FINDING OF NO SIGNIFICANT IMPACT
AND FINDING OF NO PRACTICABLE ALTERNATIVE

MILITARY HOUSING PRIVATIZATION INITIATIVE (MHPI)
MOODY AFB, GEORGIA

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

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, through a Housing Requirements and Market Analysis (HRMA) conducted in September 2010. The HRMA identified the housing units available to military members in the private community and determined the number of units that the Air Force needs to provide for Moody AFB. Based on this study and other information gained during the course of the project, a total of 101 new units need to be constructed. Of the total 101 new units needed, 11 units are associated with the secured housing needs of key senior leaders on Moody AFB.

The need to provide on-base property for key senior leader houses is twofold. First, current senior officer quarters located off-base in the Magnolia Grove housing area do not meet the size and amenity standards for senior leaders. Secondly, on-base housing for senior officers is needed to meet a legal recommendation from the Judge Advocate General due to the Posse Comitatus Act (18 U.S.C. § 1385). The act prohibits members of the Army and Air Force from exercising law enforcement, police, or peace officer powers that maintain "law and order" on nonfederal property (states and their counties and municipal divisions) within the United States. As such, military law enforcement cannot provide the appropriate security for the 11 senior leaders if their housing is built off-base. The need to provide an area for the remaining 90 units as off-base housing is associated with the fact that Moody AFB does not have the land area available to accommodate these 90 units.

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

DESCRIPTION OF THE PROPOSED ACTION

Initially, the Proposed Action involved the construction of up to 184 units in two phases: Phase I consisted of 11 housing units for senior leadership on a 15-acre parcel on the base and 90 units on the eastern portion of a 113-acre parcel located northwest of the city of Valdosta, Georgia, on Val Del Road (Val Del parcel); Phase II consisted of construction of up to 83 units on the remaining western portion of the Val Del parcel. However, due to a reduction in need, the Air Force has revised the housing requirement in the Proposed Action to 101 units (the 11 housing units to be constructed on-base and 90

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housing units to be constructed off-base) This reduction of 83 units results in eliminating the Phase II portion of the project. As a result of this change, only the 60-acre eastern portion (also known as Phase I for the purposes of this document) of the 113-acre Val Del parcel is needed to fulfill the updated requirement. Further, the 53-acre western portion (also known as Phase II) of the Val Del parcel with a described sinkhole that was included in the July 15, 2013, Draft EA has been removed for further consideration from the revised Proposed Action.

The revised Proposed Action would involve the construction of 11 housing units for senior leadership on a 15-acre parcel on the base and 90 units on an approximately 60-acre eastern portion of the Val Del parcel. Development would also require housing area transportation infrastructure (e.g., roads) and utility connections for each housing unit, as well as desired community features such as athletic areas, a community center with a swimming pool, and a maintenance building. 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 units would be privately owned by the developer of the housing area/units.

Revised Proposed Action Housing Details

Construction Features	Estimated Maximum Size/Unit	Revised Proposed Action				Total Square Footage
		Moody On-Base	Square Footage	Val Del	Square Footage	
Housing Units						
SOQ Housing	2,920 ft^2	8 units	23,360	N/A		23,360
FGO Housing	2,700 ft^2	N/A		7 units	18,900	18,900
CGO Housing	2,500 ft^2			14 units	35,000	35,000
Prestige Housing	2,700 ft^2	3 units	8,100	N/A		8,100
SNCO Housing	2,500 ft^2	N/A		5 units	12,500	12,500
JNCO Housing	2,220 ft^2			64 units	142,080	142,080
Housing Unit Total		***11 units***	***31,460***	***90 units***	***208,480***	***239,940***
Non-Housing						
Moody Gazebo	1,200 ft^2	1 unit	1,200	N/A		1,200
Community Center	8,000 ft^2	N/A		1 unit	8,000	8,000
Maintenance Building	3,000 ft^2			1 unit	3,000	3,000
Tennis Courts	7,200 ft^2			2 units	14,400	14,400
Basketball Court	5,000 ft^2			2 units	10,000	10,000
Swimming Pool	12,000 ft^2			1 unit	12,000	12,000
Non-Housing Total		***1 unit***	***1,200***	***7 units***	***47,400***	***48,600***
Other						
Additional impervious surface (per housing unit)	1,250 ft^2	11 units	13,750	90 units	112,500	126,250
Parking	N/A			Parking space for recreational area and maintenance building = 10,540 ft^2		10,540
Roadways	36 feet wide	1 mile at 190,000 ft^2		2 miles at 380,000 ft^2		570,000
Utility Lines	Unknown					
Other Total		***203,750***		***503,040***		***706,790***
Overall Total Square Footage		***236,410***		***758,920***		***995,330***

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

NO ACTION ALTERNATIVE

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

SUMMARY OF FINDINGS

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

Air Quality. The entire 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.

Water Resources. Based on the information available at this time, it is expected that the Proposed Action would require the use of up to 2.3 acres of jurisdictional wetlands and 0.4 acre of non-jurisdictional (isolated) wetlands on the Val Del parcel. The U.S. Army Corps of Engineers (USACE) may allow the developer to utilize jurisdictional wetlands for development through the Clean Water Act (CWA) Section 404 permitting process, which would require mitigation measures to minimize potential impacts to both the jurisdictional and non-jurisdictional wetlands at the site. The State of Georgia has no requirements for use of these wetlands. A review of the Air Force design requirements, the size of the property, and the geographic features on the property make the limited use of wetlands necessary for completion of the Proposed Action on the Val Del parcel. Consequently, the Air Force has identified the need for a Finding of No Practicable Alternative (FONPA) in accordance with Executive Order (EO) 11990, Protection of Wetlands. Mitigations for use of the wetlands will be developed through the Section 404 permitting process and would most likely be accomplished by purchasing wetland mitigation credits at a USACE-approved mitigation bank in the service area where Moody AFB is located. Under USACE guidelines, credit requirements anticipated to be in effect at the time of the Proposed Action could be as high as 12:1. The exact number of mitigation credits would be determined by USACE when the final permit is issued for the proposed project. Lowndes County development guidelines require a minimum of a 25-foot buffer zone around streams and jurisdictional wetland complexes that are not permitted for disturbance through the CWA Section 404 permitting process. A special concern at the western section of the Val Del parcel, under the original Proposed Action, was a sinkhole covering approximately 1.16 acres of that site. However, under the revised Proposed Action, the western section of the parcel is no longer required and would not be part of the project. As a result, the sinkhole area would be avoided entirely.

The Val Del parcel is located within Lowndes County wetland and groundwater recharge protection areas, and increases in stormwater runoff and erosion would occur during the project. These impacts would be rendered insignificant by implementation of the National Pollutant Discharge Elimination System (NPDES) and Lowndes County land disturbance permits, and associated Best management Practice 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 the identified sinkhole on the adjacent western section of the parcel. Also, development designs would be required to avoid impacts to the groundwater recharge associated with the sinkhole per Lowndes County Unified Land Development Code, Section 4.06.01 B.4.

Biological Resources. No threatened or endangered species or habitats are known to occur at either of the proposed sites. Moody AFB biologists surveyed the 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. There may be a temporary increase in the potential for soil erosion during construction activities. However, this would be minimized through the implementation of NPDES/Lowndes County land disturbance permit-related requirements to mitigate soil erosion impacts from construction activities. Site designs would need to consider the development restrictions associated with poorly drained soils susceptible to wetness and flooding. The Project Owner conducted a site geophysical and hydrological study in accordance with local and state requirements on the suitability of the eastern portion of the Val Del parcel for residential construction. The report found that there would be no significant impacts to geology or hydrology, provided that stormwater retention systems are included in site design and that areas with identified geophysical anomalies are avoided. The western portion of the Val Del parcel containing the sinkhole is no longer required for development. The Project Owner will construct a personnel fence to discourage residents from accessing the western portion of the parcel to mitigate potential safety risks associated with the sinkhole.

Cultural Resources. No traditional cultural properties (TCPs) or significant cultural resources were identified 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 listed or may be eligible for listing on the National Register of Historic Places (NRHP). Moody AFB has also completed consultation with local Native American tribes for concurrence on a finding of no effect to TCPs. The Project Owner will halt work immediately and notify the Air Force Civil Engineer Center's Housing Division (AFCEC/CIH) upon discovery of tribal artifacts or items of potential cultural significance.

Solid Waste. Under the original Proposed Action, construction activities were estimated to generate approximately 8,098 tons of debris. Under the revised Proposed Action, the amount of solid waste generated would be substantially less, because the land area utilized would be reduced, and the number of units constructed would be reduced by 83 units. Additionally, 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.

Socioeconomics / Environmental Justice. 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 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.

Infrastructure. Utility connections are available 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 non-peak traffic hours. Measures to reduce potential safety impacts along Val Del Road 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 the GDOT and local agencies.

Mitigation Plan. A final Mitigation Plan will be developed for the Proposed Action approved through a Final FONSI. The Plan will include the identified mitigation measures necessary to avoid or minimize any impacts expected to be significant to environmental resources to ensure the impacts would be less than significant, as discussed in the Draft EA and, that may be necessary after the public and agency comment period, or any tribal consultations. Additionally, notable best management practices that would minimize impacts, even though not significant impacts, may also be included in the Plan. The primary mitigation measures to be addressed in the Plan are associated with USACE requirements under the CWA, Section 404 permitting process for impacts to wetlands including the purchase of mitigation credits and creation of a buffer zone to protect streams and wetlands. Standard construction practices and compliance with the NPDES such as creation of stormwater retention systems to avoid or prevent stormwater runoff and erosion impacts during project activities may also be incorporated into the Plan. Also, key activities to comply with county development codes to prevent discharge of stormwater runoff to the adjacent property and sinkhole and to any groundwater recharge areas on the project parcels may be described in the Plan. Further, if the final design plans for the housing development would result in substantial changes in the activities described and evaluated in a final EA, then supplemental environmental analysis may be necessary to evaluate impacts not previously addressed in a final EA, including additional mitigation measures, if necessary.

PREFERRED ALTERNATIVE

The Preferred Alternative is to implement the revised Proposed Action, which is to construct 11 housing units for senior leadership on a 15-acre parcel on Moody AFB and 90 units on the eastern portion of the Val Del parcel, consisting of approximately 60 acres.

FINDING OF NO PRACTICABLE ALTERNATIVE

The Air Force finds that there is no practicable alternative to utilization of the Val Del parcel. In February 2011, the Air Force issued a Request for Proposal (RFP) for a housing privatization project to provide Airmen and their families at Moody AFB with access to safe, secure, quality, affordable, well-maintained housing. The RFP required each offeror to identify in its proposal a suitable parcel of land located off-base within the Moody AFB market area for construction of housing units in accordance with the requirements of the RFP. Three parcels were identified as potential alternatives based on the requirements of the project. Two of the parcels, the Moody golf course area and land across from Parker Green Highway, were excluded from further additional analysis, because they did not meet the

purpose and need of the Proposed Action or the specified selection standards, which are fully discussed in Section 2.3 of this EA. The Val Del parcel was the only remaining alternative available. Therefore, there is no practicable alternative but to utilize the Val Del parcel.

FINDING OF NO SIGNIFICANT IMPACT

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

3 Apr 14

RUSSELL R. HULA, Colonel, USAF — DATE

Deputy Director, Installations and Mission Support

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

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ACRONYMS, ABBREVIATIONS, AND SYMBOLS

ACAM	Air Conformity Applicability Model
ACHP	Advisory Council on Historic Preservation
AFB	Air Force Base
AFCEC/CIH	Air Force Civil Engineer Center's Housing Division
AFI	Air Force Instruction
AFOSH	Air Force Occupational and Environmental Safety, Fire Protection, and Health
AFPD	Air Force Policy Directive
AICUZ	Air Installation Compatible Use Zone
BLS	Bureau of Labor Statistics
BMP	best management practice
CAA	Clean Air Act
CDC	child development center
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGO	commission grade officer
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COC	community of comparison
CWA	Clean Water Act
DoD	Department of Defense
EA	Environmental Assessment
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
EMC	Electric Membership Corporation
EO	Executive Order
EPD	Environmental Protection Division
ERI	Electrical Resistivity Imaging
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FGO	field grade officer
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
ft^2	square feet
GADNR	Georgia Department of Natural Resources
GDCA	Georgia Department of Community Affairs
GDOT	Georgia Department of Transportation
GHG	greenhouse gas
GPR	Ground Penetrating Radar
GWP	global warming potential
HAP	hazardous air pollutant
HRMA	Housing Requirements and Market Analysis
I-75	Interstate 75
JNCO	junior noncommissioned officer
LOS	level of service
MFH	military family housing
MGD	million gallons per day
MHPI	Military Housing Privatization Initiative
mph	miles per hour

N_2O	nitrous oxide
N/A	not applicable
NAAQS	National Ambient Air Quality Standards
NEI	National Emissions Inventory
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
O_3	ozone
OSHA	Occupational Safety and Health Administration
Pb	lead
PM_{10}	particulate matter with a diameter of less than or equal to 10 microns
$PM_{2.5}$	particulate matter with a diameter of less than or equal to 2.5 microns
POC	point of contact
RFP	Request for Proposal
ROI	region of influence
SGRC	South Georgia Regional Commission
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SNCO	senior noncommissioned officer
SO_2	sulfur dioxide
SOQ	Senior Officer Quarters
SWMP	Stormwater Management Program
SWPPP	Stormwater Pollution Prevention Plan
TCP	traditional cultural property
UFC	Unified Facilities Criteria
ULDC	Unified Land Development Code
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VLIA	Valdosta-Lowndes County Industrial Authority
VOC	volatile organic compound
WRPDO	Water Resource Protection Districts Ordinance
WWTP	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.

This document represents a revision to the Proposed Action as described in the original Draft Environmental Assessment (EA) published on July 15, 2013. Initially, the Proposed Action involved 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). However, due to revised requirements, and issues raised during environmental analysis through the first Draft EA (published on July 15, 2013), the Air Force has revised the Proposed Action through a reduction of the 173 off-base units to 90 units based on current need; this is an overall reduction of 83 units. As a result of this change, only a portion of the 113-acre parcel is needed to fulfill the requirements; the land area needed is approximately 60 acres, and represents the eastern portion of the original parcel (the "Val Del" parcel). Where appropriate in Chapter 2, changes in the Proposed Action have been annotated to maintain consistency and provide the reader with an understanding of the changes that have occurred. Because the analysis presented in the first Draft EA is more expansive (analyses covered more units and land area at the same location), analyses have not been adjusted except where noted. It is understood that previous analyses are still applicable, and the resultant potential impacts associated with the revised Proposed Action would be the same or less represented, because the revised Proposed Action is smaller in scope than that presented in the original Draft EA.

Development would 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 the developer will own the land, as well as the housing units developed on the land. Chapter 2 details the Proposed Action and alternatives, as well as changes in the Proposed Action from those described in the previous Draft EA, published on July 15, 2013.

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

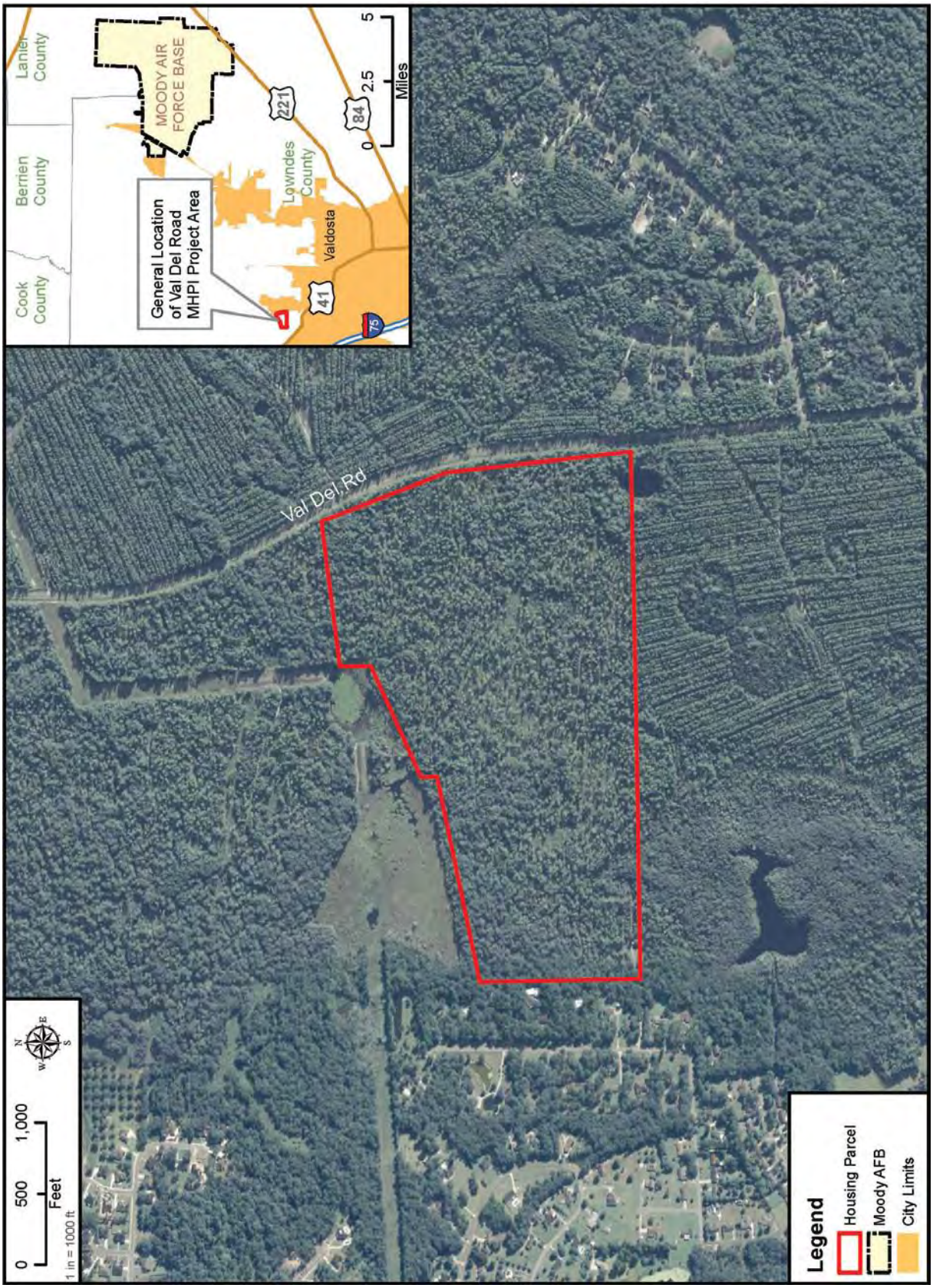

Figure 1-2. Location of Moody AFB and Originally Proposed Val Del Parcel

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.

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 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 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 the number of required housing units 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 needed to be constructed. However, after the first Draft EA was published in July 2013, the Air Force determined that 94 existing privatized units scheduled for demolition on Moody AFB are projected to continue to be available for occupancy for some time to come. The potential long-term availability of these units reduces the current need to 101 total homes. If these units are demolished in the future, it may generate a new housing requirement that will be captured by a future market analysis.

The Air Force determined that on-base property would be required to ensure security for key and essential senior officer houses. Current senior officer quarters (SOQ) located adjacent to Moody AFB in the off-base Magnolia Grove housing area do not meet the size and amenity standards for senior officers. These units would require extensive renovations, and it would be more cost effective to build new units. Additionally, on-base senior officer housing is needed to meet a legal recommendation from the Judge Advocate General due to the Posse Comitatus Act (18 U.S.C. § 1385). The act prohibits members of the military from exercising law enforcement, police, or peace officer powers that maintain "law and order" on nonfederal property (states and their counties and municipal divisions) within the United States. As such, military law enforcement cannot provide the appropriate security for senior officers residing off-installation. At most Air Force installations, this is not an issue, as key and essential

senior officers reside in privatized housing located on Air Force-owned land, where the Posse Comitatus Act does not apply. The construction of new SOQ for Moody AFB in the 15-acre parcel, separate from the off-base Magnolia Grove housing area, would meet the purpose and need by providing SOQ that meet current size and amenity standards for senior officers, as well as provide for appropriate security for senior officers as required by DoD Unified Facilities Criteria (UFC) 4-010-01.

The Air Force established the following requirements for the land on which the off-base units will be sited: the property must be (a) within a 20-mile/60-minute commute radius from Moody AFB; (b) currently available and sized to accommodate the housing need; (c) compatible with residential use (e.g., no potential soil or water contaminants or cleanup required); and (d) compliant with federal, state, and local law.

Based on the existing information summarized above, the overall current need (as of November 2013) identified through the MHPI process is to provide, at a minimum, 8 senior officer and 3 E9 prestige housing units on base, and an additional 90 housing units that could be located on or off base.

1.4 SCOPE OF THE ENVIRONMENTAL REVIEW

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

NEPA requires federal agencies to consider the environmental consequences of proposed actions in the decision-making process (42 USC 4321, et seq.). The Council on Environmental Quality (CEQ) was established under NEPA, 42 USC 4342, et seq., to implement and oversee federal policy in this process. In 1978, the CEQ issued regulations implementing the NEPA process under Title 40, Code of Federal Regulations (CFR), Parts 1500–1508. The CEQ regulations require that the federal agency considering an action evaluate or assess the potential consequences of the action or alternatives to the action, which may result in the need for an EA or environmental impact statement (EIS). Under 40 CFR:

- An EA must briefly provide sufficient evidence and analysis to determine whether a finding of no significant impact (FONSI) or an EIS should be prepared.

- An EA must facilitate the preparation of an EIS if required.

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

1.5 COOPERATING AGENCY, INTERGOVERNMENTAL COORDINATION/CONSULTATIONS, AND PUBLIC AGENCY REVIEW

There are no cooperating agencies associated with this Proposed Action.

The Air Force, after having conducted a cultural resources survey for the Val Del parcel that found no significant cultural resources present on-site, initiated consultation with the Georgia State Historic Preservation Officer (SHPO) and local Native American tribes as required by Advisory Council on Historic Preservation (ACHP) regulations, "Protection of Historic Properties" (36 CFR Part 800), and Section 106 of the National Historic Preservation Act (NHPA). The Georgia 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) (See Appendix A). Moody AFB provided notification of the Proposed Action and requested concurrence on a finding of no effect to traditional cultural properties (TCPs) from 13 tribes (a list is provided in Chapter 7). Only one tribe (United Keetoowah Band of Cherokee Indians in Oklahoma) responded to the consultation correspondence, and requested that if any human remains or funerary items are inadvertently discovered, that all work should cease and they be contacted immediately. Correspondence is provided in Appendix A.

The Air Force published a public notice in the *Valdosta Daily Times* on July 15, 2013, inviting the public to review and comment on the original Draft EA (available at the South Georgia Regional Library in Valdosta, Georgia). The Air Force also provided the following agencies copies of the EA for review and comment: Georgia Environmental Protection Division, Georgia Department of Community Affairs, Georgia Wildlife Resources Division, Georgia Historic Protection Division, the South Georgia Regional Planning Council, the City of Valdosta, and the Lowndes County Commission. The public comment and agency review period ended on August 15,

2013; there were two comments submitted, one from the public and one from the Georgia Department of Natural Resources (GADNR). Both comments, and responses to those comments, are provided in Appendix A.

For the Revised Draft EA, which identifies changes to the Proposed Action from that described in July 2013, the Air Force again published a public notice in the Moody AFB paper on February 6, 2014, and the *Valdosta Daily Times* on February 7, 2014, inviting the public to review and comment on the Revised Draft EA (available at the South Georgia Regional Library in Valdosta, Georgia). The Air Force also provided the following agencies copies of the Revised Draft EA for review and comment: Georgia Environmental Protection Division, Georgia Department of Community Affairs, Georgia Wildlife Resources Division, Georgia Historic Protection Division, the South Georgia Regional Planning Council, the Lowndes County Commission, the Georgia Department of Transportation (GDOT), and the City of Valdosta. The public comment and agency review period for the Revised Draft EA ended on March 10, 2014. Only one public comment was received; the comment and Air Force response are provided in Appendix A.

1.6 ORGANIZATION OF THE DOCUMENT

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

1. Purpose and Need for Action
2. Description of Proposed Action and Alternatives
3. Affected Environment
4. Environmental Consequences
5. Cumulative Impacts
6. Special Operating and Impact Minimization Procedures
7. Persons and Agencies Contacted
8. List of Preparers
9. References

2. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

This chapter describes the original Proposed Action, the revised 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

As described in Section 1.1, the original Proposed Action consisted 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 originally consisted of two phases: Phase I involved development of 11 units on-base and 90 units at the Val Del parcel (comprising 60 acres), and Phase II included development of an additional 83 units at the Val Del parcel (comprising 53 acres). The initial version of the Proposed Action was considered in the first Draft EA, published on July 15, 2013. After publication of the first Draft EA, the Air Force determined 94 privatized units on Moody AFB, which are slated for demolition, will be available for occupancy for some time to come. For this reason, the 83 units identified as Phase II in the first Draft EA, are not currently needed. As a result, the revised version of the Proposed Action consists of development of (a) 11 housing units within a 15-acre parcel located on Moody AFB and (b) 90 housing units within approximately 60 acres of the eastern portion of the previously identified 113-acre Val Del parcel. This eastern portion of the parcel was previously identified as "Phase I" in the July 2013 Draft EA. Where possible, the Phase I language was changed to "eastern portion of the parcel" to more clearly specify which land is under discussion. Similarly, the "Phase II" language was changed to "western portion" where possible. These changes are made in key areas of the document and where it made sense for greater clarity. However, the reader should understand that "eastern portion" and "Phase I" are synonymous for the purpose of this document. Similarly, the terms "western portion" and "Phase II" are also synonymous for the purpose of this document.

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 was originally estimated that approximately 4 miles of paved roadway with similar dimensions would be constructed (760,000 square feet), along with a gated entrance. Under the revised Proposed Action, it is estimated that approximately half that amount (2 miles or 380,000 square feet) would be required.
- 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 analysis that ground disturbance associated with utility installation would be minimal and would occur within established rights of way and avoid any sensitive areas, and disturbed areas would be revegetated once installation is complete. Any deviations would require additional NEPA analysis.
- Natural buffers: On Moody AFB, the development area would maintain a natural forest screen between Parker Greene Highway/Bemiss Road, Stone Road, and the homes. In addition, a gated entrance would be installed. At the Val Del parcel 30-foot green space buffer would be provided around the perimeter of the parcel per Lowndes County land development requirements. Based on the information available at this time, it is expected that the Proposed Action requires the use of up to 2.3 acres of jurisdictional wetlands and 0.4 acre of non-jurisdictional wetlands on the Val Del parcel. All other jurisdictional wetlands on the property will be surrounded and protected by a 25-foot vegetative buffer to prevent impacts to that area.

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

- Community area: A community center, approximately 8,000 square feet in size and consisting of combined housing office and recreational center, is desired at the Val Del parcel. At Moody AFB, a large gazebo with outdoor grilling area and play area at approximately 1,200 square feet may be constructed. Per Lowndes County Unified Land Development Code (ULDC), Section 6.01.03, Table 6.01.03 (A), additional parking of approximately 10,000 square feet would be required for the off-base parcel. ULDC requirements apply to only the Val Del parcel.
- Val Del maintenance building: A maintenance building would be approximately 3,000 square feet in size and would support housing maintenance activities. Per Lowndes County ULDC Section 6.01.03, Table 6.01.03 (A), additional parking of approximately 540 square feet would also be required. ULDC requirements apply to only the Val Del parcel.
- Val Del athletic courts: Potential athletic courts would consist of two tennis courts (7,200 square feet each) and two basketball courts (5,000 square feet each). Parking for this area would be the same as for the community area.
- Val Del splash park: A splash park is a zero-depth play area where water sprays from structures or ground sprays and then is drained away before it can accumulate. The splash park would include a nonporous surface with several water-spraying mechanisms, water drainage, and recirculation/disinfection features, as well as a playground with enclosed play structures, swings, and slides. Parking for this area would be the same as for the community area. *NOTE: As part of revising the Proposed Action, this has been changed to a swimming pool; the footprint associated with a swimming pool is approximately 15,000 square feet and would be slightly larger than that of a splash park (12,000 square feet).*
- NOTE: Phase II (53-acre western portion of Val Del parcel), as identified in Table 2-1, is no longer a requirement of the Proposed Action as described in the original July 15, 2013, Draft EA. It was kept in this EA for consistency and comparison purposes; however, only the data associated with the revised Proposed Action are applicable to the decision for implementation.

Table 2-1. Proposed Action Housing Details

Construction Features	Estimated Maximum Size/Unit	Revised Proposed Action (Phase I)				Phase II*		Total Square Footage
		Moody On-Base	Square Footage	Val Del	Square Footage	Val Del	Square Footage	
Housing Units								
SOQ Housing	2,920 ft²	8 units	23,360	N/A				23,360
FGO Housing	2,700 ft²	N/A		7 units	18,900	6 units	16,200	35,100
CGO Housing	2,500 ft²			14 units	35,000	13 units	32,500	67,500
Prestige Housing	2,700 ft²	3 units	8,100	N/A				8,100
SNCO Housing	2,500 ft²	N/A		5 units	12,500	4 units	10,000	22,500
JNCO Housing	2,220 ft²			64 units	142,080	60 units	133,200	275,280
Housing Unit Total		***11 units***	***31,460***	***90 units***	***208,480***	***83 units***	***191,900***	***431,840***
Non-Housing								
Moody Gazebo	1,200 ft²	1 unit	1,200	N/A				1,200
Community Center	8,000 ft²	N/A		1 unit	8,000	N/A		8,000
Maintenance Building	3,000 ft²			1 unit	3,000			3,000
Tennis Courts	7,200 ft²			2 units	14,400			14,400
Basketball Court	5,000 ft²			2 units	10,000			10,000
Splash Park**	12,000 ft²			1 unit	12,000			12,000
Non-Housing Total		***1 unit***	***1,200***	***7 units***	***47,400***	***N/A***		***48,600***
Other								
Additional impervious surface (per housing unit)	1,250 ft²	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 ft²				10,540
Roadways	36 feet wide	1 mile at 190,000 ft²		4 miles at 760,000 ft²				950,000
Utility Lines	Unknown							
Other Total			***203,750***	***986,790***				***1,190,540***
Overall Total Square Footage			***236,410***	***1,434,570***				***1,670,980***

CGO = commission grade officer; FGO = field grade officer; ft² = square feet; JNCO = junior noncommissioned officer; N/A = not applicable; SNCO = senior noncommissioned officer; SOQ = senior officer quarters

*NOTE: Phase II is no longer a requirement of the Proposed Action as described in the original July 15, 2013, Draft EA. It has been kept in this EA for consistency and comparison purposes; however, these numbers are no longer applicable to the decision for implementation of the Proposed Action.

**NOTE: Splash park has been changed to swimming pool; the size of an Olympic size swimming pool is approximately 15,000 square feet.

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

Figure 2-2 represents the original conceptual site plan for the Val Del parcel based on the need presented in the original Draft EA published on July 15, 2103. However, based on current need and resultant changes in the Proposed Action, only the eastern portion of this conceptual site plan would be implemented as part of the Proposed Action; this area (and the new, proposed site plan) is represented in Figure 2-3 and is approximately 60 acres in size.

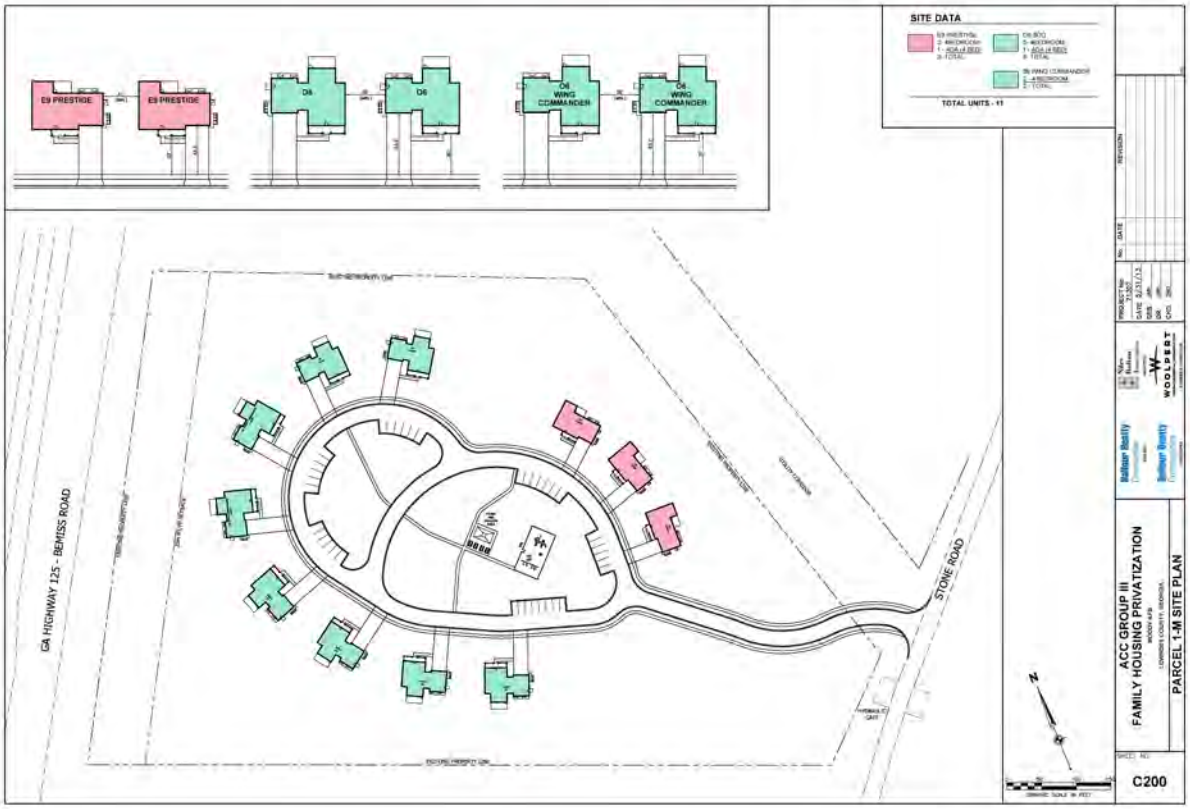

Figure 2-1. Preliminary Conceptual Design Plan for Moody SOQ Parcel

Figure 2-2. Preliminary Conceptual Design Plan for Original 173 Units at Val Del Parcel

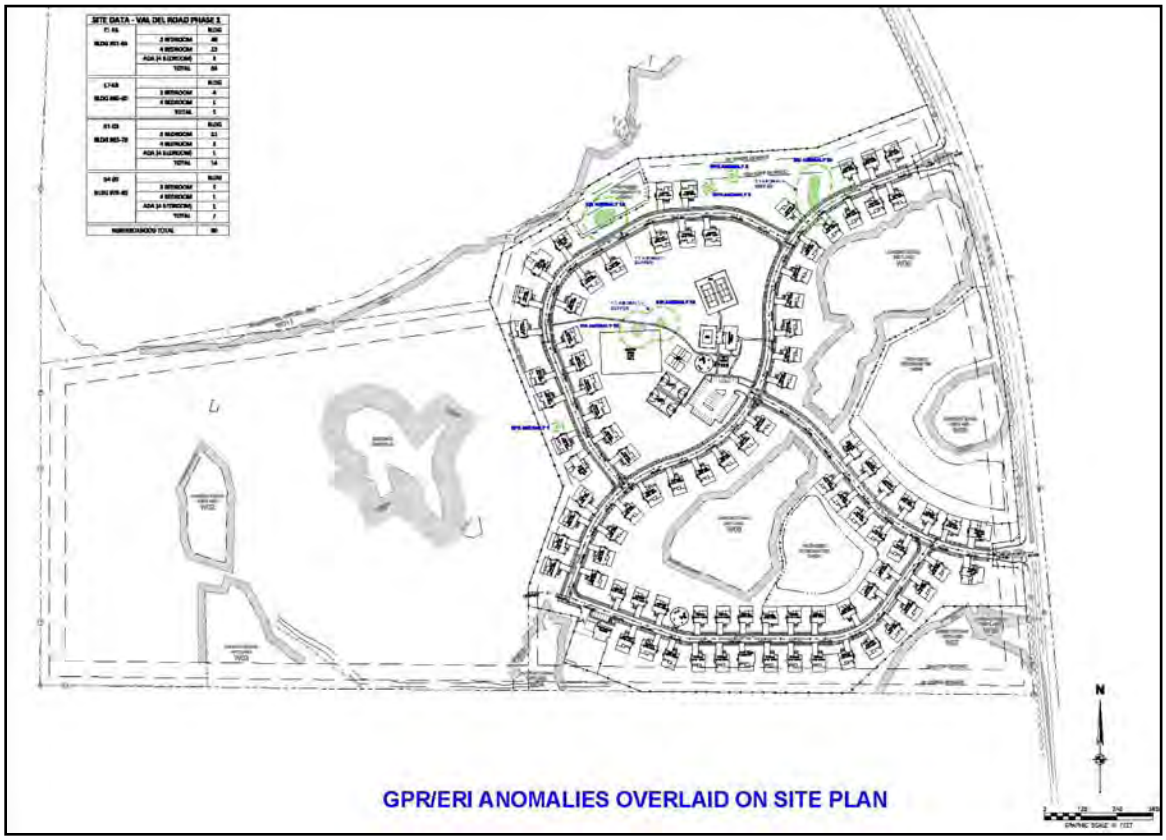

Figure 2-3. Updated Conceptual Design Plan of Revised Proposed Action at Val Del Parcel

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED

Three possible alternatives (including the Proposed Action) were identified for the 8 SOQ and 3 prestige housing units and three possible alternatives (including the Proposed Action) were identified for the 7 field grade officer (FGO), 14 commission grade officer (CGO), 5 senior noncommissioned officer (SNCO) and 64 junior noncommissioned officer (JNCO) housing units. As described previously, any off-base land used for housing must be: (a) within a 20-mile/60-minute commute radius from Moody AFB; (b) currently available and sized to accommodate the housing need; (c) compatible with residential use (e.g., no potential soil or water contaminants or cleanup required); and (d) compliant with federal, state, and local law. For the reasons described below, the following alternatives were considered but not carried forward.

