

**MARYLAND HISTORICAL TRUST  
NR-ELIGIBILITY REVIEW FORM**

NR Eligible: yes   
no

Property Name: Robert B. Morse Water Filtration Plant Inventory Number: M33-22

Address: 10700 and 10701 Colesville Road (US 029) City: Silver Spring Zip Code: \_\_\_\_\_

County: Montgomery County USGS Topographic Map: Kensington

Owner: Washington Suburban Sanitary Commission

Tax Parcel Number: N/A Tax Map Number: N/A Tax Account ID Number: N/A

Project: M0701517 Agency: State Highway Administration(SHA)

Site visit by SHA Staff:  no  yes Name: Liz Buxton Date: April 26, 2001

Eligibility recommended  Eligibility **not** recommended

Criteria:  A  B  C  D Considerations:  A  B  C  D  E  F  G  None

Is the property located within a historic district?  no  yes Name of district: \_\_\_\_\_

Is district listed?  No  yes Determined eligible?  no  yes District Inventory Number: \_\_\_\_\_

Documentation on the property/district is presented in: MHT Inventory Form and Project review and compliance files

**Description of Property and Eligibility Determination:** *(Use continuation sheet if necessary and attach map and photo)*

The Robert B. Morse Water Filtration Plant is located on Colesville Road along the Northwest Branch of the Anacostia River in the Burnt Mills area. The site lies on approximately 9 acres that includes a portion of land patented as the "Mill Seat" in the mid-eighteenth century and was originally the location of an early mill that burned to the ground before 1788. According to historic maps, a later Grist Mill was located on the southeast side of Colesville Road along the Northwest branch until 1930 when construction of the Water Filtration plant commenced. Colesville Road (US 29) which is now a six-lane highway also known as Columbia Pike bisects the site.

Built in 1930-1936, the Robert B. Morse Water Filtration Plant was an interconnected series of structures that filtered and chemically treated raw water and pumped it into the distribution system where it was delivered to consumers in Montgomery and Prince George's Counties. The plant remained in operation until 1962 when it was replaced by the Washington Suburban Sanitary Commission's plants at the Patuxent and Potomac Rivers.

The Robert B. Morse Filtration Plant is composed of a variety of remaining historic resources. The district includes a steel and concrete hollow deck (Ambursen type) dam built in 1929-30, the High-Lift Pumping Station, a Georgian Revival style building located on north side of Colesville Road (1936); the Low-Lift Pumping Station, a Georgian Revival Style building located on south side of Colesville Road (1936); a Preliminary Sedimentation Basin (filled and paved over and now serves as a parking lot) and a one story brick storage shed located behind Low Lift Pumping Station at end of the Sedimentation Basin. Five of the six original lampposts that were erected on the Basin walls are extant but the lights and globes are missing. An irregular

<b>MARYLAND HISTORICAL TRUST REVIEW</b>	
Eligibility recommended <input checked="" type="checkbox"/>	Eligibility not recommended <input type="checkbox"/>
Criteria: <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D	Considerations: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/> G <input type="checkbox"/> None
Comments: _____	
<u>Andrew Lewis</u> Reviewer, Office of Preservation Services	<u>05/17/01</u> Date
<u>B. Kuntz</u> Reviewer, NR program	<u>5/23/01</u> Date

✓-entered

MARYLAND HISTORICAL TRUST  
NR-ELIBILITY REVIEW FORM

M:33-22

Continuation Sheet No. 1

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coursed stone flood containment wall located along the eastern bank of Northwest Branch of the Anacostia River from the dam to US 29 is also a contributing structure in the district. (See attached MHT State Historic Sites Inventory Form for detailed description of resources)

The Morse Plant represents a significant period in the design history of water filtration plants constructed between 1900 and 1950 when public water filtration systems reached maturity. The facility represents the increased awareness of public officials of the importance of managed water systems to public health and the dependence on a safe water supply for the areas continued growth and development. The plant was a landmark achievement for the Washington Suburban Sanitation Commission and chief engineer Robert Brooks Morse. Morse was born in Montpelier Vermont in 1880 and attended Johns Hopkins University (A.B. 1901) and Massachusetts Institute of Technology (S.B.1904). The facility was named in Morse's honor after his unexpected death in 1936.

The design of the two Pumping Stations represents the general interest in the Georgian Revival Style at that time and the proliferation of the style in Montgomery County. Although some of the original windows in the two pump houses have been replaced, the original window configuration was retained and integrity of the buildings has not been compromised.

The Hydro Pumping Station, Wash Water Tanks and Filter Plant Structures were dismantled and removed from the site in 1962; however, the distinctive two Pumping Stations, Outbuilding, Preliminary Sedimentation Basin, lampposts and dam structures are extant and convey the historic and architectural significance of the complex.

According to the attached MHT Historic Sites Inventory form, the Robert B. Morse Filtration Plant is significant for its association with the formative early years of the Washington Suburban Sanitary Commission and overall suburban development on Montgomery County (Criterion A). The plant also is a distinctive example of Public Works design and construction and retains enough integrity to convey its significance. (Criterion C). Because the Robert B. Morse Filtration Plant meets Criteria A and C, is eligible for the National Register of Historic Places.

