AA- 2177
United States Naval Academy, Dairy Farm
Anne Arundel County

Capsule Summary

The U.S. Naval Academy Dairy Farm, located off of Route 175 in Gambrills, Maryland, is a significant twentieth century dairy farm complex. Established in 1913 specifically for the Naval Academy, the Dairy Farm supplied the Academy with fresh, healthy dairy products for most of the twentieth century. In doing so, the farm operated under stringent, sanitary regulations promoted by the dairy industry at that time. The farm's buildings are representative of construction methods employed for twentieth century dairy farms.

A 1980 National Architectural and Engineering Record (Kapsch 1980) inventory documented 55 buildings on the USNA, Dairy Farm grounds. Buildings were evaluated according to the National Register Criteria for Evaluation (36 CFR 60.4), categorized according to their relative historical and architectural importance, and assigned one of five management categories. All of these buildings were assigned to Category IV.

As part of the 1996 update to the Naval Academy Historic Preservation Plan, Naval Academy buildings designated as Category IV and V and constructed before 1947 were surveyed and reevaluated for those qualities of significance and integrity identified in the *National Register of Historic Places Criteria for Evaluation* (36 CFR 60). Thirty-eight buildings were surveyed as a part of this investigation and are the focus of this documentation.

The Dairy Farm is comprised of 62 buildings and structures constructed between 1914 and 1979; 38 predate 1947. The buildings associated with dairy production, i.e., the cow barns, the pasteurization building, the chemical building, and sundry storage buildings, are one-story, and constructed of concrete. Other ancillary structures include silos, grain elevators, vehicular storehouses, and covered troughs. These buildings are predominately clustered in one area, somewhat separated from a residential area for the dairy farm workers. The residences are modest, wood frame, one- to two-story dwellings. The majority of the structures are in good condition.

Survey No. AA-2177

Magi No.

DOE __yes __no

MARYLAND INVENTORY OF HISTORIC PROPERTIES

Maryland Historical Trust State Historic Sites Inventory Form

1. Name (indicate preferred name)

historic U.S. NAVAL ACADEMY DAIRY FARM

and/or common U.S. NAVAL ACADEMY DAIRY FARM

2. Location

street & number MD. RTE. 175 (ANNAPOLIS ROAD) ___ not for publication

city, town GAMBRILLS ___ vicinity of congressional district FOURTH

state MARYLAND county ANNE ARUNDEL

3. Classification

Category	Ownership	Status	Present Use	
X district	X public	X occupied	X 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	X yes: restricted	___ government	___ scientific
	___ being considered	___ yes: unrestricted	___ industrial	___ transportation
	___ not applicable	___ no	___ military	___ other:

4. Owner of Property (give names and mailing addresses of all owners)

name SUPERINTENDENT, U.S. NAVAL ACADEMY

street & number MARYLAND AVENUE telephone no.: (410) 293-2293

city, town ANNAPOLIS state and zip code MD 21402

5. Location of Legal Description

courthouse, registry of deeds, etc. ANNE ARUNDEL COUNTY COURTHOUSE liber

street & number 101 SOUTH STREET folio

city, town ANNAPOLIS state MARYLAND

6. Representation in Existing Historical Surveys

title HISTORIC BUILDING INVENTORY OF THE UNITED STATES NAVAL ACADEMY

date NOVEMBER 1980 _X_ federal ___ state ___ county ___ local

depository for survey records LIBRARY OF CONGRESS, DIVIISION OF PRINTS AND PHOTOGRAPHS

city, town WASHINGTON state DC

7. Description

Survey No. AA-2177

Condition		Check one	Check one
___ excellent	___ deteriorated	___ unaltered	_X_ original site
_X_ good	___ ruins	_X_ altered	___ moved date of move _____
___ fair	___ unexposed		

Prepare both a summary paragraph and a general description of the resource and its various elements as it exists today.

SEE ATTACHED SHEETS

Summary Description

Located in Gambrills, the United States Naval Academy Dairy Farm encompasses low-lying, open agricultural fields and a complex of 60 buildings and structures. The dairy farm was established in Gambrills in 1913 on 765.4 ac; today the property totals 857 ac. The primary entrance to the farm is off of Md. Rte. 175 (Annapolis Road). A driveway progresses south until it splits and proceeds west to the worker's residential area and south to the dairy processing plant. The structures range in date from 1914 to 1979 and can be classified into three categories: dairying, worker support, and general support. Thirty-seven buildings or structures predate 1947 and are in fair to good condition.

Description

Dairying Buildings

Building 25. Building 25 is a one-story concrete office and cold storage building. It rests on a concrete foundation and terminates in a hipped roof. The north elevation features a cross gable entrance bay which features a bracketed shed hood above the primary entrance, and a small window with diamond-shaped tracery at the peak. All doors are wooden panel and glass units; single doors are surmounted by two-light transoms, and five-light transoms surmount double doors. Each elevation exhibits multi-light casement and pivotal windows with concrete lug sills. The east elevation incorporates a windowless addition to serve as a refrigeration and pasteurization area; the roof at the northeast corner is extended to form a covered loading platform. The west end of the facility houses the offices. A covered walkway at the south elevation leads to Building 172. This building was constructed in 1915 as the Office/Cold Storage Building.

Building 26. This simple, one-story, concrete building rests on a concrete foundation. It is one-bay wide and three-bays deep and terminates in a front-gable roof with exposed rafter ends. The frieze consists of beaded clapboards. The front door and selected of windows have been replaced. Original, six-light pivotal windows survive on the east and west elevations. Building 26 was constructed in 1918 as the chemical laboratory, and continues as such.

Buildings 28-32. Buildings 28-32 are the five primary cow barns of the complex. Each is one-story, one-bay wide and nine-bays deep, and of concrete construction. Each barn rests on a concrete foundation and terminates in a front-gable roof. The long elevations exhibit nine, one-over-one-light windows with concrete lug sills. Engaged pilasters delineate the bays on the long elevations. The front gable ends incorporate wide double doors, and the rear gable ends display a single overhead track door. The doors open into a wide center aisle extending the length of the barn. On each side of the aisle are 25 stalls.

Three tall, metal ventilators are regularly spaced along the ridges. Each of the buildings have been modified slightly by such elements as infilled doors and windows, the addition of shed overhangs, and small lean-to additions. Metal fencing and corrals surround portions of each barn. Barns 28-31 were constructed in 1915 and Barn 32 was built a year later. The rear gable end of Barn 32 exhibits a central overhead track door flanked by single door entries (all are infilled now), unlike the other five barns, which feature only a central track door.

Buildings 43, 155-157. These structures are four metal grain elevators that terminate in hipped roofs. The hipped roofs, in turn, support a square "room" terminating in hipped roofs. Both roofs are clad with corrugated metal. Small, single sash, four-light, hopper windows are on the north and south elevations of the room, which is sheathed with standing seam metal. A single, metal ventilator punctuates the roof. The entire structure rests on a raised concrete foundation. Grain elevators 43, 155, and 157 were built in 1941, and the fourth, No. 156, was added in 1956.

