

Final

Environmental Assessment

**Construction and Operation of Building 4220 at
George C. Marshall Space Flight Center**

National Aeronautics and Space Administration

George C. Marshall Space Flight Center
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ENVIRONMENTAL ASSESSMENT

CONSTRUCTION AND OPERATION OF BUILDING 4220 AT GEORGE C. MARSHALL SPACE FLIGHT CENTER

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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Environmental Assessment Organization

This Environmental Assessment addresses the National Aeronautics and Space Administration's Proposed Action to construct and operate Building 4220 at George C. Marshall Space Flight Center in Huntsville, Alabama. As required by 32 Code of Federal Regulations 651 and the National Environmental Policy Act, the potential effects of implementing this action are analyzed.

A *LIST OF ACRONYMS* is provided immediately following the Table of Contents.

- SECTION 1:** **PURPOSE OF AND NEED FOR THE PROPOSED ACTION** provides an introduction and background, summarizes the purpose of and need for the Proposed Action, discusses the scope of the document, and identifies the resources considered but eliminated from further analysis.
- SECTION 2:** **DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES** describes the Proposed Action and the alternatives to the Proposed Action.
- SECTION 3:** **AFFECTED ENVIRONMENT** describes the existing conditions of each resource for which the Proposed Action and alternatives to the Proposed Action are evaluated.
- SECTION 4:** **ENVIRONMENTAL CONSEQUENCES** presents the potential effects of implementing the Proposed Action and alternatives to the Proposed Action on the resources described in Section 3.
- SECTION 5:** **SUMMARY OF ENVIRONMENTAL CONSEQUENCES AND CONCLUSIONS** presents a tabulated summary of the potential consequences of the Proposed Action and No-Action Alternative and also presents the conclusions of the Environmental Assessment.
- SECTION 6:** **REFERENCES** presents bibliographical information about the sources used to prepare the Environmental Assessment.
- SECTION 7:** **LIST OF PREPARERS** provides information about the persons who prepared the Environmental Assessment
- APPENDIXES** **A** Regulatory Agency Correspondence
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Acronyms

ACM	asbestos containing material
ADA	Americans with Disabilities Act
ADEM	Alabama Department of Environmental Management
AST	aboveground storage tank
CAA	Clean Air Act
CBMPP	Construction Best Management Practices Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO ₂	carbon dioxide
CVOC	chlorinated volatile organic compound
dB	decibel
dBA	A-weighted decibel scale
EA	Environmental Assessment
EEOH	Environmental Engineering and Occupational Health
EHS	Extremely Hazardous Substance
EO	Executive Order
ESA	ecologically sensitive area
ESC	Environmental Support Contractor
ft	feet
FY	Fiscal Year
HMA	Huntsville Metropolitan Area
HWSF	Hazardous Waste Storage Facility
kV	kilovolt
lb	pound
LBP	lead-based paint
Ldn	day-night averaged sound level
LEED	Leadership in Energy & Environmental Design
MEC	Munitions and Explosives of Concern
MMRP	Military Munitions Response Program
MSFC	George C. Marshall Space Flight Center
msl	mean sea level
NAAQS	National Ambient Air Quality Standards
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration
OU	Operable Unit

PCB	polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RSA	Redstone Arsenal
sq ft	square feet
SRM	solid rocket motor
TCE	trichloroethene
TVA	Tennessee Valley Authority
U.S.C.	United States Code
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank

Purpose of and Need for the Proposed Action

1.1 Introduction

The National Aeronautics and Space Administration (NASA) plans to construct Building 4220 at George C. Marshall Space Flight Center (MSFC) in Huntsville, Alabama. Building 4220 would be constructed in the 4200 Complex at MSFC, which is the main administrative area of the Center.

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act of 1969 (NEPA), as amended (42 United States Code [U.S.C.] 4321 et seq.), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 *Code of Federal Regulations* [CFR] Parts 1500 through 1508), and NASA regulations (14 CFR Part 1216 Subpart 1216.3). The outline and content of this EA are consistent with NASA Procedural Requirements 8580.1 for implementing NEPA and Executive Order (EO) 12114 (NASA, 2001).

1.2 Background

The 4200 Complex at MSFC consists of Buildings 4200, 4201, 4202, and 4203. These buildings along with Building 4205 (Propulsion Research Laboratory) are collectively referred to as the North Campus. Building 4200 is MSFC's main administration building. It was constructed in 1963 and is the largest building in the 4200 Complex. Buildings 4201 and 4202, both constructed in 1964, and Building 4203, constructed in 1993, co-function with Building 4200 to support most of the administrative and project/program management office needs of MSFC.

The proposed addition of a new office building to the 4200 Complex was first conceptualized during development of the 2003 MSFC 20-Year Facilities Master Plan (NASA, 2003). At that time, MSFC began planning for the redevelopment of the North Campus and for connecting the North Campus to the South Campus to provide a greater sense of visual unity and organization at the Center. The 2003 Master Plan concluded that replacing Buildings 4201 and 4202 would be more cost effective than renovating them. Center planners at that time also concluded that new construction would decrease facility energy demand, result in more efficient space utilization, allow for flexible layouts that would improve operational functionality, and facilitate land-use planning in surrounding areas. The facility planning concepts presented in the 2003 Master Plan are currently being used as the basis for the design of Building 4220, which was initiated in early 2010.

1.3 Purpose and Need

The purpose of the Proposed Action is to correct inadequacies in the existing administrative and office infrastructure of the 4200 Complex at MSFC. NASA needs to implement the

Proposed Action to be able to adequately carry out administrative and office functions at MSFC in support of its current and future missions. Constructing and operating Building 4220 would serve as the initial effort to correct these inadequacies. Building 4202 is proposed to be demolished in Fiscal Year (FY) 2013. Buildings 4200, 4201, and 4202 are old and very expensive to operate and maintain. The exterior curtain walls and utility systems of these buildings are deteriorated and require constant maintenance and repair. NASA has determined that the mechanical, electrical, and heating-ventilation-air conditioning (HVAC) systems of these buildings have very high probabilities of failure within the next three years. Due to the presence of asbestos in these buildings, all affected building personnel would have to be evacuated during repair of each system that fails, which would be very expensive in terms of lost work time. These buildings also do not meet NASA interior space utilization standards and are not fully compliant with Americans with Disabilities Act (ADA) design standards. The addition of Building 4220 to the 4200 Complex would increase operational functionality and reduce facility maintenance and utility costs within the complex. Building 4220 would be designed to meet all NASA space utilization, NASA energy conservation, and ADA design standards. The construction of Building 4220 at the proposed site would be consistent with the conceptual approaches and layouts presented in the 2003 MSFC Master Plan for the redevelopment of the 4200 Complex and surrounding areas.

1.4 Scope of EA

This EA analyzes the potential environmental impacts of constructing and operating Building 4220 at MSFC. The potential impacts of the Proposed Action are evaluated against those of the No-Action Alternative, under which Building 4220 would not be constructed. This EA does not address the proposed demolition of Building 4202 or any other proposed action associated with redevelopment of the 4200 Complex at MSFC. The potential environmental impacts of those actions would be analyzed in separate NEPA documentation as appropriate.

1.5 Public and Agency Consultation

A 30-day public review was held from October 31, 2010 through November 29, 2010 to solicit public comments on the draft EA. The public review period was announced in a public notice that was published in the Huntsville Times newspaper out of Huntsville, Alabama. Copies of the draft EA were made available to the public during the review period at the NASA External Relations Office at MSFC and at two public libraries in the local area. A copy of the public notice that was published in the Huntsville Times newspaper is presented as Appendix B. The draft EA was also coordinated with federal, state, and local entities through letter correspondence (Appendix A). All comments received are included in Appendix A and are addressed in pertinent sections of the EA.

1.6 Resources Considered but Eliminated From Further Analysis

NASA uses a systematic and interdisciplinary approach to ensure that all pertinent resources are analyzed and potential effects are identified. Using this approach, the Proposed Action was determined to have no potential to affect several resources. Therefore, these resources were eliminated from further analysis and discussion in this EA. Table 1-1 identifies the resources that were considered but eliminated from further analysis because they would have no potential to be affected by the Proposed Action.

TABLE 1-1
Resources Considered But Eliminated From Further Analysis
EA for Construction and Operation of Building 4220 at MSFC

Resource	Rationale
Land Use	The land use classification of the 4200 Complex at MSFC is "Administration & Project/Program Management". Because Building 4220 would support administrative functions, its construction and operation within the 4200 Complex would not change the land use classification of the complex. Other land uses within MSFC and land uses in the surrounding region would not be affected in any manner by the Proposed Action. Therefore, the Proposed Action would have no impact on land use.
Floodplains	The proposed construction site for Building 4220 is not located within the 100-year floodplain. Operation of the building would not involve any activity that would directly or indirectly affect floodplains. For these reasons, the Proposed Action would have no impact on floodplains.
Wetlands	There are no wetlands within or in the vicinity of the proposed construction site for Building 4220. Operation of the building would not involve any activity that would directly or indirectly affect wetlands. For these reasons, the Proposed Action would have no impact on wetlands.
Cultural Resources	The two most recent archaeological surveys of MSFC were conducted in 2000 and 2005. Combined, these surveys covered the entire MSFC property. Based on the findings of these surveys, there are no archaeological sites within or in the vicinity of the proposed construction site for Building 4220. Construction and operation of Building 4220 would not involve demolition or modification of any existing structure at MSFC. The relevant procedures outlined in the MSFC Cultural Resources Management Plan would be implemented in the event that cultural materials are discovered during construction activities. These procedures provide for the protection, evaluation, and coordination of cultural materials in the event they are inadvertently discovered at MSFC. For these reasons, the Proposed Action would have no impact on cultural resources. The Proposed Action was coordinated with the Alabama State Historic Preservation Office (SHPO) through letter correspondence (see Appendix A). In a reply letter dated November 22, 2010, SHPO stated the following regarding the Proposed Action: "No archaeological or historic structure resources listed on or eligible for the National Register of Historic Places will be affected by this action. Therefore, we concur with this project" (see Appendix A).
Housing, Schools, and Recreation	There are no housing, schools, or recreational areas within or in the vicinity of the proposed construction site for Building 4220. Construction and operation of Building 4220 at MSFC would not require permanent personnel relocations or permanent employee hires. For these reasons, the Proposed Action would have no impact on housing, schools, or recreation.

TABLE 1-1
Resources Considered But Eliminated From Further Analysis
EA for Construction and Operation of Building 4220 at MSFC

Resource	Rationale
Environmental Justice and Protection of Children	<p>On February 11, 1994, the President issued EO 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. This EO requires federal agencies to address disproportionate environmental and human health impacts from federal actions on minority populations and low-income populations. The President directed all federal agencies to analyze the environmental effects of their actions on minority and low-income communities, including human health, social, and economic effects. MSFC implements an Environmental Justice Plan (updated in 2003) in accordance with the requirements of EO 12898 and NASA's agency-wide Environmental Justice Strategy. Guidelines for the protection of children are specified in EO 13045, Protection of Children from Environmental Health Risks and Safety Risk (Federal Register: 23 April 1997, Volume 62, Number 78). This EO requires that federal agencies make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children, and ensure that policies, programs, and standards address disproportionate risks to children that result from environmental health or safety risks.</p> <p>Construction and operation of Building 4220 would have only minor impacts on the resources most relevant for assessing impacts on human populations, which are air quality, noise, groundwater, surface water, and hazardous materials/wastes. The minor impacts that the Proposed Action would have on these resources would not adversely affect human populations. Therefore, the Proposed Action would not have disproportionately high or adverse human health or environmental effects on minority or low-income populations. The construction site for Building 4220 would be secured against unauthorized entry; therefore, the Proposed Action would not result in environmental health or safety risks to children.</p>
Rail and Water Transportation	<p>Construction and operation of Building 4220 at MSFC would not involve the use of rail or water transportation. There are no railroads or waterways within or in the vicinity of the proposed construction site for the building. For these reasons, the Proposed Action would have no impact on rail or water transportation.</p>
Aviation	<p>Construction and operation of Building 4220 at MSFC would not involve any mode of air transportation, and would not affect airspace or require coordination with airfield operations. Therefore, the Proposed Action would have no impact on aviation.</p>

