Beltsville Agricultural Research Center Environmental Assessment

Proposed Renovations of Buildings 002, 005, and 308

U.S. Department of Agriculture

July 2021

THIS PAGE INTENTIONALLY LEFT BLANK

EXECUTIVE SUMMARY

The U.S. Department of Agriculture (USDA) is proposing to renovate and modernize Buildings 002, 005, and 308 with one-story additions to be built onto Buildings 002 and 308 and a greenhouse onto Building 005 at the Beltsville Agricultural Research Center (BARC) in Beltsville, Prince George's County, Maryland. The Proposed Action would utilize existing BARC buildings, in accordance with the 2015 Reduce the Footprint Policy mandates to reduce the footprint of Federal government properties, while providing updated and expanded space for the programs within Buildings 002, 003, and 308.

This Environmental Assessment (EA) was prepared in accordance with the National Environmental Policy Act (NEPA), as amended (42 United States Code [USC] § 4321, et seq.); Executive Orders (EOs) 11514, 12144, and 13807; 34 Federal Regulation (FR) 4247, as amended by EO 119911; 42 FR 26927; 44 FR 11957; 5 U.S.C. 301; 40 Code of Federal Regulations (CFR) Parts 1500-1508 (51 FR 34191, 1986)l; and 7 CFR 520 . The purpose of a NEPA EA is to assess whether the Proposed Action would pose a potentially significant impact on the environment and to determine whether an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FNSI) is required for the Proposed Action. The specific needs and purpose of the Proposed Action evaluated in this EA are described in Section 1.2.

The purpose of this EA is to inform decision makers and the public of the likely environmental consequences of the action proposed at BARC. This EA identifies, documents, and evaluates the potential impacts of the renovations of Buildings 002, 005, and 308 with additions onto Buildings 002 and 308 and a greenhouse onto Building 005.

The Proposed Action and No Action Alternatives are evaluated to determine impacts or changes that may occur on both people and the environment because of the proposed renovation and development. One alternative involving the construction of new buildings for Buildings 002, 005, and 308 was reviewed and eliminated from further consideration because it did not satisfy the identified needs and purpose.

The impacts of the Proposed Action would be minor and primarily short-term associated with construction-related activities; however, some minor long-term impacts could be expected as well. These long-term impacts would be mitigated to the extent feasible. Buildings 002, 005, and 308 were identified as contributing features to the BARC Historic District and Buildings 002 and 005 to the North Farm District as well. Through mitigation measures and avoidance, impacts to these sites were determined to be minor. The Maryland Historic Trust (MHT) concurred with these recommendations and determined that neither the renovation of Buildings 002, 005, and 308 nor the construction of additions onto Buildings 002 and 308 would have an adverse effect on historic properties under Section 106 of the National Historic Preservation Act (NHPA).

The Proposed Action would also not result in significant cumulative impacts when considered with the impacts of past, present, and reasonably foreseeable actions at BARC and in the vicinity of BARC.

Careful design, the use of good engineering, best management practices (BMPs), and the implementation of certain operational procedures would avoid, minimize, or mitigate these minor potential adverse impacts presented in the EA to a less than significant level. Implementation of the mitigation measures described in the EA would reduce the potential impacts of the Proposed Action, resulting in no significant adverse impacts to the environment. Therefore, preparation of an EIS is not required.

THIS PAGE LEFT INTENTIONALLY BLANK

FINDING OF NO SIGNIFICANT IMPACT
ENVIRONMENTAL ASSESSMENT
PROPOSED RENOVATIONS OF BUILDINGS 002, 005, and 308
U.S. Department of Agriculture
Beltsville Agricultural Research Center, Prince George's County, Maryland

Name of Action:

Proposed renovation of three buildings, Buildings 002, 005, and 308 with the construction of additions onto Buildings 002 and 308 and a small greenhouse onto Building 005. for the U.S. Department of Agriculture (USDA) at the Beltsville Agricultural Research Center (BARC) in Prince George's County, Maryland.

Purpose and Need:

The purpose of the Proposed Action is to modernize and renovate Buildings 002, 005, and 308. Renovations would include interior and exterior renovations, as well as construction of additions onto Buildings 002 and 308 and a greenhouse for Building 005.

The Proposed Action is needed to eliminate environmental hazards, as well as provide adequate working space to meet programmatic requirements for divisions within the buildings.

Description of Proposed Action:

The Proposed Action includes the renovation and modernization of three buildings at BARC, Building 002, Building 005, and Building 308 with construction of additions to Building 002 and 308 and a small greenhouse onto Building 005.

Buildings 002, 005, and 308 require renovation and modernization. Renovations would be intended to update all utilities and laboratories, mitigate environmental concerns (e.g mold and asbestos, etc.) and provide office/lab swing as needed. As many aspects of the original interiors would be maintained as possible. Renovations would restore the exterior of the buildings while renovating and modernizing the interior. All exterior windows and doors throughout the buildings would be replaced in-kind. Exterior renovations would include: demolishing existing slate roofing to be replaced with a new slate roofing systems, exterior double-hung wood window demolishment and replacement with new operable windows, exterior brick re-pointing and repair where necessary, and building entrance renovations to meet Americans with Disabilities Act (ADA) requirements. Interior renovations would include the removal of existing partitions, replacement of partitions, and replacement of the existing elevator. The structural and aesthetic upgrades to the buildings would be designed to preserve historic characteristics to the greatest extent practicable.

The additions onto Buildings 002 and 308 would be one-story additions built to meet programmatic requirements within their respective buildings. The additions would be built to match the current aesthetic of the buildings, with Building 005's addition serving as an example.

The greenhouse for Building 005 would be an additional greenhouse built in the image of the existing greenhouses near Building 006.

Alternatives Evaluated: An Environmental Assessment (EA) has been prepared to evaluate the potential environmental, cultural, transportation and socioeconomic effects associated with the Proposed Action and the No Action Alternative. BARC did not identify any additional alternatives for evaluation in the EA. BARC considered new construction however eliminated this alternative as it has excess square footage and has a policy requiring the use of existing buildings where practicable.

National Environmental Policy Act (NEPA) regulations refer to the continuation of the present course of action without the implementation of, or in the absence of, the Proposed Action, as the "No Action Alternative." Inclusion of the No Action Alternative is the baseline against which Federal actions are evaluated and is prescribed by the Council of Environmental Quality (CEQ) regulations.

Under the No Action Alternative, current conditions at all three buildings would remain unchanged for the foreseeable future. Operations at the buildings would continue as is, without renovations.

Anticipated Impacts: The analysis within this EA concluded that there would be:

No expected impacts to**:** land use; groundwater and floodplains; socioeconomics; hazardous and toxic material and waste; or health and public safety.

Minor adverse impacts to: topography, geology, and soils; prime farmland; stormwater, surface water and wetlands; rare, threatened, or endangered species and vegetation; cultural resources; transportation; electricity; solid waste, wastewater, and natural gas (during construction); aesthetics and visual resources; noise (during construction); and cumulative impacts.

Public Involvement: Agency consultation letters were sent out on August 11, 2021 to interested parties to, initiate the NEPA process.

The Draft EA and Draft Finding of No Significant Impact (FNSI) were made available for public review for 10 days starting on August 12, 2021 via the USDA website https://www.ars.usda.gov/northeast-area/docs/environmental-assessment/, and with hard copies available upon request. A Notice of Availability (NOA) of the Draft EA and Draft FNSI were published in the *Greenbelt News Review* and mailed to interested agencies/parties. All received comments were reviewed, and responses to comments received were addressed in Appendix G of the Final EA.

Finding of No Significant Impact: After careful review of the EA, which is attached hereto and incorporated by reference into this FNSI, the evaluation of concerns expressed during the public review period, and the USDA's intent to follow prescribed regulations, acquire required permits, and implement the mitigation measures identified, I have concluded that implementation of the Proposed Action will not generate significant controversy or have significant impacts on the quality of the human or natural environment. This analysis fulfills the requirements of Section 102(2)(c) of NEPA and the CEQ regulations. An Environmental Impact Statement (EIS) is not required and will not be prepared.

Dr. Thomas Shanower Northeast Area Director, ARS U.S. Department of Agriculture	Date

THIS PAGE INTENTIONALLY LEFT BLANK

EXECUTIVE SUMMARY

The U.S. Department of Agriculture (USDA) is proposing to renovate and modernize Buildings 002, 005, and 308 with one-story additions to be built onto Buildings 002 and 308 and a greenhouse onto Building 005 at the Beltsville Agricultural Research Center (BARC) in Beltsville, Prince George's County, Maryland. The Proposed Action would utilize existing BARC buildings, in accordance with the 2015 Reduce the Footprint Policy mandates to reduce the footprint of Federal government properties, while providing updated and expanded space for the programs within Buildings 002, 003, and 308.

This Environmental Assessment (EA) was prepared in accordance with the National Environmental Policy Act (NEPA), as amended (42 United States Code [USC] § 4321, et seq.); Executive Orders (EOs) 11514, 12144, and 13807; 34 Federal Regulation (FR) 4247, as amended by EO 119911; 42 FR 26927; 44 FR 11957; 5 U.S.C. 301; 40 Code of Federal Regulations (CFR) Parts 1500-1508 (51 FR 34191, 1986)l; and 7 CFR 520 . The purpose of a NEPA EA is to assess whether the Proposed Action would pose a potentially significant impact on the environment and to determine whether an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FNSI) is required for the Proposed Action. The specific needs and purpose of the Proposed Action evaluated in this EA are described in Section 1.2.

The purpose of this EA is to inform decision makers and the public of the likely environmental consequences of the action proposed at BARC. This EA identifies, documents, and evaluates the potential impacts of the renovations of Buildings 002, 005, and 308 with additions onto Buildings 002 and 308 and a greenhouse onto Building 005.

The Proposed Action and No Action Alternatives are evaluated to determine impacts or changes that may occur on both people and the environment because of the proposed renovation and development. One alternative involving the construction of new buildings for Buildings 002, 005, and 308 was reviewed and eliminated from further consideration because it did not satisfy the identified needs and purpose.

The impacts of the Proposed Action would be minor and primarily short-term associated with construction-related activities; however, some minor long-term impacts could be expected as well. These long-term impacts would be mitigated to the extent feasible. Buildings 002, 005, and 308 were identified as contributing features to the BARC Historic District and Buildings 002 and 005 to the North Farm District as well. Through mitigation measures and avoidance, impacts to these sites were determined to be minor. The Maryland Historic Trust (MHT) concurred with these recommendations and determined that neither the renovation of Buildings 002, 005, and 308 nor the construction of additions onto Buildings 002 and 308 would have an adverse effect on historic properties under Section 106 of the National Historic Preservation Act (NHPA).

The Proposed Action would also not result in significant cumulative impacts when considered with the impacts of past, present, and reasonably foreseeable actions at BARC and in the vicinity of BARC.

Careful design, the use of good engineering, best management practices (BMPs), and the implementation of certain operational procedures would avoid, minimize, or mitigate these minor potential adverse impacts presented in the EA to a less than significant level. Implementation of the mitigation measures described in the EA would reduce the potential impacts of the Proposed Action, resulting in no significant adverse impacts to the environment. Therefore, preparation of an EIS is not required.

Table of Contents

Appendices

List of Figures

List of Tables

THIS PAGE INTENTIONALLY LEFT BLANK

Acronyms and Abbreviations

ADA	Americans with Disabilities Act Of 1990
AIRFA	American Indian Religious Freedom Act
AOC	Area Of Concern
APE	Area of Potential Effect
APHIS	Animal and Plant Health Inspection Service
ARPA	Archaeological Resource Protection Act
ARS	Agricultural Research Service
BARC	Beltsville Agricultural Research Center
BEP	Bureau of Engraving and Printing
BGEPA	Bald and Golden Eagle Protection Act
BGS	below ground surface
BMP	Best Management Practice
CEQ	Council on Environmental Quality
CAA	Clean Air Act
CFR	Code of Federal Regulations
CH_4	Methane
CO	Carbon monoxide
CO_2	Carbon Dioxide
CO2e	Carbon Dioxide Equivalent
COVID-19	Coronavirus Disease of 2019
CWA	Clean Water Act
dB	Decibels
dBA	"A-Weighted" Decibels
DEHP	Di (2-Ethylhexyl) Phthalate
DOT	Department of Transportation
EA	Environmental Assessment
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
EMFSL	Environmental Microbial and Food Safety Laboratory
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FNSI	Finding of No Significant Impact
FR	Federal Regulation
FSRG	Food Surveys Research Group
FQL	Food Quality Lab Food
GHG	Green House Gases
GSF	Gross Square Foot
GWP	Global Warming Potential

HAP	Hazardous Air Pollutants
kV	kilovolt
KVA	kilovolt-amp
LBP	Lead-Based Paint
LOD	Limit Of Disturbance
LQG	Large Quantity Generator
MACT	Maximum Achievable Control Technology
MAFCL	Methods and Application of Food Composition Lab
MARC	Maryland Area Regional Commuter
MBTA	Migratory Bird Treaty Act
MDE	Maryland Department of Environment
MDNR	Maryland Department of Natural Resources
MHT	Maryland Historical Trust
MNCPPC	Maryland National Capital Park and Planning Commission
MSL	Mean Sea Level
NAGPRA	Native American Graves Protection And Repatriation Act
NAAQS	National Ambient Air Quality Standards
NCPC	National Capital Planning Commission
NEPA	National Environmental Policy Act of 1969
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NFPA	National Fire Protection Association
NFIP	National Flood Insurance Program
NLEB	Northern-Long Eared Bat
NOA	Notice Of Availability
NOI	Notice Of Intent
NO_x	Nitrogen oxides
NPL	National Priority List
NRCS	Natural Resources Conservation Service
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
O_3	Ozone
Pb	Lead
PCB	Polychlorinated Biphenyl
$PM_{2.5}$	2.5 Microns
PM_{10}	10 Microns
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation And Recovery Act
ROI	Region Of Influence
RONA	Record of Non-Applicability
RTE	Rare, Threatened, or Endangered
SEL	System Entomology Lab

SIP	State Implementation Plan
SO_2	Sulfur Dioxide
TPY	Tons Per Year
TSCA	Toxic Substances Control Act
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish And Wildlife Service
USGS	U.S. Geological Survey
VOCs	Volatile Organic Compounds
WMATA	Washington Metropolitan Area Transit Authority
WWTP	Wastewater Treatment Plant

1 Introduction

1.1 Project Background

The U.S. Department of Agriculture (USDA) prepared this Environmental Assessment (EA) for three proposed actions at the Beltsville Agricultural Research Center (BARC) in Beltsville, Maryland. This EA discusses the proposed renovations of Buildings 002, 005, and 308. Exterior additions to Buildings 002 and 308 have been proposed to further accommodate the needs of the research conducted within the buildings in addition to a small greenhouse for Building 005. The analysis in this EA has been performed to determine if the Proposed Action would have an adverse impact on BARC or the surrounding community.

BARC, established in 1910, is located northeast of Washington, D.C., in Prince George's County, Maryland, and encompasses 6,582 acres (Figure 1-1). BARC's mission is to perform research on human nutrition and agricultural-related products. To this end, BARC laboratories conduct multi-disciplinary basic science and applied human nutrition research. This work is important to scientists, food producers, policymakers, educators, and consumers to gain understanding of better understand the relationship between diet and health.

BARC proposes to completely renovate the exterior and interior of Buildings 002, 003, and 308, with additions being constructed onto Building 002 and 308 as well as a greenhouse onto Building 005. Building 005's previous addition would serve as an example for Building 002 and 005's additions. The three buildings all require renovation to provide employees at BARC with updated features and spaces including: laboratories, utilities, mitigated environmental concerns (e.g. mold and asbestos), and office/lab swing space.

<u>Building 002</u>

BARC proposes to renovate and modernize the interior and exterior of Building 002 or the Cold Storage Building, as well as construct an addition on the west side of the building. Building 002 is located on the North Farm of BARC at 10300 Baltimore Avenue, Beltsville Maryland (Figure 1-1). It was considered one of the best equipped laboratories for the study of the storage of produce and plant-derived food products in the world when it was constructed in 1938. Currently, the USDA's Food Quality Lab (FQL), System Entomology Lab (SEL), and Animal and Plant Health Inspection Service (APHIS) operate out of Building 002. The FQL has a unique public-interaction requirement through their sensory laboratory, which would be housed in the proposed addition to limit public foot traffic and public interaction within or near research and collection areas. The basements of Building 002 and Building 003 (the Administration Building) are connected through a three-bay brick connecting hyphen. However, Building 003 is not proposed for renovation.

While not individually eligible for listing in the National Register of Historic Places (NRHP), Building 002 is a contributing structure to the BARC Historic District, which was deemed eligible for the NRHP in 1997 as a result of its historic role as the most diversified agricultural research complex in the world. In addition, it is a contributing factor to the North Farm Historic District. Building 002, was the best equipped food storage buildings in the world when it was constructed and contributed significant research towards hundreds of food storage temperatures. Building 002 was the nation-wide symbol for research on the subject at the time. In addition, the building embodies the distinctive characteristics of the type, period, and method of construction of Gregorian Revival style architecture.

Building 005

BARC proposes to renovate and modernize the interior and exterior of Building 005 as well as construct as small, 120 gross square foot (gsf) greenhouse. A design or placement of the greenhouse has yet to be determined. Building 005, or the North Building, is located on the North Farm of BARC at 10300 Baltimore Ave, Beltsville Maryland (Figure 1-1) Unlike Buildings 002 and 308, it solely houses office space. Built in 1942, the building replaced structures at the Department of Agricultural Bureau of Plant Industry farm facility in Arlington, Virginia. Previously home to the offices of the Divisions of Soil Survey, Plant Exploration and Introduction, Forest Pathology, Dry Land Agriculture, Irrigation Agriculture, Mycology and Disease Survey, and part of the rubber investigations, Building 005 is now used for entomology research. Building 005 is commonly considered one of the most public facing buildings at BARC due to its position along the curved drive (Circle Drive) off Route 1.

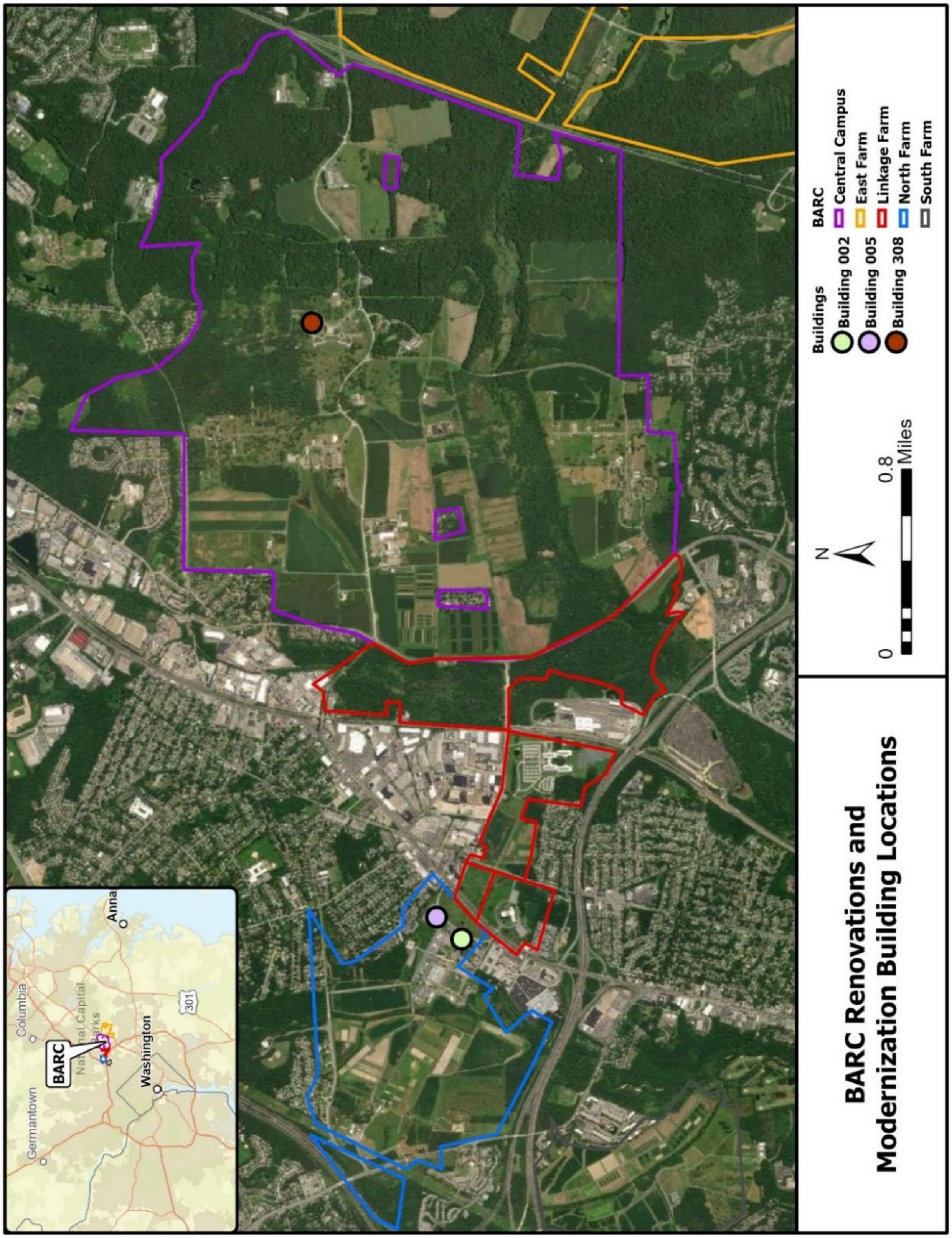
While not individually eligible for listing in the NRHP, Building 005 is a contributing structure to the BARC Historic District as well as North Farm Historic District. During the 1950s and 60s, significant research contributions to entomology related to the biological control of insects as alternatives to pesticides was conducted in Building 005. In addition, the building embodies the distinctive characteristics of the type, period, and method of construction of Gregorian Revival style architecture. A one-story addition was constructed to the rear of the north wing in 1991 to provide office space. This addition would be the model for design plans of the additions to Building 002 and 308.

Building 308

BARC proposes to renovate and modernize the interior and exterior of Building 308 or the Departmental Administration Building, as well as construct a one-story addition on the northwest corner of the building with a 10-foot ceiling to meet programmatic requirements. Located on the Central Campus of BARC at 308 Center Road, Beltsville Maryland (Figure 1-1), Building 308 was built between 1938 and 1940, originally housing the Fertilizer Investigation Division of the Bureau of the Plant Industry. Building 308 currently houses a mix of labs, offices, and conference rooms used by the USDA Food Surveys Research Group (FSRG), Methods and Application of Food Composition Lab (MAFCL), and Environmental and Microbial Food Safety Laboratory (EMFSL). The interior of the building has been extensively altered since its construction; however, it still retains the original building footprint.

While not individually eligible for listing in the NHRP, Building 308 is a contributing structure to the BARC Historic District. The building embodies the distinctive characteristics of the type, period, and method of construction of Gregorian Revival style architecture.

Figure 1-1: BARC Proposed Building Renovation Sites



1.2 Purpose and Need for the Proposed Action

The purpose of the Proposed Action is to modernize and renovate Buildings 002, 005, and 308. Renovations would include interior and exterior areas, additions to be constructed onto Buildings 002 and 308, and a greenhouse onto Building 005. The Proposed Action is needed to eliminate environmental hazards, as well as provide adequate working space to meet programmatic requirements for divisions within the buildings.

1.3 Scope of the Environmental Assessment

The purpose of this EA is to evaluate the impacts associated with the Proposed Action in accordance with the National Environmental Policy Act (NEPA). This document identifies and evaluates the potential environmental, cultural resources, and socioeconomic effects associated with the Proposed Action as well as No Action Alternative, both of which are discussed in Section 2.0. Section 3.0 describes the existing conditions of, and potential impacts of, the Proposed Action and the No Action Alternative on environmental, cultural, and socioeconomic resources.

The EA focuses on impacts likely to occur within the proposed areas of development, which include Building 002, 005, and 308. The document analyzes the potential effects from the Proposed Action in accordance with the Council of Environmental Quality (CEQ) NEPA Implementing Regulations applied to 40 Code of Federal Regulation (CFR) 1500-1508. Compliance with applicable federal statutes, standards, and directives pertinent to the Proposed Action were considered during the preparation of this EA, including 7 CFR 520.

Under the guidance provided in NEPA and in 7 CFR Part 1b and 7 CFR 520, either an EIS or an EA must be prepared for most Federal actions. Actions that are emergencies, categorically excluded, or determined to be exempt by law do not require the preparation of an EA or EIS. If an action may significantly affect the environment, an EIS would be prepared. An EA provides sufficient evidence and analysis for determining whether or not to prepare an EIS. The contents of an EA include the need for the Proposed Action, alternatives to the Proposed Action, environmental impacts of the Proposed Action and alternatives considered for implementation, and documentation of agency and public coordination.

An evaluation of the environmental consequences of the Proposed Action and the No Action Alternative includes direct effects as well as qualitative and quantitative (where possible) assessment of the level of significance of these effects. The EA results in either a Finding of No Significant Impact (FNSI) or a Notice of Intent (NOI) to prepare an EIS. If the USDA determines that this Proposed Action may have a significant impact on the quality of the human environment, an EIS may be prepared.

1.4 Public Involvement

Under NEPA regulation 40 CFR §1506.6 and 7 CFR § 520.3, BARC will encourage public and relevant agency involvement in the process of preparing this EA. Coordination letters were provided to U.S. Fish and Wildlife Service (USFWS), U.S. Environmental Protection Agency (EPA), Maryland Clearinghouse, Maryland Department of the Environment (MDE), Maryland Department of Natural Resources (MDNR), National Capital Planning Commission (NCPC), and Maryland-National Capital Park and Planning Commission (MNCPPC). Additionally, the project is being coordinated with Maryland Historical Trust (MHT) and federally recognized Native

American Tribes listed in Appendix A were invited to consult under Section 106 of the National Historic Preservation Act (NHPA). These Tribes were identified based on their geographic association with the area. All correspondence with these parties has been incorporated into this EA and included in Appendix A.

A Notice of Availability (NOA) was published in the local newspapers - the *Greenbelt News Review* - as well as distributed to Federal, state and local agencies via letter on August 11th, 2021. The NOA and publication announced the availability of the official public draft EA and requested comments from the general public and Federal, state, and local agencies. The Draft EA was made available to the public for 10 days, along with a Draft FNSI on August 12th, 2021. Due to COVID-19 restrictions, hard copies were not placed in local libraries as they usually would be. Instead, the Draft EA and Draft FNSI were available on USDA's website https://www.ars.usda.gov/northeast-area/docs/environmental-assessment/, and hard copies were made available upon individual request.

Comments received during the 10-day public review period were considered, compiled, and documented in the final EA. It is anticipated that the Proposed Action would not result in significant impacts and preparation of an EIS is not needed.

1.5 Environmental Laws and Regulations

This EA has been prepared in accordance with the NEPA, as amended (Title 42 USC§4321 et seq.), NEPA-implementing regulations of the CEQ (40 CFR Parts 1500–1508), and USDA's NEPA-implementing regulations (7 CFR 520).

USDA decisions that affect environmental resources and conditions occur within the framework of numerous laws, regulations, and Executive Orders (EOs). Some of these authorities prescribe standards for compliance while others require specific planning and management actions to protect environmental values potentially affected by USDA actions. Key provisions of appropriate statutes and EOs are described in more detail throughout the text of this EA.

2 Description of the Proposed Action and Alternatives

This chapter describes the Proposed Action and alternatives to the Proposed Action. In accordance with CEQ guidance in 40 CFR Part 1502.14, the purpose of this chapter is to sharply define the differences between the alternatives.

2.1 Proposed Action

Building 002

The Proposed Action would renovate the interior as well as exterior of Building 002 and construct an addition on the western portion of the building. Multiple layouts for the addition are still being considered (Figure 2-1). The addition would house the FQL public-interaction program. Designs for the addition would be compatible with historic design as much as possible. The addition would be placed on the western portion of the building for easy public access, while also limiting the public's access to research and laboratory areas in the building.

Renovations would be intended to update all utilities and laboratories, mitigate environmental concerns (e.g mold and asbestos, etc.) and provide office/lab swing as needed. As many aspects of the original interior would be maintained as possible. Renovations would restore the exterior of the building while renovating and modernizing the interior. All exterior windows and doors throughout the building would be replaced in-kind. Exterior renovations would include: demolishing the existing slate roofing to be replaced with a new slate roofing system, exterior double-hung wood window demolishment and replacement with new operable windows, exterior brick re-pointing and repaired where necessary, and building entrance renovations to meet American with Disabilities Act (ADA) requirements. Interior renovations would include the removal of existing partitions, replacement of partitions, and replacement of the existing elevator. The structural and aesthetic upgrades to the building would be designed to preserve the building's historic characteristics to the greatest extent practicable.

Building 005

The Proposed Action would renovate the interior as well as exterior of Building 005 and construct a small greenhouse. The greenhouse would be a mere 120 gsf and accompany existing greenhouses near the building. No location or designs for the greenhouse have been drafted due to project phasing. Designs for the greenhouse would be compatible with the historic design of the building and other greenhouses as much as possible.

Renovations would be intended to update all utilities, mitigate environmental concerns (e.g mold and asbestos, etc.) and provide office space as needed. Renovations would restore the exterior of the building while renovating and modernizing the interior. As many aspects of the original interior would be maintained as possible. Building 005 previously had 75% of its exterior windows replaced; the remaining original windows would be replaced with the Proposed Action. Exterior renovations would include: demolishing the existing slate roofing to be replaced with a new slate roofing system, exterior double-hung wood window demolishment and replacement with new operable windows, exterior brick re-pointing and repaired where necessary, and building entrance renovations to meet ADA requirements. Interior renovations would include the removal of existing partitions, replacement of partitions, and replacement of the existing elevator. Severe water damage evident of the building's upper floors would also be addressed. The structural and aesthetic upgrades to the building would be designed to preserve the building's historic characteristics to the greatest extent practicable. The design for Building 005 would set the precedent for the design of Buildings 002 and 308.

Building 308

The Proposed Action would renovate the interior as well as exterior of Building 308 and construct an addition on the northwest corner of the building (Figure 2-2). The addition would house the research division requiring a 10-foot ceiling and be connected to the building through a hyphen at the building's basement level. To accommodate the added weight, the site would be excavated and graded, and a retaining wall would be built. The addition would be designed to have minimal impacts on the southern approach view. Designs for the addition would be compatible with historic design as much as possible. The addition would be placed on the northwestern portion of the building for easy public access, while also limiting the public's access to research and laboratory areas in the building.

Renovations would be intended to update all utilities and laboratories, mitigate environmental concerns (e.g mold and asbestos, etc.) and provide office/lab swing as needed. As many aspects of the original interior would be maintained as possible. Renovations would restore the exterior of

Figure 2-1: Building 002 Addition Potential Layouts

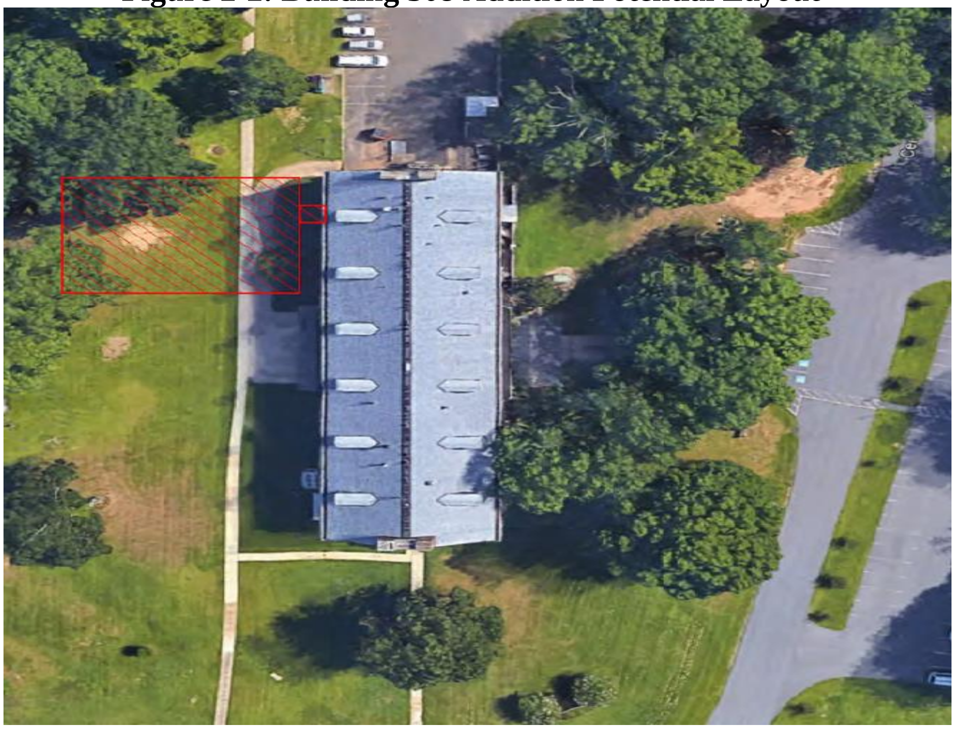
the building while renovating and modernizing the interior. All exterior windows and doors throughout the building would be replaced in-kind. Exterior renovations would include: demolishing the existing slate roofing to be replaced with a new slate roofing system, exterior double-hung wood window demolishment and replacement with new operable windows, exterior brick re-pointing and repaired where necessary, and building entrance renovations to meet ADA requirements. Interior renovations would include the removal of existing partitions, replacement of partitions, and replacement of the existing elevator. The structural and aesthetic upgrades to the building would be designed to preserve the building's historic characteristics to the greatest extent practicable.

2.2 No Action Alternative

NEPA regulations refer to the continuation of the present course of action without the implementation of, or in the absence of, the Proposed Action, as the No Action Alternative. Inclusion of the No Action Alternative is the baseline against which federal actions are evaluated and is prescribed by 40 CFR Part 1502.14 and 7 CFR Part 1b.

Under the No Action Alternative, Buildings 002, 005, and 308 would not undergo any modernizations or renovations and no additions would be constructed for Building 002 or 308. A greenhouse house would also not be built for Building 005. This alternative would continue to hinder the research and operations of the many residing research and operations of the many

Figure 2-2: Building 308 Addition Potential Layout



residing research divisions within the three buildings. Laboratory equipment would not be updated, and unsafe environmental hazards would remain within the buildings. Building 005 specifically has a roof leak and mold issue which would not be addressed, leaving unsafe work conditions for employees. In addition, the public-relations of the FQL would suffer due to a lack of appropriate and accessible space for the public to visit their offices. The programmatic requirements in Building 308 and Building 005 would not be met and hinder program abilities to operate.

2.3 Alternatives Eliminated from Further Study

In addition to the Proposed Action and the No Action Alternative, the following alternative was discussed early in the planning process but eliminated from consideration because it was infeasible and/or do not meet the project purpose and need. Accordingly, this additional alternative did not require further detailed evaluation in this EA.

2.3.1 New Building Construction

BARC is a distinguished research facility in operation since the early 20th century. Over the years, the campus function has changed and on-site research staff numbers have decreased, leaving many buildings empty across the property. This excess of square footage requires BARC to use existing buildings where practicable. This alternative involved the construction of three new buildings, which given the recommendations from NCPC and MHT to restore/renovate existing buildings was eliminated form further consideration.

3 Environmental Impacts of the Proposed Project

Chapter 3 describes existing resources at BARC that may be affected by the Proposed Action and the No Action Alternative. Photos of existing conditions on the sites are located in Appendix B.

Management measures, which would minimize potentially adverse impacts on the environment due to the Proposed Action and No Action Alternative if implemented, have been developed and specified. Management measures are described within each resource area, as appropriate within this chapter.

3.1 Land Use

3.1.1 Existing Conditions

Buildings 002, 005 and 308 are located within the Maryland National Capital Park and Planning Commission (MNCPPC) Prince George's County Sub-region I (MNCPPC, 2010) and the Langley Park/College Park/Greenbelt Master Plans (MNCPPC, 1989). The MNCPPC has recognized the importance of BARC as a scenic, low-density agricultural property that has, by function, been spared from development pressures. Existing buildings at the proposed sites are institutional, research laboratory, and office structures associated with BARC functions.

Building 002

Building 002 is located on Circle Drive of BARC's North Farm, 585 feet (ft) west of Baltimore Avenue and 0.5 miles north of the Capital Beltway Inner Loop. Access to Building 002 is via Baltimore Avenue onto Circle Drive. The site is surrounded by other institutional buildings along Circle Drive, with more BARC buildings north and south. Building 005 is just north along Circle Drive. BARC agricultural fields lie approximately 0.3 miles west beyond the BARC buildings. Circle Drive has a large mowed and maintained area extending to Baltimore Avenue to the east of Building 002.

Building 005

Building 005 is located on Circle Drive of BARC's North Farm, 682 ft west of Baltimore Avenue and 0.65 miles north of the Capital Beltway Inner Loop. Access to Building 005 is via Baltimore Avenue onto Circle Drive, with more BARC buildings to the south. BARC agricultural fields lie approximately 0.3 miles west beyond the BARC buildings. Circle Drive has a large mowed and maintained area extending to Baltimore Avenue mostly to the east of Building 005.

Building 308

Building 308 is located on the Central Farm of BARC west of Center Road. Center Road runs north/south connecting Powder Mill Road to the south and Zoology Road to the North. The Baltimore Washington Parkway lies approximately 1.2 miles east, while the Capital Beltway Inner Loop is approximately 2.3 miles southwest. Access to Building 308 is via Powder Mill Road to Center Drive. Building 308 is surrounded largely by forested area to the north and east. The building is the northernmost building in a cluster of BARC buildings along Center Drive that continue south to Powder Mill Road. To the west, there is a large open field area that is irregularly mowed.

3.1.2 Anticipated Impacts

3.1.2.1 Proposed Action

Land use in the vicinity of the three buildings would remain as it currently exists under the Proposed Action. Existing buildings at the proposed sites are institutional, research laboratory, and office structures associated with BARC functions. Thus, there would be no adverse impacts to land use with the renovations of the buildings or the construction of the additions and greenhouse onto the buildings.

Buildings 002 and 308 are utilized for agricultural research, laboratory, and office space, and would remain so under the Proposed Action. Proposed renovations and construction of additions would be consistent with the existing land use. The addition to Building 002 would house public-interaction space for the FQL, which is consistent with the building's current use. Building 005 is an agricultural research and office space and will remain so under the Proposed Action. Proposed renovations would be consistent with the current land use. All activities within the buildings would continue as they currently exist.

Building 005 is houses office space for entomological research. A greenhouse would be added for research purposes and be in keeping with the building's current land use.

3.1.2.2 No Action Alternative

No adverse impacts would occur to land use under the No Action Alternative. Functions at all buildings would continue as they currently exist. The work and research that occurs at Buildings 002, 005, and 308 are crucial and would not cease operations despite their inefficient and outdated workspaces.

3.2 Topography, Geology and Soils

3.2.1 Existing Conditions

3.2.1.1 Topography

The BARC campus is located within a rolling land environment in the Coastal Plain physiographic province of Maryland. Located in the western corner of Prince George's County, Maryland, the BARC property covers 6,582 acres north and east of Interstate 495. Buildings 002 and 005 are located on BARC's North Farm. Building 308 is located on the Central Farm.

<u>Building 002</u>

Building 002 is located at an elevation of approximately 150 ft above mean seal level (MSL) according to a review of the 1964 United State Geological Survey (USGS) topographic map for the Beltsville Quadrangle.

Building 005

Building 005 is located at an elevation of approximately 150 ft MSL according to a review of the 1964 USGS map for the Beltsville Quadrangle.

Building 308

Building 308 is located at an elevation of approximately 162 ft MSL according to a review of the 1964 USGS topographic map for the Beltsville Quadrangle. Looking west there is a downward slope towards the meadow area that stagnates around 150 ft. To the east there is a slight uphill area as well as the north.

3.2.1.2 Geology and Soils

A review of the site soil and survey maps for Prince George's County indicates that all three sites are located in the Coastal Plain Province of Maryland. The Coastal Plain is underlain by a southeastward thickening wedge of sediments that reaches thicknesses greater than 1,500 feet in the southeastern portion of the Washington, D.C., metropolitan area. The Coastal Plain sediments are approximately 200 to 350 feet thick and overlie a crystalline base. The surface is directly underlain by Quaternary river terrace deposits (10 to 20 feet thick), which overlie the Cretaceous Arundel Clay (3 to 10 feet thick), which overlies the Cretaceous sands and clays of the Patuxent Formation (150 to 250 feet thick), which overlies crystalline bedrock (USDA, 2020). The soils report the three building sites is located in Appendix C.

Buildings 002 and 005

The soil surface found at Buildings 002 and 005 is classified as Russett-Christiana-Urban land complex, 0 to 5 percent slopes. The soils are characterized as moderately well-drained soils occurring in complex linear to concave uplands and side slopes.

Building 308

The soil surface at Building 308 is classified as Russett-Christiana-Urban land complex, 0 to 5 percent slopes; Christiana-Downer-Urban land complex, 5 to 15 percent slopes; and Russett-Christiana complex, 2 to 5 percent slopes. Christiana-Downer-Urban land complex, 5 to 15 percent slopes soils are characterized as moderately well-drained soils that occur in flats, knolls, and hillocks. Russett-Christiana complex, 2 to 5 percent sloped soils are characterized by moderately well-drained soils occurring in complex linear to concave uplands and side slopes. The Russett-Christiana complex, 2 to 5 percent slopes is considered prime farmland. The soils report for Buildings 002, 005, and 308 are located in Appendix C. All soils can be seen in Figure 3-1.

3.2.2 Anticipated Impacts

3.2.2.1 Proposed Action

Minor adverse impacts to topography, geology, and soils would be expected under the Proposed Action. The areas around Buildings 002, 005, and 308 proposed for renovation and construction are currently developed, so minimal undeveloped land would be impacted during renovation and construction. No substantial soil disturbance would take place. The additions for Building 002 and 308 as well as Buildings 005's greenhouse would amount to less than one acre of land. The sites are expected to need minimal grading under the Proposed Action; therefore, impacts to topography would be minor.

The project would be conducted in accordance with the MDE *Standards and Specifications for Soil Erosion and Sediment Control* and the *Maryland Stormwater Management and Erosion Control Guidelines for State and Federal Projects*.

<u>Building 002</u>

The interior renovations of Building 002 would result in minor adverse impacts to soil and no impacts to geology. The addition would require some grading and disturb soils. The addition would be 2,200 sf in area. It would be built on the northwest corner of the building on a flat, grassy lawn area of the building. Soil movement and disturbances at Building 308 would be mitigated by the use of sediment and erosion controls that would be implemented during renovation and construction activities. Best Management Practices (BMPs) would be put in place to prevent erosion.

<u>Building 005</u>

The construction of the greenhouse would disturb less than an acre of land if grading was to be needed. It is possible grading would not be needed. The land surrounding Building 005 is developed and previously disturbed lawn area. Plans for the greenhouse have not been constructed; however, with the small 120 gsf space the greenhouse would occupy and the already impacted land on which it would be placed, minor impacts would occur. Soil movement and disturbances at Building 005 would be mitigated by the use of sediment and erosion controls that would be implemented during renovation and construction activities. BMPs would be put in place to prevent erosion.

Renovations would occur solely to the building, which would include some exterior features such as the roof, some windows, and doors to be replaced. These renovations would not affect the geology surrounding the building.

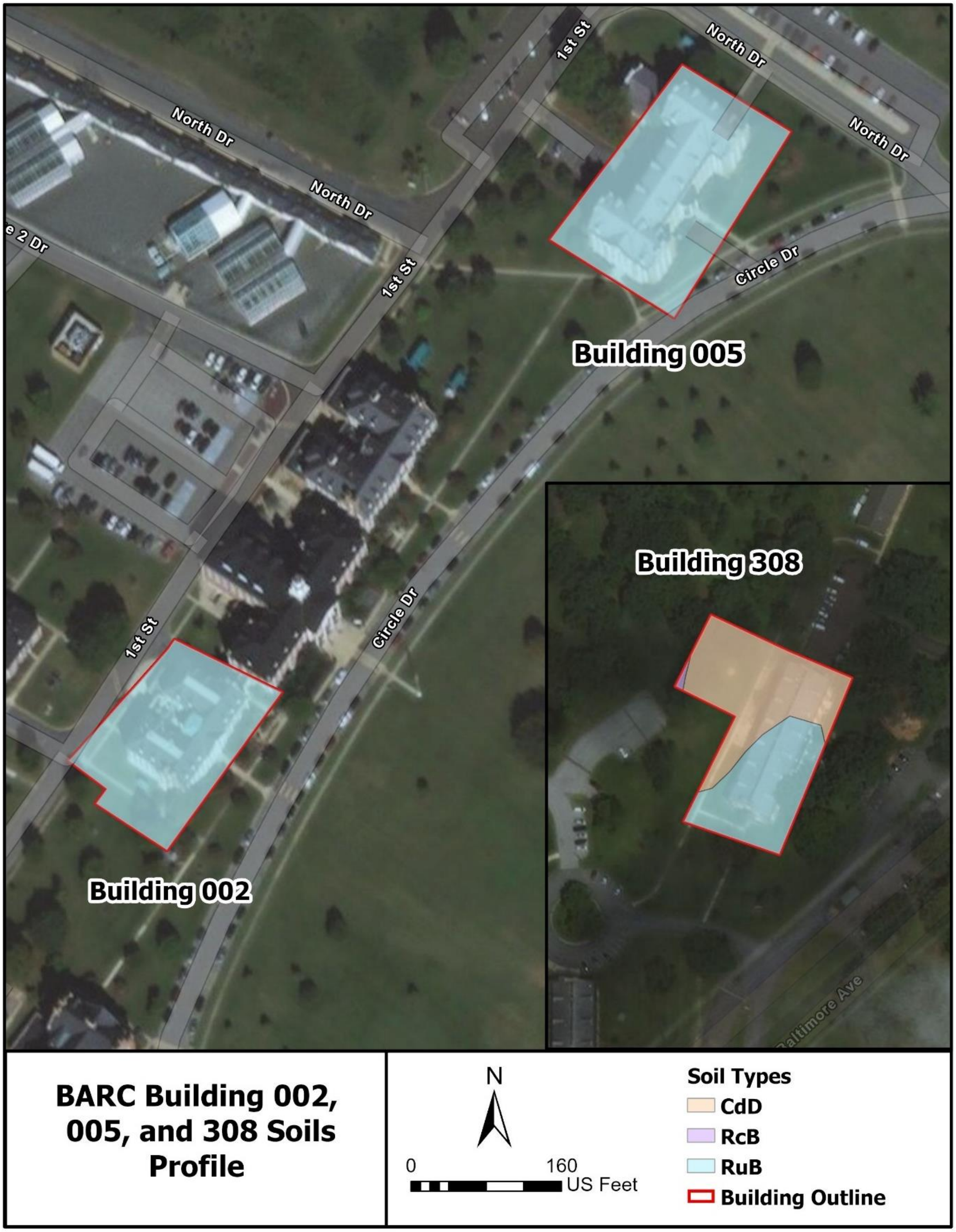
<u>Building 308</u>

Building 308 would undergo renovations similar to those at Building 005 and 002. An addition would be constructed onto the northwest section of the building. This area is mostly flat, lawn and maintained area with a small area of trees to the far north. Some ground disturbance would occur with the construction of the addition. A retention wall would be constructed as well, requiring excavation. Soil movement and disturbances at Building 308 would be mitigated using sediment and erosion controls that would be implemented during renovation and construction activities. BMPs would be put in place to prevent erosion.

3.2.2.2 No Action Alternative

Under the No Action Alternative, Buildings 002, 005, and 308 would remain in their current state. Soils would not be disturbed, and no grading or fill would occur at the site. No changes to topography, soils, or geology would result; therefore, no adverse impacts would occur.

Figure 3-1: Building 002, 005, and 308 Site Soil Profile



3.3 Prime Farmland

3.3.1 Existing Conditions

Prime farmlands include all those soils in Land Capability Class I and selected soils from Land Capability Class II. These USDA land capability classes are defined below.

Land Capability Class I: Soils have slight limitations that restrict their use.

Land Capability Class II: Soils have moderate limitations that reduce the choice of plants or require moderate conservation practices.

Land Capability Classifications are defined as a system of grouping land in various classes based on inherent limitation imposed on sustained use by soil attributes, topography, drainage, and climate. Prime farmland is ideal land to cultivate under this classification system (USDA, n.d.).

Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. It has the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when treated and managed according to acceptable farming methods, including water management. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. They are permeable to water and air. Prime farmlands are not excessively erodible or saturated with water for extended periods of time, and they either do not flood frequently or are protected from flooding (USDA, 1993).

According to Natural Resource Conservation Science (NRCS) mapping, BARC contains 56 distinct mapped soil units, including 10 soil unit types identified as prime farmland. Approximately 2,850 acres, or 44 percent, of BARC's approximate 6,500 total acres is identified as prime farmland. An additional 1,265 acres of BARC is designated as farmland of statewide importance (USDA, 2020).

The loamy soils of the Mid-Atlantic Coastal Plain ecoregion (USEPA, 2018), in which BARC is located, are naturally low in nutrients, compared to the more nutrient-rich Piedmont soils. Though the region does include prime farmland, most require liming and fertilizing to be productive for agricultural crops. The well-drained, rolling, open hills, and comparatively less forested character of the region has made it an attractive location for general farming and livestock production (Woods et al., 1999).

<u>Buildings 002 and 005</u>

The only soils underlying the limit of disturbance (LOD) of Building 002 is Russett-Christiana-Urban land complex, 0 to 5 percent slopes. This soils classification is not considered prime farmland (USDA, 2020). There is prime farmland and farmland of statewide importance within a mile of the two sites; however, these are well beyond the LOD and would not be affected.

Building 308

The only soil considered a prime farmland soil underlying Building 308 is the Russett-Christiana complex, 2 to 5 percent slopes soil. This area of the LOD is in the northwestern corner and is a very small section of the site. This area is likely compacted from development and the USDA has no intention of using it for agricultural purposes.

3.3.2 Anticipated Impacts

3.3.2.1 Proposed Action

The majority of the soils at the three sites are not prime farmland. The soils are disturbed and developed areas with no plans for agricultural use by the USDA or BARC. Farming practices and crops harvested on BARC are intended for research animals, research crops, and crops for retail. BARC owns a sufficient amount of farmland for their mission. No adverse impacts are expected to occur to prime farmland as a result of the Proposed Action.

Buildings 002 and 005

There are no soils classified as prime farmland soils within the LOD of either Building 002 or 005. There are prime farmland soils as close as a quarter mile away. However, the proposed construction and renovations would not be large or impactful enough to affect soils at that distance.

Building 308

There is a very small portion of the LOD at Building 308 that is prime farmland; however, this land is not used for farming purposes, nor would it be under the Proposed Action. The soils near the Building 308 proposed site have been compacted from usage as institutional areas. Minor adverse impacts would occur to prime farmland at Building 308.

3.3.2.2 No Action Alternative

No impacts to prime farmland would be expected under the No Action Alternative.

Buildings 002 and 005

Under the No Action Alternative, no adverse impacts would occur to the prime farmland. There is no prime farmland at either building.

Building 308

Under the No Action Alternative, no adverse impacts would occur to the prime farmland at Building 308. The area is currently operational and would remain in the same operational state with no changes. No disturbances would occur to prime farmland.

3.4 Water Resources

3.4.1 Existing Conditions

BARC lies in the eastern-central portion of the Anacostia River Watershed, which encompasses approximately 178 square miles. This watershed includes portions of Prince George's and Montgomery Counties in Maryland and the District of Columbia. The watershed spans both the Piedmont and Atlantic Coastal Plain ecoregions (USGS, 2017). Surface water runoff from the BARC campus feeds into surface water bodies via natural drainage patterns. Numerous water features are mapped across the BARC facility ranging from small, unnamed headwater tributaries that originate on the facility to long stretches of named creeks that receive and transport water off-site. Named streams include Beaver Dam Creek, Indian Creek, Little Paint Branch, and Paint Branch. Figures 3-2 and 3-3 depict surface water in the vicinity of Buildings 002 and 005 and Building 308, respectively.

3.4.1.1 Surface Water and Stormwater

Neither site contains surface water bodies. The area for all three sites is already developed and each has its own stormwater management system in place. In accordance with the Clean Water Act's (CWA) National Pollutant Discharge Elimination System (NPDES) requirements, BARC is currently evaluating and pursuing options to reduce impervious surfaces.

Buildings 002 and 005

Neither building has surface water present. There is an unnamed pond approximately 0.25 directly south of the Buildings. Little Paint Branch is approximately 0.3 miles west of the both buildings (Figure 3-2). Little Paint Branch flows into Paint Branch, to the Anacostia River. There are sufficient stormwater management systems in place for both buildings that would not be altered under the Proposed Action. Current stormwater drainage at the buildings occurs through a roof and gutter system. Building designs for the two additions at Buildings 002 and 308 would incorporate stormwater features to ensure proper drainage. The primary roof stormwater would be collected in gutters located at low points and be piped down the exterior wall to an existing underground storm system or discharged on splash blocks at grade. If possible, all gutter rain leaders should be independently connected to the site drainage.

Building 308

There are no surface water bodies present at Building 308. There is a wetland area pond approximately 0.33 directly south of the Building (Figure 3-3). There are no surface water management structures in the general area. The closet stream to Building 308 is approximately 0.25 miles to the west. The stream flows into Beaver Dam Creek, which is approximately 1 mile to the south. There is an existing wetland system to the southwest of the building that surrounds the unnamed stream. There is also an unnamed tributary of Beaver Dam Creek approximately 0.25 miles to the east. Building 308 stormwater drainage occurs through its current rooftop system. No addition stormwater management would be added under the Proposed Action.

3.4.1.2 Groundwater Resources

BARC is within the Patuxent Aquifer system, part of the larger Coastal Plain Aquifer system that underlies Prince George's County. The Patuxent Aquifer is capped by an extensive clay layer in the subsurface. The deepest water production wells (depth of 2,400 feet) in Maryland produce from the Patuxent Aquifer system and are located at the southern tip of Prince George's County. Karst features within Maryland are limited to the northern region of the state and are not present within Prince George's County (Adreasen et al., 2013). An unconfined portion of the Patuxent Aquifer recharges the western portion of BARC.

BARC pumps and treats its own well-water used for all operational purposes, including potable, laboratory, sanitary, fire suppression, and irrigation. This system includes the water treatment plant wells, storage tanks, and distribution piping (Froehling & Roberston, Inc., 2019). All three buildings receive water from the current BARC water system.

3.4.1.3 Wetlands and Floodplains

EO 11988, *Floodplain Management*, requires Federal agencies to avoid direct or indirect support of development within the 100-year floodplain whenever there is a practicable alternative. The Federal Emergency Management Agency (FEMA) uses Flood Insurance Rate Maps (FIRMs) to identify the regulatory 100-year floodplain for the National Flood Insurance Program (NFIP).

EO 11990, *Protection of Wetlands*, requires Federal agencies to avoid or minimize adverse impacts to wetlands. Construction in jurisdictional wetlands and streams is regulated by USACE pursuant to Section 404 of the CWA.

Wetlands are broadly defined in the CWA as areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The *1987 Corps of Engineers Wetlands Delineation Manual and Regional Supplements* requires the presence of wetland vegetation, soils, and hydrologic indicators for an area to be considered a wetland. Wetlands exist where all three parameters reflect persistent hydrology during the growing season.

<u>Buildings 002 and 005</u>

Buildings 002 and 005 are within Zone X, an area determined to be outside the 1% (100-year floodplain) and the 0.2% (500-year floodplain) annual chance of floods, according to a review of the FIRM Community-Panel Number 24033C0043E revised September 16, 2016 (FEMA, 2020).

There are no wetlands within the project sites, according to the USFWS Wetlands Mapper. The closest wetland lies approximately 0.4 miles to the west. This 0.96-acre freshwater pond habitat is classified as a palustrine unconsolidated bottom diked impound wetland with a permanent flood regime (PUBHh). There is also a 0.38-acre small freshwater pond, approximately 0.3 miles to the south of the buildings classified as a palustrine unconsolidated bottom, excavated wetland with a permanent flood regime (PUBHx) (USFWS, 2020b).

Figure 3-2: Building 002 and 005 Surface Water and Wetlands

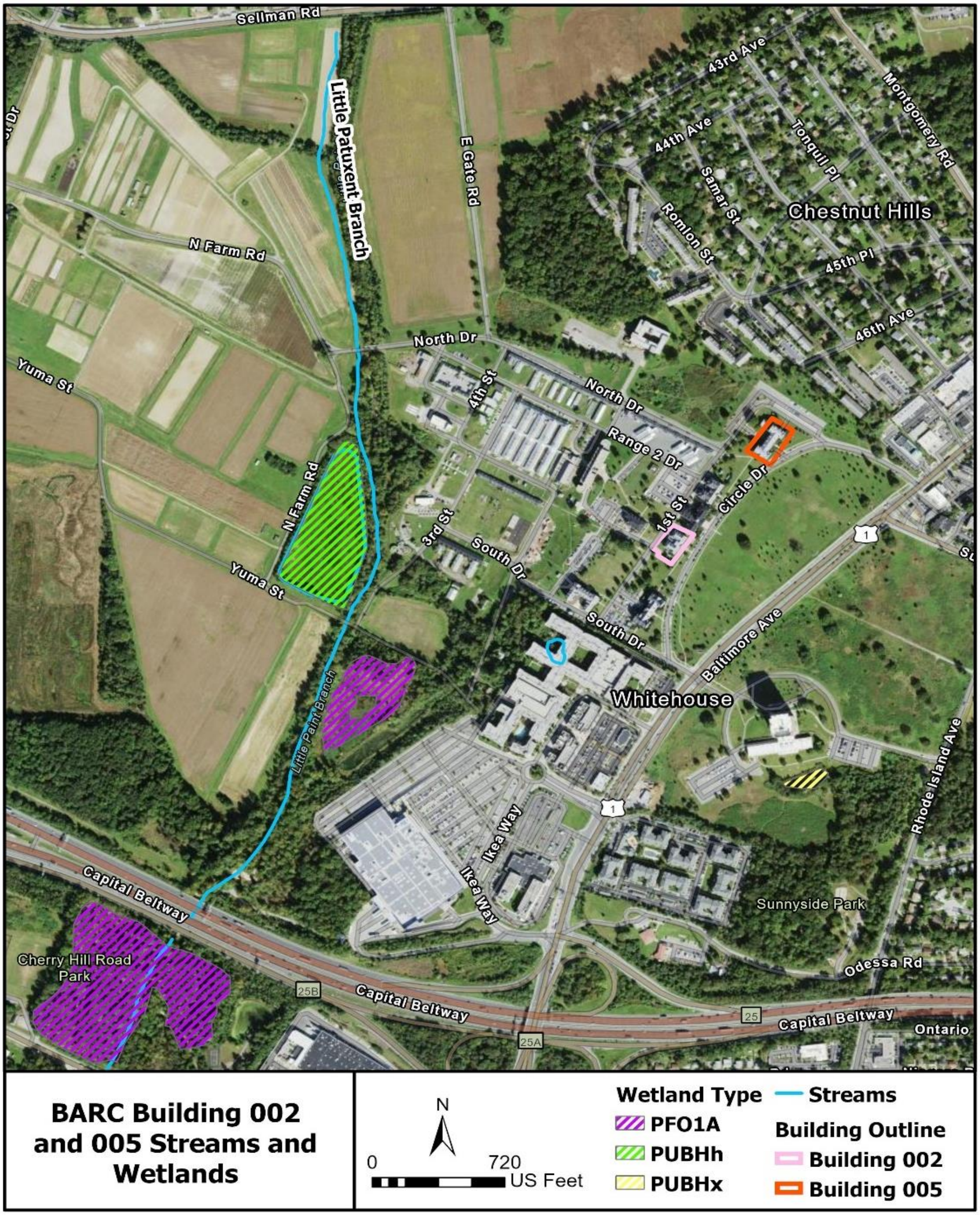
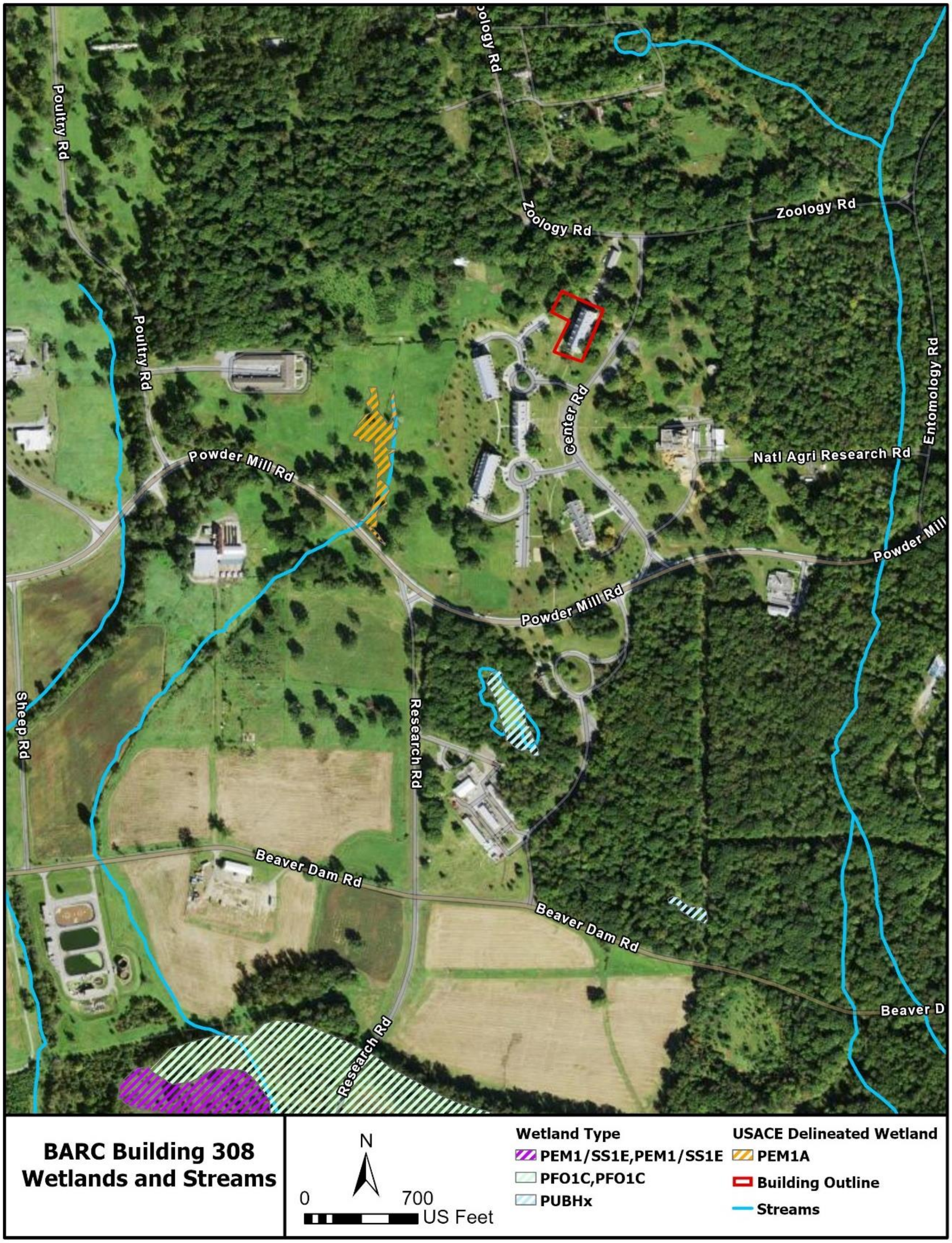


Figure 3-3: Building 308 Surface Water and Wetlands



Building 308

Building 308 is within Zone X according to a review of the FIRM Map Community-Panel Number 24033C0065E revised September 16, 2016 (FEMA, 2020).