Buildings 136-140, 142. These one-story, wood frame buildings rest on concrete block foundations. Each is covered with standing seam metal, and is terminated in a front-gable roof sheathed with metal roofing. The primary gable end elevation exhibits wide, sliding doors and windows, which have been covered with the metal siding. These buildings currently function as hay storage sheds. Originally, Building 136 was the carpenter's shop, Building 137 the vehicle storage building, and Building 142 the maintenance shop; the remainder were hay storage sheds. Buildings 136-139 and 140 were constructed in 1947, followed four years later with Building 142.

Building 130. Building 130 is a one-and-one-half-story bank barn raised on stone basement walls. The barn terminates in a side-gable roof sheathed with corrugated metal. The forebay, which faces east, cantilevers approximately 5 ft. Reportedly, the upper level was reconstructed in 1942 using portions of the original stone foundation from an unknown date. The first barn was associated with a farmstead established previous to the occupation of the Naval Academy Dairy Farm. Building 130 is isolated in a field distant from the main dairy complex.

Worker Support Buildings

Building 101. Building 101 is a two-story, wood frame house constructed in 1939. The building is clad with aluminum siding, and terminates in a side-gambrel roof characteristic of the Dutch Colonial Revival style. The front roof slope exhibits three shed dormers; the central dormer incorporates paired windows. The symmetrical primary elevation features a central, panelled and glass door surmounted with a semicircular hood. All windows are double-hung, six-over-one-light, wood sash units. The house is three-bays wide and four-bays deep, and rests on a concrete foundation.

A screened-in side porch is found on the east elevation. Four square, wooden columns support the porch's hipped roof. A lean-to on the west elevation incorporates a secondary entrance. The house was modified with a two-story addition appended to the rear of the house. Building 101 originally served as the headquarters house. It is currently a rental house.

Building 101a. This one-story, wood frame dwelling is raised on a concrete foundation, and terminates in a front-gable roof with exposed rafter ends. A screened-in, shed-roof porch dominates the primary elevation. Above the porch is a multi-light, wood sash lunette. Windows are double-hung, six-over-one-light, wood sash units. The building, which is three-bays wide and six-bays deep, retains the original horizontal wood siding. A shed addition was appended to the south elevation. Built in 1939, this building was a residence for a dairy farm employee. It now serves as rental housing.

Buildings 103, 105, 107, 146-148. Buildings 103, 105, and 107 are similar one-story, wood frame house designs reflecting the Colonial Revival style. Each house is supported on a concrete foundation, and terminates in a side-gable roof with jerkinhead ends; diamond-shaped ventilators are found below the jerkinhead ends. Building 103 is four-bays wide and two-bays deep, whereas Buildings 105 and 107 are just three-bays wide. The primary elevation of each house is distinguished by a protruding, entrance bay: Building 103 exhibits a front-facing gable bay, and Buildings 105 and 107 have shed roof bays. The houses are sheathed with asbestos shingles, and exhibit double-hung, six-over-one-light, wood sash windows, with exception on the entrance bays, which are covered by aluminum siding and display short, double-hung, one-over-one-light windows flanking a central wood panel and glass door. An interior brick chimney rise from the rear roof plane. Each of these houses, constructed in 1917, originally served as an employee's residence.

Located behind Buildings 103, 105, and 107 are Buildings 146-148, respectively. These one-story, board-and-batten sheds were constructed behind the above three dwellings, as well as Buildings 104, 106, and 108 (*see* below), located across the street. Each shed, which dates to 1917, terminates in a front-

gable roof with standing seam metal sheathing. Access is gained from single doors on the front elevations. A real property list records that each building was constructed as a garage, but their small size and the lack of evidence of a garage door suggests otherwise.

Buildings 104 and 151. This building is a one-story, wood frame dwelling supported by a concrete foundation, and covered with asbestos siding. The L-shaped house is three-bays wide and five-bays deep, and terminates in a hipped roof featuring flared ends and boxed eaves. All but the west roof slope incorporates a hipped dormer with louvered vents. The front door is composed of vertical wood boards with one light, and is flanked by sidelights. A shed roof porch extension partially is enclosed. A one-by-one rear addition and a bay window exhibit wood sash windows with diamond-shaped tracery at the top and bottom of the upper sash. All other windows are double-hung, six-over-one-light, wood sash units. Constructed in 1914, Building 104 is used as the dairy farm superintendent's residence. Associated with this house is Building 151, a 1914 shed located behind the house. See Buildings 103, 105, and 107 for a description.

Buildings 106 and 152. Building 106 is a one-story, wood frame house with an irregular plan and roof configuration. The core terminates in a hipped roof, which is intersected by cross-gable additions. The gabled additions feature cornice returns and small, five- and eight-light windows. Other windows are double-hung, one-over-one-light or six-over-one-light wood sash units. Two shed additions are appended to the rear (south) elevation. Constructed in 1914 as an employee's residence, it now serves as rental housing. Associated with Building 106 is Building 152, a 1918 shed located behind the house. See Buildings 103, 105, and 107 for a description.

Buildings 108 and 150. Building 108 is a one-story, wood frame house terminating in a hipped roof with exposed rafter ends. It is four-bays wide and deep, illustrating its square plan. The house's concrete foundation supports the asbestos shingle-clad walls. Each elevation exhibits double-hung, six-over-one-light, wood sash windows. The panelled front door is within a corner, screened-in porch addition. The south elevation features a small exterior porch.

This dwelling is an example of the Pyramid Cottage house type, which is characterized by its square footprint, one-story height, and pyramidal hipped roof. This house type was commonly constructed during the 1910s and 1920s; Building 108 was constructed in 1918. It served originally as quarters for workers of the dairy farm, and is currently utilized as rental housing. Associated with Building 108 is Building 150, a 1918 shed located behind the house. See Buildings 103, 105, and 107 for a description.

Building 109. Building 109 is a two-story, wood frame I House terminating in a side gable roof with boxed eaves. The house is three-bays wide and one-bay deep, and features a prominent, two-story rear ell extension. The ell and the core are supported on a brick foundation, and clad with asbestos shingles. Each elevation exhibits double-hung, six-over-six-light, wood sash windows. The front panelled door is sheltered by a screened-in, shed roof porch, and a secondary entrance on the south elevation of the ell is surmounted with a shed hood. A modern wood deck was appended to the north elevation. This house was constructed in 1914 as an employee residence. It presently serves as rental housing. Associated with this house is Building 149, a 1917 shed located behind the house. See Buildings 103, 105, and 107 for a description.

Buildings 128 and 143. Building 128 is a one-and-one-half-story, wood frame cottage resting on a concrete foundation. The dwelling is distinguished by a full-width, inset front porch, and a large, central shed dormer that punctuates the side-gable roof. The front porch is supported with replacement wood posts. The dormer exhibits a band of multi-light windows on the front elevation, and six-over-six-light, wood sash windows on the side elevations. All other windows are double-hung, one-over-one-light, wood sash units, including the two windows on a rear shed dormer. The house is three-bays deep and two-bays wide, and is covered with asbestos siding.

Building 143 is a detached garage located behind Building 128. The garage terminates in a front-gable roof, and, like the house, is covered with asbestos siding. The original garage door has been replaced. The west elevation displays a single door entry. Both the house and the garage were built in 1937. Building 128 was constructed as rental housing, and continues to be utilized as such.

