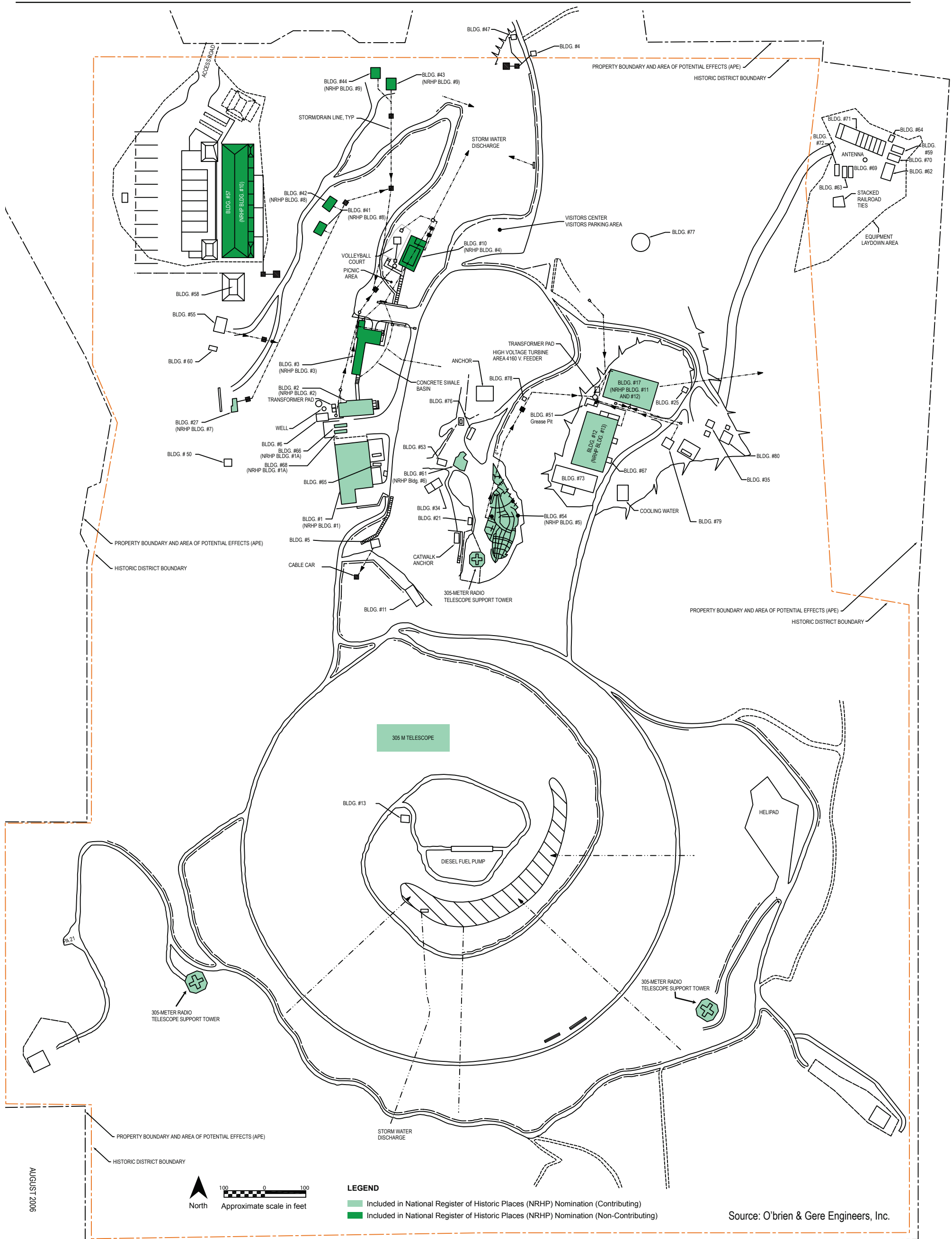


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Attachment A
NAIC Historic District Map



LEGEND

- Included in National Register of Historic Places (NRHP) Nomination (Contributing)
- Included in National Register of Historic Places (NRHP) Nomination (Non-Contributing)

Source: O'Brien & Gere Engineers, Inc.