There are no wetlands within the proposed sites, according to the USFWS Wetland Mapper. The closest wetland lies approximately 0.25 miles to the southwest. This is a 1.68-acre palustrine emergent wetland with persistent vegetation and a temporary flood regime (PEM1A) wetland (USACE, 2021)

3.4.2 Anticipated Impacts

3.4.2.1 Proposed Action

The Proposed Action would have minor expected adverse impacts on stormwater, surface water and wetlands, but no expected impacts to groundwater or floodplains. While no surface water bodies or wetlands are within the LODs for the proposed sites, there would be the potential for minor impacts to surface water, wetlands, and stormwater due to runoff during construction. Construction activities typically result in clearing of vegetation, disturbance of soils, and stockpiling of construction materials, thus increasing the potential for runoff and sedimentation downstream. The implementation of stormwater BMPs would greatly minimize any offsite pollution to surface water, wetlands, and stormwater; however, any temporary, minor, adverse impacts resulting from construction would be addressed through the applicable permitting process. All Federal and state requirements for stormwater management would be met.

During the proposed renovation, all water service to three buildings would be temporarily stopped to allow for safe renovation and construction activities to take place. Stormwater runoff during construction would be controlled through use of BMPs and all temporarily disturbed areas would be graded and re-vegetated upon completion of construction, in accordance with a construction general permit for stormwater. Standard erosion and sediment control techniques to protect surface water resources would be applied.

The projects would comply with state and Federal stormwater management requirements, including those related to water quality and quantity control. The stormwater BMPs implemented would be designed in accordance with the MDE *Stormwater Design Manual Volumes I & II*, revised in 2009 with environmental site design requirements, the *Maryland Stormwater Management Guidelines for State and Federal Projects*, all of MDE's applicable Technical Memoranda, and Energy Independence and Security Act (EISA) Section 438, which instructs Federal agencies to "use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property" for any project with a footprint that exceeds 5,000 sf. The Proposed Action is larger than 5,000 sf and, once engineering plans are refined, would comply with the regulation. BARC is also currently evaluating and pursuing options to reduce impervious surfaces pursuant to the Clean Water Act's NPDES requirements, and as part of this effort, BARC would account for any increases in impervious surfaces under the Proposed Action.

Given the distance of the water treatment plant from Buildings 002, 005, and 308 and the depth of the groundwater, the planned development at the three proposed sites are not anticipated to have any impact on wells at BARC. Construction of the foundation, stormwater features, and utilities would not require deep soils excavations. Therefore, it is not anticipated to require excavation at a depth that would possibly intersect shallow groundwater or impede any shallow groundwater movement. Water usage at both proposed buildings would be comparable to current usage, and because water conservation measures required under EO 13834, *Efficient Federal Operations*, would be met, no adverse impacts are expected to occur.

After renovation is complete, all construction-related groundwater usage would stop. The use of potable water at BARC would remain essentially unchanged, as operations at the three buildings would remain nearly the same, with the exception of any water usage in the additions to Buildings 002 and 308 or the greenhouse at Building 005. No adverse impacts to the groundwater are anticipated.

3.4.2.2 No Action Alternative

Under the No Action Alternative, no impacts would occur to surface water and stormwater, groundwater, wetlands or floodplains. No changes would occur to the three buildings and operations would continue as they currently occur.

3.5 Biological Resources

3.5.1 Existing Conditions

3.5.1.1 Vegetation

BARC is a part of the Piedmont Upland region of Maryland, which typically consists of Oak/Hickory forest and occupies the foothills west of the coastal plains. It encompasses approximately 6,582 acres, with a mixture of forest, pasture, farmland, buildings, and wetlands. The North Farm is primarily composed of forests and farmland, with scattered buildings and development present. The forests typically consist Oak/Hickory and Maple/Cherry old growth or mature stands. The Central Farm is primarily farmland, building space, and forested areas. The forested areas are generally the same as the North Farm. The Piedmont region was farmed heavily upon the colonization of the United States, and consequently, has few remaining old growth forest stands. BARC, consisting primarily of prime farmland, was converted to agricultural fields and most forest stands are secondary growth forests that have reached maturity after their agricultural purpose was served.

Native hardwood and bottomland forest areas are present across the facility. Dominant upland tree species on and near BARC include oaks (*Quercus* spp.), maples (*Acer* spp.), Virginia pine (*Pinus virginiana)*, and black cherry (*Prunus serotina*). Lesser stands of American holly (*Ilex opaca*), black gum (*Nyssa sylvatica*), sweet gum (*Liquidambar styraciflua*), beech (*Fagus* spp.), and sassafras (*Sassafras* spp.) occur in the uplands. Along the many drainageways that cross the facility, bottomland forests include willow oak (*Quercus phellos*), sweet gum, river birch (*Betula nigra*), and red maple (*Acer rubrum*), with Northern Spicebush (*Lindera benzoin*), buttonbush (*Cephalanthus* spp.), fetterbush (*Pieris* spp.), pepperbush (*Croton* spp.), and tussock sedge (*Carex stricta*) commonly found in the shrub layer.

Buildings 002 and 005

Buildings 002 and 005 are surrounded by other BARC facilities. Farmlands are to the west of the buildings, while a residential neighborhood lies to the north, with a small forested area on the east portion. Circle Drive to the east of the buildings has an open, grassy area. The Capital Beltway lies to the south. The Proposed Action would only affect the immediate area surrounding Buildings 002 and 005, where little vegetation is present.

Building 308

Building 308 lies within a cluster of BARC buildings that run north-south on Center Road. It is the northern most building of the cluster. There is a large forest that expands east-west just north of the building. In addition, there is forested area to the southeast. The LOD for the project would not encroach any of the forested area. There are ornamental trees close to the building that may require removal.

3.5.1.2 Rare, Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 (16 USC 1531-1544) provides a program for the conservation of rare, threatened and endangered (RTE) plants and animals and their habitats. Under Section 7 of the ESA, Federal agencies, in consultation with the USFWS and/or the National Marine Fisheries Service (NMFS), are required to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any special status species of fish, wildlife, or plants, and their habitats. Special status species include those that are candidates for, proposed as, or listed as RTE.

Most avian species native to the United States are protected under the Migratory Bird Treaty Act (MBTA) and bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (BGEPA). The MBTA authorizes federal regulation of the take of migratory birds and is a primary instrument in migratory bird conservation and protection in the United States. Protection under the MBTA and BGEPA includes protection of nests. No known nests are within the proposed areas.

An IPAC report was generated in accordance with USFWS guidance for Buildings 002, 005, and 308 (Appendix D). No RTE species have been documented at the buildings, but all three sites contain potential habitat for the federally endangered northern long-eared bat (NLEB). It should be noted that inclusion in this list does not necessarily mean that a species is known to occur within the BARC facility, but only acknowledges the potential for its occurrence based on historic records, known ranges, and presence of habitat (USFWS, 2020a).

The NLEB can be found across much of the eastern and north central United States and all Canadian provinces from the Atlantic coast west to the southern Northwest Territories and eastern British Columbia. NLEBs are colonial hibernators, entering their winter hibernacula in late August or September. After spring emergence, bats migrate to summer roosting and foraging grounds. In summer, the species is often associated with forested habitats where the bats make use of tree roosts, especially near water sources (USFWS, 2020a). Loose bark, broken tree limbs, cavities, and cracks in a tree can all be used by bats as roosting sites. Most frequently, they are found hanging singly or in small groups (MDNR, 2017). NLEBs forage for insects over water, in forest clearings, and under tree canopies, using echolocation to catch prey and to navigate. They may also glean insects off leaves and other surfaces, a behavior that may be aided by their unusually large ears (USFWS, 2020a).

The IPAC Report generated a list of 13 migratory birds within the three building sites (Appendix D). This list does not necessarily include all possible migratory birds within each project site. Bald eagles are listed as possible migratory inhabitants of the area. These birds are specifically protected under the BGEPA. The other 12 migratory birds species include: Black-billed Cuckoo (*Coccyzus erythropthalmus*), Bobolink (*Dolichonyx oryzivorus*), Canada Warbler (*Cardellina canadensis*), Dunlin (*Calidris alpina arcticola*), Golden-winged Warbler (Vermivora chrysoptera), Lesser Yellowlegs (*Tringa flavipes*), Prairie Warbler (*Dendroica discolor*), Prothonotary Warbler (*Protonotaria citrea*), Red-headed Woodpecker (*Melanerpes erythrocephalus*), Rusty Blackbird (*Euphagus carolinus*), Semipalmated Sandpiper *(Calidris pusilla*), and Wood Thrush (*Hylocichla mustelina*).

<u>Buildings 002 and 005</u>

Buildings 002 and 005 are in a developed area with residential areas surrounding them. The LOD for both buildings only encompasses mowed, developed land. No NLEBs have been documented within their vicinities. There are also a very limited number of trees surrounding the buildings. Of the few trees in close proximity, none meet the criteria for NLEB roosting.

<u>Building 308</u>

Building 308 is surrounded by forested area to the north. The forested areas are not with the LOD of the Proposed Action. Both during and after construction of the Proposed Action, all forested areas surrounding the site would remain undisturbed. Given the large area of forested near Building 308, NLEBs could exist on the property; however, they have never been documented to occur on the site. The site itself is unlikely to provide roosting for NLEBs, as they prefer mature trees in forested areas. Only singular trees exist within the LOD of the building.

3.5.2 Anticipated Impacts

3.5.2.1 Proposed Action

Minor adverse impacts to vegetation would be expected to occur under the Proposed Action. Tree removal would possibly occur at all three buildings. The forested area surrounding Building 308 would not be disturbed. Any grasses disturbed during construction would be replanted with native grasses, so impacts would be negligible.

Any required tree clearing would be subject to time of year restrictions to avoid adverse impacts to roosting bats. To avoid prohibited incidental take of NLEBs during the pup season, the USFWS avoidance measure prohibits any tree removal from June 1 to July 31. Tree removal is defined as cutting down, harvesting, destroying, trimming, or manipulating trees, saplings, or snags. This seasonal restriction on tree removal is not required when removing hazardous trees for the protection of human life and property, as incidental take resulting from hazardous tree removal is exempted by the USFWS's 4(d) rule (USFWS, 2020a). Projects that incorporate this USFWS avoidance measure do not require further coordination with the USFWS regarding RTE species and/or special concern species and resources under the ESA (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.).*

All project activities that could result in migratory bird take outside the maximum migratory bird nesting season (mid-March through mid-August) would be avoided to the greatest extent possible. If this is not possible, then any habitat alteration, removal, or destruction during the primary nesting season for migratory birds (May through August) would be avoided; although, nesting seasons vary by species.

Minor adverse impacts to RTE species could occur at either site due to potential wildlife disturbance from operating equipment noise during construction. These impacts would be temporary and any wildlife that is disturbed by increased human activity and noise levels from heavy equipment during construction would return once construction is complete and additional personnel and machines needed for construction have left. There are no mature forest stands on any of the sites that would be suitable for NLEBs; however, time of year restrictions would be observed, as appropriate to minimize potential impacts. No adverse impacts to nesting eagles are anticipated as no known nests exist near the proposed sites.

<u>Buildings 002 and 005</u>

Buildings 002 and 005 and their surrounding areas have been previously disturbed due to construction. Any areas with removed or disturbed soil would be reseeded with native grass. There are no forests or suitable habitat for RTE species within the LOD of the buildings, limiting the potential for RTE species near Buildings 002 and 005. Any occurrence of RTE species would be expected to be limited to foraging. However, construction activities could temporarily disturb RTE or migratory bird species near the site if they do exist.

<u>Building 308</u>

Building 308 does have adjacent forested areas; however, the LOD of the building does not extend into the forest. The area surrounding Building 308 is disturbed from previous construction of BARC facilities and roadways. Any areas with removed or disturbed soil would be reseeded with native grass. The forested area just north of the site provides the potential for NLEB and migratory birds to exist on the property, though none have been documented. Construction activities could temporarily disturb RTE species near the site. These impacts would be temporary and any wildlife that was disturbed during construction would return once construction was complete. Therefore, there are no expected impacts to vegetation and potential minor adverse impacts to RTE species during construction.

3.5.2.2 No Action Alternative

Under the No Action Alternative, there would be no changes to biological resources. Thus, no impacts would occur to either proposed site. The three sites are all currently developed and would not undergo any renovations or construction.

3.6 Cultural Resources

3.6.1 Existing Conditions

Cultural resources include "historic properties" as defined by the NHPA of 1966, "cultural items" as defined by the Native American Graves Protection and Repatriation Act of 1979 (NAGPRA), "archaeological resources" as defined by the Archaeological Resource Protection Act of 1979 (ARPA), "sacred sites" as defined by EO 13007 to which access is afforded under the American Indian Religious Freedom Act (AIRFA) of 1987, and collections and associated records as defined in 36 CFR Part 79.

Archaeological resources consist of locations where prehistoric or historic activity measurably altered the earth or produced deposits of physical remains. Architectural resources include standing buildings, districts, bridges, dams, and other structures of historic significance. Traditional cultural properties include locations of historic occupations and events, historic and contemporary sacred and ceremonial areas, prominent topographical areas that have cultural significance, traditional hunting and gathering areas, and other resources that Native Americans or other groups consider essential for the persistence of their traditional culture.

Several Federal laws and regulations—including the NHPA of 1966, the Archaeological and Historic Preservation Act of 1974, the AIRFA of 1978, the ARPA of 1979, and the NAGPRA of 1990—have been established to manage cultural resources. In order for a cultural resource to be considered significant, it must meet one or more of the following criteria from 36 CFR Part 60.4 *Criteria for evaluation* for inclusion on the NRHP:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and

1) Are associated with events that have made a significant contribution to the broad patterns of our history;

2) Are associated with the lives of persons significant in our past;

3) Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

4) Have yielded, or may be likely to yield, information important in prehistory or history.

In order to identify historic properties with the potential to be affected by an undertaking, Federal agencies must define the area of potential effect (APE). The APE, defined by 36 CFR Part 800.16 is the geographic area in which an undertaking may directly or indirectly cause changes in the use or character of a historic property. The APEs for Buildings 002, 005, and 308 would include the limits of the proposed ground disturbance and those areas from which the Proposed Action is visible.

3.6.1.1 Architectural Resources

Buildings 002 and 005 are located within the bounds of BARC's North Farm while Building 308 is located within the bounds of BARC's Central Farm. The North Farm is composed of 549 acres and represents the earliest development of the federal facility. Acquired by the U.S. Bureau of Plant Industry/ USDA in 1932, the North Farm Historic District is comprised of 10 contributing resources with Gregorian Revival style architecture. The Central Farm encompasses approximately 2,980 acres and represents the original acreage purchase by the USDA in 1910. Historically is was used by the Bureaus of Dairy Industry and Animal Industry and contains the majority of research building clusters on BARC today.

The entire BARC facility, including the North and Central Farms, is a historic district, Maryland Inventory of Historic Places (MIHP) PG: 62-14 found in Appendix E, determined eligible for inclusion in the NRHP in 1998 (MHT, 1998), also found in Appendix E. BARC is eligible under Criterion A as an important site which reflects the development of a national center for agricultural experimentation and testing. It is the main research facility of the USDA and is the leading and most diversified agricultural research complex in the world.

BARC is also eligible under Criterion C because the mission of the facility has remained constant over the years, the landscape of open agricultural fields and clusters of Georgian Revival Style research buildings reflects a strong level of integrity. The physical appearance of BARC was strongly influenced in the 1930s by the planning team of A.D. Taylor, landscape architect, and Delos Smith, architect. The Civilian Conservation Corps and the individual bureaus at BARC also played important roles in shaping the landscape (MIHP, 2020).

The entire North Farm is a historic district, MIHP PG: 61-20, determined eligible for inclusion in the NRHP in 1995 (MHT, 1998). The North Farm is also eligible under Criterions A and C. The North Farm was the primary national research facility of the Bureau of Plant Industry. Scientists and administrators in the Bureau were responsible for many important discoveries in the field of plant research, including work in the area of improving fruit, horticultural and forage crops. Architecturally, the district forms a cohesive grouping of Georgian Revival buildings.

<u>Buildings 002 and 005</u>

According to MIHP form (PG 61-20), Buildings 002 and 005 are a contributing element to the larger NRHP eligible North Farm District under Criteria A and C. However, they are not individually eligible for the NRHP. MIHP form (PG: 62-14) completed in 2017, lists Building 002 and 005 as a contributing factor to the larger BARC Historic District. Buildings 002 and 005 are a contributing factor to both Historic Districts (BARC and the North Farm) because of their Gregorian Revival architectural style.

<u>Building 308</u>

Building 308, also known as the North Laboratory or Departmental Administration Building, was constructed between 1938 and 1940 and originally housed the Fertilizer Investigation Division of the Bureau of the Plant Industry. According to an MIHP form (PG: 62-14), completed in 2017 Building 308, it is a contributing element to the larger BARC Historic District. While Building

308 is not individually significant, it contributes to the overall significance of BARC with its Colonial Revival style. The interior of the building has been extensively altered since its construction; however, it still retains the original building footprint.

3.6.1.2 Archaeological Resources

Several archaeological surveys have been conducted across BARC property over the years. Of the 35 archaeological sites identified on BARC, 25 are prehistoric, eight are historic-age, and one has both prehistoric and historic-age components. Two sites have been determined eligible for NRHP inclusion, 13 have been determined ineligible, and 19 have unknown/undetermined eligibility.

No archaeological surveys have been conducted within the APE of Buildings 002, 005, or 308, and no archaeological sites have been previously identified.

3.6.2 Anticipated Impacts

3.6.2.1 Proposed Action

Under the Proposed Action, minor adverse impacts would occur to the Building's 002, 005, and 308. Proposed ground disturbance around the buildings and along the access road would take place in areas that have been previously disturbed and have a low potential to contain significant archaeological resources. Should any archaeological resources be inadvertently discovered during construction, these construction activities would be halted, the appropriate agencies and Tribes would be contacted, and an archaeological investigation would be conducted, as appropriate.

<u>Buildings 002 and 005</u>

While the interior of the buildings would be completely renovated, exterior character-defining features would be retained. The Georgian Revival style would continue to be visible. All replacements of windows and doors would be in-kind replacements so as to preserve the historic look of the buildings. Coordination with NCPC and the MHT is being conducted to ensure that all designs would be in congruence with the historical structures and style. The addition onto Building 002 would be designed to reflect Gregorian Revival styles and be in keeping with the current architecture. The greenhouse would also be designed to reflect architecture of Building 005 as much as possible. Coordination with NCPC would ensure this to the greatest extent possible. Proposed alterations that would impact cultural resources include removal of partitions, window replacements, replacement of the elevator, and redesigning of the interior of the buildings.

<u>Building 308</u>

The design for the addition for Building 308 would adhere to the current architectural style. All replacements of exterior features would be in-kind replacements to preserve the historical look of the Building. Coordination with NCPC and the MHT are being conducted to ensure the renovations and construction would preserve the Colonial Revival Style of the building. Proposed alterations that would impact cultural resources include removal of partitions, window replacements, and redesigning of the interior of the buildings.

3.6.2.2 No Action Alternative

Under the No Action Alternative, Buildings 002, 005, and 308 would not be renovated in any way. All three buildings are contributing factors to the BARC Historic District with Buildings 002 and 005 also contributing factors to the North Farm Historic District. If the Proposed Action is not executed, the buildings would continue to suffer from upkeep issues such as mold and asbestos.

3.7 Socioeconomics

3.7.1 Existing Conditions

Socioeconomic factors are defined by the interaction or combination of social and economic factors. The relevant factors related to BARC include population, employment, environmental justice, and protection of children.

3.7.1.1 Population and Employment

During 2018, BARC employed approximately 540 people, including scientists, professional staff, administrative and facilities support, and visiting scientists and students (USDA, 2018a). This workforce represents a relatively small portion of the 2018 Prince George’s County Maryland estimated population of 909,308 (U.S. Census Bureau, 2018) and 2018 average estimated labor force of 504,423 (U.S. Department of Labor, 2019).

The population of Maryland increased by 4.7 percent from 2010 to 2018. The population growth rates of Prince George’s County and Beltsville were higher than the statewide average over the same period, at 5.3 percent and 6.7 percent, respectively. However, the population of Prince George’s County is projected to grow at an average annual rate of 0.4 percent from 2018 to 2030, slower than the projected state population growth rate of 0.7 percent annually over that same period.

The 2018 U.S. Census Bureau data showed an estimated labor force in Greenbelt and Beltsville of 16,087 out of a group of 20,962 residents of ages 16 years and over. This showed a participation rate of 69 percent with a 6.5 percent unemployment rate. This participation rate is higher than the national average of 63.3 percent. The distribution of employment is as follows: private sector 80.5 percent; government 13.4 percent; and self- employed 5.9 percent. The median household income is $61,937; the mean is $87,864. Approximately 11.5 percent of the households were considered below the poverty income level (U.S. Census Bureau, 2018).

3.7.1.2 Environmental Justice and Protection of Children

Environmental justice addresses the race, ethnicity, and poverty status of populations within the Region of Influence (ROI). The ROI for socioeconomic characteristics encompasses Prince George’s County, Maryland. This ROI includes BARC and the immediately surrounding communities that have direct and indirect socioeconomic relationships with BARC. On 11 February 1994, President Clinton issued EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, to focus the attention of federal agencies on the human health and environmental conditions in minority and low-income communities. Environmental justice analyses are performed to identify potential disproportionate adverse effects from proposed actions and to identify alternatives that might mitigate these effects.

The term minority refers to people who classified themselves as American Indian or Alaskan Native; Asian or Pacific Islander; African Americans or Black, not of Hispanic origin; or Hispanic. Minority populations are defined as areas where racial minorities comprise 50 percent or more of the total population (CEQ, 2016). Because CEQ guidance does not establish a threshold for low-income communities, a low-income population is one with at least 25 percent or greater of its population living in poverty for the purposes of this EA.

On 21 April 1997, President Clinton issued EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, directing each federal agency to ensure that its policies, programs, activities, and standards address disproportionate environmental health or safety risks to children that may result from the agency's actions. EO 13045 recognizes that a growing body of scientific knowledge demonstrates that children may suffer disproportionately from environmental health and safety risks due to still developing neurological, immunological, physiological, and behavioral systems. Examples of risks to children include increased traffic volumes and industrial- or production-oriented activities that would generate substances or pollutants that children could come into contact with and ingest. Historically, children have not been present as students, residents, or frequent visitors at BARC.

3.7.2 Anticipated Impacts

3.7.2.1 Proposed Action

There would be no increase in the population or workforce of BARC due to the Proposed Action. There would not be any expected adverse impacts to environmental justice, as even though approximately 76 percent of the population in the Beltsville area are racial minorities, the Proposed Action would take place on federal property away from all but a handful of residences or facilities that are used by the general public. Additionally, the Proposed Action is not within the vicinity of a child development center or school, so there are no areas where children would be disproportionately affected by construction impacts. Implementation of the Proposed Action would not result in adverse impacts on socioeconomics.

Construction would require the temporary employment (by the construction contractor) of skilled laborers. Additionally, construction would require the purchase of supplies and materials from local and regional vendors. The temporary increase in employment and spending on materials would have a short-term, minor beneficial impact on the local companies that this funding would support, but only a negligible impact on the regional socioeconomic conditions. These construction-related beneficial impacts would end once construction is completed.

3.7.2.2 No Action Alternative

No impacts to socioeconomic conditions would occur under the No Action Alternative. The workforce at BARC would remain as it is currently if the Proposed Action were not to be carried out.

3.8 Transportation

3.8.1 Existing Conditions

The BARC facility is approximately 15 miles (by road) northwest of Washington, D.C. It is accessible from several major highways running adjacent to or through the facility, including I-94/I-495 (the Capital Beltway), U.S. 1 (Baltimore Avenue), and MD 295 (Baltimore-Washington Parkway). Numerous minor paved roads provide direct access to buildings and building clusters for the public and personnel. Multiple transit systems provide access directly to the BARC facility and destinations within the surrounding area. Parking is provided within most building complexes accessible to employees and visitors at no cost (USDA, 2018a).

The northern terminus of the Washington Metropolitan Area Transit Authority (WMATA) green and yellow Metrorail lines (collocated) is located at the WMATA Greenbelt Station, which is located south of I-495, between the intersections with Rhode Island Avenue and Cherrywood Lane, near the southern boundary of the Linkage Farm. The green and yellow Metrorail lines provide access south into Washington, D.C. The Maryland Area Regional Commuter (MARC) train provides regional service to the area, with two stops outside the BARC facility, at the Greenbelt Station just south of the Linkage Farm and the Muirkirk Station north of the Central Farm (MDOT, 2019).

WMATA and the Regional Transportation Agency (RTA) of Central Maryland provide bus services near BARC and have multiple routes that cross and run adjacent to the BARC facility. These routes provide access to the Central, Linkage, and North Farms (WMATA, 2018). The USDA also provides a limited shuttle service for BARC employees that connects to the WMATA Greenbelt Metro Station and makes stops at several BARC building locations (USDA, 2016).

<u>Building 002</u>

Building 002 is located on Circle Drive of BARC's North Farm, 585 feet (ft) west of Baltimore Avenue and 0.5 miles north of the Capital Beltway Inner Loop. Access to Building 002 is via Baltimore Avenue onto Circle Drive. Circle Drive only serves as building access for visitors to BARC or BARC employees, not a as a through road to public traffic. The site is surrounded by other institutional buildings along Circle Drive, with more BARC buildings to the west. The building is served by surface parking to the west, accessed from First Street off South Drive, and by parallel parking spaces along Circle Drive.

There is adequate parking behind Building 002 and off Circle Road and no new work besides the addition of ADA handicap spaces would occur. Handicap accessible spaces would be designed for the shortest and easiest route to ramps and sidewalks. The design would meet all ADA guidelines. There are parallel parking spaces along Circle Road and parking lots north and west of the site. Parking requirements, including the number of handicap accessible spots, would be based on estimated building occupancy.

Building 005

Building 005 is located on Circle Drive of BARC's North Farm just north of Building 002, 682 ft west of Baltimore Avenue and 0.65 miles north of the Capital Beltway Inner Loop. Access to Building 005 is via Baltimore Avenue onto Circle Drive. This building is served by surface parking to the north and west and accessed from Circle Drive as well as by parallel spaces along Circle Drive.

Building 308

Building 308 is part of a cluster of buildings used as laboratory/office space on the Central Farm of BARC. This cluster of buildings and associated surface parking is accessed by the north-south oriented Center Road, which connects Powder Mill Road to the south and Zoology Road to the north. Powder Mill Road is often used as a conduit for public through traffic, particularly to and from MD 295, along with traffic associated with facility personnel. However, Center Road is not frequented by public traffic. The Baltimore Washington Parkway lies approximately 1.2 miles east, while the Capital Beltway Inner Loop is approximately 2.3 miles southwest.

The existing main parking lot has 65 total spaces. Of those spaces only two (2) are ADA accessible. According to the ADA guidelines, there needs to be a minimum of three (3) accessible parking spaces for a car, and a minimum of one (1) van-accessible parking space. Design criteria would be followed from Section 502 of the 2010 ADA Standards for Accessible Design requirements.

3.8.2 Anticipated Impacts

3.8.2.1 Proposed Action

The Proposed Action would have no impact on the main roadway system providing access across the BARC facility. No impact would occur on the WMATA bus service or the BARC employee shuttle service that operates on BARC roadways. Similarly, no impacts would occur on the off-BARC Metrorail or commuter train service or infrastructure. The Proposed Action is intended to provide safer and more efficient working conditions for existing functions on BARC, as opposed to accommodating additional employees; therefore, no additional volume of traffic on roadways in the area or ridership on public transportation is anticipated as part of the Proposed Action.

In the short term, minor impacts on traffic traveling on the local roads would occur due to the temporary increase in vehicles and large equipment accessing the BARC facility and travelling within the facility during construction and renovation activities. Increased vehicle and heavy equipment traffic could cause minor disruptions to traffic flow during peak travel times. Areas for staging and laydown as well as haul routes would be coordinated with BARC prior to construction. Any roadway damage caused by heavy equipment would be repaired as quickly as possible. There would be no impacts to long-term traffic patterns because there would be no change in the number of personnel commuting to the sites.

3.8.2.2 No Action Alternative

Under the No Action Alternative, no adverse impacts would occur to traffic and transportation. There would be no impacts from construction vehicles and workers accessing the sites, and no impacts to traffic patterns because there would be no change in the number of personnel commuting to the sites.

3.9 Utilities

Existing underground utilities currently serve Buildings 002, 005 and 308. These utilities include water, sewer, steam, gas, and storm lines.

3.9.1 Existing Conditions

3.9.1.1 Wastewater Treatment Facilities

The USDA operates and maintains two wastewater treatment plants (WWTP) on BARC, one located on the west campus and one located on the east campus. Gravity piping and an adjacent lift station carry sanitary sewerage to the onsite wastewater treatment plant (WWTP). Due to a current renovation project, the WWTP and lift station would have an increased capacity and are assumed to be adequate for these renovation projects.

3.9.1.2 Solid Waste Disposal

Non-hazardous solid waste (e.g., standard office waste and non-hazardous laboratory wastes) generated by operations at BARC are disposed of off-site. Each active building or site that generates waste has waste management and disposal protocols in place, including recycling of several material types. A project-specific waste management plan would be developed for the construction and renovations associated with the Proposed Action.

3.9.1.3 Electricity

Building 002

The electrical system serving Building 002 is outdated and undersized and would be replaced. The existing 13.2 kilovolt (kV) – 208Y/120V transformer would be replaced by a new 13.2kV – 480 wye (Y)/277V transformer. The new transformer would be placed in the existing transformer's location. The existing 300 kilovolt-amp (KVA) generator is beyond its useful life and does not have the proper output voltage for the renovated space and proposed addition. The existing generator, associated wiring and fuel systems would be removed, and a new generator located near the current location, outside of the building, would be installed.

A 480Y/277V, 3-Phase, 4-Wire emergency/standby diesel generator would be provided to serve Building 002. Emergency power would be provided to all life safety and loads including equipment, including egress lighting, passenger elevator, and fire pump.

Building 005

While no details are available for the Building 005 renovations at this time because the phasing of these projects puts its implementation after those for Buildings 002 and 308, similar upgrades to the outdated electrical systems would be undertaken as those in Building 002. The greenhouse would be expected to need minor electrical work. Any electric implemented in the greenhouse would be as efficient and up-to-date as possible in keeping with the rest of the modernizations efforts of Building 005.

Building 308

Building 308 is served by a 1000 KVA, 13.2kV-208Y/120V transformer. The transformer is well maintained and in good working order. However, a 480Y/277V systems is a much more efficient distribution system for a building of this size. The transformer would be replaced with a new 13.2kV – 480/277V transformer in the existing location. The building is also supported by two (2) 125 kilowatt (KW) generators, one for life safety, the other for optional standby loads. Each generator appears beyond its useful life and does not have the proper output voltage for the renovated space and proposed addition. The existing generators and associated wiring and fuel systems would be removed, and a new generator located near the current location would be installed. Due to the age and condition of the existing building electrical distribution system, in addition to the extent of the renovation within the building, the entire distribution system would be replaced. A 480Y/277V, 3-Phase, 4-Wire emergency/standby power diesel powered generator would be provided. A single generator would be provided instead of two (2), as with the previous installation. Emergency power would be provided to all life safety and legally required standby equipment, including egress lighting, the passenger elevator, and all fire alarm equipment, including the fire pump.

3.9.1.4 Natural Gas

Natural gas for the three building is provided by Washington Gas. The existing natural gas service has adequate capacity to serve the building renovations and new additions.

3.9.2 Anticipated Impacts

3.9.2.1 Proposed Action

Overall, there would be expected minor adverse impacts to wastewater, solid waste, electricity, and natural gas during construction only. No adverse impacts to wastewater, solid waste, electricity, and natural gas during operation of the facilities would be expected.

During the proposed renovation and construction projects, construction waste dumpsters would be temporarily located on site. These dumpsters would receive construction waste and would be covered during non-working hours. When the dumpsters are full, they would be removed from the site and their contents taken to an approved disposal facility permitted to receive construction debris. Construction debris would be sorted by material and placed in dumpsters specifically designated as construction waste receptacles. The dumpsters would be removed from the site once all disposal activities have been completed. Thus, no adverse impacts would be expected to occur regarding the disposal of solid wastes at this site during construction.

Because operations of Buildings 002, 005 and 308 would remain the same under the Proposed Action, any solid waste generated by these facilities would be handled in the same manner as it is currently handled. As these facilities would not increase significantly in size, there would be no expected adverse impacts to solid waste during operation.

Overall, minor changes in electricity usage would be expected, as the size and extent of the electrical systems is planned to increase under the Proposed Action; however, updating the system using modern equipment would be expected to yield greater efficiency.

The electrical work would conform to the current versions of the following National Fire Protection Association (NFPA) Regulations: National Electric Code, Life Safety, and Standard for the Installation of Lightning Protection Systems.

During the proposed renovations and construction projects, natural gas service to the buildings would be temporarily disconnected to allow for safe construction activities to take place. Any additional demand would be negligible (compared to current natural gas usage) and is not expected to produce adverse impacts regarding usage amounts or utility delivery. No significant, adverse impacts on the natural gas supply at BARC would be expected.

3.9.2.2 No Action Alternative

Under the No Action Alternative, there would be no anticipated impacts to the proposed sites. All utilities would remain in the current state with no disturbances.

3.10 Hazardous and Toxic Materials and Waste

3.10.1 Existing Conditions

Under 40 CFR Part 261, a large quantity generator (LQG) of hazardous waste is defined as an entity or operation that generates 1,000 kilograms or more of hazardous waste monthly, or more than one kilogram per month of acutely hazardous waste (USEPA, 2019). Based on this definition, BARC is categorized as a LQG (USEPA Number: MD5123510732), and as such, must operate as a LQG under the State of Maryland's regulations pursuant to the federal Resource Conservation and Recovery Act (RCRA). Hazardous wastes currently generated at BARC are primarily categorized as non-halogen solvents, analytical wastes, electrical devices, and compressed gases (USDA, 2018a).

BARC is a Superfund Site, listed on the National Priority List (NPL) in 1994 and entered into a Federal Facility Agreement in 1998, both of which govern the area's cleanup. BARC is addressing all areas of concern (AOCs) through the Site Screening Process and the Remedial Investigation and Feasibility Study process. The AOCs include several former landfills, chemical disposal pits, and open storage areas with contaminated soil, groundwater, and surface water with hazardous chemicals. There are a number of AOCs being addressed at BARC; however, none of the sixty-three AOCs requiring investigation are located within or near the Proposed Action locations. The nearest AOC to Buildings 002 and 005 that is under investigation is approximately 0.33 miles to the west. The closest AOCs to Building 308 that are under investigation or currently being remediated are approximately 1 mile to the east. There are currently no known underground storage tanks located in the vicinity of the Proposed Action.

One of the purposes of the Proposed Action is to remediate the presence of hazardous building materials. Building 002 was originally constructed in 1938, Building 005 in 1942, and Building 308 in 1939, at a time when asbestos and lead-based paint were commonly used. The buildings have also experienced decreased indoor air quality from mold as a result of aging building materials that allow increased levels of water and humidity intrusion.

In support of the missions of the proposed tenants, wet laboratories for Buildings 002 and 308 would be included in the renovation design. (Building 005 is used as office space and would not likely include wet labs.) Wet labs may contain hazardous chemicals or biohazardous agents and require 100% exhaust ventilation using chemical fume hoods. Laboratories would be provided with flammable and corrosive storage. These areas must be located in separate structures compliant with occupational safety and building codes. Further, marshaling areas would be needed near the loading docks of Buildings 002 and 308 for collection of hazardous chemicals and waste for removal by a hazmat contractor.

Based on interviews with the Research Leaders, radioisotopes would not be used in the buildings.

3.10.1.1 Light Ballasts, Lamps and Other Non-Construction Wastes

Given the age of the buildings, there are likely electrical fixtures and lamps currently in the buildings that may contain hazardous substances requiring special handling methods. Fluorescent lamps and electrical fixtures are regulated under the EPA Universal Waste regulations due to small amounts of mercury and possibly lead. Prior to 1980, light ballasts and starters contained small amounts of polychlorinated biphenyls (PCBs). For a short period after 1980, PCBs were replaced with di (2-ethylhexyl) phthalate (DEHP), but both must be managed and disposed of as hazardous waste. There are light ballasts and lamp recycling services available to properly recycle or reuse these items. These items (if found in the building) must be accumulated and disposed of in accordance with COMAR 26.13.02.19, 40 CFR Part 760.60, and the Toxic Substances Control Act (TSCA).

Also, due to age there is likely lead-based paint (LBP) present. Prior to 1978, paint was commonly lead-based. After 1978 LBP was replaced by a white zinc and titanium white base. The disposal of LBP is addressed in the TSCA and the Maryland Lead Paint Abatement Regulations (COMAR 26.02.07). The TSCA outlines the proper disposal of LBP, specifying that non-residential sites possibly contaminated with LBP and LBP waste must be treated as hazardous waste unless it is proven that the percent of lead is below the hazard threshold. The hazard threshold can be determined by either calculating the weight of the lead content in milligrams of lead per kilogram of waste or parts per million in the waste or having a sample of waste tested by an accredited testing laboratory. Samples with less than 100 milligrams of lead per kilogram (or 100 parts per million) of waste is considered non-hazardous and can be disposed of in a municipal waste landfill.

3.10.2 Anticipated Impacts

3.10.2.1 Proposed Action

Overall, there would be minor adverse impacts from hazardous and toxic materials and waste under the Proposed Action. The proposed renovation and construction projects would not impact the activities associated with BARC AOCs that are currently active or open. Additionally, because of the distance between the Proposed Action sites and the nearest active/open AOC, no adverse impacts are anticipated with regard to worker safety or health as they relate to the AOCs being addressed at BARC.

Prior to the initiation of this project, a Hazardous Materials (HAZMAT) assessment of each building would be completed. This would identify all potentially hazardous/regulated materials that must be managed prior to construction/renovation activities commencing. Any identified concerns would be managed in accordance with all applicable federal and state regulations. Hazardous and non-hazardous waste are managed under RCRA, passed in 1976, and Chapter 26, Subtitle 13 of the COMAR, Disposal of Controlled Hazardous Substances, which reflects the EPA delegation of the Federal RCRA program to Maryland. Materials regulated by RCRA are known as “solid wastes.” Only materials that meet the definition of solid waste under RCRA can be classified as hazardous wastes. PCBs (light ballasts, transformer, hydraulic fluid, window caulking, DEHP (light ballast)) and asbestos, LBP, etc. are managed under TSCA and COMAR 26.13.02.19. Mercury, commonly found in switches, thermostats and fluorescent light tubes and batteries, is managed as Universal Waste. During the proposed renovation and construction projects, any light ballast and light bulbs would be removed intact and labeled for recycling at a licensed waste facility in accordance with 40 CFR Part 761. If soils in exceedance of established thresholds are encountered, remediation plans would be established to ensure proper containment and disposal. Asbestos found during the proposed renovation and construction would be removed in accordance with COMAR 26.11.21. Mercury-containing items would be removed intact and placed into approved containers. They would then be transported for recycling at a licensed waste facility. Light ballasts or transformers containing PCBs would be removed and recycled at a licensed recycling facility in accordance with 40 CFR Part 761. LBP would be disposed of according to TSCA guidelines, meaning they would either be brought to a municipal landfill if under 100mg or disposed of at a hazardous waste site if over regulation standard for non-hazardous waste. These procedures would minimize adverse impacts regarding the management and disposal of toxic wastes, hazardous wastes, and/or universal wastes. Therefore, no adverse impacts from hazardous and toxic materials and wastes would be expected under the Proposed Action.

3.10.2.2 No Action Alternative

Buildings 002, 005, and 308 were built in the mid-20th century and may contain toxic substances such as LBPs and mercury-containing light bulbs, as well as asbestos containing materials. Under the No Action Alternative, these materials would remain within the buildings, as would the potential for accidental exposure to personnel from these materials if unexpected building damage occurs. Minor impacts would be expected to occur under a No Action Alternative.

3.11 Aesthetics and Visual Resources

3.11.1 Existing Conditions

Visual resources consist of elements in both the natural environment and human-made structures. Natural environmental features include water bodies, vegetation, and mountains, and human-made structures including buildings and support infrastructure. These resources impact view planes and influence the general appearance and aesthetic feel of the immediate and surrounding environments. Visual resources are analyzed to determine land use compatibility for new construction projects and the protection of important vistas and view planes.

<u>Buildings 002 and 005</u>

The NCPC has recognized the importance of BARC as a scenic, low-density, agrarian oasis; one that has been spared from development pressures based upon its function. Buildings 002 and 005 are also contributing resources to both the BARC Historic District and the North Farm Historic District. As a result, efforts to minimize changes to the existing character of this site, relative to regional planning, expansion efforts, and architectural design would be made by project designers.

The project would restore the exterior of the buildings and completely modernize the interiors. Following the examples set forth in adjacent buildings on Circle Drive, all exterior windows would be replaced in-kind. The doors throughout the building would be replaced in kind. The interior would undergo an extensive renovation to update all utilities and laboratories, mitigate environmental concerns, and provide office/lab swing spaces as needed. While the goal is to completely renovate the interior of the buildings, aspects of the interior layout and the original corridors would be maintained.

The 2,200 square foot addition to Building 002 is designed as a separate component that would be connected via an architectural hyphen attached to the historic building's southwest corner. Due to site constraints, it is not feasible for the addition to be completely located behind the building thus hiding it from street view; however, project designers have attempted to minimize adverse effects of the addition to the visual integrity of the existing buildings.

The small greenhouse that would be constructed near Building 005 has no site plans due to project phasing. However, the greenhouse would be reviewed by NCPC to ensure it is in keeping with the aesthetics of Building 005 as much as possible. Placement and design of the greenhouse would be adjusted to accommodate minimal aesthetic impacts.

<u>Building 308</u>

Building 308 is a contributing resource to the BARC Historic District and the northernmost building of a group of three brick laboratory buildings designated as Buildings 306, 307 & 308. The buildings were constructed between 1938 and 1940 in the Colonial Revival style. The existing site is surrounded by Building 308A to the northeast, a parking lot to the southeast, the group of 307 Buildings to the southwest, and a grass area sloping up to a concrete parking pad to the northwest.

Sizable trees and shrubbery are close to the front of the building. A wide sidewalk and steps lead to the main entrance from the southeast. A large parking lot is located further southeast. The loading dock/service area and several parking spaces to the northeast are accessed from a paved drive from the north. In the same area there is a handicap accessible ramp leading up to the back main entrance. A vehicular access drive to the rear of the building is located off Powder Mill Road west of Building 308.

The interior has been extensively altered during modernization efforts over the years; however, the original building footprint remains intact. The one-story annex needed to provide laboratory spaces with clear operational heights greater than 10’-0” would be located at the building’s northwest corner. The addition would be connected to the historic building by a small architectural hyphen at the building’s basement level. In order to accommodate the new construction with as little visual impact as possible, a portion of the site would be excavated and brought to grade and a retaining wall would be constructed.

3.11.2 Anticipated Impacts

3.11.2.1 Proposed Action

The Proposed Action would have minor impacts to aesthetics and visual resources. Impacts would be minimized through inclusion of design elements that would maintain the overall setting and feeling of the original viewshed. The design process would be coordinated with the NCPC and MHT to meet the expected historic preservation guidelines, as has already begun for the Building 002 renovations and addition. NCPC has provided recommendations for the location and design of the addition to minimize its impact on the building’s aesthetics as viewed from Circle Drive. To further minimize impacts to aesthetics, existing large trees within construction limits for all the buildings would be protected throughout the duration of construction.

<u>Buildings 002 and 005</u>

The interior/exterior renovations would provide long-term preservation of the historic buildings while making use of existing office/laboratory space on BARC, as envisioned by its master plan which strives to conserve critical agricultural area, economize the network of necessary infrastructure, and consolidate construction within existing building clusters. The restoration of the Building 002 and 005’s exterior and the modernization of the interiors would allow for contemporary use of the historic resources. The Proposed Action would retain exterior character-defining features of the Gregorian Revival style of the buildings while providing modernized efficient interior floorplans that provide maximum utility for tenants. The Proposed Action would alter the aesthetics of Building 002 by adding the annex element and adding a greenhouse to Building 005, but the design would minimize visual impacts to its historic façade to the extent practicable (Figure 3-4).

<u>Building 308</u>

The Proposed Action would add a one-story annex to the site. This addition is designed to have minimal visual impact from a southern approach (see Figure 3-5), thus resulting in minor impacts to the viewshed of the adjacent historic buildings and Center Drive.

3.11.2.2 No Action Alternative

The No Action Alternative would have no effects on aesthetics and visual resources, as it would result in no construction or alterations of the buildings. There would be no impacts to the sites or their viewsheds.

Figure 3-4: Architectural rendering of the Building 002 Addition

Figure 3-5: Conceptual rendering of Building 308 Addition

3.12 Air Quality

3.12.1 Existing Conditions

3.12.1.1 National Ambient Air Quality Standards and Attainment Status

The USEPA Region 3 and the MDE regulate air quality in Maryland. The Clean Air Act (CAA) (42 USC §7401–7671q), as amended, gives the USEPA the responsibility to establish the primary and secondary National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) acceptable concentration levels for seven criteria pollutants:

- Particulate matter less than 10 microns (PM_{10})
- Particulate matter less than 2.5 microns ($PM_{2.5}$)
- Sulfur dioxide (SO_2)
- Carbon monoxide (CO)
- Nitrogen oxides (NO_x)
- Ozone (O_3)
- Lead (Pb)

Short-term standards (i.e., 1-, 8-, and 24-hour periods) have been established for pollutants that contribute to acute health effects, while long-term standards (i.e., annual averages) have been established for pollutants that contribute to chronic health effects. These standards identify the maximum allowable concentrations of criteria pollutants that regulatory agencies consider safe, with an additional adequate margin of safety to protect human health and welfare. Each state has the authority to adopt standards stricter than those established under the Federal program. MDE is responsible for maintaining air quality standards for the State of Maryland and has adopted the NAAQS.

Primary and secondary NAAQS for the aforementioned criteria are described in Table 3-1. The attainment status of Prince George's County is included, for that is where all project activities would take place. Areas that exceed the NAAQS ambient concentration are labeled as nonattainment areas and are designated by federal regulations. According to the severity of the pollution problem, areas exceeding the established NAAQS are categorized as marginal, moderate, serious, severe, or extreme nonattainment or maintenance areas.

BARC is within the National Capital Interstate Air Quality Control Region and the region is in marginal nonattainment for the 2015 8-hour O_3 standards (USEPA, 2020). Also, the County has an approved maintenance plan for the 1971 CO NAAQS. Additionally, Prince George's County is within the O_3 transport region that includes 28 states and Washington, D.C.

MDE develops air quality plans, referred to as State Implementation Plans (SIPs), that are designed to attain and maintain the NAAQS, and to prevent significant deterioration of air quality in areas that meet NAAQS standards. Maryland has individual SIPs for various pollutants, including NO_2, $PM_{2.5}$, 8-hour O_3, regional haze, lead, etc. Federal agencies must ensure that their actions conform to the SIP in a nonattainment area, and do not contribute to new violations of ambient air quality standards or an increase in the frequency or severity of existing violations, or a delay in timely state and/or regional attainment standards.

Table 3-1: National Ambient Air Quality Standards

Pollutant	Standard	Averaging Time	Ambient Concentration	Prince George's County Attainment Status
CO	Primary	1-hour[a] (ppm)	35	Maintenance
		8-hour[a] (ppm)	9	
NO_2	Primary	1-hour[b] (ppm)	100	Attainment
	Primary and Secondary	Annual[c] (ppm)	53	
O_3	Primary and Secondary	8-hour[d](ppm)	0.070	Nonattainment
SO_2	Primary	1-hour[e] (ppb)	75	Attainment
	Secondary	3-hour[a] (ppm)	0.5	
$PM_{2.5}$	Primary and Secondary	24-hour[f] ($\mu g/m^3$)	35	Attainment
	Primary	Annual arithmetic mean[g] ($\mu g/m^3$)	12	
	Secondary	Annual arithmetic mean[g] ($\mu g/m^3$)	15	
PM_{10}	Primary and Secondary	24-Hour[h] ($\mu g/m^3$)	150	Attainment
Lead	Primary and Secondary	Rolling 3-month average ($\mu g/m^3$)	0.15	Attainment

Source: 40 CFR 50.1-50.12; USEPA, 2020

CO = carbon monoxide; $\mu g/m^3$ = micrograms per cubic meter; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; O_3 = ozone; ppb = parts per billion; ppm = parts per million; $PM_{2.5}$ = particulate matter less than 2.5 microns; PM_{10} = particulate matter less than 10 microns; SO_2 = sulfur dioxide

a Not to be exceeded more than once per year.

b 98th percentile, averaged over 3 years.

c Annual mean.

d Annual fourth highest daily maximum 8-hour average O_3 concentrations, averaged over 3 years.

e The 3-year average of the 99th percentile of 1-hour daily maximum concentrations.

f The 3-year average of the 98th percentile of 24-hour concentrations.

g The 3-year average of the weighted annual mean.

h Not to be exceeded more than once per year, on average over 3 years.

BARC holds a synthetic minor air operating permit (permit number 033-0667) which expires on August 31, 2022 (MDE, 2019). The permit includes applicable regulations and compliance requirements for the following permitted emissions sources at BARC: 27 boilers, 2 pathological incinerators, and 4 gasoline storage tanks. The operating permit includes a limitation of 25 tpy of NOx emissions for the facility to remain a synthetic minor source with respect to Title V regulations. In order to demonstrate compliance with this requirement, BARC is required to calculate and record the 12-month rolling NOx emissions from all the fuel burning equipment at the facility on a monthly basis. The facility-wide emissions reported to MDE for the years 2018 to 2020 are provided in the table below. Any new regulated air emission activity that would be conducted at the facility will require an air permit to construct and a modification to the facility's existing permit.

Table 3-2: Criteria Pollutant Emissions for BARC

Year	NO_x	SO_2	PM	PM_{10}	$PM_{2.5}$	CO	VOC
	(tpy)						
2018	18.82	0.067	0.21	--	--	9.43	0.62
2019	18.12	0.198	1.31	0.35	0.38	13.56	0.91
2020	18.82	1.012	1.37	0.36	1.1	14.25	1.17

NOx = nitrogen oxides; SO2 = sulfur dioxide; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns; CO = carbon monoxide; VOC = volatile organic compound
Source: BARC 2018, BARC 2019, BARC 2021

3.12.1.2 Regulatory Requirements for Hazardous Air Pollutants

In addition to criteria pollutant standards, the USEPA also regulates hazardous air pollutant (HAP) emissions for each state. HAPs differ from criteria pollutants for they are known or suspected to cause cancer and other diseases or have adverse environmental impacts. The National Emission Standards for HAPs (NESHAP) found in 40 CFR Part 63 regulate 187 HAPs that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. NESHAP requires application of technology-based emissions standards referred to as Maximum Achievable Control Technology (MACT). Sources of HAP emissions at BARC include the boilers, incinerators, and fuel storage tanks. BARC is an existing minor source of HAP, meaning total annual emissions of any single HAP are less than 10 tpy (tpy) and annual emissions of combined HAP are less than 25 tpy.

3.12.1.3 Clean Air Act Conformity

The 1990 amendments to the CAA require Federal agencies to ensure that their actions conform to the SIP in a nonattainment area. The purpose of the General Conformity Rule is to ensure that:

- federal activities do not cause or contribute to new violations of NAAQS;
- actions do not worsen existing violations of the NAAQS; and
- attainment of the NAAQS is not delayed.

USEPA has developed two distinctive sets of conformity regulations: one for transportation projects and one for non-transportation projects. Non-transportation projects are governed by general conformity regulations (40 CFR 93). Pursuant to 40 CFR 93.153(b), a conformity determination is required for each criteria pollutant or precursor where the total of direct and indirect emissions of the criteria pollutant or precursor in a nonattainment or maintenance area caused by a Federal action would equal or exceed threshold emissions levels provided under 40 CFR 93.153 (b)(1) or (2).

The Proposed Action is a non-transportation project within a O_3 nonattainment area. Due to the proximity to the urbanized east coast of the United States, Prince George's County is considered an Ozone Transport Region. Because ozone formation is driven by other direct emissions, the air quality analyses focuses on ozone precursors that include volatile organic compounds (VOCs) and NOx. For an area in marginal nonattainment for the 8-hour O_3 NAAQS within the O_3 transport region, the applicability criteria are 100 tpy for NO_x and 50 tpy for VOCs (40 CFR 93.153). Prince

George's County is in maintenance for CO, and the applicability criteria for CO in maintenance areas is 100 tpy. Routine operation of facilities, mobile assets and equipment are exempt from the General Conformity Rule in accordance with 40 CFR 93.153(c)(2)(xiii). Therefore, operational emissions from BARC need not be included in the applicability analysis. The General Conformity Rule also prohibits any department, agency, or instrumentality of the Federal Government from engaging in, providing financial assistance for, approving, or supporting any activity that does not conform to applicable SIP designated for areas being in nonattainment of established NAAQS.

3.12.1.4 Asbestos Laws and Regulations

The most commonly found asbestos in the United States are chrysotile, amosite, and crocidolite. The short, thin asbestos fibers released into the air are a hazard to people who inhale these fibers. There is no known safe level of exposure for persons working with asbestos or near the same area as an asbestos project therefore the CAA has defined national emission standards for hazardous air pollutants (NESHAP), including asbestos (a HAP with CAS No. 1332-21-4).

Under Section 112 of the CAA, the Asbestos NESHAP standards can be found under 40 CFR Part 61, Subpart M. The Asbestos standards have been amended several times, most comprehensively in November 1990 and again in 1995 when the rule was amended to correct cross-reference citations to OSHA, Department of Transportation (DOT), and other US, including, but not limited to, structures, installations, and buildings is covered in the CAA. The regulations require a thorough inspection where the demolition or renovation operation will occur. The regulations also require the owner or the operator of the renovation or demolition operation to notify the appropriate delegated entity (MDE) before any demolition, or before any renovations of buildings that contain a certain threshold amount of regulated asbestos-containing material. The rule requires work practice standards that control asbestos emissions. Work practices often involve removing all asbestos-containing materials, adequately wetting all regulated asbestos-containing materials, sealing the material in leak tight containers and disposing of the asbestos-containing waste material as expediently as practicable, as the regulation explains in greater detail.

On the state level, Maryland regulates how persons will work with asbestos and regulates those who train persons to work with asbestos. MDE requires authorized workers to carry the Maryland Photo Identification Card containing accredited credentials for persons who perform activities with asbestos and is valid for 1-year following the training date. On the federal level, the USEPA regulates the asbestos abatement contractors and licenses, asbestos training providers, persons accredited to perform asbestos work, and the asbestos in school's program.

3.12.1.5 Greenhouse Gas Emissions

Greenhouse gases (GHGs) are a particular group of gases that have the ability to trap heat by absorbing infrared radiation in the atmosphere. Scientific evidence indicates a trend of increasing global temperature over the past century which may be due to an increase in GHG emissions from human-based activities. The most common GHGs emitted from natural processes and human activities include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide. The main source of GHGs from human activities is the combustion of fossil fuels, including natural gas, gasoline, diesel fuel, crude oil and coal. Other examples of GHGs created and emitted primarily through human-based activities include fluorinated gases (hydrofluorocarbons and perfluorocarbons) and sulfur hexafluoride.

Each GHG is assigned a global warming potential (GWP). The GWP is the ability of a gas or aerosol to trap heat in the atmosphere. The GWP rating system is standardized to CO_2, which has a value of one. For example, CH_4 has a GWP of 25, which means that it has a global warming effect 25 times greater than CO_2 on an equal-mass basis. To simplify GHG analyses, total GHG emissions from a source are often expressed as a CO_2 equivalent (CO_2e). The CO_2e is calculated by multiplying the emissions of each GHG by its GWP and adding the results together to produce a single, combined emission rate representing all GHGs. While CH_4 and nitrous oxide have much higher GWPs than CO_2, CO_2 is emitted in such higher quantities that it is the overwhelming contributor to CO_2e from both natural processes and human activities.

3.12.1.6 Regulatory Review and Permitting

Currently the USEPA has two primary GHG regulations for regulated stationary emission sources:

- 40 CFR Part 98 - requires annual GHG emissions reporting and applies to fossil fuel suppliers and industrial gas suppliers, facilities that inject CO_2 underground for sequestration or other reasons, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and engines. The rule does not require control of GHGs, rather it requires only that certain sources emitting 25,000 metric tons CO_2e or more per year monitor and report emissions.
- 40 CFR Parts 51, 52, 60, 70 and 71 – establishes CO_2 emission limits to be addressed in Prevention of Significant Deterioration (PSD) and Title V permits required for electric utility generating units that are major stationary sources for regulated pollutants other than GHG. A 75,000 tpy threshold is used by EPA as a de minimis value to determine whether a PSD permit must include an emission limitation for CO_2 and a 100,000 tpy threshold is applied for Title V permits.

Based on the synthetic minor air permit for the facility, BARC is not a PSD major source (single criteria pollutant emissions at or above 250 tpy) and the facility-wide GHG emissions are well-below 75,000 tpy, so the facility has not triggered PSD requirements for GHG emissions. Based on the 2020 emissions certification report submitted to MDE, BARC reported 19,940 tpy CO_2, 0.36 tpy nitrous oxide, and 0.85 tpy methane emissions from regulated stationary emission sources. This is an estimated 18,206 metric tpy of CO_{2e}. The CEQ provides guidance to Federal agencies on how to evaluate GHGs for federal actions under NEPA. Pursuant to EO 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, CEQ rescinded its 2019 Draft NEPA Guidance on Consideration of Greenhouse Gas Emissions and is reviewing, for revision and update, the 2016 Final Guidance on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews (CEQ 2016). The 2016 guidance explains the application of NEPA principles and practices to the analysis of GHG emissions and climate change, and

- Recommends that agencies quantify a proposed agency action's projected direct and indirect GHG emissions, taking into account available data and GHG quantification tools that are suitable for the proposed agency action.
- Recommends that agencies use projected GHG emissions (to include, where applicable, carbon sequestration implications associated with the proposed agency action) as a proxy for assessing potential climate change effects when preparing a NEPA analysis for a proposed agency action.
- Recommends that where agencies do not quantify a proposed agency action's projected GHG emissions because tools, methodologies, or data inputs are not reasonably available to support calculations for a quantitative analysis, agencies include a qualitative analysis in the NEPA document and explain the basis for determining that quantification is not reasonably available.
- Discusses methods to appropriately analyze reasonably foreseeable direct, indirect, and cumulative GHG emissions and climate effects.
- Guides the consideration of reasonable alternatives and recommends agencies consider the short- and long-term effects and benefits in the alternatives and mitigation analysis.
- Advises agencies to use available information when assessing the potential future state of the affected environment in a NEPA analysis, instead of undertaking new research, and provides examples of existing sources of scientific information.
- Counsels agencies to consider alternatives that would make the actions and affected communities more resilient to the effects of a changing climate;
- Outlines special considerations for agencies analyzing biogenic carbon dioxide sources and carbon stocks associated with land and resource management actions under NEPA.
- Recommends that agencies select the appropriate level of NEPA review to assess the broad-scale effects of GHG emissions and climate change, either to inform programmatic (e.g., landscape-scale) decisions, or at both the programmatic and tiered project- or site-specific level, and to set forth a reasoned explanation for the agency's approach; and
- Counsels agencies that the "rule of reason" inherent in NEPA and the CEQ Regulations allows agencies to determine, based on their expertise and experience, how to consider an environmental effect and prepare an analysis based on the available information.