General Support Buildings

Building 2. Building 2 is a one-story, rectangular, concrete building resting on a concrete foundation. The primary elevation features the original hinged wood doors with twelve-lights at the top of each door. Each elevation displays three-light pivotal windows with concrete lug sills. The building is one-bay wide and four-bays deep, and is terminates in a hipped roof with exposed rafter ends. It has been modified with two rear additions: one terminating in a hipped roof, the second in a shed roof. In 1915, this building was constructed as the fire house. Today, it survives as a garage.

Building 38. This concrete block water tank rests on a concrete foundation. The tank is 26 ft high, and 36 ft in diameter. It is terminated by a conical roof sheathed with standing seam metal. A metal ladder provides access to an opening in the roof. This water tank was constructed in 1916.

Building 133. This is a one-story, wood frame garage that rests on a concrete foundation. The walls, which are sheathed with corrugated metal, terminate in a side-gable roof. The long elevations incorporate three vehicular openings. An enclosed storage section is accessed via single metal doors. This building was constructed in 1932 as a garage; today, it functions as a garage and storage building.

Post-1947 Structures

The dairy farm consists of 24 structures which postdate 1947 (excluding Buildings 142 and 156, which are discussed above). These include: a hazardous materials storehouse; five dairy barns; three wood frame rental houses; three residential detached garages; seven covered troughs; an animal shelter; a silo; a sewage pumping station; a maintenance shop; and a vehicular storage building.

8. Significance

Survey No. AA-2177

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	_X_ agriculture	___ economics	___ literature	___ sculpture	
___ 1600–1699	_X_ architecture	___ education	___ military	___ social/ humanitarian	
___ 1700–1799	___ art	___ engineering	___ music	___ theater	
___ 1800–1899	___ commerce	___ exploration/settlement	___ philosophy	___ transportation	
_X_ 1900–	___ communications	___ industry	___ politics/government	___ other (specify)	
		___ invention			

Specific dates **Builder/Architect**

check: Applicable Criteria: X A __B X C __D
and/or
Applicable Exception: __A __B __C __D __E __F __G

Level of Significance: X national __state __local

Prepare both a summary paragraph of significance and a general statement of history and support.

SEE ATTACHED SHEETS

Significance Summary

The U.S. Naval Academy Dairy Farm was established in 1913 for purpose of supplying the Academy's midshipmen with healthy, high-quality milk. Prior to the establishment of the dairy farm, private contractors supplied the Academy with milk, which eventually was discovered to be contaminated due to unsanitary production methods. In 1910, the Academy established its own dairy farm on 180 ac at Greenbury Point. This property was found to be too small, so in 1913, the dairy farm was relocated to Gambrills, Maryland. The Gambrills property was formed through the consolidation of eight contiguous properties totalling 765 ac.

The farm began operation in 1914 with 36 structures, including employee housing. Expansions in the 1930s and particularly after World War II significantly increased its output. Today, after several land acquisitions, the farm consists of 60 buildings and structures on an 857 ac property. From its inception, the farm utilized a sanitary production system. The construction and design of the buildings conform to the sterility regulations promoted by the dairy industry during the early-twentieth century. This dairy farm is an important example of a twentieth century dairy farm that supplied high-quality dairy products to the Naval Academy for over eight decades.

History and Support

Land Tenure History

The original 500-ac tract that encompasses the Dairy Farm property, known as "Howard's Adventure," was patented by Matthew Howard in 1681, and was acquired by Charles Hammond from John Howard in 1701. In 1719, Charles Hammond deeded the parcel to his two sons, Philip and Rezin; five years later, Rezin transferred a 100-ac portion of his interest in the property to Philip (Maryland State Archives, Anne Arundel County Tract Index). According to its National Register nomination, the Hammond Manor House, a 63 x 32 ft structure with 6-ft foundation walls and split ash joists, reportedly was constructed before 1730 (Geis 1963; Cheevers 1974:7-1). By 1750, the property was owned by Philip Hammond (Sr.), who is interred in the family cemetery.

During the eighteenth century, various members of the Hammond family continued to control and expand their holdings in central Anne Arundel County. Philip Hammond, Sr., apparently undertook the major development of the property, and probably constructed the manor house. At Philip, Sr.'s death in 1760, his extensive properties were divided among his wife, Rachel (Brice), and his sons Philip, Rezin, Matthias, and Denton Hammond (Cheevers 1974:8-1). Philip, Sr.'s heirs continued to deal in real estate; in 1773, for example, the family purchased a 200 ac parcel known as Green Spring (Maryland State Archives, Anne Arundel County Tract Index), a property that either adjoined or was included within the present Dairy Farm tract. Hammond property listings in the 1798 Direct Federal Census also verify that family members rented numerous properties to tenants.

The designation of "P" and "R" Hammond on Dennis Griffith's 1794 map of the area suggests that Philip, Sr.'s sons Philip and Rezin shared the "Howard's Adventure" property. The 1798 Direct Federal Census Particular List for the South and Severn Hundreds describes the buildings on the brothers' adjoining properties. The structures on Col. Rezin Hammond's home plantation included: one dwelling (32 x 21 ft), with an additional dwelling (22 x 16 ft) and another "old," "much decayed" dwelling (22 x 16 ft) adjoining these; three log "quarters", two hen houses (12 x 12 ft), a log milk house (12 x 12 ft), and a second milk house (13 x 13 ft) of stone. All buildings were single-story structures, and except the stone milk house, were of wood. Recent interpretations of land grants in the Gambrills/Millersville vicinity

suggest that Rezin Hammond's home plantation complex was located close to the present Cecil Valk homestead in Millersville, east of the Dairy Farm project area (Donna Ware, personal communication 1996).

The structures on Philip Hammond's property were far more modest. They included one single-story wooden dwelling house (56 x 32 ft), one kitchen (20 x 20 ft), and one old log storehouse (possibly described as "sorry") that measured 20 x 30 ft. This description of Philip Hammond's home plantation closely approximates the size of the house described by Geis (1963) and in the National Register nomination (Cheevers 1974). Conversations with Anne Arundel County's architectural historian and planner, Donna Ware (1996) confirm that, despite the major modifications added to the house during the nineteenth century, its underlying frame structure and its massive foundation walls appear to conform closely to the 1798 description. At Philip, Sr.'s death, the property apparently was inherited by his son, Charles (Webb-Peploe 1930).

Eleven members of the Hammond family, including all of those mentioned above, and perhaps as many as 35 additional unmarked burials, are interred in the cemetery located on the Dairy Farm property. Webb-Peploe (1930), who herself is interred in the cemetery, contended that the following groups of individuals also were buried in unmarked graves: Nathaniel, Hammentell, and Ruth Hammond, children of Major Charles Hammond and siblings of Philip Hammond, Sr.; Col. Charles and Rachel Johnson Hammond, Philip, Ann, Denton, Matthias, and Rezin Hammond, children of Philip Hammond, Sr.; Major Philip, Charles, Rezin, John, and Hannah Hammond, children of Col. Charles and Rachel Johnson Hammond; and 13 children of Major Philip Hammond, including Thomas Hammond. Genealogical sources (Webb-Peploe 1930; Gurney 1987:136) disagree on the relationships between members of the Hammond family, who had a penchant for utilizing the same names in each generation.