2.3.1 Senior Officer Quarters

Mission Lake

This alternative consisted of 17 acres behind Mission Lake. While outside of wetlands, this location is near a former landfill, thus requiring soil gas surveys and possible vapor mitigation measures. This alternative would also require relocation of the Air-Ground Operations Wing Obstacle Course and is close to industrial areas and the flightline, thus resulting in potential noise issues from flying operations. Therefore, this alternative did not meet the requirement for housing compatibility and was not considered further.

Quiet Pines

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

2.3.2 Off-Base Units

For the off-base units, a parcel located across Parker Greene Highway/Bemiss Road from Moody AFB was identified as a potential development location; however, it was determined that zoning restrictions would preclude residential development on this site. For that reason, subsequent to issuance of the Request for Proposal (RFP), the golf course on Moody AFB was evaluated as a potential alternative for development of the off-base housing units. Base leadership believed that the golf course land might become available if the golf course were to close due to the Air Force Services Transformation initiative; however, the availability of the golf course area is very speculative. For that reason, this parcel was not carried forward as an alternative.

For the reasons discussed above, the parcel near Parker Greene Highway and the golf course alternatives were considered to be impracticable. These determinations support the legitimacy of a potential Finding of No Practicable Alternative (FONPA). Accordingly, the 113-acre Val Del parcel was carried forward in the first Draft EA, and in the Revised Draft EA, the 60-acre eastern portion of the Val Del parcel was carried forward.

2.4 NO ACTION ALTERNATIVE

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

2.5 IMPACT SUMMARY

2.5.1 Issues Not Carried Forward for Detailed Analyses

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

Land Use

Utilization of both parcels would change the land use designation from "undeveloped" to "housing" but would not affect surrounding land uses or result in

incompatible land uses or zoning issues. As a result, the Air Force has not identified any impacts to adjacent land uses.

Moody AFB

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

Val Del Parcel

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

Safety and Occupational Health

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

Moody AFB

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

Furthermore, the developer would be required to use criteria for site design elements found in UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings* (January 19, 2007) for housing units on Moody AFB. Other design elements (such as gates, fences, setbacks, traffic patterns, lighting, and landscaping designs) would also be required to minimize terrorist impacts, minimize access from surrounding communities, eliminate places of concealment, offer the most protection against crime, and discourage undesirable traffic. Therefore, the Air Force has not identified impacts

to safety or occupational health, given required implementation of standard AFOSH/OSHA protocols and force protection standards.

Val Del Parcel

OSHA requirements and Lowndes County ULDC requirements would apply at this parcel, thus minimizing potential general safety and occupational health impacts to insignificant levels. Special risks to children associated with construction activities and the sinkhole at the Val Del parcel have been identified. These special risks to children are discussed in Section 4.7.2. The risk associated with the sinkhole has since been reduced by the eliminating the housing units adjacent to the sinkhole in the revised Proposed Action.

Noise

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

Construction noise would not exceed U.S. Environmental Protection Agency (USEPA) benchmark annoyance levels (USEPA, 1974) more than 500 feet from the source at either Moody AFB or the Val Del parcel. Furthermore, no noise-generating construction activities would be conducted within 500 feet of any residences or other noise receptors at either Moody AFB or the Val Del parcel. As a result, the Air Force has not identified significant noise impacts at either location.

Moody AFB

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

Val Del Parcel

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

Hazardous Materials and Waste

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

Moody AFB

There are no Environmental Restoration Program (ERP) sites within or adjacent to the proposed housing area on Moody AFB that would be affected by the Proposed Action. The developer would be required to comply with all applicable federal, state, and/or local government, or administrative regulatory body, agency, board, or commission or a judicial body, relating to the protection of human health and/or the environment or otherwise regulating and/or restricting the management, use, storage, disposal, treatment, handling, release, and/or transportation of a hazardous substance. This would preclude the potential for any hazardous material or waste impacts. Thus, no significant or adverse impacts associated with hazardous materials or waste would occur under the Proposed Action.

Val Del Parcel

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

2.5.2 Summary of Impact Analysis

The following environmental features were identified for analysis in this EA: air quality, water resources, biological resources, soils and geology, cultural resources, solid waste, socioeconomics/environmental justice, and infrastructure (utilities and transportation). Table 2-2 summarizes the impacts associated with the Proposed 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; impacts under the revised Proposed Action would be less than those identified in the original Draft EA, because the scope of the action has been reduced by 53 acres and 83 units. 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. While the Georgia Department of Natural Resources (GADNR) has no records of priority species or habitats within the project areas, three federally listed species and several state-listed species are known to occur within 3 miles of the proposed sites (See Appendix A) – these species are protected from harm under state and federal law. However, 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. Impacts under the revised Proposed Action would be less than those identified in the original Draft EA, because the scope of the action has been reduced by 53 acres and 83 units. As a result, no adverse impacts are anticipated.	
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 minimize soil erosion impacts from construction activities. Site designs would need to consider the development restrictions associated with poorly drained soils susceptible to wetness and flooding. The primary concern at the Val Del parcel is a sinkhole covering approximately 1.16 acres in the western half of the site; the potential for gradual to sudden expansion exists in a karst environment. Analysis and proposed impact minimization procedures in the original Draft EA were based on the limited availability of information regarding the sinkhole. However, under the revised Proposed Action the western portion of the Val Del parcel would not be utilized, thus avoiding the sinkhole altogether. Potential impacts under the revised Proposed Action would be less than those identified in the original Draft EA, because the scope of the action has been reduced by 53 acres and 83 units.	

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

Resource / Issue Area	Alternatives	
	Proposed Action	No Action
Cultural resources	No cultural resources or 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 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 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. Potential impacts under the revised Proposed Action would be less than those identified in the original Draft EA, because the scope of the action has been reduced by 53 acres and 83 units.	
Solid waste	The Air Force has not identified any significant solid waste-related impacts. Construction activities under the original Proposed Action were estimated to generate approximately 8,098 tons of construction debris. However, potential impacts under the revised Proposed Action would be less than those identified in the original Draft EA, because the scope of the action has been reduced by 53 acres and 83 units. Recycling actions would further 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	Based on the information available at this time, it is expected that the Proposed Action would require the use of up to 2.3 acres of jurisdictional wetlands and up to 0.4 acre of non-jurisdictional wetlands on the eastern portion of the Val Del parcel. Jurisdictional wetlands will be used, therefore a Clean Water Act (CWA) Section 404 permit is required for their use, resulting in requirements for wetland mitigation banking (described in Section 3.2) and other impact minimization practices to be determined as part of permit issuance (such as use of erosion control measures including hay bales and silt fencing). The State of Georgia has no requirements for use of these wetlands; however, GADNR recommends a minimum undisturbed 100-foot buffer around streams or wetlands at the Val Del site (See Appendix A). Lowndes County development guidelines require a minimum of a 25-foot buffer zone around streams and jurisdictional wetland complexes. 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 impact minimization 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 west of 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. Potential impacts under the revised Proposed Action would be less than those identified in the original Draft EA, because the scope of the action has been reduced by 53 acres and 83 units.	

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

Resource / Issue Area	Alternatives	
	Proposed Action	No Action
Socioeconomics/ Environmental Justice	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 just west of the proposed construction area at the Val Del parcel. The entire eastern proposed housing parcel would be fenced, thus minimizing safety risks associated with resident access to the sinkhole area in the western portion of the site.	
Infrastructure	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. Potential impacts under the revised Proposed Action would be less than those identified in the original Draft EA, because the scope of the action has been reduced by 53 acres and 83 units.	

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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.

NOTE: The Affected Environment within the Revised Draft and Final EA has not been changed from the original Draft EA published on July 15, 2013, except where noted. The affected environments are essentially the same as originally described, except that the scope of the revised Proposed Action for the Val Del parcel is now only associated with the eastern portion of the Val Del parcel (approximately 60 acres) as opposed to the entire parcel. There is no planned development on the western portion of the Val Del parcel, also referred to as Phase II. All maps and descriptions are as originally provided, except where noted. The Air Force has taken this approach to allow for consistency and transparency between the original Draft EA published on July 15, 2013, and the Revised Draft and Final EA.

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_2), sulfur dioxide (SO_2), particulate matter equal to or less than 10 and 2.5 micrometers (PM_{10} and $PM_{2.5}$), ozone (O_3), 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.

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

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

3.1.1 Affected Environment

Climate

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

Moody AFB

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

Emissions that would be generated under the Proposed Action and No Action Alternative were compared with Lowndes County emissions obtained from USEPA's 2008 National Emissions Inventory (NEI). NEI data are the latest available; these are presented in Table 3-1. The county data include emissions amounts from point sources, area sources, and mobile sources. *Point sources* are stationary sources that can be identified by name and location. *Area sources* are point sources from which emissions are too low to track individually, such as a home or small office building or a diffuse stationary source, such as wildfires or agricultural tilling. *Mobile sources* are any kind of vehicle or equipment with gasoline or diesel engine, an airplane, or a ship. Two types of mobile sources are considered: on-road and nonroad. On-road sources consist of vehicles such as cars, light trucks, heavy trucks, buses, engines, and motorcycles. Nonroad sources are aircraft, locomotives, diesel and gasoline boats and ships, personal watercraft, lawn and garden equipment, agricultural and construction equipment, and recreational vehicles (USEPA, 2009).

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

Criteria Pollutant (tons/year)					
CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOCs
42,674	6,919	9,366	2,348	752	24,322
Greenhouse Gases (tons/year)					
CO_2	CH_4	N_2O	CO_2e	CO_2	CH_4
977,394	340	58	1,002,450	977,394	340

Source: USEPA, 2013
CH_4 = methane; CO = carbon monoxide; CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; N_2O = nitrous oxide; NO_x = nitrogen oxides; PM_{10} and $PM_{2.5}$ = particulate matter with a diameter of less than or equal to 10 microns and 2.5 microns, respectively; SO_2 = sulfur dioxide; VOC = volatile organic compound

Val Del Parcel

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

GHG Emissions/Baseline

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere; the accumulation of these gases in the atmosphere has been attributed to the regulation of Earth's temperature. Human activity in the past century is "very likely" (90 percent chance) the cause of the observed increase in GHG concentrations (Intergovernmental Panel on Climate Change, 2007). Thus, regulations to inventory and decrease emissions of GHGs have been promulgated. At this time, a threshold of significance has not been established for the emissions of GHGs.

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

3.2 WATER RESOURCES

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

3.2.1 Affected Environment

Surface Water

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

Under the Clean Water Act (CWA), it is illegal to discharge pollutants from a point source into any surface water of the United Sates without a National Pollutant Discharge Elimination System (NPDES) permit. Under the CWA, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate, or if appropriate, from the interstate water pollution control agency with jurisdiction over the affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with the CWA. USEPA has the authority to set standards for the quality of wastewater discharges. The goal of the CWA, Section 402, is the "restoration and maintenance of the chemical, physical, and biological integrity of the Nation's waters." Georgia has legal authority to implement and enforce the provisions of the CWA, while USEPA retains oversight responsibilities.

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

Water resources in Georgia are afforded protection under the GADNR Environmental Protection Division (EPD). These programs are administered in accordance with the state's stormwater management program and the state's erosion and sedimentation program (GADNR, 2000; GADNR, 2001) under the auspices of Georgia's Watershed Protection Branch.

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

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

Moody AFB

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

Val Del Parcel

The proposed Val Del parcel is located in the Withlacoochee River drainage, which is part of the Suwannee River basin as described above. Surface water resources at the site consist primarily of small, shallow, ponded wetlands and two very small, shallow, excavated ponds. There is an aboveground, perennial stream associated with a large wetland complex that borders a portion of the northwestern boundary of the site that flows northeast to the Withlacoochee River. There is a 1.16-acre sinkhole on the western portion of the parcel that is bisected by a long gully, which supports a small, intermittent stream approximately 365 feet long. This section of the parcel is no longer planned for development. The gully is fed primarily by a series of groundwater seeps near the southern end of the stream. The stream occasionally receives surface water runoff during rainstorms from the surrounding area and a series of gullies from the northeast and southwest. The stream flows approximately 365 feet through the

sinkhole before disappearing into the bottom of the pit at the deepest part of the sinkhole. The stream would be regulated under Section 404 of the CWA (U.S. Army Corps of Engineers [USACE], 2013). The estimated maximum depth of the sinkhole is 60 to 70 feet below the surrounding ground surface. There is no visible subsurface opening in the bottom. In March 2013, there was approximately 6 to 7 feet of water in the bottom of the pit (SAIC, 2013). The sinkhole is probably deep enough to intersect the top of the Upper Floridan aquifer (Burgoon, 1991). The area around the sinkhole is dominated by mature hardwood forest. Figure 3-2 depicts the location of the two streams and sinkhole at the Val Del parcel.

Groundwater

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

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

Moody AFB

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

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

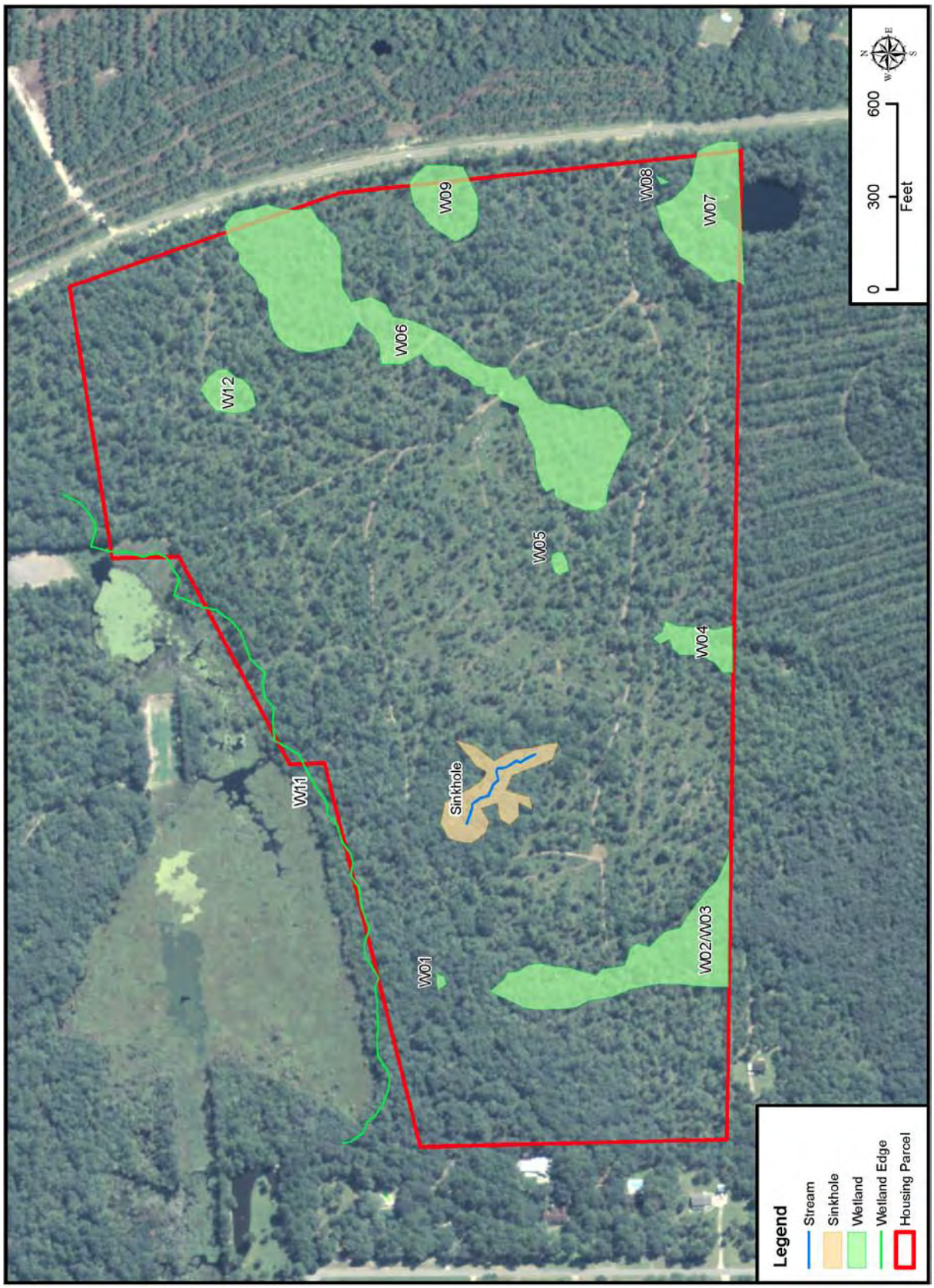

Figure 3-2. Surface Water Resources at the Val Del Parcel

Val Del Parcel

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

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

Wetlands and Floodplains

Wetlands are defined by the USACE and USEPA as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include marshes, bogs, and similar areas." Wetlands serve a variety of functions, including groundwater recharge and discharge, flood flow attenuation, sediment stabilization, sediment and toxicant retention, nutrient removal and transformation, aquatic and terrestrial diversity and abundance, and uniqueness. Three criteria are necessary to define wetlands: vegetation (hydrophytes), soils (hydric), and hydrology (frequency of flooding or soil saturation).

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

wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative.

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

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

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

Floodplains are defined by EO 11988, *Floodplain Management*, as "the lowland and relatively flat areas adjoining inland and coastal waters including flood-prone areas of offshore islands, including at a minimum, the area subject to a 1 percent or greater chance of flooding in any given year" (that area inundated by a 100-year flood). Floodplains and riparian habitat are biologically unique and highly diverse ecosystems providing a rich diversity of aquatic and terrestrial species, as well as promoting stream bank stability and regulating water temperatures. EO 11988 requires federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative.

Moody AFB

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

Val Del Parcel

A wetland delineation at the Val Del parcel in September 2012 and March 2013 identified 10 wetlands covering 13.071 acres at the site (see Figure 3-2 and Table 3-2). These wetlands include a variety of forested, scrub-shrub, and emergent wetland habitat. All 10 wetlands have been affected directly or indirectly by a 2011 timber harvest at the site and other human activities. Wetlands that fall within the revised Proposed Action are highlighted in Table 3-2.

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

Wetland ID	Wetland Type [a]	Area (Acres)	Jurisdictional Status[c]
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[b]	Jurisdictional
W12	PEM1E/PFO1/4E	0.401	Isolated
	Total wetlands	13.701	
	Total jurisdictional wetlands	12.578	
	Total isolated wetlands	0.4931	

Yellow highlight indicates wetlands that fall in the revised Proposed Action.
a. Classification codes as defined in Cowardin et al., 1979: PEM1E = palustrine emergent, persistent vegetation, seasonally flooded/saturated; PEM1F = palustrine emergent, persistent vegetation, semipermanently flooded/saturated; PEM1H = palustrine emergent, persistent vegetation, permanently flooded/saturated; PFO1E= palustrine forested, broad-leaved deciduous vegetation, seasonally flooded/saturated; PFO4E= palustrine forested, needle-leaved vegetation, seasonally flooded/saturated; PSS3E= palustrine scrub-shrub, broad-leaved evergreen vegetation, seasonally flooded/saturated; PUBF=palustrine unconsolidated bottom, semipermanently flooded/saturated; PUBH=palustrine unconsolidated bottom, permanently flooded/saturated.
b. Partial wetland boundary adjacent to Val Del parcel
c. USACE, 2013

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

A copy of the Final Wetland Delineation Report is provided in Appendix C.

3.3 BIOLOGICAL RESOURCES

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

USFWS and GADNR maintain lists of threatened and endangered species in Georgia. Threatened and endangered species are protected from death, harm, or harassment under the federal Endangered Species Act (ESA) (16 USC 1536). Under the ESA, an *endangered* species is defined as any species in danger of extinction throughout all or a significant portion of its range. A *threatened* species is defined as any species likely to become an endangered species in the foreseeable future. Section 7(a)(2) of the act requires federal agencies to ensure that their actions are not likely to jeopardize listed species or result in the destruction or adverse modification of designated critical habitat. Endangered species are those at risk of extinction in all or a substantial portion of their range. Threatened species are those that could be listed as endangered in the near future.

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

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

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

3.3.1 Affected Environment

Flora and Fauna

Moody AFB

Moody AFB is located within the lower coastal plains and flatwoods section of the Outer Coastal Plain Mixed Forest Province. Developed areas of the installation are landscaped with a variety of native and nonnative trees, shrubs, and grasses. The majority of the project parcel is vegetated with hardwood shrubs and young pine trees. Common shrubs within the area include wax myrtle (*Myrica cerifera*), Japanese honeysuckle (*Lonicera japonica*), and blackberries (*Rubus* spp.). The primary upland tree species is slash pine (*Pinus elliotii*) (U.S. Air Force, 2001a, 2001b, and 2007a).

Common mammals found at Moody AFB include Virginia opossum (*Didelphis virginiana*), eastern cottontail (*Sylvilagus floridanus*), gray fox (*Urocyon cinereoargenteus*), striped skunk (*Mephitis mephitis*), white-tailed deer (*Odocoileus virginianus*), eastern gray squirrel (*Sciurus carolinensis*), and eastern woodrat (*Neotoma floridana*). Amphibian

species living in wetland areas include spring peeper (*Hyla crucifer*), southern chorus frog (*Pseudacris nigrita*), eastern newt (*Notophthalmus viridescens*), and tiger salamander (*Ambystoma tigrinum*). The common box turtle (*Terrapene carolina*), ground skink (*Scincella laterialis*), eastern glass lizard (*Ophisaurus ventralis*), southern water snake (*Nerodia fasciata*), and rough earth snake (*Virginia striatula*) are common reptiles on Moody AFB (U.S. Air Force, 2007b).

Val Del Parcel

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

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

Sensitive Species

While GADNR has no records of priority species or habitats within the project areas, three federally listed species and several state-listed species are known to occur within 3 miles of the proposed sites (see Appendix A); these are consistent with those identified in Table 3-4 and Table 3-5, following this discussion. However, 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, but some rare species were identified.

Moody AFB

Table 3-4 lists all rare, threatened, and endangered species found on Moody AFB (U.S. Air Force, 2007a). No rare, threatened, and endangered plant or animal species are known to occur within the proposed parcel (BHE, 2002; U.S. Air Force, 2007a). Soil conditions within the parcel are favorable for the presence of gopher tortoise burrows, but none have been identified in the immediate area (U.S. Air Force, 2007a), the closest being more than 1.5 miles from the site (Lopez, 2011). Moody AFB biologists conducted a survey of the area in January 2011 and did not identify any sensitive species in the area (Lopez, 2011). Sensitive habitats include wetlands, plant communities designated as unusual or of limited distribution, and important seasonal use areas for wildlife (e.g., migration routes, breeding areas, crucial winter/summer habitat). However, no unusual or limited-distribution plant communities or important seasonal use areas for wildlife have been identified within the parcel. Also, no other sensitive habitats are known to be present (U.S. Air Force, 2001b, 2007a).

Val Del Parcel

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

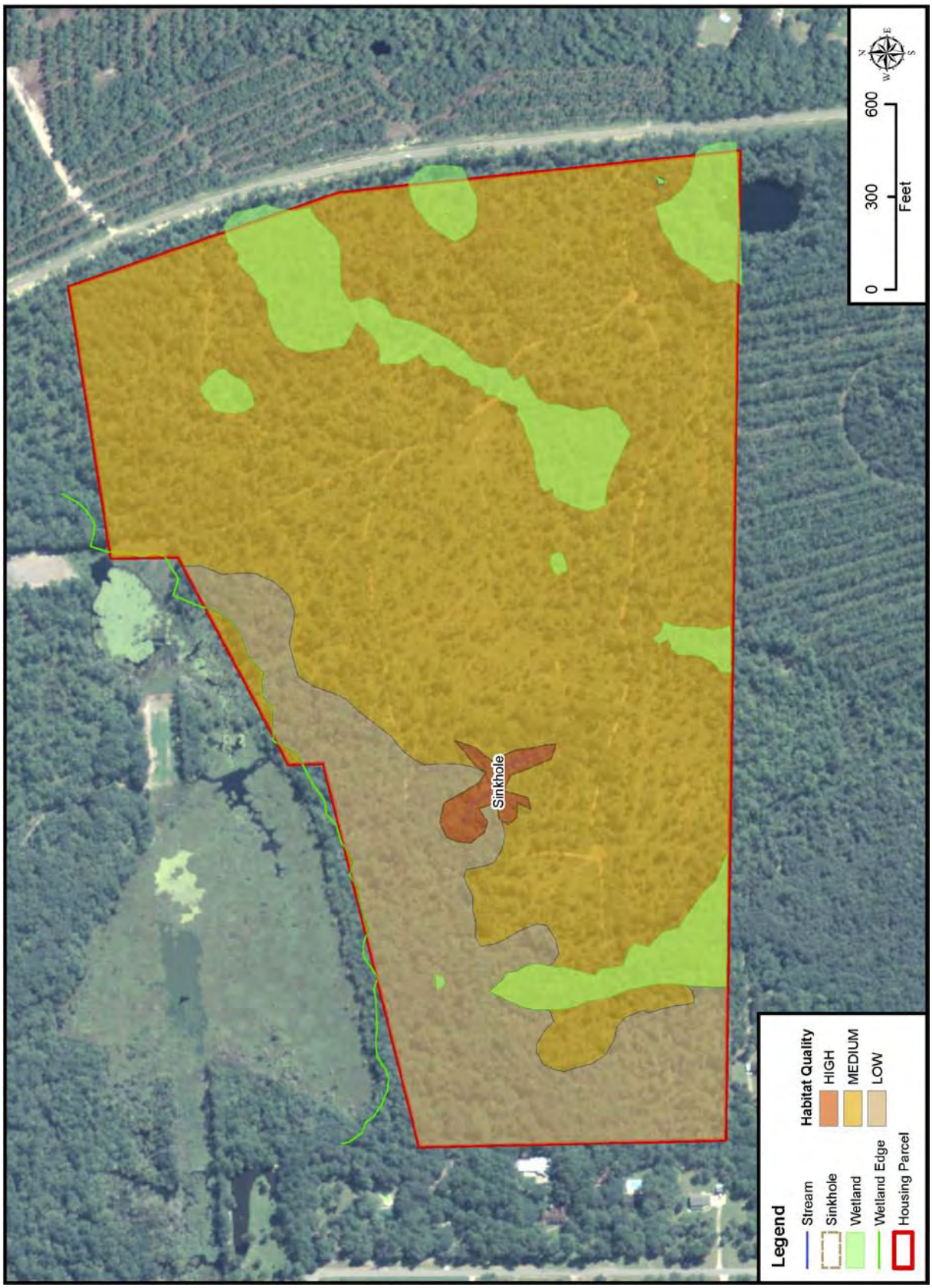

Figure 3-3. Habitat Quality at the Val Del Parcel

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

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

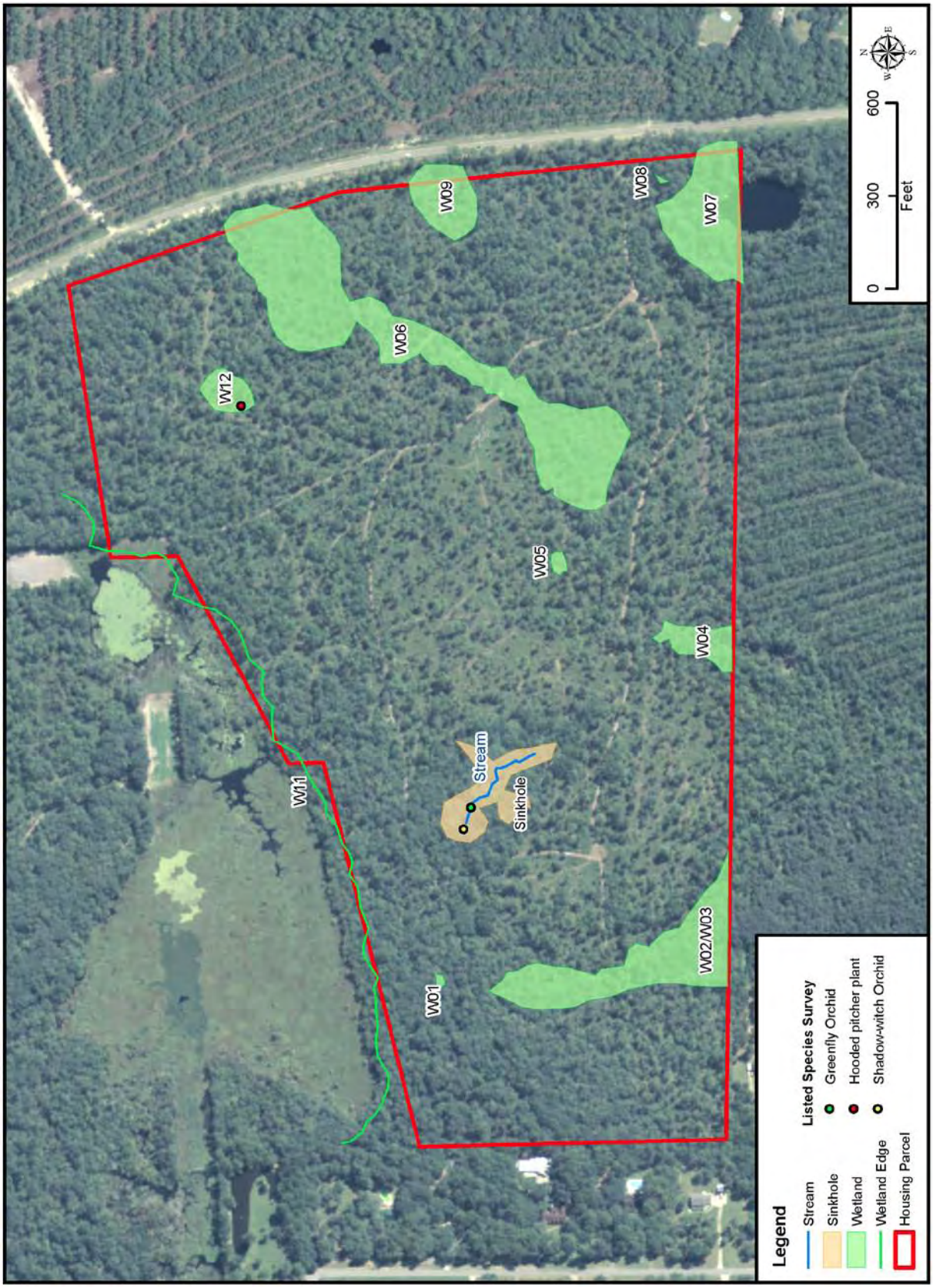

Figure 3-4. Locations of Special Status Species Observed on the Val Del Parcel

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[a]	State Status[b]	Natural Heritage Status[c]	Observed
Amphibians					
Frosted flatwoods salamander	*Ambystoma cingulatum*	T	T	G2/S2	No
Striped newt	*Notophthalmus perstriatus*		T	G2G3/S2	No
Dwarf siren	*Pseudobranchus striatus*			G5T2T3/S3	No
Eastern tiger salamander	*Ambystoma tigrinum*			G5T5	No
Birds					
Bachman's sparrow	*Aimophila aestivalis*		R	G3/S2	No
American bittern	*Botaurus lentiginosus*			G4	No
Swallow-tailed kite	*Elanoides forficatus*		R	G5 /S2	No
Florida sandhill crane	*Grus canadensis pratensis*			G5T2T3/S1	No
Bald eagle	*Haliaeetus leucocephalus*		T	G5/S2	No
Migrant loggerhead shrike	*Lanius ludovicianus migrans*			G4T3Q	No
Wood stork	*Mycteria americana*	E	E	G4/S2	No
Yellow-crowned night-heron	*Nyctanassa violacea*			G4/S4	No
Red-cockaded woodpecker	*Picoides borealis*	E	E	G3/S2	No
Glossy ibis	*Plegadis falcinellus*			G5	No
Mammals					
Florida black bear	*Ursus americanus floridanus*			G2T2/S3?	No
Reptiles					
Spotted turtle	*Clemmys guttata*		U	G5/S3	No
Eastern diamond-backed rattlesnake	*Crotalus adamanteus*			G4	No
Eastern indigo snake	*Drymarchon corais couperi*	LT	T	G3/S3	No
Gopher tortoise	*Gopherus polyphemus*		T	G3/S2	No
Florida pine snake	*Pituophis melanoleucus mugitus*			G4T3	No
Crayfish snake	*Regina alleni*			G5/S2	No
Florida crowned snake	*Tantilla relicta*			G5	No
Plants					
Scale-leaf purple foxglove	*Agalinis aphylla*			G3G4/S3?	No
Pineland purple foxglove	*Agalinis divaricata*			G3?/S1?	No
Georgia purple foxglove	*Agalinis georgiana*			G1Q/S1	No
Sandhill angelica	*Angelica dentata*			G2G3/S2?	No
Leconte's wild indigo	*Baptisia lecontei*			G4?/S1	No
Hop sedge	*Carex lupulifomis*			G4?/S1	No
Tracy's dew threads	*Drosera tracyi*			G3G4/S1	No
Green fly orchid	*Epidendrum magnoliae*		U	G4/S3	**Yes**
Southern umbrella sedge	*Fuirena scirpoidea*			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[a]	State Status[b]	Natural Heritage Status[c]	Observed
Southern bog-button	*Lachnocaulon beyrichianum*			G4/S1?	No
Pond spice	*Litsea aestivalis*		R	G3/S2	No
Boykin lobelia	*Lobelia boykinii*		R	G2G3/S2S3	No
Carolina bogmint	*Macbridea caroliniana*		R	G2G3/S1	No
Savanna cowbane	*Oxypolis denticulata*			G3/S2	No
Shadow-witch orchid	*Ponthieva racemosa*			G4G5S2?	**Yes**
Georgia milkwort	*Polygala leptostachys*			G3G4/S1	No
Bluff white oak	*Quercus austrina*			G4?/S3	No
Yellow pitcher plant	*Sarracenia flava*		U	G5?/S3S4	No
Hooded pitcher-plant	*Sarracenia minor* var. *minor*		U	G4T4/S4	**Yes**
Heartleaf nettle vine	*Tragia cordata*			G4/S2?	No
Three-birds orchid	*Triphora trianthophora*			G3G4/S2?	No

Source: Cardno-Entrix, 2013
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

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

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

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

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

3.4 SOILS AND GEOLOGY

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

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

3.4.1 Affected Environment

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

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

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

Moody AFB

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

The soil association for the Moody AFB parcel is Leefield-Pelham-Clarendon. These soils have a sandy surface layer and loamy subsoil and are found on low upland and in depressions. Three soil series within this association are located on the parcel at Moody AFB (Table 3-6): Clarendon loamy sand (5.0 percent of total area), Leefield loamy sand (92.8 percent of total area), and Olustee sand (2.2 percent of total area) (Figure 3-6). Leefield loamy sand is associated with the majority of the parcel, but a small area of Clarendon loamy sand is found in the southeast portion of the parcel adjacent to Stone Road. The small area of Olustee sand is located in the northwest 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[1]
Clarendon loamy sand	0.765	Moderate: wetness
Leefield loamy sand	14.22	Moderate: wetness
Olustee sand	0.345	Severe: wetness
Total acres	**15.33**	