3.12.1.7 Executive Orders and Federal Laws

In April 2007, the U.S. Supreme Court determined that the USEPA has the regulatory authority to list GHGs as pollutants under the federal CAA (USEPA, 2007). Additionally, federal agencies address emissions of GHGs by reporting and meeting reductions mandated in laws, executive orders, and policies. Relevant to GHGs EO 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, issued on January 20, 2021. EO 13834, Efficient Federal Operations was revoked on January 20, 2021 (except for Sections 6,7, and 11).

3.12.2 Anticipated Impacts

The Proposed Action would be considered to have a significant effect on air quality if:

- an impact that caused the Proposed Action to not conform with the state's implementation plan purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of the NAAQS; or
- an impact that causes any new violation of any standard in any area; or
- an impact that increases the frequency or severity of any existing violation of any standard; or
- an impact that causes a delay in timely attainment of any standard or any required interim emission reductions or other milestones in any area; or
- an impact that substantially increased GHG emissions such that there would be a noticeable increase in overall global temperature, independent of cumulative impacts.
- The Federal agency must provide documentation that the total of direct and indirect emissions from such future actions would be below the emission rates for a conformity determination that are established in paragraph 40 CFR 93.153 (b).

3.12.2.1 Proposed Action

A General Conformity Applicability Analysis was performed for the Proposed Action, which estimated the level of potential NOx, VOC, and CO air emissions from construction activities. The analysis is only required for nonattainment and maintenance pollutants. Prince George's County is in attainment for the SO_2, $PM_{2.5}$, PM_{10}, and lead NAAQS, so these pollutants are not required to be included in the analysis. Table 3-3 below shows the estimated NOx, VOC, and CO emissions for a 12-month period from construction emissions associated with the Proposed Action. Calculations were derived from estimated construction equipment activities in one fiscal year. As demonstrated in the table below, the estimated emissions are well below the de minimis thresholds. Therefore, the Proposed Action is not anticipated to result in any adverse effects to Air Quality and resulted in a RONA, found in Appendix F.

Table 3-3: Estimated Annual Construction Emissions from Proposed Action

Pollutants	**VOC**	**NO_X**	**CO**
Proposed Action Emissions (tons/year)	5.2	46.8	43.3
De minimis threshold (tons/year)[1]	50	100	100
Exceeds de minimis thresholds?	No	No	No

[1] Prince George's County is in marginal nonattainment for 8-hour O_3 NAAQS (VOCs and NO_x are precursors to the formation of O_3) and is in maintenance for CO. *De minimis* thresholds are defined in 40 CFR 93 Section 153. VOC and NOx *de minimis* established for nonattainment areas located in an O_3 transport area.

Routine operation of facilities, mobile assets and equipment are exempt from the General Conformity Rule. Therefore, operational emissions from BARC were not included in the General Conformity Applicability Analysis. The Proposed Action would result in temporary, localized changes to air quality as a result of emissions from the construction equipment, worker transport, and highway traffic from equipment delivery. Criteria and hazardous air pollutant emissions from the operation of construction vehicles would be temporary and localized. The Proposed Action would be undertaken in compliance with state and Federal standards for air quality. Applicable NEPA considerations would be made and the resulting documentation (if any) would be kept on file. The CO_2e emissions from the Proposed Action construction activities are estimated to be 7,290 metric tpy. It is anticipated that the Proposed Action would not cause a perceivable impact because the increase in GHG emissions will be temporary and will not contribute long-term to BARC's overall CO_2e emissions. Mitigation efforts to reduce GHGs can be implemented by maintaining emission control technology on construction equipment.

3.12.2.2 No Action Alternative

Under the No Action Alternative, no activities would take place and general emissions would stay at their current rate. Operations at Buildings 002, 005, and 308 would remain the same, including air emissions.

3.13 Noise

3.13.1 Existing Conditions

The Noise Control Act of 1972 (42 U.S.C. 4901 *et seq*.) directs Federal agencies to comply with applicable Federal, state, interstate, and local noise control regulations. Noise is considered to be undesirable sound that interferes with normal activities or otherwise diminishes the quality of the environment. It may be intermittent or continuous, steady or impulsive, stationary or transient. Sound varies by intensity and frequency and the human ear responds differently to different frequencies. Sound pressure level is described in decibels (dB) and is used to quantify sound intensity. Hertz is used to quantify sound frequency. "A-weighted" decibels (dBA) approximate the perception of sound by humans and describe steady noise levels, though few noises are constant.

A change of a few dBA in noise level is barely perceptible to most people; however, a 10 dBA change is considered a substantial change, and these thresholds are used to estimate a person's likelihood of perceiving a change in noise levels (Tables 3-4 and 3-5). Construction noise can result in relatively high noise levels during day-time periods and within several hundred feet of the construction activity. The zone of relatively high construction noise typically extends to distances of 400 to 800 feet from the operating equipment. Locations more than 1,000 feet from construction sites experience little disturbance from noise.

Table 3-4: Common Noise Levels

Source	Decibel Level	Exposure Concern
Soft Whisper	30	Normal safe levels.
Quiet Office	40	
Average Home	50	
Conversational Speech	65	
Highway Traffic	75	May affect hearing in some individuals depending. on sensitivity, exposure length, etc.
Noisy Restaurant	80	
Average Factory	80-90	
Pneumatic Drill	100	
Automobile Horn	120	
Jet Plane	140	Above 140 dB may cause pain.
Gunshot Blast	140	

Table 3-5: Typical Noise levels of Construction Equipment (Noise Level in dBA at 50 Feet)

Construction Vehicle Type	dBA
Bulldozers	80
Backhoe	72-93
Bobcat	72-93
Jack Hammer	81-98
Crane	75-77
Pick-Up Truck	83-94
Dump Truck	83-94

Source: USEPA, 1986

Buildings 002 and Building 005

Buildings 002 and 005 are located within the North Farm portion of BARC, which is west of the main BARC campus. Compared to the main campus, the North Farm has smaller areas of open space and farmland to buffer the sounds of the surrounding land uses, including the busy I-95/I-495 Beltway. Other surrounding land uses that can generate noise, mainly from traffic, include industrial, warehouse, commercial and office complexes. Potential noise receptors to the construction and renovation activities include an apartment complex and residential neighborhood approximately 0.1 mile north of the buildings.

Building 308

Although BARC is located in the vicinity of a major urban area, the area near the proposed Building 308 renovation and construction site is not largely developed. There are various other lab/office buildings, nearby housing, and various business activities conducted by the USDA. The areas located immediately near Building 308 are parking, forested and grassy areas. Within a one-mile radius, land use is predominantly forest and agricultural fields. The expanse of forests to the east of the project area would serve to dissipate the road noise from the Baltimore-Washington Parkway located approximately 1.2 miles to the east. Other than government employees working near Building 308, there are no noise receptors located in the area. Currently, the noise created by vehicular traffic on Powder Mill Road is the primary source of noise near the building. This traffic consists of workers and contractors coming to and from work. During construction, an increase in the vehicular traffic would occur as workers, building materials, equipment, construction and demolition debris/wastes are transported to/from the site.

3.13.2 Anticipated Impacts

3.13.2.1 Proposed Action

Under the Proposed Action, minor adverse impacts are expected to occur during the construction period. These impacts would include temporary increases in noise levels resulting from heavy equipment and machinery that could affect people sensitive to noise during the construction phase. When the proposed building renovation and construction is complete, construction-related noise would be gone. Thus, only short-term minor adverse impacts on the noise environment of BARC would be expected during the construction phase, and no long-term adverse impacts are expected during subsequent operation.

Buildings 002 and 005

Potentially sensitive noise receptors in the vicinity of these two buildings include those living in the apartment complex and single-family residences to the north of Buildings 002 and 005. To minimize any impacts to residents from noise, construction would primarily be conducted during standard daylight working hours and on weekdays. Noise levels during operation of the Proposed Action would be expected to be consistent with the current operation of the buildings as office/research space, so impacts from operational noise would be negligible. The noise levels produced from standard operations of the facilities, to include staff noise, traffic during commuting hours, and minimal facility operation noises such as general heating and cooling, would not be an increase for the neighboring residents. These noises are negligible and are well within the typical operational noises of an office complex.

Building 308

The areas immediately surrounding Building 308 are forested and farmland areas. Other than the limited government employees working near Building 308, there are no noise receptors located in the area. Currently, the noise created by vehicular traffic and farm equipment is the only noise near the proposed site. This traffic consists of workers and contractors coming to and from work, although the area is frequented by locals as well. During construction, a temporary increase in the vehicular traffic would occur as workers, building materials, equipment, construction and demolition debris/wastes are transported to and from the site. This would result in minor impacts from noise during the construction of the Proposed Action. When the proposed building renovation and construction is complete, construction-related noise would cease and the area would return to a similar level of operational noise.

3.13.2.2 No Action Alternative

Under the No Action Alternative, there would be no changes to the local noise environment. No impacts would occur. Buildings 002, 005, and 308 would remain unimproved, resulting in no increase or decrease in noise pollution.

3.14 Health and Public Safety

3.14.1 Existing Conditions

BARC has Safety and Occupational Health staff, including an Emergency Preparedness Specialist, to coordinate emergency services and to oversee health and safety measures throughout the facility. There are currently health and public safety concerns at Buildings 002, 005, and 308, namely, hazardous construction materials and indoor air quality concerns (asbestos, mold, etc.).

3.14.2 Anticipated Impacts

The company awarded the building renovation and construction project would be required to implement a site-specific health and safety plan in accordance with their corporate health and safety plan that covers all Occupational Safety and Health Administration (OSHA) regulations. This plan would be reviewed by the BARC Safety and Occupational Health and Environmental staff for adequacy. The approved plan would be strictly followed during the proposed construction project. All efforts would be focused on reducing job hazards on the site for all construction activities. The minimum worker safety Personal Protective Equipment ensemble would require hard hat, safety glasses, work gloves, and steel-toed boots to enter the construction area. Additional safety gear may be required based on work activities.

In the event of an injury or accident, the health and safety plan would include procedures specifying actions to be taken. With these standard operating procedures in place, the project's effects on worker safety would not be significant.

During the proposed renovation and construction projects, areas being displaced would be temporarily blocked off to prevent unauthorized pedestrians and vehicles from entering the construction zone. During the proposed construction, there would be times when the areas nearby would be blocked to allow for proper operation of construction equipment. Traffic cones and signs would also be posted at and around the construction sites to direct traffic away from the construction zones. When the proposed renovation and construction is complete, traffic patterns would revert to the same configuration as they were prior to the project.

3.14.2.1 Proposed Action

BARC has its own security force that is on call 24-hours a day. The Proposed Action would not adversely affect the demand for security services at BARC because personnel would already be located within BARC. No adverse impacts on health and public safety at BARC would be expected.

3.14.2.2 No Action Alternative

Under the No Action Alternative, no adverse impacts are expected to occur to health and public safety.

3.15 Cumulative Impacts

3.15.1 Existing Conditions

This section addresses the cumulative impacts of the Proposed Action. Evaluations of cumulative impacts include consideration of the Proposed Action with past and present actions, as well as reasonably foreseeable future actions. Table 3-6 describes all of these actions.

Past Actions – actions that may contribute to cumulative impacts in one or more of the analyzed resource topic areas include: previous clearing of land for agricultural development and construction, and construction of roadways, utility lines, and other infrastructure. Past actions also include agricultural research activities previously conducted by USDA-ARS.

Present Actions – actions that may contribute to cumulative impacts in one or more of the analyzed resource topic areas include: traffic on nearby roadways and any activities associated with adjacent public or private properties and population growth. USDA-ARS prepared an EA for the installation of Solar Array on BARC in 2018. Solar arrays would be installed at 60 sites across the BARC facility. The arrays would be leased to an Independent Power Producer [Energy Savings Performance Contract] to help USDA-ARS meet various Federal sustainability goals and maximize renewable energy production to support ongoing operations at the BARC facility.

Future Actions – BARC is planning to transfer a 105-acre parcel of land to the Bureau of Printing and Engraving (BEP) to create a currency production facility. This action would create changes in traffic patterns, energy usage, socioeconomics, utility infrastructure, biological resources, air quality, geography, topography, and soils. The 105- acre parcel is within 0.35-mile of Building 308. The project would have minimal impact on any of the areas listed above with the exception of traffic patterns and air quality. Projects to mitigate adverse impacts to traffic flow as a result of the currency production facility are also planned.

Reasonably foreseeable future actions external to the BARC facility include continuation of all present actions and future actions that may include planned future land development and development of the proposed MAGLEV high speed rail corridor between Baltimore and Washington, D.C

Table 3-6: Past, Present, and Future Actions

Project Name	Project Proponent	Type of Project	Project Status	Description of Project
Purple Line	MDOT, Maryland Transit Administration, Purple Line Transit Partners	Transportation	Under Construction	Build a 16-mile, 21-station light rail transit line that will connect several communities in Maryland, from Bethesda in Montgomery County to New Carrollton in Prince George’s County. The project will include five major activity center stations (Bethesda, Silver Spring, Takoma-Langley Park, College Park, and New Carrollton).
Route 201	MDOT	Transportation	Proposed	Road improvements are proposed for RT 201 from the Beltway to the Intercounty Connector. This route currently follows parts of Old Baltimore Pike and Edmonston Road.
High-Speed Superconducting Magnetic Levitation (MAGLEV) System	Federal Railroad Administration (FRA), MDOT	Transportation	Proposed	FRA and MDOT are proposing a high-speed ground transportation line between Baltimore, MD and Washington, DC, with an intermediate stop at Baltimore Washington International (BWI) Thurgood Marshall Airport.
MD-212 Pine Street to US-1	MDOT State Highway Administration	Transportation	Approved	Implement roadway widening, resurfacing, drainage improvements, curb and gutter installations, and new bicycle lanes and sidewalks.
Sunnyside Avenue Bridge Replacement over Indian Creek	Prince George’s County DPW&T	Transportation	Under Construction	Replace Sunnyside Avenue Bridge over Indian Creek and widen the roadway west of the CSX crossing to Kenilworth Avenue.
Emission Reductions Projects	Treasury	Industrial	Proposed	Treasury plans to implement emission reduction efforts including evaluating alternatives to chromium plating, installing new low-VOC press for printing money bands, using electricity from renewable energy sources, and continuing to conduct comprehensive air emission and GHG analyses.
Konterra Town Center	KLNB	Mixed-Use	Proposed	Construct a $1.75 billion mixed-use development on 2,200 acres of retail, research, and technology campuses including 1.4 million square feet (SF) of building space, more than 1,000 residential

				units, and 348 acres reserved for a governmental, educational, or corporate facility.
BARC Solar Array Development	USDA	Infrastructure	Proposed	Solar arrays would be installed at 60 sites across the BARC facility.
Beltsville Agricultural Research Center (BARC) Demolition	USDA	Institutional	Proposed	Demolish 22 buildings and associated infrastructure at BARC.
FY20 and FY 21 Industrial Improvements at BARC	USDA	Industrial	Under Construction	Repair and improve industrial systems at BARC including: replace Chillers 1 and 2 at Building #004, Chillers 1 and 2 at Building #007, 250-ton chillers at Building #001, 300-ton chillers at Building #010A; repair the water treatment PH control system and the chlorine production and injection system for Building #310.
FY20 and FY 21 Infrastructure Improvements at BARC	USDA	Industrial	Under Construction	Infrastructure improvements proposed at BARC include: repair the patio walkway at Buildings #010A and #010B; replace the roof of Building #209; replace the roof and gutters of Building #007, replace guardrails along Powder Mill and Soil Conservation Road; and repave roads in the Dairy Area Wastewater treatment filter system for Building #218.
FY20 and FY 21 Utility Repair at BARC	USDA	Industrial	Under Construction	Repair utility systems at BARC including: heating water system pipelines in Range 10 greenhouses; water infiltration in Building #005; chilled water pipes in Building #161; rooftop heating and air conditioning units in Building #177C; air handling units in Building #003; electrical wires for East Campus; Building #010A cooling tower; water plant filter replacement; and electrical substation on West Campus.
BEP Currency Facility and Associated Traffic Mitigation Projects	Treasury	Industrial	Proposed	Currency production facility to be built on a 105-acre parcel of BARC. Several traffic mitigation projects would also need to be implemented to offset the adverse impacts to local traffic patterns as a result of the currency production facility.

2

3.15.2 Anticipated Impacts

3.15.2.1 Proposed Action

Topography, Geology, and Soils

Topography, geology, and soil impacts are site-specific and not affected by cumulative development in an area, except where soil erosion may contribute to degradation of water quality. With the implementation of soil erosion and sediment control measures, the Proposed Action alternative would likely result in negligible to minor adverse soils impacts from the implementation of the Proposed Action and would not incrementally cause a significant impact, regardless of other actions.

Land Use

The generalized pattern of land use at BARC is anticipated to undergo little change with implementation of current and reasonably foreseeable future actions to be undertaken by the USDA. The area around BARC has changed little in the past 10 to 15 years but may be under pressure to develop as growth continues in the region over time. The potential development of a 105-acre parcel of land into a currency production facility, along with commuter rail services and the proposed MAGLEV, would change a large portion of BARC's land use (though this land would no longer be BARC property). While these potential projects may have impacts on land use, the Proposed Action would be consistent with existing land use categories on BARC, so the Proposed Action would have no contribution to cumulative land use impacts at BARC.

Prime Farmland

BARC is an agricultural facility, in the middle of developed land, that has largely escaped development because of its mission as a research facility. The Proposed Action would affect less than an acre of prime farmland, but some other proposed projects, including the MAGLEV, could have large impacts to farmland. The BEP and MAGLEV projects are undergoing their own NEPA reviews, and the lead agencies of those projects would comply with the Farmland Protection Policy Act, as appropriate. Because the Proposed Action would affect a miniscule amount of prime farmland, it would not contribute to any prime farmland cumulative impacts at BARC.

Water Resources

Continued livestock and agricultural research could result in adverse impacts to water resources if not managed properly, as the amount of sediment and stormwater entering the facility streams and wetlands could increase as a result of construction activities. Increased development on the facility would increase the demand for groundwater and the amount of impervious surface on the facility, potentially increasing stormwater flows. New development may have to include pervious pavement, filter strips, and green roofs to support the goal of achieving the 20 percent reduction in impervious surface on the facility by 2025. In the context of current and reasonably foreseeable actions on the facility, the Proposed Action is not anticipated to incrementally cause adverse impacts on water resources in the area.

Biological Resources

Through contact with state and Federal agencies, BARC has no known listings of RTE species in or adjacent to the proposed sites. However, BARC would minimize and avoid impacts to biological resources under the Proposed Action. Construction activities associated with the Proposed Action are not anticipated to impact native habitats or protected species present on the facility. It is anticipated that the Patuxent Research Refuge, Greenbelt Park, and other area open spaces would be protected from development and continue to provide habitats that support the biological diversity of the area. Therefore, in the context of current and reasonably foreseeable actions on the facility, the Proposed Action is not anticipated to incrementally cause adverse impacts to biological resources in the area. Any impacts would be expected to be minor.

Cultural Resources

As a large portion of BARC is part of the BARC Historic District, it is likely that current and reasonably foreseeable future projects may impact cultural resources. While some historic structures or archaeological sites may be disturbed as a result of the Proposed Action and other reasonably foreseeable actions, it is expected that all projects would comply with Section 106 consultation and mitigation requirements of the NHPA, thereby maintaining overall impacts to cultural resources at minor levels.

Socioeconomics

The Proposed Action and other current and reasonably foreseeable actions would not adversely impact the socioeconomic setting of the BARC facility. Temporary employment would increase from any construction projects within the Beltsville area, having minor beneficial impacts. Employment on the facility is based on the types of research present. Future redevelopment near BARC could spawn additional short-term and long-term employment opportunities as new businesses are developed, resulting in minor beneficial impacts. However, the overall socioeconomic characteristics of the community would be unlikely to change from identified past, present, and future actions.

Transportation

The Proposed Action, present, and reasonably foreseeable future actions would possibly expand or improve the existing roadway network on BARC. A currency production facility developed on the 105-acre parcel of BARC could significantly alter traffic patterns, and this is being studied under the scope of the EIS evaluating the BEP proposed project. Any significant transportation impacts would be expected to be mitigated through appropriate roadway and public transportation improvements in consultation with local planning authorities.

Implementation of the proposed MAGLEV connection between Baltimore and Washington, D.C. would occur largely outside of BARC, but two alignments of the proposed MAGLEV project would include the construction of a train maintenance facility in the vicinity of part of the Proposed Action. The proposed MAGLEV project could significantly alter traffic patterns, and this is being studied under its own NEPA action.

The Proposed Action would not alter any transportation infrastructure and would only increase traffic very minimally considering the minimal number of personnel that may relocate to the facilities from other nearby buildings. Therefore, its contribution to cumulative impacts would be minimal.

Utilities

Under the Proposed Action and other current and reasonably foreseeable future projects on BARC, minor improvements are expected to be needed to infrastructure. The existing utility networks on BARC are expected to be sufficient to support the planned projects, and any necessary upgrades would be coordinated with the local utility companies to minimize impacts. The proposed solar array project would also support future sustainability of the facility leading to greater improved energy efficiency that could in turn support replacement of existing facility utilities. As the Proposed Action is merely improving existing operations on BARC, there would be negligible contributions to cumulative utility impacts.

Hazardous and Toxic Materials and Waste

Implementation of the Proposed Action would involve the removal of hazardous or toxic materials from Buildings 002, 005, and 308. As stated in Section 3.10, these materials would be handled and disposed of in accordance with state and Federal regulations, which would minimize any impacts from hazardous and toxic materials and waste. Buildings that pose a health threat in similar states of disrepair have been removed at BARC during the past five to ten years and would be removed in the near future through a phased approach. Current and reasonably foreseeable future projects, including installation of solar arrays at BARC, the demolition of 22 buildings, and possible 105-acre parcel development would be implemented following current industry design requirements and safety standards. Because of the measures that would be taken in accordance with COMAR 26.13 under the Proposed Action, the Proposed Action's contributions to cumulative impacts to hazardous and toxic materials and waste would be minor.

Aesthetics and Visual Resources

The aesthetics of BARC may be affected with the possible demolition and construction of buildings from various projects. If any of these buildings are contributing to the BARC Historic District, or are in the viewshed of any historic buildings, there would be expected impacts to visual resources and aesthetics. However, it is expected that any impacts would be minimized through the use of vegetative buffers, design elements, or other mitigation measures identified during the Section 106 consultation process. As stated in Section 3.11.2, impacts from the Proposed Action are expected to be minor, so there would be negligible contributions to cumulative aesthetic and visual resources impacts.

Air Quality

The cumulative impacts on air quality from implementation of the Proposed Action would be minor. In accordance with the CAA, a General Conformity Analysis has been prepared concurrently with this EA and demonstrates that implementation of the Proposed Action would not result in emissions above the thresholds for NOx, VOCs and CO. Short-term and fugitive dust emissions from construction activities would impact air quality temporarily and the impact would cease after construction is completed. Appropriate control measures would be implemented to minimize fugitive dust emissions. This would be similar for most planned projects, and these construction projects would not be going on in the same vicinity at the same time. The Proposed Action's contribution to cumulative air quality impacts would be minor.

Noise

Overall development of the BARC facility is limited due to the requirements of the MS4 permit and the goal to reduce impervious area by 2025. Short-term noise impacts would continue to occur at BARC associated with the Proposed Action, the construction of the solar arrays, and other ongoing activities at the facility. Traffic noise is anticipated to increase with the development of the 105-acre parcel, if the BEP project is implemented. As the Proposed Action is only anticipated to generate construction noise and noise associated with accessing and operating Buildings 002, 005, and 308 (which are already occurring at their current locations), it is not anticipated that the Proposed Action in combination with any present or reasonably foreseeable future actions would create events that would trigger high, long-term, non-abatable noise levels on the facility. The Proposed Action's contributions to cumulative noise impacts would be negligible.

Health and Public Safety

Implementation of the Proposed Action move existing operations to other locations within the BARC property, so operationally, there would be no expected contributions to health and public safety impacts. The Proposed Action, along with current and reasonably foreseeable future projects, including the demolition of 22 buildings, possible 105-acre parcel development, and possible MAGLEV development would be implemented following current industry design requirements and safety standards. These potential projects and the Proposed Action would be constructed in the same service area for emergencies, but the emergency response systems in place are adequate to handle these projects. The Proposed Action's contributions to the cumulative health and public safety impacts would be negligible.

3.15.2.2 No Action Alternative

Under the No Action Alternative, Buildings 002, 005, and 308 would remain in their current states. This could cause minimal impacts to cultural resources, hazardous and toxic materials and waste, and aesthetics and visual resources. Other current and foreseeable future projects would continue as planned, so the overall cumulative impacts of the No Action Alternative would be negligible.

THIS PAGE INTENTIONALLY LEFT BLANK

4 Conclusion

The Proposed Action includes the renovation and modernization of three buildings at BARC-Building 002, Building 005, and Building 308, with construction of additions to Buildings 002 and 308. Impacts to natural and cultural resources would be minimized to the maximum extent possible.

Table 4-1 summarizes the potential consequences that the Proposed Action and the No Action Alternative would be expected to have on environmental resources.

Table 4-1: Summary of Potential Environmental Consequences on Environmental Resources

Resource	Proposed Action	No Action Alternative
Land Use	No expected impacts	No expected impacts
Topography, Geology, and Soils	Minor adverse impacts	No expected impacts
Prime Farmland	Minor impacts	No expected impacts
Water Resources	Minor adverse impacts to stormwater, surface water, and wetlands; no expected impacts to groundwater and floodplains	No expected impacts
Biological Resources	Minor adverse impacts to RTE species; minor impacts to vegetation	No expected impacts
Cultural Resources	Minor adverse impacts	No expected impacts
Socioeconomics	Short-term minor beneficial impacts; No long-term impacts	No expected impacts
Transportation	Short-term minor adverse impacts; No long-term impacts	No expected impacts
Utilities	Minor adverse impacts to electricity; solid waste, wastewater, and natural gas during construction only; no impacts to electricity, solid waste, wastewater, and natural gas during operation	No expected impacts
Hazardous and Toxic Material and Waste	No adverse impacts	Minor adverse impacts from building deterioration
Aesthetic and Visual Resources	Minor adverse impacts	No expected impacts
Air Quality	Minor adverse impacts	No expected impacts
Noise	Minor adverse impacts during construction; no expected impacts during operation	No expected impacts
Health and Public Safety	No expected impacts	No expected impacts
Cumulative Impacts	Minor adverse impacts	Negligible impacts

The conclusion of this EA is that there would be no significant impacts as a result of the Proposed Action: renovation and construction associated with Buildings 002, 005, and 308. A Finding of No Significant Impact for implementation of the Proposed Action is the conclusion of this assessment.

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix A

CORRESPONDENCE

THIS PAGE INTENTIONALLY LEFT BLANK

May 7, 2021

Janice Rogers
USDA-ARS
5601 Sunnyside Avenue
Beltsville, MD 20705
Sent vis email to janice.rogers@usda.gov

Re: Building 002 Modernization
Beltsville Agricultural Research Center (BARC)
Prince George's County, Maryland
Section 106 / Review for Effects on Historic Properties

Dear Ms. Rogers:

The Maryland Historical Trust (MHT) received preliminary information on the above-referenced undertaking from consultant Traceries, Inc on April 16, 2021. As the State's Historic Preservation Office, the MHT reviews all projects in Maryland that are undertaken, assisted, or permitted by a federal or state agency, and provide comments on the proposed action pursuant to Section 106 of the National Historic Preservation Act and the Maryland Historic Trust Act at sections 5A-325 and 5A-326 of the State Finance and Procurement Article.

The proposed undertaking entails the modernization of Building 002 to accommodate modern laboratory and office space for the USDA's Food Quality Lab, Systemic Entomology Lab, and the Animal and Plant Health Inspection Service. Building 002 is a four-story, brick, Georgian Revival building built in 1938 as BARC's Cold Storage Building. Part of BARC's North Farm Campus (MIHP PG:61-20), Building 002 is eligible for listing on the National Register of Historic Places as a contributing resource to the Beltsville Agricultural Research Center (BARC) Historic District (MIHP No. PG:62-14). We appreciate USDA's efforts to rehabilitate and continue reuse this historic building to serve the agency' purposes.

Though a scope of work and preliminary design is still in progress, the proposed work will include renovation of Building 002 and the construction of a new addition or connected hyphen. As such, all proposed work on the building, including any additions or new adjoining buildings, must adhere to the *Secretary of the Interior's Standards for the Treatment of Historic Properties* in order to avoid possible adverse effects to the BARC Historic District. In order to continue our review of the proposed undertaking and provide an informed assessment of the project's effect on historic properties, we request the following information:

- Preliminary Scope of Work for the renovation of the existing building detailing the items that will be repaired, replaced, or removed with the proposed work. To avoid possible adverse effects to Building 002, we highly recommend that the rehabilitation work adheres to the *Secretary of the Interior's Standards for Rehabilitation*.
- 35% Design Plans and Elevations for the proposed addition/hyphen.

Given the possible visual impact of the proposed addition, we suggest a meeting to fully discuss the ongoing design of this project. Exhibits or simulations that show the locations, height/stories, design, and materials funder consideration for the addition/hyphen would assist in our understanding of the possible effect to the BARC Historic District.

We look forward to working with you to successfully complete the undertaking's historic preservation/ Section 106 review. If you have any questions or require further information, please do not hesitate to contact me at becky.roman@maryland.gov. Thank you for providing this opportunity to comment.

Sincerely,

Becky Roman

Elizabeth L. (Becky) Roman
Preservation Officer, Project Review and Compliance
Maryland Historical Trust

ELR/202100583

Cc: Claudette Joyner (USDA/ARS claudette.joyner@usda.gov)
Alyssa Stein (Traceries, Inc. / alyssa.stein@traceries.com)
Laura Hughes (Traceries, Inc. / laura.hughes@traceries.com)

THIS PAGE INTENTIONALLY LEFT BLANK

Commission Action

June 3, 2021

PROJECT	NCPC FILE NUMBER
Building 002 Modernization Beltsville Agricultural Research Center 10300 Baltimore Avenue Beltsville, Maryland	8277
	NCPC MAP FILE NUMBER 3212.10(38.00)45323
SUBMITTED BY United States Department of Agriculture	**APPLICANT'S REQUEST** Approval of comments on concept plans
REVIEW AUTHORITY Advisory per 40 U.S.C. § 8722(b)(1)	**ACTION TAKEN** Approved comments on concept plans

The Commission:

Supports rehabilitation and reuse of the existing historic buildings within the campus to further the mission of the Beltsville Agricultural Research Center.

Notes the applicant explored an alternative location for the proposed addition, immediately behind the existing building, but this approach did not meet programming needs and had the potential for more significant impacts to the existing historic building.

Recommends the applicant continue to refine the proposed addition design to:

- Explore whether the front door to the addition can be oriented to face Circle Road.
- Simplify the hyphen to reduce the number of vertical mullions.
- Evaluate the use of an alternative roof form, cornice, or parapet that would not add significant height to the addition but could relate to the adjacent historic building.

Requests the applicant continue to coordinate with the Maryland Historic Trust to first avoid, then minimize or mitigate potential adverse effects to historic properties.

Recommends the applicant develop a stormwater management approach that will be compatible with the setting of the historic campus.

Julia Koster 06/03/2021

Julia A. Koster
Secretary to the National Capital Planning Commission

National Capital Planning Commission Official Copy

THIS PAGE INTENTIONALLY LEFT BLANK

June 2, 2021

Janice Rogers
USDA-ARS
5601 Sunnyside Avenue
Beltsville, MD 20705
Sent vis email to janice.rogers@usda.gov

Re: Building 308 Modernization
Beltsville Agricultural Research Center (BARC)
Prince George's County, Maryland
Section 106 / Review for Effects on Historic Properties

Dear Ms. Rogers:

The Maryland Historical Trust (MHT) received preliminary information on the above-referenced undertaking from consultant Traceries, Inc on May 7, 2021. As the State's Historic Preservation Office, the MHT reviews all projects in Maryland that are undertaken, assisted, or permitted by a federal or state agency, and provide comments on the proposed action pursuant to Section 106 of the National Historic Preservation Act and the Maryland Historic Trust Act at sections 5A-325 and 5A-326 of the State Finance and Procurement Article.

The proposed undertaking entails the modernization of Building 308 to meet the program requirements of the USDA's Food Surveys Research Group, Methods and Application of Food Composition Lab, and Environmental Microbial and Food Safety Laboratory. Building 308 is a 3½ -story, brick, Georgian Revival building that is part of a complex of five buildings built in 1938-1940 to house BARC's Departmental Laboratories. Building 308 is eligible for listing on the National Register of Historic Places as a contributing resource to the Beltsville Agricultural Research Center (BARC) Historic District (MIHP No. PG:62-14). We appreciate USDA's efforts to rehabilitate and continue reuse this historic building to serve the agency' purposes.

Though a scope of work and preliminary design is still in progress, the proposed work involves rehabilitation of Building 308, including expansion of the lobby and new auditorium on the first floor. A new addition/connected hyphen is proposed to house laboratory space requiring higher ceiling heights than available in the existing building. To avoid possible adverse effects to Building 308 and the BARC Historic District, the proposed work must adhere to the *Secretary of the Interior's Standards for the Rehabilitation of Historic Properties*. In order to continue our review of the proposed undertaking and provide an informed assessment of the project's effect on historic properties, we request the following information:

- Existing Floor Plans for Building 308.
- Photographs of interior spaces to be expanded or reconfigured to house the proposed auditorium.
- Preliminary Scope of Work for the renovation of the existing building detailing the items that will be repaired, replaced, or removed with the proposed work.
- 35% Design Plans and Elevations.

Given the possible impacts of the proposed expanded lobby and new auditorium to Building 308 and the new addition/hyphen to the layout of the Departmental Labs Complex at BARC, we suggest a meeting to fully discuss the ongoing design of this project. Exhibits or simulations that show the locations, height/stories, design, and materials funder consideration for the changes to interior layout and for the new addition/hyphen would assist in our understanding of the possible effect to the BARC Historic District.

We look forward to working with you to successfully complete the undertaking's historic preservation/ Section 106 review. If you have any questions or require further information, please do not hesitate to contact me at becky.roman@maryland.gov. Thank you for providing this opportunity to comment.

Sincerely,

Becky Roman

Elizabeth L. (Becky) Roman
Preservation Officer, Project Review and Compliance
Maryland Historical Trust

ELR/202101721

Cc: Claudette Joyner (USDA/ARS claudette.joyner@usda.gov)
Alyssa Stein (Traceries, Inc. / alyssa.stein@traceries.com)
Laura Hughes (Traceries, Inc. / laura.hughes@traceries.com)

THIS PAGE INTENTIONALLY LEFT BLANK

27 July 2021

MEMORANDUM FOR SEE DISTRIBUTION

FROM: Beltsville Agricultural Research Center
10300 Baltimore Avenue
Bldg 003, BARC-West
Beltsville, MD 20705

SUBJECT: Initiating Agency Coordination for the Renovation of Buildings 002, 005 and 308, additions for Buildings 002 and 308, and a greenhouse for Building 005 at the Beltsville Agricultural Research Center, Beltsville, Maryland

1. The U.S. Department of Agriculture (USDA) is initiating agency coordination for a new Proposed Action at the Beltsville Agricultural Research Center (BARC) in Beltsville, MD. The proposed action consists of the renovation of three historic buildings, Buildings 002, 005, and 308, the construction of additions for Buildings 002 and 308, and a small greenhouse for Building 005. Agency coordination will be completed in accordance with the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA).

3. This Environmental Assessment (EA) will be prepared in accordance with the National Environmental Policy Act of 1969 (42 *United States Code* [USC] 4321-4347) and Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 *Code of Federal Regulations* [CFR] Sections 1500-1508).

4. Planning for the proposed undertaking is in its early stages, and we look forward to consulting with your office. Questions or comments may be directed to Dr. LeAnn Blomberg at 301-504-5380 or by email at leann.blomberg@usda.gov. Lauren Joyal is the primary point of contact at USACE for this NEPA action. She can be reached at 812-878-2281 or by email at Lauren.e.Joyal@usace.army.mil.

Sincerely,

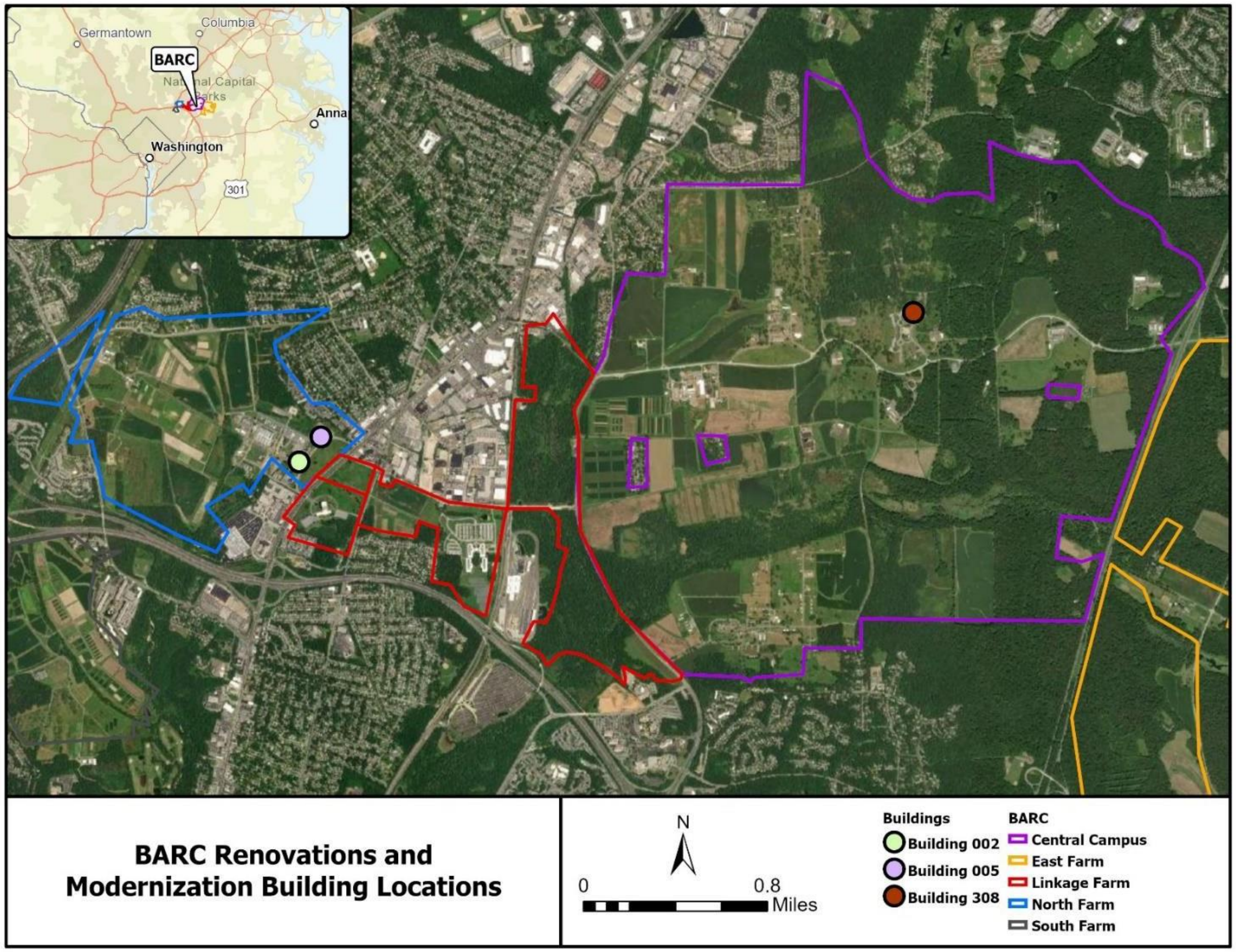
LEANN BLOMBERG

Digitally signed by LEANN BLOMBERG
Date: 2021.08.03 17:32:41 -04'00'

Dr. LeAnn Blomberg
Assistant Director
USDA

Enclosure 1: Building Locations
Enclosure 2: Building 002
Enclosure 3: Building 005
Enclosure 4: Building 308
Enclosure 5: Agency Mailing List

Enclosure 1: Building Locations



Enclosure 2: Building 002

Enclosure 3: Building 002

Enclosure 4: Building 002

Enclosure 5: Agency Mailing List

Ms. Lori Byrne
Maryland Department of Natural Resources
Tawes State Office Building
580 Taylor Avenue
Annapolis, MD 21401

Ms. Amanda Redmiles
Maryland Department of the Environment
Clearinghouse Coordinator
1800 Washington Boulevard
Baltimore, MD 21230

Ms. Linda C. Janey
Maryland State Clearinghouse
Maryland Office of Planning, Suite 1101
301 West Preston Street
Baltimore, MD 21201-2365

Mr. Luke Marcek
Maryland DNR – Forest Service
The Bhaduri Building
Maple Avenue
P.O. Box 2746
La Plata, MD 20646

Ms. Barbara Rudnick
U.S. Environmental Protection Agency, Region 3
Office of Environmental Programs (3EA30)
1650 Arch Street
Philadelphia, PA 19103-2029

Ms. Genevieve LaRouche
U.S. Department of the Interior
Fish & Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

Ms. Beth Cole
Maryland Historical Trust
Project Review and Compliance
100 Community Place
Crownsville, MD 21032

Mr. Carlton Hart
National Capital Planning Commission
North Lobby, Suite 500
401 9th Street, NW
Washington, DC 20576

Ms. Crystal Hancock
Maryland-National Capital Park & Planning Commission
14741 Governor Oden Bowie Drive
Upper Marlboro, MD 20772

THIS PAGE INTENTIONALLY LEFT BLANK

Agricultural Research Service
U. S. DEPARTMENT OF AGRICULTURE

June 16, 2021
Mr. Joseph Abe
Coastal Policy Coordinator
Maryland Department of Natural Resources
Chesapeake & Coastal Policy
Tawes State Office Building E2
580 Taylor State Avenue Annapolis, MD 21401

Subject: Federal Consistency Determination: Renovation of Buildings 002, 005, and 308
with construction of additions onto Buildings 002 and 308 at
Beltsville Agricultural Research Center, Beltsville, Prince George's County, Maryland

Dear Mr. Abe,

The U.S. Department of Agriculture (USDA) is preparing environmental documentation in accordance with the National Environmental Policy Act of 1969 (NEPA) to analyze the potential environmental impacts of the proposed renovation of Buildings 002, 003, and 308 with the construction of one-story additions onto Buildings 002 and 308 at the Beltsville Agricultural Research Center (BARC) in Beltsville, Maryland. The purpose of this letter is to provide you with a Consistency Determination for this project in accordance with 15 Code of Federal Regulations (CFR) §930.39 and Section 307(d) of the Coastal Zone Management Act (CZMA) of 1972 and request your concurrence/comments.

The Proposed Action would include the following to renovate and construct two additions:

- New slate roofing system
- Exterior double-hung wood window demolishment and replacement with new operable windows
- Exterior brick re-pointing and repaired where necessary
- Building entrance renovations to meet ADA requirements
- Interior partition removal and replacement
- Upper floor flood water damage and mold issue to be addressed in Building 005
- Construction of one-story additions to Buildings 002 (2,200 square foot) and 308
- Retention wall surrounding addition to 308 to the northwest

An Environmental Assessment (EA) is being prepared for the proposed project to document potential impacts to the natural and human environments for the Proposed Action and the No-Action Alternative. It is anticipated that the EA will result in a Finding of No Significant Impact (FONSI). Based on the analysis presented in the enclosed Federal Consistency Determination, the USDA has determined that the Proposed Action would be consistent to the maximum extent practicable with the applicable enforceable policies of Maryland's Coastal Zone Management Program (CZMP).

Please provide concurrence and/or comments regarding the above Consistency Determination via letter to this office.

Respectfully,

WILLIAM HOWL Digitally signed by WILLIAM HOWL
Date: 2021.07.01 14:06:42 -04'00'

William Howl
Industrial Hygienist

Enclosures:

1. CZMA Consistency Determination
2. Site Location and Photos
3. Basis of Determination
4. Description of Proposed Action and Alternatives (DOPAA)

ENCLOSURE 1: COASTAL ZONE MANAGEMENT ACT (CZMA) CONSISTENCY DETERMINATION

This document provides Maryland with the United States Department of Agriculture (USDA) Consistency Determination under the Coastal Zone Management Act (CZMA) Section 307(c)(1) and (2) and 15 Code of Federal Regulations (CFR) Part 930, Subpart C, for the proposed renovation of Buildings 002, 003, and 308 with the construction of additions onto Buildings 002 and 308 at Beltsville Agricultural Research Center (BARC). The information in this Consistency Determination is provided pursuant to 15 CFR §930.39.

This Consistency Determination represents an analysis of the Proposed Action considering established Maryland Coastal Resources Management (CRM) Program Enforceable Policies and Programs. Submission of this Consistency Determination reflects the commitment of the USDA to comply to the maximum extent practicable with those enforceable policies and programs. The Proposed Action would be operated and implemented in a manner consistent with the CRM. The USDA has determined that the effects of the Proposed Action would be less than significant on land and water uses and natural resources of Maryland's Coastal Zone and is consistent to the maximum extent practicable with the enforceable policies of the CRM.

PROPOSED PROJECT DESCRIPTION

Project Location

BARC is in Beltsville, Prince George's County, Maryland, approximately 10 miles northeast of Washington, DC. It is operated and used by the USDA for agricultural research. It consists of nearly 6,600 acres of land and is split into five farm sections. BARC is primarily open, agricultural land, but is surrounded by the suburban community of Beltsville and the cities of Greenbelt and College Park. Prince George's County is located within Maryland's designated coastal zone.

Project Description

The USDA proposes the renovation of Buildings 002, 005, and 308. Exterior additions to Buildings 002 and 308 have been proposed to further accommodate the needs of the research conducted within the buildings.

BARC's mission is to perform research on human nutrition and agricultural-related products. To this end, BARC laboratories conduct multi-disciplinary basic science and applied human nutrition research. This work is important to scientists, food producers, policymakers, educators, and consumers to gain understanding of better understand the relationship between diet and health.

BARC proposes to completely renovate the exterior and interior of Buildings 002, 003, and 308, with additions being constructed onto Buildings 002 and 308. In total, the proposed sites are approximately 1.88 acres of land. The three buildings are contributing factors to the BARC Historic District, though none are individually eligible for listing on the National Register of Historic Places (NRHP). Building 308 is also a contributing element to the North Farm Historic District. Building 005's previous addition would serve as an example for the additions to Building 002 and 308. The three buildings all require renovation to provide employees at BARC with updated features and spaces including: laboratories, utilities, mitigated environmental concerns (e.g., mold and asbestos), and office/lab swing space.

Building 002

Building 002 is located on the North Farm of BARC at 10300 Baltimore Avenue, Beltsville Maryland and is used as research, laboratory, and office space. The Proposed Action would renovate the interior as well as exterior of Building 002 (The Cold Storage Building) and construct an approximately 2,200 square foot (sf) addition on the eastern portion of the building. During construction, as many aspects of the original interior would be maintained as possible. Renovations would restore the exterior of the building while renovating and modernizing the interior. All exterior windows and doors throughout the building would be replaced in-kind. Exterior renovations would include demolishing the existing slate roofing to be replaced with a new slate roofing system, exterior double-hung wood window demolishment and replacement with new operable windows, exterior brick re-pointing and repaired where necessary, and building entrance renovations to meet Americans with Disabilities Act (ADA) requirements. Interior renovations would include the removal of existing partitions, replacement of partitions, and removal of the existing elevator. The structural and aesthetic upgrades to the building would be designed to preserve the building's historic characteristics to the extent practicable.

Figure 2-1: Building 002 Addition Potential Layouts

Building 005

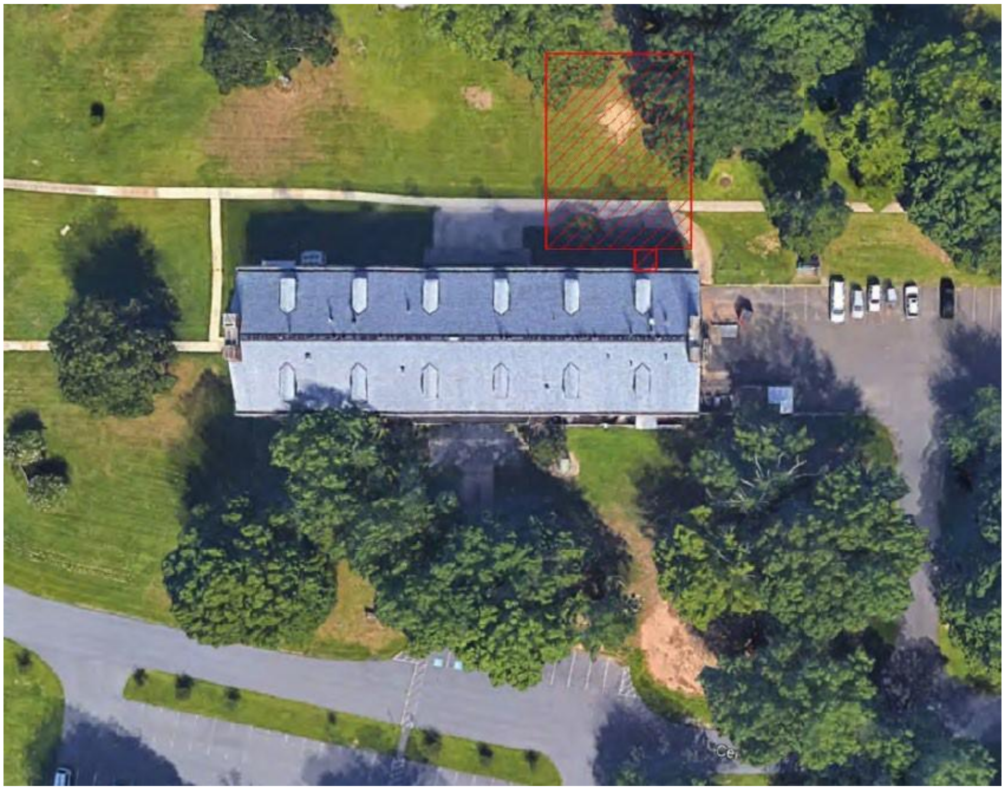
Building 005 is located on the North Farm of BARC at 10300 Baltimore Ave, Beltsville Maryland and utilized as office space. Building 005 would undergo the same renovations as mentioned above, however no addition would be built. In addition, Building 005 has severe water damage on its upper floor that may require additional renovations, including a roof replacement. The structural and aesthetic upgrades to the building would be designed to preserve the building's historic characteristics to the greatest extent practicable. The design for Building 005 would set the precedent for the design of Buildings 002 and 308.

Building 308

Building 308 is located at 308 Center Road, Beltsville Maryland and is used as research, laboratory, and office space. Building 308 requires the same interior and exterior renovations as Building 002;

however, the addition would be in the northwest corner of the building. A retaining wall northwest of the addition would be constructed as well. The structural and aesthetic upgrades to the building would be designed to preserve the building's historic characteristics to the greatest extent practicable.

Figure 2-2: Building 308 Addition Potential Layout



Public Participation

A Notice of Availability (NOA) would be published in the local newspaper- the *Greenbelt News Review* - as well as distributed to Federal, State, and local agencies via letter when the draft EA is completed. The NOA and publication would announce the availability of the official public draft EA and request comments from the general public and Federal, State, and local agencies. The draft EA, along with a draft FONSI, would made available to the public for 10 days. Due to COVID-19 restrictions, hard copies would not be placed in local libraries as they usually would be. Instead, the Draft EA and Draft FONSI would be available on USDA's website and hard copies would made available upon individual request.

Other Consultations

Under NEPA regulation 40 CFR §1506.6, the USDA will encourage public and relevant agency involvement in the process of preparing the EA. Coordination letters would be provided to U.S. Fish and Wildlife Service (USFWS), U.S. Environmental Protection Agency (EPA), Maryland Clearinghouse, Maryland-National Capital Park and Planning Commission (MNCPPC), Maryland Department of the Environment (MDE), and Maryland Department of Natural Resources (MDNR). Coordination with the National Capital Planning Commission (NCPC) has already begun. The project is being coordinated with Maryland Historical Trust (MHT) and federally recognized Native American Tribes under Section 106 of the National Historic Preservation Act (NHPA).

ENCLOSURE 2: SITE LOCATION AND PHOTOS

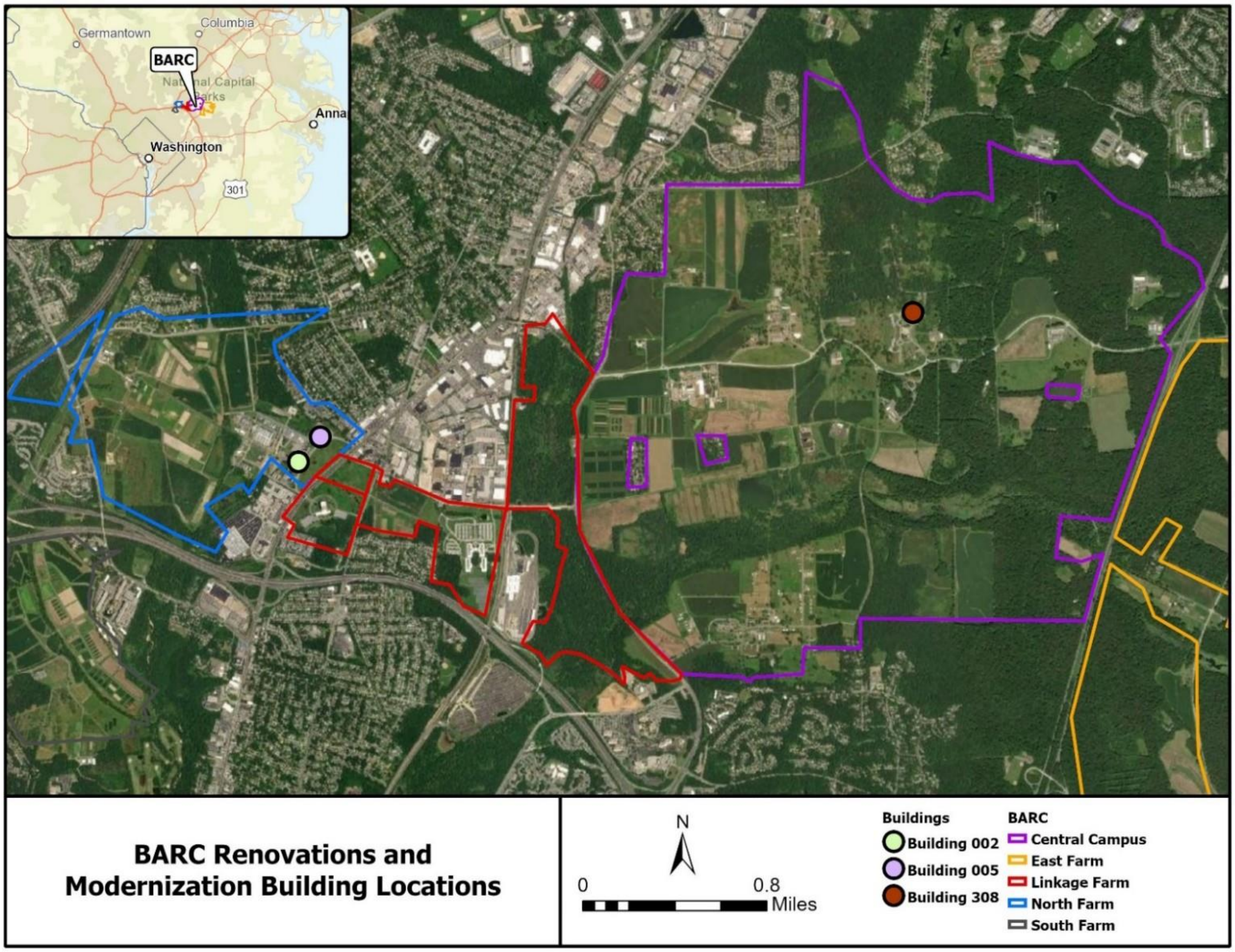


Figure 1: Building 002

Figure 2: Building 005

Figure 3: Building 308

ENCLOSURE 3: BASIS OF DETERMINATION

The Proposed Action would be fully consistent with Maryland's Enforceable Coastal Policies, implemented by the MDE. No adverse or beneficial effects on Maryland's coastal resources would be expected from implementing the Proposed Action. The Proposed Action would be conducted in accordance with applicable laws, regulations, and policies governing erosion and sediment control and stormwater management, which would ensure that the actions would be undertaken in a manner consistent with the applicable Maryland Coastal Program enforceable policies. A synopsis of how the Proposed Action would be consistent with the enforceable coastal policies is provided below.

Maryland's Enforceable Coastal Policies are divided into three general sections: general policies, coastal resources, and coastal uses. The general policies are further divided into core, water quality, and flood hazards policies. Compliance of the Proposed Action with each of the applicable enforceable policies is discussed below. Policies not applicable to the Proposed Action are noted.

GENERAL POLICIES

Core Policies

Policy: It is State policy to maintain that degree of purity of air resources which will protect the health, general welfare, and property of the people of the State.

The USDA would comply with all applicable air pollution control regulations when implementing the Proposed Action. No new, significant contributing elements to air pollution would be added under the Proposed Action. All replacement laboratory equipment would be as energy efficient as possible.

Further, all construction activities would be required to comply with federal, state, and current USDA versions of regulations designed to support compliance with the Clean Air Act (CAA), Occupational

Safety and Hazard Act (OSHA), and Toxic Substance and Control Act (TSCA). Construction will use best management practices (BMPs) to reduce emissions and if necessary, will utilize emission control technologies and other required mitigation technologies.

The Proposed Action is expected to comply with all air emission requirements and will follow the National Emissions Standards for Hazardous Air Pollutants (NESHAP). The Proposed Action is expected to comply with all state and federal asbestos regulations.

Policy: The environment shall be free from noise which may jeopardize health, general welfare, or property, or which degrades the quality of life.

The noise receptors surrounding the buildings are solely BARC employees and research buildings. Currently, the noise created by vehicular traffic and farm equipment is the only noise in the area. This traffic consists of workers and contractors coming to and from work, although the area is frequented by locals as well. During construction, a temporary increase in the vehicular traffic would occur as workers, building materials, equipment, construction, and demolition debris/wastes are transported to and from the site. When the proposed building renovation and construction is complete, construction-related noise would cease. No additional noise would occur post-construction.

The Noise Control Act of 1972 (42 U.S.C. 4901 et seq.) directs Federal agencies to comply with applicable federal, state, interstate, and local noise control regulations, including the Proposed Action. Noise generated during the construction of the proposed renovations and construction would be typical of that produced by heavy equipment such as bulldozers, excavators, graders, and trucks. The expected noise level from typical construction and renovation experienced by noise-sensitive receptors surrounding the Project Site would fall below the regulated noise thresholds established in the Prince George's County Noise Ordinance.

Policy: Soil erosion shall be prevented to preserve natural resources and wildlife; control floods; prevent impairment of dams and reservoirs; maintain the navigability of rivers and harbors; protect the tax base, the public lands, and the health, safety, and general welfare of the people of the State, and to enhance their living environment.

Soil disturbance would occur during the construction phase of the Proposed Action.

The area surrounding all three buildings is developed land, with minimal impact expected during renovations. The two additions would directly affect less than an acre of soil. Excavation would be required for the addition built onto Buildings 002 and 308. BMPs would be followed for management of erosion. All disturbed areas would be revegetated to their previous extent once construction was completed. The USDA would comply with the requirements described in the MDE document *Maryland Stormwater Management Guidelines for State and Federal Projects* and Maryland's Stormwater Management Act of 2007. Contractors would be required to submit a state-approved soil erosion control plan and obtain coverage under the NPDES General Construction Permit, as applicable to each project. Erosion and sedimentation on the site would be managed with retention features. Through adherence to applicable permits and implementation of stormwater management measures, the Proposed Action would be consistent to the maximum extent practicable with this enforceable policy.

Policy: Controlled hazardous substances may not be stored, treated, dumped, discharged, abandoned, or otherwise disposed anywhere other than a permitted controlled hazardous substance facility or a facility that provides an equivalent level of environmental protection.

All construction activities would be required to comply with applicable local, state, and federal regulations of hazardous waste.

Renovations may require the removal and disposal of hazardous waste including the following: polychlorinated biphenyls (PCBs) (light ballasts, transformer, hydraulic fluid, window caulking, di (2-ethylhexyl) phthalate (DEHP), and asbestos, lead-based paint (LBP), etc. These substances are all managed under TSCA and the Maryland Lead Paint Abatement Regulations (CCOMAR 26.13.02.19). However, the three historic buildings are occupied and have undergone some renovations since their construction, possibly limiting the amount of these toxic substances present.
During the proposed renovation and construction projects, any light ballast and light bulbs would be removed intact and labeled for recycling at a licensed waste facility in accordance with 40 CFR Part 761. If asbestos is found during the proposed renovation and construction, it would be removed in accordance with COMAR 26.11.21. Mercury-containing items would be removed intact and placed into approved containers. Light ballasts or transformers containing PCBs would be removed and recycled at a licensed recycling facility in accordance with 40 CFR Part 761. LBP would be disposed of according to TSCA guidelines, meaning they would either be brought to a municipal landfill if under 100mg or disposed of at a hazardous waste site if over regulation standard for non-hazardous waste. These procedures would minimize adverse impacts at BARC regarding the management and disposal of toxic wastes, hazardous wastes, and/or Universal Wastes. Therefore, the Proposed Action would be consistent to the maximum extent practicable with this enforceable policy.

Water Quality

Policy: No one may add, introduce, leak, spill, or emit any liquid, gaseous, solid, or other substance that will pollute any waters of the State without State authorization.

During construction contractors would be required to use mange, store, transport, and dispose of hazardous wastes; and take all necessary precautions to prevent spills of hazardous materials in accordance with federal, state, and local laws and regulations. Therefore, the Proposed Action would be consistent to the maximum extent practicable with this enforceable policy.