Except for the Hammond family cemetery itself, no eighteenth century structures are extant within the property boundaries of the Dairy Farm. The manor house burned in 1980; together with the remainder of the Hammond Plantation complex, it is now represented as an archeological site. The wall of the cemetery reportedly was "restored" by the Peggy Stewart chapter of the Daughters of the American Revolution during the 1940s (Thorsen 1993).

Cartographic and historic research suggests that, during the nineteenth century, the Hammond Plantation remained divided among the heirs of Philip Hammond. The Martenet (1860) map identifies three Hammond properties in the general area: G. W. Hammond's (heirs), Mrs. Juliana Hammond's, and Thomas Hammond's (heirs). The Thomas Hammond property incorporates the present Dairy Farm tract. In 1855, Thomas Hammond acquired this property from his mother and his siblings, Charles and Margaret Hammond, all of whom were joint heirs of John Hammond, presumably a son of Philip Hammond, Jr. The deed refers to the property as "Hammond's Green Spring Connection," and indicates that the property adjoins several other tracts, including "Basil Hall's Land," "Abington," "Wilson's Grove," "Brandy," and "Cordwell" (Anne Arundel County Deeds, Liber NHG 5:14).

Between 1870 and 1914, the history of the Dairy Farm property mirrored the general trends that characterized agriculture in Anne Arundel County. The number of farms in the county increased, and their average size decreased. Hopkins' 1878 *Map of Anne Arundel County* depicts four residents within the main Dairy Farm tract: Jonathan Warfield, C. Sutton, G. Woodward, and G. Kurby; no residents directly identifiable as members of the Hammond family resided on the property. When the Naval Academy Dairy Farm was established in 1913, eight properties comprised the dairy farm tract (*see* next section).

Establishment of the U.S. Naval Academy Dairy Farm

The concept of a U.S. Naval Academy Dairy was conceived in 1901 by Samuel Bryan, who was serving as Paymaster, Store Keeper, and Commissary Officer of Midshipmen at the Academy during that time. Bryan became concerned about the high rate of digestive disorders and illnesses among the Academy's midshipmen. His inspection of conditions under which the Academy's private contractors produced the dairy products used at the institution and documented the lack of sanitation at the farms of the suppliers. An epidemic of typhoid fever that swept the corps of midshipmen in 1910 convinced the Navy's Board of Medical Examiners to recommend the establishment of an independent dairy farm to supply the Academy's needs. In 1910, a small dairy farm was operated on a 180-ac parcel at Greenbury Point (Sweetman 1979:163). However, this small operation failed to meet the needs of the Academy, and in 1913, the Navy began to search for one or more larger tracts in the Annapolis vicinity. Official correspondence files of the Midshipmen's Supply Department (U.S. Naval Academy [USNA] Archives, RG 405 1913:*passim*) contain numerous offers of properties, all of which stressed ready access to transportation and proximity to the Naval Academy itself.

Most of the present tract was purchased in 1913. The choice of location was dictated not only by the adequate size of the assembled tract, but also by its location close to the Washington, Baltimore, and Annapolis (WB&A) Railroad. The railroad provided swift transportation of dairy products directly to Annapolis and also supplied electric power to the farm. To create the tract, the Navy purchased eight contiguous parcels from Azariah F. Oursler (305.5 ac); Henry Woodward (155 ac); William N. Woodward (134.5 ac); William R. Pueschel (120 ac); Adam Kaufman (31 ac); William H. Joyce (13.7 ac); Mabel E. Fleming (4.7 ac); and Arnold Osbelt and Archivald Crary (1 ac). The property was expanded in 1916 (Lizzie Woodward: 84.6 ac) and again in 1929 (William F. Butler: 5.5 ac) (U.S. Navy, Naval Facilities Engineering Command [NAVFAC] 1991). Each parcel was equipped with existing structures, including dwellings, barns, and ancillary farm buildings (Lobos 1995:Chapter III; USNA Archives, RG 405). During the 1920s and 1930s, another type of structure was erected on the William Joyce tract. The Gambrills Athletic Club "improved" this parcel for use as a ballfield by purchasing a used grandstand from the Bowie Auto Club and rebuilding it on the 5 ac parcel (USNA Archives, RG 405).

Construction of the buildings at the facility began in 1914, utilizing plans and specifications developed by the Bureau of Animal Husbandry of the U.S. Department of Agriculture (Downey 1913). The original complex included a power plant, a milk house, five cow barns, a bull barn, a maternity/hospital barn, a horse barn, five silos, a pump house, artesian well houses, 18 cottages for the superintendent, the herdsman, and the married employees, and a dormitory and mess hall for unmarried employees. When the Naval Academy Dairy Farm was established, the parcel adjacent to the railroad right-of-way contained three bungalows; these buildings may have been moved onto the main parcel to serve as housing for dairy farm employees (Lobos 1995:Chapter III).

The plans and specifications for the facilities adopted the approved sanitation guidelines for that time. For example, the cow barns were constructed of concrete with an interior plaster finish, and concrete floors (Lobos 1995:Chapter IV). These materials were permanent and durable. The smooth finish surfaces allowed for easy cleaning, and deterred dust and dirt collection. Fresh air and sunlight, which were thought to improve the dairy herd's health, were provided by generous expanses of windows throughout the buildings (Lobos 1995:Chapter IV). The majority of the complex was sited on a high knoll on the north side of the property. This location facilitated air circulation to the entire complex, as well as provided access to the WB&A railroad line.

The farm was a large, integrated dairy operation. Automobile mechanics, engineers, carpenters, a blacksmith, a launderer, a gardener, and painters, in addition to dairy farmers, were employed to

maintain the buildings, farm equipment, and transportation vehicles (Lobos 1995:Chapter IV). The farm received national recognition for its innovative design, and sanitary and scientific operation of the facilities. Officials from the dairy and sanitation industries, as well as military officials, visited the dairy farm to study its operation. Small dairy operations established by the Britain Army in India were modeled after the Academy's Dairy Farm in Gambrills. The USNA Dairy Farm is the only facility of its kind associated with a military academy (Lobos 1995:Chapters II, V). The operation of the Dairy Farm was not without controversy, however. During the 1930's, the farm was viewed increasingly as an anomaly that a Depression-era government could not afford to support. For example, the headline of one newspaper article of the period trumpeted, "Naval Academy Dairy Costs U.S. Citizens $145,000 a Year; Holstein Herd Treated Like Petted Infants" (Henning 1932).

Modifications to the dairy farm property have been minimal since its establishment. Two property acquisitions during the 1930s added 1.13 ac to the area of the facility (NAVFAC 1991). The approach of World War II and the demands of a larger midshipman corps strained the ability of the farm to provide an adequate supply of dairy products. The farm's superintendent requested permission to clear additional land and expand production. Following World War II, a number of dairy buildings and storage facilities were constructed. Additional manpower was required to assist in the increased production. Assistance initially was sought from the Civilian Conservation Corps (CCC). However, the CCC declined to provide labor because the Academy had no space to house the workers (the Academy suggested housing them at Fort Meade) and because most CCC units had been tapped to construct temporary facilities at Army posts (USNA Archives, RG 405 1940). The labor shortage was solved by using prisoners-of-war at the facility (Stevenson 1946); whether the POWs were housed at the farm or at Fort Meade has not been determined. The shortage of on-site accommodations was resolved partially through the conversion of the Hammond manor house to housing for dairy farm employees (Lobos 1995:Chapter VIII). The manor house burned in 1980 due to arson (Cheevers 1974).