Prepared by: Liz Buxton

Date Prepared: April 26, 2001



M: 33-22

Robert B. Morse Filtration plant

Storage Shed

Montgomery County

L. Buxton

MID SHPD

Looking east

(1 of 2)



M: 33-22

Robert B. Morse Filtration Plant

Low-Lift Pumping Station

about halfway down

Li Buxton

MD 5100

Looking north (side and rear elevation)

(2 of 12)



M-33-22

Robert B Morse Filtration Plant

Low lift pump station

Montgomery County

L. Buxton

MD SHPO

Looking north west (rear of building)

(3 of 12)



M: 33-22

Robert B Morse Filtration Plant

Low Lift Pumping Station

Montgomery County

L. Buxton

mi) SHPO

looking west

(4 of 12)



M: 33-22

Robert C. Morse Filtration Plant

Low. Lift Pumping Station

Montgomery County

Le Buxton

MD SHPO

Looking east

(5 of 12)



M: 33-22

Robert B. House Filtration Plant

- Dam

Montgomery County

i. Burton

April 23, 2001

mid site

looking west

(6 of 12)



M: 33-22

Robert B. Wise F. Herdman Plant  
- Dam

Montgomery County

L. Buxton

Jan 26, 2001

MD SHPD

Looking west

(7 of 12)



17:33:22

Robert C. Moore Filtration Plant +  
-low-lift pumping station  
Montgomery County

L. Buxton

April 26, 2001

mid SHPO

Looking North east

(8 of 12)

APR 26 2001 12:33:22



M: 33-22

Robert G. House Filtration Plant

High Lift Pumping Station and Low Lift Pumping Station

Montgomery County

Le Banon

Apr 26 2004

MIL SHED

Looking Northwest

(9 of 12)



MI: 33-22

Robert B. Morse Filtration Plant

High-Volt Pumping Station

Montgomery County

L. Buxton

April 26 2001

MD SH20

Rear - looking South east

(10 of 12)



M:33-22

Vickers + B Mouse Filtration Plant  
High Lift Pumping Station

: Belver

Montgomery County

April 26, 2001

MD SH 20

Looking north - facade of building

(11 of 12)



M: 33-22

Robert B. Morse Filtration Plant

High-11ft Pumping Station

Li Buxton

Montgomery County

MD SRPD

facade - looking north

(12 of 12)

**CAPSULE SUMMARY**

**FOR**

**ROBERT B. MORSE WATER FILTRATION PLANT HISTORIC DISTRICT**

**10700 & 10701 COLUMBIA PIKE, WHITE OAK**

Montgomery County Survey Prefix & Site Number: M-33/22

Approximate Building Date: 1933-1936

Town or Vicinity in which Resource is Located: White Oak

Access: Public (limited access)

The Robert B. Morse Water Filtration Plant Historic District is significant for its associations with the early history of the Washington Suburban Sanitary Commission and the overall suburban development of Montgomery County. It also has architectural importance as an example of a period of public works design and construction. The Burnt Mills plant was designed to function as the "water supply workhorse" for Montgomery and Prince George's counties until replaced by the WSSC's plants at Patuxent and Potomac River in 1962. The facility reflects the awareness of public officials of the importance of managed water systems to public health and the community's dependence on the water supply for its expansion. Although the Morse filtration structures have been removed from the site, the distinctive pump houses and dam structure are extant and convey the historical and architectural significance of the complex. The design of these buildings well represents the general interest in the Georgian Revival in this period and the proliferation of the style in the area.

# Maryland Historical Trust State Historic Sites Inventory Form

## 1. Name (indicate preferred name)

historic Robert B. Morse Water Filtration Plant

and/or common Washington Suburban Sanitary Commission, Burnt Mills Facility

## 2. Location

street & number 10700 and 10701 Columbia Pike  not for publication

city, town Silver Spring  vicinity of congressional district 8

state MD county Montgomery

## 3. Classification

Category	Ownership	Status	Present Use
<input checked="" type="checkbox"/> district	<input checked="" type="checkbox"/> public	<input type="checkbox"/> occupied	<input type="checkbox"/> agriculture <input type="checkbox"/> museum
<input type="checkbox"/> building(s)	<input type="checkbox"/> private	<input checked="" type="checkbox"/> unoccupied	<input type="checkbox"/> commercial <input type="checkbox"/> park
<input type="checkbox"/> structure	<input type="checkbox"/> both	<input type="checkbox"/> work in progress	<input type="checkbox"/> educational <input type="checkbox"/> private residence
<input type="checkbox"/> site	<b>Public Acquisition</b>	<b>Accessible</b>	<input type="checkbox"/> entertainment <input type="checkbox"/> religious
<input type="checkbox"/> object	<input type="checkbox"/> in process	<input checked="" type="checkbox"/> yes: restricted	<input type="checkbox"/> government <input type="checkbox"/> scientific
	<input type="checkbox"/> being considered	<input type="checkbox"/> yes: unrestricted	<input type="checkbox"/> industrial <input type="checkbox"/> transportation
	<input checked="" type="checkbox"/> not applicable	<input type="checkbox"/> no	<input type="checkbox"/> military <input type="checkbox"/> other:

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

name Washington Suburban Sanitary Commission

street & number 4017 Hamilton Street telephone no.:

city, town Hyattsville state and zip code MD 20781

## 5. Location of Legal Description

courthouse, registry of deeds, etc. Montgomery County Courthouse liber 320

street & number 51 Monroe Street folio 398

city, town Rockville state MD

## 6. Representation in Existing Historical Surveys

title N/A

date  federal  state  county  local

repository for survey records

city, town \_\_\_\_\_ state \_\_\_\_\_

# 7. Description

Survey No. M: 33-22

<b>Condition</b>		<b>Check one</b>	<b>Check one</b>	
<input type="checkbox"/> excellent	<input type="checkbox"/> deteriorated	<input type="checkbox"/> unaltered	<input checked="" type="checkbox"/> original site	
<input checked="" type="checkbox"/> good	<input type="checkbox"/> ruins	<input checked="" type="checkbox"/> altered	<input type="checkbox"/> moved	date of move _____
<input type="checkbox"/> fair	<input type="checkbox"/> unexposed			

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

The Robert B. Morse Filtration Plant is sited along the Northwest Branch of the Anacostia River in the Burnt Mills neighborhood on an approximately 9 acre site that was originally bisected by the two-lane Colesville Road (now the four-lane Columbia Pike, U.S. 29). During its peak years of operation, the plant consisted of a dam, preliminary sedimentation basin, low-lift pumping station, filter plant structures, wash water tanks, high lift pumping station, and a hydro pumping station. The dam, sedimentation basin, and low-and high-lift pumping stations are extant. The two pumping stations fronting the highway were intended to be and remain the most visible structures in the district. The landscape of the plant originally was designed with extensive planting of white pines to screen the sedimentation basin, filter tanks and wash water tanks from the view of passing automobiles. Historic photographs indicate that arboretum vitae may also have been planted in front of the main pumping stations to contribute to their contextual residential design.