Policy: Any development or redevelopment of land for residential, commercial, industrial, or institutional purposes shall use small-scale non-structural stormwater management practices and site planning that mimics natural hydrologic conditions, to the maximum extent practicable. Development or redevelopment will be consistent with this policy when channel stability and 100 percent of the average annual predevelopment groundwater recharge are maintained, nonpoint source pollution is minimized, and structural stormwater management practices are used only if determined to be absolutely necessary.

Renovations will not affect stormwater runoff. Current buildings have sufficient stormwater drainage. No stormwater features will be built; this policy is not applicable.

Policy: Public meetings and citizen education shall be encouraged as a necessary function of water quality regulation.

The USDA would publish a NOA when the draft EA is ready for public comment. This would initiate a 10-day public comment period in which the USDA would solicit public comments and stakeholders.

Substantiative comments received during the public comment period would be addressed in the final EA. Therefore, the Proposed Action would be consistent to the maximum extent practicable with this enforceable policy.

Flood Hazards

The Flood Hazards Policies are not relevant to the Proposed Action. The Proposed Action would not create additional flooding upstream or downstream or have an adverse impact upon water quality or other environmental factors.

COASTAL RESOURCES

Chesapeake and Atlantic Coastal Bays Critical Area

The Chesapeake and Atlantic Coastal Bays Critical Area Policies are not relevant to the Proposed Action. The Proposed Action would not occur in a Chesapeake and Atlantic Coastal Bays Critical Area.

Tidal Wetlands

The Tidal Wetlands Policies are not relevant to the Proposed Action. The Proposed Action would not occur in a tidal wetland.

Nontidal Wetlands

The Nontidal Wetlands Policies are not relevant to the Proposed Action. The Proposed Action would not occur in a nontidal wetland.

Forests

Policy: The Forest Conservation Act and its implementing regulations, as approved by NOAA, are enforceable policies. Generally, before developing an area greater than 40,000 square feet, forested and environmentally sensitive areas must be identified and preserved whenever possible. If these areas cannot be preserved, reforestation or other mitigation is required to replace the values associated with them. This policy does not apply in the Critical Area.

None of the building sites are within a forested area. Building 308 is near a forested area to north that extends east to west. However, the site itself is a maintained mowed area with a few ornamental trees. There are no sensitive plant communities near the project site. During construction, the USDA would disturb as little natural habitat as possible. Any tree removal required would be done in accordance with the Maryland Forest Conservation Act (FCA). Replanting would follow the NCPC Comprehensive Plan for tree replacement measures. With the implementation of these impact-reduction measures, the Proposed Action would be consistent to the maximum extent practicable with this enforceable policy.

Historic and Archaeological Sites

The Historic and Archaeological Sites Policies are not relevant to the Proposed Action. The Proposed Action would not involve a submerged archaeological historic property, a cave feature or archeological site under state control, or a burial site or cemetery.

Living Aquatic Resources

The Living Aquatic Resources Policies are not relevant to the Proposed Action. The Proposed Actions would not affect any wetlands non-tidal waters.

COASTAL USES

Mineral Extraction

The Mineral Extraction Policies are not relevant to the Proposed Action. The Proposed Action does not require mineral extraction.

Electrical Generation and Transmission

The Electrical Generation and Transmission Policies are not relevant to the Proposed Action. The Proposed Action does not include the development of power plants, transmission lines, or cooling water intake structures.

Tidal Shore Erosion Control

The Tidal Shore Erosion Control Policies are not relevant to the Proposed Action. The Proposed Action would not occur in tidal shores.

Oil and Natural Gas Facilities

The Oil and Natural Gas Facilities Policies are not relevant to the Proposed Action. The Proposed Action does not include any oil or natural gas facilities.

Dredging and Disposal of Dredged Material

The Dredging and Disposal of Dredged Material Policies are not relevant to the Proposed Action. The Proposed Action does not require any dredging.

Navigation

The Navigation Policies are not relevant to the Proposed Action. The Proposed Action would not occur in proximity to navigable waters.

Transportation

The Transportation Policies are not relevant to the Proposed Action. The Proposed Action is a non-transportation project.

Agriculture

The Agriculture Policies are not relevant to the Proposed Action. The Proposed Action would not occur on agricultural lands.

Development

Any development shall be designed to minimize erosion and keep sediment onsite.

The Proposed Action would include controls to minimize erosion and keep sediment on site, described above in Core Policies-Soil Erosion.

Any proposed development may only be located where the water supply system, sewerage system, or solid waste acceptance facility is adequate to serve the proposed construction, taking into account all existing and approved developments in the service area and any water supply system, sewerage system, or solid waste acceptance facility described in the application and will not overload any present facility for conveying, pumping, storing, or treating water, sewage, or solid waste.

All required utility systems are available and are adequate to service the proposed additions. All new facilities would be water and energy efficient and would not overload any present facility for conveying, pumping, storing, or treating water, sewage, or solid waste.

Local citizens shall be active partners in planning and implementation of development.

Public participation opportunities with respect to the EA and decision making on the Proposed Action is guided by 40 CFR Part 1506.6. The EA and FONSI will be made available to the public for review and comment for 10 days.

Sewage Treatment

The Sewage Treatment Policies are not relevant to the Proposed Action. The Proposed Action does not require special water treatment.

SUMMARY OF FINDINGS

Based upon the following information, data, and analysis, the USDA finds that the proposed renovation and construction of two additions is consistent to the maximum extent practicable with the enforceable policies of the CZMP. The table below summarizes how the Proposed Action would affect each of the enforceable policies outlined within the CZMA Consistency Determination.

Enforceable Policy	Consistent to Maximum Extent Practicable?
Core Policies	Yes
Water Quality	Yes
Flood Hazards	N/A
Critical Areas	N/A
Tidal Wetlands	N/A
Nontidal Wetlands	N/A
Forests	Yes
Historic and Archaeological Site Policies	N/A
Living Aquatic Resources	N/A
Mineral Extraction	N/A
Electrical Generation and Transmission	N/A
Tidal Shore Erosion Control	N/A
Oil and Natural Gas Facilities	N/A
Dredging and Disposal of Dredged Material	N/A
Navigation	N/A
Transportation	N/A
Agriculture	N/A
Development	Yes
Sewage Treatment	N/A

Pursuant to 15 CFR Section 930.41, the Maryland Coastal Zone Management Program has 60 days from the receipt of this letter in which to concur with or object to this Consistency Determination, or to request an extension under 15 CFR section 930.41(b). Maryland's concurrence will be presumed if its response is not received by USDA on the 60th day from receipt of this determination.

THIS PAGE INTENTIONALLY LEFT BLANK

Joyal, Lauren E CIV (USA)

From:	Joseph Abe -DNR- <joseph.abe@maryland.gov>
Sent:	Tuesday, July 27, 2021 1:48 PM
To:	Joyal, Lauren E CIV (USA)
Cc:	Heather Nelson -MDE-
Subject:	[Non-DoD Source] Consistency Concurrence RE BARC Renovations of Buildings 002, 005, and 308

Hi Lauren:

On behalf of Heather Nelson (Federal Consistency Coordinator), I am responding to your request for CZMA coastal consistency regarding the following USDA project in Beltsville, MD:

BARC Renovations of Buildings 002, 005, and 308 - The Proposed Action would include the following to renovate and construct two additions:

- New slate roofing system
- Exterior double-hung wood window demolishment and replacement with new operable windows Exterior brick re-pointing and repaired where necessary
- Building entrance renovations to meet ADA requirements
- Interior partition removal and replacement
- Upper floor flood water damage and mold issue to be addressed in Building 005
- Construction of one-story additions to Buildings 002 (2,200 square foot) and 308
- Retention wall surrounding addition to 308 to the northwest.

Based on our review of the information provided, the above project is consistent with the enforceable coastal policies of the Maryland Coastal Zone Management Program. Please note that this determination does not obviate the applicant's responsibility to obtain any other State or local approvals that may be necessary for the project.

Best Regards,

--

dnr.maryland.gov

Joseph Abe
Coastal Policy Coordinator Chesapeake and Coastal Service
Department of Natural Resources
580 Taylor Avenue, E-2
Annapolis, MD 21401
410-260-8740 (office)
443-534-4151 (cell)
joseph.abe@maryland.gov

Click here to complete a three question customer experience survey.

Beginning on Friday March 13th, 2020 state workers have been on mandatory telework. If you need to speak by phone please use my cell phone number or respond to my email with a request for a conference line number. Thank you.

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix B

SITE PHOTOS

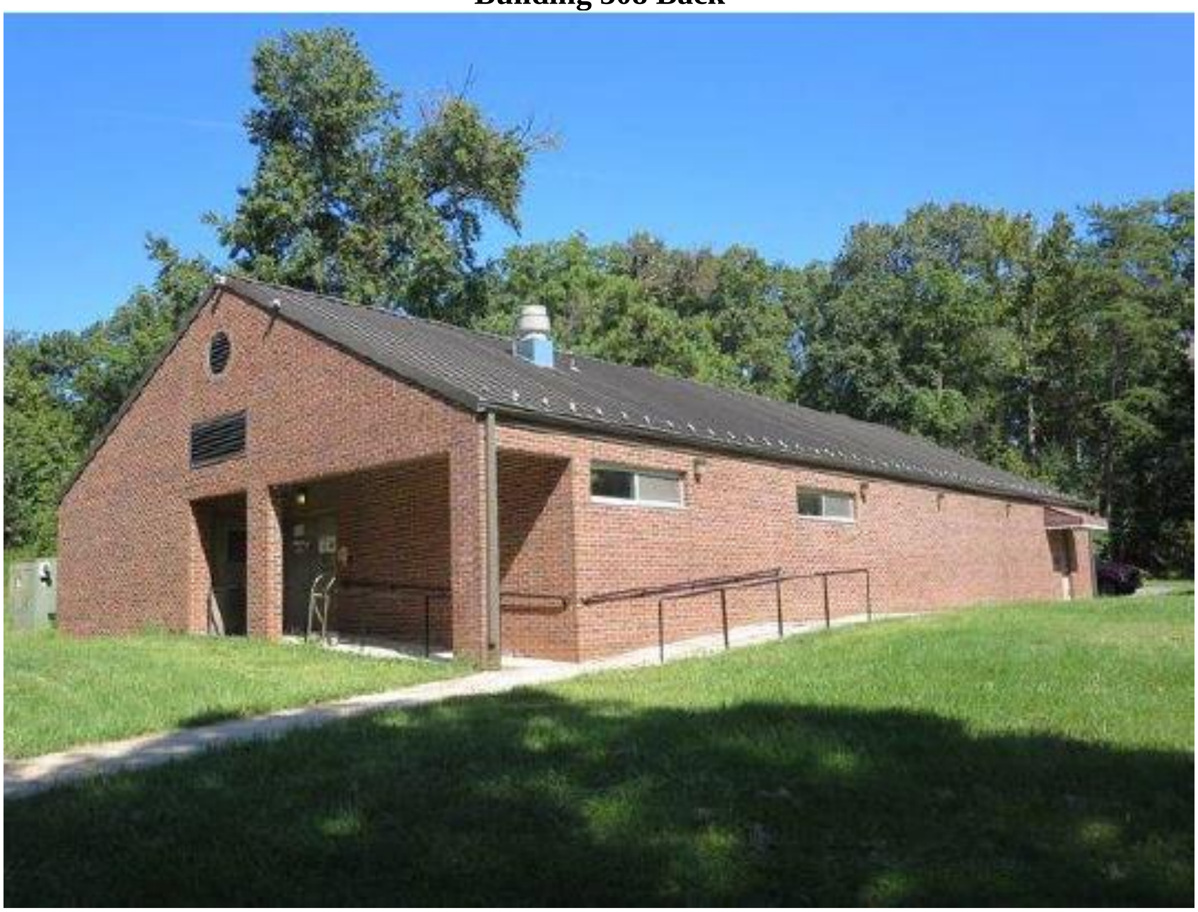
THIS PAGE INTENTIONALLY LEFT BLANK

Building 002

Building 005

Building 308

Building 308 Back



THIS PAGE INTENTIONALLY LEFT BLANK

Appendix C

SOIL REPORT

THIS PAGE INTENTIONALLY LEFT BLANK

United States Department of Agriculture

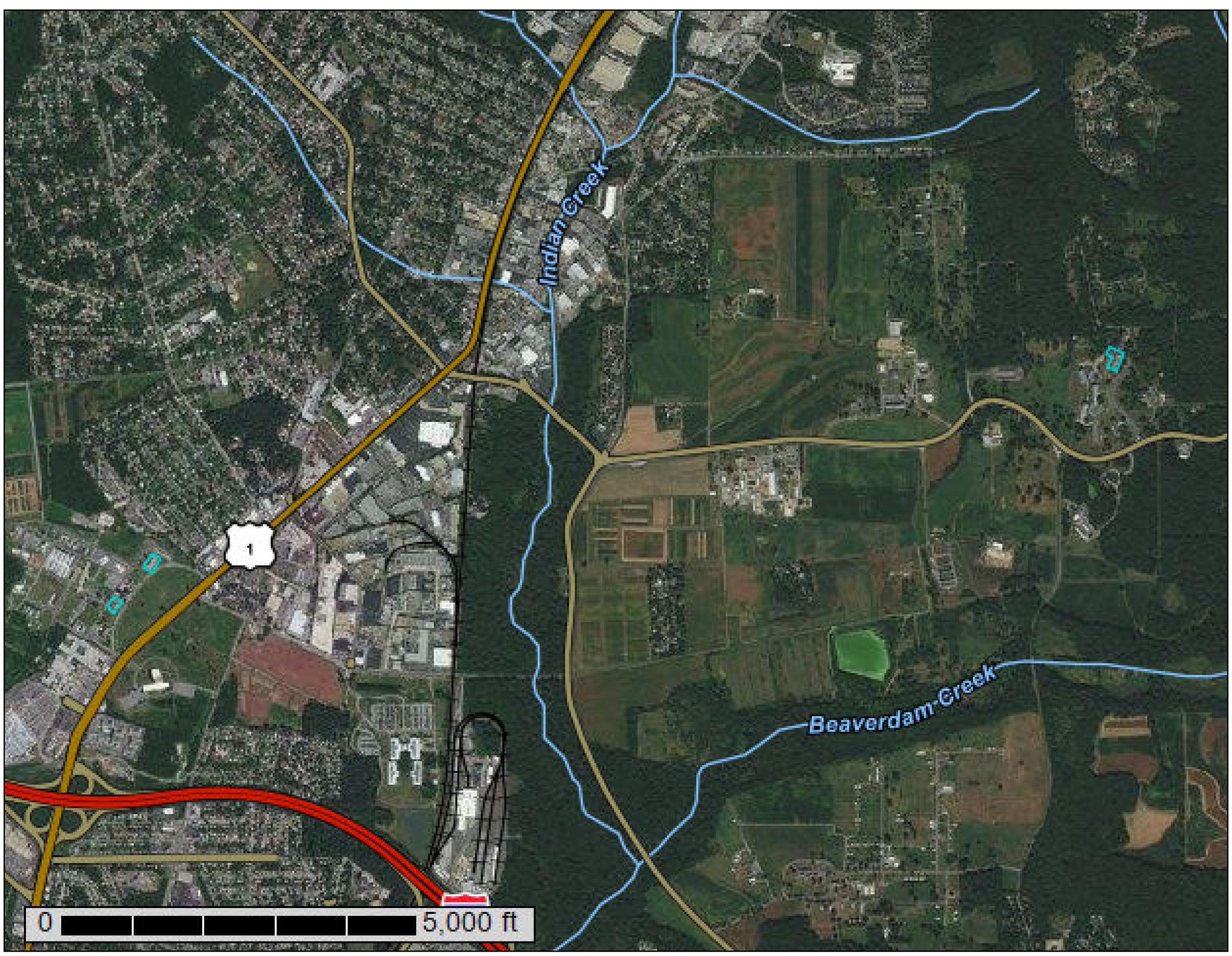
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Prince George's County, Maryland



June 21, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map

Map Scale: 1:24,000 if printed on A landscape (11" x 8.5") sheet.

Meters: 0, 350, 700, 1400, 2100

Feet: 0, 1000, 2000, 4000, 6000

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Prince George's County, Maryland
Survey Area Data: Version 18, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 3, 2015—Feb 22, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CdD	Christiana-Downer-Urban land complex, 5 to 15 percent slopes	0.6	24.1%
RcB	Russett-Christiana complex, 2 to 5 percent slopes	0.0	0.2%
RuB	Russett-Christiana-Urban land complex, 0 to 5 percent slopes	1.9	75.7%
Totals for Area of Interest		**2.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Prince George's County, Maryland

CdD—Christiana-Downer-Urban land complex, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2ndxh
Elevation: 10 to 390 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 180 to 210 days
Farmland classification: Not prime farmland

Map Unit Composition

Christiana and similar soils: 30 percent
Downer and similar soils: 25 percent
Urban land: 20 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Christiana

Setting

Landform: Hillslopes, interfluves, swales, drainhead complexes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey fluviomarine deposits

Typical profile

A - 0 to 6 inches: silt loam
BE - 6 to 10 inches: silt loam
Bt1 - 10 to 21 inches: silty clay loam
Bt2 - 21 to 49 inches: silty clay
BC - 49 to 80 inches: clay loam

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 20 to 40 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Downer

Setting

Landform: Knolls, interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 12 inches: loamy sand
Bt - 12 to 31 inches: sandy loam
BC - 31 to 38 inches: loamy sand
C - 38 to 72 inches: sand

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Flats
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Human transported material

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: 10 inches to
Runoff class: Very high

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Sassafras

Percent of map unit: 5 percent

Landform: Hillslopes, interfluves
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Galestown
Percent of map unit: 5 percent
Landform: Dunes, interfluves, knolls, terraces
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Interfluve, riser
Hydric soil rating: No

Udorthents
Percent of map unit: 5 percent
Hydric soil rating: No

Croom
Percent of map unit: 5 percent
Landform: Hillslopes, interfluves
Hydric soil rating: No

Issue
Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

RcB—Russett-Christiana complex, 2 to 5 percent slopes

Map Unit Setting
National map unit symbol: 2ndx8
Elevation: 10 to 390 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 175 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Russett and similar soils: 40 percent
Christiana and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Russett

Setting
Landform: Swales, broad interstream divides, interfluves, drainhead complexes

Landform position (two-dimensional): Footslope, summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy fluviomarine deposits

Typical profile

A - 0 to 4 inches: fine sandy loam
Bt1 - 4 to 7 inches: loam
Bt2 - 7 to 13 inches: loam
Bt3 - 13 to 46 inches: clay loam
BCg1 - 46 to 57 inches: sandy clay loam
BCg2 - 57 to 77 inches: silty clay loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 20 to 40 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Christiana

Setting

Landform: Hillslopes, interfluves, swales, drainhead complexes
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey fluviomarine deposits

Typical profile

A - 0 to 6 inches: silt loam
BE - 6 to 10 inches: silt loam
Bt1 - 10 to 21 inches: silty clay loam
Bt2 - 21 to 49 inches: silty clay
BC - 49 to 80 inches: clay loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 20 to 40 inches
Frequency of flooding: None
Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 4.9 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Hambrook
Percent of map unit: 10 percent
Landform: Flats, fluviomarine terraces, knolls, depressions
Hydric soil rating: No

Hammonton
Percent of map unit: 5 percent
Hydric soil rating: No

Sassafras
Percent of map unit: 5 percent
Hydric soil rating: No

Fallsington
Percent of map unit: 5 percent
Landform: Drainageways, drainhead complexes, swales, depressions
Down-slope shape: Linear, concave
Across-slope shape: Concave
Hydric soil rating: Yes

RuB—Russett-Christiana-Urban land complex, 0 to 5 percent slopes

Map Unit Setting
National map unit symbol: 2ndxg
Elevation: 10 to 390 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 180 to 210 days
Farmland classification: Not prime farmland

Map Unit Composition
Russett and similar soils: 31 percent
Christiana and similar soils: 30 percent
Urban land: 29 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Russett

Setting

Landform: Drainhead complexes, swales, broad interstream divides, interfluves
Landform position (two-dimensional): Footslope, summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy fluviomarine deposits

Typical profile

A - 0 to 4 inches: fine sandy loam
Bt1 - 4 to 7 inches: loam
Bt2 - 7 to 13 inches: loam
Bt3 - 13 to 46 inches: clay loam
BCg1 - 46 to 57 inches: sandy clay loam
BCg2 - 57 to 77 inches: silty clay loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 20 to 40 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Christiana

Setting

Landform: Interfluves, drainhead complexes, swales, hillslopes
Landform position (two-dimensional): Footslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey fluviomarine deposits

Typical profile

A - 0 to 6 inches: silt loam
BE - 6 to 10 inches: silt loam
Bt1 - 10 to 21 inches: silty clay loam
Bt2 - 21 to 49 inches: silty clay
BC - 49 to 80 inches: clay loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 20 to 40 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Udorthents

Percent of map unit: 5 percent
Hydric soil rating: No

Hammonton

Percent of map unit: 5 percent
Landform: Depressions, interfluves, swales
Landform position (two-dimensional): Summit
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix D

IPAC REPORT

THIS PAGE INTENTIONALLY LEFT BLANK

BARC Renovations Of Buildings 002, 008, And 308

Biological Assessment

Prepared using IPaC

Generated by Lauren Joyal (joyall@umich.edu)

June 30, 2021

The purpose of this Biological Assessment (BA) is to assess the effects of the proposed project and determine whether the project may affect any Federally threatened, endangered, proposed or candidate species. This BA is prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (16 U.S.C. 1536 (c)).

In this document, any data provided by U.S. Fish and Wildlife Service is based on data as of June 23, 2021.

Prepared using IPaC version 5.61.0

BARC Renovations Of Buildings 002, 008, And 308 Biological Assessment

Table Of Contents

1 Description Of The Action

1.1 Project Name

BARC Renovations of Buildings 002, 008, and 308

1.2 Executive Summary

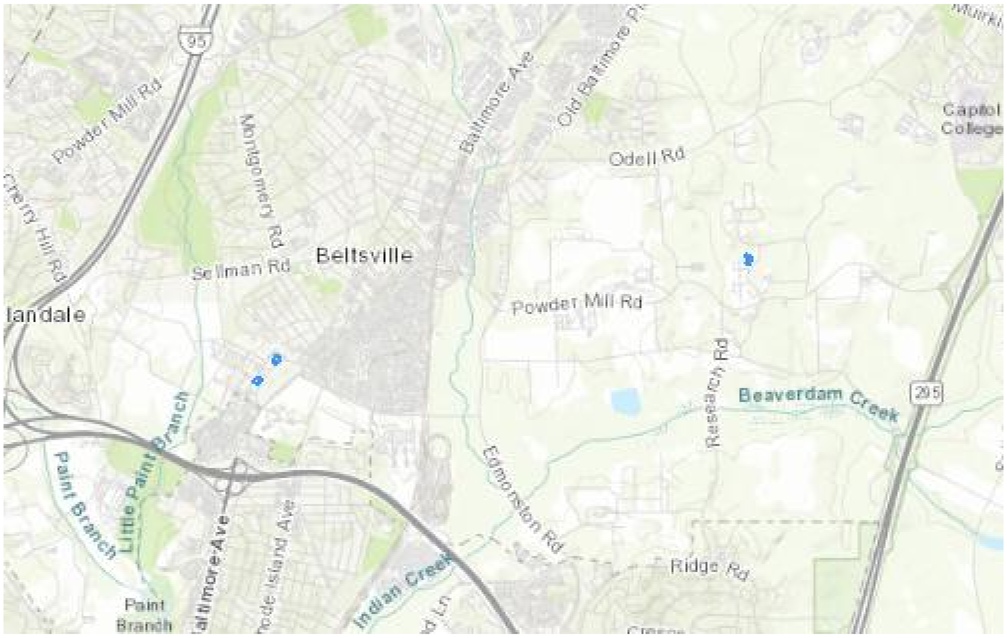
The U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS) is proposing to renovate and modernize Buildings 002, 005, and 308 with one-story additions to be built onto Buildings 002 and 308 at the Beltsville Agricultural Research Center (BARC) in Beltsville, Prince George's County, Maryland. The Proposed Action would utilize existing BARC buildings, in accordance with the 2015 Reduce the Footprint Policy mandates to reduce the footprint of Federal government properties, while providing updated and expanded space for the programs within Buildings 002, 003, and 308.

The impacts of the Proposed Action would be minor and primarily short-term associated with construction-related activities; however, some minor long-term impacts could be expected as well. These long-term impacts would be mitigated to the extent feasible.

Effect determination summary

1.3 Project Description

1.3.1 Location



LOCATION
Prince George's County, Maryland

1.3.2 Description of project habitat

Al three buildings are located on mowed and maintained lawns within developed areas of BARC.

1.3.3 Project proponent information

Provide information regarding who is proposing to conduct the project, and their contact information. Please provide details on whether there is a Federal nexus.

Requesting Agency
DEPT OF DEFENSE (DOD)

Army Corps of Engineers (COE)

FULL NAME
Lauren Joyal

STREET ADDRESS
2 Hopkins Plaza

CITY	STATE	ZIP
Baltimore	MD	21201

PHONE NUMBER	E-MAIL ADDRESS
(812) 878-2281	joyall@umich.edu

Lead agency
DEPT OF AGRICULTURE

Department of Agriculture (USDA)

1.3.4 Project purpose

The U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS) is proposing to renovate and modernize Buildings 002, 005, and 308 with one-story additions to be built onto Buildings 002 and 308 at the Beltsville Agricultural Research Center (BARC) in Beltsville, Prince George's County, Maryland. Building 005's previous addition would serve as an example. The three buildings all require renovation to provide employees at BARC with updated features and spaces including: laboratories, utilities, mitigated environmental concerns (e.g. mold and asbestos), and office/lab swing space.

1.3.5 Project type and deconstruction

This project is a construction and renovation project.

1.3.5.1 Project map

LEGEND

Project footprint

Addition Constu: Construct building

Renovations: Renovations

1.3.5.2 construct building

Activity start date
October 04, 2021

Activity end date
November 04, 2022

Stressors

PLANT FEATURES

- Decrease in trees
- Decrease in vegetation

CHEMICALS / CONTAMINANTS

- Increase in contaminants

ENVIRONMENTAL QUALITY FEATURES

- Increase in water turbidity

LANDFORM (TOPOGRAPHIC) FEATURES

- Increase in impervious surfaces

SOIL AND SEDIMENT

- Increase in dust
- Increase in soil compaction

ENVIRONMENTAL PROCESSES

- Increase in erosion
- Increase in sedimentation rates
- Increase in surface runoff

HUMAN ACTIVITIES

- Increase in ground vibrations
- Increase in noise
- Increase in soil disturbance

Description

Buildings 002 and 308 would have small, one-story additions built onto them. Building 002's additions would be 2,200 square feet and Building 308's addition would be a similar size. The additions would be added onto the existing buildings in areas that are already developed. Building 308 will also have a retaining wall built around part of the addition for visual purposes. Some sidewalk removal will occur for ADA parking spaces, totaling around 3 or 4 spaces ,and a small increase in impervious surface may occur. Very few trees are within the limit of disturbance (LOD). Tree removal would be avoided when possible, and replanting guidelines from NCPC would be followed.

1.3.5.3 renovations

Activity start date
October 03, 2021

Activity end date
November 29, 2021

Stressors

PLANT FEATURES

- Decrease in trees

LANDFORM (TOPOGRAPHIC) FEATURES

- Change in impervious surfaces

SOIL AND SEDIMENT

- Change in dust
- Change in sediment
- Decrease in bare ground
- Increase in soil compaction

HUMAN ACTIVITIES

- Increase in noise

Description
Renovations would be intended to update all utilities and laboratories, mitigate environmental concerns (e.g mold and asbestos, etc.) and provide office/lab swing as needed. As many aspects of the original interior of the buildings would be maintained as possible. Renovations would restore the exterior of the building while renovating and modernizing the interior. All exterior windows and doors throughout the building would be replaced in-kind. Exterior renovations would include: demolishing the existing slate roofing to be replaced with a new slate roofing systems, exterior double-hung wood window demolishment and replacement with new operable windows, exterior brick re-pointing and repaired where necessary, and building entrance renovations to meet ADA requirements. Interior renovations would include the removal of existing partitions, replacement of partitions, and removal of the existing elevator. The structural and aesthetic upgrades to the buildings would be designed to preserve the building's historic characteristics to the extent practicable.

1.3.6 Anticipated environmental stressors

Describe the anticipated effects of your proposed project on the aspects of the land, air and water that will occur due to the activities above. These should be based on the *activity deconstructions done in the previous section and will be used to inform the action area.*

1.3.6.1 Animal Features

Individuals from the Animalia kingdom, such as raptors, mollusks, and fish. This feature also includes byproducts and remains of animals (e.g., carrion, feathers, scat, etc.), and animal-related structures (e.g., dens, nests, hibernacula, etc.).

1.3.6.2 Plant Features

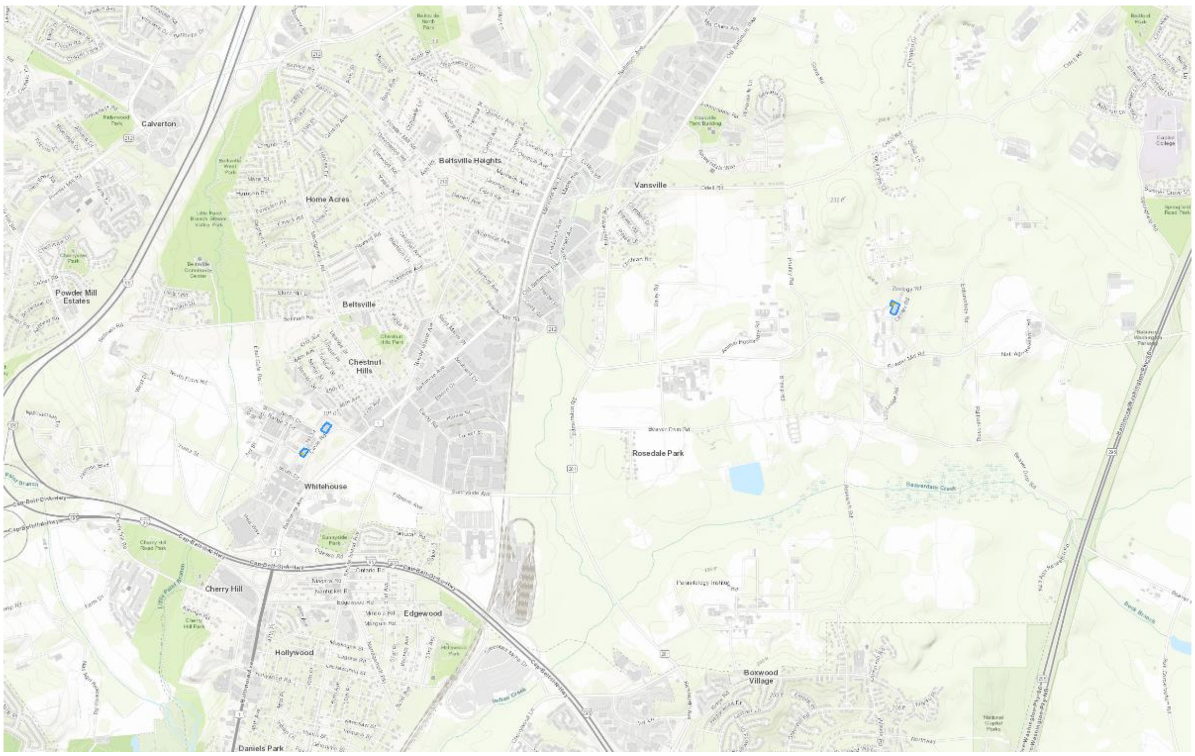
Individuals from the Plantae kingdom, such as trees, shrubs, herbs, grasses, ferns, and mosses. This feature also includes products of plants (e.g., nectar, flowers, seeds, etc.).

1.3.6.2.1 Decrease in trees

ANTICIPATED MAGNITUDE

A few stand alone trees may need to be removed for the additions to be built. However, it would be no more than 2 or 3 trees and designs are being made to avoid cutting down trees. In addition, any trees that are removed will be mitigated with replanting measures following NCPC's replanting guidelines.

STRESSOR LOCATION



LEGEND

Project footprint

Stressor location

CONSERVATION MEASURES

- Replanting
- Design

STRUCTURES AND ACTIVITIES

- Renovations
- Construct building

1.3.6.2.2 Decrease in vegetation

ANTICIPATED MAGNITUDE

This stressor is not expected to occur; the following explanation has been provided:

The only vegetation present is trees. Tree conservation measures are described in the tree stressor section. Replanting would occur if any trees were removed and designs would be made to avoid tree removal if possible.

CONSERVATION MEASURES

- Replanting
- Design

STRUCTURES AND ACTIVITIES

- Construct building

1.3.6.3 Aquatic Features

Bodies of water on the landscape, such as streams, rivers, ponds, wetlands, etc., and their physical characteristics (e.g., depth, current, etc.). This feature includes the groundwater and its characteristics. Water quality attributes (e.g., turbidity, pH, temperature, DO, nutrients, etc.) should be placed in the Environmental Quality Features.

1.3.6.4 Chemicals / Contaminants

Substances that pollute, spoil, or poison the environment (e.g., herbicides, heavy metals, oil, etc.).

1.3.6.4.1 Increase in contaminants

ANTICIPATED MAGNITUDE

This stressor is not expected to occur; the following explanation has been provided:

Prior to the initiation of this project, a Hazardous Materials (HAZMAT) Assessment of the building would be completed. This would identify all potentially hazardous/ regulated materials that must be managed prior to construction/renovation activities commencing. Any identified concerns would be managed in accordance with all applicable Federal and state regulations.

While no surface water bodies or wetlands are within the limits of disturbance (LODs) for either proposed site, there is the potential for minor impacts to surface water, wetlands, and stormwater due to runoff during construction. The implementation of stormwater BMPs would greatly minimize any offsite pollution to surface water, wetlands, and stormwater; however, any temporary, minor, adverse impacts resulting from construction would be addressed through the applicable permitting process. All Federal and state requirements for stormwater management would be met, including implementing stormwater management systems at all three sites.

CONSERVATION MEASURES

- Bmps
- Hazardous waste disposal

STRUCTURES AND ACTIVITIES

- Construct building

1.3.6.5 Environmental Quality Features

Abiotic attributes of the landscape (e.g., temperature, moisture, slope, aspect, etc.).

1.3.6.5.1 Increase in water turbidity

ANTICIPATED MAGNITUDE

This stressor is not expected to occur; the following explanation has been provided:

Storm water BMPs would be put in place to avoid sediment runoff. No surface water exists within the LOD of the buildings; increases in turbidity are unlikely. However, the project would comply with state and Federal stormwater management requirements, including those related to water quality and quantity control. The stormwater BMPs implemented would be designed in accordance with the MDE Stormwater Design Manual Volumes I & II, revised in 2009 with ESD requirements, the Maryland Stormwater Management Guidelines for State and Federal Projects, all of MDE's applicable Technical Memoranda, and Energy Independence and Security Act (EISA) Section 438, which instructs Federal agencies to "use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property" for any project with a footprint that exceeds 5,000 sf. The Proposed Action is larger than 5,000 SF and, once engineering plans are refined, will comply with the regulation. BARC is also currently evaluating and pursuing options to reduce impervious surfaces pursuant to the Clean Water Act's NPDES requirements, and as part of this effort, BARC would account for any increases in impervious surfaces under the Proposed Action.

In accordance with the Clean Water Act's National Pollutant Discharge Elimination System (NPDES) requirements, BARC is currently evaluating and pursuing options to reduce impervious surfaces. This would include implementation with the proposed project. Very little impervious surface would be added under the Proposed Action. Approximately 5,000 square feet of impervious surface from additions would be added. With no significant additions in impervious surfaces, turbidity would not increase.

CONSERVATION MEASURES

- Bmps

STRUCTURES AND ACTIVITIES

- Construct building

1.3.6.6 Landform (topographic) Features

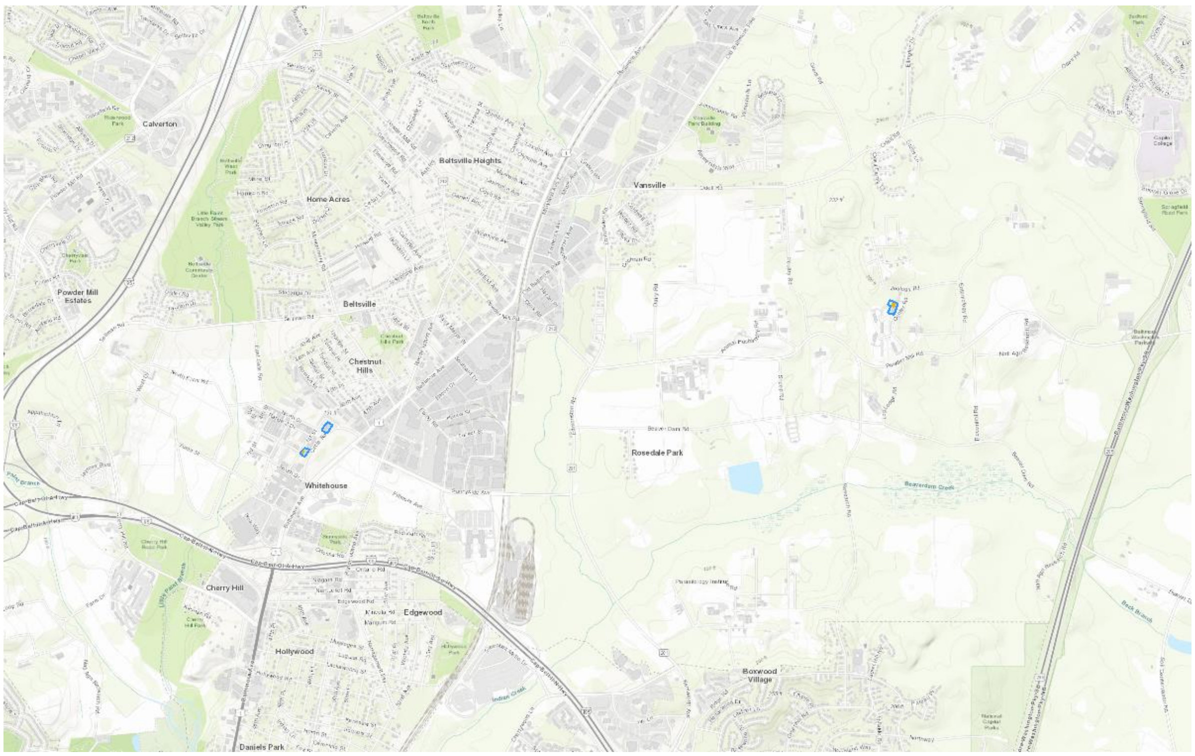
Topographic (landform) features that typically occur naturally on the landscape (e.g., cliffs, terraces, ridges, etc.). This feature does not include aquatic landscape features or man-made structures.

1.3.6.6.1 Change in impervious surfaces

ANTICIPATED MAGNITUDE

In accordance with the Clean Water Act's National Pollutant Discharge Elimination System (NPDES) requirements, BARC is currently evaluating and pursuing options to reduce impervious surfaces.

STRESSOR LOCATION



LEGEND

- Project footprint
- Stressor location

CONSERVATION MEASURES

- NPDES

STRUCTURES AND ACTIVITIES

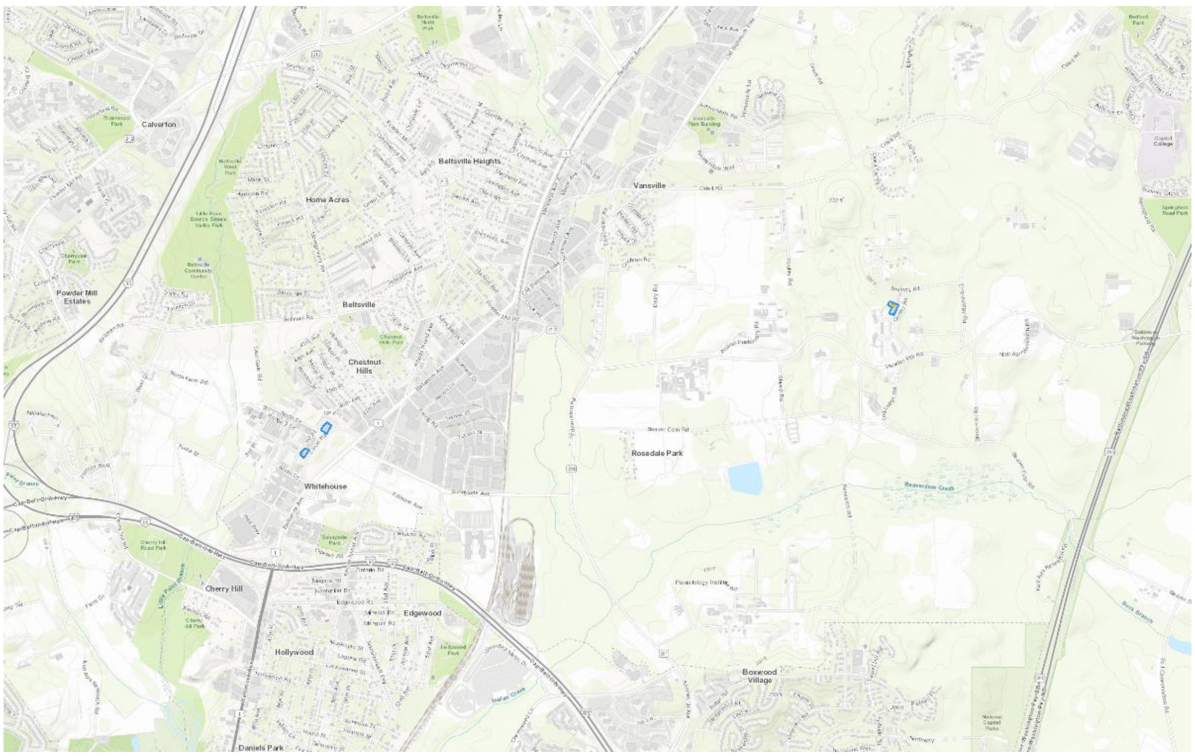
- Renovations

1.3.6.6.2 Increase in impervious surfaces

ANTICIPATED MAGNITUDE

In accordance with the Clean Water Act's National Pollutant Discharge Elimination System (NPDES) requirements, BARC is currently evaluating and pursuing options to reduce impervious surfaces.

STRESSOR LOCATION



LEGEND

Project footprint

Stressor location

CONSERVATION MEASURES

- NPDES

STRUCTURES AND ACTIVITIES

- Construct building

1.3.6.7 Soil and Sediment

The topmost layer of earth on the landscape and its components (e.g., rock, sand, gravel, silt, etc.). This feature includes the physical characteristics of soil, such as depth, compaction, etc. Soil quality attributes (e.g, temperature, pH, etc.) should be placed in the Environmental Quality Features.

1.3.6.7.1 Change in dust

ANTICIPATED MAGNITUDE

This stressor is not expected to occur; the following explanation has been provided:

Temporary increases in dust may occur during construction. However, BMPs for erosion, soil disturbance and consequently dust will be put in place. Upon completion of construction, areas will be revegetated with grass or vegetation that was previously present to avoid erosion and dust production.

CONSERVATION MEASURES

- Bmps

STRUCTURES AND ACTIVITIES

- Renovations

1.3.6.7.2 Change in sediment

ANTICIPATED MAGNITUDE

This stressor is not expected to occur; the following explanation has been provided:

The areas around Buildings 002, 005, and 308 proposed for renovation and construction are currently developed, so minimal undeveloped land would be impacted during renovation and construction. No substantial soil disturbance would take place. The addition for Building 002 and 308 would amount to less than one acre of land with some grading expected. The project would be conducted in accordance with the MDE Standards and Specifications for Soil Erosion and Sediment Control and the Maryland Stormwater Management and Erosion Control Guidelines for State and Federal Projects.

The implementation of stormwater BMPs would greatly minimize erosion or sedimentation issues; however, any temporary, minor, adverse impacts resulting from construction would be addressed through the applicable permitting process. All Federal and state requirements for stormwater management would be met, including implementing stormwater management systems at all three sites.

CONSERVATION MEASURES

- Bmps

STRUCTURES AND ACTIVITIES

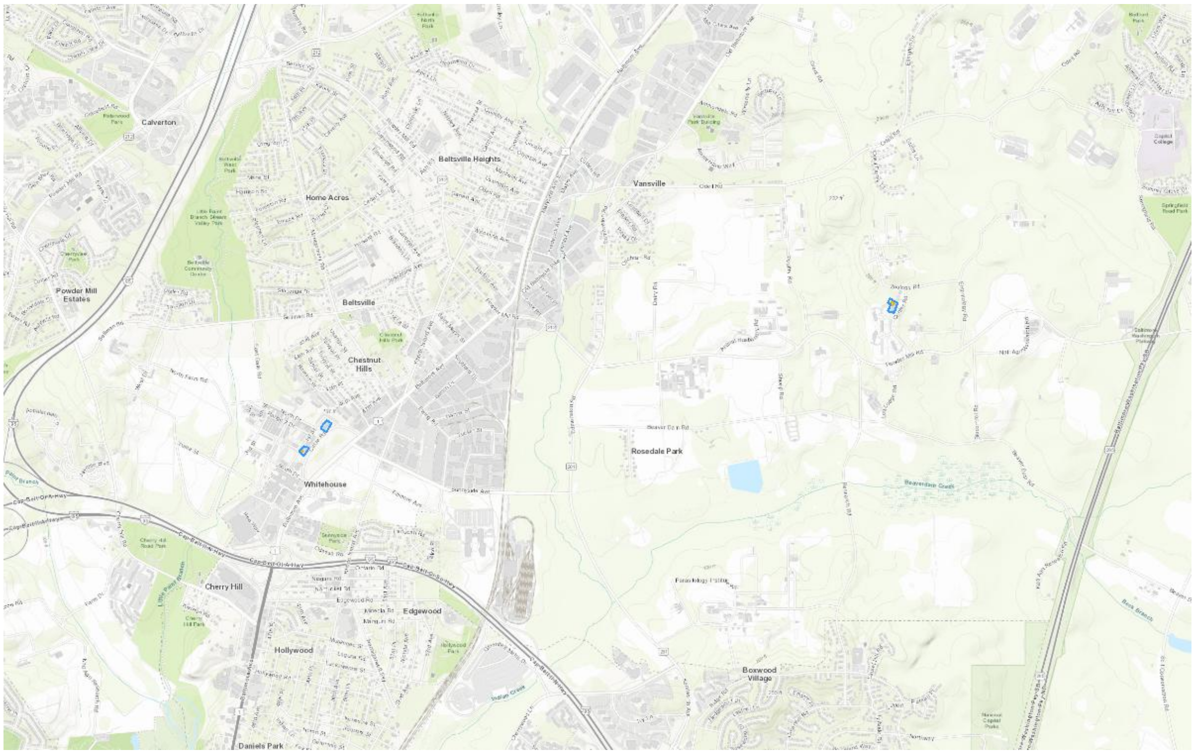
- Renovations

1.3.6.7.3 Decrease in bare ground

ANTICIPATED MAGNITUDE

Bare ground will be decreases with the construction of the additions.

STRESSOR LOCATION



LEGEND

Project footprint

Stressor location

CONSERVATION MEASURES

No conservation measures for this stressor

STRUCTURES AND ACTIVITIES

- Renovations

1.3.6.7.4 Increase in dust

ANTICIPATED MAGNITUDE

This stressor is not expected to occur; the following explanation has been provided:

Temporary increases in dust would possibly occur during construction. However, BMPs for erosion, soil disturbance and consequently dust will be put in place. Upon completion of construction, areas would be revegetated with grass or vegetation that was previously present to avoid erosion and dust production.

CONSERVATION MEASURES

- Bmps

STRUCTURES AND ACTIVITIES

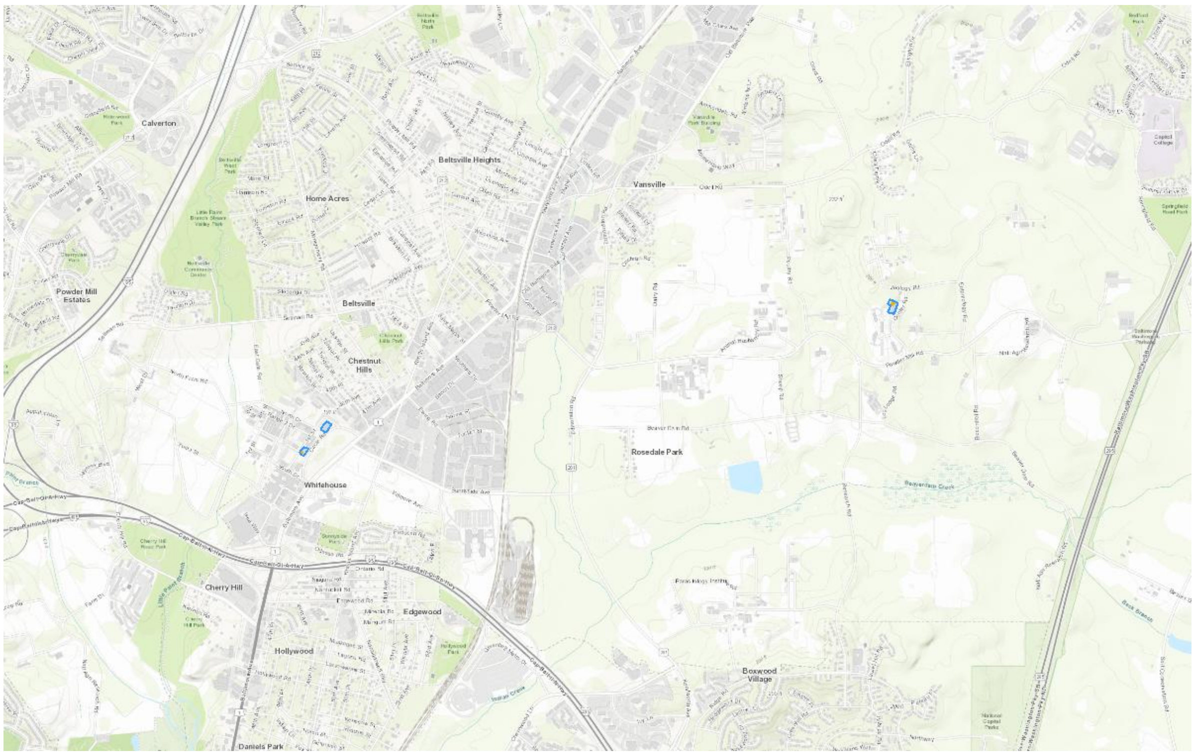
- Construct building

1.3.6.7.5 Increase in soil compaction

ANTICIPATED MAGNITUDE

The two additions that would be added would amount to less than one acre of land. The land the additions would be built on are already compacted areas due to development. However, the additions would further compact the soil. No avoidance measures for this are possible.

STRESSOR LOCATION



LEGEND

Project footprint

Stressor location

CONSERVATION MEASURES

No conservation measures for this stressor

STRUCTURES AND ACTIVITIES

- Renovations
- Construct building

1.3.6.8 Environmental Processes

Abiotic processes that occur in the natural environment (e.g., erosion, precipitation, flood frequency, photoperiod, etc.).

1.3.6.8.1 Increase in erosion

ANTICIPATED MAGNITUDE

This stressor is not expected to occur; the following explanation has been provided:

The project would be conducted in accordance with the MDE Standards and Specifications for Soil Erosion and Sediment Control and the Maryland Stormwater Management and Erosion Control Guidelines for State and Federal Projects. These measures would greatly reduce erosion occurrence during construction. Upon construction completion, replanting of grass would prevent further erosion.

Construction activities typically results in clearing of vegetation, disturbance of soils, and stockpiling of construction materials, thus increasing the potential for erosion. The implementation of stormwater BMPs would greatly minimize any offsite erosion; however, any temporary, minor, adverse impacts resulting from construction would be addressed through the applicable permitting process. All Federal and state requirements for stormwater management would be met, including implementing stormwater management systems at all three sites.

CONSERVATION MEASURES

- Bmps

STRUCTURES AND ACTIVITIES

- Construct building

1.3.6.8.2 Increase in sedimentation rates

ANTICIPATED MAGNITUDE

This stressor is not expected to occur; the following explanation has been provided:

The Proposed Action would likely not result in sedimentation; however, temporary sedimentation issues are possible during construction. These would be avoided with the BMPs described below, revegetation of any areas post-construction, and the halt of construction. Upon the completion of construction, there would be no areas barren of vegetation that would lead to erosion and increases in sedimentation. The project would be conducted in accordance with the MDE Standards and Specifications for Soil Erosion and Sediment Control and the Maryland Stormwater Management and Erosion Control Guidelines for State and Federal Projects.

Construction activities typically result in clearing of vegetation, disturbance of soils, and stockpiling of construction materials, thus increasing the potential for runoff and sedimentation downstream. The implementation of stormwater BMPs would greatly minimize any offsite pollution to surface water, wetlands, and stormwater; however, any temporary, minor, adverse impacts resulting from construction would be addressed through the applicable permitting process. All Federal and state requirements for stormwater management would be met, including implementing stormwater management systems at all three sites.

CONSERVATION MEASURES

- Bmps

STRUCTURES AND ACTIVITIES

- Construct building

1.3.6.8.3 Increase in surface runoff

ANTICIPATED MAGNITUDE

This stressor is not expected to occur; the following explanation has been provided:

The Proposed Action would add less than an acre of impervious surface to BARC's campus. Stormwater gutter features are in place on the existing buildings. A gutter system and natural drainage would be responsible for draining stormwater from the new additions. The additions constructed would created negligible increases in surface water runoff/stomwater runoff as they would be approximately 2,200 square feet a piece.

The implementation of stormwater BMPs would greatly minimize any offsite pollution to surface water, wetlands, and stormwater; however, any temporary, minor, adverse impacts resulting from construction would be addressed through the applicable permitting process. All Federal and state requirements for stormwater management would be met, including implementing stormwater management systems at all three sites.

The project would be conducted in accordance with the MDE Standards and Specifications for Soil Erosion and Sediment Control and the Maryland Stormwater Management and Erosion Control Guidelines for State and Federal Projects.

CONSERVATION MEASURES

- Design
- Bmps

STRUCTURES AND ACTIVITIES

- Construct building

1.3.6.9 Human Activities

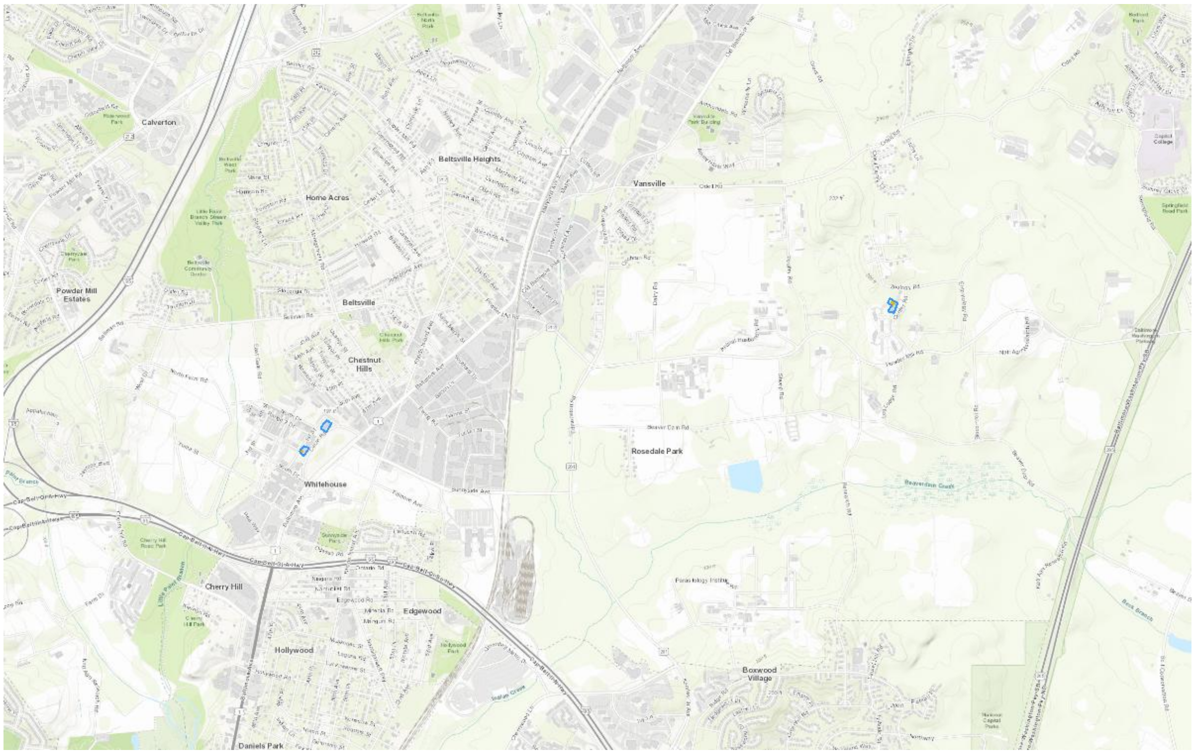
Human actions in the environment (e.g., fishing, hunting, farming, walking, etc.).

1.3.6.9.1 Increase in ground vibrations

ANTICIPATED MAGNITUDE

There would be grading that would occur for the construction of the additions to Buildings 002 and 308. Ground disturbance would have to occur to construct the additions. Designs would account for the depth and need for ground vibrations where possible.

STRESSOR LOCATION



LEGEND

Project footprint

Stressor location

CONSERVATION MEASURES

- Design

STRUCTURES AND ACTIVITIES

- Construct building

1.3.6.9.2 Increase in noise

ANTICIPATED MAGNITUDE

This stressor is not expected to occur; the following explanation has been provided:

The Proposed Action would result in temporary noise increases during construction. No increases in noise would occur during regular operations of the buildings after construction. These noises would cease upon construction completion. Construction equipment that limits noise would be selected for construction. In addition, time of construction restrictions would be put in place to avoid loud noises during core hours. To minimize any impacts to surrounding noise receptors, construction would primarily be conducted during standard daylight working hours and on weekdays.

The Noise Control Act of 1972 (42 U.S.C. 4901 et seq.) directs Federal agencies to comply with applicable Federal, state, interstate, and local noise control regulations. This project would comply with the Noise Control Act.

CONSERVATION MEASURES

- Equipment considerations
- Construction time

STRUCTURES AND ACTIVITIES

- Renovations
- Construct building

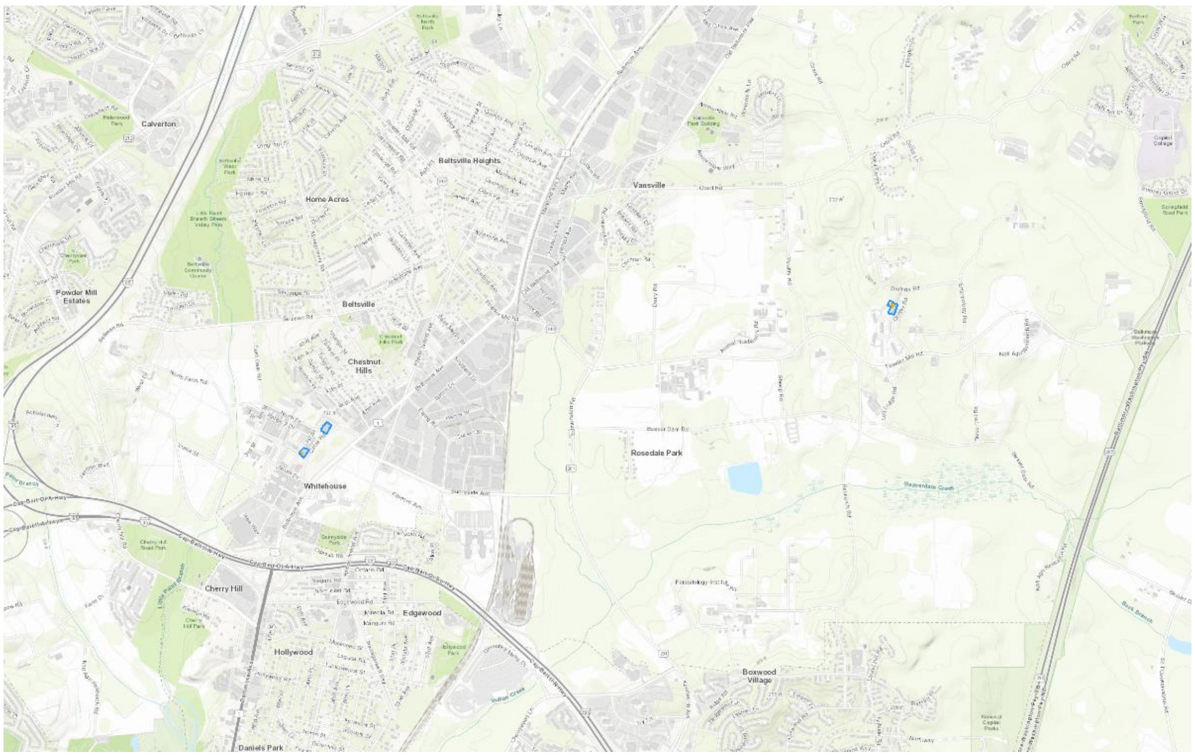
1.3.6.9.3 Increase in soil disturbance

ANTICIPATED MAGNITUDE

Increases in soil disturbance are inevitable with the construction of the two additions. However, BMPs would limit soil disturbances in areas other than those directly underneath the additions.

The project would be conducted in accordance with the MDE Standards and Specifications for Soil Erosion and Sediment Control and the Maryland Stormwater Management and Erosion Control Guidelines for State and Federal Projects.