SECTION 2

Description of the Proposed Action and Alternatives

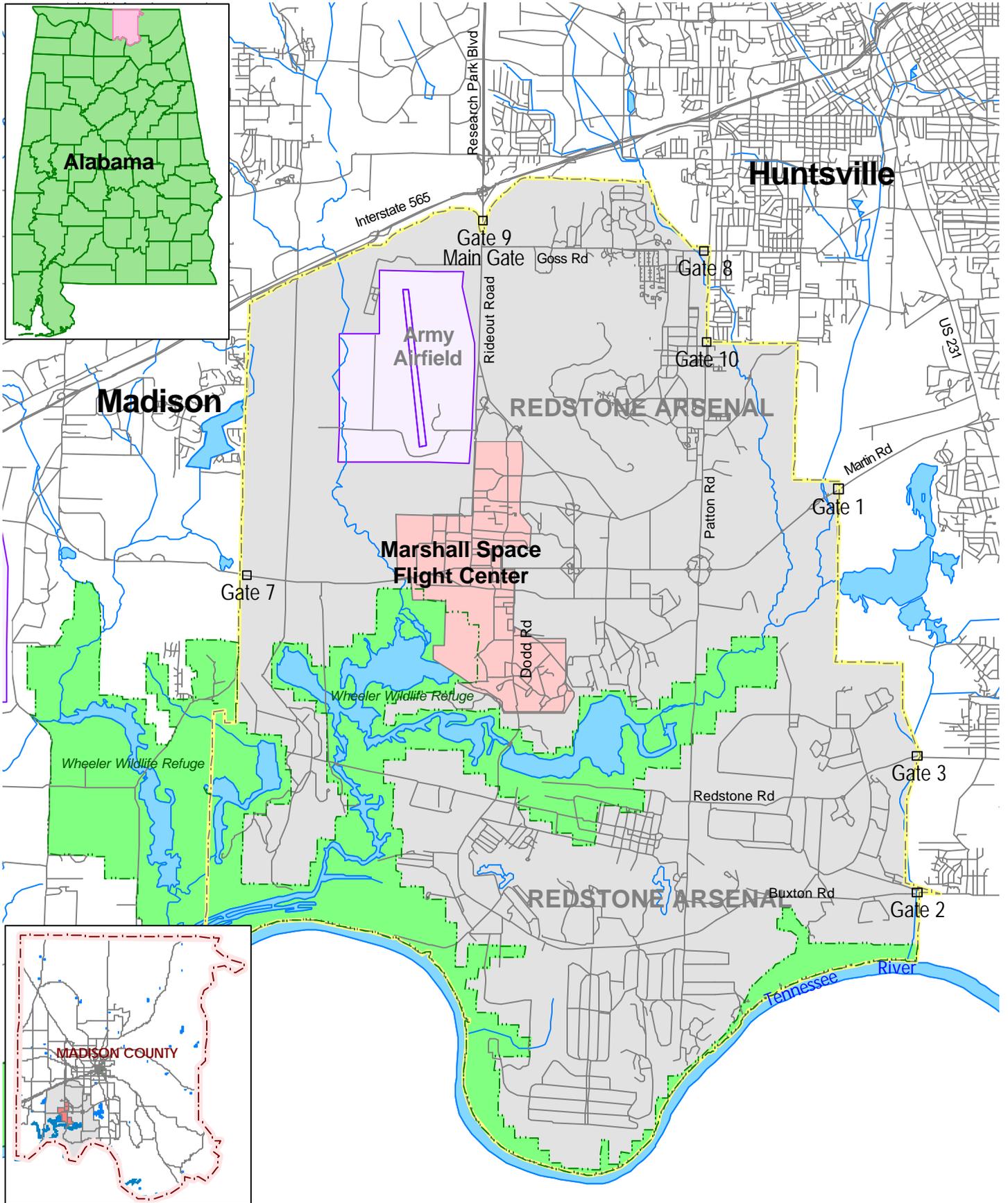
2.1 Description of the Proposed Action

The Proposed Action is to construct and operate Building 4220 at MSFC. MSFC is located in north-central Alabama on approximately 1,841 acres of property within the Army's Redstone Arsenal (RSA) (Figure 2-1). Under the Proposed Action, Building 4220 would be constructed on an existing parking lot in the 4200 Complex at MSFC (Figures 2-2 and 2-3). The proposed site plan for Building 4220 is presented as Figure 2-4. Detailed information on the site plan and design of the building is provided in the Final Project Criteria Document (PCD) that has been prepared for the project (NASA, 2010).

As shown on Figures 2-3 and 2-4, Building 4220 would be constructed on an existing parking lot located just south of Building 4203. The remaining portions of this parking lot would be converted into landscaped green space, except the northeastern portion which would be converted into a service turn-around area for Building 4203. Landscaped green space as well as a service road and handicap parking areas would be constructed on the eastern side of the Building 4220 footprint, which currently consists of sparse trees and mowed grass. The main entrance of Building 4220 would be located on the southern side of the building, and it would include a vehicular drop-off area. An existing parking lot located south of the Building 4220 footprint would serve as the primary parking area for building personnel. Additional parking may be constructed in the eastern part of the 4200 Complex under the Proposed Action if it is determined to be necessary based on further analysis (see Figure 2-3). The area where additional parking may be constructed is currently a maintained grassy field.

The construction footprint of Building 4220 has been located to minimize disturbance to existing underground utilities. The western boundary of the footprint is set by the primary underground electric service to Building 4203, which runs north/south through the middle of the westernmost aisle of the parking lot. The northern boundary of the footprint has been established based on a desired setback distance of 190 feet (ft) (58 meters) from the southern edge of Building 4203. Several underground utility lines that currently exist within the construction footprint of the building would be relocated or abandoned under the Proposed Action.

Based on the most recent design, Building 4220 would be five stories and approximately 147,104 gross square feet (sq ft) (13,666 gross sq meters), with the first floor being approximately 26,925 sq ft (2,501 sq meters). The building would be steel-framed and would have a composite floor system supported by steel columns that bear on steel H-piles. Interior features of the building would include an atrium, offices, conference rooms, break rooms, data/IT rooms, utility rooms/spaces, and a penthouse for rooftop mechanical equipment.



Drawn by: D. Scott Stevens

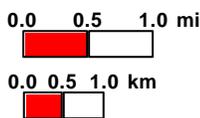
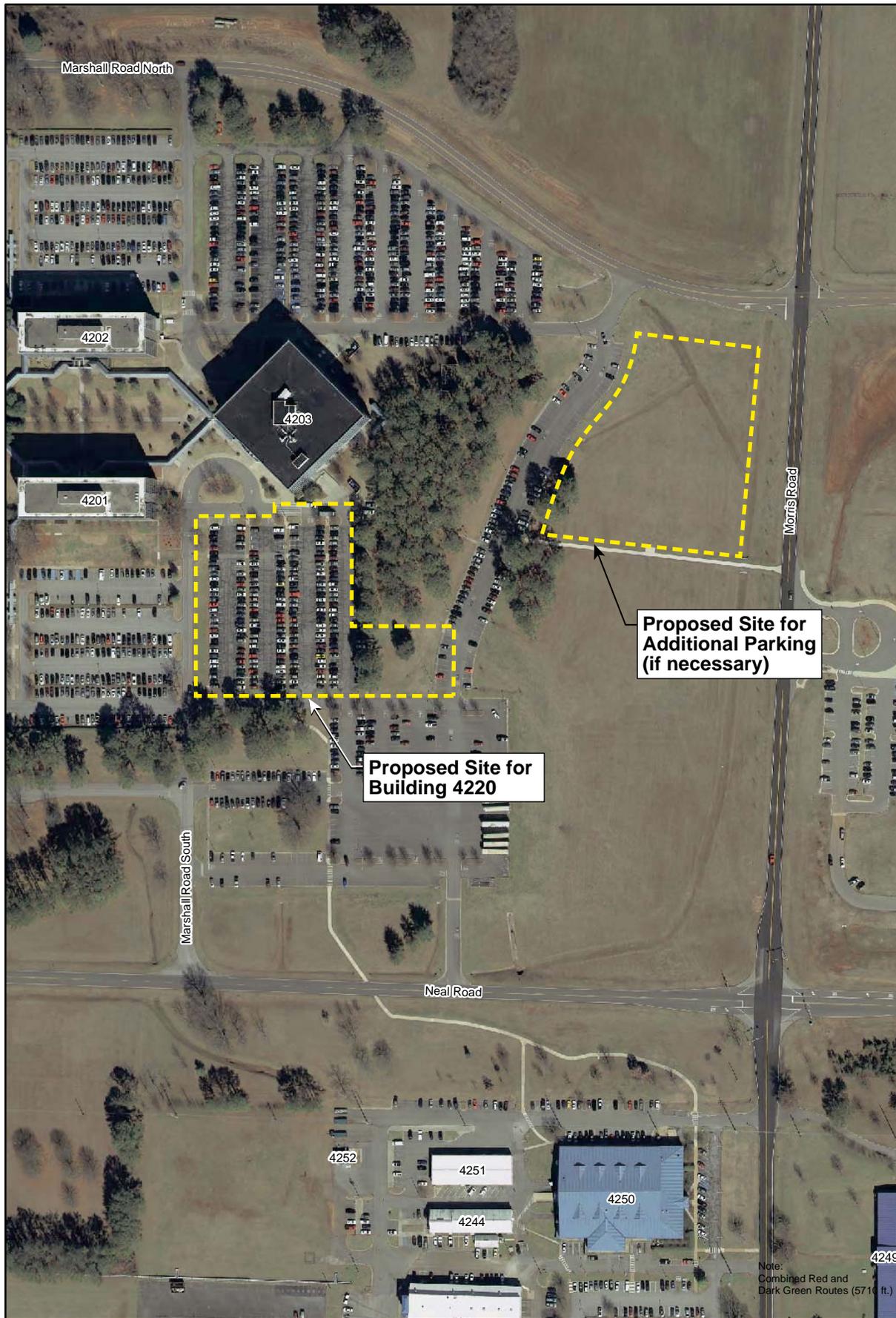


FIGURE 2-1
Marshall Space Flight Center
Location and Vicinity Map



Drawn by: D. Scott Stevens

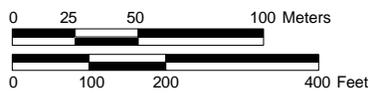


FIGURE 2-3
Location of Building 4220
Project Area



Source: Thomas, Miller, & Partners, PLLC

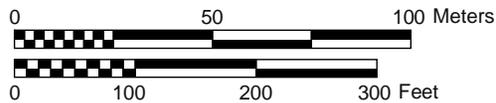


FIGURE 2-4
Proposed Site Plan for
Building 4220

Building 4220 would meet all NASA space utilization, NASA energy conservation, and ADA design standards. The building is being designed to obtain Leadership in Energy & Environmental Design (LEED) certification, which is an internationally recognized green building certification system. The proposed orientation of Building 4220 would optimize the amount and quality of daylight that the building receives. The exterior appearance and the massing of Building 4220 would be aesthetically compatible with the existing buildings in the 4200 Complex.

2.2 Alternatives to the Proposed Action

Under NEPA and 32 CFR Part 989 – Environmental Impact Analysis Process, this EA is required to address the potential environmental impacts of the Proposed Action, No-Action Alternative, and “reasonable” alternatives to the Proposed Action. Reasonable alternatives are those that meet the underlying purpose and need for the Proposed Action, are feasible from a technical and economic standpoint, and meet reasonable screening criteria (selection standards) that are suitable to a particular action. Screening criteria may include requirements or constraints associated with operational, technical, environmental, budgetary, and time factors. Alternatives that are determined to not be reasonable can be eliminated from detailed analysis in this EA.

2.2.1 Alternatives Eliminated from Detailed Analysis

Renovation of existing infrastructure within the 4200 Complex, use of other facilities at MSFC, and lease of offsite facilities were given consideration by NASA as potential alternatives to the Proposed Action. Renovation of either Building 4201 or 4202 within the 4200 Complex has been evaluated extensively by NASA as a potential alternative to new construction. Based on the analysis conducted, NASA concluded that this alternative would have much higher costs than the Proposed Action and would negatively impact administrative and project/program management office functions at MSFC. Renovation of both Building 4201 and 4202 would involve renovation of interior space; renovation/replacement of the mechanical, electrical, and HVAC systems; replacement of the exterior curtain walls; and abatement of the existing asbestos within the buildings. All building personnel would have to be relocated during the renovation period. Based on a cost analysis conducted by NASA, renovating Building 4202 would cost approximately \$23.4M more than replacing it with a new facility. Renovating Building 4201 is also expected to cost considerably more than replacing it with a new facility. Relocation of personnel during the renovation period would negatively impact administration and project/program management at NASA. Due to the interdependent relationships of the functions carried out in the buildings in the 4200 Complex, personnel in the complex need to be in close proximity to one another. Geographically separating a large number of personnel from the complex would create inefficiencies as well as impact employee morale. These impacts would be even greater if personnel were permanently relocated, either onsite or offsite. At present, there is no facility at MSFC that can accommodate the number of personnel who work in either Building 4201 or 4202. Therefore, this alternative would require personnel to be relocated into more than one facility, which would result in greater separation of staff. Moreover, this alternative, as well as the alternative of using an offsite lease facility, does not meet the purpose and intent of the Proposed Action, which is to correct inadequacies in

the existing infrastructure of the 4200 Complex. For these reasons, renovation without new construction, use of other facilities at MSFC, and lease of offsite facilities are not reasonable alternatives and are not carried forward for detailed analysis in this EA.

Facility siting and site layout considerations for Building 4220 within the 4200 Complex were based on the facility planning concepts presented in the 2003 MSFC Master Plan for the redevelopment of the complex and surrounding areas. Site options for building within the 4200 Complex are relatively limited due to the relevant constraints of the complex, which primarily are underground utilities and aboveground infrastructure. The proposed location of the construction footprint of Building 4220 would minimize disturbance to existing underground utilities and achieve required setback distances from other buildings in the complex. Constructing the building in a significantly different location within the complex would involve extensive utility relocations and would not meet building setback distance requirements. For these reasons, constructing Building 4220 in a significantly different location within the 4200 Complex is not a reasonable alternative and is not carried forward for detailed analysis in this EA.