BUILDING NO. DESCRIPTION

- | | | | |
|---|--|--|--|
| <ul style="list-style-type: none"> 1. OPERATIONS BUILDING (NRHP BLDG #1) (1963) 2. ADMINISTRATION BUILDING (NRHP BLDG #2) (1963) 3. VISITING SCIENTIST QUARTERS AND CAFETERIA (NRHP BLDG #3) (1963) 4. ENTRANCE GUARD HOUSE (1963) 5. CABLE CAR HOUSE (1963) 6. PUMP HOUSE/WATER TREATMENT BLDG. (1963) 10. SWIMMING POOL/RESTROOMS (NRHP BLDG #4) (Mid 1960s) 11. LEWIS BUILDING-RIGGING LOFT (Mid 1960s) 12. MAINTENANCE SHOPS (NRHP BLDG #13) (1967) 13. BOWL SHACK (1963) 17. WAREHOUSE (NRHP BLDGS #11 AND #12) (1967) 21. ANTENNA TESTING RANGE 25. PAINT STORAGE BUILDING (Circa 2010) 27. OPTICAL LABS (NRHP BLDG #7) (1985/1997) 34. HIGH VOLTAGE POWER SUPPLY BLDG. (1973) | <ul style="list-style-type: none"> 35. CUMMINGS GENERATOR CONTROL BLDG. (2010) 41. WEST HILL V.S.Q. BACHELOR UNIT 1 (NRHP BLDG #8) (1990s) 42. WEST HILL V.S.Q. BACHELOR UNIT 2 (NRHP BLDG #8) (1990s) 43. WEST HILL V.S.Q. FAMILY UNIT 1 (NRHP BLDG #9) (1990s) 44. WEST HILL V.S.Q. FAMILY UNIT 2 (NRHP BLDG #9) (1990s) 47. MAIN GATE RESTROOM (1963) 50. INTERFERENCE MONITORING SHACK 51. GREASE PIT 53. EMERGENCY GENERATOR BLDG. 54. VISITOR CENTER BLDG. (NRHP BLDG #5) (1997) 55. LIDAR LABORATORY BLDG. (1996) 57. NORTH V.S.Q. BLDG. (NRHP BLDG #10) (2002) 58. NORTH V.S.Q. UTILITY BLDG. (2002) 59. VISITOR CENTER TRAILER 60. ANT. RECE. TESTING BLDG. (Late 1990s) | <ul style="list-style-type: none"> 61. LEARNING CENTER (NRHP BLDG #6) (2001) 62. HFF STORAGE TRAILER 63. IONOSONDE TRAILER 64. ELECTRONIC TRAILER 65. SHIELDED TRAILER (1983) 66. ATMOSPHERIC SCIENCE TRAILER (NRHP BLDG #1A) 67. CRYOGENICS LAB TRAILER (1967) 68. SCIENTIFIC OFFICES TRAILER (NRHP BLDG #1A) 69. ELECTRONIC TRAILER (WAVEGUIDE) 70. COMPUTER TRAILER 71. ELECTRONICS CABLE TRAILER 72. ELECTRONIC TRAILER (CRYOGENICS) 73. HF TRANSMITTER BUILDING (2000s) 76. INSPIRATION FOR SCIENCE TRAILER (2000s) 77. PHASE REFERENCE ANTENNA (12M) (2010) | <ul style="list-style-type: none"> 78. COFFEE HUT (2000s) 79. ENGINEERING OFFICE BUILDING (2000s) 80. CUMMINGS DIESEL GENERATOR BUILDING (2010) |
|---|--|--|--|

**Architectural Resources and
Historic Properties within the APE**
Arcicbo Observatory
Puerto Rico



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Attachment B
Table of Historic Properties in
NAIC Historic District

Contributing Resources to the National Astronomy and Ionosphere Center Historic District