STRESSOR LOCATION



LEGEND

Project footprint

Stressor location

CONSERVATION MEASURES

- Bmps

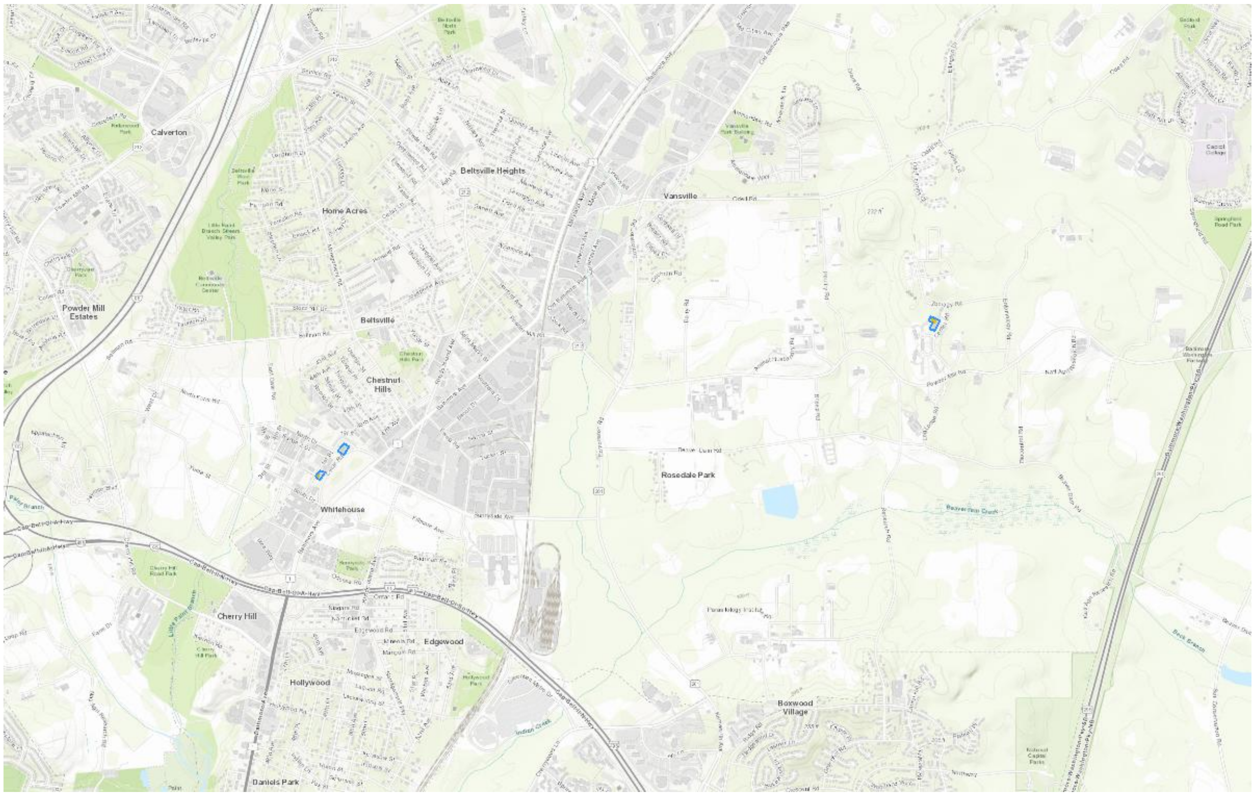
STRUCTURES AND ACTIVITIES

- Construct building

1.3.6.10 Miscellaneous

Miscellaneous should only be used if the created feature does not fit into one of the other categories or if the creator is not sure in which category it should be placed.

1.4 Action Area



1.5 Conservation Measures

1.5.1 NPDES

Description

The Clean Water Act prohibits anybody from discharging "pollutants" through a "point source" into a "water of the United States" unless they have an NPDES permit. The permit will contain limits on what you can discharge, monitoring and reporting requirements, and other provisions to ensure that the discharge does not hurt water quality or people's health.

A full list of the regulations can be found on the EPA's website.

https://www.epa.gov/npdes/npdes-regulations

Stressors

- Change in impervious surfaces
- Increase in impervious surfaces

1.5.2 bmps

Description
Best Management Practices- The stormwater BMPs implemented would be designed in accordance with the MDE Stormwater Design Manual Volumes I & II, revised in 2009 with ESD requirements, the Maryland Stormwater Management Guidelines for State and Federal Projects, all of MDE's applicable Technical Memoranda, and Energy Independence and Security Act (EISA) Section 438, which instructs Federal agencies to "use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property" for any project with a footprint that exceeds 5,000 sf.

Soil BMPs would follow MDE Standards and Specifications for Soil Erosion and Sediment Control and the Maryland Stormwater Management and Erosion Control Guidelines for State and Federal Projects.

BMPs are implemented differently depending on which resource they target. Because they are created in the image of Federal and state regulations and standards, they are guidelines and rules for the best approach to reduce impacts on resource areas such as erosion and runoff.

Stressors
- Change in dust
- Change in sediment
- Increase in contaminants
- Increase in dust
- Increase in erosion
- Increase in sedimentation rates
- Increase in soil disturbance
- Increase in surface runoff
- Increase in water turbidity

1.5.3 construction time

Description
This refers to limiting active construction to specific times of the day and week. To minimize any impacts construction would primarily be conducted during standard daylight working hours and on weekdays for the proposed project.

Stressors
- Increase in noise

Direct interactions
- auditory disturbance

1.5.4 design

Description
The designs for the two additions to be built would be adjusted and reengineered to reduce impacts on a resource.

Stressors
- Decrease in trees
- Decrease in vegetation
- Increase in ground vibrations
- Increase in surface runoff

1.5.5 equipment considerations

Description
The types of equipment to be used for construction and renovations. Large considerations would be equipment size, noise production, and safety.

Stressors
- Increase in noise

Direct interactions
- auditory disturbance

1.5.6 hazardous waste disposal

Description
All hazardous waste found during renovations and construction would be handled and discarded according to Federal and state regulations.

These include:

Federal Resource Conservation and Recovery Act (RCRA)

COMAR 26.02.07

COMAR 26.13.02.19

COMAR 26.11.21

40 CFR Part 761

40 CFR Part 760.60

Toxic Substances Control Act (TSCA).

Stressors
- Increase in contaminants

1.5.7 limited tree removal

Description
Tree removal on the sites would be avoided as much as possible. Design can prevent tree removal in some instances. Tree replacement would take place in accordance with NCPC tree mitigation guidelines if removal occurs.

Direct interactions
- crushing
- displacement
- disturbance

1.5.8 replanting

Description
All areas cleared of vegetation would be replanted upon the end of construction. Removed trees would be replaced and removed grasses will be reseeded with native seed.

Stressors
- Decrease in trees
- Decrease in vegetation

1.6 Prior Consultation History
No prior consultation has occurred for this project.

1.7 Other Agency Partners And Interested Parties
This IPAC is being submitted for the USDA. Janice Rogers is the point of contact for the USDA Janice.Rogers@usda.gov

This IPAC is being submitted by the Army Corps of Engineers by Lauren Joyal

lauren.e.joyal@usace.army.mil

Please contact me with any question you have regarding the IPAC.

Coordination letters will be provided to U.S. Fish and Wildlife Service (USFWS), U.S. Environmental Protection Agency (EPA), Maryland Clearinghouse, Maryland Department of the Environment (MDE), Maryland Department of Natural Resources (MDNR), National Capital Planning Commission (NCPC), and Maryland-National Capital Park and Planning Commission (MNCPPC). Additionally, the project is being coordinated with Maryland Historical Trust (MHT) and federally recognized Native American Tribes (Delaware Nation and Delaware Tribe) were invited to consult under Section 106 of the NHPA.

1.8 Other Reports And Helpful Information
No other helpful information is available.

2 Species Effects Analysis

This section describes, species by species, the effects of the proposed action on listed, proposed, and candidate species, and the habitat on which they depend. In this document, effects are broken down as direct interactions (something happening directly to the species) or indirect interactions (something happening to the environment on which a species depends that could then result in effects to the species).

These interactions encompass effects that occur both during project construction and those which could be ongoing after the project is finished. All effects, however, should be considered, including effects from direct and indirect interactions and cumulative effects.

2.1 Northern Long-Eared Bat

2.1.1 Status of the species

This section should provide information on the species' background, its biology and life history that is relevant to the proposed project within the action area that will inform the effects analysis.

2.1.1.1 Legal status

The Northern Long-eared Bat is federally listed as 'Threatened' and additional information regarding its legal status can be found on the ECOS species profile.

2.1.1.2 Recovery plans

Available recovery plans for the Northern Long-eared Bat can be found on the ECOS species profile.

2.1.1.3 Life history information

The northern long-eared bat is a medium-sized bat about 3 to 3.7 inches in length but with a wingspan of 9 to 10 inches. As its name suggests, this bat is distinguished by its long ears, particularly as compared to other bats in its genus, Myotis, which are actually bats noted for their small ears (Myotis means mouse-eared). The northern long-eared bat is found across much of the eastern and north central United States and all Canadian provinces from the Atlantic coast west to the southern Northwest Territories and eastern British Columbia. The species range includes 37 states. White-nose syndrome, a fungal disease known to affect bats, is currently the predominant threat to this bat, especially throughout the Northeast where the species has declined by up to 99 percent from pre-white-nose syndrome levels at many hibernation sites. Although the disease has not yet spread throughout the northern long-eared bats entire range (white-nose syndrome is currently found in at least 25 of 37 states where the northern long-eared bat occurs), it continues to spread. Experts expect that where it spreads, it will have the same impact as seen in the Northeast.

Identified resource needs

Hibernacula

Humidity: high, noise: low, with minimal distrubance, temperature: 0-9 degrees celsius, time of year: august through april, type: caves, mines, sewers and spillways

Insects

Type: lepidoptera (moths and butterflies), coleoptera (beetles), trichoptera (caddisflies), diptera (flies), spiders and lepidopterous larvae

Open water

Type: streams, rivers, ponds, wetlands, lakes and road ruts

Travel corridors

Location: between forest patches, type: riparian corridors, wooded paths, hedgerows and fence rows

Trees

Size: > or equal to 3 inch dbh, spatial arrangement: within 1000 feet of forest, structure: cracks, crevices, cavities, exfoliating bark, time of year: april through august, type: dead, nearly dead, living tree with dead parts and living with appropriate structure

2.1.1.4 Conservation needs

Any required tree clearing would be subject to time of year restrictions to avoid adverse impacts to roosting bats. To avoid prohibited incidental take of NLEBs during the pup season, the USFWS avoidance measure prohibits any tree removal from June 1 to July 31. Tree removal is defined as cutting down, harvesting, destroying, trimming, or manipulating trees, saplings, or snags. This seasonal restriction on tree removal is not required when removing hazardous trees for the protection of human life and property, as incidental take resulting from hazardous tree removal is exempted by the USFWS's 4(d) rule (USFWS, 2020a). Projects that incorporate this USFWS avoidance measure do not require further coordination with the USFWS regarding RTE species and/or special concern species and resources under the ESA (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

2.1.2 Environmental baseline

The environmental baseline describes the species' health ***within the action area only*** *at the time of the consultation, and does not include the effects of the action under review. Unlike the species information provided above, the environmental baseline is at the scale of the Action area.*

2.1.2.1 Species presence and use

NLEB are likely not in the area. The limit of disturbance for each building is very small and does not include mature forests in which the bats roost. There are a few standalone trees within/near the LOD for Building 308 and Building 002. In addition, no NLEB bats have been documented in the area. They are not know to live near the proposed sites. Their occurrence is unlikely, but time of restrictions will be followed to ensure no disturbance occurs.

2.1.2.2 Species conservation needs within the action area

The proposed areas are not within any critical habitats or areas of conservation needs. The areas are developed areas with little vegetation. No NLEBs have been reported within or near the proposed sites. However, consultation with the USFWS service is underway to ensure as little disturbance as possible would occur. If any NLEBs are seen or suspected, immediate consultation would be initiated with USFWS.

Any required tree clearing would be subject to time of year restrictions to avoid adverse impacts to roosting bats. To avoid prohibited incidental take of NLEBs during the pup season, the USFWS avoidance measure prohibits any tree removal from June 1 to July 31. Tree removal is defined as cutting down, harvesting, destroying, trimming, or manipulating trees, saplings, or snags. This seasonal restriction on tree removal is not required when removing hazardous trees for the protection of human life and property, as incidental take resulting from hazardous tree removal is exempted by the USFWS's 4(d) rule (USFWS, 2020a). Projects that incorporate this USFWS avoidance measure do not require further coordination with the USFWS regarding RTE species and/or special concern species and resources under the ESA (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

Trees that are removed will be replaced in appropriate areas of BARC.

2.1.2.3 Habitat condition (general)

insects (type: lepidoptera (moths and butterflies), coleoptera (beetles), trichoptera (caddisflies), diptera (flies), spiders and lepidopterous larvae)

There have been no studies of these insects to confirm their presence. There are few resources for insects such as butterflies, save some landscaping plants near the LODs. These insects would not be disturbed greatly, as upon construction completion, their habitat would virtually be unchanged.

Supporting documentation

- 002 and 005 Wetlands and Streams
- 308 Wetlands and Streams
- Building Locations

2.1.2.4 Influences

The area is developed. Buildings 002 and 005 are on Circle Drive, which is close to the Capital Beltway and sits within a cluster of other BARC buildings. There are no forested areas within a quarter mile. Little vegetation exists in the area as well. It is mostly, mowed and maintained lawn. NLEBs have not been reported on the property. Previous to development the area may have been suitable for reproduction or roosting. However, the area has been developed for over 50 years and has had no new effects on the populations.

2.1.2.5 Additional baseline information
N/A

2.1.3 Effects of the action
This section considers and discusses all effects on the listed species that are caused by the proposed action and are reasonably certain to occur, including the effects of other activities that would not occur but for the proposed action.

2.1.3.1 Indirect interactions

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
Hibernacula (humidity: high, noise: low, with minimal distrubance, temperature: 0-9 degrees celsius, time of year: august through april, type: caves, mines, sewers and spillways)			***This resource is not present in the action area*** The area is developed. There are no caves nearby, only buildings and mowed areas.	***There will be no impacts to this resource, so no individuals will be affected.***
Insects (type: lepidoptera (moths and butterflies), coleoptera (beetles), trichoptera (caddisflies), diptera (flies), spiders and lepidopterous larvae)	Increase in soil disturbance Increase in impervious surfaces Increase in soil compaction		***There will be no impacts to this resource*** Short term effects could occur. No studies have been done for insect presence. However, less than an acre of land would be disturbed and renovation would be limited to the current buildings. Upon construction's end, insect would be left with virtually the same, developed environment with some landscaping plants.	***There will be no impacts to this resource, so no individuals will be affected.***

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
Open water (type: streams, rivers, ponds, wetlands, lakes and road ruts)			***This resource is not present in the action area*** Aerial analysis and wetland analysis from MDNR shapefiles show no open water resources within the LODs. Analysis of the area shows some bodies of water within 0.5 miles. However, these are well beyond the LODs for the buildings.	***There will be no impacts to this resource, so no individuals will be affected.***
Travel corridors (location: between forest patches, type: riparian corridors, wooded paths, hedgerows and fence rows)			***This resource is not present in the action area*** Aerial analysis has shown none of these. Building 308 has woods present to the north. However, this area is outside of the LOD.	***There will be no impacts to this resource, so no individuals will be affected.***

RESOURCE NEED	STRESSORS	CONSERVATION MEASURES	AMOUNT OF RESOURCE IMPACTED	INDIVIDUALS AFFECTED
Trees (size: > or equal to 3 inch dbh, spatial arrangement: within 1000 feet of forest, structure: cracks, crevices, cavities, exfoliating bark, time of year: april through august, type: dead, nearly dead, living tree with dead parts and living with appropriate structure)			***This resource is not present in the action area*** There are few trees within the LODs and those that do exist are healthy, with no dead areas or peeling bark.	***There will be no impacts to this resource, so no individuals will be affected.***

2.1.3.2 Direct interactions

DIRECT IMPACT	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
Auditory disturbance	Equipment considerations Construction time	No	No NLEBs have been reported within the area. Measures to reduce noise impacts to sensitive receptors would also apply to NLEBs. Should any NLEBs be identified, construction would immediately cease with consultation to follow. Noise would be typical of that with heavy construction equipment.
Crushing	Limited tree removal	No	Tree removal would be limited with design plans. In addition, few trees exist on the proposed sites and those that do are not suitable habitat for NLEBs. All trees would be checked for any bats or other animals prior to removal. If a bat is present, tree removal would be delayed until further investigation was conducted.
Displacement	Limited tree removal	No	No NLEBs are currently known to be on site. There is no suitable habitat for them. If any bats were spotted prior to tree removal (if necessary) further investigation would be conducted to ensure no

DIRECT IMPACT	CONSERVATION MEASURES	INDIVIDUALS IMPACTED	IMPACT EXPLANATION
			NLEBs are disturbed. It is highly unlikely displacement would occur.
Disturbance	Limited tree removal	No	No NLEBs are known to occur on site and have no suitable habitat on site. Disturbance would be avoided through limited tree removal, in the unlikely event that NLEBs do exist on the proposed sites. In addition, noise controls and tree replanting would occur.

2.1.4 Cumulative effects

There is currently a project undergoing the NEPA process proposing to construct a Currency Production Facility approximately 0.5 miles northwest of Building 308. This site is about 105 acres. This would be a large facility that would result in traffic increases and loss of small areas of wetland as well as over 50 specimen trees, mostly within a meadow area. Consultation for the project showed no anticipated effects to NLEBs or RTE species.

2.1.5 Discussion and conclusion

Determination: NE

Relevant documentation

- DRAFT_DOPAA_BARC 002 005 308

3 Critical Habitat Effects Analysis

No critical habitats intersect with the project action area.

4 Summary Discussion, Conclusion, And Effect Determinations

4.1 Effect Determination Summary

SPECIES (COMMON NAME)	SCIENTIFIC NAME	LISTING STATUS	PRESENT IN ACTION AREA	EFFECT DETERMINATION
Northern Long-eared Bat	Myotis septentrionalis	Threatened	Yes	NE

4.2 Summary Discussion

Minor to no effects would occur to species and critical habitat under the Proposed Action. No critical habitat is present with the LOD of the buildings. No RTE species are known to be present within the LODs or near them. Any and all disturbances possible would still be avoided. If any RTE species are discovered upon construction, construction would cease and consultation would be reinitiated.

4.3 Conclusion

All adverse impacts would be negated as much as possible with the measures described. The project is a minor project, with mainly renovations occurring to existing buildings. The additions are less than an acre combined and would be placed in previously disturbed areas. All Federal, state , and local guidelines would be followed.

THIS PAGE INTENTIONALLY LEFT BLANK

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127
http://www.fws.gov/chesapeakebay/
http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html

In Reply Refer To: June 23, 2021
Consultation Code: 05E2CB00-2021-SLI-1614
Event Code: 05E2CB00-2021-E-03886
Project Name: BARC Renovations of Buildings 002, 008, and 308

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
(410) 573-4599

Project Summary

Consultation Code: 05E2CB00-2021-SLI-1614
Event Code: 05E2CB00-2021-E-03886
Project Name: BARC Renovations of Buildings 002, 008, and 308
Project Type: ** OTHER **
Project Description: The Beltsville Agricultural Research Center proposes to completely renovate the exterior and interior of Buildings 002, 003, and 308, with additions being constructed onto Building 002 and 308. Building 002's addition would be 2,200 square feet and Building 308's additions would be a similar size. The renovations to all buildings would be "gut and redo" renovations in which windows, interior partitions, doors, slate roofing would be redone and replaced. ADA parking spaces would also be added to the buildings. Lab equipment would be replaced with energy efficient versions. The three buildings all require renovation to provide employees at BARC with updated features and spaces including: laboratories, utilities, mitigated environmental concerns (e.g. mold and asbestos), and office/lab swing space.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@39.02744035,-76.92201587168117,14z

Counties: Prince George's County, Maryland

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis*	Threatened

No critical habitat has been designated for this species.

This species only needs to be considered under the following conditions:

- Projects with a federal nexus that have tree clearing = to or > 15 acres: 1. REQUEST A SPECIES LIST 2. NEXT STEP: EVALUATE DETERMINATION KEYS 3. SELECT EVALUATE under the Northern Long-Eared Bat (NLEB) Consultation and 4(d) Rule Consistency key

Species profile: https://ecos.fws.gov/ecp/species/9045

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix E

MIHP FORMS

THIS PAGE INTENTIONALLY LEFT BLANK

Name of Property: Beltsville Agricultural Research Center (B.A.R.C.)
Location: Beltsville, Prince George's County

The purpose of preparing this addendum to the Beltsville Agricultural Research Center (B.A.R.C.) is to provide an updated, concise historic context since the property the was first recorded in 1970s and updated in the 1990s.

8.Significance

Historic Significance: Beltsville Agricultural Research Center Historic Context

BARC is an Agricultural Research Service (ARS) research facility of the USDA. The USDA acquired the first parcel of BARC land in 1910 for use by its Bureau of Animal Industry. The farm expanded gradually over the next few decades until New Deal policies and programs led to its substantial expansion beginning in 1933. By 1938, the property reached its peak size of 12,461 acres. Today, the site comprises 6,582 acres divided into five farms: the 367-acre South Farm (separated from the other four farms by Interstate 495), 549-acre North Farm, 460-acre Linkage Farm, 2,980-acre Central Farm, and the 2,225-acre East Farm (Robinson and Associates 1998) (Figure 1).

BARC's landscape consists of vast open space, cultivated fields, and hundreds of buildings and structures scattered throughout the facility. Historically, buildings were constructed in groupings associated with individual bureaus/divisions of the USDA or other federal agencies that leased or were assigned portions of the facility. The majority of BARC's buildings are farm research outbuildings, such as sheds, greenhouses, barns, and poultry houses, and the remainder are laboratories, dwellings, and office buildings. The Bureaus of Animal Industry, Dairy Industry, and Plant Industry were responsible for most of the building programs and land acquisitions at BARC (Robinson and Associates 1998).

The South Farm, located at the far southwestern end of BARC, includes open cultivated fields with a small number of small farm buildings on land purchased by the Bureau of Plant Industry between 1941 and 1943 for plant research. The North Farm, located immediately to the northeast of the South Farm, was acquired in 1933 and expanded in 1940 by the Bureau of Plant Industry. The North Farm contains cultivated farmland to the west and a densely developed area to the east. The Linkage Farm, located across Route 1 from the North Farm, contains the National Agricultural Library and the newer portion of the USDA George Washington Carver Center, but mostly includes open or cultivated fields. The Linkage Farm was assigned to the Bureau of Plant Industry in 1938, after being transferred from the Resettlement Administration to the USDA. The largest of the farms, the Central Farm, adjoins the Linkage Farm and contains approximately 12 clusters of farm or research-related buildings, as well as pasture and forested areas. The Central Farm, which contains the original acreage USDA purchased in 1910, historically was used by the Bureaus of Dairy Industry and Animal Industry, and their successor organizations. The USDA acquired the East Farm, which is adjacent to the east side of the Central Farm and largely forested, in the mid- to late-1930s for the Bureau of Animal Industry and other agencies, including the Soil Conservation Service. The East Farm only has a few building clusters (Robinson and Associates 1998).

The following historic thematic statements present BARC within the contexts of the federal role in agricultural research, experimental agricultural research, New Deal policies and programs, landscape architecture, experimental agricultural architecture, and Georgian Revival architecture.

Federal Role in Agricultural Research

The United States' public agricultural research system is rooted in several legislative acts Congress passed in the mid- and late-1800s. These acts established the USDA and the state agricultural experiment stations, and granted funds for agricultural colleges. Subsequent congressional acts in the first half of the twentieth century led to significant expansions in research funding and diversity of federal agricultural research subjects. The USDA and state agricultural experiment stations have been responsible for the majority of public agricultural research undertaken since the federal government began to actively support agricultural research in the nineteenth century (OTA 1981). The BARC, established by the USDA in 1910 and significantly expanded in the 1930s, was the nation's largest and most prominent agricultural research facility, a key component of the federal agricultural research system.

Nineteenth Century Legislation
Three primary pieces of nineteenth century legislation form the foundation for the federal government's involvement in agricultural research: the Organic Act establishing the USDA in 1862, the Morrill (or Land-Grant College) Act of 1862, and the Hatch Act of 1887 (Huffman and Evenson 2008). The United States had an agricultural-based economy in the nineteenth century, and by the 1850s, farmers were lobbying for a new government department devoted to agriculture. Because of strong opposition from southern farmers, however, the USDA was not created until 1862 after the southern states seceded and the Civil War was well underway (Huffman and Evenson 2008). The new USDA had a mandate to serve the nation's farmers (Bowers 1993). The department inherited the government's agricultural library that had been created in 1839 (USDA 2016). Research was a primary component of the department's work from its inception, although research is not mentioned in the act that led to its creation (USDA 2016). The first USDA research bulletin (on sugar content of grapes and suitability for wine) was published the same year the department was founded (USDA 2016). By 1868, the USDA had begun research on animal diseases and published an analysis of corn as food (USDA 2016). It created the Bureau of Animal Industry in 1884 (USDA 2016).

The Morrill (or Land-Grant College) Act of 1862 authorized public land grants for colleges in each state to teach agriculture and mechanic arts. Some of the land-grant colleges eventually became agricultural research institutions that would go on to collaborate with the USDA's research efforts in the twentieth century. A second Morrill Act passed by Congress in 1890 provided additional funding. Though both acts were vague on the role of agricultural research, they made funds available for experimental farms and special projects (Huffman and Evenson 2008).

The passage of the Hatch Act in 1887 was "one of the most important legislative steps taken to develop public agricultural research in the United States" (Huffman and Evenson 2008; OTA 1981). The act authorized a crucial expansion of public agricultural research by allowing for the quick establishment of state experimental agricultural stations in all of the states (Huffman and Evenson 2008). The Office of Experiment Stations was established in 1888 to oversee the new stations. With the passage of the act, the modern network of state agricultural experiment stations was established and the close cooperation between regional research facilities and the USDA's nationally focused research activities was initiated (OTA 1981). Although the Hatch Act led to a rapid increase in the number of facilities nationwide that were undertaking agricultural research, funding for agricultural research was modest between 1888 and 1897 and USDA research facilities were limited (OTA 1981).

Expansion of Federal-State Agricultural Research System
It was not until the arrival of James Wilson as Secretary of Agriculture in 1897 that the USDA's research program began to significantly expand (OTA 1981.) During Wilson's 16-year term, the USDA established seven new scientific bureaus (only the Bureau of Animal Industry had existed previously): Plant Industry (1901), Forestry (1901, would became the Forest Service in 1905), Soils (1901), Chemistry (1901), Statistics (1903), Entomology (1904), and Biological Survey (1905) (OTA 1981). Congress quadrupled the Department's budget for research between 1897 and 1904 (OTA 1981). In 1898, Congress appropriated the first funds to collect, test, and prepare foreign plant materials and authorized testing of seeds purchased on the open market (USDA 2016). The department's staff increased more than six fold between 1897 and 1912 and expenditures increased from $800,000 in 1900 to $4 million in 1910 (OTA 1981).

The USDA's earliest national research facilities were on the National Mall, but as the department's research programs grew, researchers needed more space. Initially, the USDA procured use of 400 acres of the now-Arlington National Cemetery in 1900 for experimental farming and built two laboratory buildings on the Mall site in 1907, but these were insufficient to accommodate all their needs (OTA 1981). In 1910, the USDA purchased the 475-acre farm parcel in Beltsville, Maryland for work on dairying and animal husbandry (OTA 1981). Over the next two decades, gradual additions were made to the Beltsville and the Arlington farms as the department's programs continued to expand (OTA 1981).

Congress passed a number of key pieces of legislation during the Beltsville farm's early decades that grew the USDA's programs and would ultimately contribute to the department's decision to centralize agricultural research at Beltsville. Through the 1914 Smith-Lever Act, the USDA received an increase of funding that established the Agricultural Extension Service (later the Cooperative Extension Service) and formalized the department's educational outreach to farmers (Huffman and Evenson 2008). By 1916, there were 29 agricultural research stations in operation (it would eventually be 30) by the federal government, states, or cooperatively (OTA 1981). The subsequent 1925 Purnell Act authorized funds for research by agricultural experiment stations on economic and social problems of agriculture (USDA 2016). The Bankhead-Jones Act of 1935 provided for expansion of agricultural research (USDA 2016). In 1938, the Agricultural Adjustment Act established four regional USDA research centers to develop new uses for farm produce (Wyndmoor, PA; Peoria, IL; Albany, CA; and New Orleans, LA) (USDA 2016). The department created the Agricultural Research Administration in the early 1940s to administer the increasingly complex coordination between the many agricultural experiment stations and laboratories that were in operation by that time (OTA 1981). The Research and Marketing Act of 1946 included substantial funding for research, so that by the 1950s, the USDA's research programs were well funded (OTA 1981).

Between 1933 and 1953, the USDA centralized the Washington, D.C.-area research facilities at the Beltsville farm, which was re-designated as the National Agricultural Research Center. Research continued to be conducted concurrently at field and state stations, yet Beltsville swiftly became the largest agricultural research center in the country. Through its various divisions and bureaus, the USDA expanded its scientific inquiries into a wide number of topics related to animal husbandry and breeding, crop cultivation and soils, animal and plant diseases, and nutrition (USDA 2016). The "National" before the center's name was dropped in 1945 (USDA 2016).

Between 1888 and 1953, the federal and state agricultural research programs were integrated in both policy and funding through the USDA, which led to ongoing conflicts over funding for national research and state-level research. In 1915, 25 percent of the USDA's budget was devoted to research, but by 1920 only 6 percent, continuing to drop to 2.5 percent where it remained until the 1950s (OTA 1981). Despite its relative declining importance in the USDA budget, the dollar amount devoted to federal research remained steady, with an average of 78.8 percent devoted to federal research and 21.1 percent to State research through the early 1950s (OTA 1981). Conflict was inevitable between the USDA, who sponsored its own research, and the state agricultural experiment stations, since the USDA was also responsible for passing on funds to the states and determining the division of responsibility for research (OTA 1981).

Research System Decentralization

In 1953, the new Secretary of Agriculture, Ezra Taft Benson, led a major reorganization and decentralization of the department's agricultural research program that continued through the 1970s (OTA 1981). The decentralization had long-lasting consequences for Beltsville. The USDA's scientific bureaus and the Office of Experiments Stations were discontinued and the USDA's research functions were centralized under the new Agricultural Research Administration (OTA 1981). A separate Cooperative State Research Service was established in 1962 (OTA 1981). The reorganization "had the effect of subjecting the research structure of the Department—which had substantial stability and immunity from political interference for 40 years…—to a succession of pressures for further drastic reorganizations with the changes in political administration in future years" (OTA 1981). The USDA again reorganized in 1972 with administrative decentralization in mind (OTA 1981). Operating responsibility was delegated to four regions, which were then subdivided into research area centers. Beltsville's scientists and facilities became a regional research facility, rather than a national one (OTA 1981). In the years between 1953 and 1973, research funds averaged 3 to 4 percent of the USDA budget. Of those funds, 77.4 percent went to federal research programs and 22.6 percent went to the states (OTA 1981). About half of the department's research facilities were built between 1958 and 1977 (OTA 1981).

Congress' preference for supporting local and state research stations over national stations lessened BARC's role within the United States' agricultural research system. By 1980, the USDA's research program was highly decentralized, with research undertaken at 148 locations, including the much diminished 450-scientist facility at Beltsville (OTA 1981). Between 1965 and 1985, Congress appropriated $242 million for the Agricultural Research Service's (ARS) facilities nationwide, while Beltsville (re-designated the BARC in 1984), which had 20 percent of the agency's employees, received only $8 million (Sinclair 1988). In 1988, Beltsville was bypassed in a continuing budget resolution, which diverted federal funds to research programs in powerful lawmakers' home districts. That year, Congress approved more than $57 million around the country for new agricultural research facilities at universities and outposts of the Agricultural Department of the USDA and "most of these projects, assigned to the USDA Agricultural Research Service that manages Beltsville, went to states represented by senior senators and representatives with key seats on congressional appropriations committees" (Sinclair 1988). Today, many of BARC's facilities are unused and in disrepair.

<u>Experimental Agricultural Research</u>
Developments in agricultural technology occurred more rapidly in the twentieth century than in all previous human history, predominantly due to advances in scientific knowledge discovered during experimental agricultural research. Major agricultural changes in technology began in earnest with the invention of hybrid corn varieties at the beginning of the twentieth century and continued with the introduction of herbicide and insect-resistant field crop varieties by the end of the twentieth century (Huffman and Evenson 2008). During the period between 1900 and 2000, the real aggregate agricultural output grew at an average annual rate of 1.61 percent per year, and 2.08 percent over 1970 to 1999 (Huffman and Evenson 2008). Particularly in the 1930s and after, agricultural research findings dramatically improved agricultural productivity in the United States. Through most of the twentieth century, BARC, which was established by the USDA in 1910 and substantially expanded in the 1930s, was the nation's largest and most diverse agricultural research center. BARC's scientists and researchers have made considerable contributions to agricultural science, and BARC has been the "location of an enormous body of important, innovative, agricultural research of national scope and significance" (Robinson and Associates 1998).

Agricultural advancements in the United States can be separated into four main periods: 1775 through the Civil War, when productivity relied on hand power and some later labor-saving equipment; Civil War to World War I, when productivity increased modestly because of the introduction of more efficient horse-drawn equipment; World War I to World War II, when animal power gave way to mechanical power; and World War II to the present, the era of "science power," when major advancements were made in agricultural research that substantially improved productivity and reduced many uncertainties of production (OTA 1981). Science power was largely the result of research that the public and private sectors began to take in earnest in the mid-1930s (OTA 1981). The Green Revolution from the 1930s to the late 1960s was a particularly ripe period of technological progress. New crops and techniques, new strains of plants and animals through the use of genetics, improved animal breeding, and pest and disease control in crops led to significantly increased food production in the United States and worldwide (Rasmussen and Mellanby n.d.).

Early Agricultural Research, Eighteenth to Early Twentieth Century
Prior to the 1862-acts that established the USDA and the Land-Grant College system and the 1887 act that established the state agricultural experiment stations, the U.S. patent system stimulated agricultural research by protecting individuals' inventions and implementing an active seed collection and distribution program (Huffman and Evenson 2008). Patents for agricultural inventions exceeded those for all other fields between 1790 and 1849, and the largest share were mechanical patents for agricultural tools and machinery (i.e., chemical and electrical inventions were not submitted in large numbers until after 1850) (Huffman and Evenson 2008). The Patent Office's foreign plant/seed introduction program was instituted in the 1840s (Huffman and Evenson 2008).

Private agricultural societies and the Yale Scientific School were also dabbling in agricultural research prior to the establishment of the USDA-state agricultural experiment stations system. Agricultural societies provided early support for agricultural improvements and were active during the 1800s distributing information to their members, collecting and distributing seeds, building reference libraries, and purchasing land for trials and experiments in plant and animal breeding and soil improvements (Huffman and Evenson 2008). In 1845, the Yale Scientific School was the first American educational institution to initiate an agricultural science program, a precursor to the later land-grant colleges inaugurated through the Morrill Acts of 1862 and 1890 (Huffman and Evenson 2008).

Although the legislation that created the USDA did not mention research, it was nevertheless an important component of the department's work. Early USDA research focused on four main areas: importation of seeds and plants and plant classification, statistics, chemical analyses, and livestock disease control (Huffman and Evenson 2008). The first three research areas were transferred from the Patent Office, which had previously instituted those programs. In its early years, the USDA led international exhibitions to search for new plant materials and widely distributed seeds to farmers to test in the nation's various climates (the public seed distribution was discontinued in 1923). One early success was the USDA's introduction of the Brazilian seedless navel orange to California (Huffman and Evenson 2008). Research on animal disease began in 1868 and resulted in the discovery of the causes of tick fever and hog cholera (Huffman and Evenson 2008). In the 1890s, the USDA established regulations for chemical analyses of soils and minerals that were used by public and private laboratories (Huffman and Evenson 2008). Between 1900 and 1914, the USDA expanded its mission to improve the social aspects of farm life as they worked to increase American farm diversification; the USDA began to conduct surveys and research into farm life and conditions in an attempt to obtain an accurate picture of American farm life (Edwards, Holycross, and Barnes 2004).

Early Research at Beltsville, 1910-1933
BARC began as an experimental farm for scientists focused on animal husbandry, dairying, and animal disease research. USDA purchased the 475-acre Beltsville farm on June 30, 1910 to supplement its research facilities in Bethesda, MD and elsewhere (Houck 1924). The 475-acre parcel in Prince George's County was divided between the department's Animal Husbandry Division and the Dairy Division, both part of the USDA's Bureau of Animal Industry (USDA 1949; Robinson and Associates 2000; USDA c. 1937; USDA 1921; Wiser and Rasmussen 1966). The bureau designated 190 acres for the Dairy Division to research dairy cattle breeding and care, forage crops, silage, and effect of feed on flavor and odor of milk, and granted the remainder to Animal Husbandry Division for experiments in breeding and feeding animals and poultry (Wiser and Rasmussen 1966; USDA 1921). The bureau moved the first mules and horses from Bethesda a week after purchase; sheep, goats, hogs, guinea pigs, and poultry equipment were transferred to the farm by early 1911 (Wiser and Rasmussen 1966, Houck 1924).

To accommodate the experimental farm's many research tasks during BARC's early period (1910-1933), staff constructed laboratories, farm buildings, pastures, and staff housing. The experimental farm acreage and facilities grew gradually.

Within a year of Beltsville establishment, the divisions had constructed the first buildings and fences, and equipped the farms (Wiser and Rasmussen 1966, Houck 1924). In 1912, the bureau erected a laboratory building (Mohler 1939; Houck 1924) and, in 1913, a barn (USDA n.d.; USDA 1921). In 1916, the bureau set aside 100 acres for work on intensive farm production of sheep and built a large concrete barn (Wiser and Rasmussen 1966). The Bureau of Animal Industry added laboratories for the Pathology and Zoological Divisions, and the Bureau of Plant industry began to operate at Beltsville on approximately 425 acres of leased land (subsequently purchased from Public Works funds) during the first few decades (Wiser and Rasmussen 1966; USDA c. 1937; USDA c. 1937; Wiser and Rasmussen 1966). By 1925, the USDA owned 1,062 acres at Beltsville and leased about 1,000 more acres (Wiser and Rasmussen 1966). By 1933, four land purchases, totaling 1,381 acres, further increased the farm's size (USDA c. 1937).

The scientists at Beltsville between 1910 and 1933 considered a broad range of research topics. By 1921, the farm had 145 head of dairy cattle (purebred Holsteins, Jerseys, Guernseys, and others) used in breeding, feeding, and dairy herd management experiments (USDA 1921; Trimble 1952). A large acreage was set aside at the farm for the study of sheep, and a new breed of chickens was developed at the farm ("Lamona") (Houck 1924). Staff were conducting experiments with forage crops for dairy feed and with silage growing under various conditions; studying the nature and extent of losses in the silo to determine relative merits of wood and concrete as silo building materials (Creamery Journal 1916); experimenting with open-shed types of barns versus ordinary closed barns and different kinds of stable floors; and studying factors effecting bacterial count of milk, breeding, and physiology of milk secretion (USDA 1921). Experiments on poultry breeding had been underway since 1912, and researchers were also studying the incubation of eggs and the effects of feeding on egg production (Mohler 1939, Houck 1924). In the 1920s, the Beltsville Farm researches showed that using pasteurized sweet cream instead of sour ripened cream helped butter last longer, thereby solving a major food problem (Yao 2010). They also released 'Mary Wallace,' the first disease-resistant shrub rose (Yao 2010).

Broadening of Beltsville Research, 1933-c.1960s

The USDA substantially expanded the Beltsville facility beginning in 1933. In 1935, the department re-designated the farm as the National Agricultural Research Center. Major landscape improvements and new facilities were designed and constructed to accommodate researchers. By 1939, the Beltsville facility contained laboratory buildings (including the Animal Husbandry Laboratory, Building 200, and the Germplasm Resources Laboratory, Building 004); the Bee Research Library (Building 476); brooder houses with service quarters in the center; colony houses; laying houses; pigeon lofts; feed houses; carpenter shops; garages; storage sheds; incubatory rooms; a coccidiosis building with incinerator for the Zoological Division's isolation unit for experimental work with coccidiosis of poultry; insectary; and experimental pens (Mohler 1939, Living New Deal n.d.). Beltsville expanded rapidly to accommodate the various bureaus that were consolidated at the site, including the Bureau of Animal Husbandry in 1942 (USDA ca. 1990) and facilities from the Arlington Farm of the Bureau of Plant Industry in 1942 (Wiser and Rasmussen 1966). Between 1940 and 1942, funds were also allocated for establishment of National Youth Administration Youth Resident Project "to give young men practical experience in the mechanical shops and laboratories of the farm" (Wiser and Rasmussen 1966).

The Agricultural Research Center had grown to approximately 12,000 acres by 1949. The Bureau of Plant Industry, Soils, and Agricultural Engineering; Bureau of Agricultural and Industrial Chemistry; Soil Conservation Service; Forest Service, Bureau of Entomology and Plant Quarantine; Production and Marketing Administration; Bureau of Dairy Industry; Bureau of Animal Industry; and the Bureau of Human Nutrition and Home Economics all operated from Beltsville (USDA 1949). Staff on site numbered 2,300 persons and included agronomists, animal husbandmen, apiculturists, architects, bacteriologists, biochemists, biologists, botanists, chemists, dairy technologists, engineers, entomologists, geneticists, grain technologists, helminthologists, home economists, horticulturists, mycologists, nematologists, olericulturists, nutritionists, parasitologists, pathologists, physicists, physiologists, statisticians, veterinarians, and zoologists (USDA

Name of Property: Beltsville Agricultural Research Center (B.A.R.C.)
Location: Beltsville, Prince George's County

1949). The center had 3,000 experimental farm animals (cattle, hogs, goats, and poultry), more than 10,000 mature laying and breeding fowls, and about 5,500 small animals for laboratory testing, including guinea pigs, hamsters, rabbits, rats, and mice. The center also had bees (USDA 1949). The center's facilities included 40 laboratory buildings, 31 greenhouses (including 5 acres under glass), an apiary for bees, approximately 100 barns and storage buildings, 500 small animal and poultry houses, a granary, shops, warehouses, and heating, water-treatment, and sewage-disposal plants. Open areas included experimental pastures, ranges, orchards, gardens, fields for cultivated crops, timber stands, and soil-treatment plots (USDA 1949).

In 1952, the facility was 11,000 acres and the Bureau of Standards of the Department of Commerce, the Geochemical Prospecting Unit of the Geological Survey of the Department of the Interior, and the Veterinary Section of the Food and Drug Administration of the Federal Security Agency were also conducting research at the site. The Patuxent Research Refuge, where the US Fish and Wildlife Service of the Department of the Interior studied wildlife problems related to agriculture, adjoined the site (USDA 1952).

The USDA undertook a major reorganization in 1953 that abolished the bureaus as organizational units, though research continued in the same channels. At that time, Beltsville, then the nation's largest agricultural experiment center, became part of the ARS (Wiser and Rasmussen 1966, Matthews 1953). In 1959, the divisions and departments undertaking research at Beltsville included the: Agricultural Engineering Research Division, Animal Disease and Parasite Research Division, Animal Husbandry Research Division, Crops Research Division, Eastern Utilization Research and Development Division, Entomology Research Division, Institute of Home Economics, Plant Pest Control Division, and Soil and Water Conservation Research Division (USDA 1959). The Agricultural Marketing Service, Forest Service, Soil Conservation Service, and Fish and Wildlife Service of the Department of the Interior also operated on the site (USDA 1959).

The center researched "broad problems of national interest" in 1959 "to accumulate scientific information that can be applied anywhere." This research was often conducted in cooperation with state agricultural experiment stations (USDA 1959). On August 21, 1957, the first pioneering research laboratory with the purpose of investigating the mineral nutrition of plants was established at Beltsville. In 1959, the Agricultural Research Center still covered about 11,000 acres, which were divided into experimental pastures, ranges, orchards, gardens, fields for cultivated crops, timber stands, and soil-treatment plots. There were 950 buildings that provided office and lab space for approximately 2,300 employees. Half of employees were scientists or technicians, and the others were clerical, farm, and maintenance workers. Buildings included 58 laboratories, 31 greenhouses, 161 barns and storage buildings, 700 small animal and poultry houses, shops, an apiary, a granary, a warehouse, and heating, water-treatment, and sewage-disposal plants. The center had 3,000 experimental farm animals, more than 10,000 laying and breeding fowls, and about 5,500 small animals used in laboratory tests (USDA 1959).

In 1966, BARC staff had grown to 1,250 scientists and 1,500 supporting personnel who collaborated with 300 field stations around the country and overseas. Scientists and researchers studied crops, animal science, agricultural engineering, entomology, soil and water conservation, and human nutrition. By the mid-1960s, thousands of people were visiting the center to tour the $50,000,000 facility with 200,000 square feet of greenhouse space and 1,160 buildings, including the National Agricultural Library, previously in Washington, D.C., that had moved to Beltsville in 1967. The library holdings comprise 90,000 subject headings and cross references and are the most extensive agricultural collection in the world (Bowers *et al.* 1993).

Beginning in the mid-1960s, and particularly after the 1972 reorganization that decentralized the USDA, Beltsville declined in importance as significantly more funds were being directed to experimental stations elsewhere in the country (Sinclair

1988). By 1982, the center had diminished to 7,200 acres (Olmert 1982). In about 1984, the facility was re-designated as BARC. In 1988, BARC occupied 7,000 acres (Sinclair 1988). BARC contained eight institutes in 1990: Agricultural Environmental Quality, Animal Parasitology, Animal Science, Horticultural Science, Insect Identification & Beneficial Insect Introduction, Plant Genetics & Germplasm, Plant Physiology, and Plant Protection. About 2,550 USDA employees and 200 employees from other federal agencies worked at BARC in about 800 buildings that included research laboratories, greenhouses, barns, poultry houses, shops, and offices. About 900 of the employees were scientists and technicians. Animal researchers focused on livestock diseases, animal nutritional needs, and animal genetics and physiology to improve productivity of cattle, poultry, swine, and sheep. Plant specialists researched greater crop yields by breeding plants that used light and nutrients efficiently, had built-in disease resistance, and were able to cope with marginal growing conditions. Other researchers were developing new methods to fight plant pests and using biological controls and naturally occurring chemicals to reduce crop loss and to ensure meat, milk, and produce had natural taste and nutritional value (USDA ca. 1990).

Notable Research at Beltsville
The research accomplishments of BARC scientists and researchers have had wide- and long-reaching beneficial effects on national and international agricultural practices. Agricultural research at BARC has been a blend of foundational and applied scientific research. While the private sector has typically focused on practical applications of science (applied science) that would lead to profit, federal research has worked more frequently on biologically oriented research, which provides the foundational (basic) knowledge needed for practical applications (OTA 1981, USDA 1963).

Each of the units based at BARC has made major accomplishments. The Bureau of Dairy Industry, the earliest of the USDA's research divisions at Beltsville, conducted breeding and feeding research that has led to major improvements for small dairy farms, larger commercial dairies, and dairy production and manufacturing industries nationwide (Robinson and Associates 1998). The Division of Animal Husbandry of the Bureau of Animal Industry, the largest bureau at the site, undertook critical poultry and swine research improving the size and health of farm animals. The Bureau's Zoology Division's parasite research brought innovate new approaches to treating infestations. The Animal Disease Station developed vaccines to prevent Bang's disease and developed sterilization methods for contaminated hides. The Bureau of Entomology and Plant Quarantine, which came to BARC in the 1930s, conducted important research as the national headquarters for the Division of Bee Culture and developed the DDT aerosol bomb. The Bureau of Human Nutrition and Home Economics during World War II researched important nutrition and textiles. The Bureau of Plant Industry, the second largest bureau at BARC, developed many of the soy bean, blueberry, Easter lilies, zoysia turf, and forage crop lespedza used widely today, and conducted fundamental research into photo periods. The Food and Drug Administration conducted important research on insecticides (Robinson and Associates 1998).

Specific examples of BARC scientists and researchers' contributions to agricultural science include:

- 1930s: Developed and introduced pest-resistant potato varieties from the 'Katahdin' potato to grow in the northeastern United States ('BelRus') (USDA ca. 1990).
- 1930s: Produced the first successful *brucellosis* vaccine to immunize cattle against the disease that causes high numbers of miscarriages (Yao 2010).
- 1930s and 1940s: Bred the Beltsville Small White Turkey (USDA 1963).
- World War II: Invented and developed a new group of pesticides—DEET, DDT, rotenone, and allethrin—to guard soldiers and the general public against insect-borne diseases such as malaria and other tropical disease that saved thousands of lives during and after World War II (USDA ca. 1990; Yao 2010).

- 1950s: First to develop the framework of the sterile insect technique, releasing sterilized male flies to mate with native flies, so that by the 1980s, screwworms were eliminated from the United States (Yao 2010).
- 1950s: Developed many new varieties of fruits and vegetables that were both disease-resistant and more flavorful (Yao 2010).
- 1950s: Pioneered research on photoperiodism (plant response to variations in the light/dark cycle) that culminated in the chemical isolation of phytochrome (triggering mechanism of plant growth), a core concept in plant physiology (USDA ca. 1990, Yao 2010).
- 1960s: Developed the first computerized near-infrared spectrophotometer to measure traits without destroying a sample (Yao 2010).
- 1970s: Discovered plant viroids—a new class of disease-causing particles 80 times smaller than viruses (USDA ca. 1990; Yao 2010).
- 1990s: Developed technology to separate X- and Y-bearing sperm in animals, allowing for sex selection during breeding (Yao 2010).
- 1990s: Developed detergent chemical methods for determining nutritional value of feedstuff—now used in both human and animal nutrition (USDA ca. 1990).
- 1990s: Adapted automated equipment to energy metabolism research to determine exact amount and kind of feed required for optimum milk production (USDA ca. 1990).
- 1990s: Discovered and synthesized chemicals that a variety of major insect pests emit to attract their mates, now used in mass trapping to survey insect populations for integrated pest management programs (USDA ca. 1990).
- 1990s: Developed genetics concepts that laid the foundation for modern plant and animal breeding, and proved the value of statistical methods in evaluating inherited characteristics in populations (USDA ca. 1990).

Through most of the twentieth century, BARC was the nation's largest and most diverse agricultural research center. BARC's scientists and researchers have made major contributions toward scientific knowledge that have resulted in incredible advances in crop production, plant and animal disease control, and pest control.

<u>New Deal Policies and Programs</u>
The New Deal was a series of policies and programs initiated by President Franklin D. Roosevelt between 1933 and 1939 in response to widespread hardship during the Great Depression. The programs, which focused on "relief, recovery, and reform," greatly increased the scope of the federal government's activities (Berkin *et al.* 2011). Initial programs (1933-34) provided quick relief for banks through the Emergency Banking Act and the 1933 Banking Act. These acts granted funds to states and local municipalities through the Federal Emergency Relief Administration, as well as established make-work projects through the Civil Works Administration and conservation and reforestation projects through the Civilian Conservation Corps (CCC). Later programs (1935-1939) included the creation of the Works Projects/Progress Administration (WPA), Social Security Administration, the United States Housing Authority, and the Farm Security Administration; passage of the Fair Labor Standards Act of 1938 set minimum wages and maximum hours. BARC's substantial expansion between 1933 and 1941 was a direct consequence of the policies and programs of the New Deal.

Policies and Programs for Agriculture
In the 1930s, President Roosevelt, the Secretary of Agriculture Henry A. Wallace, and the Undersecretary of Agriculture Rexford G. Tugwell were determined to improve the lot of the nation's farmers through New Deal programs; BARC

became the nation's primary agricultural research center as a result. Even before the Great Depression, the agricultural markets had been struggling. Advances in farm production in the 1920s had led to overproduction and a near collapse of agricultural markets. Crops were left in the fields unharvested because prices did not warrant transporting them to market. The first major initiative was the Agricultural Adjustment Act of 1933 that paid farmers to produce less, thereby creating an artificial scarcity and raising prices, rapidly improving farm incomes (USDA 2016).

Nearly $11 million dollars in Public Works Administration (PWA), Civil Works Administration (CWA), WPA, and direct appropriations went to Beltsville between 1933 and 1941 (Robinson and Associates 1998). Secretary Wallace and Undersecretary Tugwell, keenly recognizing that there was more to be done to ensure the stability of the agricultural economy, orchestrated the allocation of funds from the Federal Emergency Administration of Public Works and other agencies for the construction of new scientific research facilities (USDA 1963). The experimental farm at Beltsville was significantly expanded to be a national model experiment station for agriculture (Robinson and Associates 1998). Tugwell specifically saw the capabilities of Beltsville as a way to help small farmers who were too poor and unorganized to conduct scientific research (Robinson and Associates 1998).

The drought and windstorms that created the Dust Bowl in the southwestern states made the need for agricultural research even more urgent. In 1934, the USDA relocated most of the department's facilities around the Washington, D.C. region to Beltsville, including an animal disease station in Bethesda, MD; the experimental greenhouses on the National Mall between 13th and 14th Streets; the bee culture research building in Somerset, MD; and a small installation in Takoma Park, MD that studied the control of insects (USDA 1963). The Agricultural Adjustment Act of 1938 granted funds for the establishment of regional agricultural research centers that would collaborate with the Beltsville center (USDA 2016). Most of the historic buildings at Beltsville are a product of the New Deal-era funding programs.

Works Progress Administration and CCC at Beltsville
New facilities were needed at Beltsville to house the expanded role of the facility. The research center hosted four CCC camps, designated as Camps A-1, A-2, A-3, and A-4, during the Great Depression. The CCC men played an important role in the shaping the landscape of BARC by installing significant new infrastructure, including sewer, water, electrical, roads, bridges, fences, and landscaping/land clearing funded by the WPA. In addition to major landscaping projects, they constructed many new buildings including residences, laboratories (such as the Animal Husbandry Laboratory (Building 200), the Germplasm Resources Laboratory (Building 004), and the Bee Research Library (Building 476)), barns, sheds, an administration building, greenhouses, headhouses, and other outhouses (Robinson and Associates 1998, Living New Deal n.d.).

The first camp, Camp A-1, was organized in June 1933 at the Bureau of Animal Industry's Experimental Station. The camp commander, four officers, staffers, and 126 enlistees of Company 2301 (a "white" company) arrived in October 1933. The company built their barracks and, probably, their support structures. Their work focused on public campground improvements, fire hazard removal, firebreak construction, installation of truck trails and driveways for livestock, forest culture work, planting, topographical and timber surveys, landscaping, and drainage. The camp expanded in December 1934 to 200 men and by then was also completing road and fire lane construction, tree planting, and telephone line erection. Camp A-1 was discontinued by September 1936 when the Bureau of Animal Industry agreed to consolidate the four camps into three (Thomas, Newell, and Zebooker 1993).

Camp A-2 was established in September 1934 and was occupied in October 1934 by Company 1362, including 172 white personnel. The men constructed their own barracks and the officer's quarters and established a newspaper. Their duties included surveying; draining and ditching; road construction; forest clean-up; road clearing; road, surface drain, and water line construction; drainage and sewage disposal; and bridge and culvert construction. In 1938, a 181-man "colored" company, Company 322-C, was established at Camp A-2. The camp continued to operate until at least April 1942 (Thomas, Newell, and Zebooker 1993).

Camp A-3 was established in November 1935, when Company 370, a 142-man white unit, transferred to Beltsville from Big Stone Gap, VA. The company members worked on 11,000 acres of the experimental farm, and performed work in animal husbandry, landscaping, laying sewer lines, forestry improvements, and road construction. The 5438th, a 220-member white company, occupied Camp A-3 in May 1936 and constructed sewer systems, fencing, water lines, and roads, as well as razed old buildings. A colored company, the 2134th-C, occupied Camp A-3 in October 1937. The 180 men worked on fencing and installed drainage, water, and sewer lines. By 1938, their work also included construction of equipment sheds and new lodges. In August 1939, they built an education building and a barracks. The company was relocated to Fort Meade, MD by November 1941. The exact date of the closing of Camp A-3 is not known (Thomas, Newell, and Zebooker 1993).

Company 309 occupied Camp A-4 in 1935. The 181 white men of Company 309 completed landscaping. The 204-member Company 5445 was assigned to Camp A-4 in May 1936; they worked on forestry improvement, landscaping and developing, maintaining a nursery, and constructing firebreaks and trails. By 1937, they were also involved with road construction, land clearing for experimental pastures, fencing, reclaiming wet grounds and swamps, and large landscaping projects. Three "junior colored companies" were transferred to the camp in 1937 and then Company 2317-C, consisting of 181 black men, occupied the camp. Camp A-4 was still operating in April 1942. No records have been found that indicate the closure date of Camp A-4 (Thomas, Newell, and Zebooker 1993).

BARC's Log Lodge, built by men of the PWA between 1934 and 1937, served as the recreation center for the four CCC camps at Beltsville. The Log Lodge was modeled after lodges in Yellowstone National Park and used lumber and logs from trees growing on BARC. The CCC used the lodge for recreation until 1942, when it was converted into a cafeteria that was used until 1985 (USDA 1988).

Overall, the camps were constructed by the first companies to arrive; additional structures and improvements were added as needed. Although early buildings, such as educational buildings and the recreation center (Log Lodge) were permanent buildings, as time passed, more temporary buildings were constructed. All but Camp A-1, which closed in 1936, were operational until at least mid-1942. It appears that each camp was assigned a certain tract within the BARC complex (Thomas, Newell, and Zebooker 1993).

Landscape Architecture

BARC's landscape consists of vast open space and cultivated fields, scattered with hundreds of buildings and structures. Historically, the landscape was grouped by association with individual bureaus/divisions of the USDA or other federal agencies that leased or were assigned portions of the facility. The Bureaus of Animal Industry, Dairy Industry, and Plant Industry were responsible for most of the building programs and land acquisitions at BARC (Robinson and Associates 1998). The landscape is unique and distinctive, combining elements found on typical farms, such as cultivated fields and grazing plots, with features required for agricultural research, such as large-scale infrastructure and large building clusters.

The landscape of BARC was chiefly devised in the 1930s, during the significant expansion of the property. Albert David (A.D.) Taylor (1883-1951) and architect Delos H. Smith (1884-1963) created the plan for BARC's Central and East Farms in 1934. The Central Farm, which encompassed the 375-acre parcel the USDA first purchased for the facility in 1910, was used by the Bureau of Dairy Industry for several decades. Comprising 912 acres, the Central Farm was bound by Baltimore-Washington Parkway on the east, Edmonstron Road on the west, Greenbelt on the south, and the U.S. Department of Health and Human Services and U.S. Department of State complex and Muirkirk on the north. The Central Farm's designed farm landscape comprised five major clusters and contained most of the buildings and research activities at BARC (P.A.C. Spero 1998, Robinson and Associates 1998).

The CCC men at the four Beltsville camps constructed much of BARC's landscape, including roads, landscaping, fencing, drainage, and trails, and laid infrastructure such as water and sewer lines (Thomas, Newell, and Zebooker 1993).

A.D. Taylor graduated from Cornell University in 1905 with a Master's degree in Landscape Architecture and joined the office of Warren H. Manning in 1908. In 1914, he relocated to Cleveland, Ohio where he established his own firm and founded the Ohio State University landscape architecture program; he taught there from 1916 to 1926. Taylor participated in many Civil Works Administration (CWA) projects including Boys Town, NE, and Marine hospitals in Cleveland, New Orleans, and Baltimore. He served as a consultant to the U.S. Forest Service and published *Problems of Landscape Architecture in the National Forests* in 1936. He consulted with the federal government on the site plan for the Pentagon in 1942. He was a Fellow of the American Society of Landscape Architects and was president from 1936 to 1941 (Cultural Landscape Foundation n.d.).

Delos H. Smith graduated from George Washington University with a B.S. Arch in 1906 and an M.S. Arch in 1916. He trained in the Office of the Supervising Architect of the Treasury and with the firms Hornblower & Marshall and Jules Henri de Sibour. During World War I, Mr. Smith was Supervising Engineer at the U.S. Naval Academy. After the war, he completed a pioneering survey of Annapolis' historic resources; during the Great Depression, he completed Historic American Building Surveys (HABS) for churches, residences, schools, colleges, and industrial buildings in Arizona, Connecticut, District of Columbia, Maryland, Massachusetts, New Mexico, North Carolina, Ohio, Pennsylvania, South Carolina, Virginia, and Utah (HABS) (Kelly 2011, Library of Congress n.d.).

According to Robinson and Associates (1998), BARC "possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically" resulting from its "research mission, its physical development under the New Deal, the involvement of professional design and planning professionals, and the interrelationship of its resources." Contributing elements of the landscape include major paved roads, including Powder Mill Road, minor service roads, field and research crops, pasture lands, seasonal ponds, forests, sustainable meadows, other landscape features, and buildings." (P.A.C. Spero & Company 1998; Robinson and Associates 1998).

<u>Experimental Agricultural Architecture</u>
From early in BARC's history, agricultural architecture was a topic of inquiry. BARC scientists and researchers experimented with a wide array of designs and tested different materials, both for efficiency and usefulness in their own research facilities and for the improvement of the nation's farms. The result is BARC's collection of distinctive and unique architecture that was derived from the needs and findings of agricultural research.

The first instance of research into agricultural architecture at Beltsville was in 1916 when researchers developed a plan to build dairy-supportive buildings for specific regions, including a dairy stable to meet conditions in the south, and a combination creamery and milk-shipping station for use in the New England states (The Creamery Journal 1916). These new buildings were to be added to the existing Beltsville facilities, which then included the mess house, small animal house, and 30,000-gallon concrete reservoir and cooling tower, house for fire apparatus, heating system for superintendent's house, refrigeration and darkroom equipment for administration building, electrical equipment, and refrigerating and pumping plant (The Creamery Journal 1916).

