unaccompanied airmen in the ranks of E-1 to E-3, and E-4 with less than three years of service (Moody AFB, 2013b). There are 14 dormitory buildings on two campuses at Moody AFB (Moody AFB, 2013b).

### Environmental Justice

Table 3-8 identifies total population and percentage populations of concern in each of the ROI counties, the state of Georgia, and the United States. Air Force guidance on environmental justice analysis specifies using census tract data. The most recent data at the census tract level are from the 2010 census.

**Table 3-8. Total Population and Populations of Concern by County and City, 2010**

Location	Population	Percent Minority	Percent Low-Income	Percent Youth
Lanier County	10,078	31.5	20.9	27.5
Lakeland (city)	3,366	48.2	36.0	26.9
Lowndes County	109,233	43.9	22.4	24.7
Hahira (city)	2,737	26.4	7.9	32.3
Valdosta (city)	54,518	58.5	30.6	22.8
Remerton (city)	1,123	37.8	53.2	7.6
Lake Park (city)	733	23.7	26.9	27.6
Dasher (town)	912	15.9	7.3	25.7
<b>Two-county ROI</b>	<b>182,700</b>	<b>47.2</b>	<b>24.9</b>	<b>24.3</b>
<b>Georgia</b>	<b>9,687,653</b>	<b>44.1</b>	<b>16.5</b>	<b>25.7</b>
<b>United States</b>	<b>308,745,538</b>	<b>36.3</b>	<b>14.3</b>	<b>24.0</b>

Source: U.S. Census Bureau, 2010a-j, 2011a-j  
 ROI = region of influence

The total population in 2010 for the ROI was 182,700 persons, representing 18.9 percent of the Georgia population (9,687,653 persons). Population density in the region ranged from 54.4 persons per square mile in Lanier County to 220.2 persons per square mile in Lowndes County (U.S. Census Bureau, 2012a,b). By comparison, the state of Georgia has an overall population density of 168.4 persons per square mile (U.S. Census Bureau, 2012c).

1           Minority persons represent 47.2 percent of the ROI population and 44.1 percent  
2 of the state population. African Americans are the predominant minority group in the  
3 ROI and at the state level. The minority population in the two counties of the ROI  
4 ranges from 31.5 percent in Lanier County to 43.9 percent in Lowndes County.

5           The percentage of persons and families in the ROI with incomes below the  
6 poverty level was higher than state levels, averaging 24.9 percent in the ROI compared  
7 with 16.5 percent in Georgia as a whole. Lanier County and Lowndes County exhibited  
8 relatively high poverty rates of 20.9 and 22.4 percent, respectively, when compared with  
9 the state level. Figure 3-8 shows the minority and low-income communities of concern  
10 in the Moody AFB region.

11           According to statistics from the 2010 census (the latest available), 347 children  
12 under age 18 (or 39.2 percent of the total base population) live on Moody AFB. A total  
13 of 180 children (approximately 20.3 percent of the total base population) are younger  
14 than 5 years old. The youth population, comprising children under the age of 18 years,  
15 constitutes 24.3 percent of the ROI population, ranging from 24.7 percent in Lowndes  
16 County to 27.5 percent in Lanier County, compared with 25.7 percent for Georgia  
17 overall. Schools and childcare centers are presented in Figure 3-9.

### 18 **3.8 INFRASTRUCTURE**

19           Infrastructure, within the context of this EA, is associated with utilities and  
20 transportation. The utilities described and analyzed for potential impacts from the  
21 implementation of the MHPI include potable water, wastewater, electricity, and natural  
22 gas. The description of the each utility focuses on existing infrastructure (e.g., wells,  
23 water systems, wastewater treatment plants), current utility use, and any predefined  
24 capacity or limitations as set forth in permits or regulations. Transportation is defined  
25 as the roadways on the main base, base gates, and the public roadways that provide  
26 access to the installation and the off-base Val Del parcel.

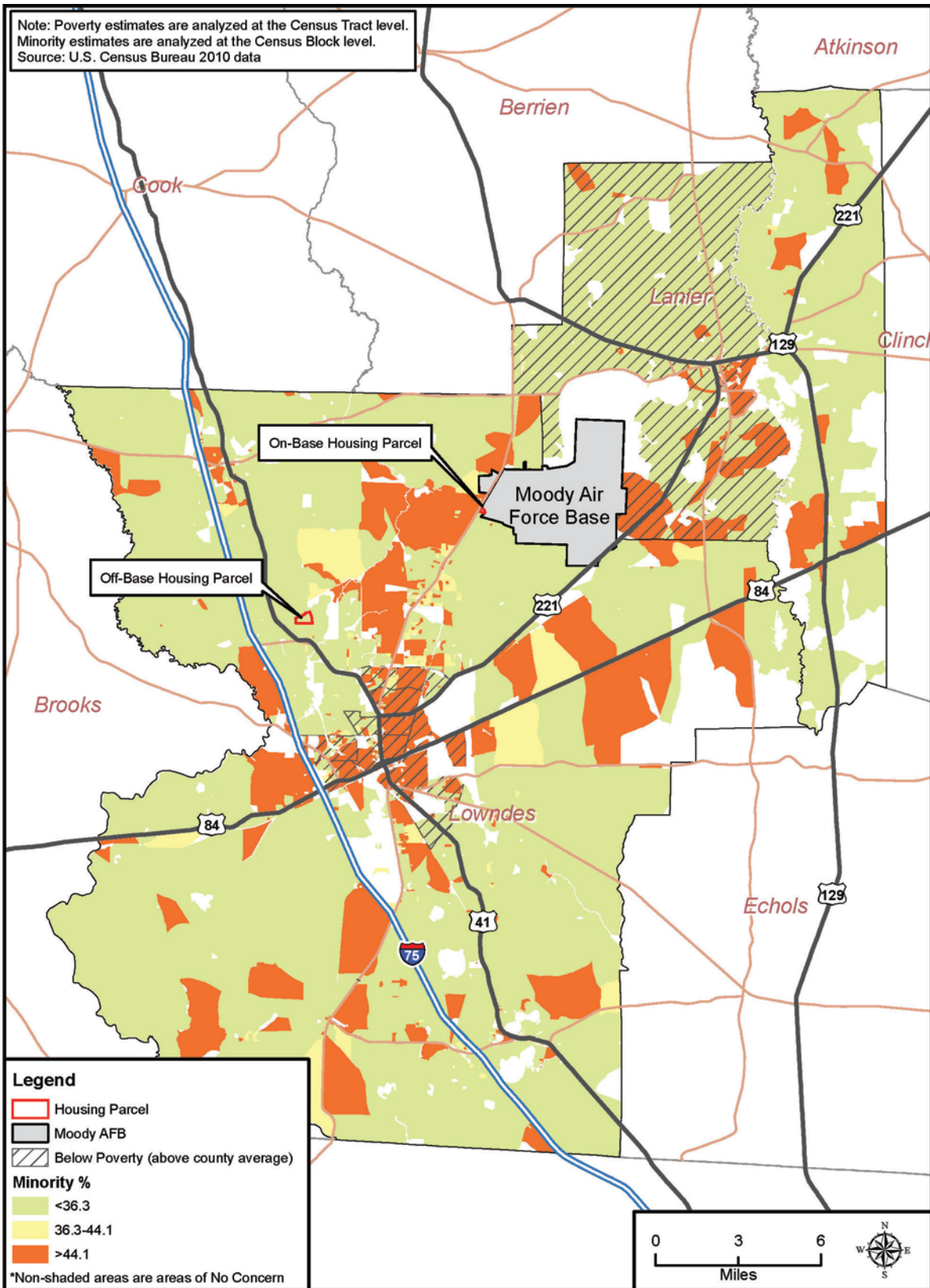


Figure 3-8. Communities with High Minority and/or Low-Income Populations as Compared with County Averages

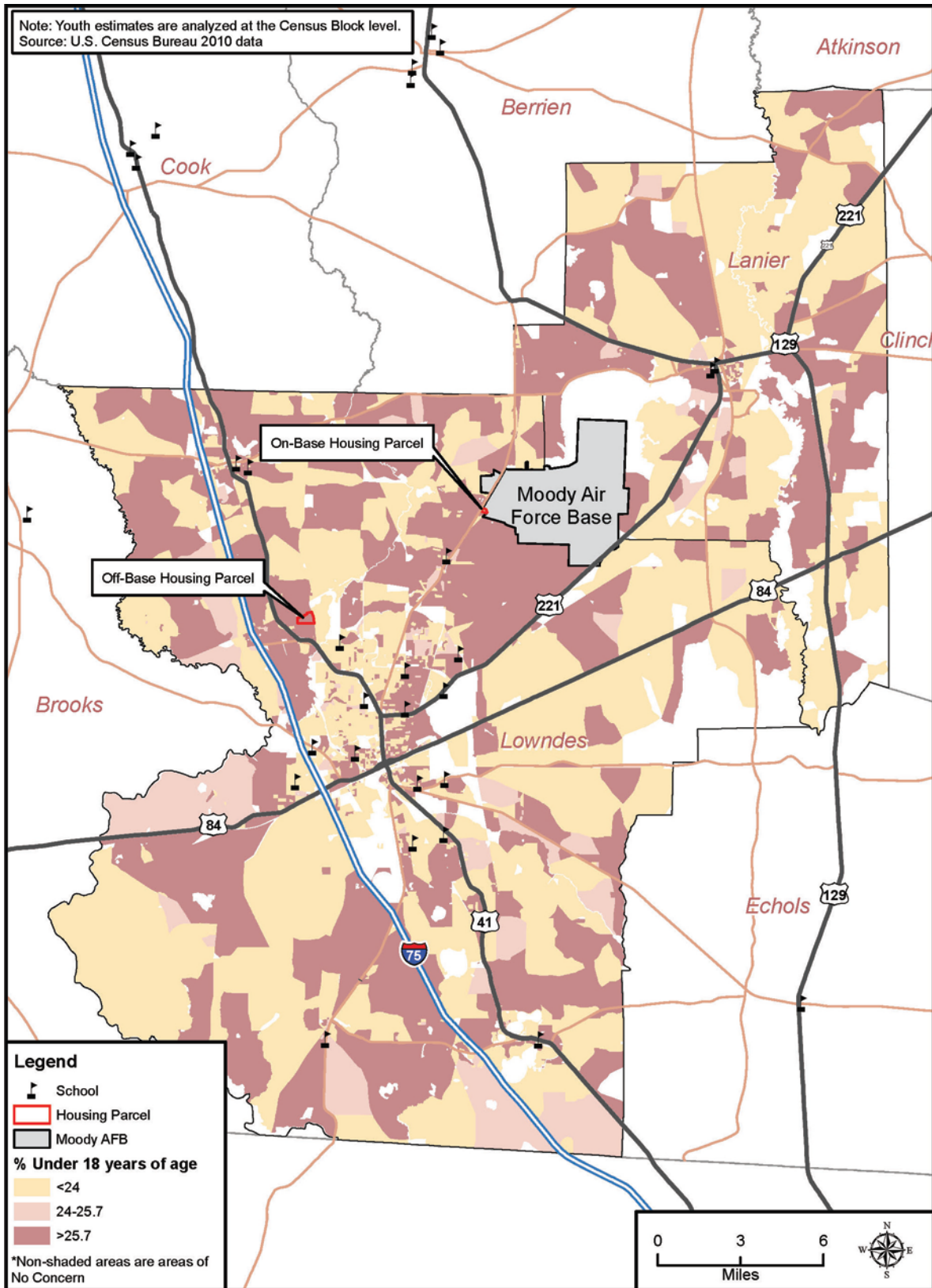


Figure 3-9. Communities with a High Percentage of Children Under 18 as Compared with County Averages

1 **3.8.1 Affected Environment**

2 *Potable Water*

3 Potable water is currently not provided to the proposed on-base parcel. The  
4 closest usable, base-owned water main is approximately 1 mile northeast of the site. An  
5 abandoned water line runs along Stone Road adjacent to the eastern boundary of the  
6 parcel, but it is severely degraded and beyond repair. Lowndes County owns active  
7 water lines running along Bemis Road adjacent to the western boundary of the parcel.  
8 The closest county water supply well and storage tank is located southwest of the  
9 proposed parcel at Hattie Place.

10 Water lines owned by Lowndes County are also located along Val Del Road in  
11 the immediate vicinity of the proposed parcel. Water for the area is supplied by the  
12 North Lowndes Water Treatment Plant. The North Lowndes plant has a current  
13 capacity of 2 MGD and an average daily usage rate of 621,144 MGD (VLIA, 2013).

14 *Wastewater*

15 Adjacent to the eastern boundary of the proposed Moody AFB parcel, an  
16 abandoned 6-inch force main sewer line belonging to Moody AFB runs along Stone  
17 Road. Active sewer lines owned by Lowndes County are located along Parker Greene  
18 Highway/Bemiss Road, adjacent to the western boundary of the parcel. Active sewer  
19 lines owned by Lowndes County also run along Val Del Road adjacent to the proposed  
20 off-base parcel location. Lowndes County's wastewater collection and conveyance  
21 system consists of 38 pumping stations and approximately 116 miles of sewer line,  
22 which transport wastewater to the South Lowndes Wastewater Treatment Plant  
23 (WWTP). The South Lowndes WWTP is permitted to treat 2.5 MGD. In 2005, the  
24 system had an average daily flow of 1.5 MGD. A study is in progress to evaluate a new  
25 wastewater treatment plant to better serve the northern portions of Lowndes County  
26 (South Georgia Regional Development Center, 2005).

27 *Electricity*

28 The local electrical utility provider is Colquitt Electric Membership  
29 Corporation (EMC). Moody AFB has an underground electrical distribution circuit  
30 (12,470/7,200 volts) that runs along Stone Road adjacent to the eastern boundary of the  
31 proposed parcel. The circuit has a tie point available directly east of the parcel.  
32 Colquitt EMC has an overhead distribution circuit (24,900/14,400 volts) running along

1 Parker Greene Highway/Bemiss Road adjacent to the western boundary of the parcel.  
2 Electric distribution lines are also located along Val Del Road in the immediate vicinity  
3 of the proposed off-base parcel.

#### 4 **Natural Gas**

5 Atlanta Gas Light is the main natural gas supplier for Lowndes County. Natural  
6 gas is supplied to Moody AFB through a contract managed by the Defense Energy  
7 Supply Center. Natural gas is distributed throughout the main base and within the  
8 Quiet Pines housing area.

#### 9 **Transportation**

10 Roadways are typically assigned a functional classification by state departments  
11 of transportation. Functional classification is “the process by which streets and  
12 highways are grouped into classes, or systems, according to the character of service  
13 they are intended to provide” (Georgia Department of Transportation [GDOT], 2012).  
14 Table 3-9 describes the three main functional classifications for roadways.

**Table 3-9. Types of Roadway**

Roadway Type	Definition
Arterial	These roadways provide mobility so traffic can move from one place to another quickly and safely.
Collector	These roadways link arterials and local roads and perform some of the duties of each.
Local	These roadways provide access to homes, businesses, and other property.

15 Source: GDOT, 2012

16 Traffic on roadway segments is measured by level of service (LOS), which range  
17 from A to F. The LOS takes into consideration three variables: travel speed, traffic  
18 density, and vehicle flow rate. The *Highway Capacity Manual* (Transportation Research  
19 Board, 2000) defines the LOS levels for urban streets as follows.

- 20 ● LOS A describes free flowing traffic at average travel speeds, usually about  
21 90 percent of the free flow speed for the given street class. Vehicles are  
22 completely unimpeded in their ability to maneuver within the traffic stream.  
23 Control delay at signalized intersections is minimal.
- 24 ● LOS B describes reasonably unimpeded operation at average travel speeds,  
25 usually about 70 percent of the free flow speed. The ability to maneuver within

1 the traffic stream is only slightly restricted, and control delays at signalized  
2 intersections are not significant.

- 3 ● LOS C describes stable operations; however, the ability to maneuver and change  
4 lanes in midblock locations may be more restricted than in LOS B, and longer  
5 queues, adverse signal coordination, or both may contribute to lower average  
6 travel speeds of about 50 percent of the free flow speed.
- 7 ● LOS D borders the range in which small increases in flow may cause substantial  
8 increases in delay and decreases in travel speed. LOS D may be due to adverse  
9 signal progression, inappropriate signal timing, high volumes, or a combination  
10 of these factors. Average travel speeds are about 40 percent of free flow speed.
- 11 ● LOS E is characterized by significant delays and average travel speeds of  
12 33 percent or less of the free flow speed. Such operations are caused by a  
13 combination of adverse progression, high signal density, high volumes, extensive  
14 delays at critical intersections, and inappropriate signal timing.
- 15 ● LOS F is characterized by urban street flow at extremely low speeds, typically  
16 one-third to one-fourth of the free flow speed. Intersection congestion is likely at  
17 critical signalized locations, with high delays, high volumes, and extensive  
18 queuing.

19 Generally, the desired LOS for urban arterial roadways is LOS D or better,  
20 although short periods of time with LOS E or even LOS F are sometimes acceptable in  
21 some urban areas. The ROI for transportation includes the Moody AFB roadway  
22 system and base gates, roadways immediately adjacent to the base, and the primary  
23 roadways connecting the base with the Val Del parcel.

#### 24 ***Moody AFB***

25 Moody AFB is located approximately 10 miles northeast of Valdosta, Georgia.  
26 The primary arterial (i.e., major roadway) in the area is Interstate 75 (I-75) which passes  
27 through Valdosta and runs north to Macon and Atlanta. I-75 connects with I-10  
28 (another major interstate that runs east-west across the United States) approximately  
29 52 miles south of the base.

30 Moody AFB is connected to Valdosta and I-75 by State Highway 125 (Parker  
31 Greene Highway/Bemiss Road). Parker Greene Highway/Bemiss Road is a four-lane  
32 divided highway with designated turn lanes into the main base and Quiet Pines

1 housing area and golf course. Parker Greene Highway/Bemiss Road is classified as an  
2 urban minor arterial with a posted speed of 55 miles per hour (mph) in the vicinity of  
3 the base. According to the Valdosta-Lowndes MPO Travel Demand Model (SGRC,  
4 2012) the estimated LOS for the section of Parker Greene Highway/Bemiss Road along  
5 the main base and south to near the intersection with Studstill Road is LOS B.