2.2.2 No-Action Alternative

Under the No-Action Alternative, Building 4220 would not be constructed. The No-Action Alternative is analyzed in Section 4 as a baseline against which the Proposed Action can be compared.

SECTION 3

Affected Environment

This section describes the existing environmental conditions potentially affected by the Proposed Action. In compliance with NEPA, CEQ guidelines, and 32 CFR Part 651, et seq., the description of the affected environment focuses on those resources and conditions potentially subject to impacts.

3.1 Air Quality

The Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (USEPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. USEPA has established NAAQS for the following six principal pollutants, which are called criteria pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide. Areas that meet the air quality standard for the criteria pollutants are designated as being "in attainment." Areas that do not meet the air quality standard for one of the criteria pollutants may be subject to the formal rule-making process and designated as being "in nonattainment" for that standard. Areas that currently meet the air quality standard but previously were classified as nonattainment are "in maintenance" for that standard. The Huntsville/Madison County area is currently classified as being "in attainment" for all criteria pollutants stipulated under the NAAQS and is classified as a Class II air quality area.

MSFC is within an attainment area for all criteria pollutants. New or modified major stationary sources of air emissions at the Center are subject to Prevention of Significant Deterioration review to ensure that these sources are constructed without causing significant deterioration of regional air quality. 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. There are no major stationary sources of air emissions in the project area of the Proposed Action.

MSFC operates under an Alabama Department of Environmental Management (ADEM) Title V Air Quality Operating Permit (Permit No. 709-0014). As part of the Title V CAA Permit regulations, MSFC conducts an annual air emission inventory.

3.2 Noise

Noise, in the context of this EA, refers to sounds generated by activities that could affect residents outside RSA or wildlife. Human hearing is best approximated by using an A-weighted decibel scale (dBA). Psychologically, most humans perceive a doubling of sound as an increase of 10 dBA (USEPA, 1974).

Noise level is often expressed as day-night averaged sound level (Ldn), which is the dBA sound level over a 24-hour day and night period. The Ldn also applies a 10-dBA penalty to nighttime sounds occurring between 10 pm and 7 am to account for the desirability of a quieter night than day. The U.S. Department of Housing and Urban Development and the

U.S. Department of Defense define outdoor Ldn levels up to 65 dBA as acceptable for residences.

At present, the primary sources of noise at MSFC are hot gas testing and scale-model solid rocket motor (SRM) testing, both of which are conducted in the East Test Area. Hot gas testing involves propulsion of hydrogen and air, and it is conducted at a greater frequency than scale-model SRM testing. Past testing of liquid fuel engines in the Test Area have historically generated the highest noise levels of any activity at MSFC. There have been only three liquid engine tests at MSFC in the last 20 years and none are planned for the foreseeable future.

Based on data presented in the USEPA publication, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances* (USEPA, 1971), outdoor construction noise levels range from 78 dBA to 89 dBA, approximately 50 ft (15.2 m) from a typical construction site. Noise levels at 50 ft (15.2 m) from a source decrease by approximately 3 dBA over a hard, unobstructed surface (such as asphalt), and by approximately 4.5 dBA over a soft surface (such as vegetation). Table 3-1 presents typical noise levels (dBA at 50 ft [15.2 m]) estimated by USEPA for the main phases of outdoor construction.

TABLE 3-1
Typical Noise Levels For Outdoor Construction
EA for Construction and Operation of Building 4220 at MSFC

Construction Phase	Noise Level (dBA at 50 feet [15.2 meters] from source)
Ground Clearing	84
Excavation, Grading	89
Foundations	78
Structural	85
Finishing	89

dBA – decibel on the A-weighted scale
Source: USEPA, 1971

MSFC is located in the center of RSA, which provides an effective buffer zone between noise-producing activities at MSFC and the nearest residential area outside the Center, which are located within the Cities of Huntsville, Madison, and Triana. The nearest residential area to the Proposed Action project area is located approximately 2.86 miles (4.6 kilometers) to northeast.

3.3 Topography

MSFC's topography is gently rolling, with elevations ranging from 560 to 650 ft (171 to 198 meters) above mean sea level (msl). The lowest elevations at MSFC are associated with areas inundated by Wheeler Reservoir and with the tributaries of Wheeler Reservoir and Indian Creek that are located on the Center (MSFC, 2007). Most of MSFC has slopes of 1 to 10 percent. Some flatland in the northern part of MSFC has slopes less than 1 percent.

The project area of the Proposed Action generally slopes downward from the northwest to the southeast at slopes of 3 to 5 percent (NASA, 2010). There is an elevation change of approximately 7 ft (2.1 meters) across the construction footprint of Building 4220.

3.4 Soils

MSFC is covered mostly by soils of the Decatur-Cumberland-Abernathy Association (MSFC, 2007). These soils are generally well-drained, red, fertile, silty clays, silt-clay loams, and silt loams that are typically associated with level to gently rolling terrain.

The proposed construction footprint of Building 4220 is located on an existing parking lot (see Figures 2-3 and 2-4). This parking lot is paved and devoid of exposed surface soils. The project area of the Proposed Action also includes an area adjacent to the eastern side of the building footprint and potentially an area in the eastern part of the 4200 Complex. The surface soils in these areas are mostly covered by vegetation.

3.5 Geology and Hydrogeology

MSFC is underlain by the Tuscumbia Limestone of Mississippian Age (MSFC, 2007). The Tuscumbia consists primarily of thin to thick beds of coarsely crystalline, dark to light gray fossiliferous limestone, with some interbedded layers of gray chert. The average thickness of the Tuscumbia in Madison County is about 150 ft (45.7 m). The Tuscumbia Limestone is underlain by the Fort Payne Chert of Mississippian Age, which ranges from about 155 ft (47.2 m) to 185 ft (56.4 m) in thickness. The Fort Payne Chert is underlain by the Chattanooga Shale of Devonian Age, which is typically about 10 ft (3.1 m) thick but may be as much as 40 ft (12.2 m) thick in some areas.

The hydrogeology at MSFC is differentiated into three principal units: 1) residuum, 2) undifferentiated Tuscumbia Limestone and Fort Payne Chert (which comprise the Tuscumbia-Fort Payne Aquifer), and 3) Chattanooga Shale. The Chattanooga Shale is relatively impermeable and serves as a lower confining bed for the Tuscumbia-Fort Payne Aquifer.

The residuum is the surficial geologic unit at MSFC. This unit consists of silty clay material with variable amounts of chert rubble and boulders that were formed by the weathering of the underlying Tuscumbia Limestone. The thickness of the residuum generally ranges from about 10 ft (3.1 m) to 80 ft (24.4 m). Because the residuum is more permeable than the Chattanooga Shale, it acts as a groundwater reservoir that stores large amounts of water and releases it slowly into the underlying bedrock aquifer (Geological Survey of Alabama, 1975). Groundwater recharge in the residuum is almost exclusively from precipitation.

The Tuscumbia Limestone and the Fort Payne Chert form the Tuscumbia-Fort Payne Aquifer (Bossing and Harris, 1987). The Tuscumbia-Fort Payne is the primary aquifer in the region for water supply. This unit is composed of about 300 ft (91.4 m) to 330 ft (100.6 m) of fossiliferous and dolomitic limestone with occasional interbedded chert. The Tuscumbia-Fort Payne is a karst aquifer, where groundwater occurs within solution-enlarged fractures, joints, and bedding planes in the formation. Water enters the aquifer from the land surface through sinkholes and disappearing and losing streams. Because of this connection with the land surface, water levels in the aquifer respond quickly to rainfall. Although the potential

for recharge is high in areas of surface connection, the primary means of recharge for the aquifer is fairly uniform areal recharge from the groundwater reservoir of the overlying residuum (Geological Survey of Alabama, 1975).

The water table in the residuum generally emulates topography and is influenced by surface waters such as streams and springs. The horizontal component of the hydraulic gradient at MSFC slopes southward toward the Wheeler Reservoir and ultimately to the Tennessee River. The primary pathway for horizontal groundwater flow in the residuum is the chert rubble zone near the residuum and bedrock interface. The hydraulic conductivity of the rubble zone is generally higher than that of the more clayey portions of the upper residuum. In the vicinity of local surface waters, the residuum groundwater flows horizontally towards, and discharges to, the surface waters. With the absence of surface water influences, the horizontal component of the hydraulic gradient becomes negligible, leaving groundwater flow with a primary vertical component. As a result, the residuum groundwater primarily discharges downward into the bedrock aquifer.

In southwest Madison County, the general direction of groundwater flow within the Tuscumbia-Fort Payne Aquifer is southward toward the Tennessee River. The movement of groundwater within this aquifer is more comparable to pipe or conduit flow than to flow through a porous medium because of solution features within the formation. Flow generally is controlled by gravity and the complex interconnection of solution-enlarged fractures and bedding planes. Groundwater flow can be turbulent, with velocities in the aquifer varying from less than a few feet to several hundred feet per day, depending on the development of solution features. Groundwater from the Tuscumbia-Fort Payne Aquifer beneath MSFC discharges to several surface water features in the vicinity of RSA and MSFC, including Indian Creek, McDonald Creek, and the spring near the abandoned Industrial Waste Treatment Facility. These surface water features ultimately discharge to Wheeler Lake and to the Tennessee River. Throughout MSFC, the residuum and bedrock groundwater flow direction is primarily to the south, southeast, and southwest (MSFC, 2007). Groundwater flow direction remains fairly consistent between the wet and dry seasons; however, steeper gradients and greater groundwater velocities occur during the wet season.

3.6 Surface Water

The proposed construction site for Building 4220 is located within the Huntsville Spring Branch drainage basin, which drains into the Tennessee River (MSFC, 2007). Site stormwater drainage ultimately discharges to a tributary of Huntsville Spring Branch, which flows southward outside the eastern boundary of MSFC. Huntsville Spring Branch flows westward along the southern boundary of MSFC, merges with Indian Creek, and then flows southward into the Tennessee River, approximately 3 miles (4.8 kilometers) southwest of MSFC. There are no rivers in the vicinity of MSFC that are protected under the Wild and Scenic Rivers Act (MSFC, 2007).

There are no surface water bodies in the vicinity of the Proposed Action project area. The existing stormwater drainage system of the 4200 Complex consists primarily of underground drainage pipes that direct the stormwater to the south and southeast into aboveground swales and ditches on the perimeter of the Complex.

3.7 Vegetation

The proposed construction footprint of Building 4220 is located on an existing paved parking lot (see Figures 2-3 and 2-4). The only vegetation within this parking lot are a few landscaping trees located along its northern edge. The project area of the Proposed Action also includes an area adjacent to the eastern side of the building footprint and potentially an area in the eastern part of the 4200 Complex. The area adjacent to the eastern side of the building footprint currently consists of sparse pine and red cedar trees and mowed grass. The area where additional parking may be constructed is currently a maintained grassy field.

3.8 Wildlife

The Proposed Action project area and its surroundings provide minimal wildlife habitat. Most of the project area consists of a paved parking lot that provides no habitat for wildlife. The remaining portions of the project area include a vegetated area on the eastern side of the building footprint and potentially an area in the eastern part of the 4200 Complex. The area adjacent to the eastern side of the building footprint contains sparse trees and mowed grass. This area is part of a relatively small forested parcel that is entirely surrounded by development (see Figure 2-3). This parcel provides relatively low-quality wildlife habitat because it is small and surrounded by development. The area in the eastern part of the 4200 Complex is a maintained grassy field that is also entirely surrounded by developed land use. These two areas may be utilized by common wildlife species that typically occur in developed settings such as song birds, squirrels, raccoons, and mice.

3.9 Listed Species

Based on the 2006 RSA Endangered Species Management Plan, three federally listed species have been documented to occur on or near MSFC: the Alabama cave shrimp (*Palaemonias alabamiae*), which is federally listed as Endangered, Price's potato bean (*Apios priceana*), which is federally listed as Threatened, and the gray bat (*Myotis grisescens*), which is federally listed as Endangered (RSA, 2006). Two other federally listed species that have the potential to occur on or near MSFC are the American alligator (*Alligator mississippiensis*), which is federally listed as Threatened and the Indiana bat (*Myotis sodalis*), which is federally listed as Endangered. The American alligator is federally listed due to its "similarity of appearance" to the federally Endangered American crocodile and the Indiana bat is considered to be a transient species on RSA (RSA, 2006). None of these listed species has been documented to occur or is expected to potentially occur in or near the Proposed Action project area.

There are currently eight areas on RSA that are classified as ecologically sensitive areas (ESAs). Only one of these ESAs, the Williams Spring ESA, is located on MSFC. All of the ESAs on RSA are located relatively far from the Proposed Action project area. The nearest ESA, which is the Jaya Springs ESA, is located approximately 0.5 miles northwest of the project area.

3.10 Socioeconomics

The Huntsville Metropolitan Area (HMA) includes all of Madison and Limestone Counties. The Cities of Huntsville and Madison, both located in Madison County, are the two largest municipalities in the HMA. In 2000, the population of the HMA was 342,376 (U.S. Census Bureau, 2000). The population of the HMA was estimated to have grown to 386,632 in 2007, an increase of 12.9 percent since 2000 (U.S. Census Bureau, 2010). In 2000, the average household income in the HMA was \$55,343, per capita income was \$22,073, and the median age was 35.7 (U.S. Census Bureau, 2000). The total labor force of the HMA in 2006 was estimated to be 193,654 (U.S. Census Bureau, 2006).