A few years later, in 1921, the Beltsville scientists began to study the nature and extent of the losses that take place in silos. They researched the use of different silo-building materials to determine which material would best withstand the acids of the silage. They also compared different stable floors and barn types for the care of dairy cattle, seeking materials and designs that could reduce the bacterial count in cow milk (USDA 1921).

Buildings to Control Disease, Productivity, and Efficiency
As part of the substantial expansion of Beltsville in the 1930s, and specifically beginning in 1934, the USDA constructed new poultry laboratory buildings and poultry houses on 177 acres to be used for poultry research work. These improvements to the facility's poultry research were placed into operation on July 1, 1935 through the National Poultry Improvement Plan, which was developed to aid the poultry industry in improving its efficiency. The Beltsville poultry farm had four laboratory buildings, a central heating plant, and more than 200 houses of various sizes for its poultry stock, including brooder houses, laying houses, and colony houses. Researchers experimented with many designs to control disease transmission, animal productivity, and efficiency. The brooder houses had varying plans, often having a two-story service quarter in the center with one-story wings that each had eight to 10 temperature-controlled sections. The use of wire-floor sections in both the brooder houses' interiors and yards facilitated the control of parasites and disease. The exterior pens had wire fencing that extended over the top of the pens to keep out birds; the buildings were supplied with supplementary steam heat. The facility had laying houses for breeding and nutritional investigations. The one-story laying houses had shed roofs and were divided into sections with solid partitions between the sections, and the fronts were left open during cold weather. The small colony houses were used for growing pullets in breeding investigations. These one-story, shed-roof buildings were located in a large enclosure with no separate yards, and the covered feed troughs and water fountains were located in the front of each building (Mohler 1939).

Post-World War II Farm Building Designs
Recognizing that many farmers did not have access to or could not afford to hire individualized architectural services, the USDA created Regional Plan Exchanges in the late 1940s through the 1960s to provide farmers access to plans and working drawings of farm buildings and structures. To develop the plans, the USDA conducted in-house research at Beltsville and collaborated with state agricultural experiment stations, Bureau of Home Economics, and agricultural engineering departments of state agricultural colleges to provide farmers with various plans and tools to aid in the building and remodeling of farmhouses, buildings, and structures. At least some of the designs were constructed at Beltsville (Marsh n.d.).

Beltsville researchers produced the farmhouse plans by organizing Regional Plan Services in four regions: Northeast, South, West, and North Central. Committees in each region reviewed plans for farmhouses and other farm buildings and selected the plans that best met their regions' needs. A 1947 USDA publication, *Your Farmhouse: How to Plan Remodeling*, acknowledged that most farming families lived in houses that were at least 50 years old, some too large or small for their present needs, and many not be suited to modern ways of living. Yet they were well-built houses that were maintained and worth the cost of remodeling. *Your Farmhouse: How to Plan Remodeling* was paired with another 1947 publication, *Your Farmhouse: Cut-Outs to Help in Planning*, which helped farmers make sound investments when remodeling an older farmhouse or building a new farmhouse. Recommendations included planning for the needs of all family members, such as preparing for more bedrooms, having a spacious living room for social gatherings, and including a modern kitchen and space for work rooms and storage. The report emphasized the importance of budgeting for extra costs such as insulation, weather stripping, heating, lighting, water and sanitation systems, repairs, and decoration.

Consequently, farmers could better understand the room lay-outs for improved use of space, minimum and desirable room sizes, and necessary clearances for furniture and equipment. The publication even provided instructions for farmers on how to make a cut-out plan to scale with a scale and ruler card, paper and scissors, pencil, and pins. In 1948, USDA published *Farmhouse Plans for Northeastern States*, which included 15 farmhouse plans for the northeast region (Marsh n.d.).

Future booklets become more specific. A 1950 guide addressed farmhouse plans for minimum budgets by presenting ideas for additions using standard building materials and approaches for building in stages as budgets allowed. In 1954, *Farmhouse: Split-Level Expansible,* featured plans for a split-level brick house designed for a sloping site that was suitable for a family with two or three small children to live comfortably. The plan provided options to utilize different materials and easy ways to add another bedroom with only minor changes in the original design. The researchers at Beltsville constructed this house on site (Marsh n.d.).

Following the theme of expansible and economical buildings, the 1954 report *Expansible Farmhouse: Frame* provided plans for a basic unit adequate for two people. The wood-frame, box-shaped house was inexpensive to build due to its simple wood-framed walls clad with exterior sheets of cement asbestos board, interior gypsum board, with two inches of wall insulation between. The design had the option to add two more bedrooms, a combination living room and sleeping area, dining room, spacious kitchen, work area, and bathroom. A subsequent report focused on the same building plans but for a concrete masonry house, offering flexibility in choice of building materials (Marsh n.d.).

In 1960, the USDA developed reports focusing on two and three-bedroom farmhouse configurations that were planned around the Beltsville Energy-Saving Kitchen Design No. 2. These house designs were of masonry and frame construction with low-pitched roofs, large window areas, carport, and basement. Both design themes were centered on convenience for the residents, such as having convenient indoor-outdoor living spaces and room layouts that worked in conjunction with each other. Emphasis was made towards families wanting larger living spaces and areas to entertain large groups, and options to partition off spaces to create extra bedrooms for growing families or elderly relatives. Additionally, these plans provided step-saving options to eliminate unnecessary storage, but also provided room options for laundering, storage, and modern appliances such as freezers and furnaces (Marsh n.d.).

Utilizing all the interior space in a thoughtful way was important in the USDA's 1965 report for the three-bedroom farmhouse with Beltsville Energy-Saving Kitchen-Workroom Design No. 1. The one-story, rectangular-shaped house had ample-sized rooms that were accessed by a main hall from either the front or rear entrance. Closets were strategically placed to act as sound buffers between sleeping and activity areas and the single chimney contained flues for both the fireplace and furnace. This extra level of planning for the interior spaces, and use of a grade beam and pier foundation with a concrete slab floor proved to be more economical (Marsh n.d.).

Farm Layouts

The experimental farms at Beltsville were a resource for individual farmers and agricultural scientists alike. Representational farm types included beef, cattle, dairy, poultry, sheep, horses, swine, fruit, vegetable, silage, and forage crops. Though the farms' foundational purpose was to support scientific research space, they were also working models of farm layout and operations. Visitors to Beltsville could tour the layouts directly and models based on Beltsville research were widely distributed in agricultural bulletins and journals (Robinson and Associates 1998).

Overall, scientists and researchers at BARC investigated the architecture of agricultural buildings and landscapes for a half century. The breadth of their research stretched from small brooding houses and large silos, to dairy barns, farm residences, and cultivated fields, all with the intent to increase scientific knowledge and improve the efficiency and productivity of the country's farms.

Georgian Revival Architecture
A substantial number of the BARC buildings constructed during the expansion of the property in the 1930s and the following decades, including offices, laboratories, and greenhouses, are in the Georgian Revival style. The Georgian Revival style, a subset of the Colonial Revival style, was most popular from about 1880 to 1955. Inspired by the original Georgian style buildings of the eighteenth and early nineteenth centuries, the Georgian Revival building has a classic shape, typically two or three stories tall, with symmetrical balanced double-hung windows and a center accentuated front door. Distinguishing features from the original Georgian style are adjacent windows and a more accentuated front door that often extends forward and is supported by columns (McAlester 2013; Foster 2004). The consistent use of Georgian Revival architecture has created a cohesive built environment at BARC (Bowlin 2000).

9.Reference

Advisory Council on Historic Preservation
1991 *Balancing Historic Preservation Needs with the Operation of Highly Technical or Scientific Facilities.* Washington, D.C.: Advisory Council on Historic Preservation.

Berkin, Carol, Christopher Miller, Robert Cherny, and James Gormly
2011 *Making America: A History of the United States, Volume 2: From 1865.* Boston: Wadsworth Cengage Learning, 2011.

Bowers, Douglas E., Lowell Dyson, Anne B. W. Effland, Alan Fusonie, Douglas Helms, Norwood Allen Kerr, Wayne D. Rasmussen, Dennis Roth, Joel Schor, and Vivian D. Wiser
1993 *The United States Department of Agriculture, 1961-1989.* Washington, D.C.: USDA, Economic Research Service, National Economy and History Branch, Agricultural and Rural History Section.

Bowlin, Lauren
2000 Individual Property/District, Maryland Historical Trust, Internal NR-Eligibility Review Form.

Cattle Today
2015 "Diseases of Cattle: Brucellosis." *Cattle Today.* http://cattletoday.info/brucellosis.htm (accessed January 20, 2017).

Creamery Journal
1916 "Dairy Experiment Farm at Beltsville, Md." *The Creamery Journal.* January 1. USDA Library, Special Collection 31.

Cultural Landscape Foundation
n.d. "A.D. Taylor." *Pioneers of American Landscape Design.* http://tclf.org/pioneer/albert-davis-taylor (accessed December 28, 2016).

Dwyer, Michael F.
1973 U.S.D.A. – Beltsville Agricultural Center – Maryland Historical Trust, Inventory Form for State Historic Sites Survey.

Edwards, Mark, Fred Holycross, and Amy Barnes
2004 Talbot County, Maryland, 20th Century Agricultural Context and Historic Resources Survey. URS Corporation.
Foster, Gerald
2004 *American Houses: a Field Guide to the Architecture of the Home.* New York: Houghton Mifflin, 2004.

Henneberry, T.J.
2008 "Federal Entomology, Beginnings and Organizational Entities in the United States Department of Agriculture, 1854-2006, With Selected Research Highlights." Agricultural Information Bulletin Number 802. Washington, D.C.: United States Department of Agriculture, Agricultural Research Service. https://www.ars.usda.gov/ARSUserFiles/oc/np/FederalEntomology/FederalEntomology.pdf (accessed January 16, 2017).

Houck, U.G.
1924 The Bureau of Animal Industry of the United States Department of Agriculture: Its Establishment, Achievements and current Activities. USDA Library, Special Collection 31.

Huffman, W.E. and R.E. Evenson
2008 *Science for Agriculture: A Long-Term Perspective.* Ames, Iowa: Blackwell Publishing, 2008.

Jahnke, Art
n.d. "Who Picks up the Tab for Science?" *Boston University.* http://www.bu.edu/research/articles/funding-for-scientific-research/ (accessed December 21, 2016).

Kelly, Clare Lisa
2011 *Places from the Past: The Tradition of Gardez Bien in Montgomery County, Maryland (10th Anniversary Edition).* Silver Spring, MD: The Maryland-National Capital Park and Planning Commission, 2011. http://www.montgomeryplanning.org/historic/places_from_the_past//index.shtm (accessed December 21, 2016).

de Laourantaye, Louis
1988 *The Log Lodge.* Washington, D.C.: United States Department of Agriculture, Agricultural Research Service.

Library of Congress
n.d. "Delos Smith." Prints & Photographs Online Catalog. http://www.loc.gov/pictures/search/?q=delos+smith&sp=1&sg=true (accessed January 9, 2017).

Living New Deal
n.d. "Henry A. Wallace Beltsville Agricultural Research Center – Beltsville MD." https://livingnewdeal.org/projedts/henry-a-wallace-beltsville-agricultural-research-center-beltsville-md/) (accessed January 11, 2017).

Marsh, Emily
n.d. Apron Strings and Kitchen Sinks: The USDA Bureau of Home Economics, a National Agricultural Library Digital Exhibit. https://www.nal.usda.gov/exhibits/ipd/apronsandkitchens/exhibits/show/kitchen-plans/step-saving-kitchen (accessed December 21, 2016).

Matthews, Samuel W.
1953 "Beltsville Brings Science to the Farm." *National Geographic Magazine.*

Mayo Clinic
2015 "Trichinosis." *Mayo Clinic.* http://www.mayoclinic.org/diseases-conditions/trichinosis/basics/definition/CON-20027095 (accessed January 20, 2017).

McAlester, Virginia Savage
2013 *A Field Guide to American Houses: a Definitive Guide to Identifying and Understanding America's Domestic Architecture.* New York: Alfred Knopf, 2013.

Mohler, John R.
1939 *Miscellaneous Publication No 368: Federal Poultry Research at the Agricultural Research Center, Beltsville, MD.* Washington, D.C.: United States Department of Agriculture. October.

Office of Technology Assessment, U.S. Food and Agricultural Research Advisory Panel
1981 *An Assessment of the United States Food and Agricultural Research System.* Washington, D.C.: U.S. Government Printing Office. https://books.google.com/books?id=0Muy9v0PQckC&lpg=PA29&dq=The%20Role%20and%20Development%20of%20Public%20Agricultural%20Research&pg=PA29#v=onepage&q&f=false (accessed December 21, 2016).

Olmert, Michael
1982 "Genes and viruses are harnessed on a farm tended by scientists." *Smithsonian Magazine.* March 1982.

P.A.C. Spero & Company
1998 Beltsville Agricultural Research Center, Survey No. PG:62-14 – Maryland Historical Trust Addendum Sheet.

Pickett, Edward G.
1966 "Progress is Byword at Beltsville Center." USDA Library, Special Collections 360.

Rasmussen, Wayne D. and Kenneth Mellanby
n.d. "Scientific Agriculture: the 20th Century." Encyclopedia Britannica. https://www.britannica.com/topic/agriculture/Scientific-agriculture-the-20th-century (accessed December 28, 2016).

Robinson and Associates
1998 *Historic Site Survey, Beltsville Agricultural Research Center, Beltsville, Maryland.* On file at the Maryland Historical Trust.

Short, C.W. and R. Stanley-Brown
1939 *Public Buildings, a Survey of Architecture of Projects Constructed by Federal and Other Governmental Bodies Between the Years 1933 and 1939 With the Assistance of the Public Works Administration.* Washington, D.C.: United States Government Printing Office.

Sinclair, Ward
1988 "Age, Neglect Hinder Farm Research Hub." *Washington Post.* February 1.

Thomas, Ronald A., Sam Newell, and Betty C. Zebooker
1993 Phase 1 Archaeological Survey, USDA BARC-East, Water Systems Improvement. MAAR Associates, Inc.

Trimble
1952 Manuscript detailing…Breeding, Feeding and Management Division. Bureau of Dairy Industry. USDA Library, Special Collection 31.

United States Department of Agriculture.
1921 "History of the Dairy Division." *Bureau of Dairy Industry.* United States Department of Agriculture Library, Special Collection 31.

c. 1937 The National Agricultural Research Center of the Department of Agriculture. USDA Library, Special Collections 360.

1930s Plan of Beltsville Agricultural Research Center, 1930s. Beltsville Area photo. http://www.ba.ars.usda.gov/history/photos/orig_5.html (accessed December 15, 2016).

1949 *Miscellaneous Publication No. 697: The Agricultural Research Center of the United States, 1949.* Washington, D.C.: United States Department of Agriculture.

1952 *The Agricultural Research Center of the United States Department of Agriculture, Agricultural Handbook No. 43.* Washington, D.C.: United States Department of Agriculture.

1959 *Agricultural Information Bulletin No. 189.* Washington, D.C.: United States Department of Agriculture.

1963 *Century of Service: the first 100 years of the United States Department of Agriculture.* Washington, D.C.: United States Department of Agriculture, Centennial Committee.

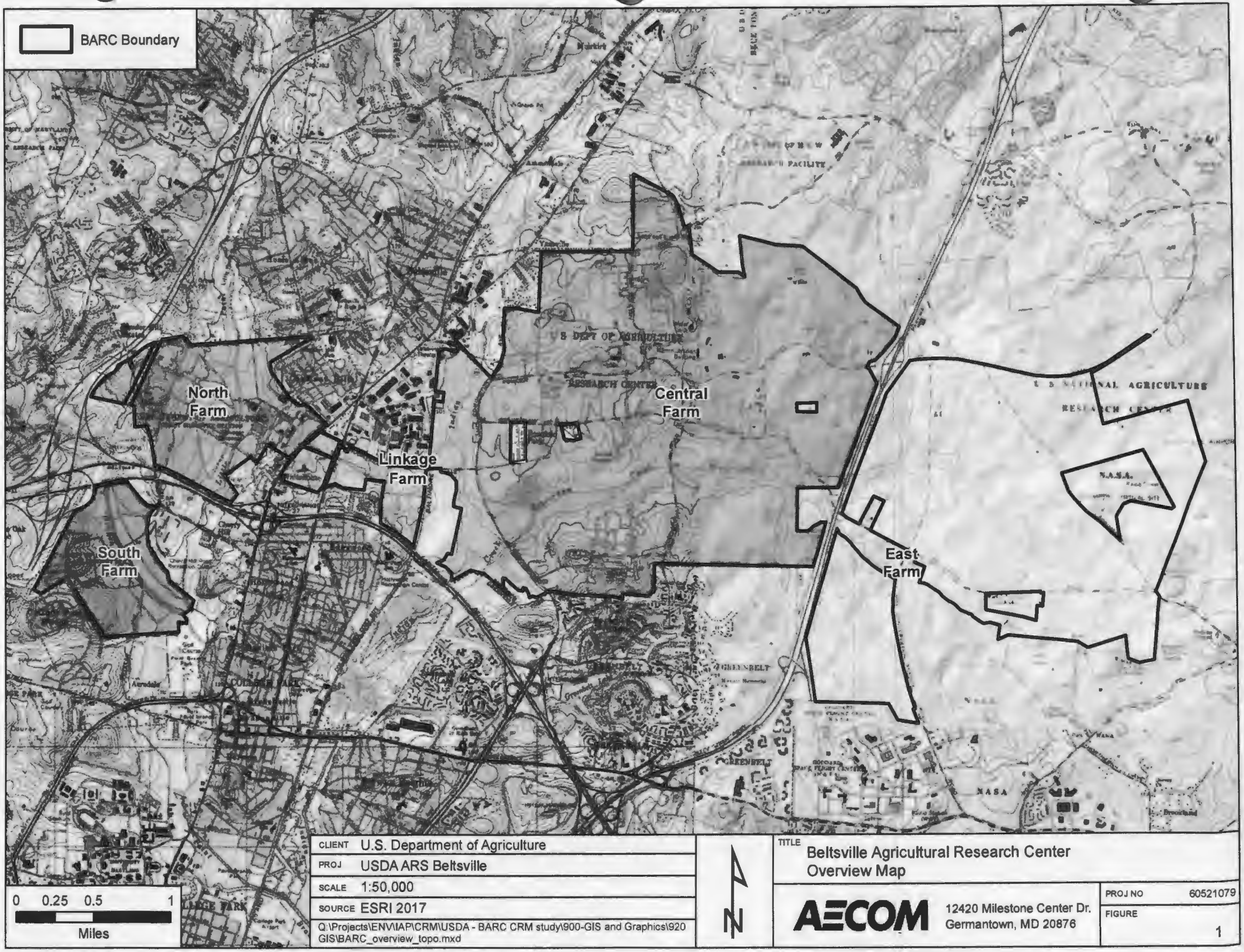
c. 1990 *Beltsville Agricultural Research Center.* Washington, D.C.: United States Department of Agriculture, Agricultural Research Service, Northwestern Region.

2016 History of Research at the U.S. Department of Agriculture and Agricultural Research Service. https://www.ars.usda.gov/oc/timeline/ (accessed December 21, 2016).

n.d. Untitled document. *Bureau of Dairy Industry.* United States Department of Agriculture Library, Special Collection 31.

Wiser, Vivian and Wayne D. Rasmussen
1966 "Background for Plenty: A National Center for Agricultural Research." *Maryland Historical Magazine* 61:4, December 1966.

Yao, Stephanie
2010 "Celebrating 100 Years of Beltsville." *Agricultural Research* 2010 (April): 4-8.



CLIENT U.S. Department of Agriculture

PROJ USDA ARS Beltsville

SCALE 1:50,000

SOURCE ESRI 2017

Q:\Projects\ENV\IAP\CRM\USDA - BARC CRM study\900-GIS and Graphics\920 GIS\BARC_overview_topo.mxd

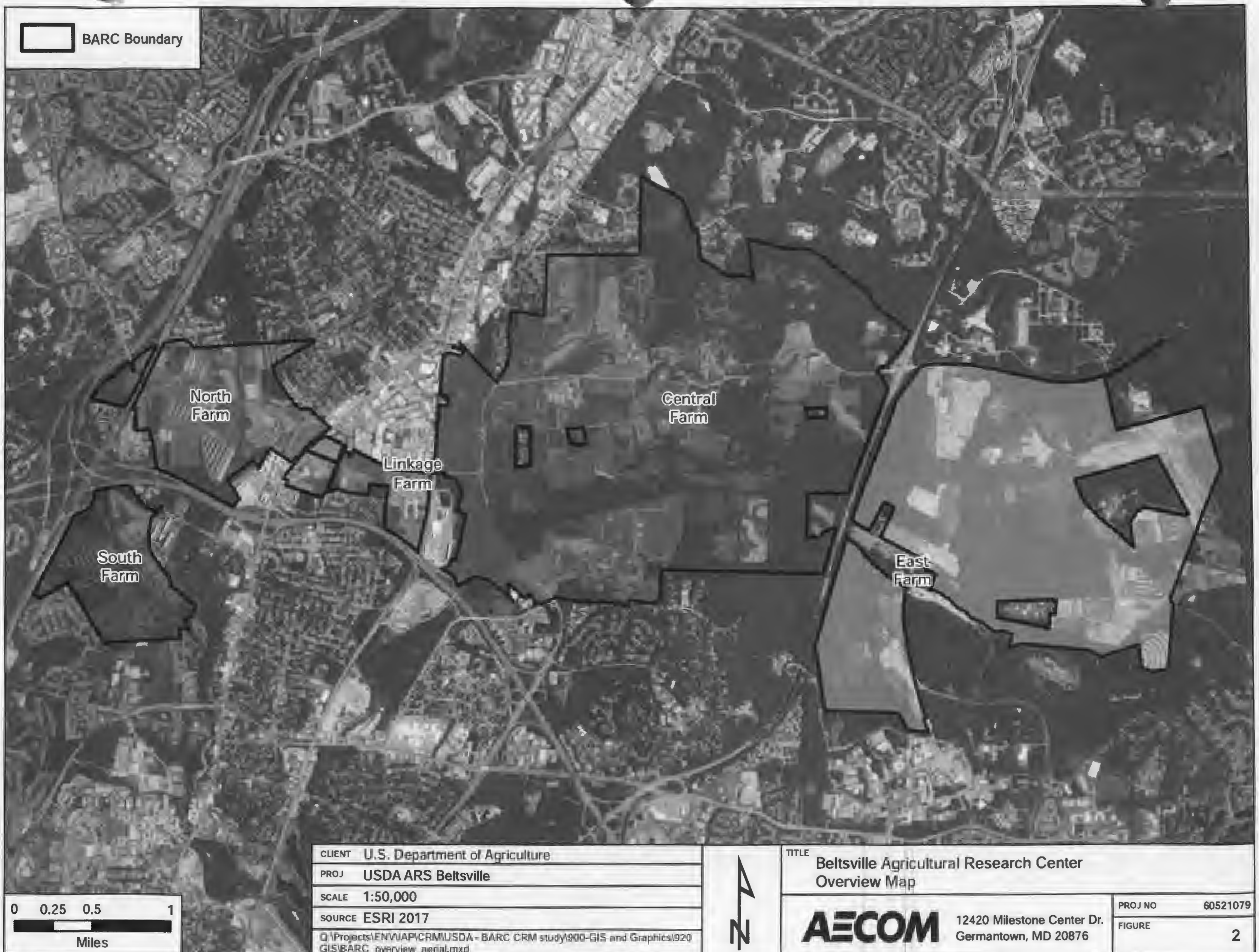
TITLE Beltsville Agricultural Research Center Overview Map

AECOM 12420 Milestone Center Dr. Germantown, MD 20876

PROJ NO 60521079

FIGURE 1

PG:62-14



BARC Boundary
North Farm
Central Farm
Linkage Farm
South Farm
East Farm
0 0.25 0.5 1
Miles
CLIENT U.S. Department of Agriculture
PROJ USDA ARS Beltsville
SCALE 1:50,000
SOURCE ESRI 2017
Q:\Projects\ENV\IAP\CRM\USDA - BARC CRM study\900-GIS and Graphics\920 GIS\BARC_overview_aerial.mxd
N
TITLE Beltsville Agricultural Research Center Overview Map
AECOM
12420 Milestone Center Dr.
Germantown, MD 20876
PROJ NO 60521079
FIGURE 2

PG:62-14

INDIVIDUAL PROPERTY/DISTRICT
MARYLAND HISTORICAL TRUST
INTERNAL NR-ELIGIBILITY REVIEW FORM

Property/District Name: Beltsville Agricultural Research Center Survey Number: PG :62-14

Project: Section 110 Survey Agency: F/USDA

Site visit by MHT Staff: ___ no _X_ yes Name L. Bowlin Date Jan 1997,1998

Eligibility recommended _X_ Eligibility **not** recommended ___

Criteria: _X_A ___B _X_C ___D Considerations: ___A ___B ___C ___D ___E ___F ___G ___None

Justification for decision: (Use continuation sheet if necessary and attach map)

The Beltsville Agricultural Research Center (BARC) is one of the largest agricultural reseach facilities in the United States. Owned by the USDA, the facility was established in Beltsville in 1910 and significantly expanded in the 1930s and 1940s. The current site encompasses 6,582 acres and divided into five entities: South Farm, North ırm, Linkage Farm, Central Farm and the East Farm. The consultant prepared a six volume report highlighting the significance of the USDA property. The documentation clearly supports the site's significance. Under Criteria A, the diversity of the scientific research has influenced many apsects of twentieth century living for the farmer as well as the consumer. The history and developmenjt of the agricultural research facility reflects New Deal policies and programs. Several components of Criteria C are met too. The consistent use of Georgian Revival architecture has created a cohesive built environment which retains a high level of intregrity. Because the mission of the facility has remained constant over the years, the landscape also reflects a high level of integrity. The following two people made significant contributions to the physical appearance of BARC: the planning team of A.D. Taylor, landscape architect and Delos Smith, architect. The Civilian Conservation Corps and the individual research agencies at BARC played important roles in shaping the experimental farm as well. The Trust concurred that the entire BARC facility of 6582 acres was eligible for the National Register.

Documentation on the property/district is presented in: Historic Site Survey BARC, 6 volumes in MHT Library report PR229 SEE COMPLIANCE FILE BARC 110 SURVEY FOR DOE LETTER 10/98

Prepared by: Robinson and Associates

Lauren Bowlin 2/23/00
Reviewer, Office of Preservation Services Date

'R program concurrence: X yes ___ no ___ not applicable

[signature] 2/29/00
Reviewer, NR program Date

Survey No. PG 62-14

MARYLAND COMPREHENSIVE HISTORIC PRESERVATION PLAN DATA - HISTORIC CONTEXT

I. Geographic Region:

____	Eastern Shore	(all Eastern Shore counties, and Cecil)
X	Western Shore	(Anne Arundel, Calvert, Charles, Prince George's and St. Mary's)
____	Piedmont	(Baltimore City, Baltimore, Carroll, Frederick, Harford, Howard, Montgomery)
____	Western Maryland	(Allegany, Garrett and Washington)

II. Chronological/Developmental Periods:

____	Paleo-Indian	10000-7500 B.C.
____	Early Archaic	7500-6000 B.C.
____	Middle Archaic	6000-4000 B.C.
____	Late Archaic	4000-2000 B.C.
____	Early Woodland	2000-500 B.C.
____	Middle Woodland	500 B.C. - A.D. 900
____	Late Woodland/Archaic	A.D. 900-1600
____	Contact and Settlement	A.D. 1570-1750
____	Rural Agrarian Intensification	A.D. 1680-1815
____	Agricultural-Industrial Transition	A.D. 1815-1870
X	Industrial/Urban Dominance	A.D. 1870-1930
X	Modern Period	A.D. 1930-Present
____	Unknown Period (___ prehistoric ___ historic)	

III. Prehistoric Period Themes:

____ Subsistence
____ Settlement

____ Political
____ Demographic
____ Religion
____ Technology
____ Environmental Adaptation

IV. Historic Period Themes:

X Agriculture
X Architecture, Landscape Architecture, and Community Planning
____ Economic (Commercial and Industrial)
X Government/Law
____ Military
____ Religion
____ Social/Educational/Cultural
____ Transportation

V. Resource Type:

Category: buildings
Historic Environment: rural
Historic Function(s) and Use(s): agricultural research facility

Known Design Source: A.D. Taylor landscape architect, Delos Smith, architect among others

Property Address U.S. 1 and Powder Mill Road, Beltsville Vicinity, Prince George's County
Owner Name/Address U.S. Department of Agriculture
Year Built circa 1880 and 1925, 1934, 1936, 1941

Description:

The Beltsville Agricultural Research Center (BARC) was previously surveyed in 1973. A comprehensive survey of the entire Beltsville Agricultural Research Center was completed in June of 1998 for the United States Department of Agriculture, Agricultural Research Center by the firms of Robinson & Associates, Inc. and Rhodeside & Harwell, Inc. As a result of this survey, the Maryland Historical Trust determined in a letter dated October 16, 1998, that the entire 2664 hectare (6582 acre) area of BARC was eligible for the National Register of Historic Places under Criteria A and C. Five buildings or complexes located within the boundaries of the research center fall within the Area of Potential Effect of the proposed project. These specific buildings within BARC will be described in this form. The buildings are located within the areas described as the Linkage Farm and the Central Farm in the 1998 Robinson & Associates and Rhodeside & Harwell survey.

The first four buildings are located within the area known as the Central Farm. The Central Farm consists of an area of 912 hectares (2253 acres), bounded by the Baltimore-Washington Parkway on the east, Edmonston Road on the west, Greenbelt on the south, and the United States Department of Health and Human Services and United States Department of State complex and Muirkirk on the north. The Central Farm encompasses the area which was first purchased by the United States Department of Agriculture (USDA) in 1910. The Central Farm landscape developed as a planned landscape beginning in 1934, when landscape architect A.D. Taylor and architect Delos Smith created a plan for the development of the area. Five major cluster arrangements organize this farm landscape, which contains the largest portion of buildings and individual bureau research activities. The buildings in this form are located within the first cluster area known as the Bureau of Dairy Industry.

The first building is Building 156. It is located on the south side of Powder Mill Road, near its intersection with Edmonston Road. The building is identified as a guard's office on the map located on the BARC property, but it appears to be currently unoccupied. Plans for the building indicate that it was constructed in 1941 as a comfort station. In 1957, the building was used by Park Police and was later occupied by the BARC security force until the unit relocated to Building 186. The building is a 1-story, 5-bay, cross-gable structure. The building has projecting center gable-bays on the front and rear elevation. The structure has a cross-gable roof with slate shingles. It is of fieldstone and frame construction on a raised stone foundation. The windows are double-hung wood sash.

The north, or front elevation is marked with the number 156. It has a central projecting gable-front bay built of stone, flanked by two frame, side-gable wings with weatherboard siding, stone pilasters and arched cornices. The wings were originally porches on either side of the main building. They were enclosed at a later, unknown date. The first story has three entrances. One in the first bay, one in the third bay, and one in the fifth bay. All have 6-light doors. The center door is flanked by two 6/6 double-hung windows. The center-bay gable is sheathed in weatherboards and has a 9-light circular window.

The west elevation has a raised stone foundation. The gable-end of the side wing projects from the center block. There is a 4/4 double-hung window in the first bay, and a 6/6 double-hung window centered on the gable-end wall. The gable-end wall is sheathed in weatherboard with stone corner pilasters. The gable is also covered in weatherboards. The cornice is arched above the window.

The south, or rear elevation has a projecting gable-end stone center bay flanked by two frame side-gable wings. There are two 6/6 double-hung windows in the gable-end, and a 1/1 double-hung window in each of the flanking wings.

The east elevation has a raised stone foundation. The gable-end of the side wing projects from the center block. There is a 6/6 double-hung window centered on the gable-end, and a 4/4 double-hung window on the main block.

Preparer:
P.A.C. Spero & Company
May 1998/revised October 1998

Property Address U.S. 1 and Powder Mill Road, Beltsville Vicinity, Prince George's County
Owner Name/Address U.S. Department of Agriculture
Year Built circa 1880 and 1925, 1934, 1936, 1941

Description: (continued)

The building faces the road, and cultivated fields extend to within a few feet of the rear of the building. There is a small parking area and semi-circular drive located adjacent to the building.

The second building is Building 157, which was built in 1934. It is located at the corner of Powder Mill Road and South Dairy Road. The building is located in the U.S. Dairy Administration complex, and served as an experimental dairy laboratory building, but it is currently unoccupied. The Dairy Products Laboratory was constructed to expand the Bureau of Dairy Industry's research into the area of manufacturing. By 1936, there were more workers involved in manufacturing research than in actual production work at the Bureau of Dairy Industry. Then Chief of the Bureau, Oliver Reed, stated that he believed the manufacturing research yielded a higher economic return to the industry than the work on breeding and actual milk production. The floor plans indicated spaces for office and laboratories, as well as a specific cheddar cheese room, Swiss cheese room, market milk room, and seven curing rooms. It is a 2½-story, 8-bay concrete block building with incised beltcourse and water table detailing. The windows are 16-light metal, with the center-top 4-lights working as a hopper window. The structure has a hipped-roof covered with metal roofing, and there are 2 large vents on the top of the building.

The east, or front elevation faces onto South Dairy Road. It is 4-bays wide. The basement level has two fixed-light windows in the loading dock foundation. There is a 16-light window in the first bay, a loading dock with a concrete foundation and hipped roof. The loading dock has double-doors and a single door in the second and third bays. The fourth bay contains the main entrance, and a set of double-doors reached by a set of concrete steps. There are four 16-light windows on the second story. There are two hipped-roof dormers, each with two 6-light windows.

The south elevation has a 1-story concrete block garage/storage addition. There are three 16-light windows on the first story. The second story has two 16-light windows flanking central double doors. The west elevation has four 8-light windows on the basement level. There are eight 16-light windows on the first floor. The second floor has seven 16-light windows, and a fire-escape door, reached by a set of metal steps.

The north elevation has three 16-light windows on both the first and second stories.

There is a rectangular tower on the east side of the building, with a hipped roof. Building 157 is located next to cultivated fields on the west. There are dairy barns and research facilities to the south of the building. USDA housing is on the other side of South Dairy Road, to the east. A semicircular drive leads from South Diary Road to the loading dock on the east side of the building.

The third building is Building 186, located on the north side of Powder Mill Road and accessed by a driveway located to the west of North Dairy Road. Built circa 1880, Building 186 was altered in 1925 to serve as a residence for the Superintendent of the Beltsville Research Center. During the 1970s, the building served as a visitor's center; the building was used as the headquarters for the BARC police until February 1997. The building currently appears to be unoccupied. It is a 2-story, 3-bay side-gable farmhouse which has been altered. The building is T-shaped in plan, and has a 1-story integral porch on the front elevation. It also has a 1-story porch on the rear, and frame additions on the side. The structure has a cross-gable roof with asphalt shingles and two brick chimneys with corbelled chimney caps. It is of wood-frame construction with stucco over weatherboards, and it has a parged brick foundation. The windows are double-hung wood sash.

The south, or front elevation has a sweeping curved concrete ramp and steps leading up to the front porch. The porch is supported on square concrete pillars with curved brackets. There are paired metal-frame glass doors in the first bay under the porch. There are also two metal-frame 1/1 double-hung windows under the porch on the first story. The second story has a band of six 2/2 double-hung windows and a single 2/2 double-hung window.

Preparer:
P.A.C. Spero & Company
May 1998/revised October 1998

Property Address U.S. 1 and Powder Mill Road, Beltsville Vicinity, Prince George's County
Owner Name/Address U.S. Department of Agriculture
Year Built circa 1880 and 1925, 1934, 1936, 1941

Description: (continued)

The east elevation has been altered by a frame addition and the front porch. There is a door at the basement level on the front wing of the house. The side addition has a 2/2 double-hung window, and there is one 2/2 double-hung window on the enclosed portion of the rear porch. There is a boarded doorway under the rear porch. There is a 1/1 double-hung window located between the first and second story, in the center of the front wing. Two 2/2 double-hung windows are located on the second story of the front wing. The gable has a fixed-light window.

The north elevation has a projecting, centered gable-end wing which extends from the front wing and a rear gable-roof porch which has been partially enclosed with weatherboard. There is a door under the cover of the rear porch and a fixed-light window on the enclosed porch wall. There is a 2/4 double-hung window in the first story of the gable-end, and a 2/2 double-hung window on the front wing. A square-bay window located on the west side of the building is visible from this elevation, and the north side has a 1/1 double-hung window. There are four 2/2 double-hung windows on the second story. There is a fixed-light window in the gable.

The west elevation is composed of the gable-end of the front wing, the side of the rear wing, and the enclosed elevation of the rear porch. The basement level has two window openings. The opening under the front wing has a 2-light fixed window, and the one under the rear wing is boarded. The square bay-window in the gable-end has two 1/1 double-hung windows. There is a 2/4 double-hung window on the rear wing. There is a small 2/2 double-hung window on the wall of the enclosed rear porch. The second story has paired 2/2 double-hung windows and a single 2/2 double-hung window on the gable end. There is a 2/2 double-hung window on the rear wing and a fixed-light window in the gable.

Building 188, a gambrel-roof barn, is located to the northeast of the farmhouse. It is of wood-frame construction with weatherboard siding. The gambrel roof has two metal vents and is covered in diamond-pattern shingles. The barn has double braced doors in the hayloft on the south end, and double-braced doors on the west and east elevations. According to drawings, the barn was built in 1933 as a hay barn.

The fifth complex is located in the area known as the Linkage Farm. The Linkage Farm consists of an area of 186 hectares (460 acres), and connects the North Farm and the Central Farm. The farm is discontiguous and consists of a 125.5 hectare (310 acre) west tract and a 60.7 hectare (150 acre) east tract. The west tract of the Linkage Farm is positioned between U.S. Route 1, Sunnyside Road and I-495. Rhode Island Avenue divides this tract. Mixed-use development occurs along the north side of Linkage Farm, residential along the southeast, Sunnyside Park and the Maryland State Police Barrack Q along the southwest, U.S. Route 1 and BARC North Farm on the west, and the WMATA Greenbelt Metro Station on the east side. The east tract is portioned between Powder Mill Road, the Baltimore and Ohio Railroad, Edmonston Road, and I-495. Sunnyside Road divides this tract. The 60.7 hectare (150 acre) tract was acquired in the 1940 and contains the granary complex. The granary was built in 1936 and expanded in 1939 to support the Dairy Bureau at Central Farm. The complex consists of Buildings 85-90, and serves as a grain elevator/granary. It is located on the south side of Powder Mill Road, adjacent to the CSX (B & O) railroad.

In 1931, mill equipment was purchased by BARC from the Sprout Waldron Company. At the time of the purchase, money was not available for the construction of a building suitable for the installation of the equipment, which was temporarily stored in a barn. Funds were acquired and a building was built in 1936. The building and equipment were to be used for the preparation of grain feed rations for dairy cattle. Shelled corn, oats, and other grains were to be used. The original plan included a receiving hopper on the west side of the building for grain that was delivered in bulk. An elevator would discharge the grain into a receiving separator and from the separator, it would be elevated onto a conveyor in the attic which would discharge into the whole grain storage bins. A return conveyor on the ground floor would return the grain to the same elevator. The elevator could also discharge into check bins over the mill room and from these bins, the grain would go to various mills. The ground feed would be conveyed from the mills to a sacking elevator if it were to be bagged or to a

Property Address U.S. 1 and Powder Mill Road, Beltsville Vicinity, Prince George's County
Owner Name/Address U.S. Department of Agriculture
Year Built circa 1880 and 1925, 1934, 1936, 1941

Description: (continued)

different elevator which would discharge into the ground feed storage bins. Space was provided for four different types of mills, although the initial installation was to include the burr mill and the oat crusher only. A trolley hopper scale provided under the ground feed bins would weigh feeds to be mixed. From the hopper scale, the ground feed went to the second elevator and discharged into the feed mixer. Bagged grain elevated to the mixer would be dumped into a hopper at floor level on the second elevator. All mixed feed would be bagged directly from the feed mixer and hauled to the barns and stables as required.

The main building is a 6-1 common bond brick building on a concrete block foundation with a metal gable roof and 16-light metal-frame windows. The building has multiple loading-dock doors on the east elevation. There is a 2-story, front-gable concrete-block building with clerestory windows attached to the south end of the brick building. Four large silos are attached to the southern end of the concrete block building. A large machine servicing wing is attached to the east elevation of the building.

There is an elevated metal conveyor system on the south end of the complex, leading from the railroad. It is of rolled-metal girder construction on a concrete foundation.

A 1-story brick service building is located to the east of the main building. It has a flat roof and a large central brick chimney. It has 8-light metal frame windows and a door on the south elevation.

A front-gable shed is located to the north of the service building. It has a concrete block foundation and is sheathed in corrugated metal. There is a garage door on the south elevation

National Register Evaluation:

The entire 2664-hectare (6582-acre) Beltsville Agricultural Research Center was determined eligible for the National Register of Historic Places under Criteria A and C by the Maryland Historical Trust in a letter dated October 16, 1998. The BARC is eligible under Criterion A as an important site which reflects the development of a national center for agricultural experimentation and testing. It is the main research facility of the U.S. Department of Agriculture, and is the leading and most diversified agricultural research complex in the world. Government acquisition began in 1910, and grew rapidly with the Depression-era programs of the 1930s and 1940s. Included within the complex are areas for the Beltsville Human Nutrition Research Center, the Livestock and Poultry Science Institute, the Natural Resources Institute, and the Plant Sciences Institute. The diversity of the scientific research conducted at BARC has influenced many aspects of twentieth century living for the farmer as well as the consumer. The history and development of the agricultural research facility reflects New Deal policies and programs. The Beltsville Agricultural Research Center is also eligible under Criterion C. Because the mission of the facility has remained constant over the years, the landscape reflects a strong level of integrity. The physical appearance of BARC was strongly influenced in the 1930s by the planning team of A.D. Taylor, landscape architect, and Delos Smith, architect. The Civilian Conservation Corps and the individual bureaus at BARC played important roles in the shaping of the landscape as well. Contributing elements of the landscape include major paved roads, including Powder Mill Road, minor service roads, field and research crops, pasture lands, seasonal ponds, forests, sustainable meadows, other landscape features, and buildings. The five buildings and complexes surveyed for this project cover a range of building types which represent the various aspects of the center, including a 1941 comfort station (Building 156), a once private residence (Building 186) which was purchased by the USDA and was once used as a visitor's center, a dairy laboratory building (Building 157), and a grain elevator (Buildings 85-90). The five buildings represent the research center tasks of meeting the needs of the public while performing agricultural experiments in the production and processing of crops and animal products, human nutrition, and natural resources.

Preparer:
P.A.C. Spero & Company
May 1998/revised October 1998

Property Address U.S. 1 and Powder Mill Road, Beltsville Vicinity, Prince George's County
Owner Name/Address U.S. Department of Agriculture
Year Built circa 1880 and 1925, 1934, 1936, 1941

Verbal Boundary Description and Justification:

The National Register boundaries of the Beltsville Agricultural Research Center boundaries, as delineated in the previous survey form and approved by MHT, follow the current legal boundaries of the property, which consists of 2664 hectares (6582 acres). The property is bounded on the north by Sellman Road, Sunnyside Avenue, Odell Road, and the Patuxent Wildlife Research Center; on the west by the Patuxent Wildlife Research Center and Telegraph Road, on the south by NASA lands, the town of Greenbelt, and the Washington Beltway; on the east by Cherry Hill Road, I-95, the CSX Railroad (B&O), and Edmonston Road.

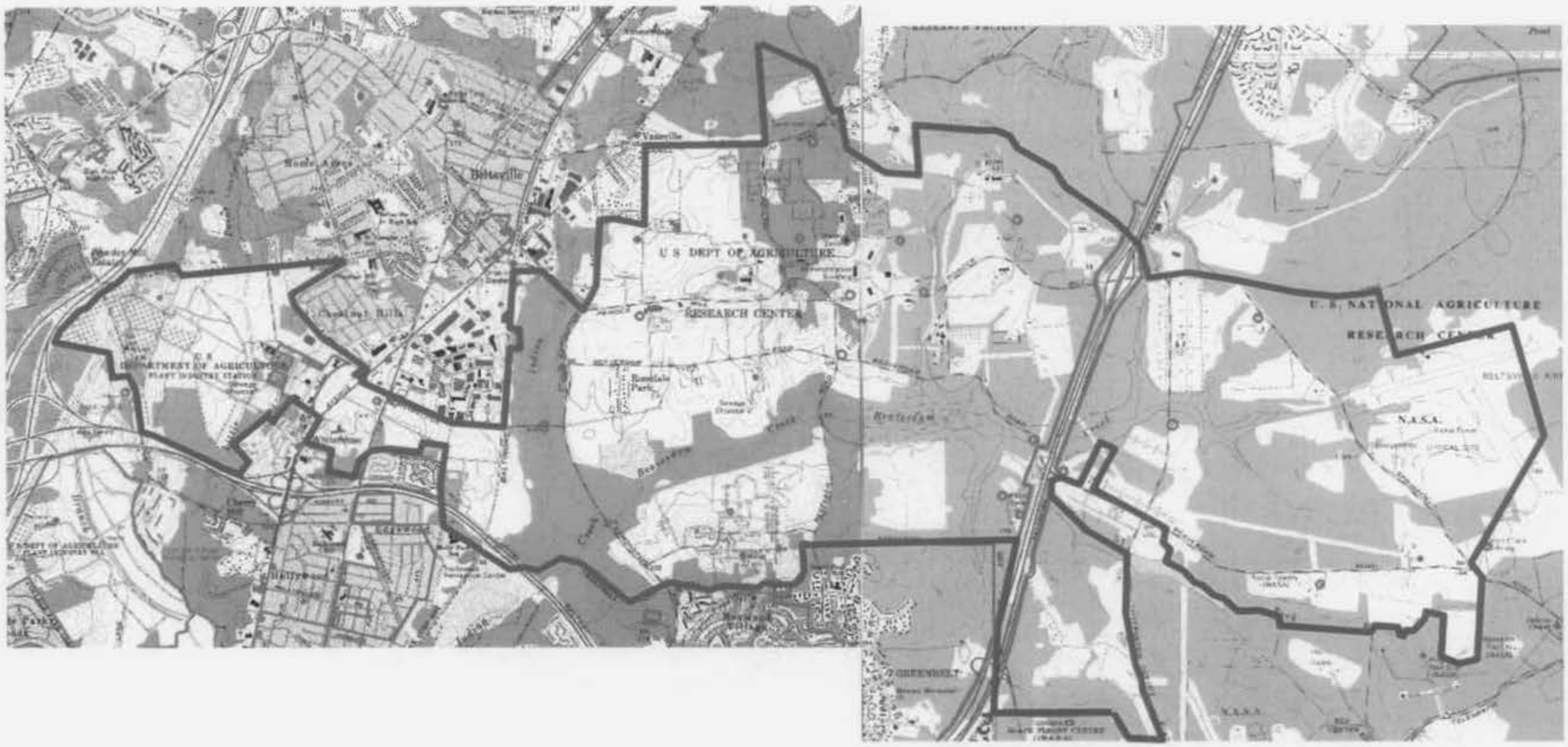
MHT CONCURRENCE:
Eligibility X recommended ____ not recommended
Criteria X A __ B X C __ D **Considerations** __ A __ B __ C __ D __ E __ F __ G __ None
Comments: HOWEVER, I RECOMMEND THAT THE ADDENDUM BE REVISED TO EVALUATE THE [illegible] OTHER LANDSCAPE FEATURES PRIOR TO DEMOLITION

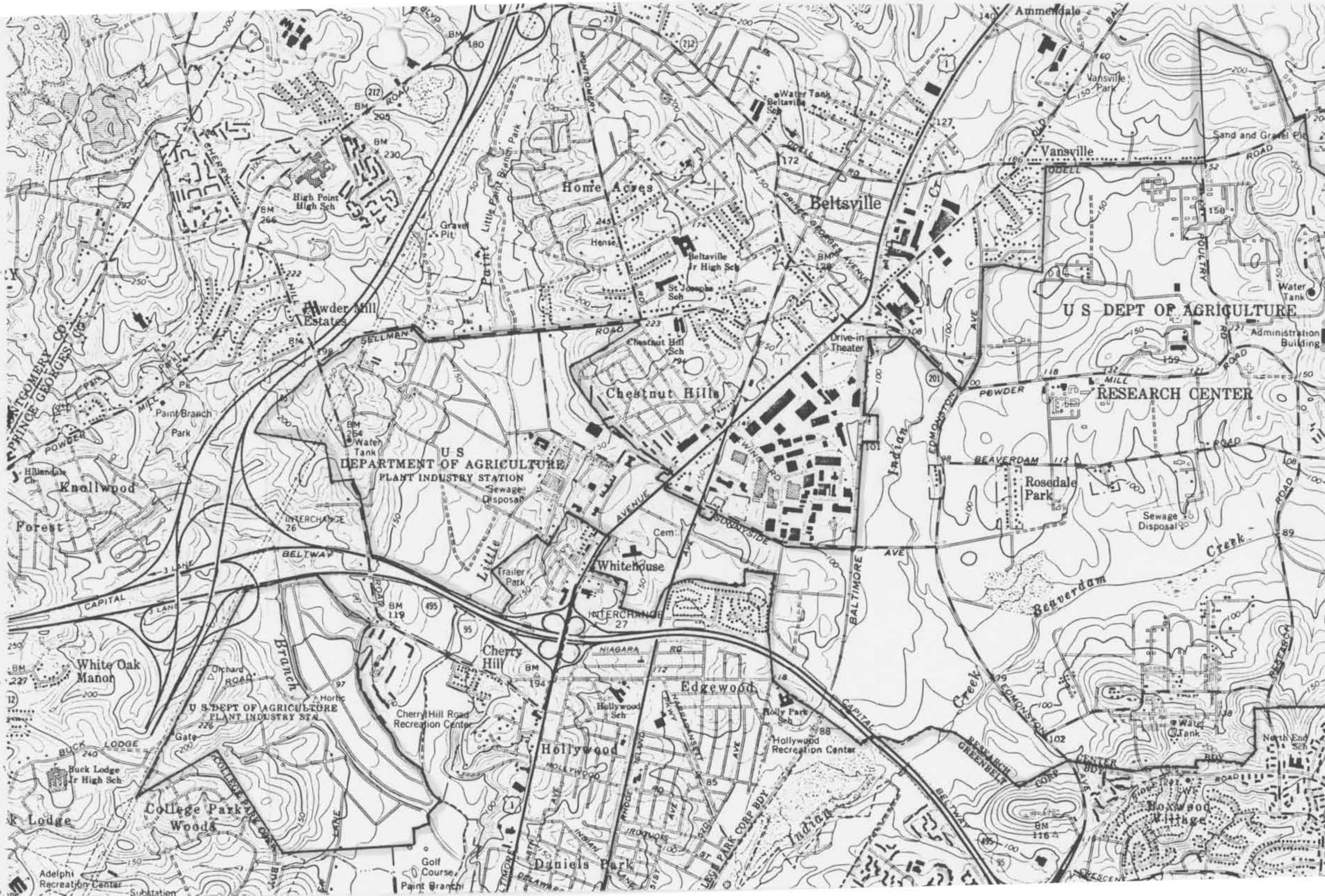
[illegible signature] 1/29/99
Reviewer, Office of Preservation Services Date

[illegible signature] 2/2/99
Reviewer, NR program Date

Preparer:
P.A.C. Spero & Company
May 1998/revised October 1998

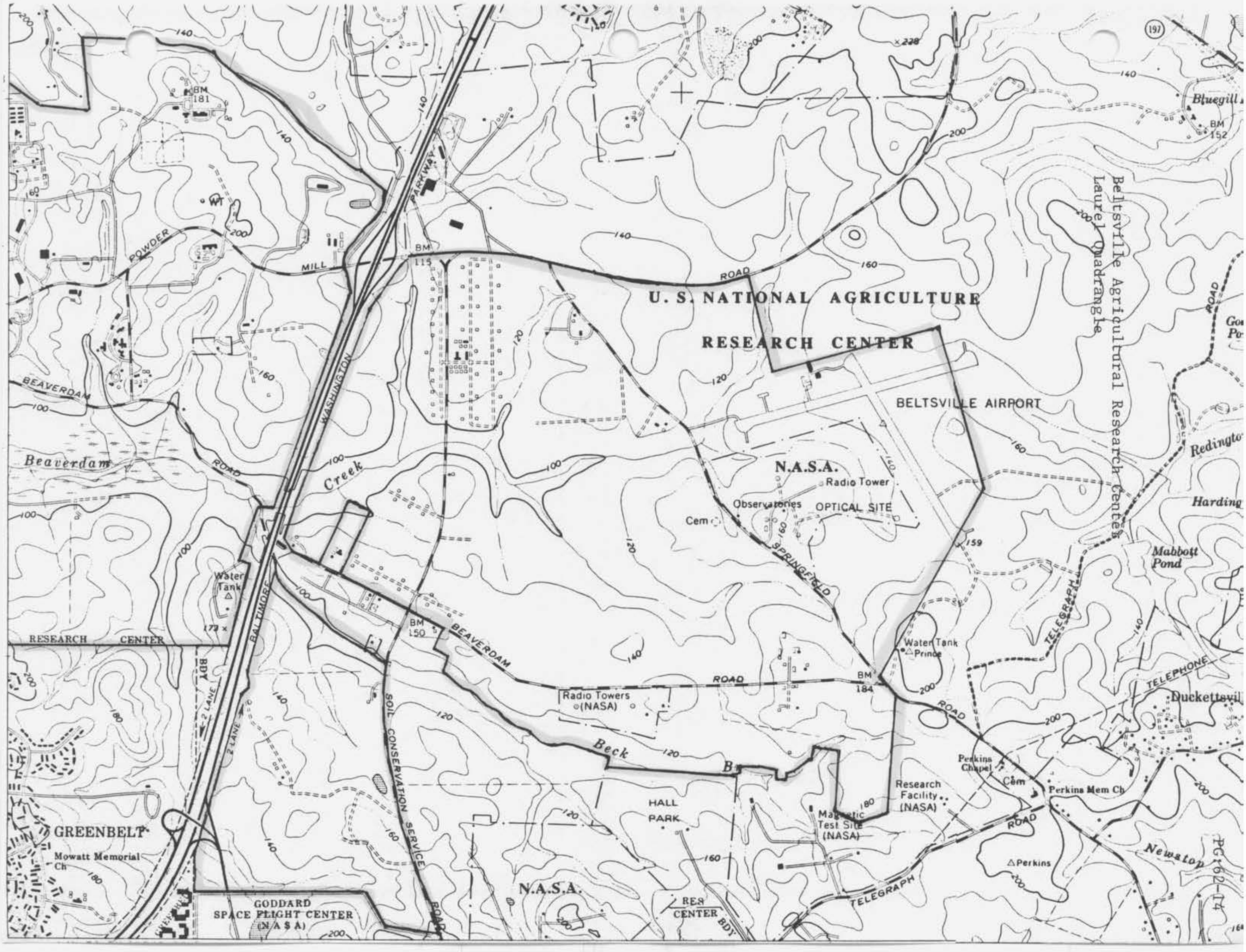
PG:62-14
Beltsville Agricultural Research Center
National Register-eligible Historic District
Beltsville and Laurel Quadrangles





Beltsville Agricultural Research Center
Beltsville Quadrangle

PG:62-14



U. S. NATIONAL AGRICULTURE
RESEARCH CENTER
BELTSVILLE AIRPORT
N.A.S.A.
Radio Tower
Observatories
OPTICAL SITE
Cem
SPRINGFIELD
POWDER
MILL
ROAD
BEAVERDAM
ROAD
Beaverdam
Creek
WASHINGTON
PARKWAY
BALTIMORE
Water Tank
BM 150
BM 115
BM 181
BM 184
BM 152
WT
RESEARCH CENTER
BDY
2 LANE
SOIL CONSERVATION SERVICE
ROAD
Radio Towers (NASA)
Beck
HALL
PARK
Magnetic Test Site (NASA)
Research Facility (NASA)
Water Tank
Prince
TELEGRAPH
TELEPHONE
Perkins Chapel
Cem
Perkins Mem Ch
Perkins
Newstop
Duckettsvil
Mabbott Pond
Harding
Redingto
Bluegill
GREENBELT
Mowatt Memorial Ch
GODDARD
SPACE FLIGHT CENTER
(N A S A)
N.A.S.A.
RES CENTER BDY
Beltsville Agricultural Research Center
Laurel Quadrangle
PG:62-14

PG: #62-14
P.G 36
170036 4729

MARYLAND HISTORICAL TRUST

INVENTORY FORM FOR STATE HISTORIC SITES SURVEY

1 NAME

HISTORIC

AND/OR COMMON

U.S.D.A.-Beltsville Agricultural Center

2 LOCATION

STREET & NUMBER

U.S. Rte. 1 & Powder Mill Rd.

CITY, TOWN

Beltsville

__ VICINITY OF

CONGRESSIONAL DISTRICT

STATE

Maryland

COUNTY

Prince George's

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE	
__DISTRICT	✓PUBLIC	✓OCCUPIED	✓AGRICULTURE	__MUSEUM
__BUILDING(S)	__PRIVATE	__UNOCCUPIED	__COMMERCIAL	__PARK
__STRUCTURE	__BOTH	__WORK IN PROGRESS	__EDUCATIONAL	__PRIVATE RESIDENCE
✓SITE	**PUBLIC ACQUISITION**	**ACCESSIBLE**	__ENTERTAINMENT	__RELIGIOUS
__OBJECT	__IN PROCESS	__YES: RESTRICTED	✓GOVERNMENT	✓SCIENTIFIC
	__BEING CONSIDERED	__YES: UNRESTRICTED	__INDUSTRIAL	__TRANSPORTATION
		__NO	__MILITARY	__OTHER

4 OWNER OF PROPERTY

NAME

United States Dep't. of Agriculture Telephone #:

STREET & NUMBER

CITY, TOWN

__ VICINITY OF

STATE , zip code

5 LOCATION OF LEGAL DESCRIPTION

Liber #:
Folio #:

COURTHOUSE, REGISTRY OF DEEDS, ETC. Prince George's County Courthouse

STREET & NUMBER

CITY, TOWN

Upper Marlboro

STATE

Maryland

6 REPRESENTATION IN EXISTING SURVEYS

TITLE

DATE

__FEDERAL __STATE __COUNTY __LOCAL

DEPOSITORY FOR SURVEY RECORDS

CITY, TOWN

STATE

PG:62-14

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
__EXCELLENT	__DETERIORATED	__UNALTERED	X ORIGINAL SITE
__GOOD	__RUINS	__ALTERED	__MOVED DATE______
__FAIR	__UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

This is a sprawling, 10,400 acre complex of fields, woods, and building complexes. The main administration center, located on Powder Mill Rd., is a series of "Maryland Georgian" style brick buildings, constructed early in this century. There are several older houses and farm complexes, of historic interest, located about the grounds. (See separate forms for each of these historic sites.)

CONTINUE ON SEPARATE SHEET IF NECESSARY

PG:62-14

SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW			
__PREHISTORIC	__ARCHEOLOGY-PREHISTORIC	__COMMUNITY PLANNING	__LANDSCAPE ARCHITECTURE	__RELIGION
__1400-1499	__ARCHEOLOGY-HISTORIC	__CONSERVATION	__LAW	__SCIENCE
__1500-1599	__AGRICULTURE	__ECONOMICS	__LITERATURE	__SCULPTURE
__1600-1699	__ARCHITECTURE	__EDUCATION	__MILITARY	__SOCIAL/HUMANITARIAN
__1700-1799	__ART	__ENGINEERING	__MUSIC	__THEATER
__1800-1899	__COMMERCE	__EXPLORATION/SETTLEMENT	__PHILOSOPHY	__TRANSPORTATION
✓1900-	__COMMUNICATIONS	__INDUSTRY	__POLITICS/GOVERNMENT	__OTHER (SPECIFY)
		__INVENTION		

SPECIFIC DATES BUILDER/ARCHITECT

STATEMENT OF SIGNIFICANCE

This is the world's major agricultural proving ground and study area. Government acquisition began with the purchase of 475 acres in 1910. During the 1930's and '40's, a series of steps (many prompted by Depression-era programs) resulted in the concentration of the USDA experimental facilities here. It is especially interesting to note that much of the initial interest in the formation of such a facility dates back to the 1850's, with the efforts of two of Mont. & P.G. Counties most famous statesmen/farmers-Francis P. Blair of "Silver Spring" and Charles B. Calvert of "Riversdale".

CONTINUE ON SEPARATE SHEET IF NECESSARY

PG:62-14

9 MAJOR BIBLIOGRAPHICAL REFERENCES

1) Wiser, Vivian & Rasmussen, Wayne D. "Background for Plenty" MD. HISTORICAL MAGAZINE, Dec., 1966.

CONTINUE ON SEPARATE SHEET IF NECESSARY

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY

VERBAL BOUNDARY DESCRIPTION

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	COUNTY
STATE	COUNTY

11 FORM PREPARED BY

NAME / TITLE
Michael F. Dwyer, Senior Park Historian

ORGANIZATION	DATE
M-NCPPC	1/25/73
STREET & NUMBER	TELEPHONE
8787 Georgia Ave.	589-1480
CITY OR TOWN	STATE
Silver Spring	Maryland

The Maryland Historic Sites Inventory was officially created by an Act of the Maryland Legislature, to be found in the Annotated Code of Maryland, Article 41, Section 181 KA, 1974 Supplement.

The Survey and Inventory are being prepared for information and record purposes only and do not constitute any infringement of individual property rights.