6 The 39 miles of road system on Moody AFB are laid out in the standard “wagon  
7 wheel” pattern. Streets are classified as arterials or collectors. Mitchell Boulevard,  
8 Robbins Road, and Robinson Road are considered the arterial streets that carry the  
9 majority of traffic. Collector streets include Berger, Burrell, Davis, Dexter, George,  
10 Georgia, and Hickam Streets and Darque Boulevard. These streets support distribution  
11 of traffic from the arterials to local streets or directly to intended destinations. The  
12 inbound peak traffic for the main base is between 7 AM and 8:30 AM and the peak  
13 outbound traffic occurs between 4 PM and 5:30 PM (U.S. Air Force, 2008).

14 Moody AFB has three access gates (Main Gate, South Gate, and North Gate) and  
15 two others that are only used periodically (Contractor and Cemetery). The Main Gate is  
16 open 24 hours, 7 days a week. South Gate connects on-base Robbins Road with Bemiss  
17 Road at the intersection with Radar Site Road. It is currently only open for outbound  
18 traffic Monday through Friday from 4 PM to 5:30 PM. The North Gate connects on-base  
19 Mitchell Boulevard with Bemiss Road at the intersection with the Quiet Pines housing  
20 area. The North Gate is open Monday through Friday from 6 AM to 8 PM. The  
21 Cemetery Gate is located at the northwest corner of the main base and connects on-base  
22 North Perimeter road with Hightower Road. It is only open during special events. The  
23 Contractor Gate is located in the northeast corner of the base and connects a dirt road  
24 from Bemiss Field and Hightower Road. It is only opened during certain construction  
25 projects generally using the concrete factory (Santicola, 2013).

### 26 *Val Del Parcel*

27 The Val Del parcel is located off Val Del Road, which is classified as a rural  
28 minor collector that runs from U.S. Highway 41 (North Valdosta Road) north to Adel,  
29 Georgia. In the vicinity of the parcel, the roadway has two lanes and a speed limit of  
30 55 mph. The estimated LOS for Val Del Road adjacent to the parcel is LOS B. South of  
31 the parcel to the intersection with U.S. Highway 41 the estimated LOS for Val Del Road  
32 is LOS C (SGRC, 2012).



## 4. ENVIRONMENTAL CONSEQUENCES

This chapter discusses the impacts of the Proposed Action and alternatives on the resource areas discussed in Chapter 3.

### 4.1 AIR QUALITY

#### 4.1.1 Analysis Methodology

The Clean Air Act Section 176(c), General Conformity, requires federal agencies to demonstrate that their proposed activities would conform to the applicable state implementation plan for attainment of the NAAQS. General conformity applies only to nonattainment and maintenance areas. If the emissions from a federal action proposed in a nonattainment area exceed annual *de minimis* thresholds identified in the rule, a formal conformity determination is required of that action. The thresholds are more restrictive as the severity of the nonattainment status of the region increases. The project region is designated as attainment for all criteria pollutants (USEPA, 2012). The criteria pollutants are compared with Lowndes County emissions, which are in attainment for all criteria pollutants.

For the analysis, in order to evaluate air emissions and their impact on the overall ROI, the emissions associated with the project activities were compared with the total emissions on a pollutant-by-pollutant basis for the ROI's 2013 NEI data. Potential impacts to air quality are evaluated with respect to the extent, context, and intensity of the impact in relation to relevant regulations, guidelines, and scientific documentation. The CEQ defines significance in terms of context and intensity in 40 CFR 1508.27. This requires the significance of the action to be analyzed with respect to the setting of the proposed action and based relative to the severity of the impact. The CEQ NEPA regulations (40 CFR 1508.27[b]) provide 10 key factors to consider in determining an impact's intensity. To provide a more conservative analysis, the county was selected as the ROI instead of the USEPA-designated Air Quality Control Region, which is a much larger area.

The Air Conformity Applicability Model (ACAM) version 4.5.0 was utilized to provide a level of consistency with respect to emissions factors and calculations. The ACAM provides estimated air emissions from proposed federal actions in areas designated as nonattainment and/or maintenance for each specific criteria and

1 precursor pollutant as defined in the NAAQS. ACAM was utilized to provide  
2 emissions for construction, grading, and paving activities by providing user inputs for  
3 each. Commuter emissions for personnel traveling to and from Moody AFB and from  
4 the Val Del parcel were calculated using the methods and emissions factors from the  
5 2013 Air Force Civil Engineer Center *Air Emissions Factor Guide to Air Force Mobile*  
6 *Sources*.

7 The air quality analysis focused on emissions associated with the construction of  
8 housing units, roadways, associated buildings and recreational areas and commuter  
9 emissions to and from Moody AFB from the off-base housing area. Construction  
10 related sources include emissions from heavy construction machinery, semitractor  
11 trailer rigs, and vehicle exhaust from contracted employees' personal vehicles.

12 GHGs are included in the analysis. In the case of the Moody MHPI Project, the  
13 primary source of carbon dioxide emissions would be from vehicles operating on-site  
14 during construction and ongoing commuter emissions once the housing construction is  
15 complete. Electricity use is an indirect carbon dioxide source, as it is generated off-site;  
16 in other words, the GHGs are emitted at the electricity plant and are not included.  
17 Construction equipment operation and employee commutes would contribute to GHG  
18 emissions in the area. GHG emissions would be compared with the CEQ's minimum  
19 level of 25,000 metric tons (27,558 tons) as a level at which consideration would be  
20 required in NEPA documentation. Air quality calculations are provided in Appendix B.

#### 21 **4.1.2 Proposed Action**

22 The Proposed Action includes the construction of housing units, new roadways,  
23 and other associated buildings. Emissions from the use of large mobile equipment are  
24 calculated and summarized in Table 4-1. Impacts from the Proposed Action would  
25 amount to less than 1 percent of each of the criteria pollutants except PM<sub>10</sub>  
26 (1.41 percent). These increases result in only a short-term, temporary increase in  
27 emissions. GHG emissions would be less than 25,000 metric tons (27,558 tons);  
28 therefore, the Air Force has not identified any significant impacts to regional air quality  
29 under the Proposed Action.

30

**Table 4-1. Proposed Action Air Emissions Compared with Lowndes and Lanier County Emissions (tons per year)**

	Emissions (tons/year)						
	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>x</sub>	VOCs	CO <sub>2e</sub>
Lowndes County, Georgia <sup>1</sup>	42,674	6,919	9,366	2,348	752	24,322	197,855
<b>Construction Emissions</b>							
Phase I - Moody AFB	0.34	0.12	21.45	0.00	0.00	0.68	326
Phase I - Val Del	1.81	0.44	92.97	0.01	0.00	3.89	1,573
Phase II - Val Del	1.19	0.10	17.88	0.00	0.00	3.06	787
Total	3.34	0.66	132.30	0.01	0.00	7.62	2,686
Percent of County Emissions <sup>2</sup>	0.01%	0.01%	1.41%	0.00%	0.00%	0.03%	1.36%
<b>Personnel Commute</b>							
Phase I - Val Del	2.23	0.10	0.02	0.01	0.01	0.15	292
Phase II - Val Del	4.64	0.20	0.04	0.02	0.01	0.31	609
Percent of County Emissions <sup>3</sup>	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.31%

1 CO = carbon monoxide; CO<sub>2e</sub> = carbon dioxide equivalent; NO<sub>x</sub> = nitrogen oxides; PM<sub>10</sub> and PM<sub>2.5</sub> = particulate  
 2 matter with a diameter of less than or equal to 10 microns and 2.5 microns, respectively; SO<sub>2</sub> = sulfur dioxide; VOC =  
 3 volatile organic compound

4 1. USEPA, 2013

5 2. Percent of county emissions are calculated using the total emissions at Moody AFB and Val Del parcels for both  
 6 Phases I and II. This assumes that the whole project would be completed in a single year as a worst-case scenario  
 7 comparison.

8 3. Phase II emissions of personnel commute emissions were compared with the county emissions as these numbers  
 9 represent the end state personnel numbers potentially off-base.

### 10 4.1.3 No Action Alternative

11 The No Action Alternative would not result in any additional impacts to air  
 12 quality beyond the scope of normal conditions and influences within the ROI.

## 13 4.2 WATER RESOURCES

### 14 4.2.1 Analysis Methodology

15 Under the Proposed Action, impacts to water resources and hydrology could  
 16 result from land-clearing activities, disruption of the soil profile, loss of vegetation,  
 17 introduction of pollutants, new impervious surfaces, and an increased rate and volume  
 18 of runoff after major storm events. Without proper controls, these actions could  
 19 adversely impact the quality and/or quantity of water resources near the proposed site.  
 20 Analysis considered the proximity of the Proposed Action to surface water features and  
 21 the potential for development activities to impact identified water features. Regulatory

1 requirements associated with disturbance of or impact on surface waters were also  
2 identified.

### 3 **4.2.2 Proposed Action**

#### 4 *Surface Waters*

5 The Air Force has not identified any significant impacts to surface waters under  
6 the Proposed Action. During construction of new housing units, driveways, roadways,  
7 and other impervious surfaces, at both Moody AFB and the Val Del parcel, soils would  
8 be compacted and paved, which would increase stormwater runoff; the exact amount of  
9 impervious surfaces would be determined by the final development plan. The  
10 proposed on-base housing area is located several hundred feet south of an intermittent  
11 stream and one wet weather conveyance; no issues with stormwater runoff to these  
12 resources are anticipated provided NPDES permitting requirements are met.

13 Stormwater management associated with the new housing units on Moody AFB  
14 would be designed in accordance with Energy Independence and Security Act  
15 (EISA)/low-impact development requirements as discussed in Section 3.2.1. These  
16 requirements would reduce stormwater runoff by including such items as bioretention  
17 areas, buffer zones, permeable pavements, cisterns/recycling, and green roofs in the site  
18 design. The overall design objective is to maintain predevelopment hydrology and  
19 prevent any net increase in stormwater runoff. Project site design options would  
20 prioritize integrated management practices that are proven within the regional area and  
21 have the greatest cost benefit/lowest life cycle costs. Since the proposed development  
22 area at both sites is greater than 5,000 square feet, EISA requirements would apply to  
23 the Proposed Action on Moody AFB. The new housing development on Moody AFB  
24 would incorporate appropriate EISA requirements, thus reducing the amount of runoff  
25 during storm events.

26 At the Val Del parcel, Lowndes County requires a minimum 10 percent of the  
27 land area be utilized for stormwater management. It is further recommended, as a  
28 management practice, that 25-foot buffer areas be utilized by the developer to avoid  
29 impacts to surface waters. Figure 4-1 identifies vegetative buffer areas associated with  
30 water resources at the Val Del parcel.

31

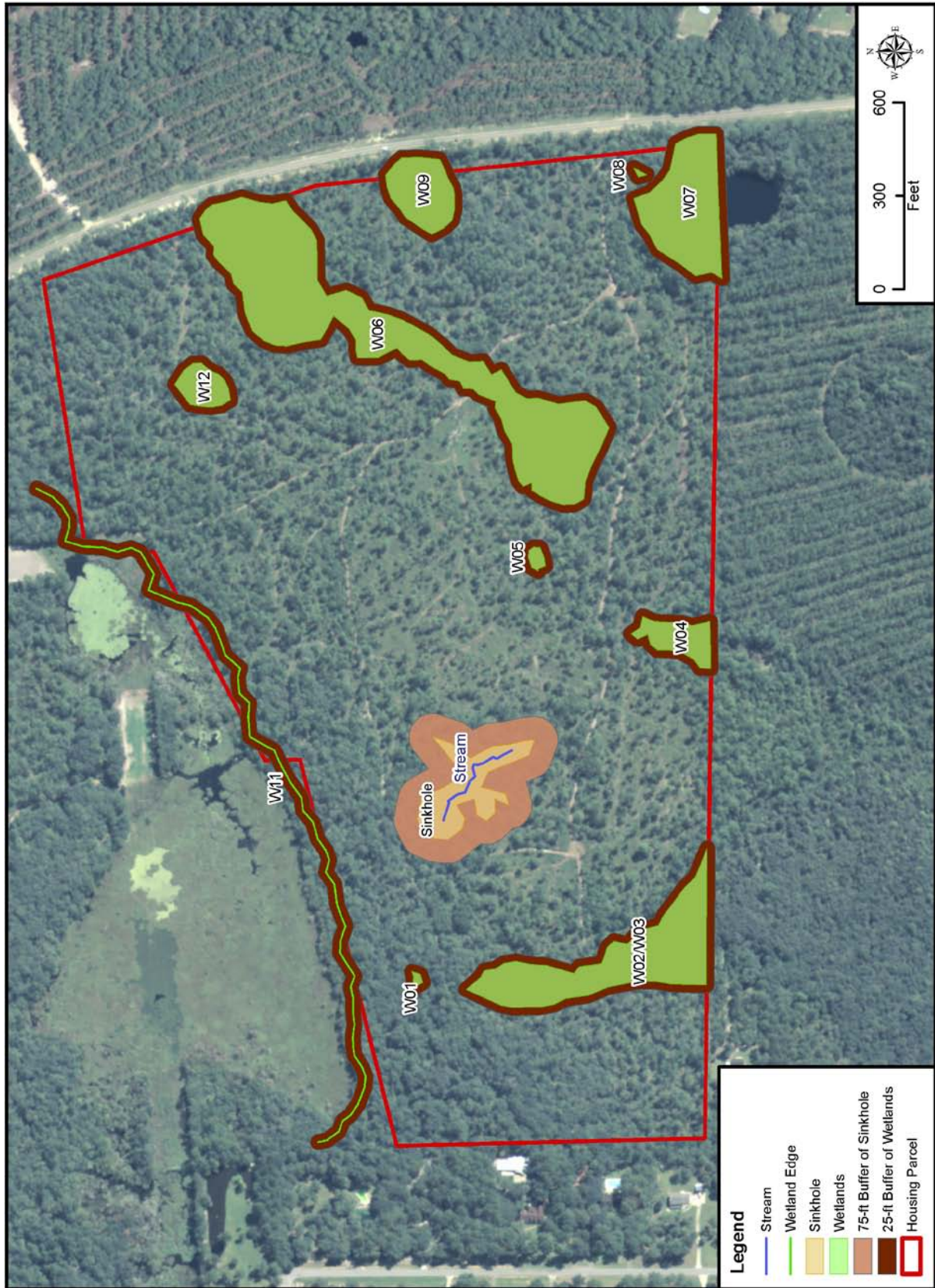


Figure 4-1. Buffer Zones Associated with Val Del Parcel Water Resources

1 Construction of the housing units, driveways, roads, and other impervious  
2 surfaces at both parcels would require a Lowndes County land disturbance permit,  
3 which serves as the permit application for a GADNR NPDES permit for stormwater  
4 runoff. In association with the permit for controlling runoff during construction  
5 activities, a project-specific Erosion and Sedimentation Control Plan, which serves as  
6 the typical NPDES Stormwater Pollution Prevention Plan (SWPPP), would be  
7 developed to ensure measures would be in place to control pollutants in stormwater  
8 discharges. Compliance with this permit would prevent any significant impacts to  
9 surface water resources. Because appropriate BMPs (e.g., soil management plans,  
10 compliance with NPDES permit) would be implemented under all concepts, no  
11 additional mitigation measures would be required.

## 12 **Groundwater**

13 Construction activities at the proposed Moody AFB housing area would not have  
14 any effect on groundwater resources at the site.

15 The primary concern at the Val Del parcel is a sinkhole covering approximately  
16 1.16 acres near the center of the site, which represents a potential avenue for pollutants  
17 to directly access groundwater resources in the area. As the sinkhole receives surface  
18 water runoff during rainstorm events from the surrounding area, and as this serves as a  
19 potential recharge point to the Upper Floridan aquifer (Burgoon, 1991), contamination  
20 to the aquifer may potentially occur from any runoff directed toward this point or other  
21 similar features in the vicinity (McConnell et al., 1994).

22 Discrete recharge to a karst aquifer may occur through sinkholes that drain a  
23 small area. Karst aquifers recharged in this manner typically have numerous inputs of  
24 surface water to the subsurface, with water draining along cracks, fissures, and zones of  
25 weakness in soluble geologic layers (Lerch et al., 2005). Of serious concern to karst  
26 groundwater is increased impervious surface resulting from development that can  
27 negatively impact water quality through the introduction of chemical or other  
28 contaminants. Even small and localized increases to impervious surface have the  
29 potential to negatively impact the water quality and quantity of recharge to karst  
30 aquifers (Lerch et al., 2005).

31 Lowndes County will not permit any discharge of runoff from roads, lawns, and  
32 other sources into the sinkhole (Fletcher, 2013). The site stormwater drainage plan  
33 would have to include effective engineering controls and a naturally vegetated buffer  
34 zone around the sinkhole that would prevent any potential pollutants from entering the

1 sinkhole from stormwater and other discharge sources during and after construction,  
2 while still maintaining effective groundwater recharge in the area. Because impacts  
3 from increased impervious surfaces to karst aquifers and surface streams are similar,  
4 impervious surface limits designed for protection of surface streams would be used for  
5 karst areas, which should minimize adverse impacts to karst groundwater resources.

6 Also, implementation of BMPs and investigation of local geological factors may  
7 sufficiently mitigate water resource degradation (Lerch et al., 2005). Any potential  
8 adverse effects to groundwater resources from erosion, sedimentation, and other  
9 pollutants would be controlled during construction through avoidance, BMPs as part of  
10 the NPDES permit for stormwater runoff, and a project-specific stormwater pollution  
11 prevention plan. Potential impacts to groundwater associated with operation of the  
12 housing area would be mitigated through proper stormwater conveyance system  
13 design to prevent discharges to the sinkhole while maintaining effective groundwater  
14 recharge in the area.