The filtration plant was an interconnected series of structures that filtered and chemically treated raw water and pumped it into the distribution system of Montgomery and Prince George's Counties. Dam intakes fed water by gravity through pipes to the low-lift pumping station where it received applications of alum and activated carbon and passed through aerators and filter assemblies into the sedimentation basin. The water was then pumped by the low-lift station into pipes feeding two circular filter structures above Columbia Pike. The water passed into a coagulating basin surrounding the control house and then flowed into the surrounding filters. The filtered water then was pumped through the central stacks of the control house where its clarity was inspected and lime and ammonia was added as it entered the covered reservoir that formed the filter structures' outer ring. Chlorine was then introduced as it flowed to the high lift pumps in the station building above Columbia Pike. The Washington Sanitary Suburban Commission pumped the water from the high-lift pumping station into the distribution system where it was delivered to consumers in Prince George and Montgomery County.<sup>1</sup>

Although the plant is no longer operational and the filter, wash water tanks, pumps and chemical machinery have been removed, the overall facility has considerable architectural and historic integrity and still reflects its original design intent and purpose.

## Inventory of Contributing Structures

Burnt Mills Dam (1930)

Continued

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Built in 1929-30 the steel and concrete structure is a hollow-deck (Ambursen-type) dam constructed to raise the water level of the Northwest Branch so that it could flow by gravity to the Burnt Mills Filtration Plant. The dam has two screened intakes through which the water passes into pipes leading to the filter plant. 42-inch feed pipes are routed through a brick and concrete abutment structure on the stream's eastern bank and then on to the pump station.

The dam is located in a rocky gorge characterized by steep sides and a flat bottom. The structure is 30 feet in overall height and has an ogee-shaped downstream face and a flat upstream face with a slope of approximately 1:1. The spillway section of the dam is centered over the stream channel and has a crest length of 150 feet. The spillway crest is 23 feet above the lowest part of the stream channel or 9 feet below the top of the abutment sections of the dam (230 feet above mean sea level). During approximately six months of the year (usually April to October), the spillway level was raised by 4-foot automatic wooden flashboards designed to trip when the water level rises 3.3 feet above their tops. The flashboards are no longer in place. An irregular coursed stone flood containment wall was built in the 1930s along the stream's eastern bank from the dam to a bridge culvert on the Columbia Pike (U. S. 29) and contributes to the picturesque character of the waterfall at dam site.<sup>2</sup>

High-Lift Pumping Station (1936)  
10700 Columbia Pike

Located on the north side of Columbia Pike, this structure is a two and one-half story brick Georgian/Colonial Revival building with subsidiary one-story wings. The steel-framed building has a side gabled slate roof and a simple rectangular ground plan with flanking wing extensions and a bowed one-story projecting bay with a flat roof on the rear.

The main elevation faces south toward Columbia Pike and has a symmetrical five bay facade. The Georgian style entry has a semi-circular fanlight over a paneled door entry accentuated by a pedimented frontispiece with engaged Tuscan columns. The fenestration pattern is strictly symmetrical horizontally and vertically with five-ranked double-hung sash windows with eight-over-eight or six-over-six lights. Nearly all of the window openings have stone sills and decorative keystone lintels infilled with modern compatible

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aluminum double-hung sash. Three symmetrically aligned pedimented dormer windows with six-over-six lights pierce the attic story.

The gable end facades are identical and feature central arched windows at the gable peaks with double-hung sash with six-over six lights. Two smaller rectangular windows mirror the window design of the main facade and flank the roofs of the projecting side gable one-story wings. The end facades of the one-story wings have a central paneled double door entry with flanking rectangular windows identical to the principal elevation. The design of the rear facade duplicates the front except on the first level. A one-story semicircular bay projects from the rear of the building. On each side of the bay are single panel door entries with flanking windows with six-over-six sash. These windows and doors lack the decorative keystone lintels used throughout the building.

The interior finish of the buildings was utilitarian. The floors are "Euboelith" cement colored green and all partitions are rock lumber. To provide effective insulation and sound deadening, the walls and ceilings were lined with buff or ivory colored "Corkoustic" tiles (1 1/2 inches thick). These finishes remain intact. The high-lift pumping station contained six electronically powered pumps, dry chemical machinery, pressure gauges, and laboratories to monitor chemical and bacteriological standards of the water. This machinery was removed from the building after it was taken out of service in 1962.

Low-Lift Pumping Station (1936)  
10701 Columbia Pike

Located on the south side of Columbia Pike, the low-lift pumping station is almost identical in design and materials to the two and one-half story brick Georgian/Colonial Revival building across the road. The only major difference in the structures was orientation (this station does not directly face the road but is sited with the main facade facing northwest) and the omission of the rear bowed bay and subsidiary wings on the second building. This pumping station was sited at the head of a sedimentation basin and has two rectangular concrete tanks that flank the side facades of the building. These tanks once housed filters and aerator equipment and are now filled with soil. Double panel door entries with decorative keystone lintels are offset and beside these tanks.

The interior finishes are identical to the companion pumping station on the north side of Columbia Pike. The low-lift pumping

Continued

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station also contained six electrically operated pumps, gauges for measuring the amount of water pumped into the two circular filter structures, dry-feed chemical machines and storage space for chemicals. The machinery was removed from the building when it was retired in 1962.

Preliminary Sedimentation Basin and Outbuilding (1936)

This concrete basin is located below the highway behind the low-lift pumping station (10701 Columbia Pike). The structure is 200 feet long and 110 feet wide. The depth of the basin was 6.9 to 13.9 feet and it had a capacity of 1.7 million gallons. Water flowed from the dam intakes by gravity through cast iron pipes receiving applications of alum and activated carbon at the low-lift pumping station and passed through aerators before entering the basin. Six lampposts were erected on the basin walls to light the area at night. The basin structure and walls are intact and five of the original lampposts are extant but the lights and globes are missing. The basin, filled and paved over after 1962, has served as a parking lot since the facility was retired.