1. Stevens, 1979

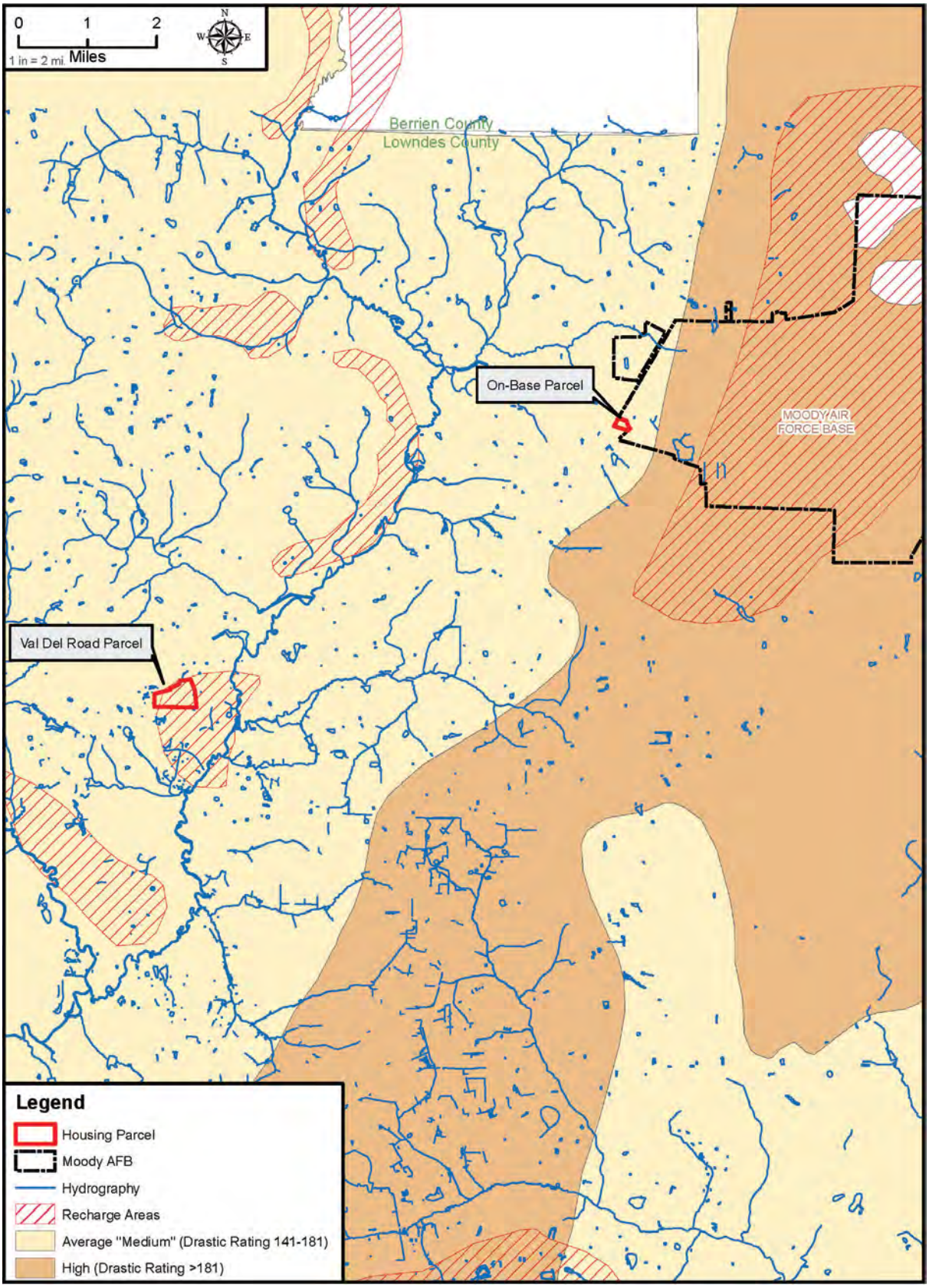

Figure 3-5. Karst Topography and Groundwater Recharge Areas

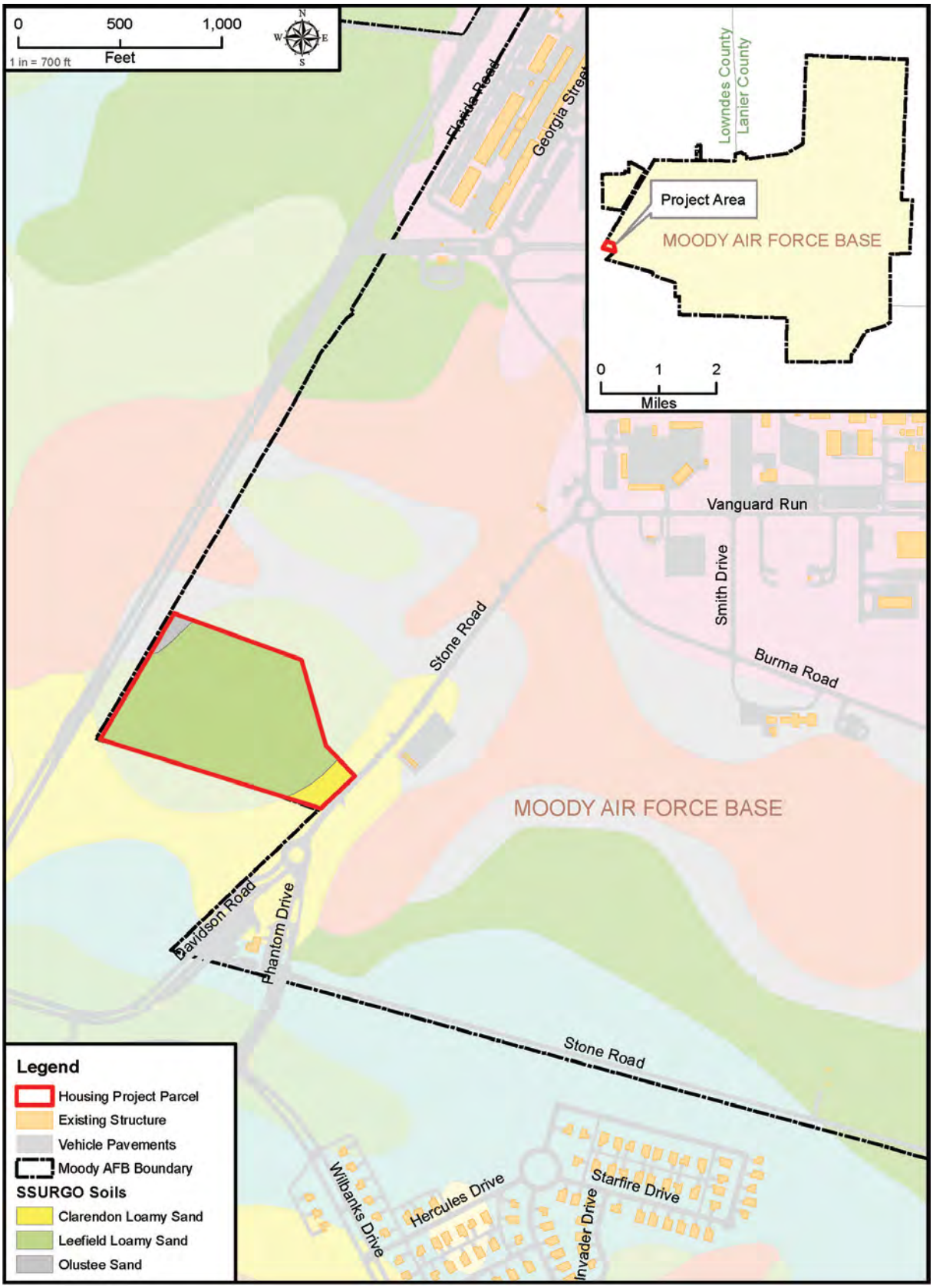

Figure 3-6. Soil Resources at Moody AFB

Val Del Parcel

As with the parcel on Moody AFB, the Val Del parcel is located within the Tifton Upland District of the Lower Coastal Plain and, similarly, the soils on uplands in this region were formed in deep sedimentary sands and clays. Six soil series are located on the Val Del parcel (Table 3-7): these include Mascotte sand (63 percent of total area), Pelham loamy sand (10.5 percent of total area), Olustee sand (8.9 percent of total area), Leefield loamy sand (8.7 percent of total area), Albany sand (8.1 percent of total area), 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[1]
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
Total acres	**113.12**	

1. Stevens, 1979

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

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

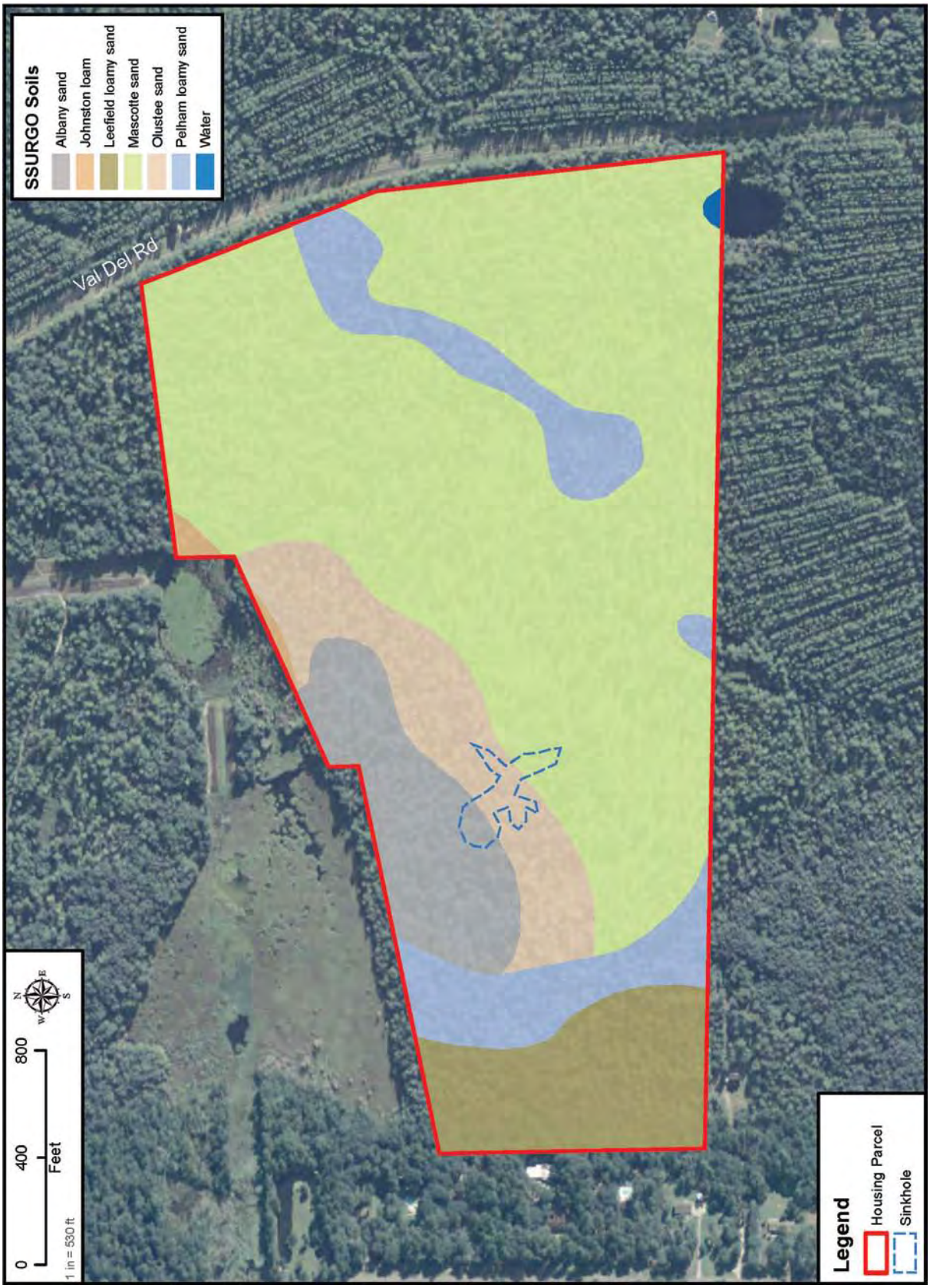

Figure 3-7. Soil and Geologic Resources at Val Del Parcel

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 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 potential to adversely affect cultural resources. The Georgia 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 NRHP (See Appendix A). Moody AFB completed consultation with local Native American tribes for concurrence on a finding of no effect to TCPs (a list of tribes is provided in Chapter 7). Only one tribe (United Keetoowah Band of Cherokee Indians in Oklahoma) responded to the consultation correspondence, and requested that if any human remains or funerary items are inadvertently discovered, that all work should cease and they be contacted immediately. Correspondence is included in Appendix A.

As with the Moody AFB parcel, 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 SHPO has concurred that the site is not eligible and Air Force activity can then continue (U.S. Air Force, 2012a).

3.6 SOLID WASTE

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

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

Air Force regulatory requirements and management of solid waste are established by Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*. AFPD 32–70 requires compliance with applicable federal, state, and local environmental laws and standards. For solid waste, AFPD 32-70 is implemented by Air Force Instruction (AFI) 32-7042, *Solid and Hazardous Waste*. AFI 32-7042 requires that each installation have a solid waste management program that includes a solid waste management plan to address handling, storage, collection, disposal, and reporting of solid waste. AFI 32-7080, *Pollution Prevention Program*, contains the solid waste requirement for preventing pollution through source reduction, resource recovery, and recycling. These requirements would apply to all on-base housing areas.

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

3.6.1 Affected Environment

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

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

3.7 SOCIOECONOMICS/ENVIRONMENTAL JUSTICE

Socioeconomic resources are defined as the basic attributes associated with human activities. The Moody AFB MHPI is primarily associated with the construction of on-base housing units for senior leadership and off-base housing for military personnel. Therefore, the following resources are addressed under socioeconomics as

the indicators that could potentially be impacted by the MHPI process: population, economic activity (employment and earnings), schools, and housing.

Concern that certain disadvantaged communities may bear a disproportionate share of adverse health and environmental effects compared with the general population led to the enactment in 1994 of EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*. This EO directs federal agencies to address disproportionate environmental and human-health effects in minority and low-income communities. In addition, 32 CFR 989, *Environmental Impact Analysis Process*, addresses the need for consideration of environmental justice issues in compliance with NEPA. EO 12898 applies to federal agencies that conduct activities that could substantially affect human health or the environment. The evaluation of environmental justice is designed to:

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

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

3.7.1 Affected Environment

Population

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

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

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

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

Employment

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

In 2011, the unemployment rate in Lanier County was 8.5 percent (Bureau of Labor Statistics [BLS], 2013a), lower than both the national level of 8.9 percent and the

state level of 9.9 percent (BLS, 2013b). The unemployment rate in Lowndes County was 9.3 percent, higher than the national level but lower than the state (BLS, 2013a).

Moody AFB spans over two counties in the region; therefore, the military and other defense-related industries are large contributors to the local economy. Moody AFB has an overall economic impact of $448 million (U.S. Air Force, 2010). A large part of the economic activity attributed to Moody AFB stems from related industries such as defense contractors. In 2010, over $86 million were attributed to local contract expenditures, of which $294,859 was for military family housing construction. In addition, an estimated 1,872 local jobs had been created in industries related to military spending at Moody AFB (U.S. Air Force, 2010).

Schools

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

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

Housing

At the time of the 2010 census, there were a total of 46,932 housing units in the ROI. Approximately 3,011 housing units were in Lanier County, of which 86.1 percent were occupied (U.S. Census Bureau, 2010a). There were 43,921 housing units in Lowndes County, of which 90.5 percent were occupied (U.S. Census Bureau, 2010b). The unincorporated areas of Lowndes County had the highest rate of owner-occupied units and are associated with the increasing percentage of residents locating to these

areas. The city of Remerton has one of the lower owner-occupied rates, but this is largely due to its high population of college students (Lowndes County, 2013).

There are approximately 24,000 rental units located within the city of Valdosta and the towns of Hahira, Lakeland, Ray City, Nashville, and Lake Park, all within 20 miles of the base (Moody AFB, 2013a). The average monthly rent in these areas is approximately $570 for a two-bedroom, $890 for a three-bedroom, and $1,330 for a four-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
Two-county ROI	**182,700**	**47.2**	**24.9**	**24.3**
Georgia	**9,687,653**	**44.1**	**16.5**	**25.7**
United States	**308,745,538**	**36.3**	**14.3**	**24.0**

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).

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

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

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

3.8 INFRASTRUCTURE

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

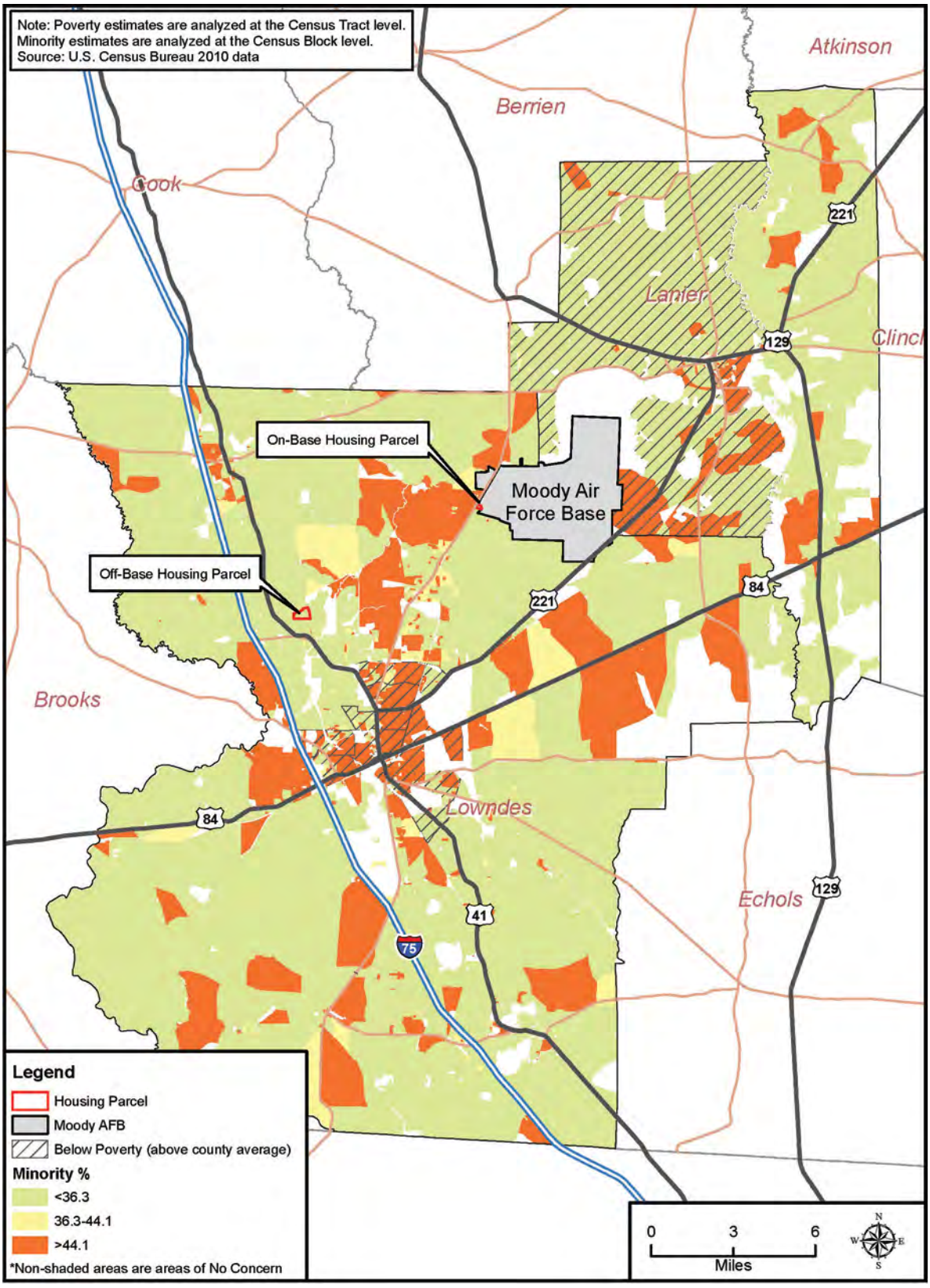

Figure 3-8. Communities with High Minority and/or Low-Income Populations as Compared with County Averages

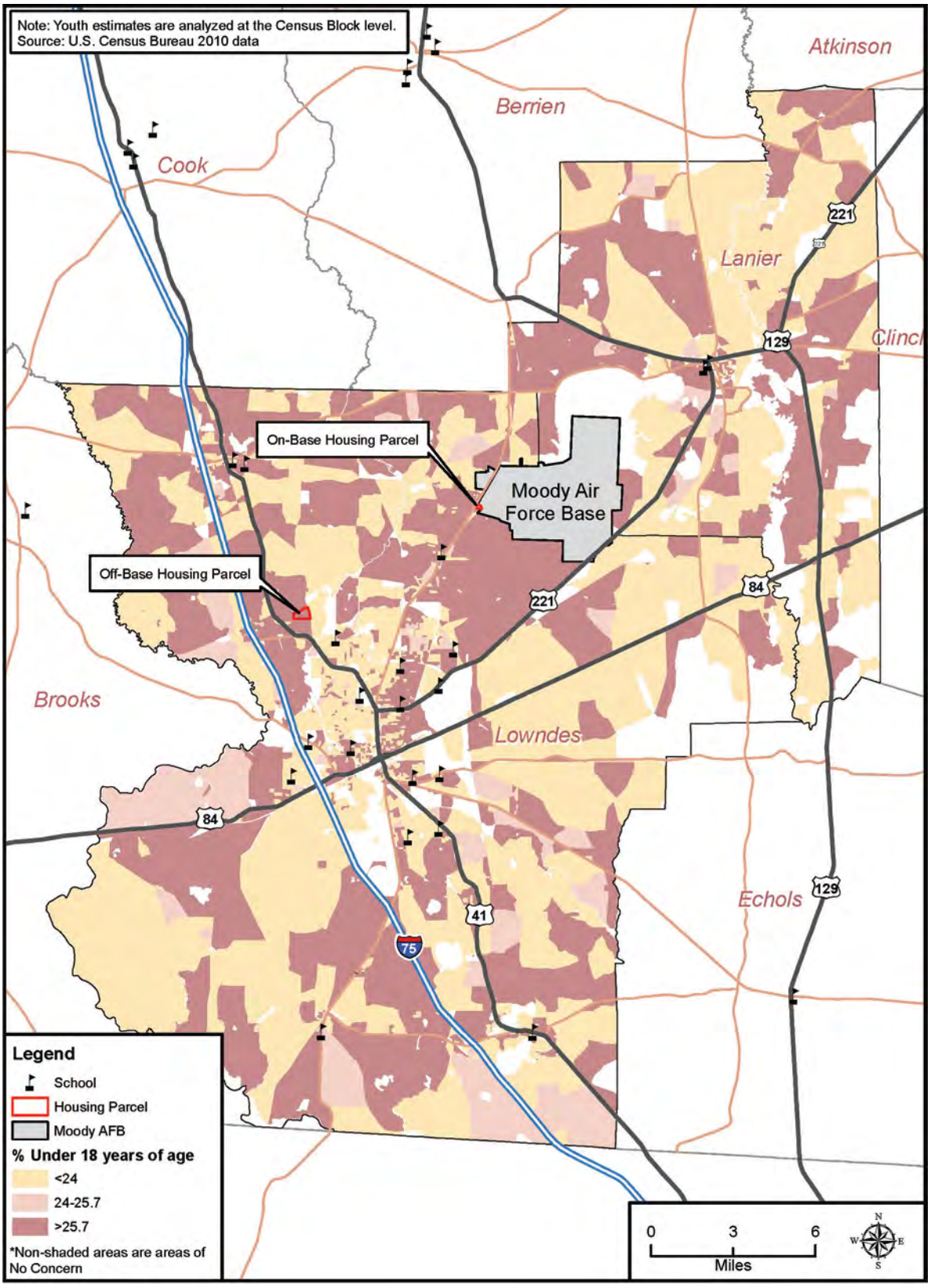

Figure 3-9. Communities with a High Percentage of Children Under 18 as Compared with County Averages

3.8.1 Affected Environment

Potable Water

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

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

Wastewater

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

Electricity

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

Colquitt EMC has an overhead distribution circuit (24,900/14,400 volts) running along Parker Greene Highway/Bemiss Road adjacent to the western boundary of the parcel. Electric distribution lines are also located along Val Del Road in the immediate vicinity of the proposed off-base parcel.

Natural Gas

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

Transportation

Roadways are typically assigned a functional classification by state departments of transportation. Functional classification is "the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide" (GDOT, 2012). 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.

Source: GDOT, 2012

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

- LOS A describes free flowing traffic at average travel speeds, usually about 90 percent of the free flow speed for the given street class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal.

- LOS B describes reasonably unimpeded operation at average travel speeds, usually about 70 percent of the free flow speed. The ability to maneuver within the traffic stream is only slightly restricted, and control delays at signalized intersections are not significant.
- LOS C describes stable operations; however, the ability to maneuver and change lanes in midblock locations may be more restricted than in LOS B, and longer queues, adverse signal coordination, or both may contribute to lower average travel speeds of about 50 percent of the free flow speed.
- LOS D borders the range in which small increases in flow may cause substantial increases in delay and decreases in travel speed. LOS D may be due to adverse signal progression, inappropriate signal timing, high volumes, or a combination of these factors. Average travel speeds are about 40 percent of free flow speed.
- LOS E is characterized by significant delays and average travel speeds of 33 percent or less of the free flow speed. Such operations are caused by a combination of adverse progression, high signal density, high volumes, extensive delays at critical intersections, and inappropriate signal timing.
- LOS F is characterized by urban street flow at extremely low speeds, typically one-third to one-fourth of the free flow speed. Intersection congestion is likely at critical signalized locations, with high delays, high volumes, and extensive queuing.

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

Moody AFB

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

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

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

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

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

Val Del Parcel

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

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4. ENVIRONMENTAL CONSEQUENCES

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

NOTE: The Environmental Consequences within the Revised Draft and Final EA have not been changed from the original Draft EA published on July 15, 2013, except where noted with an update. The impacts associated with the revised Proposed Action, as described in Chapter 2 of this document, would be no greater than those described in the original Draft EA, because the scope of the revised Proposed Action for the Val Del parcel is now only associated with 90 units placed in the eastern portion of the Val Del parcel (approximately 60 acres) as opposed to 173 units placed on the entire parcel (113 acres). All maps and descriptions are as originally provided. The Air Force has taken this approach to allow for consistency and transparency between the original Draft EA published on July 15, 2013, and the Revised Draft and Final EA.

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

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

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

4.1.2 Proposed Action

All impacts as described below are associated with the original Proposed Action as described in the July 15, 2013, Draft EA. Under the revised Proposed Action, impacts would be no greater than those described in the original Draft EA given the reduction in

required housing units described in Chapter 2. In either case, the Air Force has not identified any significant impacts to regional air quality under the Proposed Action.

The Proposed Action includes the construction of housing units, new roadways, and other associated buildings. Emissions from the use of large mobile equipment are calculated and summarized in Table 4-1. Impacts from the Proposed Action would amount to less than 1 percent of each of the criteria pollutants except PM_{10} (1.41 percent). These increases result in only a short-term, temporary increase in emissions. GHG emissions would be less than 25,000 metric tons (27,558 tons).

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

	Emissions (tons/year)						
	CO	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**SO_x**	**VOCs**	**CO_2e**
Lowndes County, Georgia [1]	42,674	6,919	9,366	2,348	752	24,322	197,855
Construction Emissions							
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 [2]	0.01%	0.01%	1.41%	0.00%	0.00%	0.03%	1.36%
Personnel Commute							
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 [3]	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.31%

CO = carbon monoxide; CO_2e = carbon dioxide equivalent; NO_x = nitrogen oxides; PM_{10} and $PM_{2.5}$ = particulate matter with a diameter of less than or equal to 10 microns and 2.5 microns, respectively; SO_x = sulfur oxides; VOC = volatile organic compound

1. USEPA, 2013
2. Percent of county emissions are calculated using the total emissions at Moody AFB and Val Del parcels for both Phases I and II. This assumes that the whole project would be completed in a single year as a worst-case scenario comparison.
3. Phase II emissions of personnel commute emissions were compared with the county emissions as these numbers represent the end state personnel numbers potentially off-base.

4.1.3 No Action Alternative

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

4.2 WATER RESOURCES

4.2.1 Analysis Methodology

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

4.2.2 Proposed Action

All impacts as described below are associated with the original Proposed Action as described in the July 15, 2013, Draft EA, except where noted. Under the revised Proposed Action, the western portion of the Val Del parcel (previously identified as Phase II under the original Proposed Action) would not be utilized, reducing the proposed footprint to approximately 60 acres from 113 acres; the sinkhole would be avoided.

Surface Waters

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

Moody AFB

Stormwater management associated with the new housing units on Moody AFB would be designed in accordance with Energy Independence and Security Act (EISA)/low-impact development requirements. These requirements would reduce

stormwater runoff by including such items as bioretention areas, buffer zones, permeable pavements, cisterns/recycling, and green roofs in the site design. The overall design objective is to maintain predevelopment hydrology and prevent any net increase in stormwater runoff. Project site design options would prioritize integrated management practices that are proven within the regional area and have the greatest cost benefit/lowest life cycle costs. Since the proposed development on Moody AFB is greater than 5,000 square feet, EISA requirements would apply to the Proposed Action on Moody AFB. The new housing development on Moody AFB would incorporate appropriate EISA requirements, thus reducing the amount of runoff during storm events.

Val Del Parcel

At the Val Del parcel, Lowndes County requires a minimum 10 percent of the land area be utilized for stormwater management. It is further recommended, as a management practice, that 25-foot buffer areas be utilized by the developer to avoid impacts to surface waters; GADNR recommends an undisturbed 100-foot buffer around streams or wetlands (see Appendix A). Figure 4-1 identifies the minimum 25-foot vegetative buffer areas associated with water resources at the Val Del parcel.

Construction of the housing units, driveways, roads, and other impervious surfaces at both parcels would require a Lowndes County land disturbance permit, which serves as the permit application for a GADNR NPDES permit for stormwater runoff. In association with the permit for controlling runoff during construction activities, a project-specific Erosion and Sedimentation Control Plan, which serves as the typical NPDES Stormwater Pollution Prevention Plan (SWPPP), would be developed to ensure measures would be in place to control pollutants in stormwater discharges. Compliance with this permit would prevent any significant impacts to surface water resources.

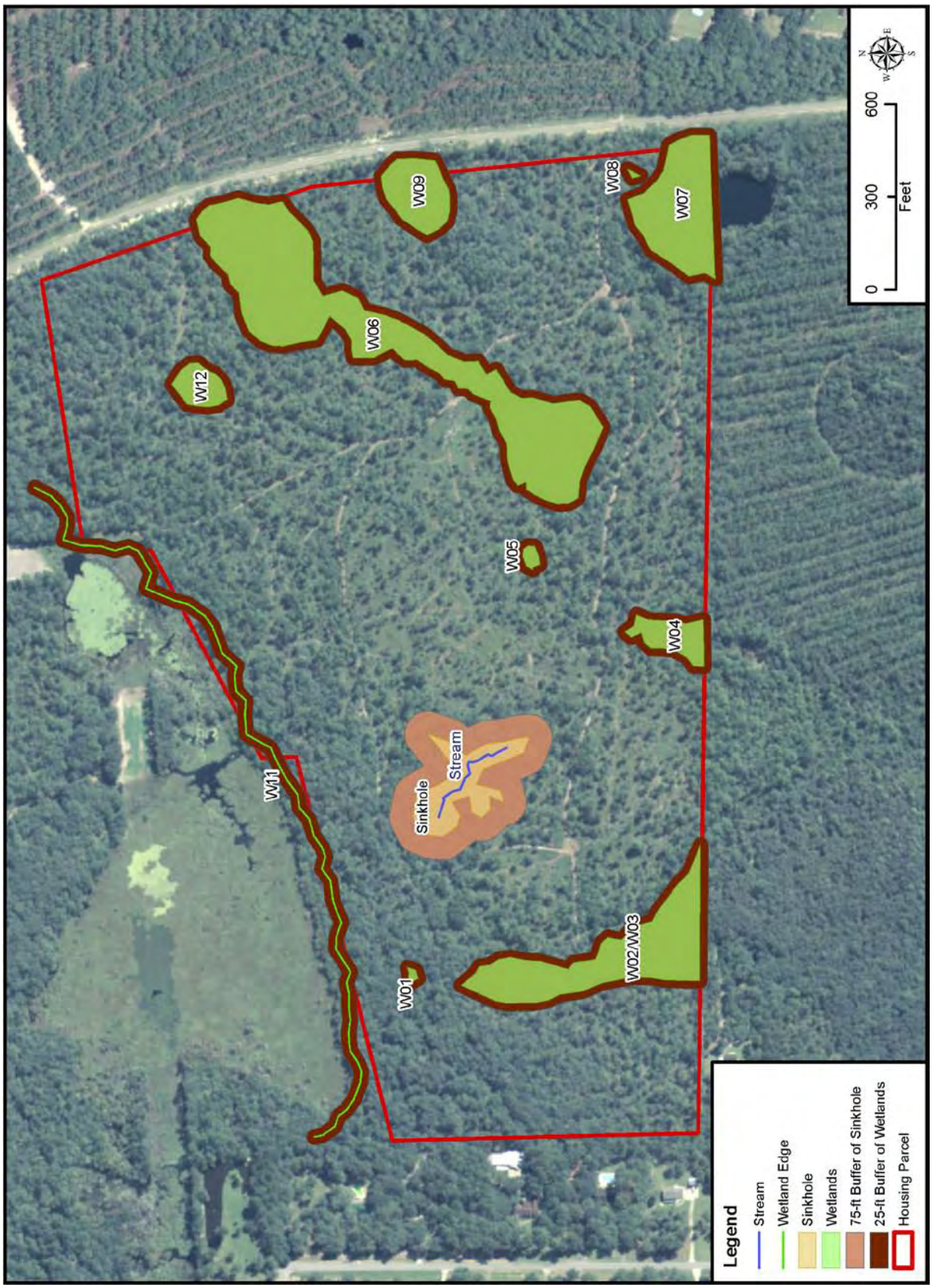

Figure 4-1. Buffer Zones Associated with Val Del Parcel Water Resources

Groundwater

Moody AFB

There are no groundwater concerns associated with the on-base parcel.

Val Del Parcel

The primary concern at the Val Del parcel is a sinkhole covering approximately 1.16 acres on the western portion of the site, which represents a potential avenue for pollutants to directly access groundwater resources in the area. The decrease in housing requirements discussed in Chapter 2 has eliminated the need for development of the western section of the parcel. In November 2013, a geophysical and hydrologic investigation conducted by the Preferred Offeror (Woolpert, 2013) found that there would be no significant impacts to hydrology from implementation of the new site plan, provided that existing drainage patterns are maintained and stormwater retention areas are developed; a copy of the study's Executive Summary is provided in Appendix D. Also of concern, discrete recharge to the underlying aquifer may occur through the karst formations that occur throughout the area. Karst aquifers recharged in this manner typically have numerous inputs of surface water to the subsurface, with water draining along cracks, fissures, and zones of weakness in soluble geologic layers (Lerch et al., 2005). Of serious concern to karst groundwater is increased impervious surface resulting from development that can negatively impact water quality through the introduction of chemical or other contaminants. Even small and localized increases to impervious surface have the potential to negatively impact the water quality and quantity of recharge to karst aquifers (Lerch et al., 2005). New impervious surfaces in the area should be constructed judiciously to minimize potential impacts on the aquifer. Any potential adverse effects to groundwater resources from erosion, sedimentation, and other pollutants would be controlled during construction through avoidance, BMPs as part of the NPDES permit for stormwater runoff, and a project-specific stormwater pollution prevention plan that implements the impact minimization requirements identified in the geophysical and hydrological study provided in Appendix D. Potential impacts to groundwater associated with operation of the housing area would be mitigated through proper stormwater conveyance system design to prevent discharges to the sinkhole while maintaining effective groundwater recharge in the area.

Wetlands and Floodplains

Moody AFB

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

Val Del Parcel

Note: in conjunction with the changes in the Proposed Action as described previously, the following impact discussion relates mainly to the eastern portion of the Val Del parcel under consideration for development. The proposed Val Del parcel is within a designated Lowndes County Wetland Protection District and abuts a stream/jurisdictional wetland complex along the northwestern boundary of the site. The Lowndes County ULDC, Section 3.05.04(A) (Lowndes County, 2012) requires that no regulated activity be permitted within the wetlands protection district without a permit from Lowndes County. Additionally, the ULDC requires a USACE jurisdictional wetland determination (completed and provided in Appendix C); the local permit or permission will not be granted until a Section 404 permit (if jurisdictional wetlands are present) or letter of permission (if wetlands are isolated) is issued. The wetlands at the Val Del parcel that USACE has declared isolated would not have any regulatory protection through the state or local governments.

An evaluation by USACE (provided in Appendix C) indicates that seven wetlands at the Val Del parcel covering a total of 12.578 acres are regulated under Section 404 of the CWA (USACE, 2013). Based on the information available at this time, it is expected that the Proposed Action would require the use of up to 2.3 acres of wetlands on the Val Del parcel. USACE may allow the developer to utilize jurisdictional wetlands for development through the CWA Section 404 permitting process, which would require measures to minimize potential impacts. The State of Georgia has no requirements for use of these wetlands. A review of the Air Force design requirements, the size of the property, and the geographic features on the property make the limited use of wetlands necessary for completion of the Proposed Action on the Val Del parcel. Consequently, the Air Force has identified the need for a Finding of No Practicable Alternative in accordance with EO 11990, *Protection of Wetlands*. The Section 404 permitting process would most likely require the purchase of wetland banking credits at a USACE-approved wetland bank in the service area where

Moody AFB is located. Under USACE guidelines, credit requirements at the time of the Proposed Action could be as high as 12:1. The exact number of wetland bank credits would be determined by USACE when the final permit is issued for the proposed project; however, based on the potential credit ratio and number of acres potentially affected, up to 24 credits could be required (cost for those credits is currently unknown). Currently, there are two wetland banks in the service area, but only one of these has stream banking credits for sale. At a minimum, a 25-foot buffer should be maintained around all wetlands unless USACE prescribes more stringent requirements.