### 15 *Wetlands and Floodplains*

16 The proposed on-base parcel is located several hundred feet south of any  
17 wetlands and, thus, would not directly affect any wetlands. Additionally, no  
18 floodplains are present at the on-base parcel.

19 The proposed Val Del parcel is within a designated Lowndes County Wetland  
20 Protection District and abuts a stream/jurisdictional wetland complex along the  
21 northwestern boundary of the site. The Lowndes County ULDC, Section 3.05.04(A)  
22 (Lowndes County, 2012) requires that no regulated activity be permitted within the  
23 wetlands protection district without a permit from Lowndes County. Additionally, the  
24 ULDC requires a USACE jurisdictional wetland determination; the local permit or  
25 permission will not be granted until a Section 404 permit (if jurisdictional wetlands are  
26 present) or letter of permission (if wetlands are isolated) is issued. Any wetlands at the  
27 Val Del parcel that USACE declares are isolated would not have any regulatory  
28 protection through the state or local governments.

29 A preliminary evaluation by USACE indicates that seven wetlands at the Val Del  
30 parcel covering a total of 12.578 acres would be regulated under Section 404 of the CWA  
31 (Kobs, 2013b). Based on the information available at this time, it is expected that the  
32 Proposed Action would require the use of up to 2.3 acres of wetlands on the Val Del  
33 parcel. USACE may allow the developer to utilize jurisdictional wetlands for  
34 development through the CWA Section 404 permitting process, which would require

1 mitigative measures to minimize potential impacts. The State of Georgia has no  
2 requirements for use of these wetlands. A review of the Air Force design requirements,  
3 the size of the property, and the geographic features on the property make the limited  
4 use of wetlands necessary for completion of the Proposed Action on the Val Del parcel.  
5 Consequently, the Air Force has identified the need for a Finding of No Practicable  
6 Alternative in accordance with EO 11990, *Protection of Wetlands*. Mitigations for use of  
7 the wetlands will be developed through the Section 404 permitting process and would  
8 most likely be accomplished by purchasing wetland mitigation credits at a USACE-  
9 approved mitigation bank in the service area where Moody AFB is located. Under  
10 USACE guidelines, credit requirements anticipated to be in effect at the time of the  
11 Proposed Action could be as high as 12:1. The exact number of mitigation credits  
12 would be determined by USACE when the final permit is issued for the proposed  
13 project. Currently there are two mitigation banks in the service area, but only one of  
14 these has stream mitigation credits for sale. At a minimum, a 25-foot buffer should be  
15 maintained around all wetlands unless USACE prescribes more stringent mitigations.

16 The loss of wetlands would require compensatory mitigation through approved  
17 USACE procedures. Additionally, if any wetlands at the parcel declared jurisdictional  
18 by the USACE are impacted by the proposed project, then the USACE would require  
19 mitigation for all wetland impacts at the site, even if isolated wetlands are also affected  
20 (Kobs, 2013b). Mitigation would most likely be accomplished by purchasing wetland  
21 mitigation credits at a USACE-approved mitigation bank in the service area where  
22 Moody AFB is located. Under USACE guidelines, credit requirements anticipated to be  
23 in effect at the time of the proposed action could be as high as 12:1. The exact number of  
24 mitigation credits would be determined by USACE when the final permit is issued for  
25 the proposed project. Currently there are two mitigation banks in the service area, but  
26 only one of these has stream mitigation credits for sale.

27 Lowndes County development guidelines require a minimum of a 25-foot buffer  
28 zone around streams and jurisdictional wetland complexes that are not permitted for  
29 disturbance through the CWA Section 404 permitting process. In addition, a 25-foot  
30 buffer is required around the sinkhole (Fletcher, 2013). However, the development  
31 plans at the proposed Val Del parcel would provide a 75-foot buffer around the  
32 sinkhole and a minimum 25-foot buffer around any unpermitted wetlands.

33 Indirect effects to wetlands from erosion and sedimentation during construction  
34 would be controlled using BMPs as part of the NPDES permit for stormwater runoff  
35 and a project-specific stormwater pollution prevention plan. Indirect operational



1 impacts would be mitigated through site design that precludes stormwater discharges  
2 to wetland areas and the sinkhole. There are no floodplains within or adjacent to either  
3 of the proposed housing locations that would be impacted.

4            Provided all previously identified requirements are met, no significant impacts  
5 to wetlands would occur.

#### 6 **4.2.3 No Action Alternative**

7            The No Action Alternative would not result in any additional impacts to water  
8 resources within and adjacent to the two sites that constitute the MHPI project area  
9 beyond the scope of normal conditions and influences.

### 10 **4.3 BIOLOGICAL RESOURCES**

#### 11 **4.3.1 Analysis Methodology**

12            Analysis of biological resources considered potential impacts to general plants  
13 and wildlife, as well as sensitive species and habitats, as identified in Section 3.3. The  
14 analyses included an assessment of the impacts on biological resources resulting from  
15 land clearing, construction, and daily activities in the MFH areas. Where appropriate,  
16 projected conditions were compared with the baseline, and a determination was made  
17 as to whether the impact would be beneficial or adverse. Direct and indirect impacts to  
18 the species and its habitat are included in the analysis.

19            A beneficial impact would be one that improves habitat quality or species health,  
20 while an adverse impact would degrade habitat quality or diminish species health, but  
21 not to a degree that would jeopardize the continued existence of a species. A significant  
22 adverse impact would be one that is likely to jeopardize the continued existence of a  
23 species either through direct physical impacts or impacts to habitat.

#### 24 **4.3.2 Proposed Action**

##### 25 *Flora and Fauna*

##### 26 *Moody AFB*

27            Within the proposed parcel, construction of the 11 new MFH units would require  
28 vegetation removal on approximately 15 acres. This area was previously used for  
29 agricultural purposes and has a long history of prior disturbance; no sensitive

1 vegetation grows within the proposed parcel. Therefore, the Proposed Action would  
2 not significantly impact vegetation; no mitigation measures would be required.

3 Construction of the new MFH units would create ground disturbance and  
4 displacement of wildlife (squirrels, rabbits, etc.) from habitat in the immediate vicinity  
5 of the proposed project area. Potential impacts could include loss of foraging habitat,  
6 displacement of individuals to adjacent areas, and direct mortality to less mobile or  
7 burrowing species. However, the Air Force does not expect such impacts to common  
8 wildlife species to be substantial, since there are many acres of undeveloped and  
9 semideveloped land available on and adjacent to Moody AFB that displaced wildlife  
10 can utilize. Additionally, common wildlife species are known to live in habituated  
11 environments. Short-term displacement may occur as the animals leave the area during  
12 construction activities and return to the area once the neighborhood is established to  
13 live/forage in landscaped areas. Thus, the Proposed Action would not result in any  
14 significant, long-term impacts to wildlife or habitat, and no mitigation measures would  
15 be required.

#### 16 *Val Del Parcel*

17 Within the proposed Val Del parcel, vegetative buffers would be employed to  
18 minimize impacts to surface waters as described in Section 4.2. Additionally, a 30-foot  
19 buffer around the perimeter of the parcel is required per Lowndes County development  
20 codes, providing an additional 7 acres of natural habitat. Considering this,  
21 development would remove approximately 82 acres of the total 113 acres of primarily  
22 medium and some low-quality habitat at the Val Del parcel. The primary vegetation  
23 types removed would be associated with mesic flatwoods and mesic oak habitats.  
24 Nesting species (e.g., small mammals and birds) within these habitats would be  
25 adversely impacted via loss of habitat. However, remaining natural areas would  
26 provide some relief, and large tracts of undeveloped and minimally developed land  
27 area surround the Val Del parcel and would provide suitable substitute habitat for such  
28 species. Consequently, impacts to nesting species would not be significant. Proposed  
29 development would avoid the sinkhole, and high-quality habitat associated with the  
30 sinkhole would not be directly impacted. Potential direct impacts to permitted  
31 wetlands would be mitigated through USACE mitigation processes, and indirect  
32 impacts to wetlands and sinkhole flora and fauna from construction-related stormwater  
33 runoff would be mitigated through implementation of vegetative buffers and state and  
34 local construction design and permit requirements. As a result, mitigation measures

1 identified would reduce potential impacts to less than significant, and the Proposed  
2 Action would not jeopardize the continued existence of flora and fauna species or  
3 habitat.

#### 4 *Sensitive Species and Habitat*

##### 5 *Moody AFB*

6 No threatened and endangered plant or animal species, or suitable habitat for  
7 such species, are known to occur within the proposed base parcel. Although soil  
8 conditions within the parcel are favorable for the presence of gopher tortoise burrows,  
9 none have been identified in the area. As is standard practice at Moody AFB, areas  
10 proposed for development within the proposed parcel would be surveyed during the  
11 design phase to ensure that no gopher tortoise burrows exist in the proposed  
12 development area. Therefore, the Air Force has not identified any significant impacts to  
13 threatened and endangered species, and no mitigation measures would be required.

##### 14 *Val Del Parcel*

15 The sinkhole, and its associated flora and fauna, including the green-fly and  
16 shadow witch orchids noted to occur there, are protected under the Georgia Cave  
17 Protection Act of 1977. The layout for the proposed 173 Val Del parcel units would be  
18 configured to avoid direct disturbance to the sinkhole. Indirectly, construction may  
19 generate stormwater runoff that could carry eroded soil and contaminants into the  
20 sinkhole. However, Lowndes County requires that no construction-related or  
21 operational stormwater discharge to the sinkhole, which would mitigate or prevent the  
22 potential for impact (Fletcher, 2013). Wetland areas, which support the hooded pitcher  
23 plant, would be avoided and vegetative buffer areas would be placed around water  
24 resources. Thus, there would be no significant impacts to unusual or rare plant species  
25 from development of the Val Del parcel.

#### 26 **4.3.3 No Action Alternative**

27 The No Action Alternative would not result in any additional impacts to  
28 biological resources within and adjacent to either of the MHPI project areas beyond the  
29 scope of normal conditions and influences.

## 4.4 SOILS AND GEOLOGY

### 4.4.1 Analysis Methodology

Exposure to potential geologic hazards and minimization of soil erosion and the siting of facilities in relation to potential soil limitations are considered when evaluating impacts to soils and geology. Generally, impacts can be avoided or minimized if proper construction techniques, erosion control measures, and structural engineering designs are incorporated into project development. Analysis of impacts to soil and geologic resources examines the suitability of locations for proposed operations and activities. Impacts to soil resources can result from earth disturbances that expose soil to wind or water erosion. Impacts resulting from geologic hazards can occur where the potential for harm to persons or property is high due to existing hazards.

### 4.4.2 Proposed Action

#### *Moody AFB*

For ground-disturbing activities under the Proposed Action, an NPDES permit would be required. Under the permit, the developer would be required to implement BMPs as part of the SWPPP requirements. These BMPs would also serve to mitigate any potential impacts to soils resulting from the Proposed Action. With application of BMPs as required, potential impacts to soil resources would be minimal, and the Air Force has identified no significant impacts under the Proposed Action.

The majority of activity associated with the Proposed Action would occur on Leefield loamy sand. The small area of Clarendon loamy sand that is considered to be prime farmland soil would be disturbed during development of the parcel, likely from with the construction of a roadway. The small disturbance footprint would not significantly impact the utility of this soil type, since it is not currently used for, nor are there future plans to utilize the parcel for, agricultural purposes. Ground disturbance during construction and related activities could result in soil erosion within the project area. The use of BMPs and appropriate construction considerations would reduce any potential impacts from erosion during construction and keep impacts to constructed features to a minimum.

Installation of water and electrical utilities would also be required, since there are no utilities on-site. While there are utility connections nearby (within 1 mile), it is unknown at this time how the developer would choose to make those connections and

1 the route that would be taken for running utility lines. It is likely that the developer  
2 would choose to connect to existing mains located to the west of the parcel along Parker  
3 Greene Highway/Bemiss Road. Ground disturbance associated with utility installation  
4 would comply with all NPDES permit requirements and would occur within  
5 established rights of way; underground lines running from the mains to the homes  
6 would avoid any sensitive areas (there are no identified sensitive areas within the  
7 proposed parcel or rights of way), and disturbed areas would be revegetated once  
8 installation is complete. Consequently, the Air Force has not identified any potential for  
9 significant impacts associated with utility installation. Should the developer identify  
10 different methods of utility connection to the proposed parcel than those assumed  
11 under this impact analysis, supplemental environmental impact analysis would be  
12 required as appropriate.

### 13 *Val Del Parcel*

14 For ground-disturbing activities under the Proposed Action, an NPDES permit  
15 would be required. Under the permit, the developer would be required to implement  
16 BMPs as part of the SWPPP requirements. These BMPs would also serve to mitigate  
17 any potential impacts to soils resulting from the Proposed Action. With application of  
18 BMPs as required, potential impacts to soil resources would be minimal, and the Air  
19 Force has identified no significant impacts under the Proposed Action.

20 The primary concern at the Val Del parcel is a sinkhole covering approximately  
21 1.16 acres in the Phase II section of the site. There is currently no evidence that the  
22 sinkhole presents a significant environmental impact in the context of the overall  
23 project, although the potential for gradual to sudden expansion of a sinkhole exists in  
24 an unmapped karst geological environment. The majority of the land considered in a  
25 geotechnical analysis for Phase I was considered suitable for residential construction,  
26 and it is expected that the same is true in the Phase II portion of the project. However, it  
27 is critical that potential risks associated with the sinkhole be identified and mitigated.  
28 The Project Owner will be required to obtain a Val Del Road Phase II site geotechnical  
29 report in accordance with local and state requirements on the suitability of the site for  
30 residential construction. Mitigation may include increased sinkhole buffer distances, or  
31 agreed upon Phase II site reconfiguration based upon business and engineering inputs.  
32 The Project Owner will make the Val Del Road Phase II site geotechnical report  
33 available to the Air Force, and the Project Owner will comply with the  
34 recommendations included in such report. There are no specific county ordinances

1 regarding development around sinkholes. The parcel lies near, but not in, the city of  
2 Valdosta; for reference only, the City of Valdosta Land Development Regulations,  
3 Article 2 Section 302-8(C), requires that land physically unsuitable for subdivision or  
4 development because of flooding, poor drainage, topographic, geological, or other  
5 features that may endanger the health, life, or property, aggravate erosion, increase  
6 flood hazard, or necessitate excessive expenditures of public funds for supply and  
7 maintenance of services shall not be approved for subdivision or development unless  
8 adequate methods are implemented in the site design for solving these problems (City  
9 of Valdosta, 2012). Any information obtained by the Air Force in the future that  
10 indicates the potential for significant environmental impact is cause for supplemental  
11 analysis.

12 In order to begin Phase I, the developer would initially mitigate risk at the  
13 nearby Phase II area by establishing a 75-foot buffer around the sinkhole with a fence to  
14 prevent access to the area. This buffer was established through a literature review that  
15 considered how municipal and county governments typically mitigate risks associated  
16 with sinkholes prior to geotechnical study. The minimum recommended buffer  
17 identified in the text is 15 meters (approximately 50 feet) (Zhou & Beck, 2008). An  
18 additional 25 feet was added to the buffer based on visual inspection in order to  
19 enhance safety precautions until the sinkhole site has been assessed as described above.

20 The majority of activity associated with the Proposed Action would occur on  
21 Mascotte sand, with some work occurring on Olustee and Pelham sands. All three  
22 series are poorly suited for development due to wetness and flooding. With the  
23 exception of Albany sand, most of the other soil types in this parcel are not considered  
24 suitable as farmland. The small disturbance footprint of Albany sand would not  
25 significantly impact the utility of this soil type since it is not currently used for, nor are  
26 there future plans to utilize the parcel for, agricultural purposes. Ground disturbance  
27 during construction and related activities could result in soil erosion within the project  
28 area, and site designs would need to consider the development restrictions associated  
29 with poorly drained soils susceptible to wetness and flooding. The use of BMPs and  
30 appropriate construction considerations would reduce any potential impacts from  
31 erosion during construction and keep impacts to constructed features to a minimum.

32 Installation of water and electrical utilities would also be required, since there are  
33 no utilities on-site. Utility connections will occur in the southeast portion of the  
34 property along Val Del Road in accordance with the latest site plan. For the Val Del  
35 parcel, ground disturbance associated with utility installation would comply with all

1 requirements, travel along existing rights of way, would avoid any sensitive areas, and  
2 disturbed areas would be revegetated once installation is complete. Consequently, the  
3 Air Force has not identified any significant adverse impacts associated with utility  
4 installation in regard to soils. Should the developer identify different methods of utility  
5 connection to the proposed parcel than those assumed under this impact analysis,  
6 supplemental environmental impact analysis would be conducted as appropriate.

#### 7 **4.4.3 No Action Alternative**

8 The No Action Alternative would not result in any additional impacts to soils or  
9 geology within and adjacent to either of the MHPI project areas beyond the scope of  
10 normal conditions and influences.

### 11 **4.5 CULTURAL RESOURCES**

12 This section discusses potential impacts to cultural resources, including historic  
13 and prehistoric resources located within and adjacent to both the parcel on Moody AFB  
14 and the Val Del parcel.

#### 15 **4.5.1 Analysis Methodology**

16 Analysis focuses on assessing the potential for impacts to archaeological sites  
17 and historic structures from land clearing and construction and on identifying methods  
18 to reduce the potential for adverse effects to cultural resources from these activities.

19 Potential impacts to cultural resources can occur by physically altering,  
20 damaging, or destroying a resource or by altering characteristics of the surrounding  
21 environment that contribute to the resource's significance. Resources can also be  
22 impacted by neglecting the resource to the extent that it deteriorates or is destroyed.  
23 Adverse effects occur when these activities intersect with identified NRHP-eligible  
24 resources within the area of potential effect.