A one-story square brick storage shed with a concrete foundation and pyramidal slate roof was erected directly behind the low-lift pumping station at the end of the sedimentation basin.

Razed and Dismantled Structures

Hydro Pumping Station (1936)

Situated behind the low-lift pumping station was a one-story brick rectangular structure (30 by 16 feet) with a side-gabled slate roof. This structure was located near the Northwest Branch below the sedimentation basin and contained a high-lift pump powered by both electricity and hydraulic turbine. The pump supplemented the high-lift pumping station and drew water from the filter water reservoirs and pumped it into the distribution system.

Filter Plant Structures (1934-36)

Two circular steel filter tanks with a diameter of 100 feet were once situated above Columbia Pike behind the high-lift pumping station. Each structure contained a control house and pipe vault containing piping and valves for operating the filters and vertical stacks for collecting and observing filtered water. Four

Continued

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arcuate-shaped uncovered filters surrounded the control houses, an uncovered coagulated basin surrounded the filters, and a covered filtered reservoir surrounded the coagulating basin with a capacity of 275,000 gallons. These steel structures were dismantled in 1962 when the facility was retired.

Wash Water Tanks (1934)

Two steel tanks (17.5 feet high and 16 feet in diameter) were situated on the hill above the filter structures. These tanks were removed in 1962. They were used to store the filtered water necessary to wash the filters and was connected to the control house by a 16-inch pipe.

# 8. Significance

Survey No.

M. 33-22

Period	Areas of Significance—Check and justify below		
<input type="checkbox"/> prehistoric	<input type="checkbox"/> archeology-prehistoric	<input checked="" type="checkbox"/> community planning	<input type="checkbox"/> landscape architecture
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> archeology-historic	<input type="checkbox"/> conservation	<input type="checkbox"/> law
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> agriculture	<input type="checkbox"/> economics	<input type="checkbox"/> literature
<input type="checkbox"/> 1600-1699	<input checked="" type="checkbox"/> architecture	<input type="checkbox"/> education	<input type="checkbox"/> military
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> art	<input type="checkbox"/> engineering	<input type="checkbox"/> music
<input checked="" type="checkbox"/> 1800-1899	<input type="checkbox"/> commerce	<input type="checkbox"/> exploration/settlement	<input type="checkbox"/> philosophy
<input checked="" type="checkbox"/> 1900-	<input type="checkbox"/> communications	<input type="checkbox"/> industry	<input type="checkbox"/> politics/government
		<input type="checkbox"/> invention	<input type="checkbox"/> religion
			<input type="checkbox"/> science
			<input type="checkbox"/> sculpture
			<input type="checkbox"/> social/
			<input type="checkbox"/> humanitarian
			<input type="checkbox"/> theater
			<input type="checkbox"/> transportation
			<input type="checkbox"/> other (specify)

Specific dates 1930-1936 Builder/Architect ROBERT. B. MORSE

check: Applicable Criteria:  A  B  C  D  
and/or

Applicable Exception:  A  B  C  D  E  F  G

Level of Significance:  national  state  local

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

Summary: The Robert B. Morse Water Filtration Plant Historic District is locally significant for its associations with the formative early history of the Washington Suburban Sanitary Commission and the overall suburban development of Montgomery County and for its architectural importance as a distinctive example of a period of public works design and construction.

The property on which the Washington Suburban Sanitary Commission built the Morse plant was a portion of the land patented as the "Mill Seat" in the mid-eighteenth century. An early mill burned to the ground there sometime before 1788 giving rise to "Burnt Mills" as a traditional name for the site and surrounding neighborhood. The site's favorable terrain and rapid waterfall enabled the establishment of a series of grist, saw and flour mills. These milling operations were built and operated at Burnt Mills between 1745 and 1922.<sup>3</sup>

The natural advantages of this land not only attracted early millers but also modern water managers. The creation of the Washington Suburban Sanitary Commission (WSSC) in 1916 stemmed from a growing concern that the pollution of streams in Montgomery and Prince George's County would eventually degrade the regional water supply endangering clean water sources for Washington, D.C. and threatening public health in general. For two years the WSSC surveyed existing municipal and privately owned water systems within their jurisdiction [95-square-mile] and presented a report of their findings to the Maryland General Assembly. The survey report found that there were 53 miles of water mains and 60 miles of sewers in the proposed Maryland suburban district providing service to about 25 percent of the 32,000 people living in the vicinity of the District of Columbia. Of the 17 public water systems examined, only seven met minimum health standards for drinking water. Soon after submission of the survey report, the state legislature enacted legislation in 1918 creating the WSSC as a public service corporation.<sup>4</sup>

Continued

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Soon after its creation, the WSSC began purchasing the existing water and sewer systems within its jurisdictional area and began adapting these systems into a planned bi-county water and sewer management district. This pioneering effort to establish a regional pollution control and water supply network had a profound impact on the development of Montgomery and Prince George's counties. In 1922 the Maryland General Assembly further recognized the vital importance of water and sewer management to the future planning of the region and gave the commission authority to plan highways and streets and to review all plats for subdivisions before they were recorded. These road and subdivision planning functions would later be transferred to the Maryland-National Capital Park and Planning Commission after its formation in 1928.<sup>5</sup>

The WSSC began its major operations in 1919 building a trunk line sewer in Riverdale, which was considered an emergency project. Then the agency began developing new water supply sources for the county constructing a rapid sand filtration plant at Hyattsville (1920), expanding an existing plant in 1922 at Takoma Park (1900), and adapting the system of wells at Chevy Chase to serve the needs of the district. In 1924 they began the development of their most ambitious water supply project constructed before World War II. A temporary filter plant was erected at the Burnt Mills site using salvaged pumps and equipment from a World War I facility located at Hopewell, Virginia. The Burnt Mills site consisted of a small stone intake dam, a steel coagulating basin, four wooden filters, and several galvanized iron buildings, which housed the pumps, laboratories and related equipment.<sup>6</sup>