Structure/Building Number	Building Name	Year of Construction
National Register of Historic Places designation (NRHP)*: N/A	305-meter Reflector	1963
Arecibo Observatory designation (AO): N/A	305-meter Radio Telescope and Support Towers	
NRHP: Buildings #1 and #1A	Visitors Offices, Electronics/Digital Lab, Control Room/Operators Office, Facilities/Maintenance (2 nd level); and Safety/Security Office, PC Network Office, Visiting Scientists Offices	1963 (addition in 1983) Year of construction for trailers unknown.
AO: Building #1 (and Trailers #66 and #68)	Operations Building (with Atmospheric Science Trailer and Scientific Offices Trailer)	
NRHP: Building #2	1st floor: Scientific Services, Human Resources, TV/Conference Room; 2 nd floor: Director and Administration, Library, Mail Room; 3 rd floor: Palomar Room, Scientific Staff Offices; 4 th floor: Scientific Staff Offices	1963
AO: Building #2	Administration Building	
NRHP: Building #5	Visitors Center	1997 (addition 2015)
AO: Building #54	Visitor Center Building (Fundación Angel Ramos Visitor and Educational Facility)	
NRHP: Building #6	Learning Center	2001
AO: Building #61	Learning Center	
NRHP: Building #7	Atmospheric and Optical Labs	1985/1997
AO: Building #27	Optical Labs	
NRHP: Buildings #11 and #12	Warehouse and Business/Purchasing	1967
AO: Building #17	Warehouse	
NRHP: Building #13	Machine Shop	1967
AO: Building #12	Maintenance Shops	

* The National Register of Historic Places Registration Form, which was completed in 2007, provides building numbers and names that do not always correspond to the current Arecibo Observatory facility designations. For this reason, the current NRHP Registration Form building designations are provided along with the Arecibo Observatory designations that are provided in Attachment A. Also note that the Registration Form does not indicate which of the 13 described buildings/structures are contributing resources to the NAIC Historic District. The above 8 buildings/structures were identified as contributing resources based on correspondence with the Puerto Rico SHPO on May 20, 2016.

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Attachment C
References and Definitions

PA References:

- Gaume, Ralph A. and James S. Ulvestad. 2017. National Science Foundation NSF 17-079 Dear Colleague Letter: MPS-AST Facility Divestment Activity. April 27.
<https://www.nsf.gov/pubs/2017/nsf17079/nsf17079.jsp>
- National Academies of Sciences, Engineering, and Medicine (NASEM). 2016. *New Worlds, New Horizons: A Midterm Assessment*. Washington, DC: The National Academies Press.
<https://doi.org/10.17226/23560>
- National Science Foundation (NSF) Directorate for Mathematical & Physical Sciences Division of Astronomical Sciences and Directorate for Geosciences Division of Atmospheric and Geospace Sciences. 2017. Program Solicitation NSF 17-538 Management and Operations of the Arecibo Observatory. January 25. <https://www.nsf.gov/pubs/2017/nsf17538/nsf17538.htm>
- National Science Foundation (NSF) Division of Astronomical Sciences (AST). 2006. *From the Ground Up: Balancing the NSF Astronomy Program* (Senior Review Committee Report). Prepared by the Senior Review Committee. October 22.
https://www.nsf.gov/mps/ast/seniorreview/sr_report_mpsac_updated_12-1-06.pdf
- National Science Foundation (NSF) Division of Astronomical Sciences (AST). 2012. *Advancing Astronomy in the Coming Decade: Opportunities and Challenges* (Portfolio Review Committee Report). Prepared by the Portfolio Review Committee. August 14.
https://www.nsf.gov/mps/ast/portfolioreview/reports/ast_portfolio_review_report.pdf
- National Science Foundation (NSF) Division of Atmospheric and Geospace Science (AGS). 2016. *Investments in Critical Capabilities for Geospace Science 2016 to 2025 - A Portfolio Review of the Geospace Section of the Division of Atmospheric and Geospace Science*. Prepared by the Portfolio Review Committee: Daniel N. Baker, Jorge Chau, Christina Cohen, Sarah Gibson, Joseph Huba, Mona Kessel, Delores Knipp, Louis Lanzerotti, William Lotko (*Chair*), Patricia Reiff, Alan Rodger, Joshua Semeter (*GEO/Advisory Committee Liaison*), Howard Singer. April 14.
<https://www.nsf.gov/geo/adgeo/geospace-review/geospace-portfolio-review-final-rpt-2016.pdf>
- Ulvestad, James S. and Paul B. Shepson. 2015. National Science Foundation NSF 16-005 Dear Colleague Letter: Concepts for Future Operation of the Arecibo Observatory. October 26.
<https://www.nsf.gov/pubs/2016/nsf16005/nsf16005.pdf>
- Ulvestad, James S. and Paul B. Shepson. 2016. National Science Foundation NSF 16-144 Dear Colleague Letter: Intent to Release a Solicitation Regarding Future Continued Operations of the Arecibo Observatory. September 30. <https://www.nsf.gov/pubs/2016/nsf16144/nsf16144.jsp>