During the past 50 years, the economy of the HMA has grown from agriculture and space-related industries to a diversified mix of manufacturing, testing, development, research, and support services. Cummings Research Park, located west of downtown Huntsville, is the second largest research park in the United States, encompassing 3,800 acres and employing 24,000 people. RSA is the largest employer in the HMA, followed by MSFC and the Huntsville Hospital System (Chamber of Commerce of Huntsville/Madison County, 2010).

As of April 2008, MSFC had more than 7,000 employees (NASA, 2010a). MSFC had a 2008 FY budget of \$2.6 billion and generated more than \$1 billion in economic impact for Alabama in FY 2008 (NASA, 2010a).

3.11 Public and Occupational Health and Safety

MSFC is operated in compliance with all applicable federal laws, codes, and regulations and with all applicable laws, ordinances, codes, and regulations of the State of Alabama and Madison County with regard to construction, health, safety, food service, water supply, sanitation, and licenses and permits to do business.

All contractors at MSFC are responsible for following all applicable Occupational Safety and Health Administration (OSHA) regulations and for conducting their work in a manner that does not pose any risk to workers or Center personnel. Industrial hygiene responsibilities of contractors as applicable include reviewing potentially hazardous workplaces; monitoring exposure to workplace chemicals (e.g., asbestos, lead, hazardous material), physical (e.g., noise propagation), and biological (e.g., infectious waste) agents; recommending and evaluating controls (e.g., ventilation, respirators) to ensure personnel are properly protected or unexposed; and ensuring a medical surveillance program is in place to perform occupational health physicals for those workers subject to any accidental chemical exposures or engaged in hazardous waste work.

The Medical Center at MSFC is located in Building 4249. This facility offers out-patient services only and provides emergency, therapeutic, preventive, and special medical and health services to MSFC employees and certain contractor personnel. Occupational medicine and environmental health services are provided at the Center under contract. Ambulance service is available any time by calling 911. The Medical Center maintains a staff of 21, including five industrial hygienists.

MSFC has an established physical security program for site facilities and operations. The Protective Services Office at MSFC is located in Building 4200. Protective security measures at

MSFC include the use of physical barriers, electro-mechanical intrusion detection systems, protective lighting, warning notification, identification and badge recognition, and automated access control capability. Contracted security officers patrol MSFC continuously and are in charge of locking and unlocking most MSFC buildings after hours. MSFC is an area of exclusive federal jurisdiction; therefore, state, county, and city police have no jurisdiction within MSFC.

Twenty-four-hour firefighting services, including hazardous materials response/mitigation and medical services, are provided to MSFC by four fire stations owned and operated by the Army, under an agreement that provides the Army with reimbursement. In the event of a fire at MSFC or RSA, all stations are alerted and respond. In addition to the firefighting services provided by the Army, MSFC has a mutual aid agreement with the City of Huntsville Fire Department for firefighting and hazardous materials assistance, as well as a working agreement with other local municipalities. All significant MSFC buildings are connected to a central fire alarm and reporting system. Each building has a fire alarm system that includes automatic smoke or heat detectors and manual pull stations.

3.12 Utilities

RSA obtains electrical power from the Tennessee Valley Authority (TVA). The primary supply is obtained from the 161 kilovolt (kV), 3-phase transmission systems of the TVA. MSFC is billed by RSA for all electrical power consumed. MSFC also has approximately 1,800-kV total capacity through several emergency generators for critical or special electrical circuits. RSA's main steam plant is the City of Huntsville Plant, Ogden Martin Systems. MSFC is supplied with steam from RSA's steam supply. Steam is provided by boiler plants and modular boilers located within MSFC buildings. The boiler plants are located in the Test Area and are used exclusively for heat and processes associated with test operations. RSA receives its natural gas supply from the City of Huntsville. Natural gas is routed through MSFC in a 12-inch pipeline.

The main source of potable and industrial water for RSA and MSFC is the Wheeler Reservoir of the Tennessee River. No water supply wells exist at MSFC. Potable and industrial water are stored using elevated steel tanks and steel and concrete standpipes. This equipment is capable of storing 1.9 million gallons (7.18 million liters) of potable water and 7.5 mg of industrial water. Domestic wastewater at MSFC is treated by Domestic Treatment and Collection System 3 which is operated by PDR Properties, Inc. and consists of 6-inch to 18-inch-diameter gravity sewers. There are four force main pumping stations serving RSA and ten lift stations serving MSFC. Effluent is discharged to the Tennessee River under the provisions of the current National Pollutant Discharge Elimination System (NPDES) permit held by PDR Properties, Inc. The majority of the industrial wastewater at MSFC is sent to the Industrial Wastewater Treatment Facility, which has a treatment capacity of 50,000 gallons (189,271 liters) per day.

Several underground utility lines exist within the Proposed Action project area, including chilled water, communications, electrical, and storm/sewer lines. Electrical and storm/sewer lines are the only utilities that exist within the construction footprint of Building 4220. The primary underground electric service to Building 4203 runs north/south outside the western boundary of the building footprint and chilled water lines run east/west north of the building footprint.

3.13 Solid Waste

Refuse and nonhazardous waste generated at MSFC are collected by the MSFC Custodial and Refuse Collection Services contractor and disposed of under the provisions of RSA's Support Agreement. "Acceptable" solid waste is incinerated at a refuse fired steam plant located on the eastern boundary of RSA. "Unacceptable" nonhazardous waste (construction waste, rubble, vegetation, and asbestos) excluded from the incinerator is disposed of at RSA's Construction Debris Landfill located south of Building 5678. This landfill is classified as a Construction/Demolition Landfill and is permitted to receive 300 average tons (272.2 metric tons) per day.

3.14 Traffic Flow

The road system within MSFC consists of primary, secondary, and tertiary roads. All primary roads are surfaced with asphaltic concrete. Many of the secondary roads have paving of bituminous plant mix or asphalt surface treatment. The tertiary roads generally are surfaced with gravel, and most of them are located in the Test Area. Maintenance of Martin, Marshall, Neal, Morris, Fowler, Rideout, and Dodd roads is provided by RSA as part of a support agreement with MSFC. RSA also is responsible for maintenance of the gates and bridges. MSFC is responsible for maintenance of all other roads and paved areas within its boundaries. Currently, all traffic to and from MSFC and RSA is routed through six gates. The Main Gate is Gate 9 on Rideout Road on the northern side of RSA.

Vehicular access to the Proposed Action project area is provided primarily by Neal Road and Marshall Road South (see Figure 2-3). The project area includes two existing parking lots. These parking lots are used primarily by personnel who work in Buildings 4201 and 4203, and by visitors to the cafeteria located in Building 4203. Additional parking areas are connected to the western and northern sides of the southern parking lot.

3.15 Hazardous Materials and Waste

3.15.1 Storage and Handling

A variety of hazardous materials are used at MSFC. Hazardous substances have been declared hazardous through federal listings including: Extremely Hazardous Substances (EHSs), listed in 40 CFR 355; those listed as hazardous if released, under CERCLA in 40 CFR 302.4; and by definition of hazardous chemicals by OSHA, in 29 CFR 1910.1200. In addition to these substances defined as hazardous, pesticides and sources of radiation are regulated.

Sections 311 and 312 of the Emergency Planning and Community Right-to-Know Act require any user to submit a report, known as a Tier II, annually for any substance that is present at MSFC in the following quantities:

- Greater than or equal to 10,000 pounds at any one time for a hazardous chemical; and
- Greater than or equal to 500 pounds or the Threshold Planning Quantity, whichever is less, at any time, for EHSs.

At present, no hazardous materials are stored or handled within or in the vicinity of the Proposed Action project area.

3.15.2 Waste Management

MSFC is classified according to federal and state regulations as a large quantity hazardous waste generator. MSFC generates more than 1,000 kilograms of hazardous waste each month. Federal regulations on hazardous waste are contained in 40 CFR Parts 260 to 279, and are a result of Subtitle C of the Resource Conservation and Recovery Act (RCRA), which requires a program to track hazardous waste from generation to storage to transportation to disposal.

NASA maintains a comprehensive inventory of all RCRA-defined hazardous wastes and controlled wastes not regulated by RCRA. The collection and management of hazardous waste data are the responsibility of the Environmental Support Contractor (ESC). MSFC has established hazardous and controlled waste accumulation site inspection guidelines that serve to monitor the accumulation activities of each generating activity throughout MSFC. Full drums of wastes are stored temporarily in the Hazardous Waste Storage Facility (HWSF). Within a 60- to 70-day time period, the ESC arranges for shipment of the containers to an appropriate Treatment, Storage, and Disposal Facility, so that MSFC is not subject to regulation under RCRA as a hazardous waste storage facility. All similar waste is combined within a consolidation area in the HWSF. Hazardous wastes are disposed offsite at several hazardous waste disposal facilities approved by USEPA. Wastes are transported from MSFC by licensed hazardous waste transporters. Special wastes generated at MSFC include asbestos, industrial waste, petroleum-contaminated soil and water from spill cleanup, and medical waste.

At present, hazardous waste management is not conducted or needed within or in the vicinity of the Proposed Action project area.

3.15.3 Contaminated Areas

In 1994, MSFC was placed on the National Priorities List, which requires compliance with CERCLA. In response, MSFC conducted a surface media Remedial Investigation (RI) for the entire property in 1999 to assess the nature and extent of contamination, to evaluate public health risks, and to screen potential remedial actions. Contaminated areas were divided into operable units (OUs). OUs were then divided among media: surface soil, subsurface soil, surface water, sediment, and groundwater.

A substantial portion of MSFC is underlain by groundwater that is contaminated by chlorinated solvents because of the prevalent use of these compounds in the past. Most of the contamination is located in the rubble zone of the residuum layer. The primary contaminants in the rubble zone plumes are the chlorinated volatile organic compounds (CVOCs): tetrachloroethene, trichloroethene (TCE), dichloroethene, vinyl chloride, carbon tetrachloride, chloroform, and 1,1,2,2-tetrachloroethane. The following five major contamination plumes have been identified at MSFC (NASA, 2001a):

- Northwest Plume
- Northeast Plume
- Central Plume
- Southwest Plume
- Southeast Plume

The 4200 Complex and the rest of MSFC's property north of Neal Road are not located within the boundary of any OU nor are they underlain by any of the chlorinated solvent plumes that are known to exist at MSFC (MSFC, 2007).

There are no sources of lead-based paint (LBP), asbestos-containing materials (ACMs), or polychlorinated biphenyls (PCBs) within the Proposed Action project area. No underground storage tanks (USTs) or aboveground storage tanks (ASTs) exist within the project area.

3.15.4 Ordnance

A considerable amount of ordnance was developed at RSA during World War II. As a result, RSA contains areas of ordnance and explosives contamination and potential contamination. The area that is now leased from RSA by MSFC has been surveyed for ordnance activity and disposal areas. Ordnance is defined collectively as Munitions and Explosives of Concern (MEC) and includes unexploded ordnance, ordnance that has exploded, and ordnance that does not have explosive potential. MEC is managed at RSA by RSA's Military Munitions Response Program (MMRP). The following five categories for MEC have been designated at RSA:

- Probability 1 - Frequent
- Probability 2 - Will occur several times during proposed site activities
- Probability 3 - Occasional
- Probability 4 - Seldom
- Probability 5 - Unlikely

The Proposed Action project area is located within an area that is designated as Probability 5 - Unlikely for MEC (MSFC, 2007).

SECTION 4

Environmental Consequences

This section provides a detailed analysis of the potential environmental consequences associated with the implementation of the Proposed Action and the No-Action Alternative. The magnitude of the impact of an action is considered regardless of whether the impact is adverse or beneficial. The following terms are used to describe the magnitude of impacts:

- No Impact: The action would not cause a detectable change.
- Negligible: The impact would be at the lowest level of detection; the impact would not be significant.
- Minor: The impact would be slight but detectable; the impact would not be significant.
- Moderate: The impact would be readily apparent; the impact would not be significant.
- Major: The impact would be clearly adverse or positive; the impact has the potential to be significant. The significance of adverse and positive impacts is subject to interpretation and should be determined based on the final proposal. In cases of adverse impacts, the impact may be reduced to less than significant by mitigation, design features, and/or other measures that may be taken.

4.1 Air Quality

4.1.1 Proposed Action

Construction activities under the Proposed Action would result in short-term, minor impacts to air quality. Fugitive dust (particulate matter) and construction vehicle exhaust emissions would be generated during construction and would vary daily, depending on the level and type of work conducted. Fugitive dust would be generated by construction vehicle and equipment travel on dirt surfaces and by wind action on stockpiled materials. The primary risks from blowing dust particles relate to human health and human nuisance values. Fugitive dust from stockpiled materials would consist primarily of nontoxic particulate matter; however, fugitive dust can contribute to respiratory health problems and create an inhospitable working environment. Deposition on surfaces can be a nuisance to those living or working downwind. Fugitive dust would be controlled at the site using best management practices (BMPs) such as the periodic watering of stockpiled material. Workers would be responsible for following all applicable OSHA regulations and guidelines pertaining to prevention of airborne releases of associated dust and to worker protection from associated dust.

