MARYLAND HISTORICAL TRUST
DETERMINATION OF ELIGIBILITY FORM

NR Eligible: yes X
no ___

Property Name: Building 21, Anechoic Test Building Inventory Number: M: 29-52-12

Address: 9500 MacArthur Boulevard Historic district: ___ yes X no

City: West Bethesda Zip Code: 20817 County: Montgomery

USGS Quadrangle(s): Falls Church

Property Owner: United States Navy Tax Account ID Number: ___

Tax Map Parcel Number(s): ___ Tax Map Number: ___

Project: Contract N40080-07-D-0311, Delivery Order 26 Agency: NAVFAC Washington

Agency Prepared By: The Louis Berger Group, Inc.

Preparer's Name: Patt Kuhn Date Prepared: 10/26/2011

Documentation is presented in: 2011 Integrated Cultural Resources Management Plan

Preparer's Eligibility Recommendation: X Eligibility recommended ___ Eligibility not recommended

Criteria: X A ___ B X C ___ D Considerations: ___ A ___ B ___ C ___ D ___ E ___ F ___ G

Complete if the property is a contributing or non-contributing resource to a NR district/property:

Name of the District/Property: NSWCCD Historic District

Inventory Number: M: 29-52 Eligible: X yes Listed: ___ yes

Site visit by MHT Staff ___ yes X no Name: ___ Date: ___

Description of Property and Justification: *(Please attach map and photo)*

Setting

Building 21 is located in the southeast portion of the 183.6-acre Naval Support Facility (NSF) Carderock, formerly known as the Naval Surface Warfare Center Carderock Division (NSWCCD). Located approximately 12 miles northwest of Washington, D.C., near Bethesda, Maryland, NSF Carderock is situated north of the Potomac River and is bordered by the Clara Barton Parkway to the south and MacArthur Boulevard to the north and east. The installation is composed of 123 buildings and structures that function as research laboratories, administration facilities, and operations and utility structures. At the center of the installation is the David Taylor Model Basin (DTMB) (Buildings 1-4), a group of interconnected buildings that include a model basin, an administration building, a shop building, and a laboratory. Building 21, the Anechoic Test Building, faces north on Taylor Boulevard, south of the central portion of the model basin (Building 4). The building is set back from the road and fronted by a grassy lawn. Building 189 is directly south of Building 21.

Description

Built in 1970, Building 21, the Anechoic Test Facility, stands one story high over a solid concrete foundation. The building has a

MARYLAND HISTORICAL TRUST REVIEW

Eligibility recommended X **Eligibility not recommended** ___

Criteria: X A ___ B X C ___ D **Considerations:** ___ A ___ B ___ C ___ D ___ E ___ F ___ G

MHT Comments:

[signature] 6/26/14
Reviewer, Office of Preservation Services **Date**

[signature] 6/26/14
Reviewer, National Register Program **Date**

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rectangular footprint with a three-bay-wide addition that projects from the main (north) elevation on its west end. The main block of the building is clad in poured concrete aggregate panels, and the addition is constructed of concrete block. Both sections of the building have a flat roof with metal coping; however, the roof on the main block features overhanging eaves. The main block has a centered inset entrance with a double-leaf metal and glass door, one sidelight, and a transom. East of the entrance is a band of one-light fixed metal-sash windows placed high on the elevation. West of the entrance is a ribbon of three-light metal-sash windows. A high-bay garage is located on the southeast end of the main block and holds a metal vehicular roll-up door on its east elevation. The west elevation of the high-bay garage has four horizontal panels of glass, each of which holds 10 one-light metal-sash windows. The concrete-block addition has three four-light metal-sash windows on its north elevation. The west elevation of the addition has two double-leaf metal doors.

The building holds the anechoic flow facility, which is an atmospheric-type, horizontal plane, closed circuit, continuous flow, low-noise, low-turbulence, subsonic wind tunnel with an anechoic chamber. The tunnel is constructed of reinforced concrete. The facility has specially designed mufflers and acoustic treatment in critical sections to weaken fan and machinery noise. The tunnel loop in the building holds a closed-jet test section followed by an open-jet test section (anechoic chamber), which provides the unique capability of conducting experiments in either test section or using both test sections simultaneously. The closed-jet test section is a square area with an 8x8-foot access door and an observation window on one wall. This section also features an axially adjustable model support carriage-strut assembly that rides on ways in the floor of the test section. The open-jet test area is a square area that is acoustically lined and can be used as an anechoic chamber when no air is flowing. A wire cable walkway and platforms are located on a level below the test areas for working on models. This level has an observation window in one wall, lighting fixtures, and instrumentation and electrical connects for model power (NAVSEA 2010).