RETURN TO: Maryland Historical Trust
The Shaw House, 21 State Circle
Annapolis, Maryland 21401
(301) 267-1438

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
GENERAL SERVICES DIVISION
HYATTSVILLE, MARYLAND 20782

PG:62-14

APR 2 1975

Mr. Tyler Bastian
Maryland Geological Survey
Latrobe Hall
The Johns Hopkins University
Baltimore, Maryland 21218

Dear Mr. Bastian:

Please refer to your letter of February 20, 1975, to Mr. Zane G. Smith, U.S. Department of Agriculture, Forest Service, and his undated letter of reply, relative to prehistoric Indian sites at the Beltsville Agricultural Research Center.

We, too, are concerned with the preservation of archeological resources on the Research Center and have been alert to the occasional find of arrowheads. We are, however, not aware of any significant findings on sites.

We will appreciate receiving any specific information you may have, relative to abundant prehistoric Indian archeological sites at the Center, so that we may further explore these locations.

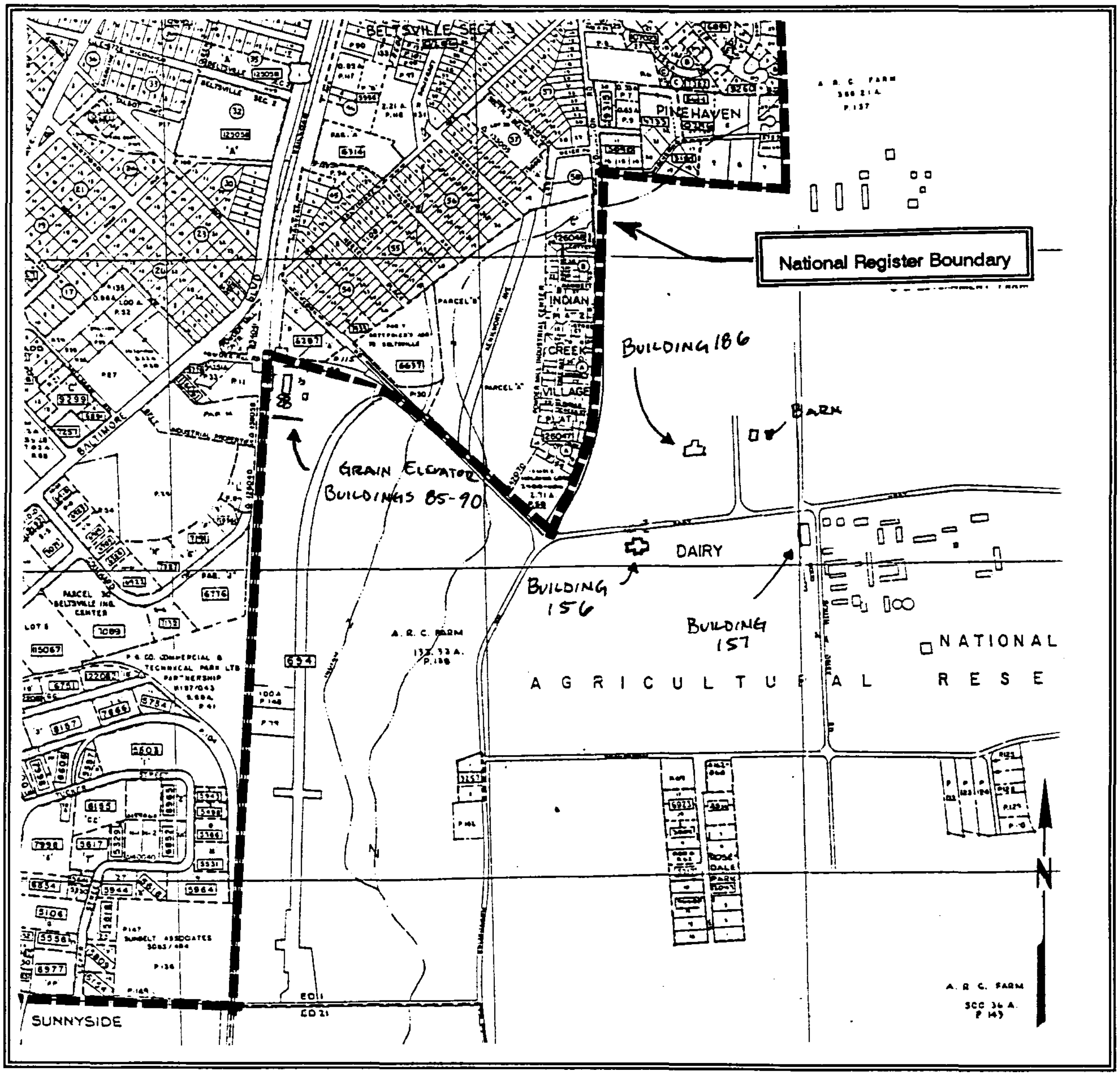
Sincerely,

Ralson R. Rhodes
Director

cc:
A. C. Townsend, Dir., Md. Historical Trust, Annapolis

Property Address U.S. 1 and Powder Mill Road, Beltsville Vicinity, Prince George's County
Owner Name/Address U.S. Department of Agriculture
Year Built circa 1880, circa 1930, circa 1940

Resource Sketch Map and National Register Boundary Map:



Preparer:
P.A.C. Spero & Company
May 1998

PG: 62-14

Beltsville Agricultural Research Center (BARC)
Beltsville, Prince George's County, Maryland

SEE HISTORIC AMERICAN BUILDINGS SURVEY (HABS) FOR ADDITIONAL INFORMATION.


156

1 PG:60-11

2 BARC Bldg 156-quarantine [illegible]

3 Prince Georges Co MD

4 Susan Taylor

5 7/98

6 MD SHPO

7 NW Corner

8 2 of 25


156

1 PG:62-14
2 BARC Bldg 156
3 Prince Georges Co MD
4 Susan Taylor
5 2/01
6 MD SHPO
7 N elevation
8 1 of 55

1 PG:62-18
2 BARC Bldg. 156 [illegible]
3 Prince Georges Co. MD
4 Susan Taylor
5 5/98
6 MD SHPO
7 [illegible] elevation
8 2 of 5

1 PG:63-111

2 BARC Bldg 156 - guard office

3 Prince Georges Co. MD

4 Susan Taylor

5 6/98

6 MD SHPO

7 See corner [illegible]

8 4 of 25

1 PG 62 14

2 BARC Bldg 156 - Guard office

3 Prince Georges Co, MD

4 Susan Taylor

5 5/98

6 MD SHPO

7 SE corner

8 6 of 35

1 PG: 62-14

2 BARC Bldg-156 - ground floor

3 Prince Georges Co. MD

4 Susan Taylor

5 3/98

6 MD SHPO

7. S elevation

8. 5 of 35

1 PG:62-14

2 BARC Bldg 156 - guard office

3 Prince Georges Co. MD

4 Susan Taylor

5 5/98

6 MD SHPO

7 E elevation

8 7 of 35

1 PG:62-14
2 BARC Bldg 156 guard office
3 Prince George's Co. MD
4 Susan Taylor
5 6/98
6 MD SHPO
7 NE corner
8 8 of 35

1 PG:62-14

2 BARC Bldg. 157: USDA Dairy

3 Prince George's Co. MD

4 Susan Taylor

5 5/98

6 MD SHPO

7 West elevation

8 9 of 35

1 PG:62-14

2 BARC Bldg 15?-USDA BA[illegible]

3 [illegible] Bs MD

4 Su[illegible] Taylor

5 5/98

6 MD SHPO

7 SW Corner

8 10 of 35


3

1 PG:62-14

2 BARC Bldg 154 - USDA Dairy

3 Prince Georges Co., MD

4 Susan Taylor

5 5/98

6 MD SHPO

7 S elevation

8 11 of 35

1 PG:62-14

2 BARC Bldg 157 - USDA Dairy

3 Prince Georges Co MD

4 Susan Taylor

5 5/98

6 MD SHPO

7 SE corner

8 12 of 35

1 PG:62-14

2 BARC Bldg. 5?1 USDA Dairy

3 Prince Georges Co MD

4 Susan Taylor

5 5/95

6 MD SHPO

7 E elevation

8 13 of 35

1 PG 62-1d

2 BARC Bldg 157 - USDA DAIRY

3. Prince Georges Co MD

4 Susan Taylor

5 5/98

6 MD SHPO

7 NE corner

8 14 of 35

1 PG:62-14

2 BARC Bldg 157

3 Prince Georges Co, Md

4 Susan Taylor

5 5/78

6 MD SHPO

7 NE Corner

8 1 of 35

1 PG: 62-14

2 BARC Bldg

3 Prince Georges Co. Md.

4 Susan Taylor

5 5/77

6 MD SHPO

7 N elevation

8 14 of 35


186

1 PG: 62-4

2 BARC

3 Pierce George A. old

4 [illegible]

5 5/78

6 MD [illegible]

7 S Elevation

8 18 of 35


BUILDING NUMBER
157

1 Pt 62-14
2 Baker Bldg [illegible]
3 Pioneer Glessner Co [illegible]
4 Susan Taylor
5 5/99
6 [illegible]
7 [illegible]
8 17 - 25

[illegible]

1 Poeo rd

2 Brase Heights

3 Prince George Co Md.

4 Susan Saylor

5 5/57

6 NE SMRA

7 Elevation

8 80' 35


186

1 1 = [illegible]

2 BAE [illegible] 186

3 [illegible] 3 [illegible]

4 [illegible]

5 [illegible]

6 [illegible] 5 [illegible]

7 500 [illegible]

8 19 [illegible]

[illegible] 1220 [illegible]


Coca-Cola
Coke

1 [illegible]

2 [illegible]

3 Prince Georges Co, MD

4 Susan Taylor

5 5/91

6 MD 213

7 NE corner house

8 21 [illegible]


Coke

1 PG: [illegible]

2 Brick Bridge [illegible] Ctr

3 Prince George's Co. Md

4 Susan Taylor

5 5/97

6 MD SHPO

7 N elevation

8 22 of 35

1 PG:62-14

2 BPRC Bldg-186

3 Prince George Co Md

4 Susan Taylor

5 5/98

6 Md SHPO

7 NW Corner

8 23 of 35

1 PG:67-14

2 BARC Bldg 186

3 Prince George's Co, Md

4 Susan Taylor

5 5/98

6 Md SHPO

7 W elevation

8 24 of 35


186

1 PG: 60 [illegible]

2 FARC B [illegible]. 186

3 Prince Georges Co, Md

4 Susan Taylor

5 [illegible]/98

6 MD 5/1998

7 SW Corner

8 25 of 35

1 PG:62-12
2 BARC Bldg. 186
3 Prince Georges Co, MD
4 Susan Taylor
5 5/98
6 MD SHPO
7 Gambrel roof barn, SW corner
8 26 of 35

1 PG 82-141

2 [illegible] Bldg. [illegible]

3 Prince Georges Co, Md

4 Susan Taylor

5 5/98

6 MD SHPO

7 W elevation, Barn

8 27 of 56

1 PG: 62 H

2 BARC

3 Prince George Co. Md

4 Susan Taylor

5 5/96

6 Md SHPO

7 S elevation

8 28 OF 35

1 PG:62-14

2 BARC

3 Prince George's Co Md

4 Susan Taylor

5 5/98

6 Md SHPO

7 [illegible] grain elevator

8 29 OF 35

[illegible]

1 PG:62:14

2 EAKC

3 Prince Georges Co, Md

4 Susan Taylor

5 5/78

6 Md SHPO

7 E elevation

8 30 or 35

1 PG·62 1st

2 BARC

3 Prince George Co, Md

4 Swan - Saylor

5 5/08

6 Md DHPC

7 E elevation, service

8 31 or 35

1 PG: 62-14

2 BARC

3 Prince Georges Co Md

4 Susan Taylor

5 5 98

6 Md SHPO

7 Service bldg

8 32 OF 35

1 PG 62-14
2 BARC
3 Prince George Co, Md
4 Susan Taylor
5 5/97
6 Md SHPO
7 Conveyor
8 33 of 35

1 PG:62-14

2 BHVC

3 Prince Georges Co MD

4 Susan Taylor

5 5/97

6 Md SHPO

7 S elevation, Shed

8 34 of 35

21 N N N 1230 868

1 PG:62-1

2 BARC

3 Prince Georges Co, Md

4 Susan Singler

5 5/98

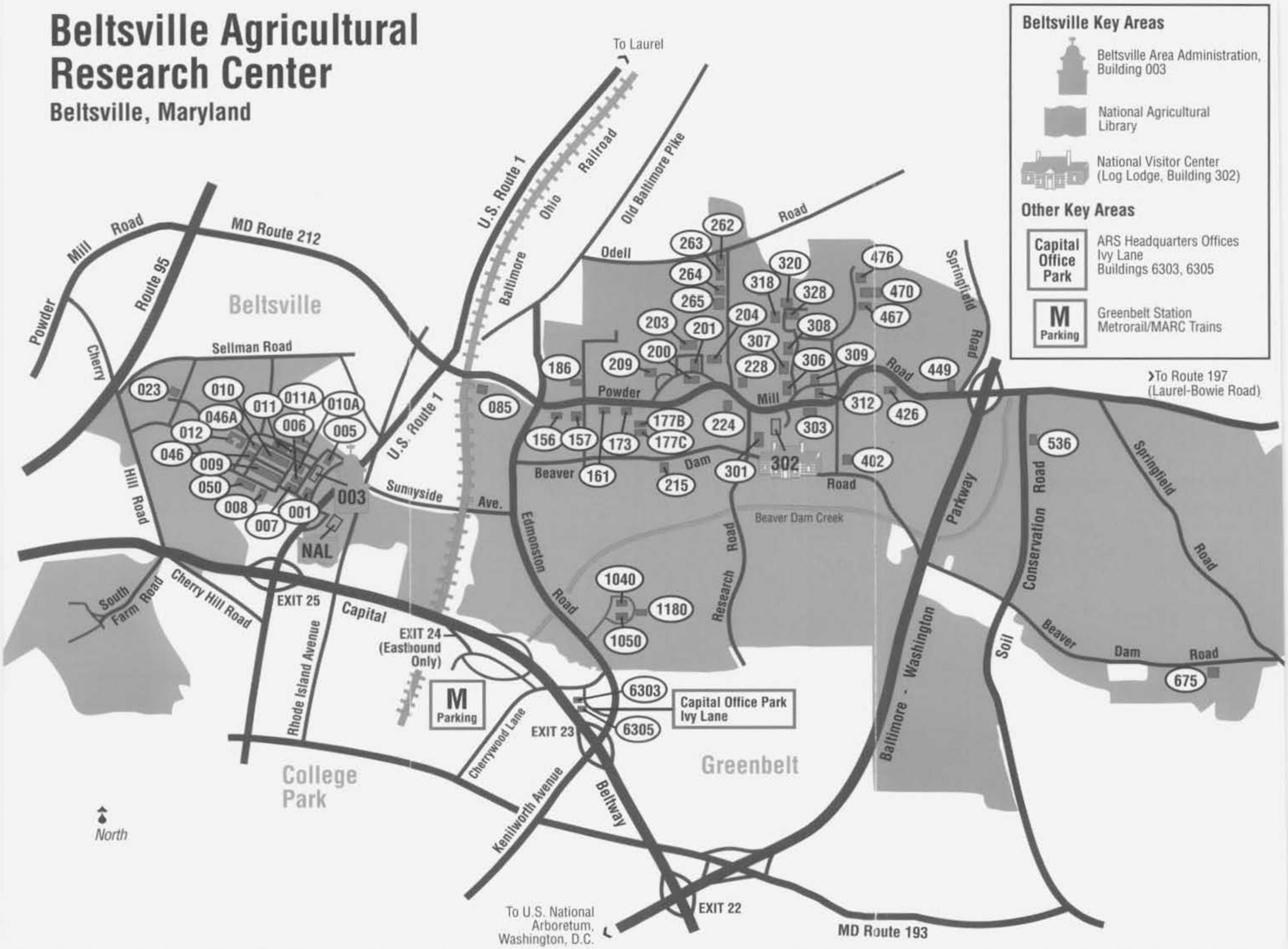
6 Md. SHPO

7 Site View

8 35 OF 35

Beltsville Agricultural Research Center

Beltsville, Maryland



Area Map

Beltsville Agricultural Research Center

Beltsville Key Areas

Building 003
Beltsville Area Administration

National Agricultural Library
Hours: 8 a.m.-4:30 p.m.
Mon.-Fri., closed Sat. & Sun.,
and Federal holidays;
Stacks close at 4 p.m.

ARS National Visitor Center
Building 302
Hours: 8 a.m.-4:30 p.m.,
Mon.-Fri., closed Sat. & Sun.,
and Federal holidays.
Tours by appointment:
(301) 504-8483 or (301) 504-9403

U.S. Department of Agriculture
Agricultural Research Service
February 1994

West of Route 1

Building 003
Beltsville Area Director
Auditorium
Conference Room 020
Cafeteria
First Aid - Nurse, Room 12
(301) 504-7024

Building 005
National Program Staff
Conference Room 21

Building 007
Conference Room 006

Building 010A (Plant Science)
Conference Room

Building 011A (Bioscience)
Conference Room 119

East of Edmonston Road

Research
Dairy/Livestock
Poultry
Entomology
Parasitology
Human Nutrition

Operations
Facilities Engineering, Building 426
Farm Operations, Building 301
Research Animal Services, Building 177C

Building 186 - Security
Phone (301) 504-9107
In Emergency (301) 919-9546
or (301) 919-9547

Building 307
First Aid - Nurse, Room 124
(301) 504-8073
Conference Room 112

Building 1050
Conference House

Other Key Areas

Metrorail/MARC
Greenbelt Station
Cherrywood Lane

Capital Office Park, Ivy Lane
Agricultural Research Service
Headquarters Offices
Administrative Management,
Buildings 6303, 6305
Information Staff, Building 6303

U.S. National Arboretum
3501 New York Avenue, N.E.
Washington, D.C. 20002
(202) 475-4815
Hours: Mon.-Fri. 8 a.m. to 5 p.m.
Sat. & Sun. 10 a.m. to 5 p.m.
Directions from BARC:
Baltimore-Washington Parkway
south to New York Avenue.
Left at light onto Bladensburg
Road. Left onto R Street;
Follow to the end to
Arboretum gates.

THIS PAGE INTENTIONALLY LEFT BLANK

MARYLAND HISTORICAL TRUST
NR-ELIGIBILITY REVIEW FORM

Property Name: North Farm, BARC Inventory Number: PG: 61-20

Address:

Owner:

Tax Parcel Number: Tax Map Number:

Project Section 110 Identification and Evaluatio Agency State Highway Administration (SHA)

Site visit by SHA Staff: _ no X yes Name: L. Bowlin Date: 1/9/95

Eligibility recommended X Eligibility **not** recommended _

Criteria X A __B X C __D Considerations: __A __B __C __D __E __F __G X None

Is property located within a historic district?: X no _ yes Name of District:

Is district listed?: X no _ yes

Description of Property and Eligibility Determination *(Use continuation sheet if necessary and attach map and photo)*

The North Farm Historic District at the Beltsville Agricultural Research Center (BARC) is composed of 21 acres which represent some of the earliest development of this federal facility. Formally known as the US Horticultural Station at Beltsville, the North Farm was acquired by the Bureau of Plant Industry/ US Department of Agriculture (USDA) in 1932 to relocate the agency's experimental plant research facility from Arlington, VA. The North Farm became the primary national research facility of the Bureau. Scientists and administrators in the Bureau were responsible for many important discoveries in the field of plant research, including work in the area of improving fruit, horticultural and forage crops. The historic district is composed of 10 contributing resources. Architecturally, the district forms a very cohesive grouping of Georgian Revival buildings. The main laboratories, administration buildings and the greenhouses all reflect this style of architecture. Common materials such as brick, slate roofs, and stone accents are utilized in the institutional buildings. Buildings 001-007 and 009-011 have been determined as contributing resources. These buildings were part of the completed scope of work; other buildings constructed during the period of significance 1933-45 exist but have not been surveyed (1995).

Prepared by

MARYLAND HISTORICAL TRUST REVIEW
Eligibility recommended X **Eligibility not recommended** _
Criteria: X **A** _ **B** X **C** _ **D** **Consideration** _ **A** _ **B** _ **C** _ **D** _ **E** _ **F** _ **G** _ **None**

Reviewer, Office of Preservation Services 1/24/98 **Date**

Reviewer, NR Program 11/1/99 **Date**

Inventory No. PG: 61-20

PRESERVATION VISION 2000; THE MARYLAND PLAN
STATEWIDE HISTORIC CONTEXTS

I. Geographic Region:

___	Eastern Shore	(all Eastern Shore counties, and Cecil)
X	Western Shore	(Anne Arundel, Calvert, Charles, Prince George's and St. Mary's)
___	Piedmont	(Baltimore City, Baltimore, Carroll, Frederick, Harford, Howard, Montgomery)
___	Western Maryland	(Allegany, Garrett and Washington)

II. Chronological/Developmental Periods:

___	Rural Agrarian Intensification	A.D. 1680-1815
___	Agricultural-Industrial Transition	A.D. 1815-1870
X	Industrial/Urban Dominance	A.D. 1870-1930
___	Modern Period	A.D. 1930- Present
___	Unknown Prehistoric	
___	Unknown Historic	

IV. Historic Period Themes:

- X Agriculture
- X Architecture, Landscape Architecture, and Community Planning
- ___ Economic (Commercial and Industrial)
- ___ Government/Law
- ___ Military
- ___ Religion
- ___ Social Educational/Cultural
- ___ Transportation

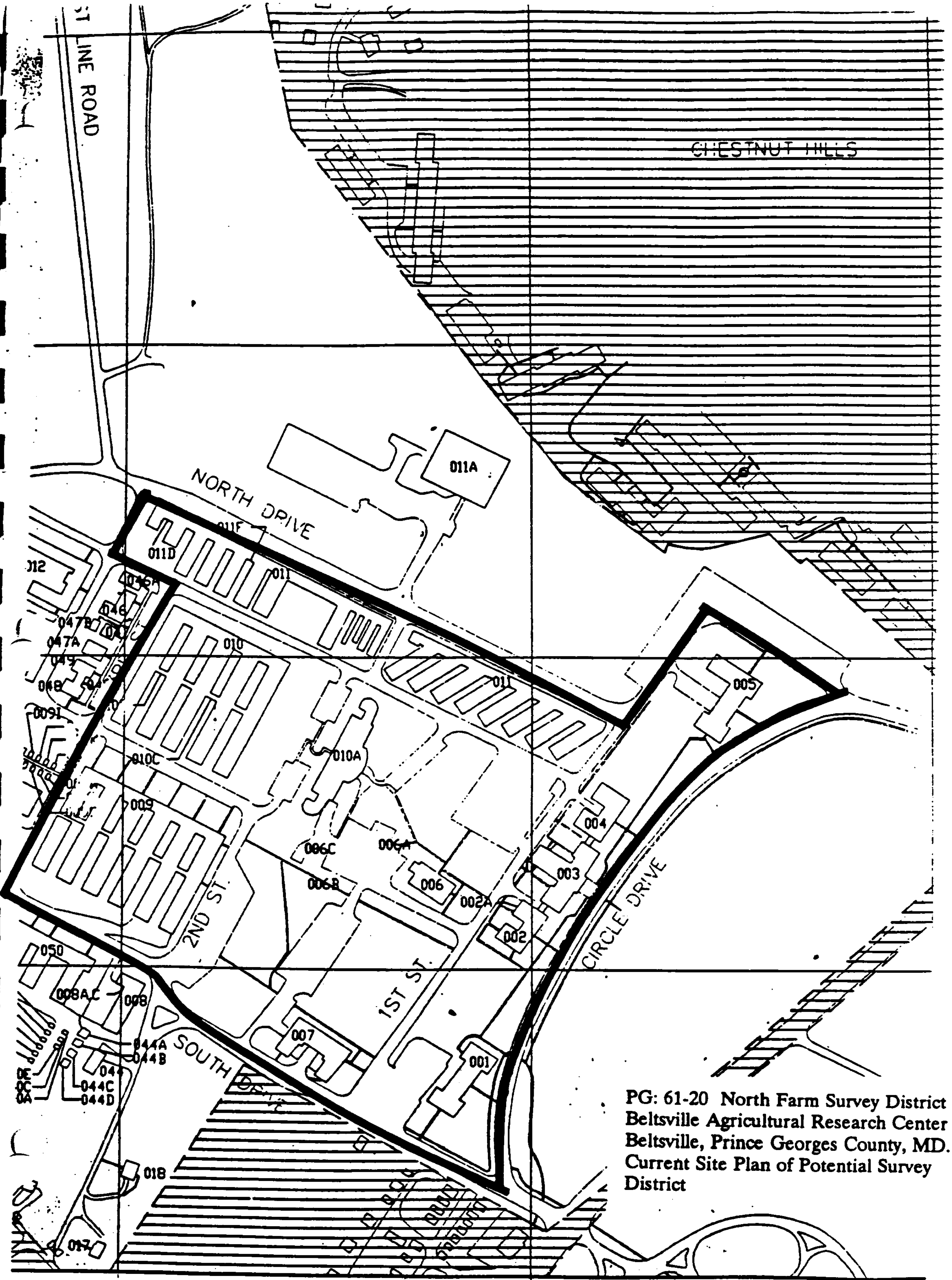
V. Resource Type:

Category: District

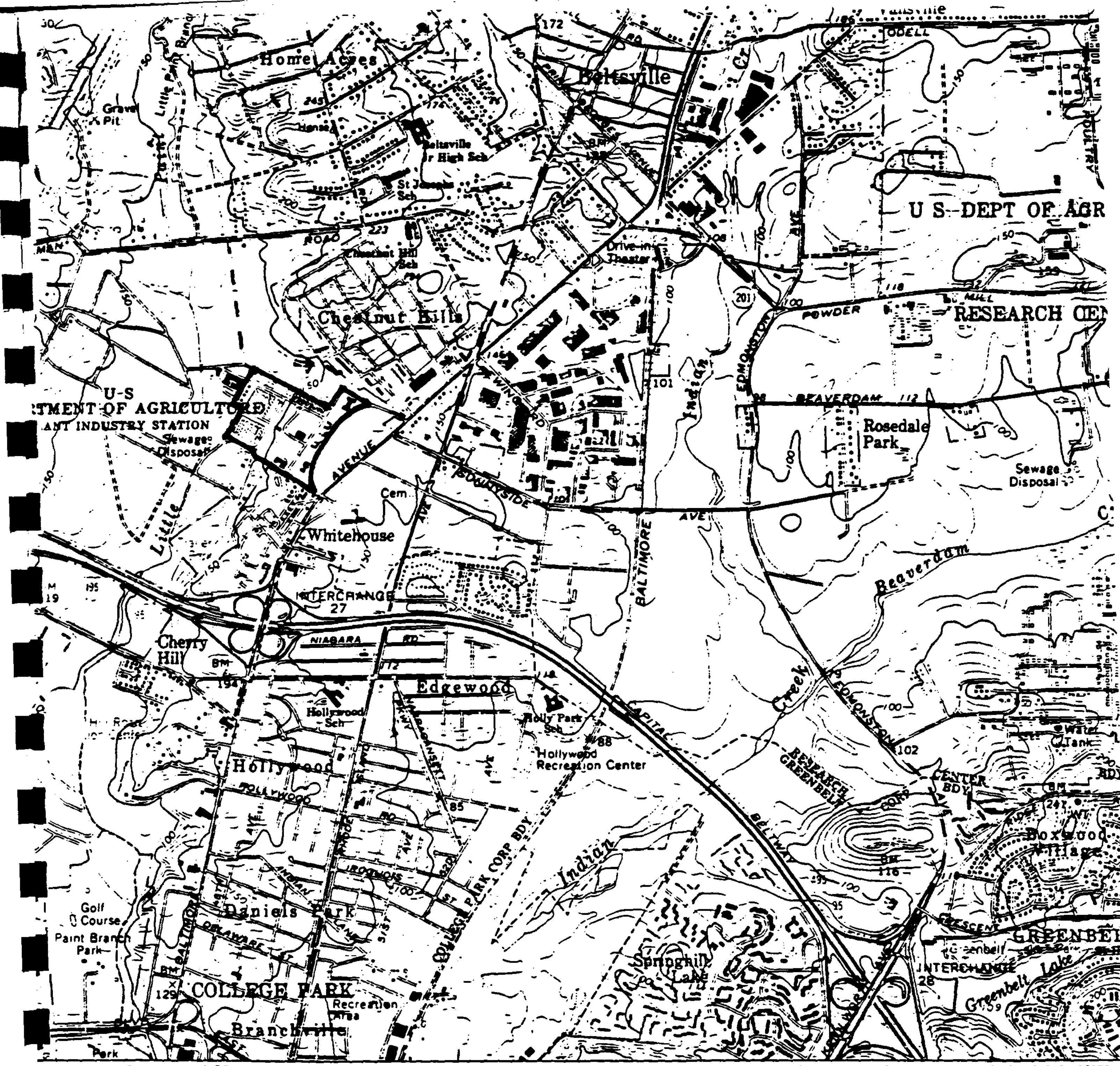
Historic environment: Rural

Historic Function(s) and Use(s): Government, Education/research facility

Known Design Source: none



PG: 61-20 North Farm Survey District
Beltsville Agricultural Research Center
Beltsville, Prince Georges County, MD.
Current Site Plan of Potential Survey District



NGTON EAST)
IV NW

55'

INTERIOR—GEOLOGICAL SURVEY RESTON

1:24 000

0 1 MILE

3000 4000 5000 6000 7000 FEET

0 1 KILOMETER

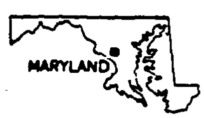
ROAD CLASSIFICATIC

Heavy-duty — Light-dut

Medium-duty — Unimpro

Interstate Route — U. S. Route

NTERVAL 10 FEET
VERTICAL DATUM OF 1929



QUADRANGLE LOCATION

ONAL MAP ACCURACY STANDARDS
GEOLOGICAL SURVEY
5, OR RESTON, VIRGINIA 22092
PS AND SYMBOLS IS AVAILABLE ON REQUEST

PG: 61-20 North Farm Survey Distric
Beltsville Agricultural Research Cente
Beltsville, Prince Georges County, MI
USGS Map Beltsville Quadrangle
1964, Photorevised, 1979

INDIVIDUAL PROPERTY/DISTRICT
MARYLAND HISTORICAL TRUST
INTERNAL NR-ELIGIBILITY REVIEW FORM

Property/District Name: North Farm, BARC Survey Number: PG:61-20

Project: Section 110 Identification & Evaluation Agency: F/USDA

Site visit by MHT Staff: ___ no X yes Name L.Bowlin Date 1/9/95

Eligibility recommended X Eligibility **not** recommended ___

Criteria: X A ___B X C ___D Considerations: ___A ___B ___C ___D ___E ___F ___G ___None

Justification for decision: (Use continuation sheet if necessary and attach map)

The North Farm Historic District at the Beltsville Agricultural Research Center (BARC) is composed of 21 acres which represent some of the earliest development of this federal facility. Formerly known as the U.S. Horticultural Station at Beltsville, the North Farm was acquired by the Bureau of Plant Industry/U.S. Department of Agriculture (USDA) in 1932 to relocate the agency's experimental plant research facility from Arlington, VA. The North Farm became the primary national research facility of the Bureau. Scientists and administrators in the Bureau were responsible for many important discoveries in the field of plant research, including work in the area of improving fruit, horticultural and forage crops. The historic district is composed of 10 contributing resources. Architecturally, the district forms a very cohesive grouping of Georgian Revival buildings. The main laboratories, administration buildings and the greenhouses all reflect this style of architecture. Common materials such as brick, slate roofs, stone accents are utilized in the institutional buildings. Buildings 001-007 and 009-011 have been determined as contributing resources. These buildings were part of the completed scope of work; other buildings constructed during the period of significance 1933-45 exist but have not been surveyed (1995).

N.B. Building 8 was constructed in 1950 and is currently outside the existing boundaries.

Documentation on the property/district is presented in: Maryland Inventory Form PG:61-20 Cultural Resources Report Buildings 001-007, North Farm Beltsville Ag. Research Cen

Prepared by: Carol Hooper/Robinson and Associates

L.L. Bowlin 11/19/95
Reviewer, Office of Preservation Services Date

concur: Peter E Kurtze NR/ORSR 11/29/95

Survey No. PG:61-20

MARYLAND COMPREHENSIVE HISTORIC PRESERVATION PLAN DATA - HISTORIC CONTEXT

I. Geographic Region:

____	Eastern Shore	(all Eastern Shore counties, and Cecil)
X	Western Shore	(Anne Arundel, Calvert, Charles, Prince George's and St. Mary's)
____	Piedmont	(Baltimore City, Baltimore, Carroll, Frederick, Harford, Howard, Montgomery)
____	Western Maryland	(Allegany, Garrett and Washington)

II. Chronological/Developmental Periods:

____	Paleo-Indian	10000-7500 B.C.
____	Early Archaic	7500-6000 B.C.
____	Middle Archaic	6000-4000 B.C.
____	Late Archaic	4000-2000 B.C.
____	Early Woodland	2000-500 B.C.
____	Middle Woodland	500 B.C. - A.D. 900
____	Late Woodland/Archaic	A.D. 900-1600
____	Contact and Settlement	A.D. 1570-1750
____	Rural Agrarian Intensification	A.D. 1680-1815
____	Agricultural-Industrial Transition	A.D. 1815-1870
____	Industrial/Urban Dominance	A.D. 1870-1930
X	Modern Period	A.D. 1930-Present
____	Unknown Period (___ prehistoric	___ historic)

III. Prehistoric Period Themes:

____ Subsistence
____ Settlement
____ Political
____ Demographic
____ Religion
____ Technology
____ Environmental Adaptation

IV. Historic Period Themes:

X Agriculture
X Architecture, Landscape Architecture, and Community Planning
____ Economic (Commercial and Industrial)
____ Government/Law
____ Military
____ Religion
X Social/Educational/Cultural
____ Transportation

V. Resource Type:

Category: district

Historic Environment: rural

Historic Function(s) and Use(s): agriculture/horticulture facility/ education research facility

Known Design Source: Division of Plans & Service, Bureau of Ag.Engineering USDA

MARYLAND HISTORICAL TRUST

William Donald Schaefer
Governor

Jacqueline H. Rogers
Secretary, DHCD

INDIVIDUAL PROPERTY/DISTRICT
MARYLAND HISTORICAL TRUST
INTERNAL NR-ELIGIBILITY REVIEW FORM

61-20

Property/District Name: BARC Administration Buildings 001, 002, 006 + 007 W. Side of US 1, BARC Greenbelt, MD PG County Survey Number: [redacted]

Project: MD 201 Extended, [redacted] US from I95 to the Proposed InterCounty Connector Agency: FHWA

Site visit by MHT Staff: X no ___ yes Name ______________ Date __________

Eligibility recommended _____ Eligibility not recommended X

Criteria: __A __B __C __D Considerations: __A __B __C __D __E __F __G __None

Justification for decision: (Use continuation sheet if necessary and attach map)

(PG: 62-14) Given our current knowledge of these buildings and the Beltsville Agricultural Research Center, they do not appear to be of exceptional significance as is required for resources less than 50 years old. Constructed in the late 1940's in the colonial Revival style, the buildings serve as administrative offices for BARC. The buildings are located on the western side of US 1 on the grounds of the Beltsville Agricultural Research Service. However, they are removed from the major concentration of resources associated with BARC, to the east and are therefore unlikely to be part of any potential district.

With time and additional research these buildings may be found to be eligible.

Documentation on the property/district is presented in: project files

Prepared by: ______________

Elizabeth Hannold — Reviewer, Office of Preservation Services — Date: 10/2/91

NR program concurrence: X yes ___ no ___ not applicable

[signature] — Reviewer, NR program — Date: 10.3.91

Survey No. PG:61-20

MARYLAND COMPREHENSIVE HISTORIC PRESERVATION PLAN DATA - HISTORIC CONTEXT

I. Geographic Region:

____	Eastern Shore	(all Eastern Shore counties, and Cecil)
_X_	Western Shore	(Anne Arundel, Calvert, Charles, Prince George's and St. Mary's)
____	Piedmont	(Baltimore City, Baltimore, Carroll, Frederick, Harford, Howard, Montgomery)
____	Western Maryland	(Allegany, Garrett and Washington)

II. Chronological/Developmental Periods:

____	Paleo-Indian	10000-7500 B.C.
____	Early Archaic	7500-6000 B.C.
____	Middle Archaic	6000-4000 B.C.
____	Late Archaic	4000-2000 B.C.
____	Early Woodland	2000-500 B.C.
____	Middle Woodland	500 B.C.- A.D.900
____	Late Woodland/Archaic	A.D. 900-1600
____	Contact and Settlement	A.D. 1570-1750
____	Rural Agrarian Intensification	A.D. 1680-1815
____	Agricultural-Industrial Transition	A.D. 1815-1870
____	Industrial/Urban Dominance	A.D. 1870-1930
_X_	Modern Period	A.D. 1930-Present
____	Unknown Period (___ prehistoric	___ historic)

III. Prehistoric Period Themes:

____ Subsistence
____ Settlement
____ Political
____ Demographic
____ Religion
____ Technology
____ Environmental Adaption

IV. Historic Period Themes:

_X_ Agriculture
_X_ Architecture, Landscape Architecture, and Community Planning
____ Economic (Commercial and Industrial)
____ Government/Law
____ Military
____ Religion
____ Social/Educational/Cultural
____ Transportation

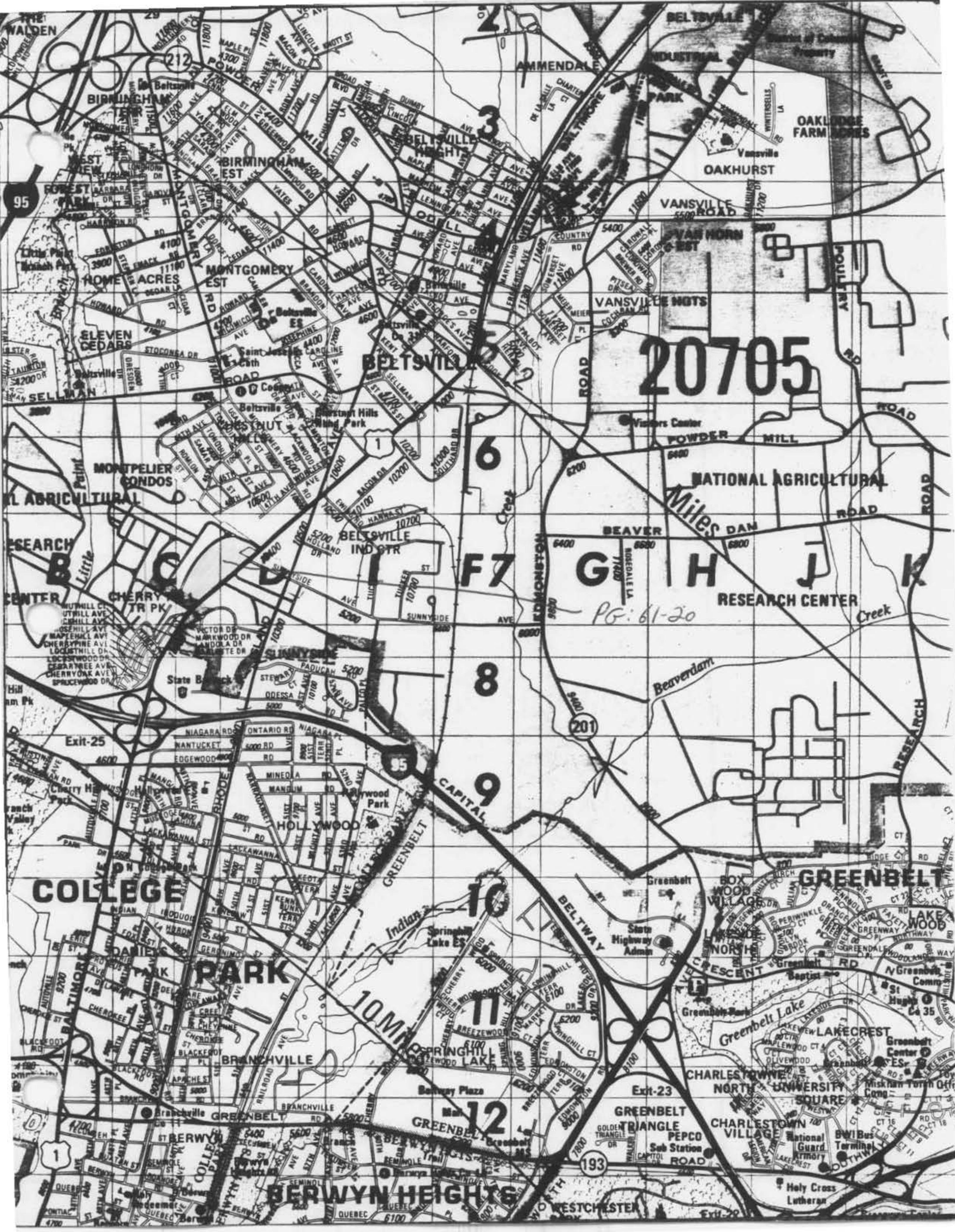
V. Resource Type:

Category: Buildings

Historic Environment: Suburban

Historic Function(s) and Use(s): Office

Known Design Source: —


20705
BELTSVILLE
AMMENDALE
BELTSVILLE HEIGHTS
BIRMINGHAM EST
BIRMINGHAM TERR
WEST VIEW
FOREST PARK
MONTGOMERY EST
HOME ACRES
ELEVEN CEDARS
SELLMAN ROAD
CHESTNUT HILLS
MONTPELIER CONDOS
OAKLODGE FARM ACRES
OAKHURST
VANSVILLE ROAD
VAN HORN EST
VANSVILLE HGTS
POWDER MILL ROAD
NATIONAL AGRICULTURAL RESEARCH CENTER
BEAVER DAM ROAD
BELTSVILLE IND CTR
CHERRY TR PK
SUNNYSIDE
State Barrack
PG: 61-20
Beaverdam Creek
Exit-25
CAPITAL BELTWAY
HOLLYWOOD
Hollywood Park
COLLEGE PARK
DANIELS PARK
BRANCHVILLE
Indian Creek
Springhill Lake ES
SPRINGHILL LAKE
Beltway Plaza
GREENBELT ROAD
BERWYN HEIGHTS
WESTCHESTER
Exit-23
GREENBELT TRIANGLE
PEPCO Sub Station
CAPITOL ROAD
CHARLESTOWNE NORTH
UNIVERSITY SQUARE
CHARLESTOWN VILLAGE
National Guard Armory
Holy Cross Lutheran
GREENBELT
BOX WOOD VILLAGE
LAKESIDE NORTH
Greenbelt Lake
LAKECREST
LAKE WOOD
State Highway Admin
B
C
D
I
F7
G
H
J
K
2
3
6
8
9
10
11
12

MD INVENTORY OF HISTORIC PROPERTIES FORM

PG: 61-20

NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM

1. Name of Property

historic name North Farm Survey District, Beltsville Agricultural Research Center
other names/site number Buildings 001-007, 009-011

2. Location

street & number Beltsville Agricultural Research Center - West
Not for publication ___
city or town Beltsville **vicinity** N/A
state Maryland **code** MD **county** Prince Georges **code** 033
zip code 20705-2350

3. State/Federal Agency Certification

4. National Park Service Certification

5. Classification

Ownership of Property (Check as many boxes as apply)

- ___ private
- ___ public-local
- ___ public-State
- X public-Federal

Category of Property (Check only one box)

- ___ building(s)
- X district
- ___ site
- ___ structure
- ___ object

Number of Resources within Property

Contributing	Noncontributing	
10	1	buildings
		sites
		structures
		objects
10	1	Total

PG:61-20

Number of contributing resources previously listed in the National Register 0

Name of related multiple property listing (Enter "N/A" if property is not part of a multiple property listing.) N/A

---

6. Function or Use

Historic Functions (Enter categories from instructions)

Cat:	**Sub:**
AGRICULTURE/SUBSISTENCE	horticulture facility
EDUCATION	research facility

Current Functions (Enter categories from instructions)

Cat:	**Sub:**
AGRICULTURE/SUBSISTENCE	horticulture facility
EDUCATION	research facility

---

7. Description

Architectural Classification (Enter categories from instructions)

OTHER: Colonial Revival

Materials (Enter categories from instructions)

(See Description Section)

foundation
roof
walls
other

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.) See continuation sheet.

---

8. Statement of Significance

See continuation sheet.

Areas of Significance (Enter categories from instructions)

Agriculture

PG:61-20

Period of Significance
1933-1945

Significant Dates

Significant Person (Complete if Criterion B is marked above)

Cultural Affiliation N/A

Architect/Builder Division of Plans & Service, Bureau of Agricultural Engineering, U.S. Department of Agriculture

Narrative Statement of Significance (Explain the significance of the property on one or more continuation sheets.) See continuation sheet.

9. Major Bibliographical References

See continuation sheet.

10. Geographical Data

Acreage of Property
Approximately 21 Acres

PG:61-20

UTM References (Place additional UTM references on a continuation sheet)

	Zone	Easting	Northing		Zone	Easting	Northing
1				3			
2				4			

Verbal Boundary Description (Describe the boundaries of the property.)
The boundaries of the survey district follow Circle Drive on the east, South Drive on the south, 3rd Street on the west (until it intersects Building 011, then they jog west to 4th Street to incorporate the last portion of Building 010), and North Drive on the North.

Boundary Justification (Explain why the boundaries were selected.)
The boundaries of the survey district have been drawn to include all buildings constructed within the period of significance that directly relate to the scientific mission of the Beltsville Agricultural Research Center. With the exception of the one non-contributing structure, all buildings within the boundaries also share common materials and stylistic influences.

---

11. Form Prepared By

---

name/title Carol Hooper, Architectural Historian
organization Robinson & Associates **date** June 17, 1995
street & number 1710 Connecticut Ave., NW **telephone** (202) 234-2333
city or town Washington **state** DC **zip code** 20009

Property Owner

(Complete this item at the request of the SHPO or FPO.)
name
street & number **telephone** ____________
city or town **state** **zip code**

PG:61-20

DESCRIPTION

Summary

The North Farm is one of five largely contiguous parcels or "farms" which make up the 6,582-acre Beltsville Agricultural Research Center (BARC) site. It is located a few miles south of Beltsville, Maryland, off of Maryland Route 1 (the Baltimore-Washington Boulevard). It includes 549 acres and is roughly bordered by Sellman Road to the north, I-95 to the south, Route 1 to the east, and Cherry Hill Road to the west. The site is roughly bisected by Little Paint Branch Creek. The area to the west of the creek is largely cultivated farmland with a dozen or so scattered farm buildings. In contrast, the area to the east of the creek is the most densely developed area on the BARC grounds. It includes greenhouses and smaller service buildings (to the west) and a grouping of mid- to late 1930s and early 1940s laboratories and administrative buildings (to the east). It is this grouping that constitutes the core of the survey district. Nearly all of the buildings in this area are brick buildings of a consistent Georgian Revival style.

Description of Survey District

The buildings included within the survey district form a wide-stemmed "7" shape, with the top of the "7" consisting of the five buildings that face Baltimore-Washington Boulevard (Route 1). The district then continues northwest to include Buildings 006 and 007, and, farther to the northwest, Ranges 1, 2, and 3.

Buildings 001, 002, 003, 004, 005 (from south to north) are sited along a curved drive (Circle Drive) facing northwest onto Route 1. Both because of its formal positioning behind a large grassy lawn, and because it faces the busiest and most public street, this collection of buildings constitutes both the "front door" to the North Farm, and one of the most public faces of the entire BARC complex. All of these buildings were constructed as laboratory or office space; they continue in this use today. Building 004 was one of the first three buildings constructed on the site.

PG:61-20

Buildings 006 and 007, positioned slightly behind Buildings 001-005, were envisioned, in plans for the area dating to the 1930s and 40s, as portions of smaller quadrangles or organized spaces. They too were constructed as laboratories and office space, and they continue in this use today. Building 006 was one of the first three buildings constructed on the site.

Buildings 009, 010, and 011, are all headhouses and related greenhouses. Building 011, which consists of two unattached structures, extends in a long line from behind a space between Buildings 004 and 005. The more easterly section of the building is one of the first three buildings to be constructed at the site. Buildings 010 and 011 are adjacent to one another and are located behind, but some distance from, the rear facades of Buildings 006 and 007.

The only new building within the limits of the survey district is the recently occupied (and not yet completed) Plant Sciences Institute, which is located between Building 006 and Building 010. An additional building is planned for the area between the new PSI building and Building 010.

A few buildings, most service buildings, and some small, later, research buildings are scattered in the general area of the district. Surrounding this rather dense area of development are hundreds of acres of fields, most of which are cultivated, extending to the northwest and south. A small concentration of farm/service buildings is located due northwest of the site near the original farmhouse for the site.

Individual Building Descriptions

Architecturally, all of the buildings within the survey district (completed during the major periods of construction) share a consistent Georgian Revival styling. In addition to the Georgian Revival stylistic vocabulary (including quoining), the buildings also share the accompanying palette of materials/features (brick walls, slate roofs, wood and stone detailing, and double-hung windows).

PG:61-20

NPS Form 10-900-a
8-86)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section 7 Page 3

North Farm Survey District
Beltsville Agricultural
Research Center
name of property
Prince Georges, Maryland
county and State

Building 001 and 005

The South Laboratory (Building 001) and its twin, the North Laboratory (Building 005), flank the central connected buildings (Buildings 002, 003, 004) facing Route 1. Both buildings are symmetrical, three-and-a-half story, brick, Georgian-revival structures with slate roofs and wood and stone detailing. The buildings are shallow "H"s in plan with a gabled roof along the length of their front facades, and cross gables running along their sides. The major focus of the front facades of the buildings is a central, half-round, projecting portico capped with a decorative metal rail.

Building 002

The Cold Storage Building is a three-story reinforced concrete and brick Georgian-revival structure with a slate roof and wood and limestone detailing. At the basement and first floor levels the building's massing is largely rectangular. At the second floor level, however, the building becomes U-shaped, as the part of the building constructed as the machine room does not continue to the second floor level. The roof structure is gabled along the length of the front facade, and hipped over the ends of the "U." The front (southeast) elevation is a symmetrical composition with a slightly projecting central pedimented three-bay section. In 1940, as part of the construction of the Administration Building (Building 003), a three-bay brick connecting hyphen was built between this building and the Administration Building. The hyphen connects the basements and first floors of the two buildings.

Building 003

The Administration Building is the central element of the assemblage of buildings facing Route 1. Of the five buildings, it is the most elaborate in design and materials. It is flanked by, and connected to, the Cold Storage Building (Building 002) to the south, and the Horticulture Building (Building 004) to the north. It is a three-and-a-half story, brick, Georgian-revival structure with a slate roof and wood and stone detailing (including stone quoining). The building is generally "T"-shaped in plan with a gabled roof along the length of the front facade and hipped roofs off of the rear facades. The front (southeast) elevation is symmetrical in design with a dramatic central three-bay-wide, three-story, Corinthian portico. A clock tower that rises above the portico is a central focus of attention for the building. The main section of the building is of reinforced concrete construction, with roof rafters of heavy-timber wood construction. The rear (theater) wing of the building is of fire-proofed steel construction.

Building 004

The Horticulture Building is a brick, U-shaped, Georgian-revival structure with a slate roof and wood and stone detailing. The roof structure is gabled along the length of the front facade, and hipped over the ends of the "U." The front (southeast) elevation is a symmetrical composition with a slightly projecting, pedimented, central three-bay section. In 1940, as part of the construction of the Administration Building (Building 003), a three-bay brick connecting hyphen was constructed between this building and the Administration Building. The hyphen connects the basement and first floors of the two buildings.

Building 006

The Fruit Products Laboratory is a two-and-a-half-story, hipped-roof building of Georgian Revival styling. Of brick construction, the building has a slate roof and wood and stone detailing. The building is symmetrically organized on all facades. The front facade has a three-part composition with stone quoining, which separates the two end bays from the central section. The major focus of the front facade at both the first- and second-floor level is the central bay, which features an elaborate entrance consisting of an Ionic portico supporting a small decorative metal balcony.

Building 007

The Soils Laboratory is a three-and-a-half-story, gable-roof brick building. Of Georgian Revival styling, the building has a slate roof and wood and stone detailing. It is symmetrically organized on all facades. The front facade of the building has a three-part composition consisting of pedimented end sections which bracket the long central section.

PG:61-20

Building 009

Range 3 consists of a long horizontal headhouse and six greenhouses attached at right angles to the headhouse. Because of its sloped site, and to prevent shading of the greenhouses, the building is stepped to follow the contours of the topography. The 1-1/2-story, Georgian Revival headhouse is of concrete block construction with brick veneer walls and concrete foundations. Each of the five stepped sections leads to a separate greenhouse and, with the exception of the easternmost section, each is nearly identical. The headhouse has a gabled roof with dormers located over the first and third windows of each section and over the door. The greenhouses are of the "half-metal" type of frame construction and are attached to the headhouse at a 90-degree angle.

Building 010

Range 2 consists of a long 1-1/2-story headhouse. The building is of concrete-block construction, with brick veneer walls and concrete foundations. It is Georgian Revival in styling. Originally, five greenhouses were attached at right angles to the rear of the headhouse and a palmhouse -- a large free-standing greenhouse of a more decorative design -- was linked to its east side. The greenhouse structures were demolished in 1994 and the five greenhouses are now being replaced. The palmhouse will not be replaced. Like the other headhouses, it is stepped to follow the contours of the topography.

Building 011

Range 1 consists of two adjacent buildings each comprised of a long 1-1/2-story headhouse and multiple single-story greenhouses attached to the rear of the headhouse. The greenhouses are attached either at right angles (in the case of the west building) or at more acute angles (for the east building) to the rear of the headhouse. The buildings are sited on a sloped area, and both are stepped to both avoid shading the greenhouses and to follow the contours of the topography. The two buildings are not generally referred to individually; instead, reference is made to specific greenhouses or eadhouses in each building. The two headhouses, although not constructed

PG:61-20

simultaneously, were designed to be virtually identical on the front (main) facade. Both buildings use similar Georgian Revival decorative motifs. Both are of concrete block construction with brick veneer walls and concrete foundations.

PG:61-20

HISTORIC CONTEXT

MARYLAND COMPREHENSIVE HISTORIC PRESERVATION PLAN DATA

Geographical Organization: Western Shore

Chronological/Developmental Periods: Modern Period

Prehistoric/Historic Period Theme(s): Agriculture

Resource Type:
Category: Building

Historic Environment: Rural

Historic Function(s) and Use(s):
AGRICULTURE/horticulture facility
EDUCATION/research facility

Known Design Source:
Division of Plans & Service, Bureau of Agricultural Engineering, U.S. Department of Agriculture

SIGNIFICANCE

Summary

The North Farm was acquired in 1932 (purchased in 1933) by the Bureau of Plant Industry and expanded in the 1940s. The site was originally known as the U.S. Horticultural Station at Beltsville and later referred to as the U.S. Plant Industry Station. Since its founding, the site has been used for a variety of experimental plant research functions. The North Farm is now part of the Beltsville Agricultural Research Center (BARC), the largest research facility of the Agricultural Research Service (ARS), which is the main research agency of the U.S. Department of Agriculture (USDA). For 60 years, BARC has been the Department of Agriculture's principal experimental area and the leading and most diversified agricultural research complex in the world.

Arlington Farm, the Precursor to the North Farm

The North Farm is the USDA's second major plant-research facility in the Washington area. It came into being only after the first such facility, Arlington Farms, was threatened with elimination.

In 1900, the Department of Agriculture acquired the 400-acre tract of land that was to become Arlington Farms from the Department of War. Fronting on the Potomac River's Boundary Channel to the east, it included part of what is today the eastern portion of Arlington Cemetery, and part of the land that today surrounds the Pentagon. In the three years that followed its founding, the Arlington land was cleared and prepared, ditches were tilled, and the soil was enriched.

Experiments conducted at the station varied from studies of plant diseases to experiments relating to cold storage. Although the site was administered by the Bureau of Plant Industry, other USDA bureaus such as the Bureau of Agricultural Chemistry & Engineering, the Bureau of Entomology & Plant Quarantine, the Food and Drug Administration, and the Soil Conservation Service also had facilities there. Over the years, a diversity of facilities for agricultural research were developed. By 1939, these facilities included

105 buildings, including laboratories, greenhouses, shops, barns, a central heating plant, and an extensive road system. Utilities at the site included power, water, gas, sewage, and telephone. The site's soil, some of which came from the rich alluvial Potomac river bottom, was also a major attribute. Beginning as early as 1911, however, the Army realized the utility of the Arlington Farms site and began to lobby to have it returned to its jurisdiction.[1] By the 1920s, the Commission of Fine Arts had weighed in on the side of using the site for an expansion of Arlington National Cemetery, and the National Park Service was eyeing the site for a riverfront park. Soon after, officials of Washington Hoover Airport made known their interest in the site in order to extend the Airport's runways. The Department of Agriculture, appreciative of a site close to its Washington headquarters, fended off attempts to reassign the land.

The Department, however, hedged its bets. Around 1930, the Division of Fruit and Vegetable Crops and Diseases needed land for a number of longterm experiments such as those with tree fruits, nuts, and grapes. Given the "recurring agitation" as to the future of the Arlington Farm lands, the Division began searching for land for another field station. Their official rationale for seeking out the land was to concentrate research scattered in different locations in one spot, and to provide, "a nucleus for such a move [from Arlington] if it should ultimately come about."

A study was made of land areas in the suburban Washington area and two adjacent farms in the Beltsville area came out as the top choices. Soil type was a major criteria for picking the sites. According to a 1932 memorandum:

> These two farms lie together as a unit approximately one to two miles west of Beltsville, Md., back from the Baltimore boulevard but with one small area fronting on the boulevard for about 800 feet. The land has been selected particularly for the conduct of horticultural research.

---

[1]Vivian Wiser and Wayne D. Rasmussen, "Background for Plenty: A National Center for Agricultural Research," Maryland Historical Magazine, Vol. 61, Number 4 (December 1966), p. 292.)

> Of the Sellman tract, something over 100 acres is strong river bottom land, admirably suited for truck crop experiments. Approximately 100 acres is equally good land but slightly higher, and the balance is rolling land with good air drainage and particularly suited for experimental work with fruit crops. The Miller tract is largely river bottom, a small area being higher land reaching forward to the boulevard. These areas now are almost entirely under intensive cultivation and can be utilized immediately . . . It must be borne in mind that the bulk of this land is now in truck crop production, being used for intensive cropping. Trucking soil is, of course, to be found only in limited areas and wherever found is far more expensive than the ordinary soils.[2]

According to the memorandum, proximity to the existing USDA facilities (in particular proximity to a reliable supply of fertilizer) and general closeness to Washington were also decisive factors in locating what became the North Farm.[3]

Development of the North Farm

The two original plots identified in the 1930 survey of possible sites were owned by Irvine L. Miller and Theodore Alexander Sellman and Robert Lee Sellman. Working through a middleman, the Division secured options for the lease and purchase of the farms. The lease of the 300-acre Sellman farm was executed December 18, 1931 (effective February 1, 1932) with rent of $2,740 per year and an option to purchase the land at $150 per acre. The Miller lease was executed January 9, 1932 (effective February 1, 1932). Rent was

---

[2]Memorandum from William A. Taylor, Chief of the Bureau of Plant Industry, to the Secretary of Agriculture, January 18, 1932. (NARA RG. 17, Entry 19 (1943) Box 1933)

[3]A story retold in a 1953 National Geographic article describes USDA scientists examining the Beltsville soil and reporting back about its lack of fertility. According to the story, Secretary of Agriculture James Wilson responded to their complaints with, "Anyone can grow a crop on good land! Buy it, and use plenty of cow manure." (Samuel W. Matthews, "Beltsville Brings Science to the Farm," National Geographic, Vol. 104: 199-218, August 953.)

$1,600 per year, and the purchase price was $300 per acre. Extant on the Sellman farm at the time it was acquired were:

1 dwelling house (14 rooms and basement, hot water heating system, water and bath, telephone, and Delco electric plant) [Building 023]
1 barn 45 x 72 ft., about 50 ft. high, with granary, basement and electric lights.
1 wagon shed about 35 x 50 with upstairs storage space.
2 implement sheds (fertilizer room in one, corn crib in the other).
1 2000 bushel corn crib.
1 potato cellar (about 20 x 30 x 8) with upstairs storage room.
1 five-room tenant house.
1 three-room tenant house.
1 four-room tenant house.
1 garage (16 x 20).
1 woodshed and pumphouse.
2 wells and three springs all working.
2 chicken houses.[4]

In February 1932, the land was divided between the different projects of the Division of Fruit and Vegetable Crops and Diseases. Planting of apple, peach, nut and other fruit trees was completed in the spring of the year. A few indicator crops were planted that season also. The next year, on October 1, the Government exercised its option to purchase the properties. Funding for the land came from a Public Works Administration (PWA) allotment. The total purchase cost was $80,793.15 and the site officially became the "U.S. Horticultural Field Station at Beltsville, Maryland." In addition to paying for the acquisition of the land, PWA funds for the same year amounting to $100,237 were expended to clear the land, put in drainage and water lines, install an irrigation system, and put in roads and walks. Building activities funded under this appropriation included the construction of the Range 1 greenhouses and headhouses, a foreman's cottage, and various other

---

[4]Lease between Theodore Alexander Sellman and Robert Lee Sellman and the United States of America, December 18, 1931. National Archives Records Administration, Record Group 54, "Deed & Title Records."

smaller utilitarian structures. In addition, preliminary work on a horticultural laboratory and research building (Building 004) and plans for a cold storage building (Building 002, which was not built until 1939) were prepared. Plans for all of these buildings and all later buildings were drawn up by the USDA's Bureau of Agricultural Engineering, Division of Plans and Service.

PWA funds for 1934, which amounted to $361,793, were used to complete the Horticultural Laboratory and Range 1 greenhouses. New projects for the year included constructing the Fruit Products Laboratory (Building 006) and bringing electricity to the site. During this period, Civil Works Administration (CWA) labor was used to further develop the site in terms of clearing and construction of roads and bridges.