Pollutants that would be emitted from the internal combustion engine exhausts of construction vehicles and equipment include carbon monoxide, nitrogen oxide, particulate matter, and volatile organic compounds. These types of exhaust emissions would be

temporary, and at their expected generation levels, would not significantly impact air quality.

Fugitive dust and exhaust emissions from construction activities would not collectively represent a new major source of air emission that would require modification to the Title V Air Permit under which MSFC operates. No major stationary source of air emissions would be operated in Building 4220. A radon collection system would be installed under the foundation of Building 4220 and it would be vented through the roof of the building.

Although no carbon dioxide (CO₂) ambient air quality standards exist, the CEQ recently released draft guidelines on what may classify a project's greenhouse gas emissions as meaningful. According to the CEQ guidelines, a quantitative and qualitative assessment may be meaningful if the project's direct emissions are greater than 25,000 metric tons of CO₂-equivalent (CEQ, 2010). The CO₂ emissions that would be generated during construction of Building 4220 would be much lower than 25,000 metric tons of CO₂-equivalent. Therefore, the Proposed Action would have a negligible contribution to greenhouse gas emissions.

For these reasons, the Proposed Action would have a minor impact on air quality.

4.1.2 No-Action Alternative

Under the No-Action Alternative, Building 4220 would not be constructed. Therefore, the No-Action Alternative would have no impact on air quality.

4.2 Noise

4.2.1 Proposed Action

Construction activities under the Proposed Action would temporarily increase ambient noise levels in and around the project area. The increased noise levels would be intermittent and limited to normal working hours and the overall construction period. Construction workers would use hearing protection and would follow OSHA standards and procedures.

As discussed in Section 3.2, typical construction work generates noise levels in the range of 78 to 89 dBA approximately 50 ft (15.2 m) from the construction area (USEPA, 1971). Noise levels at 50 feet (15.2 meters) from a source are estimated to decrease by approximately 3 dBA over a hard, unobstructed surface (such as asphalt), and by approximately 4.5 dBA over a soft surface (such as vegetation). Based on these estimates of noise dissipation, noise generated during construction activities under the Proposed Action would not be audible in the nearest residential area, which is located approximately 2.86 miles (4.6 kilometers) northeast of the project area. Building 4220 would be used as an office building; therefore, its operation would generate negligible noise levels. Potential noise impacts on wildlife are discussed in Section 4.8.

For these reasons, the Proposed Action would have a minor noise impact.

4.2.2 No-Action Alternative

Under the No-Action Alternative, Building 4220 would not be constructed. Therefore, the No-Action Alternative would have no noise impact.

4.3 Topography

4.3.1 Proposed Action

As discussed in Section 3.3, the elevation across the construction footprint of Building 4220 decreases by approximately 7 ft (2.1 meters) from the northwest to the southeast. As a result, engineered fill may be required to raise the subgrade at the site, depending on the final finished floor elevation (NASA, 2010). The potential use of fill and associated land contouring that would be conducted to achieve the desired grades at the site would alter the existing topography of the site; however, the overall change in topography would be relatively minor. Operation of Building 4220 would not involve any activity that would affect topography in any manner.

For these reasons, the Proposed Action would have a minor impact on topography.

4.3.2 No-Action Alternative

Under the No-Action Alternative, Building 4220 would not be constructed. Therefore, the No-Action Alternative would have no impact on topography.

4.4 Soils

4.4.1 Proposed Action

Construction activities under the Proposed Action would directly impact soils. Most of the construction site is an existing paved parking lot that is devoid of exposed surface soils. After the existing pavement within the parking lot is removed, the site would be graded to the desired elevations. As discussed in Section 4.3.1, engineered fill may be added to the site to achieve the desired grades. Most of the parking lot area outside the building footprint would be converted into landscaped green space. Therefore, there would be a net decrease in pavement surface area within the parking lot area under the Proposed Action. Construction of a service road and handicap parking areas on the eastern side of the building footprint and potential construction of additional parking in the eastern part of the 4200 Complex would involve placing pavement over surface soils. Although the total increase in pavement surface area in these areas cannot be quantified at this time, it is expected to be less than the decrease in pavement surface area that would result from the creation of green space outside the building footprint. Operation of Building 4220 would not involve any activity that would affect soils in any manner.

Appropriate BMPs and erosion/sedimentation controls would be implemented during the construction period to minimize potential indirect impacts to surrounding soils. MSFC would obtain an ADEM NPDES stormwater construction permit and would implement an associated Construction Best Management Practices Plan (CBMPP). The BMPs and

erosion/sedimentation controls that would be implemented for the project would be discussed in the CBMPP.

For these reasons, the Proposed Action would have a minor impact on soils.

4.4.2 No-Action Alternative

Under the No-Action Alternative, Building 4220 would not be constructed. Therefore, the No-Action Alternative would have no impact on soils.

4.5 Geology and Hydrogeology

4.5.1 Proposed Action

Building 4220 would have a concrete slab foundation that is underlain by a free-draining granular subbase and moisture vapor barrier (NASA, 2010). The foundation would be anchored by steel pilings that would extend down to the upper surface of the bedrock, which is approximately 48 to 51 feet below land surface at the proposed construction site. The installation of these steel pilings would be the only activity under the Proposed Action that would involve appreciable intrusion into subsurface geological formations. Site clearing, grading, utility relocation, stormwater drainage/retention system installation, landscaping, irrigation system installation, service road construction, handicap parking area construction, and potential construction of additional parking under the Proposed Action would not extend more than a few feet below land surface and, therefore, would have negligible impacts on subsurface geology. Installation of the steel pilings to anchor the foundation of Building 4220 would have a minor impact on the residuum layer and the underlying bedrock layer. The steel pilings would extend through the residuum and may be installed a few feet into the underlying bedrock, depending on the final design. This type of foundation anchoring method is commonly used in building construction and would have no adverse effects on the subsurface geology or hydrogeology.

The past usage of steel pilings to anchor building foundations at MSFC has not caused groundwater to discharge to the surface. If groundwater discharges to the surface during installation of pilings to anchor the foundation of Building 4220, it would be appropriately managed by the construction contractor in coordination with the MSFC Environmental Engineering and Occupational Health (EEOH) Office. Groundwater occurs on average at depths greater than 30 feet below land surface in the 4200 Complex. Therefore, groundwater is not expected to be encountered during the other construction activities that would be conducted under the Proposed Action, given that these activities would not extend more than a few feet below land surface. If groundwater is encountered during these activities, it would be appropriately managed by the construction contractor in coordination with the MSFC EEOH Office. Management of groundwater during construction activities under the Proposed Action is discussed further in Section 4.14.1. Operation of Building 4220 would not involve any activity that would affect geology or hydrogeology in any manner.

For these reasons, the Proposed Action would have a minor impact on geology and hydrogeology.

4.5.2 No-Action Alternative

Under the No-Action Alternative, Building 4220 would not be constructed. Therefore, the No-Action Alternative would have no impact on geology or hydrogeology.

4.6 Surface Water

4.6.1 Proposed Action

The stormwater drainage system for Building 4220 would consist of storm drain inlets and underground drainage pipes that would direct stormwater to the south and southeast into existing aboveground swales and ditches on the perimeter of the 4200 Complex. The underground piping would be constructed of reinforced concrete and would be designed to accommodate the runoff volume generated by a 25-year storm event. The grades for the site would be set to minimize the potential for flooding around the building. The grades along the northern and western sides of the building would direct excess stormwater to the east and south, respectively, in the event that the storm drain inlets in these areas fail or become clogged. The stormwater drainage system that would be constructed for the building would not require modifications, other than connections, to the existing drainage system located outside the project area. NASA has determined that the existing system would be able to accommodate the additional stormwater runoff volume that the additional impervious area would generate.

The stormwater treatment system for Building 4220 would meet the standards of NASA and Section 438 of the Energy Independence and Security Act for the removal of 80 percent of total suspended solids and the treatment of 90 percent of the runoff from the project site. The treatment system is expected to include a dry stormwater retention area and an oil/water separator on the project site. Treated runoff is expected to be collected in an underground cistern and reused in the site's irrigation system.

Appropriate BMPs and erosion/sedimentation controls would be implemented during the construction period to minimize potential indirect impacts to surface waters outside the project area. MSFC would obtain an ADEM NPDES stormwater construction permit and would implement an associated CBMPP. The BMPs and erosion/sedimentation controls that would be implemented for the project would be discussed in the CBMPP. Operations that would be conducted in Building 4220 would not affect surface water in any manner.

The Proposed Action was coordinated with ADEM through letter correspondence (see Appendix A). In a reply letter dated November 15, 2010, ADEM provided the following comments on the Proposed Action: "Although the Department has no comment at the current time, we would like to point out that Huntsville Spring Branch is currently impaired for Pesticides (DDT) and Metals (Arsenic and Mercury). As you are probably aware, construction activities in Alabama may be subject to permitting under the Department's Construction Stormwater program" (see Appendix A). MSFC acknowledges ADEM's comments and will design and construct Building 4220 to meet all ADEM stormwater attenuation and treatment requirements and standards. During project construction, MSFC will comply with all applicable permitting requirements under ADEM's Construction Stormwater program.

For these reasons, the Proposed Action would have a minor impact on surface water.

4.6.2 No-Action Alternative

Under the No-Action Alternative, Building 4220 would not be constructed. Therefore, the No-Action Alternative would have no impact on surface water.

4.7 Vegetation

4.7.1 Proposed Action

Construction of Building 4220 under the Proposed Action would not impact vegetation because none exists within the portion of the parking lot where the building would be constructed. The portions of the parking lot outside the building footprint would be converted into landscaped green space, except the northeastern portion which would be converted into a service turn-around area for Building 4203. The existing vegetation within the area adjacent to the eastern side of the building footprint would be displaced by a service road, handicap parking areas, and landscaping vegetation (see Figures 2-3 and 2-4). This area currently contains sparse pine and red cedar trees and mowed grass. Potential construction of additional parking under the Proposed Action would displace mowed grass. The overall impact that the Proposed Action would have on existing vegetation would be minor. The vegetated areas that would be impacted consist only of sparse trees and mowed grass. Moreover, the removal of vegetation for the service road and handicap parking areas and potentially for additional parking would be offset by the addition of vegetation in the proposed green space areas. The landscaping plan for the project would utilize trees, shrubs, and herbaceous plants that are indigenous to the region to provide a sustainable native environment. The landscaping plan will meet the minimum 3:1 native to non-native planting ratio per U.S. Army Garrison Policy 200-6 implemented at RSA, and it will not include any species that is on the RSA "Do Not Plant" list. An efficient, automated irrigation system would be used to water the landscaped areas. The system would include an underground cistern that collects treated stormwater runoff and rainwater from the building roof drains. Operation of Building 4220 would not affect vegetation in any manner.

For these reasons, the Proposed Action would have a minor impact on vegetation.

4.7.2 No-Action Alternative

Under the No-Action Alternative, Building 4220 would not be constructed. Therefore, the No-Action Alternative would have no impact on vegetation.

4.8 Wildlife

4.8.1 Proposed Action

As discussed in Section 3.8, the Proposed Action project area and its surroundings provide minimal, low-quality habitat for wildlife. Building 4220 would not displace any wildlife habitat because it would be constructed in an existing paved parking lot. Most of the parking lot area outside the building footprint would be converted into landscaped green space under the Proposed Action. The created green space would consist of trees, shrubs,

and herbaceous plants that are indigenous to the region and, therefore, would provide some habitat for common wildlife species. The vegetated area adjacent to the eastern side of the building footprint would be displaced by a service road, handicap parking areas, and landscaping vegetation under the Proposed Action. This area and the forested parcel that it is connected to, consists of sparse trees and mowed grass. These areas are small and surrounded by development; therefore, they provide relatively low-quality habitat for wildlife. Additional parking may be constructed in the eastern part of the 4200 Complex under the Proposed Action. The area where additional parking space may be constructed is currently a grassy field that is surrounded by development; therefore, it provides relatively low-quality wildlife habitat. The overall impact that the Proposed Action would have on wildlife habitat would be minor. The vegetated areas that would be impacted consist only of sparse trees and mowed grass, and provide habitat only for common wildlife species that are adapted to developed settings. Moreover, the removal of vegetation for the service road and handicap parking areas and potentially for additional parking would be offset by the addition of vegetation in the proposed green space areas.

Noise generated during construction activities may temporarily disturb wildlife species that utilize the project area and its surroundings. Any disturbance experienced by wildlife species would be limited to the construction period and is expected to be relatively minor. Wildlife species that utilize these areas are adapted to human activity within the 4200 Complex as well as to noise levels generated by test activities at MSFC, which can exceed those that would be generated during construction activities. The potential for incidental animal mortality occurring during construction is considered to be very low. Operation of Building 4220 would not affect wildlife in any manner.

For these reasons, the Proposed Action would have a minor impact on wildlife.

4.8.2 No-Action Alternative

Under the No-Action Alternative, Building 4220 would not be constructed. Therefore, the No-Action Alternative would have no impact on wildlife.