While GADNR recommends an undisturbed 100-foot buffer around streams or wetlands (see Appendix A), Lowndes County development guidelines only require a minimum of a 25-foot buffer zone around streams and jurisdictional wetland complexes that are not permitted for disturbance through the CWA Section 404 permitting process. The development plans at the proposed Val Del parcel would provide a minimum 25-foot buffer around any unpermitted wetlands consistent with Lowndes County requirements. The buffer around the sinkhole on the western portion of the Val Del parcel is no longer relevant because the western portion of the parcel is not part of the revised Proposed Action.

Indirect effects to wetlands from erosion and sedimentation during construction would be controlled using BMPs as part of the NPDES permit for stormwater runoff and a project-specific stormwater pollution prevention plan. Indirect operational impacts would be mitigated through site design that precludes stormwater discharges to wetland areas. A recent hydrology study indicated that the revised Proposed Action will not result in runoff into the sinkhole. There are no floodplains within or adjacent to either of the proposed housing locations that would be impacted.

Provided all previously identified requirements are met, no significant impacts to wetlands would occur. Regarding Air Force obligations to comply with EO 11990, there are no practicable alternatives to utilization of the Val Del parcel. Three parcels were identified as potential alternatives based on the requirements of the project. As discussed in Section 2.3, two of the parcels, the golf course and the Parker Greene parcel, were excluded from further additional analysis, because they did not meet the purpose and need or selection standards. The Val Del parcel was the only remaining alternative available. Therefore, there is no practicable alternative but to utilize the Val Del parcel.

4.2.3 No Action Alternative

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

4.3 BIOLOGICAL RESOURCES

4.3.1 Analysis Methodology

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

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

4.3.2 Proposed Action

All impacts as described previously are associated with the original Proposed Action, as described in the July 15, 2013, Draft EA. Under the revised Proposed Action, impacts would be no greater than those described in the original Draft EA given the reduction in required housing units described in Chapter 2. In either case, the Air Force has not identified any significant impacts to biological resources under the Proposed Action.

Flora and Fauna

Moody AFB

Within the proposed parcel, construction of the 11 new MFH units would require vegetation removal on approximately 15 acres. This area was previously used for

agricultural purposes and has a long history of prior disturbance; no sensitive vegetation grows within the proposed parcel. Therefore, the Proposed Action would not significantly impact vegetation; no mitigation measures would be required.

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

Val Del Parcel

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

buffers and state and local construction design and permit requirements. As a result, impact minimization measures identified would reduce potential impacts to less than significant, and the Proposed Action would not jeopardize the continued existence of flora and fauna species or habitat.

Sensitive Species and Habitat

Moody AFB

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

Val Del Parcel

The sinkhole, and its associated flora and fauna, including the green-fly and shadow witch orchids noted to occur there, are protected under the Georgia Cave Protection Act of 1977. The revised Proposed Action avoids disturbing the sinkhole area, which eliminates concerns of disturbing associated habitats. Lowndes County also requires no construction-related or operational stormwater discharge to the sinkhole, which would mitigate or prevent the potential for impact (Fletcher, 2013). Wetland areas, which support the hooded pitcher plant, would be avoided and vegetative buffer areas would be placed around water resources. Thus, there would be no significant impacts to unusual or rare plant species from development of the Val Del parcel.

4.3.3 No Action Alternative

The No Action Alternative would not result in any additional impacts to biological resources within and adjacent to either of the MHPI project areas beyond the 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

All impacts as described as follows are associated with the original Proposed Action, as described in the July 15, 2013, Draft EA, except where noted. Under the revised Proposed Action, impacts would be no greater than those described in the original Draft EA given the reduction in required housing units described in Chapter 2. In either case, the Air Force has not identified any significant impacts to soils and geology under the 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 SWPPP requirements. These requirements would also serve to mitigate any potential impacts to soils resulting from the Proposed Action. With application of SWPPP requirements, 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 the route that would be taken for running utility lines. It is likely that the developer would choose to connect to existing mains located to the west of the parcel along Parker Greene Highway/Bemiss Road. Ground disturbance associated with utility installation would comply with all NPDES permit requirements and would occur within established rights of way; underground lines running from the mains to the homes would avoid any sensitive areas (there are no identified sensitive areas within the proposed parcel or rights of way), and disturbed areas would be revegetated once installation is complete. Consequently, the Air Force has not identified any potential for significant impacts associated with utility installation. Should the developer identify different methods of utility connection to the proposed parcel than those assumed under this impact analysis, supplemental environmental impact analysis would be required as appropriate.

Val Del Parcel

The primary concern at the Val Del parcel is a sinkhole covering approximately 1.16 acres in the western section of the site. Public comments were received indicating concern for potential safety hazards associated with the sinkhole. The Project Owner conducted additional geotechnical evaluation on the eastern portion of the Val Del parcel to address concerns received from the public (Woolpert, 2013). The USACE Engineering Research and Development Center was consulted to determine appropriate testing methods. Electrical Resistivity Imaging (ERI) and Ground Penetrating Radar (GPR) testing were performed by a private engineering firm to further characterize the area. Areas of previous concern were examined in more detail, and testing confirmed that the eastern portion of the Val Del parcel is suitable for construction of homes and residential land use. The figure on Appendix page D-2 of the report (Woolpert, 2013) shows the sub-surface anomalies detected by the ERI/GPR testing overlaid on the latest site plan. In order to further reduce safety concerns associated with the four anomalies, the report recommends (as the figure depicts) a more conservative buffer of 1V:1H inclination around the nearest homes vice the traditional approach of 2V:1H inclination.

The Project Owner should consider this recommendation, as well as those explained in Chapter 6, as mandatory. The western portion of the Val Del parcel, previously referred to as Phase II, is no longer being considered for development due to a change in requirements and was not considered during the recent technical study. Discussion of the Phase II portion from the previously released July 15, 2013, Draft EA has been removed.

The majority of activity associated with the Proposed Action would occur on Mascotte sand, with some work occurring on Olustee and Pelham sands. All three series are poorly suited for development due to wetness and flooding. With the exception of Albany sand, most of the other soil types in this parcel are not considered suitable as farmland. The small disturbance footprint of Albany sand 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, and site designs would need to consider the development restrictions associated with poorly drained soils susceptible to wetness and flooding. Appropriate erosion control measures must be implemented to reduce any potential impacts 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. Utility connections will occur in the southeast portion of the property along Val Del Road in accordance with the latest site plan. For the Val Del parcel, ground disturbance associated with utility installation would comply with all requirements, travel along existing rights of way, would avoid any sensitive areas, and disturbed areas would be revegetated once installation is complete. Consequently, the Air Force has not identified any significant adverse impacts associated with utility installation in regard to soils. Should the developer identify different methods of utility connection to the proposed parcel than those assumed under this impact analysis, supplemental environmental impact analysis would be conducted as appropriate.

4.4.3 No Action Alternative

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

4.5 CULTURAL RESOURCES

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

4.5.1 Analysis Methodology

Analysis focuses on assessing the potential for impacts to archaeological sites and historic structures from land clearing and construction 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. Adverse effects occur when these activities intersect with identified NRHP-eligible resources within the area of potential effect.

4.5.2 Proposed Action

All impacts as described as follows are associated with the original Proposed Action, as described in the July 15, 2013, Draft EA. Under the revised Proposed Action, impacts would be no greater than those under the original Proposed Action, given the reduced scope. In either case, the Air Force has not identified any significant impacts to cultural resources under the Proposed Action.

Neither the Moody AFB parcel or the Val Del parcel contain any resources identified as eligible for listing on the NRHP and as such, do not have the potential to adversely affect cultural resources (Trudeau, 2013). The Georgia 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 NRHP (See Appendix A). Moody AFB has completed consultation with local Native American tribes for concurrence on a finding of no effect to TCPs (a list of tribes is provided in Chapter 7). Only one tribe (United Keetoowah Band of Cherokee Indians in Oklahoma) responded to the consultation correspondence, and requested that if any human remains or funerary items are inadvertently discovered, that all work should cease and they be contacted immediately. Correspondence is included in Appendix A.

If cultural resources are inadvertently discovered at either location 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. The Project Owner will halt work immediately and notify the Air Force Civil Engineer Center's Housing Division (AFCEC/CIH) upon discovery of tribal artifacts or items of potential cultural significance. Additionally, any discovered cultural resources must be treated as potentially eligible for listing on the NRHP under Section 106 until the Georgia SHPO has concurred that the site is not eligible and Air Force activity can then continue (U.S. Air Force, 2012a).

4.5.3 No Action Alternative

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

4.6 SOLID WASTE

4.6.1 Analysis Methodology

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

4.6.2 Proposed Action

All impacts as described as follows are associated with the original Proposed Action, as described in the July 15, 2013, Draft EA. Under the revised Proposed Action, impacts would be no greater than those under the original Proposed Action, given the reduced scope. In either case, the Air Force has not identified any significant impacts to solid waste under the Proposed Action.

Construction activities associated with the Proposed Action would result in the generation of construction debris, including miscellaneous building debris and concrete and asphalt rubble. To estimate the quantity of construction debris generated, the 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, grubbings, 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.

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

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

Construction Activities	Moody AFB (ft^2)	Val Del, Revised Proposed Action (ft^2)	Val Del Phase II (ft^2)	Total Area (ft^2)	Debris Factor (lb/ft^2)[a]	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
			Total	**1,661,300**		**1,229**
	(acres)	**(acres)**	**(acres)**	**(acres)**	**(ton/acre)[b]**	**(tons)**
Land clearing	15	62.5[c]	50.5[c]	122	56.3	6,869
				Total construction debris generated (tons)		**8,098**

ft^2 = square feet; lb = pounds
a. USEPA, 2003
b. USEPA, 1999
c. Maximum accounting for 30-foot perimeter setback

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

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

4.6.3 No Action Alternative

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

4.7 SOCIOECONOMICS/ENVIRONMENTAL JUSTICE

4.7.1 Analysis Methodology

Socioeconomics is driven by human activities, particularly the demand for goods and services, as well as the employment and income that supplies individuals with the means to fulfill the demand. Because the MHPI does not include a change in base personnel at Moody AFB, the only economic effect would be generated from the construction dollars spent by the MHPI owner in the local economy. Adverse impacts would occur if the Proposed Action or alternative would change the local economy such that some individuals lose employment or income, or if the population or distribution of population changes such that services cannot meet the demands of the local population. Significant adverse impacts would occur if the action impacts the local economy such that services, including housing, would be inadequate to meet the demand from the population or a loss of employment or income would impact a significant portion of the population.

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

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

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

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

The percent minority and low-income populations in the affected census tracts were compared with the percent minority and low-income populations in the overall COC. Census blocks with a higher percentage of minority or low-income population than for the county as a whole were identified as communities of concern. An affected census tract that has a minority or low-income percentage greater than the state average was presumed to be high, even if the encompassing COC exhibited a higher minority or low-income percentage than the affected tract. If the percent minority and low-income populations in an affected census tract were less than the corresponding percentages in the COC overall, then no disproportionate impacts were presumed to occur on minority or low-income populations.

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

4.7.2 Proposed Action

All impacts as described as follows are associated with the original Proposed Action, as described in the July 15, 2013, Draft EA. Under the revised Proposed Action, impacts would be no greater than those under the original Proposed Action, given the reduced scope. In either case, the Air Force has not identified any significant impacts to socioeconomic resources or environmental justice under the Proposed Action.

Population

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

Employment

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

Schools

Under the Proposed Action, students living in the proposed housing areas both on and off Moody AFB would have the opportunity to attend the same schools they currently attend within the Lowndes County school district. These schools currently serve students in existing Moody AFB housing; therefore, it is anticipated that if there is any redistribution of students among these schools, the change would be minimal.

Housing

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

Personnel that are required by their positions and duties to remain in close proximity to their duty stations are categorized as key and essential personnel, and are required to live in on-base housing, including privatized housing. While these few military families and unaccompanied personnel must live on the installation out of necessity, most military families will have the option of living off-base should they so desire. Depending on the preferences of the military households, some of these households may return to on-base housing following the completion of the MHPI

construction while other households may choose to remain in off-base housing. As noted previously, there are approximately 24,000 rental units located within 20 miles of the base. It is expected then that the regional housing market would be able to accommodate the shift of the military households' on- and off-base housing.

Environmental Justice

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

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

Special Risks to Children

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

Potential safety concerns for children may exist during operation of housing areas, particularly near areas such as water bodies or ravines. Several wetland areas and a sinkhole have all been identified on or near the parcel that pose as a hazard or "attractive nuisance," comparable to a swimming pool, to children. (For a detailed

description of the water resources in the proposed housing areas, see Section 3.2, Water Resources.) It is reasonable to conclude that risks may arise from children playing in or around the water areas or the ravine unsupervised, and they could be highly susceptible to tripping, falling, drowning, or other hazards that could result in serious injuries or fatality.

A risk analysis associated with the sinkhole and appropriate safety precautions and measures to protect persons, especially children, would be required. The developer would erect a secure perimeter (e.g., fence) around the entire eastern portion of the proposed Val Del parcel, thereby restricting access to the sinkhole area. Potential impacts could also be minimized by posting signs near water areas and the sinkhole to warn residents of the potential hazards and emphasize the need to supervise children up to the age of 14. The developer would be required to follow any state or local laws and regulations that apply to development in an area with an identified sinkhole. If possible, the developer may locate emergency equipment close to the area. In addition, there would need to be full disclosure of the risk of sinkholes and their existence on the property proposed for housing.

4.7.3 No Action Alternative

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

4.8 INFRASTRUCTURE

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

4.8.1 Analysis Methodology

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

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

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

4.8.2 Proposed Action

NOTE: The proposed splash park has been replaced by a swimming pool; this would result in less water utility use than a splash park, as described as follows. As a result, while there would still be no significant impacts associated with use of a swimming pool, the impacts would be less than those described as follows.

All impacts as described as follows are associated with the original Proposed Action, as described in the July 15, 2013, Draft EA. Under the revised Proposed Action, impacts would be no greater than those under the original Proposed Action, given the reduced scope. In either case, the Air Force has not identified any significant impacts to infrastructure under the Proposed Action.

Utilities

The Air Force has not identified any significant overall increase in utility use, since the addition of 11 new homes represents only a small percentage increase in the number of homes on the base. The additional 173 housing units originally proposed for the Val Del parcel would also not significantly increase utility use since these units would be occupied by existing base personnel currently living in other base housing or

in the community. The potential increase in utility use and impacts to utility systems associated with the housing units would be relative and, therefore, insignificant. Personnel associated with the new homes would utilize the existing utility systems as described in Section 3.8. The Air Force anticipates better energy efficiency due to requirements for design and construction of the new homes and, thus, a slight decrease in utility use over time.

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

- Size of the park
- Water availability
- Cost of water
- Number of hours per day and months per year the park will be operated
- Number of children anticipated using the park
- Available water pressure
- Number of structures and number spraying at a given time
- Duration of spray

A potable water supply that is reclaimed for use in irrigation and other uses is adequate for smaller parks and ensures a high-quality water source at all times, minimizing any health risks. Reclaiming the water for parks, schools, golf courses, cemeteries, residential irrigation, and many other uses helps to conserve high-quality groundwater for drinking. A recirculating system is more expensive but a better option for larger parks or areas with strict water policies. As with a swimming pool, fresh municipal water is used to initially fill the system and after that, to replace water that is lost through overspray, evaporation, or from backwashing the filters. With a recirculating system, water quality must adhere to strict safety guidelines and be closely monitored. Recirculating systems for spray parks differ slightly from those used in

swimming pool systems, in that they are required to filter and treat water at a much faster rate. By filtering and treating the water at an accelerated pace, the temperature in the holding tank is less likely to increase, thus eliminating the risk of bacteria growth. It is advisable that local health authorities approve any recirculating water system before installation occurs.

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

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

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

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

Source: Richmond Hill, 2010
MGD = million gallons per day
1. Assumes operation for 5 months per year, or approximately 155 days

As the Richmond Hill study shows, a traditional water play park utilizes a significant amount of water during one operational season (more than 4 million gallons), while a recirculating system uses only a fraction of that (0.027 MGD and 0.001 MGD, respectively). Neither system would be expected to significantly impact water or electrical consumption rates within Lowndes County. However, the recirculating system would be the better option for energy and resource conservation purposes.

Water, wastewater, electrical, and natural gas utility lines exist adjacent to the proposed Moody AFB parcel and the Val Del parcel, but new utility lines would need to be installed to connect the new homes with the existing utility infrastructure. As discussed in Section 4.4, it is unknown at this time how the developer would choose to make those connections and the route that would be taken for running utility lines. It is likely that the developer would choose to connect to existing mains located to the west

of the on-base parcel along Parker Greene Highway/Bemiss Road, since that is the most convenient connection. For the Val Del parcel it is most likely that connections would be made to the existing mains located to the east of the parcel along Val Del Road in accordance with the current site plan. It is, therefore, assumed for purposes of analysis that utility installation would occur within established rights of way. Coordination with utility providers would be necessary to identify the exact location of utility lines prior to ground-disturbing activities associated with the new construction and utility tie-ins.

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

Transportation

Moody AFB

Construction of the on-base housing units would have a negligible effect on existing Moody AFB traffic. It is assumed that all 11 units would be occupied by existing base personnel so no additional traffic would be added. Implementation of the Proposed Action would require the delivery of materials to and removal of construction-related debris from the construction site. Trucks associated with construction activities would be required to enter the base via the Main Gate, which is also the closest gate to the proposed parcel. Intermittent traffic delays associated with these activities could occur on Stone Road in the immediate vicinity of the proposed parcel and at the base gate. Potential congestion impacts could be avoided by scheduling truck deliveries to the construction site outside of the peak inbound traffic time of 7 AM to 8:30 AM. Traffic delays would be temporary in nature, ending once construction activities have ceased. New roadways would be developed in accordance with UFC 3-250-01FA, *Pavement Design for Roads, Streets, Walks, and Open Storage Areas.* As a result, no significant adverse impacts to Moody AFB transportation are anticipated.

Val Del Parcel

Assuming that the majority of full-time personnel work standard workdays and drive individually, construction of 101 additional off-base housing units at the Val Del parcel would result in a negligible increase in traffic to and within Moody AFB, since the majority of these personnel already live off-base and utilize the base access gates daily.

Development and construction of new housing units at the Val Del parcel would require the delivery of materials to and removal of construction-related debris from the construction site. Trucks associated with these activities would be required to enter and exit the parcel via one of two proposed entrances off Val Del Road. This could cause intermittent traffic delays and potential safety issues. Potential congestion impacts would be avoided by scheduling truck deliveries to the construction site outside of the morning and evening workday rush hours. Traffic delays would be temporary in nature, ending once construction activities have ceased. Safety issues would be addressed be by having flagmen directing 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 GDOT safety requirements and would need to be approved by the GDOT and local agencies. No significant transportation impacts would occur.

4.8.3 No Action Alternative

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

Additionally, the Air Force will conduct market analysis in two years to determine if more housing capacity is required to support Moody AFB. Based on the current study, the western portion of Val Del will not be considered if additional housing is needed.

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 23rd Wing Facilities Board meeting notes, there are more than 50 potential development projects identified for upcoming fiscal years (U.S. Air Force, 2012b). Examples of past, ongoing, and future projects include development of a new base access gate and various other cantonment development projects. The *Greater Lowndes 2030 Comprehensive Plan* identifies projects in the Short-Term Work Program that meet the goals and objectives of future county and related city development plans; such projects include improvements to county and city infrastructure, construction of new buildings and transportation corridors, etc. More information can be found at http://www.sgrc.us/GLPC2030/GLPC_CommAgenda/CommAgenda.htm. All projects could result in incremental impacts when considered with construction projects associated with the Proposed Action.

5.2 CUMULATIVE IMPACT ANALYSIS

All cumulative impacts as described as follows are associated with the original Proposed Action, as described in the July 15, 2013, Draft EA. Under the revised Proposed Action, impacts would be no greater than those under the original proposed action, given the reduced scope. In either case, the Air Force has not identified any significant cumulative impacts under any resource area associated with implementation of the Proposed Action.

5.2.1 Air Quality

Under the Proposed Action, air quality impacts would not be significant and would be temporary. Depending on the timing of capital and infrastructure improvement projects occurring on Moody AFB and in the surrounding community, incremental increases in fugitive dust and volatile organic compound emissions could result from construction activities. However, emissions from several, simultaneous projects are not likely to result in temporary or long-term combined emissions that

would exceed county significance criteria or negatively affect attainment status. As a result, the Air Force has not identified any significant cumulative impacts to air quality.

5.2.2 Water Resources

Any construction projects at Moody AFB and the Val Del parcel would be required to follow GADNR and Lowndes County requirements for NPDES permitting and erosion control to minimize impacts to surface waters, groundwater, wetlands, and floodplains. While no specific plans are available, preliminary planning is under way for what is likely to be a commercial development at the parcel immediately south of the Val Del parcel (Kobs, 2013). This adjacent property likely has similar water resource issues. To prevent any possible contamination of the Upper Floridan aquifer, it is imperative that the stormwater conveyance system at the Val Del parcel be designed to prevent any stormwater from entering the on-site sinkhole; Lowndes County will not otherwise issue a development permit (Fletcher, 2013). The site plan will be designed to minimize impacts to wetlands. Those wetlands that will not be used for construction will have a 25-foot buffer along the perimeter and will have appropriate soil erosion controls in place for the site location. The Proposed Action will use up to 2.3 acres of wetlands in the site design, consisting of both jurisdictional and non-jurisdictional wetlands. Requirements for use of the wetlands are stated in Section 4.2.2. No significant impacts to any of these resources have been identified under the Proposed Action; therefore, the Air Force does not anticipate that the Proposed Action would contribute to incremental or cumulative impacts to wetlands or water resources associated with other regional development projects.

5.2.3 Biological Resources

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

5.2.4 Soils and Geology

As with water resources, any developments would be required to comply with GADNR and NPDES permitting and erosion control requirements. Implementation of

SWPPP and permit requirements would necessarily minimize the potential for incremental impacts associated with soil erosion. Since the proposed construction projects under the MHPI are minimal, any potential impacts would be short term. The sinkhole hazard present on the Val Del parcel would require implementation of SWPPP requirements to reduce the potential for impacts that may cause safety issues or groundwater contamination issues. These SWPPP requirements may include, but are not limited to, investigation of local geological factors, restoration of older impervious areas, creation of sufficient stormwater management to ensure no contaminants can enter the groundwater, and sufficient buffer area surrounding the feature. With the implementation of SWPPP requirements and compliance with permitting requirements, the Air Force has not identified any significant cumulative impacts to soils or geology.

5.2.5 Cultural Resources

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

5.2.6 Solid Waste

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

5.2.7 Socioeconomics/Environmental Justice

The implementation of the MHPI at Moody AFB and within the Val Del parcel would have beneficial cumulative socioeconomic impacts to the ROI when combined with the present and reasonably foreseeable construction actions on and surrounding the base that support local and regional employment. Construction activities could pose potential noise and safety hazards to minority, low-income, and youth populations. However, in accordance with EO 12898 and EO 13045, federal agencies

must identify and address issues that affect the protection and health of certain disadvantaged communities. Therefore, no cumulative impacts are anticipated to socioeconomics/environmental justice areas of concern.

5.2.8 Infrastructure

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

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6. SPECIAL OPERATING AND IMPACT MINIMIZATION PROCEDURES

6.1 AIR QUALITY

No special operating or impact minimization procedures 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 required to prevent fugitive soil, sediment, and other potential contaminants from entering water bodies and wetlands. Such conditions 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 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. 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 runoff from both proposed housing sites. Project site design options shall prioritize integrated management

practices that are proven within the region, such as bioretention areas, permeable pavements, cisterns/recycling, and rain gardens.

Lowndes County development guidelines require a minimum of a 25-foot buffer zone around streams and jurisdictional wetland complexes that are not permitted for disturbance through the CWA Section 404 permitting process; GADNR recommends an undisturbed 100-foot buffer around streams or wetlands (see Appendix A). In addition, a minimum 25-foot buffer around unpermitted wetlands is required.

6.3 BIOLOGICAL RESOURCES

No special operating or impact minimization procedures related to biological resources have been identified.

6.4 SOILS

The original concern at the Val Del parcel is a sinkhole covering approximately 1.16 acres in the western section of the site. The revised Proposed Action removes housing from the area immediately adjacent to the sinkhole. For the eastern portion of the Val Del site, housing construction should not be conducted within a 45-degree angle projected from the depth of each anomaly detailed during geotechnical analysis (Woolpert, 2013).

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

Implementation of the Georgia Erosion and Sediment Control Act are requirements (U.S. Air Force, 2007a).

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

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

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

6.5 CULTURAL RESOURCES

In the case of inadvertent discovery of cultural resources at either location 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. The Project Owner will halt work immediately and notify AFCEC/CIH upon discovery of tribal artifacts or items of potential cultural significance. Additionally, any cultural resources discovered must be treated as potentially eligible for listing on the NRHP under Section 106 until the Georgia SHPO has concurred that the site is not eligible and Air Force activity can then continue (U.S. Air Force, 2012a). The United Keetoowah Band of Cherokee Indians in Oklahoma requested that if any human remains or funerary items are inadvertently discovered, all work should cease and they be contacted immediately (see Appendix A).

6.6 SOLID WASTE

No special operating or impact minimization procedures related to solid waste have been identified.

6.7 SOCIOECONOMICS/ENVIRONMENTAL JUSTICE

The risk previously discussed in the Draft EA has been substantially minimized due to the decision to not use the western portion of the Val Del parcel. However, the Project Owner will construct a personnel fence to discourage residents from accessing the western portion of the parcel to mitigate potential safety risks associated with the sinkhole.

6.8 INFRASTRUCTURE

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

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7. PERSONS AND AGENCIES CONTACTED

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Mike Fletcher	Lowndes County Engineer
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Georgia Department of Community Affairs	
Georgia Wildlife Resources Division	
Georgia Historic Protection Division	
Lowndes County Commission	
South Georgia Regional Planning Council	
Georgia Department of Transportation	
City of Valdosta, Community Development Department	
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	
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9. REFERENCES

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APPENDIX A
PUBLIC AND AGENCY INVOLVEMENT

REVISED DRAFT (FEBRUARY 2014) NOTICE OF AVAILABILITY

USAF ANNOUNCES AN ENVIRONMENTAL ASSESSMENT

In accordance with the National Environmental Policy Act and Air Force regulations, the Air Force Civil Engineer Center (AFCEC) has completed a Revised Draft Environmental Assessment (EA), Finding of No Significant Impact (FONSI), and a Finding of No Practicable Alternative (FONPA) to evaluate the consequences of the following stated proposed action:

The revised Proposed Action would involve the construction of 11 housing units for senior leadership on a 15-acre parcel on the base and 90 units on an approximately 60-acre parcel located northwest of the city of Valdosta, GA on Val-Del Road (the Val-Del Parcel). This represents a reduction of 83 homes at the Val Del site when compared to the original proposal. Development would also require housing area transportation infrastructure (e.g., roads) and utility connections for each housing unit, as well as desired community features such as athletic areas and community centers. 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.

Hard copies are available for public review at the South Georgia Regional Library in Valdosta, Georgia. The public is invited to review these documents and make comments during the 30-day comment period from now until March 10, 2014. To comment, or for more information, contact Captain D. Jason Murley by mail at AFCEC/CZN, 2261 Hughes Ave Ste 155, Lackland AFB, TX, 78236-9853, or call (210) 572-9331. Additionally, an electronic copy is available at http://www.afcec.af.mil/moodyafbprivatizedhousingenvironmentalassessment/.

REVISED DRAFT (FEBRUARY 2014) DISTRIBUTION LETTER

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

02 06 14

MEMORANDUM FOR 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 Revised Draft Environmental Assessment (EA) that 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 90 units on an approximately 60-acre parcel located northwest of the city of Valdosta, GA. This represents a reduction of 83 homes at the Val Del site when compared to the original proposal. 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 Revised Draft EA. The U.S. Air Force will select a Preferred Alternative after careful consideration of all comments received and identify the Preferred Alternative decision in the Final EA in accordance with Title 40 Code of Federal Regulations, Section 1502.14(e).

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) 572-9331. Thank you for your participation.

D. JASON MURLEY, Capt, USAF
Deputy Chief, NEPA Center

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

ORIGINAL DRAFT (JULY 2013) NOTICE OF AVAILABILITY

USAF ANNOUNCES AN ENVIRONMENTAL ASSESSMENT

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

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, and 173 units on a 113-acre parcel located northwest of the city of Valdosta, GA on Val-Del Road (the Val-Del Parcel), approximately 15 miles southwest of Moody AFB, GA. Development would also require housing area transportation infrastructure (e.g., roads) and utility connections for each housing unit, as well as desired community features such as athletic areas and community centers. 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. The entire project would consist of two phases: Phase I development of 11 units on base, development of 90 units at the Val-Del Parcel (comprising 60 acres); Phase II development of 83 units at the Val-Del Parcel (comprising 47 acres).

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

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ORIGINAL (JULY 2013) DISTRIBUTION LETTER

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.

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

ORIGINAL DRAFT EA CONSULTATION CORRESPONDENCE

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION

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 will 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,

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.GEORGIASHPO.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

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.

b. Site 9LW113 is a very light density prehistoric lithic scatter of unknown temporal context, consisting of one biface fragment, one secondary flake, and two tertiary flakes. One isolated find consisted of two tertiary chert flakes and the other consisted of two secondary flakes and one tertiary flake.

c. The report concludes that Site 9LW113 should be considered ineligible for inclusion in the NRHP because the site contains little research value and there is a paucity of artifacts. Copies of relevant information from the draft report are included at Attachment 3.

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, (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.

BD 2

BILLY D. THOMPSON, Colonel, USAF
Commander

3 Attachments:
1. Location of Proposed MFH Developments
2. Excerpted information from *A Phase I Cultural Resources Survey of the Southwest Land Gift, Lowndes County, Georgia*
3. Excerpted information from *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*

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

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

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.

b. Site 9LW113 is a very light density prehistoric lithic scatter of unknown temporal context, consisting of one biface fragment, one secondary flake, and two tertiary flakes. One isolated find consisted of two tertiary chert flakes and the other consisted of two secondary flakes and one tertiary flake.

c. The report concludes that Site 9LW113 should be considered ineligible for inclusion in the NRHP because the site contains little research value and there is a paucity of artifacts. Copies of relevant information from the draft report are included at Attachment 3.

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, (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.

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BILLY D. THOMPSON, Colonel, USAF
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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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3. Proposed Senior Leadership Housing Development on Moody AFB:

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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.

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

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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c. The report concludes that Site 9LW113 should be considered ineligible for inclusion in the NRHP because the site contains little research value and there is a paucity of artifacts. Copies of relevant information from the draft report are included at Attachment 3.

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BDT

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Commander

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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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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

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

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c. The report concludes that Site 9LW113 should be considered ineligible for inclusion in the NRHP because the site contains little research value and there is a paucity of artifacts. Copies of relevant information from the draft report are included at Attachment 3.

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, (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.

BDT

BILLY D. THOMPSON, Colonel, USAF
Commander

3 Attachments:
1. Location of Proposed MFH Developments
2. Excerpted information from *A Phase I Cultural Resources Survey of the Southwest Land Gift, Lowndes County, Georgia*
3. Excerpted information from *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*

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

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

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.

b. Site 9LW113 is a very light density prehistoric lithic scatter of unknown temporal context, consisting of one biface fragment, one secondary flake, and two tertiary flakes. One isolated find consisted of two tertiary chert flakes and the other consisted of two secondary flakes and one tertiary flake.

c. The report concludes that Site 9LW113 should be considered ineligible for inclusion in the NRHP because the site contains little research value and there is a paucity of artifacts. Copies of relevant information from the draft report are included at Attachment 3.

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, (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.

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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 MUSCOGEE (CREEK) NATION JUN 18 2013
MS. JOYCE A. BEAR
CULTURAL PRESERVATION OFFICE MANAGER
P.O. BOX 580
OKMULGEE OK 74447

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

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.

b. Site 9LW113 is a very light density prehistoric lithic scatter of unknown temporal context, consisting of one biface fragment, one secondary flake, and two tertiary flakes. One isolated find consisted of two tertiary chert flakes and the other consisted of two secondary flakes and one tertiary flake.

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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, (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.

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Commander

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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

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

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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c. The report concludes that Site 9LW113 should be considered ineligible for inclusion in the NRHP because the site contains little research value and there is a paucity of artifacts. Copies of relevant information from the draft report are included at Attachment 3.

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, (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

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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 JUN 18 2013
MS. LISA STOPP, THPO
P.O. BOX 746
TAHLEQUAH OK 74465

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.

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Global Power for America

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

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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 JUN 18 2013
BRYANT CELESTINE, THPO
571 STATE PARK ROAD
LIVINGSTON TX 77351

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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3. Proposed Senior Leadership Housing Development on Moody AFB:

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Global Power for America

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

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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3. Proposed Senior Leadership Housing Development on Moody AFB:

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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 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

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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3. Proposed Senior Leadership Housing Development on Moody AFB:

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Global Power for America

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Commander

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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

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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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

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.

b. Site 9LW113 is a very light density prehistoric lithic scatter of unknown temporal context, consisting of one biface fragment, one secondary flake, and two tertiary flakes. One isolated find consisted of two tertiary chert flakes and the other consisted of two secondary flakes and one tertiary flake.

c. The report concludes that Site 9LW113 should be considered ineligible for inclusion in the NRHP because the site contains little research value and there is a paucity of artifacts. Copies of relevant information from the draft report are included at Attachment 3.

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, (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.

BD2

BILLY D. THOMPSON, Colonel, USAF
Commander

3 Attachments:
1. Location of Proposed MFH Developments
2. Excerpted information from *A Phase I Cultural Resources Survey of the Southwest Land Gift, Lowndes County, Georgia*
3. Excerpted information from *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*

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

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

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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.

b. Site 9LW113 is a very light density prehistoric lithic scatter of unknown temporal context, consisting of one biface fragment, one secondary flake, and two tertiary flakes. One isolated find consisted of two tertiary chert flakes and the other consisted of two secondary flakes and one tertiary flake.

c. The report concludes that Site 9LW113 should be considered ineligible for inclusion in the NRHP because the site contains little research value and there is a paucity of artifacts. Copies of relevant information from the draft report are included at Attachment 3.

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, (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.

BD2

BILLY D. THOMPSON, Colonel, USAF
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From: Lisa LaRue-Baker - UKB THPO <ukbthpo-larue@yahoo.com>
Sent: Wednesday, June 26, 2013 6:26 PM
To: Lee, Gregory W Civ USAF ACC 23 CES/CEIE
Cc: lstapleton@unitedkeetoowahband.org
Subject: EA, Military Housing Privitization Initiative, Moody AFB, GA

The United Keetoowah Band of Cherokee Indians in Oklahoma has reviewed your project under Section 106 of the NHPA, and at this time, have no comments or objections. However, if any human remains or funerary items are inadvertently discovered, please cease all work and contact us immediately.

Lisa C. Baker
Acting THPO
United Keetoowah Band of Cherokee Indians in Oklahoma
PO Box 746
Tahlequah, OK 74465

c 918.822.1952
ukbthpo-larue@yahoo.com

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1

VALDOSTA STATE UNIVERSITY
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1906-2006

AFCEC/CZN
2261 Hughes Avenue
Lackland AFB
TX, 78236-9853

ATTN: Mr. Allan Richmond

Thursday, August 15, 2013

PUBLIC COMMENT

RE: Military Housing Privatization Initiative (MHPI), Moody AFB, Georgia

This letter is written in response to the Environmental Assessment (EA) of the proposed Military Housing Privatization Initiative (MHPI) northwest of Valdosta, Georgia, on Val Del Road (also referred to as the "Val Del parcel").

After a careful analysis of the report, we have come to the conclusion that the current EA of the proposed site for military family housing does not address a number of potential issues commonly found in areas of karst topography. Such areas display unique geophysical conditions, including the presence of sinkholes and the potential for future sinkhole formation, as well as geohydrological conditions that need to be studied more carefully and in a larger geographical context than currently given in the EA.

Without a more thorough environmental analysis and planning of the construction phases, the danger exists that housing units will be constructed in geologically unstable areas, with possible consequences for the safety of military families occupying these envisioned homes. Although the designation of "Phase I" and "Phase II" areas may have been intended to avoid certain environmental hazards, the "Phase I" area of the EA does include poorly drained soils and shallow wetlands which would presumably be impacted by immediate construction. Issues of soil moisture and runoff therefore need additional investigation as well as the extent to which these shallow wetlands are interacting with underlying aquifers occupying fissures and voids in the subsurface. In addition to issues of possible land

subsidence and formation of sinkholes, the EA should state whether potential pollutants from this residential area will be delivered as runoff or directly piped into the Upper Floridan aquifer.

Please note that our program in Environmental Geosciences has for more than a decade used an area near the Withlacoochee, just one mile east-southeast of the Val Del parcel, to educate our students on matters of sinkholes and karst topography, so we are rather familiar with the general area. Consequently, we must emphasize the importance of further geophysical studies with the help of such instruments as a GPR (ground penetrating radar) to address questions thus far not answered by the EA.