During the next several years, the WSSC's chief engineer Robert Morse used the temporary facility as an experimental station to develop ideas for a water filtration plant, which was constructed between 1933 and 1936 at the Burnt Mills site. Prior to the construction of the new facility, Morse directed the construction of a new dam intake structure to optimize the Northwest Branch water source. The dam, completed in 1930, was never intended to create a reservoir but was designed to raise the level of the water flow in anticipation of the construction of the new filtration plant.<sup>7</sup>

Morse's experimentation led to the development of a cost effective and compact facility featuring a new kind of filter structure design that was considered a major improvement in plant efficiency

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and operation. The WSSC chief engineer developed circular filter plant structures that used concentric rings of steel for the processes of chemical application, coagulation-settling, rapid sand filtration and filtered water storage. This brought the water purification process into one self-contained unit.<sup>8</sup>

At this time conventional installations had a layout that separated the steps of the process into several structures. The major advantage of the self-contained design was the ease of expanding a facility with the addition of another self-contained unit rather than changing the capacity of the separate installations. The so called "Morse filter" design became the prototype for the construction of the WSSC water filtration facility built at the Patuxent Plant (1944-1955), which superseded Burnt Mills as the county's principal water supply facility during the 1950s. The filter plant design also influenced the layout and construction of other facilities in the eastern United States (Bristol and New Britain in Connecticut; Shillington, Irvin and New Bethlehem in Pennsylvania, and Lorton, Virginia).<sup>9</sup>

The temporary plant served the public until the first Morse filter was operational in 1934. With the completion of the new Burnt Mills facility in 1936, all other sources of WSSC water supply were abandoned. Due to heavy sedimentation at the Burnt Mills dam, a pumping station at Mink Hollow near Ashton and two-mile pipeline was built in 1939 to augment the Northwest Branch and directed raw water from the Patuxent River to the Morse Plant. At its height the facility supplied the region with 10 million gallons of water a day. The new Burnt Mills plant, designed to serve the district into the 1960s, was the "water supply workhorse" for Montgomery and Prince George's counties until completely replaced by the WSSC's filtration plants at Patuxent and Potomac River (opened in 1962).<sup>10</sup>

Between 1918 and 1938 the water and sewer systems operated by the WSSC expanded rapidly. The WSSC began with a nucleus of systems acquired from existing communities approximating 50 to 60 miles each of water mains and sewer lines serving about 1,600 customer locations. By 1938 there were more than 400 miles of water mains and close to 400 miles of sewers. Some 27,000 water connections had been put in service for a population of more than 100,000. In 20 years the commission had alleviated the pollution and water quality conditions that had created a public health crisis in the region. Despite enormous suburban growth, developed communities in Montgomery County were built with less pollution and a safe, reliable source of clean

Continued

drinking water. In this period the WSSC created a foundation for the county's water supply infrastructure that significantly influenced both the direction and nature of residential development in the twentieth century.<sup>11</sup>

The completion of the Burnt Mills plant was a landmark achievement for the WSSC and its chief engineer Robert Brooks Morse. Morse, born in Montpelier, Vermont in 1880, received his training as a civil engineer at the Johns Hopkins University (A. B. 1901) and Massachusetts Institute of Technology (S. B. 1904). After graduation from M. I. T., he obtained employment for a brief period with the United States Navy's Bureau of Construction and Repairs as a draftsman. Morse then worked for five years (1905-10) as a draftsman for the City of Baltimore's Sewerage Commission. In 1910 he became an assistant engineer for New York's Metropolitan Sewerage Commission and returned to Maryland to be employed by the Maryland State Board of Health in 1912. He was assigned the task of directing the water supply survey report for Montgomery and Prince George's counties and became the chief engineer of the WSSC at its inception.<sup>12</sup>

Morse would direct the WSSC's operations and its design and construction activities until his unexpected death at age 55 from blood poisoning in February 1936. In recognition of his service, the Burnt Mills plant was named in his honor when the facility was dedicated on June 3, 1936.<sup>13</sup>

The design of the Morse plant at Burnt Mills was under the close direction of the WSSC's chief engineer. Morse took great pride in the plant and prepared an article describing its operation and design for the Journal of the American Water Works Association.<sup>14</sup> The working drawings for the plant indicate that WSSC draftsmen prepared the drawings under Morse's direction and that the chief engineer signed them to indicate his approval. Morse chose to house the low-and high-pumping structures in buildings designed in a conservative Colonial Revival/ Georgian style. Apparently, he intended to mitigate the intrusive quality of this public works facility by designing the buildings to appear as large residences off the old Colesville Road. The identical designs of the structures creates an impression of colonial houses rather than a public utility.

The architecture of these buildings well represents the general interest in the Georgian Revival in this period and the proliferation of the style in Montgomery County. The style had strong associations with the early architecture and history of the state. As

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Montgomery County sought to establish a modern civic identity in the 1920s and 1930s, the tradition and conservatism represented by the Georgian Revival became a popular unifying theme in the county's public architecture.<sup>15</sup> Morse chose the style to reflect his nascent agency's public image in architectural form and the buildings continue to represent the most important and visible accomplishment of the WSSC's first two decades of water management.

The Morse plant well represents a significant period in the design history of water filtration plants constructed between 1900 and 1950 when public water systems reached maturity. This period has been described by public works historian J. Michael LaNier as a "new era" in water purification when "fears and trepidation" related to waterborne diseases vanished because water treatment techniques "using coagulation, rapid filtration, and chlorination had changed the role of public water supply from a 'fire protection and laying of the dust' concept to a multi-million dollar industry."<sup>16</sup>

The facility at Burnt Mills reflects this emergence of the awareness of public officials to the importance of professionally managed water systems to public health and the community's dependence on the water supply for its growth and expansion. Although the innovative Morse filtration structures have been removed from the site, the distinctive pump houses and dam structure are extant and convey the historical and architectural significance of the complex. They are a reminder of the farsighted vision of unheralded engineers and water managers who played a vital role in the building of Montgomery County.