Evaluation

Building 21 was built in 1970 as the Anechoic Test Facility (ATF). The building was dedicated with a ribbon-cutting ceremony on July 2. The building was later named the Anechoic Flow Facility (AFF) (Carlisle 1998:496). The AFF is a unique test facility that combines a low-noise, low-turbulence wind tunnel with an anechoic chamber measuring flow-generated noise. The facility provides a "controlled laboratory environment where details of flow excited noise from structures, boundary layer pressure fluctuations, and noise from model propulsors can be studied under dynamic conditions" (NAVSEA 2010).

When the ATF was built in 1970, it was the first large facility of its kind in the world. Since its construction, it has supported a "broad range of fundamental experimental studies on flow-induced noise over smooth and rough surfaces, appendages and cavities, and partial or full model hull forms" (Carlisle 1998:542). Tests performed in the ATF led to improvements to the design of ship hulls, propulsors, and other naval applications. The facility has particularly aided in the study of wake distribution of submarines, torpedoes, and propulsors through the use of models (Carlisle 1998:542).

In 1985 the DTMB and associated buildings (Buildings 1-4) were listed in the National Register of Historic Places(M: 29-47). The campus of buildings created at NSF Carderock from 1938 to 1958 was determined eligible for the National Register as the Naval Surface Warfare Center Carderock Division (NSWCCD) Historic District in 1996. The determination of eligibility stated that the historic district possesses the qualities of exceptional significance under Criterion G "within the historic context of military research, design, testing, and evaluation." It also stated that the historic district meets Criterion A for events that have made a significant contribution to military technology, and Criterion C for its intact collection of RDT&E buildings and facilities. The period of significance for the historic district was determined as beginning in 1938 when the model basin was constructed and ending in 1958, the end date of physical model testing and the official mission change to include computer research and testing. In 1995, 116 built resources were recorded and 44 were determined as contributing to the historic district (Melhuish 1996).

MARYLAND HISTORICAL TRUST REVIEW

Eligibility recommended _____ **Eligibility not recommended** _____

Criteria: ___A ___B ___C ___D **Considerations:** ___A ___B ___C ___D ___E ___F ___G

MHT Comments:

_____ _____

Reviewer, Office of Preservation Services **Date**

_____ _____

Reviewer, National Register Program **Date**

In 2006 The Louis Berger Group updated the ICRMP for NSF Carderock. In October-November 2005 Buildings 16 and 18 were re-evaluated and found to be eligible for the National Register as contributing elements in the historic district. This evaluation also recommended that the period of significance for the historic district (originally 1938 to 1958) warranted expansion to 1970, marking the completion of the Anechoic Test facility and the close of the 20 "Golden Years of Research" at DTMB (Bowers 2005).

Building 21 is recommended as contributing to the NSWCCD (NSF Carderock) Historic District. Building 21, the Anechoic Test Facility, is an important test facility at NSF Carderock. Few changes have been made to the building since its construction, and it still is used in its original capacity; therefore it retains sufficient integrity. Building 21 is associated with the significance of the historic district for its contribution to military technology (Criterion A) and for its architectural design as an Anechoic Test Facility and as part of the campus's collection of RDT&E buildings (Criterion C).

Works Cited

Bowers, Martha H.
2005 Maryland Inventory of Historic Property Forms for Buildings 16 and 18, NSWCCD. Prepared for the United States Navy by The Louis Berger Group, Inc., Morristown, New Jersey. On file, Maryland Historical Trust, Crownsville.

Carlisle, Rodney
1987 Where the Fleet Begins: A History of the David Taylor Research Center. Prepared for the David Taylor Naval Ship R & D Center, Carderock, Maryland, by History Associates Incorporated.

Internet Navy Facilities Assets Data Store [INFADS]
2011 Various property records. Naval Facilities Engineering Command [NAVFAC] Washington, D.C.

Melhuish, Geoffrey E.
1996 Historical and Architectural Documentation of the Naval Surface Warfare Center Carderock Division, Maryland: Draft. Prepared for Engineering Field Activity-Chesapeake, Washington, D.C., by R. Christopher Goodwin and Associates, Inc.