Respectfully,

(Dr. Donald Thieme, Geosciences)

(Dr. Can Denizman, Geosciences)

(Dr. Michael Noll, Geosciences)

VALDOSTA STATE UNIVERSITY
Building for Our Next Century

Department of Physics, Astronomy & Geosciences
Valdosta State University
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AFCEC/CZN
2261 Hughes Avenue
Lackland AFB
TX 78236-9853

ATTN: Mr. Allan Richmond

A Regional University of the University System of Georgia & an Equal Opportunity Institution

AIR FORCE RESPONSE TO AUGUST 15, 2013 COMMENT FROM VALDOSTA STATE

The Air Force appreciates the concerns expressed by Valdosta State University faculty members. Their comments regarding the need for further geotechnical and hydrological study were considered, and as a result, the Air Force requested that the Project Owner conduct additional technical analysis on the eastern Val Del parcel. The information collected during that analysis is included at Appendix D of this document. Analysis confirmed a handful of areas of geotechnical concern on the eastern portion of the parcel, and management and design practices were proposed to minimize the associated risk with these formations. Concerns associated with poorly drained soils were addressed with design recommendations made during a previous technical analysis, also listed at Appendix D. A hydrological analysis was recently conducted to examine potential impacts of residential runoff into the sinkhole; the analysis revealed that there will be no significant impacts associated with runoff in this area. Regarding runoff into wetlands, the site does require a stormwater retention and drainage system that minimizes potential wetlands impacts. Construction will directly impact wetlands, and mitigations will likely be accomplished by purchasing wetland mitigation credits at a USACE-approved mitigation bank in the service area where Moody AFB is located. Under USACE guidelines, credit requirements at the time of the Proposed Action could be as high as 12:1. The exact number of mitigation credits would be determined by USACE when the final permit is issued for the proposed project. Currently, there are two mitigation banks in the service area, but only one of these has stream mitigation credits for sale. At a minimum, a 25-foot buffer should be maintained around all wetlands unless USACE prescribes more stringent mitigations.

Regarding the western portion of the Val Del parcel, which contains the sinkhole, the Air Force has reduced the overall housing requirement such that no development in this portion of the property is required. The government will initiate appropriate supplemental NEPA actions if further information is received that could impact the conclusions described in the EA.

The Air Force appreciates the opportunity to address the concerns expressed by the Valdosta State team, and it looks forward to successful conclusion of the EA.

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
WILDLIFE RESOURCES DIVISION

MARK WILLIAMS
COMMISSIONER

DAN FORSTER
DIRECTOR

August 13, 2013

Allen Richmond
Program Manager, NEPA Center
Air Force Civil Engineer Center
2261 Hughes Ave.
Lackland AFB, TX 78236

Subject: Known occurrences of natural communities, plants and animals of highest priority conservation status on or near Military Housing, Lowndes County, Georgia

Dear Mr. Richmond:

This is in response to your request of July 15, 2013. According to our records, within a three-mile radius of the project sites, there are the following Natural Heritage Database occurrences:

On-Base Parcel (-83.21752, 30.96525; NAD27):

Botaurus lentiginosus (American Bittern) approx. 1.5 mi. SE of site
Botaurus lentiginosus (American Bittern) approx. 2.5 mi. SE of site
US *Drymarchon couperi* (Eastern Indigo Snake) approx. 2.5 mi. SE of site
US *Drymarchon couperi* (Eastern Indigo Snake) approx. 3.0 mi. E of site
US *Gopherus polyphemus* (Gopher Tortoise) approx. 2.0 mi. E of site
Grus canadensis pratensis (Florida Sandhill Crane) approx. 1.0 mi. N of site
Grus canadensis pratensis (Florida Sandhill Crane) approx. 2.0 mi. S of site
Lanius ludovicianus migrans (Migrant Loggerhead Shrike) approx. 2.0 mi. NE of site
Lanius ludovicianus migrans (Migrant Loggerhead Shrike) approx. 1.0 mi. E of site
Nyctanassa violacea (Yellow-crowned Night-heron) approx. 1.5 mi. SE of site
Nyctanassa violacea (Yellow-crowned Night-heron) approx. 2.5 mi. SE of site
Oxypolis ternata (Savanna Cowbane) approx. 2.5 mi. SE of site
Plegadis falcinellus (Glossy Ibis) approx. 2.5 mi. S of site
Plegadis falcinellus (Glossy Ibis) approx. 2.5 mi. SE of site
Regina alleni (Striped Crayfish Snake) approx. 1.5 mi. SE of site
Regina alleni (Striped Crayfish Snake) approx. 2.5 mi. SE of site
GA *Sarracenia flava* (Yellow Flytrap) approx. 2.0 mi. NE of site
GA *Sarracenia minor var. minor* (Hooded Pitcherplant) approx. 2.5 mi. SE of site
Ursus americanus floridanus (Florida Black Bear) approx. 2.0 mi. S of site
Wading Bird Colony (Wading Bird Colony) approx. 2.0 mi. E of site
GRAND BAY WMA [Heritage Preserve] approx. 1.0 mi. S of site

Val Del Parcel (-83.32590, 30.90848; NAD27):

NONGAME CONSERVATION SECTION
2065 U.S. HIGHWAY 278 S.E. | SOCIAL CIRCLE, GEORGIA 30025-4743
770.918.6411 | FAX 706.557.3033 | WWW.GEORGIAWILDLIFE.COM

GA *Alosa alabamae* (Alabama Shad) approx. 2.5 mi. NE of site
US *Ambystoma cingulatum* (Frosted Flatwoods Salamander)
Carex fissa var. aristata (Sedge) approx. 2.0 mi. SW of site
GA *Macrochelys temminckii* (Alligator Snapping Turtle) approx. 1.0 mi. SE of site
Pteronotropis metallicus (Metallic Shiner) approx. 1.5 mi. S of site
US *Elanoides forficatus* (Swallow-tailed Kite) [Valdosta] approx. 1.5 mi. SE of site
US *Elanoides forficatus* (Swallow-tailed Kite) [Valdosta] approx. 2.5 mi. S of site
[Lowndes County] approx. 0.5 mi. SE of site
Greenspace [Lowndes County] approx. 0.5 mi. SE of site

* Entries above proceeded by "US" indicates species with federal status in Georgia (Protected or Candidate). Species that are federally protected in Georgia are also state protected; "GA" indicates Georgia protected species.

Recommendations:

We have no records of priority species or habitats within the project area. However,three federally listed species, *Drymarchon couperi* (Eastern Indigo Snake), *Gopherus polyphemus* (Gopher Tortoise), *Elanoides forficatus* (Swallow-tailed Kite), are within three miles of the proposed projects. The Endangered Species Act states that taking or harming of a listed species is prohibited. We recommend all requestors with projects located near federally protected species consult with the United States Fish and Wildlife Service. For southeast Georgia, please contact Strant Colwell (912-265-9336, ext.30 or Strant_Colwell@fws.gov). In southwest Georgia, please contact John Doresky (706-544-6030 or John_Doresky@fws.gov).

In addition to the federally listed species, there are state listed species surrounding the parcels as well. For information on these and other protected species within Georgia, please visit our webpage at http://www.georgiawildlife.org/rare_species_profiles. The website has helpful advice, such as best survey dates for specific species.

We advocate green growth community planning that focuses on leaving open space in newly developed residential areas. These subdivisions are designed to protect natural habitats by clustering development and minimizing infrastructure, such as paved surfaces and utilities. Development should occur away from sensitive environmental resources, such as streams, wetlands and critical wildlife habitat. Undisturbed buffers of at least 100 feet should be left surrounding any streams or wetlands at the site. Open space should be protected by use of a conservation easement or other legal agreement. The open space may be used for recreation, wildlife habitat and stormwater control. We recommend these cluster developments that set aside as much land as possible to remain in a natural state. This will allow for the conservation of wildlife and natural resources as well as recreation opportunities for residents of the planned development and surrounding communities. For more information on Green Growth Guidelines visit GA DNR Coastal Resources Division website at
http://www.coastalgadnr.org/cm/green/guide.

IR 14463

Disclaimer:

Please keep in mind the limitations of our database. The data collected by the Nongame Conservation Section comes from a variety of sources, including museum and herbarium records, literature, and reports from individuals and organizations, as well as field surveys by our staff biologists. In most cases the information is not the result of a recent on-site survey by our staff. Many areas of Georgia have never been surveyed thoroughly. Therefore, the Nongame Conservation Section can only occasionally provide definitive information on the presence or absence of rare species on a given site. Our files are updated constantly as new information is received. **Thus, information provided by our program represents the existing data in our files at the time of the request and should not be considered a final statement on the species or area under consideration.**

If you know of populations of highest priority species that are not in our database, please fill out the appropriate data collection form and send it to our office. Forms can be obtained through our web site (http://www.georgiawildlife.com/node/1376) or by contacting our office. If I can be of further assistance, please let me know.

Sincerely,

Katrina Morris
Environmental Review Coordinator

Data Available on the Nongame Conservation Section Website

- Georgia protected plant and animal profiles are available on our website. These accounts cover basics like descriptions and life history, as well as threats, management recommendations and conservation status. Visit http://www.georgiawildlife.com/node/2721.
- Rare species and natural community information can be viewed by Quarter Quad, County and HUC8 Watershed. To access this information, please visit our GA Rare Species and Natural Community Information page at: http://www.georgiawildlife.com/conservation/species-of-concern?cat=conservation
- Downloadable files of rare species and natural community data by quarter quad and county are also available. They can be downloaded from: http://www.georgiawildlife.com/node/1370

IR 14463

Georgia Department of Natural Resources

Nongame Conservation Section
Wildlife Resources Conservation Center
2065 U.S. Highway 278, S.E.
Social Circle, Georgia 30025-4743

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Allen Richmond
Program Manager, NEPA Center
Air Force Civil Engineer Center
2261 Hughes Ave.
Lackland AFB, TX 78236

78236$5800

AIR FORCE RESPONSE TO AUGUST 13, 2013 COMMENT FROM GEORGIA DNR

The Air Force appreciates the guidance provided by the Georgia Department of Natural Resources. The Air Force and private developer will remain vigilant for protected species at the project sites and will encourage green development practices.

VALDOSTA STATE UNIVERSITY
Building for Our Next Century
1906-2006

AFCEC/CZN
2261 Hughes Ave Ste 155
Lackland AFB
TX, 78236-9853

ATTN: Captain D. Jason Murley

Friday, February 28, 2014

PUBLIC COMMENT

RE: Revised Environmental Assessment, Military Housing Privatization Initiative (MHPI), Val-Del Road, Moody AFB, Georgia

We sincerely appreciate being granted the opportunity to submit this public comment regarding the revised Environmental Assessment (EA) of the proposed Military Housing Privatization Initiative (MHPI) northwest of Valdosta, Georgia, on Val Del Road (also referred to as the "Val Del parcel"). It should be noted that the revised project presents a reduction of 83 homes at the Val Del site when compared to the original proposal we responded to in August 2013. In order to provide clarity on this matter of a significant change in the MHPI design, we request that the language adopted in a final document clearly indicates that the currently evaluated site is referring to the former Phase 1 (or the eastern section) of the previously released version of the EA in July 2013.

As we noted in our public comment in August 2013, the area under consideration for this housing project displays unique geophysical conditions so that the geological and hydrological circumstances (i.e. karst topography) need to be studied more carefully and in a larger geographical context to address two main issues: 1) the safety of potential inhabitants of the new housing units, should the project go forward, and 2) environmental concerns, as the Upper Floridan aquifer strikes close to the surface in this area, so that proper drainage management is crucial in order to avoid the direct piping of pollutants into the aquifer.

With the revised EA we now have access to information that fills in gaps that existed until recently since the geophysical report, which formed the basis for the July 2013 EA, was not shared with the public and since we were denied access to the site. We are happy to note that in October 2013, following our public comment, additional geophysical testing was conducted at the Val Del site to further study anomalies that were apparently identified in an earlier EA. It appears that geologists from Geohazards, Inc. had in fact called for SPT borings in those areas following their initial investigations reported on November 14, 2012. It would have been very helpful and would have allayed many of our initial concerns if some of this technical information had been provided upon our request following the release of the previous environmental assessment in August, 2013.

Although we were quite impressed by the science contained in the current EA, the lack of transparency in the process, which led to the finding of "no significant impact", raises a number of questions. It would seem that the landowner and developers feared public scrutiny during this process. Yet, the citizens of Lowndes County have a vested interest in the groundwater resources beneath this site, as well as the overall safety of the housing units in our community. Not allowing access to the site to an independent geological consultant for the U.S. Army Corps of Engineers (USACE), the environmental branch at Moody Air Force Base, or VSU faculty with an expertise in hydrogeology and karst topography, simply undermines the trust of the public in the validity of any EA.

In respect to the current EA, which focuses on the eastern portion of the parcel, the layout of the subdivision has been revised to work around anomalies identified by ERI readings and targeted with SPT borings. In order to ensure that all concerns raised in the EA are properly addressed, the best practice to follow in construction would be to require a licensed professional geologist on site in case subsidence begins to occur as the site is being prepared for construction. Shallow infilled channels or paleokarst features may need to be excavated and filled with aggregate near the surface. Raveling in voids or fractures at depth may also require that they be filled if they begin to extend close to the new foundations.

We also remain concerned about the hydrology of this site which sits on a recharge zone for the Upper Floridan aquifer. The executive summary outlines plans to mitigate impacts through purchasing wetlands at a USACE-approved location through the Section 404 permitting process. In addition to satisfying the legal requirements in this area, the local community needs to be reassured that the aquifer is protected and the mitigation takes care of the function which existing wetlands have in filtering surface waters which reach our groundwater.

Respectfully,

(Dr. Donald Thieme, Geosciences)

(Dr. Can Denizman, Geosciences)

(Dr. Michael G. Noll, Geosciences)

AIR FORCE RESPONSE TO FEBRUARY 28, 2014 COMMENT FROM VALDOSTA STATE

The Air Force appreciates the public comment received from the Valdosta State University geosciences team. The Final EA and FONSI/FONPA will clearly provide that the site being considered is the eastern portion of the Val Del parcel, which was initially described as the Phase I site in the July 2013 Draft EA. For greater clarity, the Air Force adopted the "eastern parcel" language instead of the "Phase I" parcel or site wherever possible because the cardinal directional terminology "eastern parcel" more clearly identifies the affected land instead of focusing on a project timeline.

The Project Owner will be required to comply with all applicable federal, state and local requirements for land development and construction. The Project Owner has been communicating and working with licensed Professional Engineers and registered geologists with the State to guide its proposed activities (site preparation, construction of housing units, other facilities, and pertinent infrastructure including utilities) on the eastern parcel. Additionally, prior to any construction work and subsequent authorized occupancy of constructed housing units and other related facilities, the Project Owner will advance its land development and site preparation activities by considering karst features and then incorporating necessary precautions based on existing geological conditions, including avoidance of impacts to drainage and runoff conditions except to maintain existing operations or improve drainage and stormwater runoff conditions. The Project Owner is knowledgeable of federal, state, and local regulations, building codes, and the necessity of protecting the groundwater recharge zone. Project Owner activities with the potential to impact wetlands and wetland operations will be addressed through working with Lowndes County, the Savannah District of the U.S. Army Corps of Engineers, and others as necessary to accomplish all permit requirements. The Project Owner will also have substantial interface with Lowndes County, the State, and Moody AFB throughout project development to completion.

APPENDIX B
AIR QUALITY

ACRONYMS, ABBREVIATIONS, AND SYMBOLS

ACAM	Air Conformity Applicability Model
CAA	Clean Air Act
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CY	calendar year
EA	Environmental Assessment
ETS/CEM	Emission Tracking System/Continuous Emissions Monitoring
ft^2	square feet
g	grams
GADNR	Georgia Department of Natural Resources
HAP	hazardous air pollutant
hp	horsepower
hr	hours
lb	pounds
$\mu g/m^3$	micrograms per cubic meter
mg/m^3	milligrams per cubic meter
mm	millimeters
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEI	National Emissions Inventory
NEPA	National Environmental Policy Act
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
O_3	ozone
Pb	lead
PM_{10}	particulate matter with a diameter less than or equal to 10 microns
$PM_{2.5}$	particulate matter with a diameter less than or equal to 2.5 microns
ppb	parts per billion
ppm	parts per million
PSD	Prevention of Significant Deterioration
ROI	region of influence
SCAQMD	South Coast Air Quality Management District
SER	significant emissions rate
SIP	State Implementation Plan
SO_2	sulfur dioxide
TSP	total suspended particulates
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

AIR QUALITY

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

AIR QUALITY PROGRAM OVERVIEW

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

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

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

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

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

A general conformity analysis is required if the action's direct and indirect emissions have a potential to emit one or more of the six criteria pollutants at or above emission rates shown in Table B-1, Table B-2, or Table 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/m³)	No standard	9 ppm (10 mg/m³)
	1-hour	35 ppm (40 mg/m³)	No standard	35 ppm (40 mg/m³)
Lead (Pb)	Rolling 3-month average	0.15 µg/m³ [a]	0.15 µg/m³	0.15 µg/m³
Nitrogen dioxide (NO_2)	Annual	0.053 ppm[b] (100 µg/m³)	0.053 ppm (100 µg/m³)	0.053 ppm (100 µg/m³)
	1-hour	100 ppb	No standard [c]	100 ppb
Particulate matter ≤10 micrometers (PM_{10})	24-hour	150 µg/m³	150 µg/m³	150 µg/m³
Particulate Matter <2.5 micrometers ($PM_{2.5}$)	Annual	15 µg/m³	15 µg/m³	15 µg/m³
	24-hour	35 µg/m³	35 µg/m³	35 µg/m³
Ozone (O_3)	8-hour	0.075 ppm³ (157 µg/m³)	0.075 ppm (157 µg/m³)	0.075 ppm (157 µg/m³)
Sulfur dioxide (SO_2)	Annual	No standard	No standard	80 µg/m³
	24-hour[a]	No standard	No standard	365 µg/m³
	3-hour	No standard	0.50 ppm [c] (1300 µg/m³)	0.50 ppm (1300 µg/m³)
	1-hour	75 ppb [d]	No standard	75 ppb

Source: USEPA, 2011 (federal standards); GADNR, 2012 (Georgia standards)
ppm = parts per million; ppb = parts per billion; mg/m³ = milligrams per cubic meter; µg/m³ = micrograms per cubic meter

a. Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

b. The official level of the annual NO_2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard

c. Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, USEPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard ('anti-backsliding"). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.

d. Final rule signed June 2, 2010. The 1971 annual and 24-hour SO_2 standards were revoked in that same rulemaking. However, these standards remain in effect until 1 year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

Table B-2. Emission Rates for Criteria Pollutants in Nonattainment Areas[1]

Pollutant	Emission Rate (tons/year)
Ozone (volatile organic compounds [VOCs] or NO_x)	
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
NOx	100
CO: All nonattainment areas	100
SO_2 or NO_2: All nonattainment areas	100
PM_{10}	
Moderate nonattainment areas	100
Serious nonattainment areas	70
$PM_{2.5}$	
Direct emissions	100
SO_2	100
NO_x (unless determined not to be a significant precursor)	100
VOCs or ammonia (if determined to be significant precursors)	100
Pb: All nonattainment areas	25

Source: USEPA, 2006

CO = carbon monoxide; NO_2 = nitrogen dioxide; NO_x = nitrogen oxides; VOC = volatile organic compound; Pb = lead; $PM_{2.5}$ = particulate matter with a diameter less than or equal to 2.5 microns; PM_{10} = particulate matter with a diameter less than or equal to 10 microns; SO_2 = sulfur dioxide

1. *De minimis* threshold levels for conformity applicability analysis.

Table B-3. Emission Rates for Criteria Pollutants in Attainment (Maintenance) Areas[1]

Pollutant	Emission Rate (tons/year)
Ozone (NO_x, SO_2, or NO_2): 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_{10}: All maintenance areas	100
PM2.5	
Direct emissions	100
SO_2	100
NO_x (unless determined not to be a significant precursor)	100
VOC or ammonia (if determined to be significant precursors)	100
Pb: All maintenance areas	25

Source: USEPA, 2006

CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compound; Pb = lead; $PM_{2.5}$ = particulate matter with a diameter less than or equal to 2.5 microns; PM_{10} = particulate matter with a diameter less than or equal to 10 microns; SO_2 = sulfur dioxide

1. *De minimis* threshold levels for conformity applicability analysis.

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

In attainment areas, major new or modified stationary sources of air emissions on and in the area are subject to Prevention of Significant Deterioration (PSD) review to ensure that these sources are constructed without causing significant adverse deterioration of the clean air in the area. A major new source is defined as one that has the potential to emit any pollutant regulated under the CAA in amounts equal to or exceeding specific major source thresholds, that is, 100 or 250 tons/year based on the source's industrial category. A major modification is a physical change or change in the method of operation at an existing major source that causes a significant "net emissions increase" at that source of any regulated pollutant. Table B-4 lists the PSD significant 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_{10}	15
$PM_{2.5}$	10
Total suspended particulates (TSP)	25
SO_2	40
NO_x	40
Ozone (VOCs)	40
CO	100

Source: Title 40 CFR Part 51

CO = carbon monoxide; NO_x = nitrogen oxides; VOC = volatile organic compound; Pb = lead; $PM_{2.5}$ = particulate matter with a diameter less than or equal to 2.5 microns; PM_{10} = particulate matter with a diameter less than or equal to 10 microns; SO_2 = 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 (µg/m³)		
		Class I	Class II	Class III
PM_{10}	Annual	4	17	34
	24-hour	8	30	60
SO_2	Annual	2	20	40
	24-hour	5	91	182
	3-hour	25	512	700
NO_2	Annual	2.5	25	50

Source: Title 40 CFR Part 51

NO_2 = nitrogen dioxide; PM_{10} = particulate matter with a diameter less than or equal to 10 microns; SO_2 = sulfur dioxide; µg/m³ = micrograms per cubic meter

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

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

The result of this attainment/maintenance analysis is the development of local and statewide strategies for controlling emissions of criteria air pollutants from

stationary and mobile sources. The first step in this process is the annual compilation of the ambient air monitoring results, and the second step is the analysis of the monitoring data for general air quality, exceedances of air quality standards, and pollutant trends.

REGULATORY COMPARISONS

The CAA Section 176(c), General Conformity, requires federal agencies to demonstrate that their proposed activities would conform to the applicable SIP 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. Since 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 the analysis, in order to evaluate air emissions and their impact on the overall region of influence (ROI), the emissions associated with the project activities were compared with the total emissions on a pollutant-by-pollutant basis for the ROI's 2008 National Emissions Inventory (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 Council on Environmental Quality (CEQ) defines significance in terms of context and intensity in 40 CFR 1508.27. This requires that the significance of the action must be analyzed in respect to the setting of the proposed action and based relative to the severity of the impact. The CEQ National Environmental Policy Act (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.

PROJECT CALCULATIONS

Construction Emissions

Calculations for construction emissions were completed using the calculation methodologies described in the U.S. Air Force Air Conformity Applicability Model

(ACAM). As previously indicated, a conformity determination is not required since the Lowndes County is designated as attainment for all criteria pollutants.

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

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

Mobile and Stationary Construction Equipment Emissions

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

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

Where: $E_{constr\text{-}eq}$ = emissions of criteria pollutant from construction equipment (pound/day/10 acres)

N = number of pieces of equipment

HP = horsepower of equipment (hp)

LF = load factor of equipment (percent)

OT = operating time (hours/day)

EF = emission factor for criteria pollutant (grams/hp-hour)

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

Grading activities are divided into grading equipment emissions, and grading operation emissions. To complete the site preparation and grading activities, it is assumed that one grader, one rubber-tired dozer, one tractor/loader/backhoe, and one water truck are used per 435,600 square feet (10 acres). Emissions from construction equipment are determined assuming the use of one crane, two forklifts, and one tractor/loader/backhoe per 435,600 square feet (10 acres) of building construction

(Sacramento Air Quality Management District and South Coast Air Quality Management District [SCAQMD], 2007 as referenced in U.S. Air Force, 2010).

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

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

Where: $E_{grading}$ = emissions of criteria pollutant from grading (tons/year)

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

A = area of construction/grading (square feet)

435,600 = conversion from 10 acres (435,600 square feet [ft^2]) to emissions per square feet

OD = operating days (days/year)

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

Grading Operations

Grading operation emissions are calculated using a similar equation from the SCAQMD (SCAQMD, 2007 as referenced in U.S. Air Force, 2010). This calculation includes grading and truck hauling emissions.

Emission Calculation:

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

Where: Acres = number of gross acres to be graded during Phase I construction

DPY_1 = number of days per year used for grading during Phase I construction

2,000 = conversion factor from pounds to tons

The calculations assumed that there were no controls used to reduce fugitive emissions. Also, it was assumed that construction activities for each phase would occur

within one calendar year (CY) in which the project would be implemented (365 days), and that grading activities would represent 50 percent of that total, or 182 days. The emission factors were derived from the Sacramento Air Quality Management District and SCAQMD (SCAQMD, 2007 as referenced in U.S. Air Force, 2010).

Architectural Coating Emissions

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

Determine the total interior and exterior surface square footage:

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

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

*Non-Residential Interior = Total building square footage * 2.0 * 0.75*

*Non-Residential Exterior = Total building square footage * 2.0 * 0.25*

Total Surface Coating Area (ft²) = Res. Int. + Res.Ext. + Non-Res. Int. + Non-Res. Ext.

Where: Residential/Non-Residential Interior and Residential/Non-Residential Exterior = total interior or exterior surface area (ft²)

Multi-Family Units = user input number of units (assume 1,000 ft² per unit)

Single-Family Units = user input number of units (assume 1,000 ft² per unit)

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

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

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

Emissions are then calculated:

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

Where: 250 = grams of VOC per liter of paint

454 = conversion factor from grams to pounds

3.785 = conversion factor from liters to gallons

180 = conversion factor from square feet to gallons

2,000 = conversion factor from pounds to tons

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

Asphalt Paving Emissions

Three types of asphalt exist: emulsified asphalt, asphalt cement, and cutback asphalt. Cutback asphalt is the only type that releases VOC emissions during asphalt paving operations, as the other two types only produce minor amounts of VOCs. Emissions are calculated using the following equation:

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

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

WP_{evap} = weight percentage of cutback asphalt which evaporates

100 = conversion factor from percent to fraction

2,000 = conversion factor from pounds to tons

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

Construction Worker Trips

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

Calculation:

*Multi-Family (trips/day) = 0.36 (trips/unit/day) * Number of Multi-Family Units*

*Single-family (trips/day) = 0.72 (trips/unit/day) * Number of Single-Family Units*

*Commercial/Retail Building (trips/day) = 0.32 (trip/1,000 ft²/day) * Area of commercial/retail building (1,000 ft²)*

*Office/Employment (trips/day) = 0.42(trips/1,000 ft²/day) * Area of Office/Employment Units (1,000 ft²)*

Total Daily Trips (TRIPS) (trips/day) = Multi-Family + Single-Family + Commercial/Retail + Office/employment.

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

E_{CPppd} *(pound/day) = EF (gram/trip) * TRIPS / 454*

Table B-6. Vehicle Emission Factors

Year	Vehicle Emission Factors (grams/trip)				
	CO	NO_x	PM_{10}	SO_2	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

CO = carbon monoxide; NO_x = nitrogen oxides; PM_{10} = particulate matter with a diameter less than or equal to 10 microns; SO_2 = sulfur dioxide; VOC = volatile organic compound

To convert from pounds per day to tons per year:

$$E_{CPtpy}\ (tons/year) = E_{CPppd}\ (pounds/day) * DPY_{II} / 2{,}000$$

Where: E_{CPtpy} = emission criteria pollutant annual tons

E_{CPppd} = emission of criteria pollutant pounds per day

2,000 = conversion factor from pounds to tons

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

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

Commuter Emissions

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

$$E_v = VMT * EF * 0.002205 / 2{,}000$$

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

VMT = vehicle miles traveled (miles/year)

EF = emission factor (grams/mile)

0.002205 = conversion factor from grams to pounds

2,000 = conversion factor from pounds to tons

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

Greenhouse Gases

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

$$E_{CO2e} = F * \sum (EF_{p,fuel} * GWP) / 2{,}000$$

Where: E_{CO2e} = carbon dioxide equivalent emission (tons per yr)

F = annual fuel use (gallons per yr)

$EF_{p,fuel}$ = emission factor (pounds per gallon) for fuel type for each pollutant

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

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[1]	Gasoline[1]
		pounds/gallon	
CO_2	1	22.4	19.5
CH_4	21	0.0012787	0.00110229
N_2O	310	0.0005732	0.000485

Source: California Climate Registry, 2009
CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide

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

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

Employee commutes were calculated the same as described in the "Commuter Emissions" sections as CO_2 emission factors were provided.

NATIONAL EMISSIONS INVENTORY

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

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

- Carbon monoxide (CO)
- Nitrogen oxides (NO_x)
- Sulfur dioxide (SO_2)
- Particulate matter (PM_{10} and $PM_{2.5}$)

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

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

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

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

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

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

USEPA's Clean Air Market program supplies emissions data for electric power plants.

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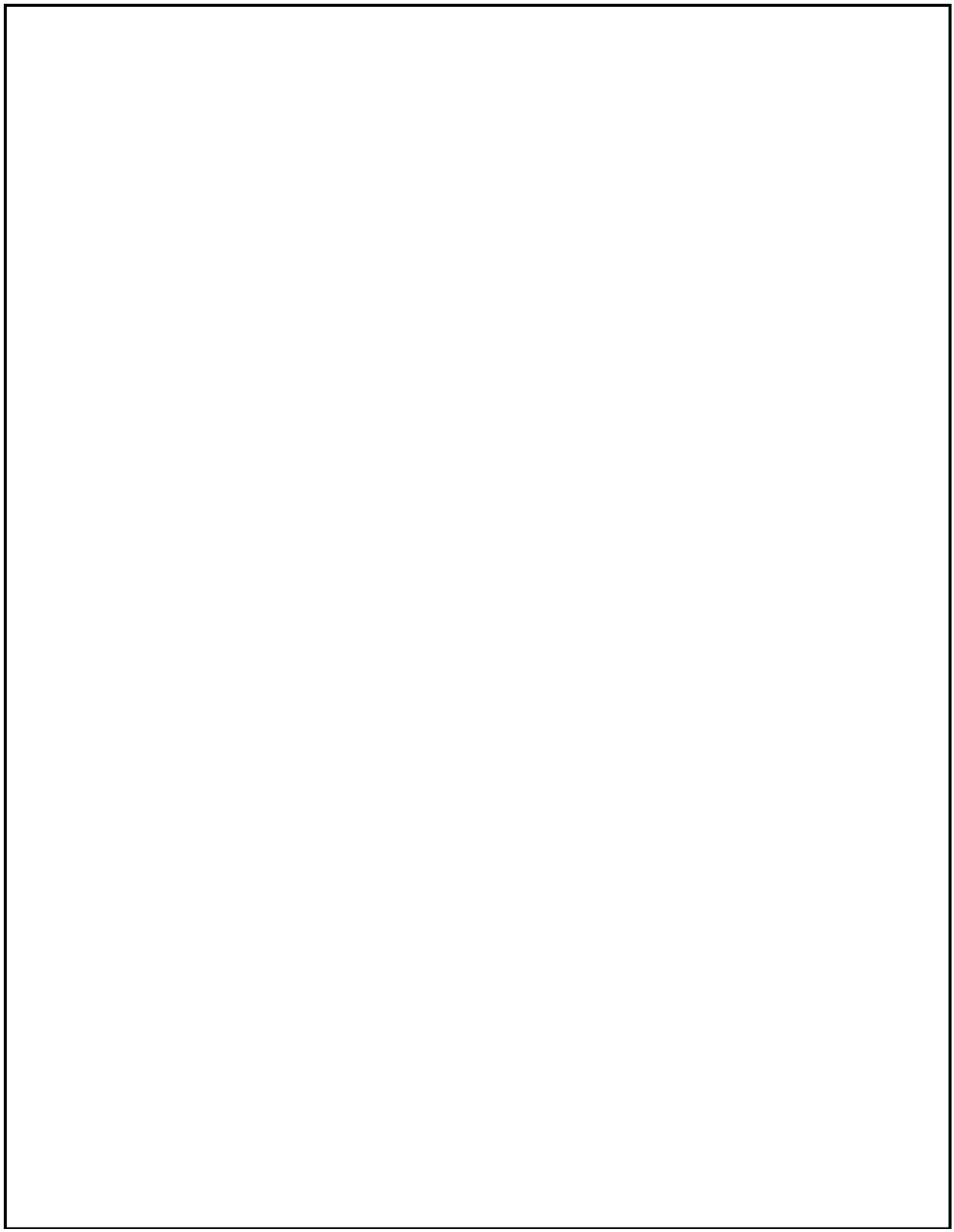
APPENDIX C
VAL DEL ROAD PARCEL WETLAND DELINEATION REPORT

FINAL
WETLAND DELINEATION REPORT

MILITARY HOUSING
PRIVATIZATION INITIATIVE
PROPOSED VAL DEL ROAD SITE

MOODY AIR FORCE BASE, GEORGIA

AUGUST 2013



WETLAND DELINEATION REPORT

MILITARY HOUSING PRIVATIZATION INITIATIVE PROPOSED VAL DEL ROAD SITE

MOODY AIR FORCE BASE, GEORGIA

Prepared for
Air Force Civil Engineer Center
Housing Project Development (AFCEC/CFHD)
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ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
Air Force	U.S. Air Force
BONAP	Biota of North America Program
GPS	global positioning system
MHPI	Military Housing Privatization Initiative
SAIC	Science Applications International Corporation
USACE	U.S. Army Corps of Engineers

1. INTRODUCTION

As part of the Military Housing Privatization Initiative (MHPI), the U.S. Air Force (Air Force) would support a housing development for Air Force personnel at Moody Air Force Base (AFB) at an off-base location. Under the proposed action a private developer would construct a housing development consisting of up to 175 single-family housing units, community facilities (e.g., club house, parks, playgrounds, etc.) and infrastructure such as roads and sidewalks. The Air Force would help to finance the development through guaranteed loans and housing occupancy rates, while military families from Moody AFB would then rent the housing units from the developer. The developer would be responsible for acquiring all permits and implementing all required mitigations and best management practices associated with state and federal development requirements.

On 12–14 and 16–17 September 2012, two wetland scientists from Science Applications International Corporation (SAIC) conducted wetland delineations at a 75-acre site proposed for an off-base MHPI housing subdivision for Moody AFB personnel. On 11–13 March 2013, SAIC scientists conducted another wetland delineation on an adjacent 38-acre site adjacent to the original site. The purpose of these wetland delineations was to identify, characterize, and map potential jurisdictional wetlands and other water resources at the proposed off-base MHPI site on Val Del Road. On 10 April 2013 a regulatory specialist with the U. S. Army Corps of Engineers (USACE) conducted a site visit as part of an expanded preliminary Jurisdictional Determination for the proposed MHPI site. Final results of that determination were completed on 06 August 2013 (USACE 2013; see Appendix D). The proposed MHPI site is located in Lowndes County, Georgia, several miles north of Valdosta (Figure 1-1). The proposed site is on the west side of Val Del Road, approximately 0.75 mile north of the intersection of Val Del Road and U.S. Route 41 and several miles west of Moody AFB.

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August 2013

Figure 1-1. Location of Moody Air Force Base and Proposed Val Del Road MHPI Site, Lowndes County, Georgia

1-2

2. METHODS

A ground survey was conducted 12–14 and 16–17 September 2012 at the proposed Val Del Road MHPI site to identify all jurisdictional wetlands on the property. On 11–13 March, an additional delineation was conducted on an adjacent 38-acre tract. The survey included walking a series of north-south transects about 100 yards apart across the site beginning on the western border and moving eastward to the eastern boundary. Wetland boundaries were flagged in the field. Wetland determinations were performed according to USACE standards, which require documentation of hydrophytic vegetation, hydric soil, and wetland hydrology (Environmental Laboratory 1987; USACE 2010; Lichvar and Kartesz 2009). Sample points were also documented in uplands adjacent to wetland sample points. Sample plots consisted of circular plots with a 30-foot radius. Copies of the USACE wetland determination data sheets are provided in Appendix A.

Wetlands are areas inundated by surface or ground water such that vegetation adapted to saturated soil conditions is prevalent. Examples include swamps, marshes, bogs, wet meadows, and lacustrine or palustrine shoreline fringes. Wetland habitat types were classified according to the Cowardin system (Cowardin et al. 1979). The Cowardin system is based on a hierarchical categorization according to primary hydrologic setting, dominant vegetation types, and other edaphic factors (influenced by soil rather than by physiographic or climatic factors). The Cowardin system is used extensively in the National Wetland Inventory program.

Geographic data were collected using a Trimble GeoXH global positioning system (GPS) receiver capable of recording data with submeter accuracy to record location information. Geographic data were converted to shapefiles in ArcGIS 10.

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3. RESULTS

3.1 WETLANDS

The proposed Val Del Road MHPI site is largely pine forest [longleaf pine (*Pinus palustris*), slash pine (*Pinus elliotii*), and loblolly pine (*Pinus taeda*)] that was logged in 2011 and scattered areas dominated by water oak (*Quercus nigra*). The property is currently leased for hunting. Ten wetlands at the site (covering a total area of 13.071 acres) were identified as potential jurisdictional wetlands (Figure 3-1 and Table 3-1). All 10 wetlands have been affected directly or indirectly by a timber harvest at the site completed in 2011 and other human activities.