Continuation Sheet  
M: 33-22 - Robert B. Morse Water Filtration Plant

Preservation Planning Data:

- a) Geographic Organization: Piedmont
- b) Chronological/Development Periods: Modern Period -A.D. 1930-Present
- c) Historic Period Themes: Architecture, Community Planning

**Endnotes**

1 This description of the historic appearance and original operation of the plant was derived from a 1936 pamphlet announcing the opening of the facility. See Washington Sanitary Suburban District, "A Brief Detailed Description of the Robert B. Morse Filter Plant and Appurtunant Works at Burnt Mills, Maryland," Copy of File, Engineering Library, Washington Suburban Sanitary Commission, Laurel, Maryland.

2 A detailed description and photographs of the dam and site area during the early years of the filtration plant's operation was recorded in Farrell F. Barnes and Carl B. Brown, Advance Report on the Sedimentation Survey of Burnt Mills Reservoir (Washington: U. S. Department of Agriculture, 1939), 3-5. Copy on File at the Washington Suburban Sanitary Commission, Laurel, Maryland.

3 Eleanor M. V. Cook, "The Story of Burnt Mills," The Montgomery County Story 35 (November 1992), 225-235.

4 Richard K. MacMaster and Ray Eldon Hiebert, A Grateful Remembrance: The Story of Montgomery County (Rockville, MD: Montgomery County Government and Montgomery County Historical Society, 1976), 257-258.

5 History of the Washington Suburban Sanitary Commission, 75th Anniversary, 1918-1993. (Laurel, MD: Washington Suburban Sanitary Commission, 1993), 5-23.

6 Ibid.

7 Ibid. See also Arthur Brigham, "WSSC Water Supply Work-Horse is

Continuation Sheet  
M: 33-22 - Robert B. Morse Water Filtration Plant

Retiring" and "Burnt Mills Dam." January, 1962 and March, 1966 News Releases, Copies on File at the Public Affairs Office, Washington Suburban Sanitary Commission, Laurel, Maryland.

8 Brigham, "WSSC Water Supply Work-Horse is Retiring."

9 Ibid.

10 History of the WSSC, 17-23.

11 Ibid.

12 Lawrence Trever Fadner, "Robert Morse Family History" Unpublished report, March 1992. On File at the Engineering Library at the Washington Suburban Sanitary Commission, Laurel, Maryland.

13 Brigham, "WSSC Water Supply Work-Horse is Retiring." News Release, March, 1966.

14 Robert B. Morse, "The New Water Purification Works at Burnt Mills, Maryland." Journal of the American Water Works Association 27 (June, 1935), 679-691.

15 Karin M. E. Alexis, "Government Architecture in Montgomery County: The First Half of the Twentieth Century," (Architectural History/Survey Montgomery County Historical Preservation Commission and the Maryland Historical Trust, 1988), 26-33.

16 J. Michael LaNier, "Historical Development of Municipal Water Systems in the United States, 1776-1976." Journal of the American Water Works Association 68 (April 1976), 177.