#### 25 **4.5.2 Proposed Action**

26 Neither the Moody AFB parcel or the Val Del parcel contain any resources  
27 identified as eligible for listing on the NRHP and as such, do not have the potential to  
28 adversely affect cultural resources (Trudeau, 2013). The Georgia SHPO reviewed the  
29 survey report and concurred that there would be no effect on archaeological sites that  
30 are listed or eligible for listing on the NRHP (See Appendix A). Moody AFB has

1 initiated consultation with local Native American tribes for concurrence on a finding of  
2 no effect to TCPs (a list of tribes is provided in Chapter 7).

3 If cultural resources are inadvertently discovered at either location during  
4 execution of the Proposed Action, work on-site would cease and the discovery must be  
5 reported immediately to the cultural resource manager and the Section 106 process  
6 initiated. Additionally, any discovered cultural resources must be treated as potentially  
7 eligible for listing on the NRHP under Section 106 until the Georgia SHPO has  
8 concurred that the site is not eligible and Air Force activity can then continue (U.S. Air  
9 Force, 2012a).

### 10 **4.5.3 No Action Alternative**

11 Under the No Action Alternative, the Air Force would not develop the Moody  
12 AFB or Val Del parcels. As a result, impacts to cultural resources would not be  
13 expected under this alternative. Under the No Action Alternative, the Air Force would  
14 continue to manage and maintain existing and newly constructed housing in  
15 accordance with existing Air Force policy.

## 16 **4.6 SOLID WASTE**

### 17 **4.6.1 Analysis Methodology**

18 The analysis focused on how and to what degree the Proposed Action would  
19 affect solid waste generation and management. The analysis identified activities  
20 associated with the Proposed Action and predicted the quantity of waste that would  
21 likely be generated. These data were compared with local capability for managing  
22 these wastes. A “significant impact” was defined as the generation of solid waste in  
23 quantities that could not be accommodated by the current management system, is,  
24 generation of waste in a quantity that would exceed the capacity of local landfills or  
25 significantly affect the life expectancy of these landfills.

### 26 **4.6.2 Proposed Action**

27 Construction activities associated with the Proposed Action would result in the  
28 generation of construction debris, including miscellaneous building debris and concrete  
29 and asphalt rubble. To estimate the quantity of construction debris generated, the  
30 following waste generation rate was assumed:



- Commercial construction debris (in tons) = [(4.34 pounds/square foot) × (square footage)] ÷ 2,000 pounds (USEPA, 2003)

Construction generation rates from pavement or roadway construction, or from construction of other proposed features (e.g., tennis and basketball courts and splash park) were not available; therefore, the analyses assumed that construction of these features would generate 10 percent of construction debris generated during building construction (i.e., 0.434 pounds/square foot).

In addition, debris (trees, stumps, grubblings, brush, rocks, etc.) would be generated as a result of land-clearing activities at the Moody AFB and Val Del sites. To estimate the quantity of debris generated, the following waste generation rate was assumed:

- Land-clearing debris (in tons) = 56.3 tons/per acre of land cleared) (USEPA, 1999)

This generation rate represents the average values reported for long-needle pine slash (21 tons/acre) and mixed conifer slash (54 tons/acre), and includes an additional factor of 1.5 to account for the mass of tree below the soil surface (USEPA, 1999).

As Table 4-2 shows, proposed activities would generate approximately a total of 8,098 tons of construction debris. The Atkinson County and the Fitzgerald construction landfills have a combined remaining capacity of approximately 807,000 tons (GDCA, 2013). Consequently, the quantity of construction debris generated under the Proposed Action would represent approximately 1 percent of the remaining total landfill capacity.

**Table 4-2. Estimated Construction Debris Generated Under the Proposed Action**

Construction Activities	Moody AFB (ft <sup>2</sup> )	Val Del, Phase I (ft <sup>2</sup> )	Val Del Phase II (ft <sup>2</sup> )	Total Area (ft <sup>2</sup> )	Debris Factor (lb/ft <sup>2</sup> ) <sup>a</sup>	Debris Weight (tons)
Buildings	33,320	219,480	191,900	444,700	4.34	965
Recreational features	-	36,600	-	36,600	0.434	8
Impervious areas	13,750	112,500	103,750	230,000	0.434	50
Roadways	190,000		760,000	950,000	0.434	206
			<b>Total</b>	<b>1,661,300</b>		<b>1,229</b>
	(acres)	(acres)	(acres)	(acres)	(ton/acre) <sup>b</sup>	(tons)
Land clearing	15	62.5 <sup>c</sup>	50.5 <sup>c</sup>	122	56.3	6,869
<b>Total construction debris generated (tons)</b>						<b>8,098</b>

ft<sup>2</sup> = square feet; lb = pounds

a. USEPA, 2003

b. USEPA, 1999

c. Maximum accounting for 30-foot perimeter setback

1 AFI 32-7042, *Waste Management*, requires that installations make every practical  
2 effort to maximize nonhazardous solid waste and construction debris diversion from  
3 landfills through reuse, composting, and mulching or other waste diversion activities.  
4 Furthermore, under Moody AFB’s Affirmative Procurement Program, contractors are  
5 encouraged to recycle materials discarded as waste from construction activities.

6 Appropriate management of construction and land-clearing debris, including  
7 recycling and reuse when possible, would limit any potential adverse impacts. For  
8 example, the developer may choose to sell trees for commercial use or have these  
9 chipped. It would be expected that the majority of other residual land-clearing debris  
10 (such as rocks) would be used on-site as much as possible. Stumps may also be ground  
11 and stockpiled on-site for use as erosion control mix, while small amounts of stumps,  
12 brush, or tree limbs may be buried on-site during the course of site grading. The  
13 developer may also choose to burn or haul off-site for beneficial reuse or proper  
14 disposal of remaining debris. However, it is unlikely that burning would occur given  
15 the proximity of housing developments near the Val Del parcel. No stumps, brush,  
16 wood chips, rocks, or other cleared material would be placed within wetlands or other  
17 sensitive resource areas. Construction activities would also occur over time, limiting  
18 the quantity of debris generated at any one time.

19 Overall, sufficient landfill capacity exists to accommodate the additional solid  
20 waste generated as a result of proposed construction activities. In addition, application  
21 of the waste recycling practices described above would further reduce the quantity of  
22 construction debris generated. As a result, generation rates would likely be less than  
23 that calculated.

#### 24 **4.6.3 No Action Alternative**

25 The No Action Alternative would not result in any additional impacts associated  
26 with solid waste beyond the scope of normal conditions and influences within the ROI.

### 27 **4.7 SOCIOECONOMICS/ENVIRONMENTAL JUSTICE**

#### 28 **4.7.1 Analysis Methodology**

29 Socioeconomics is driven by human activities, particularly the demand for goods  
30 and services, as well as the employment and income that supplies individuals with the  
31 means to fulfill the demand. Because the MHPI does not include a change in base

1 personnel at Moody AFB, the only economic effect would be generated from the  
2 construction dollars spent by the MHPI owner in the local economy. Adverse impacts  
3 would occur if the Proposed Action or alternative would change the local economy  
4 such that some individuals lose employment or income, or if the population or  
5 distribution of population changes such that services cannot meet the demands of the  
6 local population. Significant adverse impacts would occur if the action impacts the  
7 local economy such that services, including housing, would be inadequate to meet the  
8 demand from the population or a loss of employment or income would impact a  
9 significant portion of the population.

10 The analytical methods applied to environmental justice are in accordance with  
11 the *Guide for Environmental Justice with the Environmental Impact Analysis Process*  
12 (U.S. Air Force, 1997). Minority, low-income, and youth populations are defined in the  
13 guidance as follows:

- 14 • *Minority Population:* Blacks, American Indians, Eskimos, Aleuts, Asians, Pacific  
15 Islanders, and persons of Hispanic or Latino origin of any race.
- 16 • *Low-Income Population:* Persons living below the poverty level.
- 17 • *Youth Population:* Children under the age of 18 years.

18 The context is necessary to understand if environmental impacts would  
19 disproportionately affect minority, low-income, or youth populations. An appropriate  
20 basis for comparison is the community of comparison (COC), where COC is defined as  
21 the smallest governmental or geopolitical unit that encompasses the impact footprint  
22 for each resource, which in this case is a county.

23 Data from the 2010 census of population on race, ethnicity, and age were  
24 collected at the block level (the smallest geographical unit for which this census data are  
25 available) for the affected counties in the ROI: Lanier County and Lowndes County.  
26 Data from the 2007–2011 American Community Survey on poverty status were  
27 collected at the census tract level. In addition, general demographic profiles for the two  
28 counties, the state of Georgia, and the United States were compiled to provide analytical  
29 context.

30 The percent minority and low-income populations in the affected census tracts  
31 were compared with the percent minority and low-income populations in the overall  
32 COC. Census blocks with a higher percentage of minority or low-income population  
33 than for the county as a whole were identified as communities of concern. An affected

1 census tract that has a minority or low-income percentage greater than the state average  
2 was presumed to be high, even if the encompassing COC exhibited a higher minority or  
3 low-income percentage than the affected tract. If the percent minority and low-income  
4 populations in an affected census tract were less than the corresponding percentages in  
5 the COC overall, then no disproportionate impacts were presumed to occur on minority  
6 or low-income populations.

7 Children are more sensitive than the adult population to some environmental  
8 effects, such as safety with regard to equipment, and the potential for trips, falls, and  
9 traps within structures. With regard to special risks to children, census blocks  
10 exhibiting a higher-than-average youth population were identified, along with the  
11 location of area schools and childcare centers. For special risks to children and  
12 environmental justice, adverse impacts would occur if impacts are identified that  
13 disproportionately impact children or populations of concern.

#### 14 **4.7.2 Proposed Action**

##### 15 **Population**

16 In the absence of an influx of new residents or in-migration of workers to the ROI  
17 associated with construction of the project housing units, no change in local or regional  
18 population is anticipated.

##### 19 **Employment**

20 Implementation of the MHPI would be beneficial since the project would  
21 generate jobs and additional income in the ROI over the term of the project.  
22 Information on construction spending for housing areas has not been determined at this  
23 time. However, it is anticipated that the construction spending would contribute  
24 directly to the employment in construction and other related industries. Project-related  
25 expenditures on materials and services, as well as the personal spending by direct  
26 workers, provide an added stimulus to the regional economy. In order to fulfill the  
27 demand for these materials and services, local and regional businesses must increase  
28 their output, which would result in additional economic activity and attendant  
29 employment. It is most probable that the pool of locally available workers would fill  
30 the demand for labor associated with the implementation of the project.

##### 31 **Schools**

32 Under the Proposed Action, students living in the proposed housing areas both  
33 on and off Moody AFB would have the opportunity to attend the same schools they

1 currently attend within the Lowndes County school district. These schools currently  
2 serve students in existing Moody AFB housing; therefore, it is anticipated that if there is  
3 any redistribution of students among these schools, the change would be minimal.

#### 4 **Housing**

5 Since there would be no influx of residents or in-migration of workers to the ROI,  
6 there would be a negligible change in local or regional population or the demand for  
7 additional housing associated with the Proposed Action.

8 Personnel that are required by their positions and duties to remain in close  
9 proximity to their duty stations are categorized as key and essential personnel, and are  
10 required to live in on-base housing, including privatized housing. While these few  
11 military families and unaccompanied personnel must live on the installation out of  
12 necessity, most military families will have the option of living off-base should they so  
13 desire. Depending on the preferences of the military households, some of these  
14 households may return to on-base housing following the completion of the MHPI  
15 construction while other households may choose to remain in off-base housing. As  
16 noted previously, there are approximately 24,000 rental units located within 20 miles of  
17 the base. It is expected then that the regional housing market would be able to  
18 accommodate the shift of the military households' on- and off-base housing.

#### 19 **Environmental Justice**

20 The environmental justice issues that could potentially be associated with the  
21 decision regarding the Proposed Action for the MHPI project are noise, water quality,  
22 and safety impacts during construction activities and operation of the housing area.

23 The Air Force anticipates under the Proposed Action, there would not be  
24 disproportionate impacts from noise to minority, low-income, or youth populations. As  
25 stated in Section 2.5.1, noise associated with construction activities would cause a  
26 temporary, short-term increase in the ambient sound environment. Noise levels would  
27 not exceed USEPA benchmark annoyance levels (USEPA, 1974) more than 500 feet from  
28 the source; no noise-generating construction activities would be conducted within  
29 500 feet of any residences or other noise receptors. In addition, as indicated in  
30 Figure 3-8, the proposed housing locations are in areas that do not constitute a minority  
31 or low-income population when compared with the county averages.

1 **Special Risks to Children**

2           There is the potential for safety risks to children that could be associated with the  
3 Proposed Action during construction and operation of housing areas. To reduce the  
4 risks and safety hazards to children during construction, the project design and lease  
5 agreement for the developer performing these activities would be required to include  
6 safety precautions to protect children surrounding the work sites. Such safety  
7 precautions would include adequate measures to restrict access to construction sites,  
8 given that children may be attracted to these areas to play. In addition, the developer  
9 would be required to consider all aspects of child safety during work and nonwork  
10 hours. This would include restricted access during work hours, site preparation, and  
11 nonwork hours and the minimization of slip, trip, and fall hazards associated with  
12 construction activities.

13           Potential safety concerns for children may exist during operation of housing  
14 areas, particularly near areas such as water bodies or ravines. Several wetland areas  
15 and a sinkhole have all been identified on the parcel that pose as a hazard or “attractive  
16 nuisance,” comparable to a swimming pool, to children. (For a detailed description of  
17 the water resources in the proposed housing areas, see Section 3.2, Water Resources.) It  
18 is reasonable to conclude that risks may arise from children playing in or around the  
19 water areas or the ravine unsupervised, and they could be highly susceptible to  
20 tripping, falling, drowning, or other hazards that could result in serious injuries or  
21 fatality.

22           A risk analysis associated with the sinkhole and appropriate safety precautions  
23 and mitigations with requirements to protect persons, especially children, would be  
24 required. The developer should consider modifying precautionary measures applied to  
25 housing sites for the sinkhole area, such as erecting a secure perimeter around the  
26 sinkhole to restrict access and posting signs near water areas and surrounding the  
27 sinkhole to warn residents of the potential hazards and emphasize the need to  
28 supervise children up to the age of 14. The developer would be required to follow any  
29 state or local laws and regulations that apply to development in an area with an  
30 identified sinkhole. If possible, the developer may locate emergency equipment close to  
31 the area. In addition, there would need to be full disclosure of the risk of sinkholes and  
32 their existence on the property proposed for housing. These and additional mitigation  
33 measures designed to reduce the safety risk to children are detailed in Section 6.7.

1 **4.7.3 No Action Alternative**

2 Under the No Action Alternative, the construction of housing units on the base  
3 and Val Del parcel would not be implemented. Under this alternative, key senior  
4 officers would continue to reside in existing units that do not meet the size and amenity  
5 standards for senior officers and do not provide the appropriate security for senior  
6 officers as required by DoD UFC 4-010-01. Thus, under the No Action Alternative, the  
7 purpose and need for the Proposed Action would not be fulfilled.

8 **4.8 INFRASTRUCTURE**

9 This section discusses potential impacts to utilities, and transportation associated  
10 with the proposed project activities.

11 **4.8.1 Analysis Methodology**

12 Utilities analysis focused on assessing the existing utility capacity to  
13 accommodate increases or decreases in usage, identifying potential problems related to  
14 connecting to existing utilities, and identifying coordinating and procedural  
15 requirements associated with establishing new utility infrastructure.

16 EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*,  
17 sets numerous federal energy requirements and goals that should be considered in the  
18 design, construction, and operation of the projects under the Proposed Action. These  
19 include increasing alternative and renewable energy use, pursuing cost-effective,  
20 innovative strategies to minimize consumption of energy, water, and materials within  
21 existing building systems, and identifying alternatives to renovation that reduce  
22 existing asset deferred maintenance costs. In addition, the developer would be  
23 contractually required to ensure that all homes and other facilities under the MHPI  
24 meet Energy Star guidelines for energy conservation and efficiency.

25 Potential impacts to transportation from the Proposed Action and No Action  
26 Alternative are assessed with respect to the potential for disruption or improvement of  
27 existing levels of service (see Section 3.8) and changes in existing levels of  
28 transportation safety. Impacts may arise from physical changes to circulation,  
29 construction activities, and introduction of construction-related traffic. Adverse  
30 impacts on roadway capacities would be significant if roads with no history of capacity  
31 exceedance had to operate at or above their full design capacity as a result of an action.

1 Transportation effects may arise from changes in traffic circulation, delays due to  
2 construction activity, or changes in traffic volumes.

### 3 **4.8.2 Proposed Action**

#### 4 **Utilities**

5 The Air Force has not identified any significant overall increase in utility use,  
6 since the addition of 11 new homes represents only a small percentage increase in the  
7 number of homes on the base. The additional 173 housing units proposed for the Val  
8 Del parcel would also not significantly increase utility use since these units would be  
9 occupied by existing base personnel currently living in other base housing or in the  
10 community. The potential increase in utility use and impacts to utility systems  
11 associated with the housing units would be relative and, therefore, insignificant.  
12 Personnel associated with the new homes would utilize the existing utility systems as  
13 described in Section 3.8. The Air Force anticipates better energy efficiency due to  
14 requirements for design and construction of the new homes and, thus, a slight decrease  
15 in utility use over time.