Although all 10 wetlands at the site met the three criteria of a jurisdictional wetland, three of the wetlands have been determined to be hydrologically isolated and do not exhibit connectivity to Waters of the United States (USACE 2013). One wetland occurs along an unnamed tributary to the Withlacoochee River. Therefore, three of these wetlands would not be regulated under Section 404 of the Clean Water Act. A jurisdictional determination by the USACE was completed to determine the regulatory status of each wetland. Routine wetland determination forms and representative photographs of these wetlands are included in Appendix A and Appendix B, respectively.

Other aquatic resources at the site include a small, intermittent stream that flows entirely within a 1.16-acre sinkhole located near the center of the site (Figure 3-1).

On 10 April 2013 a regulatory specialist with the USACE conducted a site visit as part of an expanded preliminary Jurisdictional Determination for the proposed MHPI site. The results of that determination are summarized in Table 3-1 and documented in Appendix D. Final results of that determination were completed on 06 August 2013 (USACE 2013).

3.1.1 Wetland 1 (W01)

W01 is a small, palustrine unconsolidated wetland (Cowardin code PUBF) located in the near the northwest corner of the MHPI site (Figure 3-1 and Table 3-1). The wetland is a shallow depression that may be natural or excavated. W01 covers a total area of 0.024 acre (Table 3-1).

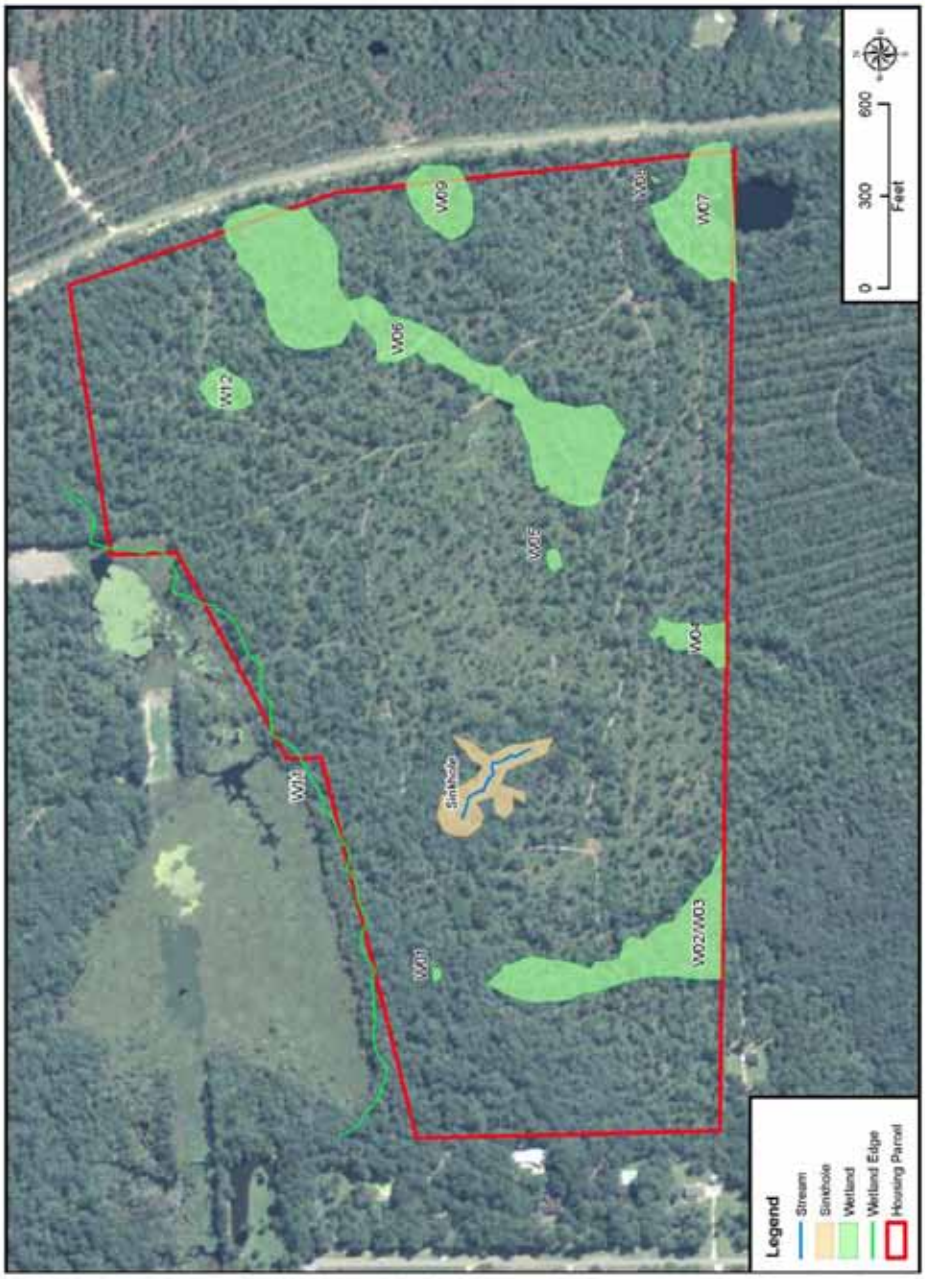

Figure 3-1. Location of Wetlands and Surface Water Resources at Proposed Val Del Road MHPI Site, Lowndes County, Georgia

Table 3-1. Summary of Wetlands, Proposed Val Del Road MHPI Site, Lowndes County, Georgia

Wetland ID	Wetland Type [a]	Area	Jurisdictional Status[c]
W01	PUBF	0.024 acre	Isolated
W02/03	PFO1E	2.738	Jurisdictional
W04	PSS3E	0.527 acre	Jurisdictional
W05	PFO1/4E	0.068 acre	Isolated
W06	PEM1E/PSS1E/PFO1E	6.441 acres	Jurisdictional
W07	PFO1E	1.946 acres	Jurisdictional
W08	PUBF	0.011 acre	Jurisdictional
W09	PEM1F/PSS3E/PFO1E	0.915 acre	Jurisdictional
W10	PEM1E	0.065 acre	Nonwetland
W11	PEM1H/PFO1/4E	2,761.25 feet [b]	Jurisdictional
W12	PEM1E/PFO1/4E	0.401 acre	Isolated
Total Wetland acres		**13.071**	
Total Jurisdictional Wetland acres		**12.578**	
Total Isolated Wetland acres		**0.493**	
Total Nonwetland acres		**0.65**	
Total linear feet		**2,761.25**	

a. Classification codes as defined in Cowardin et al. 1979: PEM1E = palustrine emergent, persistent vegetation, seasonally flooded/saturated; PEM1F = palustrine emergent, persistent vegetation, semipermanently flooded/saturated; PEM1H = palustrine emergent, persistent vegetation, permanently flooded/saturated; PFO1E= palustrine forested, broad-leaved deciduous vegetation, seasonally flooded/saturated; PFO4E= palustrine forested, needle-leaved vegetation, seasonally flooded/saturated; PSS3E= palustrine scrub-shrub, broad-leaved evergreen vegetation, seasonally flooded/saturated; PUBF=palustrine unconsolidated bottom, semipermanently flooded/saturated; PUBH=palustrine unconsolidated bottom, permanently flooded/saturated.
b. Value for W11 only includes 2,761.25 feet adjacent to proposed MHPI boundary.
c. Jurisdictional status based on Expanded Preliminary Jurisdictional Determination Number: SAS-2013-00267 (USACE 2013).

Dominant trees include red maple (*Acer rubrum*) and swamp tupelo (*Nyssa biflora*). There are no apparent surface connections to other surface waters, and the USACE determined that W01 is an isolated wetland and not subject to regulation under Section 404 of the Clean Water Act (USACE 2013). Shrubs include buttonbush (*Cephalanthus occidentalis*), red maple, and shiny blueberry (*Vaccinium myrsinites*). Herbaceous plants include dwarf palmetto (*Sabal minor*) and saw palmetto (*Serenoa repens*). Field hydrology indicators included inundation, surface saturation, water marks, and hydrogen sulfide odor. Soils consist of mineral soils with low-chroma colors indicative of reducing conditions (i.e., depleted matrix). Photograph 1 and Photograph 2 show W01 and the adjacent upland area (Appendix B).

3.1.2 Wetland 2/3 (W02/03)

W02/03 is a palustrine forested wetland dominated by a mix of broadleaf, deciduous, and evergreen trees (Cowardin code PFO1E) that formed in a large depression near the southwestern corner of the proposed MHPI site (Figure 3-1). The original delineation in September 2012 followed record drought conditions in South Georgia. At that time it appeared that W02 and W03 were separate wetlands. During a follow-up site visit in April 2013, during much wetter and more typical site conditions, it was apparent that W02 and W03 were actually part of the same wetland. W02/03 is part of a larger wetland complex that extends south of the evaluation area. This larger system is connected hydrologically to the Withlacoochee River through a series of constructed drainage ditches. W02/03 is considered a jurisdictional wetland by the USACE and subject to regulation under Section 404 of the Clean Water Act (USACE 2013). W02/03 covers a total area of 2.738 acres (Table 3-1). Dominant trees include swamp tupelo (*Nyssa biflora*) and red maple. Shrubs include shinyleaf (*Lyonia lucida*), maleberry (*Lyonia ligustrina*), wax myrtle (*Morella cerifera*), and red maple. Herbaceous plants include flat sedge (*Cyperus* sp.), beaked rush (*Rhyncospora* sp.), netted chain fern (*Woodwardia areolata*), and red maple and swamp tupelo seedlings. Field wetland hydrology indicators included high water table, soil saturation, water marks, and water-stained leaves. Soils consist of mineral soils with low-chroma colors indicative of reducing conditions. Photograph 3 and Photograph 4 show W02 and the adjacent upland area (Appendix B). Photograph 5 and Photograph 6 show W03 and the adjacent upland area (Appendix B).

3.1.3 Wetland 4 (W04)

W04 is a palustrine scrub-shrub wetland dominated by a mix of broadleaf, evergreen shrubs (Cowardin code PSS3E) in the south-central part of the proposed MHPI site (Figure 3-1). W04 is part of a larger wetland complex that includes W02/W03 and extends south of the evaluation area. As a result, it was determined to be a jurisdictional wetland by the USACE (USACE 2013). W04 covers a total area of 0.527 acre (Table 3-1). Dominant trees include longleaf pine and shrubs include shinyleaf. Herbaceous plants include shinyleaf seedlings. Wetland hydrology indicators include inundation, saturation, and water-stained leaves. Soils consist of mineral soils with low-chroma colors indicative of reducing conditions (i.e., depleted matrix). Photograph 7 and Photograph 8 show W04 and the adjacent upland area (Appendix B).

3.1.4 Wetland 5 (W05)

W05 is a very small, palustrine forested wetland dominated by a mix of broadleaf, deciduous, and evergreen trees (Cowardin code PFO1/4E). W05 is located in a hydrologically isolated, closed depression in the center of the proposed MHPI site (Figure 3-1). There are no apparent surface connections to other surface waters. The USACE determined that W05 is an isolated wetland (USACE 2013). W05 covers a total area of 0.065 acre (Table 3-1). Dominant trees include longleaf pine and red bay (*Persea borbonia*). Shrubs include swamp tupelo, red bay, shinyleaf, and inkberry (*Ilex glabra*). Herbaceous plants include shinyleaf seedlings. Field wetland hydrology indicators include high water table, saturation, and algal mats. Soils consist of mineral soils with low-chroma colors indicative of reducing conditions (i.e., depleted matrix). Photograph 9 and Photograph 10 show W05 and the adjacent upland area (Appendix B).

3.1.5 Wetland 6 (W06)

W06 is a palustrine emergent/scrub-shrub/forested wetland complex (Cowardin code PEM1E/PSS3E/PFO1/4E) that stretches across the east-central portion of the proposed MHPI site (Figure 3-1). The wetland is located in a linear, depression and covers 6.441 acres (Table 3-1). The wetland is connected to the Withlacoochee River through a series of culverts and constructed drainage ditches on the east side of Val Del Road and is considered a jurisdictional wetland by the USACE (USACE 2013). Dominant trees include longleaf pine and red maple. Dominant shrubs include shinyleaf. Herbaceous plants include shinyleaf seedlings and netted chain fern. Wetland hydrology indicators include inundation, saturation, and aquatic fauna (frogs). Soils consist of mineral soils with low-chroma colors indicative of reducing conditions (i.e., depleted matrix). Photograph 11 and Photograph 12 show W06 at sample plots 1 and 2, respectively, and Photograph 13 and Photograph 14 show the area around the corresponding adjacent upland sample plots (Appendix B).

3.1.6 Wetland 7 (W07)

W07 is a palustrine forested wetland dominated by a mix of broadleaf, deciduous, and evergreen trees (Cowardin code PFO1/4E) in the southeastern corner of the proposed MHPI site (Figure 3-1). W07 is the northern part of a forested fringe around a large pond south of the investigation area; only 1.946 acres of the wetland is within the proposed MHPI site (Table 3-1). The wetland is connected to the Withlacoochee River through a series of culverts and constructed drainage ditches on

the east side of Val Del Road and is considered a jurisdictional wetland by the USACE (USACE 2013). Dominant trees include swamp tupelo and red maple. Shrubs include shinyleaf. Herbaceous plants include a small amount of netted chain fern. Wetland hydrology indicators were weakly expressed (soil saturation below 17 inches). It appears that an attempt was made in the past to drain the northern part of the wetland. There is a large ditch approximately 10–12 feet wide and 6–8 feet deep excavated between the northern edge of the wetland and the pond. Soils consist of a histic epipedon overlying mineral soils. Photograph 15 shows the northern end of W07 (Appendix B). Photograph 16 shows the ditch across the northern part of the wetland. Photograph 17 shows the adjacent upland area between W07 and W08 (Appendix B).

3.1.7 Wetland 8 (W08)

W08 is a very small (0.011-acre) palustrine unconsolidated bottom wetland (Cowardin code PUBF) created in an excavated area a few hundred feet north of W07 (Figure 3-1 and Table 3-1). During the April 2013 site visit, it was apparent that overflow from W08 flows directly into W07. Since W07 is considered jurisdictional by the USACE, W08 is also a jurisdictional wetland (USACE 2013). Dominant trees and shrubs include red maple around the edge of the excavation. Field wetland hydrology indicators included inundation and water-stained leaves. Soils consist of mineral soils with low-chroma colors indicative of reducing conditions (i.e., depleted matrix). Photograph 18 shows W08 (Appendix B). The upland area between W07 and W08 is shown in Photograph 17.

3.1.8 Wetland 9 (W09)

W09 is a palustrine emergent/scrub-shrub/forested wetland complex (Cowardin code PEM1F/PSS3E/PFO1/4E) covering 0.915 acre in the east-central side of the proposed MHPI site (Figure 3-1 and Table 3-1). W09 appears to have formed in semi-natural depression that is now almost completely vegetated. The wetland is connected to the Withlacoochee River through a series of culverts and constructed drainage ditches on the east side of Val Del Road and is considered a jurisdictional wetland by the USACE (USACE 2013).Dominant trees include longleaf pine and swamp bay. Dominant shrubs include a dense cover of shinyleaf. Herbaceous plants include shinyleaf seedlings. Wetland hydrology indicators include inundation, high water table, and water marks. Soils consist of mineral soils with low-chroma colors indicative of reducing conditions (i.e., depleted matrix). Photograph 19 and Photograph 20 show W09 and the adjacent upland area (Appendix B).

3.1.9 Wetland 10 (W10)

W10 is a very small (0.065-acre) area dominated by wetland vegetation near the center of the proposed MHPI site (Figure 3-1 and Table 3-1). The area developed in a area that was heavily disturbed by logging operations in 2011. In April 2013 the USACE determined that W10 was not a wetland (Kobs 2013).

3.1.10 Wetland 11 (W11)

W11 is a very large wetland complex (more than 50 acres) that borders the proposed MHPI site along the northwest boundary (Figure 3-1 and Table 3-1). The wetland includes a mixture of palustrine unconsolidated bottom, emergent, scrub-shrub, and forested wetland habitat associated with an unnamed tributary to the Withlacoochee River. Only a very small portion of W11 lies within the proposed MHPI site. Dominant forest trees in W11 include red maple, tupelo, and water oak. Dominant shrubs include wax myrtle, maleberry, red maple, and buttonbush, and dominant herbaceous plants include woolgrass (*Scirpus cyperinus*), woolly rosette grass (*Dichanthelium scabriusculum*), and maleberry seedlings). Wetland hydrology indicators include inundation, saturation, and water-stained leaves; active beaver activity has substantially enhanced the local hydrology. Soils consist of mineral soils with low-chroma colors indicative of reducing conditions (i.e., depleted matrix). Photograph 21 and Photograph 22 show W11 viewed from sample plots 1 and 2, respectively (Appendix B). Photograph 23 and Photograph 24 show the area around the corresponding adjacent upland sample plots (Appendix B). W11 is a jurisdictional wetland due to its connectivity to the Withlacoochee River (USACE 2013). W11 is largely undisturbed and adjacent to the proposed MHPI site.

3.1.11 Wetland 12 (W12)

W12 is a small (0.401-acre) palustrine emergent/forested wetland located in a closed depression in the north-central portion of the proposed MHPI site (Figure 3-1 and Table 3-1). There are no apparent surface connections to other surface waters. The USACE determined that W12 is an isolated wetland (USACE 2013). Dominant forest plants include slash pine, red maple, and red bay. Dominant shrubs include shinyleaf. Dominant herbs include peat moss (*Sphagnum* sp.) and Virginia chain fern (*Woodwardia virginica*). W12 also has a small population of hooded pitcher plants (*Sarracenia minor*), which are classified as unusual by the state of Georgia Natural Heritage Program (Georgia Department of Natural Resources 2013). Photograph 25 (Appendix B) shows

W12 and Photograph 26 shows the adjacent upland area. Photograph 27 shows the hooded pitcher plants growing in the southern end of W12.

3.2 STREAMS

There is one small, intermittent stream at the proposed MHPI site. The stream has formed in a gully that is part of a 1.16-acre sinkhole near the central part of the site (Figure 3-1). The stream begins at a small seep in the gully and flows 365 feet before disappearing into the bottom of the sinkhole, approximately 60 to 70 feet below the surrounding ground surface. The stream appears to be fed by shallow groundwater discharge and runoff from the surrounding area during precipitation events. Based on the depth of the sinkhole, the stream likely contributes to local groundwater recharge of the Upper Floridan Aquifer. The stream was observed flowing during the September 2012, and March 2013, and April 2013 site visits as shown in Photograph 28 and Photograph 29 (Appendix B). Photograph 30 and Photograph 31 (Appendix B) show the deepest part of the sinkhole during the September 2012 and March 2013 surveys, respectively. The USACE determined that the stream would be regulated under Section 404 of the Clean Water Act (Kobs 2013; USACE 2013).

4. SUMMARY

Wetland delineations at the MHPI site on Val Del Road in September 2012 and March 2013 identified 10 wetlands that meet the criteria of potentially jurisdictional wetlands. The delineation was conducted according to the USACE Routine Wetland Determination method (Environmental Laboratory 1987, USACE 2010). A site visit conducted by the USACE in April 2013 determined that seven wetlands (W02/03, W04, W06, W07, W08, W09, and W11), covering a total area of 12.578 acres, have a direct or indirect hydrologic connection to the Withlacoochee River and would be regulated under Section 404 of the Clean Water Act (USACE 2013). The remaining three wetlands (W01, W05, and W12), which cover a combined area of 0.493 acre, are isolated hydrologically and would not subject to regulation by the USACE (USACE 2013). Other aquatic resources at the site include a small segment of intermittent stream in a large sinkhole at the site that would be regulated as a Water of the United States (USACE 2013).

Identification of the 10 wetlands and intermittent stream at the Val Del Road MHPI site will provide planners with data about wetland locations to help them site a proposed new subdivision while avoiding and/or minimizing potential impacts to wetlands. If wetland impacts are unavoidable, this report contains sufficient information about wetlands and other aquatic resources at the MHPI site on Val Del Road to apply for a Clean Water Act (Section 404) permit from the USACE.

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APPENDIX A

USACE FIELD DATA SHEETS

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WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base MHPI Site City/County: Lowndes Sampling Date: 09-12-12
Applicant/Owner: Moody AFB State: GA Sampling Point: W01-UPL
Investigator(s): J. Groton, J. Brecken Section, Township, Range: _____
Landform (hillslope, terrace, etc.): flatwoods Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:
Upland plot adjacent to W01-WET. Could not get fix with GPS. Plot center is approximately 27 feet from Flag W01-WET-3 (bearing 157 degrees). Photo 48

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____ No X	Depth (inches): _____
Water Table Present?	Yes _____ No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____ No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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A-1

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W01-UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30-ft radius)			
1. Quercus nigra	60	Yes	Fac
2. Nyssa biflora	10		Obl
3. Magnolia virginiana	5		Facw
4.			
5.			
6.			
7.			
8.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15		
Sapling/Shrub Stratum (Plot size: 30-ft radius)			
1. Liquidambar styraciflua	10		Fac
2. Magnolia virginiana	5		Facw
3. Quercus nigra	35	Yes	Fac
4. Vaccinium myrsinites	15	Yes	Facu
5.			
6.			
7.			
8.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		
Herb Stratum (Plot size: 30-ft radius)			
1. Serenoa repens	55	Yes	Facu
2. Pteridium aquilinum	5		Facu
3. Mitchella repens	30	Yes	Facu
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Woody Vine Stratum (Plot size: 30-ft radius)			
1. Vitis rotundifolia	10	Yes	Fac
2.			
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	10	x 2 =	20
FAC species	115	x 3 =	345
FACU species	105	x 4 =	420
UPL species		x 5 =	
Column Totals:	230 (A)		795 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (If observed, list morphological adaptations below).

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SOIL Sampling Point: W01-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10 YR 5/2		2.5 Y 6/1	20	D	M	Sand	
5-17	10 YR 5/3		10 YR 6/2	10	D	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base MHPI Site City/County: Lowndes Sampling Date: 09-12-12
Applicant/Owner: Moody AFB State: GA Sampling Point: W01-WET
Investigator(s): J. Groton, J. Brecken Section, Township, Range: _____
Landform (hillslope, terrace, etc.): flatwoods Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: PUBF
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
W01 is in a small depression which may have been excavated. Photo 45

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 0-16
Water Table Present? Yes X No _____ Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W01-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30-ft radius)			
1. Liquidambar styraciflua	10		Fac
2. Acer rubrum	50	Yes	Fac
3. Nyssa biflora	15		Obl
4. Quercus nigra	5		Fac
5.			
6.			
7.			
8.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Sapling/Shrub Stratum (Plot size: 30-ft radius)			
1. Cephalanthus occidentalis	15	Yes	Obl
2. Vaccinium myrsinites	5		Facu
3. Acer rubrum	5		Fac
4.			
5.			
6.			
7.			
8.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Herb Stratum (Plot size: 30-ft radius)			
1. Serenoa repens	5		Facu
2. Sabal minor	20	Yes	Facw
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Woody Vine Stratum (Plot size: 30-ft radius)			
1. Vitis rotundifolia	5	Yes	Fac
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	20	x 2 =	40
FAC species	75	x 3 =	225
FACU species	10	x 4 =	40
UPL species		x 5 =	
Column Totals:	135 (A)		335 (B)

Prevalence Index = B/A = 2.48

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

US Army Corps of Engineers — Atlantic and Gulf Coastal Plain Region – Version 2.0

SOIL Sampling Point: W01-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5 Y 4/6						Oi	
5-14	2.5 Y 5/1						Sand	
14-19	10 YR 5/2		10 YR 2/1	25	D	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** Yes **No** _____

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base MHPI Site City/County: Lowndes Sampling Date: 09-13-12
Applicant/Owner: Moody AFB State: GA Sampling Point: W02-UPL
Investigator(s): J. Groton, J. Brecken Section, Township, Range:
Landform (hillslope, terrace, etc.): flatwoods Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: Long: Datum:
Soil Map Unit Name: NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation X, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes No X	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes No X	
Wetland Hydrology Present?	Yes No X	

Remarks:
Vegetation disturbed by recent timber harvest (1-2 yrs).Upland plot adjacent to W02-WET. Photo 49

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes No X	Depth (inches):
Water Table Present?	Yes No X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes No X	Depth (inches):

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W02-UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30-ft radius)			
1. Quercus nigra	60	Yes	Fac
2. Liquidambar styraciflua	5		Fac
3. Pinus palustris	10		Fac
4.			
5.			
6.			
7.			
8.			
	75	= Total Cover	
50% of total cover: 37.5	20% of total cover: 15		
Sapling/Shrub Stratum (Plot size: 30-ft radius)			
1. Morella cerifera	20	Yes	Fac
2. Magnolia virginiana	5		Facw
3. Quercus nigra	5		Fac
4. Vaccinium myrsinites	20	Yes	Facu
5. Liquidambar styraciflua	10		Fac
6. Pinus palustris	1		Fac
7. Lyonia lucida	10		Facw
8.			
	71	= Total Cover	
50% of total cover: 35.5	20% of total cover: 14		
Herb Stratum (Plot size: 30-ft radius)			
1. Serenoa repens	10	Yes	Facu
2. Quercus nigra	15	Yes	Fac
3. Mitchella repens	5		Facu
4. Woodwardia virginica	5		Obl
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	35	= Total Cover	
50% of total cover: 17.5	20% of total cover: 7		
Woody Vine Stratum (Plot size: 30-ft radius)			
1. Vitis rotundifolia	5	Yes	Fac
2. Gelsemium sempervirens	2		Fac
3.			
4.			
5.			
	7	= Total Cover	
50% of total cover: 3.5	20% of total cover: 1.4		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	15	x 2 =	30
FAC species	133	x 3 =	399
FACU species	35	x 4 =	140
UPL species		x 5 =	
Column Totals:	188 (A)		574 (B)

Prevalence Index = B/A = 3.05

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (If observed, list morphological adaptations below).

US Army Corps of Engineers — Atlantic and Gulf Coastal Plain Region – Version 2.0

SOIL Sampling Point: W02-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 2/2		10 YR 6/1	40	D	M	Sand	
4-11	10 YR 2/2		10 YR 6/1	15	D	M	Sandy loam	
11-20	10 YR 4/3		10 YR 5/2	25	D	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base MHPI Site City/County: Lowndes Sampling Date: 09-12-12
Applicant/Owner: Moody AFB State: GA Sampling Point: W02-WET
Investigator(s): J. Groton, J. Brecken Section, Township, Range:
Landform (hillslope, terrace, etc.): flatwoods depression Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: Long: Datum:
Soil Map Unit Name: NWI classification: PFO1E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:
Photos 46-47

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☑ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ____	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): <12
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): <12

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W02-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30-ft radius)			
1. Liquidambar styraciflua	10		Fac
2. Acer rubrum	20	Yes	Fac
3. Nyssa biflora	45	Yes	Obl
4.			
5.			
6.			
7.			
8.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15		
Sapling/Shrub Stratum (Plot size: 30-ft radius)			
1. Lyonia lucida	10	Yes	Facw
2. Lyonia ligustrina	5		Facw
3. Acer rubrum	5		Fac
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Herb Stratum (Plot size: 30-ft radius)			
1. Cyperus sp.	1	Yes	Facw
2. Rhynchospora sp.	1	Yes	Facw
3. Acer rubrum	1	Yes	Fac
4. Nyssa biflora	1	Yes	Obl
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	4 = Total Cover		
50% of total cover: 2	20% of total cover: 0.8		
Woody Vine Stratum (Plot size: 30-ft radius)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	46	x 1 =	46
FACW species	17	x 2 =	34
FAC species	36	x 3 =	108
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	99 (A)		188 (B)

Prevalence Index = B/A = 1.90

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

Buttressed trunks on Nyssa biflora

US Army Corps of Engineers — Atlantic and Gulf Coastal Plain Region – Version 2.0

SOIL Sampling Point: W02-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5 Y 3/4						Oi	
2-5	10 YR 2/1						Loam	
5-10	10 YR 3/2						Sandy loam	
10-16	10 YR 3/2		10 YR 5/2	35	D	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** Yes **No** _____

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base MHPI Site City/County: Lowndes Sampling Date: 09-14-12
Applicant/Owner: Moody AFB State: GA Sampling Point: W03-UPL
Investigator(s): J. Groton, J. Brecken Section, Township, Range:
Landform (hillslope, terrace, etc.): flatwoods Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: Long: Datum:
Soil Map Unit Name: NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation X, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes No X	
Wetland Hydrology Present?	Yes No X	

Remarks:
Vegetation disturbed by recent timber harvest (1-2 yrs).Upland plot adjacent to W03-WET. Photo 56

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes No X	Depth (inches):	
Water Table Present?	Yes No X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes No X	Depth (inches):	**Wetland Hydrology Present?** Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W03-UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30-ft radius)			
1. Quercus nigra	30	Yes	Fac
2. Pinus taeda	5		Fac
3. Liquidambar styraciflua	5		Fac
4. Nyssa biflora	15		Obl
5.			
6.			
7.			
8.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		
Sapling/Shrub Stratum (Plot size: 30-ft radius)			
1. Morella cerifera	10	Yes	Fac
2. Persea borbonia	5		Facw
3. Quercus nigra	5		Fac
4. Vaccinium myrsinites	10	Yes	Facu
5. Liquidambar styraciflua	2		Fac
6. Ilex glabra	10	Yes	Facw
7.			
8.			
	42 = Total Cover		
50% of total cover: 21	20% of total cover: 8.4		
Herb Stratum (Plot size: 30-ft radius)			
1. Pteridium aquilinum	1		Facu
2. Osmunda cinnamomea	15	Yes	Facw
3. Serenoa repens	30	Yes	Facu
4. Ilex glabra	5		Facw
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	41 = Total Cover		
50% of total cover: 20.5	20% of total cover: 8.2		
Woody Vine Stratum (Plot size: 30-ft radius)			
1. Smilax glauca	1	Yes	Fac
2.			
3.			
4.			
5.			
	1 = Total Cover		
50% of total cover: 0.5	20% of total cover: 0.2		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	35	x 2 =	70
FAC species	58	x 3 =	174
FACU species	41	x 4 =	164
UPL species		x 5 =	
Column Totals:	149 (A)		423 (B)

Prevalence Index = B/A = 2.84

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

US Army Corps of Engineers — Atlantic and Gulf Coastal Plain Region – Version 2.0

SOIL Sampling Point: W03-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5 YR 3/4						Oi	
2-6	10 YR 3/2						Sandy loam	
6-10	10 YR 3/1		10 YR 6/2	25	D	M	Sandy loam	
10-16	10 YR 5/3		10 YR 4/2	20	D	M	Sandy loam	
16-20	10 YR 4/1		10 YR 5/4	10	RM	C	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base MHPI Site City/County: Lowndes Sampling Date: 09-14-12
Applicant/Owner: Moody AFB State: GA Sampling Point: W03-WET
Investigator(s): J. Groton, J. Brecken Section, Township, Range:
Landform (hillslope, terrace, etc.): flatwoods Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: Long: Datum:
Soil Map Unit Name: NWI classification: PFO1E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:
Photos 50-51

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ____	Depth (inches): ____
Water Table Present?	Yes ____	No ____	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 4

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W03-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30-ft radius)			
1. Persea borbonia	10		Facw
2. Acer rubrum	50	Yes	Fac
3. Nyssa biflora	10		Obl
4. Pinus palustris	10		Fac
5. Liquidambar styraciflua	3		Fac
6.			
7.			
8.			
	83	= Total Cover	
50% of total cover: 41.5	20% of total cover: 16.6		
Sapling/Shrub Stratum (Plot size: 30-ft radius)			
1. Lyonia lucida	25	Yes	Facw
2. Lyonia ligustrina	10		Facw
3. Morella cerifera	15	Yes	Fac
4. Persea borbonia	10		Facw
5.			
6.			
7.			
8.			
	60	= Total Cover	
50% of total cover: 30	20% of total cover: 12		
Herb Stratum (Plot size: 30-ft radius)			
1. Woodwardia virginica	50	Yes	Obl
2. Lyonia lucida	15	Yes	Facw
3. Sphagnum sp.	1		Obl
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	95	= Total Cover	
50% of total cover: 47.5	20% of total cover: 19		
Woody Vine Stratum (Plot size: 30-ft radius)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	61	x 1 =	61
FACW species	70	x 2 =	140
FAC species	78	x 3 =	234
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	209 (A)		435 (B)

Prevalence Index = B/A = 2.08

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

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SOIL Sampling Point: W03-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5 Y 3/4						Oi	
5-20	10 YR 2/1						Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** Yes **No** _____

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base MHPI Site City/County: Lowndes Sampling Date: 09-14-12
Applicant/Owner: Moody AFB State: GA Sampling Point: W04-UPL
Investigator(s): J. Groton, J. Brecken Section, Township, Range: _____
Landform (hillslope, terrace, etc.): flatwoods Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation X, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:
Vegetation disturbed by recent timber harvest (1-2 yrs).Upland plot adjacent to W04-WET. Photo 52

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____ No X	Depth (inches): _____
Water Table Present?	Yes _____ No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____ No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W04-UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30-ft radius)			
1. Quercus nigra	3		Fac
2. Pinus palustris	15	Yes	Fac
3. Magnolia virginiana	2		Facw
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Sapling/Shrub Stratum (Plot size: 30-ft radius)			
1. Morella cerifera	10	Yes	Fac
2. Lyonia lucida	5		Facw
3. Magnolia virginiana	10		Facw
4. Ilex glabra	10	Yes	Facw
5. Liquidambar styraciflua	1		Fac
6.			
7.			
8.			
	36 = Total Cover		
50% of total cover: 18	20% of total cover: 7.2		
Herb Stratum (Plot size: 30-ft radius)			
1. Pteridium aquilinum	10		Facu
2. Lyonia lucida	25	Yes	Facw
3. Serenoa repens	20	Yes	Facu
4. Ilex glabra	10		Facw
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		
Woody Vine Stratum (Plot size: 30-ft radius)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	62	x 2 =	124
FAC species	29	x 3 =	87
FACU species	30	x 4 =	120
UPL species		x 5 =	
Column Totals:	121 (A)		331 (B)

Prevalence Index = B/A = 2.73

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

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SOIL Sampling Point: W04-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5 YR 3/4						Oi	
2-6	10 YR 2/2						Sandy loam	
6-11	10 YR 4/2		10 YR 6/1	10	D	M	Sand	
11-16	10 YR 7/3		10 YR 6/6	20	D	M	Sand	
16-20+	10 YR 6/8		10 YR 7/1	15	C	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base MHPI Site City/County: Lowndes Sampling Date: 09-14-12
Applicant/Owner: Moody AFB State: GA Sampling Point: W04-WET
Investigator(s): J. Groton, J. Brecken Section, Township, Range:
Landform (hillslope, terrace, etc.): flatwoods Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: Long: Datum:
Soil Map Unit Name: NWI classification: PSS3E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation X, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:
Vegetation disturbed by recent timber harvest (1-2 yrs).Photos 50-51

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No	Depth (inches): 0-6
Water Table Present?	Yes	No	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches): 0-6

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W04-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30-ft radius)			
1. Magnolia virginiana	2		Facw
2. Acer rubrum	2		Fac
3. Nyssa biflora	10	Yes	Obl
4. Pinus palustris	10	Yes	Fac
5.			
6.			
7.			
8.			
	24 = Total Cover		
50% of total cover: 12	20% of total cover: 4.8		
Sapling/Shrub Stratum (Plot size: 30-ft radius)			
1. Lyonia lucida	20	Yes	Facw
2. Quercus nigra	2		Fac
3. Morella cerifera	1		Fac
4. Magnolia virginiana	5		Facw
5. Ilex glabra	1		Facw
6. Nyssa biflora	5		Obl
7.			
8.			
	34 = Total Cover		
50% of total cover: 17	20% of total cover: 6.8		
Herb Stratum (Plot size: 30-ft radius)			
1. Woodwardia virginica	40	Yes	Obl
2. Lyonia lucida	55	Yes	Facw
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		
Woody Vine Stratum (Plot size: 30-ft radius)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	55	x 1 =	55
FACW species	83	x 2 =	166
FAC species	15	x 3 =	45
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	153 (A)		266 (B)

Prevalence Index = B/A = 1.74

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

SOIL Sampling Point: W04-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5 Y 3/4						Oi	
3-10	10 YR 2/1						Loam	
10-14	2.5 Y 5/1		10 YR 4/2	40	D	M	Sandy loam	
14-19	10 YR 6/2		10 YR 2/1	25	D	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** Yes **No** _____

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base MHPI Site City/County: Lowndes Sampling Date: 09-14-12
Applicant/Owner: Moody AFB State: GA Sampling Point: W05-UPL
Investigator(s): J. Groton, J. Brecken Section, Township, Range:
Landform (hillslope, terrace, etc.): flatwoods Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: Long: Datum:
Soil Map Unit Name: NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation X, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes No X	
Wetland Hydrology Present?	Yes No X	

Remarks:
Vegetation disturbed by recent timber harvest (1-2 yrs).Upland plot adjacent to W05-WET. Photo 54

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes No X	Depth (inches):
Water Table Present?	Yes No X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes No X	Depth (inches):

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W05-UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30-ft radius)			
1. Quercus nigra	10	Yes	Fac
2. Pinus palustris	15	Yes	Fac
3.			
4.			
5.			
6.			
7.			
8.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Sapling/Shrub Stratum (Plot size: 30-ft radius)			
1. Morella cerifera	10	Yes	Fac
2. Lyonia ferruginea	5		Facu
3. Ilex glabra	5		Facw
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Herb Stratum (Plot size: 30-ft radius)			
1. Ilex glabra	10	Yes	Facw
2. Lyonia ferrugineaa	10	Yes	Facu
3. Serenoa repens	20	Yes	Facu
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Woody Vine Stratum (Plot size: 30-ft radius)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	15	x 2 =	30
FAC species	35	x 3 =	105
FACU species	35	x 4 =	105
UPL species		x 5 =	
Column Totals:	85 (A)		240 (B)

Prevalence Index = B/A = 2.82

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (If observed, list morphological adaptations below).