Naval Sea Systems Command [NAVSEA]
2010 Anechoic Flow Facility. Naval Sea Systems Command. Accessed online at http://www.navsea.navy.mil/nswc/carderock/default.aspx. Copy on file, The Louis Berger Group, Inc., Washington, D.C.

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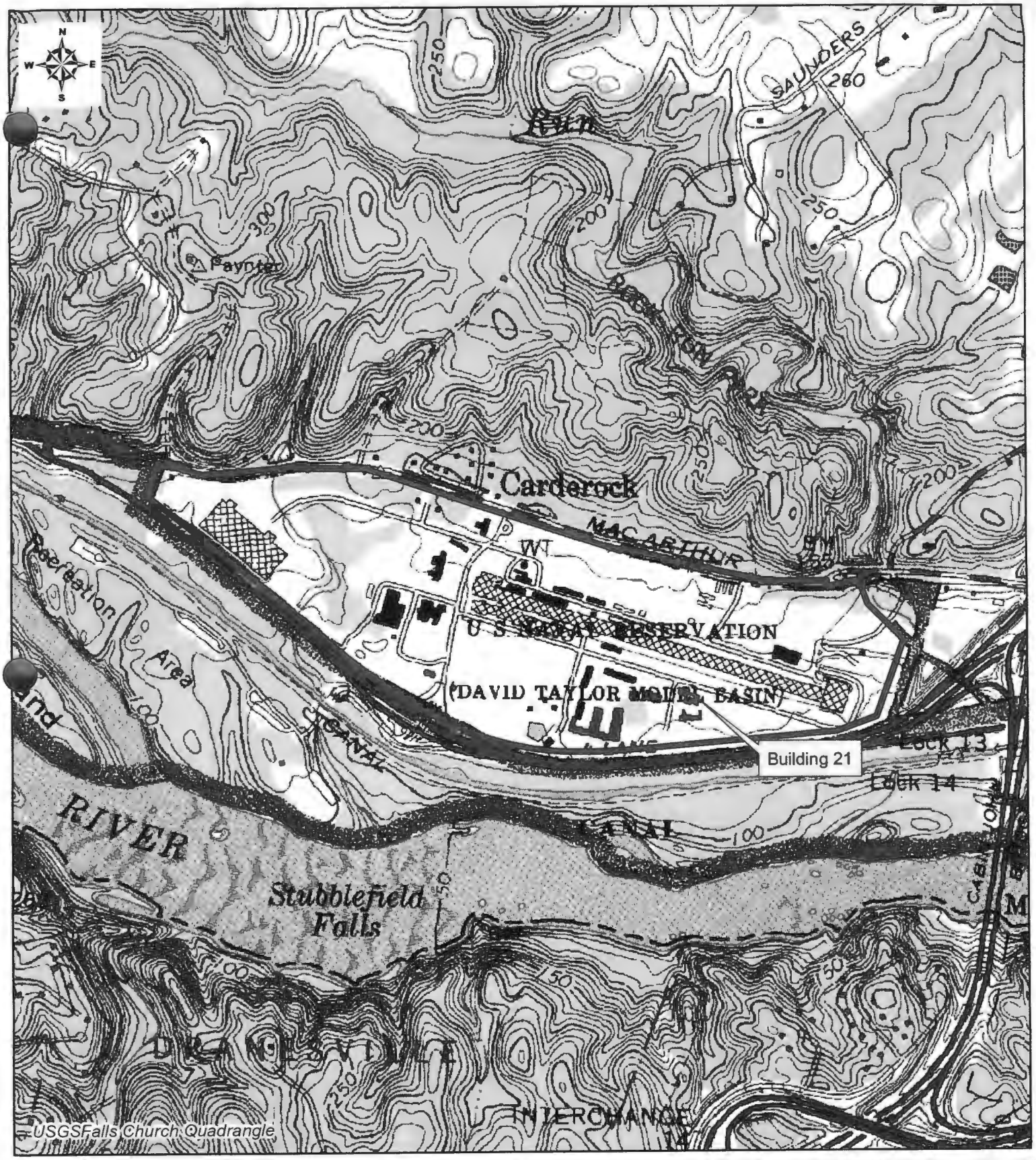
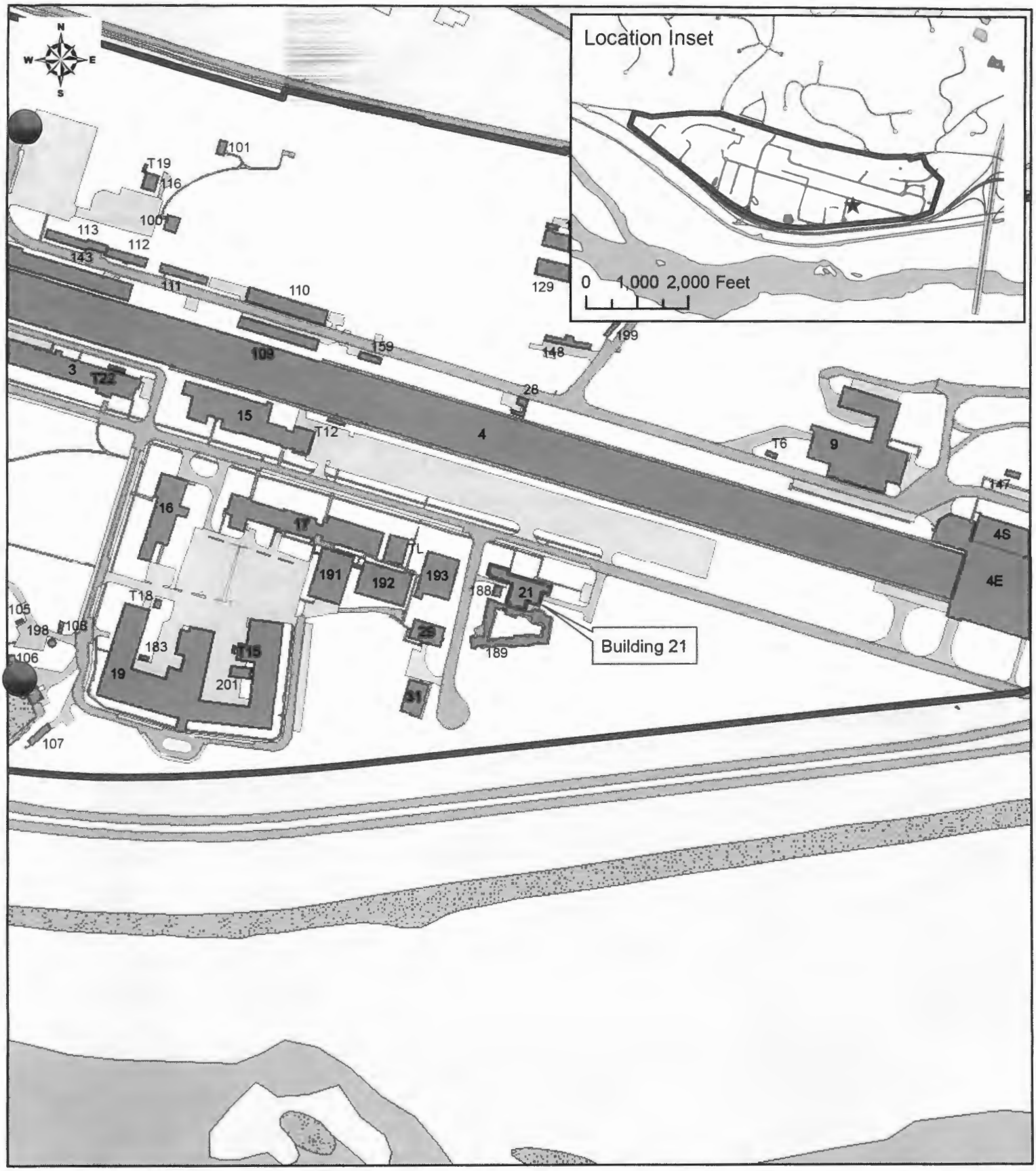


Historic District

500 0 500 Feet

Naval Support Facility, Carderock
NSWCCD Historic District (MIHP No. M:29-52)-12

Building Number 21



Structures

Historic District

100 0 100 Feet

Naval Support Facility, Carderock

NSWCCD Historic District (MIHP No. M:29-52)-12

Building Number 21

M: 29-52-12

NSWCCD HISTORIC DISTRICT (NSF GARDERDCK)

BLDG 21

MONTGOMERY COUNTY, MD

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4/2010

MDSHPO

NORTH ELEVATION, LOOKING SOUTHWEST

PHOTO 1 OF 2

21

M:29-52-12

NSWCCD HISTORIC DISTRICT (NSF-CARDEROCK)

BLDG 21

MONTGOMERY COUNTY, MD

LOUIS BERGER GROUP

4/2010

MDSHPO

NORTH ELEVATION, LOOKING SOUTHEAST

PHOTO 2 OF 2