16 For the water play/splash park at the Val Del parcel, it is unknown at this time  
17 the dimensions or type of facility that would be constructed. Every spray park requires  
18 water, electricity, and drainage. There are two types of water sources available for  
19 spray parks: a traditional direct supply potable water or recirculating treated water  
20 system. There are a number of elements that will affect the amount of water used, but  
21 efficient water consumption is a main priority in water park design. Water  
22 consumption rates of each product used is an important consideration to control the  
23 amount of water the park uses in both potable and recirculating systems. Control  
24 systems and nozzles are an effective way to control total park consumption. When  
25 considering water sources, factors include:

- 26 ● Size of the park
- 27 ● Water availability
- 28 ● Cost of water
- 29 ● Number of hours per day and months per year the park will be operated
- 30 ● Number of children anticipated using the park
- 31 ● Available water pressure
- 32 ● Number of structures and number spraying at a given time
- 33 ● Duration of spray



1 A potable water supply that is reclaimed for use in irrigation and other uses is  
2 adequate for smaller parks and ensures a high-quality water source at all times,  
3 minimizing any health risks. Reclaiming the water for parks, schools, golf courses,  
4 cemeteries, residential irrigation, and many other uses helps to conserve high-quality  
5 groundwater for drinking. A recirculating system is more expensive but a better option  
6 for larger parks or areas with strict water policies. As with a swimming pool, fresh  
7 municipal water is used to initially fill the system and after that, to replace water that is  
8 lost through overspray, evaporation, or from backwashing the filters. With a  
9 recirculating system, water quality must adhere to strict safety guidelines and be closely  
10 monitored. Recirculating systems for spray parks differ slightly from those used in  
11 swimming pool systems, in that they are required to filter and treat water at a much  
12 faster rate. By filtering and treating the water at an accelerated pace, the temperature in  
13 the holding tank is less likely to increase, thus eliminating the risk of bacteria growth. It  
14 is advisable that local health authorities approve any recirculating water system before  
15 installation occurs.

16 Drainage should be evaluated in the early stages of planning. Ample drainage  
17 can help prevent the collection of water, eliminate unsafe conditions for children, and  
18 help prevent corrosion.

19 For estimating water and electricity consumption, a study of water use for a  
20 water play/splash park in southern Ontario, Canada, estimated water and electricity  
21 usage for both a traditional and recirculating water play/splash park, as presented in  
22 Table 4-3. The water park consisted of a “frog pond” and a “water wall”; the study  
23 measured consumption during one full season of operation.

**Table 4-3. Estimated Water and Electricity Use for Water Play/Splash Park**

<b>Play Park Type</b>	<b>Annual Water Use (Gallons)</b>	<b>Estimated Use (MGD)<sup>1</sup></b>	<b>Annual Electricity Use (Kilowatts/hour)</b>
Traditional direct supply potable water	4,157,276	0.027	31,474
Recirculating treated water system	147,540	0.001	22,480

24 Source: Richmond Hill, 2010

25 MGD = million gallons per day

26 1. Assumes operation for 5 months per year, or approximately 155 days

27 As the Richmond Hill study shows, a traditional water play park utilizes a  
28 significant amount of water during one operational season (more than 4 million  
29 gallons), while a recirculating system uses only a fraction of that (0.027 MGD and

1 0.001 MGD, respectively). Neither system would be expected to significantly impact  
2 water or electrical consumption rates within Lowndes County. However, the  
3 recirculating system would be the better option for energy and resource conservation  
4 purposes.

5 Water, wastewater, electrical, and natural gas utility lines exist adjacent to the  
6 proposed Moody AFB parcel and the Val Del parcel, but new utility lines would need to  
7 be installed to connect the new homes with the existing utility infrastructure. As  
8 discussed in Section 4.4, it is unknown at this time how the developer would choose to  
9 make those connections and the route that would be taken for running utility lines. It is  
10 likely that the developer would choose to connect to existing mains located to the west  
11 of the on-base parcel along Parker Greene Highway/Bemiss Road, since that is the most  
12 convenient connection. For the Val Del parcel it is most likely that connections would  
13 be made to the existing mains located to the east of the parcel along Val Del Road. It is,  
14 therefore, assumed for purposes of analysis that utility installation would occur within  
15 established rights of way. Coordination with utility providers would be necessary to  
16 identify the exact location of utility lines prior to ground-disturbing activities associated  
17 with the new construction and utility tie-ins.

18 The project owner would be responsible for maintaining the water, sewer,  
19 electrical, and natural gas utilities from the newly constructed housing units and other  
20 improvements to the applicable points of demarcation. All of the new utility systems  
21 would be designed and constructed to local codes and standards or government  
22 standards, whichever is more stringent. The project owner would also provide for the  
23 installation of all utility meters, including master and individual meters, and also  
24 ensure proper backflow protection for water systems.

## 25 **Transportation**

### 26 *Moody AFB*

27 Construction of the on-base housing units would have a negligible effect on  
28 existing Moody AFB traffic. It is assumed that all 11 units would be occupied by  
29 existing base personnel so no additional traffic would be added. Implementation of the  
30 Proposed Action would require the delivery of materials to and removal of  
31 construction-related debris from the construction site. Trucks associated with  
32 construction activities would be required to enter the base via the Main Gate, which is  
33 also the closest gate to the proposed parcel. Intermittent traffic delays associated with  
34 these activities could occur on Stone Road in the immediate vicinity of the proposed

1 parcel and at the base gate. Potential congestion impacts could be avoided by  
2 scheduling truck deliveries to the construction site outside of the peak inbound traffic  
3 time of 7 AM to 8:30 AM. Traffic delays would be temporary in nature, ending once  
4 construction activities have ceased. New roadways would be developed in accordance  
5 with UFC 3-250-01FA, *Pavement Design for Roads, Streets, Walks, and Open Storage Areas*.  
6 As a result, no significant adverse impacts to Moody AFB transportation are  
7 anticipated.

### 8 *Val Del Parcel*

9 Assuming that the majority of full-time personnel work standard workdays and  
10 drive individually, construction of 173 additional off-base housing units at the Val Del  
11 parcel would result in a negligible increase in traffic to and within Moody AFB, since  
12 the majority of these personnel already live off-base and utilize the base access gates  
13 daily.

14 Development and construction of new housing units at the Val Del parcel would  
15 require the delivery of materials to and removal of construction-related debris from the  
16 construction site. Trucks associated with these activities would be required to enter and  
17 exit the parcel via one of two proposed entrances off Val Del Road. This could cause  
18 intermittent traffic delays and potential safety issues. Potential congestion impacts  
19 would be avoided by scheduling truck deliveries to the construction site outside of the  
20 morning and evening workday rush hours. Traffic delays would be temporary in  
21 nature, ending once construction activities have ceased. Safety issues would be  
22 addressed by having flagmen directing traffic during construction activities and  
23 constructing dedicated turn and merge lanes for traffic entering and exiting the parcel.  
24 A traffic safety engineering study would be required as part of site design, and all  
25 developed roadways and intersections would be designed in accordance with GDOT  
26 safety requirements and would need to be approved by the GDOT and local agencies.  
27 No significant transportation impacts would occur.

### 28 **4.8.3 No Action Alternative**

29 The No Action Alternative would not result in any additional impacts to  
30 transportation within and adjacent to the MHPI project area beyond the scope of  
31 normal conditions and influences.

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## 5. CUMULATIVE IMPACTS

According to CEQ regulations, cumulative effects analysis should consider the potential environmental impacts resulting from “the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (40 CFR 1508.7). Cumulative effects may occur when there is a relationship between a proposed action or alternative and other actions expected to occur in a similar location or during a similar time period. This relationship may or may not be obvious. The effects may then be incremental (increasing) in nature, resulting in cumulative impacts. Actions overlapping with or in close proximity to a proposed action or alternative can reasonably be expected to have more potential for cumulative effects on “shared resources” than actions that may be geographically separated. Similarly, actions that coincide temporally tend have a greater potential for cumulative effects.

Analysis was conducted by first identifying past, present, and reasonably foreseeable actions as related to the ROI for the particular resource. Cumulative impacts were then identified if the combination of proposed MHPI actions and past, present, and reasonably foreseeable actions were to interact with the resource to the degree that incremental or additive effects occur. The MHPI efforts for both Moody AFB and Dyess AFB, Texas, are grouped together as part of a single privatization request for proposal. However, associated environmental and socioeconomic impacts are specific to each installation; therefore, impacts are analyzed separately for purposes of NEPA documentation. With respect to cumulative impacts, decisions regarding whether to implement the proposed action or alternatives at each installation, versus a no action alternative, may negatively impact the grouped privatization effort. If so, the Air Force would need to evaluate alternative means for implementing privatization at the other base.

### 5.1 PAST, PRESENT, AND REASONABLY FORSEEABLE FUTURE ACTIONS

With regard to past, present, and reasonably foreseeable actions, since the parcel associated with the Proposed Action is currently undeveloped, no past, present, or foreseeable actions would directly impact the subject parcels. Actions most relevant to the cumulative impact analysis are associated with development activities on the base and within the local area. Based on Moody AFB 23d Wing Facilities Board meeting

1 notes, there are more than 50 potential development projects identified for upcoming  
2 fiscal years (U.S. Air Force, 2012b). Examples of past, ongoing, and future projects  
3 include development of a new base access gate and various other cantonment  
4 development projects. The *Greater Lowndes 2030 Comprehensive Plan* identifies projects  
5 in the Short-Term Work Program that meet the goals and objectives of future county  
6 and related city development plans; such projects include improvements to county and  
7 city infrastructure, construction of new buildings and transportation corridors, etc.  
8 More information can be found at [http://www.sgrc.us/GLPC2030/  
9 GLPC\\_CommAgenda/CommAgenda.htm](http://www.sgrc.us/GLPC2030/GLPC_CommAgenda/CommAgenda.htm). All projects could result in incremental  
10 impacts when considered with construction projects associated with the Proposed  
11 Action.

## 12 **5.2 CUMULATIVE IMPACT ANALYSIS**

### 13 **5.2.1 Air Quality**

14 Under the Proposed Action, air quality impacts would not be significant and  
15 would be temporary. Depending on the timing of capital and infrastructure  
16 improvement projects occurring on Moody AFB and in the surrounding community,  
17 incremental increases in fugitive dust and volatile organic compound emissions could  
18 result from construction activities. However, emissions from several, simultaneous  
19 projects are not likely to result in temporary or long-term combined emissions that  
20 would exceed county significance criteria or negatively affect attainment status. As a  
21 result, the Air Force has not identified any significant cumulative impacts to air quality.

### 22 **5.2.2 Water Resources**

23 Any construction projects at Moody AFB and the Val Del parcel would be  
24 required to follow GADNR and Lowndes County requirements for NPDES permitting  
25 and erosion control to minimize impacts to surface waters, groundwater, wetlands, and  
26 floodplains. While no specific plans are available, preliminary planning is under way  
27 for what is likely to be a commercial development at the parcel immediately south of  
28 the Val Del parcel (Kobs, 2013c). This adjacent property likely has similar water  
29 resource issues. To prevent any possible contamination of the Upper Floridan aquifer,  
30 it is imperative that the stormwater conveyance system at the Val Del parcel be  
31 designed to prevent any stormwater from entering the on-site sinkhole; Lowndes  
32 County will not otherwise issue a development permit (Fletcher, 2013). The site plan

1 will be designed to minimize impacts to wetlands. Those wetlands that will not be used  
2 for construction will have a 25-foot buffer along the perimeter and will have  
3 appropriate soil erosion controls in place for the site location. The Proposed Action will  
4 use up to 2.3 acres of wetlands in the site design, consisting of both jurisdictional and  
5 non-jurisdictional wetlands. Mitigations for use of the wetlands are stated in Section  
6 4.2.2. No significant impacts to any of these resources have been identified under the  
7 Proposed Action; therefore, the Air Force does not anticipate that the Proposed Action  
8 would contribute to incremental or cumulative impacts to wetlands or water resources  
9 associated with other regional development projects.

### 10 **5.2.3 Biological Resources**

11 The Proposed Action would result in the alteration of primarily moderate- to  
12 low-quality mesic flatwoods and mesic oak habitats. Rare and unusual species would  
13 be avoided and development would be configured around wetlands and the karst  
14 feature. The Proposed Action would be expected to make a minimal contribution to  
15 other similar construction actions involving habitat removal. Significant cumulative  
16 impacts are not anticipated.

### 17 **5.2.4 Soils and Geology**

18 As with water resources, any developments would be required to comply with  
19 GADNR and NPDES permitting and erosion control requirements. Implementation of  
20 SWPPP and permit requirements would necessarily minimize the potential for  
21 incremental impacts associated with soil erosion. Since the proposed construction  
22 projects under the MHPI are minimal, any potential impacts would be short term. The  
23 sinkhole hazard present on the Val Del parcel would require implementation of BMPs  
24 to reduce the potential for impacts that may cause safety issues or groundwater  
25 contamination issues. These BMPs may include, but are not limited to, investigation of  
26 local geological factors, restoration of older impervious areas, creation of sufficient  
27 stormwater management to ensure no contaminants can enter the groundwater, and  
28 sufficient buffer area surrounding the feature. With the implementation of BMPs and  
29 compliance with permitting requirements, the Air Force has not identified any  
30 significant cumulative impacts to soils or geology.

1 **5.2.5 Cultural Resources**

2 Since there are no identified impacts to cultural resources, no cumulative impacts  
3 are expected for this resource area under this action or other past, present, or future  
4 proposed actions. If adverse effects are anticipated to occur to resources on Moody  
5 AFB, adherence to the Section 106 process in the NHPA, and standard operating  
6 procedures set forth in Moody AFB *Integrated Cultural Resources Management Plan* would  
7 be followed.

8 **5.2.6 Solid Waste**

9 Moody AFB is an active facility that will continue to generate solid waste in the  
10 form of municipal solid waste from personnel and debris from facility construction  
11 projects. Although specifics regarding the square footage associated with potential  
12 future projects cannot be quantified at this time, due to the large existing and future  
13 capacity at local landfills, the Air Force has not identified any foreseeable cumulative  
14 impacts to solid waste resources.

15 **5.2.7 Socioeconomics/Environmental Justice**

16 The implementation of the MHPI at Moody AFB and within the Val Del parcel  
17 would have beneficial cumulative socioeconomic impacts to the ROI when combined  
18 with the present and reasonably foreseeable construction actions on and surrounding  
19 the base that support local and regional employment. Construction activities could  
20 pose potential noise and safety hazards to minority, low-income, and youth  
21 populations. However, in accordance with EO 12898 and EO 13045, federal agencies  
22 must identify and address issues that affect the protection and health of certain  
23 disadvantaged communities. Therefore, no cumulative impacts are anticipated to  
24 socioeconomics/environmental justice areas of concern.

25 **5.2.8 Infrastructure**

26 Moody AFB plans several infrastructure and utility projects in the future. These  
27 projects would serve to enhance utility infrastructure and efficiency on the installation.  
28 Consequently, the Air Force anticipates significant beneficial impacts to utility usage on  
29 the installation. No significant cumulative impacts have been identified for  
30 transportation. Several transportation-related projects are proposed for Moody AFB,  
31 but none of them should impact or be impacted by the Proposed Action. No known  
32 transportation projects are anticipated in the near future in the vicinity of the Val Del  
33 parcel.



## 6. SPECIAL OPERATING PROCEDURES AND MITIGATIONS

### 6.1 AIR QUALITY

No special operating procedures or mitigations related to air quality have been identified.

### 6.2 WATER RESOURCES

Grading and excavation activities associated with construction of houses, roads, utilities, and other infrastructure have the potential to increase runoff, erosion, and sedimentation at both proposed housing parcels. Any potential impacts to surface water, groundwater, and wetlands would be prevented or minimized by implementing erosion BMPs during and after construction. Separate Georgia NPDES Construction Stormwater General Permit and land disturbance activity permits from Lowndes County would be required for construction at both locations, and development at the Val Del parcel would be required to comply with NPDES Permit No. GAR100003, Common Development Construction. Permit conditions would specify mitigative measures, such as BMPs, required to prevent fugitive soil, sediment, and other potential contaminants from entering water bodies and wetlands. Such BMPs would include minimization of earth-moving activities during wet weather/conditions, covering soil stockpiles, installation of silt fencing and sediment traps, and revegetation of disturbed areas with native plants as soon as possible to contain and prevent any off-site migration of sediment or eroded soils from the project areas.

The site drainage plan for the housing development at the Val Del parcel should provide effective engineering controls and adequate naturally vegetated buffers around the sinkhole and unused wetlands to prevent any soil, sediment, or other potential contaminants resulting from stormwater runoff from impervious surfaces (e.g., roads and roofs) and lawns from entering these sensitive natural resources. In addition the stormwater conveyance system at the Val Del parcel should be designed to prevent any stormwater from entering the sinkhole or otherwise negatively affect groundwater recharge. Following construction, disturbed areas not covered with impervious surfaces would be reestablished with appropriate vegetation and native seed mixtures and managed to minimize future erosion potential. The overall design objective should be to maintain predevelopment hydrology and prevent any net increase in stormwater

1 runoff from both proposed housing sites. Project site design options shall prioritize  
2 integrated management practices that are proven within the region, such as  
3 bioretention areas, permeable pavements, cisterns/recycling, and rain gardens.

### 4 **6.3 BIOLOGICAL RESOURCES**

5 The developer would be required to avoid direct impacts to unused wetlands  
6 and the karst feature. Stormwater BMPs should be developed such that construction-  
7 related runoff does not enter into the karst feature or affect wetlands.

### 8 **6.4 SOILS**

9 The primary concern at the Val Del parcel is a sinkhole covering approximately  
10 1.16 acres in the Phase II section of the site. The Project Owner will be required to  
11 obtain a Val Del Road Phase II site geotechnical report in accordance with local and  
12 state requirements on the suitability of the site for residential construction. Mitigation  
13 may include increased sinkhole buffer distances, or agreed upon Phase II site  
14 reconfiguration based upon business and engineering inputs. The Project Owner will  
15 make the Val Del Road Phase II site geotechnical report available to the Air Force, and  
16 the Project Owner will comply with the recommendations included in such report.

17 In order to begin Phase I, the developer would initially mitigate risk at the  
18 nearby Phase II area by establishing a 75-foot buffer around the sinkhole with a fence to  
19 prevent access to the area.

20 An NPDES Large Construction General Permit is required. Proper installation,  
21 inspection, and maintenance would be required under the general permit.  
22 Incorporation of a stormwater, erosion, and sedimentation plan, stormwater pollution  
23 prevention plan, and BMPs into the construction process would occur.