4.9 Listed Species

4.9.1 Proposed Action

As discussed in Section 3.9, three federally listed species have been documented to occur on or near MSFC: the Alabama cave shrimp, Price's potato bean, and the gray bat. Two other federally listed species that have the potential to occur on or near MSFC are the American alligator and the Indiana bat. None of these listed species has been documented to occur or is expected to potentially occur in or near the Proposed Action project area. There are currently eight areas on RSA that are classified as ESAs. Only one of these ESAs, the Williams Spring ESA, is located on MSFC. All of the ESAs on RSA are located relatively far from the Proposed Action project area. The nearest ESA, which is the Jaya Springs ESA, is located approximately 0.5 miles northwest of the project area. The Bobcat Cave ESA is the only area on RSA where the Alabama cave shrimp has been found. The only other known population of the Alabama cave shrimp in Madison County, Alabama is located well outside the RSA boundary. The Madkin-Weeden Mountain ESA is the only area on RSA

where Price's potato bean has been found. The only other known population of Price's potato bean in Madison County, Alabama is located well outside the RSA boundary. The Swan Pond-Bradford Sinks ESA has been designated by RSA as an ESA for the gray bat. No gray bat colonies have been found within any of the caves on RSA; however, the gray bat has been recorded in two locations on RSA. Potential gray bat foraging habitat exists approximately 0.25 miles from the project area.

The Proposed Action project area and its surroundings do not provide suitable habitat for any listed species. Therefore, construction of Building 4220 and the proposed ancillary development are not expected to directly impact listed species or listed species habitat. The proposed removal of minor amounts of sparse trees and mowed grass under the Proposed Action is expected to have no impact on gray bat foraging habitat or gray bat migration. The Proposed Action is also not expected to indirectly impact the groundwater, surface water, or wetlands/springs that occur in any ESA. As discussed in Section 4.5.1, little or no groundwater is expected to be encountered during construction of Building 4220 and no groundwater is expected to be encountered during the other construction activities that would be conducted under the Proposed Action. As discussed in Section 4.6.1, the stormwater treatment system for Building 4220 would meet the standards of NASA and Section 438 of the Energy Independence and Security Act for the removal of 80 percent of total suspended solids and the treatment of 90 percent of the runoff from the project site. Appropriate BMPs and erosion/sedimentation controls would be implemented during the construction period to minimize potential indirect impacts to surface waters outside the project area. Noise generated during construction activities is not expected to disturb listed species due to the distances of known listed species locations from the project area and the lack of suitable listed species habitat in and near the project area. Operation of Building 4220 would not affect listed species or listed species habitat in any manner.

For these reasons, the Proposed Action would have no impact on listed species.

4.9.2 No-Action Alternative

Under the No-Action Alternative, Building 4220 would not be constructed. Therefore, the No-Action Alternative would have no impact on listed species.

4.10 Socioeconomics

4.10.1 Proposed Action

Construction of Building 4220 under the Proposed Action would not require permanent personnel relocations or employee hires. Contractors would conduct the work and existing MSFC personnel would oversee the contractors. Building 4220 would be operated by existing MSFC personnel. Therefore, the Proposed Action would not permanently change the number of persons working at MSFC or living in the local area.

Construction work associated with the Proposed Action would have a minor, short-term, positive impact on the local economy. Direct expenditures for construction-related materials would benefit local suppliers and secondary spending by workers would benefit businesses near MSFC such as gas stations and restaurants. Construction work would have a negligible impact on the total labor force and employment in the region as a result of the small number

of jobs that would be created. Any increase in employment would be temporary and relatively small.

The Proposed Action would allow NASA to eliminate the costs associated with maintaining and operating Building 4202. The addition of Building 4220 to the 4200 Complex would increase operational functionality and reduce facility maintenance and utility costs within the complex. Therefore, the Proposed Action would contribute to NASA's ability to operate its overall infrastructure more cost effectively within a constrained budget.

For these reasons, the Proposed Action would have a minor positive impact on socioeconomics.

4.10.2 No-Action Alternative

Under the No-Action Alternative, Building 4220 would not be constructed. NASA would continue to incur the high costs and operational inefficiencies associated with maintaining and operating Building 4202. Therefore, the No-Action Alternative would have a minor negative impact on NASA's ability to operate its overall infrastructure more cost effectively within a constrained budget.

4.11 Public and Occupational Health and Safety

4.11.1 Proposed Action

Under the Proposed Action, there is the potential for worker accidents to occur during construction activities as a result of routine workplace exposure to heavy equipment and debris. To minimize the potential for accidents, workers would wear and use appropriate protective equipment and would follow all applicable OSHA standards and procedures. Job Safety Assessments would be prepared, and workers would review and sign these documents before working on the job site. Construction contractors would be responsible for ensuring that all their employees (and subcontractors) comply with all applicable OSHA regulations and for conducting their work in a manner that does not pose any risk to themselves or to MSFC personnel. Provided that all appropriate worker protection measures are taken and all applicable OSHA regulations and guidelines are followed, the potential for safety and occupational health impacts under the Proposed Action would be low. Site safety measures that may be implemented at the site would be determined during project design.

As discussed in Section 4.9.1, the Proposed Action would not permanently increase the number of personnel at MSFC. Therefore, the demand for medical, police, and fire-fighting services at MSFC would remain at current levels under the Proposed Action. Building 4220 would be used as an office building; therefore, there would be a relatively low potential for safety and occupational health impacts to occur during its operation.

For these reasons, the Proposed Action would have a minor impact on public and occupational health and safety.

4.11.2 No-Action Alternative

Under the No-Action Alternative, Building 4220 would not be constructed. Therefore, the No-Action Alternative would have no impact on public and occupational health and safety.

4.12 Utilities

4.12.1 Proposed Action

Construction of Building 4220 under the Proposed Action would involve installation of new utility systems and relocation and abandonment of some existing underground utility lines. Several underground utility lines that currently exist within the construction footprint of the building would be relocated. Specifically, existing storm/sewer lines that run north/south through the footprint and serve Building 4203 would be relocated to the eastern side of Building 4220. Chilled water supply and return lines that run east/west outside the northern boundary of the footprint would not be affected by the Proposed Action. Site grading for landscaping would be limited to the burial depth of these and potentially other utility lines. The western boundary of the footprint of Building 4220 has been set to avoid the primary underground electric service to Building 4203, which runs north/south through the middle of the westernmost aisle of the parking lot.

Building 4220 would be much more energy efficient than Building 4202, the building which it eventually would replace. Therefore, the Proposed Action would decrease energy consumption (primarily electricity usage) at MSFC. As discussed in Section 4.9.1, Building 4220 would be operated by existing MSFC personnel. Therefore, potable water consumption and domestic wastewater generation at MSFC would remain at current levels under the Proposed Action. Operation of Building 4220 would not generate any process/industrial wastewater.

For these reasons, the Proposed Action would have a minor impact on utilities.

4.12.2 No-Action Alternative

Under the No-Action Alternative, Building 4220 would not be constructed. Therefore, the No-Action Alternative would have no impact on utilities.

4.13 Solid Waste

4.13.1 Proposed Action

Construction of Building 4220 under the Proposed Action would generate nonhazardous, construction-related solid waste such as construction debris, rubble, and stripped vegetation. Construction solid waste would be disposed of at RSA's Construction Debris Landfill located south of Building 5678. As discussed in Section 4.9.1, Building 4220 would be operated by existing MSFC personnel. Therefore, refuse solid waste generation at MSFC would remain at current levels under the Proposed Action.

For these reasons, the Proposed Action would have a minor impact on solid waste.

4.13.2 No-Action Alternative

Under the No-Action Alternative, Building 4220 would not be constructed. Therefore, the No-Action Alternative would have no impact on solid waste.

4.14 Traffic Flow

4.14.1 Proposed Action

Building 4220 would be constructed on the existing parking lot located just south of Building 4203 (see Figure 2-4). The remaining portions of this parking lot would be converted into landscaped green space, except the northeastern portion which would be converted into a service turn-around area for Building 4203. A service road and handicap parking areas for Building 4220 would be constructed on the eastern side of the building footprint. A vehicular drop off area for Building 4220 would be constructed on the southern side of the building. The existing parking lot located south of the Building 4220 footprint would serve as the primary parking area for building personnel. Additional parking may be constructed in the eastern part of the 4200 Complex if it is determined to be necessary based on further analysis.

The Proposed Action would not alter the traffic patterns around the 4200 Complex. Vehicles would continue to access this part of the complex primarily from the south and east after Building 4220 is constructed. The Proposed Action would eliminate the parking space provided by the existing parking lot located just south of Building 4203. Based on a parking analysis conducted by NASA, sufficient parking space for personnel is available in the existing parking lot south of the Building 4220 footprint and the parking areas that are connected to this lot. The parking space needs of the area are being evaluated further in conjunction with the project design. If additional parking space is determined to be necessary, additional parking may be constructed in the eastern part of the 4200 Complex under the Proposed Action.

As discussed in Section 4.9.1, the Proposed Action would not permanently change the number of persons working at MSFC or living in the local area. Therefore, there would be no permanent change in traffic levels at MSFC or in the local area under the Proposed Action. Construction activities under the Proposed Action would temporarily increase traffic at MSFC and in the local area. The projected increase in traffic is expected to be minor and traffic levels would return to current levels after the construction work is completed.

For these reasons, the Proposed Action would have a minor impact on traffic flow.

4.14.2 No-Action Alternative

Under the No-Action Alternative, Building 4220 would not be constructed. Therefore, the No-Action Alternative would have no impact on traffic flow.

4.15 Hazardous Materials and Wastes

4.15.1 Proposed Action

As discussed in Section 3.14, the 4200 Complex and the rest of MSFC's property north of Neal Road are not located within the boundary of any OU nor are they underlain by any of the chlorinated solvent plumes that are known to exist at MSFC. Although the groundwater within the Proposed Action project area is not expected to be contaminated, any groundwater that is encountered during construction activities would be managed as if it was potentially contaminated. As discussed in Section 4.5.1, groundwater is not expected to be encountered during installation of pilings to anchor the foundation of Building 4220 or during the other construction activities that would be conducted under the Proposed Action. In the event that groundwater discharges to the surface or requires handling during construction, e.g., if dewatering is performed, it would be appropriately managed by the construction contractor in coordination with the MSFC EEOH Office and in accordance with all local, state, and federal laws and regulations, as well as with all applicable MSFC management plans and pollution prevention measures. The groundwater would be containerized and then tested to determine if it contains CVOCs or any other contaminants. If the groundwater is determined to be contaminated, it would be properly disposed of at a licensed offsite disposal facility. If the groundwater is not contaminated, it would be released onsite.

There are no sources of LBP, ACMs, or PCBs within the Proposed Action project area; therefore, construction of Building 4220 would not require management of these materials. Operation of Building 4220 would not require the use of USTs or ASTs. After Building 4220 is constructed, no hazardous materials or wastes would be stored or handled and no hazardous wastes would be generated at the site. The project area is located within an area that is designated as Probability 5 – Unlikely for MEC. Based on the location of the project area, a MEC sweep is not expected to be necessary prior to construction activities.

For these reasons, the Proposed Action would have a minor impact on hazardous materials and wastes.

4.15.2 No-Action Alternative

Under the No-Action Alternative, Building 4220 would not be constructed. Therefore, the No-Action Alternative would have no impact on hazardous materials and wastes.

4.16 Cumulative Impacts

4.16.1 Proposed Action

A "cumulative impact" is defined in 40 CFR 1508.7 as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions." Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The Proposed Action would occur entirely within the boundaries of MSFC and would have little potential to interact with any private sector actions in the surrounding area. Based on planning schedules, one or more of the Center development projects identified in the 2003 MSFC 20-Year Facilities Master Plan may be implemented during the same time that the Proposed Action is implemented (NASA, 2003a). The majority of the foreseeable development projects at MSFC would involve construction/demolition for facilities, utilities, and other infrastructure in existing developed areas and, therefore, would have environmental impacts similar to those expected under the Proposed Action, such as temporary increases in noise, air emissions, and traffic. The planned development projects that have the potential to be implemented during the same time that the Proposed Action is implemented would occur outside the 4200 Complex; therefore, there is little potential for adverse cumulative impacts on noise or air emissions to occur if the Proposed Action coincides with one or more of the planned projects. The planned projects associated with redevelopment of the 4200 Complex would be phased over several years following the Proposed Action and, therefore would not occur at the same time as the Proposed Action. There is the potential for heavy traffic to occur if two or more construction/demolition projects are implemented at the same time; however, the cumulative impact would be temporary and could be minimized by making most or all MSFC access gates and routes available during the work period. Because the sites where the planned projects and the Proposed Action would occur are already mostly developed, adverse cumulative impacts to soils, vegetation, or habitat would not occur.

The combined effect of the Proposed Action and foreseeable development projects at MSFC, regardless of their timing, would have positive cumulative impacts on the local economy resulting from short-term, temporary increases in employment and expenditures. The combined effect of the Proposed Action and the other planned projects associated with redevelopment of the 4200 Complex would have positive cumulative impacts on NASA's finances and ability to adequately carry out administrative functions at MSFC in support of its current and future missions.

For these reasons, the Proposed Action would have minor cumulative impacts.

4.16.2 No-Action Alternative

Under the No-Action Alternative, Building 4220 would not be constructed. Therefore, the No-Action Alternative would have no adverse cumulative impacts.

SECTION 5

Summary of Environmental Consequences and Conclusions

5.1 Summary of Environmental Consequences

The potential environmental consequences of the Proposed Action and No-Action Alternative are summarized in Table 5-1.