PA Definitions:

Adverse Effect: a change to the characteristics that qualify a historic property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association (36 CFR 800.5(a)).

Area of Potential Effects (APE): the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking (36 CFR 800.16(d)). It is important to understand that the effects

pertain to the effects on physical historic properties (eligible for or listed in the National Register of Historic Places [NRHP]) in a specific area.

Concurring Party: Any consulting party that has been invited by the federal agency (NSF) to concur in the PA. Concurring parties have the same rights with regard to seeking amendment or termination of the PA as other signatories. The refusal of any party invited to concur in the PA does not invalidate the document (36 CFR 800.16(d)).

Consultation: the process of seeking, discussing, and considering the views of other participants, and, where feasible, seeking agreement with them regarding matters arising in the Section 106 process (36 CFR 800.16(f)).

Consulting Party: Section 106 term that refers to organizations and/or individuals with a demonstrated interest in the undertaking due to the nature of their legal or economic relation to the undertaking or affected properties, or their concern with the undertaking's effects on historic properties. The participation of consulting parties is subject to approval by the federal agency (in this case, NSF). Consulting parties are actively informed of and able to participate in the Section 106 process, including consultation meetings. The views of consulting parties are actively sought by NSF during the Section 106 consultation process. (36 CFR 800.2(c)(5))

Effect: an alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the NRHP (36 CFR 800.16(i)).

Historic Property: Any resource, such as a building, structure, or historic district, included in or eligible for inclusion in the NRHP, maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the NRHP criteria (36 CFR 800.16(l)).

Invited Signatory: Any party that is assigned a responsibility under the PA and is invited by the federal agency (NSF) to sign the PA. Any invited signatory that signs the PA has the same rights with regard to seeking amendment or termination of the PA as other signatories. The refusal of any party invited to become a signatory to a PA does not invalidate the document (36 CFR 800.6(c)(2)).