24 Implementation of BMPs in accordance with the Georgia Erosion and Sediment  
25 Control Act are required (U.S. Air Force, 2007a).

26 Stormwater conveyance systems would be designed in such a way as to prevent  
27 runoff from roads and other impervious surfaces to discharge into the sinkhole.

28 Stormwater conveyance systems would be designed in such a way as prevent  
29 negative impacts to groundwater recharge in the area.

1 Buffer zones of sufficient width and slope would be required surrounding the  
2 sinkhole feature to prevent contamination or runoff to enter the area.

### 3 **6.5 CULTURAL RESOURCES**

4 In the case of inadvertent discovery of cultural resources at either location during  
5 execution of the Proposed Action, work on-site would cease and the discovery must be  
6 reported immediately to the cultural resource manager and the Section 106 process  
7 initiated. Additionally, any cultural resources discovered must be treated as potentially  
8 eligible for listing on the NRHP under Section 106 until the Georgia SHPO has  
9 concurred that the site is not eligible and Air Force activity can then continue (U.S. Air  
10 Force, 2012a).

### 11 **6.6 SOLID WASTE**

12 No special operating procedures or mitigations related to solid waste have been  
13 identified.

### 14 **6.7 SOCIOECONOMICS/ENVIRONMENTAL JUSTICE**

15 A risk assessment would be required to identify and mitigate special risks to  
16 children associated with the sinkhole.

17 The following procedures would be implemented.

- 18 ● Areas surrounding water or ravines should be securely fenced to restrict access  
19 at all times and otherwise protect children and others.
- 20 ● The developer shall adhere to all state and local laws and codes regarding  
21 development in an area with a known sinkhole to reduce safety risks to persons,  
22 particularly children, and to minimize their liability.
- 23 ● Full disclosure of the risk of sinkholes and their existence on the property  
24 proposed for housing shall be made.
- 25 ● Warning signs shall be posted around the perimeter of the sinkhole and other  
26 hazardous areas informing persons of the potential hazards, particularly to  
27 children.

1 **6.8 INFRASTRUCTURE**

2           No special operating procedures or mitigations related to infrastructure have  
3 been identified. Design and development of transportation infrastructure would be  
4 coordinated with the GDOT and local planning agencies.

## 7. PERSONS AND AGENCIES CONTACTED

Name	Title/Responsibility
Rebecca Lopez	Moody AFB Environmental Planner/ NEPA Program Manager
Hank Santicola	Moody AFB Environmental Planner/NEPA Program Manager
Bill Fowler	Compliance Supervisor
Greg Lee	Chief, Environmental Management / Cultural and Natural Resource Manager
Lori Burnam	ERP Manager
Elvis Lane	Solid Waste, Air, Stormwater, Drinking Water Program Manager
Greg Haugen	Tanks, Asbestos/Lead Based Paint, Hazardous Waste Program Manager
Rick Gilbride	Entomology Supervisor
Ron Durbin	Real Property Office POC
Terry Kobs	Regulatory Specialist/USACE Coastal Branch
Mike Fletcher	Lowndes County Engineer
Georgia Environmental Protection Division	
Georgia Dept. of Community Affairs	
Georgia Wildlife Resources Division	
Georgia Historic Protection Division	
Lowndes County Commission	
South Georgia Regional Planning Council	
Caddo Nation	
Alabama-Quassarte Tribal Town	
The Cherokee Nation	
United Keetoowah Band of Cherokee	
Muscogee (Creek) Nation	
Poarch Band of Creek Indians	
Thlopthlocco Tribal Town	
Seminole Nation of Oklahoma	
Seminole Tribe of Florida	
Kialegee Tribal Town	
Coushatta Tribe of Louisiana	
Alabama Coushatta Tribe of Texas	
Muscogee Nation of Florida	

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## 8. LIST OF PREPARERS

- 1
- 2 Kevin Akstulewicz
- 3 11 years, environmental science
- 4 B.S., Environmental Science and Policy
- 5 Project Manager
  
- 6 Alysia Baumann
- 7 9 years, environmental science
- 8 B.S., Chemical Engineering
- 9 Air Quality
  
- 10 Mike Deacon
- 11 22 years, environmental science
- 12 B.S., Environmental Studies
- 13 B.S., Environmental Health
- 14 Transportation
  
- 15 Jimmy Groton
- 16 23 years, environmental science
- 17 M.S., Forestry
- 18 B.S., Natural Resources
- 19 Water Resources/Biological Resources
  
- 20 Mike Nation
- 21 11 years, environmental science
- 22 B.S., Environmental Science
- 23 GIS
  
- 24 Pamela McCarty
- 25 6 years, environmental science
- 26 M.S., Industrial and Systems Engineering
- 27 M.A., Applied Economics
- 28 B.S.B.A, Economics
- 29 Socioeconomics/Environmental Justice

- 1 Jamie McKee
- 2 27 years, environmental science
- 3 B.S., Marine Biology
- 4 Biological Resources
  
- 5 Jason Koralewski
- 6 18 years environmental science
- 7 M.A., Anthropology
- 8 B.A., Anthropology
- 9 Cultural Resources/Soils
  
- 10 Luis Diaz
- 11 18 years, environmental engineering
- 12 M.E., Environmental Engineering
- 13 B.S., Aerospace Engineering
- 14 Solid Waste
- 15



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**APPENDIX A**  
**PUBLIC AND AGENCY INVOLVEMENT**





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1           **DRAFT ENVIRONMENTAL ASSESSMENT NOTICE OF AVAILABILITY**

2

3           **USAF ANNOUNCES AN ENVIRONMENTAL ASSESSMENT**

4           In accordance with the National Environmental Policy Act and Air Force regulations,  
5 Moody Air Force Base (AFB) has completed a Draft Environmental Assessment (EA) and  
6 Finding of No Significant Impact/Finding of No Practicable Alternative (FONSI/FONPA) to  
7 evaluate the consequences of the following stated proposed action:

8           The Proposed Action would involve the construction, in two phases, of 11 housing units  
9 for senior leadership on a 15-acre parcel on the base, and 173 units on a 113-acre parcel located  
10 northwest of the city of Valdosta, GA on Val Del Road (the Val Del parcel), approximately 15  
11 miles southwest of Moody AFB, GA. Development would also require housing area  
12 transportation infrastructure (e.g., roads) and utility connections for each housing unit, as well as  
13 desired community features such as athletic areas and community centers. The land area  
14 underlying the on-base units would be leased to the developer for a period of up to 50 years; the  
15 land area for the off-base parcel is privately owned and a developer will develop, own and  
16 operate the off-base housing area/units. The entire project would consist of two phases: Phase I  
17 – development of 11 units on base, development of 90 units at the Val Del parcel (comprising  
18 60 acres); Phase II – development of 83 units at the Val Del parcel (comprising 47 acres).

19           To review the Draft EA and FONSI/FONPA, copies are available at the South Georgia  
20 Regional Library in Valdosta, Georgia. The public is invited to review these documents and  
21 make comments during the 30-day comment period from now until August 15, 2013. To  
22 comment, or for more information, contact Mr. Allen Richmond, AFCEC NEPA Center of  
23 Excellence Program Manager, by mail at AFCEC/CZN, 2261 Hughes Ave, Lackland AFB, TX  
24 78236-9853, or call (210) 395-8885.



**DEPARTMENT OF THE AIR FORCE  
AIR FORCE CIVIL ENGINEER CENTER  
JOINT BASE SAN ANTONIO LACKLAND TEXAS**

MEMORANDUM DISTRIBUTION

FROM: AFCEC/CZN  
2261 Hughes Ave  
Lackland AFB, TX 78236-9853

SUBJECT: Proposed Military Housing Privatization Initiative at Moody AFB, Georgia

1. Enclosed please find a copy of the Draft Environmental Assessment (EA) the U.S. Air Force has prepared for proposed privatization of military housing at Moody AFB, Georgia.
2. The Proposed Action would involve the construction of 11 housing units for senior leadership on a 15-acre parcel on the base, and 173 units on a 113-acre parcel located northwest of the city of Valdosta, GA. Development would also require transportation infrastructure (e.g., roads) and utility connections for each housing unit. The land area underlying the on-base units would be leased to the developer for a period of up to 50 years; the land area for the off-base parcel is privately owned and a developer will develop, own, and operate the off-base housing area/units. At this time, the U.S. Air Force requests your comments on the Proposed Action as discussed in the Draft EA.
3. The public comment period for this EA is 30 days. Please provide any written comments within 30 days from receipt of this letter to me at the above address. Libraries should file this document for public access and reference until the public comment period has ended. If you have any questions, please feel free to contact me by telephone at (210) 395-8885. Thank you for your participation.

A handwritten signature in black ink, appearing to read "Allen P. Richmond", is located below the text.

ALLEN P. RICHMOND, GS-13, DAF  
Program Manager, NEPA Center

Attachment  
*Draft Environmental Assessment for the Military Housing Privatization Initiative at Moody Air Force Base, Georgia*

DISTRIBUTION LIST



MARK WILLIAMS  
COMMISSIONER

DR. DAVID CRASS  
DIVISION DIRECTOR

May 14, 2013

Lawrence S. Alexander, MA, RPA  
Alexander Archaeological Consultants, Inc.  
Post Office Box 62  
Wildwood, Georgia 30757

**RE: Moody Air Force Base: Phase I, 118 Acres, Military Housing Privatization Initiative  
Lowndes County, Georgia  
HP-130503-016**

Dear Mr. Alexander:

The Historic Preservation Division (HPD) has reviewed the survey report entitled *A Phase I Archaeological Survey of 118 Acres (47.75 ha) in Support of an Environmental Assessment for a Military Housing Privatization Initiative for Moody Air Force Base, Lowndes County, Georgia*, dated April 2013. Our comments are offered to assist the US Department of the Air Force and Moody Air Force Base in complying with the provisions of Section 106 of the National Historic Preservation Act (NHPA).

Based on the information contained in the report, it is our opinion that archaeological site 9LW113, located within the proposed project's area of potential effects (APE), is not eligible for listing on the National Register of Historic Places (NRHP). Therefore, the project as proposed would have **no effect** on archaeological sites that are listed or eligible for listing on the NRHP, as defined in 36 CFR Part 800.4(d)(1).

Please note that the resume of the principal investigator(s) should be appended to survey reports. Please submit one electronic copy of the final report to HPD and ensure that it is an optical character enabled .pdf. For your information, the electronic file will be sent to the Georgia Archaeological Site File at the University of Georgia, Athens for permanent retention.

Please refer to project number **HP-130503-016** in any future correspondence concerning this project. If we may be of further assistance, please do not hesitate to contact me at (404) 651-6624.

Sincerely,

A handwritten signature in cursive script that reads "Elizabeth Shirk".

Elizabeth Shirk  
Environmental Review Coordinator

ES:jad

Cc: Michael Jacobs, Southern Georgia Regional Commission

254 WASHINGTON STREET, SW | GROUND LEVEL | ATLANTA, GEORGIA 30334  
404.656.2840 | FAX 404.657.1368 | WWW.GEORGIAHPO.ORG



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 23D WING (ACC)  
MOODY AIR FORCE BASE GEORGIA

JUN 18 2013

MEMORANDUM FOR THLOPTHLOCCO TRIBAL TOWN  
MR. CHARLES COLEMAN, THPO/NAGPRA  
P.O. BOX 188  
OKEMAH OK 74859

FROM: 23 WG/CC  
23 Flying Tiger Way, Ste 1  
Moody AFB GA 31699

SUBJECT: Environmental Assessment for Military Housing Privatization Initiative,  
Moody AFB, GA

1. In accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, and 36 CFR Part 800: Protection of Historic Properties, Moody AFB is requesting consultation with your tribe in regards to proposed privatized military family housing (MFH) developments on Moody AFB and on a private parcel approximately 8 miles southwest of the installation (Attachment 1).
2. The proposed on-base MFH development would consist of 11 housing units for senior leadership within a 15-acre parcel. The proposed off-base development would consist of up to 173 housing units constructed within a 118-acre privately owned parcel. Development at both parcels would also include roads, sidewalks, and utility connections, with additional recreational and community features at the off-base parcel.
3. Proposed Senior Leadership Housing Development on Moody AFB:
  - a. A Phase I archeological survey was conducted on this parcel by the US Army Corps of Engineers in September 1997. The final report, *A Phase I Cultural Resources Survey of the Southwest Land Gift, Lowndes County, Georgia*, was received in February 1998. During the course of the field investigation, one historic site (9LW73) and one prehistoric isolated find (9LW74) were discovered and recorded. Neither of these sites are located within the boundaries of the proposed senior leadership housing development.
  - b. Site 9LW73 was identified as a 20th century historic ceramic scatter consisting of 14 historic ceramics (primarily red earthenware turpentine cups) and one prehistoric chert flake. Site 9LW74 was identified as a prehistoric isolated find and consisted of one 12 mm secondary chert flake.
  - c. The report states both sites are considered ineligible for inclusion in the National Register of Historic Places (NRHP) and no further consideration regarding their presence is warranted. Copies of relevant information from the final report are included at Attachment 2.

*Global Power for America*

2

4. Off-base Privatized Housing Development on Val-Del Road, Lowndes County, GA:

a. A Phase I archeological survey was conducted on this privately owned parcel in September 2012 and March 2013. The draft report, *A Phase I Archeological Survey of 118 acres (47.7 ha) in support of an Environmental Assessment for a Military Housing Privatization Initiative for Moody Air Force Base, Lowndes County, Georgia*, was received in April 2013. This parcel lies within a region that appears to have been sparsely inhabited throughout prehistoric and historic periods, and is currently situated in a rural setting near Valdosta, GA. The Phase I investigation located one previously unrecorded archeological site (9LW113) and two prehistoric isolated finds within the boundary of the proposed housing development.

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5. If you have any comments or inputs on these projects or need any additional information, please contact Mr. Gregory Lee, 23 CES/CEIE, 3485 Georgia Street, Moody AFB, GA 31699-1707, [gregory.lee.5@us.af.mil](mailto:gregory.lee.5@us.af.mil), (229) 257-5881. If you do not respond within 30 days, the Air Force will assume your concurrence with the proposed developments and will proceed with these actions.



BILLY D. THOMPSON, Colonel, USAF  
Commander

3 Attachments:

1. Location of Proposed MFH Developments
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DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 23D WING (ACC)  
MOODY AIR FORCE BASE GEORGIA

JUN 18 2013

MEMORANDUM FOR SEMINOLE NATION OF OKLAHOMA  
NATALIE DEERE, THPO  
P.O. BOX 1498  
WEWOKA OK 74884

FROM: 23 WG/CC  
23 Flying Tiger Way, Ste 1  
Moody AFB GA 31699

SUBJECT: Environmental Assessment for Military Housing Privatization Initiative,  
Moody AFB, GA

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*Global Power for America*

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DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 23D WING (ACC)  
MOODY AIR FORCE BASE GEORGIA

MEMORANDUM FOR SEMINOLE NATION OF FLORIDA  
AH-TAH-THI-KI MUSEUM  
WILLARD S. STEELE, THPO  
HC 61, BOX 21A  
CLEWISTON FL 33440

JUN 18 2013

FROM: 23 WG/CC  
23 Flying Tiger Way, Ste 1  
Moody AFB GA 31699

SUBJECT: Environmental Assessment for Military Housing Privatization Initiative,  
Moody AFB, GA

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*Global Power for America*



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DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 23D WING (ACC)  
MOODY AIR FORCE BASE GEORGIA

MEMORANDUM FOR POARCH BAND OF CREEK INDIANS  
MR. ROBERT THROWER, THPO  
5811 JACK SPRINGS ROAD  
ATMORE AL 36502

JUN 18 2013

FROM: 23 WG/CC  
23 Flying Tiger Way, Ste 1  
Moody AFB GA 31699

SUBJECT: Environmental Assessment for Military Housing Privatization Initiative,  
Moody AFB, GA

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DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 23D WING (ACC)  
MOODY AIR FORCE BASE GEORGIA

MEMORANDUM FOR MUSCOGEE NATION OF FLORIDA  
278 CHURCH ROAD  
PONCE DE LEON FL 32455-4769

JUN 18 2013

FROM: 23 WG/CC  
23 Flying Tiger Way, Ste 1  
Moody AFB GA 31699

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Moody AFB, GA

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DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 23D WING (ACC)  
MOODY AIR FORCE BASE GEORGIA

MEMORANDUM FOR MUSCOGEE (CREEK) NATION  
MS. JOYCE A. BEAR  
CULTURAL PRESERVATION OFFICE MANAGER  
P.O. BOX 580  
OKMULGEE OK 74447

JUN 18 2013

FROM: 23 WG/CC  
23 Flying Tiger Way, Ste 1  
Moody AFB GA 31699

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Moody AFB, GA

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DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 23D WING (ACC)  
MOODY AIR FORCE BASE GEORGIA

MEMORANDUM FOR KIALEGEE TRIBAL TOWN  
P.O. BOX 332  
WETUMKA OK 74883

JUN 18 2013

FROM: 23 WG/CC  
23 Flying Tiger Way, Ste 1  
Moody AFB GA 31699

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Moody AFB, GA

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DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 23D WING (ACC)  
MOODY AIR FORCE BASE GEORGIA

MEMORANDUM FOR UNITED KEETOOWAH BAND OF CHEROKEE  
MS. LISA STOPP, THPO  
P.O. BOX 746  
TAHLEQUAH OK 74465

JUN 18 2013

FROM: 23 WG/CC  
23 Flying Tiger Way, Ste 1  
Moody AFB GA 31699

SUBJECT: Environmental Assessment for Military Housing Privatization Initiative,  
Moody AFB, GA

1. In accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, and 36 CFR Part 800: Protection of Historic Properties, Moody AFB is requesting consultation with your tribe in regards to proposed privatized military family housing (MFH) developments on Moody AFB and on a private parcel approximately 8 miles southwest of the installation (Attachment 1).
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  - b. Site 9LW73 was identified as a 20th century historic ceramic scatter consisting of 14 historic ceramics (primarily red earthenware turpentine cups) and one prehistoric chert flake. Site 9LW74 was identified as a prehistoric isolated find and consisted of one 12 mm secondary chert flake.
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*Global Power for America*

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a. A Phase I archeological survey was conducted on this privately owned parcel in September 2012 and March 2013. The draft report, *A Phase I Archeological Survey of 118 acres (47.7 ha) in support of an Environmental Assessment for a Military Housing Privatization Initiative for Moody Air Force Base, Lowndes County, Georgia*, was received in April 2013. This parcel lies within a region that appears to have been sparsely inhabited throughout prehistoric and historic periods, and is currently situated in a rural setting near Valdosta, GA. The Phase I investigation located one previously unrecorded archeological site (9LW113) and two prehistoric isolated finds within the boundary of the proposed housing development.