TABLE 5-1
 Summary Of Environmental Consequences
EA for Construction and Operation of Building 4220 at MSFC

Resource	Proposed Action	No-Action Alternative
Air Quality	MINOR IMPACT	NO IMPACT
Noise	MINOR IMPACT	NO IMPACT
Topography	MINOR IMPACT	NO IMPACT
Soils	MINOR IMPACT	NO IMPACT
Geology and Hydrogeology	MINOR IMPACT	NO IMPACT
Surface Water	MINOR IMPACT	NO IMPACT
Vegetation	MINOR IMPACT	NO IMPACT
Wildlife	MINOR IMPACT	NO IMPACT
Listed Species	NO IMPACT	NO IMPACT
Socioeconomics	MINOR IMPACT	MINOR IMPACT
Public and Occupational Health and Safety	MINOR IMPACT	NO IMPACT
Utilities	MINOR IMPACT	NO IMPACT
Solid Waste	MINOR IMPACT	NO IMPACT
Traffic Flow	MINOR IMPACT	NO IMPACT
Hazardous Materials and Wastes	MINOR IMPACT	NO IMPACT
Cumulative Impacts	MINOR IMPACT	NO IMPACT

No Impact: The action would not cause a detectable change.

Negligible: The impact would be at the lowest level of detection; the impact would not be significant.

Minor: The impact would be slight but detectable; the impact would not be significant.

Moderate: The impact would be readily apparent; the impact would not be significant.

Major: The impact would be clearly adverse or positive; the impact has the potential to be significant. The significance of adverse and positive impacts is subject to interpretation and should be determined based on the final proposal. In cases of adverse impacts, the impact may be reduced to less than significant by mitigation, design features, and/or other measures that may be taken.

5.2 Conclusions

Based on the findings of this EA, construction and operation of Building 4220 at MSFC would not have a significant impact on the quality of the human or natural environment. No mitigation measures have been determined to be necessary for the Proposed Action. This EA supports a Finding of No Significant Impact for the Proposed Action. Accordingly, preparation of an Environmental Impact Statement is not required.

SECTION 6

References

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SECTION 7

List of Preparers

Name	Organization	Primary Responsibility
Ashley Boudreaux	NASA	NASA Assistant Project Manager
Tunch Orsoy	CH2M HILL	CH2M HILL Project Manager
Michael Reynolds	NASA	NASA Project Manager

APPENDIX A

Regulatory Agency Correspondence



STATE OF ALABAMA
ALABAMA HISTORICAL COMMISSION
468 SOUTH PERRY STREET
MONTGOMERY, ALABAMA 36130-0900

FRANK W. WHITE
EXECUTIVE DIRECTOR

November 22, 2010

TEL: 334-242-3184
FAX: 334-240-3477

Allen Elliot
Environmental Engineering
George C. Marshall Space Flight Center
MSFC, Alabama 35812

Re: AHC 11-0073
Construction of Building 4220
Marshall Space Flight Center
Madison County, Alabama

Dear Mr. Elliot:

Upon review of the EA and FONSI, we have determined that we agree with your findings. No archaeological or historic structure resources listed on or eligible for the National Register of Historic Places (NRHP) will be affected by this action. Therefore, we concur with this project. However, any future demolition of buildings in the 4200 Complex will require consultation with our office.

We appreciate your efforts on this project. Should you have any questions, please contact Greg Rhinehart at (334) 230-2662. Please have the AHC tracking number referenced above available and include it with any correspondence.

Truly yours,

Elizabeth Ann Brown
Deputy State Historic Preservation Officer

EAB/RJG/GCR/gcr



Alabama Department of Environmental Management
adem.alabama.gov

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November 15, 2010

AS10/Mr. Michael Reynolds
Environmental Engineering and Occupational Health Office
NASA Marshall Space Flight Center, AL 35812

Dear AS10/Mr. Reynolds:

We have completed our review of the Draft Environmental Assessment dated November 4, 2010, regarding the construction and operation of Building 4220 at George C. Marshall Flight Center (MSFC). Although the Department has no comment at the current time, we would like to point out that Huntsville Spring Branch is currently impaired for Pesticides (DDT) and Metals (Arsenic and Mercury).

As you are probably aware, construction activities in Alabama may be subject to permitting under the Department's Construction Stormwater program. Information about this program and its requirements can be found at the following web address:

<http://www.adem.state.al.us/programs/water/constructionstormwater.cnt>

If you have additional questions or need additional information, please call me at (334) 274-4165.

Sincerely,

A handwritten signature in black ink that reads "Chris Bettger".

Chris Bettger, Senior Environmental Engineering Specialist
Water Quality Branch

CB/nc

cc: Chip Crockett, Chief, Stormwater Management Branch



RECOMMENDED CHANGES TO PUBLICATION

ATTN: Mr. Michael Reynolds, EEOH, MSFC

From: USAG-Redstone Environmental Mgmt Div

POC: Christine Easterwood, NEPA Coordinator

**Draft EA for Construction and Operation
of Bldg 4220 at MSFC**

Item No.	Page	Section	Line	Figure or Table	Comments	Reviewer	MSFC Responses to Comments
1	1-3	1.6		1-1	Disagree with the exclusion of listed species resources from EA. Federal government is required to address the Endangered Species Act and its protected species. This is usually done through consultation with the USFWS and/or through NEPA documentation. Inclusion of a brief discussion on the T&E species found on RSA, although they are not known to be within MSFC's boundaries, within this EA should fulfill NASA's obligation to comply with the law. Species descriptions can be found in the 2010 Integrated Natural Resources Management Plan for Redstone Arsenal, which is available upon request.	Allen	A detailed analysis of listed species has been added to the EA (see Sections 3.9 and 4.9)
2	1-3	1.6		1-1	Follow on from Item #1: Additionally, the newly delineated Ecologically Sensitive Area (ESA), "Jaya Springs," is located approx 0.5 miles NW from the proposed building site (contact Garrison Ecologist for GIS layer depicting location). While this ESA is not located within the physical boundaries of MSFC, disturbance to the groundwater in the project area could impact the groundwater, spring complex, and wetlands found in it or even the Williams Spring ESA. The health of these systems is crucial to the protection of the Tuscumbia Darter, an Army Species at Risk and state-protected species.	Allen	Discussion of potential impacts to ESAs has been added to the EA (see Sections 3.9 and 4.9).
3	1-3	1.6		1-1	Follow on from Items 1 & 2: Gray bat (federally endangered) foraging habitat is located 0.25 miles west of the proposed project site, making it likely that the project area is utilized for migrating to additional foraging sites on the installation.	Allen	Discussion of potential impacts to the gray bat has been added to the EA (see Section 4.9)

Item No.	Page	Section	Line	Figure or Table	Comments	Reviewer	MSFC Responses to Comments
4	1-3	1.6		1-1	Follow on from Items #1-3: These matters must be included in the EA's analysis of listed species in order to come to a conclusion of whether or not the proposed action will impact the resource.	Allen	A detailed analysis of listed species has been added to the EA (see Sections 3.9 and 4.9)
5	1-3	1.6		1-1	An analysis of cultural resources cannot be eliminated from this EA. No Phase I archaeological survey, despite an intense effort and excellent research sampling strategy, precludes the possibility that an archaeological site may be discovered during subsequent construction activities. Include an analysis of this resource into the EA.	Hoksbergen	The Proposed Action was determined to have no potential to affect cultural resources; therefore, this resource was eliminated from detailed analysis in the EA as discussed in Section 1.6. The rationale used is that no archaeological sites exist within or in the vicinity of the proposed construction site for Building 4220. Moreover the site is a paved parking lot. In response to the part of the comment pertaining to the possibility of an archaeological site being discovered during construction, the following text has been added to the discussion of cultural resources in Section 1.6: "The relevant procedures outlined in the MSFC Cultural Resources Management Plan would be implemented in the event that cultural materials are discovered during construction activities. These procedures provide for the protection, evaluation, and coordination of cultural materials in the event they are inadvertently discovered at MSFC". In addition, the following text has also been added to the section in regards to SHPO correspondence: "The Proposed Action was coordinated with the Alabama State Historic Preservation Office (SHPO) through letter correspondence (see Appendix A). In a reply letter dated November 22, 2010, SHPO stated the following regarding the Proposed Action: "No archaeological or historic structure resources listed on or eligible for the National Register of Historic Places will be affected by this action. Therefore, we concur with this project" (see Appendix A)".
6	2-1	2.1			Include the actual size of the construction footprint, in acres or square feet, to include the building, potential parking, and contractor lay-down area in the descriptions of the proposed action.	Easterwood	The actual sizes of the construction footprints for the building, potential parking, and lay-down areas have yet to be determined. The EA does provide a square footage for the building and figures that depict the construction boundaries for the building and potential parking. The information in the EA is based on the most up to date design and is all that is available at this time regarding construction footprints.

Item No.	Page	Section	Line	Figure or Table	Comments	Reviewer	MSFC Responses to Comments
7	3-7	3.11	8-19		The information in this paragraph, regarding water source and treatment, does not agree with data provided for Army EAs by Gene Daniels of the Garrison Installation Compliance Branch regarding potable & industrial water on RSA. Contact Mr. Daniels for clarification/correction (955-7591).	Vaughan	MSFC contacted Mr. Gene Daniels on Dec 2, 2010 and requested that he review the referenced paragraph for accuracy. The referenced paragraph has been revised based on information provided by Mr. Daniels.
8	3-8	3.13	1-2		The Main Gate for RSA is Gate 9 on Rideout Road, not Gate 1 on Martin Road. Correct in text and on figure 2-1.	Vaughan	The text and Figure 2-1 have been revised accordingly.
9	4-4	4.5.1	20-21		Change residium to residuum.	Vaughan	The change has been made accordingly.
10	4-6	4.7	16-17		Landscaping plan must meet at least the 3:1 native: nonnative planting ratio as indicated by the US Army Garrison Policy 200-6 at Redstone Arsenal. A list of appropriate species for this region as well as a list of plants that MAY NOT be planted are available from the Garrison Ecologist (876-3977) or Garrison Forester (313-3258).	Allen/Hicks	The referenced section has been revised to indicate that the landscaping plan will meet the minimum 3:1 native to non-native planting ratio per U.S. Army Garrison Policy 200-6 implemented at RSA, and it will not include any species that is on the RSA "Do Not Plant" list.
11	4-8	4.11.1			Adequate potable water is available for the occupants of the new facility. However, new waterlines installed to support this facility must be flushed and the water must be analyzed to ensure that it is safe to drink before putting the new waterlines into service.	Daniels	Comment acknowledged. Flushing and analysis of water lines will be conducted during construction. Discussion of these measures in not needed in the EA.
12	5-1	5		5-1	The use of 'positive' and 'negative' under only one Resource (Socioeconomics) is inappropriate given that the provided description of impacts includes both beneficial and adverse. Recommend adding positive/negative or beneficial/adverse to each Proposed Action impact to clarify. Additionally, Cumulative Impacts also may be beneficial, so use of Adverse in the Resource Title is inappropriate and provides only incomplete conclusions.	Vaughan	The use of "positive" and "adverse cumulative impact" have been eliminated from Table 5-1

1	Mr. Terry Hazle AMSAM-RA-DEM Building 4488 Redstone, Arsenal, AL 35898
2	Honorable Paul Finley Mayor of Madison 100 Hughes Road Madison, AL 35758
3	Representative (District 6) Phil Williams 2185 Old Monrovia Road Huntsville, AL 35806
4	Alabama State Clearinghouse Department of Economic and Community PO Box 5690 Montgomery, AL 36103-5690
5	Senator (District 9) Hinton Mitchem 412-A Gunter Avenue Guntersville, AL 35897
6	Representative (District 21) Randy Hinshaw 100 St. Clair Ave., STE A Huntsville, AL 35801
7	Honorable Mary Caudle Mayor of Trina 640 Sixth Street Triana, AL 35758
8	Congressman Parker Griffith 5 th Congressional District of Alabama 2101 Clinton Avenue, West STE 302 Huntsville, AL 35805
9	Elizabeth Ann Brown, Deputy SHPO Alabama Historical Commission 468 South Perry Street Montgomery, AL 36130-0900
10	Stanley Meiburg, Regional Administrator Environmental Protection Agency Region IV 61 Forsyth St., SW Atlanta, GA 30303
11	Honorable Mike Gillespie, Chairman Madison County Commission Madison County Courthouse Huntsville, AL 35801
12	Senator (District 8) Lowell Barron P.O. Box 65 Fyffe, AL 35971

13	NASA/MSFC Mail Code CS20 ATTN: Mr. Mike Wright MSFC, AL 35812
14	Wheeler National Wildlife Refuge 2700 Refuge Headquarters Road Decatur, AL 35603
15	NASA/MSFC Mail Code CS20 ATTN: Mr. Dom Amatore MSFC, AL 35812
16	Representative (District 25) Mac McCutcheon P.O. Box 370 Capshaw, AL 35742
17	Lance R. LeFleur, Director Alabama Department of Environmental Management 1400 Coliseum Blvd. Montgomery, AL 36110-2059
18	Representative (District 20) Howard Sanderford 908 Tannahill Dr SE Huntsville, AL 35802
19	Honorable Tommy Battle Mayor of Huntsville P.O. Box 308 308 Fountain Circle Huntsville, AL 35801
20	Senator Jeff Sessions 7550 Halcyon Summit Dr., STE 150 Montgomery, AL 36117
21	Representative (District 19) Laura Hall P.O. Box 3367 Huntsville, AL 35810
22	Senator (District 2) Tom Butler 136 Harrington Drive Madison, AL 35758
23	Representative (District 10) Mike Ball P.O. Box 6302 Huntsville, AL 35824
24	Senator (District 3) Arthur Orr P.O. Box 305 Decatur, AL 35602
25	Senator (District 7) Paul Sanford 100 St. Clair Ave, STE A Huntsville, AL 35801

26	Senator Richard Shelby 1118 Greensboro Ave #240 Tuscaloosa, AL 35401
27	Representative (District 22) Butch Taylor 224 Taylor Ave New Hope, AL 35760

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of:

AS10 (13-11)

Senator (District 3) Arthur Orr
P.O. Box 305
Decatur, AL 35602

Dear Senator Orr:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Sincerely,

A handwritten signature in black ink that reads "Allen Elliott".

Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of: AS10 (13-11)

Representative (District 20) Howard Sanderford
908 Tannahill Dr SE
Huntsville, AL 35802

Dear Representative Sanderford:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of: AS10 (13-11)

Senator Jeff Sessions
7550 Halcyon Summit Dr., STE 150
Montgomery, AL 36117

Dear Senator Sessions:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of: AS10 (13-11)

Elizabeth Ann Brown, Deputy SHPO
Alabama Historical Commission
468 South Perry Street
Montgomery, AL 36130-0900

Dear Elizabeth Ann Brown:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of:

AS10 (13-11)

Representative (District 6) Phil Williams
2185 Old Monrovia Road
Huntsville, AL 35806

Dear Representative Williams:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of: AS10 (13-11)

Congressman Parker Griffith
5th Congressional District of Alabama
2101 Clinton Avenue, West STE 302
Huntsville, AL

Dear Congressman Griffith:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

AS10 (13-11)

Reply to Attn of:

Representative (District 10) Mike Ball
P.O. Box 6302
Huntsville, AL 35824

Dear Representative Ball:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of: AS10 (13-11)

Honorable Tommy Battle
Mayor of Huntsville
P.O. Box 308
308 Fountain Circle
Huntsville, AL 35801

Dear Mayor Battle:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of: AS10 (13-11)

Honorable Mary Caudle
Mayor of Trina
640 Sixth Street
Triana, AL 35758

Dear Mayor Caudle:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of: AS10 (13-11)

Honorable Paul Finley
Mayor of Madison
100 Hughes Road
Madison, AL 35758

Dear Mayor Finley:

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Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of: AS10 (13-11)

Representative (District 19) Laura Hall
P.O. Box 3367
Huntsville, AL 35810

Dear Representative Hall:

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of:

AS10 (13-11)

Representative (District 21) Randy Hinshaw
100 St. Clair Ave., STE A
Huntsville, AL

Dear Representative Hinshaw:

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of:

AS10 (13-11)

Representative (District 25) Mac McCutcheon
P.O. Box 370
Capshaw, AL 35742

Dear Representative McCutcheon:

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of: AS10 (13-11)

Senator (District 9) Hinton Mitchem
412-A Gunter Avenue
Guntersville, AL 35897

Dear Senator Mitchem:

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of:

AS10 (13-11)

Refuge Manager
Wheeler National Wildlife Refuge
2700 Refuge Headquarters Road
Decatur, AL 35603

Dear Refuge Manager:

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of:

AS10 (13-11)

Senator (District 7) Paul Sanford
100 St. Clair Ave, STE A
Huntsville, Alabama 35801

Dear Senator Sanford:

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Sincerely,

A handwritten signature in cursive script that reads "Allen Elliott".

Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of:

AS10 (13-11)

Senator Richard Shelby
1118 Greensboro Ave #240
Tuscaloosa, AL 35401

Dear Senator Shelby:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Sincerely,

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of:

AS10 (13-11)

Representative (District 22) Butch Taylor
224 Taylor Ave
New Hope, AL 35760

Dear Representative Taylor:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

AS10 (13-11)

Reply to Attn of:

Mr. Mike Wright
NASA/MSFC
Mail Code CS20
MSFC, AL 35812

Dear Mike Wright:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of: AS10 (13-11)

Mr. Dom Amatore
NASA/MSFC
Mail Code CS20
MSFC, AL 35812

Dear Dom Amatore:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of:

AS10 (13-11)

Senator (District 8) Lowell Barron
P.O. Box 65
Fyffe, AL 35971

Dear Senator Barron:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of: AS10 (13-11)

Senator (District 2) Tom Butler
136 Harrington Drive
Madison, AL 35758

Dear Senator Butler:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of: AS10 (13-11)

Alabama State Clearinghouse
Department of Economic and Community
P.O. Box 5690
Montgomery, AL 36103-5690

Dear Clearinghouse:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of:

AS10 (13-11)

Honorable Mike Gillespie, Chairman
Madison County Commission
Madison County Courthouse
Huntsville, AL

Dear Mike Gillespie:

The draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at George C. Marshall Space Flight Center (MSFC) have been prepared and are being made available to the public and to federal, state, and local entities for a 30-day review and comment period. Please find enclosed a CD containing electronic copies of the documents.

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of:

AS10 (13-11)

Mr. Terry Hazle
AMSAM-RA-DEM
Building 4488
Redstone Arsenal, AL 35898

Dear Terry Hazle:

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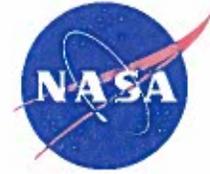
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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of: AS10 (13-11)

Lance R. LeFleur, Director
Alabama Department of Environmental Management
1400 Coliseum Blvd.
Montgomery, AL 36110-2059

Dear Lance LeFleur:

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Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



November 4, 2010

Reply to Attn of:

AS10 (13-11)

Stanley Meiburg, Regional Administrator
Environmental Protection Agency
Region IV
61 Forsyth St., SW
Atlanta, GA 30303

Dear Stanley Meiburg:

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Sincerely,

A handwritten signature in cursive script that reads "Allen Elliott".

Allen Elliott
Manager
Environmental Engineering and Occupational Health Office

Enclosure

APPENDIX B

Public Involvement

Account Number

0064029

Order Number

0000214759

Date

February 07, 2011

Marshall Space Flight Center
 Allen Elliot
 External Relations Cs30
 Marshall Space Flight Ctr, AL 35812

Date	Position	Description	P.O. Number	Ad Size	Total Cost
02/06/2011	Legal	PUBLIC NOTICE FOR THE FINAL ENVIRONMEN	public notice	1 x 669 L	1,133.54

PUBLIC NOTICE FOR THE FINAL ENVIRONMENTAL ASSESSMENT AND FINAL FINDING OF NO SIGNIFICANT IMPACT

Construction and Operation of Building 4220 at George C. Marshall Space Flight Center
 NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
 GEORGE C. MARSHALL SPACE FLIGHT CENTER

The U.S. National Aeronautics and Space Administration, George C. Marshall Space Flight Center (MSFC) announces publication of the Final Environmental Assessment (EA) and the following Final Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at MSFC.

FINAL NATIONAL AERONAUTICS AND SPACE ADMINISTRATION National Environmental Policy Act; Construction and Operation of Building 4220 at George C. Marshall Space Flight Center

AGENCY: National Aeronautics and Space Administration (NASA)
ACTION: Finding of No Significant Impact

SUMMARY: Pursuant to the National Environmental Policy Act of 1969 (NEPA), as amended (42 United States Code [U.S.C.] 4321 et seq.), the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500 through 1508), and NASA's regulations (14 CFR Part 1216, Subpart 1216.3), and

based on the analyses in the Environmental Assessment (EA), the National Aeronautics and Space Administration (NASA) has made a Finding of No Significant Impact (FONSI) with respect to the Proposed Action. The action involves the construction and operation of Building 4220 at

NASA's George C. Marshall Space Flight Center (MSFC).

DATE: January 2011
ADDRESSES: A 30-day public review was held from October 31, 2010 through November 29, 2010 to solicit public comments on the draft EA. The draft EA was also coordinated with federal, state, and local entities through letter correspondence. All comments received on the Draft EA are addressed in the Final EA.

To receive a copy of the Final EA, contact AS10/Mr. Allen Elliott, Manager, Environmental Engineering and Occupational Health Office, NASA Marshall Space Flight Center, AL 35812, phone: (256) 544-0662, e-mail: Allen.Elliott@nasa.gov.
FOR FURTHER INFORMATION, CONTACT:

General CS30/Ms. Sharon Cobb Manager, External Relations Office
 NASA Marshall Space Flight Center AL 35812 phone: (256) 544-7791 e-mail: Sharon.Cobb@nasa.gov
 Technical AS10/Mr. Michael Reynolds
 Environmental Engineering and Occupational Health Office
 NASA Marshall Space Flight Center AL 35812 phone: (256) 544-9606 e-mail: Michael.L.Reynolds@nasa.gov
SUPPLEMENTAL INFORMATION:

The purpose of the Proposed Action is to correct inadequacies in the existing administrative infrastructure of the 4200 Complex at MSFC. NASA needs to implement the Proposed Action ~~in a timely manner~~ construction activities would be managed as if it was potentially contaminated. In the event that groundwater discharges to the surface or requires handling during construction, e.g., if dewatering is performed, it would be appropriately managed by the construction contractor in coordination with the MSFC Environmental Engineering and Occupational Health Office and in accordance with all local, state, and federal

regulations to ensure that the Proposed Action would not generate significant controversy or have a significant impact on the quality of the human or natural environment. This analysis fulfills the requirements of the National Environmental Policy Act and Council on Environmental Quality regulations. An Environmental Impact Statement will not be prepared, and NASA is issuing this Finding of No Significant Impact.
 /s/ Robert M. Lightfoot
 Director
 George C. Marshall Space Flight Center
 National Aeronautics and Space Administration

Date Issued: January 2011
 Feb. 6, 2011

**STATE OF ALABAMA
 MADISON COUNTY**

Before me, Brandi Cook, a Notary Public in and for Said State, personally appeared Mecia Carlson, known to me, who being by me first duly sworn, deposes and said person is a Legal Advertising Representative of the Huntsville Times, a newspaper published and printed at Huntsville, Madison County, Alabama, and that the attached legal notice was published in said newspaper on:

02/06/2011

Mecia Carlson

Legal Advertising Representative

Sworn to before me this the

7th day of February 2011

Brandi Cook

Notary Public

My Commission expires October 04, 2014

Account Number

0110846

Order Number

0000199595

Date

November 02, 2010

Advertising Affidavit

Ch2m Hill
Tunch Orsoy
4350 W Cypress Street Ste 600
Tampa, FL 33607

Date	Position	Description	P.O. Number	Ad Size	Total Cost
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11/02/2010	Legal	NOTICE OF PUBLIC COMMENT PERIOD FOR THE	construction of 1 x 129 L		237.14
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NOTICE OF PUBLIC COMMENT PERIOD FOR THE DRAFT ENVIRONMENTAL ASSESSMENT AND DRAFT FINDING OF NO SIGNIFICANT IMPACT

Construction and Operation of Building 4220 at George C. Marshall Space Flight Center

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION GEORGE C. MARSHALL SPACE FLIGHT CENTER

The U.S. National Aeronautics and Space Administration, George C. Marshall Space Flight Center (MSFC) announces the publication of the draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) for the construction and operation of Building 4220 at MSFC.

The draft EA and draft FONSI are available for public review at the NASA External Relations Office at MSFC, and at the following branches of the Huntsville-Madison County Public Library:

§ Main Branch - 915 Monroe St., Huntsville, AL 35801, Phone: (256) 532-5940
§ Madison Branch - 130 Plaza Blvd., Madison, AL 35758, Phone: (256) 461-0046

To receive copies of the draft EA and draft FONSI, contact AS10/Mr. Michael Reynolds, Environmental Engineering and Occupational Health Office, NASA Marshall Space Flight Center, AL 35812, phone: (256) 544-9606, e-mail: Michael.L.Reynolds@nasa.gov or Sharon Cobb, Manager, External Relations Office, NASA Marshall Space Flight Center, AL 35812, phone: (256) 544-7791, e-mail: Sharon.Cobb@nasa.gov. Comments for consideration by NASA on the draft EA and draft FONSI should be provided in writing by mail or e-mail to Mr. Michael Reynolds or to Ms. Sharon Cobb. These documents will have a 30-day comment period, which will start on October 31, 2010 and end on November 29, 2010. Written substantive comments received within the review period will be addressed.

October 31, 2010

STATE OF ALABAMA MADISON COUNTY

Before me, Brandi Cook, a Notary Public in and for Said State, personally appeared Mecia Carlson, known to me, who being by me first duly sworn, deposes and said person is a Legal Advertising Representative of the Huntsville Times, a newspaper published and printed at Huntsville, Madison County, Alabama, and that the attached legal notice was published in said newspaper on:

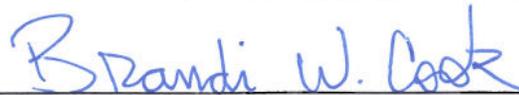
10/31/2010



Legal Advertising Representative

Sworn to before me this the

2nd day of November 2010



Notary Public

My Commission expires October 04, 2014