Continuation Sheet

M: 33-22 - Robert B. Morse Water Filtration Plant

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Water Filtration Histories

Continuation Sheet

M: 33-22 - Robert B. Morse Water Filtration Plant

Section 9: MAJOR BIBLIOGRAPHICAL REFERENCES

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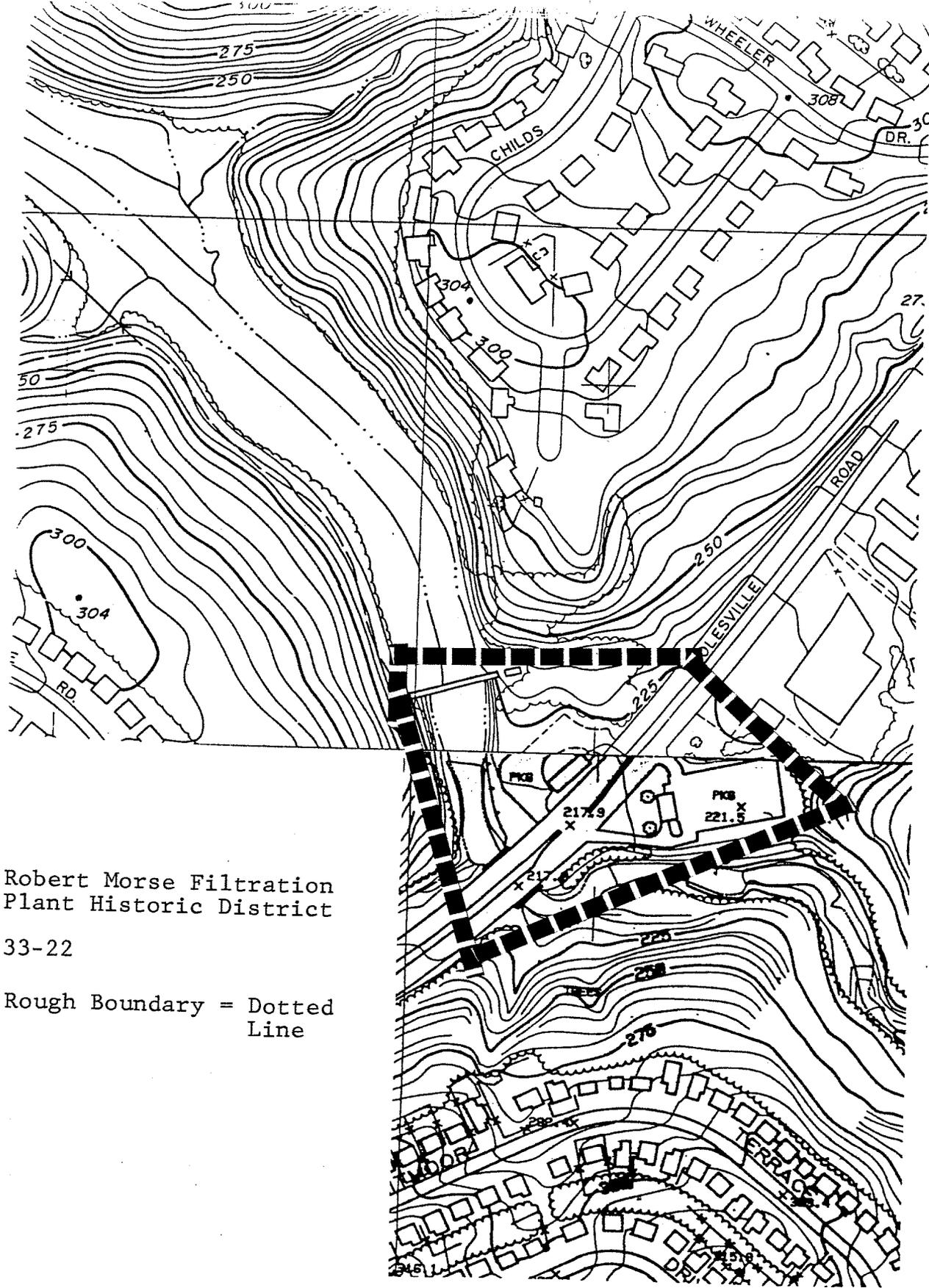
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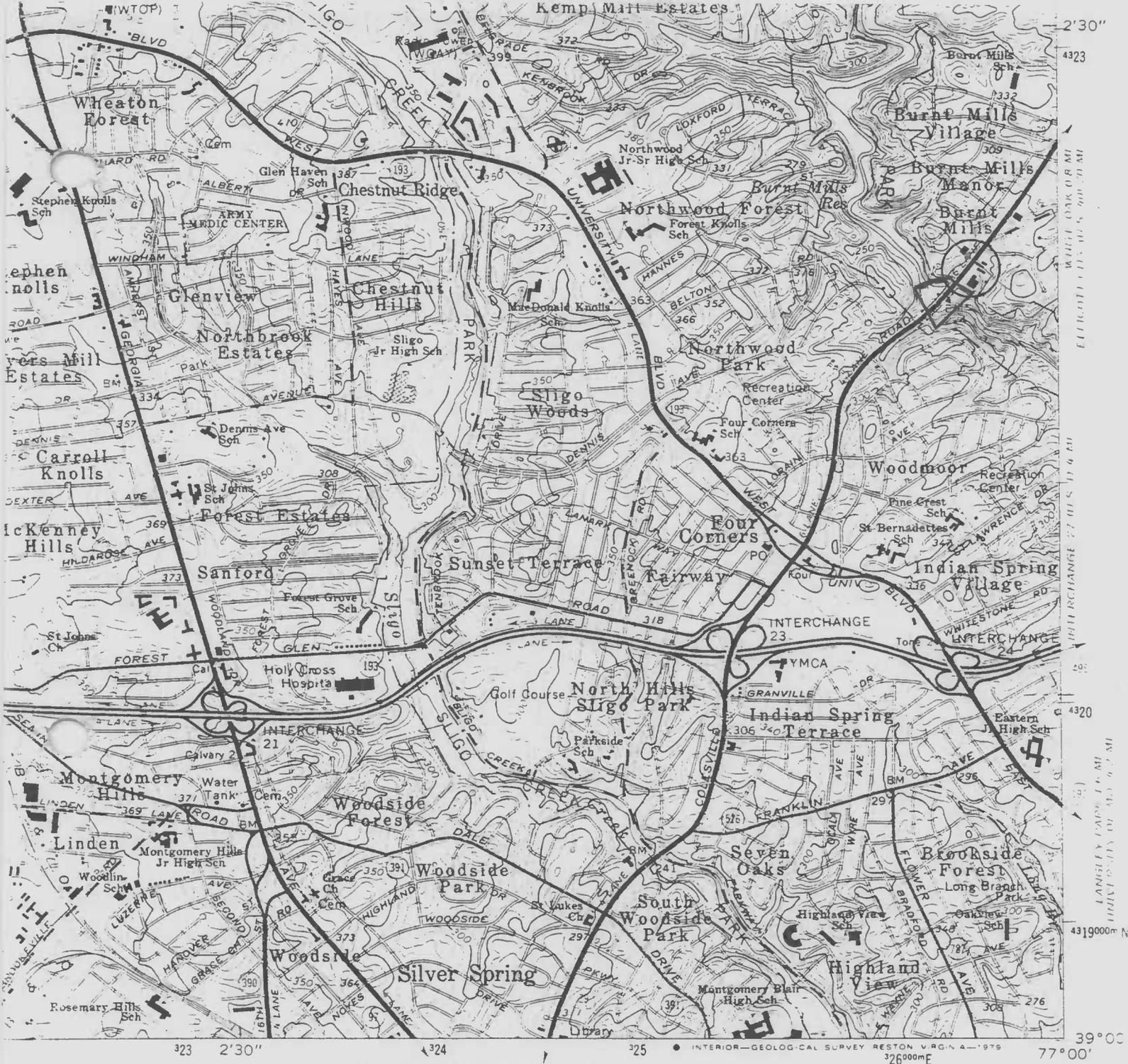
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Robert Morse Filtration  
Plant Historic District

M: 33-22

Rough Boundary = Dotted  
Line



SLIVER SPRING IRR STA. 0.5 MI. WASHINGTON U.S. 240 7 M

S 26°00' E

1 MILE

0 500 1000 FEET

0 1 2 KILOMETER

**ROAD CLASSIFICATION**

Heavy-duty  Light-duty

Medium-duty  Unimproved dirt

Interstate Route  U.S. Route  State Route

**MARYLAND HISTORICAL TRUST**  
**STATE HISTORIC SITES SURVEY FORM**  
**LOCATIONAL MAP**

**SURVEY NO. M. 33/22**  
**PROPERTY NAME: WSSC Burnt Mills Facility**  
**TOWN: Silver Spring**  
**COUNTY: MONTGOMERY**  
**QUADRANGLE: Kensington, MD**



M-33-22

ROBERT B. MOKSE H.D.  
SILVER SPRING  
MONTGOMERY COUNTY

1 OF 8

WILLIAM BUSHONG

JUNE 1994

NEG. : MARYLAND SHPO  
NE VIEW TO DISTRICT

STARLB 00868 NHH1A



M-33-22  
MORSE PLANT H. D.,

SILVER SPRING

MONTGOMERY CO.