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BILLY D. THOMPSON, Colonel, USAF  
Commander

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DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 23D WING (ACC)  
MOODY AIR FORCE BASE GEORGIA

MEMORANDUM FOR ALABAMA COUSHATTA TRIBE OF TEXAS  
BRYANT CELESTINE, THPO  
571 STATE PARK ROAD  
LIVINGSTON TX 77351

JUN 18 2013

FROM: 23 WG/CC  
23 Flying Tiger Way, Ste 1  
Moody AFB GA 31699

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Moody AFB, GA

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DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 23D WING (ACC)  
MOODY AIR FORCE BASE GEORGIA

MEMORANDUM FOR COUSHATTA TRIBE OF LOUISIANA  
1940 C.C. BEL ROAD  
P.O. BOX 818  
ELTON LA 70532

JUN 18 2013

FROM: 23 WG/CC  
23 Flying Tiger Way, Ste 1  
Moody AFB GA 31699

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Moody AFB, GA

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DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 23D WING (ACC)  
MOODY AIR FORCE BASE GEORGIA

MEMORANDUM FOR THE CHEROKEE NATION  
MR. RICHARD ALLEN  
P.O. BOX 948  
TAHLEQUAH OK 74465

JUN 18 2013

FROM: 23 WG/CC  
23 Flying Tiger Way, Ste 1  
Moody AFB GA 31699

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DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 23D WING (ACC)  
MOODY AIR FORCE BASE GEORGIA

MEMORANDUM FOR CADDO NATION  
P.O. BOX 487  
BINGER OK 73009

JUN 18 2013

FROM: 23 WG/CC  
23 Flying Tiger Way, Ste 1  
Moody AFB GA 31699

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DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 23D WING (ACC)  
MOODY AIR FORCE BASE GEORGIA

MEMORANDUM FOR ALABAMA-QUASSARTE TRIBAL TOWN  
MS. AUGUSTINE ASBURY  
117 NORTH MAIN  
WETUMKA OK 74883

JUN 18 2013

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23 Flying Tiger Way, Ste 1  
Moody AFB GA 31699

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1

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**APPENDIX B  
AIR QUALITY**

## ACRONYMS, ABBREVIATIONS, AND SYMBOLS

<b>ACAM</b>	Air Conformity Applicability Model
<b>CAA</b>	Clean Air Act
<b>CEQ</b>	Council of Environmental Quality
<b>CFR</b>	Code of Federal Regulations
<b>CH<sub>4</sub></b>	methane
<b>CO</b>	carbon monoxide
<b>CO<sub>2</sub></b>	carbon dioxide
<b>CY</b>	calendar year
<b>ETS/CEM</b>	Emission Tracking System/Continuous Emissions Monitoring
<b>ft<sup>2</sup></b>	square feet
<b>g</b>	grams
<b>GDNR</b>	Georgia Department of Natural Resources
<b>HAP</b>	hazardous air pollutant
<b>hp</b>	horsepower
<b>hr</b>	hours
<b>lb</b>	pounds
<b>µg/m<sup>3</sup></b>	micrograms per cubic meter
<b>mg/m<sup>3</sup></b>	milligrams per cubic meter
<b>mg/m<sup>3</sup></b>	milligrams per cubic meter
<b>mm</b>	millimeters
<b>N<sub>2</sub>O</b>	nitrous oxide
<b>NAAQS</b>	National Ambient Air Quality Standards
<b>NEI</b>	National Emissions Inventory
<b>NO<sub>2</sub></b>	nitrogen dioxide
<b>NO<sub>x</sub></b>	nitrogen oxides
<b>O<sub>3</sub></b>	ozone
<b>Pb</b>	lead
<b>PM<sub>10</sub></b>	particulate matter with a diameter less than or equal to 10 microns
<b>PM<sub>2.5</sub></b>	particulate matter with a diameter less than or equal to 2.5 microns
<b>ppb</b>	parts per billion
<b>ppm</b>	parts per million
<b>ROI</b>	region of influence
<b>SCAQMD</b>	South Coast Air Quality Management District
<b>SER</b>	significant emissions rate
<b>SIP</b>	State Implementation Plan
<b>SO<sub>2</sub></b>	sulfur dioxide
<b>TSP</b>	total suspended particulates
<b>USEPA</b>	U.S. Environmental Protection Agency
<b>VOC</b>	volatile organic compound
<b>yr</b>	year



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## AIR QUALITY

1  
2 This appendix presents an overview of the Clean Air Act (CAA) and Georgia  
3 Department of Natural Resources (GDNR) Air Protection Branch requirements, as well  
4 as calculations, including the assumptions used for the air quality analyses presented in  
5 the Environmental Assessment.

### AIR QUALITY PROGRAM OVERVIEW

7 In order to protect public health and welfare, the U.S. Environmental Protection  
8 Agency (USEPA) has developed numerical concentration-based standards, or National  
9 Ambient Air Quality Standards (NAAQS), for six “criteria” pollutants (based on  
10 health-related criteria) under the provisions of the CAA Amendments of 1970. There  
11 are two kinds of NAAQS: primary and secondary standards. Primary standards  
12 prescribe the maximum permissible concentration in the ambient air to protect public  
13 health, including the health of “sensitive” populations such as asthmatics, children, and  
14 the elderly. Secondary standards prescribe the maximum concentration or level of air  
15 quality required to protect public welfare, including protection against decreased  
16 visibility, damage to animals, crops, vegetation, and buildings (40 Code of Federal  
17 Regulations [CFR] 50).

18 The CAA gives states the authority to establish air quality rules and regulations.  
19 These rules and regulations must be equivalent to, or more stringent than, the Federal  
20 program. The GDNR Air Protection Branch is the state agency that regulates air quality  
21 emissions sources in Georgia under the authority of the Federal CAA and amendments,  
22 Federal regulations, and state laws.

23 Georgia has adopted the Federal NAAQS as shown in Table B-1 (GDNR, 2012).  
24 In addition, Georgia has annual and 24-hour standards for sulfur dioxide.

25 Based on measured ambient air pollutant concentrations, the USEPA designates  
26 areas of the United States as having air quality better than the NAAQS (attainment),  
27 worse than the NAAQS (nonattainment), and unclassifiable. The areas that cannot be  
28 classified (on the basis of available information) as meeting or not meeting the NAAQS  
29 for a particular pollutant are “unclassifiable” and are treated as attainment until proven  
30 otherwise. Attainment areas can be further classified as “maintenance” areas, which are  
31 areas previously classified as nonattainment but where air pollutant concentrations

1 have been successfully reduced to below the standard. Maintenance areas are subject to  
 2 special maintenance plans and must operate under some of the nonattainment area  
 3 plans to ensure compliance with the NAAQS. Lowndes County is attainment for all  
 4 criteria pollutants.

5 A general conformity analysis is required if the action’s direct and indirect  
 6 emissions have a potential to emit one or more of the six criteria pollutants at or above  
 7 emission rates shown in Tables B-1, B-2, or B-3.

**Table B-1. Summary of National and State Ambient Air Quality Standards**

Criteria Pollutant	Averaging Time	Federal Primary NAAQS	Federal Secondary NAAQS	Georgia Standards
Carbon monoxide (CO)	8-hour	9 ppm (10 mg/m <sup>3</sup> )	No standard	9 ppm (10 mg/m <sup>3</sup> )
	1-hour	35 ppm (40 mg/m <sup>3</sup> )	No standard	35 ppm (40 mg/m <sup>3</sup> )
Lead (Pb)	Rolling 3-month average	0.15 µg/m <sup>3</sup> <sup>a</sup>	0.15 µg/m <sup>3</sup>	0.15 µg/m <sup>3</sup>
Nitrogen dioxide (NO <sub>2</sub> )	Annual	0.053 ppm <sup>b</sup> (100 µg/m <sup>3</sup> )	0.053 ppm (100 µg/m <sup>3</sup> )	0.053 ppm (100 µg/m <sup>3</sup> )
	1-hour	100 ppb	No standard <sup>c</sup>	100 ppb
Particulate matter ≤10 micrometers (PM <sub>10</sub> )	24-hour	150 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
Particulate Matter <2.5 micrometers (PM <sub>2.5</sub> )	Annual	15 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
	24-hour	35 µg/m <sup>3</sup>	35 µg/m <sup>3</sup>	35 µg/m <sup>3</sup>
Ozone (O <sub>3</sub> )	8-hour	0.075 ppm <sup>3</sup> (157 µg/m <sup>3</sup> )	0.075 ppm (157 µg/m <sup>3</sup> )	0.075 ppm (157 µg/m <sup>3</sup> )
Sulfur dioxide (SO <sub>2</sub> )	Annual	No standard	No standard	80 µg/m <sup>3</sup>
	24-hour <sup>a</sup>	No standard	No standard	365 µg/m <sup>3</sup>
	3-hour	No standard	0.50 ppm <sup>c</sup> (1300 µg/m <sup>3</sup> )	0.50 ppm (1300 µg/m <sup>3</sup> )
	1-hour	75 ppb <sup>d</sup>	No standard	75 ppb

8 Source: USEPA, 2011 (Federal Standards); GDNR, 2012 (Georgia Standards)  
 9 ppm = parts per million; ppb = parts per billion; mg/m<sup>3</sup> = milligrams per cubic meter; µg/m<sup>3</sup> = micrograms per cubic meter  
 10 a. Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m<sup>3</sup> as a quarterly average) remains in effect until one  
 11 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978,  
 12 the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are  
 13 approved.  
 14 b. The official level of the annual NO<sub>2</sub> standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of  
 15 clearer comparison to the 1-hour standard  
 16 c. Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour  
 17 concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, USEPA revoked  
 18 the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some  
 19 areas have continued obligations under that standard (“anti-backsliding”). The 1-hour ozone standard is attained  
 20 when the expected number of days per calendar year with maximum hourly average concentrations above 0.12  
 21 ppm is less than or equal to 1.  
 22 d. Final rule signed June 2, 2010. The 1971 annual and 24-hour SO<sub>2</sub> standards were revoked in that same rulemaking.  
 23 However, these standards remain in effect until 1 year after an area is designated for the 2010 standard, except in  
 24 areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until  
 25 implementation plans to attain or maintain the 2010 standard are approved.

**Table B-2. Emission Rates for Criteria Pollutants in Nonattainment Areas<sup>1</sup>**

Pollutant	Emission Rate (tons/year)
Ozone (volatile organic compounds [VOCs] or NO <sub>x</sub> )	
Serious nonattainment areas	50
Severe nonattainment areas	25
Extreme nonattainment areas	10
Other ozone nonattainment areas outside an ozone transport region	100
Marginal and moderate nonattainment areas inside an ozone transport region	
VOCs	50
NO <sub>x</sub>	100
CO: All nonattainment areas	100
SO <sub>2</sub> or NO <sub>2</sub> : All nonattainment areas	100
PM <sub>10</sub>	
Moderate nonattainment areas	100
Serious nonattainment areas	70
PM <sub>2.5</sub>	
Direct emissions	100
SO <sub>2</sub>	100
NO <sub>x</sub> (unless determined not to be a significant precursor)	100
VOCs or ammonia (if determined to be significant precursors)	100
Pb: All nonattainment areas	25

1 Source: USEPA, 2006

2 CO = carbon monoxide; NO<sub>2</sub> = nitrogen dioxide; NO<sub>x</sub> = nitrogen oxides; VOC = volatile organic compound; Pb  
 3 = lead; PM<sub>2.5</sub> = particulate matter with a diameter less than or equal to 2.5 microns; PM<sub>10</sub> = particulate  
 4 matter with a diameter less than or equal to 10 microns; SO<sub>2</sub> = sulfur dioxide

5 1. *De minimus* threshold levels for conformity applicability analysis.

**Table B-3. Emission Rates for Criteria Pollutants in Attainment (Maintenance) Areas<sup>1</sup>**

Pollutant	Emission Rate (tons/year)
Ozone (NO <sub>x</sub> , SO <sub>2</sub> , or NO <sub>2</sub> ): All maintenance areas	100
Ozone (VOCs)	
Maintenance areas inside an ozone transport region	50
Maintenance areas outside an ozone transport region	100
CO: All maintenance areas	100
PM <sub>10</sub> : All maintenance areas	100
PM <sub>2.5</sub>	
Direct emissions	100
SO <sub>2</sub>	100
NO <sub>x</sub> (unless determined not to be a significant precursor)	100
VOC or ammonia (if determined to be significant precursors)	100
Pb: All maintenance areas	25

6 Source: USEPA, 2006

7 CO = carbon monoxide; NO<sub>x</sub> = nitrogen oxides; VOC = volatile organic compound; Pb = lead; PM<sub>2.5</sub> = particulate  
 8 matter with a diameter less than or equal to 2.5 microns; PM<sub>10</sub> = particulate matter with a diameter less  
 9 than or equal to 10 microns; SO<sub>2</sub> = sulfur dioxide

10 1. *De minimus* threshold levels for conformity applicability analysis.

1 Each state is required to develop a State Implementation Plan (SIP) that sets forth  
 2 how CAA provisions will be imposed within the state. The SIP is the primary means  
 3 for the implementation, maintenance, and enforcement of the measures needed to attain  
 4 and maintain the NAAQS within each state and includes control measures, emissions  
 5 limitations, and other provisions required to attain and maintain the ambient air quality  
 6 standards. The purpose of the SIP is twofold. First, it must provide a control strategy  
 7 that will result in the attainment and maintenance of the NAAQS. Second, it must  
 8 demonstrate that progress is being made in attaining the standards in each  
 9 nonattainment area.

10 In attainment areas, major new or modified stationary sources of air emissions on  
 11 and in the area are subject to Prevention of Significant Deterioration (PSD) review to  
 12 ensure that these sources are constructed without causing significant adverse  
 13 deterioration of the clean air in the area. A major new source is defined as one that has  
 14 the potential to emit any pollutant regulated under the CAA in amounts equal to or  
 15 exceeding specific major source thresholds, that is, 100 or 250 tons/year based on the  
 16 source’s industrial category. A major modification is a physical change or change in the  
 17 method of operation at an existing major source that causes a significant “net emissions  
 18 increase” at that source of any regulated pollutant. Table B-4 lists the PSD significant  
 19 emissions rate (SER) thresholds for selected criteria pollutants (USEPA, 1990).

**Table B-4. Criteria Pollutant Significant Emissions Rate Increases Under PSD Regulations**

Pollutant	Significant Emissions Rate (tons/year)
PM <sub>10</sub>	15
PM <sub>2.5</sub>	10
Total suspended particulates (TSP)	25
SO <sub>2</sub>	40
NO <sub>x</sub>	40
Ozone (VOCs)	40
CO	100

20 Source: Title 40 CFR Part 51

21 CO = carbon monoxide; NO<sub>x</sub> = nitrogen oxides; VOC = volatile organic compound; Pb = lead; PM<sub>2.5</sub> = particulate  
 22 matter with a diameter less than or equal to 2.5 microns; PM<sub>10</sub> = particulate matter with a diameter less  
 23 than or equal to 10 microns; SO<sub>2</sub> = sulfur dioxide

The goals of the PSD program are to (1) ensure economic growth while  
 preserving existing air quality; (2) protect public health and welfare from adverse  
 effects that might occur even at pollutant levels better than the NAAQS; and (3)

preserve, protect, and enhance the air quality in areas of special natural recreational, scenic, or historic value, such as national parks and wilderness areas. Sources subject to PSD review are required by the CAA to obtain a permit before commencing construction. The permit process requires an extensive review of all other major sources within a 50-mile radius and all Class I areas within a 62-mile radius of the facility. Emissions from any new or modified source must be controlled using best available control technology. The air quality, in combination with other PSD sources in the area, must not exceed the maximum allowable incremental increase identified in Table B-5. National parks and wilderness areas are designated as Class I areas, where any appreciable deterioration in air quality is considered significant. Class II areas are those where moderate, well-controlled industrial growth could be permitted. Class III areas allow for greater industrial development.

**Table B-5. Federal Allowable Pollutant Concentration Increases Under PSD Regulations**

Pollutant	Averaging Time	Maximum Allowable Concentration ( $\mu\text{g}/\text{m}^3$ )		
		Class I	Class II	Class III
PM <sub>10</sub>	Annual	4	17	34
	24-hour	8	30	60
SO <sub>2</sub>	Annual	2	20	40
	24-hour	5	91	182
	3-hour	25	512	700
NO <sub>2</sub>	Annual	2.5	25	50

1 Source: Title 40 CFR Part 51

2 NO<sub>2</sub> = nitrogen dioxide; PM<sub>10</sub> = particulate matter with a diameter less than or equal to 10 microns; SO<sub>2</sub> = sulfur  
 3 dioxide

4 The Ambient Monitoring Program measures levels of air pollutants throughout  
 5 the state. The data are used to determine compliance with air standards established for  
 6 five compounds and to evaluate the need for an special controls for various other  
 7 pollutants.

8 The air quality monitoring network is used to identify areas where the ambient  
 9 air quality standards are being violated and plans are needed to reduce pollutant  
 10 concentration levels to be in attainment with the standards. Also included are areas  
 11 where the ambient standards are being met, but plans are necessary to ensure  
 12 maintenance of acceptable levels of air quality in the face of anticipated population or  
 13 industrial growth.