Agricultural Context - Dairy Industry

The 1860 agricultural census for the Second District of Anne Arundel County described the properties of Thomas and Charles Hammond. The majority of land on both properties was under active cultivation. Livestock on both properties included horses, cattle, and swine, and both farms produced wheat, corn, and oats. However, the most important commodity produced on both Hammond properties was tobacco: 8,000 lb for Thomas, 10,000 lb for Charles. The amount of tobacco produced on these farms is surprising, given that the general trend in agriculture during this period was away from tobacco and towards more diversified crops. During the nineteenth century, tobacco production, the mainstay agricultural activity of the region since the seventeenth century, waned in favor of such other crops as cereals and fresh produce. These crops were less harsh to the soils, and provided a more stable income.

The Hammonds' success in producing tobacco appeared to be a exception for Gambrills area farmers. By the late-nineteenth century, the type of farming practiced on the future site of the Academy's Dairy Farm followed the general trend in Anne Arundel County agriculture of diversifying output. George Woodward's 169 ac farm was valued at $3000. His livestock holdings consisted of four horses, one cow and calf, five pigs, and 24 fowl. During 1879, Woodward produced $500 worth of commodities, including 50 lb of butter, corn, apples, and Irish potatoes (1880 Agricultural Census).

By the early-twentieth century, dairying joined cereal as a profitable agricultural pursuit for the county's farmers. Prior to the Civil War, the only dairy product that could be transported over long distances safely was cheese (Campbell and Marshall 1975:28). Dairy products spoiled quickly and had

to be consumed shortly after production. Transportation improvements provided farmers increasingly fast and reliable access to the urban markets of Washington, D.C. and Baltimore. The hamlet of Gambrills, which developed along the WB&A Railroad, was typical of the small communities that developed in rural areas of the county, as transportation access provided incentives for growth and diversification.

Dairy production and consumption also increased beginning during the late 1880s due to post Civil War developments in refrigeration technologies and the application of industrial production methods to agriculture. However, a medical breakthrough chiefly was responsible for the significant increase in dairy consumption during this period. During the 1850s-1870s, Louis Pasteur proved the existence of bacteria and their role in disease. Pasteur also discovered that bacteria bred best in unsanitary conditions. Though the general populace at first derided Pasteur's discoveries as fanciful, by the late 1870s Pasteur's germ theories were accepted as fact (Garland 1949:163-175).

Clean milk societies, dedicated to the promotion of sanitary conditions in the dairying industry, began to arise during the 1880s. In 1891, the Dairy Division of the Department of Agriculture was organized to disseminate information about "modern" dairy practices, and the prevention of animal disease transmission. As the dairy industry evolved, this division gradually acquired experimental stations to conduct scientific studies concerning the properties of milk. The Dairy Division also gained regulatory power (Pirtle 1926:142-143).

It wasn't until 1892 that milk was proven to be a natural environment for bacteria (McNutt 1917:67). The French, upon the recommendation of Louis Pasteur, had been killing bacteria in wine by applying heat since the 1860s. Some American doctors and farmers adopted the pasteurization process, and in 1895 machinery to consistently pasteurize milk was perfected. The American public accepted slowly the need to pasteurize milk. Also enabling expansion of the dairy industry was the perfection in 1895 of the first milking machine (Campbell and Marshall 1975:29).

The proponents of pasteurization fought to legally mandate dairy pasteurization. In New York, Mr. Nathan Strauss established centers that distributed pasteurized milk free of charge to undernourished children under five years of age. His efforts were credited with an almost 40 per cent drop in the mortality rate for these children between 1893 and 1906. In 1907, the United States Department of Health mandated milk pasteurization and established national pasteurization standards: milk was to be heated to 145 degrees for 30 minutes, and then maintained in a refrigerated environment thereafter (Pirtle 1926:87, 91, 130). Prior to the establishment of the Naval Academy Dairy Farm, digestive disorders from contaminated milk affected a considerable number of midshipmen. Pasteurized milk supplied by the Academy Dairy Farm resulted in an 81 per cent decrease in sick days during the first year of the farm's operation (Lobos 1995:Chapter I).

Mandatory pasteurization of milk guaranteed quality and spurred an increase in the consumption of dairy products. During the same period, it was discovered that, although keeping milk cool retarded bacterial activity, constant refrigeration was unnecessary until after bacteria had been killed by the pasteurization process. Processing plants specializing in the production of sanitary milk products arose, relieving the farmer of the regulatory burden imposed by the sanitary production laws. These dairy plants invested in the machinery to rapidly process large quantities of milk (Pirtle 1926:130-131).

Agricultural Context - Dairy Farms

Twentieth century agricultural buildings reflect increased agricultural specialization as well as the

importance of machinery, sanitation, and government regulation in food production and processing. Sanitation was the primary consideration in the construction of the dairy (cow) barn. Impermeable, permanent materials were used for construction because they were thought to be less conducive to bacterial growth, and because they were easier to clean. Emphasis was placed upon minimizing the number of shelves and sharp corners, where dirt and dust could collect. Instead, rounded plane intersections were recommended to facilitate cleaning (Harvey and Hill 1936:115-128). The different functions of the cow barn determined their physical characteristics beyond these basic construction specifications. The Academy's dairy buildings utilized concrete construction and smooth finished surfaces to prevent unsanitary interior and exterior conditions.

The function of the USNA cow barn was to house dairy cows. In addition the cows also were fed and milked in the barn. Windows and doors were incorporated liberally on all elevations of the barn for cross ventilation and light. Sunlight was thought to kill bacteria (Harvey and Hill 1936:108-115). Buildings 28-32, the five original cow barns of the plant, exhibit nine windows on the long elevations for ventilation and sunlight.

The barn plan also emphasized sanitation. A central aisle extended the length of the building. To either side of the aisle were stalls. The building floor sloped gently towards the central aisle, allowing the farmer to clean cattle effluent from the stalls with high pressure hoses. Within the central aisle, effluent could then be shoveled into carts, and the non-shoveled residue hosed out of the building (Harvey and Hill 1936:134-138). The plan of the cow barns (Buildings 28-32) incorporates 25 stalls on either side of a center aisle.

After pasteurization, two functions occurred: milk storage (refrigeration) and equipment washing. In a milk room, milk was weighed (milk was sold by weight, not by volume) and poured into a cooling tub until delivered to the local dairy for processing. The concrete floor of the milk room sloped gently to a drain. It was recommended that the milk room floor and walls be hosed down twice daily to prevent spilled milk from accumulating and attracting flies (Harvey and Hill 1936:150-157).

Within a washing room, the various utensils of the milking process were cleaned. Galvanized iron washtubs were recommended; one with hot water for cleansing, and one with cold water for rinsing. Also recommended was a copper steam delivery system to ensure utensil sterilization. After washing, the utensils were to be placed upon steel drying racks. Again, the emphasis was placed upon sanitation in the design and construction materials. All elements of the building were designed to facilitate cleanliness within the milk production system (Harvey and Hill 1936:152, 156-157).