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SOIL Sampling Point: W05-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 2/2						Sandy loam	
6-13	10 YR 4/3		10 YR 3/2	20	D	M	Sandy loam	
13-18	10 YR 4/3		10 YR 5/4	20	C	M	Sandy loam	
18-20+	10 YR 7/3		10 YR 6/6	20	D	M	Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base MHPI Site City/County: Lowndes Sampling Date: 09-14-12
Applicant/Owner: Moody AFB State: GA Sampling Point: W05-WET
Investigator(s): J. Groton, J. Brecken Section, Township, Range: _____
Landform (hillslope, terrace, etc.): flatwoods Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: PFO1/4E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation X, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
Vegetation disturbed by recent timber harvest (1-2 yrs).Photos 50-51

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 0-1
Water Table Present?	Yes X	No _____	Depth (inches): 7
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0-2

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W05-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30-ft radius)			
1. Persea borbonia	10	Yes	Facw
2. Quercus nigra	5		Fac
3. Nyssa biflora	5		Obl
4. Pinus palustris	10	Yes	Fac
5.			
6.			
7.			
8.			
	30	= Total Cover	
50% of total cover: 15	20% of total cover: 6		
Sapling/Shrub Stratum (Plot size: 30-ft radius)			
1. Lyonia lucida	10	Yes	Facw
2. Lyonia ferruginea	10		Facu
3. Morella cerifera	10		Fac
4. Persea borbonia	10	Yes	Facw
5. Ilex glabra	10	Yes	Facw
6. Nyssa biflora	10	Yes	Obl
7. Acer rubrum	5		Fac
8. Quercus nigra	5		Fac
	70	= Total Cover	
50% of total cover: 35	20% of total cover: 14		
Herb Stratum (Plot size: 30-ft radius)			
1. Woodwardia virginica	5		Obl
2. Lyonia lucida	20	Yes	Facw
3. Andropogon gyrans var. stenophyllus	10	Yes	Fac
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	35	= Total Cover	
50% of total cover: 17.5	20% of total cover: 7		
Woody Vine Stratum (Plot size: 30-ft radius)			
1. Smilax glauca	5	Yes	Fac
2.			
3.			
4.			
5.			
	5	= Total Cover	
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	60	x 2 =	120
FAC species	50	x 3 =	150
FACU species	10	x 4 =	40
UPL species		x 5 =	
Column Totals:	140 (A)		330 (B)

Prevalence Index = B/A = 2.36

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

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SOIL Sampling Point: W05-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 Yr 3/1		10 YR 3/2	20	D	M	Sandy loam	
2-7	10 YR 2/1						Sand	
7-10	10 YR 6/1						Sand	
10-15	10 YR 2/1		10 YR 5/2	20	D	M	Sandy loam	
15-20	10 YR 4/3						Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** Yes **No** _____

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base MHPI Site City/County: Lowndes Sampling Date: 09-17-12
Applicant/Owner: Moody AFB State: GA Sampling Point: W06-01-UPL
Investigator(s): J. Groton, J. Brecken Section, Township, Range: _____
Landform (hillslope, terrace, etc.): flatwoods Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation X, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:
Vegetation disturbed by recent timber harvest (1-2 yrs).Upland plot adjacent to W06-WET. Photo 124

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____ No X	Depth (inches): _____
Water Table Present?	Yes _____ No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____ No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W06-01-UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30-ft radius)			
1. Quercus nigra	20	Yes	Fac
2. Pinus palustris	35	Yes	Fac
3.			
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
50% of total cover: 22.5	20% of total cover: 11		
Sapling/Shrub Stratum (Plot size: 30-ft radius)			
1. Morella cerifera	5		Fac
2. Lyonia lucida	10	Yes	Facw
3. Ilex glabra	5		Facw
4. Quercus nigra	25	Yes	Fac
5. Lyonia ligustrina	5		Facw
6.			
7.			
8.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Herb Stratum (Plot size: 30-ft radius)			
1. Ilex glabra	10		Facw
2. Lyonia lucida	25	Yes	Facw
3. Serenoa repens	15	Yes	Facu
4. Quercus nigra	10		Fac
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Woody Vine Stratum (Plot size: 30-ft radius)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	55	x 2 =	110
FAC species	95	x 3 =	285
FACU species	15	x 4 =	45
UPL species		x 5 =	
Column Totals:	165 (A)		440 (B)

Prevalence Index = B/A = 2.67

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (If observed, list morphological adaptations below).

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SOIL

Sampling Point: W06-01-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5 YR 3/4						Oi	
3-6	10 YR 2/2						Loam	
6-12	10 YR 4/2		10 YR 4/4	10	C	M	Sandy loam	
12-20+	10 YR 6/2		10 YR 5/8	20	C	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

US Army Corps of Engineers — Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base MHPI Site City/County: Lowndes Sampling Date: 09-14-12
Applicant/Owner: Moody AFB State: GA Sampling Point: W06-01-WET
Investigator(s): J. Groton, J. Brecken Section, Township, Range: _____
Landform (hillslope, terrace, etc.): flatwoods Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: PFO1/4E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation X, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
Vegetation disturbed by recent timber harvest (1-2 yrs).Photos 75-76

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☑ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 0-4
Water Table Present?	Yes _____	No _____	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
frogs present

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VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W06-01-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30-ft radius)			
1. Pinus palustris	20	Yes	Fac
2. Quercus nigra	5		Fac
3. Acer rubrum	10	Yes	Fac
4.			
5.			
6.			
7.			
8.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		
Sapling/Shrub Stratum (Plot size: 30-ft radius)			
1. Lyonia lucida	30	Yes	Facw
2. Lyonia ligustrina	10		Facw
3. Acer rubrum	15	Yes	Fac
4. Quercus nigra	5		Fac
5.			
6.			
7.			
8.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Herb Stratum (Plot size: 30-ft radius)			
1. Woodwardia virginica	35	Yes	Obl
2. Lachnanthes caroliniana	25	Yes	Obl
3. Panicum hemitomon	5		Obl
4. Sphagnum sp.	50	Yes	Obl
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	115 = Total Cover		
50% of total cover: 57.5	20% of total cover: 22		
Woody Vine Stratum (Plot size: 30-ft radius)			
1. Smilax glauca	5	Yes	Fac
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	115	x 1 =	115
FACW species	40	x 2 =	80
FAC species	60	x 3 =	180
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	215 (A)		375 (B)

Prevalence Index = B/A = 1.74

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: (If observed, list morphological adaptations below).

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SOIL Sampling Point: WD6-01-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5 YR 3/4					M	Oi	
6-20	10 YR 2/1						Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** Yes **No** _____

Remarks:

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WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base Housing EA City/County: Lowndes Sampling Date: 3/13/2013
Applicant/Owner: Moody AFB State: GA Sampling Point: W06-2-UPL
Investigator(s): J. Groton, J. Brecken Section, Township, Range:
Landform (hillslope, terrace, etc.): Flatwoods Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: Long: Datum:
Soil Map Unit Name: NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation X, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes No X	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes No X	

Remarks:
Area disturbed by recent timber harvest (1-3 yrs); Photos 123, 124

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes No X	Depth (inches):
Water Table Present?	Yes X No	Depth (inches): @ 21 inches
Saturation Present? (includes capillary fringe)	Yes No X	Depth (inches):

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W06-2-UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: r=10meters)			
1. Pinus taeda	20	y	FAC
2. Pinus paulustris	20	y	FAC
3. Quercus nigra	15	y	FAC
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		
Sapling/Shrub Stratum (Plot size: r=10meters)			
1. Morella cerifera	20	y	FAC
2. Pinus palustris	15	y	FAC
3. Ilex glabra	1		FACW
4.			
5.			
6.			
7.			
8.			
	36 = Total Cover		
50% of total cover: 18	20% of total cover: 7.2		
Herb Stratum (Plot size: r=10meters)			
1. Serenoa repens	80	y	FACU
2. Pteridium aquilinum	20		FACU
3. Vaccinium myrcinites	1		FACU
4. Lyonia lugustrina	4		FACW
5. Ilex glabra	1		FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	106 = Total Cover		
50% of total cover: 53	20% of total cover: 21.2		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	6	x 2 =	12
FAC species	90	x 3 =	270
FACU species	101	x 4 =	404
UPL species	0	x 5 =	0
Column Totals:	197 (A)		686 (B)

Prevalence Index = B/A = 3.48

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (If observed, list morphological adaptations below).

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SOIL Sampling Point: W06-2-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5 YR 4/4						Oi	organic
3-9	2.5 Y 3/1				D	M	SL	sandy loam
9-15	2.5 Y 5/2		2.5 Y 6/1	20%	D	M	S	sand
15-23	10 YR 4/4		10 YR 5/8	15%	C	M	SL	sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

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WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base Housing EA City/County: Lowndes Sampling Date: 3/13/2013
Applicant/Owner: Moody AFB State: GA Sampling Point: W06-2-WET
Investigator(s): J. Groton, J. Brecken Section, Township, Range:
Landform (hillslope, terrace, etc.): Flatwoods Local relief (concave, convex, none): depression Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: Long: Datum:
Soil Map Unit Name: NWI classification: PSS3E/PFO4E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:
Potential Isolated Wetland. Surrounding area disturbed by recent timber harvest (1-3 yrs); Photo 121/122

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☑ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☑ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☑ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X No	Depth (inches): 0-6 inches	
Water Table Present?	Yes X No	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes X No	Depth (inches):	**Wetland Hydrology Present?** Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W06-2-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: r=10meters)			
1. Pinus taeda	25	y	FAC
2. Pinus palustris	10	y	FAC
3. Acer rubrum	15	y	FAC
4.			
5.			
6.			
7.			
8.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Sapling/Shrub Stratum (Plot size: r=10meters)			
1. Lyonia lucida	70	y	FACW
2. Acer rubrum	25	y	FAC
3. Ilex glabra	1		FACW
4. Leucothoe axillaris	1		FACW
5. Vaccinium corymbosum	5		FACW
6.			
7.			
8.			
	102 = Total Cover		
50% of total cover: 51	20% of total cover: 20.4		
Herb Stratum (Plot size: r=10meters)			
1. Lyonia lucida	10		FACW
2. Acer rubrum	10		FAC
3. Woodwardia virginica	50	y	OBL
4. Sphagnum	25	y	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	95% = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		
Woody Vine Stratum (Plot size: r=10meters)			
1. Smilax laurifolia	10	y	FACW
2. Smilax sp.	1		FAC
3.			
4.			
5.			
	11 = Total Cover		
50% of total cover: 5.5	20% of total cover: 2		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	75	x 1 =	75
FACW species	97	x 2 =	194
FAC species	86	x 3 =	258
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	258 (A)		527 (B)

Prevalence Index = B/A = 2.04

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

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SOIL

Sampling Point: WD6-02-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5 y r 4/4						Oi	organic
3-20	2.5 y 2/1					RM	Oa	muck

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [x] Histosol (A1)
- [x] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5)
- [ ] Organic Bodies (A6) **(LRR P, T, U)**
- [ ] 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- [ ] Muck Presence (A8) **(LRR U)**
- [ ] 1 cm Muck (A9) **(LRR P, T)**
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Coast Prairie Redox (A16) **(MLRA 150A)**
- [ ] Sandy Mucky Mineral (S1) **(LRR O, S)**
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Dark Surface (S7) **(LRR P, S, T, U)**
- [ ] Polyvalue Below Surface (S8) **(LRR S, T, U)**
- [ ] Thin Dark Surface (S9) **(LRR S, T, U)**
- [ ] Loamy Mucky Mineral (F1) **(LRR O)**
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Marl (F10) **(LRR U)**
- [ ] Depleted Ochric (F11) **(MLRA 151)**
- [ ] Iron-Manganese Masses (F12) **(LRR O, P, T)**
- [ ] Umbric Surface (F13) **(LRR P, T, U)**
- [ ] Delta Ochric (F17) **(MLRA 151)**
- [ ] Reduced Vertic (F18) **(MLRA 150A, 150B)**
- [ ] Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- [ ] Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- [ ] 1 cm Muck (A9) **(LRR O)**
- [ ] 2 cm Muck (A10) **(LRR S)**
- [ ] Reduced Vertic (F18) **(outside MLRA 150A,B)**
- [ ] Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- [ ] Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- [ ] Red Parent Material (TF2)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base MHPI Site City/County: Lowndes Sampling Date: 09-17-12
Applicant/Owner: Moody AFB State: GA Sampling Point: W07&08-UPL
Investigator(s): J. Groton, J. Brecken Section, Township, Range:
Landform (hillslope, terrace, etc.): flatwoods Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: Long: Datum:
Soil Map Unit Name: NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes No X	
Wetland Hydrology Present?	Yes No X	

Remarks:
Upland plot adjacent to W07-WET and W08-WET. Photo 115

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes No X	Depth (inches):
Water Table Present?	Yes No X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes No X	Depth (inches):

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W078 W08-UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30-ft radius)			
1. Quercus nigra	30	Yes	Fac
2. Pinus palustris	40	Yes	Fac
3. Nyssa biflora	30	Yes	Obl
4. Magnolia virginiana	5		Facw
5.			
6.			
7.			
8.			
	105	= Total Cover	
50% of total cover: 52.5	20% of total cover: 22		
Sapling/Shrub Stratum (Plot size: 30-ft radius)			
1. Morella cerifera	25	Yes	Fac
2. Acer rubrum	10	Yes	Facw
3. Ilex glabra	5		Facw
4. Serenoa repens	5		Facu
5.			
6.			
7.			
8.			
	45	= Total Cover	
50% of total cover: 27.5	20% of total cover: 9		
Herb Stratum (Plot size: 30-ft radius)			
1. Toxicodendron radicans	1		Fac
2. Lyonia lucida	25	Yes	Facw
3. Woodwardia virginica	5		Obl
4. Osmunda cinnamomea	5		Facw
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	36	= Total Cover	
50% of total cover: 15.5	20% of total cover: 6.2		
Woody Vine Stratum (Plot size: 30-ft radius)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	35	x 1 =	35
FACW species	50	x 2 =	100
FAC species	96	x 3 =	288
FACU species	5	x 4 =	20
UPL species		x 5 =	
Column Totals:	186 (A)		443 (B)

Prevalence Index = B/A = 2.38

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

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SOIL

Sampling Point: W07 & W08-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5 YR 3/4						Oi	
3-7	10 YR 4/2						Sand	
7-14	10 YR 7/1						Sand	
14-20	10 YR 7/3		10 YR 7/1	20	C	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

US Army Corps of Engineers — Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base MHPI Site City/County: Lowndes Sampling Date: 09-16-12
Applicant/Owner: Moody AFB State: GA Sampling Point: W07-WET
Investigator(s): J. Groton, J. Brecken Section, Township, Range: _____
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: PFO1/4E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
Photos 112-113

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☑ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____
Water Table Present? Yes _____ No _____ Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Hydrology based on secondary indicators only. Wetland appears to have been partially drained by large ditch about 10-12 feet wide and 6-8 feet wide from north to south in center of northern end of wetland (see photo 113)

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W07-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30-ft radius)			
1. Pinus palustris	10		Fac
2. Quercus nigra	30	Yes	Fac
3. Acer rubrum	30	Yes	Fac
4. Nyssa biflora	30	Yes	Obl
5.			
6.			
7.			
8.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Sapling/Shrub Stratum (Plot size: 30-ft radius)			
1. Lyonia lucida	100	Yes	Facw
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Herb Stratum (Plot size: 30-ft radius)			
1. Woodwardia virginica	2	Yes	Obl
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	2 = Total Cover		
50% of total cover: 1	20% of total cover: 0.4		
Woody Vine Stratum (Plot size: 30-ft radius)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	32	x 1 =	32
FACW species	100	x 2 =	200
FAC species	70	x 3 =	210
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	202 (A)		442 (B)

Prevalence Index = B/A = 2.19

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

US Army Corps of Engineers — Atlantic and Gulf Coastal Plain Region – Version 2.0

SOIL Sampling Point: W07-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5 YR 3/4					M	Oi	
6-13	10 YR 2/1						Oa Muck	
13-17	10 YR 3/4						Loam	
17-20+	10 YR 6/1		10 YR 4/2	25	C	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☑ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** Yes **No** _____

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base MHPI Site City/County: Lowndes Sampling Date: 09-16-12
Applicant/Owner: Moody AFB State: GA Sampling Point: W08-WET
Investigator(s): J. Groton, J. Brecken Section, Township, Range:
Landform (hillslope, terrace, etc.): excavated pond in flatwoods Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: Long: Datum:
Soil Map Unit Name: NWI classification: PUBF
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil X, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:
Photo 114

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☑ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 0-10
Water Table Present? Yes ____ No ____ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland is a very small, excavated pond (see photo 114)

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W08-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30-ft radius)			
1. Pinus palustris	60	Yes	Fac
2. Quercus nigra	20		Fac
3. Acer rubrum	85	Yes	Fac
4.			
5.			
6.			
7.			
8.			
	165 = Total Cover		
50% of total cover: 82.5	20% of total cover: 33		
Sapling/Shrub Stratum (Plot size: 30-ft radius)			
1. Lyonia lucida	5		Facw
2. Cephalanthus occidentalis	5		Obl
3. Acer rubrum	10	Yes	Fac
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Herb Stratum (Plot size: 30-ft radius)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: 30-ft radius)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	5	x 2 =	10
FAC species	175	x 3 =	525
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	185 (A)		540 (B)

Prevalence Index = B/A = 2.92

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

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SOIL Sampling Point: W08-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5 YR 3/4						Oi	
3-12	10 YR 2/1						Sand	
12-19	10 YR 3/4		10 YR 3/1	35	D	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** Yes **No** _____

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base MHPI Site City/County: Lowndes Sampling Date: 09-17-12
Applicant/Owner: Moody AFB State: GA Sampling Point: W09-UPL
Investigator(s): J. Groton, J. Brecken Section, Township, Range: _____
Landform (hillslope, terrace, etc.): flatwoods Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation X, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:
Vegetation disturbed by recent timber harvest (1-2 yrs).Upland plot adjacent to W09-WET. Photo 123

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____ No X	Depth (inches): _____
Water Table Present?	Yes _____ No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____ No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W09-UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30-ft radius)			
1. Quercus nigra	35	Yes	Fac
2. Pinus palustris	15	Yes	Fac
3. Magnolia virginiana	5		Facw
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		
Sapling/Shrub Stratum (Plot size: 30-ft radius)			
1. Morella cerifera	5	Yes	Fac
2. Lyonia lucida	15	Yes	Facw
3. Magnolia virginiana	5	Yes	Facw
4.			
5.			
6.			
7.			
8.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Herb Stratum (Plot size: 30-ft radius)			
1. Ilex glabra	5		Facw
2. Morella cerifera	15	Yes	Facw
3. Serenoa repens	35	Yes	Facu
4. Vitis rotundifolia	1		Fac
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	56 = Total Cover		
50% of total cover: 28	20% of total cover: 11.2		
Woody Vine Stratum (Plot size: 30-ft radius)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 86 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	45	x 2 =	90
FAC species	56	x 3 =	168
FACU species	35	x 4 =	140
UPL species		x 5 =	
Column Totals:	136 (A)		398 (B)

Prevalence Index = B/A = 2.93

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (If observed, list morphological adaptations below).

US Army Corps of Engineers — Atlantic and Gulf Coastal Plain Region – Version 2.0

SOIL Sampling Point: W09-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5 YR 3/4						Oi	
4-9	10 YR 2/2						Sandy loam	
9-13	10 YR 3/2						Sandy loam	
13-18	10 YR 4/3						Sandy loam	
18-20+	2.5 Y 6/3						Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base MHPI Site City/County: Lowndes Sampling Date: 09-17-12
Applicant/Owner: Moody AFB State: GA Sampling Point: W09-WET
Investigator(s): J. Groton, J. Brecken Section, Township, Range: _____
Landform (hillslope, terrace, etc.): flatwoods depression Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: PEM1F/PSS3E/PFO1E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
Possibly an old farm pond that has succeeded to a wetland. Photos 116-122

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 0-36 (est.)
Water Table Present?	Yes X	No _____	Depth (inches): 9
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W09-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30-ft radius)			
1. Pinus palustris	35	Yes	Fac
2. Quercus nigra	5		Fac
3. Acer rubrum	5		Fac
4. Nyssa biflora	20	Yes	Obl
5. Persea palustris	25	Yes	Facw
6.			
7.			
8.			
	90	= Total Cover	
50% of total cover: 45	20% of total cover: 18		
Sapling/Shrub Stratum (Plot size: 30-ft radius)			
1. Lyonia lucida	80	Yes	Facw
2. Morella cerifera	10		Fac
3. Acer rubrum	10		Fac
4. Persea palustris	20		Facw
5.			
6.			
7.			
8.			
	120	= Total Cover	
50% of total cover: 60	20% of total cover: 24		
Herb Stratum (Plot size: 30-ft radius)			
1. Serenoa repens	10	Yes	Facu
2. Lyonia lucida	30	Yes	Facw
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	40	= Total Cover	
50% of total cover: 20	20% of total cover: 8		
Woody Vine Stratum (Plot size: 30-ft radius)			
1. Smilax laurifolia	1	Yes	Fac
2.			
3.			
4.			
5.			
	1	= Total Cover	
50% of total cover: 0.5	20% of total cover: 0.2		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 86 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	155	x 2 =	310
FAC species	66	x 3 =	198
FACU species	10	x 4 =	40
UPL species		x 5 =	
Column Totals:	251 (A)		568 (B)

Prevalence Index = B/A = 2.26

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

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SOIL Sampling Point: W09-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5 YR 3/4					M	Oi	
2-4	10 YR 2/1						Loam	
4-12	10 YR 7/1		10 YR 5/1	10	D		Sand	
12-21	10 YR 7/2		10 YR 4/6	10	C	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☑ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** Yes **No** _____

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base Housing EA City/County: Lowndes Sampling Date: 3/13/2013
Applicant/Owner: Moody AFB State: GA Sampling Point: W11-1-UPL
Investigator(s): J. Groton, J. Brecken Section, Township, Range:
Landform (hillslope, terrace, etc.): Flatwoods Local relief (concave, convex, none): convex Slope (%): 1-3
Subregion (LRR or MLRA): LRR P Lat: Long: Datum:
Soil Map Unit Name: NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation X, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes No X	

Remarks:
Area disturbed by recent timber harvest (1-3 yrs); Photo 140, 141

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes No	Depth (inches):	
Water Table Present?	Yes X No	Depth (inches): @ 12 inches	
Saturation Present? (includes capillary fringe)	Yes X No	Depth (inches): 12-16 inches	**Wetland Hydrology Present?** Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W11-1-UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: r=10 meters)			
1. Pinus taeda	20	y	FAC
2. Pinus palustris	30	y	FAC
3. Quercus nigra	35	y	FAC
4.			
5.			
6.			
7.			
8.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17		
Sapling/Shrub Stratum (Plot size: r=10 meters)			
1. Ilex glabra	15	y	FACW
2. Persea palustris	1		FACW
3. Quercus nigra	5		FAC
4. Vaccinium corymbosum	10	y	FACW
5.			
6.			
7.			
8.			
	31 = Total Cover		
50% of total cover: 15.5	20% of total cover: 6.2		
Herb Stratum (Plot size: r=10 meters)			
1. Serenoa repens	30	y	FACU
2. Ilex glabra	60	y	FACW
3. Persea palustris	5		FACW
4. Morella cerifera	1		FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	96 = Total Cover		
50% of total cover: 48	20% of total cover: 19.2		
Woody Vine Stratum (Plot size: r=10 meters)			
1. Smilax sp	2	y	FAC
2.			
3.			
4.			
5.			
	2 = Total Cover		
50% of total cover: 1	20% of total cover: 0.4		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	91	x 2 =	182
FAC species	93	x 3 =	279
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	214 (A)		581 (B)

Prevalence Index = B/A = 2.71

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

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SOIL Sampling Point: W11-01-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5 YR 4/4						Oi	organic
2-7	2.5 Y 2.5/1				D	RM	SL	sandy loam
7-12	2.5 Y 5/2				D	RM	SL	sandy loam
12-16	2.5 Y 5/2				D	RM	LS	loamy sand
16-20	10 YR 5/2				D	RM	SL	sandy loam
20-26	20-26 YR 4/2				D	RM	LS	loamy sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

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WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base Housing EA City/County: Lowndes Sampling Date: 3/13/2013
Applicant/Owner: Moody AFB State: GA Sampling Point: W11-1-WET
Investigator(s): J. Groton, J. Brecken Section, Township, Range:
Landform (hillslope, terrace, etc.): Flatwoods Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: Long: Datum:
Soil Map Unit Name: NWI classification: PEM1H/PFO1/4E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:
Large wetland complex along northwestern boundary of the site. Hydrology influenced by recent beaver activity. Tributary to Withlacoochee River.
Photo 134,135

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [x] Surface Water (A1)
- [ ] High Water Table (A2)
- [x] Saturation (A3)
- [x] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [x] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 0-4 inches
Water Table Present?	Yes ____	No ____	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 1-12 inches plus

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W11-1-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: r=10meters)			
1. Pinus taeda	35	y	FAC
2. Pinus palustris	10		FAC
3. Acer rubrum	40	y	FAC
4. Nyssa biflora	10		OBL
5.			
6.			
7.			
8.			
	95% = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		
Sapling/Shrub Stratum (Plot size: r=10meters)			
1. Morella cerifera	7		FAC
2. Acer rubrum	5		FAC
3. Vaccinium sp.	1		FACW
4. Viburnum nudum	1		FACW
5. Cephalanthus occidentalis	5		OBL
6.			
7.			
8.			
	19 = Total Cover		
50% of total cover: 9.5	20% of total cover: 3.8		
Herb Stratum (Plot size: r=10meters)			
1. Scirpus cyperinus	25		OBL
2. Saccharum giganteum	5		FACW
3. Dichanthelium scabriusculum	25		OBL
4. Andropogon virginicus var. virginicus	5		FAC
5. Viburnum nudum	1		FACW
6. Carex crinita	15		FACW
7. Hydrocotyle verticillata	1		OBL
8. Sphagnum	5		OBL
9.			
10.			
11.			
12.			
	82 = Total Cover		
50% of total cover: 41	20% of total cover: 16.4		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	71	x 1 =	71
FACW species	23	x 2 =	46
FAC species	102	x 3 =	306
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	196 (A)		423 (B)

Prevalence Index = B/A = 2.16

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

US Army Corps of Engineers — Atlantic and Gulf Coastal Plain Region – Version 2.0

SOIL

Sampling Point: WI1-01-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5 y r 4/4						Oi	organic
3-10	10 y r 2/2				D	M	SL	sandy loam
10-20	10 y r 3/1				D	M	LS	loamy sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

US Army Corps of Engineers — Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base Housing EA City/County: Lowndes Sampling Date: 3/13/2013
Applicant/Owner: Moody AFB State: GA Sampling Point: W11-2-UPL
Investigator(s): J. Groton, J. Brecken Section, Township, Range: _____
Landform (hillslope, terrace, etc.): slope hardwoods Local relief (concave, convex, none): convex Slope (%): 1-3
Subregion (LRR or MLRA): LRR P Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:
Photo 138, 139

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____ No _____	Depth (inches): _____
Water Table Present?	Yes X No _____	Depth (inches): @ 22 inches
Saturation Present? (includes capillary fringe)	Yes _____ No _____	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W11-2-UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: r=10meters)			
1. Carya glabra	25	y	FACU
2. Quercus phellos	25	y	FAC
3. Quercus nigra	35	y	FAC
4.			
5.			
6.			
7.			
8.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17		
Sapling/Shrub Stratum (Plot size: r=10meters)			
1. Morella cerifera	20	y	FAC
2. Lyonia ligustrina	10	y	FACW
3. Vaccinium corybosum	5		FACW
4. Quercus nigra	10	y	FAC
5. Rhododendron viscosum	2		OBL
6.			
7.			
8.			
	47 = Total Cover		
50% of total cover: 23.5	20% of total cover: 9.4		
Herb Stratum (Plot size: r=10meters)			
1. Serenoa repens	15	y	FACU
2. Quercus nigra	10	y	FAC
3. Quercus phellos	10	y	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		
Woody Vine Stratum (Plot size: r=10 meters)			
1. Gelsenium sempervirens	2		FAC
2. Smilax glauca	5	y	FAC
3. Vitis rotundifolia	10	y	FAC
4.			
5.			
	17 = Total Cover		
50% of total cover: 8.5	20% of total cover: 3.4		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 82% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	15	x 2 =	30
FAC species	127	x 3 =	381
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	184 (A)		573 (B)

Prevalence Index = B/A = 3.11

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (If observed, list morphological adaptations below).

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SOIL

Sampling Point: W11-02-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5 y r 4/4						Oi	organic
3-8	10 y r 3/2				D	M	LS	loamy sand
8-15	2.5 y 6/3		2.5 y 5/4	30%	C	M	SL	sandy loam
15-26	2.5 y 7/3		10 y r 6/4	20%	C	M	LS	loamy sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base Housing EA City/County: Lowndes Sampling Date: 3/13/2013
Applicant/Owner: Moody AFB State: GA Sampling Point: W11-2-WET
Investigator(s): J. Groton, J. Brecken Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Shoreline fringe Local relief (concave, convex, none): shoreline Slope (%): <1
Subregion (LRR or MLRA): LRR P Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: PEM1H/PFO1/4E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
Photo 136, 137

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☑ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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A-67

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W11-2-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: r=10meters)			
1. Acer rubrum	20	y	FAC
2. Nyssa biflora	10		OBL
3. Quercus nigra	20	y	FAC
4. Pinus taeda	15	y	FAC
5.			
6.			
7.			
8.			
	65	= Total Cover	
50% of total cover: 32.5	20% of total cover: 13		
Sapling/Shrub Stratum (Plot size: r=10meters)			
1. Morella cerifera	10	y	FAC
2. Lyonia ligustrina	10	y	FACW
3. Persea palustris	5		FACW
4. Quercus nigra	2		FAC
5. Rhododendron viscosum	10	y	OBL
6. Vaccinium myrcinites	5		FACU
7.			
8.			
	42	= Total Cover	
50% of total cover: 21	20% of total cover: 8.4		
Herb Stratum (Plot size: r=10meters)			
1. Morella cerifera	5		FAC
2. Osmunda cinnamomea	1		FACW
3. Lyonia ligustrina	20	y	FAC
4. Persea palustris	2		FACW
5. Woodwardia areolata	1		OBL
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	29	= Total Cover	
50% of total cover: 14.5	20% of total cover: 5.8		
Woody Vine Stratum (Plot size: r=10 meters)			
1. Smilax laurifolia	1	y	FACW
2.			
3.			
4.			
5.			
	1	= Total Cover	
50% of total cover: 0.5	20% of total cover: 0.2		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	21	x 1 =	21
FACW species	19	x 2 =	38
FAC species	92	x 3 =	276
FACU species	5	x 4 =	20
UPL species	0	x 5 =	
Column Totals:	137 (A)		355 (B)

Prevalence Index = B/A = 2.59

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

US Army Corps of Engineers — Atlantic and Gulf Coastal Plain Region – Version 2.0

SOIL

Sampling Point: W11-2-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5 y r 4/4						Oi	organic
4-8	10 y r 2/1				D	M	SL	sandy loam
8-22	2.5 y 3/1				D	M	LS	loamy sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

US Army Corps of Engineers — Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base Housing EA City/County: Lowndes Sampling Date: 3/13/2013
Applicant/Owner: Moody AFB State: GA Sampling Point: W12-1-UPL
Investigator(s): J. Groton, J. Brecken Section, Township, Range:
Landform (hillslope, terrace, etc.): Flatwoods Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: Long: Datum:
Soil Map Unit Name: NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes No X	

Remarks:
Area disturbed by recent timber harvest (1-2 yrs)
Photo 130,131

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes No X	Depth (inches):
Water Table Present?	Yes X No	Depth (inches): @ 17 inches
Saturation Present? (includes capillary fringe)	Yes No X	Depth (inches):

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Photo

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W12-1-UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: r=10meters)			
1. Pinus taeda	20	y	FAC
2. Pinus palustris	20	y	FAC
3. Quercus nigra	5		FAC
4. Morella cerifera	5		FAC
5. Lyquidambar styraciflua	1		FAC
6.			
7.			
8.			
	51 = Total Cover		
50% of total cover: 25.5	20% of total cover: 10.2		
Sapling/Shrub Stratum (Plot size: r=10meters)			
1. Morella cerifera	5		FAC
2. Pinus paulustris	2		FAC
3. Ilex glabra	15	y	FACW
4. Liquidambar styraciflua	2		FAC
5. Persea borbonia	5		FACW
6. Acer rubrum	5		FAC
7.			
8.			
	34 = Total Cover		
50% of total cover: 17	20% of total cover: 6.8		
Herb Stratum (Plot size: r=10meters)			
1. Serenoa repens	40	y	FACU
2. Ilex glabra	40	y	FACW
3. Vaccinium myrcinites	2		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	82 = Total Cover		
50% of total cover: 41	20% of total cover: 16.4		
Woody Vine Stratum (Plot size:)			
1. Smilax laurifolia	3	y	FACW
2.			
3.			
4.			
5.			
	3 = Total Cover		
50% of total cover: 1.5	20% of total cover: 0.6		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	63	x 2 =	126
FAC species	65	x 3 =	195
FACU species	42	x 4 =	168
UPL species	0	x 5 =	0
Column Totals:	170 (A)		489 (B)

Prevalence Index = B/A = 2.88

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

US Army Corps of Engineers — Atlantic and Gulf Coastal Plain Region – Version 2.0

SOIL Sampling Point: W12-1-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5 y r 4/4						Oi	organic
2-7	10 y r 2/1		2.5 y 4/1	15	D	M	SL	sandy loam
7-12	10 y r 5/2		10 r y 2/1	20	D	M	SL	sandy loam
12-21	10 y r 3/4		10 y r 5/4	10	C	M	SL	sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

US Army Corps of Engineers Atlantic and Gulf Coastal Plain Region – Version 2.0

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Val Del Road Off-Base Housing EA City/County: Lowndes Sampling Date: 3/13/2013
Applicant/Owner: Moody AFB State: GA Sampling Point: W12-1-WET
Investigator(s): J. Groton, J. Brecken Section, Township, Range:
Landform (hillslope, terrace, etc.): Flatwoods Local relief (concave, convex, none): depression Slope (%): 0
Subregion (LRR or MLRA): LRR P Lat: Long: Datum:
Soil Map Unit Name: NWI classification: PEM1E/PF01/4E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:
Surrounding area disturbed by recent logging (1-3 yrs). Potential isolated wetland.
Photo 128, 129,
State-listed plant (Sarracenia minor)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☑ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☑ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☑ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☑ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 0-3 inches
Water Table Present? Yes ____ No ____ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Photo

Remarks:

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VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: W12-1-WET

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: r=10meters)			
1. Pinus taeda	5		FAC
2. Pinus palustris	20	y	FAC
3. Persea borbonia	10	y	FACW
4. Acer rubrum	10	y	FAC
5. Liquidambar styraciflua	1		FAC
6.			
7.			
8.			
	46 = Total Cover		
50% of total cover: 23	20% of total cover: 9.2		
Sapling/Shrub Stratum (Plot size: r=10meters)			
1. Magnolia virginiana	2		FACW
2. Persea borbonia	5		FACW
3. Ilex glabra	1		FACW
4. Lyonia lucida	25	y	FACW
5. Vaccinium corymbosum	2		FACW
6.			
7.			
8.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		
Herb Stratum (Plot size: r=10meters)			
1. Spaghnum	80	y	OBL
2. Woodwardia virginica	60	y	OBL
3. Ilex glabra	5		FACW
4. Sarracenia minor*	1		OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	145 = Total Cover		
50% of total cover: 72.5	20% of total cover: 29		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	141	x 1 =	141
FACW species	45	x 2 =	90
FAC species	41	x 3 =	123
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	227 (A)		354 (B)

Prevalence Index = B/A = 1.56

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

Sarracenia minor state-listed plant (Unusual)

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SOIL Sampling Point: W12-1-WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5 y r 4/4						Oi	organic
4-6	2.5 y 4/1				D	M	SL	sandy loam
6-15	2.5 y 4/1				D	M	Oa	muck texture
15-21	2.5 y 6/1				D	M	SL	sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

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APPENDIX B

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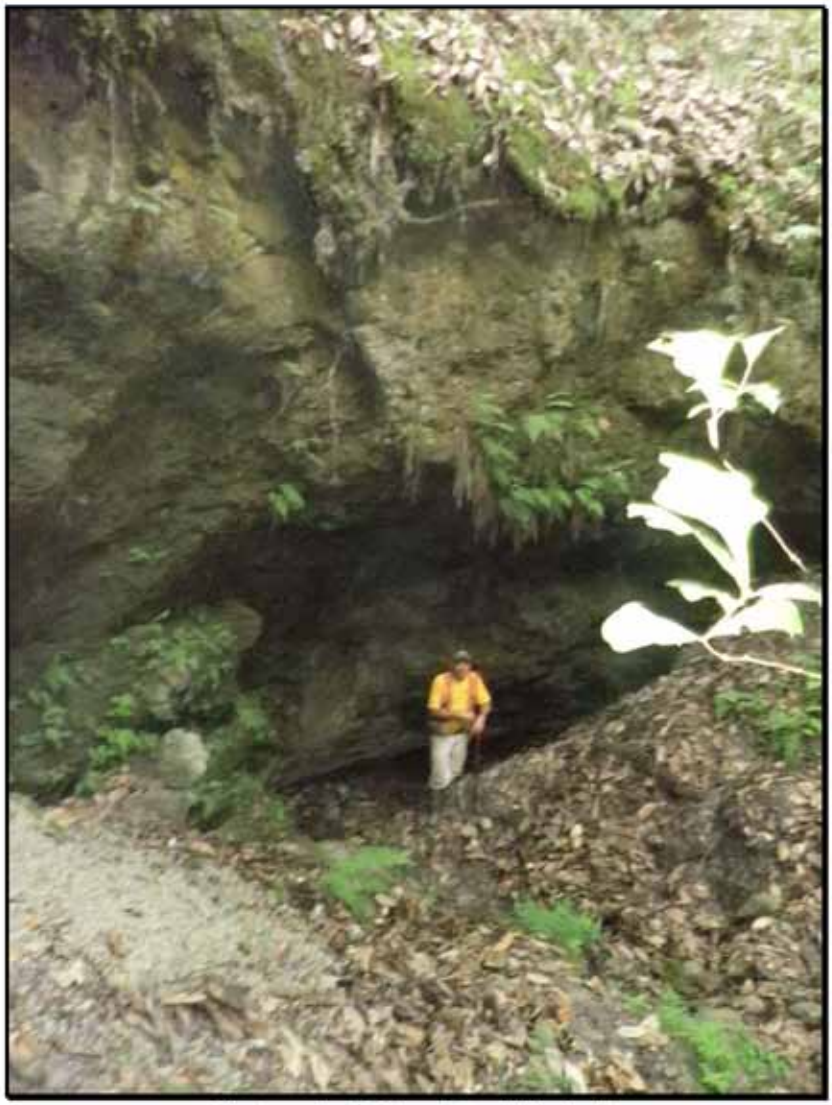
Photograph 25. View to east of Wetland 12

Photograph 26. Upland plot adjacent to Wetland 06 (W06-UPL Sample Plot 1)

Photograph 27. Hooded Pitcher plants (*Sarracenia minor*) growing in southern end of Wetland 12

Photograph 28. Intermittent stream with water flow in the sinkhole

Photograph 29. Seep at origin of intermittent stream in the sinkhole



Photograph 30. View into sinkhole pit

Photograph 31. Water level in the bottom of the sinkhole during March 2013 survey

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APPENDIX C

FEDERAL GEOGRAPHIC DATA COMMITTEE METADATA

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Jimmys_GPS_PT

Metadata:

- Identification Information
- Spatial Reference Information
- Metadata Reference Information

Identification Information:
Citation:
Citation Information:
Originator: Jimmy Groton
Publication Date: 20120518
Title:
Jimmys_GPS_PT
Geospatial Data Presentation Form: vector digital data
Publication Information:
Publication Place: Oak Ridge, TN
Publisher: SAIC
Description:
Abstract:

This shapefile represents coordinates captured on a handheld GPS unit during field visit on 5/16/12 by Jimmy Groton (S

Comment field in attribute data describes the point. Example: W01-3 = wetland 01, 3rd point.