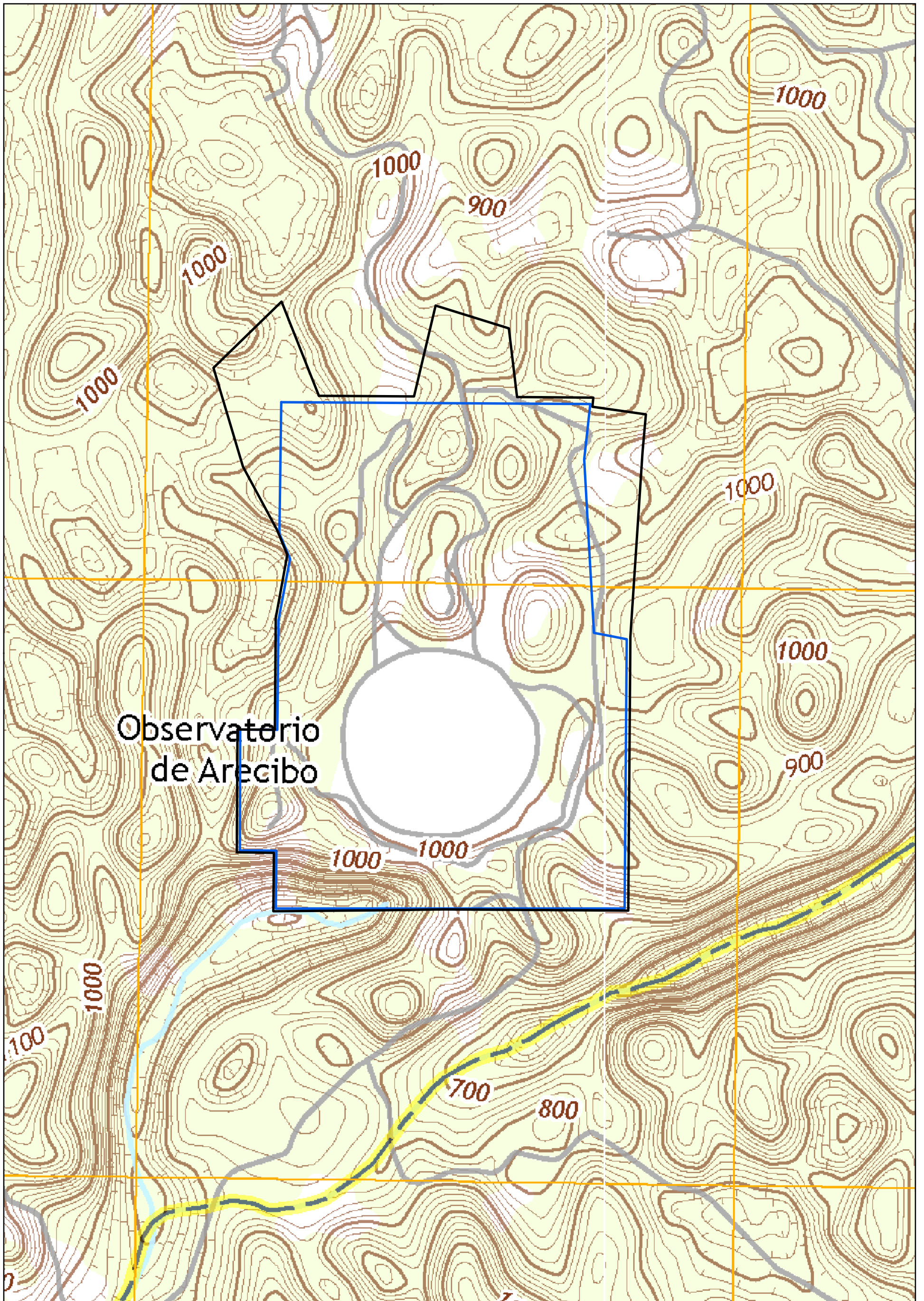
Signatory: Signatories include the federal agency (NSF), PR SHPO, and ACHP, and they have the sole authority to execute, amend, or terminate the PA (36 CFR 800.6(c)(1)).



Programmatic Agreement (PA): A document that records the terms and conditions agreed upon to resolve the potential adverse effects of a federal agency program or complex undertaking. For this undertaking, a PA is used to document the ways in which adverse effects are addressed because the result of the 2017 solicitation for new collaborators is undetermined and the needs of any new collaborator(s) are unknown (36 CFR 800.14(b)).

Undertaking: A project, activity, or program funded in whole or in part by a federal agency (36 CFR 800.16(y)).

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Attachment D
Area of Potential Effects



-  Property Boundary and Area of Potential Effects (APE)
-  Historic District Boundary



1 inch = 500 feet
 0 250 500
 Feet

Cultural Resources Area of Potential Effects
 Arecibo Observatory
 Puerto Rico

USGS Topographic Quads Bayaney NE (2013) and Utuado NW (2013)

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Attachment E

Buildings and structures that may be retained or demolished based on the needs of any collaborator(s) under Alternative 1- *Collaboration with Interested Parties for Continued Science-focused Operations*

Buildings and structures that may be retained or demolished based on the needs of any collaborator(s) under Alternative 1, *Collaboration with Interested Parties for Continued Science-focused Operations*