Analysis

The U.S. Naval Academy Dairy Farm was evaluated under both Criteria A and C of the National Register of Historic Places. The complex was assessed as a district; as an example representative of a twentieth century model dairy farm for its association with an important local industry, and for its role in the history of the U.S. Naval Academy, a significant military educational institution.

The U.S. Naval Academy Dairy Farm is a large-scale, self-contained dairy farm. It is the only complex of its type constructed specifically to support a military academy. It supplied high-quality dairy products to the midshipmen for most of the twentieth century. The design and construction of the dairy buildings adhere to the standards of health and sanitation promoted by the dairy industry during the early-twentieth century. The primary dairy buildings, such as the cow barns (Buildings 28-32), the chemical

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laboratory (26), and the pasteurization building (25), exemplify designs for sanitary farms through their concrete construction, and the generous amount of windows incorporated for cross ventilation and sunlight. The division of the complex functional areas including and employee residential area and the core dairy buildings, illustrates a carefully planned and efficient farm layout. The structures are in fair to good condition, with most receiving a few impermanent modifications. The Naval Academy Dairy Farm possesses the qualifications of significance and integrity to meet Criteria A and C of the National Register of Historic Places.

The U.S. Naval Academy Dairy Farm was inventoried as part of a 1996 update to the U.S. Naval Academy Historic Preservation Plan. In 1980, the National Architectural and Engineering Record conducted a survey and building inventory of 278 buildings at the Naval Academy. These buildings were categorized according to their relative architectural and historic importance utilizing Navy standards for treatment of historic properties. The individual buildings and structures within the Academy's dairy farm, originally categorized as possessing no historical importance, were reevaluated for those qualities of significance and integrity identified in the *National Register of Historic Places Criteria for Evaluation* (36 CFR 60). Archival and field investigations revealed that the Naval Academy Dairy Farm possesses the qualities of significance and integrity for listing in the National Register of Historic Places under Criteria A and C.

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United States Naval Academy, Dairy Farm
Anne Arundel County

Maryland Comprehensive Historic Preservation Plan Data

Geographic Organization:

Western Shore

Chronological/Developmental Period(s):

Industrial/Urban Dominance A.D. 1870-1930

Modern Period A.D. 1930-present

Historic Period Theme(s):

Agriculture

Architecture

Resource Type:

Category: Buildings

Historic Environment: Rural

Historic Function and Use: Dairy Farm

Known Design Source: Bureau of Animal Husbandry of the U.S. Department of Agriculture

9. Major Bibliographical References

Survey No. AA-2177

SEE ATTACHED SHEETS

10. Geographical Data

Acreage of nominated property 857

Quadrangle name ODENTON **Quadrangle scale** 1:24,000

UTM References do NOT complete UTM references

	Zone	Easting	Northing		Zone	Easting	Northing
A				B			
C				D			
E				F			
G				H			

Verbal boundary description and justification

SEE ATTACHED SHEET

List all states and counties for properties overlapping state or county boundaries

state	code	county	code
state	code	county	code

11. Form Prepared By

name/title LORI O'DONNELL, LEX CAMPBELL, MARTHA WILLIAMS

organization R. CHRISTOPHER GOODWIN & ASSOC., INC. **date** OCTOBER 30, 1996

street & number 241 EAST FOURTH STREET, SUITE 100 **telephone** 301-694-0428

city or town FREDERICK **state** 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
Shaw House
21 State Circle
Annapolis, Maryland 21401
(301) 269-2438

MARYLAND HISTORICAL TRUST
DHCP/DHCD
100 COMMUNITY PLACE
CROWNSVILLE, MD 21032-2023
514-7600

PS-2746

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Verbal boundary description and justification

The survey and historic district boundary includes the entire Dairy Farm property defined by the USNA, Dairy Farm real property records (1996).

Table 1: Architectural Resources Located at the USNA, Dairy Farm

FACILITY NUMBER	FACILITY NAME	DATE OF CONST.	ORIGINAL USE	CURRENT USE	FACILITY TYPE	USER	NATONAL REGISTER STATUS
002DF	Fire Station	1915	Fire Station	Fire Station	Bldg	USNA	NR District/ Contributing
025DF	Dairy Plant	1915	Admin./Pasteurization (1915)	Dairy Plant	Bldg	USNA	NR District/ Contributing
026DF	Dairy Plant	1918	Chemical Laboratory	Dairy Plant	Bldg	USNA	NR District/ Contributing
028DF	Dairy Plant	1915	Barn	Dairy Plant	Bldg	USNA	NR District/ Contributing
029DF	Dairy Plant	1915	Barn	Dairy Plant	Bldg	USNA	NR District/ Contributing
030DF	Dairy Plant	1915	Barn	Dairy Plant	Bldg	USNA	NR District/ Contributing
031DF	Dairy Plant	1915	Barn	Dairy Plant	Bldg	USNA	NR District/ Contributing
032DF	Dairy Plant	1916	Barn	Dairy Plant	Bldg	USNA	NR District/ Contributing
038DF	Water Tank	1916	Water Tank	Water tank	Bldg	USNA	NR District/ Contributing
043DF	Dairy Plant	1941	Grain Elevator	Dairy Plant	Bldg	USNA	NR District/ Contributing
101ADF	Rental Housing	1939	Residence	Rental Housing	Bldg	USNA	NR District/ Contributing
101DF	Rental Housing	1939	Residence	Rental Housihg	Bldg	USNA	NR District/ Contributing
103DF	Rental Housing	1917	Residence	Rental Housing	Bldg	USNA	NR District/ Contributing
104DF	Rental Housing	1914	Residence	Rental Housing	Bldg	USNA	NR District/ Contributing
105DF	Rental Housing	1917	Residence	Rental Housing	Bldg	USNA	NR District/ Contributing
106DF	Rental Housing	1914	Residence	Rental Housing	Bldg	USNA	NR District/ Contributing
107DF	Rental Housing	1917	Residence	Rental Housing	Bldg	USNA	NR District/ Contributing
108DF	Rental Housing	1918	Residence	Rental Housing	Bldg	USNA	NR District/ Contributing
109DF	Rental Housing	1914	Residence	Rental Housing	Bldg	USNA	NR District/ Contributing
128DF	Rental Housing	1937	Residence	Rental Housing	Bldg	USNA	NR District/ Contributing
143DF	Detached Garage	1937	Garage	Detached Garage	Bldg	USNA	NR District/ Contributing
146DF	Detached Garage	1917	Garage	Detached Garage	Bldg	USNA	NR District/ Contributing
147DF	Detached Garage	1917	Garage	Detached Garage	Bldg	USNA	NR District/ Contributing
148DF	Detached Garage	1917	Garage	Detached Garage	Bldg	USNA	NR District/ Contributing
149DF	Detached Garage	1917	Garage	Detached Garage	Bldg	USNA	NR District/ Contributing
150DF	Detached Garage	1918	Garage	Detached Garage	Bldg	USNA	NR District/ Contributing
151DF	Detached Garage	1914	Garage	Detached Garage	Bldg	USNA	NR District/ Contributing
152DF	Detached Garage	1918	Garage	Detached Garage	Bldg	USNA	NR District/ Contributing
155DF	Dairy Plant	1941	Grain Elevator	Dairy Plant	Bldg	USNA	NR District/ Contributing
157DF	Dairy Plant	1941	Grain Elevator	Dairy Plant	Bldg	USNA	NR District/ Contributing
125DF	Pump house	1929	Pump house	Pump house	Bldg	USNA	NR District/ Non-Contributing
130DF	Dalry Plant	1942	Barn (n.d.)	Dairy Plant	Bldg	USNA	NR District/ Non-Contributing
133DF	Detached Garage	1932	Garage	Detached Garage	Bldg	USNA	NR District/ Non-Contributing
136DF	PW Shop/Dairy Plant	1947	Storage	PW Shop/Dairy Plant	Bldg	USNA	NR District/ Non-Contributing
137DF	Dairy Plant	1947	Storage	Dairy Plant	Bldg	USNA	NR District/ Non-Contributing
138DF	Dairy Plant	1947	Storage	Dairy Plant	Bldg	USNA	NR District/ Non-Contributing