Purpose:
These coordinates represent the 'edges' of wetlands during a wetland delineation.
Time Period of Content:
Time Period Information:
Single Date/Time:
Calendar Date: 20120918
Currentness Reference:
ground condition
Status:
Progress: Complete
Maintenance and Update Frequency: Unknown
Keywords:
Theme:
Theme Keyword Thesaurus: None
Access Constraints: FOUO
Use Constraints:
FOUO
Point of Contact:
Contact Information:
Contact Person Primary:
Contact Person: Michael Nation
Contact Organization: SAIC
Contact Position: Environmental Scientist
Contact Address:
Address Type: mailing
Address:
1640 Eglin Pkwy
City: Shalimar
State or Province: FL
Postal Code: 32579
Country: U.S.
Contact Voice Telephone: 850-609-3460
Contact Electronic Mail Address: nationm@saic.com

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Spatial Reference Information:
Horizontal Coordinate System Definition:
Geographic:
Latitude Resolution: 0
Longitude Resolution: 0

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Metadata Reference Information:
Metadata Date: 20120925
Metadata Contact:
Contact Information:
Contact Person Primary:
Contact Person: Michael Nation
Contact Organization: SAIC
Contact Position: Environmental Scientist
Contact Address:
Contact Voice Telephone: 850-609-3460
Contact Electronic Mail Address: nationm@saic.com
Metadata Standard Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata Standard Version: 1998

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Metadata:

- Identification Information
- Spatial Data Organization Information
- Spatial Reference Information
- Metadata Reference Information

Identification Information:
Description:
Abstract:
Wetland delineation performed by Jimmy Groton (SAIC) and Jeri Brecken (SAIC) for 75-acre off-base parcel of Moody AFB. Attribute names include Feature = wetland ID; acres of each wetlands; Name of wetland: Example: W07 = wetland 07
Purpose:
To identify limits of existing wetlands.
Time Period of Content:
Time Period Information:
Range of Dates/Times:
Beginning Date: 9/12/2012
Beginning Time: unknown
Ending Date: 9/12/2012
Ending Time: unknown
Currentness Reference:
ground condition
Status:
Progress: Complete
Maintenance and Update Frequency: As needed
Access Constraints: FOUO
Use Constraints:
FOUO
Point of Contact:
Contact Information:
Contact Person Primary:
Contact Person: Michael Nation
Contact Organization: SAIC
Contact Position: Environmental Scientist
Contact Voice Telephone: 850-609-3460
Contact Electronic Mail Address: nationm@saic.com
Security Information:
Security Classification System: FOUO
Security Classification: Confidential

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Spatial Data Organization Information:
Direct Spatial Reference Method: Vector

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Spatial Reference Information:
Horizontal Coordinate System Definition:
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Metadata Reference Information:
Metadata Contact:
Contact Information:
Contact Person Primary:
Contact Person: Michael Nation
Contact Organization: SAIC
Contact Position: Environmental Scientist
Contact Voice Telephone: 850-609-3460
Contact Electronic Mail Address: nationm@saic.com
Metadata Standard Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata Standard Version: 1998
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APPENDIX D

USACE EXPANDED PRELIMINARY JURISDICTIONAL DETERMINATION

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DEPARTMENT OF THE ARMY
SAVANNAH DISTRICT, CORPS OF ENGINEERS
1104 NORTH WESTOVER BOULEVARD, UNIT 9
ALBANY, GEORGIA 31707

REPLY TO
ATTENTION OF:

August 6, 2013

Regulatory Division
SAS-2013-00267

Mr. Howard Dasher
The Howard Dasher Co., Inc.
1010 William Street
Valdosta, Georgia 31601

Dear Mr. Dasher:

I refer to a letter dated April 4, 2013, submitted on your behalf by Science Applications International Corporation, requesting a jurisdictional determination for your site located west of and adjacent to Val Del Road, north of North Valdosta Road, in Valdosta, Lowndes County, Georgia (Latitude 30.9085, Longitude -83.3259). This project has been assigned number SAS-2013-00267 and it is important that you refer to this number in all communication concerning this matter.

We have completed an expanded preliminary Jurisdictional Determination (JD) for the site pursuant to the March 4, 2009, Public Notice entitled, "Characterization of Jurisdictional Determinations: Purpose, Application and Documentation Requirements as Defined by the Savannah District, US Army Corps of Engineers." I have enclosed a "JD Check Sheet" that summarizes the JD, delineation verification and appeals process.

Wetlands W02/W03, W04, W06, W07, W08, W09, W11 and the stream shown on the drawing titled, "Wetland Exhibit, SAS-2013-00267" and dated August 6, 2013, may be waters of the United States within the jurisdiction of Section 404 of the Clean Water Act (33 United States Code 1344). The placement of dredged or fill material into any waterways and/or their adjacent wetlands or mechanized land clearing of those wetlands would require prior Department of the Army authorization pursuant to Section 404.

Wetlands W01, W05, and W012 as shown on the above referenced drawing have been determined to be isolated non-jurisdictional wetlands. These wetlands are not within the jurisdiction of Section 404. No Department of the Army authorization pursuant to Section 404 would be required for the placement of dredged or fill material into these wetlands.

If you intend to sell property that is part of a project that requires Department of the Army Authorization, it may be subject to the Interstate Land Sales Full Disclosure Act. The Property Report required by Housing and Urban Development Regulation must

state whether, or not a permit for the development has been applied for, issued or denied by the U.S. Army Corps of Engineers (Part 320.3(h) of Title 33 of the Code of Federal Regulations).

This communication does not convey any property rights, either in real estate or material, or any exclusive privileges. It does not authorize any injury to property, invasion of rights, or any infringement of federal, state or local laws, or regulations. It does not obviate your requirement to obtain state or local assent required by law for the development of this property. If the information you have submitted, and on which the U.S. Army Corps of Engineers has based its determination is later found to be in error, this decision may be revoked.

A copy of this letter is being provided to the following party: Mr. James Groton, Science Applications International Corporation, 151 Lafayette Drive, Oak Ridge, Tennessee 37830.

Thank you in advance for completing our Customer Survey Form. This can be accomplished by visiting our website at http://per2.nwp.usace.army.mil/survey.html and completing the survey on-line. We value your comments and appreciate your taking the time to complete a survey each time you interact with our office.

If you have any questions, please call me at 229-430-8567.

Sincerely,

Terry C. Kobs
Regulatory Specialist, Coastal Branch

Enclosures


Wetland Exhibit
SAS-2013-00267
Dated: August 6, 2013
Legend
0
300
600
Feet

DEPARTMENT OF THE ARMY
SAVANNAH DISTRICT, US ARMY CORPS OF ENGINEERS
1104 NORTH WESTOVER BOULEVARD, UNIT 9
ALBANY, GEORGIA 31707

REPLY TO
ATTENTION OF:

JURISDICTION DELINEATION CHECK SHEET
USACE FILE NUMBER: SAS-2013-00267
DATE: August 6, 2013

A. SECTION 1 - PRELIMINARY JURISDICTIONAL DETERMINATIONS

1. JURISDICTIONAL DETERMINATION (JD). A "preliminary JD" form was completed for the site in accordance with the March 4, 2009, Public Notice entitled, "Characterization of Jurisdictional Determinations: Purpose, Application and Documentation Requirements as Defined by the Savannah District, US Army Corps of Engineers." The form details whether streams, wetlands and/or other waters present on the site may be subject to the jurisdiction of the US Army Corps of Engineers (USACE). In summary, the USACE has determined the following with regard to waters present on the site:

_____ There may be navigable waters of the United States (US) within Rivers and Harbors Act (RHA) jurisdiction present.

_____ There may be waters of the US within Clean Water Act (CWA) jurisdiction present.

2. DELINEATION VERIFICATION. With regard to the location and extent of potentially jurisdictional areas present on the site, the USACE has made the following determinations:

_____ Wetlands were delineated in accordance with criteria contained in the 1987 "Corps of Engineers Wetland Delineation Manual," as amended by the most recent regional supplements to the manual.

_____ Drawings submitted with a Pre-Construction Notification (or other application) depict the approximate location/boundaries of all potentially jurisdictional waters on the project site. The USACE has verified the accuracy of the depicted boundaries of potentially jurisdictional waters in only the immediate vicinity of waters to be impacted. A complete jurisdictional delineation request, including a jurisdictional waters survey, would be required in order for the USACE to consider final verification of all other jurisdictional boundaries on the project site.

_____ The drawing entitled "_____," dated _____ is an acceptable sketch of the approximate location/boundaries of all the potentially jurisdictional waters in the project area. This sketch can be used for initial real estate planning; projects with temporary impacts to waters; projects involving minor amounts of fill in waters; or work only subject to our jurisdiction pursuant to Section 10 of the Rivers and Harbors Act of 1899. A complete jurisdictional delineation request, including a jurisdictional waters survey, would be required in order for the USACE to consider final verification of all other jurisdictional boundaries on the project site.

3. APPEALS OF PRELIMINARY JURISDICTIONAL DETERMINATIONS: The preliminary JD is a "non-binding" written indication that there may be waters of the US on a parcel. Preliminary JDs are advisory in nature and may not be appealed (See 33 CFR 331.2)." If you are not in agreement with this preliminary JD, then you may request an approved jurisdictional determination for your project site or review area.

B. SECTION - EXPANDED PRELIMINARY JURISDICTIONAL DETERMINATIONS:

1. JURISDICTIONAL DETERMINATION (JD). An "expanded preliminary JD" form was completed for the site in accordance with the March 4, 2009, Public Notice entitled, "Characterization of Jurisdictional Determinations: Purpose, Application and Documentation Requirements as Defined by the Savannah District, US Army Corps of Engineers." The form details whether streams, wetlands and/or other waters present on the site may be subject to the jurisdiction of the USACE. In summary, the USACE has determined the following with regard to waters present on the site:

_____ There may be navigable waters of the United States (US) within Rivers and Harbors Act (RHA) jurisdiction present.

__X___ There may be waters of the US within Clean Water Act (CWA) jurisdiction present.

2. DELINEATION VERIFICATION. With regard to the location and extent of potentially jurisdictional areas present on the site, the USACE has made the following determinations:

__X__ Wetlands were delineated in accordance with criteria contained in the 1987 "Corps of Engineers Wetland Delineation Manual," as amended by the most recent regional supplements to the manual.

__X__ The Global Positioning System (GPS) delineation entitled "Wetland Exhibit, SAS-2013-00267" and dated August 6, 2013, is an accurate delineation of the location/boundaries of all the potentially jurisdictional waters on the site. If you have not already done so, I recommend that you place a statement on this delineation to the effect that, **"WETLANDS W02/W03, W04, W06, W07, W08, W09, W11 and the stream SHOWN ON THIS DRAWING ARE POTENTIALLY UNDER THE JURISDICTION OF THE US ARMY CORPS OF ENGINEERS AS SHOWN IN USACE FILE NUMBER SAS-2013-00267. OWNERS MAY BE SUBJECT TO PENALTY BY LAW FOR DISTURBANCE TO THESE WATERS WITHOUT PROPER AUTHORIZATION."** This delineation will remain valid for a period of 5 years unless new information warrants revision prior to that date.

_____ The survey entitled "_____", dated _____, and signed by Registered Land Surveyor _____, is an accurate delineation of the location/boundaries of all the potentially jurisdictional waters on the site. If you have not already done so, I recommend that you place a statement on the final surveyed property plat to the effect

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that, **"WETLANDS AND OTHER WATERS SHOWN ON THIS DRAWING ARE POTENTIALLY UNDER THE JURISDICTION OF THE US ARMY CORPS OF ENGINEERS AS SHOWN IN USACE FILE NUMBER SAS-2013-00267. OWNERS MAY BE SUBJECT TO PENALTY BY LAW FOR DISTURBANCE TO THESE WATERS WITHOUT PROPER AUTHORIZATION."** This delineation will remain valid for a period of 5-years unless new information warrants revision prior to that date.

3. APPEALS OF PRELIMINARY JURISDICTIONAL DETERMINATIONS: The expanded preliminary JD is a "non-binding" written indication that there may be waters of the US on a parcel. Expanded Preliminary JDs are advisory in nature and may not be appealed (See 33 CFR. 331.2)." If you are not in agreement with this expanded Preliminary JD, then you may request an approved jurisdictional determination for your project site or review area.

C. SECTION 3 - APPROVED DETERMINATIONS: As defined in Regulatory Guidance Letter 08-02, an approved JD is an official Savannah District determination that jurisdictional "waters of the United States" or "navigable waters of the United States," or both, are either present or absent on a particular site. An approved JD precisely identifies the limits of those waters on the project site determined to be jurisdictional under the Clean Water Act (CWA) and/or the Rivers and Harbors Act (RHA).

1. JURISDICTIONAL DETERMINATION (JD). An "approved JD" form was completed for the site pursuant to the June 5, 2007, "US Army Corps of Engineers (USACE) JD Form Instructional Guidebook." The form details whether streams, wetlands and/or other waters present on the site are subject to the jurisdiction of the USACE. In summary, the USACE has determined the following with regard to waters present on the site:

_____ There are navigable waters of the (US) within (RHA) jurisdiction present.

__X__ There are waters of the US within (CWA) jurisdiction present.

_____ There are non-jurisdictional waters of the US located in the project area.

_____ There are no jurisdictional waters of the US located in the project area.

2. APPROVED DETERMINATION - ISOLATED, NON-JURISDICTIONAL WATERS. If Appendix E of the March 4, 2009, Public Notice entitled, "Characterization of Jurisdictional Determinations: Purpose, Application and Documentation Requirements as Defined by the Savannah District, US Army Corps of Engineers" was submitted, you have requested that the USACE verify the presence of isolated, non-jurisdictional waters located at the project site or within the review area. The completed Appendix E form is available at https://sasweb.sas.usace.army.mil/JD/, under the above listed file number. You may also request

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that a printed copy of the form be mailed to you. This isolated, non-jurisdictional determination will remain valid for a period of 5-years unless new information warrants revision prior to that date. In summary, the USACE has determined the following with regard to isolated, non-jurisdictional waters that are present on the site:

__X__ Wetlands were delineated in accordance with criteria contained in the 1987 "Corps of Engineers Wetland Delineation Manual," as amended by the most recent regional supplements to the manual.

__X__ There are isolated non-jurisdictional waters present that are not subject to CWA jurisdiction. Specifically, wetland(s) W01, W05, and W012, as identified on the exhibit entitled "Wetland Exhibit, SAS-2013-00267" and dated August 6, 2013, is/are isolated, non-jurisdictional wetlands. Department of the Army authorization, pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344), is not required for dredge and/or fill activities in these areas.

3. APPROVED DETERMINATION. (other than isolated, non-jurisdictional waters): If Appendix B of the March 4, 2009, Public Notice entitled, "Characterization of Jurisdictional Determinations: Purpose, Application and Documentation Requirements as Defined by the Savannah District, US Army Corps of Engineers" was submitted, you have requested that the USACE verify the presence of jurisdictional waters located at the project site or within the review area. The completed Appendix B form is available at https://sasweb.sas.usace.army.mil/JD/, under the above listed file number. You may also request that a printed copy of the form be mailed to you. This jurisdictional determination will remain valid for a period of 5-years unless new information warrants revision prior to that date. In summary, the USACE has determined the following with regard to isolated, non-jurisdictional waters that are present on the site:

_____ Wetlands were delineated in accordance with criteria contained in the 1987 "Corps of Engineers Wetland Delineation Manual," as amended by the most recent regional supplements to the manual.

_____ The Global Positioning System (GPS) delineation entitled "_____", dated _____, is an accurate delineation of all the jurisdictional boundaries on the site. If you have not already done so, I recommend that you place a statement on this delineation to the effect that, **"JURISDICTIONAL WETLANDS AND OTHER WATERS SHOWN ON THIS DRAWING ARE UNDER THE JURISDICTION OF THE US ARMY CORPS OF ENGINEERS AS SHOWN IN USACE FILE NUMBER SAS-2013-00267. OWNERS MAY BE SUBJECT TO PENALTY BY LAW FOR DISTURBANCE TO THESE JURISDICTIONAL AREAS WITHOUT PROPER AUTHORIZATION."** This approved jurisdictional determination will remain valid for a period of 5-years unless new information warrants revision prior to that date.

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_____ The survey entitled "_____", dated _____, and signed by Registered Land Surveyor _____, is an accurate delineation of all the jurisdictional boundaries on the site. If you have not already done so, I recommend that you place a statement on the final surveyed property plat to the effect that, **"JURISDICTIONAL WETLANDS AND OTHER WATERS SHOWN ON THIS DRAWING ARE UNDER THE JURISDICTION OF THE US ARMY CORPS OF ENGINEERS AS SHOWN IN USACE FILE NUMBER SAS-2013-00267. OWNERS MAY BE SUBJECT TO PENALTY BY LAW FOR DISTURBANCE TO THESE JURISDICTIONAL AREAS WITHOUT PROPER AUTHORIZATION."** This approved jurisdictional determination will remain valid for a period of 5-years unless new information warrants revision prior to that date.

4. APPEALS FOR APPROVED JURISDICTIONAL DETERMINATIONS: You may request an administrative appeal for any approved geographic jurisdictional determination under USACE regulations at 33 Code of Federal Regulation (CFR) Part 331. Enclosed you will find a Notification of Administrative Appeal Options and Process and Request for Appeal (RFA) Form.

If you request to appeal this/these determination(s) you must submit a completed RFA form to the South Atlantic Division Office at the following address:

US Army Corps of Engineers, South Atlantic Division
Attention: CESAD-PDS-O, Administrative Appeal Review Officer
60 Forsyth Street, Room 10M15
Atlanta, Georgia 30303-8801

In order for a RFA to be accepted by the USACE, the USACE must determine that it is complete, that it meets the criteria for appeal under 33 CFR, part 331.5, and that it has been received by the Division Office within 60 days of the date of this form. It is not necessary to submit an RFA form to the Division Office if you do not object to this jurisdictional determination.

D. SECTION 4 - APPLIES TO ALL OF THE ABOVE.

- US DEPARTMENT OF AGRICULTURE (USDA) PROGRAM PARTICIPANTS. This delineation/determination has been conducted to identify the limits of USACE CWA jurisdiction for this site. This delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

5

Attachments:

_____ Verified Survey of Jurisdictional Streams, Wetlands and/or Other Waters

__X___ Verified GPS Delineation of Jurisdictional Streams, Wetlands and/or Other Waters

_____ Drawing of Approximate Location of Streams, Wetlands and/or Other Waters

_____ Approved Jurisdictional Determination Form(s)

_X__ Notification of Administrative Appeal Options and Process and Request for Appeal Form

Terry C. Kobs
Regulatory Specialist, Coastal Branch

8/6/2013
DATE

6

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL		
Applicant: The Howard Dasher Co.	File Number: SAS-2013-00267	Date: August 6, 2013
Attached is:		See Section below
INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)		A
PROFFERED PERMIT (Standard Permit or Letter of permission)		B
PERMIT DENIAL		C
X APPROVED JURISDICTIONAL DETERMINATION		D
X PRELIMINARY JURISDICTIONAL DETERMINATION		E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit.

ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. The division engineer must receive this form within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT		
REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)		
ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.		
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:		
If you have questions regarding this decision and/or the appeal process you may contact: Terry Kobs US Army Corps of Engineers, Savannah District 1104 North Westover Boulevard, Unit 9 Albany, Georgia 31707 229-430-8567	If you only have questions regarding the appeal process you may also contact: Administrative Appeal Review Officer CESAD-PDS-O US Army Corps of Engineers, South Atlantic Division 60 Forsyth Street, Room 10M15 Atlanta, Georgia 30303-8801	
RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.		
_____ Signature of appellant or agent.	Date:	Telephone number:

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APPENDIX D
VAL DEL ROAD PARCEL GEOPHYSICAL AND HYDROLOGY STUDY EXECUTIVE SUMMARY

Geophysical and Hydrology Investigation

Moody Air Force Base
Privatized Housing
Val Del Road Parcel

Prepared for:

ACC Group Housing LLC

Prepared by:

Woolpert, Inc.
TTL, Inc.
Geohazards, Inc.

November 15, 2013

HYDROLOGY AND CIVIL ENGINEERING
(GEOLOGIST AND GEOTECHNICAL WORK
SEAL/SIGNATURES INCLUDED SEPARATELY)

Executive Summary:

This report addresses suitability of the proposed housing site on Val Del Road for development as a residential neighborhood. The scope of the investigation, analysis, and research performed for this report are based on addressing (1) the hydrology, underlying karst topography, and potential impact on the underlying aquifer; and (2) the geological stability of the site and geophysical investigation to identify any voids or anomalies in the subsurface strata.

Hydrology - Development of this site will not have a negative impact on stormwater runoff and the groundwater recharge zone. Existing drainage patterns within the site will be maintained after construction of the homes and roadways. Stormwater detention will be provided to limit the release rate of proposed conditions runoff to not exceed that of existing conditions.

In existing conditions stormwater runoff flows to wetlands within the site and then leaves the site via overland flow and culverts under Val Del Road. Stormwater discharge in proposed conditions will continue to flow to the same wetlands and leave the site in the same manner. By maintaining existing drainage patterns and providing stormwater detention, there will be no hydrological impact from development of the site.

Geophysical – Geophysical investigation of the site supports the conclusion that the site is suitable for residential development. No voids or areas of raveling soil were found beyond those identified with initial ERI surveys. As proposed in the scope for the additional geophysical testing, both GPR and ERI surveys were performed along the west property line and dense ERI studies were performed within the previously identified areas of geologic concern. As identified in the attached detailed geophysical reports, the anomalies previously identified with a relatively broad ERI survey have now been clarified with a more precise and detailed level of analysis. This allows placing the proposed homes comfortably away from anomalies and also enables placement of homes in areas previously avoided based on the more generalized identification of geological areas of concern.

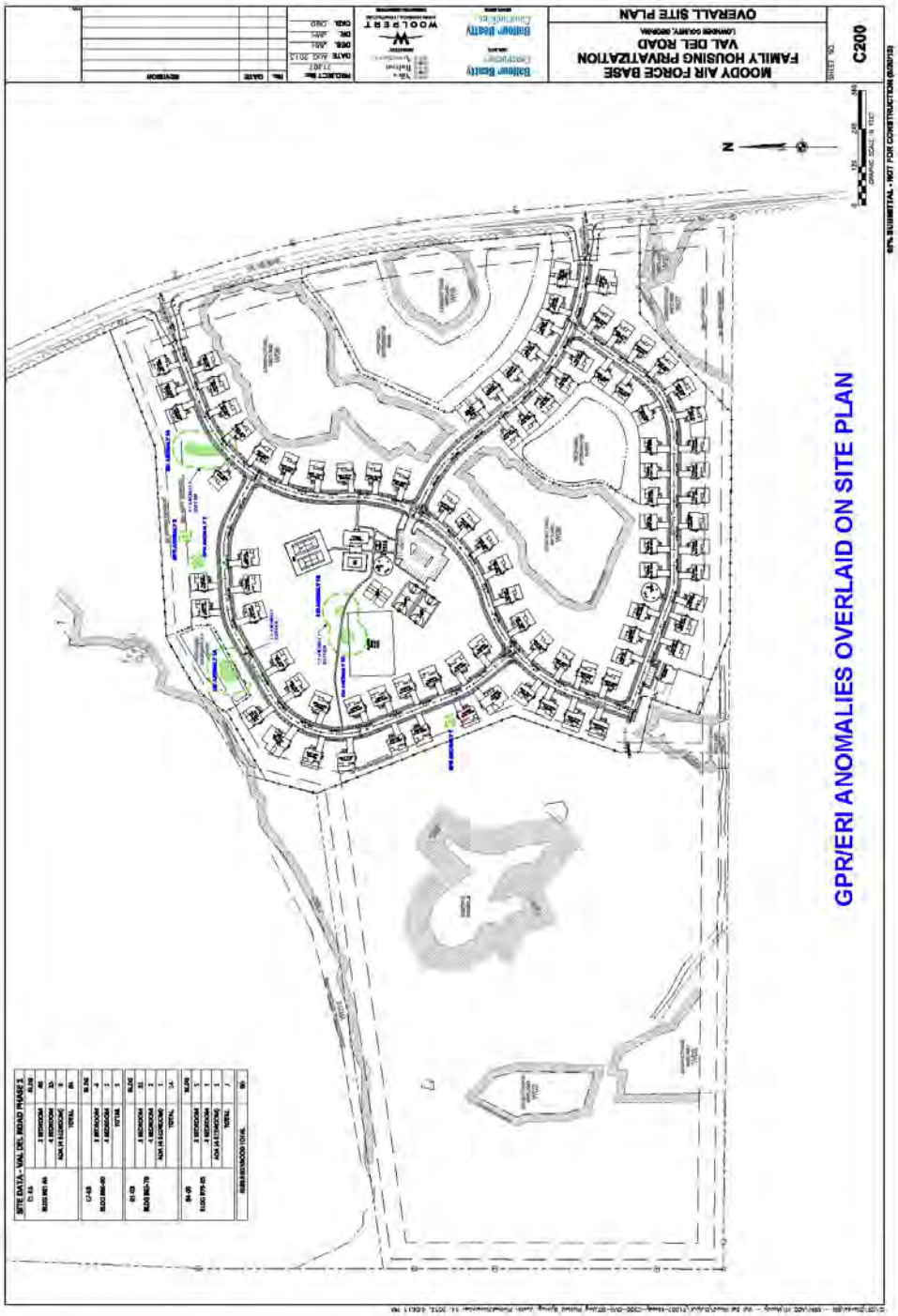
Attached is a site plan of the property showing placement of the proposed homes relative to the detailed outlines of the identified anomalies. Each anomaly has been delineated and also surrounded with a buffer to provide an even more conservative approach to placement of buildings on the site. The buffer provided is at a 1V:1H inclination from the depth of the anomaly up to the ground surface. To continue a conservative approach, this is a larger buffer than if the traditional 2V:1H inclination used for determining structural bearing vertical stress influence was applied.

As anticipated, the GPR survey was limited to relatively shallow penetration due to relatively high surface moisture and heavy clays. Typical GPR readings

achieved a depth of six-eight feet. Three isolated and relatively small shallow anomalies were identified with the GPR survey. These anomalies are not likely a result of karst topography or sinkhole activity. These anomalies are shallow enough (seven to nine feet deep) that they could be removed and backfilled or avoided with siting of the proposed buildings. Given their small size, the easiest and least expensive course of action will be place buildings outside the anomalies and their 1:1 buffer.

The dense ERI survey identified four anomalies, all of which were within the previously identified broad area of concern. The ERI identified anomalies are also relatively isolated and limited in size. These anomalies are areas with differing soil conditions at 20 to 30 feet below the surface. Additional deep soil borings could be performed in these areas to help identify whether they are raveling soil zones or in-filled material from a relic paleo era sinkhole or channel. Or similar to the preferred method for avoiding the GPR identified anomalies – simply avoid the areas with placement of proposed homes. Because these areas are relatively small and isolated, avoiding these areas with placement of proposed homes can be accomplished and should be incorporated with development of the construction documents.

See the attached site plan showing location of the anomalies, 1:1 buffers, and proposed buildings.



ValDelRoad-HydrologyandGeophysicalReport Page4

Hydrology Study
Val Del Road Site

The scope for the hydrology study addresses the following items:

a. ***Review and analysis of existing State of Georgia Aquifer Recharge Maps.***
b. ***Assessment of impact of Karst topography on groundwater recharge areas.***
c. ***Hydrology study to evaluate potential impact of proposed residential construction on existing drainage and stormwater runoff paths and the aquifer recharge zone, including contamination in relation to ground water and subsurface water changes associated with the development (analysis to be consistent with the Lowndes County Unified Land Development Code, September 11, 2012, ground water recharge requirements for water resources runoff/recharge effects with limestone Karst formations).***
    i. ***Intent of the hydrology study is to gather data for the purpose of enabling an analysis of whether the planned residential construction activities would have a significant impact on the Floridan aquifer and/or sinkhole/ravine adjacent to the Site.***
    ii. ***Karst formation, Site features, and nearby sinkhole/ravine should be considered in the analysis to the extent that surface drainage from the proposed development will reach the sinkhole/ravine.***

(a) Review and analysis of the existing State of Georgia Aquifer Recharge Maps showed that the maps do include Karst topography as one of the factors in identifying groundwater recharge zones. The State of Georgia prepared an Aquifer Recharge Map (1996) for the entire State of Georgia. Based on this map, the Val Del Road site is within the Groundwater Recharge Area for the Floridian and Jacksonian Aquifers.

The existing state maps were prepared as a supplement to the Georgia Environmental Protection District (EPD) Hydrologic Atlas 18. The Atlas 18 database identifies approximately 13,000 square miles (23 percent) of Georgia's land surface through which the most significant natural ground-water recharge occurs.

The original Georgia Geologic Survey Hydologic Atlas 18: "Most Significant Ground-Water Recharge Areas of Georgia," was published in 1989 and included mapping of the groundwater recharge areas based on rock outcrop area, lithology, soil type/thickness, slope, density of lithologic contacts, geologic structure, presence of karst, and potentiometric surfaces.

(b) As identified in the Georgia Aquifer Recharge Maps and stated above; Karst topography is a factor in groundwater recharge areas.

(c) A hydrology study was performed for the proposed project relative "*to the potential impact of proposed residential construction on existing drainage and stormwater runoff paths and the aquifer recharge zone*".

The hydrology study for this project focused on changes to surface drainage patterns between existing and proposed conditions. Under existing conditions stormwater runoff from this site drains to wetland within the site. The wetlands will continue to receive drainage from the same adjacent land areas under proposed conditions. With the exception of a minor roadway crossing impact, the existing wetlands within the site will not be disturbed from development of the proposed homes and infrastructure.

Stormwater runoff rates from the site will be limited to rates experienced during existing conditions. Discharge rates will be controlled with detention basins and discharge control structures (specifically sized pipes, weirs, orifice plates, etc). By not changing the runoff patterns and limiting discharge rates to those in existing conditions, function of the wetlands and drainage runoff to land adjacent to the project site will not be impacted by the development.

Since existing drainage patterns are being maintained, groundwater/aquifer recharge from wetlands within the site will continue under proposed conditions. By maintaining stormwater flow to the wetlands and eventually out of the wetlands to the adjacent properties; groundwater/aquifer recharge from land adjacent to the site will also continue to occur as it does in existing conditions.

Maintaining drainage patterns to the wetlands within the site under proposed conditions will also ensure long term viability of both the wetlands and any contribution they provide to the groundwater/aquifer recharge zone.

Further supporting that this project will not impact "*existing drainage and stormwater runoff paths and the aquifer recharge zone*" is the requirement for review, approval, and permitting of this project through Lowndes County. A Stormwater Management Plan will be prepared to support permitting of this site through the Lowndes County Engineering Department. One of the items required to be addressed with the Stormwater Management Plan is drainage patterns and maintaining existing drainage patterns in proposed conditions.

Outlined in the scope for the hydrology study was confirmation that the proposed development is "*consistent with the Lowndes County Unified Land Development Code (ULDC), September 11, 2012, ground water recharge requirements for water resources runoff/recharge effects with limestone Karst formations*" .

To address that the proposed development is consistent with the ULDC, below is an excerpt from the Lowndes County ULDC Groundwater Recharge Area Protection District Code and the corresponding applicability of the code to the proposed development:

Lowndes County Unified Land Development Code
3.03.00 Groundwater Recharge Area Protection District

Groundwater is susceptible to contamination when unrestricted development occurs within significant groundwater recharge areas.

a. **Excessive impervious surface can alter or impair their recharge characteristics thereby decreasing groundwater supplies.** *(The Val Del Road project will not create excessive impervious surface).*
b. **Pesticides, herbicides sprayed on crops, animal waste and septic tanks effluents contribute to deterioration in the groundwater quality and can threaten the health of residents relying on well water.** *(The Val Del Road project will not include crops, animal waste, or septic tanks).*
c. **Unregulated hazardous wastes.** *(The Val Del Road project will not generate unregulated hazardous waste).*

The following land uses have specific development criteria required by the ULDC. The proposed Val Del Road housing consists of single family residential connected to a public sanitary sewer and is NOT subject to any of the specific proposed land uses listed in the ULDC. The land uses with development criteria listed in the ULDC are summarized below:

a. **New agricultural waste impoundment sites –** *not applicable.*
b. **Homes served by septic tank/drain field systems –** *not applicable*
c. **New mobile home parks served by septic tank/drain fields –** *not applicable.*
d. **New above ground chemical or petroleum storage tanks having a minimum volume of 500 gallons. –** *not applicable.*
e. **New facilities which handle hazardous materials, of types and in amounts regulated by Georgia DNR –** *not applicable.*
f. **Permanent storm water infiltration basins –** *All basins within the proposed development will be classified as stormwater retention or detention ponds.*
g. **New wastewater Treatment Basins –** *Not Applicable.*

The final scope item to be addressed relative to hydrology is any impact of surface drainage from the proposed development on the sinkhole/ravine located approximately 300 feet west of the proposed site. This is best demonstrated on the attached Sinkhole/Ravine Drainage Map. As shown on this map, the area contributing drainage to the sinkhole/ravine will be effectively unchanged with development of the proposed residential neighborhood.

A small increase in impervious area from roofs adjacent to the west property lines will be balanced by the reduced runoff from turf grass lawns relative to existing conditions ground cover. Based on these factors, the development of this site as a residential neighborhood will have no impact on the adjacent sinkhole/ravine.