Structure/Building Number	Building Name	Year of Construction, if known
National Register of Historic Places designation (NRHP)*: #1A	Visitors Offices, Electronics/Digital Lab, Control Room/Operators Office, Facilities/Maintenance (2 nd level); and Safety/Security Office, PC Network Office, Visiting Scientists Offices	1963 (addition in 1983)
Arecibo Observatory designation (AO): Trailers #66 and #68	Atmospheric Science Trailer and Scientific Offices Trailer	Year of construction for trailers unknown.
NRHP: Building #2	1st floor: Scientific Services, Human Resources, TV/Conference Room; 2 nd floor: Director and Administration, Library, Mail Room; 3 rd floor: Palomar Room, Scientific Staff Offices; 4 th floor: Scientific Staff Offices	1963
AO: Building #2	Administration Building	
NRHP: Buildings #11 and #12	Warehouse and Business/Purchasing	1967
AO: Building #17	Warehouse	
NRHP: #4	Recreation Area	
AO: #10	Swimming Pool/Restrooms (with additional recreation areas)	mid 1960s
NRHP: #8 (B1-B2)	VSQ Bachelor Units (B1-B2)	1990s
AO: #41	West Hill V.S.Q. Bachelor Unit 1	
NRHP: #8 (B3-B4)	VSQ Bachelor Units (B3-B4)	1990s
AO: #42	West Hill V.S.Q. Bachelor Unit 2	
NRHP: #9 (F1)	VSQ Family Units F1	1990s
AO: #43	West Hill V.S.Q. Family Unit 1	
NRHP: #9 (F2)	VSQ Family Units F2	1990s
AO: #44	West Hill V.S.Q. Family Unit 2	
NRHP: N/A	N/A	mid 1960s
AO: #11	Lewis Building-Rigging Loft	
NRHP: N/A	N/A	1963
AO: #13	Bowl Shack	
NRHP: N/A	N/A	
AO: #21	Antenna Testing Range	
NRHP: N/A	N/A	2010
AO: #25	Paint Storage Building	
NRHP: N/A	N/A	1973
AO: #34	High Voltage Power Supply Building	

NRHP: N/A	N/A	Late 1990s
AO: #60	Antenna Receiving Testing Building	
NRHP: N/A	N/A	1983
AO: #65	Shielded Trailer	
NRHP: N/A	N/A	2000s
AO: #73	HF Transmitter Building	
NRHP: N/A	N/A	2000s
AO: #78	Coffee Hut	
NRHP: N/A	N/A	
AO: #62	HFF Storage Trailer	
NRHP: N/A	N/A	
AO: #71	Electronics Cable Trailer	
NRHP: N/A	N/A	
AO: #64	Electronic Trailer	
NRHP: N/A	N/A	
AO: #59	Visitor Center Trailer	
NRHP: N/A	N/A	
AO: #70	Computer Trailer	
NRHP: N/A	N/A	
AO: #63	Ionosonde Trailer	
NRHP: N/A	N/A	
AO: #69	Electronic Trailer (Waveguide)	
NRHP: N/A	N/A	
AO: #72	Electronic Trailer (Cryogenics)	

Key:

- Contributing Resources:** described in the National Register of Historic Places Registration Form, which was completed in 2007, and identified as contributing to the NAIC Historic District Historic District based on correspondence with the Puerto Rico SHPO on May 20, 2016.
- Non-Contributing Resources:** described in the National Register of Historic Places Registration Form, which was completed in 2007, and identified as non-contributing to the NAIC Historic District Historic District based on correspondence with the Puerto Rico SHPO on May 20, 2016.
- Unevaluated:** buildings/structures not designated as contributing or non-contributing resources and considered to be unevaluated at this time.

** The National Register of Historic Places Registration Form provides building numbers and names that do not always correspond to the current Arecibo Observatory facility designations. For this reason, the current NRHP Registration Form building designations are provided along with the Arecibo Observatory designations that are provided in Attachment A.*