A major administrative change took place in August 1934. At that time, in order "to provide for the most beneficial use, in the interest of agriculture as a whole, of the land, buildings and other facilities of the Department in the Beltsville area,"[5] all of the USDA work at Beltsville, including the work of the Bureau of Plant Industry,[6] was grouped together administratively as part of the Beltsville Research Center. It was to be, "the major proving ground for the development of the idea of centralized control for department field stations."[7] Maintenance and construction of buildings and roads,

---

[5]"Memorandum No. 648 - Beltsville Research Center," August 28, 1934. (Memorandum issued by Secretary of Agriculture H.A. Wallace.) National Archives Records Administration, Record Group 54, Box 43186-87.

[6]Included also was the research going on at the U.S. Plant Introduction Station at Glenn Dale, Maryland, although two years later Glenn Dale was excluded from this jurisdiction due to its distance. Established in 1919, Glenn Dale was one of four federal plant introduction stations operated by the Bureau of Plant Industry. It was often referred to as the Bell Station, because of a nearby trolley stop of that name.

[7]Although this constituted the official reason for the more centralized organizational structure, it also seems possible that USDA wanted to monitor more closely the vast sums of money being spent for construction at Beltsville. Only two months later, in October 1934, a scandal broke out concerning allegations of fraud relating to $1,314,890 in P.W.A. funds for Bureau of Animal Industries facilities.

custodial services, utilities, fire protection, mechanical shop services, and land and building assignments were all to be concentrated in the office of the Director of the Beltsville Research Center (located at a new building constructed on the Central Farm). Given the historic independence of the various Bureaus operating at Beltsville, the central organizing scheme was resisted by the Bureaus, which continued to operate relatively independently throughout the 1930s and 40s.[8]

In 1938, the Station's boundaries were expanded as it was assigned the "University of Maryland" tract consisting of 262.87 acres and "Toomb's Tract" of 48.05 acres owned by the Resettlement Administration. This land, which forms a connection between what is now the Central Farm and the North Farm, is referred to as the "Linkage" Farm.[9] The second wave of construction at the Plant Industry Station also occurred around 1938-39. The Range 2 Greenhouses, the heating plant, and the cold storage building were all completed around this period using PWA funds and CWA workers. Around this time also, the Divisions of Drug Plants and Nematology were also moved to the North Farm.

The next major flurry of development came as a result of the closing of Arlington Station. Pressure to release the Arlington land had increased dramatically as defense activities expanded in the late 1930s,[10] and the

[8]Even after the individual Bureaus were abolished in 1953, their work continued in more or less the same tracts. It has been suggested that the historic resilience of individual parts of the USDA was a function of their ability to win earmarked appropriations from the Congress.

[9]This area remained largely undeveloped in terms of built structures until the construction of the National Agricultural Library.

[10]Officially, the Bureau strongly resisted moving at least up through 1943. They argued that the closeness of the Arlington site to Washington permitted upper-level scientists with administrative responsibilities to move back and forth quickly. The 35- to 45- minute commute to Beltsville did not compare favorably with the 15- minute commute to Arlington. According to a 1934 memo, "The loss of time resulting from this situation would greatly decrease the efficiency of the work by the higher grade employees of the Bureau . . ." (NARA RG 17, Entry 16 (1934), Box 1933).

Department continually lobbied Congress for funds to move the Arlington facility. Finally, on October 9, 1940, an appropriation in the Department of War's budget was approved to provide $3,200,000 for the relocation of Arlington Station. The appropriation was used for the acquisition of 606 acres of additional land (at the North and South Farms) and for the construction of fifteen buildings.[11] The larger buildings constructed using these funds included:

South Building (Building 001)
North Building (Building 005)
Administration Building (Building 003)
Soils Building (Building 007)
Range 3 (Building 009)
Addition to Central Heating Plant (Building 014)
Service Building "D" (Building 060)
Service Building "E" (Building 029)
Tobacco Barn (Building 028)[12]

Construction proceeded as fast as possible given wartime shortages, and on January 30, 1942, facilities were close enough to completion that jurisdiction of the Arlington Farm site was turned over to the War Department. (Portions of the site had been released earlier.) With the construction of the Arlington Farm replacement buildings, all of the Divisions of the Bureau of Plant Industry were moved to Beltsville. Work on cereal crops, tobacco, forage crops, and fertilizer joined the existing cold-storage, fruit-breeding, pharmacological, and nematology work already being

---

[11] In planning for the extensive construction at the site, at least two extensive site plans were developed for the area. Both indicate locations for many buildings that were never constructed. In general, the plans show a formal, symmetrical --almost European-- treatment for the Building 001 to 007 area. An existing hexagonal pond with fountains, located behind where Building 003 was constructed was a centerpiece of the design.

[12] Arlington Relocation Documents, National Archives Records Administration, Record Group 54, Entry 151A.

PG:61-20

conducted at the site. Six months later, the Plant Industry Station became an independent financial unit on a Division basis. By 1944, when all of the construction was completed, there were a total of 135 employees at the station, and the Plant Industry Station's budget was $48,550, with $349,400 in reimbursable work for other Divisions.

Organization of the Bureau of Plant Industry

The Bureau of Plant Industry was created on July 1, 1901, and organized plant science in the federal government is often traced to that date.[13] Some of the work later conducted by the Bureau, however, goes back as far as 1819, when the Treasury Department directed U.S. consuls to collect plant specimens and information on soil, cultivation, and insect pests in the countries in which they were located. The job of collecting foreign plant matter passed to the Commission of Patents in 1839. In 1856, the Commissioner employed the first federal botanist in the Patent Offices' Agricultural Division and the same year set up a garden on the Mall in Washington to grow sorghum. The Department of Agriculture was established in 1862 and research continued along a number of separate lines. In 1901, work relating to fruit and vegetable diseases and physiology; research to improve cereals, fibers, tropical crops, grasses and other forage plants; investigation into the production of tea; and the introduction of foreign seeds and plants were consolidated into the Bureau of Plant Industry.

From its beginning, the research work of the Bureau was conducted not only at Department of Agriculture facilities, such as greenhouses located on the Mall in Washington and at Arlington Farm (see section on North Farm), but also at cooperative research facilities operated by the states. As early as the Bureau's founding year, joint research in grass and forage crops was carried on in thirteen states.[14] The cooperative nature of the Bureau's work

---

[13]See "Plant Science After Fifty Years," Science, 113: Sup. 3 (June 29, 1951).

[14]Under the Morrill Act of 1862, tracts of federal lands were granted to the individual states provided that the profit from the land sales go to support a state agricultural school. Later acts (including the Hatch Act of 1887) funded research at the experimental stations established at the Land Grant Colleges.

continued and increased through the years.[15] Aiding this diversified work were not only state agricultural experiment stations, but also a considerable number of federal field stations and, later, regional labs.[16]

In 1938, the Bureau of Soils, and in 1943, the Bureau of Agricultural Engineering were merged into the Bureau of Plant Industry, and the Bureau was renamed the Bureau of Plant Industry, Soils, and Agricultural Engineering. The Bureau of Soils' research related to fertilizer, soil management and irrigation, and soil survey. The Bureau of Agricultural Engineering brought research relating to farm buildings and rural housing, farm electrification, farm machinery, and the mechanical processing of farm products into the fold. The Bureau remained in this configuration for less than ten years. In 1952, the Bureau was abolished and its functions were transferred to the Agricultural Research Service, which today continues to coordinate all research of the USDA.

The Work of the Bureau of Plant Industry

The work of the Bureau is best summarized by a Bureau of Plant Industry scientist who is quoted in a 1953 National Geographic article as saying, "In any research, a scientist must ask three questions: How can it be made better? How can it be made cheaper? Can something new be made?"[17] The Bureau's work, spanning over 50 years, brought agricultural research from science based largely on observation into the world of modern science. The Bureau's research over this period was voluminous and much of it represented important stepping stones for agriculture and/or scientific research in

---

[15]By the early 1950s, the Bureau had research in progress on 925 projects at 199 locations in 45 states, the District of Columbia, Puerto Rico, the Canal Zone, and 11 Latin American countries.

[16]In 1941, the Division of Fruit and Vegetable Crops & Disease had a total of 18 field stations (including the Plant Industry Station) and 33 field laboratories. Four regional laboratories, located in New Orleans, Louisiana; Wyndmoor, Pennsylvania; Peoria, Illinois; and Albany, California, were authorized under legislation which went into effect in 1938.

[17]Matthews, "Beltsville Brings Science to the Farm," p. 200.

PG:61-20

general.

One example of the Bureau's formative early research, dating to the turn of the century, is research on cotton plants raised in wilt-infested soil. The experiment selected individual plants that resisted the wilt, and was one of the first scientific applications of the Darwin's principle of the survival of the fittest. Another example of the Bureau's early (1920) research was the discovery of the effect that photoperiod (the time a plant is exposed to light) has on fruiting and flowering. Prior to this research, the relationship between plant development (including flowering) and the relative length of day and night was not known.

Another rather romantic aspect of the Bureau's early research was the work of the plant explorers. From the earliest days of the Bureau, researchers traveled to remote parts of the earth seeking out new plants. A number of these plant explorers, such as Frank N. Meyer who died mysteriously in China, became famous through magazine articles and books.

Both of these formative types of research were picked up in later years in the work of the Bureau. For instance, the work related to photoperiodism was picked up in the seminal work of Harry Borthwick. Their work led to the discovery and isolation in 1959 of phytochrome. Phytochrome is the light-absorbing pigment in plants that triggers development. Their groundbreaking work related to the effect that various amounts and colors of light has on plant growth. Similarly, the work of the early plant explorers had its modern-day counterpart in, for instance, the development of a world-wide collection of small grain germplasm which was housed for many years at the Beltsville facility.

Throughout its history, much of the Bureau's research related in some respect to improving growing stock. Qualities sought out included disease resistance, eating quality, high yield, and keeping and shipping qualities. Many of the varieties of soy beans in commercial use today, modern commercial blueberries, many currently used varieties of potatoes, Easter lilies, and zoysia turf, as well as the important forage crop lespedeza, to name a few, all had their origin in research conducted by the Bureau of Plant Industry much of which was conducted at the North Farm. Illustrative of this research s the Bureau's blueberry work. The blueberry was one of the last major fruit crops to be domesticated; Bureau scientists first from Arlington, and later from Beltsville, were responsible for not only developing the modern commercial varieties of blueberries, but also for extending the range and soil types in which blueberries could be grown. Some of the experimental crossing of blueberry plants was conducted in Beltsville.

During World War II, much of the Department's work turned towards the war effort. Its major goal was to decrease the United States' dependence on imports from Europe and Asia. Research by the Bureau of Plant Industry produced the first American Easter lily bulbs, which had previously been imported from Japan. Chemists of the Bureau developed a method by which an American magnesium compound could be substituted for the magnesium used in fertilizer, which was imported from Germany. Similarly, domestic muriate of potash was found to be a good substitute for the imported potassium sulfate used for potato crops. Bureau scientists also worked to prevent a reoccurrence of a World War I shortage of sugar-beet seeds by encouraging the production of American sugar-beet seeds. Other efforts related to the production of tung oil (which had previously been imported exclusively from China), and rubber (which was the subject of experiments in Florida and South America). After the war, new emphases in research were on plant growth regulators (such as 2-4-D, which was developed at Beltsville), and the use of radioactive tracers to test fertilizers.

The world-wide impact of these findings is measured to some degree by the high number of international visitors to the site. BARC was one of the few local sights taken in by Khrushchev in his historic visit to Washington in 1959.

Architectural Development of the North Farm

Architecturally, the majority of the buildings of the North Farm (in particular the research and office buildings) represent an unusually cohesive collection of Georgian Revival buildings spanning the years from 1935 to 1950. The endurance of both the Georgian Revival stylistic vocabulary and the accompanying palette of materials (brick walls, slate roofs, stone detailing) for a variety of types of buildings over the years is unusual. The North Farm remains largely intact to its early (1930s to 1940s) character.

PG:61-20

The original impetus for the use of the Georgian Revival at Beltsville is unknown; however, it may have been inspired by the nearby Georgian Revival buildings at the University of Maryland, which predate the Beltsville construction. The style was also consistent with many other early twentieth-century government/institutional campuses across the country. In general, buildings constructed with federal money during this period followed certain stylistic conventions; in the northeast and mid-Atlantic regions Colonial/Georgian Revival styles were seen as appropriate, while in the west adobe and Spanish-revival styling were more appropriate.

In terms of the design of the buildings, all plans for the post-Department of Agriculture buildings were signed by the Department of Agriculture's Bureau of Agricultural Engineering, Division of Plans and Service.[18] The Division of Plans and Services, in addition to preparing plans for all buildings, also prepared specifications and cost estimates. The Coordinator of the BRC Construction Program acted as a intermediary between the Division of Plans and Services and the program offices. Designated individuals from each of the Bureaus determined program and budget for each of the new buildings. The designs were consistent in styling and materials to the buildings constructed at other areas of the Beltsville campus.

Perhaps one of the most unique structures on the North Farm was the log cabin located on the far west end of the North Farm, near the Paint Branch. This vernacular structure was designed by Bureau of Plant Industry scientist J. A. Beattie.

Pre-USDA buildings on the North Farm generally consist of dwellings and outbuildings. A majority of the dwellings on the site (the exception being Building 023 and, likely, 018) were conveyed to the government with the transfer of the land. (See above.)

The following table summarizes the date of construction of buildings located on the North Farm, bolded entries indicate buildings included in the Survey

[18]Plans for a number of the smaller farm buildings on the North Farms do not exist. In design, however, the buildings are consistent with those constructed on the Central Farm, also designed by the Division of Plans and Service.

PG:61-20

NPS Form 10-900-a
(8-86)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

North Farm Survey District
Beltsville Agricultural
Research Center
name of property
Prince Georges, Maryland
county and State

District.

BLDG #	DATE	NAME(S)
001	1943	South Laboratory Building/Building"C"/Building 4
002	1939	Cold Storage Building/ South Wing, Administration Building/ Building 3
003	1943	Administration Building/Building "A"/ Building 6
004	1935	Horticulture Building/Administration Building/North Wing, Administration Building/Building 1
005	1943	North Laboratory Building/Lab.Building "B"/Building 5
006	1936	Fruit Products Lab/West Building/Building 2
007	1944	Soils ~~Laboratory/~~Building "D"/Building 7
008	1950	AEC Greenhouse & Office
009	1943	Range 3/Arlington Relocation/Greenhouses
010	1939	Range 2/Washington Greenhouse Replacements
011	1935*	Range 1
012	1932-38	Farm Storage Building/"Service Building"
013	1932	Mechanical Shops
014	1939-40	Heating Plant
015	1939	Sewage Disposal Plant
016	pre-1933	Housing (not on original site)

PG:61-20

017	pre-1933	Housing/Childcare (not on original site)
018	1934	Housing (not on original site)
019	1952	Pump Station
021	pre-1933	Housing
022	pre-1933	Housing
023	1905	Housing
024	1942 1973	Storage/Screen House for Fruit Lab
025	1942	Storage
026	1954	Lubrication and Wash Service Building For ARC Office of Operations
027	1940	Gas Station
028	1942	Tobacco Barn
029	1942	B.P.I Farm Service Building "E"
029A	1938	Farm Storage Building "B"
030	1938	Washroom and Lavatories
031	1937	Nut Storage
032	1937	Spray Mixing Building
033	1933	Spray Equipment
034	1934	Equipment Shed
035	1933	Sweet Potato House
036	1933	Fertilizer Storage

PG:61-20

NPS Form 10-900-a
(8-86)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

North Farm Survey District
Beltsville Agricultural
Research Center
name of property
Prince Georges, Maryland
county and State

037	1933	Garage & Storage Shed
038	1933	Potato House
039	1933	Bulb House
040	1933	Fruit Storage
041	1943	Solvent Storage
043/ 046	1958	Laboratory Building for Crops and Research Division Radioactive
044	1958	Soils Laboratory (Radio.)
046	1958	Office Building for Crops Research Div. (Entomology)
046A	1965	Cement Block Building Crops Research Div/ Light & Plant Growth
047	1960	~~Seed Storage Laboratory/~~Entomology Lab Building
047A	1965	Color Laboratory/Livestock/Meat
048	1960	Office Building
049	1961	Seed Laboratory
049A	1969	Screen House
050	1949/62	Div. of Soil Management Headhouse and Greenhouse/Range 4

Construction History and Use of Individual Buildings.

Building 001

The South Laboratory[19] (Building 001) was one of four laboratory/offices constructed at the North Farm to replace existing structures located at the Department of Agriculture Bureau of Plant Industry Arlington farm facility in Arlington, Virginia. Construction of the building began in 1941; it was completed in 1942.

The building was originally planned as a laboratory building for the Forage, Tobacco, Sugar, Cereal, Rubber, and other units. (An herbarium and herb rooms dropped out during the planning process.) Cereal crops work that was conducted in Building 001 encompassed the work of numerous important plant breeders, including corn work conducted by G.F. Sprague. Early work on one of the major crop diseases in the world, wheat rust, was conducted in the 1940s in the building by Dr. "Roody" Rodenheiser. Work conducted in the building on oats by H.C. Murphy, related to the crossing of wild oats from the Mediterranean region to establish strains of oats that were resistant to crown rust. His work brought to light thousands of new strains of oats. These new strains and others were maintained in the ARS' Small Grains Germplasm Collection beginning in 1948. What is now the single largest collection of grain seeds from around the world was originally housed in the basement of Building 001.

Building 002

At the time it was constructed, the Cold Storage Building[20] was considered to be one of the best equipped of such laboratories in the world. The building was constructed by John McShain, Inc., of Baltimore, Maryland, and occupied in December 1939. McShain was one of the major New Deal-era contractors in the Washington area.

Research conducted in Building 002 was aimed at studying how to extend the keeping qualities of fruits and vegetables through varying temperature,

---

[19]The South Laboratory Building was also known at various times as Building "C" and Building No. 4.

[20]The Cold Storage Building was also known at various times as "the South Wing of the Administration Building" and Building No. 3.

humidity, and certain treatments (such as wax coatings, etc.). Research papers that were produced by the scientists working in Building 002 produced recommended appropriate temperature ranges for hundreds of different types of produce. As the site of the offices and home bases of the Branch Chief and Investigation Leaders, Building 002 was also the symbol of the nation-wide research on the subject. The building itself was designed with 22 temperature-controlled rooms which produced temperatures ranging from -15 degrees to +110° F. Each of these rooms had a capacity of approximately half a carload. The building also held a ripening room, where temperature and humidity are automatically maintained, and a fruit and vegetable washing and packing facility.

Building 003

The Administration Building[21] (Building 003) was one of four laboratory/offices constructed at the North Farm to replace existing structures located at the Department of Agriculture Bureau of Plant Industry Arlington farm facility in Arlington, Virginia. Construction of the building was begun in 1942 and completed in 1943. The building was planned for, and first occupied by, the administrative offices of the Plant Industry Station, as well as other Bureau of Plant Industry offices including some of the offices of the Division of Cotton and Other Fiber Crops. It also was designed to include the Bureau of Plant Industry library and auditorium. Most of the usable space was occupied by offices. Although a number of different offices moved from and to the building throughout its years of occupation, its main administrative function has remained constant. After 1972, with the restructuring of all ARS research into geographical "areas," Building 003 became the administrative center for BARC as a whole, which was one of the ARS's eight nationwide geographical areas.

Building 004

---

[21]The Administration Building was also known at various times as "Building 'A'" and Building No. 6. Building 004 also held Bureau of Plant Industry Offices prior to the construction of Building 003, so for a short period it too was referred to as the Administration Building.

PG:61-20

The Horticulture Building[22] (Building 004) was the first major building to be constructed at the North Farm. The building was constructed by the North-Eastern Construction Company of Baltimore and officially occupied January 11, 1935.

The building was constructed to hold the offices of the Horticultural Field Station, a part of the Division of Fruit and Vegetable Crops and Diseases. It was first occupied by a variety of scientists of the Division who were moved from offices in Washington. For much of its history the building was used for research related to horticulture and fruit. It housed the offices of fruit researchers Frederick V. Coville and George Darow who were responsible for much of the important blueberry research conducted at the farm. It was also the site of important nutrition work, such as that conducted by George Magnus who used a method of leaf analysis to determine the necessary amount of potassium for certain fruits. Work related to ornamental production such as daylilies and azaleas was also conducted in the building.

Building 005

The North Laboratory[23] (Building 005) was one of four laboratory/offices constructed at the North Farm to replace existing structures located at the Department of Agriculture Bureau of Plant Industry Arlington farm facility in Arlington, Virginia. The building, like the Administration Building, South Laboratory, and Soils Laboratory, was constructed by the J.D. Hedin Construction Company, located on Michigan Avenue, N.E., in Washington, D.C. Construction of the building began in 1941; it was completed in 1942.

The first occupants of the building were the offices/labs of the Divisions of

[22]The Horticulture Building was also known at various times as Building 1, and the North Wing of the Administration Building. Because it also held Bureau of Plant Industry administrative offices prior to the construction of Building 003, it too was referred to as the Administration Building.

[23]The North Laboratory Building was also known at various times as Building "B" and uilding No. 5.

Soil Survey, Plant Exploration and Introduction, Forest Pathology, Dry Land Agriculture, Irrigation Agriculture, Mycology and Disease Survey, and part of the rubber investigations. More recently, it housed work related to entomology. Particularly well-known was entomological work conducted in the 1950s and 1960s related to biological control of insects to provide an alternative to pesticides.

Building 006

The Fruit Products Laboratory[24] (Building 006) was one of the first three buildings constructed at the North Farm. The building was constructed in part by the Laacchi Construction Company, Baltimore, Maryland, and occupied in August 1935. The building was planned to provide space for the Potato Disease Division, as well as the Fruit and Vegetable Sections, "to provide facilities for work in preservation of fruits and vegetable by canning, freezing, and drying, for the making of unfermented and fermented fruit juices, and laboratories for the fundamental investigations on the various phases of manufacture and utilization.[25]

Plans for the building indicate that there was originally intended to be research related to the production of alcohol conducted in the building. Numerous anecdotal sources have suggested that with the advent of prohibition it was decided that such research would be inappropriate in federal buildings. However, plans for the building date to 1934, the year after the repeal of prohibition so although negative reaction to the federal government funding research related to alcohol production may have influenced changes to the design of the building, this was not a function of the legal mandates of prohibition.

The building was then used in part by researchers in the area of phytochrome, the most notable of which was Dr. Harry Borthwick. One of the most innovative experiments in this area involved the setting up of a large prism

[24]The Fruit Products Lab also known at various times as the West Building and Building No. 2.

[25]NARA, RG 54, Entry 151A, Box 1.

in the basement of Building 006. With the incoming white light broken up into its component colors, plants were placed to catch the individual colors of lights. The results of their growth, fruiting, etc., were then compared.

Building 007

The Soils Laboratory was one of four laboratory/offices constructed at the North Farm to replace existing structures located at the Department of Agriculture Bureau of Plant Industry Arlington farm facility in Arlington, Virginia. The building, like the Administration Building, and North and South Laboratories, was constructed by the J.D. Hedin Construction Company, located on Michigan Avenue, N.E., in Washington, D.C. Construction of the building was begun in 1942 and completed in 1943. Although a variety of soil-related research was conducted in the buildings over the years, one type of research related to nitrification. Specifically, work conducted in the buildings by Dr. Cecil Wadley in the 1950s related to how to determine the ~~necessary~~ nitrogen necessary for specific crops given existing nitrogen in the soil and in the water. This research was important to an understanding of ways to prevent runoff.

Building 009

Range 3 (Building 009) was constructed to replace existing greenhouses located at the USDA's Arlington farm facility in Arlington, Virginia. The general contractor for the building was the C.M.H. Construction Company of Washington, D.C. Lord and Burnham of Irvington, New York, were the contractors for the superstructure of the six greenhouses. Although one of the greenhouses (#5) was occupied in November 1941, final payment for the project was not made until February 1943. An innovative feature of the building is the provision made for controlled temperature rooms, located in the basement section of greenhouse #1. Since its construction, the building has been in continuous use as experimental greenhouses and associated laboratory, office, and potting space. Research in the building has related to forage crops, tobacco, sugar crops, and alfalfa.

Building 010

Range 2 (Building 010), which originally consisted of a headhouse, five attached greenhouses and a palmhouse, was one of the first handful of buildings constructed at what was then known as the Plant Industry Station. It was constructed to replace greenhouses located on the National Mall in Washington, D.C. Contractor for the headhouses and structure was Victor R. Beauchamp Inc. of Crittenden Street in Washington. The contractor for the greenhouses and palmhouse was American-Moninger Greenhouse Manufacturing Corporation, located in Brooklyn, New York.[26] When the building was constructed, its greenhouses (no longer standing) employed a number of innovative improvements, including basement sections that provided constant temperature and light relation rooms. The size of the greenhouses was also innovative; they were large enough to permit scientists to conduct statistically valid experiments using Latin squares. By the early 1950s, the building was used for nematology research. Beltsville has been called the "cosmic center" for the study of Nematodes (or eelworms), which are parasitic unsegmented worms that live in soil, water or plants.[27] Nematodes are a concern to plant scientists because they often parasitize plants or are associated with plant disease. Over the years, USDA researchers have lead the field in developing control methods for nematodes. In the 1960s, the Range was the location of the North Farm's cafeteria.

---

[26]The contractor for the electrical, heating, and plumbing work was Robert Anderson, of Washington.

[27]Michael Olmert, "Genes and Viruses are Harnessed on a Farm Tended by Scientists," Smithsonian Magazine, March 1982. Current ARS research on nematodes includes study of their benefits, such as their ability to attack the corn rootworm.

PG:61-20

Building 011

Range 1 (Building 011) was one of the first buildings constructed at the Plant Industry Station.[28] The east half of the building was completed by 1935 and it was to become the model for later greenhouses on the site. Although very little information about the building and its construction has been uncovered, one interesting aspect of its design is the unusual angled layout of the greenhouses -- likely a way of maximizing light coming into the greenhouses. The west half of the range was completed in segments spanning over thirty years. Since its construction, Range 1 has been used largely for fruit and vegetable research. The older section of Range 1, however, was also used for significant work on photoperiod, conducted by Dr. Harry Borthwick. Dr. Borthwick was an early pioneer in research related to photoperiod and phytochrome. Today, the east section of Range 1 is being used mostly for citrus research. (It was formerly used for apple, bean, potato, and tomato research.) The west section is currently used for potato, soybean, and alfalfa research.

[28]Building 4 (the Horticulture Building) was constructed roughly contemporaneously, and it is not clear which building was actually completed first.

PG:61-20

NPS Form 10-900-a
(8-86)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section 9 Page 30

North Farm Survey District
Beltsville Agricultural
Research Center
name of property
Prince Georges, Maryland
county and State

BIBLIOGRAPHY

Primary and Secondary Sources

"The Agricultural Research Center of the United States Department of Agriculture." Washington, D.C.: United States Department of Agriculture, 1949.

Arlington Relocation Documents, National Archives Records Administration, Record Group 54, Entry 151A.

Beall, Susie. "Birmingham Manor - The Snowden Grant." Undated manuscript.

Beattie, J. H. "Greenhouse Construction and Heating." *Farmers Bulletin.* 1318: 1-38 (1934).

"Beltsville Farm to be Expanded." *The Washington Star Sunday Magazine.* October 15, 1933.

Birnbaum, Charles, and Lisa E. Crowder. *Pioneers of American Design - An Annotated Bibliography,* Washington: U.S. Department of the Interior, 1993.

Bushong, William; Judith Robinson, and Julie Mueller. *A Centennial History of the Washington Chapter, The American Institute of Architects.* Washington: Washington Architectural Foundation Press, 1987.

Capitaine, Elizabeth. "New Bulb Industry is Assured." *The Washington Star,* March 24, 1940.

"Construction at Beltsville." *Science* 78 (1933): 525-6.

The Division of Fruit and Vegetable Crops and Diseases. *Newsletter.* National Archives Records Administration, Record Group 54, Entry 135B.

George, Alexander R. "Beltsville Scientists Seek New Ways to Boost Our Wartime Food Production." *The Washington Star,* March 18, 1945.

Houck, U.G. The Bureau of Animal Industry of the United States Department of

Agriculture. Washington: Published by the Author, 1924.

"How Uncle Sam Runs World's Finest Farm." *Popular Mechanics* 47 (1927): 371-4.

Kennedy, George. "Beltsville Provides Beautiful Setting for Farm Research." *The Washington Star*. September 4, 1955.

Lease between Theodore Alexander Sellman and Robert Lee Sellman and the United States of America, December 18, 1931. National Archives Records Administration, Record Group 54, "Deed & Title Records."

Leonard, John. "Frontiers of Agriculture." *The Washington Star Sunday Magazine*, November 11, 1956.

Logan, C.A. "Brief History of the Agricultural Research Center." Unpublished manuscript, September 1962.

Matthews, Samuel W. "Beltsville Brings Science to the Farm." *National Geographic* 104 (August 1953): 199-218.

National Archives Records Administration, Record Groups 16 and 54.

Olmert, Michael. "Genes and Viruses are Harnessed on a Farm Tended by Scientists." *Smithsonian*, March 1982.

Pevsner, Nikolaus. *A History of Building Types*. Princeton: Princeton University Press, 1976.

"Plant Science After Fifty Years." *Science* 113 (June 19, 1951): Sup. 3.

Powell, Fred Wilbur. *The Bureau of Plant Industry; Its History, Activities*. New York: AMS Press, 1974.

Short, C.W. and R. Stanley-Brown. *Public Buildings A Survey of Architecture*. 1939.

Stokes, Dillard. "Beltsville Agricultural Research Center Does Well a Multitude of Duties." *The Washington Post*, February 20, 1938.

PG:61-20

True, Alfred Charles. *A History of Agricultural Experimentation and Research*. Washington, D.C.: U.S. Government Printing Office, 1904.

U.S. Department of Agriculture, Agricultural Research Administration. Directory of *Activities of the Bureau of Plant Industry, Soils, and Agricultural Engineering*. Washington, D.C.: United States Government Printing Office, 1952.

"U.S. Self-Dependence Stressed in Plant Industry Report." *Science* 93 (1941): 10.

J.S. Bureau of Plant Industry, Soils, and Agricultural Engineering. *Directory of Activities*. Washington, D.C.: U.S. Government Printing Office, (ND).

Wiser, Vivian and Wayne D. Rasmussen. "Background for Plenty: A National Center for Agricultural Research," *Maryland Historical Magazine*, Vol. 61, No. 4 (December 1966), p. 292.

Oral Interviews

Telephone and/or in-person interviews conducted by Carol Hooper with the following ARS/Beltsville/North Farm employees or former employees:

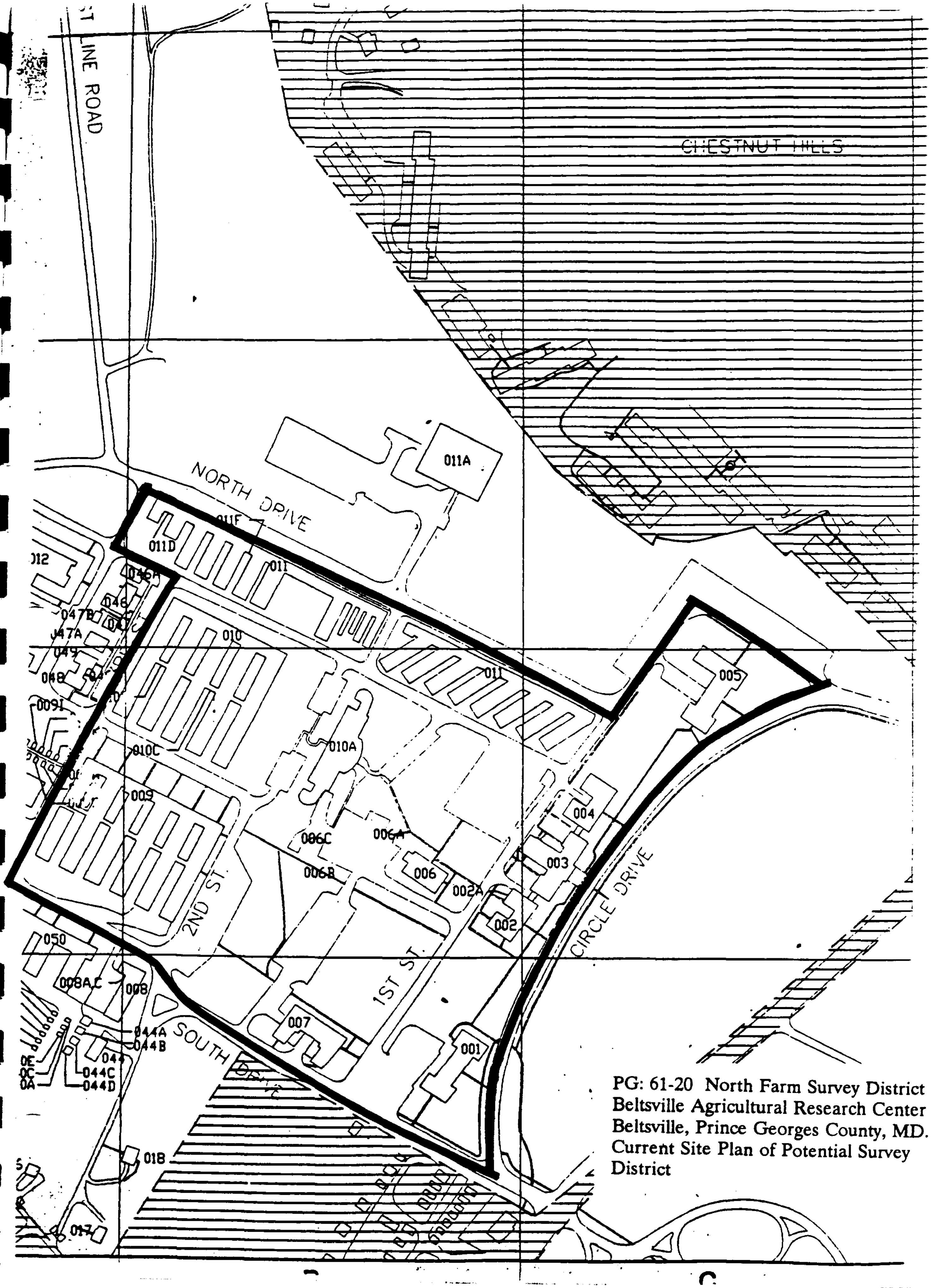
Dr. Miklos Faust 6/8/95
Joseph Graham 6/5/95
Harold Winters 6/12/95
Jim Elgin 6/5/95
Dr. L. W. Briggle 6/5/95
Howard Hruska 6/4/95
Dr. R.A. Kilpatrick 6/3/95
William Bailey 6/3/95
Mrs. J.O. Moseman 6/6/95
Mr. Robert Walker 6/22/95 (CCC landscape architect/supervisor)

PG:61-20

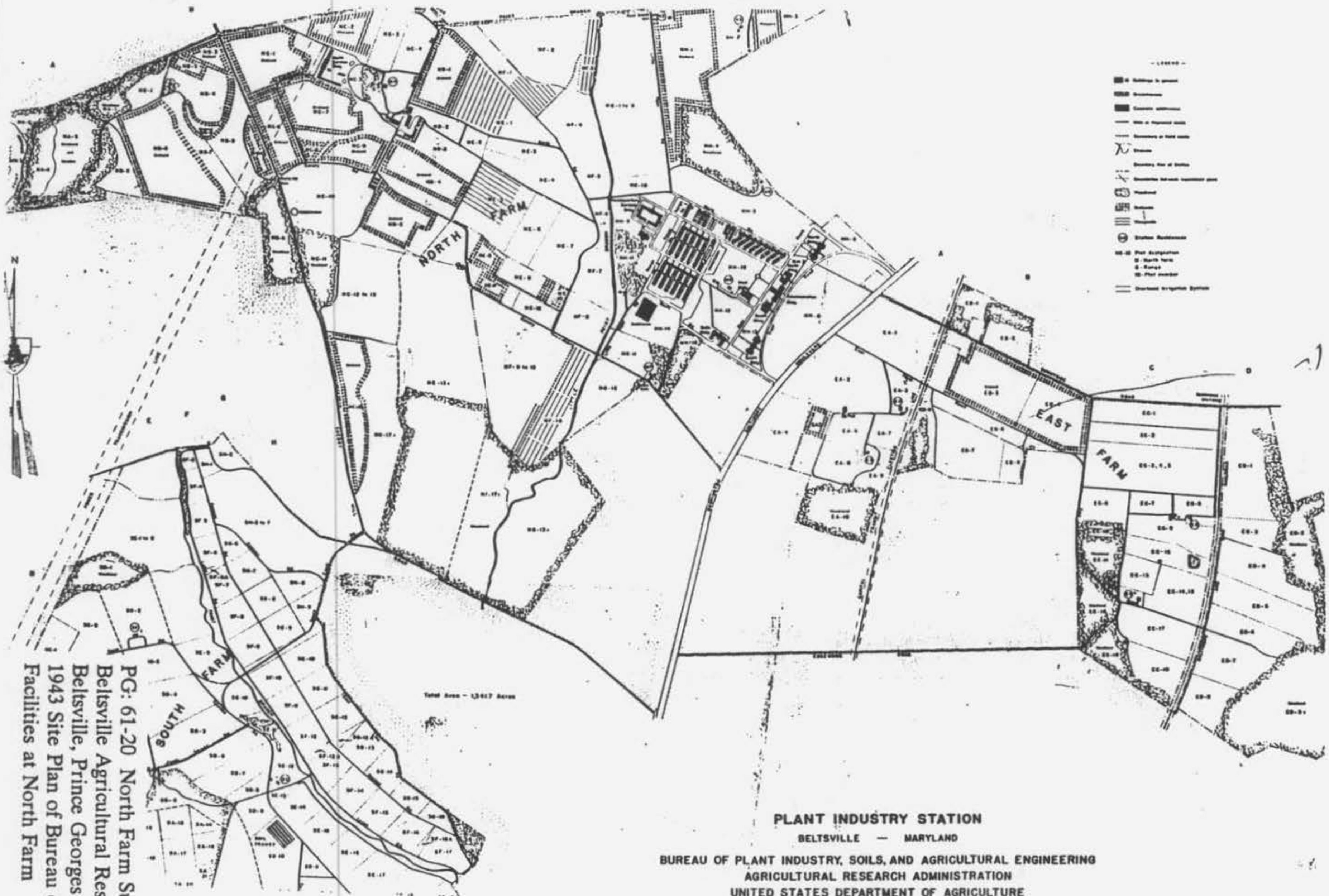
Plans/Maps

1926	*Beltsville Experimental Farm & Vicinity.*
1928	*Key Map U.S. Animal Husbandry Experiment Farm.*
1932	*U.S. Animal Husbandry Experiment Farm, Beltsville, MD.*
1933	*U.S. Animal Husbandry Farm, Cooperating and Adjoining Units.*
1934	*U.S. Experiment Station, Sketch Study for Proposed Development of Property,* A.D. Taylor and Delos Smith.
1934	*Locations of PWA Projects.*
1934	*Project Locations, U.S. Experimental Station.*
1934	*U.S. Experiment Station, Sketch Study for Proposed Development of Property,* Revised Version (Showing sites of PWA projects).
1936/37	*A Pictorial Map of the National Agricultural Research Center.*
1938	*Location of P.W.A. and W.P.A. Projects, National Agricultural Research Center.*
1939	*U.S. Department of Agriculture National Agricultural Research Center.* (Updated to 1956).
194_?	*National Agricultural Research Center* (Soil Conservation Tract).
1943	*Plant Industry Station, Beltsville, Maryland.*
1949	*U.S. Department of Agriculture Beltsville Research Center.*

Plans for Buildings at BARC (located at BARC Building 0426)



PG: 61-20 North Farm Survey District
Beltsville Agricultural Research Center
Beltsville, Prince Georges County, MD.
Current Site Plan of Potential Survey
District



PG: 61-20 North Farm Survey District
Beltsville Agricultural Research Center
Beltsville, Prince Georges County, MD.
1943 Site Plan of Bureau of Plant Indust
Facilities at North Farm

NGTON EAST)

IV NW

55'

336000m E.

INTERIOR—GEOLOGICAL SURVEY RESTON VI

1:24 000

1 MILE

3000 4000 5000 6000 7000 FEET

1 KILOMETER

ROAD CLASSIFICATION

Heavy-duty	Light-duty
Medium-duty	Unimprov
Interstate Route	U. S. Route

NTERVAL 10 FEET

VERTICAL DATUM OF 1929

QUADRANGLE LOCATION

ONAL MAP ACCURACY STANDARDS

GEOLOGICAL SURVEY

5, OR RESTON, VIRGINIA 22092

PS AND SYMBOLS IS AVAILABLE ON REQUEST

PG: 61-20 North Farm Survey Distric
Beltsville Agricultural Research Cente
Beltsville, Prince Georges County, MD
USGS Map Beltsville Quadrangle
1964, Photorevised, 1979

PG: 61-20 North Farm Survey District, Beltsville Agricultural Research Center, Prince Georges Co., MD. Carol Hooper, September 1995, Maryland SHPO, Aerial View from SE. 1/11

PG:61-20 North Farm Survey District, Beltsville Agricultural Research Center, Prince Georges Co., MD, Carol Hooper, September 1995, Maryland SHPO, Aerial View from SE., 2/11

PG:61-20 North Farm Survey District, Beltsville Agricultural Research Center, Prince Georges Co., MD. Carol Hooper, September 1995, Maryland SHPO, ~~Aerial~~ View from West. 3/11

PG. 61-20 North Farm Survey District, Beltsville Agricultural Research Center, Prince Georges Co., MD, Carol Hooper, September 1995, Maryland SHPO, Buildings 002, 003 & 004 from SE, 4/11.

PG:61-20 North Farm Survey District, Beltsville Agricultural Research Center, Prince Georges Co, MD., Carol Hooper, September 1995, Maryland SHPO, Circle Drive and Building 003 & 005 from NE. 5/11.

PG:61-20 North Farm ~~Historic~~ Survey District, Beltsville Agricultural Research Center, Prince Georges Co., MD., Carol Hooper, September 1995, Maryland SHPO, Rear of Buildings 003 & 006 from NE, 6/11.

PG:61-20 North Farm Survey District, Beltsville Agricultural Research Center, Prince Georges Co., MD, Carol Hooper, September 1995, Maryland SHPO, Rear of Building 011 to Right and 10A to Left
7/11.


20

PG:61-20 North Farm Survey District, Beltsville Agricultural Research Center, Prince Georges Co., MD, Carol Hooper, September 1995, Maryland SHPO, North Drive with view of Building 011, 8/11.

PG.:61-20 North Farm Survey District, Beltsville Agricultural Research Center, Prince Georges Co., MD, Carol Hooper, September 1995, Maryland SHPO, Building 003 from SE, 9/11.

PG:61-20 North Farm Survey District, Beltsville Agricultural Research Center, Prince Georges Co., MD.
Carol Hooper, September 1995, Maryland SHPO,
Building 002 from SE, 10/11.

P6: 61-20 North Farm Survey District, Beltsville Agricultural Research Center, Prince Georges Co., MD., Carol Hooper, September 1995, Maryland SHPO, Building 005, 11/11.

1 [illegible]

2 BPRC

3 Prince George Co, Md

4 Susan Taylor

5 5/98

6 Md SHPO

7 Building 1+2

8 1 [illegible]

1 PG:61-26

2 BARC

3 Prince Georges Co, Md

4 Susan Taylor

5 5/98

6 Md SHPO

7 [illegible]

8 2 of 4


002

1 PG: 61-20

2 BARC

3 Prince Georges Co, Md

4 Susan Taylor

5 5/98

6 Md SHPO

7 Building 2 + 3

8 3, 7 + 14


004

1 PG:61-20

2 BARC

3 Prince Georges Co. Md

4 Susan Taylor

5 5/98

6 Md SHPO

7 Building 4

8 4 of 12


NORTH DR.
004

1 PG 61-20

2 BARC

3 Prince Georges Co, Md

4 Susan Taylor

5 5/98

6 Md SHPO

7 Building 4

8 5 of 14


005

1 PG:61-20

2 PPKC

3 Prince George Co. Md

4 Susan Taylor

5 5/98

6 Md SHPO

7 North Farm Bldg 5

8 6 of 14


006

1 PG:61-20

2 BARC

3 Prince Georges Co, Md

4 Susan Taylor

5 5/98

6 Md SHPO

7 Building 6

8 7 of 14


007

1 PG 61-20

2 [illegible]

3 Prince Georges Co, Md

4 Susan Taylor

5 5/98

6 Md SHPO

7 [illegible]

8 8 of 14


008

1 PG 61-22

2 BARC

3 Prince George, Co, Md

4 Susan Taylor

5 5/98

6 Md SHPO

7 Building 8

8 9 of 14


009
STOP

1 PG:62-23

2 [illegible]

3 Prince Georges Co, Md

4 Susan Taylor

5 5/98

6 Md SHPO

7 Building 9

8 13 of 14

1 PG: [illegible]

2 BARC

3 Prince George's Co, Md

4 Susan Taylor

5 5/98

6 Md SHPO

7 Back of Greenhouses

8 11 of 14


011

1 PG 61-30

2 BHPC

3 Prince George's Co, Md

4 Susan Taylor

5 5/98

6 Md SHPO

7 Building 11

8 12 of 14

1 PG: 81-20

2 BARC

3 Prince Georges Co, Md

4 Susan Taylor

5 5/98

6 Md SHPO

7 Line of Greenhouses

8 13 of 14


014

1 PG:61-20

2 BARC

3 Prince Georges Co. Md

4 Susan Taylor

5 5/98

6 Md SHPO

7 [illegible]

8 [illegible] of [illegible]

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix F
RECORD OF NON-APPLICABILITY (RONA)

GENERAL CONFORMITY – RECORD OF NON-APPLICABILITY

Project/Action Name:	**U. S. Department of Agriculture - Beltsville Agricultural Research Center - Proposed Renovations of Buildings 002,005,308**
Project/Action Point of Contact:	**Janice Rogers**
Begin Date (Anticipated): 10/01/2021	**End Date (Anticipated): 10/01/2022**

General Conformity under the Clean Air Act, Section 176 has been evaluated for the project described above according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to this project/action because the total project emissions in tons per year (tpy) of pollutants for which the project area is in nonattainment or maintenance of National Ambient Air Quality Standards have been estimated to be:

Total Project Emissions

Volatile Organic Compounds (VOC)	5.2 tpy
Nitrogen Oxides (NO_x)	46.8 tpy
Carbon Monoxide (CO)	43.3 tpy

Conformity Threshold Rate

VOC	50 tpy
NO_x	100 tpy
CO	100 tpy

Supporting documentation and emissions estimates are attached.

SIGNED LEANN BLOMBERG Digitally signed by LEANN BLOMBERG Date: 2021.08.03 17:34:08 -04'00' ____________________

Dr. LeAnn Blomberg

Assistant Director

SUPPORTING DOCUMENTATION

Description of Project/Action:

The Proposed Action summarized in Table 1 below will consist of renovation of Building 002,005,308 at the Beltsville Agricultural Research Center.

Table 1 – Proposed Action

Description	Proposed Action Impacts	Air Impacts From
Renovations of Buildings 002,005,308	<u>Building 002</u> The Proposed Action would renovate the interior as well as exterior of Building 002 and construct an addition on the eastern portion of the building. Multiple layouts for the addition are still being considered. Renovations would be intended to update all utilities and laboratories, mitigate environmental concerns (e.g mold and asbestos, etc.) and provide office/lab swing as needed. As many aspects of the original interior would be maintained as possible. Renovations would restore the exterior of the building while renovating and modernizing the interior. All exterior windows and doors throughout the building would be replaced in-kind. Exterior renovations would include: demolishing the existing slate roofing to be replaced with a new slate roofing system, exterior double-hung wood window demolishment and replacement with new operable windows, exterior brick re-pointing and repaired where necessary, and building entrance renovations to meet ADA requirements. Interior renovations would include the removal of existing partitions, replacement of partitions, and removal of the existing elevator. Wildlife Staff Office <u>Building 005</u> The Proposed Action would renovate the interior as well as exterior of Building 005. Renovations would be intended to update all utilities, mitigate environmental concerns (e.g mold and asbestos, etc.) and provide office space as needed. Renovations would restore the exterior of the building while renovating and modernizing the interior. As many aspects of the original interior would be maintained as possible. Building 005 previously had 75% of exterior windows replaced; the remaining original windows would be replaced with the Proposed Action. Exterior renovations would include: demolishing the existing slate roofing to be replaced with a new slate roofing system, exterior double-hung wood window demolishment and replacement with new operable windows, exterior brick re-pointing and repaired where necessary, and building entrance renovations to meet ADA requirements. Interior renovations would include the removal of existing partitions, replacement of partitions, and removal of the existing elevator. Severe water damage evident of the building's upper floors would also be addressed, including associated mold issues.	Construction Equipment Surface Disturbance Vehicle Transport

Table 1 – Proposed Action (Continued)

Description	Proposed Action Impacts	Air Impacts From
Renovations of Buildings 002,005,308	Building 308 Renovate the interior as well as exterior of Building 308 and construct an addition on the northwest corner of the building. The addition would house the research division requiring a 10-foot ceiling and be connected to the building through a hyphen at the building's basement level. To accommodate the added weight, the site would be excavated and graded, and a retaining wall would be built. The addition would be designed to have minimal impacts on the southern approach view. Designs for the addition would be compatible with historic design as much as possible. The addition would be placed on the eastern portion of the building for easy public access, while also limiting the public's access to research and laboratory areas in the building. Renovations would be intended to update all utilities and laboratories, mitigate environmental concerns (e.g mold and asbestos, etc.) and provide office/lab swing as needed. As many aspects of the original interior would be maintained as possible. Renovations would restore the exterior of the building while renovating and modernizing the interior. All exterior windows and doors throughout the building would be replaced in-kind. Exterior renovations would include: demolishing the existing slate roofing to be replaced with a new slate roofing system, exterior double-hung wood window demolishment and replacement with new operable windows, exterior brick re-pointing and repaired where necessary, and building entrance renovations to meet ADA requirements. Interior renovations would include the removal of existing partitions, replacement of partitions, and removal of the existing elevator.	Construction Equipment Surface Disturbance Vehicle Transport

Air Emission Input Parameters and Assumptions:

The anticipated project emissions have been conservatively estimated over a year (Table 2). Based on information available at the time of this RONA, it is important to note that projected changes are re-evaluated on a continuing basis. Best engineering judgment has been applied to quantify the emissions inventory for combustion equipment types, quantity, size, usage, and emission factors. The same engineering judgment was applied to all other project-specific parameters for input parameters not otherwise defined in the current Proposed Action plan.

Project Duration

The Proposed Action is expected to operate for a period of 12 months. Construction crews and equipment operations were estimated to be active 260 days a year and emissions were calculated for the worst-case annual emissions.

__Nonroad Construction and Demolition Emissions__

The nonroad combustion equipment inventory includes a variety of combustion equipment as predicted may be operated under the Proposed Action activities. Table 3 lists anticipated non-road equipment types, operation conditions, and emission factors. Nonroad equipment emission factors were based on the Sacramento Metropolitan Air Quality Management District, Road Construction Emissions Model, Version 9.0.0. It is anticipated that the total operating hours per year for any of the listed equipment will not exceed the estimated hours for the Proposed Action.

__Vehicular Transport Emissions__

The vehicular transport fleet includes 5 passenger gasoline vehicles, 10 gasoline pickup trucks, and 5 heavy duty diesel trucks each travelling approximately 200 miles per day for 260 days a year. Emission calculations for the annual vehicular fleet operations are in Table 4. It is anticipated that the total annual vehicle miles traveled for any vehicle type will not exceed the estimated mileages for the Proposed Action.

__Wind Erosion for Disturbed Areas__

The area of disturbed land is conservatively anticipated to be up to about 6 acres. Emissions were estimated based on AP-42 Chapter 11.9 for Western Surface Coal Mining from wind erosion and maintenance operations (Table 5). The potential for wind erosion emissions were estimated to be 2.28 tpy of Total Suspended Particulates (TSP), 1.14 tpy for $PM_{10,}$ and 0.17 tpy for $PM_{2.5.}$

Air Quality Impact Results:

The Proposed Action is in Prince George's County which in marginal nonattainment for the 2015 8-hour ozone (O_3) and in maintenance for CO. The County is within the National Capital Interstate Air Quality Control Region which is also considered an ozone transport area. The general conformity requirements and thresholds only apply to criteria pollutants that are in nonattainment or maintenance of the NAAQS. Therefore, *de minimis* levels for the project area are 100 tpy for NO_X and 50 tpy for VOCs as established for nonattainment areas located in an ozone transport area. The *de minimis* level for CO is 100 tpy.

<u>Air Quality Impact Results for the Worst-Case Annual Proposed Action Emissions</u>

Table 2: Summary of Annual Proposed Action Emissions

Estimated Emissions	**Emissions (tons/year)**		
	VOC	**CO**	**NO_X**
Proposed Action Emissions	5.2	43.3	46.8
de minimis threshold	50	100	100
Exceeds *de minimis* threshold?	No	No	No

Table 3: Combustion Emissions for NONROAD Equipment

Equipment Type	Estimated NONROAD Inventory					Emission Factor (grams/hp/hour)[1]									Annual Emissions (tons/year)[2]								
	No. Units	HP	hour/day	day/year	hour/year	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Air Compressors	3	120	8	260	6,240	0.44	3.67	3.08	0.01	0.19	0.19	568.30	0.04	0.004	0.36	3.03	2.55	5.0E-03	0.16	0.16	469	3.22E-02	3.53E-03
Bore/Drill Rigs	1	250	8	260	2,080	0.13	1.06	1.55	0.00	0.05	0.04	467.99	0.15	0.004	0.08	0.61	0.89	2.8E-03	0.03	0.02	268	8.68E-02	2.45E-03
Cement and Mortar Mixers	3	25	8	260	6,240	0.71	2.38	4.42	0.01	0.18	0.18	568.30	0.06	0.005	0.12	0.41	0.76	1.2E-03	0.03	0.03	98	1.10E-02	8.17E-04
Concrete/Industrial Saws	3	50	8	260	6,240	0.72	4.48	4.06	0.01	0.18	0.18	568.30	0.07	0.005	0.25	1.54	1.40	2.4E-03	0.06	0.06	195	2.24E-02	1.63E-03
Cranes	2	250	8	260	4,160	0.35	1.68	4.10	0.00	0.17	0.15	472.91	0.15	0.004	0.40	1.92	4.71	5.6E-03	0.19	0.18	542	1.75E-01	4.90E-03
Crawler Tractors	2	250	8	260	4,160	0.34	1.51	4.33	0.00	0.16	0.15	472.92	0.15	0.004	0.39	1.74	4.97	5.6E-03	0.19	0.17	542	1.75E-01	4.90E-03
Crushing/Proc. Equipment	1	175	8	260	2,080	0.34	3.24	2.11	0.01	0.11	0.11	568.30	0.03	0.004	0.14	1.30	0.85	2.4E-03	0.04	0.04	228	1.24E-02	1.71E-03
Excavators	1	750	8	260	2,080	0.17	1.15	1.62	0.00	0.06	0.05	469.55	0.15	0.004	0.28	1.98	2.79	8.4E-03	0.10	0.09	807	2.61E-01	7.35E-03
Forklifts	3	120	8	260	6,240	0.41	3.72	3.76	0.00	0.27	0.25	471.53	0.15	0.004	0.34	3.07	3.10	4.0E-03	0.22	0.20	389	1.26E-01	3.53E-03
Generator Sets	3	120	8	260	6,240	0.33	3.36	2.89	0.01	0.15	0.15	568.30	0.03	0.004	0.27	2.77	2.39	5.0E-03	0.13	0.13	469	2.39E-02	3.53E-03
Other Construction Equipment	3	175	8	260	6,240	0.33	3.18	3.44	0.00	0.18	0.17	469.76	0.15	0.004	0.40	3.83	4.14	5.8E-03	0.22	0.20	565	1.83E-01	5.14E-03
Other Material Handling Equipment	3	175	8	260	6,240	0.25	3.20	2.25	0.00	0.11	0.10	472.22	0.15	0.004	0.30	3.85	2.71	5.9E-03	0.14	0.13	568	1.84E-01	5.14E-03
Plate Compactors	1	15	8	260	2,080	0.66	3.47	4.14	0.01	0.16	0.16	568.30	0.06	0.005	0.02	0.12	0.14	2.8E-04	0.01	0.01	20	2.03E-03	1.63E-04
Rollers	1	120	8	260	2,080	0.35	3.51	3.59	0.00	0.22	0.20	473.90	0.15	0.004	0.10	0.96	0.99	1.3E-03	0.06	0.06	130	4.22E-02	1.18E-03
Rubber Tired Loaders	1	250	8	260	2,080	0.27	1.24	3.00	0.00	0.10	0.09	469.56	0.15	0.004	0.15	0.71	1.72	2.8E-03	0.06	0.05	269	8.71E-02	2.45E-03
Scrapers	1	500	8	260	2,080	0.30	2.25	3.44	0.00	0.13	0.12	472.46	0.15	0.004	0.34	2.58	3.95	5.6E-03	0.15	0.14	542	1.75E-01	4.90E-03
Sweepers/Scrubbers	3	120	8	260	6,240	0.44	3.76	3.96	0.00	0.29	0.27	474.12	0.15	0.004	0.36	3.10	3.27	4.0E-03	0.24	0.22	391	1.27E-01	3.53E-03
Tractors/Loaders/Backhoes	2	120	8	260	4,160	0.30	3.57	3.00	0.00	0.18	0.16	475.36	0.15	0.004	0.16	1.96	1.65	2.7E-03	0.10	0.09	262	8.46E-02	2.35E-03
Trenchers	1	120	8	260	2,080	0.56	3.79	5.11	0.00	0.37	0.34	475.29	0.15	0.004	0.15	1.04	1.41	0.0013	0.10	0.09	131	4.23E-02	1.18E-03
Welders	1	50	8	260	2,080	0.83	4.71	4.13	0.01	0.20	0.20	568.30	0.07	0.005	0.10	0.54	0.47	0.0008	0.02	0.02	65	8.48E-03	5.45E-04
Water Trucks	1	175	8	260	2,080	0.28	3.32	2.25	0.00	0.11	0.10	470.29	0.15	0.004	0.11	1.33	0.90	0.0020	0.05	0.04	189	6.10E-02	1.71E-03
											TOTAL				**4.9**	**38.7**	**46.3**	**0.1**	**2.3**	**2.2**	**7,206**	**1.9**	**0.1**

Notes:

1. OFFROAD EMISSION FACTORS, SacMetro AQMD, Road Construction Emissions Model, Version 9.0.0, 2016. Emission factors for year 2020 are used.
2. Conversion of 453.59 grams per pound and 2000 pounds per ton used for the calculations.

Table 4: On-Highway Vehicular Emissions Inventory

Pollutant	Emission Factors (g/mile)[1]			No. Cars[2]	No. Trucks[2]	No. Heavy Duty Trucks[2]	Miles per Vehicle per day[2]	Days/year[2]	Tons/year
	Passenger Cars	Pickup Trucks	Heavy Duty Trucks						
VOC	0.17	0.30	0.077	5	10	5	200	260	0.24
CO	2.9	6.1	1.02	5	10	5	200	260	4.63
NO_X	0.12	0.42	0.94	5	10	5	200	260	0.55
SO_2	0.0042	0.0054	0.0070	5	10	5	200	260	0.01
PM_{10}	0.0076	0.013	0.014	5	10	5	200	260	0.01
$PM_{2.5}$	0.0070	0.012	0.014	5	10	5	200	260	0.01
CO_2[3]	335.0	461.0	1387.0	5	10	5	200	260	757.77
CH_4[4]	0.009	0.012	0.013	5	10	5	200	260	0.01
N_2O[4]	0.008	0.010	0.033	5	10	5	200	260	0.02

Notes:

1. Average annual emissions and fuel consumption for gasoline-fueled passenger cars (gasoline) and light trucks (gasoline) and short haul trucks (diesel). Emission rates are referenced from the Argonne National Laboratory Report, Updated Emission Factors of Air Pollutants from Vehicle Operations in GREET Using MOVES (ANL 2013). Emission Factors are based on Model Year 2018 vehicles.
2. Estimated annual vehicle fleet.
3. Emission Factor is based on EPA's "Emission Factors for GHG Inventories", last modified in March 2020. Table 8 for Heavy duty truck and Table 10 for passenger cars and pickup trucks.

Table 5: Wind Erosion Emissions for Disturbed Areas

Pollutant	Particle Size Multiplier, k[1]	Emission Factor (T/acre-year)[2]	Total Acreage of Disturbance[3]	Potential Uncontrolled Emissions (tons/year)	Control Efficiency	Potential Controlled Emissions (tons/year)
TSP	1	0.38	6.0	2.3	0%	2.28
PM_{10}	0.5	0.19	6.0	1.1	0%	1.14
$PM_{2.5}$	0.075	0.03	6.0	0.2	0%	0.17

Notes:

1. AP-42 Table 11.9-1 and 11.9-4 indicates that for the wind erosion emission factor, "To estimate emissions on a shorter time scale (e. g., worst-case day), see the procedure presented in Section 13.2.5". AP-42 13.2.5 provides particle size multipliers which are applied to estimate size distribution from the TSP emission factor provided in AP-42 Table 11.9-1 and 11.9-4.
2. Uncontrolled particulate emissions from wind erosion of disturbance acreage are calculated from the TSP emission factor provided in AP-42 11.9-4 for exposed areas.
3. Based on an estimated acreage of buildings that will undergo renovations due to the Proposed Action (conservative estimate)

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix G

AGENCY AND PUBLIC COMMENTS AND RESPONSES