PHOTO: BILL BUSHONG

6/94

NEG: MARYLAND SHPO

HIGH-LIFT PUMPING STATION

SOUTHEAST ELEV.

2  
2 of 8



MORSE PLANT H.D.  
SILVER SPRING  
MONTGOMERY CO.

M-33-22  
3\*8

PHOTO: BILL BASHONG  
6/94

HIGH LIFT PUMPING STATION  
NORTH WEST ELEV.

NEG: MARYLAND SHPO



MORSE H.D.

M-33-22

SILVER SPRING  
MONTGOMERY CO.

4 of 8

WM. BUSHONG

6/94

NEG: MARYLAND SAPO

NORTHWEST BRANCH + DAM

VIEW NORTH



MORSE PLANT H. D.

M-33-22

SILVER SPRING

50FB

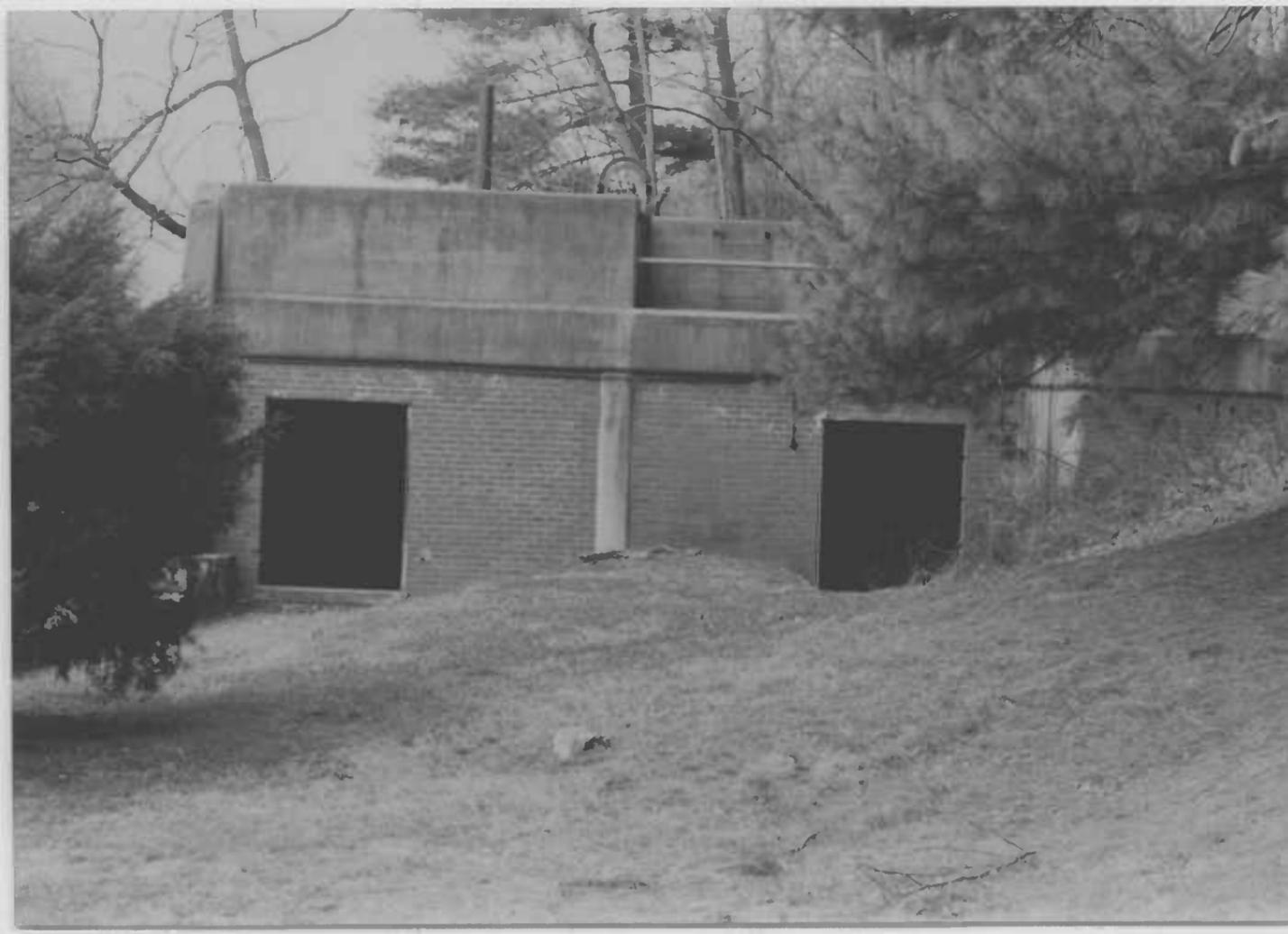
MONTGOMERY CO.

PHOTO: BILL BUSHONG

6/94

VIEW WEST

NEG.: MARYLAND SHPO



MORSE PLANT H.D.  
SILVER SPRING 1  
MONTGOMERY CO.

M-33-22  
648

PHOTO: BILL BUSHONG  
6/94

VIEW NORTH  
DAM ABUTMENT

NEG: MARYLAND SAPO



MORSE H. D.,  
SILVER SPRING  
MONTGOMERY CO.,  
WILLIAM BUSHONG  
6/94

M-33-22  
7 of 8

LOW-LIFT PUMPING STATION

WEST ELEVATION

NEG: MARYLAND SHPO



KC  
584

DUMPING

MORSE H. D.

M-33-22

SILVER SPRING

MONTGOMERY CO,

8 of 8

WILLIAM BUSHONG

6/94

OUTBUILDING AT SEDIMENTATION  
BASIN

VIEW TO SE

NEG. : MARYLAND SHPO