Table 1: Architectural Resources Located at the USNA, Dairy Farm

139DF	Dairy Plant	1947	Storage	Dairy Plant	Bldg	USNA	NR District/ Non-Contributing
140DF	Dairy Plant	1947	Storage	Dairy Plant	Bldg	USNA	NR District/ Non-Contributing
011DF	Dairy Plant	1970	Vehicular Storage	Dairy Plant	Bldg	USNA	NR District/ Non-Contributing*
156DF	Dairy Plant	1956	Grain Elevator	Dairy Plant	Bldg	USNA	NR District/ Non-Contributing*
164DF	Dairy Plant	1956	Barn	Dairy Plant	Bldg	USNA	NR District/ Non-Contributing*
166DF	Rental Housing	1957	Residence	Rental Housing	Bldg	USNA	NR District/ Non-Contributing*
167DF	Dairy Plant	1957	Barn	Dairy Plant	Bldg	USNA	NR District/ Non-Contributing*
168DF	Rental Housing	1958	Residence	Rental Housing	Bldg	USNA	NR District/ Non-Contributing*
169DF	Detached Garage	1957	Garage	Detached Garage	Bldg	USNA	NR District/ Non-Contributing*
170DF	Detached Garage	1958	Garage	Detached Garage	Bldg	USNA	NR District/ Non-Contributing*
171DF	Detached Garage	1958	Garage	Detached Garage	Bldg	USNA	NR District/ Non-Contributing*
172DF	Dairy Plant	1963		Dairy Plant	Bldg	USNA	NR District/ Non-Contributing*
173DF	Dairy Plant	1962	Animal Shelter	Dairy Plant	Bldg	USNA	NR District/ Non-Contributing*
175DF	Prod. Storage	1965	Silo	Prod. Storage	Bldg	USNA	NR District/ Non-Contributing*
176DF	Prod. Storage	1965	Covered Troughs	Prod. Storage	Bldg	USNA	NR District/ Non-Contributing*
177DF	Prod. Storage	1966	Covered Troughs	Prod. Storage	Bldg	USNA	NR District/ Non-Contributing*
178DF	Prod. Storage	1966	Covered Troughs	Prod. Storage	Bldg	USNA	NR District/ Non-Contributing*
179DF	Prod. Storage	1966	Covered Troughs	Prod. Storage	Bldg	USNA	NR District/ Non-Contributing*
180DF	Prod. Storage	1966	Covered Troughs	Prod. Storage	Bldg	USNA	NR District/ Non-Contributing*
182DF	Prod. Storage	1968	Covered Troughs	Prod. Storage	Bldg	USNA	NR District/ Non-Contributing*
183DF	Prod. Storage	1968	Covered Troughs	Prod. Storage	Bldg	USNA	NR District/ Non-Contributing*
141DF	Rental Housing	1953	Residence	Rental Housing	Bldg	USNA	Unevaluated
142DF	PW Shop	1951		PW Shop	Bldg	USNA	Unevaluated
158DF	HazFlam. Storehouse	1948		HazFlam. Storehouse	Bldg	USNA	Unevaluated
165DF	Dairy Plant	1957		Dairy Plant	Bldg	USNA	Unevaluated
181DF	Sewage Pumping Sta.	1970		Sewage Pumping Sta.	Bldg	USNA	Unevaluated

* Resources found to be of no historical value in the 1980 survey, but not surveyed in this investigation.

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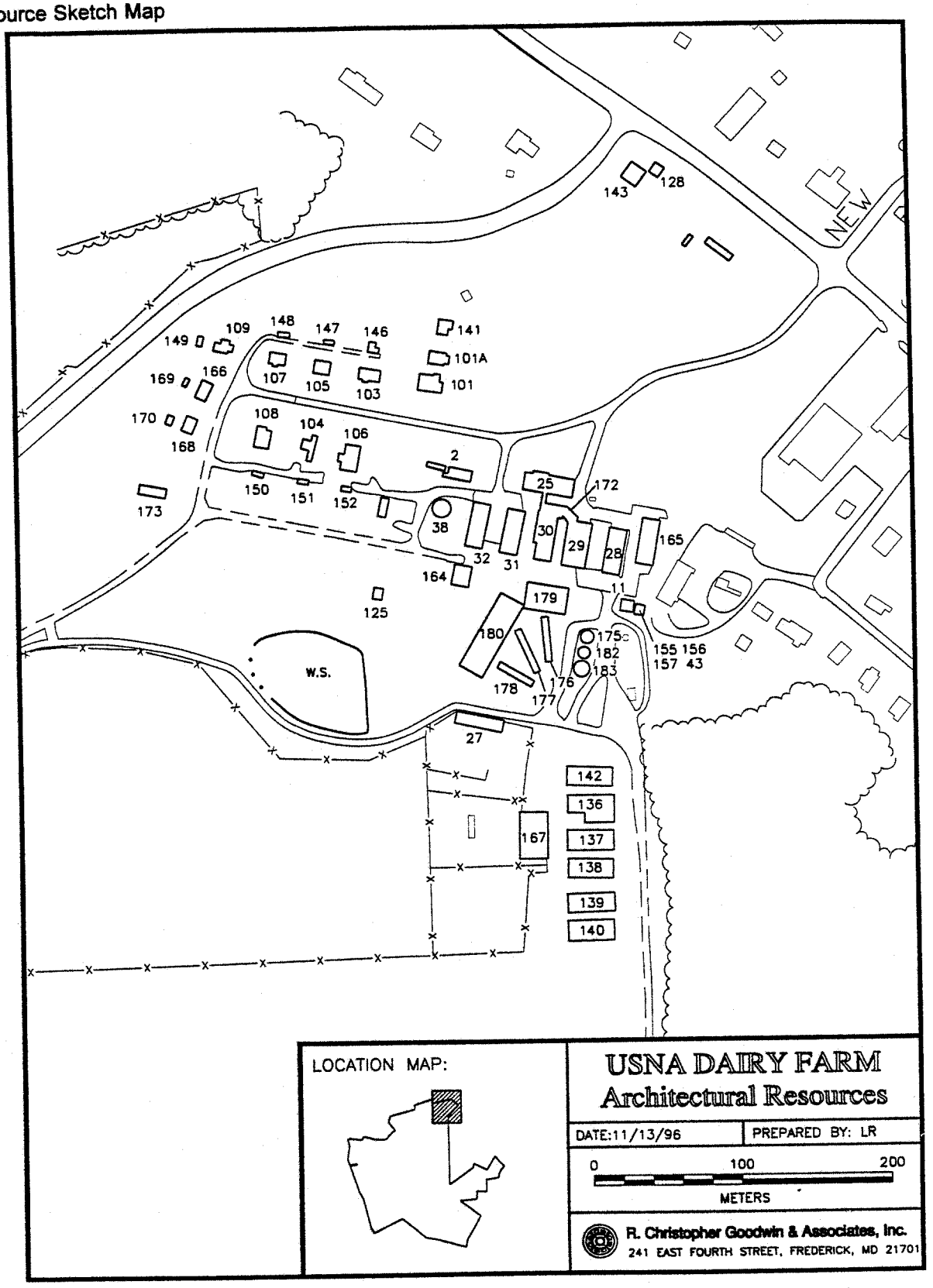
U.S. Naval Academy, Dairy Farm
Anne Arundel County
Resource Sketch Map