1 The result of this attainment/maintenance analysis is the development of local  
2 and statewide strategies for controlling emissions of criteria air pollutants from  
3 stationary and mobile sources. The first step in this process is the annual compilation of  
4 the ambient air monitoring results, and the second step is the analysis of the monitoring  
5 data for general air quality, exceedances of air quality standards, and pollutant trends.

## 6 **REGULATORY COMPARISONS**

7 The CAA Section 176(c), General Conformity, requires federal agencies to  
8 demonstrate that their proposed activities would conform to the applicable SIP for  
9 attainment of the NAAQS. General conformity applies only to nonattainment and  
10 maintenance areas. If the emissions from a federal action proposed in a nonattainment  
11 area exceed annual *de minimis* thresholds identified in the rule, a formal conformity  
12 determination is required of that action. The thresholds are more restrictive as the  
13 severity of the nonattainment status of the region increases. Since the project region is  
14 designated as attainment for all criteria pollutants (USEPA, 2012), the criteria pollutants  
15 are compared with Lowndes County emissions, which are in attainment.

16 For the analysis, in order to evaluate air emissions and their impact on the  
17 overall ROI, the emissions associated with the project activities were compared with the  
18 total emissions on a pollutant-by-pollutant basis for the ROI's 2008 National Emissions  
19 Inventory (NEI) data. Potential impacts to air quality are evaluated with respect to the  
20 extent, context, and intensity of the impact in relation to relevant regulations,  
21 guidelines, and scientific documentation. The Council on Environmental Quality (CEQ)  
22 defines significance in terms of context and intensity in 40 CFR 1508.27. This requires  
23 that the significance of the action must be analyzed in respect to the setting of the  
24 proposed action and based relative to the severity of the impact. The CEQ NEPA  
25 regulations (40 CFR 1508.27(b)) provide 10 key factors to consider in determining an  
26 impact's intensity. To provide a more conservative analysis, the county was selected as  
27 the ROI instead of the USEPA-designated Air Quality Control Region, which is a much  
28 larger area.

## 1 PROJECT CALCULATIONS

### 2 Construction Emissions

3 Calculations for construction emissions were completed using the calculation  
4 methodologies described in the U.S. Air Force Air Conformity Applicability Model  
5 (ACAM). As previously indicated, a conformity determination is not required since the  
6 Lowndes County is designated as attainment for all criteria pollutants.

7 The ACAM version 4.5.0 was used to provide a level of consistency with respect  
8 to emission factors and calculations. The ACAM evaluates the individual emissions  
9 from different sources associated with the construction phases. These sources include  
10 grading activities, construction worker trips, and stationary equipment (such as saws  
11 and generators) (U.S. Air Force, 2010).

12 The Proposed Action calls for the construction activities at Moody AFB and the  
13 Val Del location, which are both located in Lowndes County.

### 14 Mobile and Stationary Construction Equipment Emissions

15 Equipment emissions are combustive emissions from equipment engines and are  
16 calculated using the following equation:

$$17 \quad E_{constr-eq} = N * HP * LF * OT * EF / 454$$

18 Where:  $E_{constr-eq}$  = emissions of criteria pollutant from construction equipment  
19 (lb/day/10 acres)

20 N = number of pieces of equipment

21 HP = horsepower of equipment (hp)

22 LF = load factor of equipment (percent)

23 OT = operating time (hours/day)

24 EF = emission factor for criteria pollutant (g/hp-hr)

25 454 = conversion factor from grams to pounds (grams/pound)

1 Grading activities are divided into grading equipment emissions, and grading  
2 operation emissions. To complete the site preparation and grading activities, it is  
3 assumed that one grader, one rubber-tired dozer, one tractor/loader/backhoe, and one  
4 water truck are used per 435,600 square feet (10 acres). Emissions from construction  
5 equipment are determined assuming the use of one crane, two forklifts, and one  
6 tractor/loader/backhoe per 435,600 square feet (10 acres) of building construction  
7 (SCAQMD, 2007 as referenced in U.S. Air Force, 2010).

8 ACAM 4.5 uses average horsepower and load factor settings for each piece of  
9 equipment. It has set the usual hours per day of operation for each piece of equipment  
10 as determined for a 10-acre construction site. With these assumptions, the emissions  
11 from construction-equipment are calculated in the following manner:

$$E_{\text{grading}} = E_{\text{constr-eq}} * [A / 435,600] * OD / 2,000$$

13 Where:  $E_{\text{grading}}$  = emissions of criteria pollutant from grading (tons/yr)

14  $E_{\text{constr-eq}}$  = emissions of criteria pollutant from construction equipment  
15 (lb/day/10 acres)

16 A = area of construction/grading (square feet)

17 435,600 = conversion from 10 acres (435,600 square feet) to emissions per  
18 square feet

19 OD = operating days (days/year)

20 2,000 = conversion from pounds to tons (lb/ton)

## 21 Grading Operations

22 Grading operation emissions are calculated using a similar equation from the  
23 Sacramento Air Quality Management District and South Coast Air Quality  
24 Management District (SCAQMD) (SCAQMD, 2007 as referenced in U.S. Air Force,  
25 2010). This calculation includes grading and truck hauling emissions.

26 Emission Calculation:

$$PM_{10} \text{ (tons/yr)} = 60.7 \text{ (lb/acre/day)} * \text{Acres} * DPY_1/2,000$$



1 Where: Acres = number of gross acres to be graded during Phase I construction  
2 DPY<sub>1</sub> = number of days per year used for grading during Phase I construction  
3 2,000 = conversion factor from pounds to tons

4 The calculations assumed that there were no controls used to reduce fugitive  
5 emissions. Also, it was assumed that construction activities for each phase would occur  
6 within one calendar year (CY) in which the project would be implemented (365 days),  
7 and that grading activities would represent 50 percent of that total, or 182 days. The  
8 emission factors were derived from the Sacramento Air Quality Management District  
9 and SCAQMD (SCAQMD, 2007 as referenced in U.S. Air Force, 2010).

### 10 **Architectural Coating Emissions**

11 Paints, varnishes, primers, and other surface coatings release volatile organic  
12 compounds (VOCs) through the evaporation of solvents. The following calculations  
13 were performed to determine VOC emissions.

14 Determine the total interior and exterior surface square footage:

15  $Residential\ Interior = \# Multi-Family\ Units + \# Single\ Family\ Units * 1000 * 2.7 * 0.75$

16  $Residential\ Exterior = \# Multi-Family\ Units + \# Single\ Family\ Units * 1000 * 2.7 * 0.25$

18  $Non-Residential\ Interior = Total\ building\ sq.\ footage * 2.0 * 0.75$

19  $Non-Residential\ Exterior = Total\ building\ sq.\ footage * 2.0 * 0.25$

20  $Total\ Surface\ Coating\ Area\ (ft^2) = Res.\ Int. + Res.\ Ext. + Non-Res.\ Int. + Non-Res.\ Ext.$

21 Where: Residential/Non-Residential Interior and Residential/Non-Residential  
22 Exterior = total interior or exterior surface area (ft<sup>2</sup>)

23 # Multi-Family Units = user input number of units (assume 1,000 ft<sup>2</sup> per  
24 unit)

25 # Single-Family Units = user input number of units (assume 1,000 ft<sup>2</sup> per  
26 unit)

27 1,000 = average square footage of multi- and single-family units

1                    2.7 or 2.0 = conversion factor from total building square footage to surface  
2                    area to be coated

3                    0.75 or 0.25 = percentages used to account for the total coatings assumed  
4                    to be interior and exterior

5 Emissions are then calculated:

6                     $VOC_{AT} = 250 / 454 * 3.485 / 180 * Total\ Surface\ Coating\ Area$

7 Where:            250 = grams of VOC per liter of paint

8                    454 = conversion factor from grams to pounds (g/lb)

9                    3.785 = conversion factor from liters to gallons (L/gal)

10                   180 = conversion factor from square feet to gallons (ft<sup>2</sup>/gal)

11                   2,000 = conversion factor from pounds to tons (lb/ton)

12                   These algorithms assume that emissions associated with all coating applications  
13 and drying are evenly distributed over the entire construction phase (SCAQMD, 2007 as  
14 referenced in U.S. Air Force, 2010).

### 15 **Asphalt Paving Emissions**

16                   Three types of asphalt exist: emulsified asphalt, asphalt cement, and cutback  
17 asphalt. Cutback asphalt is the only type that releases VOC emissions during asphalt  
18 paving operations, as the other two types only produce minor amounts of VOCs.

19 Emissions are calculated using the following equation:

20                    $VOC_{AP} = A * WP_{evap} / 100 / 2,000$

21 Where:            A = Amount of cutback asphalt used for road pavement (lb). To  
22 estimate the amount of cutback asphalt 2.62 lb/acre paved may be  
23 used (SCAQMD, 2007).

1  $WP_{\text{evap}}$  = weight percentage of cutback asphalt which evaporates

2 100 = conversion factor from percent to fraction

3 2,000 = conversion factor from pounds to tons (lb/ton)

4 The algorithms assume that emissions associated with asphalt paving  
5 applications and drying are evenly distributed over the entire construction period  
6 (SCAQMD, 2007 as referenced in U.S. Air Force, 2010).

### 7 **Construction Worker Trips**

8 Construction worker trips during the construction phases of the project are  
9 calculated and represent a function of the number of residential units to be constructed  
10 and/or square feet of commercial construction.

11 Calculation:

12  $\text{Multi-Family (trips/day)} = 0.36 \text{ (trips/unit/day)} * \text{Number of Multi-Family Units}$

13  $\text{Single-family (trips/day)} = 0.72 \text{ (trips/unit/day)} * \text{Number of Single-Family Units}$

14  $\text{Commercial/Retail Building (trips/day)} = 0.32 \text{ (trip/1,000 ft}^2\text{/day)} * \text{Area of}$   
15  $\text{commercial/retail building (1,000 ft}^2\text{)}$

16  $\text{Office/Employment (trips/day)} = 0.42 \text{ (trips/1,000 ft}^2\text{/day)} * \text{Area of}$   
17  $\text{Office/Employment Units (1,000 ft}^2\text{)}$

18  $\text{Total Daily Trips (TRIPS) (trips/day)} = \text{Multi-Family} + \text{Single-Family} +$   
19  $\text{Commercial/Retail} + \text{Office/employment.}$

20 Total daily trips are applied to the following factors depending on the  
21 corresponding project years (Table B-6). Trips are the total daily trips calculated above,  
22 and 454 is a conversion factor from grams to pounds. The following calculation is  
23 performed using the appropriate emission factor for each of the pollutants:

24  $E_{\text{CPppd}} \text{ (lb/day)} = EF \text{ (g/trip)} * \text{TRIPS} / 454$

25

**Table B-6. Vehicle Emission Factors**

Year	Vehicle Emission Factors (grams/trip)				
	CO	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>2</sub>	VOCs
2010 – 2014	15.184	0.661	0.0047	0.0005	0.678
2015 – 2019	10.371	0.492	0.0047	0.0003	0.437

1 CO = carbon monoxide; NO<sub>x</sub> = nitrogen oxides; PM<sub>10</sub> = particulate matter with a diameter less than or equal to 10  
 2 microns; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound

3 To convert from pounds per day to tons per year:

4 
$$E_{CPTpy} \text{ (tons/yr)} = E_{CPppd} \text{ (lb/day)} * DPY_{II} / 2,000$$

5 Where:  $E_{CPTpy}$  = emission criteria pollutant annual tons (tons/year)

6  $E_{CPppd}$  = emission of criteria pollutant pounds per day (lb/day)

7 2,000 = conversion factor from pounds to tons

8  $DPY_{II}$  = number of days per year during Phase II construction activities

9 Construction activities would entail a total of 1,661,300 square feet. It was  
 10 assumed that 100 percent of the total construction and paved areas would require  
 11 grading. The emission factors were derived from the Sacramento Air Quality  
 12 Management District and SCAQMD (SCAQMD, 2007 as referenced in U.S. Air Force,  
 13 2010).

14 **Commuter Emissions**

15 Personnel residing in the Val Del housing would commute to and from Moody  
 16 daily, and vehicle emissions were calculated assuming each trip was 15 miles, 173  
 17 personnel would commute for 260 days/year. A mix of gasoline-fueled vehicles were  
 18 assumed (cars, trucks, and motorcycles, and average fuel economy for each vehicle type  
 19 was used. Emissions were calculated using the following equation:

20 
$$E_v = VMT * EF * 0.002205 / 2,000$$

21 Where:  $E_v$  = emission for vehicle type and criteria pollutant annual tons (tons/year)

22 VMT = vehicle miles traveled (miles/year)

23 EF = emission factor (g/mile)

24 0.002205 = conversion factor from grams to pounds (lb/g)

25 2,000 = conversion factor from pounds to tons

1 The criteria pollutant emissions for each vehicle type were summed for total  
 2 commuter pollutant emissions.

3 **Greenhouse Gases**

4 Greenhouse gases are calculated for construction equipment and construction  
 5 work trips. ACAM 4.5 assumes the number and type of construction equipment based  
 6 on acreage. Using this information, the number of pieces of construction equipment is  
 7 determined for GHG emissions. Emissions are calculated using the following equation:

8 
$$E_{CO_2e} = F * \sum (EF_{p,fuel} * GWP) / 2,000$$

9 Where:  $E_{CO_2e}$  = carbon dioxide equivalent emission (tons/year)

10 F = annual fuel use (gal/year)

11  $EF_{p,fuel}$  = emission factor (lb/gal) for fuel type for each pollutant

12 GWP = global warming potential (see Table B-7)

13 2,000 = conversion factor from pounds to tons

**Table B-7. GHG Emission Factors and Global Warming Potential**

Pollutant	Global Warming Potential	Emission Factors	
		Diesel <sup>1</sup>	Gasoline <sup>1</sup>
		lb/gal	
CO <sub>2</sub>	1	22.4	19.5
CH <sub>4</sub>	21	0.0012787	0.00110229
N <sub>2</sub> O	310	0.0005732	0.000485

14 Source: California Climate Registry, 2009  
 15 CO<sub>2</sub> = carbon dioxide; CH<sub>4</sub> = methane; N<sub>2</sub>O = nitrous oxide

16 For construction equipment it was assumed that equipment use diesel fuel at a  
 17 rate of 3.27 gallons per hour and operate 8 hours a day, 5 days a week, and 52 weeks per  
 18 year.

19 To calculate worker commutes, it was assumed 30 miles per day and the  
 20 gasoline-fueled vehicle gets 22.1 miles per gallon.

21 Employee commutes were calculated the same as described in the “Commuter  
 22 Emissions” sections as CO<sub>2</sub> emission factors were provided.

## 1 NATIONAL EMISSIONS INVENTORY

2 The NEI is operated under the USEPA’s Emission Factor and Inventory Group,  
3 which prepares the national database of air emissions information with input from  
4 numerous state and local air agencies, tribes, and industries. The database contains  
5 information on stationary and mobile sources that emit criteria air pollutants and  
6 hazardous air pollutants (HAPs). The database includes estimates of annual emissions,  
7 by source, of air pollutants in each area of the country on a yearly basis. The NEI  
8 includes emission estimates for all 50 states, the District of Columbia, Puerto Rico, and  
9 the Virgin Islands. Emission estimates for individual point or major sources (facilities),  
10 as well as county-level estimates for area, mobile, and other sources, are currently  
11 available for years 1996 and 1999 for criteria pollutants and HAPs.

12 Criteria air pollutants are those for which the USEPA has set health-based  
13 standards. Four of the six criteria pollutants are included in the NEI database:

- 14 • Carbon monoxide (CO)
- 15 • Nitrogen oxides (NO<sub>x</sub>)
- 16 • Sulfur dioxide (SO<sub>2</sub>)
- 17 • Particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>)

18 The NEI also includes emissions of VOCs, which are ozone precursors, emitted  
19 from motor vehicle fuel distribution and chemical manufacturing, as well as other  
20 solvent uses. VOCs react with nitrogen oxides in the atmosphere to form ozone. The  
21 NEI database defines three classes of criteria air pollutant sources:

- 22 • **Point sources.** Stationary sources of emissions, such as an electric power plant,  
23 that can be identified by name and location. A “major” source emits a threshold  
24 amount (or more) of at least one criteria pollutant and must be inventoried and  
25 reported. Many states also inventory and report stationary sources that emit  
26 amounts below the thresholds for each pollutant.
- 27 • **Area sources.** Small point sources such as a home or office building or a diffuse  
28 stationary source such as wildfires or agricultural tilling. These sources do not  
29 individually produce sufficient emissions to qualify as point sources. Dry  
30 cleaners are one example; for instance, a single dry cleaner within an inventory  
31 area typically will not qualify as a point source, but collectively the emissions

1 from all of the dry cleaning facilities in the inventory area may be significant and  
2 therefore must be included in the inventory.

- 3 • **Mobile sources.** Any kind of vehicle or equipment with a gasoline or diesel  
4 engine (such as an airplane or ship).

5  
6 The following are the main sources of criteria pollutant emissions data for the  
7 NEI:

- 8 • For electric generating units – USEPA’s Emission Tracking System/Continuous  
9 Emissions Monitoring Data (ETS/CEM) and Department of Energy fuel use data.
- 10 • For other large stationary sources – state data and older inventories where state  
11 data were not submitted.
- 12 • For on-road mobile sources – the Federal Highway Administration’s estimate of  
13 vehicle miles traveled and emission factors from USEPA’s MOBILE Model.
- 14 • For non-road mobile sources – USEPA’s NONROAD Model.
- 15 • For stationary area sources – state data, USEPA-developed estimates for some  
16 sources, and older inventories where state or USEPA data were not submitted.  
17 State and local environmental agencies supply most of the point source data.

18 USEPA’s Clean Air Market program supplies emissions data for electric power  
19 plants.

## 20 REFERENCES

21 Code of Federal Regulations (CFR), Title 40, 1508.27. Protection of Environment Council on  
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