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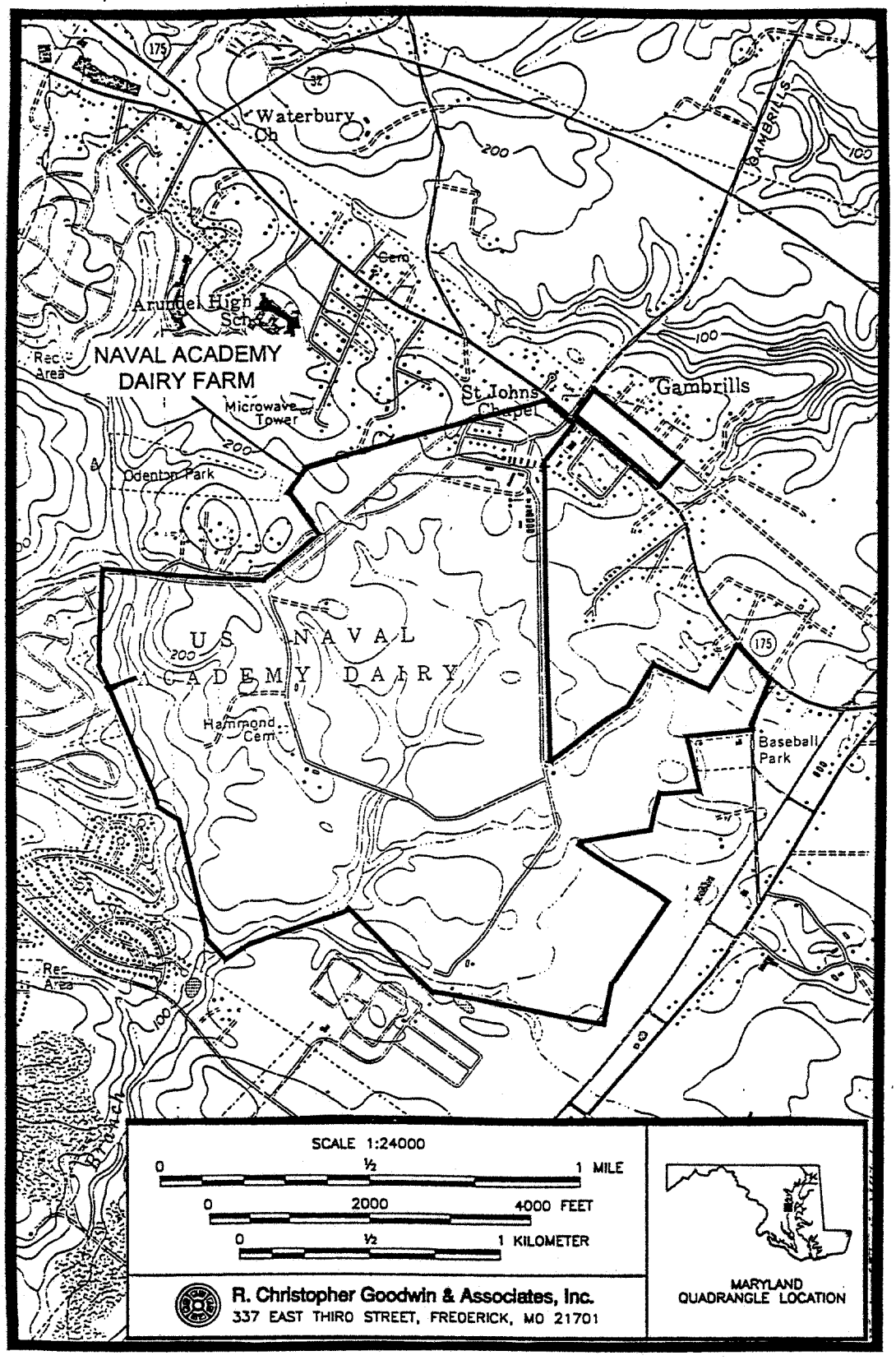
U.S. Naval Academy, Dairy Farm
Anne Arundel County
Locational Map: USGS Odenton Quadrangle Map



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Anne Arundel County

Photographer: Lex F. Campbell
R. Christopher Goodwin & Associates, Inc.

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USNA, DAIRY FARM
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SEPT. 1996
MD SHPO
SOUTH (FROM ROUTE 175), CONTEXT

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USNA, DAIRY FARM
ANNE ARUNDEL
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MD SHPO
EAST, DAIRY BARNS, CONTEXT

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USNA DAIRY FARM
ANNE ARUNDEL
L. CAMPBELL
SEPT. 1996
MD SHPO
WEST - BARNS 29-32 03:00 NNNNN 09AU 03C

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USNA DAIRY FARM
ANNE ARUNDEL
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NORTH - BUILDING 28, FRONT + SIDE

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MD SHPO
SOUTH, BUILDING 32, REAR + SIDE ELEVATIO.

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< >1CP 03:00 NNNNN+05AU 036

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USNA DAIRY FARM

ANNE ARUNDEL

L. CAMPBELL

SEPT. 1996

MD SHPO

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UNITED STATES NAVAL ACADEMY, DAIRY FARM
ANNE ARUNDEL
L. CAMPBELL
SEPT. 1996
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SOUTH, BUILDING 130, REAR SIDE ELEVATION

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UNITED STATES NAVAL ACADEMY, DAIRY F
ANNE ARUNDEL
L. CAMPBELL
SEPT. 1996
MD SHPO
SOUTH, BUILDING 328, FRONT + SIDE ELEV

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USNA DAIRY FARM

ANNE ARUNDEL

L. CAMPBELL

SEPT. 1996

MD SHPO

SOUTH, BUILDING 11, FRONT AND SIDE

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SEPT. 1996
MD SHPO
(E) ELEVATION, BUILDER = 166

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AA-2177
USNA DAIRY FARM
ANNE ARUNDEL
L. CAMPBELL
SEPT 1996
MD SHPO

SOUTH, BUILDING 106, SIDE + FRONT ELEVATION

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